APPENDIX E

2040 Build Alternative 1 – Shallow Southern Bypass

Peak Hour Traffic Volume Development and

FREEVAL-E, HCS, Synchro & SimTraffic Reports

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2040 Build Alternative 1 SB
Peak Hour Traffic Volume
Development

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Alternative 1 – Shallow Southern Bypass

Volume Development

A project-level traffic forecast, titled "Traffic Forecast Technical Memorandum, Kinston Bypass Alternatives Study", was prepared and finalized in November,12 2016. This traffic forecast was used to provide peak hour volumes for the analysis of the selected alternatives in this memorandum. The traffic forecast is included in **Attachment A**.

The Intersection Analysis Utility (IAU), provided by NCDOT, was utilized to calculate AM and PM Peak Hour volumes for at-grade intersections (ramp terminals and any intersections within 1,000 feet of ramp terminals), interchange ramps, and freeway segments within interchanges. Peak hour volumes for freeway segments between interchanges were calculated by finding the forecasted daily two-way volumes along the link, then breaking the daily volume down by multiplying it by the Design Hour Volume Percentage (K), and the Peak Hour Directional Split (D). All of these volumes are shown in **BLACK** in **Figures 4A-4F.**

Volume Redistribution

For Alternative 1 SB, there were multiple instances where the designs did not match the forecast. Since this alternative includes several areas constrained by human and environmental elements, and some areas that travel through more urban settings, it was necessary to provide only partial interchanges at several locations. Because the traffic forecast assumed full movements at nearly all interchanges and intersections, substantial volume redistribution was necessary to project peak-hour traffic volumes onto the proposed roadway network. These redistribution efforts are documented in detail below.

Volumes were redistributed in the following areas:

- US 70 at Sanderson Way Ramp
- US 70 at NC 148 (C. F. Harvey Pkwy)
- US 70 at US 70BUS, which includes:
- US 70BUS at Industrial Dr
- US 70BUS Innovation Way
- US 258 at Service Rd (not present in the forecast)

US 70 at Sanderson Way Ramp

In the design, there is a US 70 eastbound exit ramp which does not exist in the forecast. The ramp connects to Sanderson Way, and proceeds to US 70 / C. F. Harvey Pkwy, as Sanderson Way does in the forecast.

US 70 at NC 148 (C. F. Harvey Pkwy)

In the design system interchange, there is no ramp allowing eastbound US 70 traffic to proceed to C. F. Harvey Pkwy southbound at this interchange. Additionally, there is no ramp connecting the southern leg of C.F. Harvey Pkwy to the western leg of US 70BUS, however the forecast does not have volumes for this movement, so it was not accounted for in the analysis.

US 70 at US 70BUS

US 70 eastbound exit ramps to US 70BUS eastbound and westbound have been removed in the design, although the movements are present in the forecast. Innovation Way was added into the analysis.

US 258 at Service Rd

Volumes on the through movements of this intersection were based on the volumes at US 70 Eastbound Ramps at US 258. The southbound through volume at US 70 EB ramps was balanced south to the Service Rd. The northbound through and right-turn movements at US 70 EB ramps were balanced south through the Service Rd. A token 4 vehicles was placed on each turning movement.

Based on these differences, it was assumed that US 70 eastbound traffic with a destination of US 70BUS and C. F. Harvey Pkwy will utilize the Sanderson Way ramp.
Traffic at the previous intersection of C. F. Harvey Pkwy and Sanderson Way will be rerouted through the new intersection of the Sanderson Way ramp and Sanderson Way.

Step 1 – Volumes

IAU volumes for Alternative 1 SB were broken out at the intersections of US 70 at C. F. Harvey Pkwy, US 70 at US 70BUS, C. F. Harvey Pkwy at Sanderson Way, and C. F. Harvey Pkwy at Industrial Dr.

In the forecast at US 70 at C. F. Harvey Pkwy, the turning movement in quadrant C was disallowed from US 70 eastbound to C.F. Harvey Pkwy southbound. It was assumed that the traffic on this movement was not accounted for anywhere else in the network. Therefore, the movement was added back into the IAU to allow for a balance within the network.

Step 2 – Volume Proportions

For both peak hours, volumes on each movement of an intersection leg were calculated as a percentage of the total inbound volume for that leg. This percentage was used to determine the proportion of traffic making a given movement for that approach. For example, based on forecast volumes at C.F. Harvey Pkwy and Sanderson Way, it is assumed that 6 percent of southbound inbound traffic on C.F. Harvey Pkwy turns right onto Sanderson Way westbound in the AM peak.

Step 3 – Determining Origins and Destinations

US 70 at C. F. Harvey Pkwy

Using the percent distributions from Step 2, the following assumptions were made to determine the origin and destination of eastbound right traffic at US 70 and C. F. Harvey Pkwy:

Eastbound Right – shown in royal blue on the diagram

1. Eastbound right traffic makes up a percentage of traffic going south on C. F. Harvey Pkwy.
2. Of traffic going south on C. F. Harvey Pkwy, a certain percentage turns right onto Sanderson Way westbound.
3. Assume the traffic with a destination of Sanderson Way westbound utilizes Sanderson Way ramp to turn right onto Sanderson Way.
4. Of traffic going south on C. F. Harvey Pkwy, a certain percentage continues south on C. F. Harvey Pkwy.
5. Assume the traffic with a destination of C. F. Harvey Pkwy southbound utilizes Sanderson Way to continue to C. F. Harvey Pkwy.

Using the above assumptions, the routes of US 70 eastbound traffic with a destination of C.F. Harvey Pkwy and Sanderson Way were determined.

C. F. Harvey Pkwy / US 70BUS at Sanderson Way

Please note that the volume redistributions were completed before final intersection designs were determined. The orientation of the intersection in the diagram differs from the final design, but the volumes remain the same. In this scenario, the northbound approach is considered to be US 70BUS westbound.

The following assumptions were made to determine the origin and destination of traffic at C. F. Harvey Pkwy / US 70BUS and Sanderson Way:

Eastbound Left – shown in orange on the diagram

1. Assume traffic turning north on C. F. Harvey Pkwy from Sanderson Way is routed through the intersection of the Sanderson Way Ramp and Sanderson Way to access C. F. Harvey Pkwy.

Using the above assumption, the route of Sanderson Way eastbound traffic with a destination of C.F. Harvey Pkwy northbound was determined.

Eastbound Right – shown in brown on the diagram

1. Assume traffic turning south on US 70BUS eastbound is routed through the intersection of the Sanderson Way Ramp at Sanderson Way to access US 70BUS.

Using the above assumption, the route of Sanderson Way eastbound traffic with a destination of US 70BUS eastbound was determined.

Northbound Left – shown in purple on the diagram

1. Assume traffic turning west on Sanderson Way from US 70BUS westbound is routed through the intersection of C. F. Harvey Pkwy / US 70BUS at Sanderson Way Ramp.

Using the above assumption, the route of US 70BUS westbound traffic with a destination of Sanderson Way westbound was determined.

Northbound Through – shown in light blue on the diagram

1. Assume northbound traffic on US 70BUS westbound will continue northbound.

Southbound Through – shown in gray on the diagram

1. Consistent with assumptions made at the intersection of US 70 and C. F. Harvey Pkwy, a percentage of southbound C. F. Harvey traffic originates from US 70 eastbound.
2. As determined previously, maintain that traffic originating from US 70 eastbound with a destination of C. F. Harvey Pkwy southbound utilizes the Sanderson Way ramp.
3. Assume a percentage of southbound traffic at C. F. Harvey Pkwy and Sanderson Way originates from C. F. Harvey Pkwy, north of US 70.
4. Traffic originating from C. F. Harvey Pkwy north of US 70 continues south on US 70BUS eastbound.

Using the above assumptions, the route of C. F. Harvey Pkwy southbound through traffic was determined.

Southbound Right – shown in pink on the diagram

1. Consistent with assumptions made at the intersection of US 70 and C. F. Harvey Pkwy, a percentage of southbound C. F. Harvey traffic at Sanderson Way originates from US 70 eastbound.
2. As determined previously, maintain that traffic originating from US 70 eastbound with a destination of Sanderson Way utilizes the Sanderson Way ramp and turns right, bypassing C. F. Harvey Pkwy.
3. Assume a percentage of southbound traffic at C. F. Harvey Pkwy and Sanderson Way originates from C. F. Harvey Pkwy, north of US 70.
4. Traffic originating from C. F. Harvey Pkwy north of US 70 is routed through the intersection of C. F. Harvey and the Sanderson Way ramp, and turns left onto Sanderson Way.

Using the above assumptions, the route of C. F. Harvey Pkwy southbound traffic with a destination of Sanderson Way westbound was determined.

US 70 at US 70BUS

Southbound Left – shown in green on the diagram

1. Southbound left traffic utilizes the Sanderson Way Ramp to turn right onto US 70BUS eastbound.

Using the above assumption, the route was determined for US 70 eastbound traffic turning onto US 70BUS eastbound.

Southbound Right – shown in red on the diagram

1. Southbound right traffic makes up a percentage of traffic going west on US 70BUS toward Industrial Dr.
2. Of westbound traffic on US 70BUS, a certain percentage turns north onto Industrial Dr.
3. Of westbound traffic on US 70BUS, a certain percentage turns south onto Industrial Dr.
4. Of westbound traffic on US 70BUS originating from US 70 eastbound, assume a certain percentage proceeds through Industrial Dr with a destination of Innovation Way (in order to access Innovation Way in the design, US 70BUS eastbound traffic must turn north into Industrial Drive, and right out back onto US 70BUS westbound).
5. In order to maintain a balanced network, volumes entering and exiting Innovation Way are equal.

Using the above assumptions, the origins, destinations, and routes were determined for US 70 eastbound traffic turning onto US 70BUS westbound.

Step 4 – Traffic Rerouting

Traffic with origin and destinations determined at C. F. Harvey Pkwy, Sanderson Way, and US 70BUS were subtracted from the routes assumed above, and added to the new ramps. The updated volumes were then determined at each interchange.

US 70 and CF Harvey Parkway Extension Freeway Analysis

FREEVAL-E does not use a Peak Hour Factor (PHF) to adjust the peak hour volumes to reflect the peak 15-minute period. Additionally, FREEVAL-E requires balanced peak hour mainline volumes, since only the beginning freeway segment and subsequent ramps have volume inputs. To provide peak 15-minute hourly flow rates for the analysis in FREEVAL-E, each of the peak hour volumes calculated for the freeway segments and ramps was divided by 0.90, which is the recommended PHF in the NCDOT Congestion Management Capacity Analysis Guidelines. To balance the peak hour volumes to use with FREEVAL-E, the highest peak 15-minute hourly flow rate was located along the US 70 corridor within the study area. Once this was located, the mainline US 70 volumes were adjusted in each direction to the eastern and western ends of the network by adding and subtracting the relevant ramp volumes.

For Alternative 1 – Shallow Southern Bypass, there were multiple instances where the designs did not match the forecast. Since this alternative includes several areas constrained by human and environmental elements, and some areas that travel through more urban settings, it was necessary to provide only partial interchanges at several locations. Because the traffic forecast assumed full movements at nearly all interchanges and intersections, substantial volume redistribution was necessary to project peak-hour traffic volumes onto the proposed roadway network.

For Alternative 1 – Shallow Southern Bypass, it theoretically would have been possible to balance the entire network; however, the various imbalances through the C.F. Harvey Pkwy and US 258 interchanges created a situation in which balanced volumes created contradictions to the traffic forecast, depending on which side of C.F. Harvey Pkwy was chosen as the balance point. For example, if the balance point was held just to the west of C.F. Harvey Pkwy, the balanced volumes at the eastern end of the project would have been opposite of the traffic forecast. In other words, the traffic forecast shows higher eastbound traffic in the PM Peak Hour on the east end of the project, but balanced volumes would show higher westbound traffic. Because of this, a balanced complete network would not have been feasible.

For Alternative 1 – Shallow Southern Bypass, the network was broken into three parts:

- The western portion of the network was balanced between the western terminus of the project and C.F. Harvey Pkwy, with the balance point being held between SR 1690 (Willie Measley Rd) and SR 1522 (Albert Sugg Rd). FREEVAL-E was utilized for this section.
- The middle of the network (from C.F. Harvey Pkwy to US 70BUS) was left unbalanced. HCS was utilized for this section.
- The eastern portion of the network was balanced between US 70BUS and the eastern terminus of the project, with the balance point being held between US 70BUS and NC 11/NC 55. FREEVAL-E was utilized for this section.

These volume adjustments are shown in **BLUE** in **Figures 4A-4F**. The ensuing pages of this appendix detail the following step-by-step process used to calculate the volumes used, as well as the various volume redistributions required by the forecast imbalances and mismatches with the roadway designs:

Step 1 – Freeway segment volumes between interchanges were calculated by multiplying the two-way daily volumes by the K and D factors.

Step 2 – Volumes for interchange ramps, and freeway segments inside interchanges were collected from the IAU breakout sheets.

Step 3 – The volumes collected in Step 2 were divided by the NCDOT default PHF of 0.90 to account for the fact that FREEVAL-E does not factor in the PHF, and the highest calculated freeway volume location was used as the base point with which to balance the US 70 freeway corridor.

Step 4 – The volumes of the subsequent freeway segments were adjusted to allow for a balanced peak hour network in both directions.

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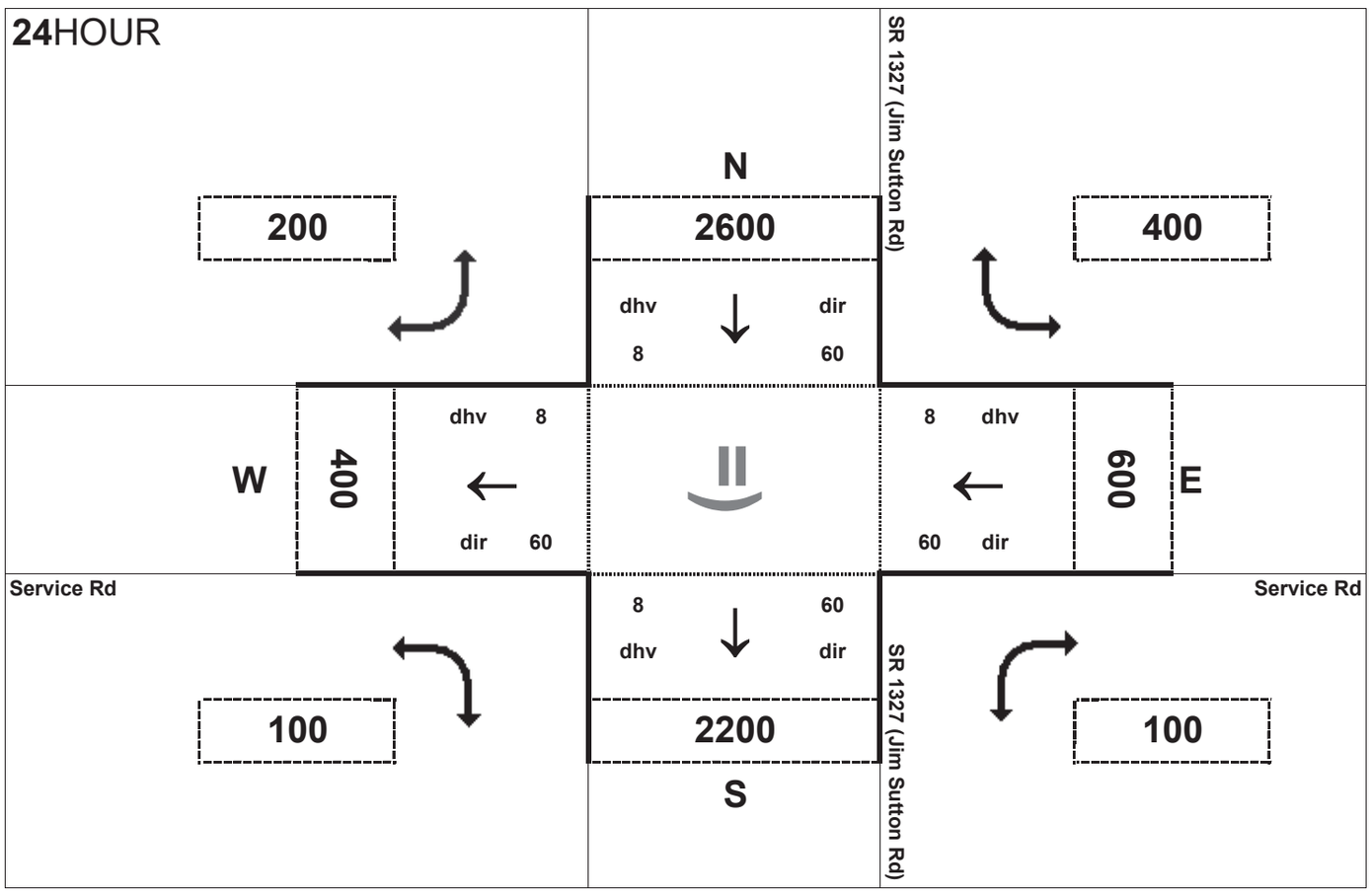
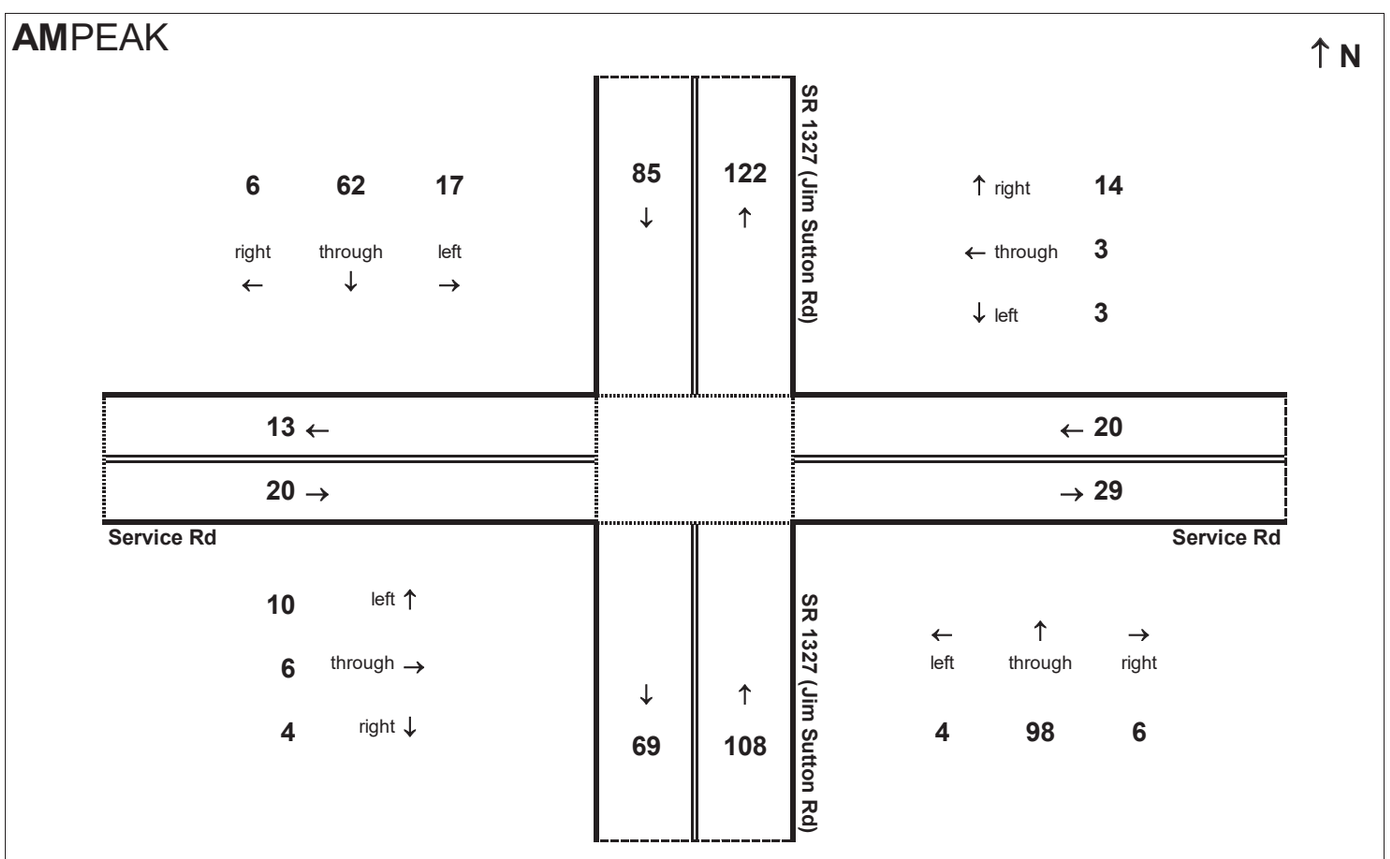
Peak Hour Volume Breakouts Report:
401 Intersection of SR 1327 (Jim Sutton Rd) at Service Rd

Traffic Forecast Release Date:
November-16

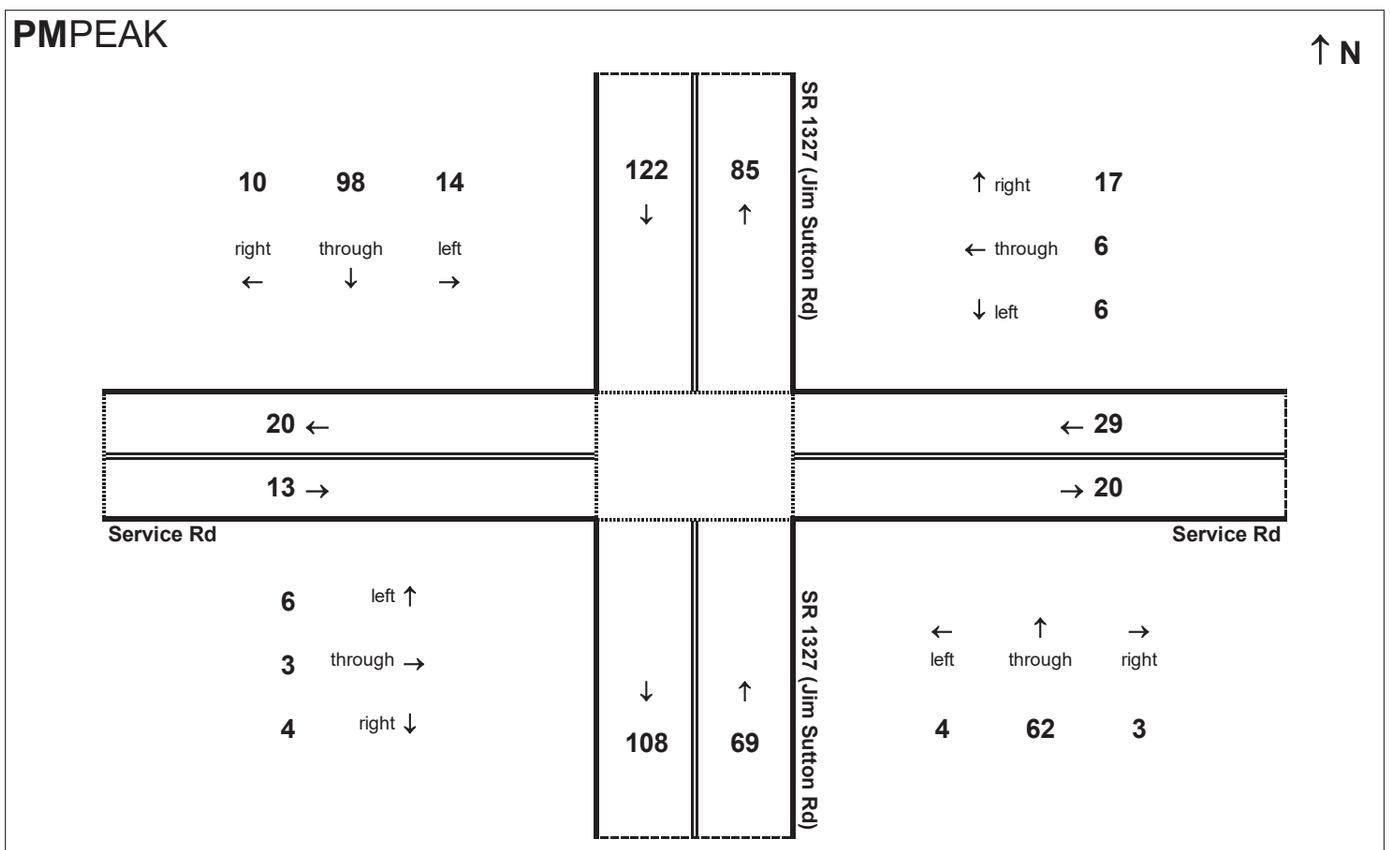
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553





AM peak hour inflow is 233 vehicles. AM peak hour outflow is 232 vehicles.



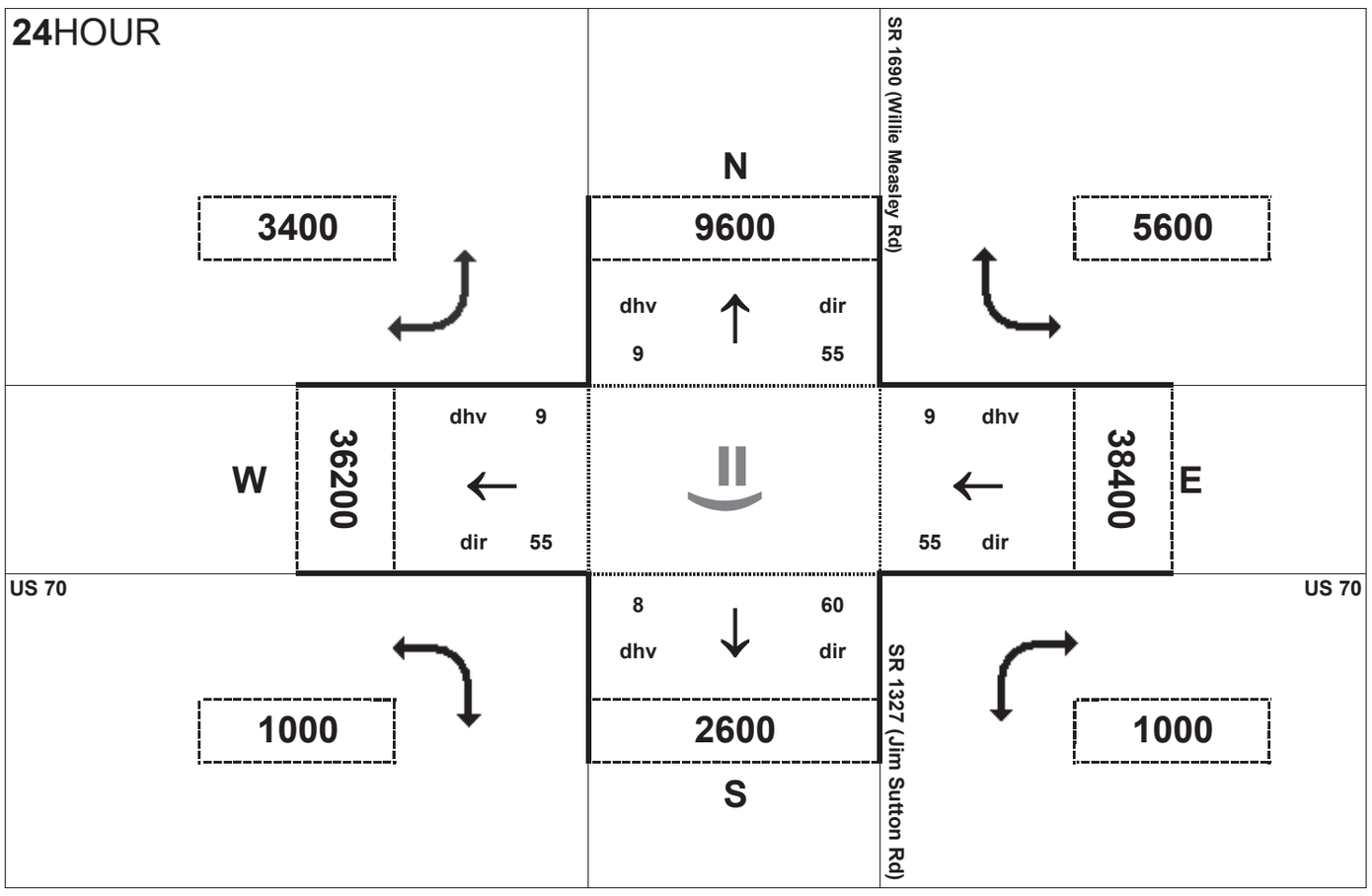
PM peak hour inflow is 232 vehicles. PM peak hour outflow is 233 vehicles.

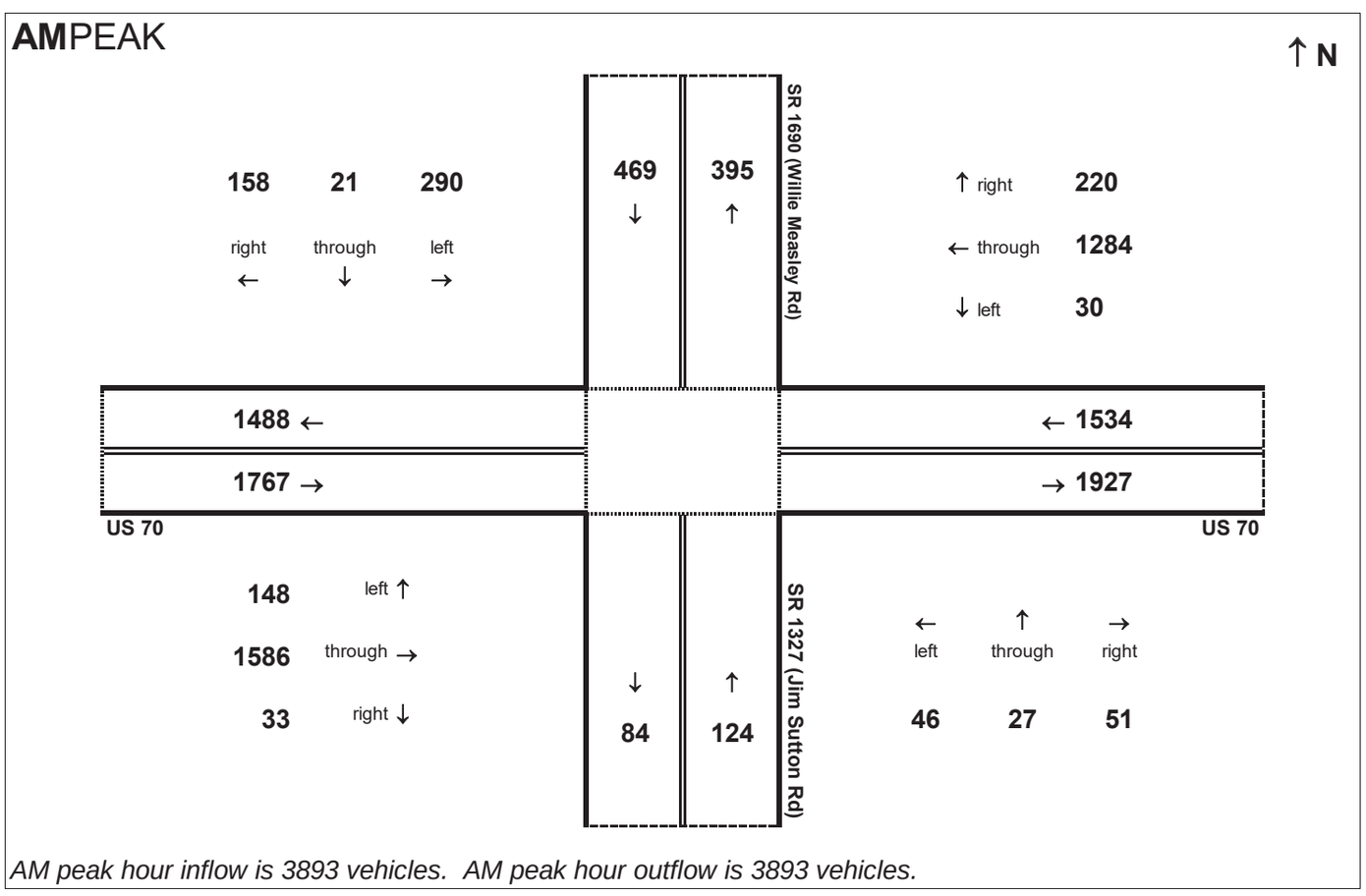
Peak Hour Volume Breakouts Report:
402-3 Intersection of US 70 and Willie Measley Rd / Jim Sutton Rd

Traffic Forecast Release Date:
November-16

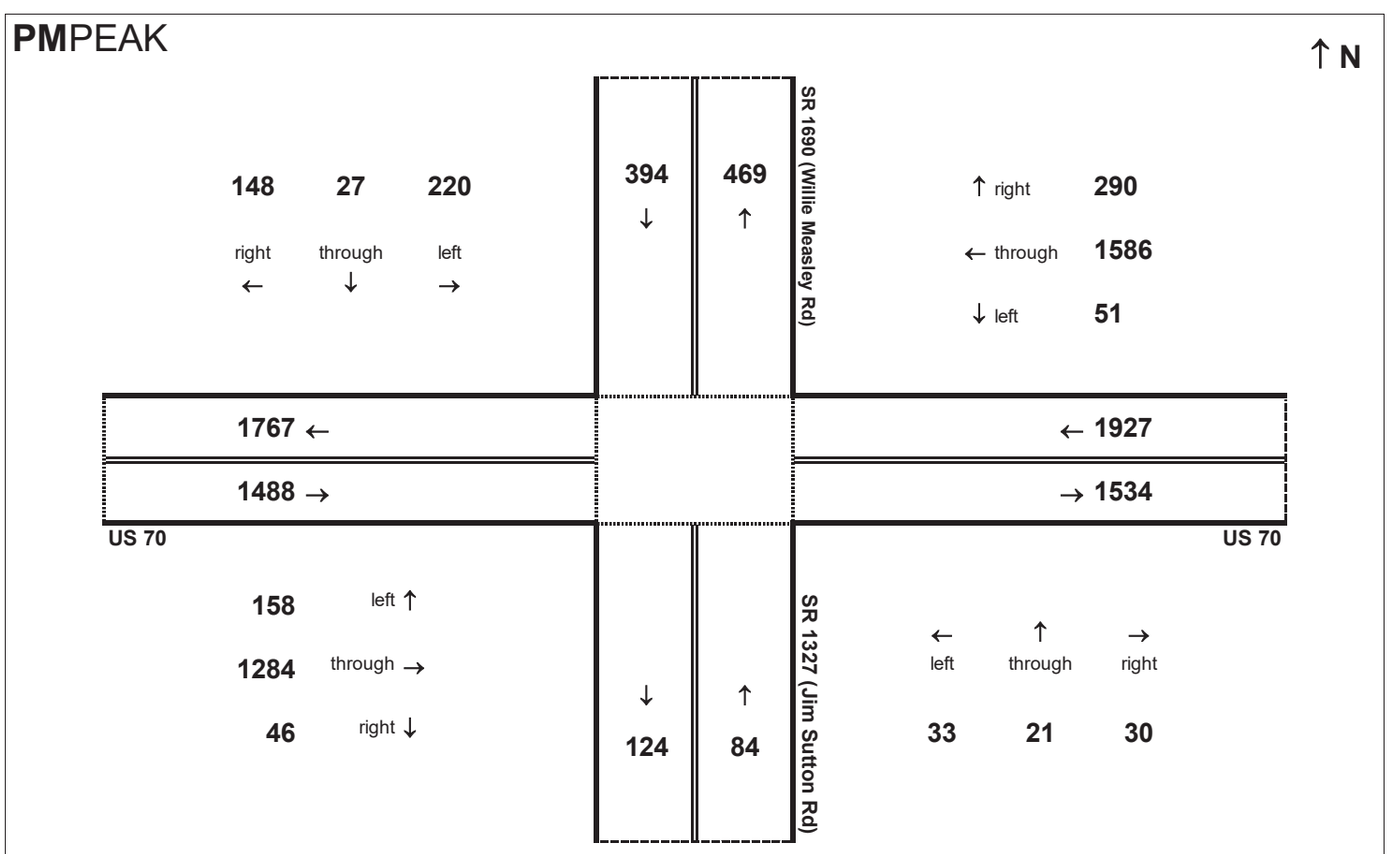
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553





AM peak hour inflow is 3893 vehicles. AM peak hour outflow is 3893 vehicles.



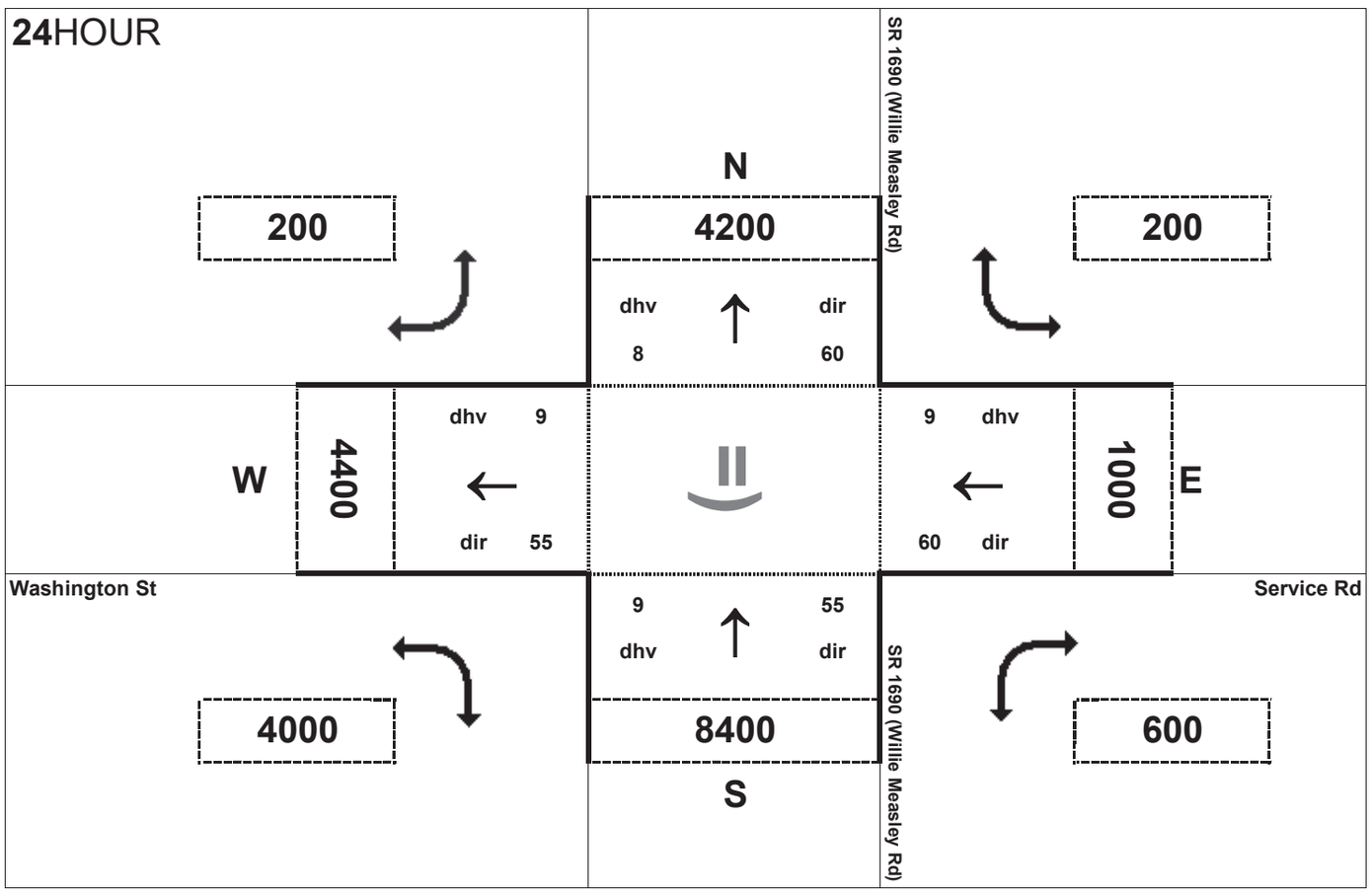
PM peak hour inflow is 3893 vehicles. PM peak hour outflow is 3893 vehicles.

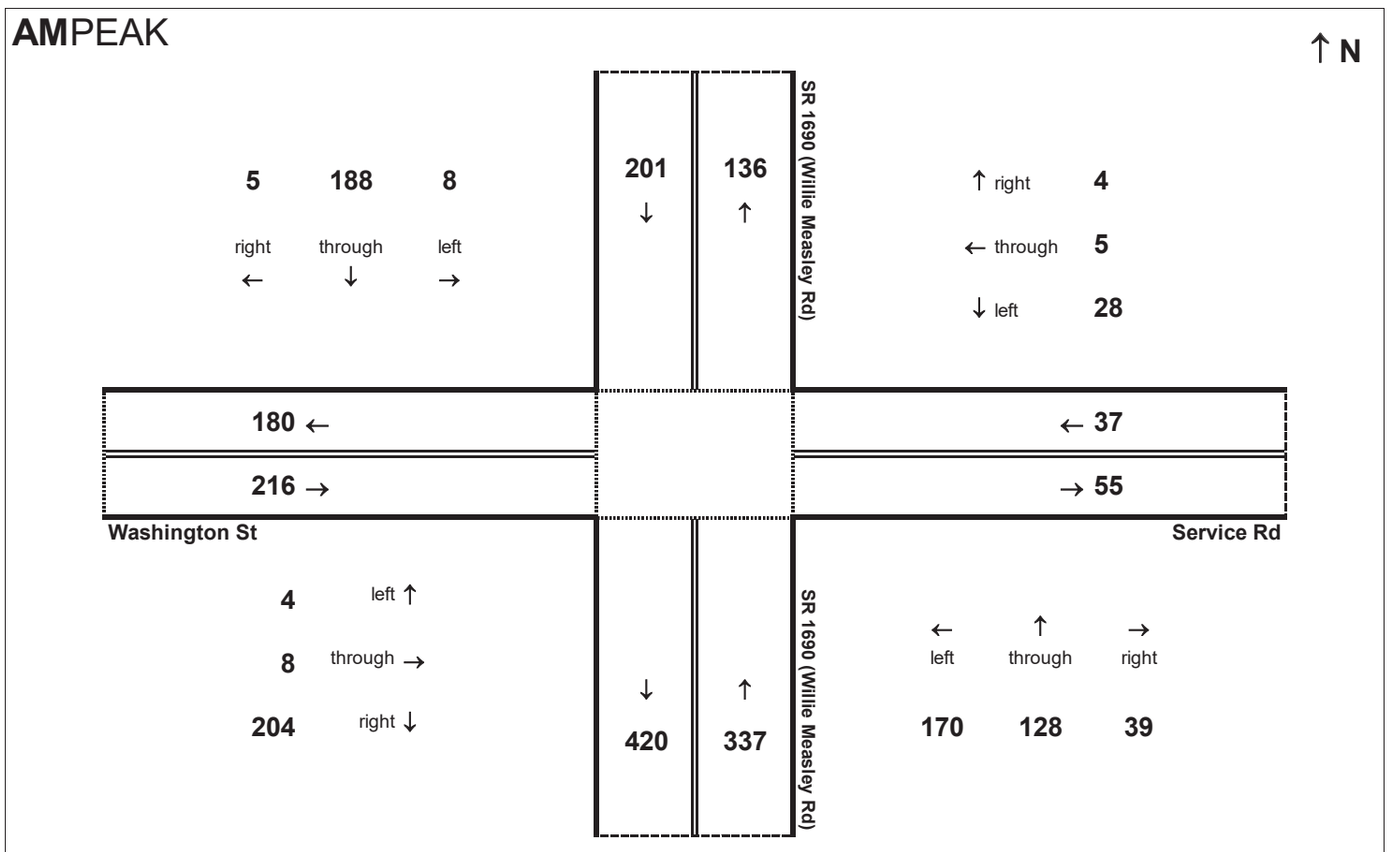
Peak Hour Volume Breakouts Report:
404 Intersection of SR 1690 (Willie Measley Rd) at SR 1603 (Washington St)

Traffic Forecast Release Date:
November-16

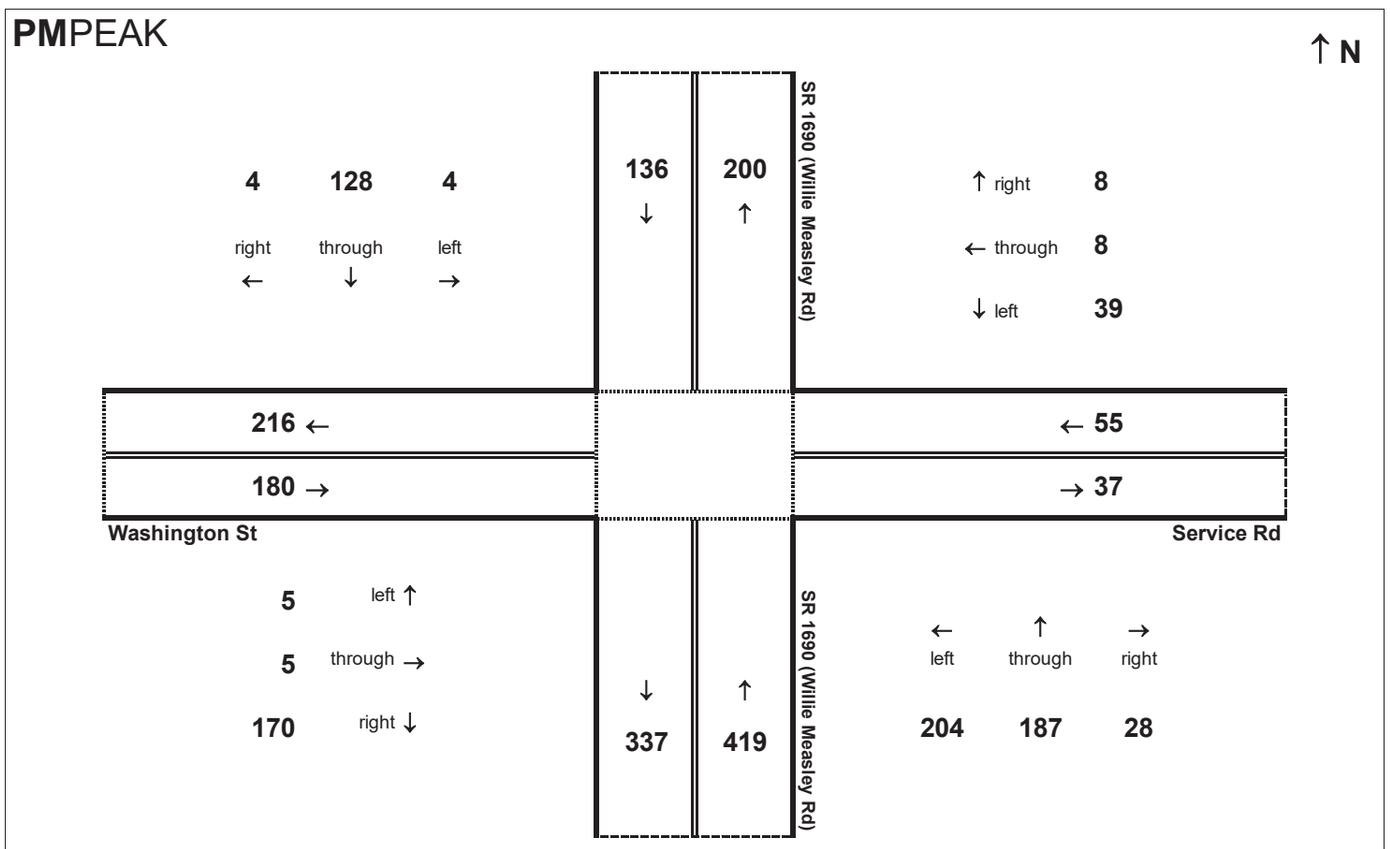
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553





AM peak hour inflow is 789 vehicles. AM peak hour outflow is 789 vehicles.



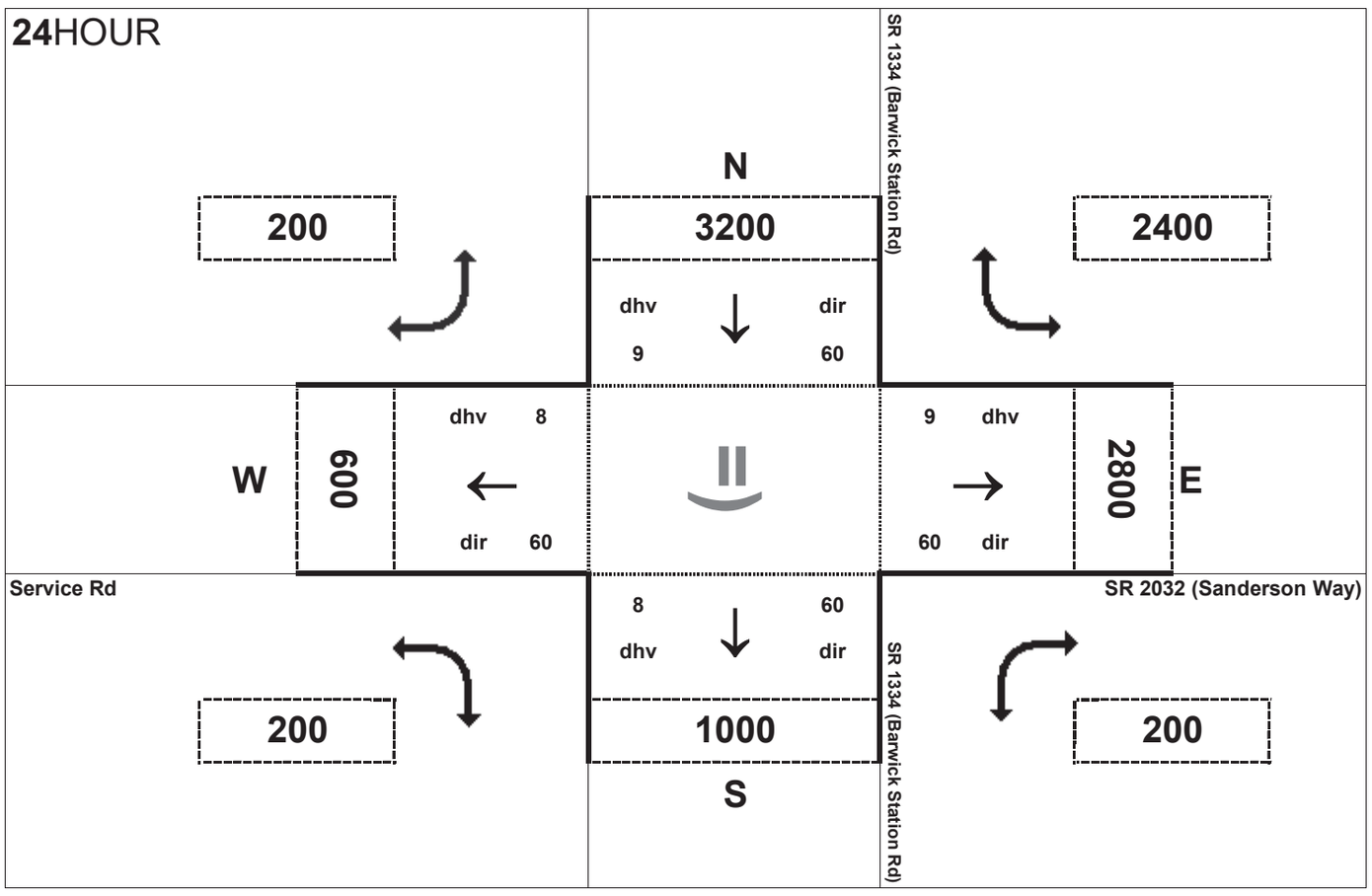
PM peak hour inflow is 789 vehicles. PM peak hour outflow is 789 vehicles.

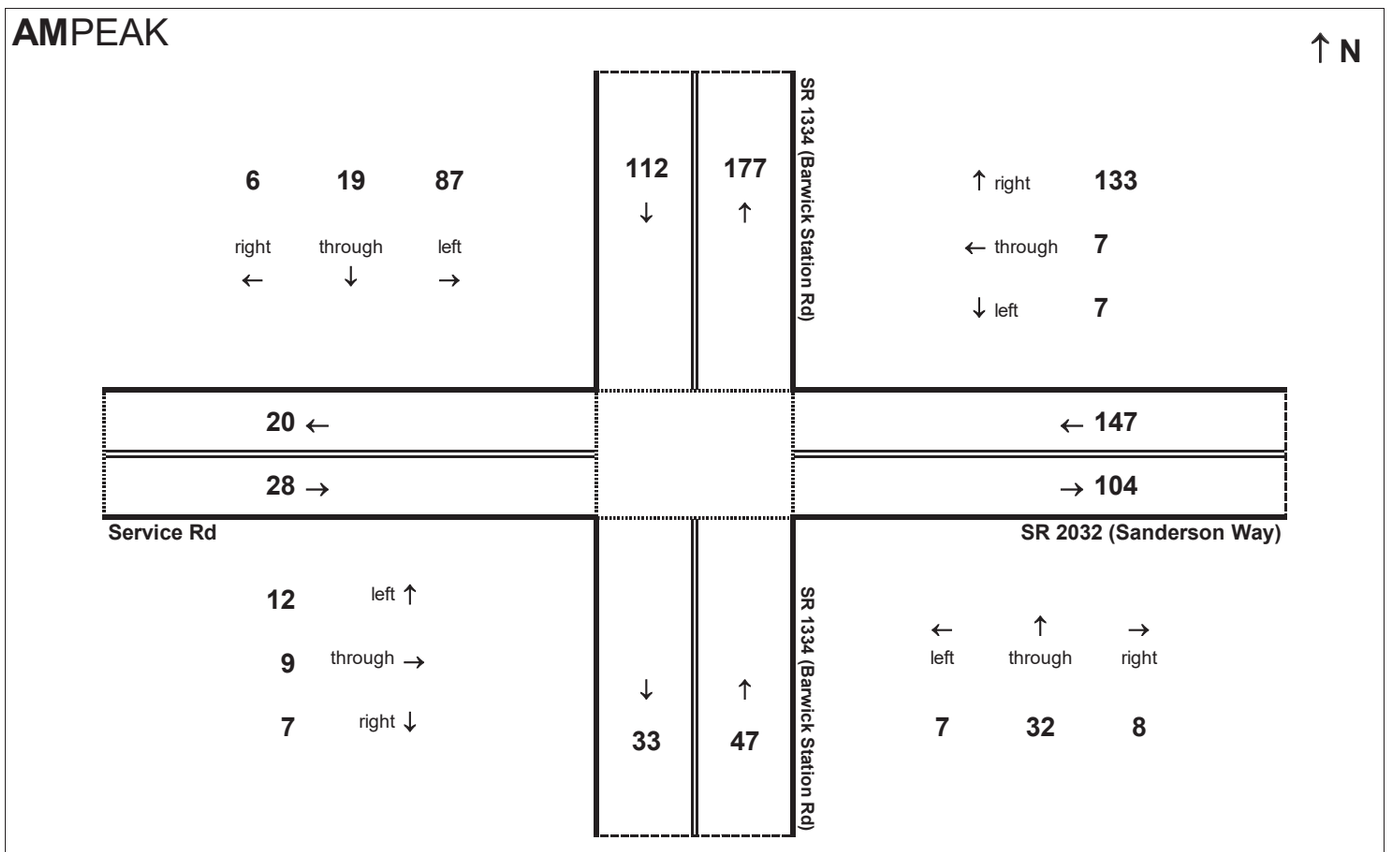
Peak Hour Volume Breakouts Report:
405 Intersection of SR 1334 (Barwick Station Rd) at SR 2032 (Sanderson way)

Traffic Forecast Release Date:
November-16

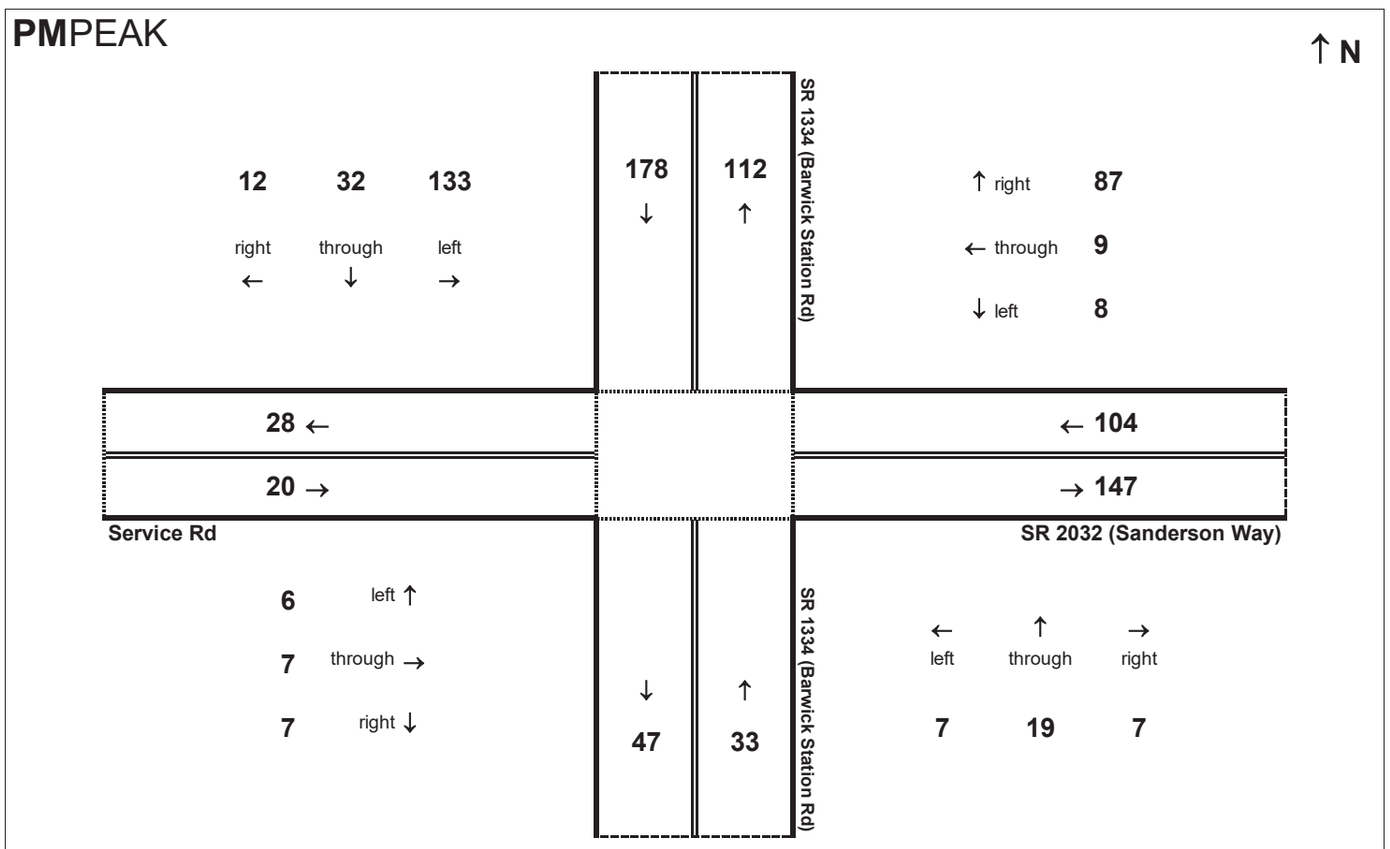
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553





AM peak hour inflow is 334 vehicles. AM peak hour outflow is 335 vehicles.



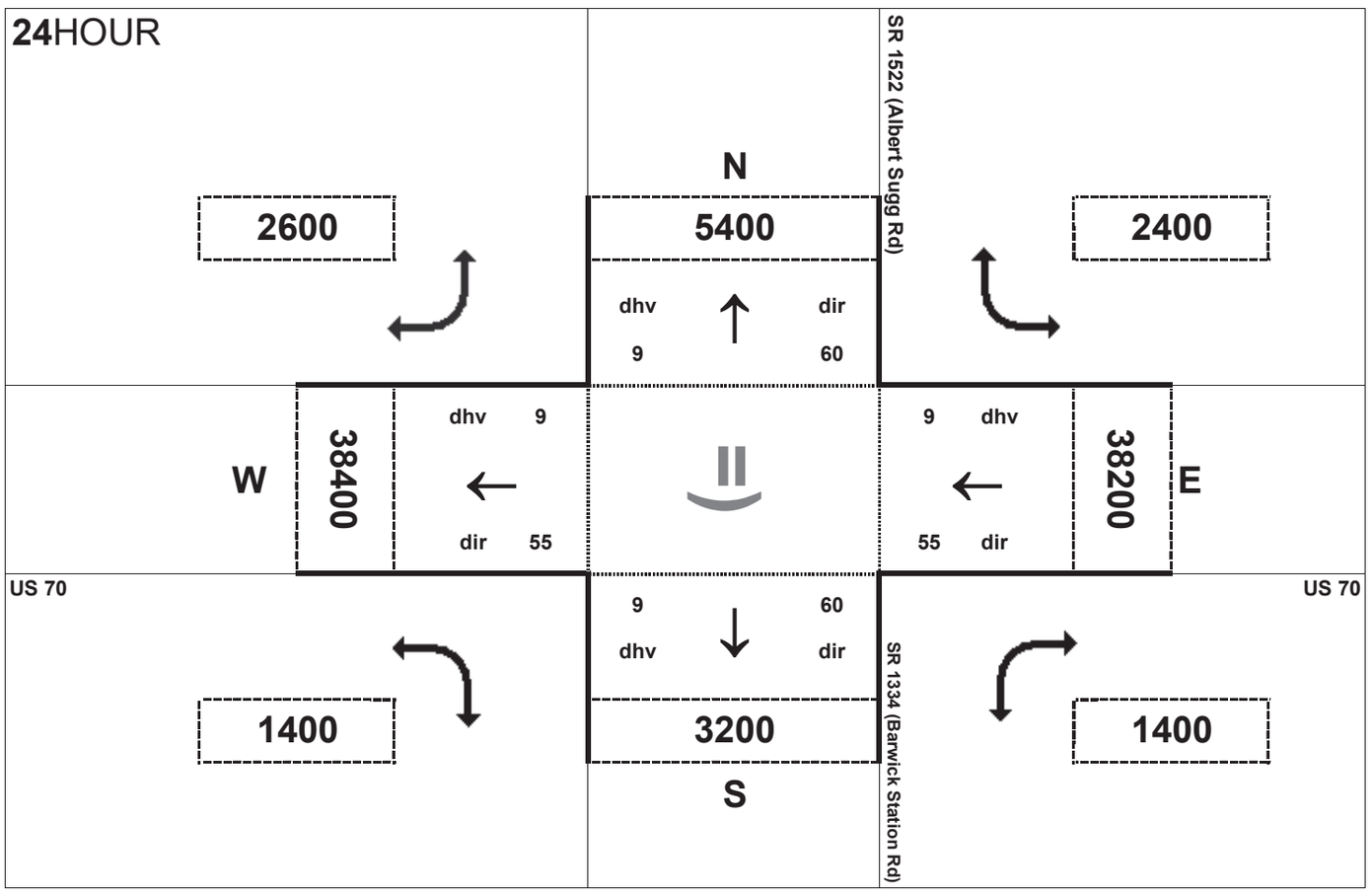
PM peak hour inflow is 335 vehicles. PM peak hour outflow is 334 vehicles.

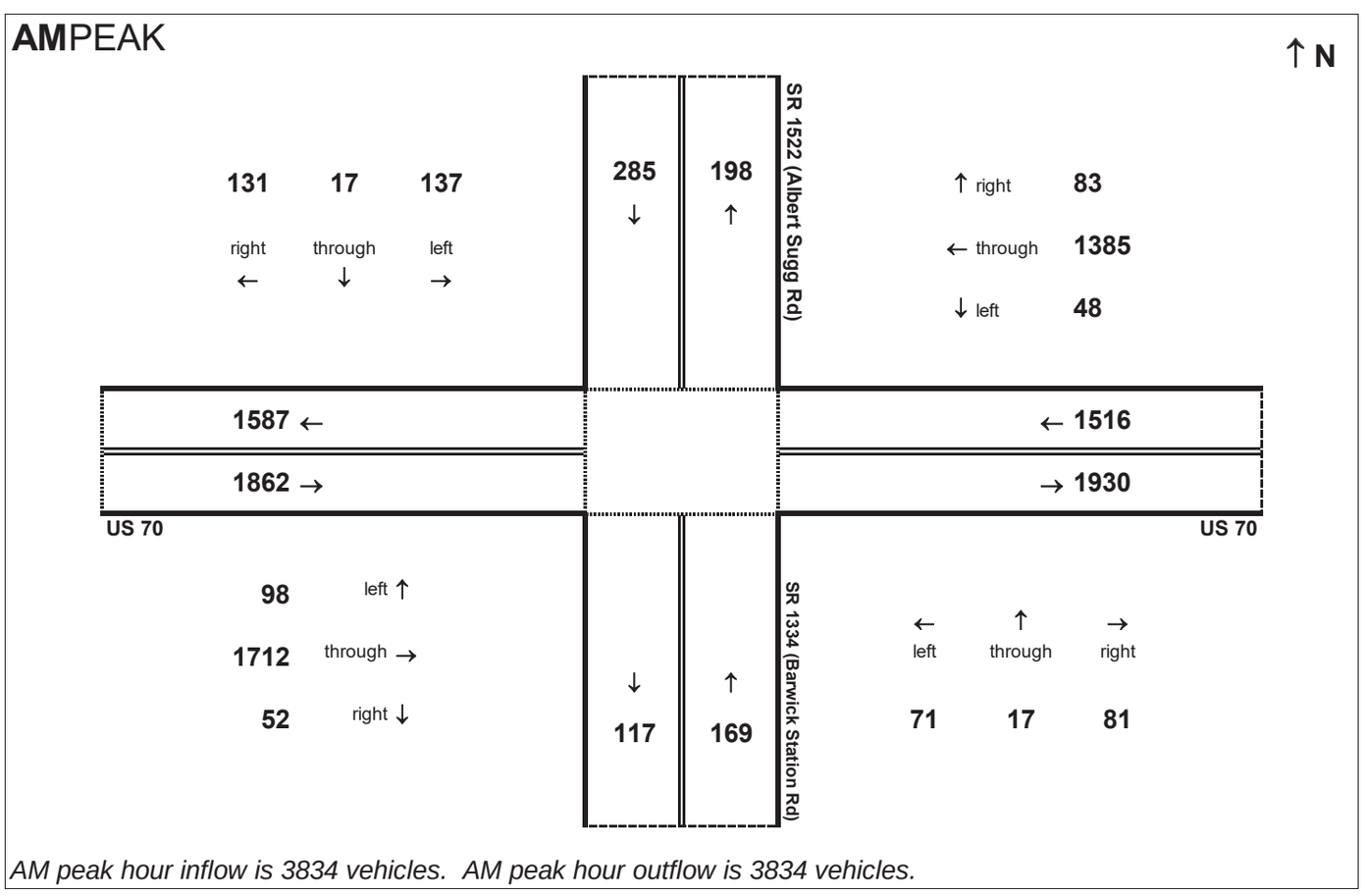
Peak Hour Volume Breakouts Report:
406-7 Intersection of US 70 and SR 1334 (Barwick Station Rd) / SR 1522 (Albert Sugg Rd)

Traffic Forecast Release Date:
November-16

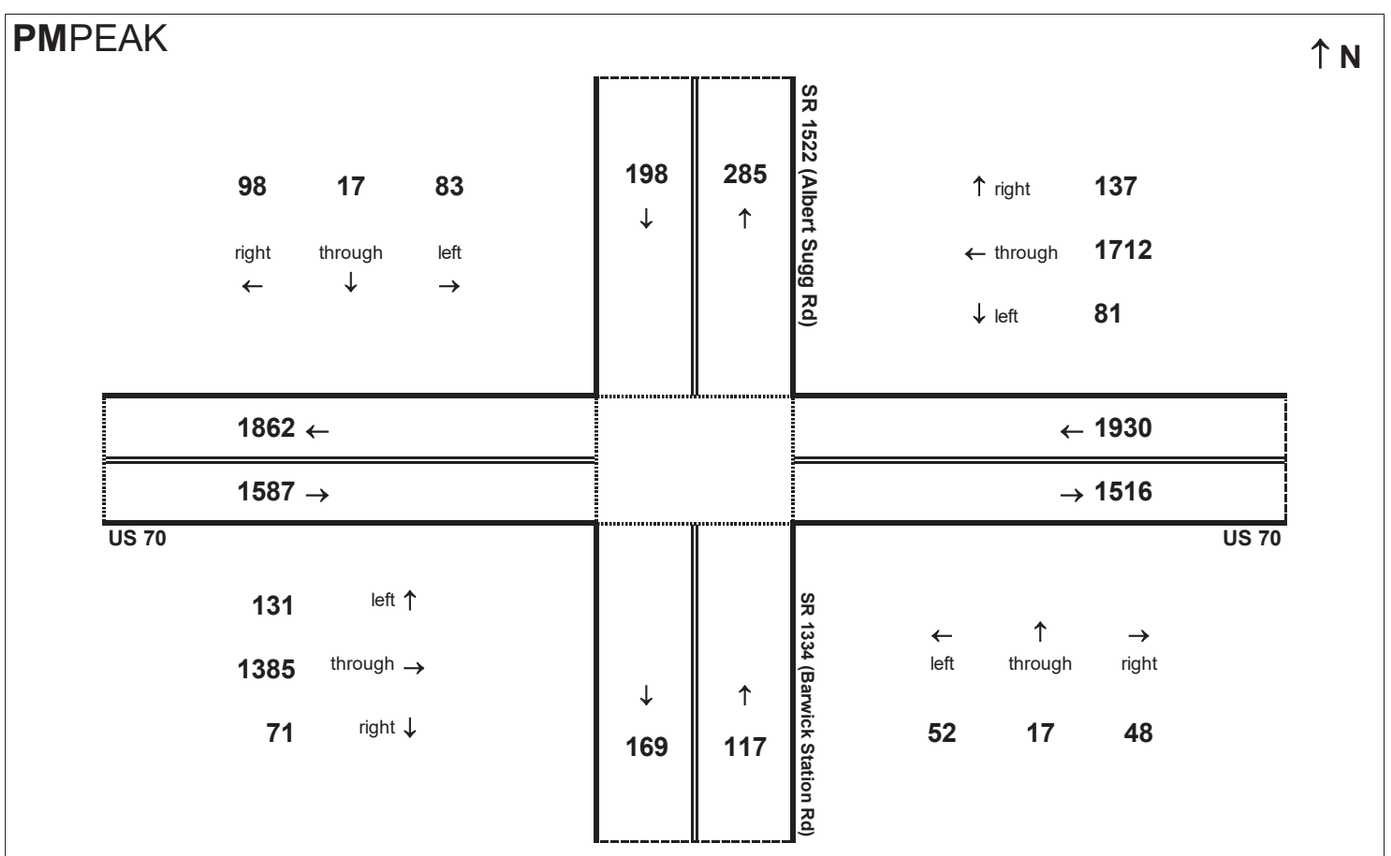
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553





AM peak hour inflow is 3834 vehicles. AM peak hour outflow is 3834 vehicles.



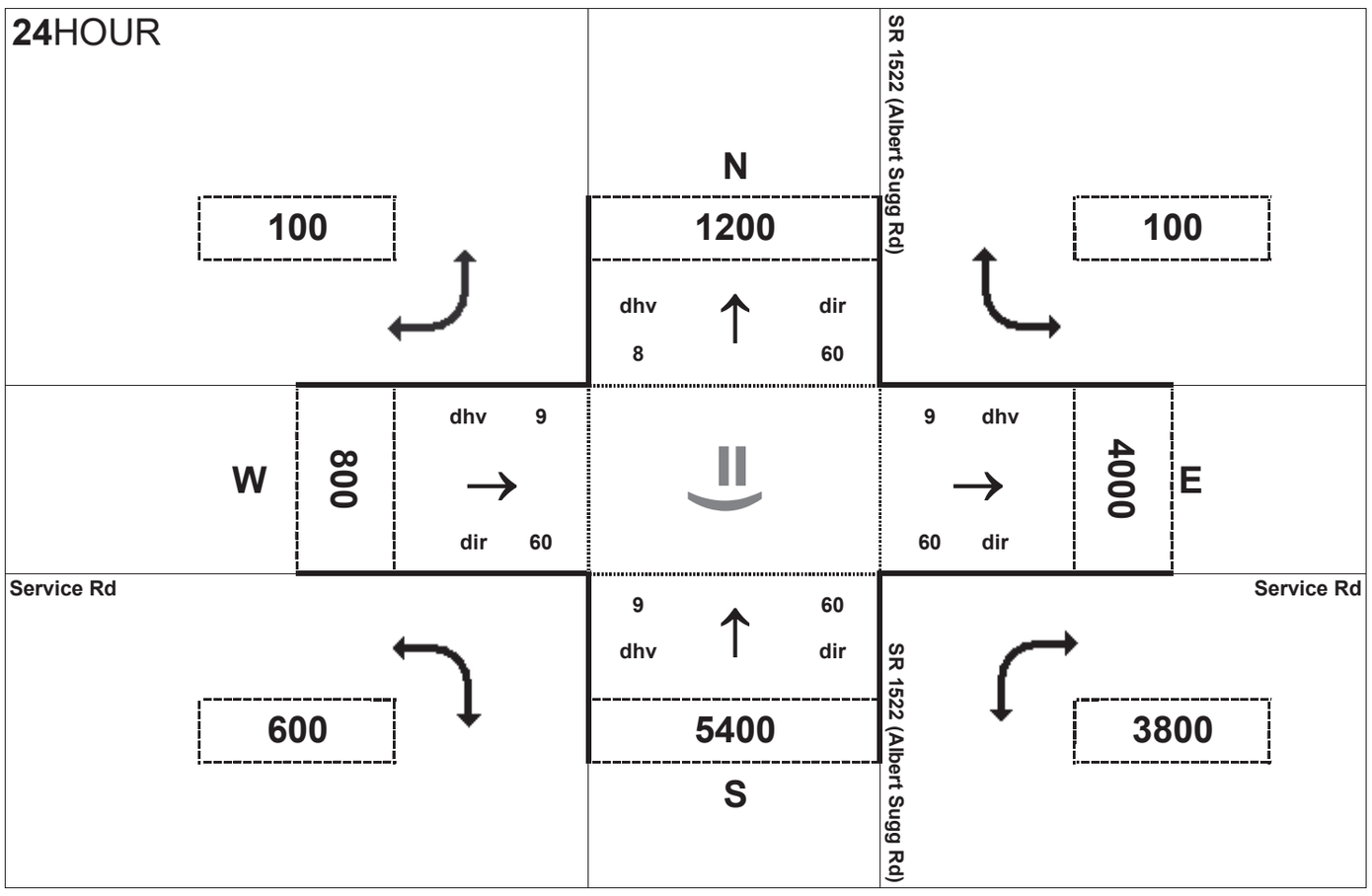
PM peak hour inflow is 3834 vehicles. PM peak hour outflow is 3834 vehicles.

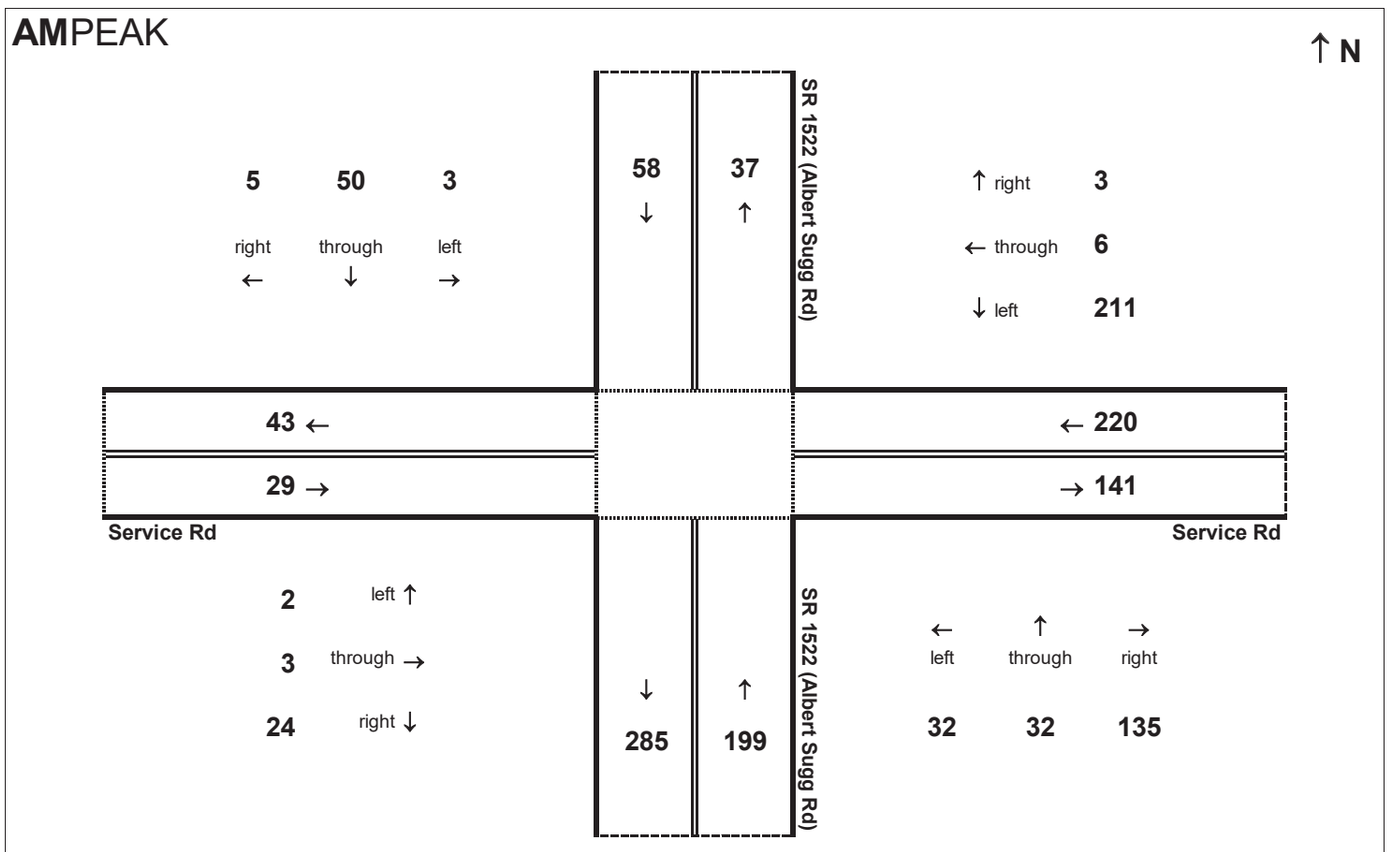
Peak Hour Volume Breakouts Report:
408 Intersection of SR 1522 (Albert Sugg Rd) at Service Rd

Traffic Forecast Release Date:
November-16

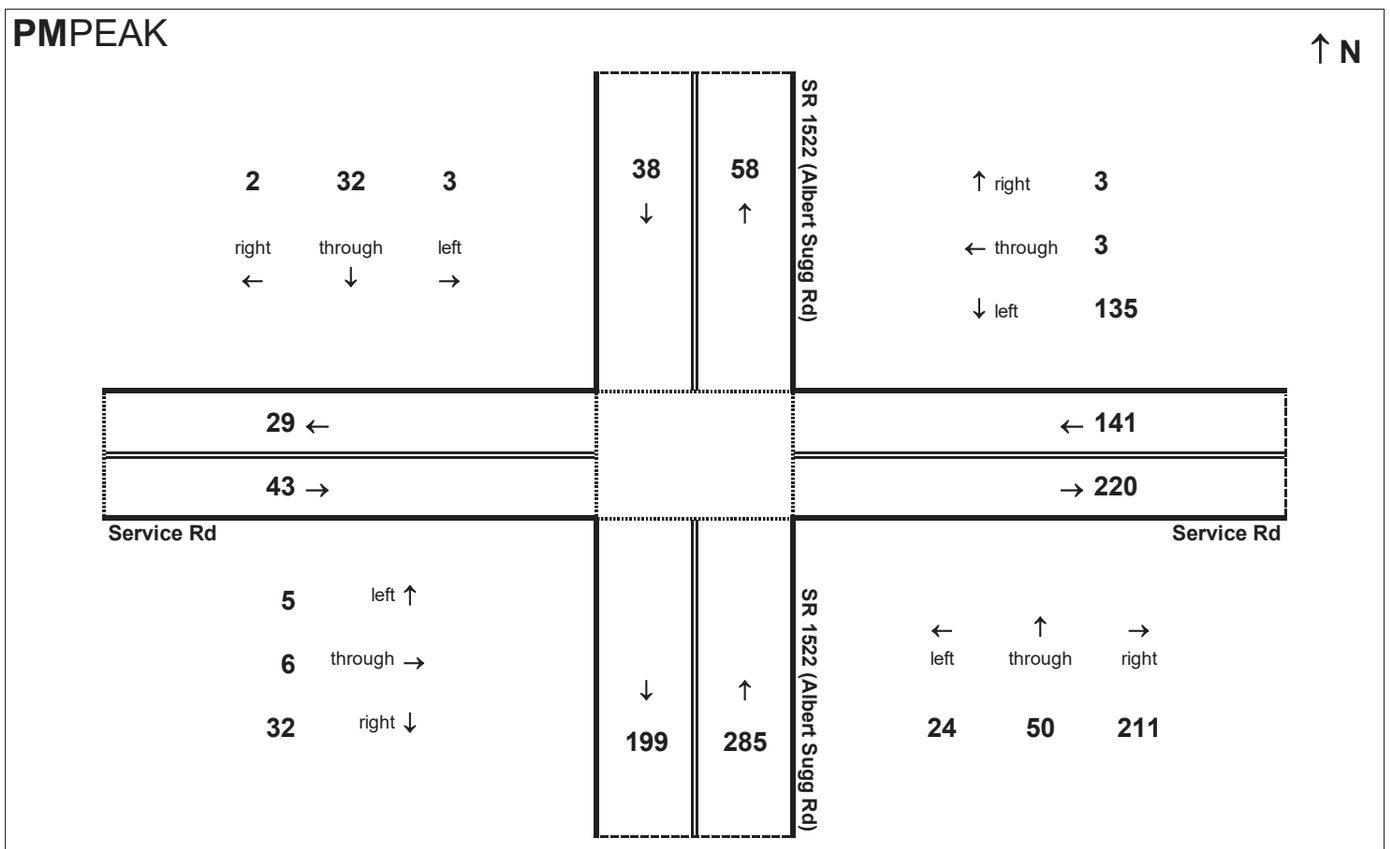
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553





AM peak hour inflow is 506 vehicles. AM peak hour outflow is 507 vehicles.



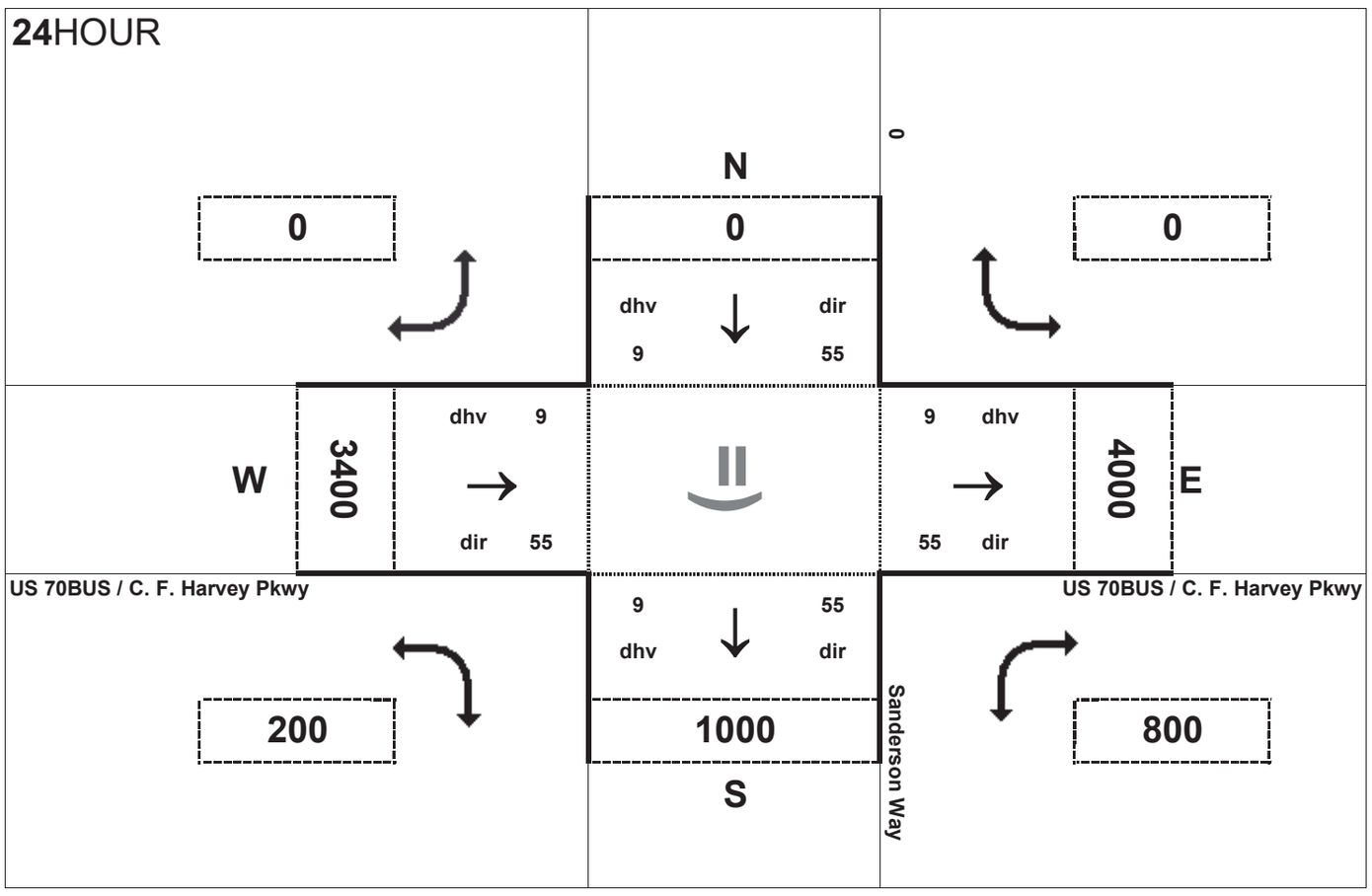
PM peak hour inflow is 507 vehicles. PM peak hour outflow is 506 vehicles.

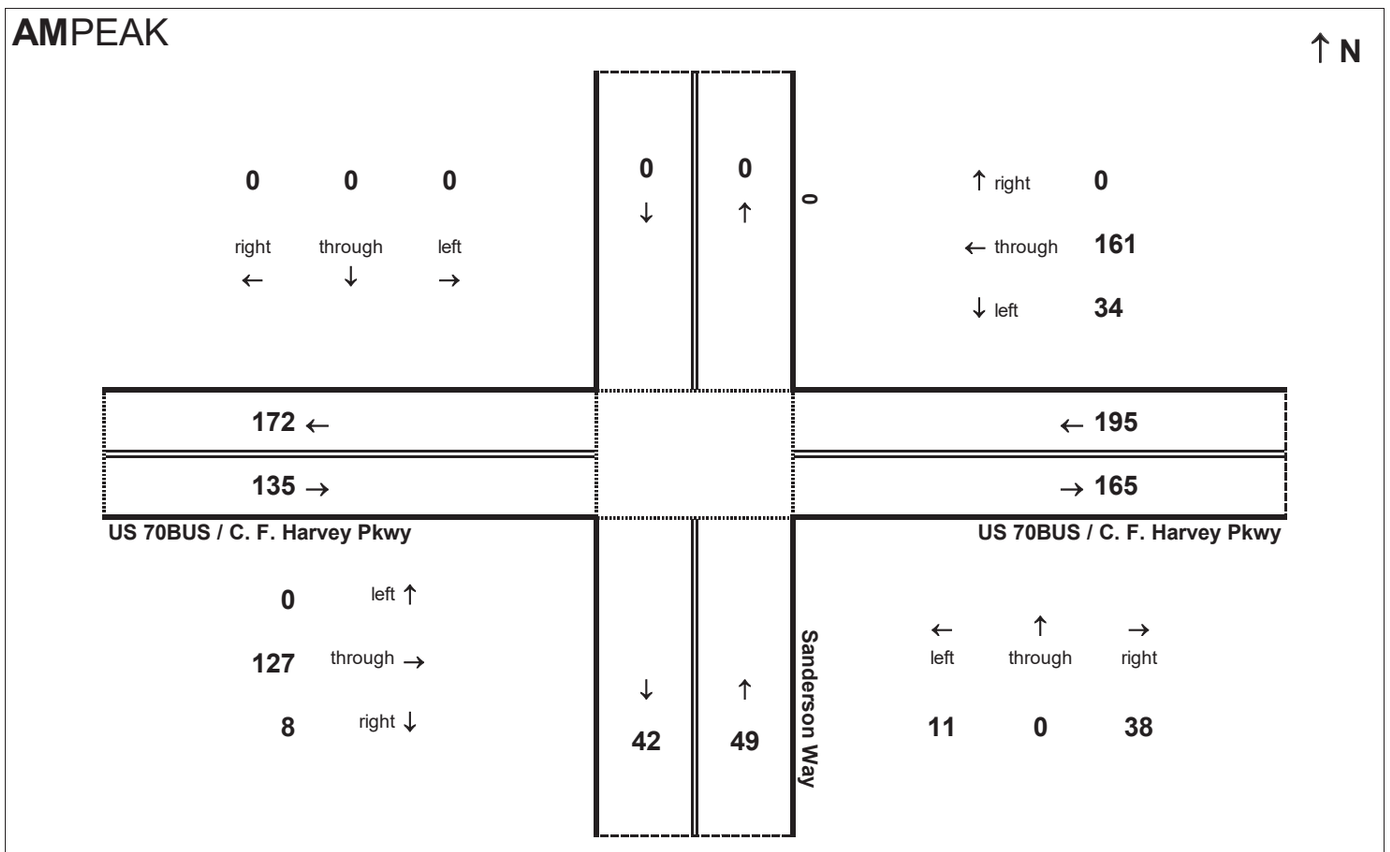
Peak Hour Volume Breakouts Report:
410 Intersection of US 70BUS / C.F. Harvey Pkwy and SR 2032 (Sanderson Way)

Traffic Forecast Release Date:
November-16

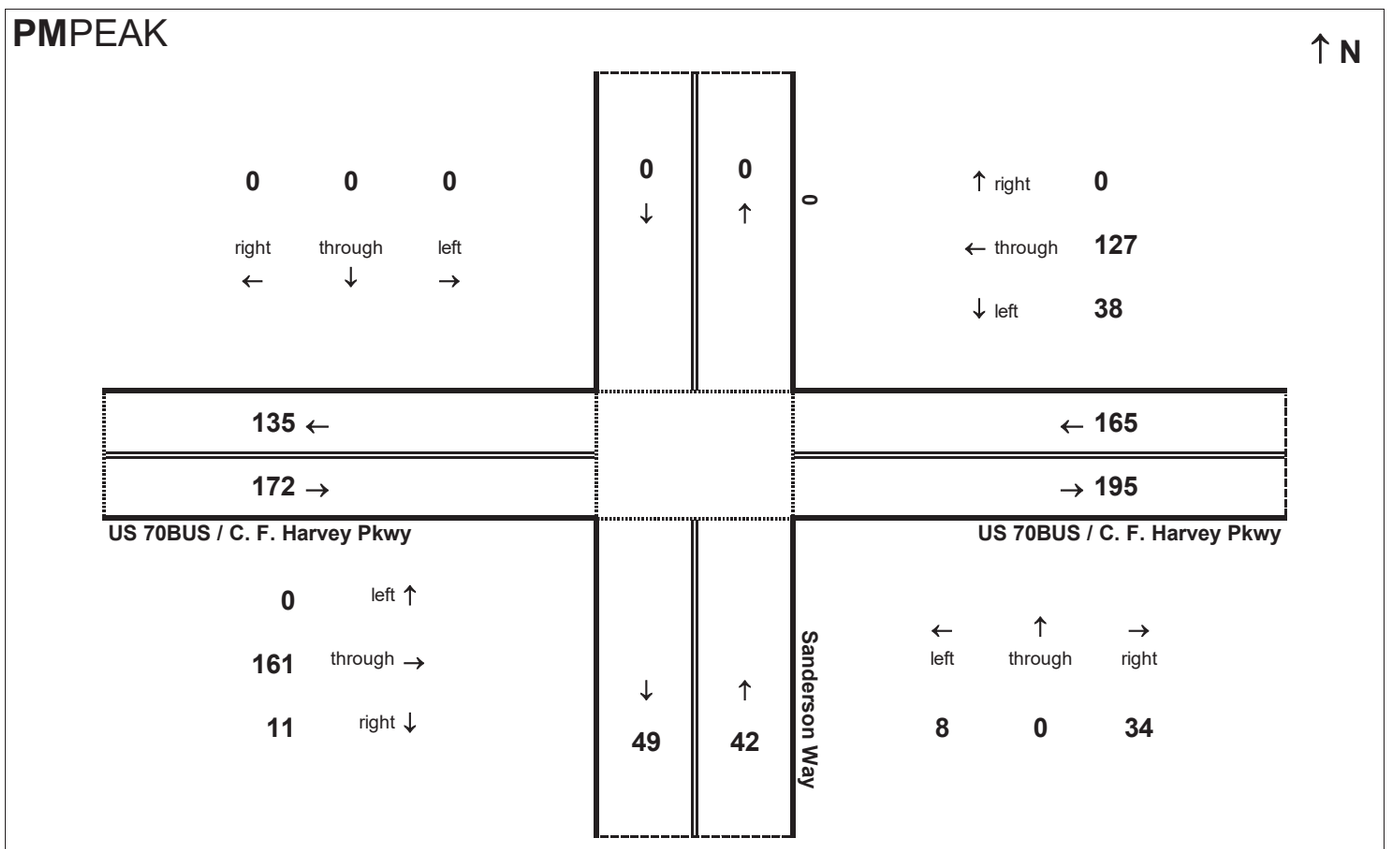
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553





AM peak hour inflow is 378 vehicles. AM peak hour outflow is 378 vehicles.



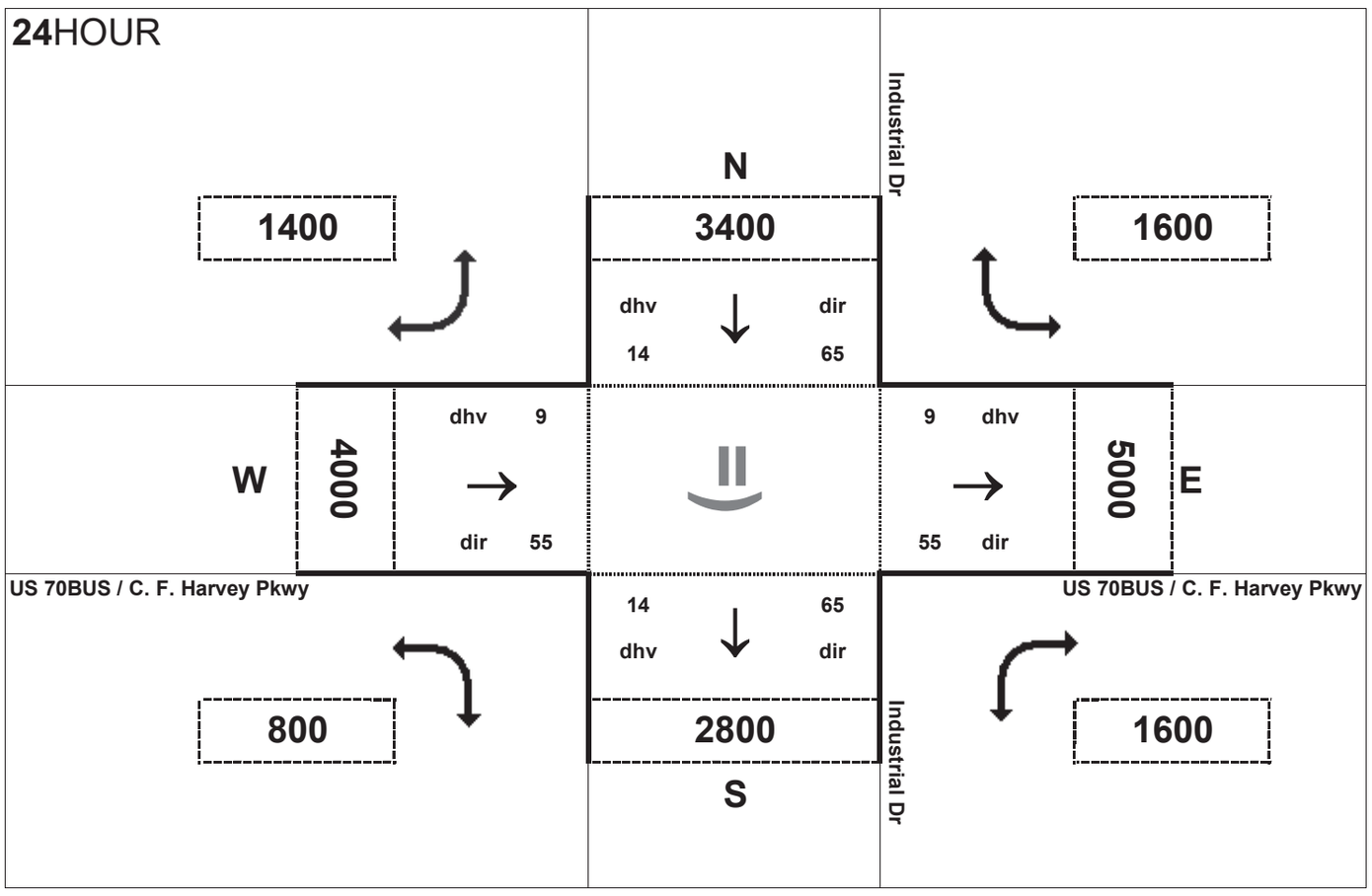
PM peak hour inflow is 378 vehicles. PM peak hour outflow is 378 vehicles.

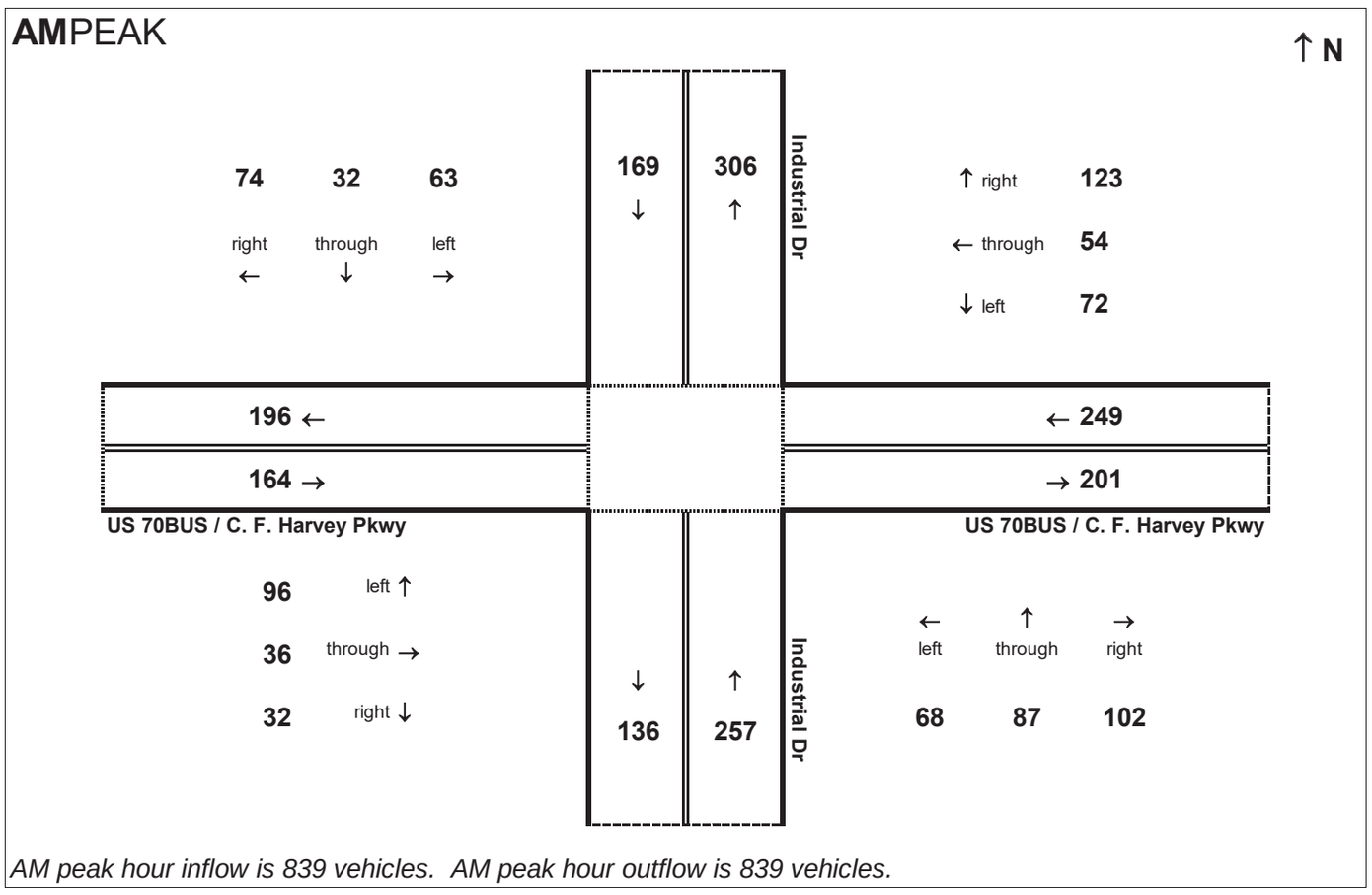
Peak Hour Volume Breakouts Report:
412 Intersection of US 70BUS / C.F. Harvey Pkwy and Industrial Dr

Traffic Forecast Release Date:
November-16

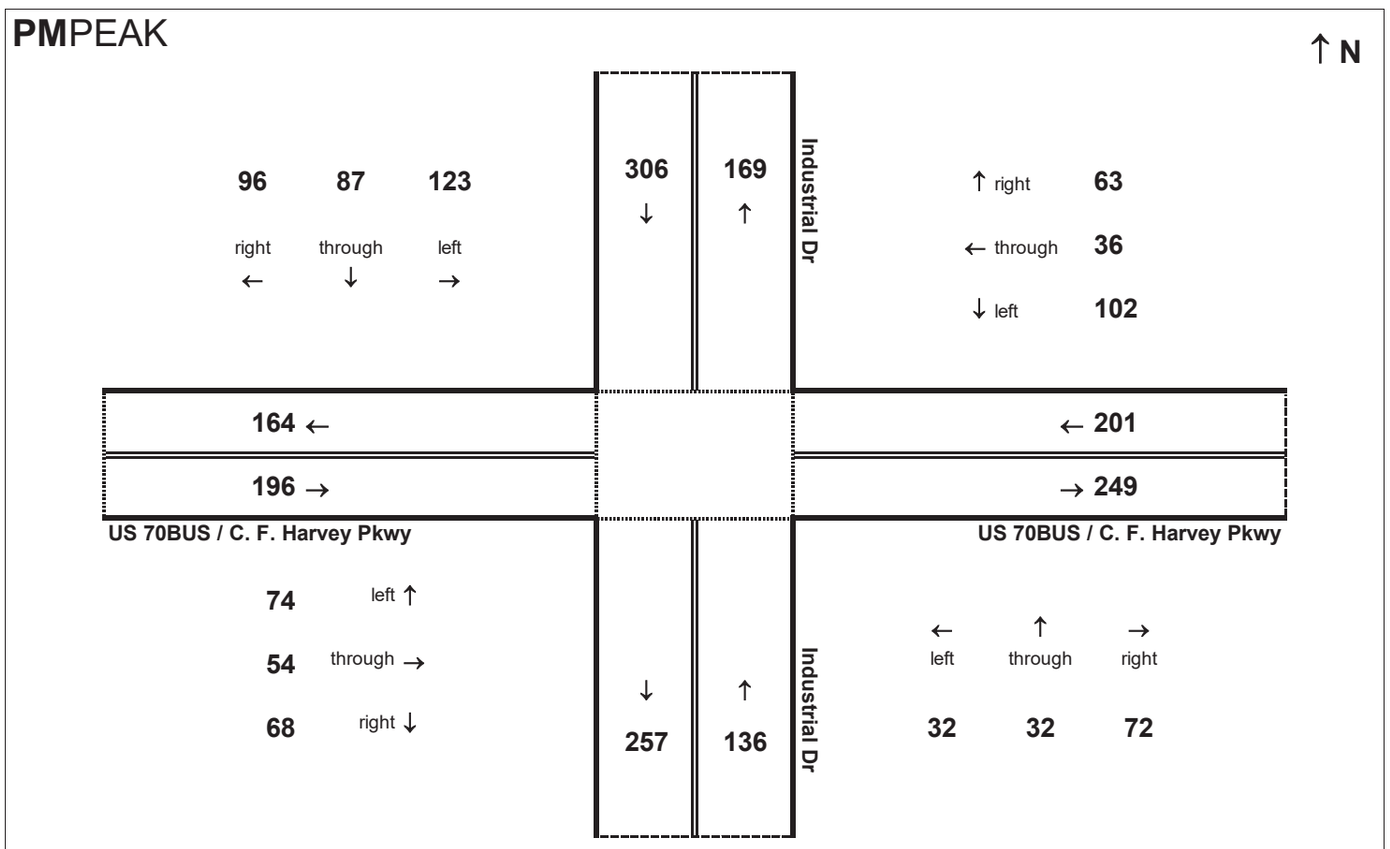
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553





AM peak hour inflow is 839 vehicles. AM peak hour outflow is 839 vehicles.



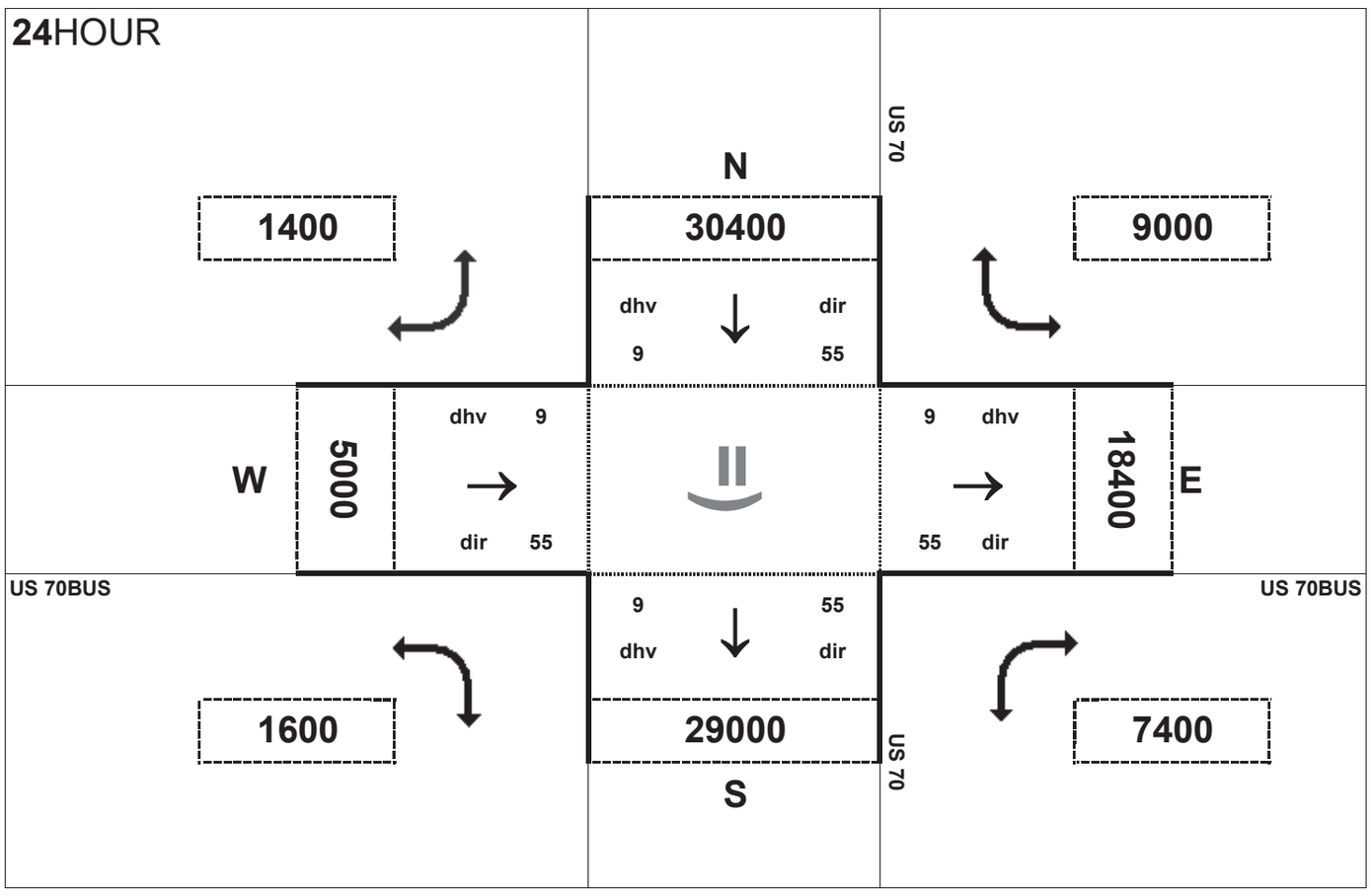
PM peak hour inflow is 839 vehicles. PM peak hour outflow is 839 vehicles.

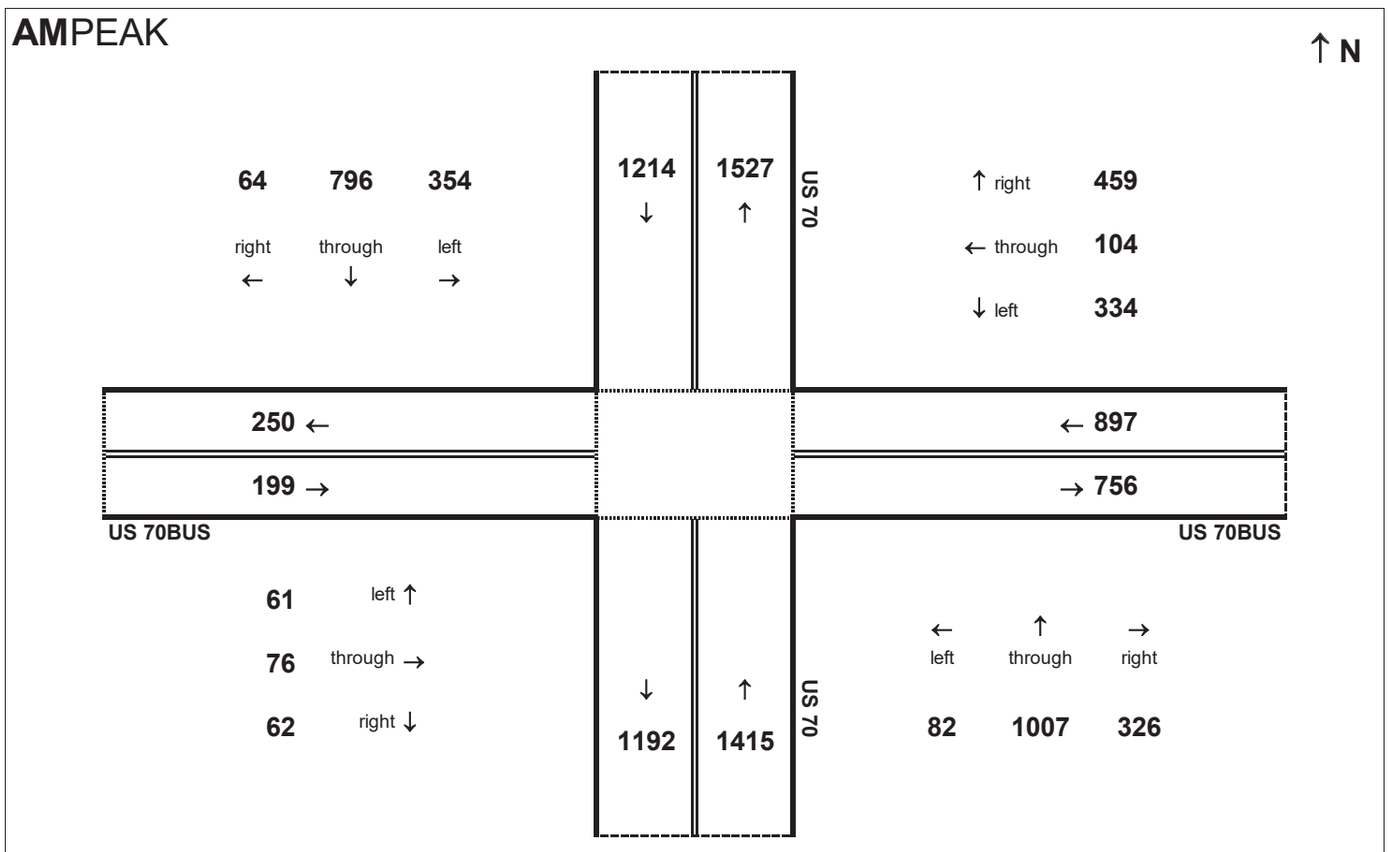
Peak Hour Volume Breakouts Report:
413 Intersection of US 70 and US 70BUS (W)

Traffic Forecast Release Date:
November-16

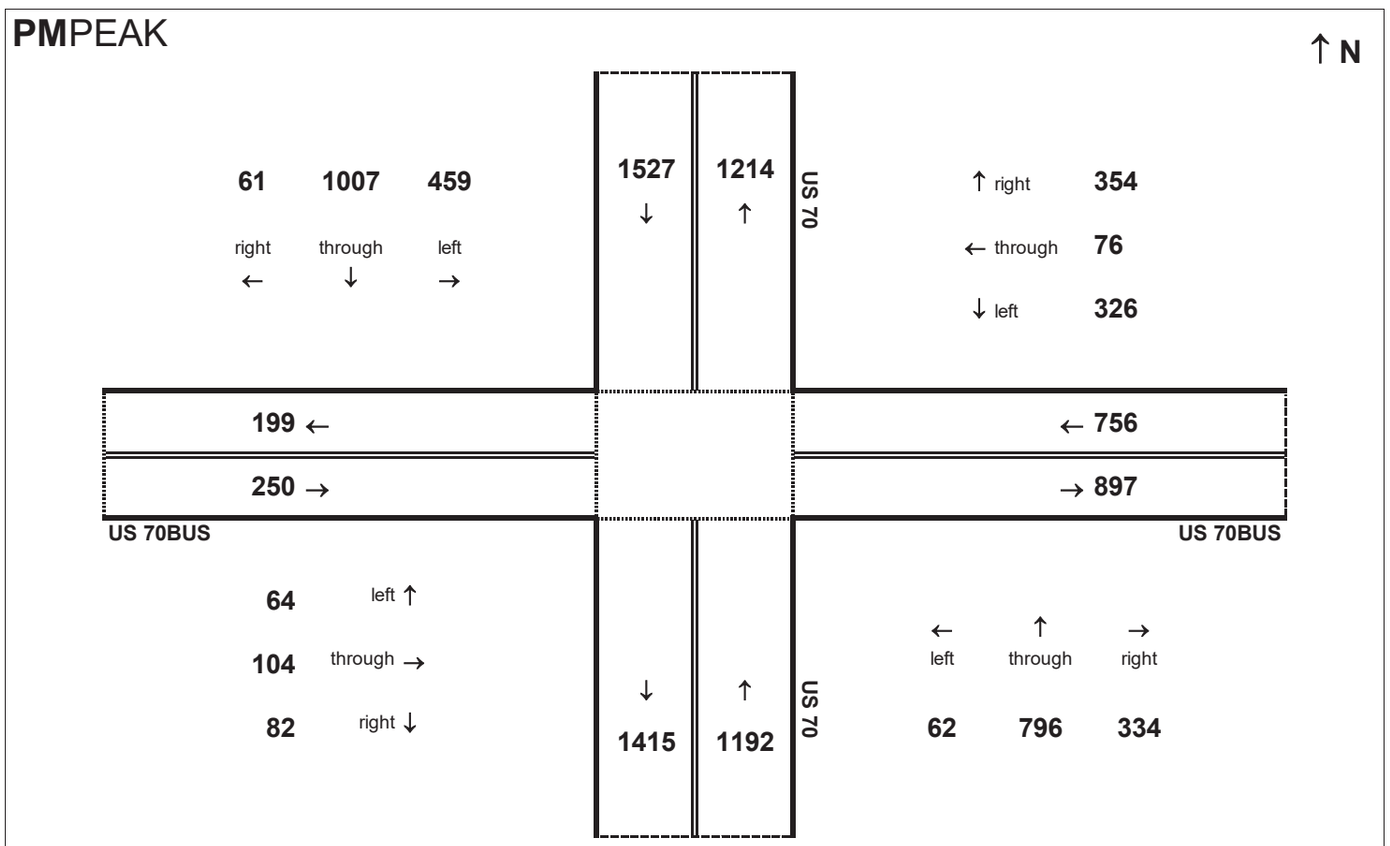
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553





AM peak hour inflow is 3727 vehicles. AM peak hour outflow is 3726 vehicles.



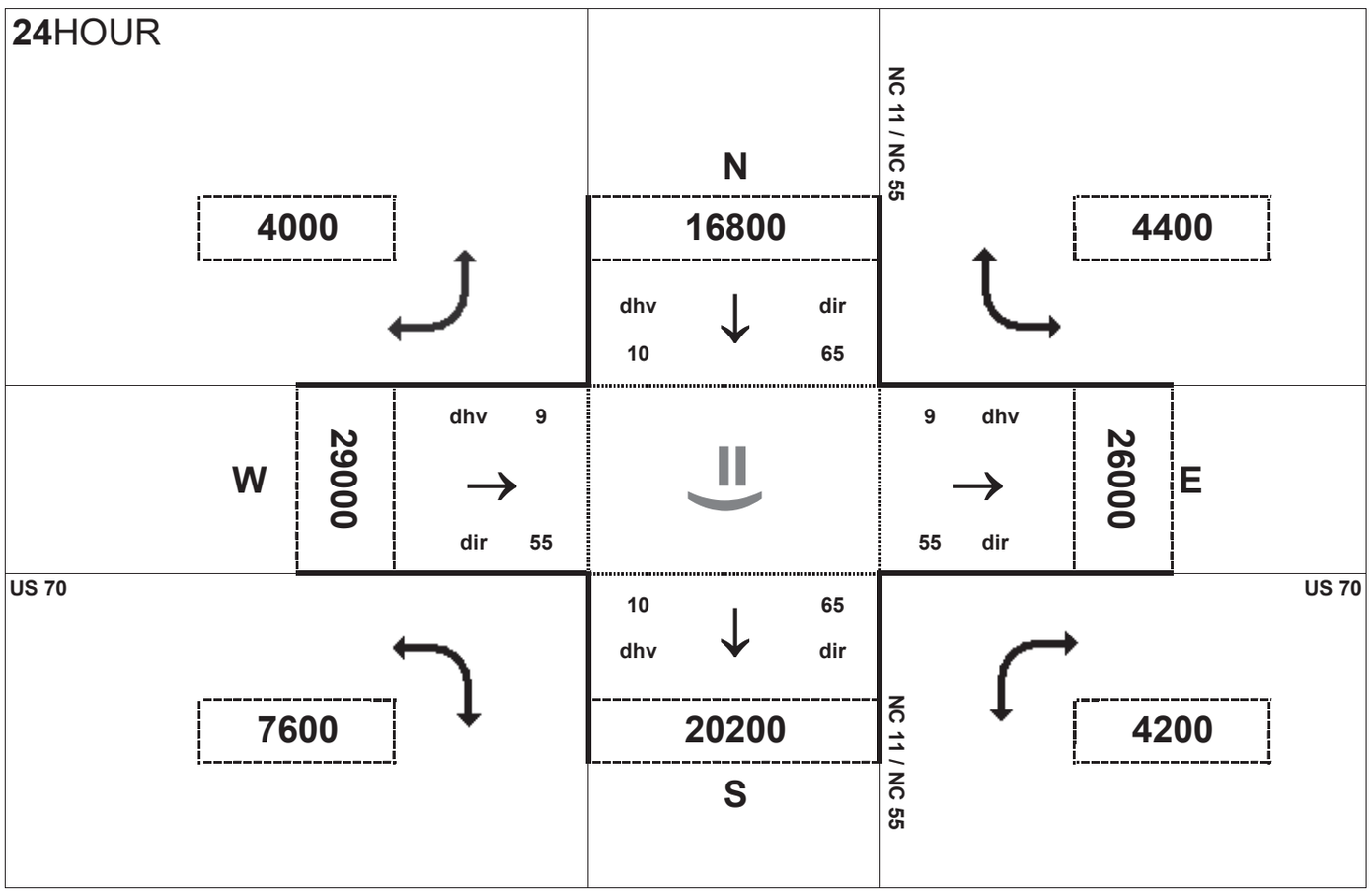
PM peak hour inflow is 3726 vehicles. PM peak hour outflow is 3727 vehicles.

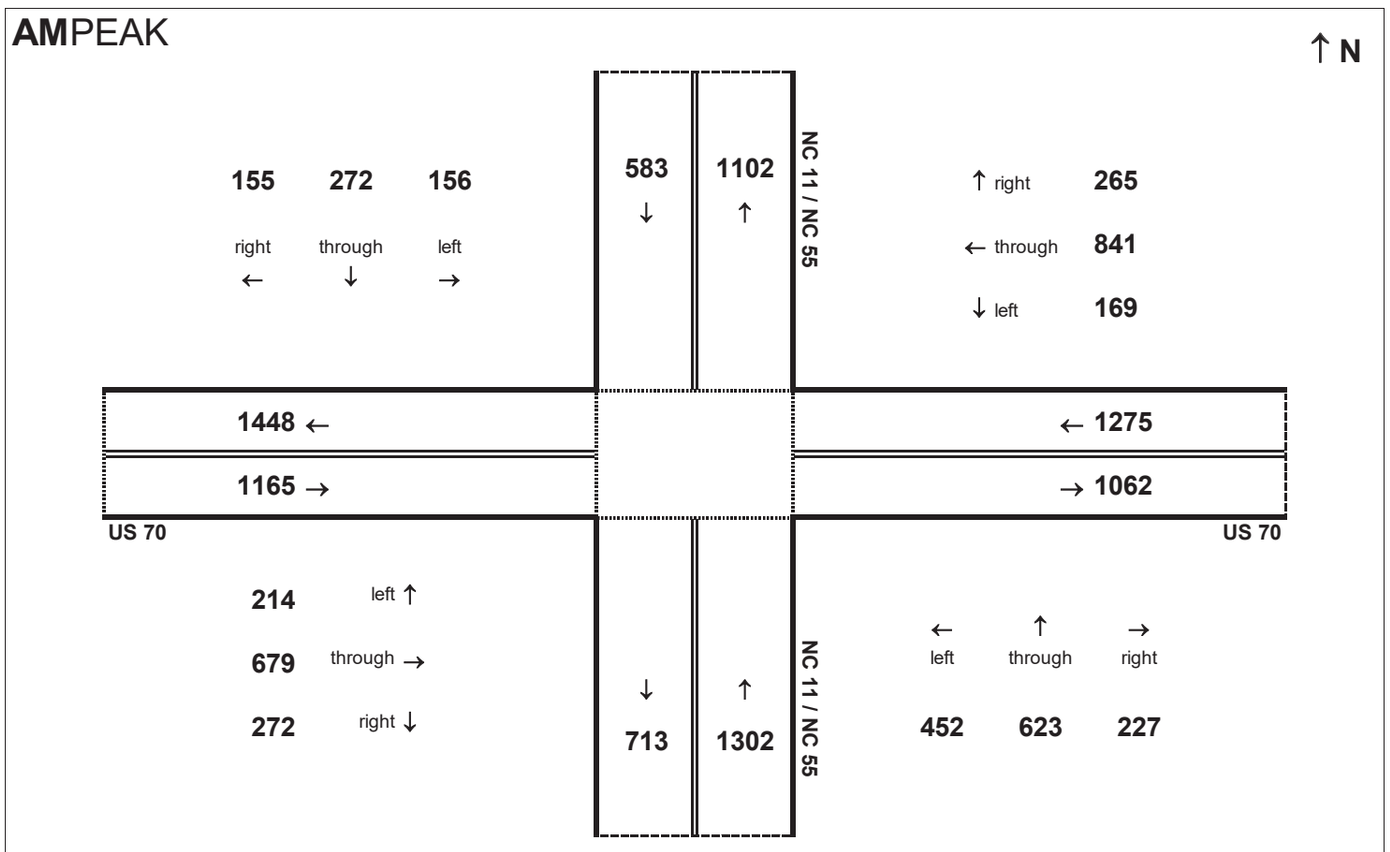
Peak Hour Volume Breakouts Report:
414-15 Intersection of US 70 and NC 11 / NC 55

Traffic Forecast Release Date:
November-16

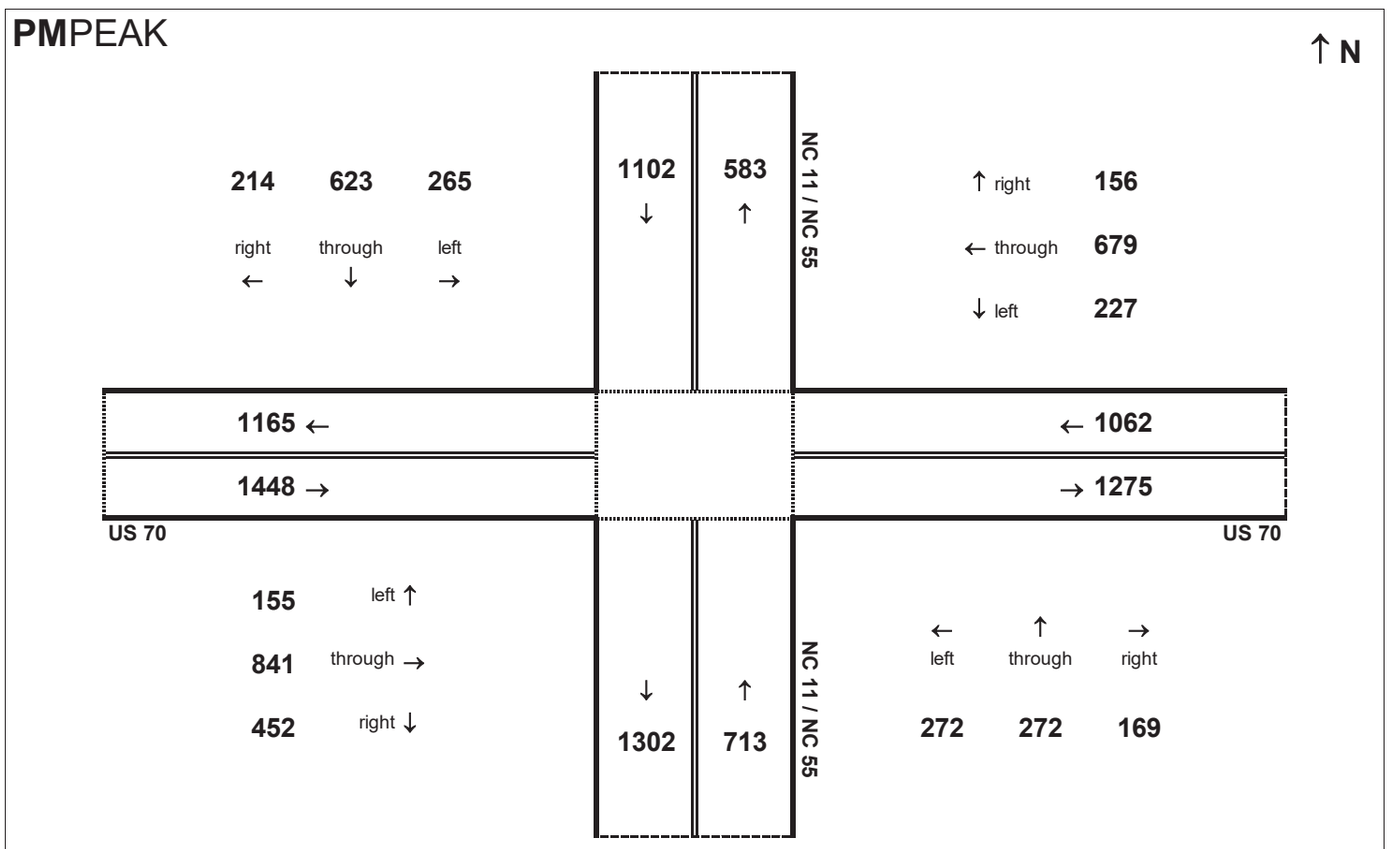
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553





AM peak hour inflow is 4325 vehicles. AM peak hour outflow is 4325 vehicles.



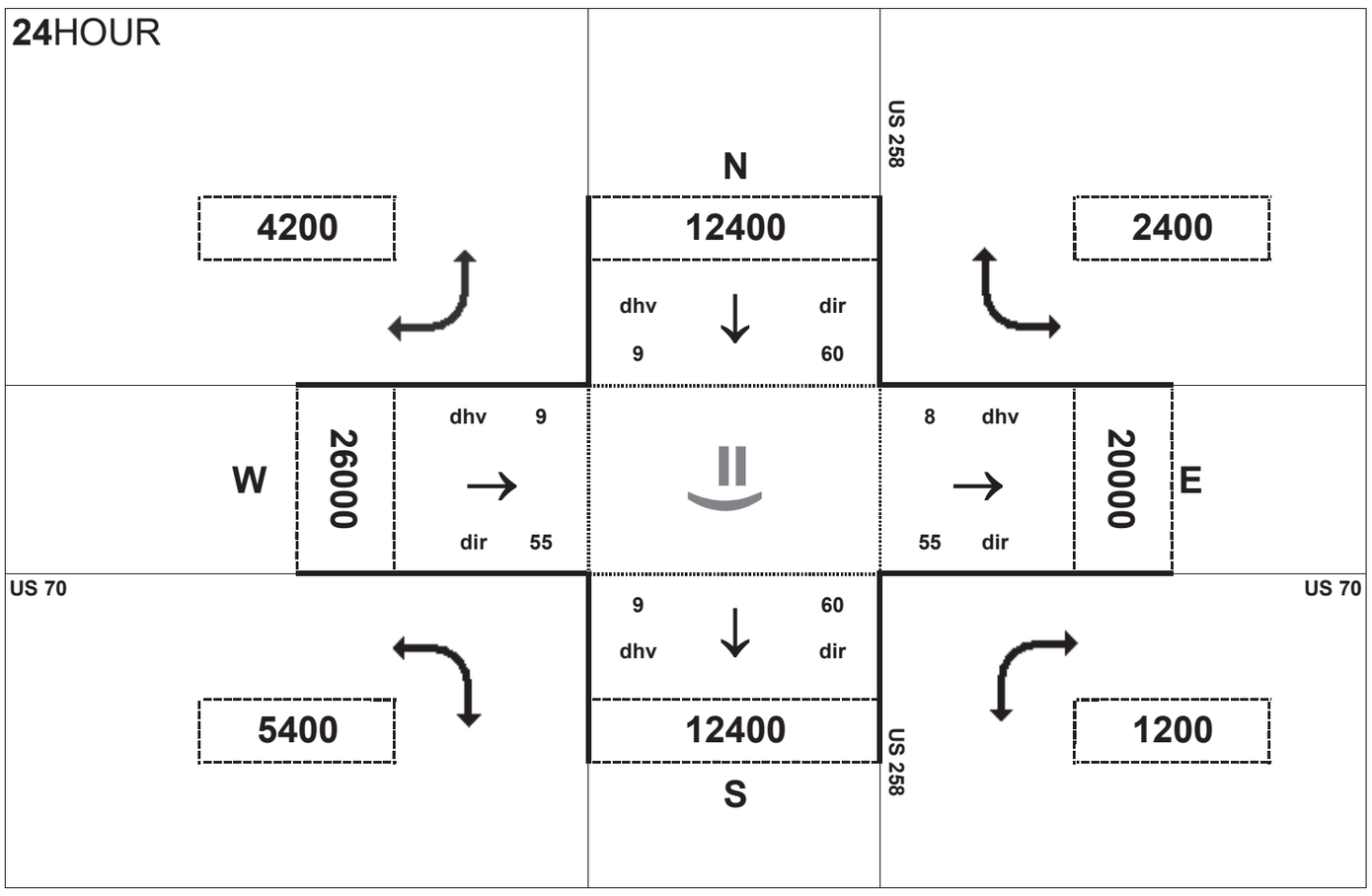
PM peak hour inflow is 4325 vehicles. PM peak hour outflow is 4325 vehicles.

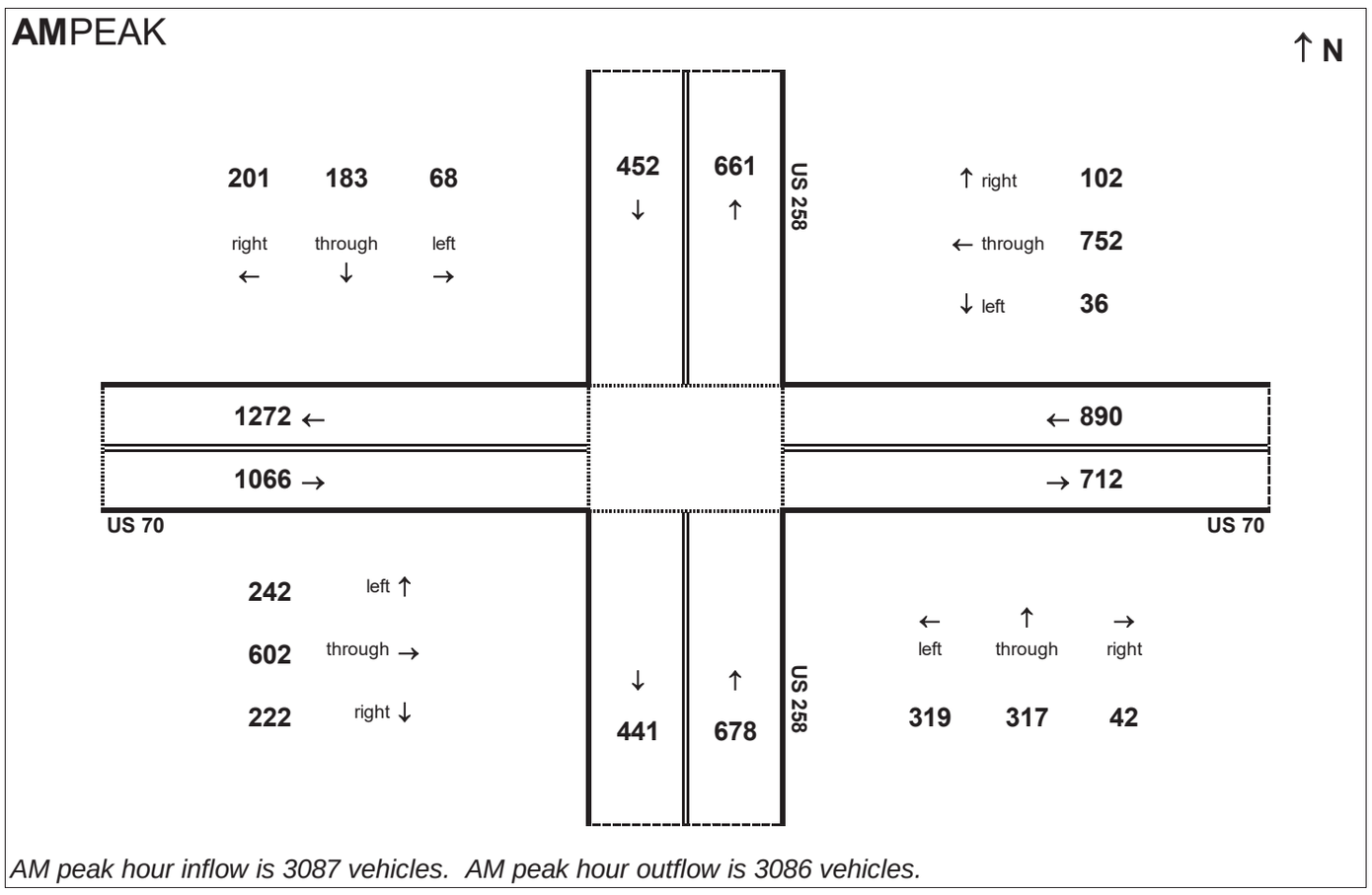
Peak Hour Volume Breakouts Report:
417-18 Intersection of US 70 and US 258

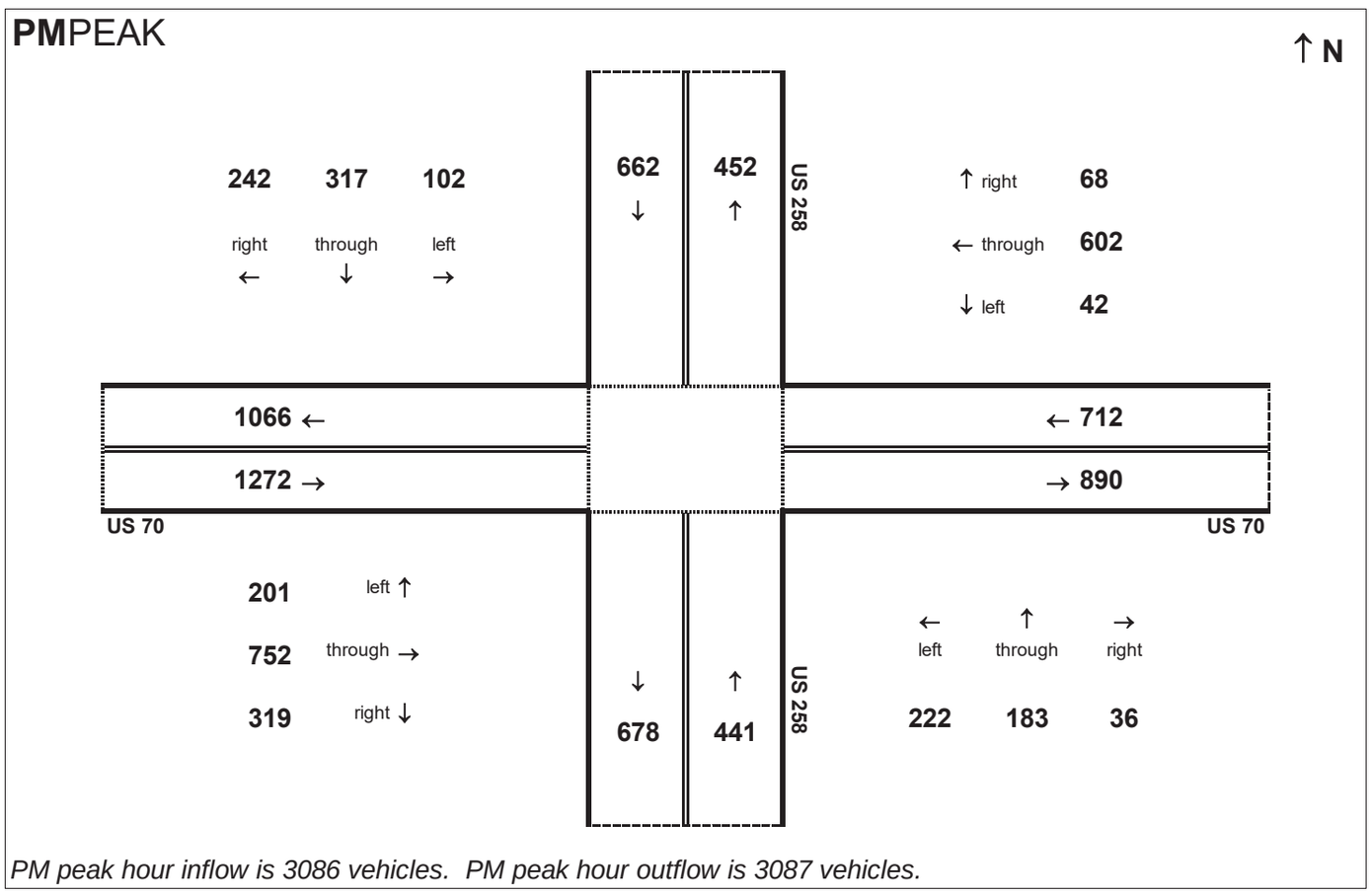
Traffic Forecast Release Date:
November-16

Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553





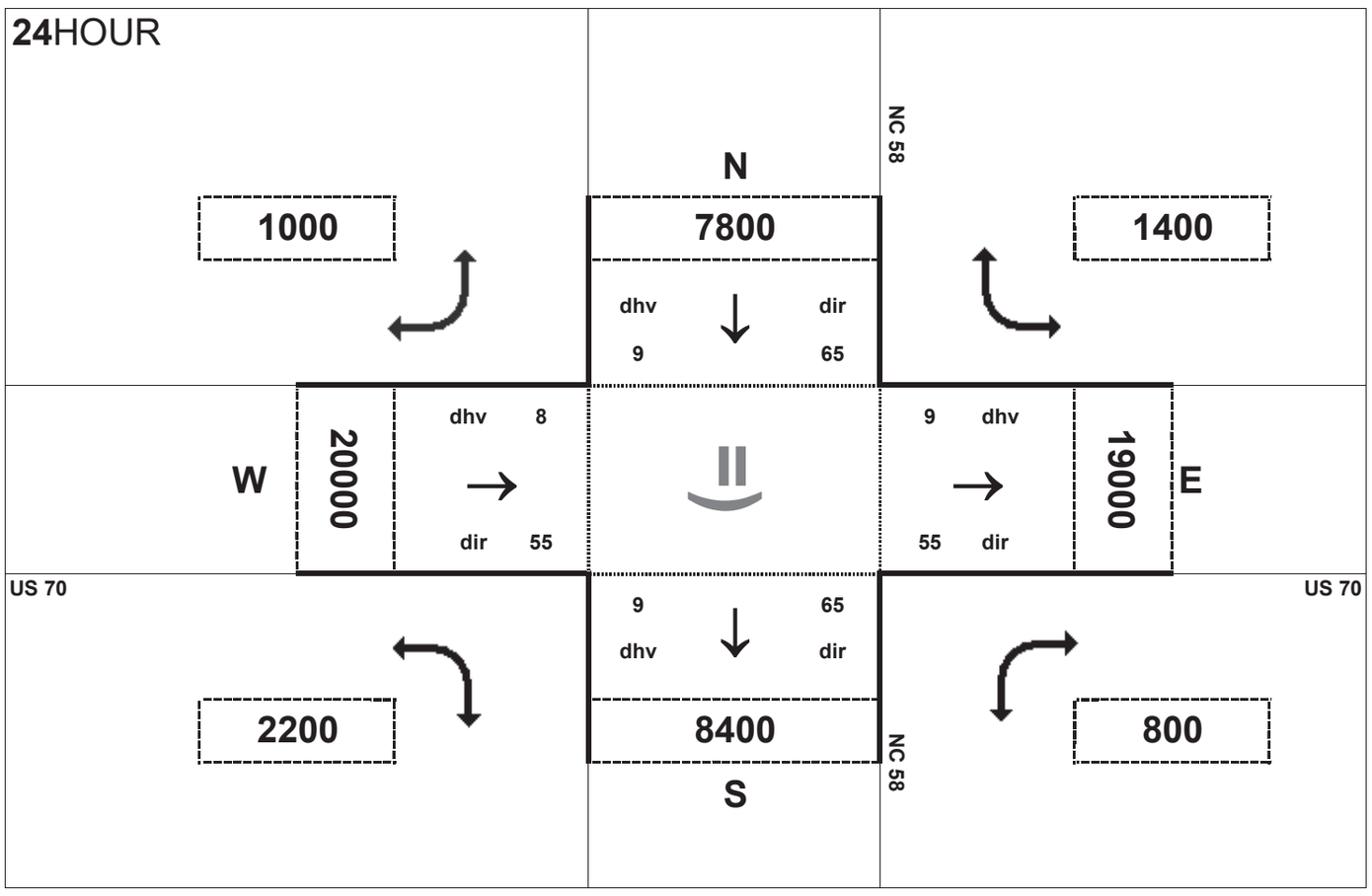


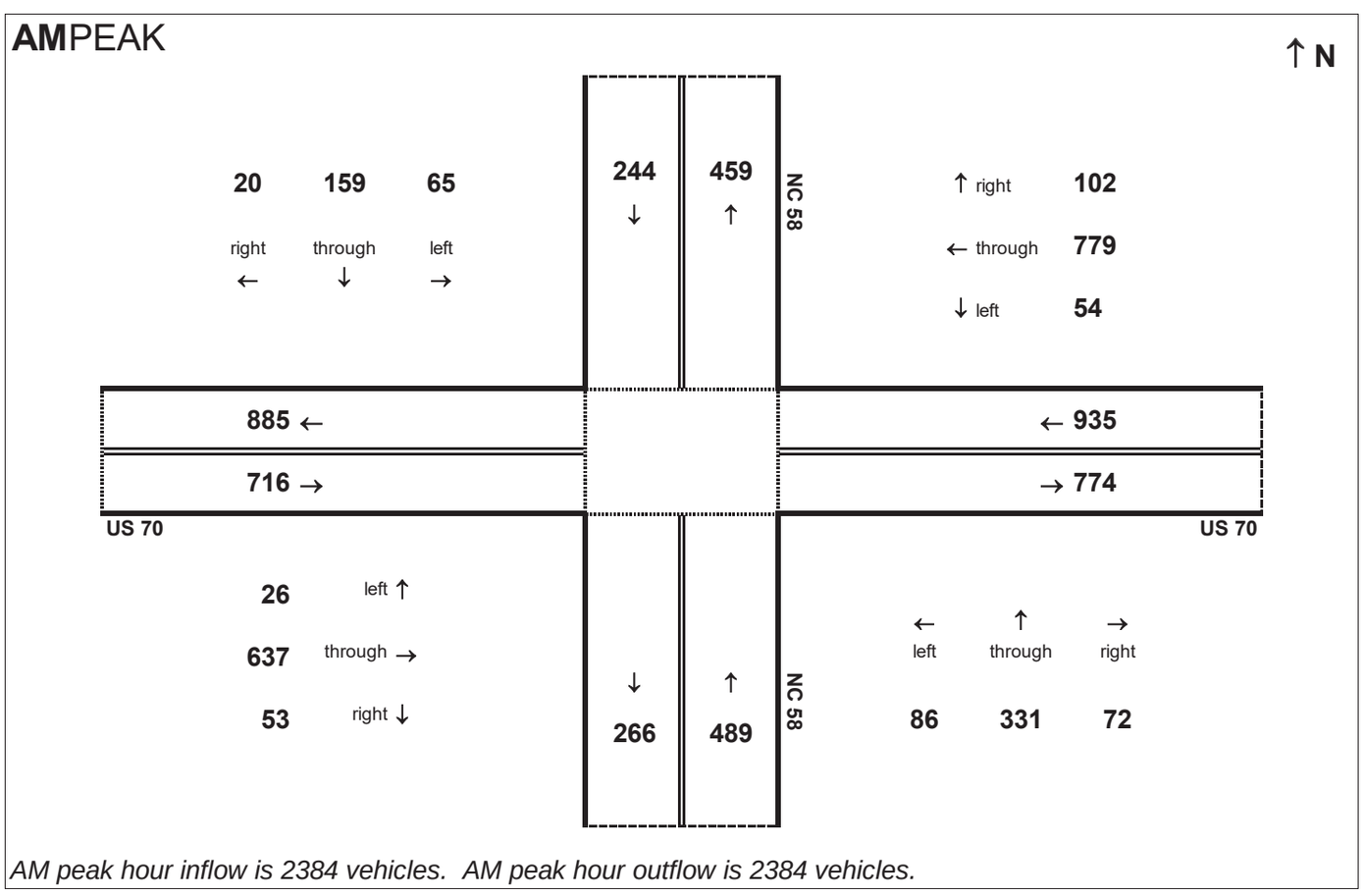
Peak Hour Volume Breakouts Report:
419-20 Intersection of US 70 and NC 58

Traffic Forecast Release Date:
November-16

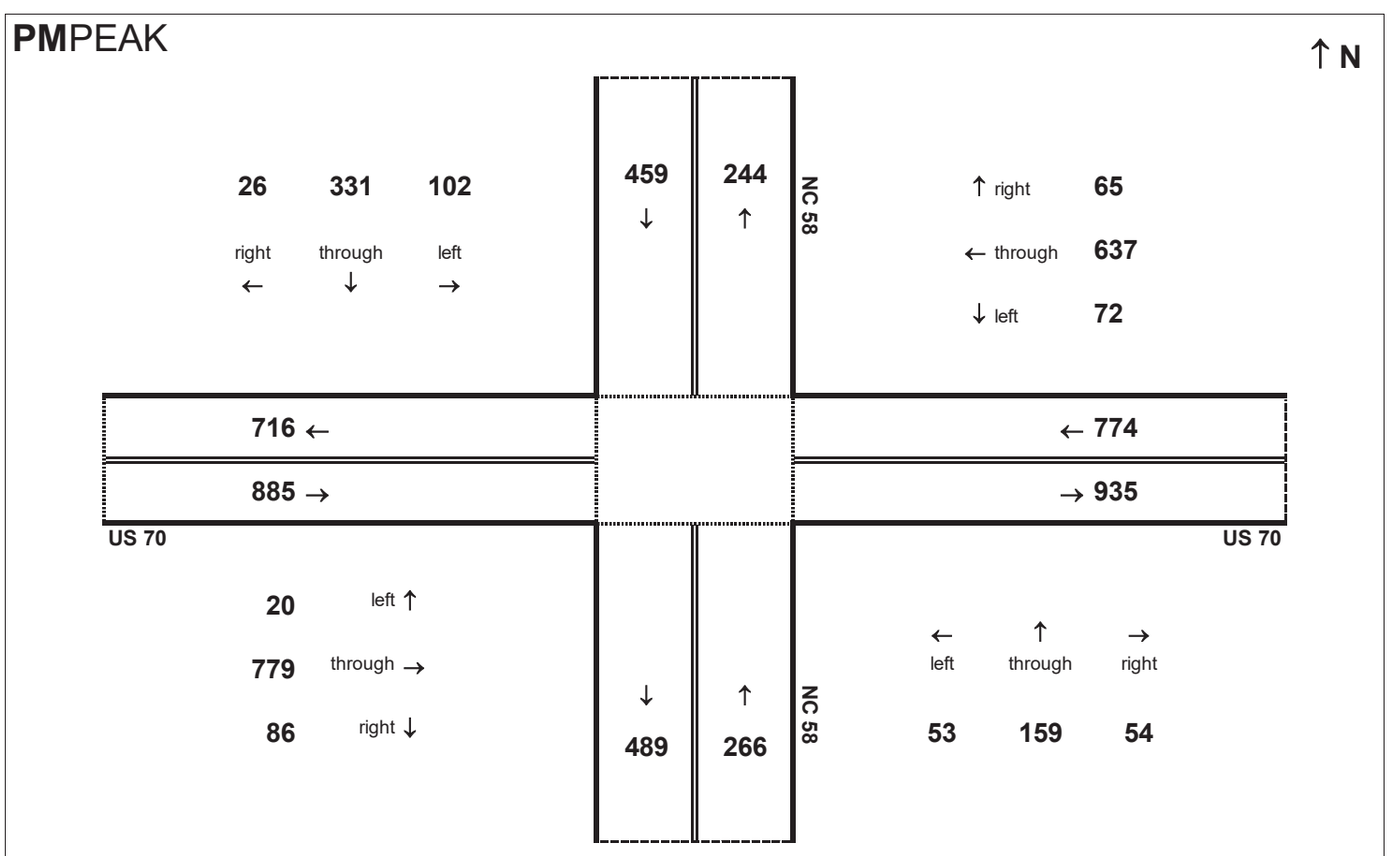
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553

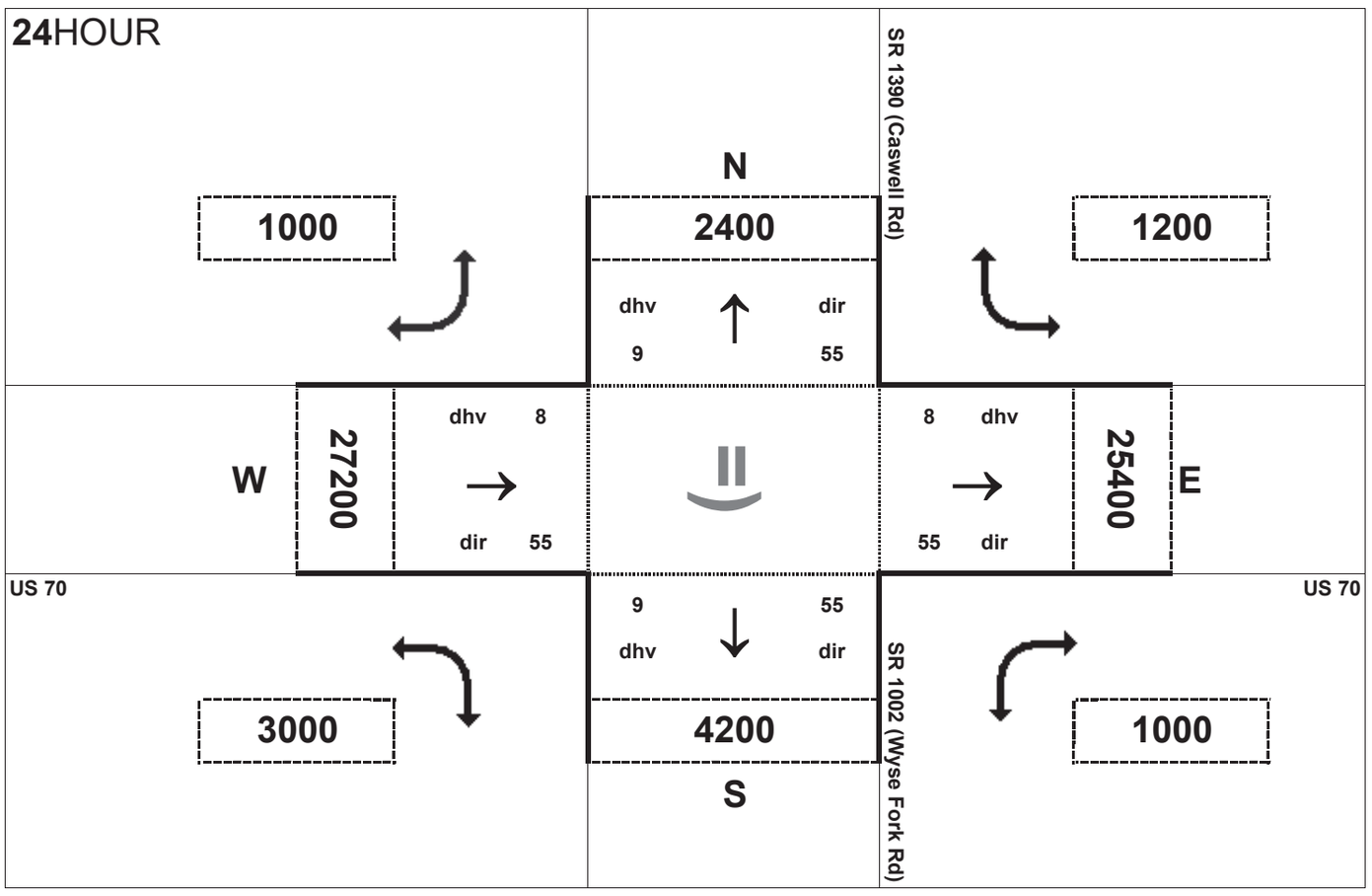




AM peak hour inflow is 2384 vehicles. AM peak hour outflow is 2384 vehicles.



PM peak hour inflow is 2384 vehicles. PM peak hour outflow is 2384 vehicles.

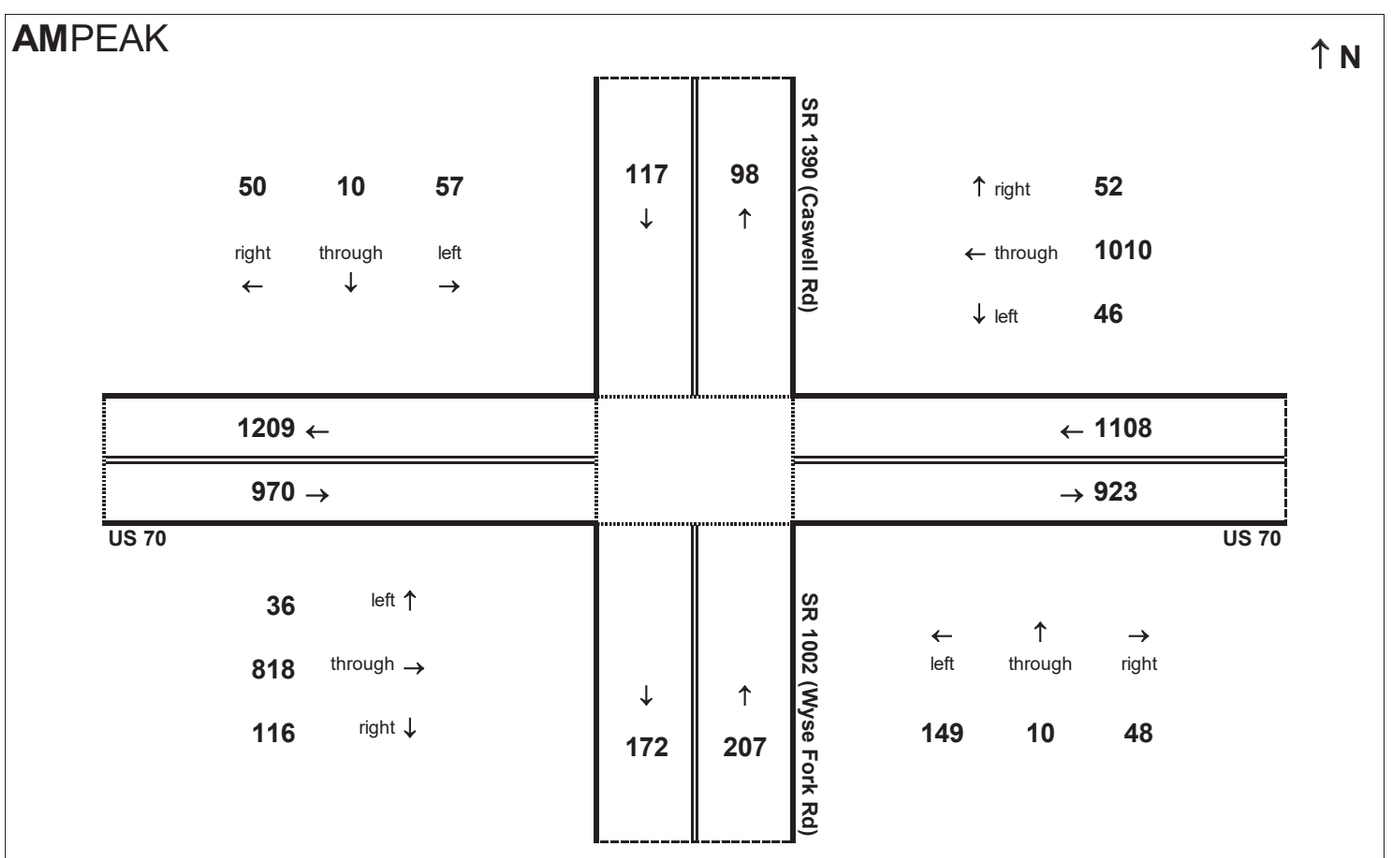


Peak Hour Volume Breakouts Report:
421-22 Intersection of US 70 and SR 1309 (Caswell Rd) / SR 1002 (Wyse Fork Rd)

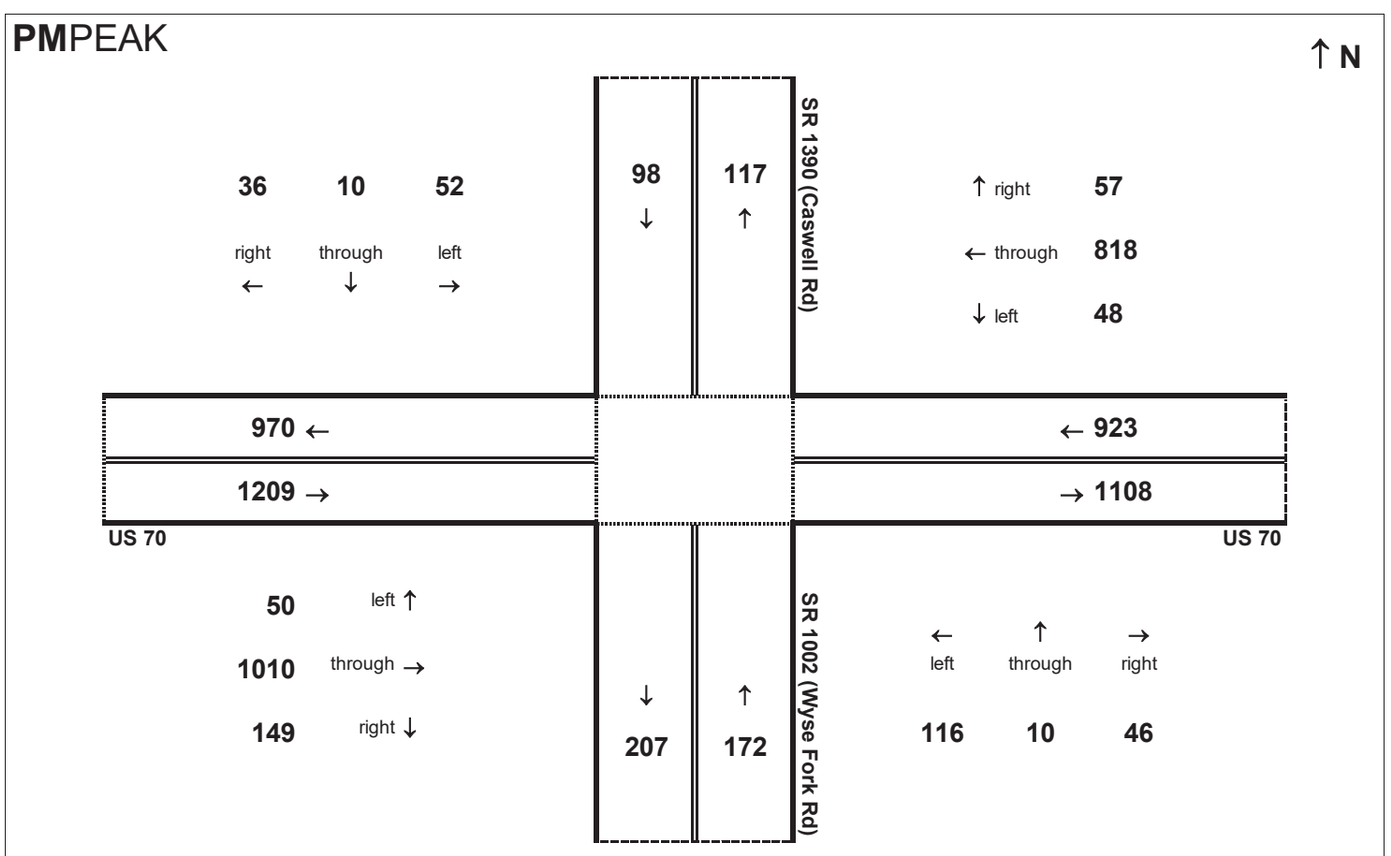
Traffic Forecast Release Date:
November-16

Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553



AM peak hour inflow is 2401 vehicles. AM peak hour outflow is 2401 vehicles.



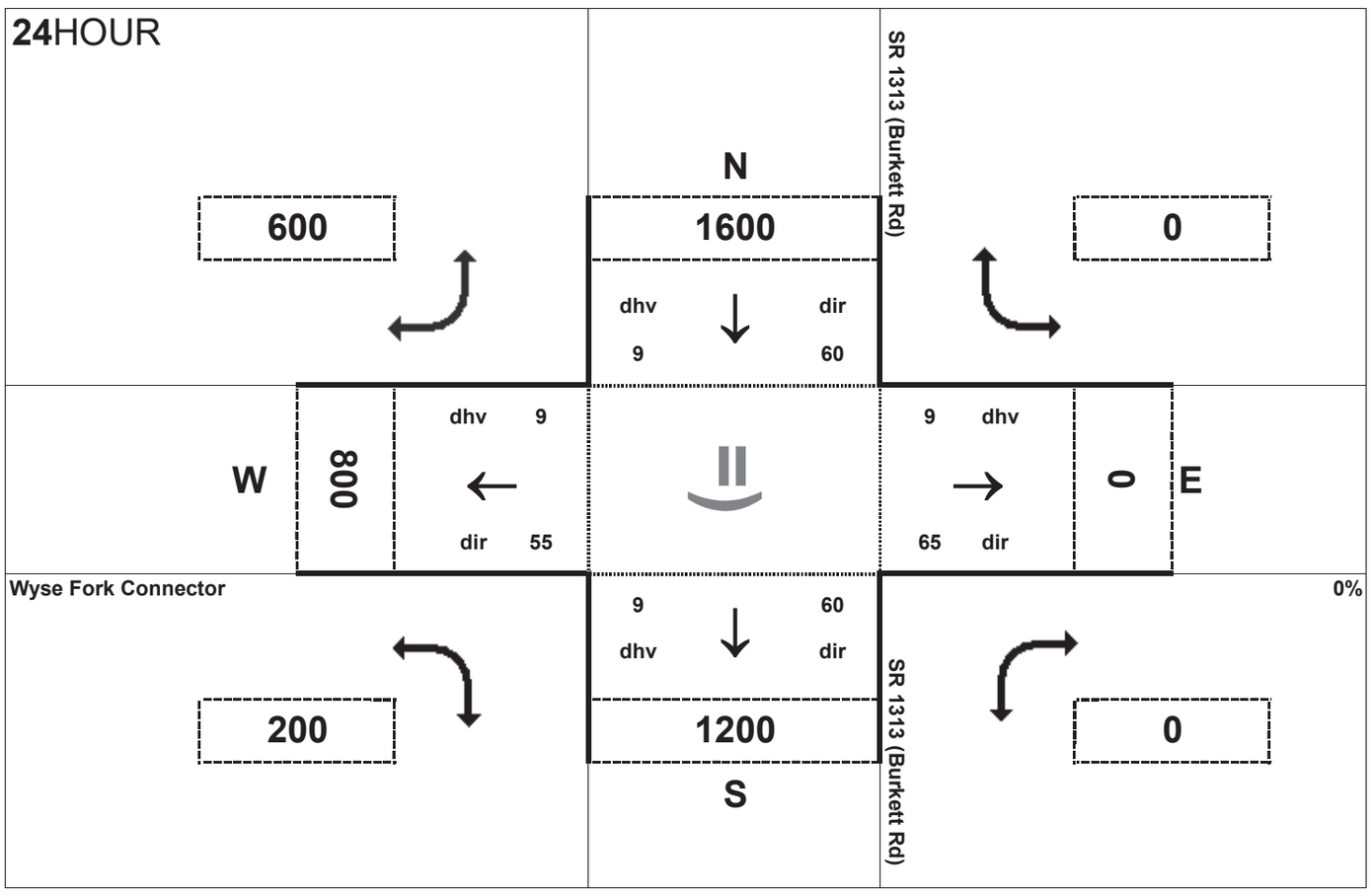
PM peak hour inflow is 2401 vehicles. PM peak hour outflow is 2401 vehicles.

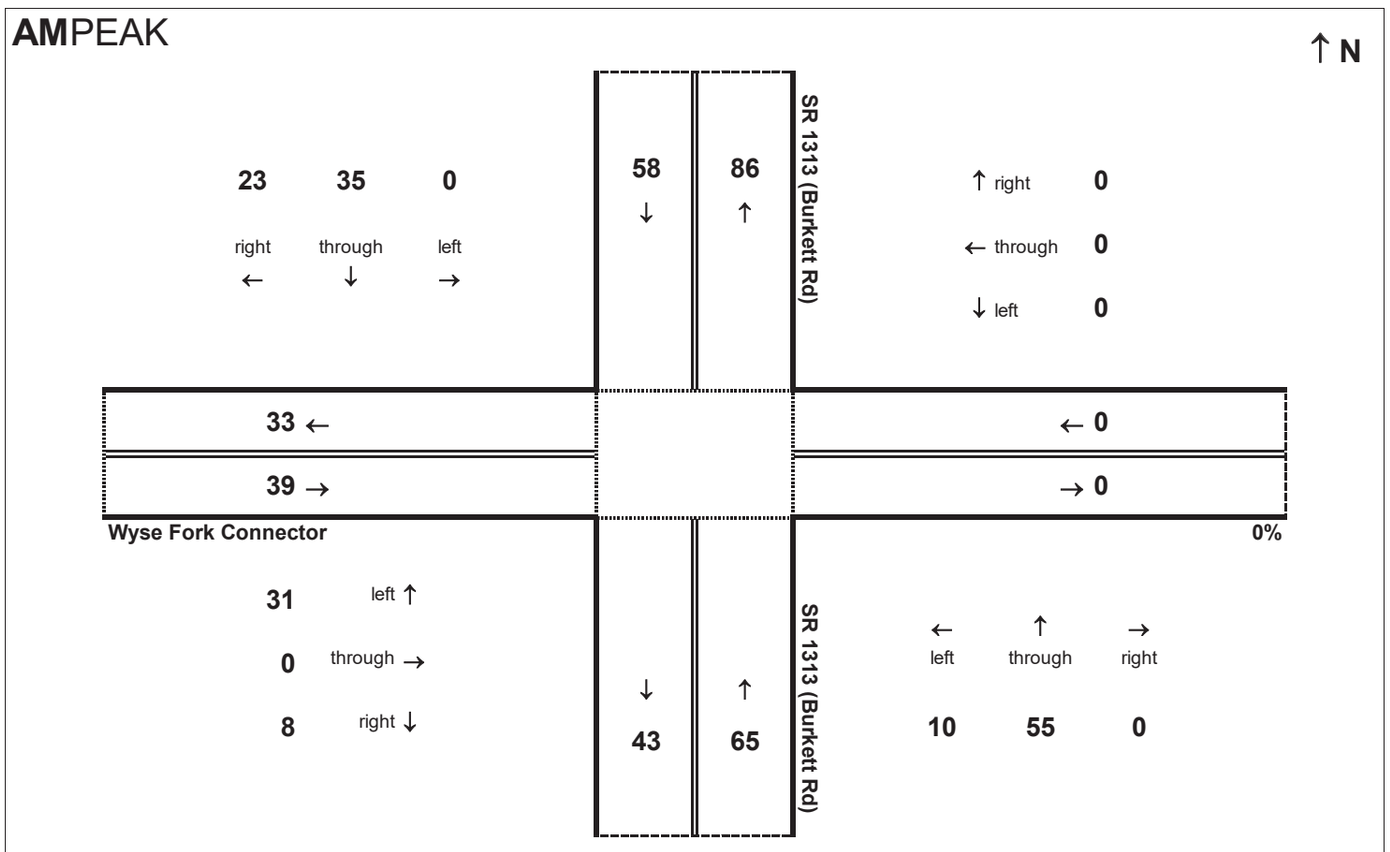
Peak Hour Volume Breakouts Report:
423 SR 1313 (Burkett Rd) at Wyse Fork Connector

Traffic Forecast Release Date:
November-16

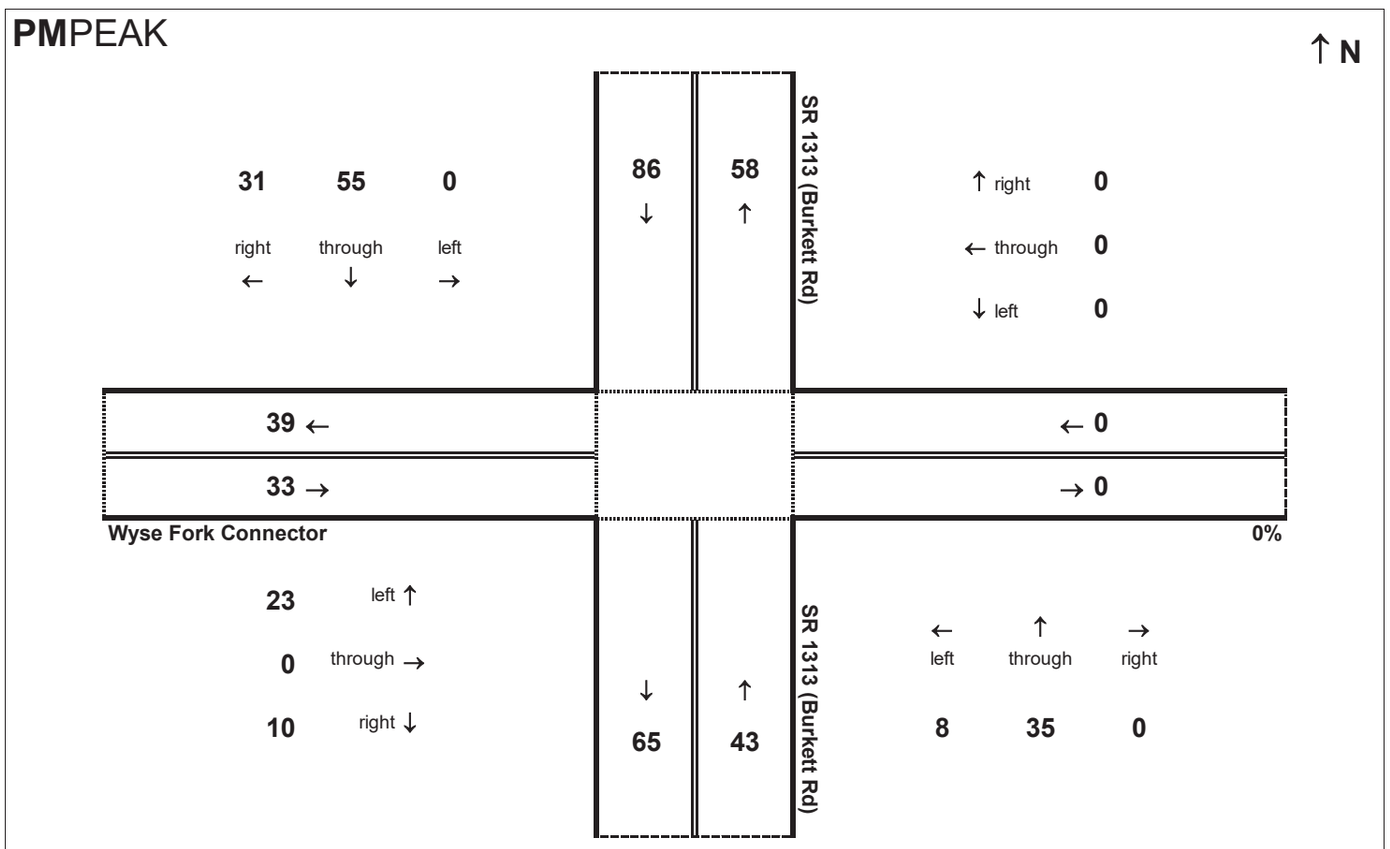
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553

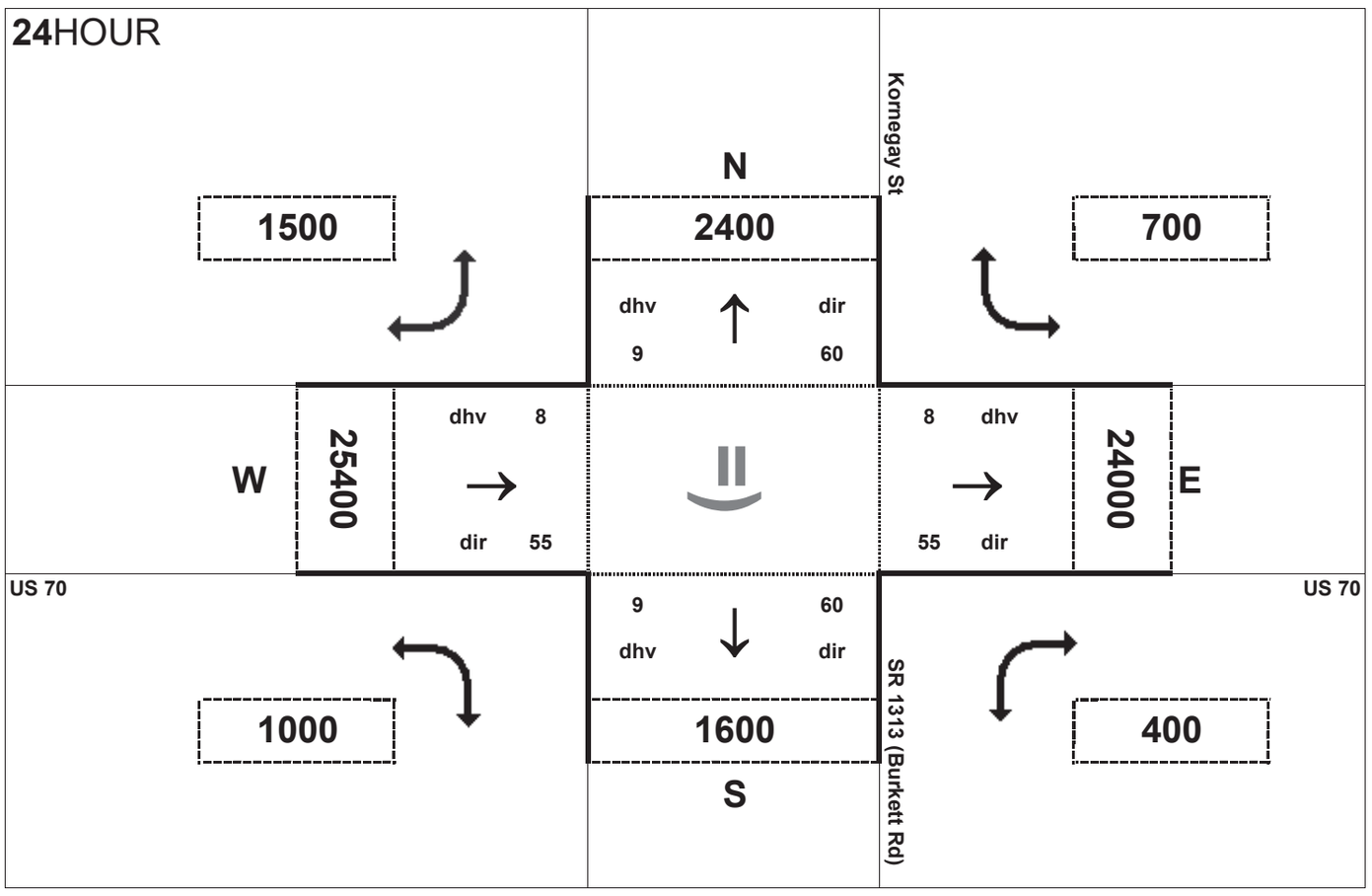




AM peak hour inflow is 163 vehicles. AM peak hour outflow is 161 vehicles.



PM peak hour inflow is 161 vehicles. PM peak hour outflow is 163 vehicles.

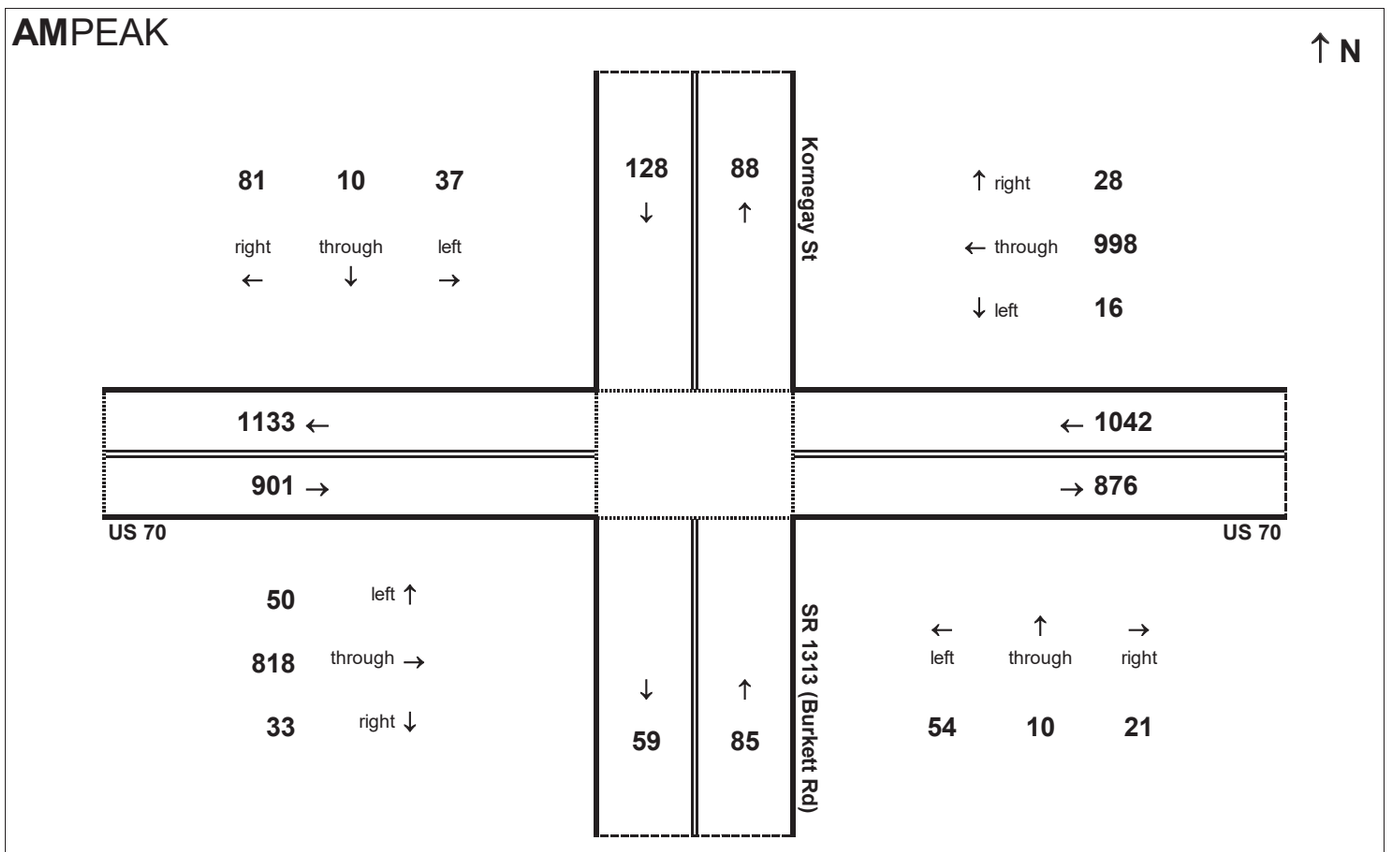


Peak Hour Volume Breakouts Report:
424-25 Intersection of US 70 and Kornegay St / SR 1313 (Burkett Rd)

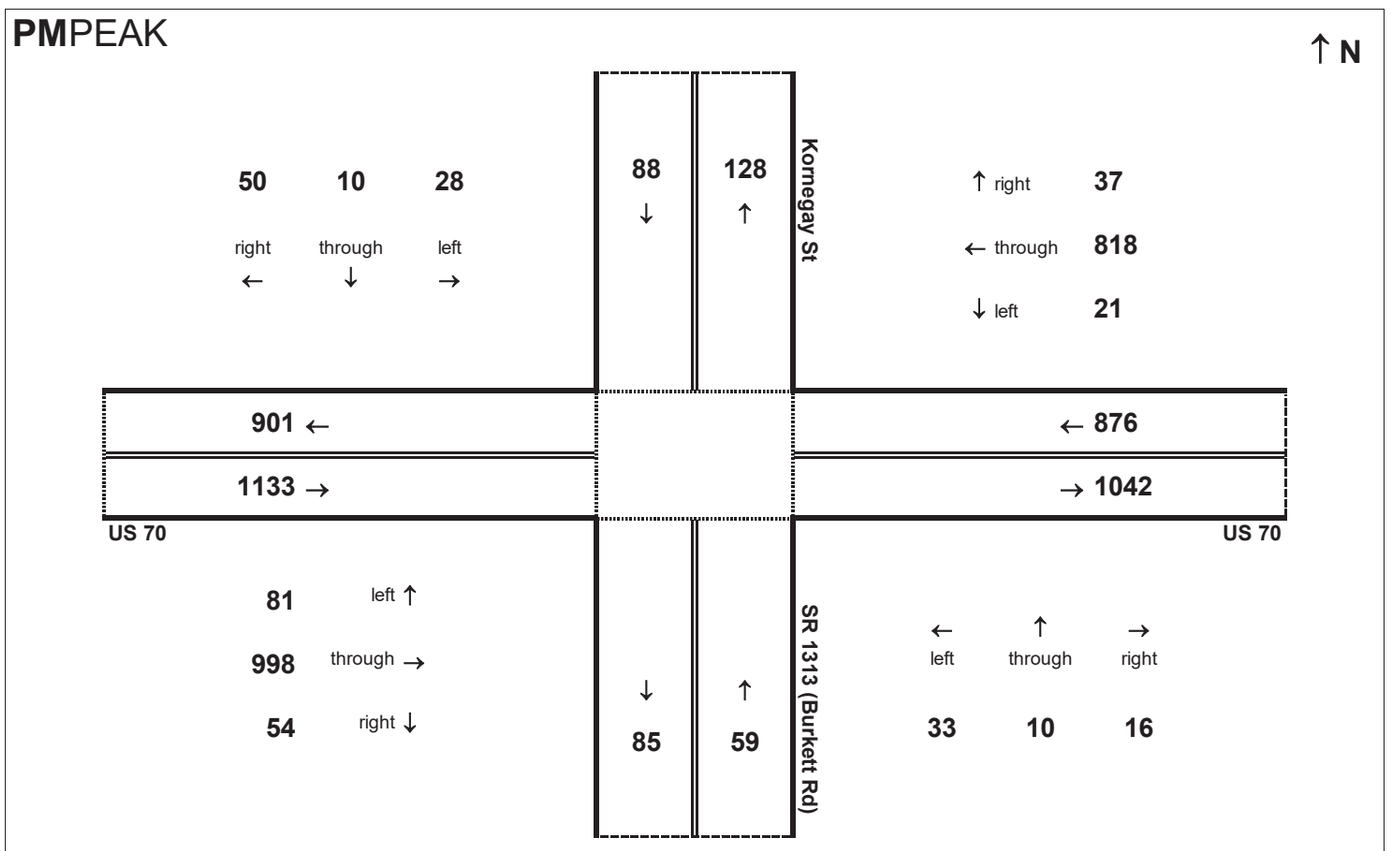
Traffic Forecast Release Date:
November-16

Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553



AM peak hour inflow is 2156 vehicles. AM peak hour outflow is 2156 vehicles.



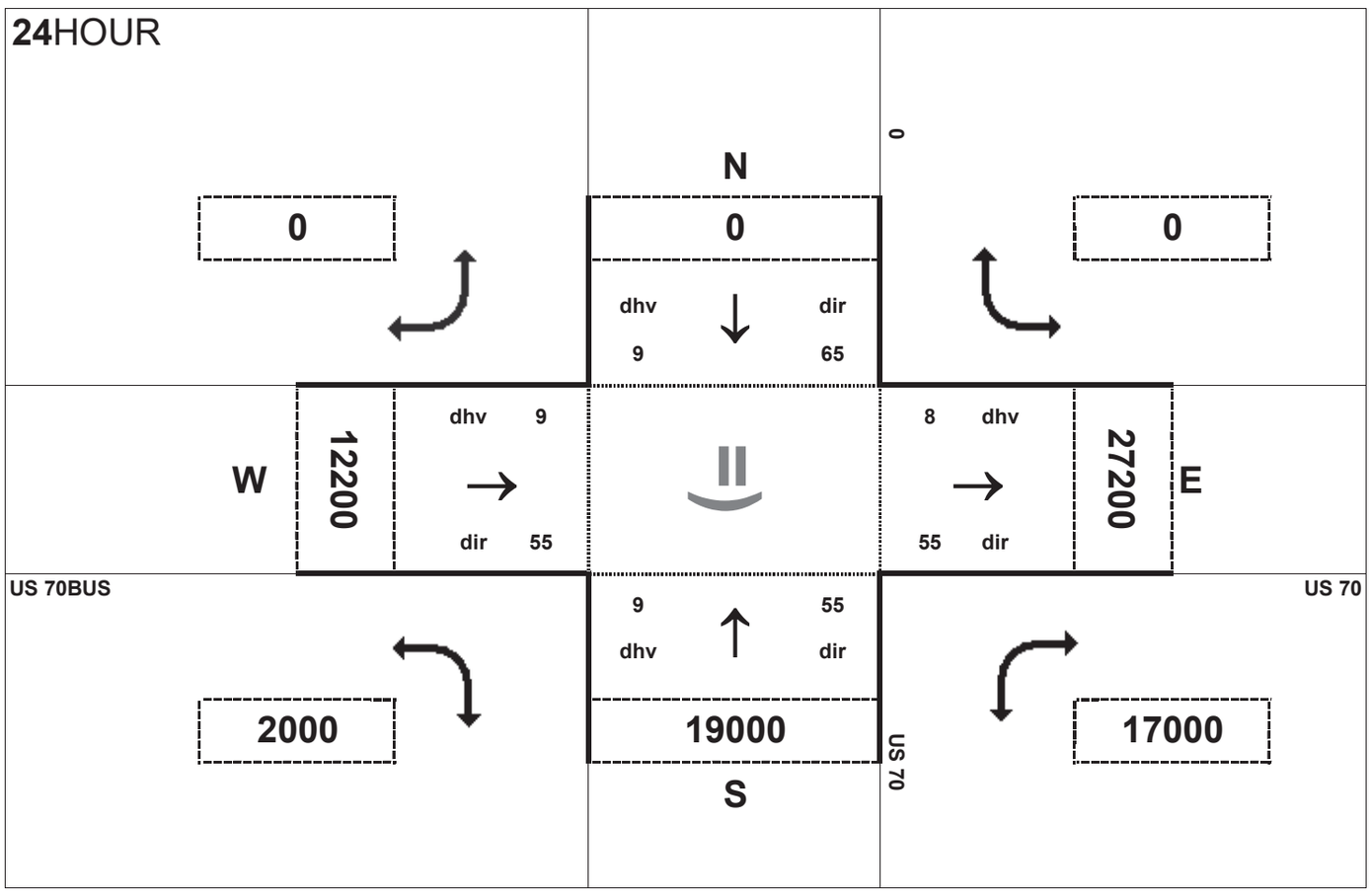
PM peak hour inflow is 2156 vehicles. PM peak hour outflow is 2156 vehicles.

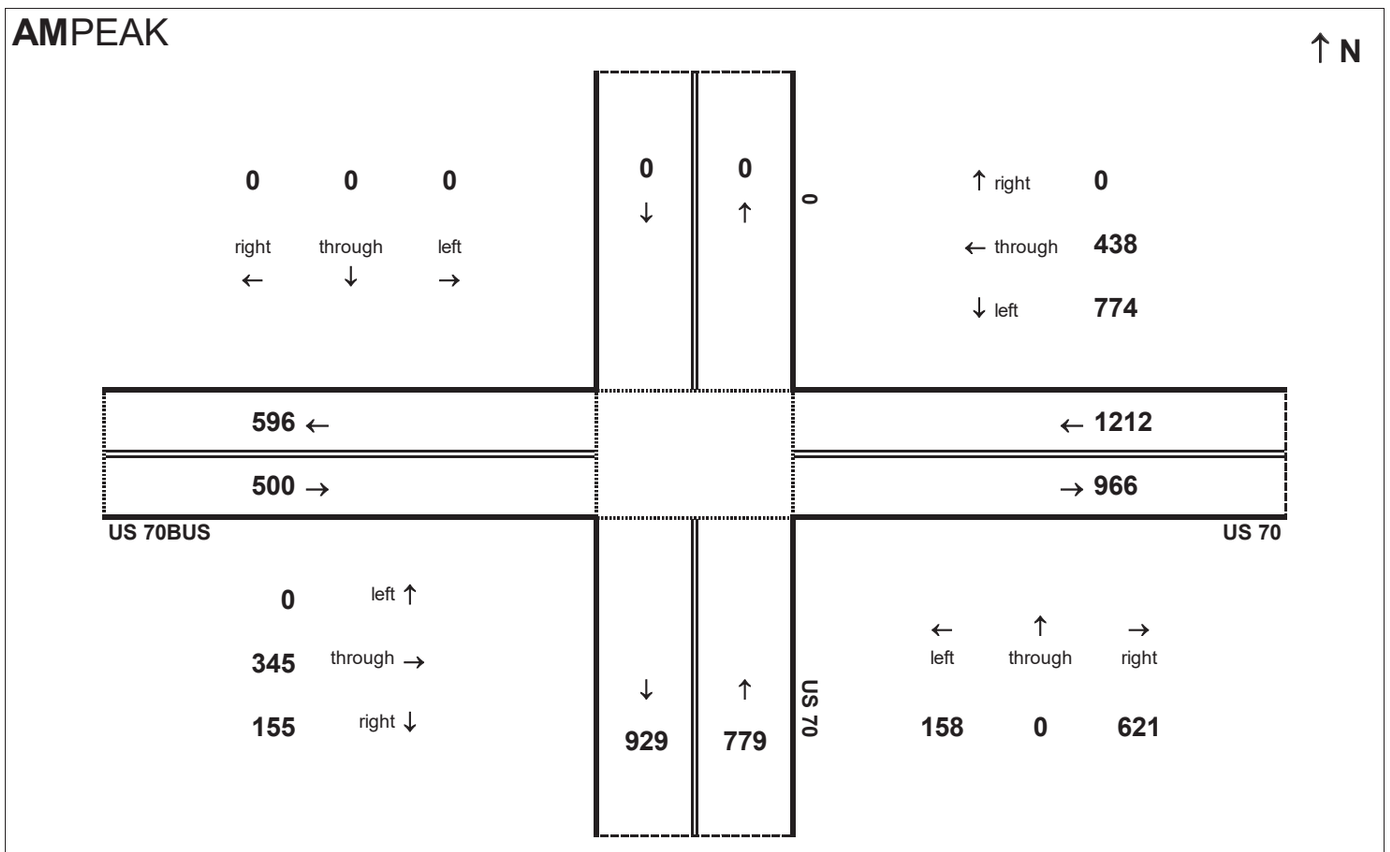
Peak Hour Volume Breakouts Report:
S1 Intersection of US 70 and US 70BUS

Traffic Forecast Release Date:
November-16

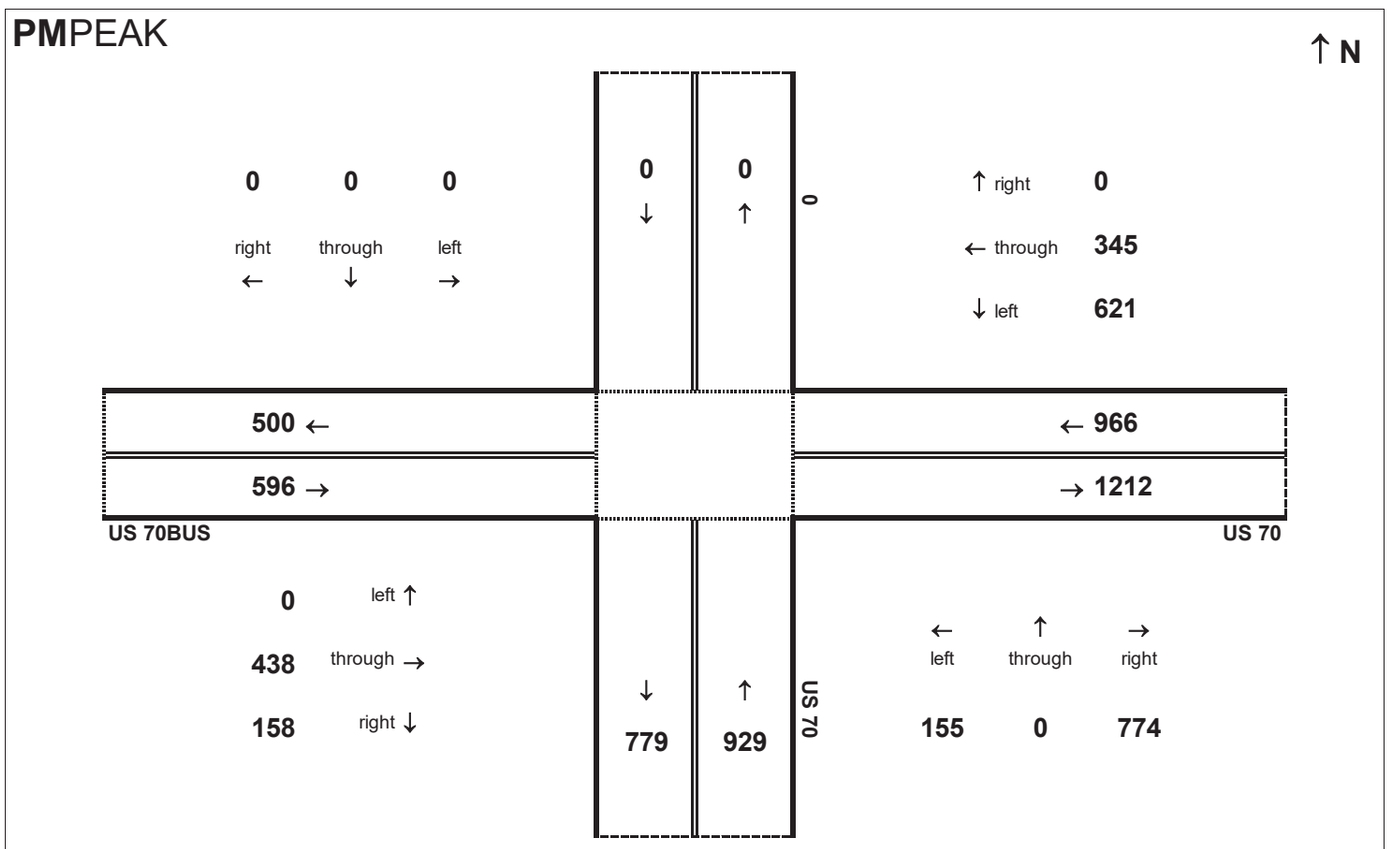
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553





AM peak hour inflow is 2491 vehicles. AM peak hour outflow is 2492 vehicles.



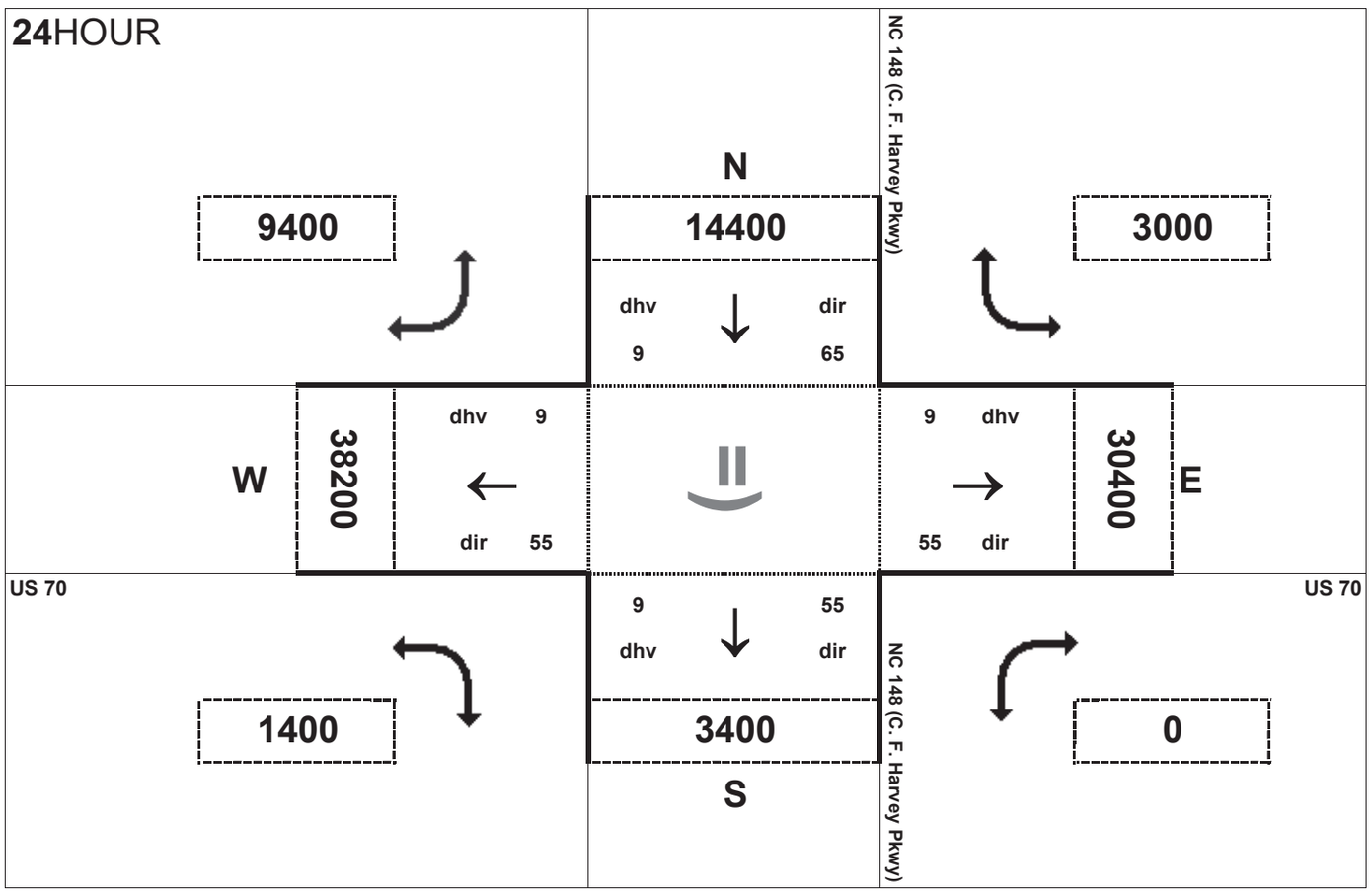
PM peak hour inflow is 2492 vehicles. PM peak hour outflow is 2491 vehicles.

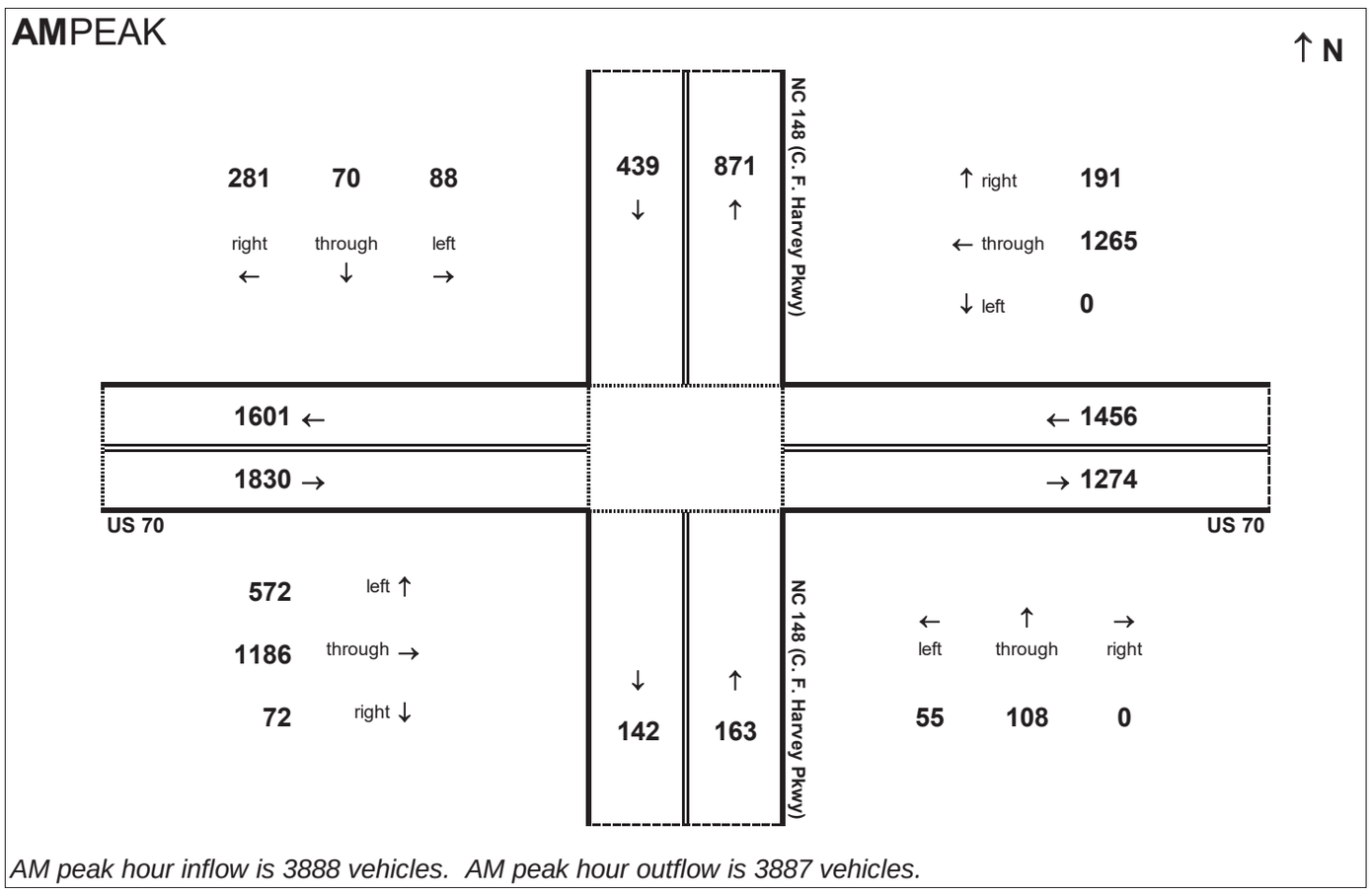
Peak Hour Volume Breakouts Report:
S_2 Intersection of US 70 and NC 148 (C. F. Harvey Pkwy)

Traffic Forecast Release Date:
November-16

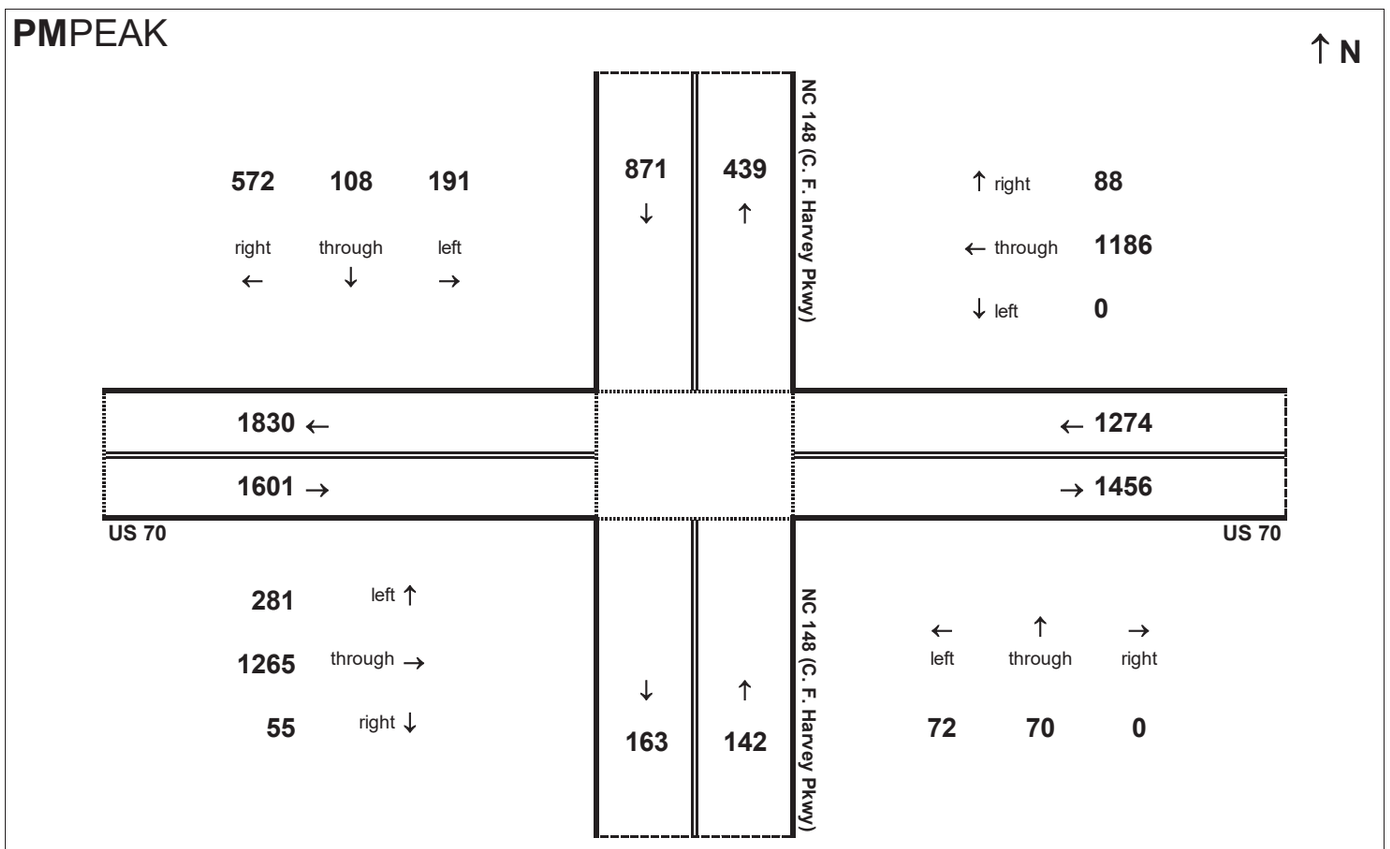
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553





AM peak hour inflow is 3888 vehicles. AM peak hour outflow is 3887 vehicles.



PM peak hour inflow is 3887 vehicles. PM peak hour outflow is 3888 vehicles.

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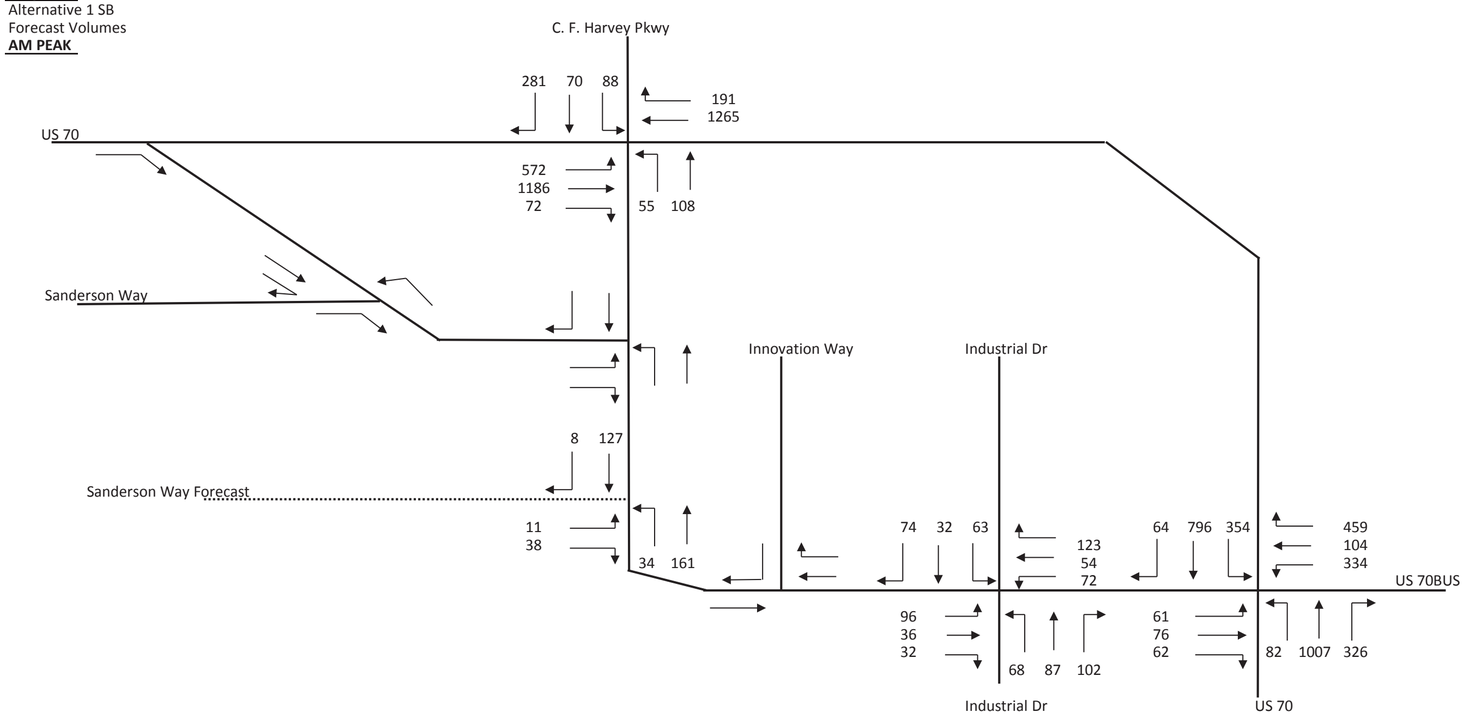
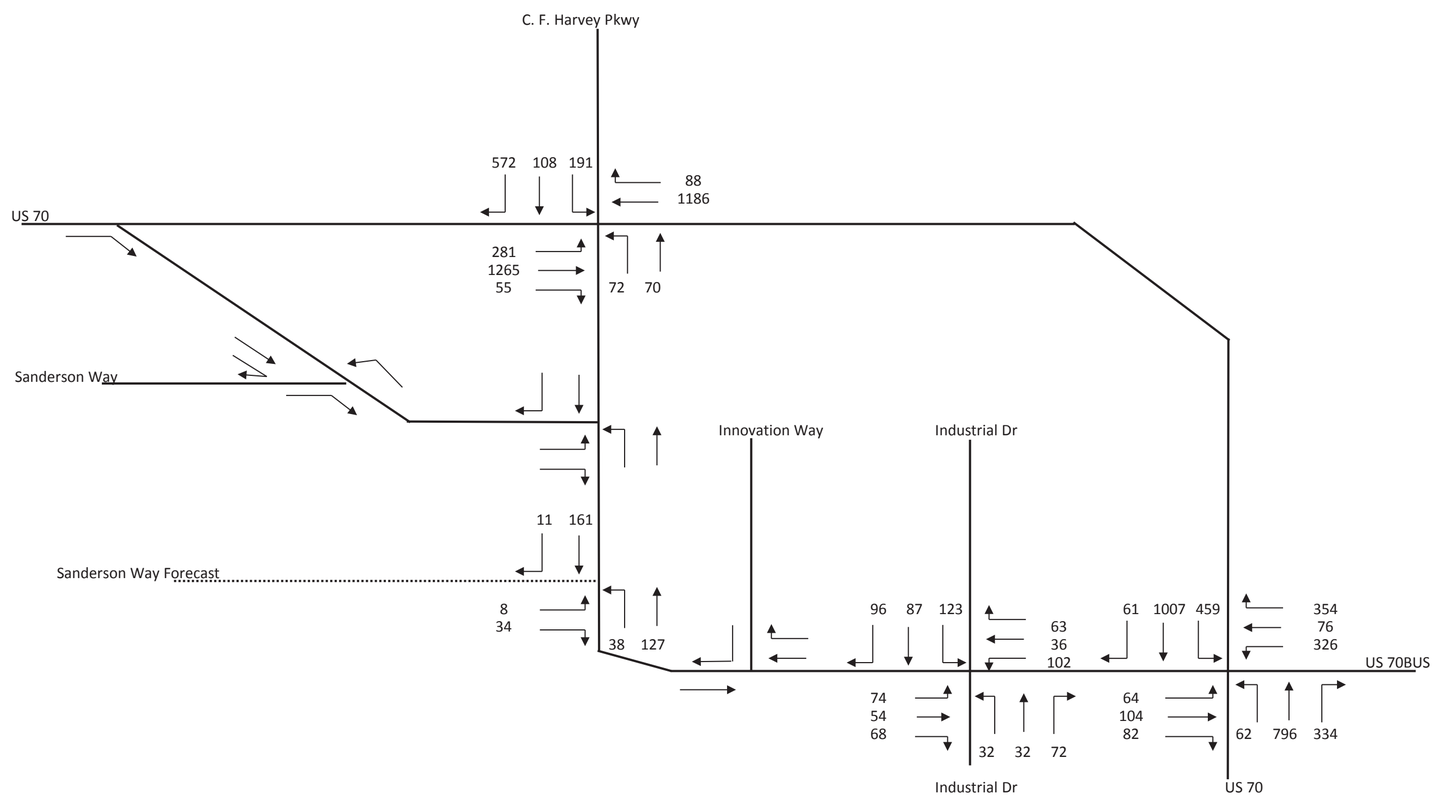
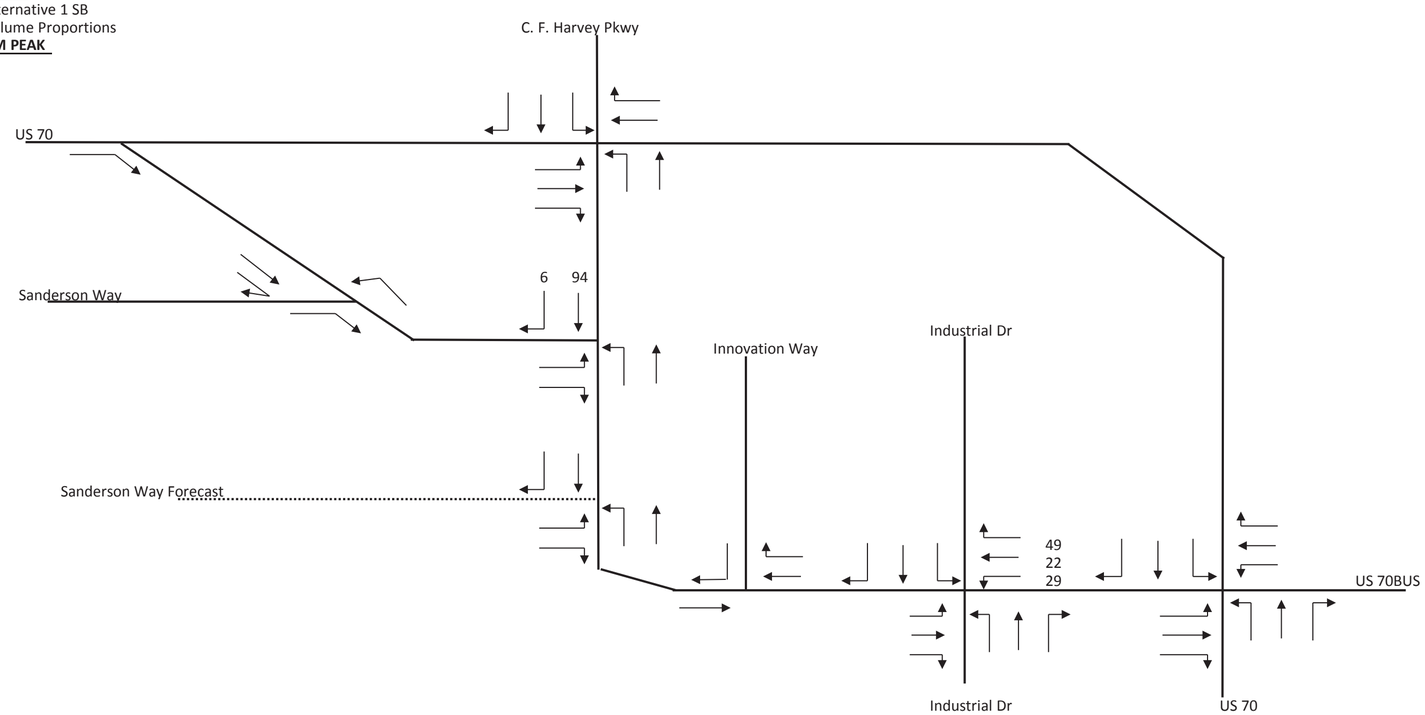
Step 1
Alternative 1 SB
Forecast Volumes
AM PEAK



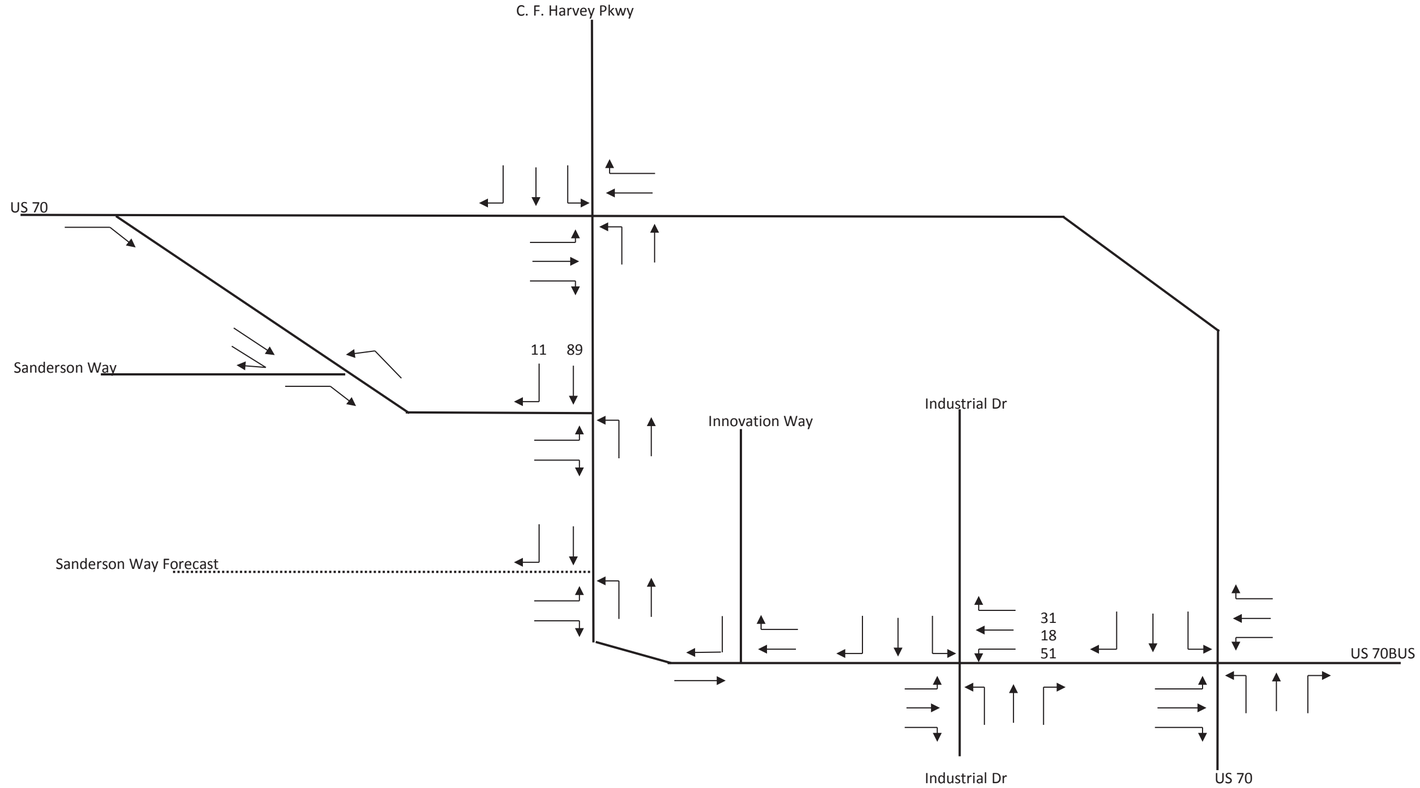
PM PEAK



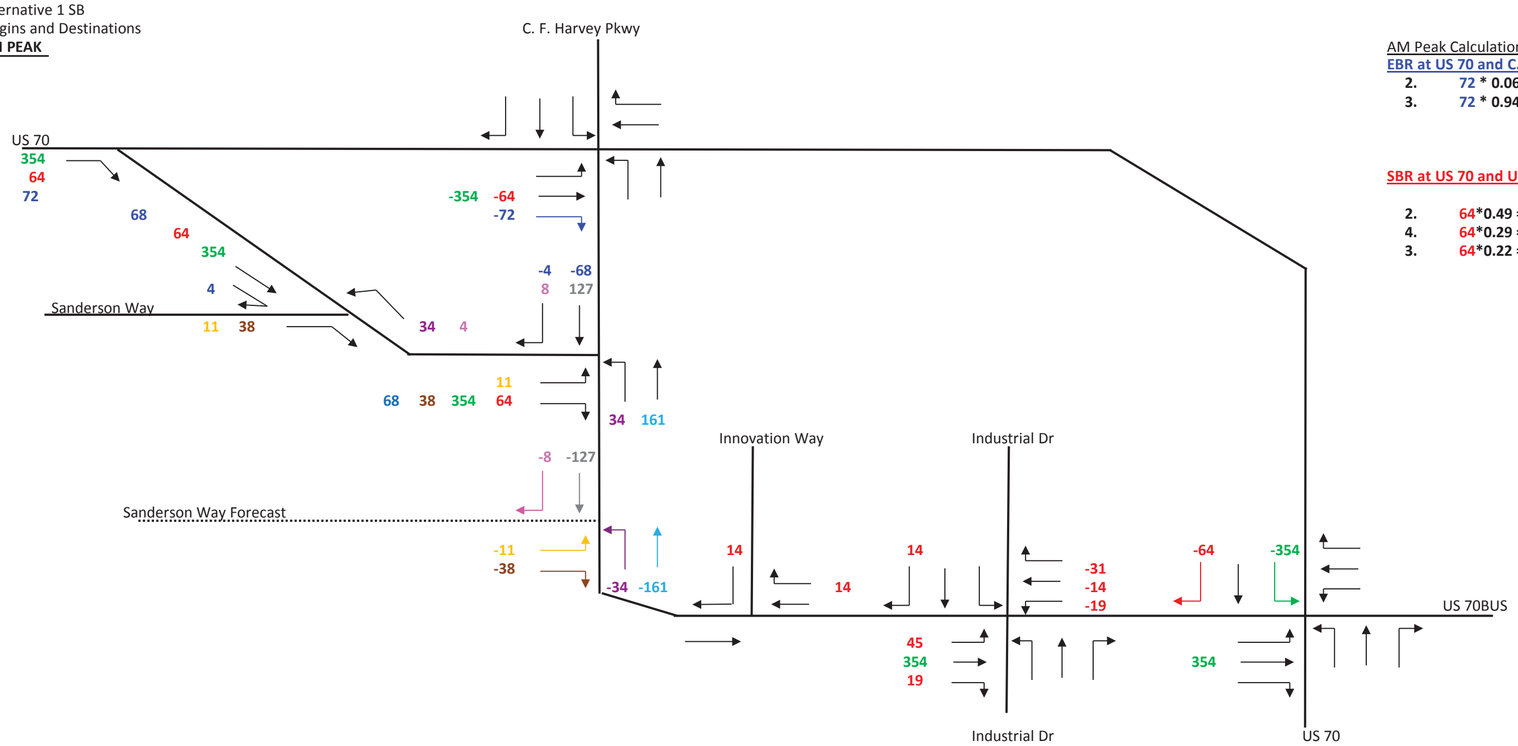
Step 2
Alternative 1 SB
Volume Proportions
AM PEAK



PM PEAK



Step 3
Alternative 1 SB
Origins and Destinations
AM PEAK



AM Peak Calculations

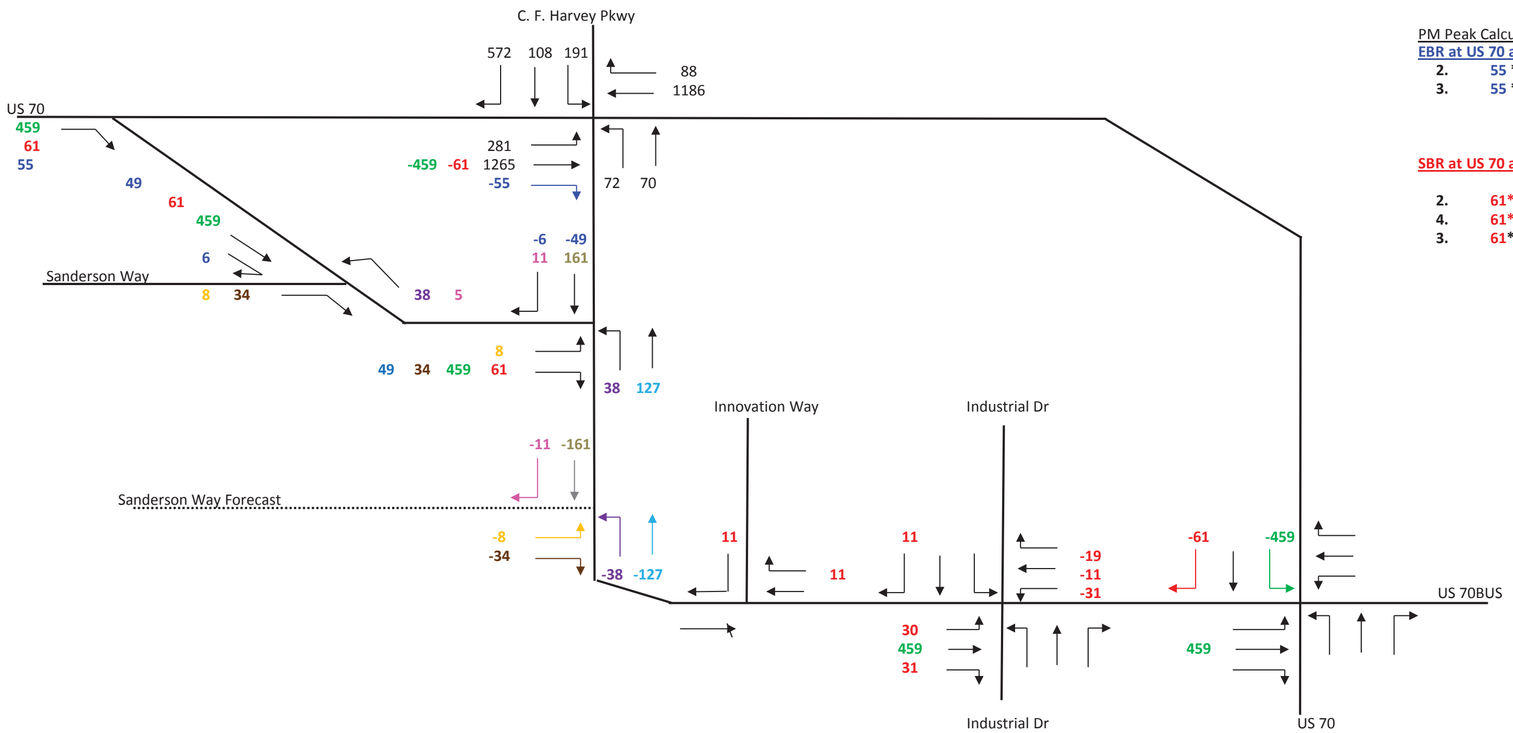
EBR at US 70 and C. F. Harvey

2.	72 * 0.06=	4
3.	72 * 0.94=	68

SBR at US 70 and US 70BUS

2.	64*0.49 =	31
4.	64*0.29 =	19
3.	64*0.22 =	14

PM PEAK



PM Peak Calculations

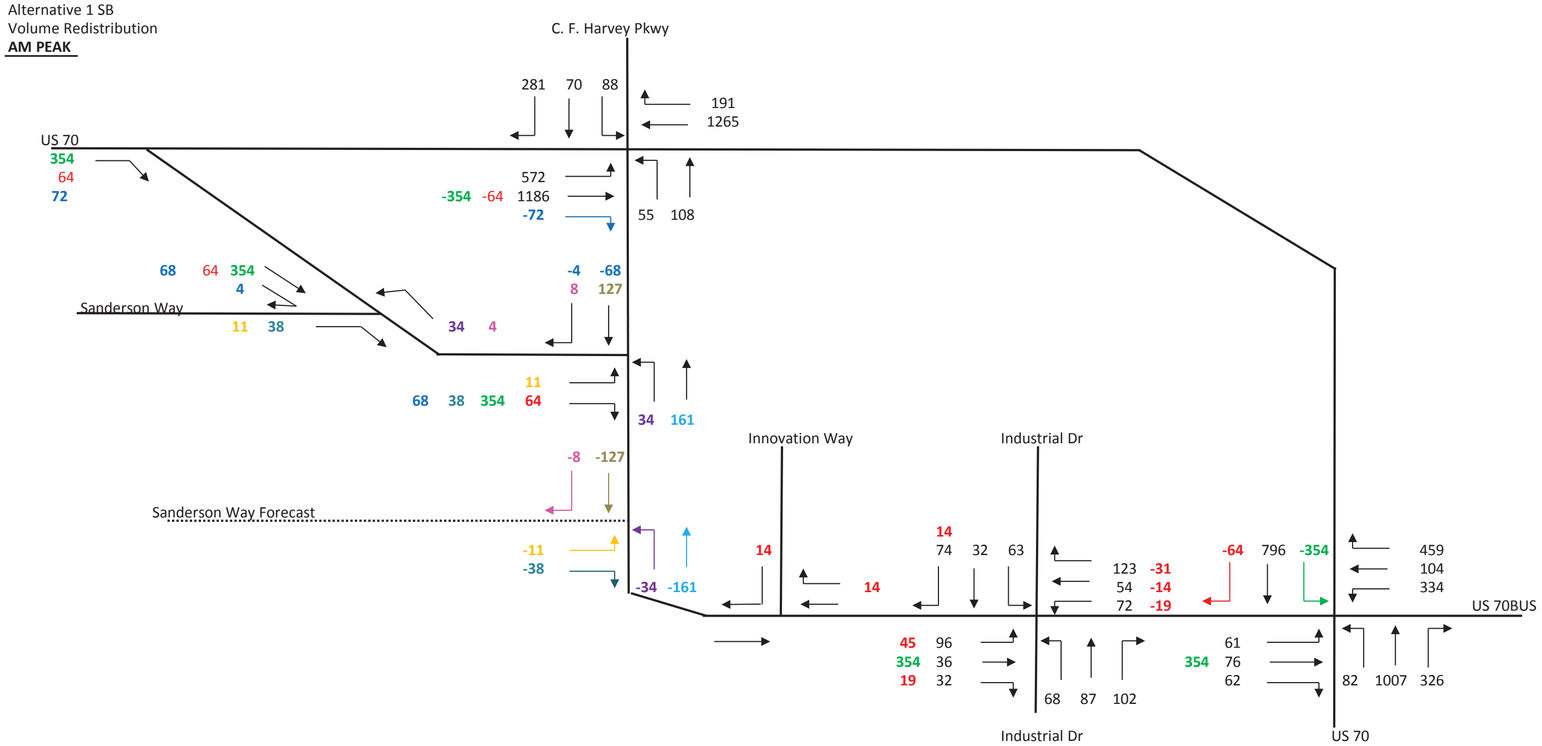
EBR at US 70 and C. F. Harvey

2.	55 * 0.11=	6
3.	55 * 0.89=	49

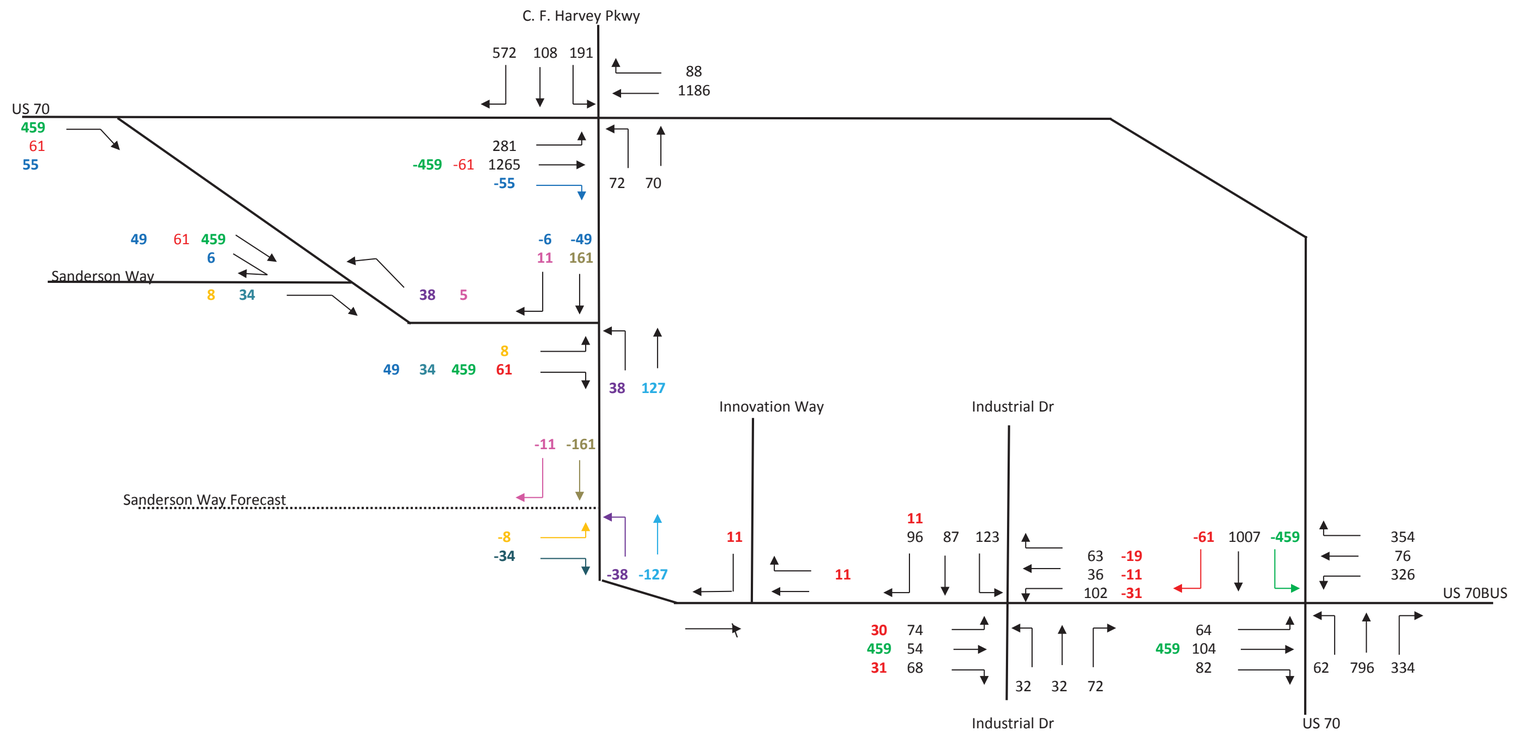
SBR at US 70 and US 70BUS

2.	61*0.31 =	19
4.	61*0.51 =	31
3.	61*0.18 =	11

Step 4
Alternative 1 SB
Volume Redistribution
AM PEAK



PM PEAK



R-2553 Kinson Bypass

2040 Build Alternative 1 SB

Step 1 - Calculating Basic Freeway Segment Volumes

Basic Freeway Segment Volumes - Eastbound							
Seg.	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)	36,200	0.09	0.45	3,258	1,792	1,467
5E	US 70 EB - SR 1690 (Willie Measley Rd) to SR 1522 (Albert Sugg Rd)	38,400	0.09	0.45	3,456	1,901	1,556
9E	US 70 EB - SR 1522 (Albert Sugg Rd) to Sanderson Way Ramp	38,200	0.09	0.45	3,438	1,891	1,548
19E	US 70 EB - US 70BUS To NC 11 / NC 55	29,000	0.09	0.55	2,610	1,175	1,436
23E	US 70 EB - NC 11 to US 258	26,000	0.09	0.55	2,340	1,053	1,287
27E	US 70 EB - US 258 to NC 58	20,000	0.08	0.55	1,600	720	880
31E	US 70 EB - NC 58 to US 70BUS	19,000	0.09	0.55	1,710	770	941
35E	US 70 EB - US 70BUS to SR 1002 (Wyse Fork Rd)	27,200	0.08	0.55	2,176	980	1,197
39E	US 70 EB - SR 1002 (Wyse Fork Rd) to Kornegay St	25,400	0.08	0.55	2,032	915	1,118
43E	US 70 EB - East of Kornegay St	24,000	0.08	0.55	1,920	864	1,056

Basic Freeway Segment Volumes - Westbound							
Seg.	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1W	US 70 WB - East of Kornegay St	24,000	0.08	0.45	1,920	1,056	864
5W	US 70 WB - SR 1002 (Wyse Fork Rd) to Kornegay St	25,400	0.08	0.45	2,032	1,118	915
9W	US 70 WB - US 70BUS to SR 1002 (Wyse Fork Rd)	27,200	0.08	0.45	2,176	1,197	980
13W	US 70 WB - NC 58 to US 70BUS	19,000	0.09	0.45	1,710	941	770
17W	US 70 WB - US 258 to NC 58	20,000	0.08	0.45	1,600	880	720
21W	US 70 WB - NC 11 to US 258	26,000	0.09	0.45	2,340	1,287	1,053
25W	US 70 WB - US 70BUS EB To NC 11	29,000	0.09	0.45	2,610	1,436	1,175
31W	US 70 WB - C. F. Harvey Pkwy NB To US 70BUS	30,400	0.09	0.45	2,736	1,505	1,232
36W	US 70 WB - SR 1522 (Albert Sugg Rd) to C. F. Harvey Pkwy	38,200	0.09	0.55	3,438	1,548	1,891
40W	US 70 WB - SR 1690 (Willie Measley Rd) to SR 1522 (Albert Sugg Rd)	38,400	0.09	0.55	3,456	1,556	1,901
44W	US 70 WB - West of SR 1690 (Willie Measley Rd)	36,200	0.09	0.55	3,258	1,467	1,792

Basic Freeway Segment Volumes - Northbound							
Seg.	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
5N	C. F. Harvey Pkwy NB - North of US 70 / US 70BUS	14,400	0.09	0.35	1,296	843	454

Basic Freeway Segment Volumes - Southbound							
Seg.	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1S	C. F. Harvey Pkwy SB - North of US 70 / US 70BUS	14,400	0.09	0.65	1,296	454	843

R-2553 Kinson Bypass
2040 Build Alternative 1 SB
Step 2 - Compiling Ramp Volumes

US 70 Ramp Volumes								
Description	EB Exit		WB Entrance		EB Entrance		WB Exit	
	AM	PM	AM	PM	AM	PM	AM	PM
US 70 at SR 1690 (Willie Measley Rd)	181	204	204	181	341	250	250	341
US 70 at SR 1522 (Albert Sugg Rd)	150	202	202	150	218	131	131	218
US 70 at Sanderson Way Ramp	490	575						
US 70 at C. F. Harvey Pkwy NB	572	281	55	72			191	88
US 70 at C. F. Harvey Pkwy SB			281	572	88	191		
US 70 at US 70BUS			520	418	334	326	88	66
US 70 at US 70 BUS Eastbound					62	82	326	334
US 70 at NC 11 / NC 55	486	607	607	486	383	434	434	383
US 70 at US 258	464	520	520	464	110	138	138	110
US 70 at NC 58	79	106	106	79	137	156	156	137
US 70 at US 70BUS (E)	158	155	155	158	345	438	438	345
US 70 at SR 1002 (Wyse Fork Rd)	152	199	199	152	105	98	98	105
US 70 at Kornegay St	83	135	135	83	58	44	44	58

R-2553 Kinson Bypass
2040 Build Alternative 1 SB
Step 3 - Adjusting All Segment Volumes

Eastbound, Western End Adjusted Segment Volumes						
Seg.	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)	0.9	1,792	1,467	1,991	1,630
2E	US 70 EB - to SR 1690 (Willie Measley Rd)	0.9	181	204	201	227
4E	US 70 EB - from SR 1690 (Willie Measley Rd)	0.9	341	250	379	278
5E	US 70 EB - SR 1690 (Willie Measley Rd) to SR 1522 (Albert Sugg Rd)	0.9	1,901	1,556	2,112	1,729
6E	US 70 EB - to SR 1522 (Albert Sugg Rd)	0.9	150	202	167	224
8E	US 70 EB - from SR 1522 (Albert Sugg Rd)	0.9	218	131	242	146
9E	US 70 EB - SR 1522 (Albert Sugg Rd) to Sanderson Way Ramp	0.9	1,891	1,548	2,101	1,720
Eastbound, Eastern End Adjusted Segment Volumes						
Seg.	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
19E	US 70 EB - US 70BUS EB to NC 11 / NC 55	0.9	1,175	1,436	1,306	1,596
20E	US 70 EB - to NC 11 / NC 55	0.9	486	607	540	674
22E	US 70 EB - from NC 11 / NC 55	0.9	383	434	426	483
23E	US 70 EB - NC 11 to US 258	0.9	1,053	1,287	1,170	1,430
24E	US 70 EB - to US 258	0.9	464	520	516	578
26E	US 70 EB - from US 258	0.9	110	138	122	153
27E	US 70 EB - US 258 to NC 58	0.9	720	880	800	978
28E	US 70 EB - to NC 58	0.9	79	106	88	118
30E	US 70 EB - from NC 58	0.9	137	156	152	173
31E	US 70 EB - NC 58 to US 70BUS (E)	0.9	770	941	856	1,046
32E	US 70 EB - to US70BUS (E)	0.9	158	155	176	172
34E	US 70 EB - from US70BUS (E)	0.9	345	438	383	487
35E	US 70 EB - US 70BUS (E) to SR 1002 (Wyse Fork Rd)	0.9	980	1,197	1,089	1,330
36E	US 70 EB - to SR 1002 (Wyse Fork Rd)	0.9	152	199	169	221
38E	US 70 EB - from SR 1002 (Wyse Fork Rd)	0.9	105	98	117	109
39E	US 70 EB - SR 1002 (Wyse Fork Rd) to Kornegay St	0.9	915	1,118	1,017	1,242
40E	US 70 EB - to Kornegay St	0.9	83	135	92	150
42E	US 70 EB - from Kornegay St	0.9	58	44	64	48
43E	US 70 EB - East of Kornegay St	0.9	864	1,056	960	1,173

Western End Maximum Volume	2,112	1,729
Eastern End Maximum Volume	1,306	1,596

XXX	Ramp
XXX	Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 1 SB
Step 3 - Adjusting All Segment Volumes

Westbound, Eastern End Adjusted Segment Volumes						
Seg.	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1W	US 70 WB - East of Kornegay St	0.9	1,056	864	1,173	960
2W	US 70 WB - to Kornegay St	0.9	44	58	49	64
4W	US 70 WB - from Kornegay St	0.9	135	83	150	92
5W	US 70 WB - SR 1002 (Wise Fork Rd) to Kornegay St	0.9	1,118	915	1,242	1,017
6W	US 70 WB - to SR 1002 (Wyse Fork Rd)	0.9	98	105	109	117
8W	US 70 WB - from SR 1002 (Wyse Fork Rd)	0.9	199	152	221	169
9W	US 70 WB - US 70BUS (E) to SR 1002 (Wyse Fork Rd)	0.9	1,197	980	1,330	1,089
10W	US 70 WB - to US 70BUS (E)	0.9	438	345	487	383
12W	US 70 WB - from US 70BUS (E)	0.9	155	158	172	176
13W	US 70 WB - NC 58 to to US 70BUS (E)	0.9	941	770	1,046	856
14W	US 70 WB - to NC 58	0.9	156	137	173	152
16W	US 70 WB - from NC 58	0.9	106	79	118	88
17W	US 70 WB - US 258 to NC 58	0.9	880	720	978	800
18W	US 70 WB - to US 258	0.9	138	110	153	122
20W	US 70 WB - from US 258	0.9	520	464	578	516
21W	US 70 WB - NC 11 / NC 55 to US 258	0.9	1,287	1,053	1,430	1,170
22W	US 70 WB - to NC 11 / NC 55	0.9	434	383	482	426
24W	US 70 WB - from NC 11 / NC 55	0.9	607	486	674	540
25W	US 70 WB - US 70BUS EB to NC 11 / NC 55	0.9	1,436	1,175	1,596	1,306

Westbound, Western End Adjusted Segment Volumes						
Seg.	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
36W	US 70 WB - SR 1522 (Albert Sugg Rd) to C. F. Harvey Pkwy	0.9	1,548	1,891	1,720	2,101
37W	US 70 WB - to SR 1522 (Albert Sugg Rd)	0.9	131	218	146	242
39W	US 70 WB - from SR 1522 (Albert Sugg Rd)	0.9	202	150	224	167
40W	US 70 WB - SR 1690 (Willie Measley Rd) to SR 1522 (Albert Sugg Rd)	0.9	1,556	1,901	1,729	2,112
41W	US 70 WB - to SR 1690 (Willie Measley Rd)	0.9	250	341	278	379
43W	US 70 WB - from SR 1690 (Willie Measley Rd)	0.9	204	181	227	201
44W	US 70 WB - West of SR 1690 (Willie Measley Rd)	0.9	1,467	1,792	1,630	1,991

Western End Maximum Volume	1,729	2,112
Eastern End Maximum Volume	1,596	1,306

XXX	Ramp
XXX	Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 1 SB
Step 4 - Balancing Freeway Segment Volumes

US 70 Eastbound Western End Freeway Volume Balancing					
Seg.	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)			1,934	1,678
2E	US 70 EB - to SR 1690 (Willie Measley Rd)	201	227		
3E	US 70 EB - within SR 1690 (Willie Measley Rd) interchange			1,733	1,451
4E	US 70 EB - from SR 1690 (Willie Measley Rd)	379	278		
5E	US 70 EB - SR 1690 (Willie Measley Rd) to SR 1522 (Albert Sugg Rd)			**2,112**	**1,729**
6E	US 70 EB - to SR 1522 (Albert Sugg Rd)	167	224		
7E	US 70 EB - within SR 1522 (Albert Sugg Rd) interchange			1,945	1,505
8E	US 70 EB - from SR 1522 (Albert Sugg Rd)	242	146		
9E	US 70 EB - SR 1522 (Albert Sugg Rd) to Sanderson Way Ramp			2,187	1,651

US 70 Eastbound Eastern End Freeway Volume Balancing					
Seg.	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
19E	US 70 EB - US 70BUS EB to NC 11 / NC 55			**1,306**	**1,596**
20E	US 70 EB - to NC 11 / NC 55	540	674		
21E	US 70 EB - within NC 11 / NC 55 interchange			766	922
22E	US 70 EB - from NC 11 / NC 55	426	483		
23E	US 70 EB - NC 11 to US 258			1,192	1,405
24E	US 70 EB - to US 258	516	578		
25E	US 70 EB - within US 258 interchange			676	827
26E	US 70 EB - from US 258	122	153		
27E	US 70 EB - US 258 to NC 58			798	980
28E	US 70 EB - to NC 58	88	118		
29E	US 70 EB - within NC 58 interchange			710	862
30E	US 70 EB - from NC 58	152	173		
31E	US 70 EB - NC 58 to US 70BUS (E)			862	1,035
32E	US 70 EB - to US70BUS (E)	176	172		
33E	US 70 EB - within US70BUS (E) interhange			686	863
34E	US 70 EB - from US70BUS (E)	383	487		
35E	US 70 EB - US 70BUS (E) to SR 1002 (Wyse Fork Rd)			1,069	1,350
36E	US 70 EB - to SR 1002 (Wyse Fork Rd)	169	221		
37E	US 70 EB - within SR 1002 (Wyse Fork Rd) interhange			900	1,129
38E	US 70 EB - from SR 1002 (Wyse Fork Rd)	117	109		
39E	US 70 EB - SR 1002 (Wyse Fork Rd) to Kornegay St			1,017	1,238
40E	US 70 EB - to Kornegay St	92	150		
41E	US 70 EB - within Kornegay St interchange			925	1,088
42E	US 70 EB - from Kornegay St	64	48		
43E	US 70 EB - East of Kornegay St			989	1,136

	Western End Balance Point
	Eastern End Balance Point
XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 1 SB
Step 4 - Balancing Freeway Segment Volumes

US 70 Westbound Eastern End Freeway Volume Balancing					
Seg.	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1W	US 70 WB - East of Kornegay St			1,136	989
2W	US 70 WB - to Kornegay St	49	64		
3W	US 70 WB - within Kornegay St interchange			1,087	925
4W	US 70 WB - from Kornegay St	150	92		
5W	US 70 WB - SR 1002 (Wyse Fork Rd) to Kornegay St			1,237	1,017
6W	US 70 WB - to SR 1002 (Wyse Fork Rd)	109	117		
7W	US 70 WB - within SR 1002 (Wyse Fork Rd) interhange			1,128	900
8W	US 70 WB - from SR 1002 (Wyse Fork Rd)	221	169		
9W	US 70 WB - US 70BUS (E) to SR 1002 (Wyse Fork Rd)			1,349	1,069
10W	US 70 WB - to US70BUS (E)	487	383		
11W	US 70 WB - within US70BUS (E) interhange			862	686
12W	US 70 WB - from US70BUS (E)	172	176		
13W	US 70 WB - NC 58 to US 70BUS (E)			1,034	862
14W	US 70 WB - to NC 58	173	152		
15W	US 70 WB - within NC 58 interchange			861	710
16W	US 70 WB - from NC 58	118	88		
17W	US 70 WB - US 258 to NC 58			979	798
18W	US 70 WB - to US 258	153	122		
19W	US 70 WB - within US 258 interchange			826	676
20W	US 70 WB - from US 258	578	516		
21W	US 70 WB - NC 11 to US 258			1,404	1,192
22W	US 70 WB - to NC 11 / NC 55	482	426		
23W	US 70 WB - within NC 11 / NC 55 interchange			922	766
24W	US 70 WB - from NC 11 / NC 55	674	540		
25W	US 70 WB - US 70BUS EB to NC 11 / NC 55			**1,596**	**1,306**

US 70 Westbound Western End Freeway Volume Balancing					
Seg.	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
36W	US 70 WB - SR 1522 (Albert Sugg Rd) to C. F. Harvey Pkwy SB			1,651	2,187
37W	US 70 WB - to SR 1522 (Albert Sugg Rd)	146	242		
38W	US 70 WB - within SR 1522 (Albert Sugg Rd) interchange			1,505	1,945
39W	US 70 WB - from SR 1522 (Albert Sugg Rd)	224	167		
40W	US 70 WB - SR 1690 (Willie Measley Rd) to SR 1522 (Albert Sugg Rd)			**1,729**	**2,112**
41W	US 70 WB - to SR 1690 (Willie Measley Rd)	278	379		
42W	US 70 WB - within SR 1690 (Willie Measley Rd) interchange			1,451	1,733
43W	US 70 WB - from SR 1690 (Willie Measley Rd)	227	201		
44W	US 70 WB - West of SR 1690 (Willie Measley Rd)			1,678	1,934

	Western End Balance Point
	Eastern End Balance Point
XXX	Ramp
XXX	Basic Freeway Segment

2040 Build Alternative 1 SB
FREEVAL-E and HCS
Reports

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HIGHWAY CAPACITY SOFTWARE 2010 (Release 6.80)

NETWORK DATA SUMMARY - ANALYSIS NOTES

General Information		Site Information	
Analyst	AECOM	**Date Performed**	2017
Agency or Company		**Analysis Year**	2040 Build
Project Description	R-2553 Kinston Bypass - Alt 1 SB Build Conditions		

Date of NCDOT Capacity Analysis Guidelines for TIP Project Analyses used for this Study: **July, 2015**

Default Values - Freeways

Peak Hour Factor (PHF)	0.90	NCDOT Standard
Terrain	Rolling	AASHTO Classification
Driver Population Factor	1.00	NCDOT Standard
Truck Percentages	1/2 of TTST+Duals	NCDOT Standard (rounded up)
Measured Free-Flow Speed for Freeway	Varies	Based on average measured speeds gathered from INRIX data provided from the year 2013.
Freeway Type	Urban/Rural	AASHTO Classification
Base Free-flow Speed - Ramps (where no posted speed exists)	Ramp: 45 mph	NCDOT Standard
	Loop: 25 mph	
Y-line Truck Percentages - Ramps	Same as Y-line truck percentage	Due to more through trips by trucks this is most reasonable method
Y-line Truck Percentages - Weaving	Use Freeway truck percentage for all movements	NCDOT Standard

Default Values - Signalized Intersections

Signal System Type	Coordinated	NCDOT Standard
Right Turn on Red	Not Allowed	NCDOT Standard
Total Loss Time	5 sec.	NCDOT Standard
Yellow/All Red	5 sec./2 sec.	NCDOT Standard
Minimum Initial Green	7 sec. - Minor	NCDOT Standard
	10-14 sec. - Major (based on speed)	
Minimum Cycle Length	60 sec - 2 phases	NCDOT Standard
	90 sec - 3 phases	
	120 sec - 4-8 phases	
Maximum Cycle Length	180 sec.	NCDOT Recommendation
Saturation Flow Rate	1900 vphpl	NCDOT Standard

Level of Service Standards - HCS Segments

Level of Service Standards - Signalized Intersections

Assumed Improvements

TIP No.	Description

General Analysis Notes

- ►Ramp Acceleration/Deceleration Length - Measured from the point where the edge of the ramp lane and edge of freeway lane converge to the end of the taper
- ►Basic Freeway Segment Volumes: Peak Hour Volumes from traffic forecast
- ►Ramp Junction Volumes: Peak Hour Volumes from traffic forecast
- ►Ramp Junctions - Maximum adjacent ramp distance in HCS is 9999 ft. Distances greater than this will be shown in HCS as 9999 ft.
- ►Basic Freeway Segments within interchanges - Higher of two heavy vehicle percentages will be used if between segments with two different values.
- ►Ramp Junctions - Higher of two heavy vehicle percentages will be used if exiting to or entering from y-line with two different values.
- ►Freeway to freeway ramps are analyzed with speeds 5 mph below design speed.

Design Specific Analysis Notes

Analysis Points **Note**

HIGHWAY CAPACITY SOFTWARE 2010

NETWORK DATA SUMMARY - BASIC FREEWAY SEGMENTS

General Information		Site Information	
Analyst	AECOM	**Date Performed**	2017
Agency or Company		**Analysis Year**	2040 Build
Project Description	R-2553 Kinston Bypass - Alt 1 SB Build Conditions		

11E

US 70 EB - Ramp to US 70 Bus to Ramp to C.F. Harvey Parkway NB

AM Peak Volume	1340	
PM Peak Volume	1026	
Peak Hour Factor	0.90	
Number of Lanes	2	
Terrain	Level	
Truck Percentage	6%	
Driver Pop. Adj.	1.00	
Measured FFS	70	mph
Lane Width	N/A	ft
Right Side Clearance	N/A	ft
Total Ramp Density	N/A	ramp/mi

13E

US 70 EB - Ramp to C.F. Harvey Parkway NB to Ramp from C.F. Harvey Parkway SB

AM Peak Volume	768	
PM Peak Volume	745	
NCDOT Standard	0.90	
Number of Lanes	2	
Terrain	Level	
Truck Percentage	6%	
Driver Pop. Adj.	1.00	
Measured FFS	70	mph
Lane Width	N/A	ft
Right Side Clearance	N/A	ft
Total Ramp Density	N/A	ramp/mi

15E

US 70 EB - C.F. Harvey Parkway to Ramp from US 70 Bus WB

AM Peak Volume	856	
PM Peak Volume	936	
Peak Hour Factor	0.90	
Number of Lanes	2	
Terrain	Level	
Truck Percentage	8%	
Driver Pop. Adj.	1.00	
Measured FFS	70	mph
Lane Width	N/A	ft
Right Side Clearance	N/A	ft
Total Ramp Density	N/A	ramp/mi

17E

US 70 EB - Ramp from US 70 Bus WB to Ramp from US 70 Bus EB

AM Peak Volume	1190	
PM Peak Volume	1262	
Peak Hour Factor	0.90	
Number of Lanes	2	
Terrain	Level	
Truck Percentage	8%	
Driver Pop. Adj.	1.00	
Measured FFS	70	mph
Lane Width	N/A	ft
Right Side Clearance	N/A	ft
Total Ramp Density	N/A	ramp/mi

HIGHWAY CAPACITY SOFTWARE 2010

NETWORK DATA SUMMARY - RAMP MERGE AND DIVERGE SEGMENTS

General Information		Site Information	
Analyst	AECOM	**Date Performed**	2017
Agency or Company		**Analysis Year**	2040 Build
Project Description	R-2553 Kinston Bypass - Alt 1 SB Build Conditions		

10E

US 70 EB - to US 70 Bus

Merge/Diverge	Diverge	
No. of lanes on Freeway	2	
Freeway FFS	70	mph
Freeway Volume (AM/PM)	1,891	1,548
Ramp Side (Left or Right)	Right	
Ramp FFS	45	mph
Ramp Volume (AM/PM)	490	575
No. Lanes on Ramp	1	
Accel/Decel Distance 1	490	ft
Accel/Decel Distance 2	N/A	ft
Adjacent Upstream	N/A	
Off/On	N/A	
Distance	N/A	ft
Truck %	N/A	
Ramp Volume (AM/PM)	N/A	N/A
Adjacent Downstream	N/A	
Off/On	N/A	
Distance	N/A	ft
Truck %	N/A	
Ramp Volume (AM/PM)	N/A	N/A
Peak Hour Factor	0.90	
Terrain	Level	
Population Adj. Factor	1.00	
Freeway Truck %	6%	
Ramp Truck %	6%	

12E

US 70 EB - to C.F. Harvey Parkway NB

Merge/Diverge	Diverge	
No. of lanes on Freeway	2	
Freeway FFS	70	mph
Freeway Volume (AM/PM)	1,340	1,026
Ramp Side (Left or Right)	Right	
Ramp FFS	60	mph
Ramp Volume (AM/PM)	572	281
No. Lanes on Ramp	2	
Accel/Decel Distance 1	2,500	ft
Accel/Decel Distance 2	N/A	ft
Adjacent Upstream	N/A	
Off/On	N/A	
Distance	N/A	ft
Truck %	N/A	
Ramp Volume (AM/PM)	N/A	N/A
Adjacent Downstream	N/A	
Off/On	N/A	
Distance	N/A	ft
Truck %	N/A	
Ramp Volume (AM/PM)	N/A	N/A
Peak Hour Factor	0.90	
Terrain	Level	
Population Adj. Factor	1.00	
Freeway Truck %	6%	
Ramp Truck %	7%	

14E

US 70 EB - from C.F. Harvey Parkwy SB

Merge/Diverge	Merge	
No. of lanes on Freeway	2	
Freeway FFS	70	mph
Freeway Volume (AM/PM)	768	745
Ramp Side (Left or Right)	Right	
Ramp FFS	25	mph
Ramp Volume (AM/PM)	88	191
No. Lanes on Ramp	1	
Accel/Decel Distance 1	1,620	ft
Accel/Decel Distance 2	N/A	ft
Adjacent Upstream	N/A	
Off/On	N/A	
Distance	N/A	ft
Truck %	N/A	
Ramp Volume (AM/PM)	N/A	N/A
Adjacent Downstream	N/A	
Off/On	N/A	
Distance	N/A	ft
Truck %	N/A	
Ramp Volume (AM/PM)	N/A	N/A
Peak Hour Factor	0.90	
Terrain	Level	
Population Adj. Factor	1.00	
Freeway Truck %	6%	
Ramp Truck %	7%	

16E

US 70 EB - from US 70 Bus WB

Merge/Diverge	Merge	
No. of lanes on Freeway	2	
Freeway FFS	70	mph
Freeway Volume (AM/PM)	856	936
Ramp Side (Left or Right)	Right	
Ramp FFS	25	mph
Ramp Volume (AM/PM)	334	326
No. Lanes on Ramp	1	
Accel/Decel Distance 1	1,620	ft
Accel/Decel Distance 2	N/A	ft
Adjacent Upstream	N/A	
Off/On	N/A	
Distance	N/A	ft
Truck %	N/A	
Ramp Volume (AM/PM)	N/A	N/A
Adjacent Downstream	N/A	
Off/On	N/A	
Distance	N/A	ft
Truck %	N/A	
Ramp Volume (AM/PM)	N/A	N/A
Peak Hour Factor	0.90	
Terrain	Level	
Population Adj. Factor	1.00	
Freeway Truck %	8%	
Ramp Truck %	5%	

18E

US 70 EB - from US 70 Bus EB

Merge/Diverge	Merge	
No. of lanes on Freeway	2	
Freeway FFS	70	mph
Freeway Volume (AM/PM)	1,190	1,262
Ramp Side (Left or Right)	Right	
Ramp FFS	45	mph
Ramp Volume (AM/PM)	62	82
No. Lanes on Ramp	1	
Accel/Decel Distance 1	920	ft
Accel/Decel Distance 2	N/A	ft
Adjacent Upstream	N/A	
Off/On	N/A	
Distance	N/A	ft
Truck %	N/A	
Ramp Volume (AM/PM)	N/A	N/A
Adjacent Downstream	N/A	
Off/On	N/A	
Distance	N/A	ft
Truck %	N/A	
Ramp Volume (AM/PM)	N/A	N/A
Peak Hour Factor	0.90	
Terrain	Level	
Population Adj. Factor	1.00	
Freeway Truck %	8%	
Ramp Truck %	5%	

HIGHWAY CAPACITY SOFTWARE 2010

NETWORK DATA SUMMARY - BASIC FREEWAY SEGMENTS

General Information		Site Information	
Analyst	AECOM	**Date Performed**	2017
Agency or Company		**Analysis Year**	2040 Build
Project Description	R-2553 Kinston Bypass - Alt 1 SB Build Conditions		

28W

US 70 WB - Within US 70 Bus Int.

AM Peak Volume	1007	
PM Peak Volume	796	
Peak Hour Factor	0.90	
Number of Lanes	2	
Terrain	Level	
Truck Percentage	8%	
Driver Pop. Adj.	1.00	
Measured FFS	70	mph
Lane Width	N/A	ft
Right Side Clearance	N/A	ft
Total Ramp Density	N/A	ramp/mi

30W

US 70 WB - US 70 Bus to C.F. Harvey Parkway

AM Peak Volume	1505	
PM Peak Volume	1232	
NCDOT Standard	0.90	
Number of Lanes	2	
Terrain	Level	
Truck Percentage	8%	
Driver Pop. Adj.	1.00	
Measured FFS	70	mph
Lane Width	N/A	ft
Right Side Clearance	N/A	ft
Total Ramp Density	N/A	ramp/mi

32W

US 70 WB - Ramp to C.F. Harvey Parkway NB to Ramp from C.F. Harvey Parkway NB

AM Peak Volume	1265	
PM Peak Volume	1186	
Peak Hour Factor	0.90	
Number of Lanes	2	
Terrain	Level	
Truck Percentage	8%	
Driver Pop. Adj.	1.00	
Measured FFS	70	mph
Lane Width	N/A	ft
Right Side Clearance	N/A	ft
Total Ramp Density	N/A	ramp/mi

34W

US 70 WB - Ramp from C.F. Harvey Parkway NB to Ramp from C.F. Harvey Parkway SB

AM Peak Volume	1320	
PM Peak Volume	1258	
Peak Hour Factor	0.90	
Number of Lanes	2	
Terrain	Level	
Truck Percentage	8%	
Driver Pop. Adj.	1.00	
Measured FFS	70	mph
Lane Width	N/A	ft
Right Side Clearance	N/A	ft
Total Ramp Density	N/A	ramp/mi

HIGHWAY CAPACITY SOFTWARE 2010

NETWORK DATA SUMMARY - RAMP MERGE AND DIVERGE SEGMENTS

General Information		Site Information	
Analyst	AECOM	**Date Performed**	2017
Agency or Company		**Analysis Year**	2040 Build
Project Description	R-2553 Kinston Bypass - Alt 1 SB Build Conditions		

26W

US 70 WB - To US 70 Bus EB

Merge/Diverge	Diverge	
No. of lanes on Freeway	2	
Freeway FFS	70	mph
Freeway Volume (AM/PM)	1,436	1,175
Ramp Side (Left or Right)	Right	
Ramp FFS	45	mph
Ramp Volume (AM/PM)	326	334
No. Lanes on Ramp	1	
Accel/Decel Distance 1	490	ft
Accel/Decel Distance 2	N/A	ft
Adjacent Upstream	N/A	
Off/On	N/A	
Distance	N/A	ft
Truck %	N/A	
Ramp Volume (AM/PM)	N/A	N/A
Adjacent Downstream	N/A	
Off/On	N/A	
Distance	N/A	ft
Truck %	N/A	
Ramp Volume (AM/PM)	N/A	N/A
Peak Hour Factor	0.90	
Terrain	Level	
Population Adj. Factor	1.00	
Freeway Truck %	8%	
Ramp Truck %	5%	

27W

US 70 WB - To US 70 Bus WB

Merge/Diverge	Diverge	
No. of lanes on Freeway	2	
Freeway FFS	70	mph
Freeway Volume (AM/PM)	1,089	858
Ramp Side (Left or Right)	Right	
Ramp FFS	25	mph
Ramp Volume (AM/PM)	82	62
No. Lanes on Ramp	1	
Accel/Decel Distance 1	750	ft
Accel/Decel Distance 2	N/A	ft
Adjacent Upstream	N/A	
Off/On	N/A	
Distance	N/A	ft
Truck %	N/A	
Ramp Volume (AM/PM)	N/A	N/A
Adjacent Downstream	N/A	
Off/On	N/A	
Distance	N/A	ft
Truck %	N/A	
Ramp Volume (AM/PM)	N/A	N/A
Peak Hour Factor	0.90	
Terrain	Level	
Population Adj. Factor	1.00	
Freeway Truck %	8%	
Ramp Truck %	5%	

29W

US 70 WB - From US 70 Bus

Merge/Diverge	Merge	
No. of lanes on Freeway	2	
Freeway FFS	70	mph
Freeway Volume (AM/PM)	1,007	796
Ramp Side (Left or Right)	Right	
Ramp FFS	45	mph
Ramp Volume (AM/PM)	520	418
No. Lanes on Ramp	1	
Accel/Decel Distance 1	920	ft
Accel/Decel Distance 2	N/A	ft
Adjacent Upstream	N/A	
Off/On	N/A	
Distance	N/A	ft
Truck %	N/A	
Ramp Volume (AM/PM)	N/A	N/A
Adjacent Downstream	N/A	
Off/On	N/A	
Distance	N/A	ft
Truck %	N/A	
Ramp Volume (AM/PM)	N/A	N/A
Peak Hour Factor	0.90	
Terrain	Level	
Population Adj. Factor	1.00	
Freeway Truck %	8%	
Ramp Truck %	5%	

31W

US 70 WB - To C.F. Harvey Parkway NB

Merge/Diverge	Diverge	
No. of lanes on Freeway	2	
Freeway FFS	70	mph
Freeway Volume (AM/PM)	1,505	1,232
Ramp Side (Left or Right)	Right	
Ramp FFS	45	mph
Ramp Volume (AM/PM)	191	88
No. Lanes on Ramp	1	
Accel/Decel Distance 1	490	ft
Accel/Decel Distance 2	N/A	ft
Adjacent Upstream	N/A	
Off/On	N/A	
Distance	N/A	ft
Truck %	N/A	
Ramp Volume (AM/PM)	N/A	N/A
Adjacent Downstream	N/A	
Off/On	N/A	
Distance	N/A	ft
Truck %	N/A	
Ramp Volume (AM/PM)	N/A	N/A
Peak Hour Factor	0.90	
Terrain	Level	
Population Adj. Factor	1.00	
Freeway Truck %	8%	
Ramp Truck %	7%	

33W

US 70 WB - From C.F. Harvey Parkway NB

Merge/Diverge	Merge	
No. of lanes on Freeway	2	
Freeway FFS	70	mph
Freeway Volume (AM/PM)	1,265	1,186
Ramp Side (Left or Right)	Right	
Ramp FFS	25	mph
Ramp Volume (AM/PM)	55	72
No. Lanes on Ramp	1	
Accel/Decel Distance 1	1,620	ft
Accel/Decel Distance 2	N/A	ft
Adjacent Upstream	N/A	
Off/On	N/A	
Distance	N/A	ft
Truck %	N/A	
Ramp Volume (AM/PM)	N/A	N/A
Adjacent Downstream	N/A	
Off/On	N/A	
Distance	N/A	ft
Truck %	N/A	
Ramp Volume (AM/PM)	N/A	N/A
Peak Hour Factor	0.90	
Terrain	Level	
Population Adj. Factor	1.00	
Freeway Truck %	8%	
Ramp Truck %	7%	

35W

US 70 WB - From C.F. Harvey Parkway SB

Merge/Diverge	Merge	
No. of lanes on Freeway	2	
Freeway FFS	70	mph
Freeway Volume (AM/PM)	1,320	1,258
Ramp Side (Left or Right)	Right	
Ramp FFS	45	mph
Ramp Volume (AM/PM)	281	572
No. Lanes on Ramp	2	
Accel/Decel Distance 1	2,500	ft
Accel/Decel Distance 2	N/A	ft
Adjacent Upstream	N/A	
Off/On	N/A	
Distance	N/A	ft
Truck %	N/A	
Ramp Volume (AM/PM)	N/A	N/A
Adjacent Downstream	N/A	
Off/On	N/A	
Distance	N/A	ft
Truck %	N/A	
Ramp Volume (AM/PM)	N/A	N/A
Peak Hour Factor	0.90	
Terrain	Level	
Population Adj. Factor	1.00	
Freeway Truck %	8%	
Ramp Truck %	7%	

HIGHWAY CAPACITY SOFTWARE 2010

NETWORK DATA SUMMARY - BASIC FREEWAY SEGMENTS

General Information		Site Information	
Analyst	AECOM	**Date Performed**	2017
Agency or Company		**Analysis Year**	2040 Build
Project Description	R-2553 Kinston Bypass - Alt 1 SB Build Conditions		

1S

C.F. Harvey Parkway SB - North of US 70

AM Peak Volume	454	
PM Peak Volume	843	
Peak Hour Factor	0.90	
Number of Lanes	2	
Terrain	Level	
Truck Percentage	7%	
Driver Pop. Adj.	1.00	
Measured FFS	70	mph
Lane Width	N/A	ft
Right Side Clearance	N/A	ft
Total Ramp Density	N/A	ramp/mi

HIGHWAY CAPACITY SOFTWARE 2010

NETWORK DATA SUMMARY - RAMP MERGE AND DIVERGE SEGMENTS

General Information		Site Information	
Analyst	AECOM	**Date Performed**	2017
Agency or Company		**Analysis Year**	2040 Build
Project Description	R-2553 Kinston Bypass - Alt 1 SB Build Conditions		

2S

C.F. Harvey Parkway SB - To US 70 WB

Merge/Diverge	Diverge	
No. of lanes on Freeway	2	
Freeway FFS	70	mph
Freeway Volume (AM/PM)	454	843
Ramp Side (Left or Right)	Right	
Ramp FFS	45	mph
Ramp Volume (AM/PM)	281	572
No. Lanes on Ramp	2	
Accel/Decel Distance 1	2,500	ft
Accel/Decel Distance 2	N/A	ft
Adjacent Upstream	N/A	
Off/On	N/A	
Distance	N/A	ft
Truck %	N/A	
Ramp Volume (AM/PM)	N/A	N/A
Adjacent Downstream	N/A	
Off/On	N/A	
Distance	N/A	ft
Truck %	N/A	
Ramp Volume (AM/PM)	N/A	N/A
Peak Hour Factor	0.90	
Terrain	Level	
Population Adj. Factor	1.00	
Freeway Truck %	7%	
Ramp Truck %	6%	

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R-2553 US 70 Kinston Bypass, Alternative 1SB

US 70 EB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1E	2E	3E	4E	5E	6E	7E	8E	9E
General Purpose Segment Name	W of Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	Jim Sutton/Willie Measley to Albert Sugg/Barwick Station	To Albert Sugg/Barwick Station	Within Albert Sugg/Barwick Station Int	From Albert Sugg/Barwick Station	Albert Sugg/Barwick Station to US 70 Bus/US CF Harvey/70
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	1500	6380	1500	1500	1500	7400
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1934	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	750	N/A	920	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	379	N/A	N/A	N/A	242	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	2	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	201	N/A	N/A	N/A	167	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	2	N/A	N/A	N/A
Total Density (pc/mi/ln)	14.3	14.7	12.8	16.6	15.6	16.3	14.4	17.3	16.1
V/C	0.42	0.42	0.37	0.45	0.45	0.45	0.42	0.47	0.47
Density Based LOS	B	B	B	B	B	B	B	B	B

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	AECOM	Freeway/Dir of Travel	US 70 EB
Agency or Company		Junction	to US 70 Bus
Date Performed	2017	Jurisdiction	Segment #10E
Analysis Time Period	AM Peak	Analysis Year	2040 Build

Project Description R-2553 Kinston Bypass - Alt 1 SB Build Conditions

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Freeway Number of Lanes, N	2
Ramp Number of Lanes, N	1
Acceleration Lane Length, L_A	
Deceleration Lane Length L_D	490
Freeway Volume, V_F	1891
Ramp Volume, V_R	490
Freeway Free-Flow Speed, S_{FF}	70.0
Ramp Free-Flow Speed, S_{FR}	45.0

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	1891	0.90	Level	6	0	0.971	1.00	2164
Ramp	490	0.90	Level	6	0	0.971	1.00	561
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R= mph (Exhibit 13-11)

S_0= mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation 0 (Exhibit 13-7)

V_{12} = 2164 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	2164	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	1603	Exhibit 13-8	4800	No
V_R	561	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	2164	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.009\, L_D$

D_R = 18.5 (pc/mi/ln)

LOS = B (Exhibit 13-2)

Speed Determination

D_s = 0.348 (Exhibit 13-12)

S_R= 60.2 mph (Exhibit 13-12)

S_0= N/A mph (Exhibit 13-12)

S = 60.2 mph (Exhibit 13-13)

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BASIC FREEWAY SEGMENTS WORKSHEET

General Information		Site Information	
Analyst	*AECOM*	Highway/Direction of Travel	*US 70 EB*
Agency or Company		From/To	*rp to US70Bus to rp to CFHarNB*
Date Performed	*2017*	Jurisdiction	*Segment #11E*
Analysis Time Period	*AM Peak*	Analysis Year	*2040 Build*

Project Description *R-2553 Kinston Bypass - Alt 1 SB Build Conditions*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*1340*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*6*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.971*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*767*	pc/h/ln
S	*70.0*	mph
D = v_p / S	*11.0*	pc/mi/ln
LOS	*A*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h/ln
S		mph
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed
DDHV - Directional design hour volume

Factor Location

E_R - Exhibits 11-10, 11-12
E_T - Exhibits 11-10, 11-11, 11-13
f_p - Page 11-18
LOS, S, FFS, v_p - Exhibits 11-2, 11-3
f_{LW} - Exhibit 11-8
f_{LC} - Exhibit 11-9
TRD - Page 11-11

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

General Information		Site Information	
Analyst	AECOM	Freeway/Dir of Travel	US 70 EB
Agency or Company		Junction	to CF Harvey Pkwy NB
Date Performed	2017	Jurisdiction	Segment #12E
Analysis Time Period	AM Peak	Analysis Year	2040 Build

Project Description R-2553 Kinston Bypass - Alt 1 SB Build Conditions

Inputs

Upstream Adj Ramp		Freeway Number of Lanes, N	2	Downstream Adj Ramp	
☐ Yes	☐ On	Ramp Number of Lanes, N	2	☐ Yes	☐ On
☑ No	☐ Off	Acceleration Lane Length, L_A		☑ No	☐ Off
L_{up} =	ft	Deceleration Lane Length L_D	1000	L_{down} =	ft
V_u =	veh/h	Freeway Volume, V_F	1340	V_D =	veh/h
		Ramp Volume, V_R	572		
		Freeway Free-Flow Speed, S_{FF}	70.0		
		Ramp Free-Flow Speed, S_{FR}	60.0		

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	1340	0.90	Level	6	0	0.971	1.00	1534
Ramp	572	0.90	Level	7	0	0.966	1.00	658
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R= mph (Exhibit 13-11)

S_0= mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation 0 (Exhibit 13-7)

V_{12} = 1534 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	1534	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	876	Exhibit 13-8	4800	No
V_R	658	Exhibit 13-10	4400	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	1534	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.009\, L_D$

D_R = -14.1 (pc/mi/ln)

LOS = A (Exhibit 13-2)

Speed Determination

D_s = 0.162 (Exhibit 13-12)

S_R= 65.5 mph (Exhibit 13-12)

S_0= N/A mph (Exhibit 13-12)

S = 65.5 mph (Exhibit 13-13)

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BASIC FREEWAY SEGMENTS WORKSHEET

General Information		Site Information	
Analyst	*AECOM*	Highway/Direction of Travel	*US 70 EB*
Agency or Company		From/To	*rp to CFHarNB to rp fm CFHarSB*
Date Performed	*2017*	Jurisdiction	*Segment #13E*
Analysis Time Period	*AM Peak*	Analysis Year	*2040 Build*

Project Description *R-2553 Kinston Bypass - Alt 1 SB Build Conditions*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*768*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*6*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.971*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*439*	pc/h/ln
S	*70.0*	mph
D = v_p / S	*6.3*	pc/mi/ln
LOS	*A*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h/ln
S		mph
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed
DDHV - Directional design hour volume

Factor Location

E_R - Exhibits 11-10, 11-12
E_T - Exhibits 11-10, 11-11, 11-13
f_p - Page 11-18
LOS, S, FFS, v_p - Exhibits 11-2, 11-3
f_{LW} - Exhibit 11-8
f_{LC} - Exhibit 11-9
TRD - Page 11-11

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

General Information		Site Information	
Analyst	AECOM	Freeway/Dir of Travel	US 70 EB
Agency or Company		Junction	from CF Harvey Pkwy SB
Date Performed	2017	Jurisdiction	Segment #14E
Analysis Time Period	AM Peak	Analysis Year	2040 Build

Project Description R-2553 Kinston Bypass - Alt 1 SB Build Conditions

Inputs

Upstream Adj Ramp		Freeway Number of Lanes, N	2	Downstream Adj Ramp	
☐ Yes	☐ On	Ramp Number of Lanes, N	1	☐ Yes	☐ On
☑ No	☐ Off	Acceleration Lane Length, L_A	1500	☑ No	☐ Off
L_{up} =	ft	Deceleration Lane Length L_D		L_{down} =	ft
V_u =	veh/h	Freeway Volume, V_F	768	V_D =	veh/h
		Ramp Volume, V_R	88		
		Freeway Free-Flow Speed, S_{FF}	70.0		
		Ramp Free-Flow Speed, S_{FR}	25.0		

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	768	0.90	Level	6	0	0.917	1.00	930
Ramp	88	0.90	Level	7	0	0.966	1.00	101
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation 0 (Exhibit 13-6)

V_{12} = 930 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	1031	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	1031	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = 4.1 (pc/mi/ln)

LOS = A (Exhibit 13-2)

Speed Determination

M_S = 0.257 (Exibit 13-11)

S_R= 62.8 mph (Exhibit 13-11)

S_0= N/A mph (Exhibit 13-11)

S = 62.8 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.009\, L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R= mph (Exhibit 13-12)

S_0= mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

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BASIC FREEWAY SEGMENTS WORKSHEET

General Information		Site Information	
Analyst	*AECOM*	Highway/Direction of Travel	*US 70 EB*
Agency or Company		From/To	*CFHar to rp fm US70Bus WB*
Date Performed	*2017*	Jurisdiction	*Segment #15E*
Analysis Time Period	*AM Peak*	Analysis Year	*2040 Build*

Project Description *R-2553 Kinston Bypass - Alt 1 SB Build Conditions*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*856*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*8*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.962*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f_{LW}		mph
Number of Lanes, N	*2*		f_{LC}		mph
Total Ramp Density, TRD		ramps/mi	TRD Adjustment		mph
FFS (measured)	*70.0*	mph	FFS	*70.0*	mph
Base free-flow Speed, BFFS		mph			

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*495*	pc/h/ln	Design LOS	
			v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	*70.0*	mph	S	mph
D = v_p / S	*7.1*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*A*		Required Number of Lanes, N	

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed
DDHV - Directional design hour volume

Factor Location

E_R - Exhibits 11-10, 11-12
E_T - Exhibits 11-10, 11-11, 11-13
f_p - Page 11-18
LOS, S, FFS, v_p - Exhibits 11-2, 11-3
f_{LW} - Exhibit 11-8
f_{LC} - Exhibit 11-9
TRD - Page 11-11

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	AECOM	Freeway/Dir of Travel	US 70 EB
Agency or Company		Junction	from US 70 Bus WB
Date Performed	2017	Jurisdiction	Segment #16E
Analysis Time Period	AM Peak	Analysis Year	2040 Build

Project Description R-2553 Kinston Bypass - Alt 1 SB Build Conditions

Inputs

Upstream Adj Ramp		Freeway Number of Lanes, N	2	Downstream Adj Ramp	
☐ Yes	☐ On	Ramp Number of Lanes, N	1	☐ Yes	☐ On
☑ No	☐ Off	Acceleration Lane Length, L_A	1500	☑ No	☐ Off
L_{up} =	ft	Deceleration Lane Length L_D		L_{down} =	ft
V_u =	veh/h	Freeway Volume, V_F	856	V_D =	veh/h
		Ramp Volume, V_R	334		
		Freeway Free-Flow Speed, S_{FF}	70.0		
		Ramp Free-Flow Speed, S_{FR}	25.0		

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	856	0.90	Level	8	0	0.893	1.00	1065
Ramp	334	0.90	Level	5	0	0.976	1.00	380
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation 0 (Exhibit 13-6)

V_{12} = 1065 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	1445	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	1445	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = 7.2 (pc/mi/ln)

LOS = A (Exhibit 13-2)

Speed Determination

M_S = 0.263 (Exibit 13-11)

S_R= 62.6 mph (Exhibit 13-11)

S_0= N/A mph (Exhibit 13-11)

S = 62.6 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.009\, L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R= mph (Exhibit 13-12)

S_0= mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

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BASIC FREEWAY SEGMENTS WORKSHEET

General Information		Site Information	
Analyst	*AECOM*	Highway/Direction of Travel	*US 70 EB*
Agency or Company		From/To	*rp fm US70BWB to rp fm US70BEB*
Date Performed	*2017*	Jurisdiction	*Segment #17E*
Analysis Time Period	*AM Peak*	Analysis Year	*2040 Build*

Project Description *R-2553 Kinston Bypass - Alt 1 SB Build Conditions*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*1190*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*8*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.962*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*688*	pc/h/ln
S	*70.0*	mph
D = v_p / S	*9.8*	pc/mi/ln
LOS	*A*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h/ln
S		mph
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed
DDHV - Directional design hour volume

Factor Location

E_R - Exhibits 11-10, 11-12
E_T - Exhibits 11-10, 11-11, 11-13
f_p - Page 11-18
LOS, S, FFS, v_p - Exhibits 11-2, 11-3
f_{LW} - Exhibit 11-8
f_{LC} - Exhibit 11-9
TRD - Page 11-11

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

General Information		Site Information	
Analyst	AECOM	Freeway/Dir of Travel	US 70 EB
Agency or Company		Junction	from US 70 Bus EB
Date Performed	2017	Jurisdiction	Segment #18E
Analysis Time Period	AM Peak	Analysis Year	2040 Build

Project Description R-2553 Kinston Bypass - Alt 1 SB Build Conditions

Inputs

Upstream Adj Ramp		Freeway Number of Lanes, N	2	Downstream Adj Ramp	
☐ Yes	☐ On	Ramp Number of Lanes, N	1	☐ Yes	☐ On
☑ No	☐ Off	Acceleration Lane Length, L_A	920	☑ No	☐ Off
L_{up} =	ft	Deceleration Lane Length L_D		L_{down} =	ft
V_u =	veh/h	Freeway Volume, V_F	1190	V_D =	veh/h
		Ramp Volume, V_R	62		
		Freeway Free-Flow Speed, S_{FF}	70.0		
		Ramp Free-Flow Speed, S_{FR}	45.0		

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	1190	0.90	Level	8	0	0.893	1.00	1481
Ramp	62	0.90	Level	5	0	0.976	1.00	71
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation 0 (Exhibit 13-6)

V_{12} = 1481 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * $V_{12}/2$ ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	1552	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	1552	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = 11.8 (pc/mi/ln)

LOS = B (Exhibit 13-2)

Speed Determination

M_S = 0.257 (Exibit 13-11)

S_R= 62.8 mph (Exhibit 13-11)

S_0= N/A mph (Exhibit 13-11)

S = 62.8 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * $V_{12}/2$ ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.009\, L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R= mph (Exhibit 13-12)

S_0= mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

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R-2553 US 70 Kinston Bypass, Alternative 1SB
US 70 EB - AM Peak

Segment	Seg.19	Seg.20	Seg.21	Seg.22	Seg.23	Seg.24	Seg.25	Seg.26	Seg.27
General Purpose Segment Data	19E	20E	21E	22E	23E	24E	25E	26E	27E
General Purpose Segment Name	US 70 Bus/CF Harvey to NC 11	To NC 11	Within NC 11	From NC 11	NC 11 to US 258	To US 258	Within US 258	From US 258	US 258 to NC 58
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	10140	1500	1500	1500	870	1500	1500	1500	4410
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1306	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	8	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	750	N/A	920	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	426	N/A	N/A	N/A	122	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	7	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	540	N/A	N/A	N/A	516	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	9.7	9.2	5.7	9.2	8.9	8.2	5.1	6.2	6.0
V/C	0.28	0.28	0.17	0.26	0.26	0.26	0.15	0.17	0.17
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 1SB
US 70 EB - AM Peak

Segment	Seg.28	Seg.29	Seg.30	Seg.31	Seg.32	Seg.33	Seg.34	Seg.35	Seg.36
General Purpose Segment Data	28E	29E	30E	31E	32E	33E	34E	35E	36E
General Purpose Segment Name	To NC 58	Within NC 58	From NC 58	NC 58 to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E) Int	From US 70 Bus (E)	Wyse Fork	To Wyse Fork
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	960	1500	3030	2500	5820	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	750	N/A	2500	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	2	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	60	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	152	N/A	N/A	N/A	383	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	4	N/A	N/A	N/A	5	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	25	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	88	N/A	N/A	N/A	176	N/A	N/A	N/A	169
OFR Single Unit Truck and Bus (%)	4	N/A	N/A	N/A	5	N/A	N/A	N/A	4
Total Density (pc/mi/ln)	4.7	5.3	6.7	6.4	5.3	5.2	0.0*	8.0	7.1
V/C	0.17	0.16	0.19	0.19	0.19	0.15	0.23	0.23	0.23
Density Based LOS	A	A	A	A	A	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 1SB
US 70 EB - AM Peak

Segment	Seg.37	Seg.38	Seg.39	Seg.40	Seg.41	Seg.42	Seg.43
General Purpose Segment Data	37E	38E	39E	40E	41E	42E	43E
General Purpose Segment Name	Within Wyse Fork Int	From Wyse Fork	Wyse Fork to Burkett/Kornegay	To Burkett/Kornegay	Within Burkett/Kornegay Int	From Burkett/Kornegay	East of Burkett/Kornegay
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1500	1500	12110	1500	3000	1500	5280
Terrain	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	920	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	117	N/A	N/A	N/A	64	N/A
ONR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	4	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	92	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	6.7	7.9	7.6	9.0	6.9	7.7	7.4
V/C	0.20	0.22	0.22	0.22	0.20	0.22	0.22
Density Based LOS	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 1SB

US 70 EB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1E	2E	3E	4E	5E	6E	7E	8E	9E
General Purpose Segment Name	W of Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	Jim Sutton/Willie Measley to Albert Sugg/Barwick Station	To Albert Sugg/Barwick Station	Within Albert Sugg/Barwick Station Int	From Albert Sugg/Barwick Station	Albert Sugg/Barwick Station to US 70 Bus/CF Harvey
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	1500	6380	1500	1500	1500	7400
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1678	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	750	N/A	920	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	278	N/A	N/A	N/A	146	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	2	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	227	N/A	N/A	N/A	224	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	2	N/A	N/A	N/A
Total Density (pc/mi/ln)	12.4	12.4	10.8	13.6	12.8	12.9	11.2	13.0	12.2
V/C	0.36	0.36	0.31	0.37	0.37	0.37	0.33	0.36	0.36
Density Based LOS	B	B	A	B	B	B	B	B	B

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	AECOM	Freeway/Dir of Travel	US 70 EB
Agency or Company		Junction	to US 70 Bus
Date Performed	2017	Jurisdiction	Segment #10E
Analysis Time Period	PM Peak	Analysis Year	2040 Build

Project Description R-2553 Kinston Bypass - Alt 1 SB Build Conditions

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Freeway Number of Lanes, N	2
Ramp Number of Lanes, N	1
Acceleration Lane Length, L_A	
Deceleration Lane Length L_D	490
Freeway Volume, V_F	1548
Ramp Volume, V_R	575
Freeway Free-Flow Speed, S_{FF}	70.0
Ramp Free-Flow Speed, S_{FR}	45.0

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	1548	0.90	Level	6	0	0.971	1.00	1772
Ramp	575	0.90	Level	6	0	0.971	1.00	658
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R= mph (Exhibit 13-11)

S_0= mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation 0 (Exhibit 13-7)

V_{12} = 1772 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	1772	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	1114	Exhibit 13-8	4800	No
V_R	658	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	1772	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.009\, L_D$

D_R = 15.1 (pc/mi/ln)

LOS = B (Exhibit 13-2)

Speed Determination

D_s = 0.357 (Exhibit 13-12)

S_R= 60.0 mph (Exhibit 13-12)

S_0= N/A mph (Exhibit 13-12)

S = 60.0 mph (Exhibit 13-13)

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BASIC FREEWAY SEGMENTS WORKSHEET

General Information		Site Information	
Analyst	*AECOM*	Highway/Direction of Travel	*US 70 EB*
Agency or Company		From/To	*rp to US70Bus to rp to CFHarNB*
Date Performed	*2017*	Jurisdiction	*Segment #11E*
Analysis Time Period	*PM Peak*	Analysis Year	*2040 Build*

Project Description *R-2553 Kinston Bypass - Alt 1 SB Build Conditions*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*1026*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*6*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.971*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*587*	pc/h/ln
S	*70.0*	mph
D = v_p / S	*8.4*	pc/mi/ln
LOS	*A*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h/ln
S		mph
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed
DDHV - Directional design hour volume

Factor Location

E_R - Exhibits 11-10, 11-12
E_T - Exhibits 11-10, 11-11, 11-13
f_p - Page 11-18
LOS, S, FFS, v_p - Exhibits 11-2, 11-3
f_{LW} - Exhibit 11-8
f_{LC} - Exhibit 11-9
TRD - Page 11-11

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

General Information		Site Information	
Analyst	AECOM	Freeway/Dir of Travel	US 70 EB
Agency or Company		Junction	to CF Harvey Pkwy NB
Date Performed	2017	Jurisdiction	Segment #12E
Analysis Time Period	PM Peak	Analysis Year	2040 Build

Project Description R-2553 Kinston Bypass - Alt 1 SB Build Conditions

Inputs

Upstream Adj Ramp		Freeway Number of Lanes, N	2	Downstream Adj Ramp	
☐ Yes	☐ On	Ramp Number of Lanes, N	2	☐ Yes	☐ On
☑ No	☐ Off	Acceleration Lane Length, L_A		☑ No	☐ Off
L_{up} =	ft	Deceleration Lane Length L_D	1000	L_{down} =	ft
V_u =	veh/h	Freeway Volume, V_F	1026	V_D =	veh/h
		Ramp Volume, V_R	281		
		Freeway Free-Flow Speed, S_{FF}	70.0		
		Ramp Free-Flow Speed, S_{FR}	60.0		

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	1026	0.90	Level	6	0	0.971	1.00	1174
Ramp	281	0.90	Level	7	0	0.966	1.00	323
UpStream								
DownStream								

Estimation of v_{12} — Merge Areas

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Estimation of v_{12} — Diverge Areas

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation 0 (Exhibit 13-7)

V_{12} = 1174 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Capacity Checks

	Actual	Capacity		LOS F?
V_F	1174	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	851	Exhibit 13-8	4800	No
V_R	323	Exhibit 13-10	4400	No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	1174	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.009\, L_D$

D_R = -17.2 (pc/mi/ln)

LOS = A (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R= mph (Exhibit 13-11)

S_0= mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Speed Determination

D_s = 0.132 (Exhibit 13-12)

S_R= 66.3 mph (Exhibit 13-12)

S_0= N/A mph (Exhibit 13-12)

S = 66.3 mph (Exhibit 13-13)

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BASIC FREEWAY SEGMENTS WORKSHEET

General Information		Site Information	
Analyst	*AECOM*	Highway/Direction of Travel	*US 70 EB*
Agency or Company		From/To	*rp to CFHarNB to rp fm CFHarSB*
Date Performed	*2017*	Jurisdiction	*Segment #13E*
Analysis Time Period	*PM Peak*	Analysis Year	*2040 Build*

Project Description *R-2553 Kinston Bypass - Alt 1 SB Build Conditions*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*745*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*6*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.971*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*426*	pc/h/ln
S	*70.0*	mph
D = v_p / S	*6.1*	pc/mi/ln
LOS	*A*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h/ln
S		mph
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed
DDHV - Directional design hour volume

Factor Location

E_R - Exhibits 11-10, 11-12
E_T - Exhibits 11-10, 11-11, 11-13
f_p - Page 11-18
LOS, S, FFS, v_p - Exhibits 11-2, 11-3
f_{LW} - Exhibit 11-8
f_{LC} - Exhibit 11-9
TRD - Page 11-11

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	AECOM	Freeway/Dir of Travel	US 70 EB
Agency or Company		Junction	from CF Harvey Pkwy SB
Date Performed	2017	Jurisdiction	Segment #14E
Analysis Time Period	PM Peak	Analysis Year	2040 Build

Project Description R-2553 Kinston Bypass - Alt 1 SB Build Conditions

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A: 1500	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D:	V_D = veh/h
	Freeway Volume, V_F: 745	
	Ramp Volume, V_R: 191	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 25.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	745	0.90	Level	6	0	0.917	1.00	902
Ramp	191	0.90	Level	7	0	0.966	1.00	220
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation 0 (Exhibit 13-6)

V_{12} = 902 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	1122	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	1122	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = 4.7 (pc/mi/ln)

LOS = A (Exhibit 13-2)

Speed Determination

M_S = 0.258 (Exibit 13-11)

S_R= 62.8 mph (Exhibit 13-11)

S_0= N/A mph (Exhibit 13-11)

S = 62.8 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.009\, L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R= mph (Exhibit 13-12)

S_0= mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

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BASIC FREEWAY SEGMENTS WORKSHEET

General Information		Site Information	
Analyst	*AECOM*	Highway/Direction of Travel	*US 70 EB*
Agency or Company		From/To	*CFHar to rp fm US70Bus WB*
Date Performed	*2017*	Jurisdiction	*Segment #15E*
Analysis Time Period	*PM Peak*	Analysis Year	*2040 Build*

Project Description *R-2553 Kinston Bypass - Alt 1 SB Build Conditions*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*936*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*8*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.962*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f_{LW}		mph
Number of Lanes, N	*2*		f_{LC}		mph
Total Ramp Density, TRD		ramps/mi	TRD Adjustment		mph
FFS (measured)	*70.0*	mph	FFS	*70.0*	mph
Base free-flow Speed, BFFS		mph			

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*541*	pc/h/ln	Design LOS	
			v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	*70.0*	mph	S	mph
D = v_p / S	*7.7*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*A*		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

General Information		Site Information	
Analyst	AECOM	Freeway/Dir of Travel	US 70 EB
Agency or Company		Junction	from US 70 Bus WB
Date Performed	2017	Jurisdiction	Segment #16E
Analysis Time Period	PM Peak	Analysis Year	2040 Build

Project Description R-2553 Kinston Bypass - Alt 1 SB Build Conditions

Inputs

Upstream Adj Ramp		Freeway Number of Lanes, N	2	Downstream Adj Ramp	
☐ Yes	☐ On	Ramp Number of Lanes, N	1	☐ Yes	☐ On
☑ No	☐ Off	Acceleration Lane Length, L_A	1500	☑ No	☐ Off
L_{up} =	ft	Deceleration Lane Length L_D		L_{down} =	ft
V_u =	veh/h	Freeway Volume, V_F	936	V_D =	veh/h
		Ramp Volume, V_R	326		
		Freeway Free-Flow Speed, S_{FF}	70.0		
		Ramp Free-Flow Speed, S_{FR}	25.0		

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	936	0.90	Level	8	0	0.893	1.00	1165
Ramp	326	0.90	Level	5	0	0.976	1.00	371
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation 0 (Exhibit 13-6)

V_{12} = 1165 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	1536	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	1536	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = 7.9 (pc/mi/ln)

LOS = A (Exhibit 13-2)

Speed Determination

M_S = 0.264 (Exibit 13-11)

S_R= 62.6 mph (Exhibit 13-11)

S_0= N/A mph (Exhibit 13-11)

S = 62.6 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.009\, L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R= mph (Exhibit 13-12)

S_0= mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

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BASIC FREEWAY SEGMENTS WORKSHEET

General Information		Site Information	
Analyst	*AECOM*	Highway/Direction of Travel	*US 70 EB*
Agency or Company		From/To	*rp fm US70BWB to rp fm US70BEB*
Date Performed	*2017*	Jurisdiction	*Segment #17E*
Analysis Time Period	*PM Peak*	Analysis Year	*2040 Build*

Project Description *R-2553 Kinston Bypass - Alt 1 SB Build Conditions*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*1262*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*8*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.962*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f_{LW}		mph
Number of Lanes, N	*2*		f_{LC}		mph
Total Ramp Density, TRD		ramps/mi	TRD Adjustment		mph
FFS (measured)	*70.0*	mph	FFS	*70.0*	mph
Base free-flow Speed, BFFS		mph			

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*729*	pc/h/ln	Design LOS	
			v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	*70.0*	mph	S	mph
D = v_p / S	*10.4*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*A*		Required Number of Lanes, N	

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed
DDHV - Directional design hour volume

Factor Location

E_R - Exhibits 11-10, 11-12
E_T - Exhibits 11-10, 11-11, 11-13
f_p - Page 11-18
LOS, S, FFS, v_p - Exhibits 11-2, 11-3
f_{LW} - Exhibit 11-8
f_{LC} - Exhibit 11-9
TRD - Page 11-11

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

General Information		Site Information	
Analyst	AECOM	Freeway/Dir of Travel	US 70 EB
Agency or Company		Junction	from US 70 Bus EB
Date Performed	2017	Jurisdiction	Segment #18E
Analysis Time Period	PM Peak	Analysis Year	2040 Build

Project Description R-2553 Kinston Bypass - Alt 1 SB Build Conditions

Inputs

Upstream Adj Ramp		Freeway Number of Lanes, N	2	Downstream Adj Ramp	
☐ Yes	☐ On	Ramp Number of Lanes, N	1	☐ Yes	☐ On
☑ No	☐ Off	Acceleration Lane Length, L_A	920	☑ No	☐ Off
L_{up} =	ft	Deceleration Lane Length L_D		L_{down} =	ft
V_u =	veh/h	Freeway Volume, V_F	1262	V_D =	veh/h
		Ramp Volume, V_R	82		
		Freeway Free-Flow Speed, S_{FF}	70.0		
		Ramp Free-Flow Speed, S_{FR}	45.0		

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	1262	0.90	Level	8	0	0.893	1.00	1570
Ramp	82	0.90	Level	5	0	0.976	1.00	93
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation 0 (Exhibit 13-6)

V_{12} = 1570 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	1663	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	1663	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = 12.6 (pc/mi/ln)

LOS = B (Exhibit 13-2)

Speed Determination

M_S = 0.259 (Exibit 13-11)

S_R= 62.8 mph (Exhibit 13-11)

S_0= N/A mph (Exhibit 13-11)

S = 62.8 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.009\, L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R= mph (Exhibit 13-12)

S_0= mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

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R-2553 US 70 Kinston Bypass, Alternative 1SB
US 70 EB - PM Peak

Segment	Seg.19	Seg.20	Seg.21	Seg.22	Seg.23	Seg.24	Seg.25	Seg.26	Seg.27
General Purpose Segment Data	19E	20E	21E	22E	23E	24E	25E	26E	27E
General Purpose Segment Name	US 70 Bus/CF Harvey to NC 11	To NC 11	Within NC 11	From NC 11	NC 11 to US 258	To US 258	Within US 258	From US 258	US 258 to NC 58
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	10140	1500	1500	1500	870	1500	1500	1500	4410
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1596	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	8	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	750	N/A	920	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	483	N/A	N/A	N/A	153	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	7	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	674	N/A	N/A	N/A	578	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	11.9	11.8	6.9	10.9	10.4	10.1	6.2	7.7	7.3
V/C	0.35	0.35	0.20	0.30	0.30	0.30	0.18	0.21	0.21
Density Based LOS	B	B	A	B	A	B	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 1SB
US 70 EB - PM Peak

Segment	Seg.28	Seg.29	Seg.30	Seg.31	Seg.32	Seg.33	Seg.34	Seg.35	Seg.36
General Purpose Segment Data	28E	29E	30E	31E	32E	33E	34E	35E	36E
General Purpose Segment Name	To NC 58	Within NC 58	From NC 58	NC 58 to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E) Int	From US 70 Bus (E)	Wyse Fork	To Wyse Fork
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	960	1500	3030	2500	5820	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	750	N/A	2500	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	2	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	60	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	173	N/A	N/A	N/A	487	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	4	N/A	N/A	N/A	5	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	25	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	118	N/A	N/A	N/A	172	N/A	N/A	N/A	221
OFR Single Unit Truck and Bus (%)	4	N/A	N/A	N/A	5	N/A	N/A	N/A	4
Total Density (pc/mi/ln)	6.3	6.5	8.1	7.7	6.8	6.5	0.6	10.0	9.6
V/C	0.21	0.19	0.23	0.23	0.23	0.19	0.29	0.29	0.29
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 1SB
US 70 EB - PM Peak

Segment	Seg.37	Seg.38	Seg.39	Seg.40	Seg.41	Seg.42	Seg.43
General Purpose Segment Data	37E	38E	39E	40E	41E	42E	43E
General Purpose Segment Name	Within Wyse Fork Int	From Wyse Fork	Wyse Fork to Burkett/Kornegay	To Burkett/Kornegay	Within Burkett/Kornegay Int	From Burkett/Kornegay	East of Burkett/Kornegay
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1500	1500	12110	1500	3000	1500	5280
Terrain	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	920	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	109	N/A	N/A	N/A	48	N/A
ONR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	4	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	150	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	8.4	9.7	9.2	10.9	8.1	9.0	8.5
V/C	0.25	0.27	0.27	0.27	0.24	0.25	0.25
Density Based LOS	A	A	A	B	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 1SB
US 70 WB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1W	2W	3W	4W	5W	6W	7W	8W	9W
General Purpose Segment Name	E of Burkett/Kornegay	To Burkett/Kornegay	Within Burkett/Kornegay Int	From Burkett/Kornegay	Burkett/Kornegay to Wyse Fork	To Wyse Fork	Within Wyse Fork Int	From Wyse Fork	Wyse Fork to US 70 Bus (E)
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	3000	1500	12700	1500	1500	1500	7860
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1136	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	9	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	920	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	150	N/A	N/A	N/A	221	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	4	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	49	N/A	N/A	N/A	109	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	8.5	10.1	8.1	9.7	9.2	8.6	8.4	10.6	10.0
V/C	0.25	0.25	0.24	0.27	0.27	0.27	0.25	0.29	0.29
Density Based LOS	A	B	A	A	A	A	A	B	A

R-2553 US 70 Kinston Bypass, Alternative 1SB
US 70 WB - AM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10W	11W	12W	13W	14W	15W	16W	17W	18W
General Purpose Segment Name	To US 70 Bus (E)	Within US 70 Bus (E) Int	From US 70 Bus (E)	US 70 Bus (E) to NC 58	To NC 58	Within NC 58 Int	From NC 58	NC 58 to US 258	To US 258
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1940	1500	2010	1500	1500	1620	3860	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	490	N/A	920	N/A	490	N/A	1620	N/A	490
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	172	N/A	N/A	N/A	118	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	5	N/A	N/A	N/A	4	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	45	N/A	N/A	N/A	45	N/A	N/A	N/A	45
OFR/Exit Dem. (vph)	487	N/A	N/A	N/A	173	N/A	N/A	N/A	153
OFR Single Unit Truck and Bus (%)	5	N/A	N/A	N/A	4	N/A	N/A	N/A	5
Total Density (pc/mi/ln)	11.9	6.5	8.1	7.7	9.1	6.5	3.3	7.3	8.7
V/C	0.29	0.19	0.23	0.23	0.23	0.19	0.21	0.21	0.21
Density Based LOS	B	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 1SB
US 70 WB - AM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25
General Purpose Segment Data	19W	20W	21W	22W	23W	24W	25W
General Purpose Segment Name	Within US 258 Int	From US 258	US 258 to NC 11	To NC 11	Within NC 11 Int	From NC 11	NC 11 to Us 70 Bus/CF Harvey Pkwy
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1500	1620	600	1500	1500	1620	9780
Terrain	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	1620	N/A	490	N/A	1620	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	N/A	578	N/A	N/A	N/A	674	N/A
ONR Single Unit Truck and Bus (%)	N/A	5	N/A	N/A	N/A	7	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	482	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	7	N/A	N/A	N/A
Total Density (pc/mi/ln)	6.2	6.5	10.4	12.4	6.9	8.0	11.9
V/C	0.18	0.30	0.30	0.30	0.20	0.35	0.35
Density Based LOS	A	A	A	B	A	A	B

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	AECOM	Freeway/Dir of Travel	US 70 WB
Agency or Company		Junction	to US 70 Bus EB
Date Performed	2017	Jurisdiction	Segment #26W
Analysis Time Period	AM Peak	Analysis Year	2040 Build

Project Description R-2553 Kinston Bypass - Alt 1 SB Build Conditions

Inputs

Upstream Adj Ramp		Freeway Number of Lanes, N	2	Downstream Adj Ramp	
☐ Yes	☐ On	Ramp Number of Lanes, N	1	☐ Yes	☐ On
☑ No	☐ Off	Acceleration Lane Length, L_A		☑ No	☐ Off
L_{up} =	ft	Deceleration Lane Length L_D	490	L_{down} =	ft
V_u =	veh/h	Freeway Volume, V_F	1436	V_D =	veh/h
		Ramp Volume, V_R	326		
		Freeway Free-Flow Speed, S_{FF}	70.0		
		Ramp Free-Flow Speed, S_{FR}	45.0		

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	1436	0.90	Level	8	0	0.962	1.00	1659
Ramp	326	0.90	Level	5	0	0.976	1.00	371
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R= mph (Exhibit 13-11)

S_0= mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation 0 (Exhibit 13-7)

V_{12} = 1659 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	1659	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	1288	Exhibit 13-8	4800	No
V_R	371	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	1659	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.009\, L_D$

D_R = 14.1 (pc/mi/ln)

LOS = B (Exhibit 13-2)

Speed Determination

D_s = 0.331 (Exhibit 13-12)

S_R= 60.7 mph (Exhibit 13-12)

S_0= N/A mph (Exhibit 13-12)

S = 60.7 mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	AECOM	Freeway/Dir of Travel	US 70 WB
Agency or Company		Junction	to US 70 Bus WB
Date Performed	2017	Jurisdiction	Segment #27W
Analysis Time Period	AM Peak	Analysis Year	2040 Build

Project Description R-2553 Kinston Bypass - Alt 1 SB Build Conditions

Inputs

Upstream Adj Ramp		Freeway Number of Lanes, N	2	Downstream Adj Ramp	
☐ Yes	☐ On	Ramp Number of Lanes, N	1	☐ Yes	☐ On
☑ No	☐ Off	Acceleration Lane Length, L_A		☑ No	☐ Off
L_{up} =	ft	Deceleration Lane Length L_D	750	L_{down} =	ft
V_u =	veh/h	Freeway Volume, V_F	1089	V_D =	veh/h
		Ramp Volume, V_R	82		
		Freeway Free-Flow Speed, S_{FF}	70.0		
		Ramp Free-Flow Speed, S_{FR}	25.0		

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	1089	0.90	Level	8	0	0.962	1.00	1258
Ramp	82	0.90	Level	5	0	0.976	1.00	93
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R= mph (Exhibit 13-11)

S_0= mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation 0 (Exhibit 13-7)

V_{12} = 1258 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	1258	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	1165	Exhibit 13-8	4800	No
V_R	93	Exhibit 13-10	1900	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	1258	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.009\, L_D$

D_R = 8.3 (pc/mi/ln)

LOS = A (Exhibit 13-2)

Speed Determination

D_s = 0.566 (Exhibit 13-12)

S_R= 54.1 mph (Exhibit 13-12)

S_0= N/A mph (Exhibit 13-12)

S = 54.1 mph (Exhibit 13-13)

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BASIC FREEWAY SEGMENTS WORKSHEET

General Information		Site Information	
Analyst	*AECOM*	Highway/Direction of Travel	*US 70 WB*
Agency or Company		From/To	*within US 70 Bus Int*
Date Performed	*2017*	Jurisdiction	*Segment #28W*
Analysis Time Period	*AM Peak*	Analysis Year	*2040 Build*

Project Description *R-2553 Kinston Bypass - Alt 1 SB Build Conditions*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*1007*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*8*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.962*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*582*	pc/h/ln
S	*70.0*	mph
D = v_p / S	*8.3*	pc/mi/ln
LOS	*A*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h/ln
S		mph
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed
DDHV - Directional design hour volume

Factor Location

E_R - Exhibits 11-10, 11-12
E_T - Exhibits 11-10, 11-11, 11-13
f_p - Page 11-18
LOS, S, FFS, v_p - Exhibits 11-2, 11-3
f_{LW} - Exhibit 11-8
f_{LC} - Exhibit 11-9
TRD - Page 11-11

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

General Information		Site Information	
Analyst	AECOM	Freeway/Dir of Travel	US 70 WB
Agency or Company		Junction	from US 70 Bus
Date Performed	2017	Jurisdiction	Segment #29W
Analysis Time Period	AM Peak	Analysis Year	2040 Build

Project Description R-2553 Kinston Bypass - Alt 1 SB Build Conditions

Inputs

Upstream Adj Ramp		Freeway Number of Lanes, N	2	Downstream Adj Ramp	
☐ Yes	☐ On	Ramp Number of Lanes, N	1	☐ Yes	☐ On
☑ No	☐ Off	Acceleration Lane Length, L_A	920	☑ No	☐ Off
L_{up} =	ft	Deceleration Lane Length L_D		L_{down} =	ft
V_u =	veh/h	Freeway Volume, V_F	1007	V_D =	veh/h
		Ramp Volume, V_R	520		
		Freeway Free-Flow Speed, S_{FF}	70.0		
		Ramp Free-Flow Speed, S_{FR}	45.0		

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	1007	0.90	Level	8	0	0.893	1.00	1253
Ramp	520	0.90	Level	5	0	0.976	1.00	592
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation 0 (Exhibit 13-6)

V_{12} = 1253 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	1845	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	1845	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = 13.8 (pc/mi/ln)

LOS = B (Exhibit 13-2)

Speed Determination

M_S = 0.263 (Exibit 13-11)

S_R= 62.6 mph (Exhibit 13-11)

S_0= N/A mph (Exhibit 13-11)

S = 62.6 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.009\, L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R= mph (Exhibit 13-12)

S_0= mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

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BASIC FREEWAY SEGMENTS WORKSHEET

General Information		Site Information	
Analyst	*AECOM*	Highway/Direction of Travel	*US 70 WB*
Agency or Company		From/To	*US70Bus to CFHar*
Date Performed	*2017*	Jurisdiction	*Segment #30W*
Analysis Time Period	*AM Peak*	Analysis Year	*2040 Build*

Project Description *R-2553 Kinston Bypass - Alt 1 SB Build Conditions*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*1505*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*8*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.962*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*870*	pc/h/ln
S	*70.0*	mph
D = v_p / S	*12.4*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h/ln
S		mph
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed
DDHV - Directional design hour volume

Factor Location

E_R - Exhibits 11-10, 11-12
E_T - Exhibits 11-10, 11-11, 11-13
f_p - Page 11-18
LOS, S, FFS, v_p - Exhibits 11-2, 11-3
f_{LW} - Exhibit 11-8
f_{LC} - Exhibit 11-9
TRD - Page 11-11

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

General Information		Site Information	
Analyst	AECOM	Freeway/Dir of Travel	US 70 WB
Agency or Company		Junction	to CF Harvey Pkwy NB
Date Performed	2017	Jurisdiction	Segment #31W
Analysis Time Period	AM Peak	Analysis Year	2040 Build

Project Description R-2553 Kinston Bypass - Alt 1 SB Build Conditions

Inputs

Upstream Adj Ramp		Freeway Number of Lanes, N	2	Downstream Adj Ramp	
☐ Yes	☐ On	Ramp Number of Lanes, N	1	☐ Yes	☐ On
☑ No	☐ Off	Acceleration Lane Length, L_A		☑ No	☐ Off
L_{up} =	ft	Deceleration Lane Length L_D	490	L_{down} =	ft
V_u =	veh/h	Freeway Volume, V_F	1505	V_D =	veh/h
		Ramp Volume, V_R	191		
		Freeway Free-Flow Speed, S_{FF}	70.0		
		Ramp Free-Flow Speed, S_{FR}	45.0		

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	1505	0.90	Level	8	0	0.962	1.00	1739
Ramp	191	0.90	Level	7	0	0.966	1.00	220
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R= mph (Exhibit 13-11)

S_0= mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation 0 (Exhibit 13-7)

V_{12} = 1739 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	1739	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	1519	Exhibit 13-8	4800	No
V_R	220	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	1739	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.009\, L_D$

D_R = 14.8 (pc/mi/ln)

LOS = B (Exhibit 13-2)

Speed Determination

D_s = 0.318 (Exhibit 13-12)

S_R= 61.1 mph (Exhibit 13-12)

S_0= N/A mph (Exhibit 13-12)

S = 61.1 mph (Exhibit 13-13)

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BASIC FREEWAY SEGMENTS WORKSHEET

General Information		Site Information	
Analyst	*AECOM*	Highway/Direction of Travel	*US 70 WB*
Agency or Company		From/To	*rp to CFHarNB to rp fm CFHarNB*
Date Performed	*2017*	Jurisdiction	*Segment #32W*
Analysis Time Period	*AM Peak*	Analysis Year	*2040 Build*

Project Description *R-2553 Kinston Bypass - Alt 1 SB Build Conditions*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*1265*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*8*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.962*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*731*	pc/h/ln
S	*70.0*	mph
D = v_p / S	*10.4*	pc/mi/ln
LOS	*A*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h/ln
S		mph
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed
DDHV - Directional design hour volume

Factor Location

E_R - Exhibits 11-10, 11-12
E_T - Exhibits 11-10, 11-11, 11-13
f_p - Page 11-18
LOS, S, FFS, v_p - Exhibits 11-2, 11-3
f_{LW} - Exhibit 11-8
f_{LC} - Exhibit 11-9
TRD - Page 11-11

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	AECOM	Freeway/Dir of Travel	US 70 WB
Agency or Company		Junction	from CF Har Harvey NB
Date Performed	2017	Jurisdiction	Segment #33W
Analysis Time Period	AM Peak	Analysis Year	2040 Build

Project Description R-2553 Kinston Bypass - Alt 1 SB Build Conditions

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A: 1500	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D:	V_D = veh/h
	Freeway Volume, V_F: 1265	
	Ramp Volume, V_R: 55	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 25.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	1265	0.90	Level	8	0	0.893	1.00	1574
Ramp	55	0.90	Level	7	0	0.966	1.00	63
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation 0 (Exhibit 13-6)

V_{12} = 1574 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	1637	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	1637	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = 8.8 (pc/mi/ln)

LOS = A (Exhibit 13-2)

Speed Determination

M_S = 0.266 (Exibit 13-11)

S_R= 62.6 mph (Exhibit 13-11)

S_0= N/A mph (Exhibit 13-11)

S = 62.6 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.009\, L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R= mph (Exhibit 13-12)

S_0= mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

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BASIC FREEWAY SEGMENTS WORKSHEET

General Information		Site Information	
Analyst	*AECOM*	Highway/Direction of Travel	*US 70 WB*
Agency or Company		From/To	*rp fm CFHarNB to rp fm CFHarSB*
Date Performed	*2017*	Jurisdiction	*Segment #34W*
Analysis Time Period	*AM Peak*	Analysis Year	*2040 Build*

Project Description *R-2553 Kinston Bypass - Alt 1 SB Build Conditions*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*1320*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*8*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.962*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*763*	pc/h/ln
S	*70.0*	mph
D = v_p / S	*10.9*	pc/mi/ln
LOS	*A*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h/ln
S		mph
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed
DDHV - Directional design hour volume

Factor Location

E_R - Exhibits 11-10, 11-12
E_T - Exhibits 11-10, 11-11, 11-13
f_p - Page 11-18
LOS, S, FFS, v_p - Exhibits 11-2, 11-3
f_{LW} - Exhibit 11-8
f_{LC} - Exhibit 11-9
TRD - Page 11-11

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	AECOM	Freeway/Dir of Travel	US 70 WB
Agency or Company		Junction	from CF Harvey Pkwy SB
Date Performed	2017	Jurisdiction	Segment #35W
Analysis Time Period	AM Peak	Analysis Year	2040 Build

Project Description R-2553 Kinston Bypass - Alt 1 SB Build Conditions

Inputs

Upstream Adj Ramp		Freeway Number of Lanes, N	2	Downstream Adj Ramp	
☐ Yes	☐ On	Ramp Number of Lanes, N	2	☐ Yes	☐ On
☑ No	☐ Off	Acceleration Lane Length, L_A	1000	☑ No	☐ Off
L_{up} =	ft	Deceleration Lane Length L_D		L_{down} =	ft
V_u =	veh/h	Freeway Volume, V_F	1320	V_D =	veh/h
		Ramp Volume, V_R	281		
		Freeway Free-Flow Speed, S_{FF}	70.0		
		Ramp Free-Flow Speed, S_{FR}	45.0		

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	1320	0.90	Level	8	0	0.893	1.00	1643
Ramp	281	0.90	Level	7	0	0.966	1.00	323
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation 0 (Exhibit 13-6)

V_{12} = 1643 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	1966	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	1966	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = -1.3 (pc/mi/ln)

LOS = A (Exhibit 13-2)

Speed Determination

M_S = 0.034 (Exibit 13-11)

S_R= 69.1 mph (Exhibit 13-11)

S_0= N/A mph (Exhibit 13-11)

S = 69.1 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.009\, L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R= mph (Exhibit 13-12)

S_0= mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

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R-2553 US 70 Kinston Bypass, Alternative 1SB
US 70 WB - AM Peak

Segment	Seg. 36	Seg. 37	Seg. 38	Seg. 39	Seg. 40	Seg. 41	Seg. 42	Seg. 43	Seg. 44
General Purpose Segment Data	36W	37W	38W	39W	40W	41W	42W	43W	44W
General Purpose Segment Name	CF Harvey to Albert Sugg/Barwick Station	To Albert Sugg/Barwick Station	Within Albert Sugg/Barwick Station Int	From Albert Sugg/Barwick Station	Albert Sugg/Barwick Station to Jim Sutton/Willie	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	W of Jim Sutton/Willie Measley
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	9090	1500	1500	1620	6050	1500	1500	1620	5280
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1651	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	6	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	1620	N/A	490	N/A	1620	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	25	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	224	N/A	N/A	N/A	227	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	2	N/A	N/A	N/A	4	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	146	N/A	N/A	N/A	278	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	2	N/A	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	12.1	14.5	11.1	9.1	12.7	15.1	10.7	8.7	12.3
V/C	0.35	0.35	0.32	0.37	0.37	0.37	0.31	0.36	0.36
Density Based LOS	B	B	A	A	B	B	A	A	B

R-2553 US 70 Kinston Bypass, Alternative 1SB
US 70 WB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1W	2W	3W	4W	5W	6W	7W	8W	9W
General Purpose Segment Name	E of Burkett/Kornegay	To Burkett/Kornegay	Within Burkett/Kornegay Int	From Burkett/Kornegay	Burkett/Kornegay to Wyse Fork	To Wyse Fork	Within Wyse Fork Int	From Wyse Fork	Wyse Fork to US 70 Bus (E)
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	3000	1500	12700	1500	1500	1500	7860
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	989	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	9	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	920	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	92	N/A	N/A	N/A	169	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	4	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	64	N/A	N/A	N/A	117	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	7.4	8.7	6.9	8.0	7.6	6.6	6.7	8.4	8.0
V/C	0.22	0.22	0.20	0.22	0.22	0.22	0.20	0.23	0.23
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 1SB
US 70 WB - PM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10W	11W	12W	13W	14W	15W	16W	17W	18W
General Purpose Segment Name	To US 70 Bus (E)	Within US 70 Bus (E) Int	From US 70 Bus (E)	US 70 Bus (E) to NC 58	To NC 58	Within NC 58 Int	From NC 58	NC 58 to US 258	To US 258
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1940	1500	2010	1500	1500	1620	3860	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	490	N/A	920	N/A	490	N/A	1620	N/A	490
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	176	N/A	N/A	N/A	88	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	5	N/A	N/A	N/A	4	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	45	N/A	N/A	N/A	45	N/A	N/A	N/A	45
OFR/Exit Dem. (vph)	383	N/A	N/A	N/A	152	N/A	N/A	N/A	122
OFR Single Unit Truck and Bus (%)	5	N/A	N/A	N/A	4	N/A	N/A	N/A	5
Total Density (pc/mi/ln)	9.4	5.2	6.7	6.4	7.6	5.3	1.8	6.0	7.0
V/C	0.23	0.15	0.19	0.19	0.19	0.16	0.17	0.17	0.17
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 1SB
US 70 WB - PM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25
General Purpose Segment Data	19W	20W	21W	22W	23W	24W	25W
General Purpose Segment Name	Within US 258 Int	From US 258	US 258 to NC 11	To NC 11	Within NC 11 Int	From NC 11	NC 11 to Us 70 Bus/CF Harvey Pkwy
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1500	1620	600	1500	1500	1620	9780
Terrain	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	1620	N/A	490	N/A	1620	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	N/A	516	N/A	N/A	N/A	540	N/A
ONR Single Unit Truck and Bus (%)	N/A	5	N/A	N/A	N/A	7	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	426	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	7	N/A	N/A	N/A
Total Density (pc/mi/ln)	5.1	4.8	8.9	10.5	5.7	5.7	9.7
V/C	0.15	0.26	0.26	0.26	0.17	0.28	0.28
Density Based LOS	A	A	A	B	A	A	A

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

General Information		Site Information	
Analyst	AECOM	Freeway/Dir of Travel	US 70 WB
Agency or Company		Junction	to US 70 Bus EB
Date Performed	2017	Jurisdiction	Segment #26W
Analysis Time Period	PM Peak	Analysis Year	2040 Build

Project Description R-2553 Kinston Bypass - Alt 1 SB Build Conditions

Inputs

Upstream Adj Ramp		Freeway Number of Lanes, N	2	Downstream Adj Ramp	
☐ Yes	☐ On	Ramp Number of Lanes, N	1	☐ Yes	☐ On
☑ No	☐ Off	Acceleration Lane Length, L_A		☑ No	☐ Off
L_{up} =	ft	Deceleration Lane Length L_D	490	L_{down} =	ft
V_u =	veh/h	Freeway Volume, V_F	1175	V_D =	veh/h
		Ramp Volume, V_R	334		
		Freeway Free-Flow Speed, S_{FF}	70.0		
		Ramp Free-Flow Speed, S_{FR}	45.0		

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	1175	0.90	Level	8	0	0.962	1.00	1358
Ramp	334	0.90	Level	5	0	0.976	1.00	380
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R= mph (Exhibit 13-11)

S_0= mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation 0 (Exhibit 13-7)

V_{12} = 1358 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	1358	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	978	Exhibit 13-8	4800	No
V_R	380	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	1358	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.009\, L_D$

D_R = 11.5 (pc/mi/ln)

LOS = B (Exhibit 13-2)

Speed Determination

D_s = 0.332 (Exhibit 13-12)

S_R= 60.7 mph (Exhibit 13-12)

S_0= N/A mph (Exhibit 13-12)

S = 60.7 mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

General Information		Site Information	
Analyst	AECOM	Freeway/Dir of Travel	US 70 WB
Agency or Company		Junction	to US 70 Bus WB
Date Performed	2017	Jurisdiction	Segment #27W
Analysis Time Period	PM Peak	Analysis Year	2040 Build

Project Description R-2553 Kinston Bypass - Alt 1 SB Build Conditions

Inputs

Upstream Adj Ramp		Freeway Number of Lanes, N	2	Downstream Adj Ramp	
☐ Yes	☐ On	Ramp Number of Lanes, N	1	☐ Yes	☐ On
☑ No	☐ Off	Acceleration Lane Length, L_A		☑ No	☐ Off
L_{up} =	ft	Deceleration Lane Length L_D	750	L_{down} =	ft
V_u =	veh/h	Freeway Volume, V_F	858	V_D =	veh/h
		Ramp Volume, V_R	62		
		Freeway Free-Flow Speed, S_{FF}	70.0		
		Ramp Free-Flow Speed, S_{FR}	25.0		

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	858	0.90	Level	8	0	0.962	1.00	991
Ramp	62	0.90	Level	5	0	0.976	1.00	71
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R= mph (Exhibit 13-11)

S_0= mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation 0 (Exhibit 13-7)

V_{12} = 991 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	991	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	920	Exhibit 13-8	4800	No
V_R	71	Exhibit 13-10	1900	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	991	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.009\, L_D$

D_R = 6.0 (pc/mi/ln)

LOS = A (Exhibit 13-2)

Speed Determination

D_s = 0.564 (Exhibit 13-12)

S_R= 54.2 mph (Exhibit 13-12)

S_0= N/A mph (Exhibit 13-12)

S = 54.2 mph (Exhibit 13-13)

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BASIC FREEWAY SEGMENTS WORKSHEET

General Information		Site Information	
Analyst	*AECOM*	Highway/Direction of Travel	*US 70 WB*
Agency or Company		From/To	*within US 70 Bus Int*
Date Performed	*2017*	Jurisdiction	*Segment #28W*
Analysis Time Period	*PM Peak*	Analysis Year	*2040 Build*

Project Description *R-2553 Kinston Bypass - Alt 1 SB Build Conditions*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*796*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*8*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.962*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f_{LW}		mph
Number of Lanes, N	*2*		f_{LC}		mph
Total Ramp Density, TRD		ramps/mi	TRD Adjustment		mph
FFS (measured)	*70.0*	mph	FFS	*70.0*	mph
Base free-flow Speed, BFFS		mph			

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*460*	pc/h/ln	Design LOS	
S	*70.0*	mph	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
D = v_p / S	*6.6*	pc/mi/ln	S	mph
LOS	*A*		D = v_p / S	pc/mi/ln
			Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

General Information		Site Information	
Analyst	AECOM	Freeway/Dir of Travel	US 70 WB
Agency or Company		Junction	from US 70 Bus
Date Performed	2017	Jurisdiction	Segment #29W
Analysis Time Period	PM Peak	Analysis Year	2040 Build

Project Description R-2553 Kinston Bypass - Alt 1 SB Build Conditions

Inputs

Upstream Adj Ramp		Freeway Number of Lanes, N	2	Downstream Adj Ramp	
☐ Yes	☐ On	Ramp Number of Lanes, N	1	☐ Yes	☐ On
☑ No	☐ Off	Acceleration Lane Length, L_A	920	☑ No	☐ Off
L_{up} =	ft	Deceleration Lane Length L_D		L_{down} =	ft
V_u =	veh/h	Freeway Volume, V_F	796	V_D =	veh/h
		Ramp Volume, V_R	418		
		Freeway Free-Flow Speed, S_{FF}	70.0		
		Ramp Free-Flow Speed, S_{FR}	45.0		

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	796	0.90	Level	8	0	0.893	1.00	991
Ramp	418	0.90	Level	5	0	0.976	1.00	476
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation 0 (Exhibit 13-6)

V_{12} = 991 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	1467	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	1467	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = 10.9 (pc/mi/ln)

LOS = B (Exhibit 13-2)

Speed Determination

M_S = 0.255 (Exibit 13-11)

S_R= 62.9 mph (Exhibit 13-11)

S_0= N/A mph (Exhibit 13-11)

S = 62.9 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.009\, L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R= mph (Exhibit 13-12)

S_0= mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

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BASIC FREEWAY SEGMENTS WORKSHEET

General Information		Site Information	
Analyst	*AECOM*	Highway/Direction of Travel	*US 70 WB*
Agency or Company		From/To	*US70Bus to CFHar*
Date Performed	*2017*	Jurisdiction	*Segment #30W*
Analysis Time Period	*PM Peak*	Analysis Year	*2040 Build*

Project Description *R-2553 Kinston Bypass - Alt 1 SB Build Conditions*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*1232*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*8*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.962*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*712*	pc/h/ln
S	*70.0*	mph
D = v_p / S	*10.2*	pc/mi/ln
LOS	*A*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h/ln
S		mph
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed
DDHV - Directional design hour volume

Factor Location

E_R - Exhibits 11-10, 11-12
E_T - Exhibits 11-10, 11-11, 11-13
f_p - Page 11-18
LOS, S, FFS, v_p - Exhibits 11-2, 11-3
f_{LW} - Exhibit 11-8
f_{LC} - Exhibit 11-9
TRD - Page 11-11

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

General Information		Site Information	
Analyst	AECOM	Freeway/Dir of Travel	US 70 WB
Agency or Company		Junction	to CF Harvey Pkwy NB
Date Performed	2017	Jurisdiction	Segment #31W
Analysis Time Period	PM Peak	Analysis Year	2040 Build

Project Description R-2553 Kinston Bypass - Alt 1 SB Build Conditions

Inputs

Upstream Adj Ramp		Freeway Number of Lanes, N	2	Downstream Adj Ramp	
☐ Yes	☐ On	Ramp Number of Lanes, N	1	☐ Yes	☐ On
☑ No	☐ Off	Acceleration Lane Length, L_A		☑ No	☐ Off
L_{up} =	ft	Deceleration Lane Length L_D	490	L_{down} =	ft
V_u =	veh/h	Freeway Volume, V_F	1232	V_D =	veh/h
		Ramp Volume, V_R	88		
		Freeway Free-Flow Speed, S_{FF}	70.0		
		Ramp Free-Flow Speed, S_{FR}	45.0		

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	1232	0.90	Level	8	0	0.962	1.00	1424
Ramp	88	0.90	Level	7	0	0.966	1.00	101
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R= mph (Exhibit 13-11)

S_0= mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation 0 (Exhibit 13-7)

V_{12} = 1424 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	1424	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	1323	Exhibit 13-8	4800	No
V_R	101	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	1424	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.009\, L_D$

D_R = 12.1 (pc/mi/ln)

LOS = B (Exhibit 13-2)

Speed Determination

D_s = 0.307 (Exhibit 13-12)

S_R= 61.4 mph (Exhibit 13-12)

S_0= N/A mph (Exhibit 13-12)

S = 61.4 mph (Exhibit 13-13)

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BASIC FREEWAY SEGMENTS WORKSHEET

General Information		Site Information	
Analyst	*AECOM*	Highway/Direction of Travel	*US 70 WB*
Agency or Company		From/To	*rp to CFHarNB to rp fm CFHarNB*
Date Performed	*2017*	Jurisdiction	*Segment #32W*
Analysis Time Period	*PM Peak*	Analysis Year	*2040 Build*

Project Description *R-2553 Kinston Bypass - Alt 1 SB Build Conditions*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*1186*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*8*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.962*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*685*	pc/h/ln
S	*70.0*	mph
D = v_p / S	*9.8*	pc/mi/ln
LOS	*A*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h/ln
S		mph
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed
DDHV - Directional design hour volume

Factor Location

E_R - Exhibits 11-10, 11-12
E_T - Exhibits 11-10, 11-11, 11-13
f_p - Page 11-18
LOS, S, FFS, v_p - Exhibits 11-2, 11-3
f_{LW} - Exhibit 11-8
f_{LC} - Exhibit 11-9
TRD - Page 11-11

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

General Information		Site Information	
Analyst	AECOM	Freeway/Dir of Travel	US 70 WB
Agency or Company		Junction	from CF Har Harvey NB
Date Performed	2017	Jurisdiction	Segment #33W
Analysis Time Period	PM Peak	Analysis Year	2040 Build

Project Description R-2553 Kinston Bypass - Alt 1 SB Build Conditions

Inputs

Upstream Adj Ramp		Freeway Number of Lanes, N	2	Downstream Adj Ramp	
☐ Yes	☐ On	Ramp Number of Lanes, N	1	☐ Yes	☐ On
☑ No	☐ Off	Acceleration Lane Length, L_A	1500	☑ No	☐ Off
L_{up} =	ft	Deceleration Lane Length L_D		L_{down} =	ft
V_u =	veh/h	Freeway Volume, V_F	1186	V_D =	veh/h
		Ramp Volume, V_R	72		
		Freeway Free-Flow Speed, S_{FF}	70.0		
		Ramp Free-Flow Speed, S_{FR}	25.0		

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	1186	0.90	Level	8	0	0.893	1.00	1476
Ramp	72	0.90	Level	7	0	0.966	1.00	83
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation 0 (Exhibit 13-6)

V_{12} = 1476 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	1559	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	1559	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = 8.2 (pc/mi/ln)

LOS = A (Exhibit 13-2)

Speed Determination

M_S = 0.265 (Exibit 13-11)

S_R= 62.6 mph (Exhibit 13-11)

S_0= N/A mph (Exhibit 13-11)

S = 62.6 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.009\, L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R= mph (Exhibit 13-12)

S_0= mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

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BASIC FREEWAY SEGMENTS WORKSHEET

General Information		Site Information	
Analyst	*AECOM*	Highway/Direction of Travel	*US 70 WB*
Agency or Company		From/To	*rp fm CFHarNB to rp fm CFHarSB*
Date Performed	*2017*	Jurisdiction	*Segment #34W*
Analysis Time Period	*PM Peak*	Analysis Year	*2040 Build*

Project Description *R-2553 Kinston Bypass - Alt 1 SB Build Conditions*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*1258*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*8*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.962*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*727*	pc/h/ln
S	*70.0*	mph
D = v_p / S	*10.4*	pc/mi/ln
LOS	*A*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h/ln
S		mph
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed
DDHV - Directional design hour volume

Factor Location

E_R - Exhibits 11-10, 11-12
E_T - Exhibits 11-10, 11-11, 11-13
f_p - Page 11-18
LOS, S, FFS, v_p - Exhibits 11-2, 11-3
f_{LW} - Exhibit 11-8
f_{LC} - Exhibit 11-9
TRD - Page 11-11

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	AECOM	Freeway/Dir of Travel	US 70 WB
Agency or Company		Junction	from CF Harvey Pkwy SB
Date Performed	2017	Jurisdiction	Segment #35W
Analysis Time Period	PM Peak	Analysis Year	2040 Build

Project Description R-2553 Kinston Bypass - Alt 1 SB Build Conditions

Inputs

Upstream Adj Ramp		Freeway Number of Lanes, N	2	Downstream Adj Ramp	
☐ Yes	☐ On	Ramp Number of Lanes, N	2	☐ Yes	☐ On
☑ No	☐ Off	Acceleration Lane Length, L_A	1000	☑ No	☐ Off
L_{up} =	ft	Deceleration Lane Length L_D		L_{down} =	ft
V_u =	veh/h	Freeway Volume, V_F	1258	V_D =	veh/h
		Ramp Volume, V_R	572		
		Freeway Free-Flow Speed, S_{FF}	70.0		
		Ramp Free-Flow Speed, S_{FR}	45.0		

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	1258	0.90	Level	8	0	0.893	1.00	1566
Ramp	572	0.90	Level	7	0	0.966	1.00	658
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation 0 (Exhibit 13-6)

V_{12} = 1566 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * $V_{12}/2$ ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	2224	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	2224	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = 0.6 (pc/mi/ln)

LOS = A (Exhibit 13-2)

Speed Determination

M_S = 0.042 (Exibit 13-11)

S_R= 68.8 mph (Exhibit 13-11)

S_0= N/A mph (Exhibit 13-11)

S = 68.8 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * $V_{12}/2$ ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.009\, L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R= mph (Exhibit 13-12)

S_0= mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

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R-2553 US 70 Kinston Bypass, Alternative 1SB
US 70 WB - PM Peak

Segment	Seg. 36	Seg. 37	Seg. 38	Seg. 39	Seg. 40	Seg. 41	Seg. 42	Seg. 43	Seg. 44
General Purpose Segment Data	36W	37W	38W	39W	40W	41W	42W	43W	44W
General Purpose Segment Name	CF Harvey to Albert Sugg/Barwick Station	To Albert Sugg/Barwick Station	Within Albert Sugg/Barwick Station Int	From Albert Sugg/Barwick Station	Albert Sugg/Barwick Station to Jim Sutton/Willie	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	W of Jim Sutton/Willie Measley
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	9090	1500	1500	1620	6050	1500	1500	1620	5280
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	2187	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	6	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	1620	N/A	490	N/A	1620	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	25	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	167	N/A	N/A	N/A	201	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	2	N/A	N/A	N/A	4	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	242	N/A	N/A	N/A	379	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	2	N/A	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	16.1	19.2	14.3	12.2	15.5	18.6	12.8	10.8	14.3
V/C	0.47	0.47	0.42	0.45	0.45	0.45	0.37	0.42	0.42
Density Based LOS	B	B	B	B	B	B	B	B	B

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FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	Ramp from US 70 EB to Ramp to US 70 WB
Date Performed	2017	**Jurisdiction**	Segment 1N
Analysis Time Period	AM Peak	**Analysis Year**	2040 Build Alt 1 SB
Project Description		R-2553 US 70 Kinston Bypass	

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**2**
Speed (mph)	**45**
Capacity (vph)	2100
Heavy Veh. %	**5** %
Heavy Veh. Factor	0.976
Volume	**163**
Flow Rate	186
Vol. to Cap. Ratio	0.04

ISOLATED RAMP V/C RATIO:	0.04

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	Ramp to US 70 WB
Date Performed	2017	**Jurisdiction**	Segment 2N
Analysis Time Period	AM Peak	**Analysis Year**	2040 Build Alt 1 SB
Project Description		R-2553 US 70 Kinston Bypass	

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**1**
Speed (mph)	**25**
Capacity (vph)	1900
Heavy Veh. %	**5** %
Heavy Veh. Factor	0.976
Volume	**55**
Flow Rate	63
Vol. to Cap. Ratio	0.03

ISOLATED RAMP V/C RATIO:	0.03

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	Ramp to US 70 WB to ramp from US 70
Date Performed	2017	**Jurisdiction**	Segment 3N
Analysis Time Period	AM Peak	**Analysis Year**	2040 Build Alt 1 SB
Project Description		R-2553 US 70 Kinston Bypass	

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**1**
Speed (mph)	**60**
Capacity (vph)	2200
Heavy Veh. %	**5** %
Heavy Veh. Factor	0.976
Volume	**108**
Flow Rate	123
Vol. to Cap. Ratio	0.06

ISOLATED RAMP V/C RATIO:	0.06

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	Ramp from US 70 WB
Date Performed	2017	**Jurisdiction**	Segment 4N
Analysis Time Period	AM Peak	**Analysis Year**	2040 Build Alt 1 SB
Project Description		R-2553 US 70 Kinston Bypass	

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**2**
Speed (mph)	**45**
Capacity (vph)	2100
Heavy Veh. %	**5** %
Heavy Veh. Factor	0.976
Volume	**763**
Flow Rate	869
Vol. to Cap. Ratio	0.21

ISOLATED RAMP V/C RATIO:	0.21

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	North of US 70
Date Performed	2017	**Jurisdiction**	Segment 5N
Analysis Time Period	AM Peak	**Analysis Year**	2040 Build Alt 1 SB
Project Description	R-2553 US 70 Kinston Bypass		

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**2**
Speed (mph)	**70**
Capacity (vph)	2200
Heavy Veh. %	**5** %
Heavy Veh. Factor	0.976
Volume	**843**
Flow Rate	960
Vol. to Cap. Ratio	0.22

ISOLATED RAMP V/C RATIO:	0.22

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	Ramp from US 70 EB to Ramp to US 70 WB
Date Performed	2017	**Jurisdiction**	Segment 1N
Analysis Time Period	PM Peak	**Analysis Year**	2040 Build Alt 1 SB
Project Description		R-2553 US 70 Kinston Bypass	

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**2**
Speed (mph)	**45**
Capacity (vph)	2100
Heavy Veh. %	**5** %
Heavy Veh. Factor	0.976
Volume	**142**
Flow Rate	162
Vol. to Cap. Ratio	0.04

ISOLATED RAMP V/C RATIO:	0.04

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	Ramp to US 70 WB
Date Performed	2017	**Jurisdiction**	Segment 2N
Analysis Time Period	PM Peak	**Analysis Year**	2040 Build Alt 1 SB
Project Description		R-2553 US 70 Kinston Bypass	

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**1**
Speed (mph)	**25**
Capacity (vph)	1900
Heavy Veh. %	**5** %
Heavy Veh. Factor	0.976
Volume	**72**
Flow Rate	82
Vol. to Cap. Ratio	0.04

ISOLATED RAMP V/C RATIO:	0.04

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	Ramp to US 70 WB to ramp from US 70
Date Performed	2017	**Jurisdiction**	Segment 3N
Analysis Time Period	PM Peak	**Analysis Year**	2040 Build Alt 1 SB
Project Description		R-2553 US 70 Kinston Bypass	

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**1**
Speed (mph)	**60**
Capacity (vph)	2200
Heavy Veh. %	**5** %
Heavy Veh. Factor	0.976
Volume	**70**
Flow Rate	80
Vol. to Cap. Ratio	0.04

ISOLATED RAMP V/C RATIO:	0.04

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	Ramp from US 70 WB
Date Performed	2017	**Jurisdiction**	Segment 4N
Analysis Time Period	PM Peak	**Analysis Year**	2040 Build Alt 1 SB
Project Description		R-2553 US 70 Kinston Bypass	

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**2**
Speed (mph)	**45**
Capacity (vph)	2100
Heavy Veh. %	**5** %
Heavy Veh. Factor	0.976
Volume	**369**
Flow Rate	420
Vol. to Cap. Ratio	0.10

ISOLATED RAMP V/C RATIO:	0.10

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	North of US 70
Date Performed	2017	**Jurisdiction**	Segment 5N
Analysis Time Period	PM Peak	**Analysis Year**	2040 Build Alt 1 SB
Project Description	R-2553 US 70 Kinston Bypass		

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**2**
Speed (mph)	**70**
Capacity (vph)	2200
Heavy Veh. %	**5** %
Heavy Veh. Factor	0.976
Volume	**454**
Flow Rate	517
Vol. to Cap. Ratio	0.12

ISOLATED RAMP V/C RATIO:	0.12

BASIC FREEWAY SEGMENTS WORKSHEET

General Information		Site Information	
Analyst	*AECOM*	Highway/Direction of Travel	*C.F. Harvey Pkwy SB*
Agency or Company		From/To	*north of US 70*
Date Performed	*2017*	Jurisdiction	*Segment #1S*
Analysis Time Period	*AM Peak*	Analysis Year	*2040 Build*

Project Description *R-2553 Kinston Bypass - Alt 1 SB Build Conditions*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*454*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*7*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.966*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*261*	pc/h/ln
S	*70.0*	mph
D = v_p / S	*3.7*	pc/mi/ln
LOS	*A*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h/ln
S		mph
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed
DDHV - Directional design hour volume

Factor Location

E_R - Exhibits 11-10, 11-12
E_T - Exhibits 11-10, 11-11, 11-13
f_p - Page 11-18
LOS, S, FFS, v_p - Exhibits 11-2, 11-3
f_{LW} - Exhibit 11-8
f_{LC} - Exhibit 11-9
TRD - Page 11-11

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	AECOM	Freeway/Dir of Travel	C.F. Harvey Pkwy SB
Agency or Company		Junction	to US 70 WB
Date Performed	2017	Jurisdiction	Segment #2S
Analysis Time Period	AM Peak	Analysis Year	2040 Build

Project Description R-2553 Kinston Bypass - Alt 1 SB Build Conditions

Inputs

Upstream Adj Ramp		Freeway Number of Lanes, N	2	Downstream Adj Ramp	
☐ Yes	☐ On	Ramp Number of Lanes, N	2	☐ Yes	☐ On
☑ No	☐ Off	Acceleration Lane Length, L_A		☑ No	☐ Off
L_{up} =	ft	Deceleration Lane Length L_D	1000	L_{down} =	ft
V_u =	veh/h	Freeway Volume, V_F	454	V_D =	veh/h
		Ramp Volume, V_R	281		
		Freeway Free-Flow Speed, S_{FF}	70.0		
		Ramp Free-Flow Speed, S_{FR}	45.0		

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	454	0.90	Level	7	0	0.966	1.00	522
Ramp	281	0.90	Level	6	0	0.971	1.00	322
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R= mph (Exhibit 13-11)

S_0= mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation 0 (Exhibit 13-7)

V_{12} = 522 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	522	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	200	Exhibit 13-8	4800	No
V_R	322	Exhibit 13-10	4200	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	522	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.009\, L_D$

D_R = -22.8 (pc/mi/ln)

LOS = A (Exhibit 13-2)

Speed Determination

D_s = 0.327 (Exhibit 13-12)

S_R= 60.8 mph (Exhibit 13-12)

S_0= N/A mph (Exhibit 13-12)

S = 60.8 mph (Exhibit 13-13)

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FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext SB
Agency or Company		**Junction**	Ramp to US 70 EB
Date Performed	2017	**Jurisdiction**	Segment 3S
Analysis Time Period	AM Peak	**Analysis Year**	2040 Build Alt 1 SB
Project Description		R-2553 US 70 Kinston Bypass	

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**1**
Speed (mph)	**25**
Capacity (vph)	1900
Heavy Veh. %	**5** %
Heavy Veh. Factor	0.976
Volume	**88**
Flow Rate	100
Vol. to Cap. Ratio	0.05

ISOLATED RAMP V/C RATIO:	0.05

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext SB
Agency or Company		**Junction**	Ramp to US 70 EB to ramp from US 70 EB
Date Performed	2017	**Jurisdiction**	Segment 4S
Analysis Time Period	AM Peak	**Analysis Year**	2040 Build Alt 1 SB
Project Description	R-2553 US 70 Kinston Bypass		

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**2**
Speed (mph)	**45**
Capacity (vph)	2100
Heavy Veh. %	**5** %
Heavy Veh. Factor	0.976
Volume	**70**
Flow Rate	80
Vol. to Cap. Ratio	0.02

ISOLATED RAMP V/C RATIO:	0.02

BASIC FREEWAY SEGMENTS WORKSHEET

General Information		Site Information	
Analyst	*AECOM*	Highway/Direction of Travel	*C.F. Harvey Pkwy SB*
Agency or Company		From/To	*north of US 70*
Date Performed	*2017*	Jurisdiction	*Segment #1S*
Analysis Time Period	*PM Peak*	Analysis Year	*2040 Build*

Project Description *R-2553 Kinston Bypass - Alt 1 SB Build Conditions*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*843*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*7*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.966*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*485*	pc/h/ln
S	*70.0*	mph
D = v_p / S	*6.9*	pc/mi/ln
LOS	*A*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h/ln
S		mph
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed
DDHV - Directional design hour volume

Factor Location

E_R - Exhibits 11-10, 11-12
E_T - Exhibits 11-10, 11-11, 11-13
f_p - Page 11-18
LOS, S, FFS, v_p - Exhibits 11-2, 11-3
f_{LW} - Exhibit 11-8
f_{LC} - Exhibit 11-9
TRD - Page 11-11

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	AECOM	Freeway/Dir of Travel	C.F. Harvey Pkwy SB
Agency or Company		Junction	to US 70 WB
Date Performed	2017	Jurisdiction	Segment #2S
Analysis Time Period	PM Peak	Analysis Year	2040 Build

Project Description R-2553 Kinston Bypass - Alt 1 SB Build Conditions

Inputs

Upstream Adj Ramp		Freeway Number of Lanes, N	2	Downstream Adj Ramp	
☐ Yes	☐ On	Ramp Number of Lanes, N	2	☐ Yes	☐ On
☑ No	☐ Off	Acceleration Lane Length, L_A		☑ No	☐ Off
L_{up} =	ft	Deceleration Lane Length L_D	1000	L_{down} =	ft
V_u =	veh/h	Freeway Volume, V_F	843	V_D =	veh/h
		Ramp Volume, V_R	572		
		Freeway Free-Flow Speed, S_{FF}	70.0		
		Ramp Free-Flow Speed, S_{FR}	45.0		

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	843	0.90	Level	7	0	0.966	1.00	969
Ramp	572	0.90	Level	6	0	0.971	1.00	655
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R= mph (Exhibit 13-11)

S_0= mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation 0 (Exhibit 13-7)

V_{12} = 969 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	969	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	314	Exhibit 13-8	4800	No
V_R	655	Exhibit 13-10	4200	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	969	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.009\, L_D$

D_R = -18.9 (pc/mi/ln)

LOS = A (Exhibit 13-2)

Speed Determination

D_s = 0.357 (Exhibit 13-12)

S_R= 60.0 mph (Exhibit 13-12)

S_0= N/A mph (Exhibit 13-12)

S = 60.0 mph (Exhibit 13-13)

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FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext SB
Agency or Company		**Junction**	Ramp to US 70 EB
Date Performed	2017	**Jurisdiction**	Segment 3S
Analysis Time Period	PM Peak	**Analysis Year**	2040 Build Alt 1 SB
Project Description		R-2553 US 70 Kinston Bypass	

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**1**
Speed (mph)	**25**
Capacity (vph)	1900
Heavy Veh. %	**5** %
Heavy Veh. Factor	0.976
Volume	**191**
Flow Rate	218
Vol. to Cap. Ratio	0.11

ISOLATED RAMP V/C RATIO:	0.11

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext SB
Agency or Company		**Junction**	Ramp to US 70 EB to ramp from US 70 EB
Date Performed	2017	**Jurisdiction**	Segment 4S
Analysis Time Period	PM Peak	**Analysis Year**	2040 Build Alt 1 SB
Project Description	R-2553 US 70 Kinston Bypass		

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**2**
Speed (mph)	**45**
Capacity (vph)	2100
Heavy Veh. %	**5** %
Heavy Veh. Factor	0.976
Volume	**108**
Flow Rate	123
Vol. to Cap. Ratio	0.03

ISOLATED RAMP V/C RATIO:	0.03

2040 Build Alternative 1 SB
Synchro Reports

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	6	4	4	4	14	4	98	6	17	62	6
Future Volume (vph)	10	6	4	4	4	14	4	98	6	17	62	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1706	0	0	1618	0	1770	1846	0	1770	1837	0
Flt Permitted		0.976			0.992		0.950			0.950		
Satd. Flow (perm)	0	1706	0	0	1618	0	1770	1846	0	1770	1837	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		883			854			935			1001	
Travel Time (s)		13.4			12.9			11.6			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	0	0	24	0	4	116	0	19	76	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 17.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	6	4	4	4	14	4	98	6	17	62	6
Future Volume (Veh/h)	10	6	4	4	4	14	4	98	6	17	62	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	7	4	4	4	16	4	109	7	19	69	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1001	
pX, platoon unblocked												
vC, conflicting volume	246	234	72	235	234	112	76			116		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	246	234	72	235	234	112	76			116		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	98	99	100	99	99	98	100			99		
cM capacity (veh/h)	677	649	979	694	649	930	1523			1473		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	22	24	4	116	19	76
Volume Left	11	4	4	0	19	0
Volume Right	4	16	0	7	0	7
cSH	707	824	1523	1700	1473	1700
Volume to Capacity	0.03	0.03	0.00	0.07	0.01	0.04
Queue Length 95th (ft)	2	2	0	0	1	0
Control Delay (s)	10.3	9.5	7.4	0.0	7.5	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	10.3	9.5	0.2		1.5	
Approach LOS	B	A				

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	17.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	4	4	6	6	17	4	62	4	14	98	10
Future Volume (vph)	6	4	4	6	6	17	4	62	4	14	98	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1688	0	0	1636	0	1770	1848	0	1770	1837	0
Flt Permitted		0.977			0.990		0.950			0.950		
Satd. Flow (perm)	0	1688	0	0	1636	0	1770	1848	0	1770	1837	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		883			854			935			1001	
Travel Time (s)		13.4			12.9			11.6			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	0	33	0	4	73	0	16	120	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 17.4%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	4	4	6	6	17	4	62	4	14	98	10
Future Volume (Veh/h)	6	4	4	6	6	17	4	62	4	14	98	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	4	4	7	7	19	4	69	4	16	109	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1001	
pX, platoon unblocked												
vC, conflicting volume	246	228	114	226	231	71	120			73		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	246	228	114	226	231	71	120			73		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	99	99	100	99	99	98	100			99		
cM capacity (veh/h)	673	656	927	707	653	980	1468			1527		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	15	33	4	73	16	120
Volume Left	7	7	4	0	16	0
Volume Right	4	19	0	4	0	11
cSH	721	825	1468	1700	1527	1700
Volume to Capacity	0.02	0.04	0.00	0.04	0.01	0.07
Queue Length 95th (ft)	2	3	0	0	1	0
Control Delay (s)	10.1	9.5	7.5	0.0	7.4	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	10.1	9.5	0.4		0.9	
Approach LOS	B	A				

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	17.4%	ICU Level of Service	A
Analysis Period (min)	15		

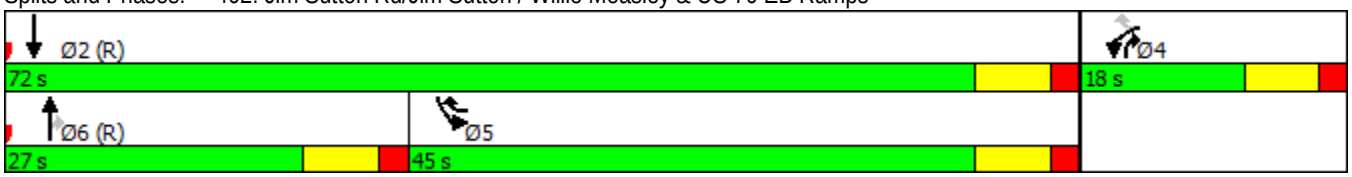
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	33	148	73	51	290	51
Future Volume (vph)	33	148	73	51	290	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		100	300	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1863	1583	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1863	1583	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	999		1001			1313
Travel Time (s)	27.2		12.4			16.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	37	164	81	57	322	57
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	18.0	45.0	27.0	18.0	45.0	72.0
Total Split (%)	20.0%	50.0%	30.0%	20.0%	50.0%	80.0%
Maximum Green (s)	11.0	38.0	20.0	11.0	38.0	65.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.9	36.6	43.4	55.5	24.5	73.9
Actuated g/C Ratio	0.11	0.41	0.48	0.62	0.27	0.82
v/c Ratio	0.19	0.26	0.09	0.06	0.68	0.04
Control Delay	38.5	16.4	17.2	8.9	32.8	2.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	16.4	17.2	8.9	32.8	2.3
LOS	D	B	B	A	C	A
Approach Delay	20.5		13.8			28.2
Approach LOS	C		B			C
Queue Length 50th (ft)	20	58	25	12	124	5
Queue Length 95th (ft)	48	77	64	34	167	13
Internal Link Dist (ft)	919		921			1233
Turn Bay Length (ft)		175		100	300	
Base Capacity (vph)	250	733	898	946	771	1500
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.22	0.09	0.06	0.42	0.04

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 48 (53%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 23.3 Intersection LOS: C
Intersection Capacity Utilization 36.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps



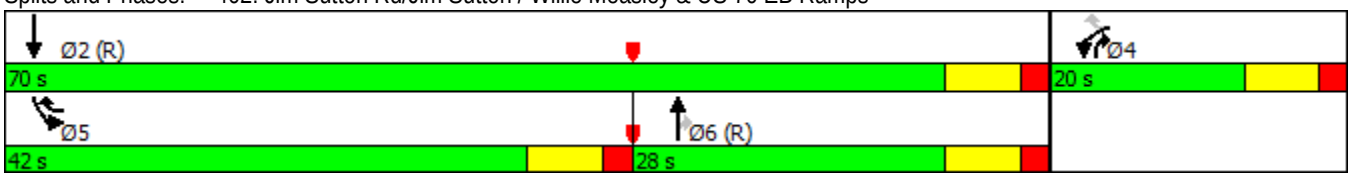
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	46	158	54	30	220	78
Future Volume (vph)	46	158	54	30	220	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		100	300	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1863	1583	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1863	1583	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	999		1001			1313
Travel Time (s)	27.2		12.4			16.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	51	176	60	33	244	87
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	42.0	28.0	20.0	42.0	70.0
Total Split (%)	22.2%	46.7%	31.1%	22.2%	46.7%	77.8%
Maximum Green (s)	13.0	35.0	21.0	13.0	35.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.4	32.8	47.2	62.7	20.1	73.4
Actuated g/C Ratio	0.12	0.36	0.52	0.70	0.22	0.82
v/c Ratio	0.26	0.31	0.06	0.03	0.63	0.06
Control Delay	38.9	19.6	14.7	6.7	33.2	2.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	19.6	14.7	6.7	33.2	2.3
LOS	D	B	B	A	C	A
Approach Delay	24.0		11.9			25.1
Approach LOS	C		B			C
Queue Length 50th (ft)	27	67	17	6	109	8
Queue Length 95th (ft)	60	94	46	19	156	16
Internal Link Dist (ft)	919		921			1233
Turn Bay Length (ft)		175		100	300	
Base Capacity (vph)	289	856	977	1182	713	1489
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.21	0.06	0.03	0.34	0.06

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 34 (38%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 22.8 Intersection LOS: C
Intersection Capacity Utilization 33.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps



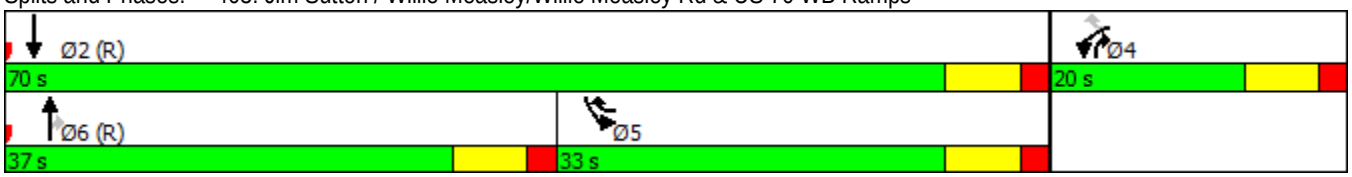
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	30	220	175	46	158	311
Future Volume (vph)	30	220	175	46	158	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	275		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	987		1313			996
Travel Time (s)	15.0		16.3			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	244	194	51	176	346
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	33.0	37.0	20.0	33.0	70.0
Total Split (%)	22.2%	36.7%	41.1%	22.2%	36.7%	77.8%
Maximum Green (s)	13.0	26.0	30.0	13.0	26.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.7	30.7	49.3	61.2	18.8	74.1
Actuated g/C Ratio	0.11	0.34	0.55	0.68	0.21	0.82
v/c Ratio	0.18	0.46	0.19	0.05	0.49	0.23
Control Delay	38.4	24.4	10.5	3.9	35.4	2.9

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.4	24.4	10.5	3.9	35.4	2.9
LOS	D	C	B	A	D	A
Approach Delay	26.1		9.1			13.9
Approach LOS	C		A			B
Queue Length 50th (ft)	18	103	47	5	89	39
Queue Length 95th (ft)	44	147	95	15	142	71
Internal Link Dist (ft)	907		1233			916
Turn Bay Length (ft)		275		100	200	
Base Capacity (vph)	289	575	1000	1051	540	1503
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.42	0.19	0.05	0.33	0.23

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.49
Intersection Signal Delay: 16.0 Intersection LOS: B
Intersection Capacity Utilization 38.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps



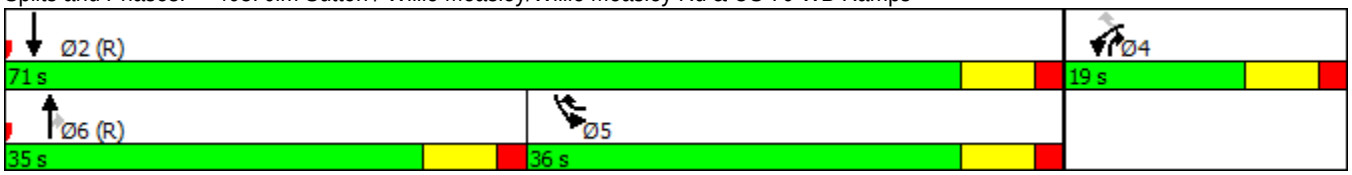
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	51	290	179	33	148	247
Future Volume (vph)	51	290	179	33	148	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	275		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	987		1313			996
Travel Time (s)	15.0		16.3			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	322	199	37	164	274
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	19.0	36.0	35.0	19.0	36.0	71.0
Total Split (%)	21.1%	40.0%	38.9%	21.1%	40.0%	78.9%
Maximum Green (s)	12.0	29.0	28.0	12.0	29.0	64.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.7	36.0	44.0	56.8	23.2	73.1
Actuated g/C Ratio	0.12	0.40	0.49	0.63	0.26	0.81
v/c Ratio	0.28	0.52	0.22	0.04	0.37	0.18
Control Delay	39.1	22.0	11.4	6.2	29.0	3.1

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	22.0	11.4	6.2	29.0	3.1
LOS	D	C	B	A	C	A
Approach Delay	24.5		10.6			12.8
Approach LOS	C		B			B
Queue Length 50th (ft)	30	128	32	5	76	32
Queue Length 95th (ft)	64	168	99	16	122	62
Internal Link Dist (ft)	907		1233			916
Turn Bay Length (ft)		275		100	200	
Base Capacity (vph)	270	657	892	951	597	1484
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.49	0.22	0.04	0.27	0.18

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 16.5 Intersection LOS: B
Intersection Capacity Utilization 38.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	8	204	28	5	4	170	128	39	8	188	5
Future Volume (vph)	4	8	204	28	5	4	170	128	39	8	188	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1623	0	0	1772	0	1736	1763	0	1770	1855	0
Flt Permitted		0.999			0.964		0.950			0.950		
Satd. Flow (perm)	0	1623	0	0	1772	0	1736	1763	0	1770	1855	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		970			951			996			1084	
Travel Time (s)		14.7			14.4			12.3			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	240	0	0	41	0	189	185	0	9	215	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 49.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	8	204	28	5	4	170	128	39	8	188	5
Future Volume (Veh/h)	4	8	204	28	5	4	170	128	39	8	188	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	9	227	31	6	4	189	142	43	9	209	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								996				
pX, platoon unblocked												
vC, conflicting volume	757	793	212	1000	774	164	215			185		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	757	793	212	1000	774	164	215			185		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	97	73	78	98	100	86			99		
cM capacity (veh/h)	282	274	828	139	281	881	1343			1390		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	240	41	189	185	9	215
Volume Left	4	31	189	0	9	0
Volume Right	227	4	0	43	0	6
cSH	747	165	1343	1700	1390	1700
Volume to Capacity	0.32	0.25	0.14	0.11	0.01	0.13
Queue Length 95th (ft)	35	23	12	0	0	0
Control Delay (s)	12.1	33.8	8.1	0.0	7.6	0.0
Lane LOS	B	D	A		A	
Approach Delay (s)	12.1	33.8	4.1		0.3	
Approach LOS	B	D				

Intersection Summary			
Average Delay	6.7		
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	170	39	8	8	204	187	28	4	128	4
Future Volume (vph)	5	5	170	39	8	8	204	187	28	4	128	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1625	0	0	1763	0	1736	1792	0	1770	1855	0
Flt Permitted		0.999			0.966		0.950			0.950		
Satd. Flow (perm)	0	1625	0	0	1763	0	1736	1792	0	1770	1855	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		970			951			996			1084	
Travel Time (s)		14.7			14.4			12.3			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	201	0	0	61	0	227	239	0	4	146	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 46.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	170	39	8	8	204	187	28	4	128	4
Future Volume (Veh/h)	5	5	170	39	8	8	204	187	28	4	128	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	6	189	43	9	9	227	208	31	4	142	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								996				
pX, platoon unblocked												
vC, conflicting volume	828	845	144	1020	832	224	146			239		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	828	845	144	1020	832	224	146			239		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	98	79	71	96	99	84			100		
cM capacity (veh/h)	245	251	903	146	256	816	1424			1328		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	201	61	227	239	4	146
Volume Left	6	43	227	0	4	0
Volume Right	189	9	0	31	0	4
cSH	780	179	1424	1700	1328	1700
Volume to Capacity	0.26	0.34	0.16	0.14	0.00	0.09
Queue Length 95th (ft)	26	35	14	0	0	0
Control Delay (s)	11.2	35.1	8.0	0.0	7.7	0.0
Lane LOS	B	E	A		A	
Approach Delay (s)	11.2	35.1	3.9		0.2	
Approach LOS	B	E				

Intersection Summary			
Average Delay	7.1		
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	9	7	7	7	133	7	32	8	87	19	6
Future Volume (vph)	12	9	7	7	7	133	7	32	8	87	19	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1693	0	0	1571	0	1770	1807	0	1770	1792	0
Flt Permitted		0.979			0.998		0.950			0.950		
Satd. Flow (perm)	0	1693	0	0	1571	0	1770	1807	0	1770	1792	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		842			950			832			1210	
Travel Time (s)		10.4			11.8			10.3			15.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	31	0	0	164	0	8	45	0	97	28	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 27.2%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	9	7	7	7	133	7	32	8	87	19	6
Future Volume (Veh/h)	12	9	7	7	7	133	7	32	8	87	19	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	13	10	8	8	8	148	8	36	9	97	21	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1210	
pX, platoon unblocked												
vC, conflicting volume	422	280	24	284	278	40	28			45		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	422	280	24	284	278	40	28			45		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	97	98	99	99	99	85	99			94		
cM capacity (veh/h)	429	580	1040	613	581	1019	1585			1563		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	31	164	8	45	97	28
Volume Left	13	8	8	0	97	0
Volume Right	8	148	0	9	0	7
cSH	562	953	1585	1700	1563	1700
Volume to Capacity	0.06	0.17	0.01	0.03	0.06	0.02
Queue Length 95th (ft)	4	15	0	0	5	0
Control Delay (s)	11.8	9.6	7.3	0.0	7.5	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	11.8	9.6	1.1		5.8	
Approach LOS	B	A				

Intersection Summary				
Average Delay	7.3			
Intersection Capacity Utilization	27.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	7	7	8	9	87	7	19	7	133	32	12
Future Volume (vph)	6	7	7	8	9	87	7	19	7	133	32	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1683	0	0	1584	0	1770	1786	0	1770	1788	0
Flt Permitted		0.985			0.996		0.950			0.950		
Satd. Flow (perm)	0	1683	0	0	1584	0	1770	1786	0	1770	1788	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		842			950			832			1210	
Travel Time (s)		10.4			11.8			10.3			15.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	0	0	116	0	8	29	0	148	49	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 27.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	7	7	8	9	87	7	19	7	133	32	12
Future Volume (Veh/h)	6	7	7	8	9	87	7	19	7	133	32	12
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	8	8	9	10	97	8	21	8	148	36	13
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1210	
pX, platoon unblocked												
vC, conflicting volume	478	384	42	385	386	25	49			29		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	478	384	42	385	386	25	49			29		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	98	98	99	98	98	91	99			91		
cM capacity (veh/h)	406	490	1017	513	489	1040	1558			1584		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	23	116	8	29	148	49
Volume Left	7	9	8	0	148	0
Volume Right	8	97	0	8	0	13
cSH	555	884	1558	1700	1584	1700
Volume to Capacity	0.04	0.13	0.01	0.02	0.09	0.03
Queue Length 95th (ft)	3	11	0	0	8	0
Control Delay (s)	11.8	9.7	7.3	0.0	7.5	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	11.8	9.7	1.6		5.6	
Approach LOS	B	A				

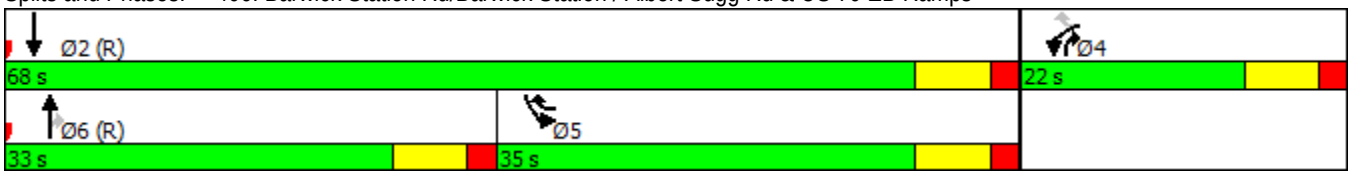
Intersection Summary			
Average Delay	6.9		
Intersection Capacity Utilization	27.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	52	98	88	81	137	65
Future Volume (vph)	52	98	88	81	137	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1863	1583	1770	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	1083		1210			1234
Travel Time (s)	29.5		15.0			15.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	58	109	98	90	152	72
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	22.0	35.0	33.0	22.0	35.0	68.0
Total Split (%)	24.4%	38.9%	36.7%	24.4%	38.9%	75.6%
Maximum Green (s)	15.0	28.0	26.0	15.0	28.0	61.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.7	27.9	52.1	64.9	15.1	73.1
Actuated g/C Ratio	0.12	0.31	0.58	0.72	0.17	0.81
v/c Ratio	0.28	0.22	0.09	0.08	0.51	0.05
Control Delay	39.0	21.1	11.5	4.6	32.8	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	39.0	21.1	11.5	4.6	32.8	2.2
LOS	D	C	B	A	C	A
Approach Delay	27.3		8.2			22.9
Approach LOS	C		A			C
Queue Length 50th (ft)	31	44	25	13	74	6
Queue Length 95th (ft)	65	71	59	32	116	14
Internal Link Dist (ft)	1003		1130			1154
Turn Bay Length (ft)		175		100	200	
Base Capacity (vph)	334	571	1078	1137	590	1513
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.19	0.09	0.08	0.26	0.05

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 20 (22%), Referenced to phase 2:SBT and 6:NBT, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.51	
Intersection Signal Delay: 19.4	Intersection LOS: B
Intersection Capacity Utilization 28.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 406: Barwick Station Rd/Barwick Station / Albert Sugg Rd & US 70 EB Ramps



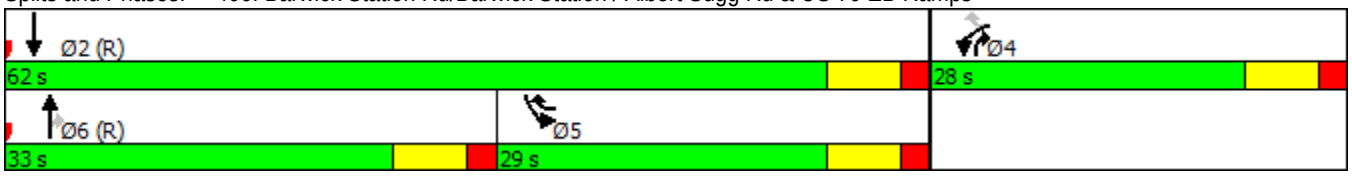
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	71	131	69	48	83	98
Future Volume (vph)	71	131	69	48	83	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1863	1583	1770	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	1083		1210			1234
Travel Time (s)	29.5		15.0			15.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	79	146	77	53	92	109
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	28.0	29.0	33.0	28.0	29.0	62.0
Total Split (%)	31.1%	32.2%	36.7%	31.1%	32.2%	68.9%
Maximum Green (s)	21.0	22.0	26.0	21.0	22.0	55.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	11.6	27.7	52.3	66.1	13.9	72.2
Actuated g/C Ratio	0.13	0.31	0.58	0.73	0.15	0.80
v/c Ratio	0.35	0.30	0.07	0.05	0.34	0.07
Control Delay	39.3	22.9	11.3	4.0	23.9	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	39.3	22.9	11.3	4.0	23.9	1.7
LOS	D	C	B	A	C	A
Approach Delay	28.7		8.3			11.9
Approach LOS	C		A			B
Queue Length 50th (ft)	42	60	19	7	47	7
Queue Length 95th (ft)	81	93	47	19	84	15
Internal Link Dist (ft)	1003		1130			1154
Turn Bay Length (ft)		175		100	200	
Base Capacity (vph)	452	535	1082	1163	472	1494
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.27	0.07	0.05	0.19	0.07

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 22 (24%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.35
Intersection Signal Delay: 17.8 Intersection LOS: B
Intersection Capacity Utilization 28.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 406: Barwick Station Rd/Barwick Station / Albert Sugg Rd & US 70 EB Ramps



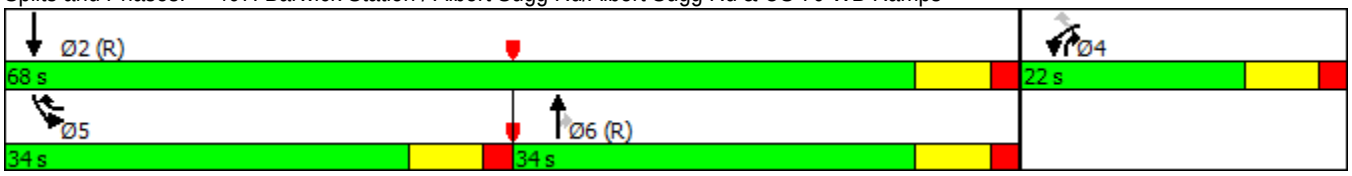
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	48	83	115	71	131	154
Future Volume (vph)	48	83	115	71	131	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1863	1583	1770	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1104		1234			1203
Travel Time (s)	16.7		15.3			14.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	53	92	128	79	146	171
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	22.0	34.0	34.0	22.0	34.0	68.0
Total Split (%)	24.4%	37.8%	37.8%	24.4%	37.8%	75.6%
Maximum Green (s)	15.0	27.0	27.0	15.0	27.0	61.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.5	27.4	52.6	68.0	14.8	73.3
Actuated g/C Ratio	0.12	0.30	0.58	0.76	0.16	0.81
v/c Ratio	0.26	0.19	0.12	0.07	0.50	0.11
Control Delay	38.9	20.8	6.1	2.8	39.6	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	38.9	20.8	6.1	2.8	39.6	2.8
LOS	D	C	A	A	D	A
Approach Delay	27.4		4.9			19.8
Approach LOS	C		A			B
Queue Length 50th (ft)	28	37	15	5	77	18
Queue Length 95th (ft)	61	63	73	27	127	38
Internal Link Dist (ft)	1024		1154			1123
Turn Bay Length (ft)		175		100	200	
Base Capacity (vph)	334	732	1088	1304	570	1518
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.13	0.12	0.06	0.26	0.11

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.50
Intersection Signal Delay: 16.8 Intersection LOS: B
Intersection Capacity Utilization 28.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 407: Barwick Station / Albert Sugg Rd/Albert Sugg Rd & US 70 WB Ramps

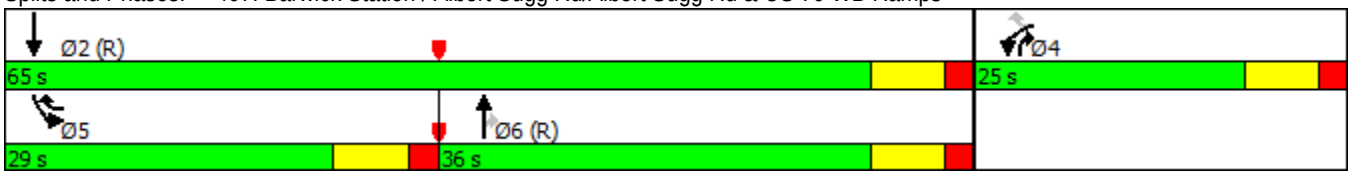


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	81	137	148	52	98	100
Future Volume (vph)	81	137	148	52	98	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1863	1583	1770	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1104		1234			1203
Travel Time (s)	16.7		15.3			14.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	90	152	164	58	109	111
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	25.0	29.0	36.0	25.0	29.0	65.0
Total Split (%)	27.8%	32.2%	40.0%	27.8%	32.2%	72.2%
Maximum Green (s)	18.0	22.0	29.0	18.0	22.0	58.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	12.1	27.4	52.6	69.6	13.2	71.7
Actuated g/C Ratio	0.13	0.30	0.58	0.77	0.15	0.80
v/c Ratio	0.38	0.32	0.15	0.05	0.42	0.07
Control Delay	39.5	23.4	4.6	1.7	39.4	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	39.5	23.4	4.6	1.7	39.4	3.3
LOS	D	C	A	A	D	A
Approach Delay	29.4		3.9			21.2
Approach LOS	C		A			C
Queue Length 50th (ft)	47	64	14	2	57	13
Queue Length 95th (ft)	89	96	53	5	102	30
Internal Link Dist (ft)	1024		1154			1123
Turn Bay Length (ft)		175		100	200	
Base Capacity (vph)	393	673	1087	1347	472	1484
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.23	0.15	0.04	0.23	0.07

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.42	
Intersection Signal Delay: 18.5	Intersection LOS: B
Intersection Capacity Utilization 35.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 407: Barwick Station / Albert Sugg Rd/Albert Sugg Rd & US 70 WB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	24	211	6	4	32	32	135	4	50	5
Future Volume (vph)	4	4	24	211	6	4	32	32	135	4	50	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1659	0	0	1774	0	1770	1637	0	1770	1835	0
Flt Permitted		0.994			0.954		0.950			0.950		
Satd. Flow (perm)	0	1659	0	0	1774	0	1770	1637	0	1770	1835	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		789			856			1203			959	
Travel Time (s)		9.8			10.6			14.9			11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	35	0	0	245	0	36	186	0	4	62	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 35.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	4	24	211	6	4	32	32	135	4	50	5
Future Volume (Veh/h)	4	4	24	211	6	4	32	32	135	4	50	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	4	27	234	7	4	36	36	150	4	56	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								1203				
pX, platoon unblocked												
vC, conflicting volume	182	325	59	276	253	111	62			186		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	182	325	59	276	253	111	62			186		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	97	64	99	100	98			100		
cM capacity (veh/h)	754	577	1007	642	633	942	1541			1388		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	35	245	36	186	4	62
Volume Left	4	234	36	0	4	0
Volume Right	27	4	0	150	0	6
cSH	896	645	1541	1700	1388	1700
Volume to Capacity	0.04	0.38	0.02	0.11	0.00	0.04
Queue Length 95th (ft)	3	44	2	0	0	0
Control Delay (s)	9.2	14.0	7.4	0.0	7.6	0.0
Lane LOS	A	B	A		A	
Approach Delay (s)	9.2	14.0	1.2		0.5	
Approach LOS	A	B				

Intersection Summary			
Average Delay	7.1		
Intersection Capacity Utilization	35.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	6	32	135	4	4	24	50	211	4	32	4
Future Volume (vph)	5	6	32	135	4	4	24	50	211	4	32	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1668	0	0	1774	0	1770	1637	0	1770	1835	0
Flt Permitted		0.994			0.955		0.950			0.950		
Satd. Flow (perm)	0	1668	0	0	1774	0	1770	1637	0	1770	1835	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		789			856			1203			959	
Travel Time (s)		9.8			10.6			14.9			11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	49	0	0	158	0	27	290	0	4	40	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 36.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	6	32	135	4	4	24	50	211	4	32	4
Future Volume (Veh/h)	5	6	32	135	4	4	24	50	211	4	32	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	7	36	150	4	4	27	56	234	4	36	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								1203				
pX, platoon unblocked												
vC, conflicting volume	162	390	38	310	275	173	40			290		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	162	390	38	310	275	173	40			290		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	97	75	99	100	98			100		
cM capacity (veh/h)	783	534	1034	604	619	871	1570			1272		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	49	158	27	290	4	40
Volume Left	6	150	27	0	4	0
Volume Right	36	4	0	234	0	4
cSH	882	609	1570	1700	1272	1700
Volume to Capacity	0.06	0.26	0.02	0.17	0.00	0.02
Queue Length 95th (ft)	4	26	1	0	0	0
Control Delay (s)	9.3	13.0	7.3	0.0	7.8	0.0
Lane LOS	A	B	A		A	
Approach Delay (s)	9.3	13.0	0.6		0.7	
Approach LOS	A	B				

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	36.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	486	4	38	0	0	49
Future Volume (vph)	486	4	38	0	0	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1791	0	1703	0	0	1550
Flt Permitted			0.950			
Satd. Flow (perm)	1791	0	1703	0	0	1550
Link Speed (mph)	55			55	55	
Link Distance (ft)	1158			2714	1013	
Travel Time (s)	14.4			33.6	12.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	544	0	42	0	0	54
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 35.8%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	486	4	38	0	0	49
Future Volume (Veh/h)	486	4	38	0	0	49
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	540	4	42	0	0	54
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			544		626	542
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			544		626	542
tC, single (s)			4.2		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			96		100	90
cM capacity (veh/h)			1005		423	533

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	544	42	54
Volume Left	0	42	0
Volume Right	4	0	54
cSH	1700	1005	533
Volume to Capacity	0.32	0.04	0.10
Queue Length 95th (ft)	0	3	8
Control Delay (s)	0.0	8.7	12.5
Lane LOS		A	B
Approach Delay (s)	0.0	8.7	12.5
Approach LOS			B

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	35.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	569	6	43	0	0	42
Future Volume (vph)	569	6	43	0	0	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1791	0	1703	0	0	1550
Flt Permitted			0.950			
Satd. Flow (perm)	1791	0	1703	0	0	1550
Link Speed (mph)	55			55	55	
Link Distance (ft)	1158			2714	1013	
Travel Time (s)	14.4			33.6	12.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	639	0	48	0	0	47
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 40.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	569	6	43	0	0	42
Future Volume (Veh/h)	569	6	43	0	0	42
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	632	7	48	0	0	47
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			639		732	636
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			639		732	636
tC, single (s)			4.2		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			95		100	90
cM capacity (veh/h)			926		363	471

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	639	48	47
Volume Left	0	48	0
Volume Right	7	0	47
cSH	1700	926	471
Volume to Capacity	0.38	0.05	0.10
Queue Length 95th (ft)	0	4	8
Control Delay (s)	0.0	9.1	13.5
Lane LOS		A	B
Approach Delay (s)	0.0	9.1	13.5
Approach LOS			B

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	40.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	59	4	34	161	11	524
Future Volume (vph)	59	4	34	161	11	524
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0		0	275
Storage Lanes		0	0		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	1795	0	0	1793	1703	1524
Flt Permitted				0.991	0.950	
Satd. Flow (perm)	1795	0	0	1793	1703	1524
Link Speed (mph)	45			45	55	
Link Distance (ft)	1076			984	2714	
Travel Time (s)	16.3			14.9	33.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	70	0	0	217	12	582
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 42.5%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	59	4	34	161	11	524
Future Volume (Veh/h)	59	4	34	161	11	524
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	66	4	38	179	12	582
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						11
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			70		323	68
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			70		323	68
tC, single (s)			4.1		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			97		98	41
cM capacity (veh/h)			1512		646	984

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	70	217	594
Volume Left	0	38	12
Volume Right	4	0	582
cSH	1700	1512	1004
Volume to Capacity	0.04	0.03	0.59
Queue Length 95th (ft)	0	2	101
Control Delay (s)	0.0	1.5	13.7
Lane LOS		A	B
Approach Delay (s)	0.0	1.5	13.7
Approach LOS			B

Intersection Summary			
Average Delay	9.6		
Intersection Capacity Utilization	42.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	112	5	38	127	8	603
Future Volume (vph)	112	5	38	127	8	603
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0		0	275
Storage Lanes		0	0		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	1799	0	0	1790	1703	1524
Flt Permitted				0.989	0.950	
Satd. Flow (perm)	1799	0	0	1790	1703	1524
Link Speed (mph)	45			45	55	
Link Distance (ft)	1076			984	2714	
Travel Time (s)	16.3			14.9	33.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	130	0	0	183	9	670
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 50.2%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	112	5	38	127	8	603
Future Volume (Veh/h)	112	5	38	127	8	603
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	124	6	42	141	9	670
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						11
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			130		352	127
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			130		352	127
tC, single (s)			4.1		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			97		99	27
cM capacity (veh/h)			1437		619	913

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	130	183	679
Volume Left	0	42	9
Volume Right	6	0	670
cSH	1700	1437	925
Volume to Capacity	0.08	0.03	0.73
Queue Length 95th (ft)	0	2	170
Control Delay (s)	0.0	1.9	18.9
Lane LOS		A	C
Approach Delay (s)	0.0	1.9	18.9
Approach LOS			C

Intersection Summary			
Average Delay	13.3		
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	582	182	14	0	14
Future Volume (vph)	0	582	182	14	0	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1810	1791	0	0	1565
Flt Permitted						
Satd. Flow (perm)	0	1810	1791	0	0	1565
Link Speed (mph)		45	45		35	
Link Distance (ft)		984	918		988	
Travel Time (s)		14.9	13.9		19.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	647	218	0	0	16
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	582	182	14	0	14
Future Volume (Veh/h)	0	582	182	14	0	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	647	202	16	0	16
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	202				857	210
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	202				857	210
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	1352				324	823

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	647	218	16
Volume Left	0	0	0
Volume Right	0	16	16
cSH	1700	1700	823
Volume to Capacity	0.38	0.13	0.02
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.0	9.5
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.5
Approach LOS			A

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	34.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	716	153	11	0	11
Future Volume (vph)	0	716	153	11	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1810	1793	0	0	1565
Flt Permitted						
Satd. Flow (perm)	0	1810	1793	0	0	1565
Link Speed (mph)		45	45		35	
Link Distance (ft)		984	918		988	
Travel Time (s)		14.9	13.9		19.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	796	182	0	0	12
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 41.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	716	153	11	0	11
Future Volume (Veh/h)	0	716	153	11	0	11
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	796	170	12	0	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	170				972	176
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	170				972	176
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1389				277	859

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	796	182	12
Volume Left	0	0	0
Volume Right	0	12	12
cSH	1700	1700	859
Volume to Capacity	0.47	0.11	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.0	9.2
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.2
Approach LOS			A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	41.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	390	51	53	40	92	68	87	102	63	32	88
Future Volume (vph)	141	390	51	53	40	92	68	87	102	63	32	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		0	100		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1719	3380	0	1719	1620	0	1703	1647	0	1703	1595	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3380	0	1719	1620	0	1703	1647	0	1703	1595	0
Link Speed (mph)		45			45			25			45	
Link Distance (ft)		918			1128			749			948	
Travel Time (s)		13.9			17.1			20.4			14.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	157	490	0	59	146	0	76	210	0	70	134	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 43.4%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	390	51	53	40	92	68	87	102	63	32	88
Future Volume (Veh/h)	141	390	51	53	40	92	68	87	102	63	32	88
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	157	433	57	59	44	102	76	97	113	70	36	98
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	146			490			1054	1040	245	905	1017	95
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	146			490			1054	1040	245	905	1017	95
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	89			94			36	48	85	30	81	89
cM capacity (veh/h)	1412			1049			118	187	743	100	193	930

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	157	289	201	59	146	76	210	70	134
Volume Left	157	0	0	59	0	76	0	70	0
Volume Right	0	0	57	0	102	0	113	0	98
cSH	1412	1700	1700	1049	1700	118	313	100	459
Volume to Capacity	0.11	0.17	0.12	0.06	0.09	0.64	0.67	0.70	0.29
Queue Length 95th (ft)	9	0	0	4	0	83	113	89	30
Control Delay (s)	7.9	0.0	0.0	8.6	0.0	78.9	37.2	99.1	16.1
Lane LOS	A			A		F	E	F	C
Approach Delay (s)	1.9			2.5		48.2		44.6	
Approach LOS						E		E	

Intersection Summary			
Average Delay	18.4		
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	513	99	71	25	44	32	32	72	123	87	107
Future Volume (vph)	104	513	99	71	25	44	32	32	72	123	87	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		0	100		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1719	3356	0	1719	1638	0	1703	1608	0	1703	1644	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3356	0	1719	1638	0	1703	1608	0	1703	1644	0
Link Speed (mph)		45			45			25			45	
Link Distance (ft)		918			1128			749			948	
Travel Time (s)		13.9			17.1			20.4			14.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	116	680	0	79	77	0	36	116	0	137	216	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 49.1%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	513	99	71	25	44	32	32	72	123	87	107
Future Volume (Veh/h)	104	513	99	71	25	44	32	32	72	123	87	107
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	116	570	110	79	28	49	36	36	80	137	97	119
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	77			680			1210	1092	340	826	1122	52
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	77			680			1210	1092	340	826	1122	52
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	92			91			36	79	88	18	42	88
cM capacity (veh/h)	1498			888			56	174	644	167	167	991

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	116	380	300	79	77	36	116	137	216
Volume Left	116	0	0	79	0	36	0	137	0
Volume Right	0	0	110	0	49	0	80	0	119
cSH	1498	1700	1700	888	1700	56	350	167	308
Volume to Capacity	0.08	0.22	0.18	0.09	0.05	0.64	0.33	0.82	0.70
Queue Length 95th (ft)	6	0	0	7	0	65	35	138	123
Control Delay (s)	7.6	0.0	0.0	9.4	0.0	145.2	20.3	83.6	40.1
Lane LOS	A			A		F	C	F	E
Approach Delay (s)	1.1			4.8		49.9		57.0	
Approach LOS						E		F	

Intersection Summary			
Average Delay	20.1		
Intersection Capacity Utilization	49.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	61	430	438	459	0	82
Future Volume (vph)	61	430	438	459	0	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			200	0	0
Storage Lanes	1			1	0	1
Taper Length (ft)	100				100	
Satd. Flow (prot)	1719	3438	3438	1538	0	1522
Flt Permitted	0.950					
Satd. Flow (perm)	1719	3438	3438	1538	0	1522
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		45	
Link Distance (ft)		1103	1043		1117	
Travel Time (s)		16.7	15.8		16.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	8%	8%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	68	478	487	510	0	91
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Turn Type	Prot	NA	NA	Perm		Over
Protected Phases	5	2	6			5
Permitted Phases				6		
Detector Phase	5	2	6	6		5
Switch Phase						
Minimum Initial (s)	7.0	12.0	12.0	12.0		7.0
Minimum Split (s)	14.0	19.0	19.0	19.0		14.0
Total Split (s)	16.0	60.0	44.0	44.0		16.0
Total Split (%)	26.7%	100.0%	73.3%	73.3%		26.7%
Maximum Green (s)	9.0	53.0	37.0	37.0		9.0
Yellow Time (s)	5.0	5.0	5.0	5.0		5.0
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0		-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0		5.0
Lead/Lag	Lead		Lag	Lag		Lead
Lead-Lag Optimize?	Yes		Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	C-Min	C-Min	C-Min		None
Act Effct Green (s)	10.5	60.0	43.3	43.3		10.5
Actuated g/C Ratio	0.18	1.00	0.72	0.72		0.18
v/c Ratio	0.23	0.14	0.20	0.46		0.34
Control Delay	22.9	0.1	4.1	6.8		25.2

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	22.9	0.1	4.1	6.8		25.2
LOS	C	A	A	A		C
Approach Delay		2.9	5.5		25.2	
Approach LOS		A	A		C	
Queue Length 50th (ft)	21	0	31	79		29
Queue Length 95th (ft)	51	0	47	141		66
Internal Link Dist (ft)		1023	963		1037	
Turn Bay Length (ft)	100			200		
Base Capacity (vph)	323	3438	2494	1116		286
Starvation Cap Reductn	0	0	0	0		0
Spillback Cap Reductn	0	0	0	0		0
Storage Cap Reductn	0	0	0	0		0
Reduced v/c Ratio	0.21	0.14	0.20	0.46		0.32

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 5.7 — Intersection LOS: A
Intersection Capacity Utilization 42.6% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 413: US 70 Bus & US 70 WB Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	64	563	402	354	0	62
Future Volume (vph)	64	563	402	354	0	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			200	0	0
Storage Lanes	1			1	0	1
Taper Length (ft)	100				100	
Satd. Flow (prot)	1719	3438	3438	1538	0	1522
Flt Permitted	0.950					
Satd. Flow (perm)	1719	3438	3438	1538	0	1522
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		45	
Link Distance (ft)		1103	1043		1117	
Travel Time (s)		16.7	15.8		16.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	8%	8%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	71	626	447	393	0	69
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Turn Type	Prot	NA	NA	Perm		Over
Protected Phases	5	2	6			5
Permitted Phases				6		
Detector Phase	5	2	6	6		5
Switch Phase						
Minimum Initial (s)	7.0	12.0	12.0	12.0		7.0
Minimum Split (s)	14.0	19.0	19.0	19.0		14.0
Total Split (s)	18.0	60.0	42.0	42.0		18.0
Total Split (%)	30.0%	100.0%	70.0%	70.0%		30.0%
Maximum Green (s)	11.0	53.0	35.0	35.0		11.0
Yellow Time (s)	5.0	5.0	5.0	5.0		5.0
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0		-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0		5.0
Lead/Lag	Lead		Lag	Lag		Lead
Lead-Lag Optimize?	Yes		Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	C-Min	C-Min	C-Min		None
Act Effct Green (s)	10.5	60.0	43.3	43.3		10.5
Actuated g/C Ratio	0.18	1.00	0.72	0.72		0.18
v/c Ratio	0.24	0.18	0.18	0.35		0.26
Control Delay	22.8	0.1	4.1	5.9		23.4

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	22.8	0.1	4.1	5.9		23.4
LOS	C	A	A	A		C
Approach Delay		2.4	4.9		23.4	
Approach LOS		A	A		C	
Queue Length 50th (ft)	23	0	26	51		22
Queue Length 95th (ft)	50	0	49	111		50
Internal Link Dist (ft)		1023	963		1037	
Turn Bay Length (ft)	100			200		
Base Capacity (vph)	373	3438	2483	1111		330
Starvation Cap Reductn	0	0	0	0		0
Spillback Cap Reductn	0	0	0	0		0
Storage Cap Reductn	0	0	0	0		0
Reduced v/c Ratio	0.19	0.18	0.18	0.35		0.21

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.35
Intersection Signal Delay: 4.6 — Intersection LOS: A
Intersection Capacity Utilization 36.1% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 413: US 70 Bus & US 70 WB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	272	214	1075	227	156	441
Future Volume (vph)	272	214	1075	227	156	441
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	225		125	275	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	3374	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	3374	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	942		985			1240
Travel Time (s)	25.7		12.2			15.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	302	238	1194	252	173	490
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	27.0	19.0	44.0	27.0	19.0	63.0
Total Split (%)	30.0%	21.1%	48.9%	30.0%	21.1%	70.0%
Maximum Green (s)	20.0	12.0	37.0	20.0	12.0	56.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	20.5	39.0	41.0	66.5	13.5	59.5
Actuated g/C Ratio	0.23	0.43	0.46	0.74	0.15	0.66
v/c Ratio	0.78	0.36	0.78	0.23	0.69	0.42
Control Delay	48.0	18.5	25.7	4.4	52.0	5.9

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.0	18.5	25.7	4.4	52.0	5.9
LOS	D	B	C	A	D	A
Approach Delay	35.0		22.0			18.0
Approach LOS	C		C			B
Queue Length 50th (ft)	159	84	304	38	82	79
Queue Length 95th (ft)	#274	141	392	63	m130	m103
Internal Link Dist (ft)	862		905			1160
Turn Bay Length (ft)		225		125	275	
Base Capacity (vph)	412	664	1536	1139	263	1173
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.36	0.78	0.22	0.66	0.42

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 86 (96%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 23.6 Intersection LOS: C
Intersection Capacity Utilization 65.9% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 414: NC 11/55 & US 70 EB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	452	155	544	169	265	850
Future Volume (vph)	452	155	544	169	265	850
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	225		125	275	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	3374	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	3374	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	942		985			1240
Travel Time (s)	25.7		12.2			15.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	502	172	604	188	294	944
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	35.0	24.0	31.0	35.0	24.0	55.0
Total Split (%)	38.9%	26.7%	34.4%	38.9%	26.7%	61.1%
Maximum Green (s)	28.0	17.0	24.0	28.0	17.0	48.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	29.3	55.2	24.8	59.1	20.9	50.7
Actuated g/C Ratio	0.33	0.61	0.28	0.66	0.23	0.56
v/c Ratio	0.91	0.19	0.65	0.19	0.75	0.94
Control Delay	52.6	8.3	32.6	6.4	39.2	30.1

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.6	8.3	32.6	6.4	39.2	30.1
LOS	D	A	C	A	D	C
Approach Delay	41.3		26.4			32.2
Approach LOS	D		C			C
Queue Length 50th (ft)	268	38	161	37	152	393
Queue Length 95th (ft)	#455	71	213	59	m#237	#772
Internal Link Dist (ft)	862		905			1160
Turn Bay Length (ft)		225		125	275	
Base Capacity (vph)	562	925	980	985	391	999
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.19	0.62	0.19	0.75	0.94

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 32.8 Intersection LOS: C
Intersection Capacity Utilization 78.1% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 414: NC 11/55 & US 70 EB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	169	265	837	452	155	428
Future Volume (vph)	169	265	837	452	155	428
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	325		0	300	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1159		1240			994
Travel Time (s)	17.6		15.4			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	188	294	930	502	172	476
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	17.0	16.0	57.0	17.0	16.0	73.0
Total Split (%)	18.9%	17.8%	63.3%	18.9%	17.8%	81.1%
Maximum Green (s)	10.0	9.0	50.0	10.0	9.0	66.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	12.2	28.5	51.5	68.7	11.3	67.8
Actuated g/C Ratio	0.14	0.32	0.57	0.76	0.13	0.75
v/c Ratio	0.82	0.62	0.91	0.44	0.82	0.36
Control Delay	67.6	33.0	20.7	1.3	68.8	4.6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.6	33.0	20.7	1.3	68.8	4.6
LOS	E	C	C	A	E	A
Approach Delay	46.5		13.9			21.6
Approach LOS	D		B			C
Queue Length 50th (ft)	106	142	92	9	97	72
Queue Length 95th (ft)	#222	230	#728	m17	#208	109
Internal Link Dist (ft)	1079		1160			914
Turn Bay Length (ft)		325			300	
Base Capacity (vph)	228	477	1026	1152	211	1341
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.62	0.91	0.44	0.82	0.35

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 22.0 Intersection LOS: C
Intersection Capacity Utilization 74.5% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 415: NC 11/55 & US 70 WB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	227	156	427	272	214	888
Future Volume (vph)	227	156	427	272	214	888
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	325		0	300	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1159		1240			994
Travel Time (s)	17.6		15.4			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	252	173	474	302	238	987
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	23.0	23.0	44.0	23.0	23.0	67.0
Total Split (%)	25.6%	25.6%	48.9%	25.6%	25.6%	74.4%
Maximum Green (s)	16.0	16.0	37.0	16.0	16.0	60.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	17.9	40.4	39.6	62.6	17.4	62.1
Actuated g/C Ratio	0.20	0.45	0.44	0.70	0.19	0.69
v/c Ratio	0.75	0.26	0.61	0.29	0.73	0.81
Control Delay	49.3	16.2	10.4	2.1	48.1	16.7

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.3	16.2	10.4	2.1	48.1	16.7
LOS	D	B	B	A	D	B
Approach Delay	35.8		7.2			22.8
Approach LOS	D		A			C
Queue Length 50th (ft)	130	52	41	12	123	385
Queue Length 95th (ft)	#247	102	338	15	#227	543
Internal Link Dist (ft)	1079		1160			914
Turn Bay Length (ft)		325			300	
Base Capacity (vph)	349	692	801	1060	344	1237
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.25	0.59	0.28	0.69	0.80

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 16 (18%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 20.1 Intersection LOS: C
Intersection Capacity Utilization 67.6% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 415: NC 11/55 & US 70 WB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	4	674	4	4	437
Future Volume (vph)	4	4	674	4	4	437
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1646	0	1808	0	0	1810
Flt Permitted	0.976					
Satd. Flow (perm)	1646	0	1808	0	0	1810
Link Speed (mph)	55		55			55
Link Distance (ft)	1109		1044			773
Travel Time (s)	13.7		12.9			9.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	753	0	0	490
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	4	674	4	4	437
Future Volume (Veh/h)	4	4	674	4	4	437
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	4	749	4	4	486
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						773
pX, platoon unblocked	0.97					
vC, conflicting volume	1245	751			753	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1237	751			753	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	99			100	
cM capacity (veh/h)	185	406			844	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	8	753	490
Volume Left	4	0	4
Volume Right	4	4	0
cSH	254	1700	844
Volume to Capacity	0.03	0.44	0.00
Queue Length 95th (ft)	2	0	0
Control Delay (s)	19.6	0.0	0.1
Lane LOS	C		A
Approach Delay (s)	19.6	0.0	0.1
Approach LOS	C		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	4	437	4	4	674
Future Volume (vph)	4	4	437	4	4	674
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1646	0	1808	0	0	1810
Flt Permitted	0.976					
Satd. Flow (perm)	1646	0	1808	0	0	1810
Link Speed (mph)	55		55			55
Link Distance (ft)	1109		1044			773
Travel Time (s)	13.7		12.9			9.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	490	0	0	753
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	4	437	4	4	674
Future Volume (Veh/h)	4	4	437	4	4	674
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	4	486	4	4	749
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						773
pX, platoon unblocked	0.89					
vC, conflicting volume	1245	488			490	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1214	488			490	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	99			100	
cM capacity (veh/h)	176	574			1058	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	8	490	753
Volume Left	4	0	4
Volume Right	4	4	0
cSH	269	1700	1058
Volume to Capacity	0.03	0.29	0.00
Queue Length 95th (ft)	2	0	0
Control Delay (s)	18.8	0.0	0.1
Lane LOS	C		A
Approach Delay (s)	18.8	0.0	0.1
Approach LOS	C		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

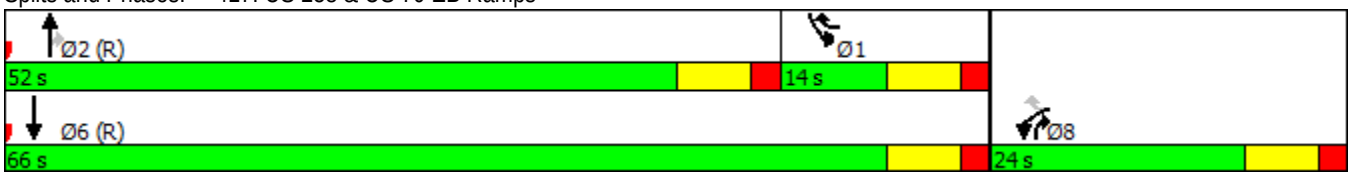
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	222	242	636	42	68	219
Future Volume (vph)	222	242	636	42	68	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	225		100	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1719	1538	1810	1538	1719	1810
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1719	1538	1810	1538	1719	1810
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	1087		773			1324
Travel Time (s)	29.6		9.6			16.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	247	269	707	47	76	243
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	24.0	14.0	52.0	24.0	14.0	66.0
Total Split (%)	26.7%	15.6%	57.8%	26.7%	15.6%	73.3%
Maximum Green (s)	17.0	7.0	45.0	17.0	7.0	59.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	17.6	34.6	45.4	68.0	12.0	62.4
Actuated g/C Ratio	0.20	0.38	0.50	0.76	0.13	0.69
v/c Ratio	0.74	0.46	0.77	0.04	0.33	0.19
Control Delay	47.6	24.0	25.3	2.5	42.5	5.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.6	24.0	25.3	2.5	42.5	5.0
LOS	D	C	C	A	D	A
Approach Delay	35.3		23.8			13.9
Approach LOS	D		C			B
Queue Length 50th (ft)	130	109	322	5	41	60
Queue Length 95th (ft)	#218	189	446	10	87	64
Internal Link Dist (ft)	1007		693			1244
Turn Bay Length (ft)		225		100	175	
Base Capacity (vph)	362	591	949	1150	228	1253
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.46	0.74	0.04	0.33	0.19

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 66 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 25.6 Intersection LOS: C
Intersection Capacity Utilization 64.1% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 417: US 258 & US 70 EB Ramps



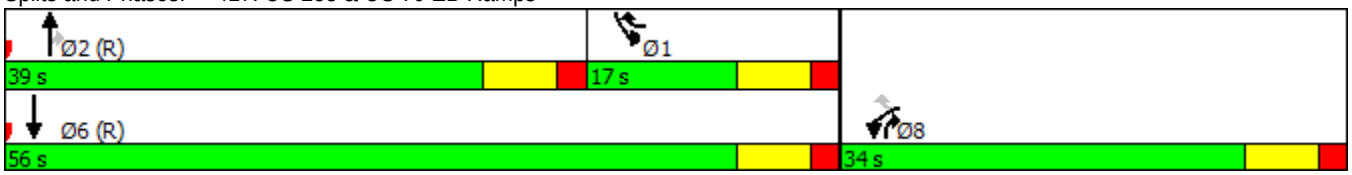
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	319	201	405	36	102	359
Future Volume (vph)	319	201	405	36	102	359
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	225		100	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1719	1538	1810	1538	1719	1810
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1719	1538	1810	1538	1719	1810
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	1087		773			1324
Travel Time (s)	29.6		9.6			16.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	354	223	450	40	113	399
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	34.0	17.0	39.0	34.0	17.0	56.0
Total Split (%)	37.8%	18.9%	43.3%	37.8%	18.9%	62.2%
Maximum Green (s)	27.0	10.0	32.0	27.0	10.0	49.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	24.7	42.9	37.1	66.8	13.2	55.3
Actuated g/C Ratio	0.27	0.48	0.41	0.74	0.15	0.61
v/c Ratio	0.75	0.30	0.60	0.04	0.45	0.36
Control Delay	40.0	14.9	26.1	3.2	39.1	8.8

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.0	14.9	26.1	3.2	39.1	8.8
LOS	D	B	C	A	D	A
Approach Delay	30.3		24.3			15.5
Approach LOS	C		C			B
Queue Length 50th (ft)	181	69	207	6	59	84
Queue Length 95th (ft)	266	115	315	11	116	149
Internal Link Dist (ft)	1007		693			1244
Turn Bay Length (ft)		225		100	175	
Base Capacity (vph)	553	717	750	1120	254	1112
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.31	0.60	0.04	0.44	0.36

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 56 (62%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 23.6 Intersection LOS: C
Intersection Capacity Utilization 57.3% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 417: US 258 & US 70 EB Ramps



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	36	102	559	319	201	251
Future Volume (vph)	36	102	559	319	201	251
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		175	275	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1719	1538	1810	1538	1719	1810
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1719	1538	1810	1538	1719	1810
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1292		1324			1210
Travel Time (s)	19.6		16.4			15.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	113	621	354	223	279
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	14.0	24.0	52.0	14.0	24.0	76.0
Total Split (%)	15.6%	26.7%	57.8%	15.6%	26.7%	84.4%
Maximum Green (s)	7.0	17.0	45.0	7.0	17.0	69.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.4	31.9	48.1	62.5	17.5	70.6
Actuated g/C Ratio	0.10	0.35	0.53	0.69	0.19	0.78
v/c Ratio	0.22	0.21	0.64	0.33	0.67	0.20
Control Delay	40.3	20.6	12.8	5.3	43.5	2.9

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.3	20.6	12.8	5.3	43.5	2.9
LOS	D	C	B	A	D	A
Approach Delay	25.7		10.1			20.9
Approach LOS	C		B			C
Queue Length 50th (ft)	21	43	141	53	116	31
Queue Length 95th (ft)	52	82	215	m59	191	48
Internal Link Dist (ft)	1212		1244			1130
Turn Bay Length (ft)		150		175	275	
Base Capacity (vph)	179	578	982	1067	370	1427
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.20	0.63	0.33	0.60	0.20

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 80 (89%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 14.9 Intersection LOS: B
Intersection Capacity Utilization 58.9% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 418: US 258 & US 70 WB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	42	68	384	222	242	419
Future Volume (vph)	42	68	384	222	242	419
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		175	275	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1719	1538	1810	1538	1719	1810
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1719	1538	1810	1538	1719	1810
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1292		1324			1210
Travel Time (s)	19.6		16.4			15.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	47	76	427	247	269	466
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	15.0	31.0	44.0	15.0	31.0	75.0
Total Split (%)	16.7%	34.4%	48.9%	16.7%	34.4%	83.3%
Maximum Green (s)	8.0	24.0	37.0	8.0	24.0	68.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.1	35.9	44.1	59.2	20.8	69.9
Actuated g/C Ratio	0.11	0.40	0.49	0.66	0.23	0.78
v/c Ratio	0.24	0.12	0.48	0.24	0.68	0.33
Control Delay	39.4	15.9	10.7	4.5	39.9	3.9

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.4	15.9	10.7	4.5	39.9	3.9
LOS	D	B	B	A	D	A
Approach Delay	24.9		8.4			17.1
Approach LOS	C		A			B
Queue Length 50th (ft)	25	27	43	14	139	60
Queue Length 95th (ft)	57	48	279	116	207	104
Internal Link Dist (ft)	1212		1244			1130
Turn Bay Length (ft)		150		175	275	
Base Capacity (vph)	201	702	893	1019	496	1416
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.11	0.48	0.24	0.54	0.33

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 13.9 Intersection LOS: B
Intersection Capacity Utilization 52.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 418: US 258 & US 70 WB Ramps

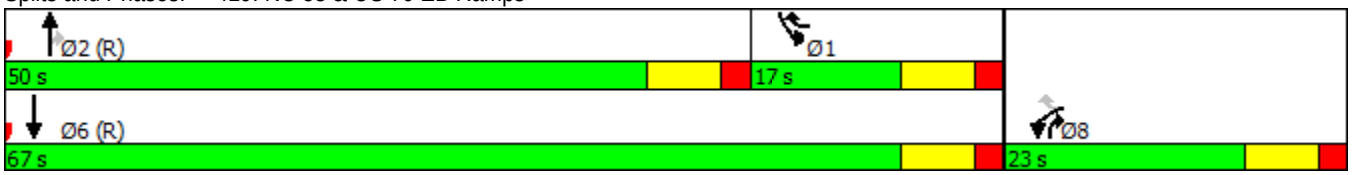
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	53	26	417	72	65	213
Future Volume (vph)	53	26	417	72	65	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		100	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	1533		1086			1241
Travel Time (s)	41.8		13.5			15.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	59	29	463	80	72	237
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	14.0	7.0	14.0	14.0	7.0	14.0
Minimum Split (s)	21.0	14.0	21.0	21.0	14.0	21.0
Total Split (s)	23.0	17.0	50.0	23.0	17.0	67.0
Total Split (%)	25.6%	18.9%	55.6%	25.6%	18.9%	74.4%
Maximum Green (s)	16.0	10.0	43.0	16.0	10.0	60.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	16.0	28.2	55.6	72.4	11.4	69.2
Actuated g/C Ratio	0.18	0.31	0.62	0.80	0.13	0.77
v/c Ratio	0.19	0.06	0.41	0.06	0.33	0.17
Control Delay	33.4	18.3	14.0	3.1	37.7	3.4

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	18.3	14.0	3.1	37.7	3.4
LOS	C	B	B	A	D	A
Approach Delay	28.4		12.4			11.4
Approach LOS	C		B			B
Queue Length 50th (ft)	29	11	155	9	39	30
Queue Length 95th (ft)	64	27	256	22	79	48
Internal Link Dist (ft)	1453		1006			1161
Turn Bay Length (ft)		100		100	150	
Base Capacity (vph)	347	473	1131	1208	243	1405
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.06	0.41	0.07	0.30	0.17

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 2 (2%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.41
Intersection Signal Delay: 13.6 Intersection LOS: B
Intersection Capacity Utilization 51.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 419: NC 58 & US 70 EB Ramps



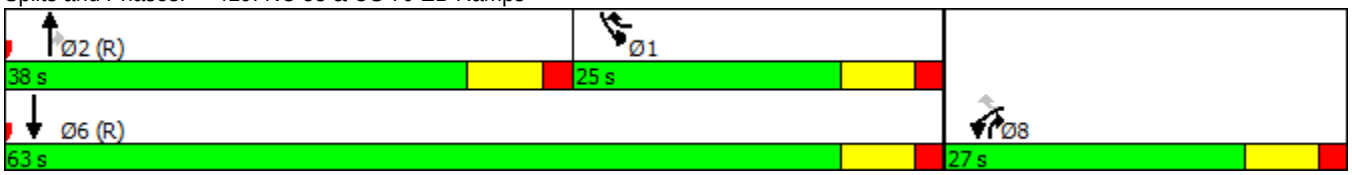
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	86	20	212	54	102	403
Future Volume (vph)	86	20	212	54	102	403
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		100	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	1533		1086			1241
Travel Time (s)	41.8		13.5			15.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	96	22	236	60	113	448
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	14.0	7.0	14.0	14.0	7.0	14.0
Minimum Split (s)	21.0	14.0	21.0	21.0	14.0	21.0
Total Split (s)	27.0	25.0	38.0	27.0	25.0	63.0
Total Split (%)	30.0%	27.8%	42.2%	30.0%	27.8%	70.0%
Maximum Green (s)	20.0	18.0	31.0	20.0	18.0	56.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	16.1	30.1	53.7	70.6	13.2	69.1
Actuated g/C Ratio	0.18	0.33	0.60	0.78	0.15	0.77
v/c Ratio	0.31	0.04	0.22	0.05	0.44	0.32
Control Delay	35.3	16.4	13.1	3.9	36.3	4.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.3	16.4	13.1	3.9	36.3	4.3
LOS	D	B	B	A	D	A
Approach Delay	31.8		11.2			10.8
Approach LOS	C		B			B
Queue Length 50th (ft)	48	8	72	8	61	68
Queue Length 95th (ft)	93	21	132	21	109	101
Internal Link Dist (ft)	1453		1006			1161
Turn Bay Length (ft)		100		100	150	
Base Capacity (vph)	424	548	1091	1218	385	1403
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.04	0.22	0.05	0.29	0.32

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 80 (89%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.44
Intersection Signal Delay: 13.4 Intersection LOS: B
Intersection Capacity Utilization 41.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 419: NC 58 & US 70 EB Ramps



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	54	102	357	86	20	224
Future Volume (vph)	54	102	357	86	20	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1428		1241			1022
Travel Time (s)	21.6		15.4			12.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	60	113	397	96	22	249
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	19.0	18.0	53.0	19.0	18.0	71.0
Total Split (%)	21.1%	20.0%	58.9%	21.1%	20.0%	78.9%
Maximum Green (s)	12.0	11.0	46.0	12.0	11.0	64.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.8	25.5	58.3	71.4	12.4	73.0
Actuated g/C Ratio	0.12	0.28	0.65	0.79	0.14	0.81
v/c Ratio	0.29	0.26	0.34	0.08	0.09	0.17
Control Delay	39.1	23.7	2.5	1.0	33.2	3.1

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	23.7	2.5	1.0	33.2	3.1
LOS	D	C	A	A	C	A
Approach Delay	29.1		2.2			5.5
Approach LOS	C		A			A
Queue Length 50th (ft)	32	47	15	3	11	29
Queue Length 95th (ft)	67	80	23	6	31	57
Internal Link Dist (ft)	1348		1161			942
Turn Bay Length (ft)		175		100	100	
Base Capacity (vph)	270	428	1194	1199	265	1481
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.26	0.33	0.08	0.08	0.17

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 24 (27%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.34
Intersection Signal Delay: 8.1 — Intersection LOS: A
Intersection Capacity Utilization 33.4% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 420: NC 58 & US 70 WB Ramps

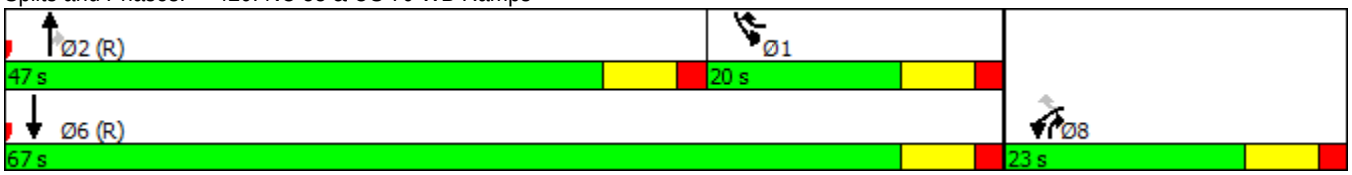
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	72	65	179	53	26	433
Future Volume (vph)	72	65	179	53	26	433
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1428		1241			1022
Travel Time (s)	21.6		15.4			12.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	80	72	199	59	29	481
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	23.0	20.0	47.0	23.0	20.0	67.0
Total Split (%)	25.6%	22.2%	52.2%	25.6%	22.2%	74.4%
Maximum Green (s)	16.0	13.0	40.0	16.0	13.0	60.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	11.7	24.7	59.1	73.0	10.8	72.1
Actuated g/C Ratio	0.13	0.27	0.66	0.81	0.12	0.80
v/c Ratio	0.35	0.17	0.17	0.05	0.14	0.33
Control Delay	39.4	22.4	2.1	0.3	36.2	4.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.4	22.4	2.1	0.3	36.2	4.3
LOS	D	C	A	A	D	A
Approach Delay	31.3		1.7			6.1
Approach LOS	C		A			A
Queue Length 50th (ft)	42	30	4	1	15	70
Queue Length 95th (ft)	82	56	7	1	40	131
Internal Link Dist (ft)	1348		1161			942
Turn Bay Length (ft)		175		100	100	
Base Capacity (vph)	347	428	1198	1252	289	1463
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.17	0.17	0.05	0.10	0.33

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 16 (18%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.35
Intersection Signal Delay: 9.0 — Intersection LOS: A
Intersection Capacity Utilization 37.0% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 420: NC 58 & US 70 WB Ramps



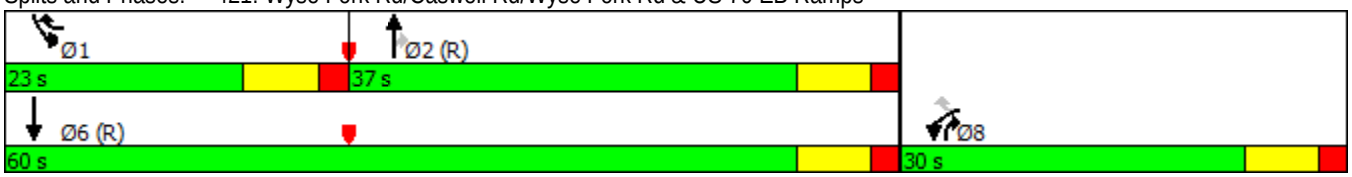
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	116	36	159	48	57	56
Future Volume (vph)	116	36	159	48	57	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		100	125	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	1605		1388			1420
Travel Time (s)	43.8		17.2			17.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	129	40	177	53	63	62
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	30.0	23.0	37.0	30.0	23.0	60.0
Total Split (%)	33.3%	25.6%	41.1%	33.3%	25.6%	66.7%
Maximum Green (s)	23.0	16.0	30.0	23.0	16.0	53.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	14.0	29.9	52.9	72.9	10.9	66.0
Actuated g/C Ratio	0.16	0.33	0.59	0.81	0.12	0.73
v/c Ratio	0.48	0.08	0.16	0.04	0.30	0.05
Control Delay	39.9	18.8	11.3	3.0	31.1	1.7

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.9	18.8	11.3	3.0	31.1	1.7
LOS	D	B	B	A	C	A
Approach Delay	34.9		9.4			16.5
Approach LOS	C		A			B
Queue Length 50th (ft)	68	16	46	6	27	3
Queue Length 95th (ft)	115	33	97	16	50	9
Internal Link Dist (ft)	1525		1308			1340
Turn Bay Length (ft)		100		100	125	
Base Capacity (vph)	482	638	1073	1393	347	1339
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.06	0.16	0.04	0.18	0.05

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 32 (36%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.48
Intersection Signal Delay: 19.3 Intersection LOS: B
Intersection Capacity Utilization 36.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 421: Wyse Fork Rd/Caswell Rd/Wyse Fork Rd & US 70 EB Ramps



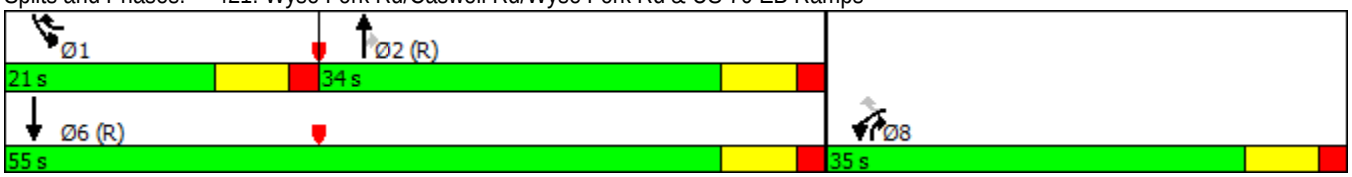
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	149	50	126	46	52	58
Future Volume (vph)	149	50	126	46	52	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		100	125	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	1605		1388			1420
Travel Time (s)	43.8		17.2			17.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	166	56	140	51	58	64
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	35.0	21.0	34.0	35.0	21.0	55.0
Total Split (%)	38.9%	23.3%	37.8%	38.9%	23.3%	61.1%
Maximum Green (s)	28.0	14.0	27.0	28.0	14.0	48.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	15.9	31.7	51.1	73.1	10.7	64.1
Actuated g/C Ratio	0.18	0.35	0.57	0.81	0.12	0.71
v/c Ratio	0.54	0.10	0.13	0.04	0.28	0.05
Control Delay	39.6	17.9	12.2	2.9	31.9	2.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	17.9	12.2	2.9	31.9	2.2
LOS	D	B	B	A	C	A
Approach Delay	34.1		9.7			16.3
Approach LOS	C		A			B
Queue Length 50th (ft)	87	21	37	5	25	4
Queue Length 95th (ft)	139	40	83	15	49	11
Internal Link Dist (ft)	1525		1308			1340
Turn Bay Length (ft)		100		100	125	
Base Capacity (vph)	578	637	1038	1436	308	1300
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.09	0.13	0.04	0.19	0.05

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 32 (36%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.54
Intersection Signal Delay: 21.3 Intersection LOS: C
Intersection Capacity Utilization 38.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 421: Wyse Fork Rd/Caswell Rd/Wyse Fork Rd & US 70 EB Ramps



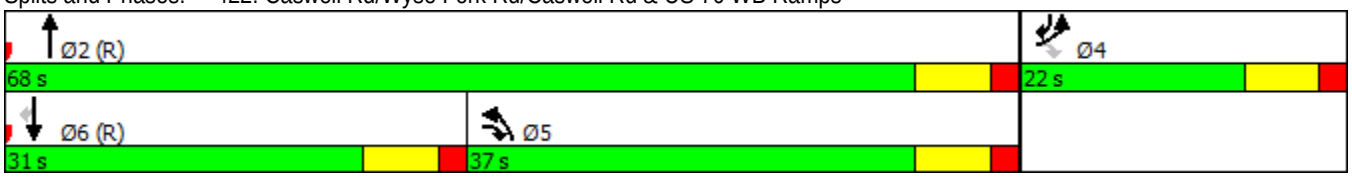
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	52	46	149	46	67	50
Future Volume (vph)	52	46	149	46	67	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	200			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1736	1553	1736	1827	1845	1568
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1736	1827	1845	1568
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1065			1420	1360	
Travel Time (s)	29.0			17.6	16.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	3%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	58	51	166	51	74	56
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	22.0	37.0	37.0	68.0	31.0	22.0
Total Split (%)	24.4%	41.1%	41.1%	75.6%	34.4%	24.4%
Maximum Green (s)	15.0	30.0	30.0	61.0	24.0	15.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	10.7	28.9	16.0	73.1	51.1	64.0
Actuated g/C Ratio	0.12	0.32	0.18	0.81	0.57	0.71
v/c Ratio	0.28	0.10	0.54	0.03	0.07	0.05
Control Delay	39.1	17.8	31.4	2.3	12.3	4.9

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	17.8	31.4	2.3	12.3	4.9
LOS	D	B	C	A	B	A
Approach Delay	29.1			24.5	9.1	
Approach LOS	C			C	A	
Queue Length 50th (ft)	31	19	90	4	19	8
Queue Length 95th (ft)	65	37	72	12	49	23
Internal Link Dist (ft)	985			1340	1280	
Turn Bay Length (ft)		100	200			100
Base Capacity (vph)	327	589	617	1483	1047	1110
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.09	0.27	0.03	0.07	0.05

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.54
Intersection Signal Delay: 21.2 Intersection LOS: C
Intersection Capacity Utilization 29.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 422: Caswell Rd/Wyse Fork Rd/Caswell Rd & US 70 WB Ramps



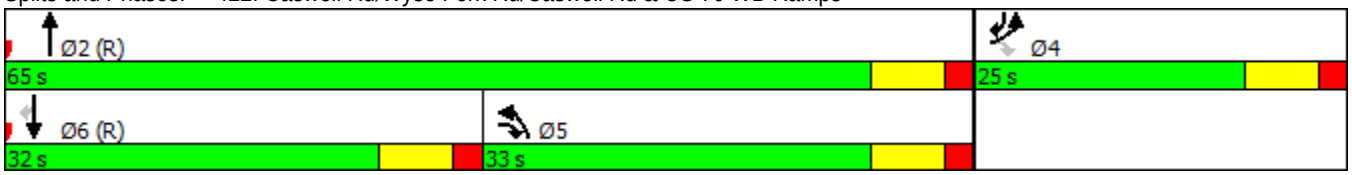
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	57	48	116	60	62	36
Future Volume (vph)	57	48	116	60	62	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	200			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1736	1553	1736	1827	1845	1568
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1736	1827	1845	1568
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1065			1420	1360	
Travel Time (s)	29.0			17.6	16.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	3%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	53	129	67	69	40
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	25.0	33.0	33.0	65.0	32.0	25.0
Total Split (%)	27.8%	36.7%	36.7%	72.2%	35.6%	27.8%
Maximum Green (s)	18.0	26.0	26.0	58.0	25.0	18.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	10.9	27.2	14.0	72.9	52.8	66.0
Actuated g/C Ratio	0.12	0.30	0.16	0.81	0.59	0.73
v/c Ratio	0.30	0.11	0.48	0.05	0.06	0.03
Control Delay	39.2	19.2	32.4	2.1	11.2	4.1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	19.2	32.4	2.1	11.2	4.1
LOS	D	B	C	A	B	A
Approach Delay	30.1			22.0	8.6	
Approach LOS	C			C	A	
Queue Length 50th (ft)	33	21	72	5	17	5
Queue Length 95th (ft)	69	40	69	13	44	16
Internal Link Dist (ft)	985			1340	1280	
Turn Bay Length (ft)		100	200			100
Base Capacity (vph)	385	538	540	1479	1083	1149
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.10	0.24	0.05	0.06	0.03

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.48
Intersection Signal Delay: 20.8 Intersection LOS: C
Intersection Capacity Utilization 27.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 422: Caswell Rd/Wyse Fork Rd/Caswell Rd & US 70 WB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	55	35	23	31	8
Future Volume (vph)	10	55	35	23	31	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1830	1780	0	1708	0
Flt Permitted		0.992			0.962	
Satd. Flow (perm)	0	1830	1780	0	1708	0
Link Speed (mph)		45	45		45	
Link Distance (ft)		873	821		789	
Travel Time (s)		13.2	12.4		12.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	1%	1%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	72	65	0	43	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	55	35	23	31	8
Future Volume (Veh/h)	10	55	35	23	31	8
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	61	39	26	34	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	65				135	52
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	65				135	52
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				96	99
cM capacity (veh/h)	1531				848	1010

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	72	65	43
Volume Left	11	0	34
Volume Right	0	26	9
cSH	1531	1700	877
Volume to Capacity	0.01	0.04	0.05
Queue Length 95th (ft)	1	0	4
Control Delay (s)	1.2	0.0	9.3
Lane LOS	A		A
Approach Delay (s)	1.2	0.0	9.3
Approach LOS			A

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	20.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	35	55	31	23	10
Future Volume (vph)	8	35	55	31	23	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1828	1791	0	1694	0
Flt Permitted		0.991			0.966	
Satd. Flow (perm)	0	1828	1791	0	1694	0
Link Speed (mph)		45	45		45	
Link Distance (ft)		873	821		789	
Travel Time (s)		13.2	12.4		12.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	1%	1%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	48	95	0	37	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	35	55	31	23	10
Future Volume (Veh/h)	8	35	55	31	23	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	39	61	34	26	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	95				135	78
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	95				135	78
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	99
cM capacity (veh/h)	1493				849	977

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	48	95	37
Volume Left	9	0	26
Volume Right	0	34	11
cSH	1493	1700	883
Volume to Capacity	0.01	0.06	0.04
Queue Length 95th (ft)	0	0	3
Control Delay (s)	1.4	0.0	9.3
Lane LOS	A		A
Approach Delay (s)	1.4	0.0	9.3
Approach LOS			A

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	18.7%	ICU Level of Service	A
Analysis Period (min)	15		

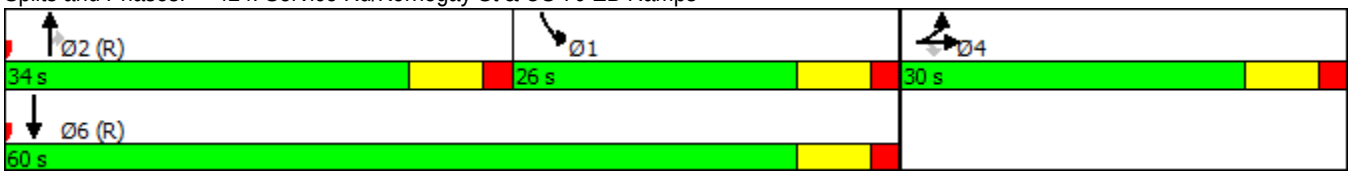
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	4	33	0	0	0	0	64	21	37	26	0
Future Volume (vph)	50	4	33	0	0	0	0	64	21	37	26	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		0	0		100	125		0
Storage Lanes	0		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1745	1553	0	0	0	0	1881	1599	1736	1827	0
Flt Permitted		0.955								0.950		
Satd. Flow (perm)	0	1745	1553	0	0	0	0	1881	1599	1736	1827	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		937			1062			1018			808	
Travel Time (s)		11.6			13.2			15.4			12.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	0%	0%	0%	1%	1%	1%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	60	37	0	0	0	0	71	23	41	29	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Detector Phase	4	4	4					2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0					12.0	12.0	7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0					19.0	19.0	14.0	19.0	
Total Split (s)	30.0	30.0	30.0					34.0	34.0	26.0	60.0	
Total Split (%)	33.3%	33.3%	33.3%					37.8%	37.8%	28.9%	66.7%	
Maximum Green (s)	23.0	23.0	23.0					27.0	27.0	19.0	53.0	
Yellow Time (s)	5.0	5.0	5.0					5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-2.0	-2.0					-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					C-Min	C-Min	None	C-Min	
Act Effct Green (s)		10.8	10.8					63.5	63.5	10.0	73.0	
Actuated g/C Ratio		0.12	0.12					0.71	0.71	0.11	0.81	
v/c Ratio		0.29	0.20					0.05	0.02	0.21	0.02	
Control Delay		39.0	37.4					7.9	8.3	29.7	2.2	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay		39.0	37.4					7.9	8.3	29.7	2.2	
LOS		D	D					A	A	C	A	
Approach Delay		38.4						8.0			18.3	
Approach LOS		D						A			B	
Queue Length 50th (ft)		32	19					15	5	23	2	
Queue Length 95th (ft)		67	47					37	17	54	7	
Internal Link Dist (ft)		857			982			938			728	
Turn Bay Length (ft)			125						100	125		
Base Capacity (vph)		484	431					1328	1129	405	1481	
Starvation Cap Reductn		0	0					0	0	0	0	
Spillback Cap Reductn		0	0					0	0	0	0	
Storage Cap Reductn		0	0					0	0	0	0	
Reduced v/c Ratio		0.12	0.09					0.05	0.02	0.10	0.02	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 18 (20%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.29
Intersection Signal Delay: 22.1 Intersection LOS: C
Intersection Capacity Utilization 34.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 424: Service Rd/Kornegay St & US 70 EB Ramps



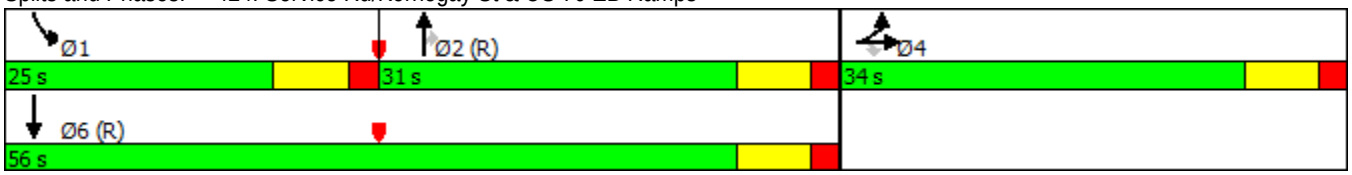
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	4	54	0	0	0	0	43	16	28	31	0
Future Volume (vph)	81	4	54	0	0	0	0	43	16	28	31	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		0	0		100	125		0
Storage Lanes	0		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1743	1553	0	0	0	0	1881	1599	1736	1827	0
Flt Permitted		0.954								0.950		
Satd. Flow (perm)	0	1743	1553	0	0	0	0	1881	1599	1736	1827	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		937			1062			1018			808	
Travel Time (s)		11.6			13.2			15.4			12.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	0%	0%	0%	1%	1%	1%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	94	60	0	0	0	0	48	18	31	34	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Detector Phase	4	4	4					2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0					12.0	12.0	7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0					19.0	19.0	14.0	19.0	
Total Split (s)	34.0	34.0	34.0					31.0	31.0	25.0	56.0	
Total Split (%)	37.8%	37.8%	37.8%					34.4%	34.4%	27.8%	62.2%	
Maximum Green (s)	27.0	27.0	27.0					24.0	24.0	18.0	49.0	
Yellow Time (s)	5.0	5.0	5.0					5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-2.0	-2.0					-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					C-Min	C-Min	None	C-Min	
Act Effct Green (s)		12.4	12.4					62.4	62.4	9.6	71.4	
Actuated g/C Ratio		0.14	0.14					0.69	0.69	0.11	0.79	
v/c Ratio		0.39	0.28					0.04	0.02	0.17	0.02	
Control Delay		39.5	37.2					8.7	9.0	38.7	4.4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay		39.5	37.2					8.7	9.0	38.7	4.4	
LOS		D	D					A	A	D	A	
Approach Delay		38.6						8.7			20.7	
Approach LOS		D						A			C	
Queue Length 50th (ft)		50	31					10	4	20	9	
Queue Length 95th (ft)		92	65					29	15	50	22	
Internal Link Dist (ft)		857			982			938			728	
Turn Bay Length (ft)			125						100	125		
Base Capacity (vph)		561	500					1304	1108	385	1450	
Starvation Cap Reductn		0	0					0	0	0	0	
Spillback Cap Reductn		0	0					0	0	0	0	
Storage Cap Reductn		0	0					0	0	0	0	
Reduced v/c Ratio		0.17	0.12					0.04	0.02	0.08	0.02	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 42 (47%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.39
Intersection Signal Delay: 27.6 Intersection LOS: C
Intersection Capacity Utilization 34.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 424: Service Rd/Kornegay St & US 70 EB Ramps



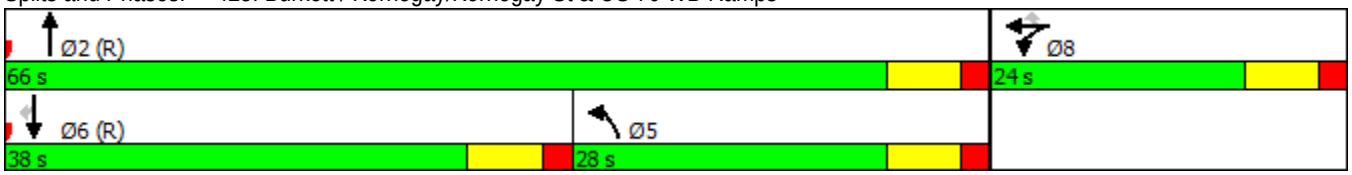
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	16	4	28	54	60	0	0	47	81
Future Volume (vph)	0	0	0	16	4	28	54	60	0	0	47	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		100	100		0	0		100
Storage Lanes	0		0	0		1	1		0	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	0	0	0	1756	1553	1736	1827	0	0	1827	1553
Flt Permitted					0.961		0.950					
Satd. Flow (perm)	0	0	0	0	1756	1553	1736	1827	0	0	1827	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1012			920			808			961	
Travel Time (s)		15.3			13.9			12.2			14.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	22	31	60	67	0	0	52	90
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Split	NA	Perm	Prot	NA			NA	Perm
Protected Phases				8	8		5	2			6	
Permitted Phases						8						6
Detector Phase				8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0	7.0	12.0			12.0	12.0
Minimum Split (s)				14.0	14.0	14.0	14.0	19.0			19.0	19.0
Total Split (s)				24.0	24.0	24.0	28.0	66.0			38.0	38.0
Total Split (%)				26.7%	26.7%	26.7%	31.1%	73.3%			42.2%	42.2%
Maximum Green (s)				17.0	17.0	17.0	21.0	59.0			31.0	31.0
Yellow Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
All-Red Time (s)				2.0	2.0	2.0	2.0	2.0			2.0	2.0
Lost Time Adjust (s)					-2.0	-2.0	-2.0	-2.0			-2.0	-2.0
Total Lost Time (s)					5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Min			C-Min	C-Min
Act Effct Green (s)					9.8	9.8	10.8	77.8			63.7	63.7
Actuated g/C Ratio					0.11	0.11	0.12	0.86			0.71	0.71
v/c Ratio					0.12	0.18	0.29	0.04			0.04	0.08
Control Delay					37.0	38.7	25.2	1.3			7.9	7.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay					0.0	0.0	0.0	0.0			0.0	0.0
Total Delay					37.0	38.7	25.2	1.3			7.9	7.8
LOS					D	D	C	A			A	A
Approach Delay					38.0			12.6			7.8	
Approach LOS					D			B			A	
Queue Length 50th (ft)					12	16	28	4			11	19
Queue Length 95th (ft)					33	42	55	9			29	46
Internal Link Dist (ft)		932			840			728			881	
Turn Bay Length (ft)						100	100					100
Base Capacity (vph)					370	327	443	1579			1293	1099
Starvation Cap Reductn					0	0	0	0			0	0
Spillback Cap Reductn					0	0	0	0			0	0
Storage Cap Reductn					0	0	0	0			0	0
Reduced v/c Ratio					0.06	0.09	0.14	0.04			0.04	0.08

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 56 (62%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.29
Intersection Signal Delay: 14.7 Intersection LOS: B
Intersection Capacity Utilization 34.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 425: Burkett / Kornegay/Kornegay St & US 70 WB Ramps



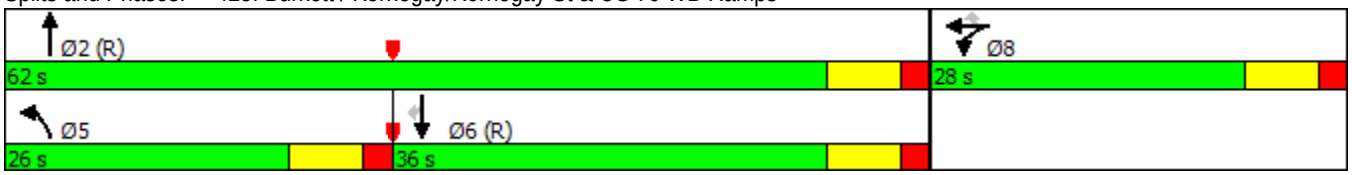
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	21	4	37	33	91	0	0	38	50
Future Volume (vph)	0	0	0	21	4	37	33	91	0	0	38	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		100	100		0	0		100
Storage Lanes	0		0	0		1	1		0	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	0	0	0	1752	1553	1736	1827	0	0	1827	1553
Flt Permitted					0.959		0.950					
Satd. Flow (perm)	0	0	0	0	1752	1553	1736	1827	0	0	1827	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1012			920			808			961	
Travel Time (s)		15.3			13.9			12.2			14.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	27	41	37	101	0	0	42	56
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Split	NA	Perm	Prot	NA			NA	Perm
Protected Phases				8	8		5	2			6	
Permitted Phases						8						6
Detector Phase				8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0	7.0	12.0			12.0	12.0
Minimum Split (s)				14.0	14.0	14.0	14.0	19.0			19.0	19.0
Total Split (s)				28.0	28.0	28.0	26.0	62.0			36.0	36.0
Total Split (%)				31.1%	31.1%	31.1%	28.9%	68.9%			40.0%	40.0%
Maximum Green (s)				21.0	21.0	21.0	19.0	55.0			29.0	29.0
Yellow Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
All-Red Time (s)				2.0	2.0	2.0	2.0	2.0			2.0	2.0
Lost Time Adjust (s)					-2.0	-2.0	-2.0	-2.0			-2.0	-2.0
Total Lost Time (s)					5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Min			C-Min	C-Min
Act Effct Green (s)					10.3	10.3	9.9	73.5			64.2	64.2
Actuated g/C Ratio					0.11	0.11	0.11	0.82			0.71	0.71
v/c Ratio					0.14	0.23	0.19	0.07			0.03	0.05
Control Delay					36.7	39.0	19.3	1.6			7.6	7.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay					0.0	0.0	0.0	0.0			0.0	0.0
Total Delay					36.7	39.0	19.3	1.6			7.6	7.6
LOS					D	D	B	A			A	A
Approach Delay					38.1			6.4			7.6	
Approach LOS					D			A			A	
Queue Length 50th (ft)					14	22	8	4			8	11
Queue Length 95th (ft)					38	51	20	7			24	31
Internal Link Dist (ft)		932			840			728			881	
Turn Bay Length (ft)						100	100					100
Base Capacity (vph)					447	396	405	1492			1304	1108
Starvation Cap Reductn					0	0	0	0			0	0
Spillback Cap Reductn					0	0	0	0			0	0
Storage Cap Reductn					0	0	0	0			0	0
Reduced v/c Ratio					0.06	0.10	0.09	0.07			0.03	0.05

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 40 (44%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.23
Intersection Signal Delay: 13.9 Intersection LOS: B
Intersection Capacity Utilization 34.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 425: Burkett / Kornegay/Kornegay St & US 70 WB Ramps



2040 Build Alternative 1 SB
SimTraffic Reports

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Summary of All Intervals

Run Number	1	2	3	4	2553 Alterna	5	ative 1 SB AM	Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50		6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00		8:00
Total Time (min)	70	70	70	70	70	70		70
Time Recorded (min)	60	60	60	60	60	60		60
# of Intervals	2	2	2	2	2	2		2
# of Recorded Intervals	1	1	1	1	1	1		1
Vehs Entered	11130	11408	11232	11178	11082	11282		11211
Vehs Exited	11121	11406	11189	11179	11108	11260		11212
Starting Vehs	261	283	230	240	298	257		247
Ending Vehs	270	285	273	239	272	279		254
Travel Distance (mi)	6718	6931	6763	6767	6714	6846		6790
Travel Time (hr)	264.8	273.6	268.3	266.0	261.5	269.9		267.3
Total Delay (hr)	93.3	95.4	94.9	92.3	88.8	94.8		93.3
Total Stops	8696	8938	8986	8620	8499	8844		8762
Fuel Used (gal)	277.9	287.5	281.4	281.3	277.6	283.9		281.6

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	2553 Alterna	5	ative 1 SB AM	Avg
Vehs Entered	11130	11408	11232	11178	11082	11282		11211
Vehs Exited	11121	11406	11189	11179	11108	11260		11212
Starting Vehs	261	283	230	240	298	257		247
Ending Vehs	270	285	273	239	272	279		254
Travel Distance (mi)	6718	6931	6763	6767	6714	6846		6790
Travel Time (hr)	264.8	273.6	268.3	266.0	261.5	269.9		267.3
Total Delay (hr)	93.3	95.4	94.9	92.3	88.8	94.8		93.3
Total Stops	8696	8938	8986	8620	8499	8844		8762
Fuel Used (gal)	277.9	287.5	281.4	281.3	277.6	283.9		281.6

Intersection: 401: Jim Sutton Rd & Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	46	44	4	12
Average Queue (ft)	12	13	0	1
95th Queue (ft)	36	36	3	8
Link Distance (ft)	848	806	905	935
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	86	169	81	56	290	41
Average Queue (ft)	28	72	23	15	158	5
95th Queue (ft)	65	138	59	45	253	25
Link Distance (ft)	951	951	935	935	1248	1248
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		100	300	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	81	198	141	76	176	90
Average Queue (ft)	25	105	44	16	88	24
95th Queue (ft)	62	176	103	50	158	68
Link Distance (ft)	939	939	1248	1248	934	934
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		275		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 404: Willie Measley Rd & Washington St/Service Rd

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	L
Maximum Queue (ft)	85	38	72	10	20
Average Queue (ft)	44	18	23	0	1
95th Queue (ft)	71	38	53	7	11
Link Distance (ft)	924	913	934	934	1055
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			100		100
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 405: Barwick Station Rd & Service Rd/Sanderson Way

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	L
Maximum Queue (ft)	56	67	11	3	23
Average Queue (ft)	16	34	0	0	2
95th Queue (ft)	42	54	5	2	11
Link Distance (ft)	809	899	802	802	1140
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			100		100
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 406: Barwick Station Rd/Barwick Station / Albert Sugg Rd & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	95	136	68	61	183	55
Average Queue (ft)	40	60	23	17	74	8
95th Queue (ft)	84	110	56	47	141	33
Link Distance (ft)	1036	1036	1140	1140	1165	1165
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 407: Barwick Station / Albert Sugg Rd/Albert Sugg Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	94	112	66	67	192	59
Average Queue (ft)	34	46	15	10	83	11
95th Queue (ft)	77	92	46	42	150	38
Link Distance (ft)	1058	1058	1165	1165	1141	1141
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 408: Albert Sugg Rd & Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	35	93	13	8
Average Queue (ft)	15	43	1	0
95th Queue (ft)	34	72	9	4
Link Distance (ft)	740	822	1141	929
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 409: Sanderson Way & US 70 EB Ramp

Movement	WB	NB
Directions Served	L	R
Maximum Queue (ft)	47	58
Average Queue (ft)	10	20
95th Queue (ft)	33	44
Link Distance (ft)	2659	965
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 410: Sanderson Way & CF Harvey Pkwy/US 70 Bus

Movement	WB	NB	NB
Directions Served	LT	L	R
Maximum Queue (ft)	32	28	168
Average Queue (ft)	3	7	76
95th Queue (ft)	17	24	128
Link Distance (ft)	935	2659	2659
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			275
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 411: US 70 Bus & Innovation Way

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 412: Sanderson Farms/Industrial Dr & US 70 Bus

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	51	3	11	45	14	91	178	71	94
Average Queue (ft)	15	0	0	12	1	38	67	29	38
95th Queue (ft)	40	2	6	35	8	71	127	56	68
Link Distance (ft)	862	862	862	1089	1089	699	699	909	909
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	100		100	100		100		150	
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 413: US 70 Bus & US 70 WB Ramps

Movement	EB	WB	WB	WB	SB
Directions Served	L	T	T	R	R
Maximum Queue (ft)	91	108	56	191	103
Average Queue (ft)	35	50	16	96	40
95th Queue (ft)	76	93	47	168	85
Link Distance (ft)	1075	1015	1015	1015	1057
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100			200	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 414: NC 11/55 & US 70 EB Ramps

Movement	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	R	T	T	R	L	T
Maximum Queue (ft)	311	214	358	356	123	211	160
Average Queue (ft)	166	98	232	193	42	110	66
95th Queue (ft)	274	183	341	309	94	184	128
Link Distance (ft)	886	886	957	957	957	1170	1170
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		225			125	275	
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 415: NC 11/55 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	232	306	721	190	279	181
Average Queue (ft)	111	142	363	65	134	62
95th Queue (ft)	200	254	649	130	242	132
Link Distance (ft)	1115	1115	1170	1170	955	955
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		325			300	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 416: US 258 & Service Rd

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	22	49
Average Queue (ft)	5	2
95th Queue (ft)	19	20
Link Distance (ft)	1065	715
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 417: US 258 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	265	223	417	49	104	113
Average Queue (ft)	142	113	218	9	41	33
95th Queue (ft)	240	190	351	32	85	81
Link Distance (ft)	1030	1030	715	715	1252	1252
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		225		100	175	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 418: US 258 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	93	129	318	157	238	96
Average Queue (ft)	32	50	130	63	125	27
95th Queue (ft)	72	106	253	126	210	72
Link Distance (ft)	1250	1250	1252	1252	1169	1169
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		175	275	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 419: NC 58 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	106	69	206	66	120	87
Average Queue (ft)	36	19	89	12	41	23
95th Queue (ft)	77	56	170	42	92	64
Link Distance (ft)	1481	1481	1056	1056	1170	1170
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	150	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 420: NC 58 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	104	164	167	42	62	72
Average Queue (ft)	37	60	42	7	14	20
95th Queue (ft)	79	119	116	28	41	59
Link Distance (ft)	1384	1384	1170	1170	982	982
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 421: Wyse Fork Rd/Caswell Rd/Wyse Fork Rd & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	133	55	102	30	100	50
Average Queue (ft)	69	17	33	5	41	8
95th Queue (ft)	123	46	80	21	81	32
Link Distance (ft)	1540	1540	1333	1333	1355	1355
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	125	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 422: Caswell Rd/Wyse Fork Rd/Caswell Rd & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	95	89	181	42	78	54
Average Queue (ft)	40	27	83	5	21	10
95th Queue (ft)	80	67	148	26	58	35
Link Distance (ft)	1015	1015	1355	1355	1321	1321
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	200			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 423: Burkett Rd & Wyse Fork Conn.

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	13	43
Average Queue (ft)	1	20
95th Queue (ft)	7	40
Link Distance (ft)	852	757
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 424: Service Rd/Kornegay St & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	LT	R	T	R	L	T
Maximum Queue (ft)	95	62	51	30	105	36
Average Queue (ft)	34	19	11	4	31	4
95th Queue (ft)	76	47	36	18	73	21
Link Distance (ft)	902	902	979	979	772	772
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		125		100	125	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 425: Burkett / Kornegay/Kornegay St & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	L	T	T	R
Maximum Queue (ft)	60	69	96	59	52	58
Average Queue (ft)	13	22	39	9	8	13
95th Queue (ft)	41	56	81	38	31	40
Link Distance (ft)	885	885	772	772	921	921
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	2	3	4	2553 Alterna	5	ative 1 SB PM	Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50		4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00		6:00
Total Time (min)	70	70	70	70	70	70		70
Time Recorded (min)	60	60	60	60	60	60		60
# of Intervals	2	2	2	2	2	2		2
# of Recorded Intervals	1	1	1	1	1	1		1
Vehs Entered	11393	11301	11347	11388	11374	11264		11345
Vehs Exited	11383	11294	11329	11382	11334	11237		11325
Starting Vehs	259	271	261	249	248	251		243
Ending Vehs	269	278	279	255	288	278		256
Travel Distance (mi)	6873	6863	6847	6921	6823	6849		6863
Travel Time (hr)	262.3	262.4	266.5	269.2	268.0	266.7		265.9
Total Delay (hr)	86.0	87.0	91.7	92.8	93.0	92.3		90.5
Total Stops	8314	8396	8471	8569	8712	8472		8488
Fuel Used (gal)	284.4	285.0	284.7	288.4	285.0	285.6		285.5

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	2553 Alterna	5	ative 1 SB PM	Avg
Vehs Entered	11393	11301	11347	11388	11374	11264		11345
Vehs Exited	11383	11294	11329	11382	11334	11237		11325
Starting Vehs	259	271	261	249	248	251		243
Ending Vehs	269	278	279	255	288	278		256
Travel Distance (mi)	6873	6863	6847	6921	6823	6849		6863
Travel Time (hr)	262.3	262.4	266.5	269.2	268.0	266.7		265.9
Total Delay (hr)	86.0	87.0	91.7	92.8	93.0	92.3		90.5
Total Stops	8314	8396	8471	8569	8712	8472		8488
Fuel Used (gal)	284.4	285.0	284.7	288.4	285.0	285.6		285.5

Intersection: 401: Jim Sutton Rd & Service Rd

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	L	L	TR
Maximum Queue (ft)	29	51	11	16	4
Average Queue (ft)	11	16	0	1	0
95th Queue (ft)	32	40	5	7	3
Link Distance (ft)	848	806	905	935	935
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			100	100	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	88	164	62	49	224	35
Average Queue (ft)	36	78	16	7	120	5
95th Queue (ft)	74	145	46	31	200	22
Link Distance (ft)	951	951	935	935	1248	1248
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		100	300	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	98	271	111	50	185	83
Average Queue (ft)	33	131	33	8	76	20
95th Queue (ft)	75	224	83	31	150	58
Link Distance (ft)	939	939	1248	1248	934	934
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		275		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 404: Willie Measley Rd & Washington St/Service Rd

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	L	L	TR
Maximum Queue (ft)	85	53	46	7	6
Average Queue (ft)	38	24	15	0	0
95th Queue (ft)	62	45	42	4	5
Link Distance (ft)	924	913	934	1055	1055
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			100	100	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 405: Barwick Station Rd & Service Rd/Sanderson Way

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	30	65	7	32
Average Queue (ft)	14	31	0	3
95th Queue (ft)	35	50	4	16
Link Distance (ft)	809	899	802	1140
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 406: Barwick Station Rd/Barwick Station / Albert Sugg Rd & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	117	151	77	54	99	55
Average Queue (ft)	52	69	20	11	42	11
95th Queue (ft)	93	126	56	36	85	38
Link Distance (ft)	1036	1036	1140	1140	1165	1165
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 407: Barwick Station / Albert Sugg Rd/Albert Sugg Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	130	167	92	36	142	52
Average Queue (ft)	57	71	18	5	66	11
95th Queue (ft)	109	133	57	23	120	38
Link Distance (ft)	1058	1058	1165	1165	1141	1141
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 408: Albert Sugg Rd & Service Rd

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	L
Maximum Queue (ft)	49	63	8	7	15
Average Queue (ft)	20	33	0	0	1
95th Queue (ft)	40	50	5	5	7
Link Distance (ft)	740	822	1141	1141	929
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			100		100
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 409: Sanderson Way & US 70 EB Ramp

Movement	WB	NB
Directions Served	L	R
Maximum Queue (ft)	55	48
Average Queue (ft)	14	18
95th Queue (ft)	40	39
Link Distance (ft)	2659	965
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 410: Sanderson Way & CF Harvey Pkwy/US 70 Bus

Movement	WB	NB	NB
Directions Served	LT	L	R
Maximum Queue (ft)	42	23	258
Average Queue (ft)	5	5	114
95th Queue (ft)	24	20	208
Link Distance (ft)	935	2659	2659
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			275
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 411: US 70 Bus & Innovation Way

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 412: Sanderson Farms/Industrial Dr & US 70 Bus

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	43	9	16	65	6	66	89	128	146
Average Queue (ft)	9	0	2	23	0	22	46	52	60
95th Queue (ft)	31	6	10	52	4	54	78	100	113
Link Distance (ft)	862	862	862	1089	1089	699	699	909	909
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	100		100	100		100		150	
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 413: US 70 Bus & US 70 WB Ramps

Movement	EB	WB	WB	WB	SB
Directions Served	L	T	T	R	R
Maximum Queue (ft)	92	105	53	160	79
Average Queue (ft)	37	46	11	68	27
95th Queue (ft)	74	88	38	132	63
Link Distance (ft)	1075	1015	1015	1015	1057
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100			200	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 414: NC 11/55 & US 70 EB Ramps

Movement	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	R	T	T	R	L	T
Maximum Queue (ft)	518	181	264	227	92	267	555
Average Queue (ft)	291	51	152	126	36	147	264
95th Queue (ft)	463	122	230	209	78	241	521
Link Distance (ft)	886	886	957	957	957	1170	1170
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		225			125	275	
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 415: NC 11/55 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	249	156	237	92	247	389
Average Queue (ft)	134	66	76	32	129	166
95th Queue (ft)	217	122	170	73	214	317
Link Distance (ft)	1115	1115	1170	1170	955	955
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		325			300	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 416: US 258 & Service Rd

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	23	22
Average Queue (ft)	6	1
95th Queue (ft)	21	10
Link Distance (ft)	1065	715
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 417: US 258 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	370	200	290	65	158	154
Average Queue (ft)	182	86	161	10	65	66
95th Queue (ft)	303	161	265	37	129	126
Link Distance (ft)	1030	1030	715	715	1252	1252
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		225		100	175	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 418: US 258 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	96	128	193	117	263	105
Average Queue (ft)	33	35	79	46	146	35
95th Queue (ft)	75	85	158	98	226	89
Link Distance (ft)	1250	1250	1252	1252	1169	1169
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		175	275	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 419: NC 58 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	131	61	146	50	147	131
Average Queue (ft)	56	15	54	8	69	51
95th Queue (ft)	103	44	110	30	122	114
Link Distance (ft)	1481	1481	1056	1056	1170	1170
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	150	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 420: NC 58 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	138	92	98	28	69	121
Average Queue (ft)	48	37	22	4	21	40
95th Queue (ft)	104	78	67	18	53	93
Link Distance (ft)	1384	1384	1170	1170	982	982
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 421: Wyse Fork Rd/Caswell Rd/Wyse Fork Rd & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	179	82	100	38	95	70
Average Queue (ft)	90	23	33	6	38	11
95th Queue (ft)	159	58	77	26	77	44
Link Distance (ft)	1540	1540	1333	1333	1355	1355
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	125	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 422: Caswell Rd/Wyse Fork Rd/Caswell Rd & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	109	86	167	52	59	38
Average Queue (ft)	45	28	75	7	15	6
95th Queue (ft)	86	69	140	34	46	26
Link Distance (ft)	1015	1015	1355	1355	1321	1321
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	200			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 423: Burkett Rd & Wyse Fork Conn.

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	9	46
Average Queue (ft)	0	16
95th Queue (ft)	6	38
Link Distance (ft)	852	757
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 424: Service Rd/Kornegay St & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	LT	R	T	R	L	T
Maximum Queue (ft)	119	104	42	22	70	30
Average Queue (ft)	55	36	10	3	23	3
95th Queue (ft)	103	77	32	13	55	17
Link Distance (ft)	902	902	979	979	772	772
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		125		100	125	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 425: Burkett / Kornegay/Kornegay St & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	L	T	T	R
Maximum Queue (ft)	63	84	80	47	35	52
Average Queue (ft)	19	31	29	4	5	8
95th Queue (ft)	50	71	65	23	22	29
Link Distance (ft)	885	885	772	772	921	921
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 0

APPENDIX F

2040 Build Alternative 11

Peak Hour Traffic Volume Development and

FREEVAL-E, Synchro & SimTraffic Reports

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2040 Build Alternative 11
Peak Hour Traffic Volume
Development

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Alternative 11

Volume Development

A project-level traffic forecast, titled "Traffic Forecast Technical Memorandum, Kinston Bypass Alternatives Study", was prepared and finalized in November, 2016. This traffic forecast was used to provide peak hour volumes for the analysis of the selected alternatives in this memorandum. The traffic forecast is included in **Attachment A**.

The Intersection Analysis Utility (IAU), provided by NCDOT, was utilized to calculate AM and PM Peak Hour volumes for at-grade intersections (ramp terminals and any intersections within 1,000 feet of ramp terminals), interchange ramps, and freeway segments within interchanges. Peak hour volumes for freeway segments between interchanges were calculated by finding the forecasted daily two-way volumes along the link, then breaking the daily volume down by multiplying it by the Design Hour Volume Percentage (K), and the Peak Hour Directional Split (D). All of these volumes are shown in **BLACK** in **Figures 5A-5F**.

US 70 and CF Harvey Parkway Extension Freeway Analysis

FREEVAL-E does not use a Peak Hour Factor (PHF) to adjust the peak hour volumes to reflect the peak 15-minute period. Additionally, FREEVAL-E requires balanced peak hour mainline volumes, since only the beginning freeway segment and subsequent ramps have volume inputs. To provide peak 15-minute hourly flow rates for the analysis in FREEVAL-E, each of the peak hour volumes calculated for the freeway segments and ramps was divided by 0.90, which is the recommended PHF in the NCDOT Congestion Management Capacity Analysis Guidelines. To balance the peak hour volumes to use with FREEVAL-E, the highest peak 15-minute hourly flow rate was located along the US 70 corridor within the study area. Once this was located, the mainline US 70 volumes were adjusted in each direction to the eastern and western ends of the network by adding and subtracting the relevant ramp volumes.

For Alternative 11, the location used as the "hold point" for balancing purposes on US 70 was the segment between Jim Sutton Road / Willie Measley Road and US 70 Business (west of Kinston). These volume adjustments are shown in **BLUE** in **Figures 5A-5F**. The ensuing pages of this appendix detail the following step-by-step process used to calculate the volumes used, as well as the various volume redistributions required by the forecast imbalances and mismatches with the roadway designs:

Step 1 – Freeway segment volumes between interchanges were calculated by multiplying the two-way daily volumes by the K and D factors.

Step 2 – Volumes for interchange ramps, and freeway segments inside interchanges were collected from the IAU breakout sheets.

Step 3 – The volumes collected in Step 2 were divided by the NCDOT default PHF of 0.90 to account for the fact that FREEVAL-E does not factor in the PHF, and the highest calculated freeway volume location was used as the base point with which to balance the US 70 freeway corridor.

Step 4 – The volumes of the subsequent freeway segments were adjusted to allow for a balanced peak hour network in both directions.

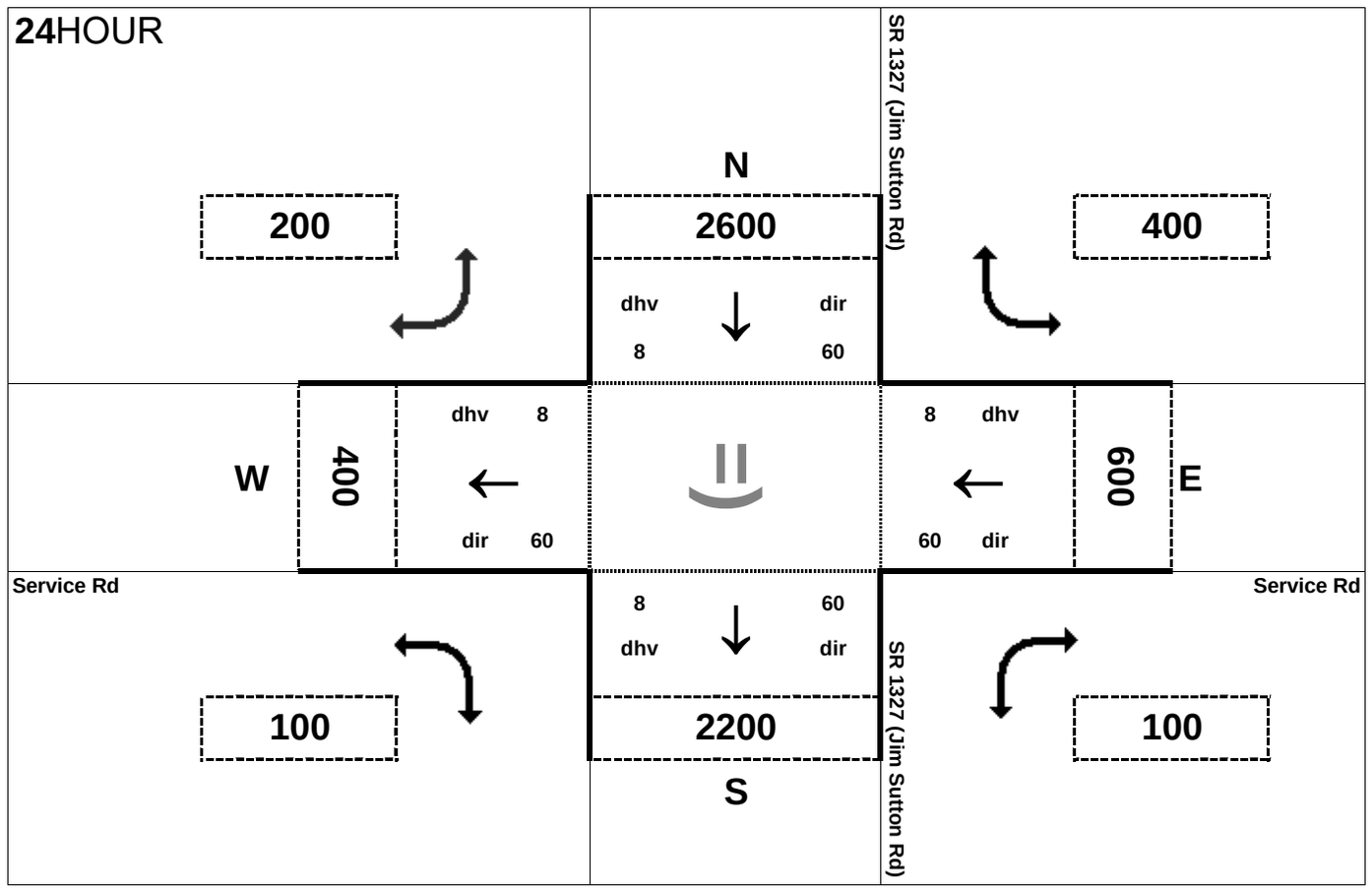
Due to the complex geometries in the US 70/US 70 Business/CF Harvey Parkway interchange, the northbound direction of CF Harvey Parkway could not be analyzed using FREEVAL-E or HCS. Interactions occur too closely together for any of the segments to be analyzed as ramps or freeway segments, and much of this section has only one lane along CF Harvey Parkway northbound. To capture the impact of traffic on the various northbound segments, volume-to-capacity (v/c) checks were performed instead. These segments do not report LOS, but rather a decimal, which indicates how much of the available lane group's capacity is consumed by the demand volume.

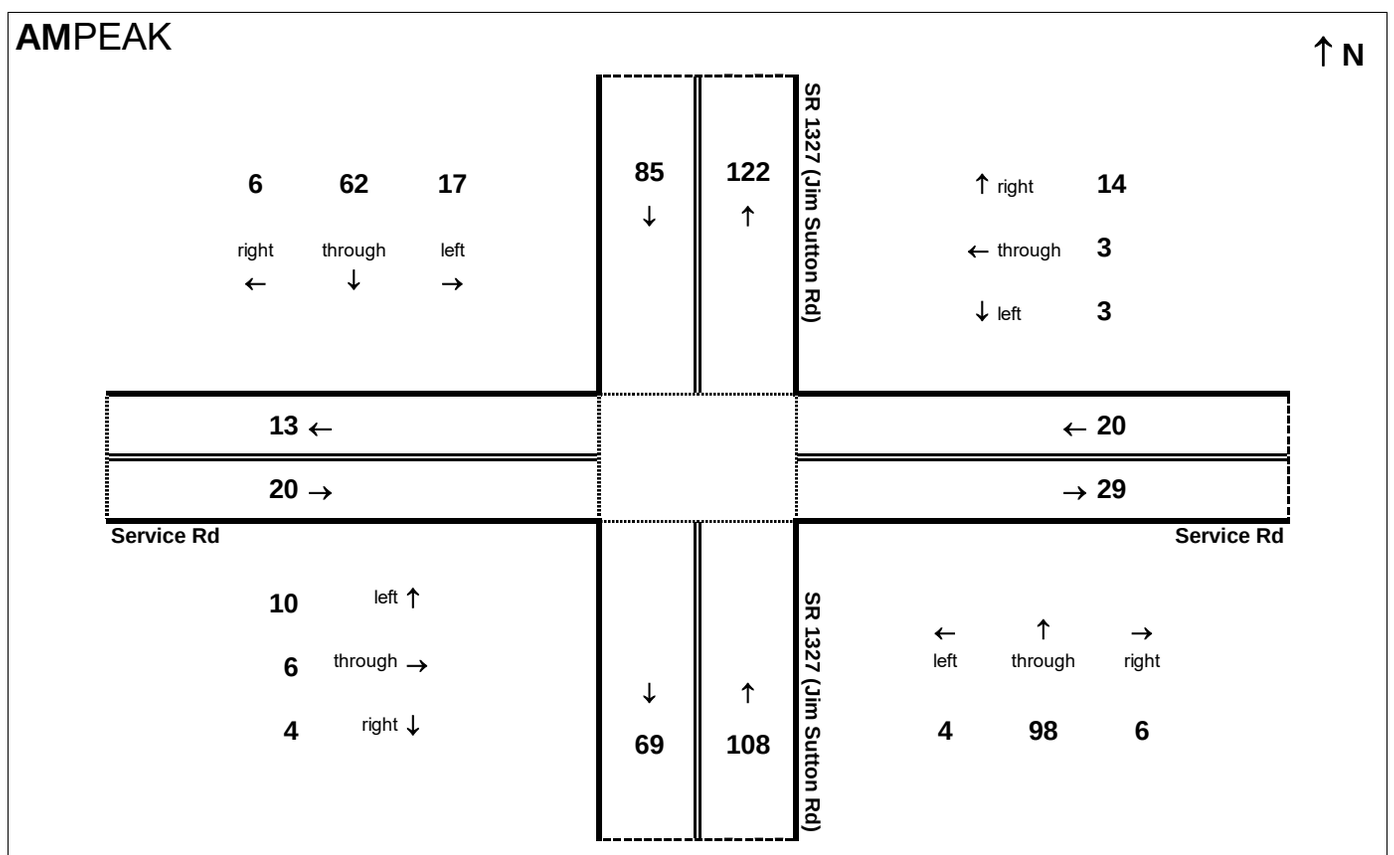
Peak Hour Volume Breakouts Report:
401 Intersection of SR 1327 (Jim Sutton Rd) at Service Rd

Traffic Forecast Release Date:
November-16

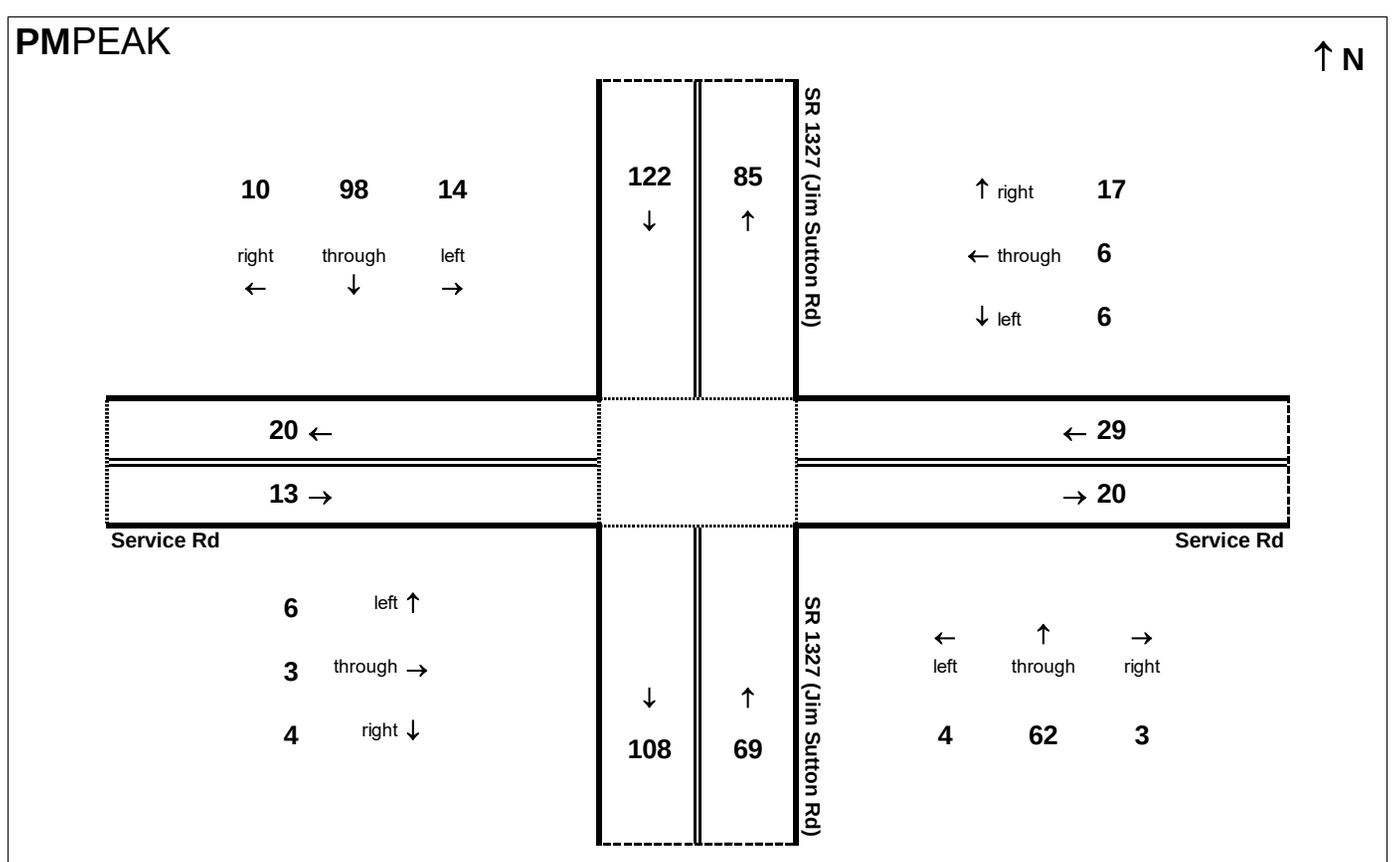
Traffic Data Year:
2040 Build Alt 11

Project:
R-2553





AM peak hour inflow is 233 vehicles. AM peak hour outflow is 232 vehicles.



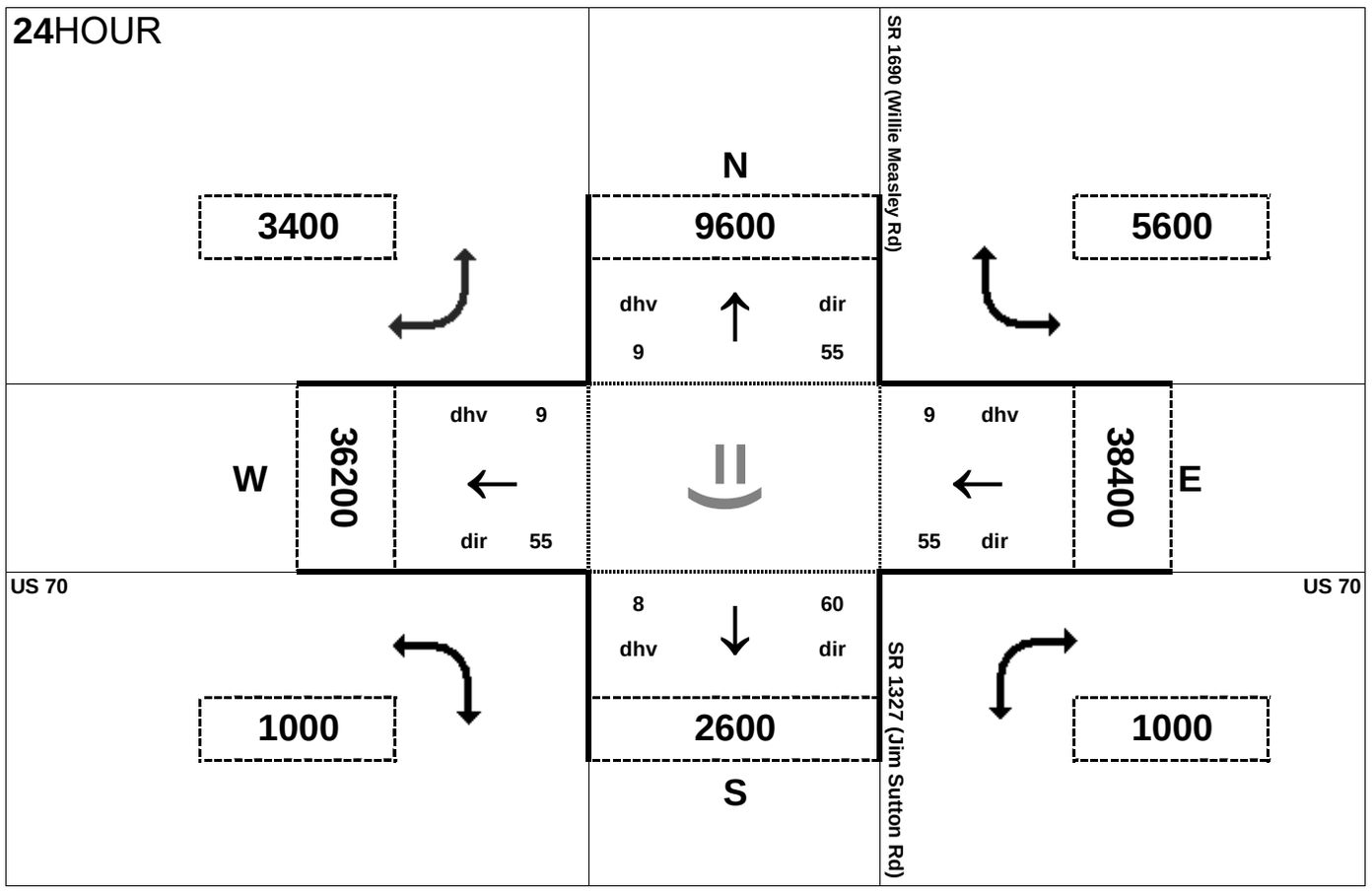
PM peak hour inflow is 232 vehicles. PM peak hour outflow is 233 vehicles.

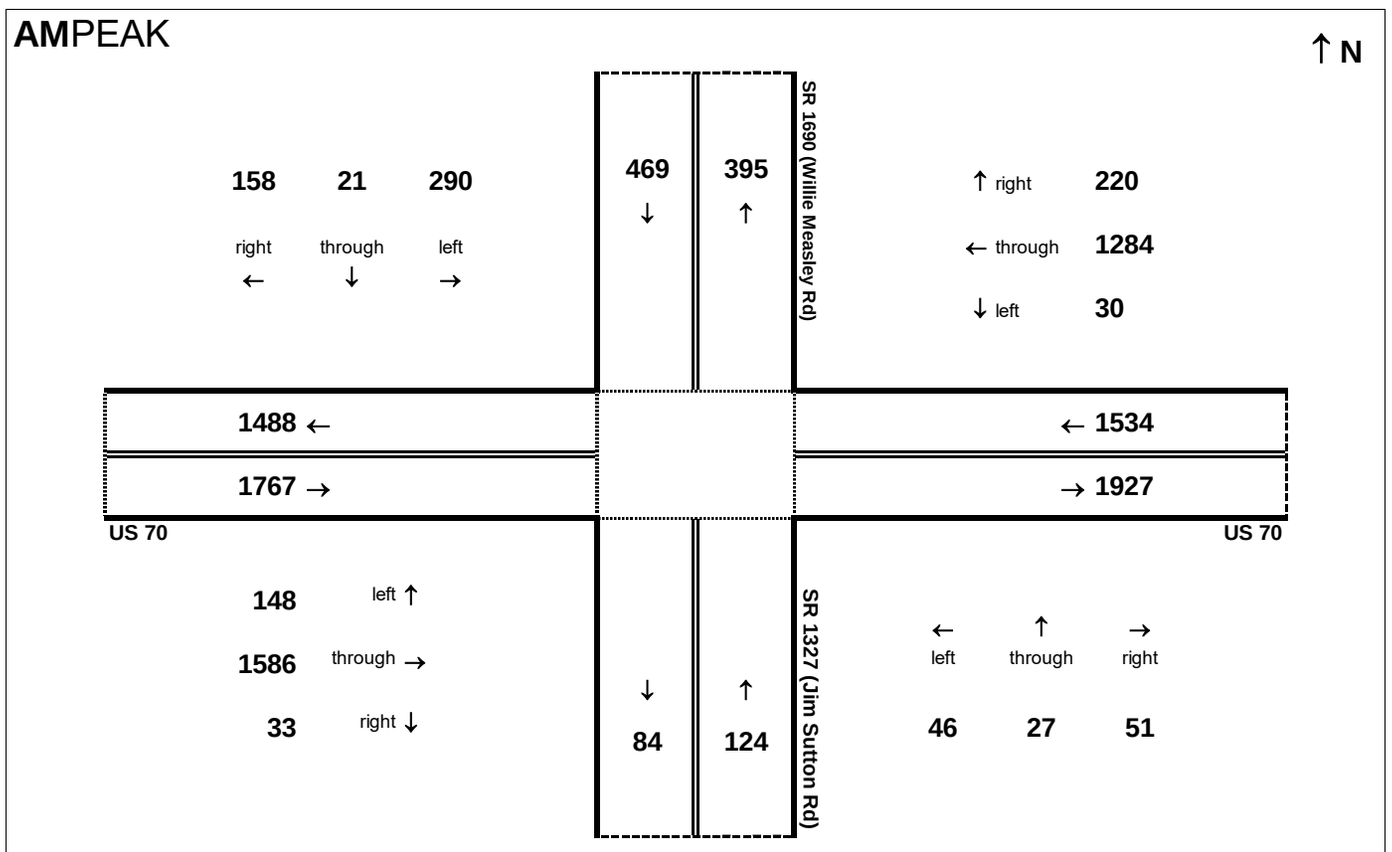
Peak Hour Volume Breakouts Report:
402-3 Intersection of US 70 and Willie Measley Rd / Jim Sutton Rd

Traffic Forecast Release Date:
November-16

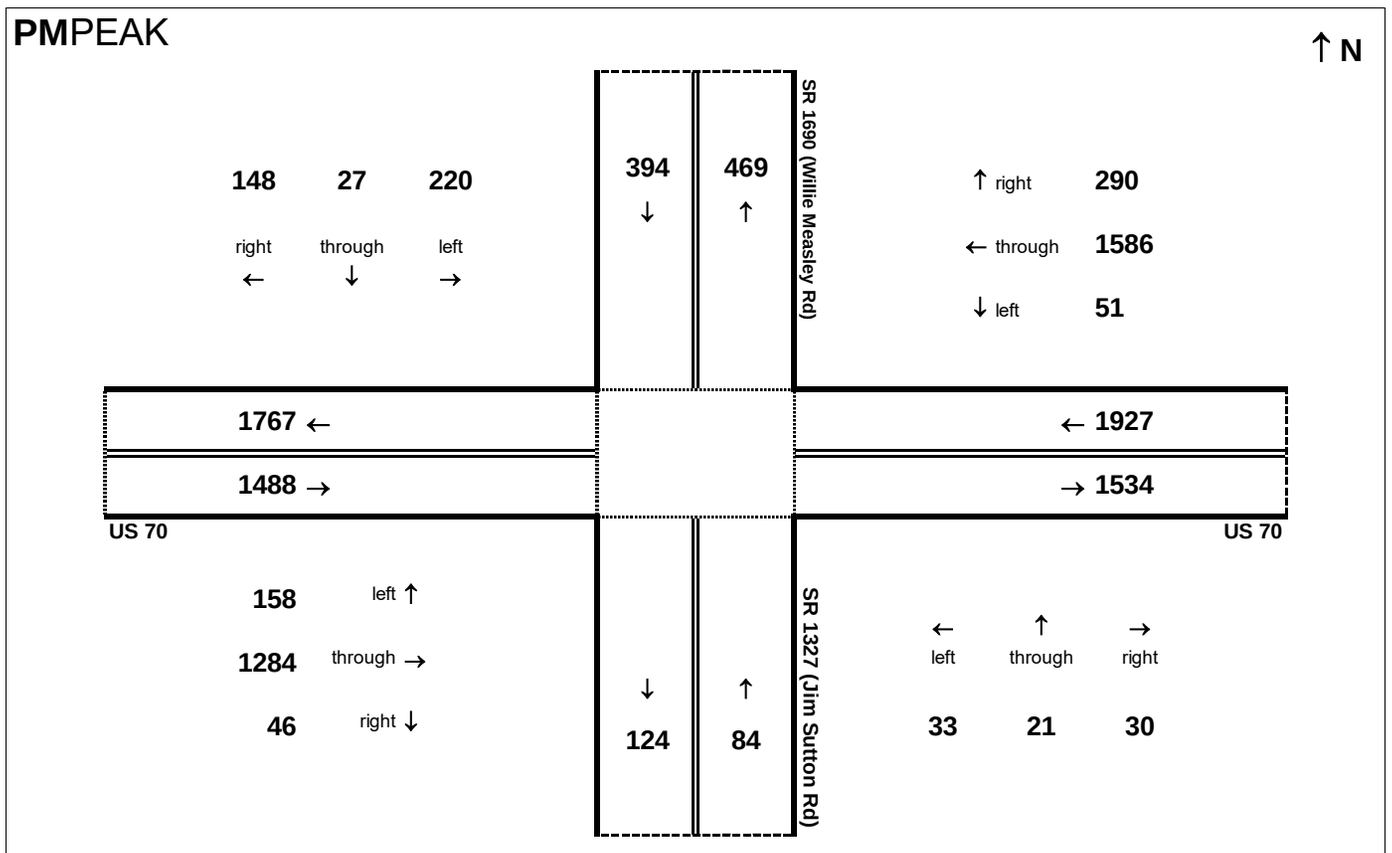
Traffic Data Year:
2040 Build Alt 11

Project:
R-2553





AM peak hour inflow is 3893 vehicles. AM peak hour outflow is 3893 vehicles.



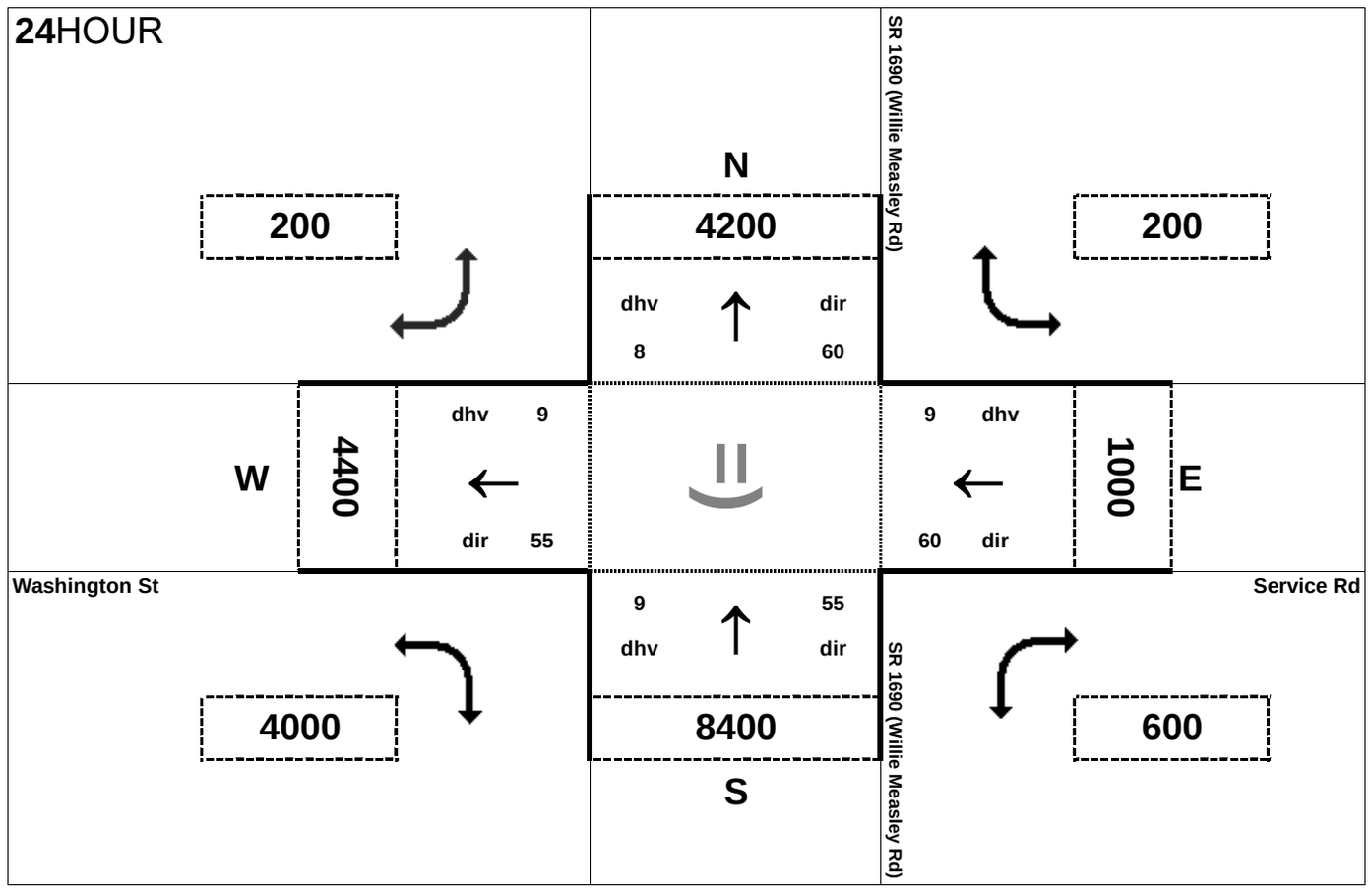
PM peak hour inflow is 3893 vehicles. PM peak hour outflow is 3893 vehicles.

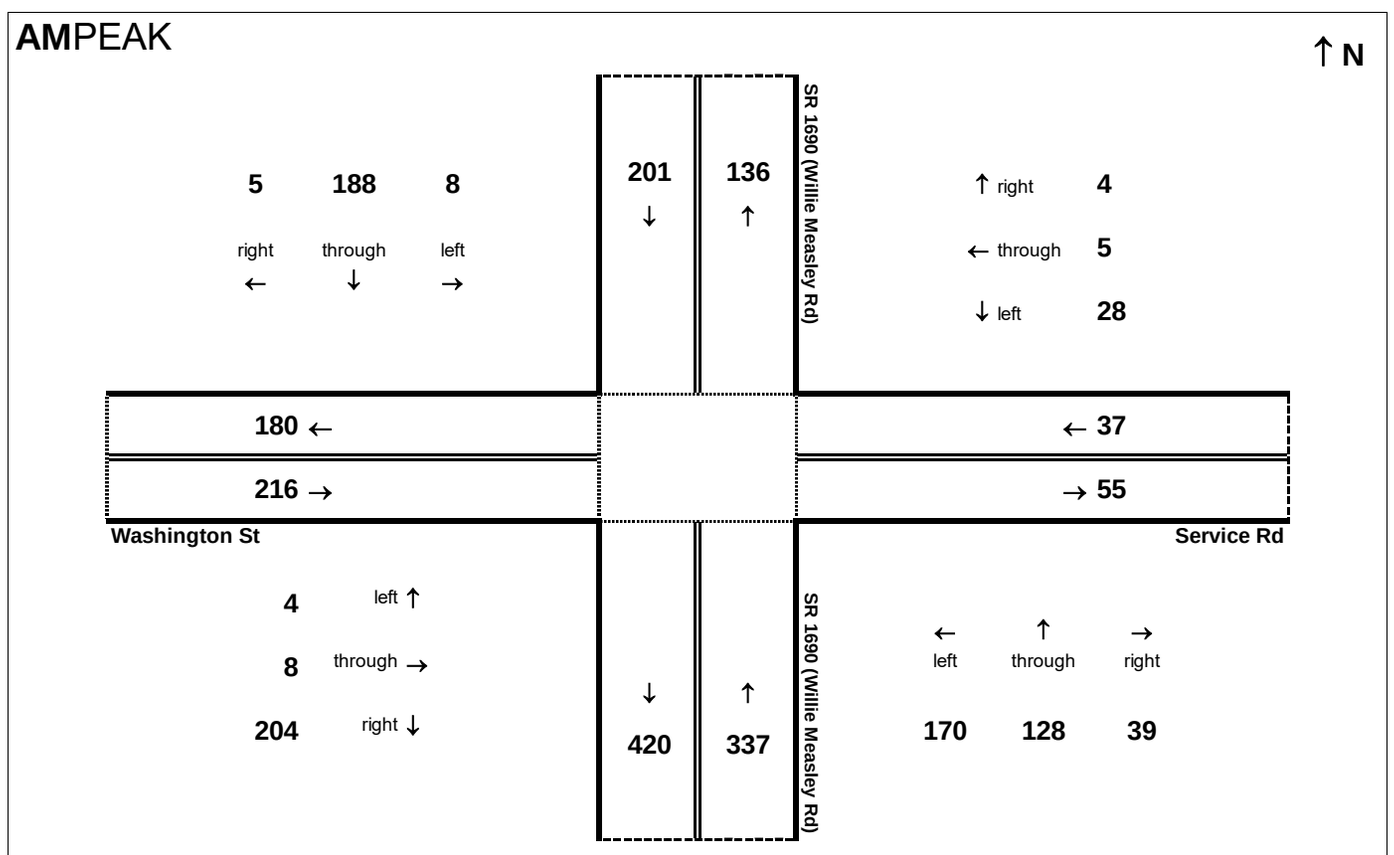
Peak Hour Volume Breakouts Report:
404 Intersection of SR 1690 (Willie Measley Rd) at SR 1603 (Washington St)

Traffic Forecast Release Date:
November-16

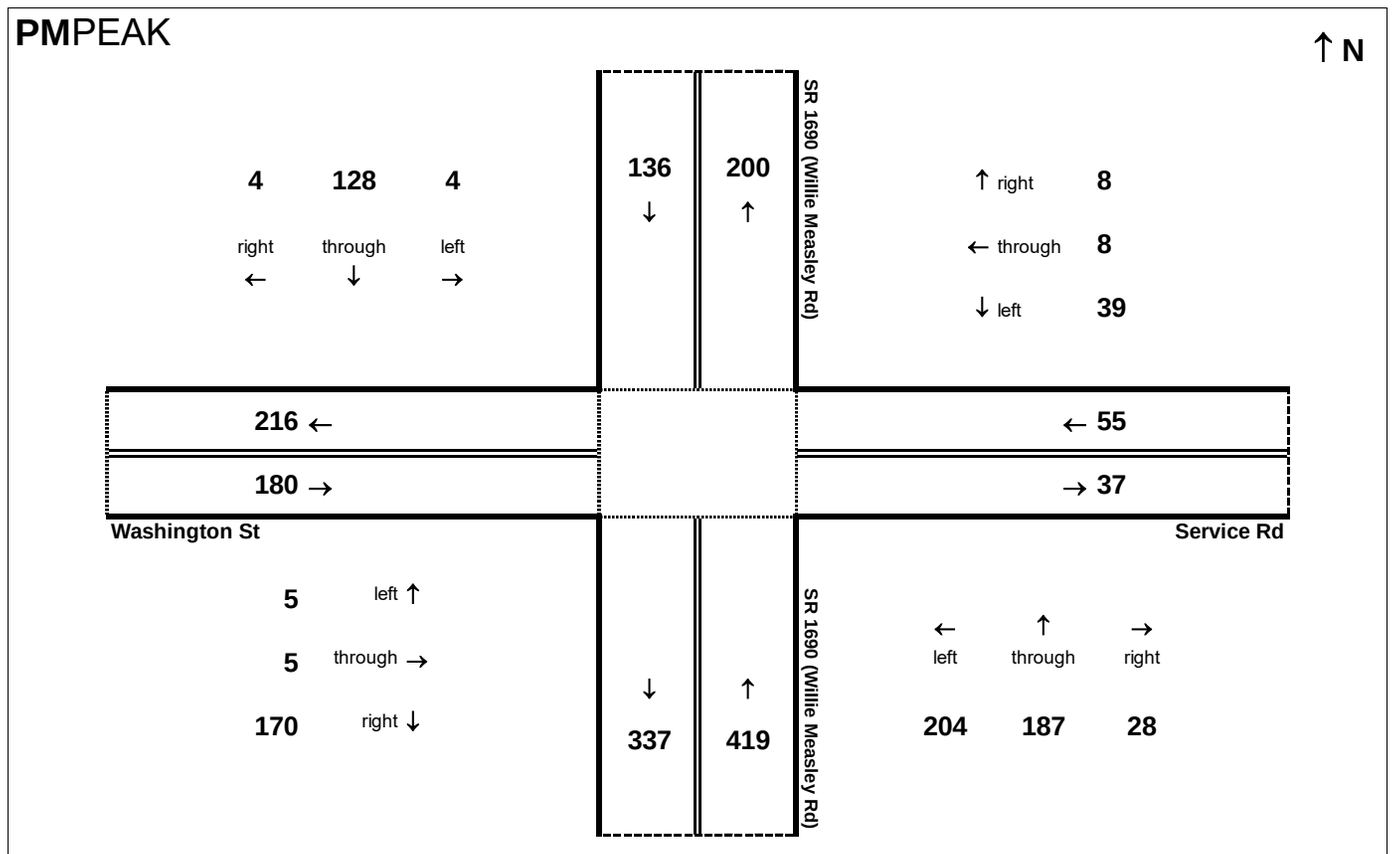
Traffic Data Year:
2040 Build Alt 11

Project:
R-2553





AM peak hour inflow is 789 vehicles. AM peak hour outflow is 789 vehicles.



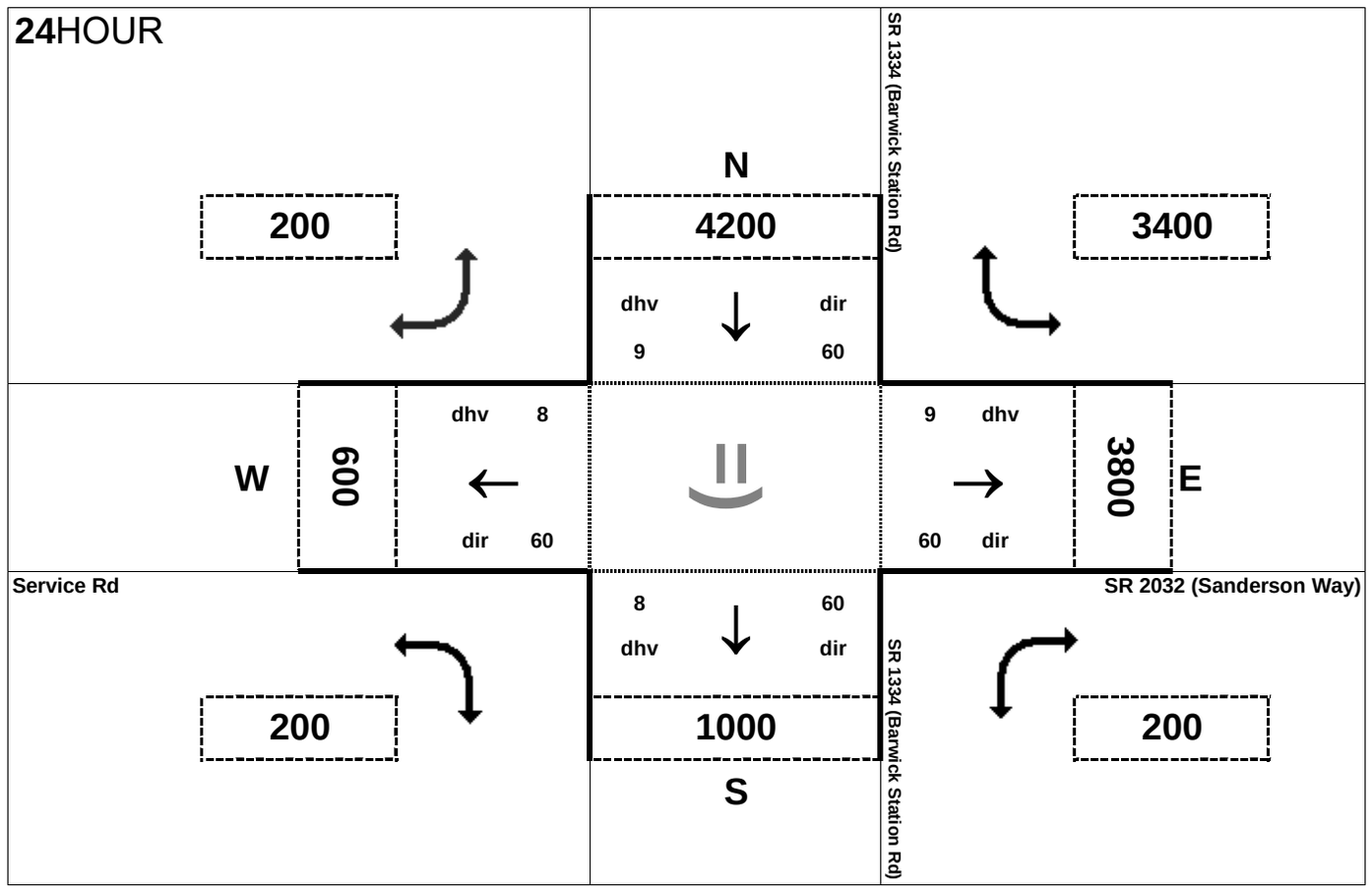
PM peak hour inflow is 789 vehicles. PM peak hour outflow is 789 vehicles.

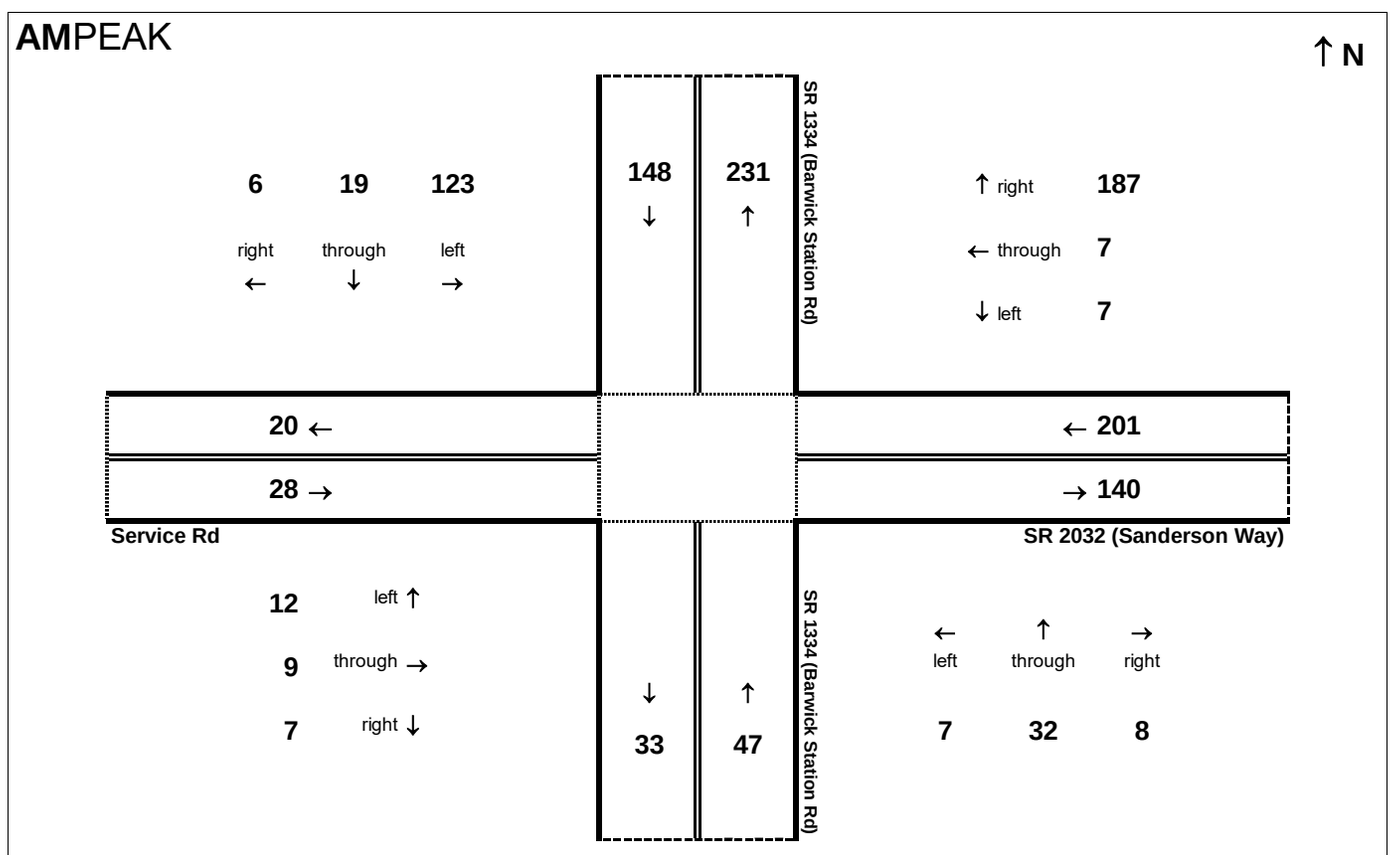
Peak Hour Volume Breakouts Report:
405 Intersection of SR 1334 (Barwick Station Rd) at SR 2032 (Sanderson way)

Traffic Forecast Release Date:
November-16

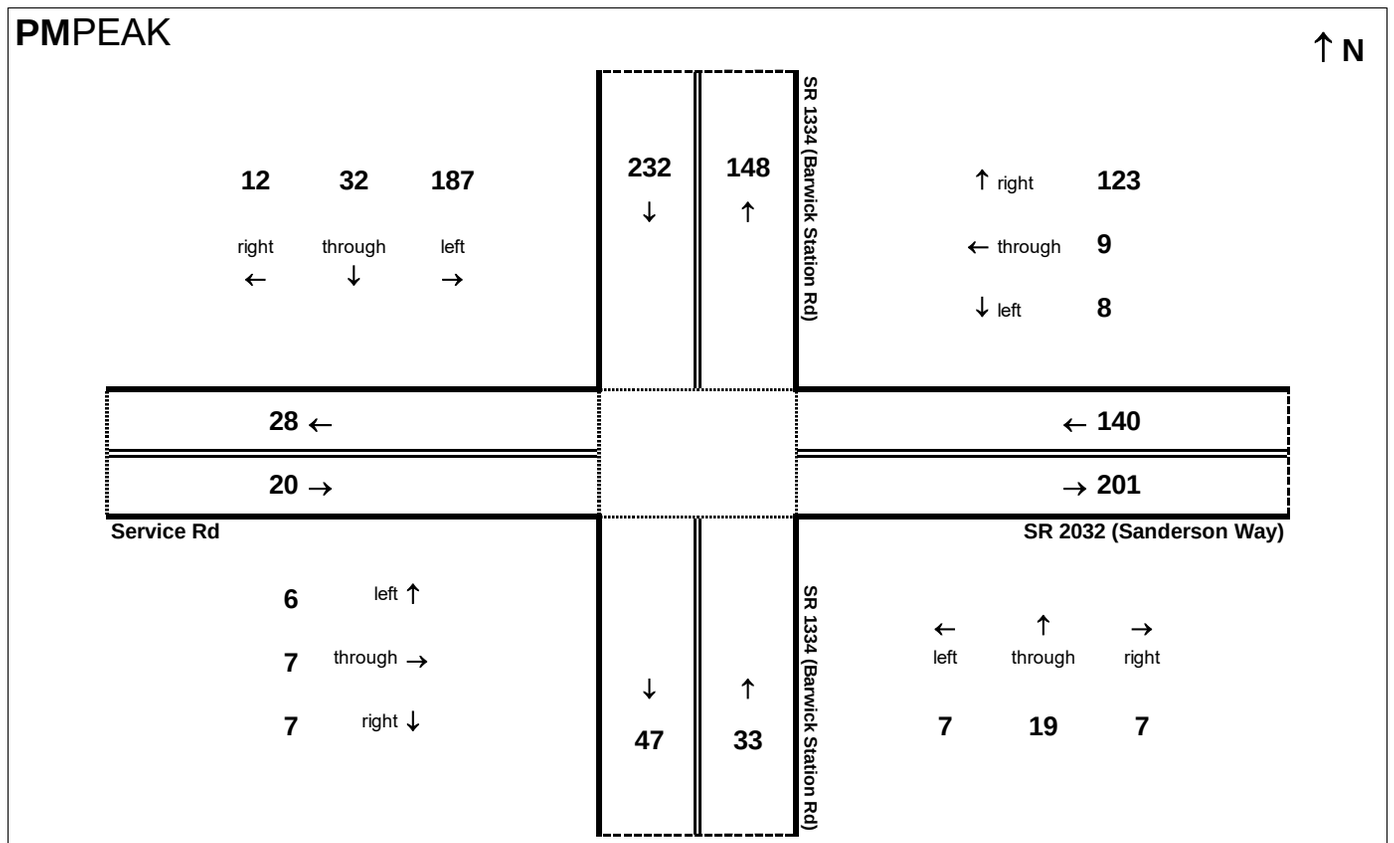
Traffic Data Year:
2040 Build Alt 11

Project:
R-2553





AM peak hour inflow is 424 vehicles. AM peak hour outflow is 425 vehicles.



PM peak hour inflow is 425 vehicles. PM peak hour outflow is 424 vehicles.

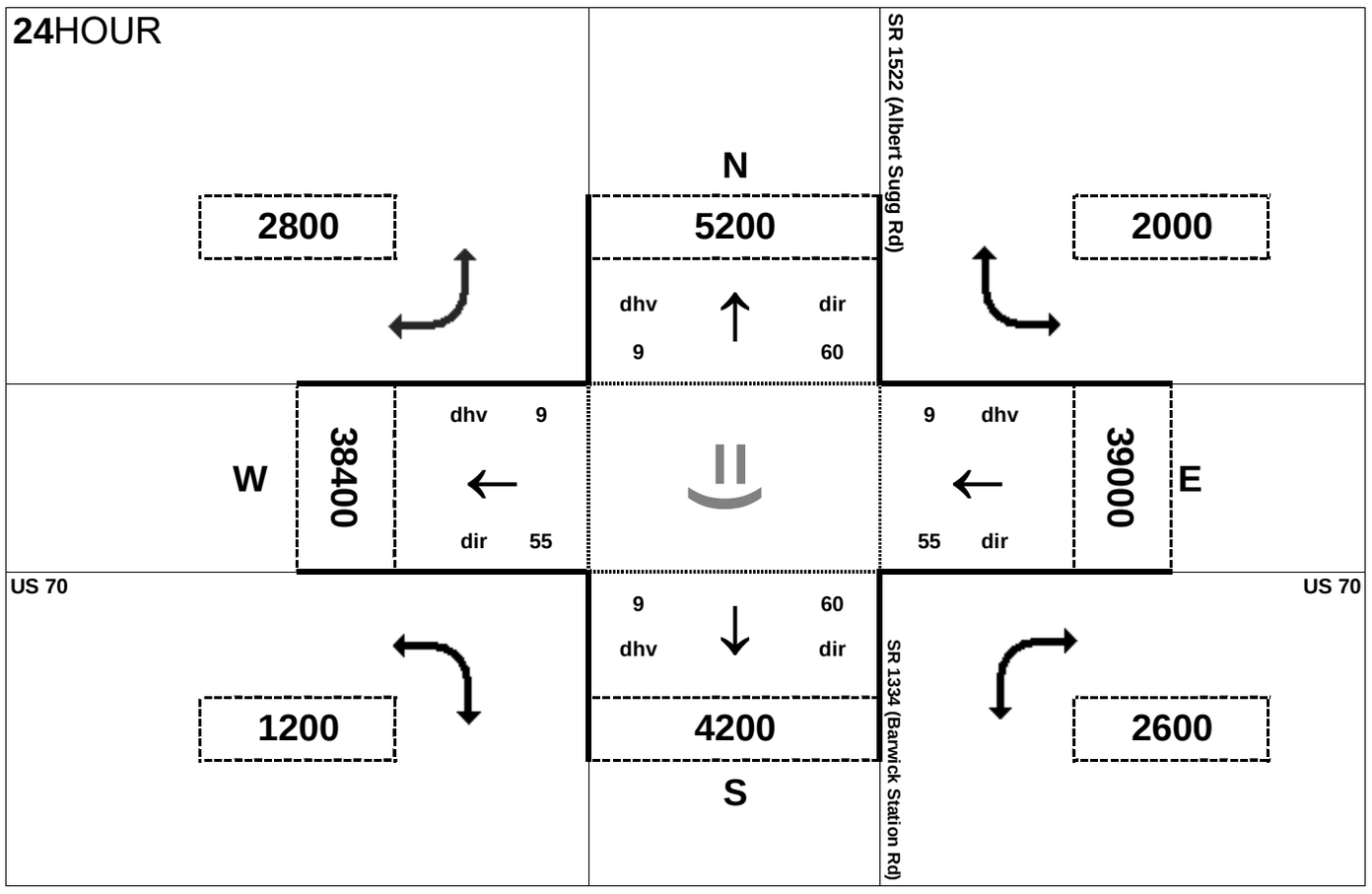
Peak Hour Volume Breakouts Report:
406-7 Intersection of US 70 and SR 1334 (Barwick Station Rd) / SR 1522 (Albert Sugg Rd)

Traffic Forecast Release Date:
November-16

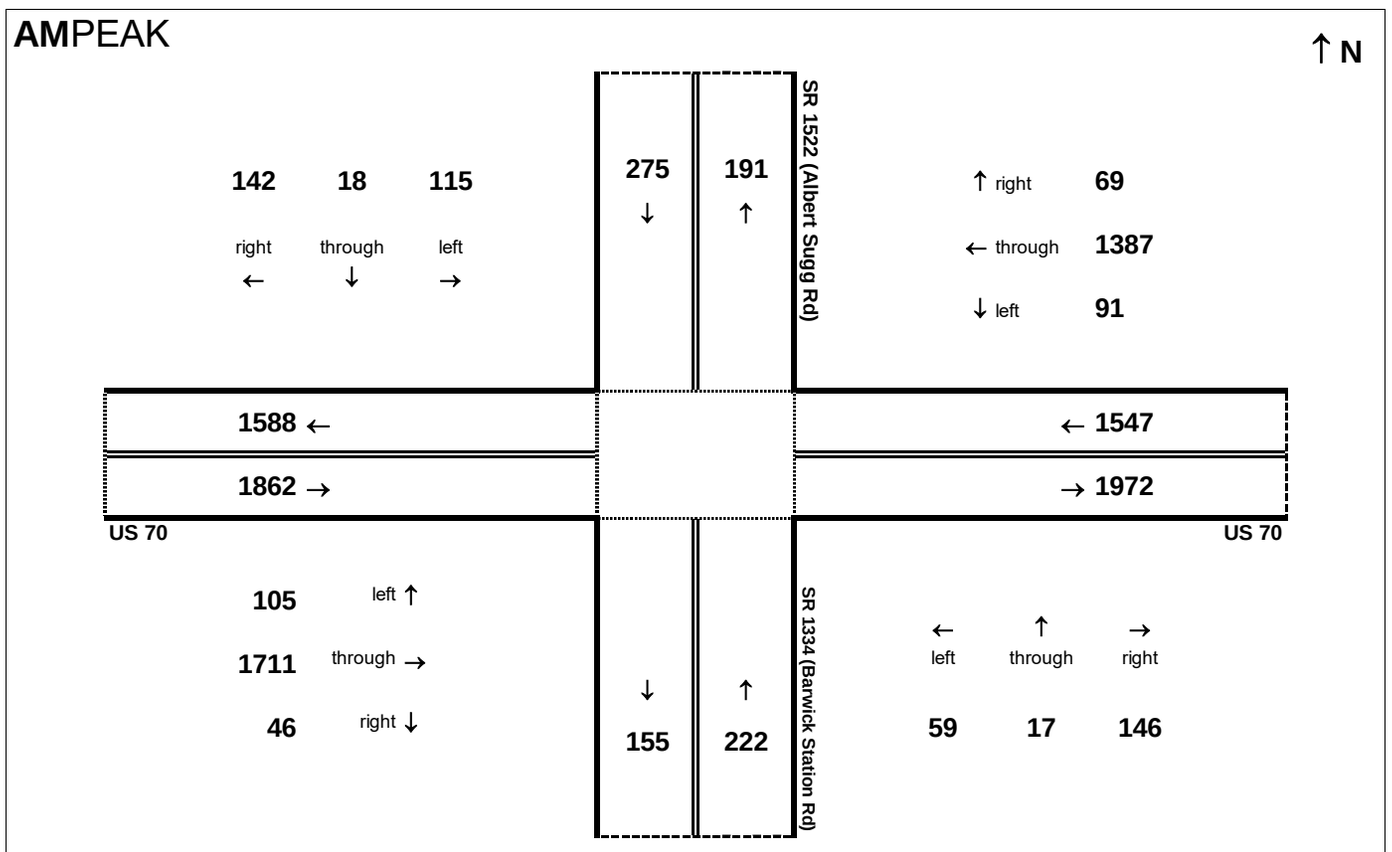
Traffic Data Year:
2040 Build Alt 11

Project:
R-2553

24HOUR

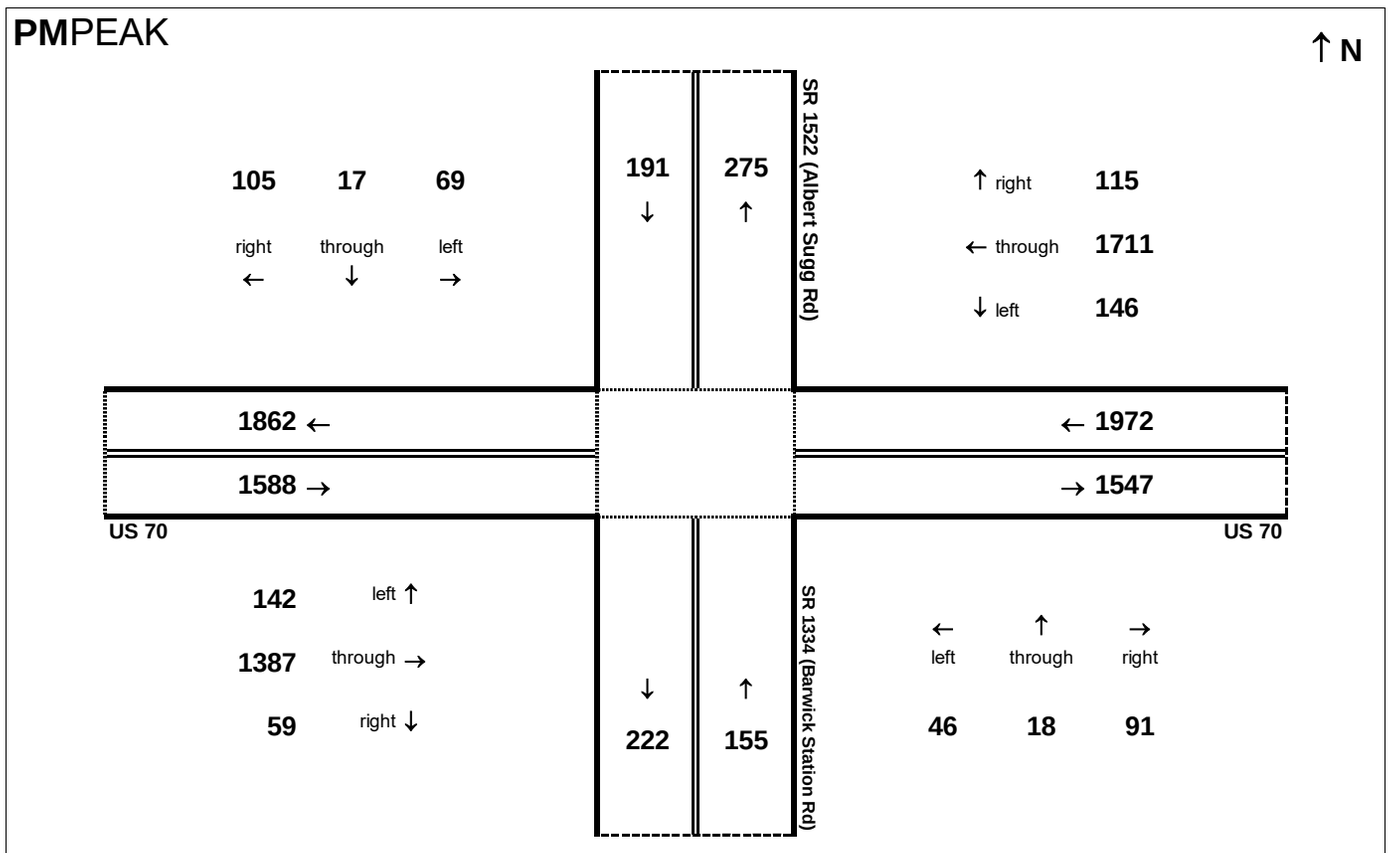


AMPEAK



AM peak hour inflow is 3906 vehicles. AM peak hour outflow is 3906 vehicles.

PMPEAK



PM peak hour inflow is 3905 vehicles. PM peak hour outflow is 3906 vehicles.

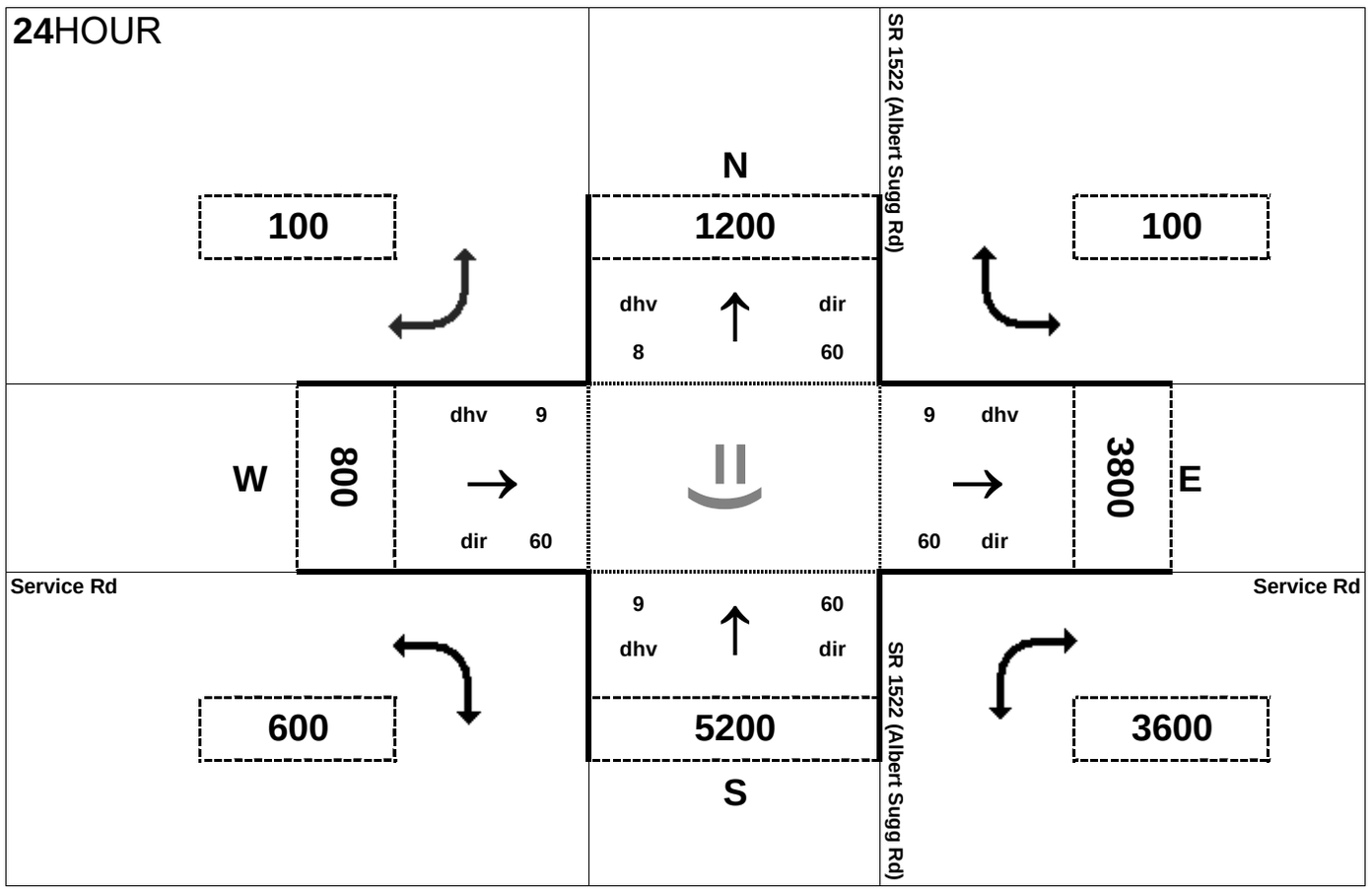
Peak Hour Volume Breakouts Report:
408 Intersection of SR 1522 (Albert Sugg Rd) at Service Rd

Traffic Forecast Release Date:
November-16

Traffic Data Year:
2040 Build Alt 11

Project:
R-2553

24HOUR



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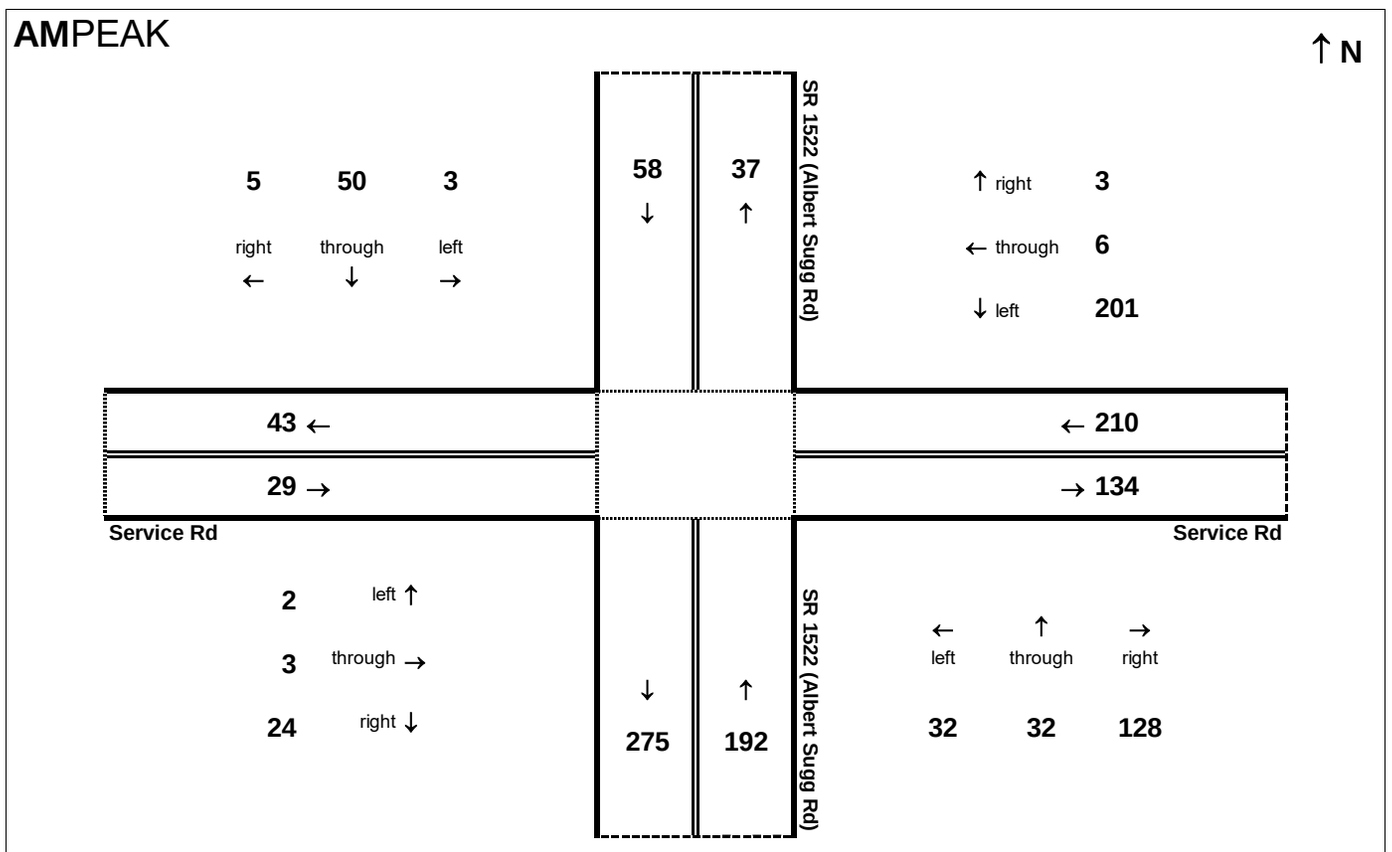
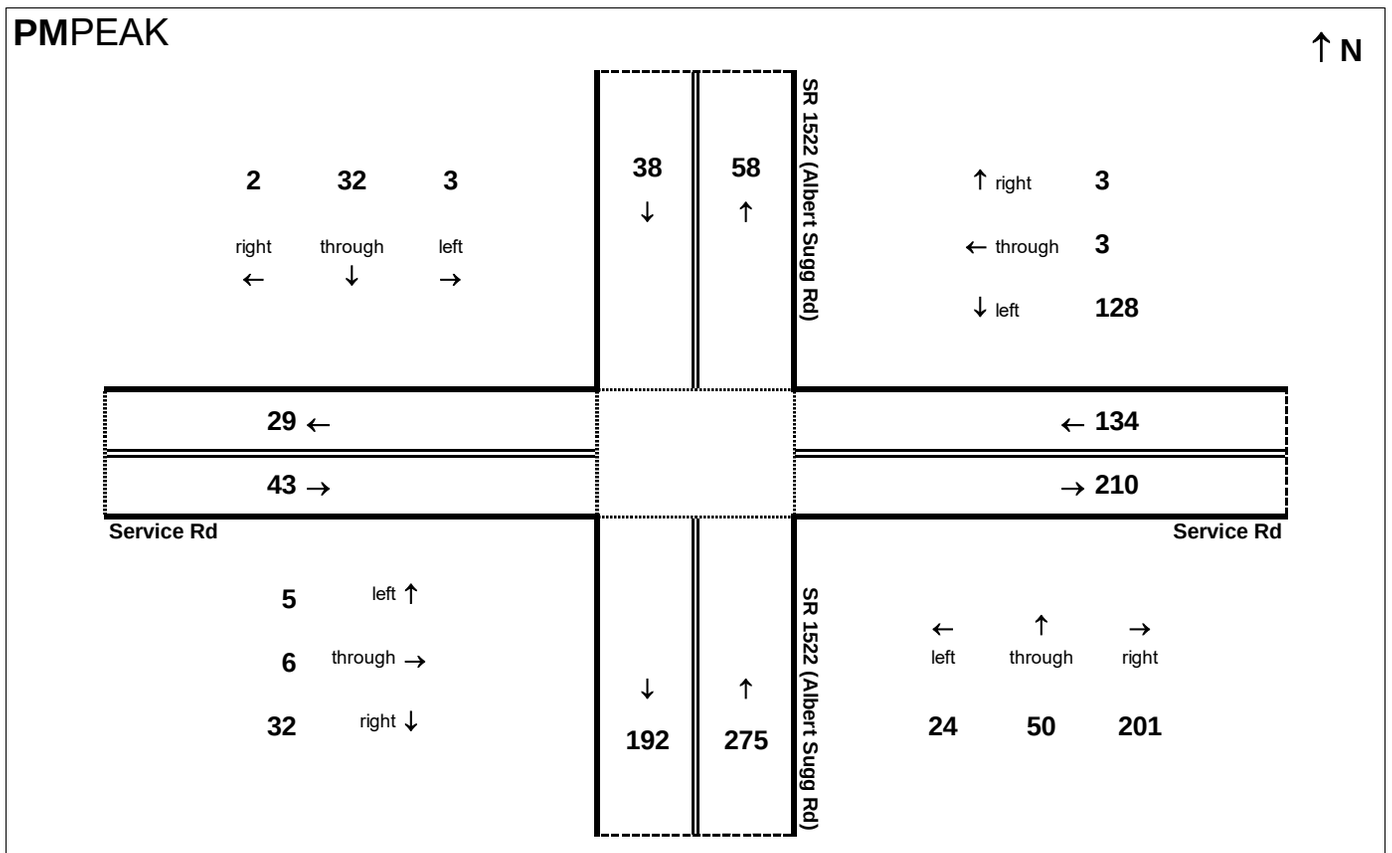


AM peak hour inflow is 489 vehicles. AM peak hour outflow is 489 vehicles.

PMPEAK



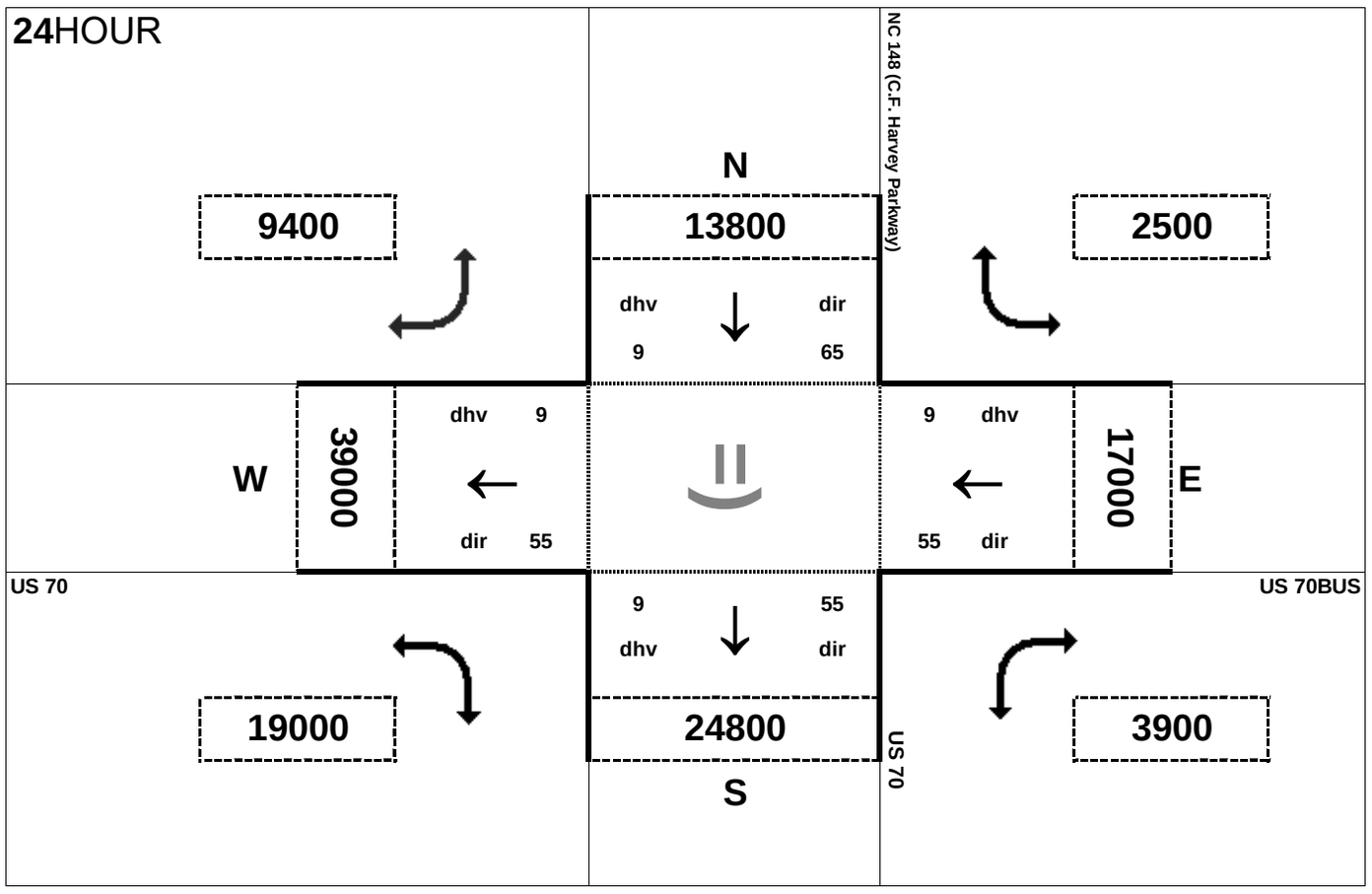
PM peak hour inflow is 489 vehicles. PM peak hour outflow is 489 vehicles.

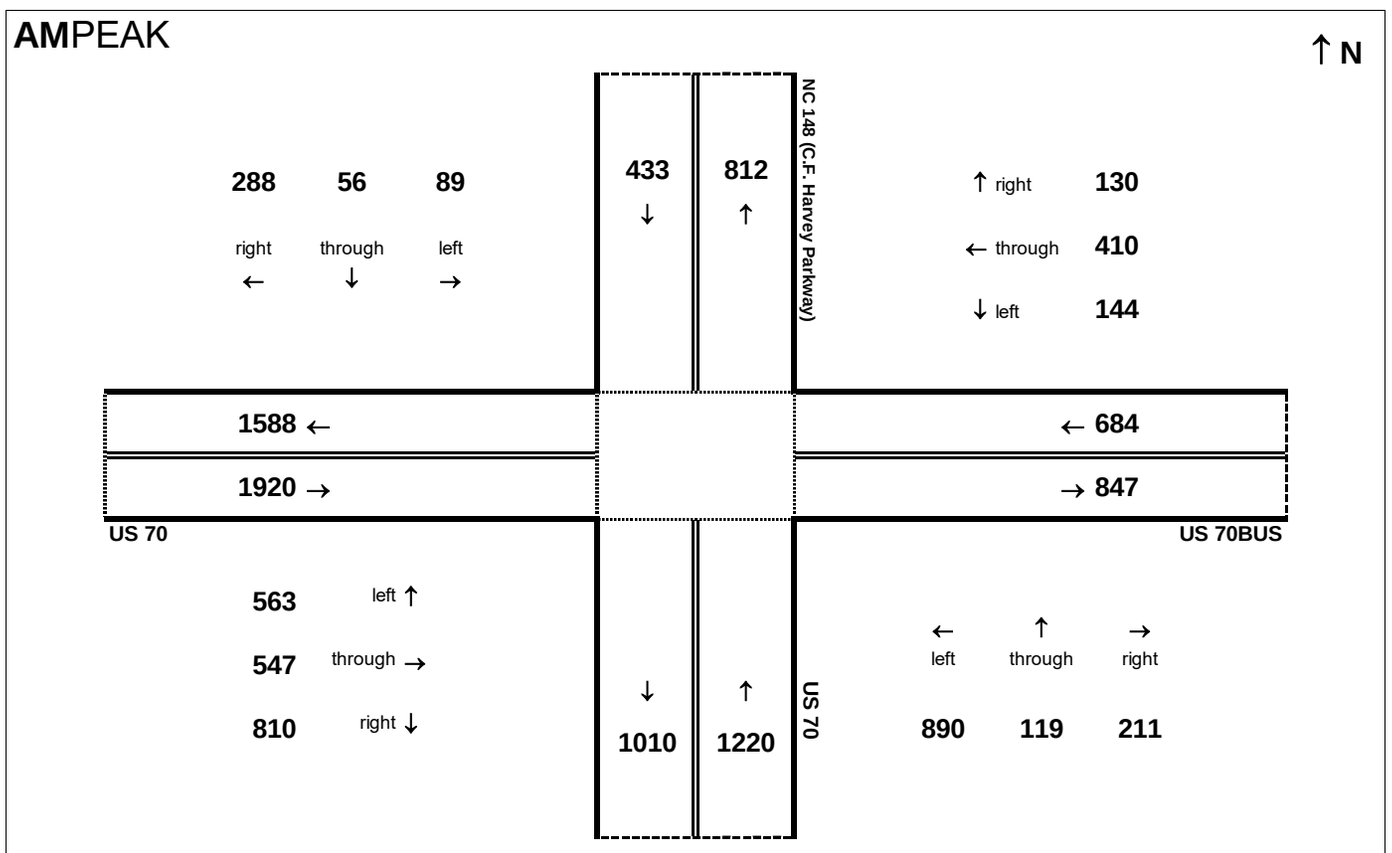
Peak Hour Volume Breakouts Report:
System 1 Intersection of US 70 and US 70BUS / NC 148 (C. F. Harvey Parkway)

Traffic Forecast Release Date:
November-16

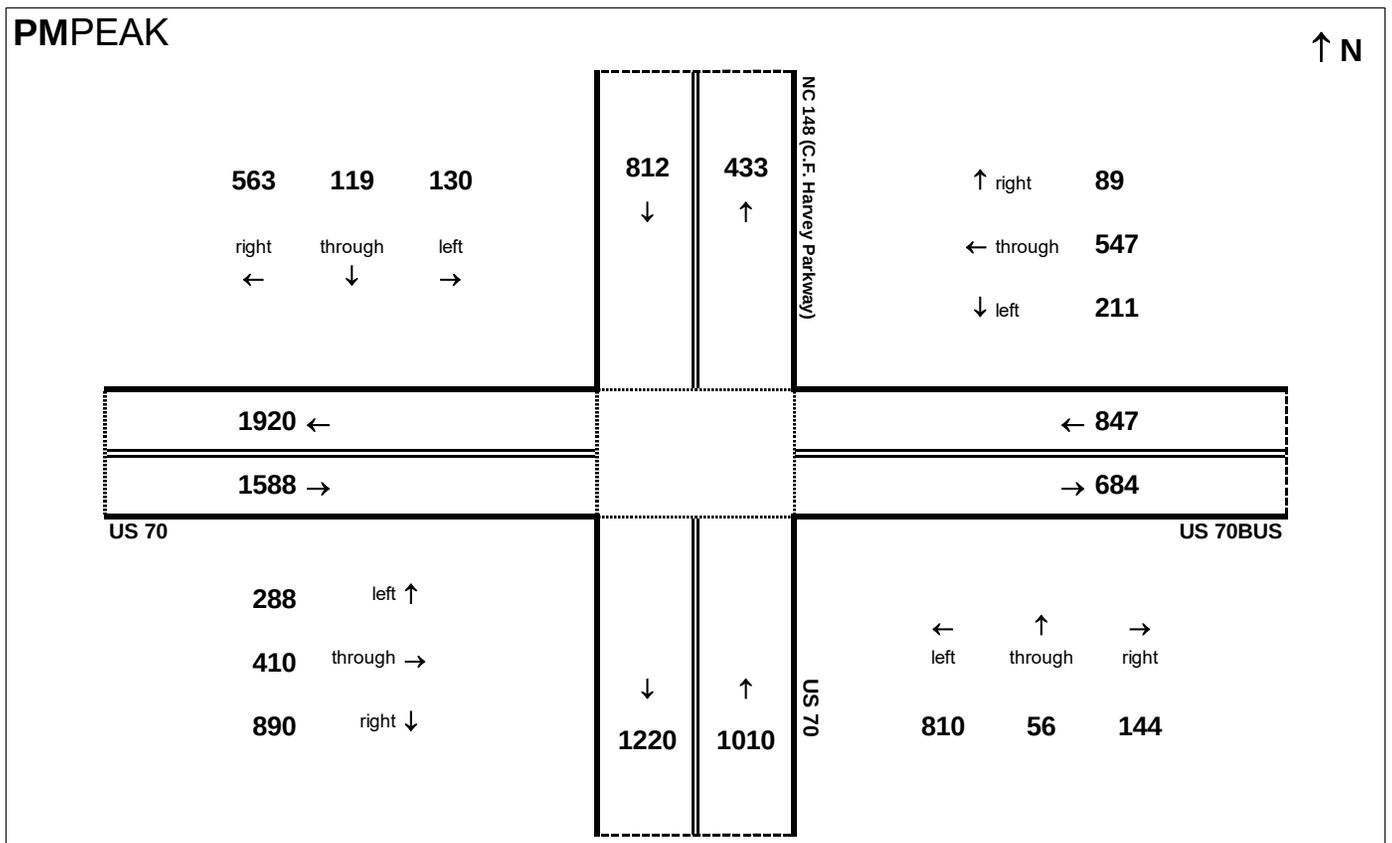
Traffic Data Year:
2040 Build Alt 11

Project:
R-2553





AM peak hour inflow is 4258 vehicles. AM peak hour outflow is 4257 vehicles.



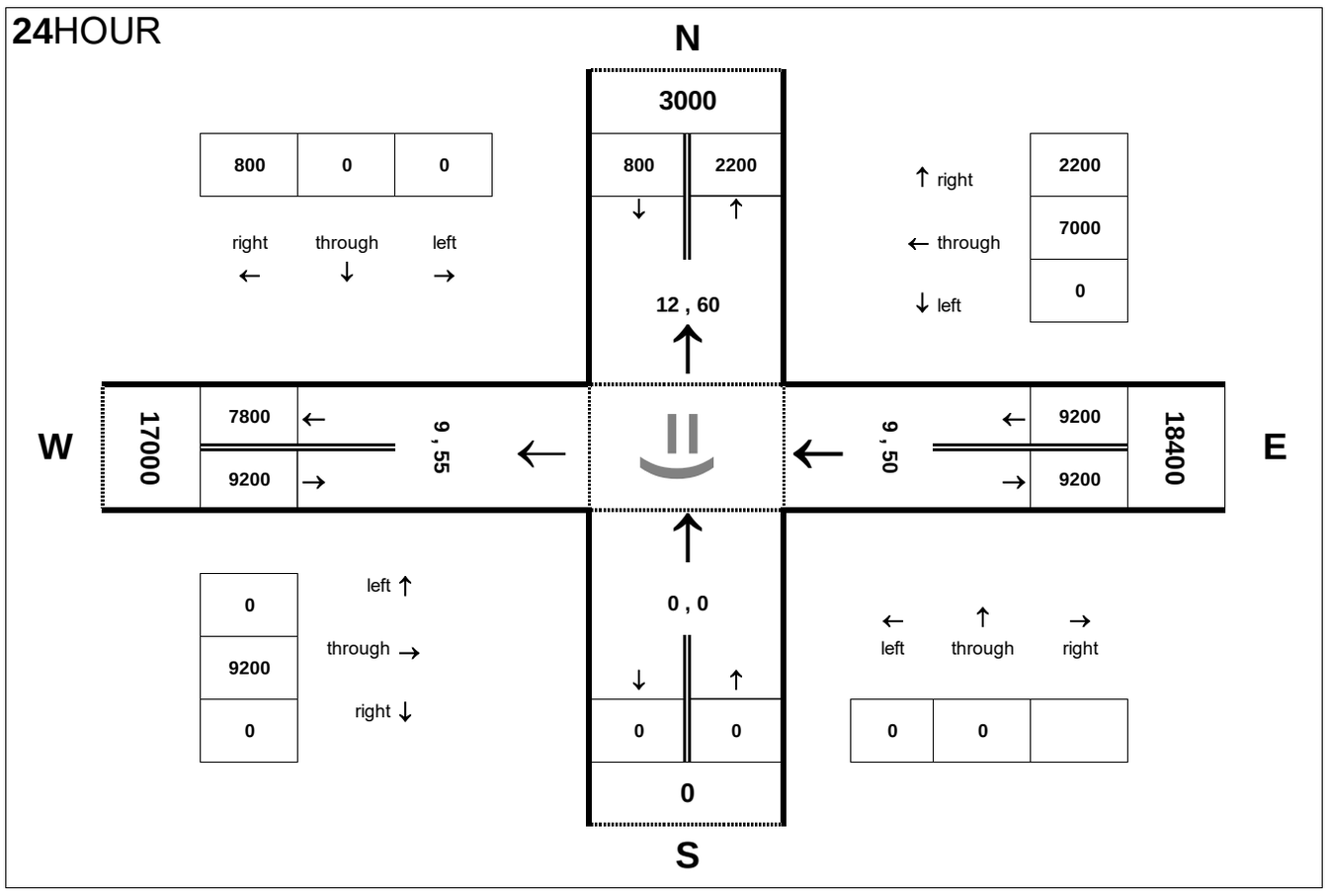
PM peak hour inflow is 4257 vehicles. PM peak hour outflow is 4258 vehicles.

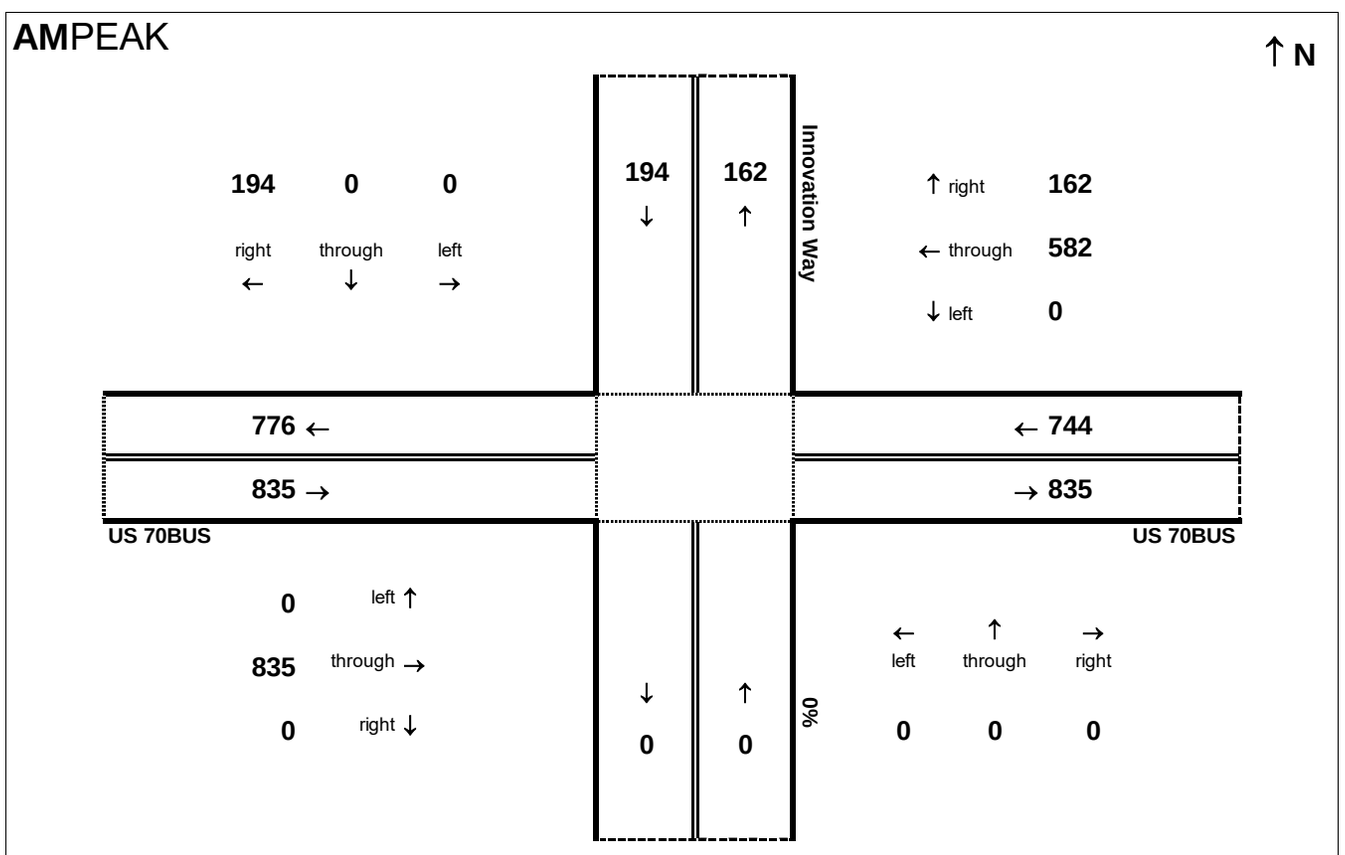
Peak Hour Volume Breakouts Report:
409 Intersection of US 70BUS and Innovation Way

Traffic Forecast Release Date:
November-16

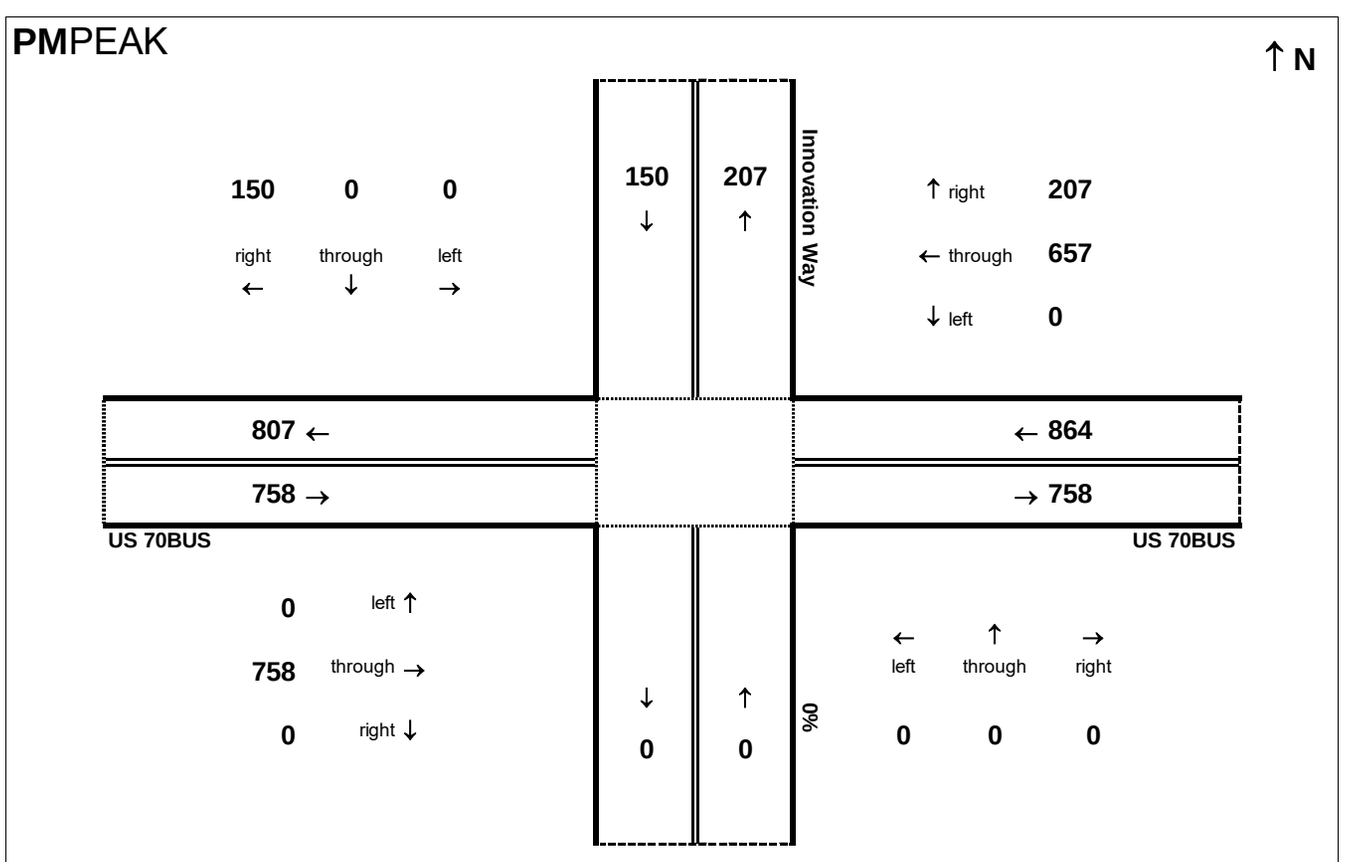
Traffic Data Year:
2040 Build Alt 11

Project:
R-2553





AM peak hour inflow is 1773 vehicles. AM peak hour outflow is 1773 vehicles.



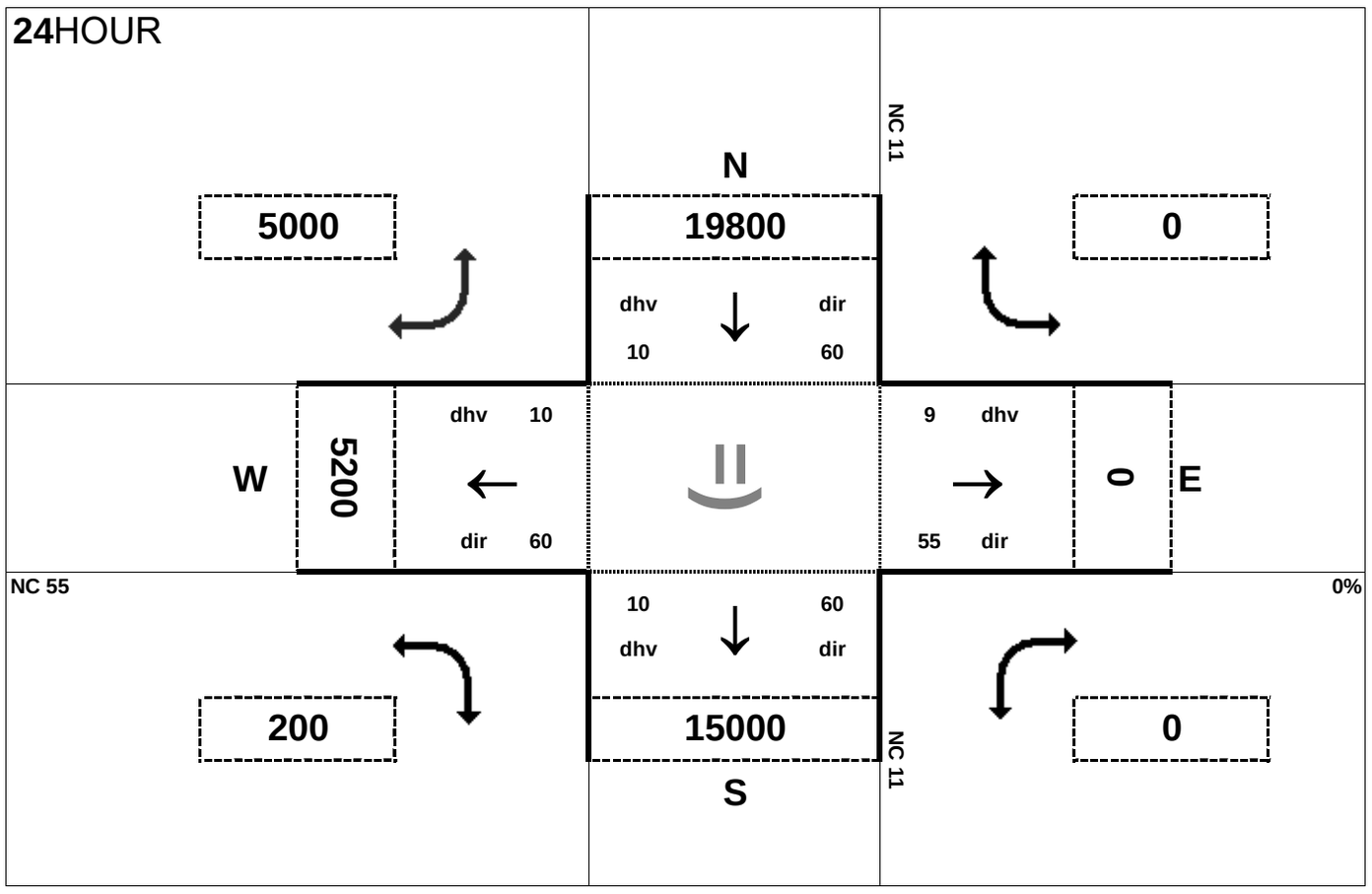
PM peak hour inflow is 1772 vehicles. PM peak hour outflow is 1772 vehicles.

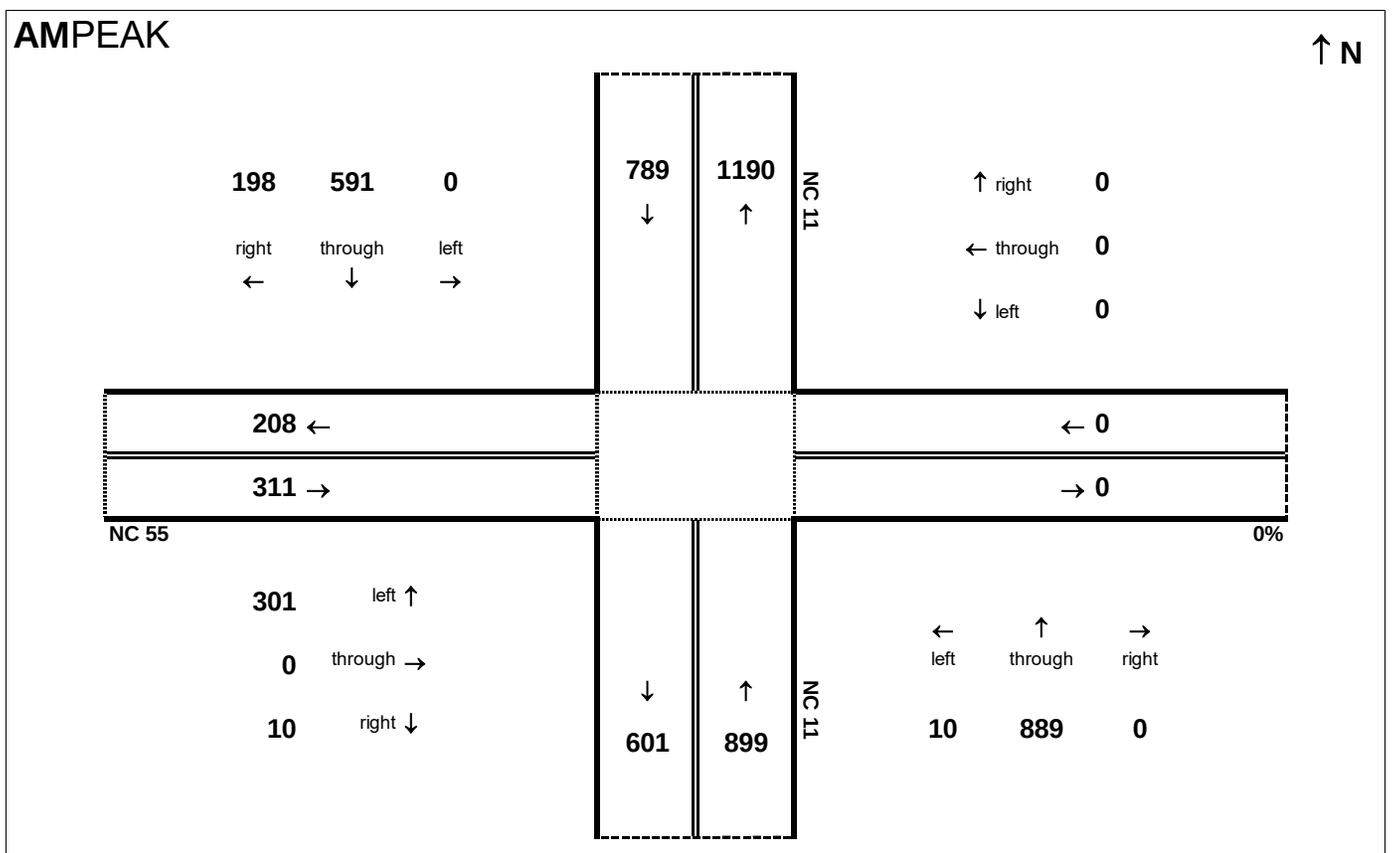
Peak Hour Volume Breakouts Report:
410 Intersection of NC 11 and NC 55

Traffic Forecast Release Date:
November-16

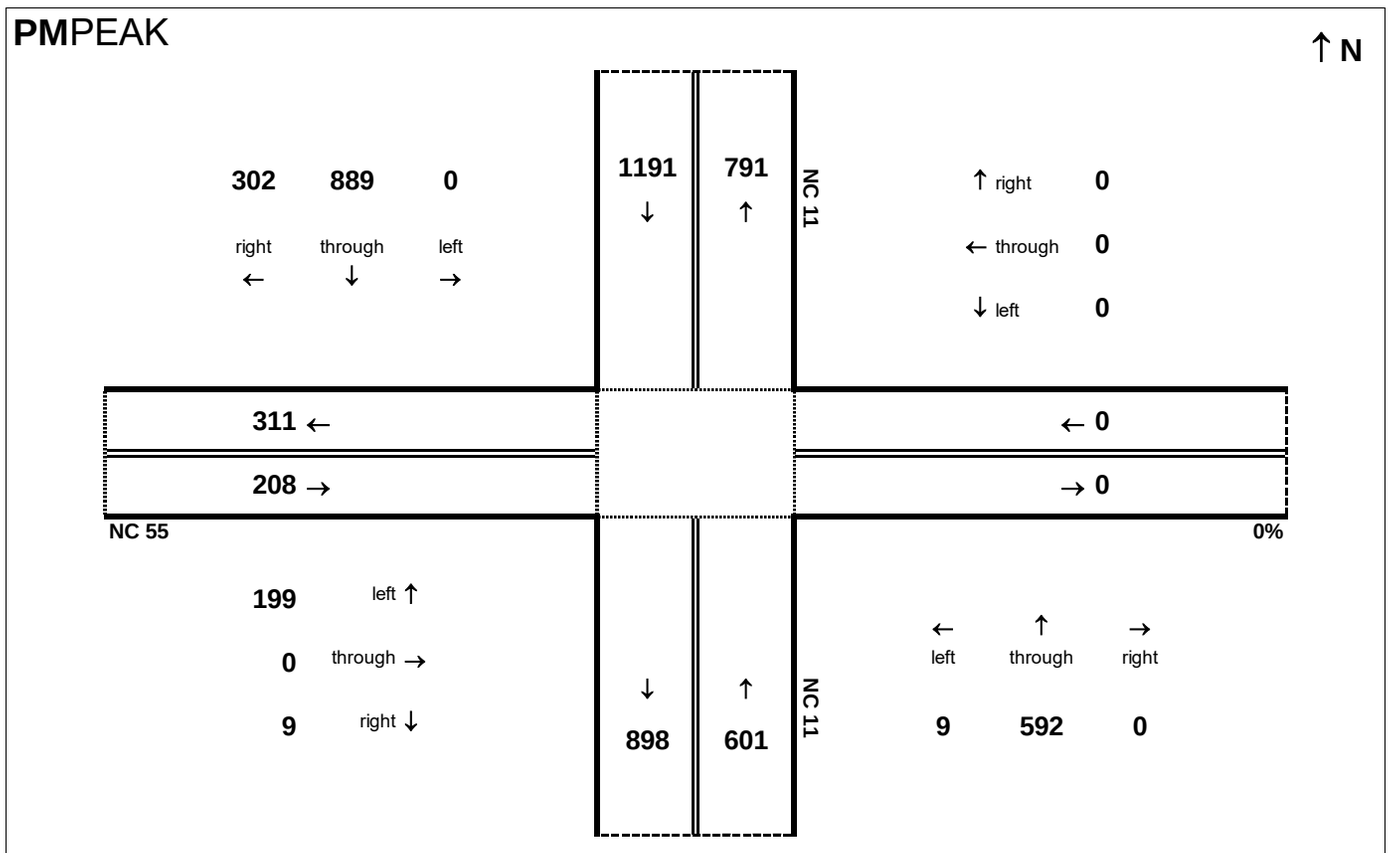
Traffic Data Year:
2040 Build Alt 11

Project:
R-2553





AM peak hour inflow is 2000 vehicles. AM peak hour outflow is 2001 vehicles.



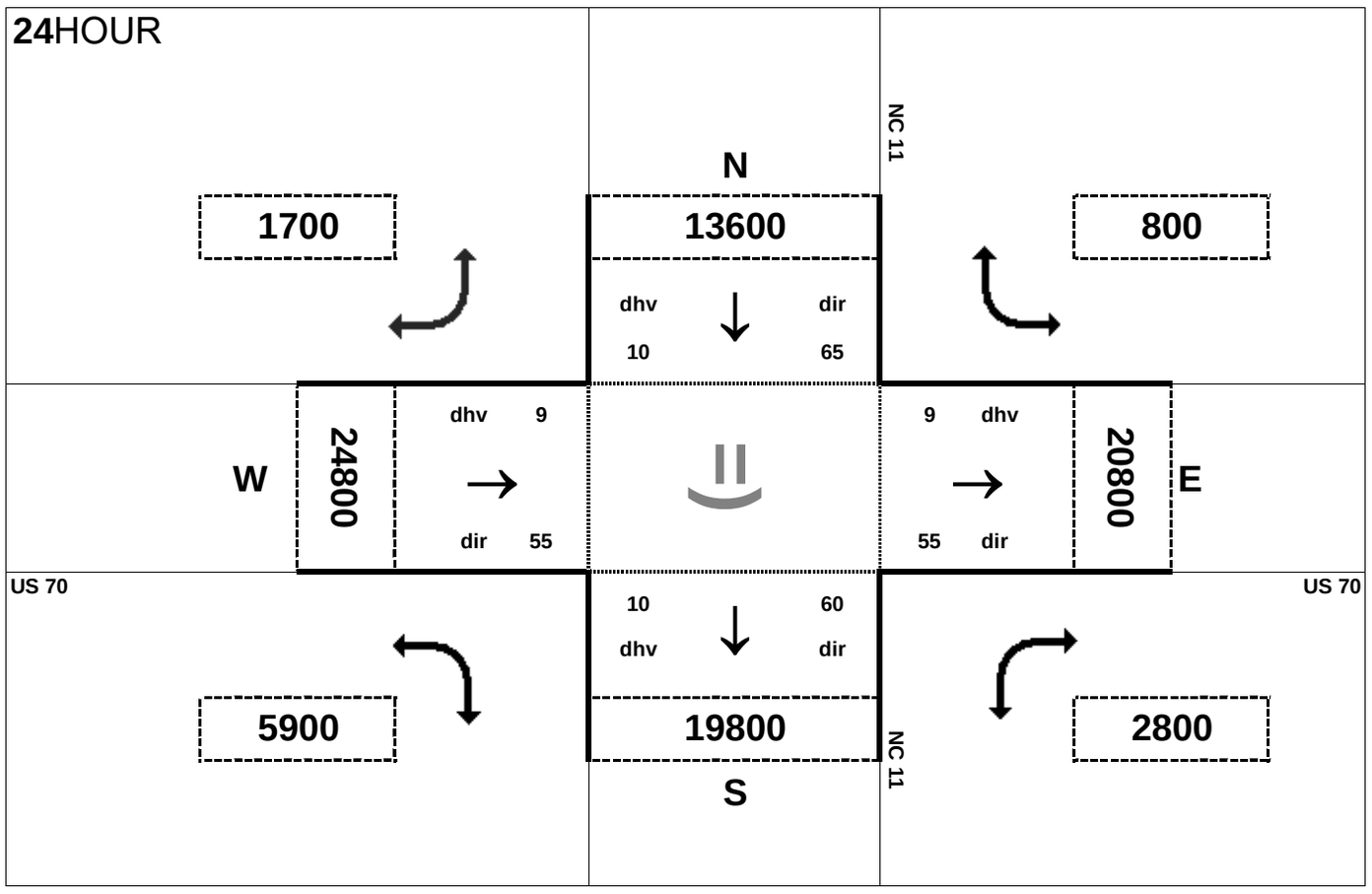
PM peak hour inflow is 1999 vehicles. PM peak hour outflow is 2000 vehicles.

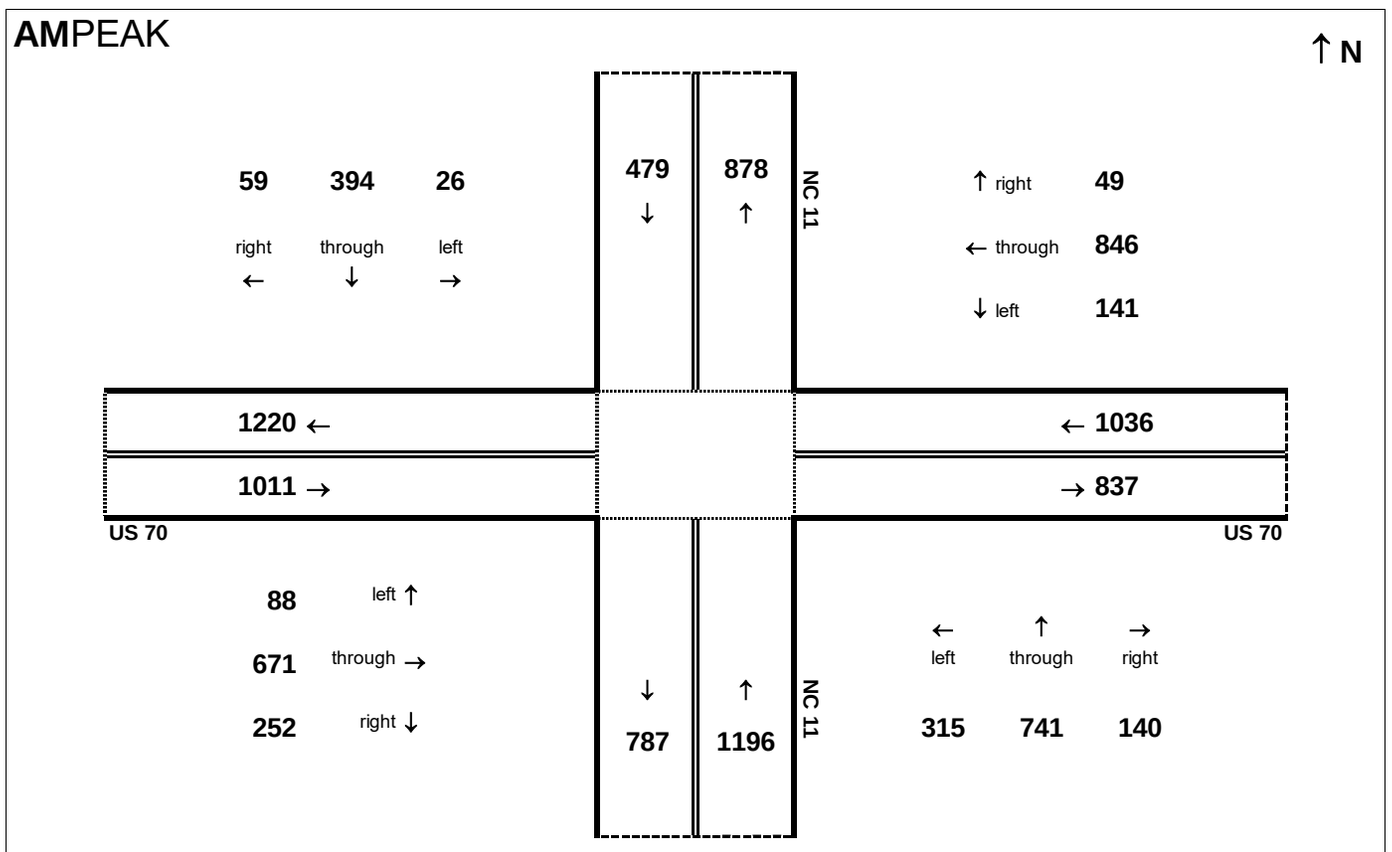
Peak Hour Volume Breakouts Report:
411-12 Intersection of US 70 and NC 11

Traffic Forecast Release Date:
November-16

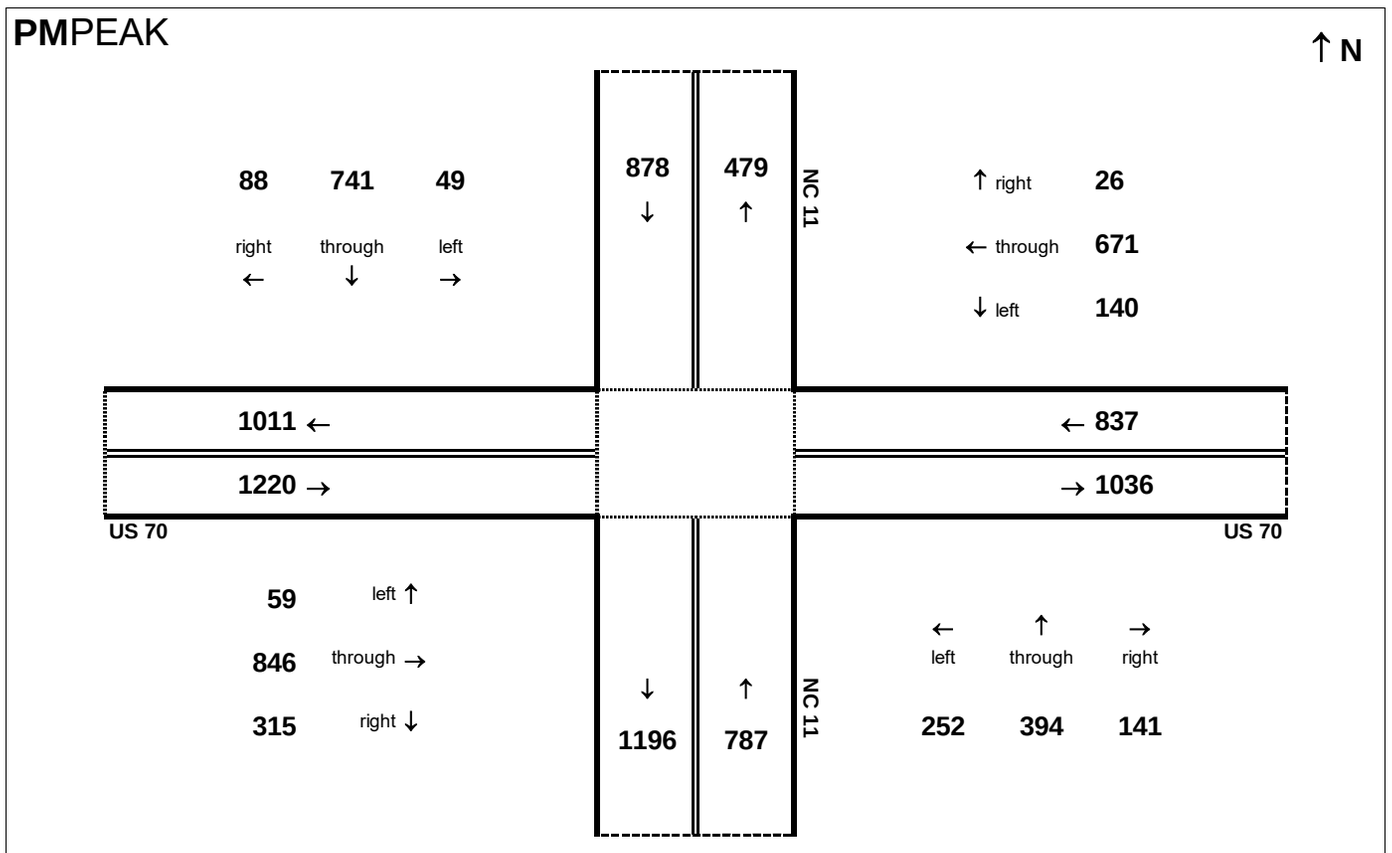
Traffic Data Year:
2040 Build Alt 11

Project:
R-2553





AM peak hour inflow is 3722 vehicles. AM peak hour outflow is 3722 vehicles.



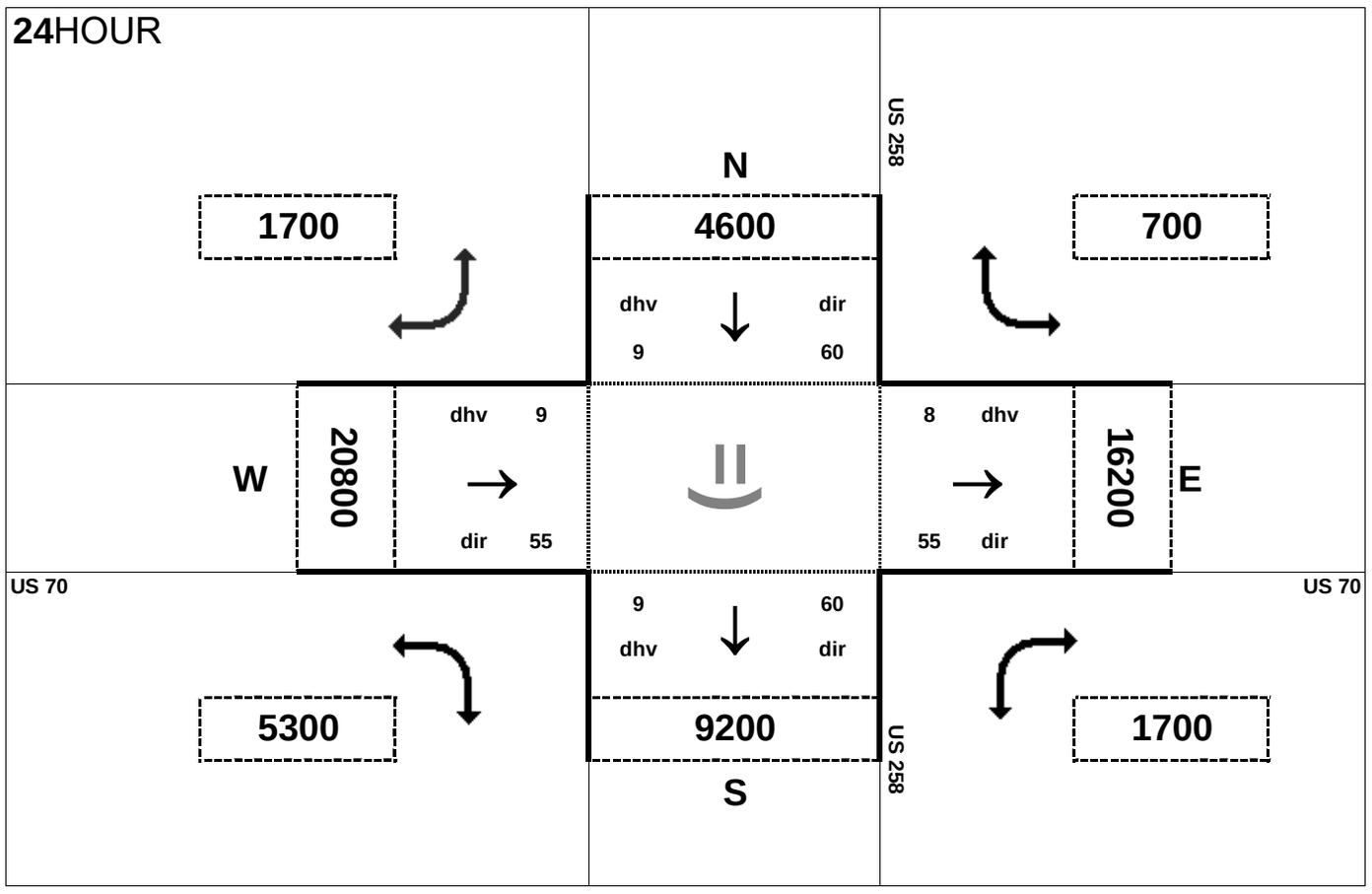
PM peak hour inflow is 3722 vehicles. PM peak hour outflow is 3722 vehicles.

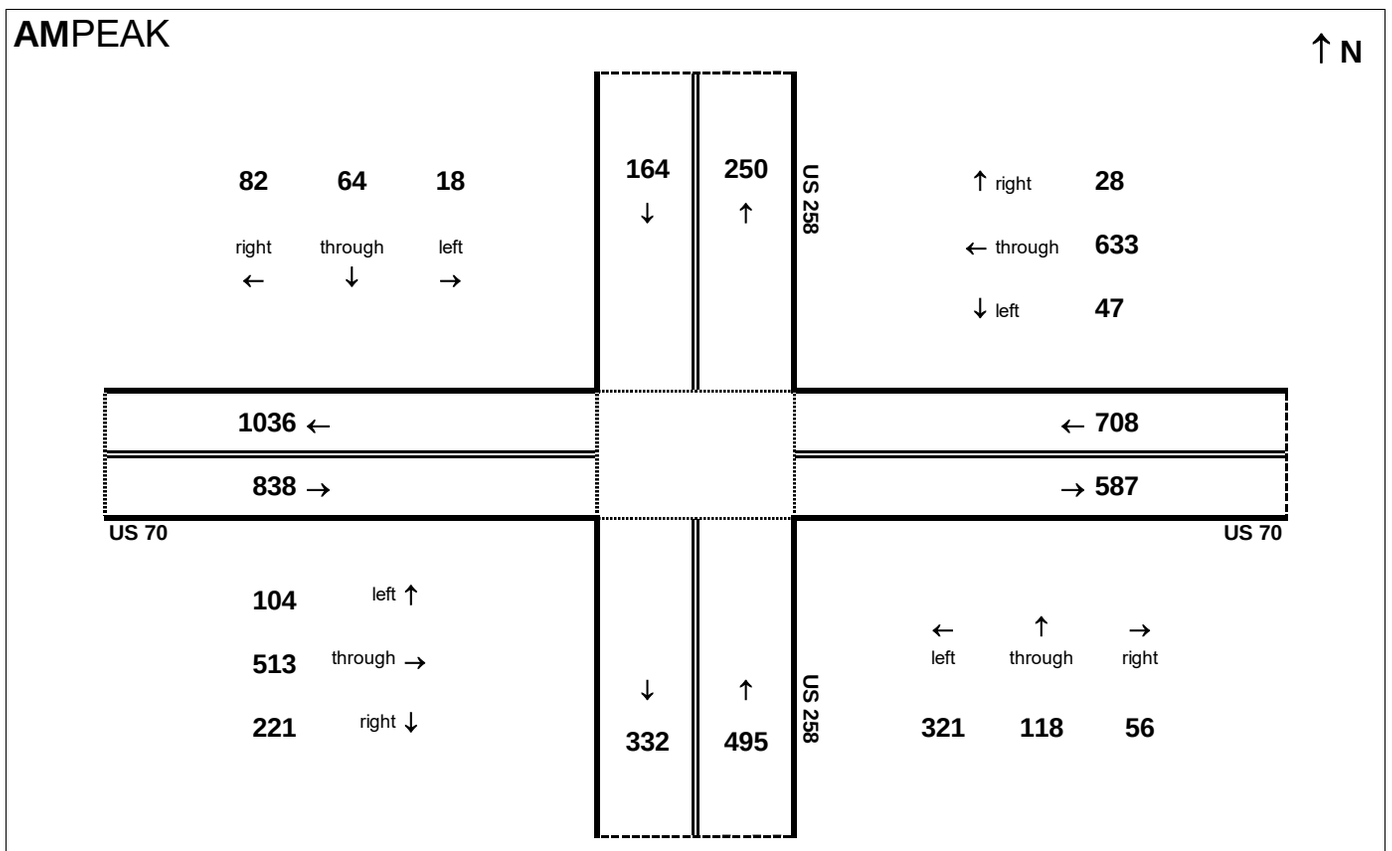
Peak Hour Volume Breakouts Report:
413-14 Intersection of US 70 and US 258

Traffic Forecast Release Date:
November-16

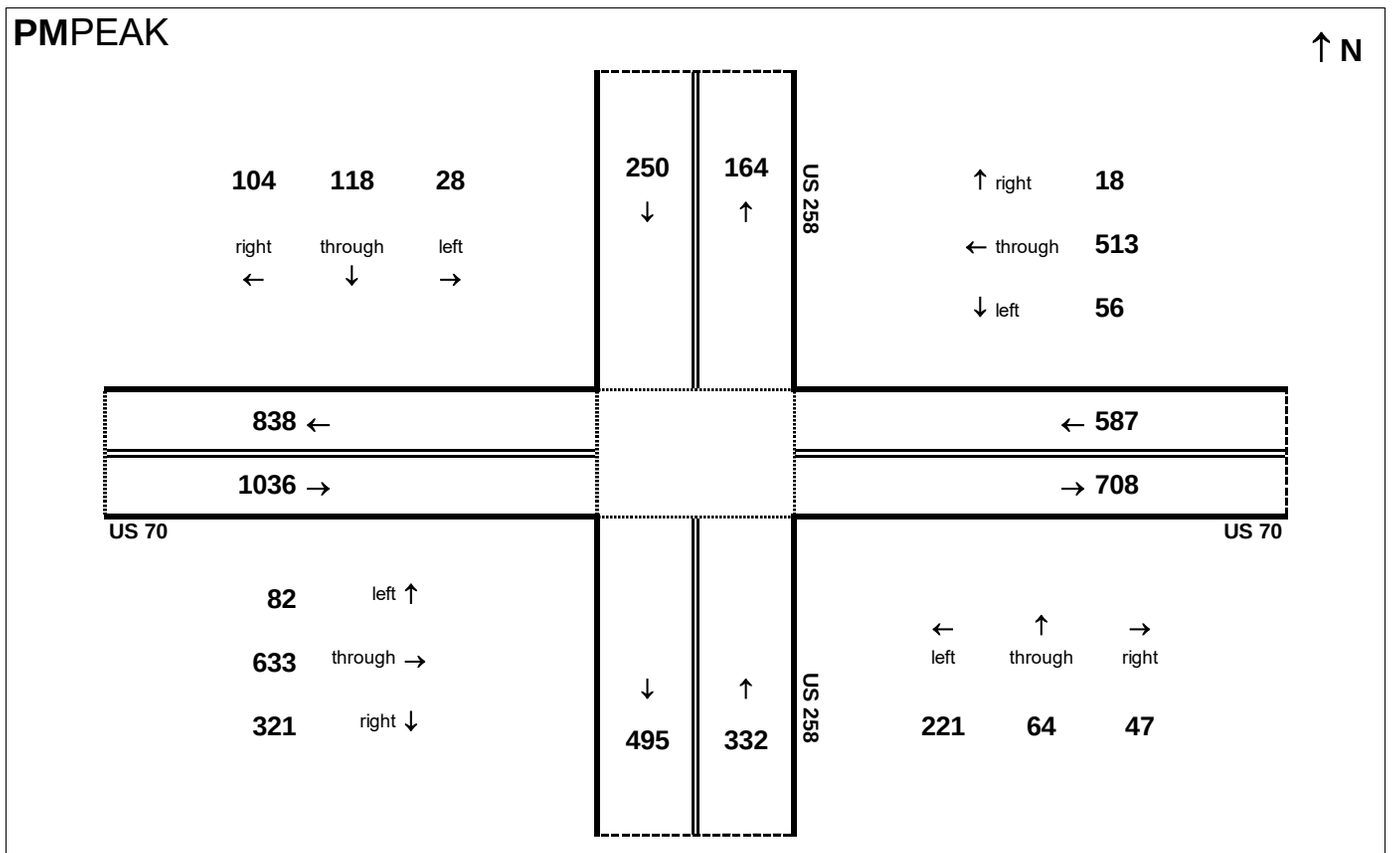
Traffic Data Year:
2040 Build Alt 11

Project:
R-2553





AM peak hour inflow is 2206 vehicles. AM peak hour outflow is 2206 vehicles.



PM peak hour inflow is 2206 vehicles. PM peak hour outflow is 2206 vehicles.

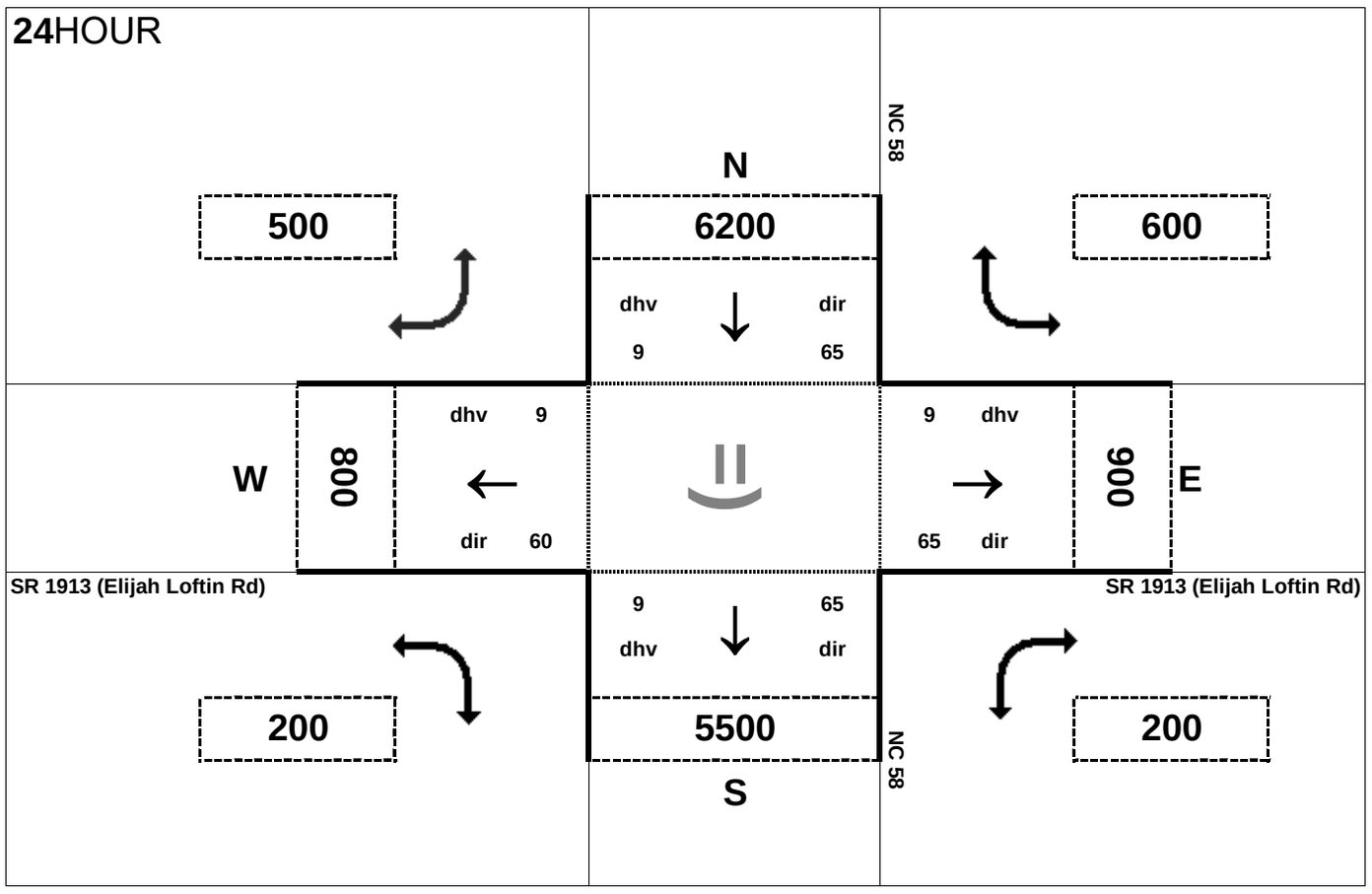
Peak Hour Volume Breakouts Report:
415 Intersection of NC 58 and SR 1913 (Elijah Loftin Rd)

Traffic Forecast Release Date:
November-16

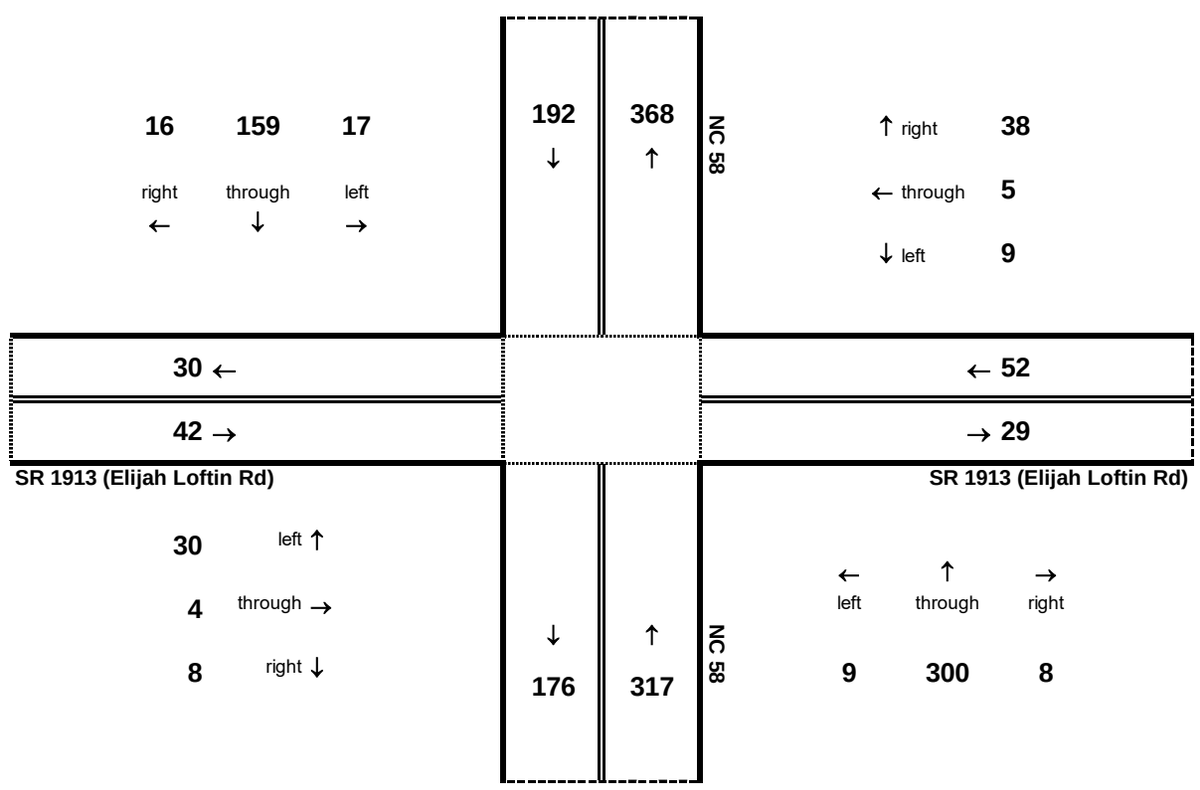
Traffic Data Year:
2040 Build Alt 11

Project:
R-2553

24HOUR

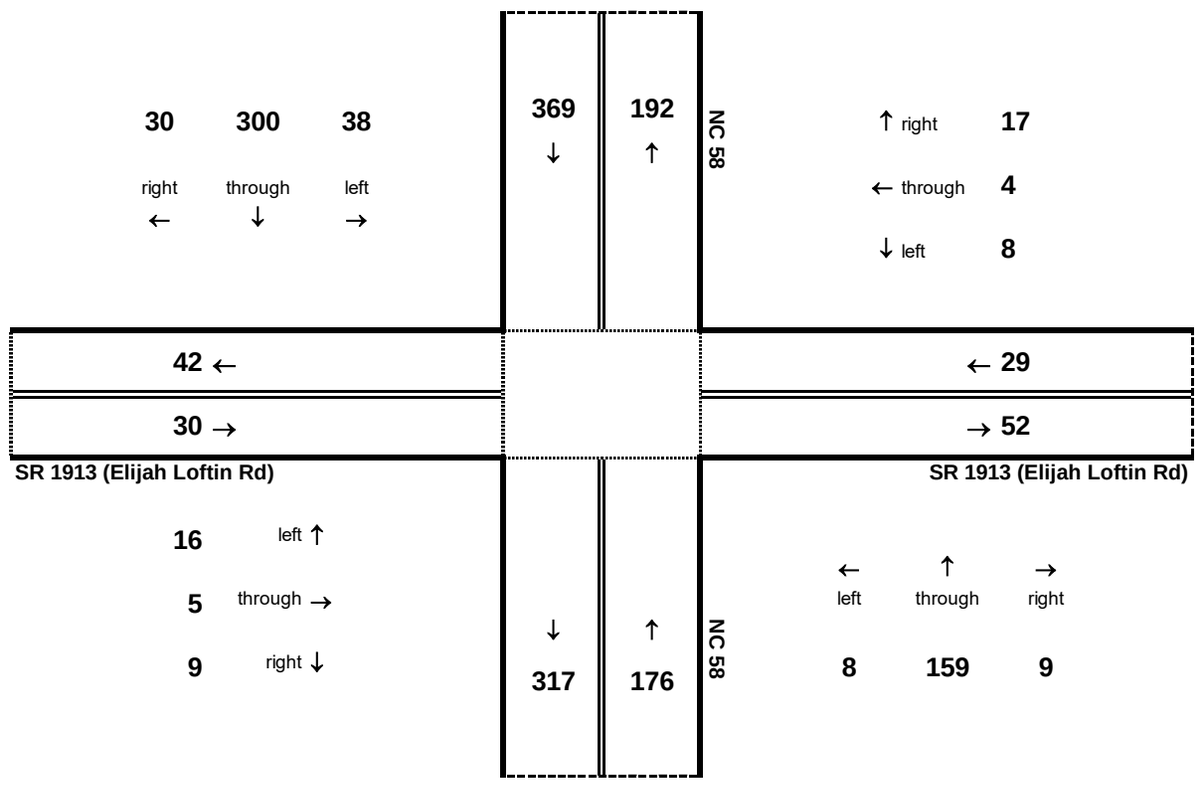


AMPEAK



AM peak hour inflow is 604 vehicles. AM peak hour outflow is 603 vehicles.

PMPEAK



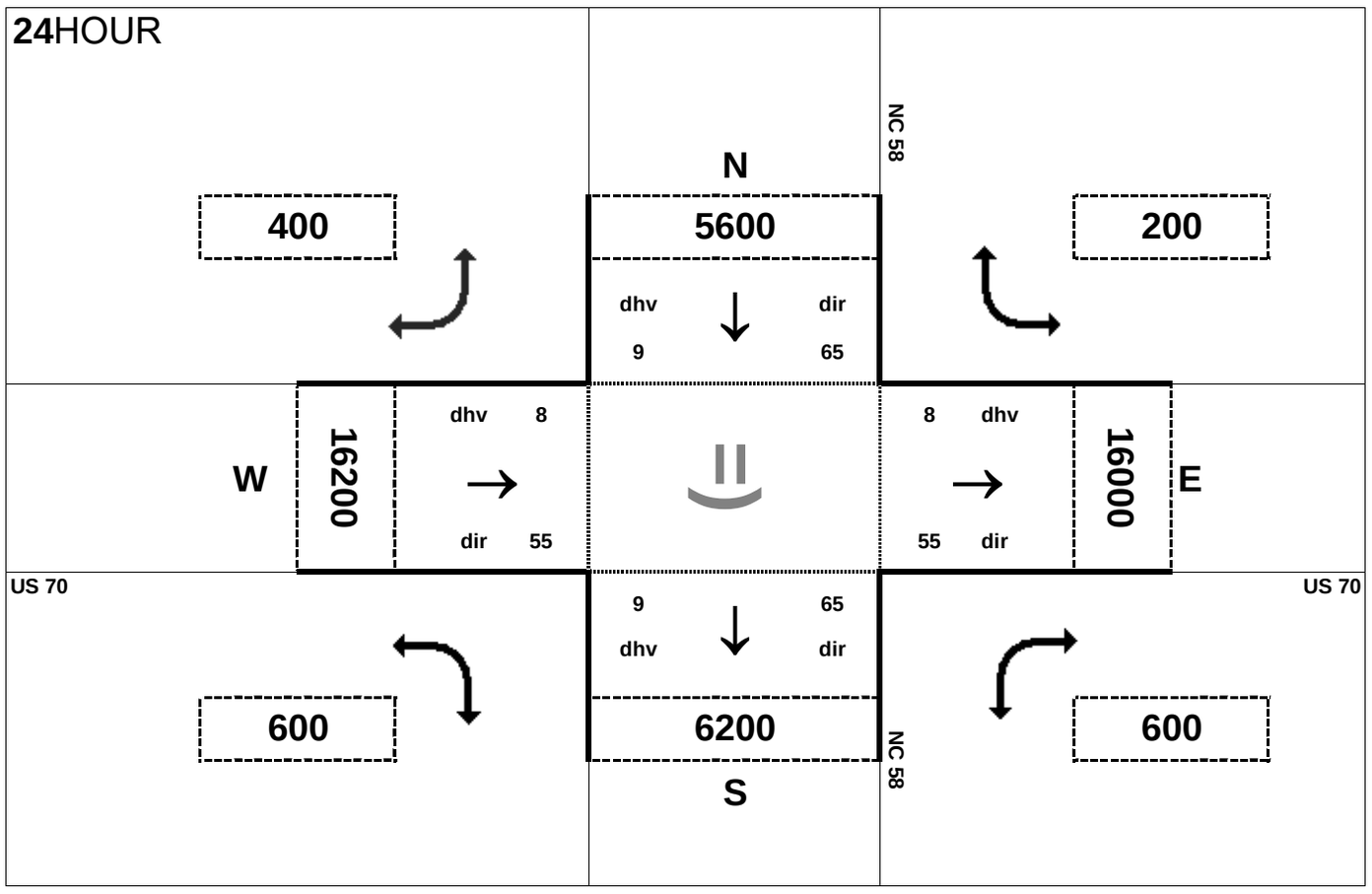
PM peak hour inflow is 603 vehicles. PM peak hour outflow is 604 vehicles.

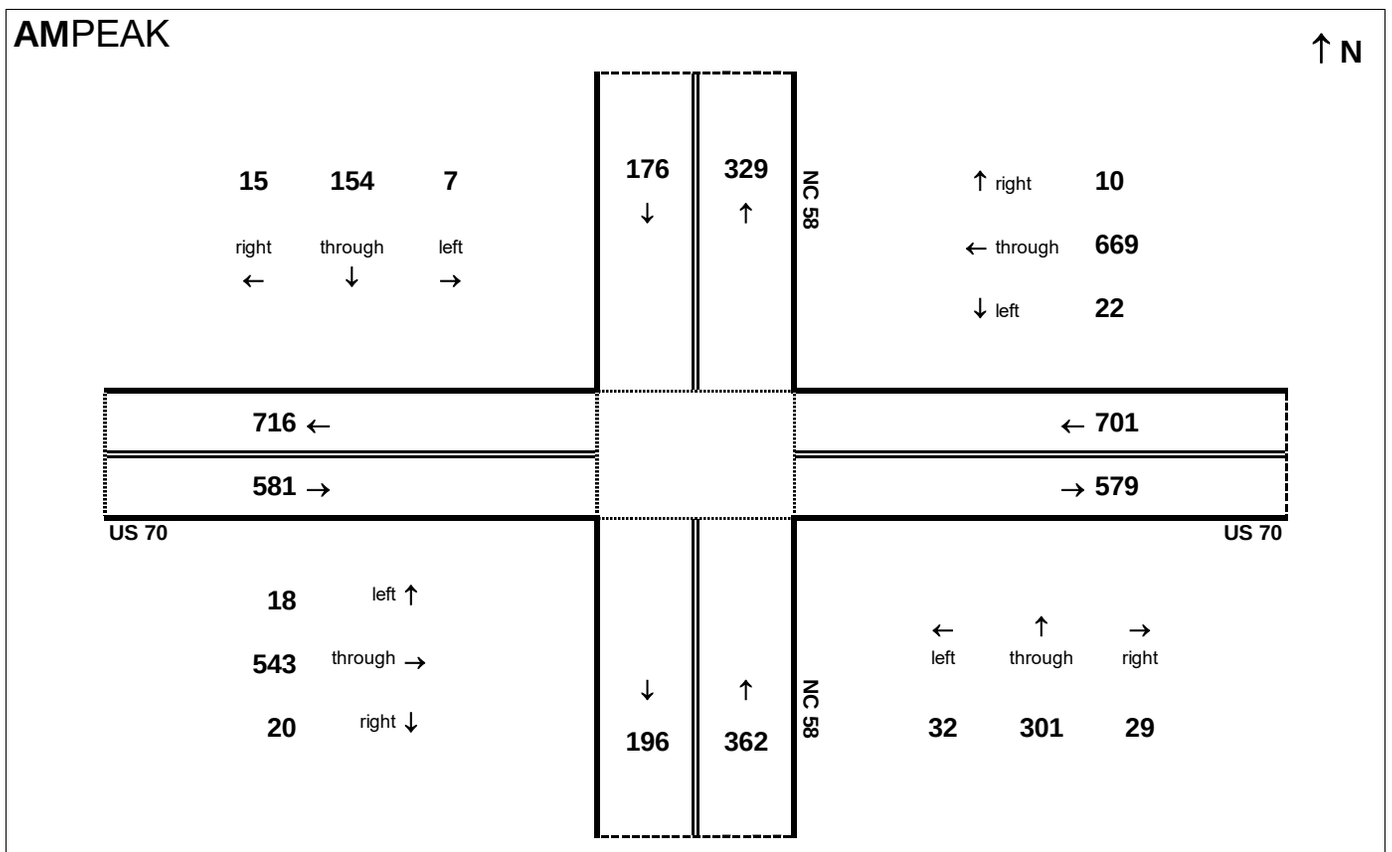
Peak Hour Volume Breakouts Report:
416-17 Intersection of US 70 and NC 58

Traffic Forecast Release Date:
November-16

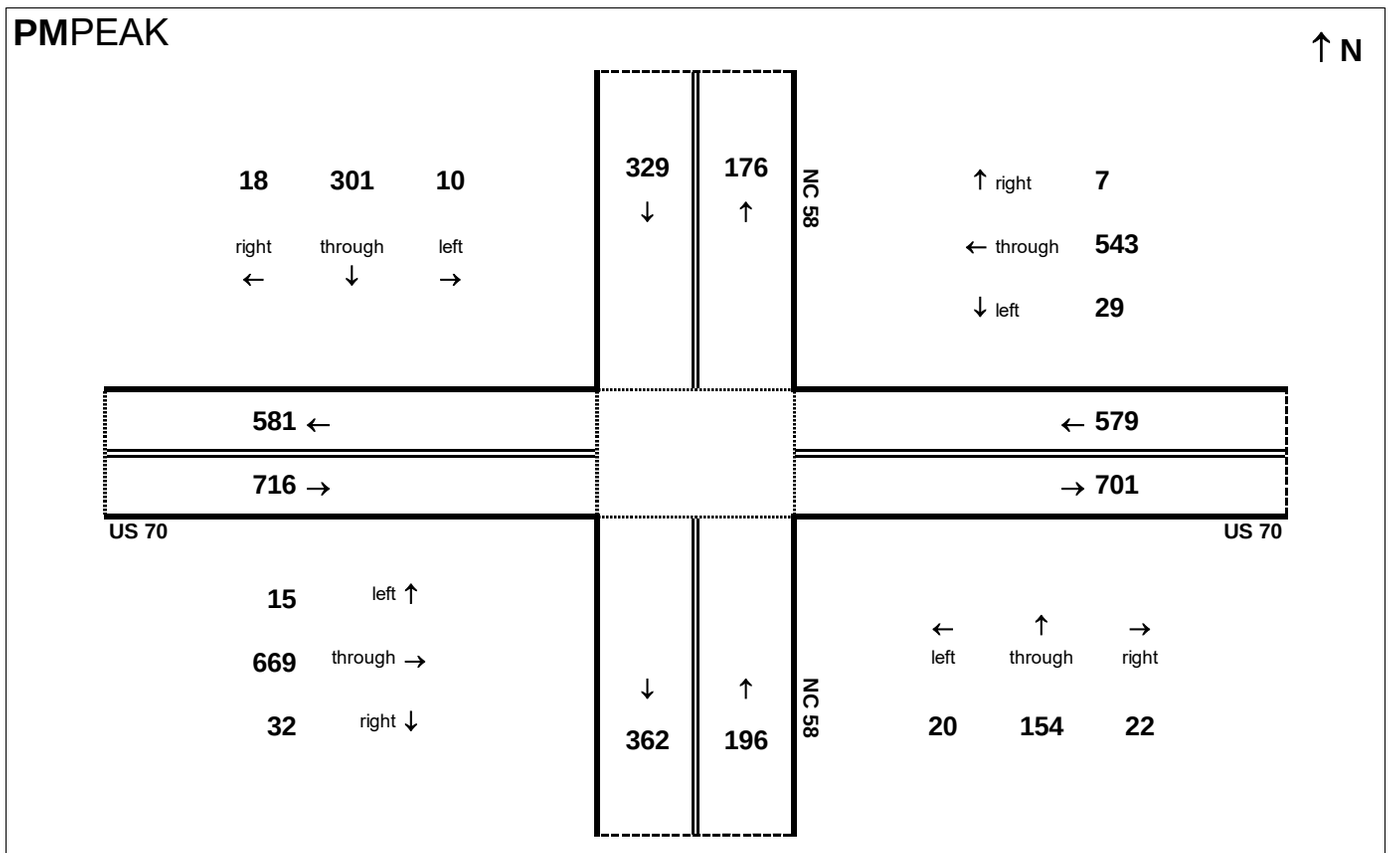
Traffic Data Year:
2040 Build Alt 11

Project:
R-2553





AM peak hour inflow is 1819 vehicles. AM peak hour outflow is 1819 vehicles.



PM peak hour inflow is 1819 vehicles. PM peak hour outflow is 1819 vehicles.

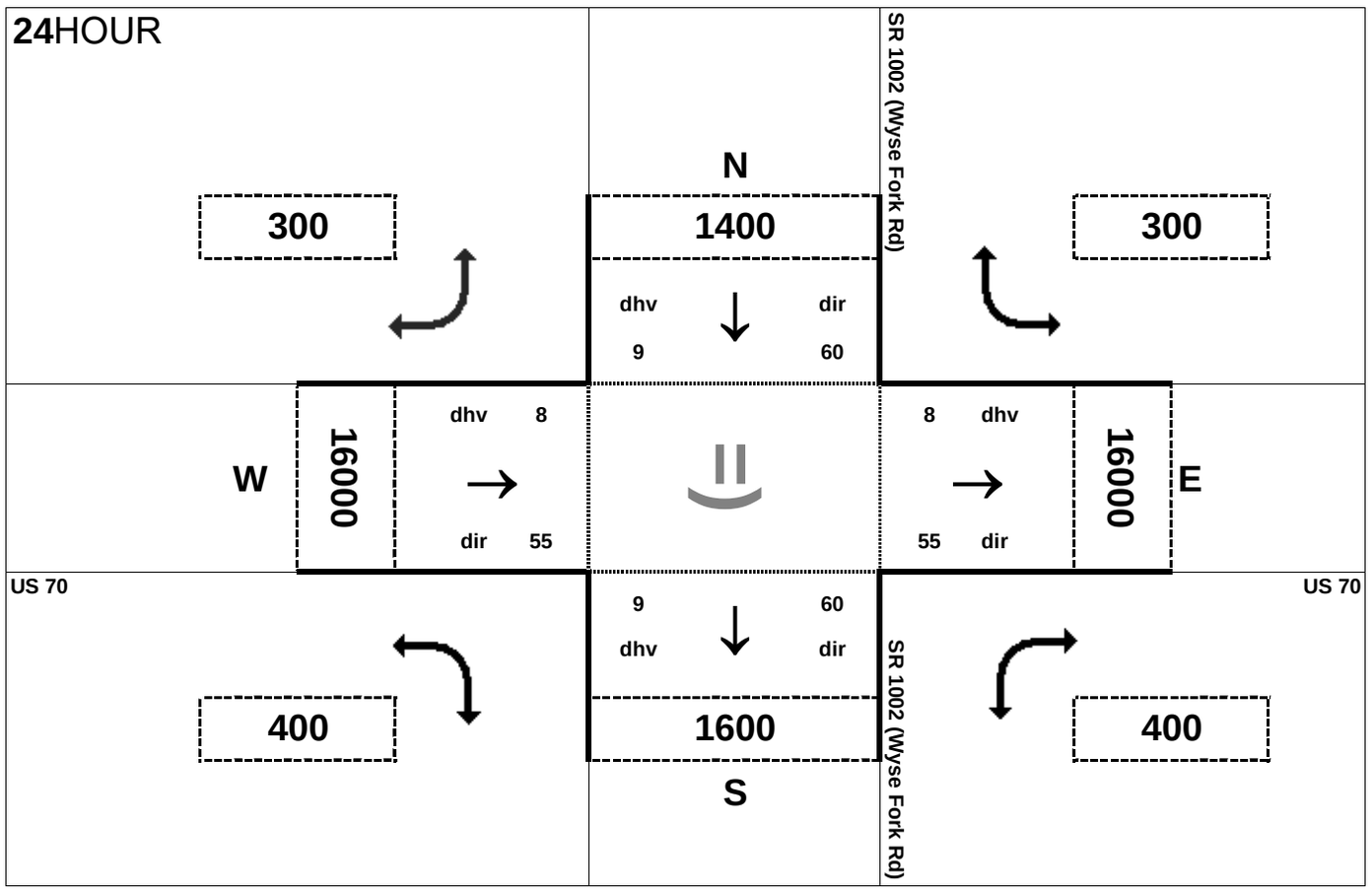
Peak Hour Volume Breakouts Report:
418-19 Intersection of US 70 and SR 1002 (Wyse Fork Rd)

Traffic Forecast Release Date:
November-16

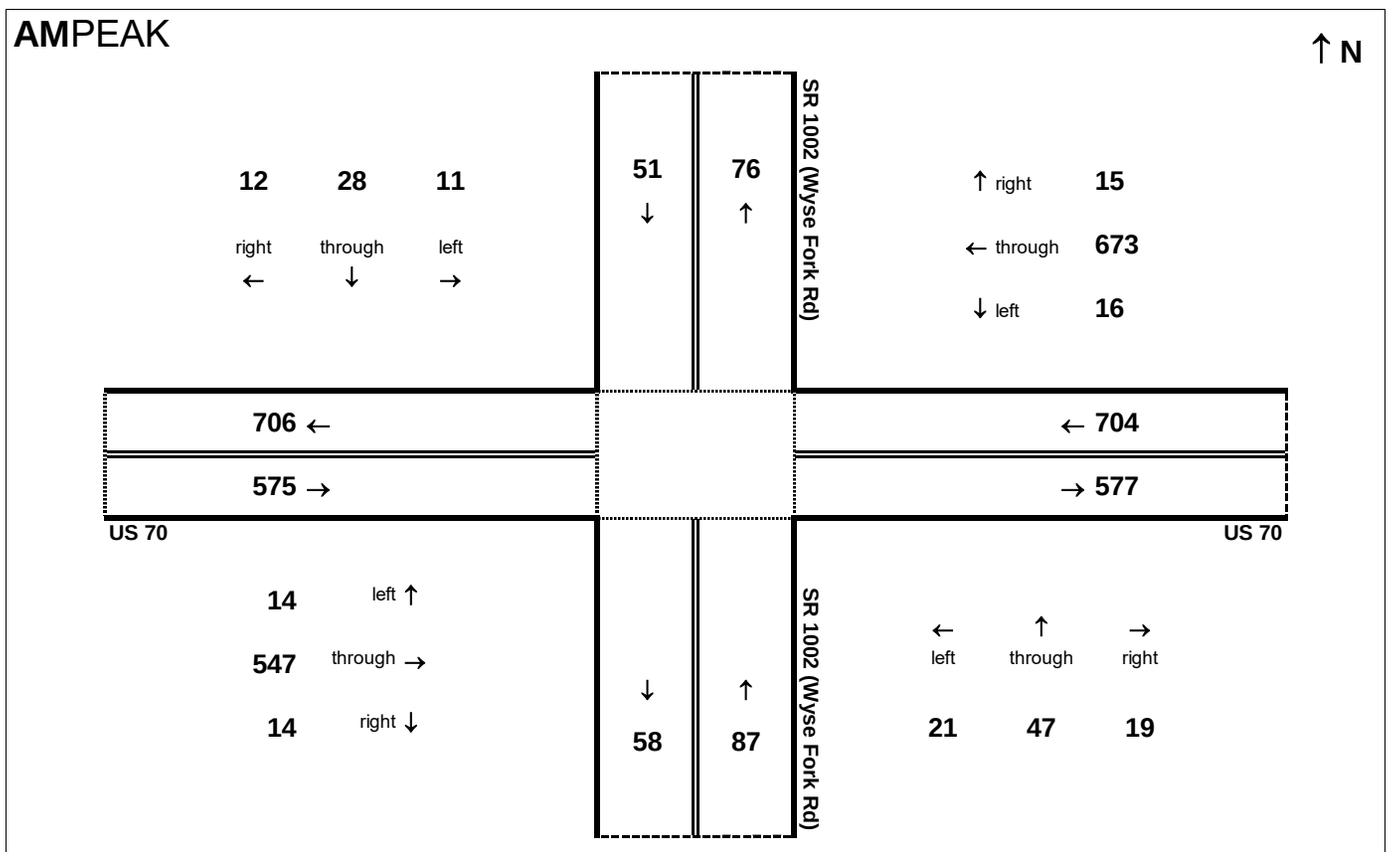
Traffic Data Year:
2040 Build Alt 11

Project:
R-2553

24HOUR

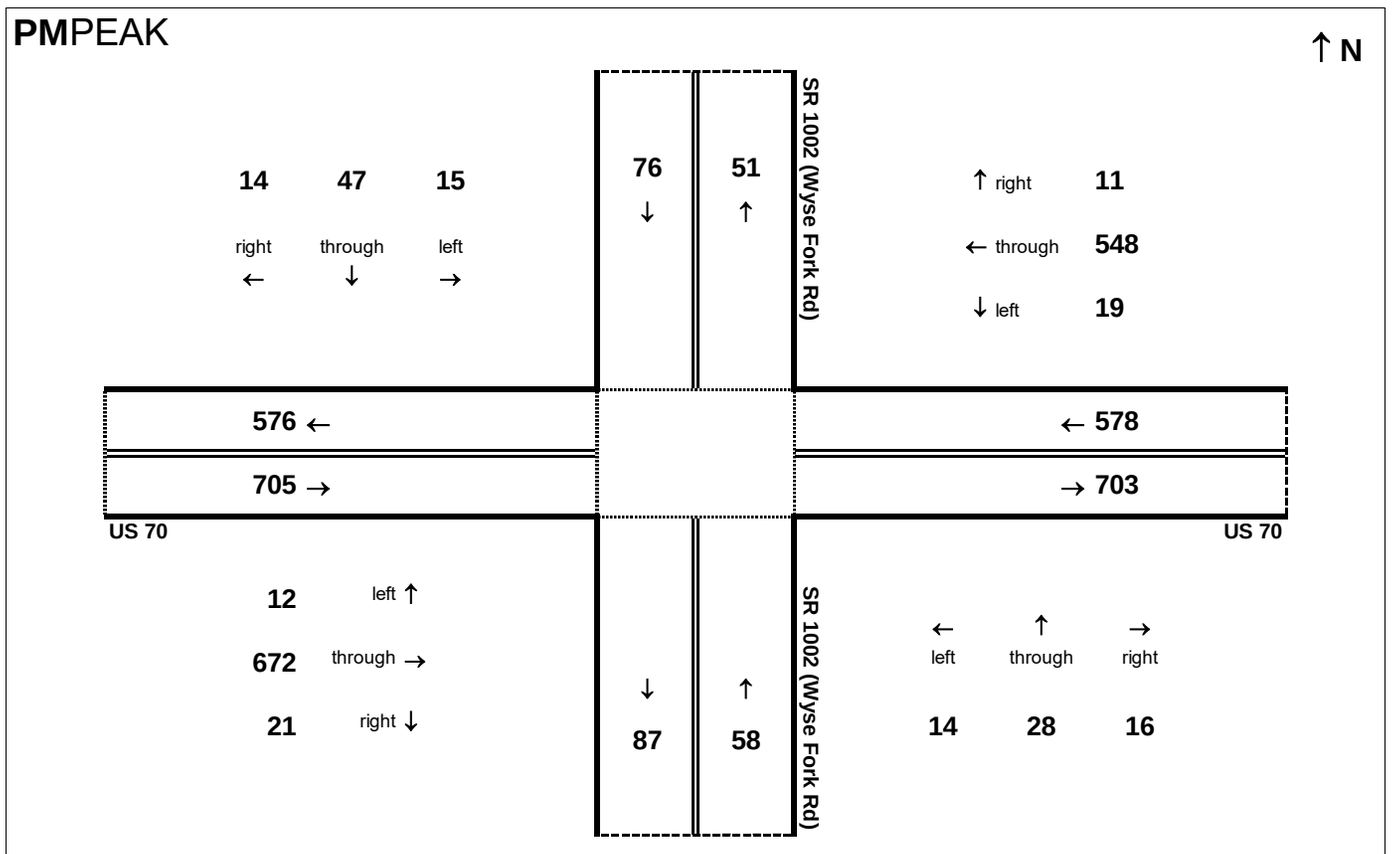


AMPEAK



AM peak hour inflow is 1414 vehicles. AM peak hour outflow is 1416 vehicles.

PMPEAK



PM peak hour inflow is 1416 vehicles. PM peak hour outflow is 1414 vehicles.

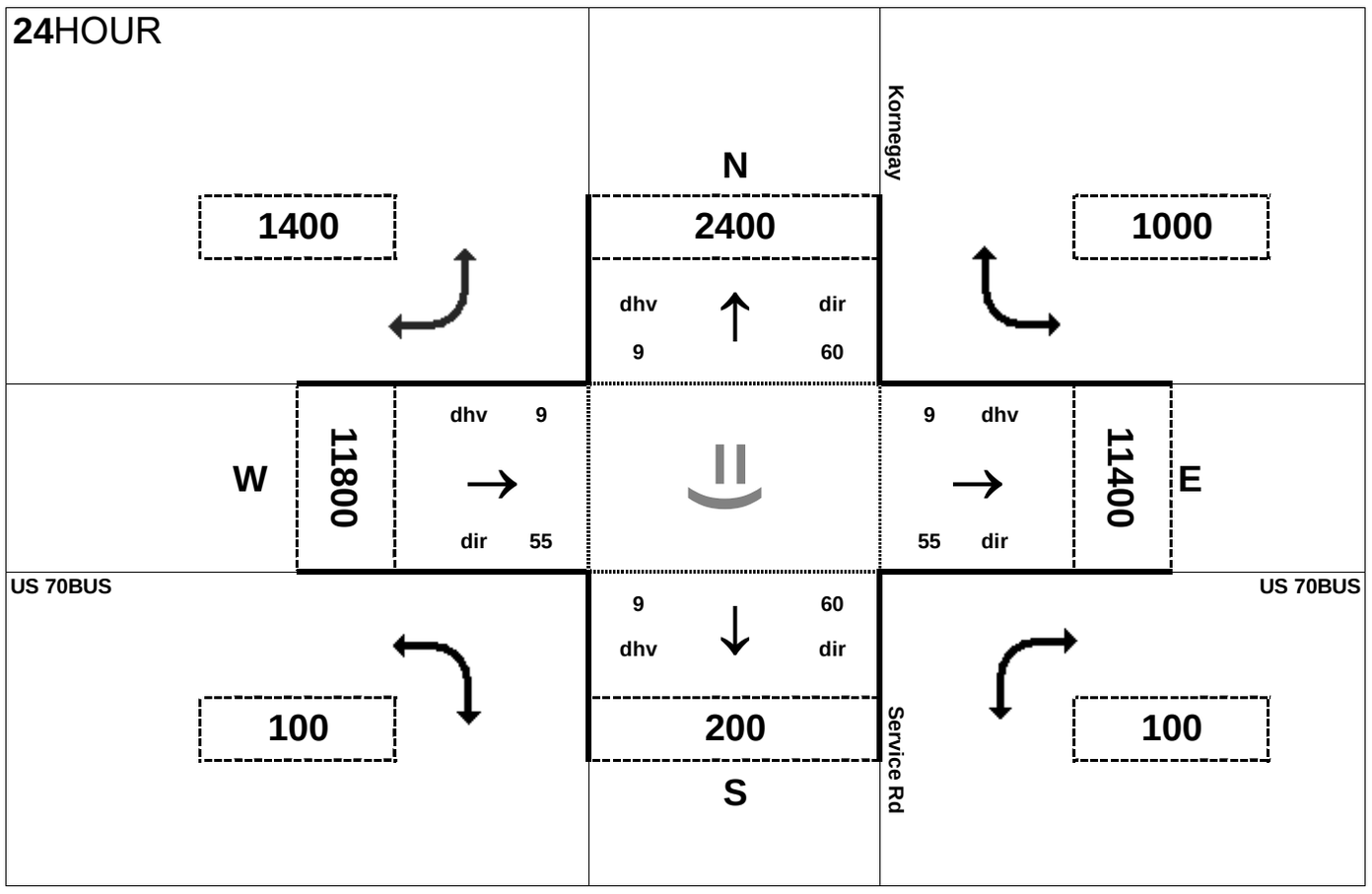
Peak Hour Volume Breakouts Report:
420 Intersection of US 70BUS and Kornegay St

Traffic Forecast Release Date:
November-16

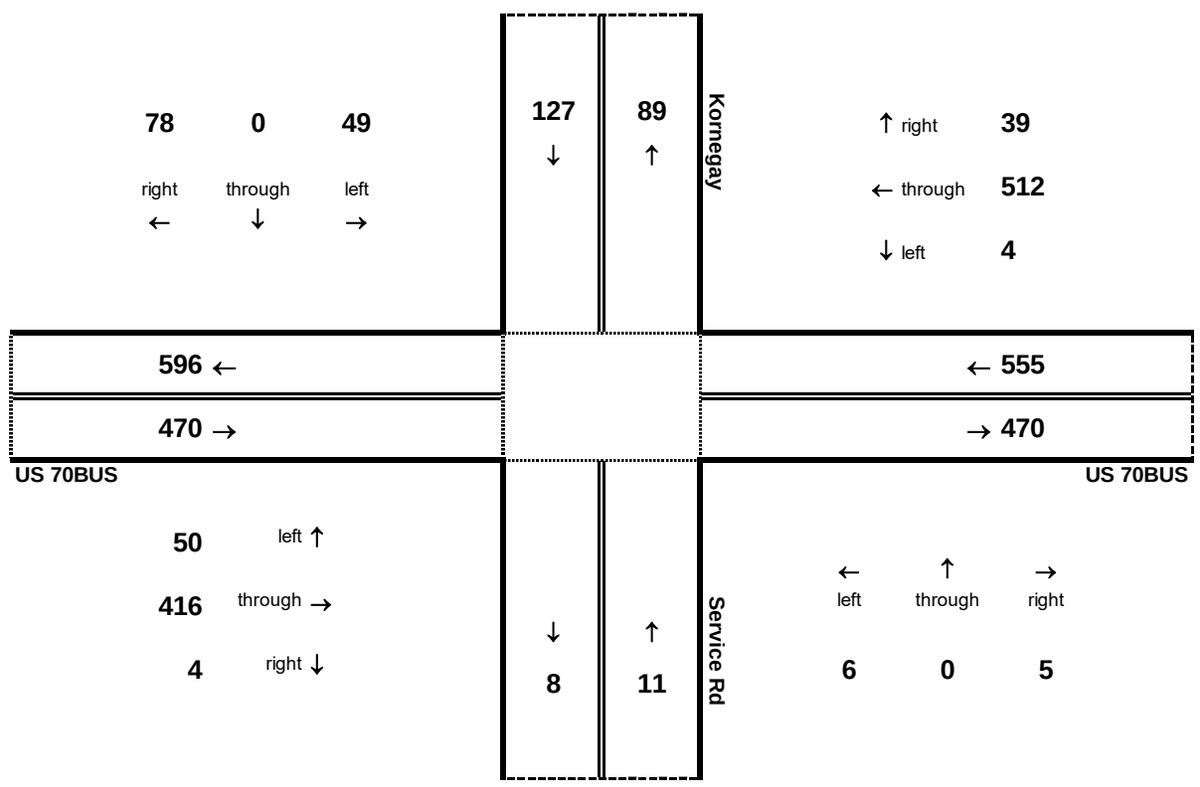
Traffic Data Year:
2040 Build Alt 11

Project:
R-2553

24HOUR

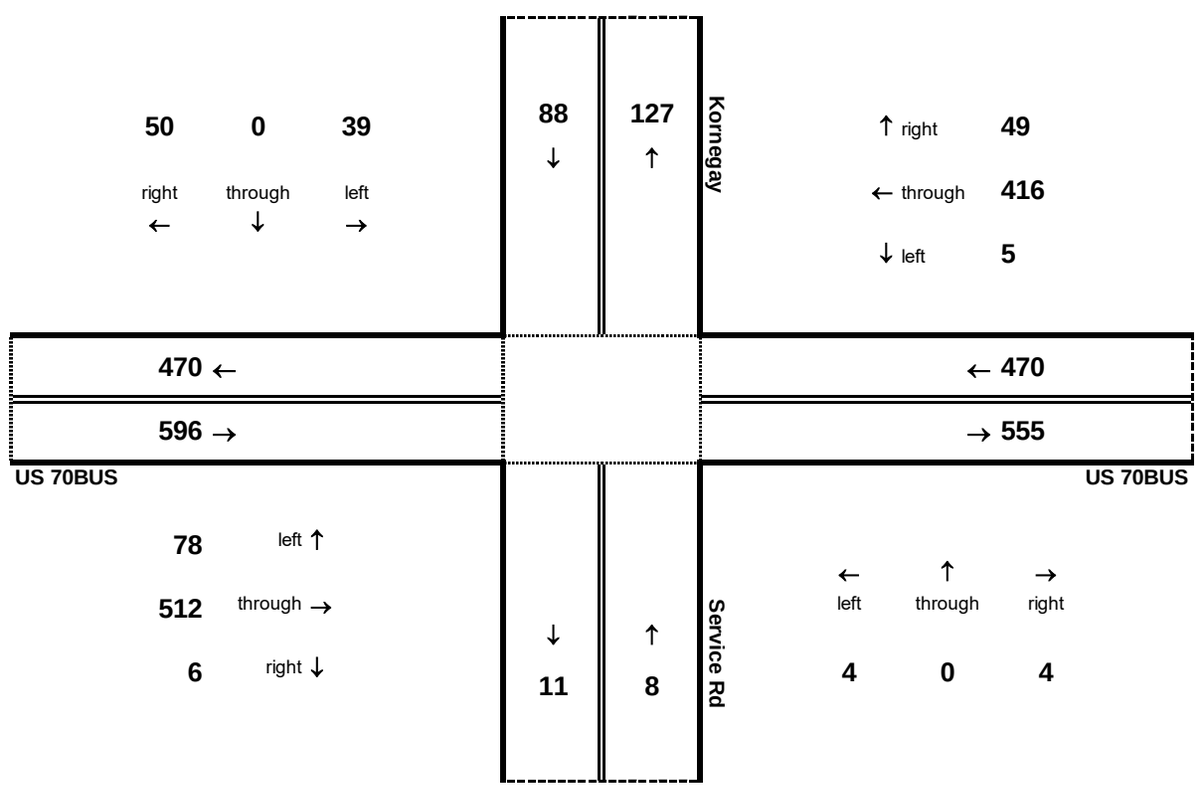


AMPEAK



AM peak hour inflow is 1161 vehicles. AM peak hour outflow is 1160 vehicles.

PMPEAK



PM peak hour inflow is 1160 vehicles. PM peak hour outflow is 1161 vehicles.

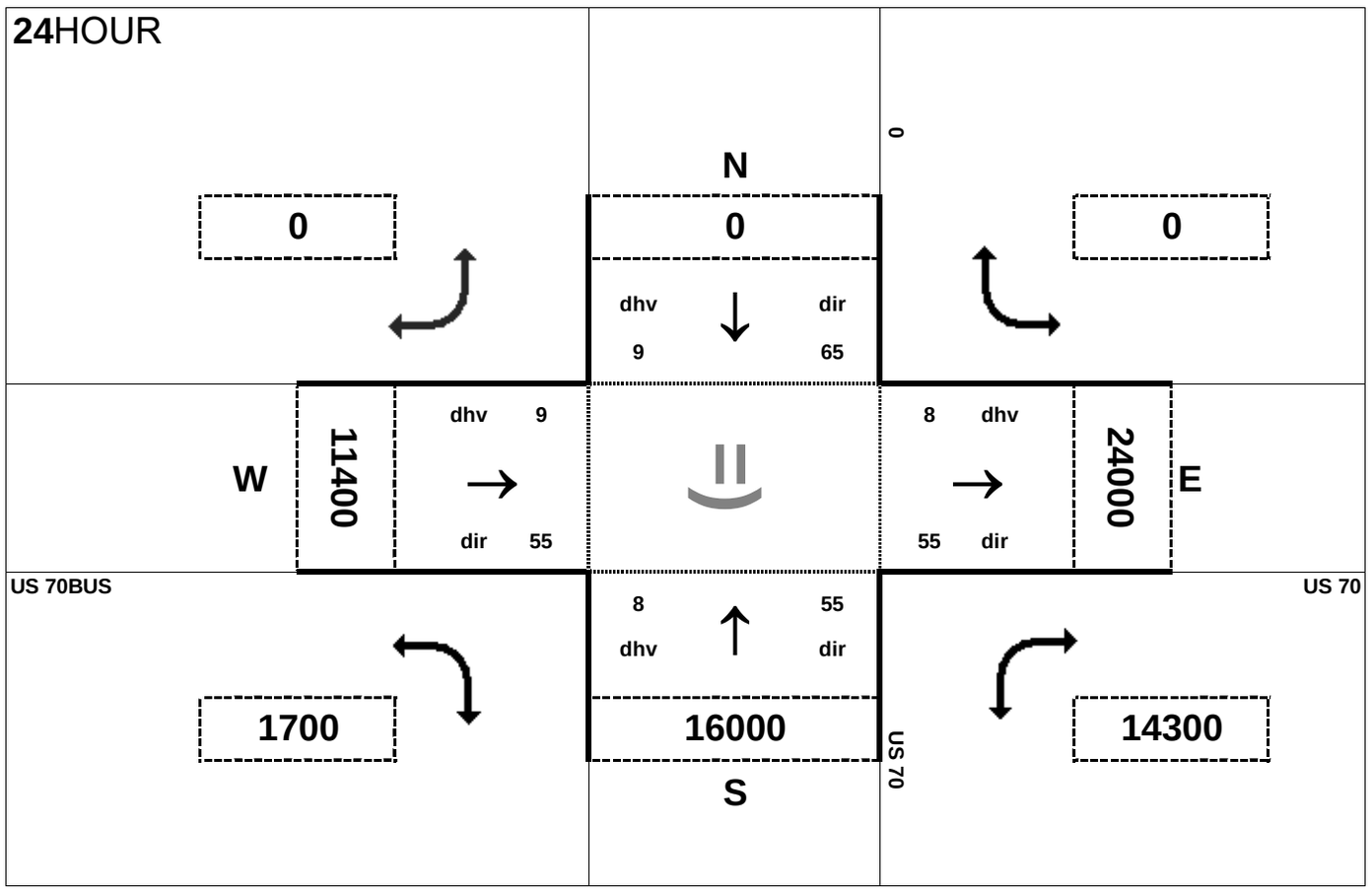
Peak Hour Volume Breakouts Report:
System 2 Intersection of US 70 and US 70BUS
(eastern interchange)

Traffic Forecast Release Date:
November-16

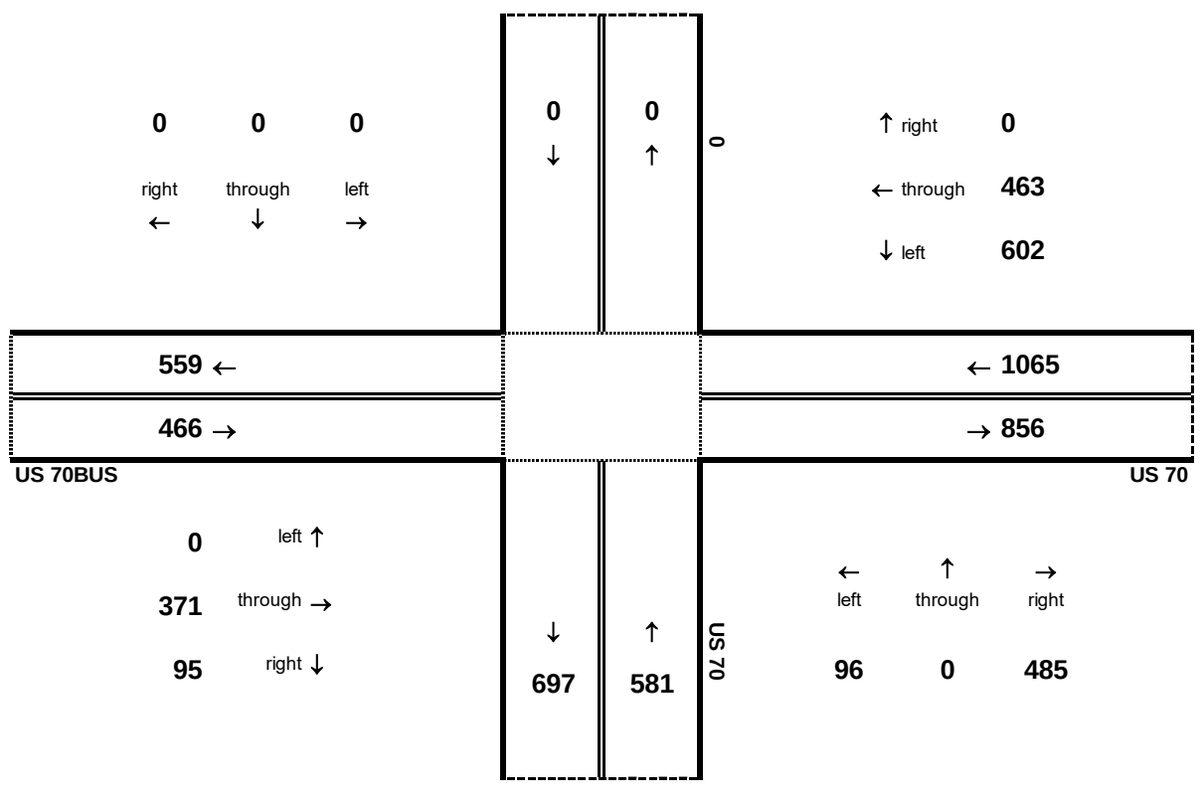
Traffic Data Year:
2040 Build Alt 11

Project:
R-2553

24HOUR

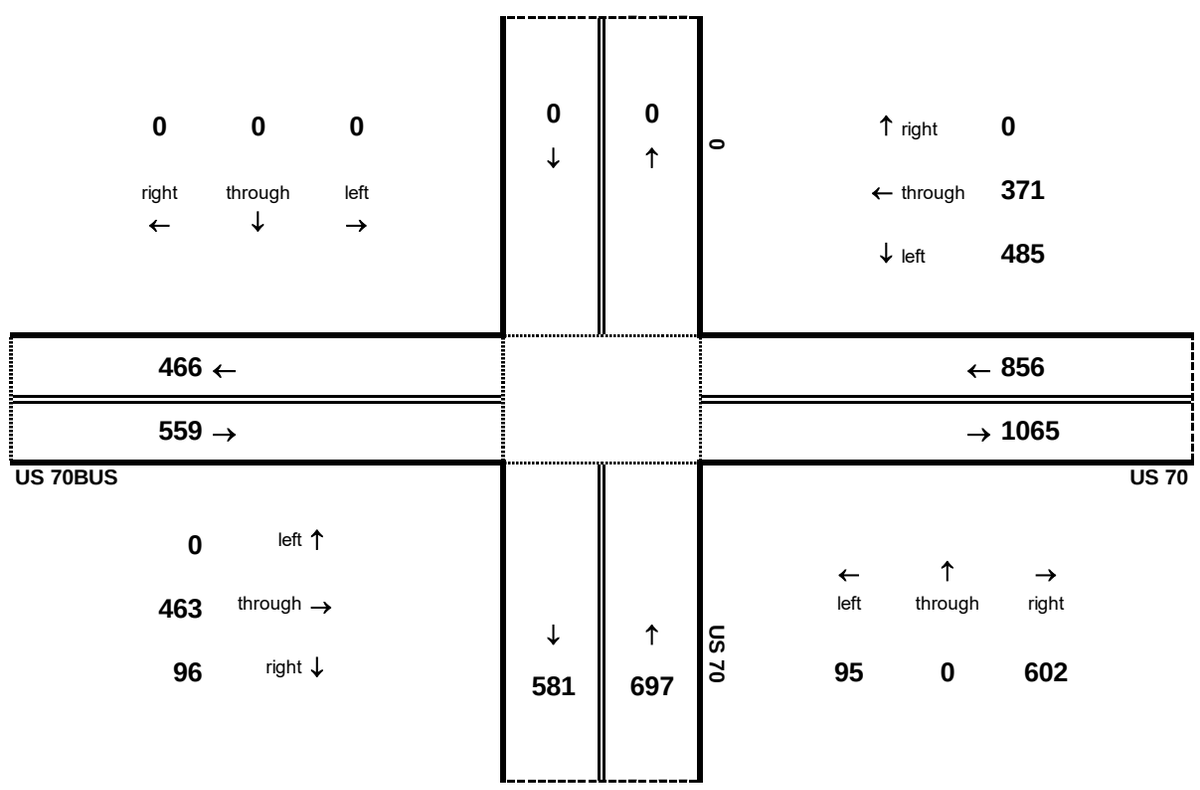


AMPEAK



AM peak hour inflow is 2113 vehicles. AM peak hour outflow is 2113 vehicles.

PMPEAK



PM peak hour inflow is 2113 vehicles. PM peak hour outflow is 2113 vehicles.

R-2553 Kinson Bypass

2040 Build Alternative 11

Step 1 - Calculating Basic Freeway Segment Volumes

Basic Freeway Segment Volumes - Eastbound							
Seg.	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)	36,200	0.09	0.45	3,258	1,792	1,467
5E	US 70 EB - SR 1690 (Willie Measley Rd) to SR 1522 (Albert Sugg Rd)	38,400	0.09	0.45	3,456	1,901	1,556
9E	US 70 EB - SR 1522 (Albert Sugg Rd) to US 70BUS / C. F. Harvey Pkwy	39,000	0.09	0.45	3,510	1,931	1,580
13E	US 70 EB - US 70BUS / C. F. Harvey Pkwy To NC 11	24,800	0.09	0.55	2,232	1,005	1,228
17E	US 70 EB - NC 11 to US 258	20,800	0.09	0.55	1,872	843	1,030
21E	US 70 EB - US 258 to NC 58	16,200	0.08	0.55	1,296	584	713
25E	US 70 EB - NC 58 to SR 1002 (Wyse Fork Rd)	16,000	0.08	0.55	1,280	576	704
29E	US 70 EB - SR 1002 (Wyse Fork Rd) to US 70BUS	16,000	0.08	0.55	1,280	576	704
33E	US 70 EB - East of US 70BUS (E)	24,000	0.08	0.55	1,920	864	1,056

Basic Freeway Segment Volumes - Westbound							
Seg.	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1W	US 70 WB - East of US 70BUS (E)	24,000	0.08	0.45	1,920	1,056	864
5W	US 70 WB - SR 1002 (Wyse Fork Rd) to US 70BUS	16,000	0.08	0.45	1,280	704	576
9W	US 70 WB - NC 58 to SR 1002 (Wyse Fork Rd)	16,000	0.08	0.45	1,280	704	576
13W	US 70 WB - US 258 to NC 58	16,200	0.08	0.45	1,296	713	584
17W	US 70 WB - NC 11 to US 258	20,800	0.09	0.45	1,872	1,030	843
21W	US 70 WB - US 70BUS / C. F. Harvey Pkwy to NC 11	24,800	0.09	0.45	2,232	1,228	1,005
25W	US 70 WB - SR 1522 (Albert Sugg Rd) to US 70BUS / C. F. Harvey Pkwy	39,000	0.09	0.55	3,510	1,580	1,931
29W	US 70 WB - SR 1690 (Willie Measley Rd) to SR 1522 (Albert Sugg Rd)	38,400	0.09	0.55	3,456	1,556	1,901
33W	US 70 WB - West of SR 1690 (Willie Measley Rd)	36,200	0.09	0.55	3,258	1,467	1,792

Basic Freeway Segment Volumes - Southbound							
Seg.	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1S	C. F. Harvey Pkwy SB - North of US 70 / US 70BUS	13,800	0.09	0.65	1,242	435	808

R-2553 Kinson Bypass
2040 Build Alternative 11
Step 2 - Compiling Ramp Volumes

US 70 Ramp Volumes								
Description	EB Exit		WB Entrance		EB Entrance		WB Exit	
	AM	PM	AM	PM	AM	PM	AM	PM
US 70 at SR 1690 (Willie Measley Rd)	181	204	204	181	341	250	250	341
US 70 at SR 1522 (Albert Sugg Rd)	151	201	201	151	261	160	160	261
US 70 at US 70BUS/C. F. Harvey Pkwy	1,110	698	698	1,110	200	330	330	200
US 70 at NC 11	340	374	374	340	166	190	190	166
US 70 at US 258	325	403	403	325	74	75	75	74
US 70 at NC 58	38	47	47	38	36	32	32	36
US 70 at SR 1002 (Wyse Fork Rd)	28	33	33	28	30	31	31	30
US 70 at US 70BUS (E)	96	95	95	96	371	463	463	371

C. F. Harvey Pkwy Southbound Ramp Volumes			
Description	Ramp	AM	PM
US 70 / US 70BUS at NC 148 (C. F. Harvey Pkwy)	C. F. Harvey Pkwy SB - to US 70 WB	288	563
	C. F. Harvey Pkwy SB - from US 70BUS WB	144	211
	C. F. Harvey Pkwy SB - to US 70BUS EB	89	130

R-2553 Kinson Bypass
2040 Build Alternative 11
Step 3 - Adjusting All Segment Volumes

Eastbound Adjusted Segment Volumes						
Seg.	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)	0.9	1,792	1,467	1,991	1,630
2E	US 70 EB - to SR 1690 (Willie Measley Rd)	0.9	181	204	201	227
4E	US 70 EB - from SR 1690 (Willie Measley Rd)	0.9	341	250	379	278
5E	US 70 EB - SR 1690 (Willie Measley Rd) to SR 1522 (Albert Sugg Rd)	0.9	1,901	1,556	2,112	1,729
6E	US 70 EB - to SR 1522 (Albert Sugg Rd)	0.9	151	201	168	223
8E	US 70 EB - from SR 1522 (Albert Sugg Rd)	0.9	261	160	290	178
9E	US 70 EB - SR 1522 (Albert Sugg Rd) to US 70BUS / C. F. Harvey Pkwy	0.9	1,931	1,580	2,146	1,756
10E	US 70 EB - to US 70BUS / C.F. Harvey	0.9	1,110	698	1,233	776
12E	US 70 EB - from US 70BUS / C.F. Harvey	0.9	200	330	222	367
13E	US 70 EB - US 70BUS/ C. F. Harvey Pkwy to NC 11	0.9	1,005	1,228	1,117	1,364
14E	US 70 EB - to NC 11	0.9	340	374	378	416
16E	US 70 EB - from NC 11	0.9	166	190	184	211
17E	US 70 EB - NC 11 to US 258	0.9	843	1,030	937	1,144
18E	US 70 EB - to US 258	0.9	325	403	361	448
20E	US 70 EB - from US 258	0.9	74	75	82	84
21E	US 70 EB - US 258 to NC 58	0.9	584	713	649	792
22E	US 70 EB - to NC 58	0.9	38	47	42	52
24E	US 70 EB - from NC 58	0.9	36	32	40	36
25E	US 70 EB - NC 58 to SR 1002 (Wyse Fork Rd)	0.9	576	704	640	782
26E	US 70 EB - to SR 1002 (Wyse Fork Rd)	0.9	28	33	31	37
28E	US 70 EB - from SR 1002 (Wyse Fork Rd)	0.9	30	31	33	34
29E	US 70 EB - SR 1002 (Wyse Fork Rd) to US 70BUS (E)	0.9	576	704	640	782
30E	US 70 EB - to US70BUS (E)	0.9	96	95	107	106
32E	US 70 EB - from US70BUS (E)	0.9	371	463	412	514
33E	US 70 EB - East of US 70BUS (E)	0.9	864	1,056	960	1,173

	AM	PM
Max Volume	2,146	1,756

XXX	Ramp
XXX	Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 11
Step 3 - Adjusting All Segment Volumes

Westbound Adjusted Segment Volumes						
Seg.	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1W	US 70 WB - East of US 70BUS (E)	0.9	1,056	864	1,173	960
2W	US 70 WB - to US70BUS (E)	0.9	463	371	514	412
4W	US 70 WB - from US70BUS (E)	0.9	95	96	106	107
5W	US 70 WB - SR 1002 (Wyse Fork Rd) to US 70BUS (E)	0.9	704	576	782	640
6W	US 70 WB - to SR 1002 (Wyse Fork Rd)	0.9	31	30	34	33
8W	US 70 WB - from SR 1002 (Wyse Fork Rd)	0.9	33	28	37	31
9W	US 70 WB - NC 58 to SR 1002 (Wyse Fork Rd)	0.9	704	576	782	640
10W	US 70 WB - to NC 58	0.9	32	36	36	40
12W	US 70 WB - from NC 58	0.9	47	38	52	42
13W	US 70 WB - US 258 to NC 58	0.9	713	584	792	649
14W	US 70 WB - to US 258	0.9	75	74	83	82
16W	US 70 WB - from US 258	0.9	403	325	448	361
17W	US 70 WB - NC 11 to US 258	0.9	1,030	843	1,144	937
18W	US 70 WB - to NC 11	0.9	190	166	211	184
20W	US 70 WB - from NC 11	0.9	374	340	416	378
21W	US 70 WB - US 70BUS / C. F. Harvey Pkwy to NC 11	0.9	1,228	1,005	1,364	1,117
22W	US 70 WB - to US70BUS/ C. F. Harvey Pkwy	0.9	330	200	367	222
24W	US 70 WB - from US70BUS	0.9	698	1,110	776	1,233
25W	US 70 WB - SR 1522 (Albert Sugg Rd) to US 70BUS / C. F. Harvey Pkwy	0.9	1,580	1,931	1,756	2,146
26W	US 70 WB - to SR 1522 (Albert Sugg Rd)	0.9	160	261	178	290
28W	US 70 WB - from SR 1522 (Albert Sugg Rd)	0.9	201	151	223	168
29W	US 70 WB - SR 1690 (Willie Measley Rd) to SR 1522 (Albert Sugg Rd)	0.9	1,556	1,901	1,729	2,112
30W	US 70 WB - to SR 1690 (Willie Measley Rd)	0.9	250	341	278	379
32W	US 70 WB - from SR 1690 (Willie Measley Rd)	0.9	204	181	227	201
33W	US 70 WB - West of SR 1690 (Willie Measley Rd)	0.9	1,467	1,792	1,630	1,991

	AM	PM
Max Volume	1,756	2,146

XXX	Ramp
XXX	Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 11
Step 3 - Adjusting All Segment Volumes

Southbound Adjusted Segment Volumes						
Seg.	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1S	C. F. Harvey Pkwy SB - North of US 70 / 70BUS	0.9	435	808	483	898
2S	C. F. Harvey Pkwy SB - to US 70 WB	0.9	288	563	320	625
4S	C. F. Harvey Pkwy SB - from US 70BUS WB (weave)	0.9	144	211	160	234
	C. F. Harvey Pkwy SB - to US 70BUS EB (weave)	0.9	89	130	99	144
5S	C. F. Harvey Pkwy SB - US 70BUS Weave to US 70 EB	0.9	200	330	222	367

XXX	Ramp
XXX	Weave
XXX	Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 11
Step 4 - Balancing Freeway Segment Volumes

US 70 Eastbound Freeway Volume Balancing					
Seg.	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)			1,846	1,750
2E	US 70 EB - to SR 1690 (Willie Measley Rd)	201	227		
3E	US 70 EB - within SR 1690 (Willie Measley Rd) Interchange			1,645	1,523
4E	US 70 EB - from SR 1690 (Willie Measley Rd)	379	278		
5E	US 70 EB - SR 1690 (Willie Measley Rd) to SR 1522 (Albert Sugg Rd)			2,024	1,801
6E	US 70 EB - to SR 1522 (Albert Sugg Rd)	168	223		
7E	US 70 EB - within SR 1522 (Albert Sugg Rd) Interchange			1,856	1,578
8E	US 70 EB - from SR 1522 (Albert Sugg Rd)	290	178		
9E	**US 70 EB - SR 1522 (Albert Sugg Rd) to US 70BUS**			**2,146**	**1,756**
10E	US 70 EB - to US 70BUS / C.F. Harvey	1,233	776		
11E	US 70 EB - within US 70BUS / C.F. Harvey interchange			913	980
12E	US 70 EB - from US 70BUS / C.F. Harvey	222	367		
13E	US 70 EB - US70BUS / C. F. Harvey to NC 11			1,135	1,347
14E	US 70 EB - to NC 11	378	416		
15E	US 70 EB - within NC 11 interchange			757	931
16E	US 70 EB - from NC 11	184	211		
17E	US 70 EB - NC 11 to US 258			941	1,142
18E	US 70 EB - to US 258	361	448		
19E	US 70 EB - within US 258 interchange			580	694
20E	US 70 EB - from US 258	82	84		
21E	US 70 EB - US 258 to NC 58			662	778
22E	US 70 EB - to NC 58	42	52		
23E	US 70 EB - within NC 58 interchange			620	726
24E	US 70 EB - from NC 58	40	36		
25E	US 70 EB - NC 58 to SR 1002 (Wyse Fork Rd)			660	762
26E	US 70 EB - to SR 1002 (Wyse Fork Rd)	31	37		
27E	US 70 EB - within SR 1002 (Wyse Fork Rd) interchange			629	725
28E	US 70 EB - from SR 1002 (Wyse Fork Rd)	33	34		
29E	US 70 EB - SR 1002 (Wyse Fork Rd) to US 70BUS			662	759
30E	US 70 EB - to US70BUS (eastern int)	107	106		
31E	US 70 EB - within US 70BUS (eastern int)			555	653
32E	US 70 EB - from US70BUS (eastern int)	412	514		
33E	US 70 EB - East of US 70BUS			967	1,167

	Max volume balance point
XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 11
Step 4 - Balancing Freeway Segment Volumes

US 70 Westbound Freeway Volume Balancing					
Seg.	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1W	US 70 WB - East of US 70BUS			1,166	967
2W	US 70 WB - to US70BUS (eastern int)	514	412		
3W	US 70 WB - within US 70BUS (eastern int)			652	555
4W	US 70 WB - from US70BUS (eastern int)	106	107		
5W	US 70 WB - SR 1002 (Wyse Fork Rd) to US 70BUS			758	662
6W	US 70 WB - to SR 1002 (Wyse Fork Rd)	34	33		
7W	US 70 WB - within SR 1002 (Wyse Fork Rd) interchange			724	629
8W	US 70 WB - from SR 1002 (Wyse Fork Rd)	37	31		
9W	US 70 WB - NC 58 to SR 1002 (Wyse Fork Rd)			761	660
10W	US 70 WB - to NC 58	36	40		
11W	US 70 WB - within NC 58 interchange			725	620
12W	US 70 WB - from NC 58	52	42		
13W	US 70 WB - US 258 to NC 58			777	662
14W	US 70 WB - to US 258	83	82		
15W	US 70 WB - within US 258 interchange			694	580
16W	US 70 WB - from US 258	448	361		
17W	US 70 WB - NC 11 to US 258			1,142	941
18W	US 70 WB - to NC 11	211	184		
19W	US 70 WB - within NC 11 interchange			931	757
20W	US 70 WB - from NC 11	416	378		
21W	US 70 WB - NC 11 to US 70BUS / C.F. Harvey			1,347	1,135
22W	US 70 WB - to US 70BUS / C.F. Harvey	367	222		
23W	US 70 WB - within US 70BUS / C.F. Harvey interchange			980	913
24W	US 70 WB - from US 70BUS / C.F. Harvey	776	1,233		
25W	US 70 WB - SR 1522 (Albert Sugg Rd) to US 70BUS			**1,756**	**2,146**
26W	US 70 WB - to SR 1522 (Albert Sugg Rd)	178	290		
27W	US 70 WB - within SR 1522 (Albert Sugg Rd) Interchange			1,578	1,856
28W	US 70 WB - from SR 1522 (Albert Sugg Rd)	223	168		
29W	US 70 WB - SR 1690 (Willie Measley Rd) to SR 1522 (Albert Sugg Rd)			1,801	2,024
30W	US 70 WB - to SR 1690 (Willie Measley Rd)	278	379		
31W	US 70 WB - within SR 1690 (Willie Measley Rd) Interchange			1,523	1,645
32W	US 70 WB - from SR 1690 (Willie Measley Rd)	227	201		
33W	US 70 WB - West of SR 1690 (Willie Measley Rd)			1,750	1,846

	Max volume balance point
XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 11
Step 4 - Balancing Freeway Segment Volumes

C. F. Harvey Pkwy Southbound Freeway Volume Balancing					
Seg.	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1S	C. F. Harvey Pkwy SB - North of US 70 / 70BUS			481	902
2S	C. F. Harvey Pkwy SB - to US 70 WB	320	625		
3S	C. F. Harvey Pkwy SB - within US 70BUS interchange			161	277
4S	C. F. Harvey Pkwy SB - from US 70BUS WB (weave)	160	234		
	C. F. Harvey Pkwy SB - between US 70BUS ramps (weave)			321	511
	C. F. Harvey Pkwy SB - to US 70BUS EB (weave)	99	144		
5S	C. F. Harvey Pkwy SB - US 70BUS Weave to US 70 EB			**222**	**367**

	Volume balance point
XXX	Ramp
XXX	Weave
XXX	Basic Freeway Segment

2040 Build Alternative 11
FREEVAL-E Reports

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R-2553 US 70 Kinston Bypass, Alternative 11

US 70 EB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1E	2E	3E	4E	5E	6E	7E	8E	9E
General Purpose Segment Name	W of Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	Jim Sutton/Willie Measley to Albert Sugg/Barwick Station	To Albert Sugg/Barwick Station	Within Albert Sugg/Barwick Station Int	From Albert Sugg/Barwick Station	Albert Sugg/Barwick Station to US 70 Bus/CF Harvey
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	1500	6380	1500	1500	1500	8280
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1846	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	750	N/A	920	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	379	N/A	N/A	N/A	290	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	2	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	201	N/A	N/A	N/A	168	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	2	N/A	N/A	N/A
Total Density (pc/mi/ln)	13.6	13.9	12.2	15.9	14.9	15.5	13.7	16.9	15.8
V/C	0.40	0.40	0.36	0.44	0.44	0.44	0.40	0.46	0.46
Density Based LOS	B	B	B	B	B	B	B	B	B

R-2553 US 70 Kinston Bypass, Alternative 11
US 70 EB - AM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10E	11E	12E	13E	14E	15E	16E	17E	18E
General Purpose Segment Name	To US 70 Bus/CF Harvey Pkwy	Within US 70 Bus/CF Harvey Int	From US 70 Bus/CF Harvey	US 70 Bus/CF Harvey to NC 11	To NC 11	Within NC 11	From NC 11	NC 11 to US 258	To US 258
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	2500	6200	2500	14000	1500	1500	1500	5760	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	2500	N/A	2500	N/A	750	N/A	920	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	2	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	60	N/A	N/A	N/A	45	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	222	N/A	N/A	N/A	184	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	7	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	2	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	60	N/A	N/A	N/A	25	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	1233	N/A	N/A	N/A	378	N/A	N/A	N/A	361
OFR Single Unit Truck and Bus (%)	7	N/A	N/A	N/A	7	N/A	N/A	N/A	7
Total Density (pc/mi/ln)	0.8	6.7	0.0*	8.4	7.6	5.6	7.2	6.9	5.8
V/C	0.46	0.20	0.24	0.24	0.24	0.16	0.20	0.20	0.20
Density Based LOS	A	A	A	A	A	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 11
US 70 EB - AM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19E	20E	21E	22E	23E	24E	25E	26E	27E
General Purpose Segment Name	Within US 258	From US 258	US 258 to NC 58	To NC 58	Within NC 58	From NC 58	NC 58 to Wyse Fork	To Wyse Fork	Within Wyse Fork Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	12310	1500	1500	1620	15920	1500	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	1620	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	82	N/A	N/A	N/A	40	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	6	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	42	N/A	N/A	N/A	31	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	6	N/A	N/A	N/A	4	N/A
Total Density (pc/mi/ln)	4.2	5.0	4.9	5.7	4.5	0.6	4.8	5.7	4.6
V/C	0.12	0.14	0.14	0.14	0.13	0.14	0.14	0.14	0.13
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 11
US 70 EB - AM Peak

Segment	Seg. 28	Seg. 29	Seg. 30	Seg. 31	Seg. 32	Seg. 33
General Purpose Segment Data	28E	29E	30E	31E	32E	33E
General Purpose Segment Name	From Wyse Fork	Wyse Fork to US 70 BUS (E)	To US 70 BUS (E)	Within US 70 BUS (E) Int	From US 70 BUS (E)	East of US 70 BUS (E)
General Purpose Segment Type	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1620	12900	1500	1550	2500	5280
Terrain	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	1620	N/A	750	N/A	2500	N/A
ONR Side	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	1	N/A	N/A	N/A	2	N/A
ONR Free Flow Speed (mph)	25	N/A	N/A	N/A	60	N/A
ONR/Entering Dem. (vph)	33	N/A	N/A	N/A	412	N/A
ONR Single Unit Truck and Bus (%)	4	N/A	N/A	N/A	7	N/A
OFR Side	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	107	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	7	N/A	N/A	N/A
Total Density (pc/mi/ln)	0.6	4.9	3.3	4.1	0.0*	7.1
V/C	0.14	0.14	0.14	0.12	0.21	0.21
Density Based LOS	A	A	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 11
US 70 EB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1E	2E	3E	4E	5E	6E	7E	8E	9E
General Purpose Segment Name	W of Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	Jim Sutton/Willie Measley to Albert Sugg/Barwick Station	To Albert Sugg/Barwick Station	Within Albert Sugg/Barwick Station Int	From Albert Sugg/Barwick Station	Albert Sugg/Barwick Station to US 70 Bus/CF Harvey
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	1500	6380	1500	1500	1500	8280
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1750	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	750	N/A	920	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	278	N/A	N/A	N/A	178	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	2	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	227	N/A	N/A	N/A	223	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	2	N/A	N/A	N/A
Total Density (pc/mi/ln)	12.9	13.1	11.3	14.1	13.3	13.5	11.7	13.8	13.0
V/C	0.38	0.38	0.33	0.39	0.39	0.39	0.34	0.38	0.38
Density Based LOS	B	B	A	B	B	B	B	B	B

R-2553 US 70 Kinston Bypass, Alternative 11
US 70 EB - PM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10E	11E	12E	13E	14E	15E	16E	17E	18E
General Purpose Segment Name	To US 70 Bus/CF Harvey Pkwy	Within US 70 Bus/CF Harvey Int	From US 70 Bus/CF Harvey	US 70 Bus/CF Harvey to NC 11	To NC 11	Within NC 11	From NC 11	NC 11 to US 258	To US 258
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	2500	6200	2500	14000	1500	1500	1500	5760	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	2500	N/A	2500	N/A	750	N/A	920	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	2	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	60	N/A	N/A	N/A	45	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	367	N/A	N/A	N/A	211	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	7	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	2	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	60	N/A	N/A	N/A	25	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	776	N/A	N/A	N/A	416	N/A	N/A	N/A	448
OFR Single Unit Truck and Bus (%)	7	N/A	N/A	N/A	7	N/A	N/A	N/A	7
Total Density (pc/mi/ln)	-2.6	7.2	0.5	10.0	9.5	6.9	8.8	8.4	7.7
V/C	0.38	0.21	0.29	0.29	0.29	0.20	0.25	0.25	0.25
Density Based LOS	A	A	A	A	A	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 11
US 70 EB - PM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19E	20E	21E	22E	23E	24E	25E	26E	27E
General Purpose Segment Name	Within US 258	From US 258	US 258 to NC 58	To NC 58	Within NC 58	From NC 58	NC 58 to Wyse Fork	To Wyse Fork	Within Wyse Fork Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	12310	1500	1500	1620	15920	1500	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	1620	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	84	N/A	N/A	N/A	36	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	6	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	52	N/A	N/A	N/A	37	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	6	N/A	N/A	N/A	4	N/A
Total Density (pc/mi/ln)	5.1	6.0	5.8	6.8	5.4	1.5	5.6	6.6	5.4
V/C	0.15	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 11
US 70 EB - PM Peak

Segment	Seg. 28	Seg. 29	Seg. 30	Seg. 31	Seg. 32	Seg. 33
General Purpose Segment Data	28E	29E	30E	31E	32E	33E
General Purpose Segment Name	From Wyse Fork	Wyse Fork to US 70 BUS (E)	To US 70 BUS (E)	Within US 70 BUS (E) Int	From US 70 BUS (E)	East of US 70 BUS (E)
General Purpose Segment Type	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1620	12900	1500	1550	2500	5280
Terrain	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	1620	N/A	750	N/A	2500	N/A
ONR Side	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	1	N/A	N/A	N/A	2	N/A
ONR Free Flow Speed (mph)	25	N/A	N/A	N/A	60	N/A
ONR/Entering Dem. (vph)	34	N/A	N/A	N/A	514	N/A
ONR Single Unit Truck and Bus (%)	4	N/A	N/A	N/A	7	N/A
OFR Side	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	106	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	7	N/A	N/A	N/A
Total Density (pc/mi/ln)	1.4	5.6	4.3	4.8	-1.0	8.6
V/C	0.16	0.16	0.16	0.14	0.25	0.25
Density Based LOS	A	A	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 11

US 70 WB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1W	2W	3W	4W	5W	6W	7W	8W	9W
General Purpose Segment Name	E of US 70 BUS (E)	To US 70 BUS (E)	Within US 70 BUS (E) Int	From US 70 BUS (E)	US 70 BUS (E) to Wyse Fork	To Wyse Fork	Within Wyse Fork Int	From Wyse Fork	Wyse Fork to NC 58
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	3350	1500	10810	1500	1500	1500	15760
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1166	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	9	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	920	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	106	N/A	N/A	N/A	37	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	7	N/A	N/A	N/A	4	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	514	N/A	N/A	N/A	34	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	8.7	10.3	4.9	5.9	5.7	4.3	5.4	5.9	5.7
V/C	0.25	0.25	0.14	0.17	0.17	0.17	0.16	0.17	0.17
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 11

US 70 WB - AM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10W	11W	12W	13W	14W	15W	16W	17W	18W
General Purpose Segment Name	To NC 58	Within NC 58 Int	From NC 58	NC 58 to US 258	To US 258	Within US 258 Int	From US 258	US 258 to NC 11	To NC 11
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	12350	1500	1500	1620	7710	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	52	N/A	N/A	N/A	448	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	6	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	36	N/A	N/A	N/A	83	N/A	N/A	N/A	211
OFR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	7	N/A	N/A	N/A	7
Total Density (pc/mi/ln)	4.4	5.4	6.1	5.8	6.9	5.2	4.4	8.5	7.8
V/C	0.17	0.16	0.17	0.17	0.17	0.15	0.25	0.25	0.25
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 11
US 70 WB - AM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19W	20W	21W	22W	23W	24W	25W	26W	27W
General Purpose Segment Name	Within NC 11 Int	From NC 11	NC 11 to Us 70 Bus/CF Harvey Pkwy	To US 70 Bus/CF Harvey Pkwy	Within US 70 Bus/CF Harvey Int	From US 70 Bus/CF Harvey	US 70 Bus/CF Harvey to Albert Sugg/Barwick Station	To Albert Sugg/Barwick Station	Within Albert Sugg/Barwick Station Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	13200	2500	4620	2500	8050	1500	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	2500	N/A	2500	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	416	N/A	N/A	N/A	776	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	7	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	60	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	367	N/A	N/A	N/A	178	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	7	N/A	N/A	N/A	2	N/A
Total Density (pc/mi/ln)	7.0	10.5	10.0	0.0*	7.3	3.7	13.1	15.6	11.8
V/C	0.20	0.29	0.29	0.29	0.21	0.38	0.38	0.38	0.34
Density Based LOS	A	A	A	A	A	A	B	B	B

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 11
US 70 WB - AM Peak

Segment	Seg. 28	Seg. 29	Seg. 30	Seg. 31	Seg. 32	Seg. 33
General Purpose Segment Data	28W	29W	30W	31W	32W	33W
General Purpose Segment Name	From Albert Sugg/Barwick Station	Albert Sugg/Barwick Station to Jim Sutton/Willie	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	W of Jim Sutton/Willie Measley
General Purpose Segment Type	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1620	6050	1500	1500	1620	5280
Terrain	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	1620	N/A	490	N/A	1620	N/A
ONR Side	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	25	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	223	N/A	N/A	N/A	227	N/A
ONR Single Unit Truck and Bus (%)	2	N/A	N/A	N/A	4	N/A
OFR Side	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	278	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	9.9	13.4	16.0	11.4	9.5	13.0
V/C	0.39	0.39	0.39	0.33	0.38	0.38
Density Based LOS	A	B	B	A	A	B

R-2553 US 70 Kinston Bypass, Alternative 11
US 70 WB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1W	2W	3W	4W	5W	6W	7W	8W	9W
General Purpose Segment Name	E of US 70 BUS (E)	To US 70 BUS (E)	Within US 70 BUS (E) Int	From US 70 BUS (E)	US 70 BUS (E) to Wyse Fork	To Wyse Fork	Within Wyse Fork Int	From Wyse Fork	Wyse Fork to NC 58
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	3350	1500	10810	1500	1500	1500	15760
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	967	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	9	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	920	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	107	N/A	N/A	N/A	31	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	7	N/A	N/A	N/A	4	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	412	N/A	N/A	N/A	33	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	7.2	8.5	4.2	5.1	5.0	3.5	4.7	5.1	4.9
V/C	0.21	0.21	0.12	0.14	0.14	0.14	0.14	0.14	0.14
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 11
US 70 WB - PM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10W	11W	12W	13W	14W	15W	16W	17W	18W
General Purpose Segment Name	To NC 58	Within NC 58 Int	From NC 58	NC 58 to US 258	To US 258	Within US 258 Int	From US 258	US 258 to NC 11	To NC 11
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	12350	1500	1500	1620	7710	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	42	N/A	N/A	N/A	361	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	6	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	40	N/A	N/A	N/A	82	N/A	N/A	N/A	184
OFR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	7	N/A	N/A	N/A	7
Total Density (pc/mi/ln)	3.5	4.7	5.1	5.0	5.8	4.4	2.8	7.0	6.0
V/C	0.14	0.14	0.14	0.14	0.14	0.13	0.20	0.20	0.20
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 11
US 70 WB - PM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19W	20W	21W	22W	23W	24W	25W	26W	27W
General Purpose Segment Name	Within NC 11 Int	From NC 11	NC 11 to Us 70 Bus/CF Harvey Pkwy	To US 70 Bus/CF Harvey Pkwy	Within US 70 Bus/CF Harvey Int	From US 70 Bus/CF Harvey	US 70 Bus/CF Harvey to Albert Sugg/Barwick Station	To Albert Sugg/Barwick Station	Within Albert Sugg/Barwick Station Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	13200	2500	4620	2500	8050	1500	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	2500	N/A	2500	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	378	N/A	N/A	N/A	1233	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	7	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	60	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	222	N/A	N/A	N/A	290	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	7	N/A	N/A	N/A	2	N/A
Total Density (pc/mi/ln)	5.7	8.8	8.5	0.0*	6.8	6.7	15.9	19.0	13.8
V/C	0.17	0.25	0.25	0.25	0.20	0.46	0.46	0.46	0.40
Density Based LOS	A	A	A	A	A	A	B	B	B

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 11
US 70 WB - PM Peak

Segment	Seg. 28	Seg. 29	Seg. 30	Seg. 31	Seg. 32	Seg. 33
General Purpose Segment Data	28W	29W	30W	31W	32W	33W
General Purpose Segment Name	From Albert Sugg/Barwick Station	Albert Sugg/Barwick Station to Jim Sutton/Willie	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	W of Jim Sutton/Willie Measley
General Purpose Segment Type	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1620	6050	1500	1500	1620	5280
Terrain	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	1620	N/A	490	N/A	1620	N/A
ONR Side	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	25	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	168	N/A	N/A	N/A	201	N/A
ONR Single Unit Truck and Bus (%)	2	N/A	N/A	N/A	4	N/A
OFR Side	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	379	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	11.7	15.1	18.0	12.3	10.3	13.8
V/C	0.44	0.44	0.44	0.36	0.40	0.40
Density Based LOS	B	B	B	B	A	B

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	Ramp from US 70 WB to Ramp to US 70 Bus EE
Date Performed	2017	**Jurisdiction**	Segment 1N
Analysis Time Period	AM Peak	**Analysis Year**	2040 Build Alt 11
Project Description	R-2553 US 70 Kinston Bypass		

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**2**
Speed (mph)	**60**
Capacity (vph)	2200
Heavy Veh. %	**7** %
Heavy Veh. Factor	0.966
Volume	**330**
Flow Rate	380
Vol. to Cap. Ratio	0.09

ISOLATED RAMP V/C RATIO:	0.09

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	Ramp to US 70 Bus EB
Date Performed	2017	**Jurisdiction**	Segment 2N
Analysis Time Period	AM Peak	**Analysis Year**	2040 Build Alt 11
Project Description	R-2553 US 70 Kinston Bypass		

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**1**
Speed (mph)	**45**
Capacity (vph)	2100
Heavy Veh. %	**5** %
Heavy Veh. Factor	0.976
Volume	**211**
Flow Rate	240
Vol. to Cap. Ratio	0.11

ISOLATED RAMP V/C RATIO:	0.11

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	amp to US 70 Bus EB to CF Harvey Pkwy Ext N
Date Performed	2017	**Jurisdiction**	Segment 3N
Analysis Time Period	AM Peak	**Analysis Year**	2040 Build Alt 11
Project Description	R-2553 US 70 Kinston Bypass		

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**1**
Speed (mph)	**60**
Capacity (vph)	2200
Heavy Veh. %	**7** %
Heavy Veh. Factor	0.966
Volume	**119**
Flow Rate	137
Vol. to Cap. Ratio	0.06

ISOLATED RAMP V/C RATIO:	0.06

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	amp from US 70 Bus WB to Ramp from US 70 W
Date Performed	2017	**Jurisdiction**	Segment 4N
Analysis Time Period	AM Peak	**Analysis Year**	2040 Build Alt 11
Project Description	R-2553 US 70 Kinston Bypass		

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**2**
Speed (mph)	**70**
Capacity (vph)	2200
Heavy Veh. %	**7** %
Heavy Veh. Factor	0.966
Volume	**693**
Flow Rate	797
Vol. to Cap. Ratio	0.18

ISOLATED RAMP V/C RATIO:	0.18

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	North of US 70/US 70 Bus
Date Performed	2017	**Jurisdiction**	Segment 5N
Analysis Time Period	AM Peak	**Analysis Year**	2040 Build Alt 11
Project Description	R-2553 US 70 Kinston Bypass		

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**2**
Speed (mph)	**70**
Capacity (vph)	2200
Heavy Veh. %	**7** %
Heavy Veh. Factor	0.966
Volume	**808**
Flow Rate	929
Vol. to Cap. Ratio	0.21

ISOLATED RAMP V/C RATIO:	0.21

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	Ramp from US 70 WB to Ramp to US 70 Bus EE
Date Performed	2017	**Jurisdiction**	Segment 1N
Analysis Time Period	PM Peak	**Analysis Year**	2040 Build Alt 11
Project Description	R-2553 US 70 Kinston Bypass		

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**2**
Speed (mph)	**60**
Capacity (vph)	2200
Heavy Veh. %	**7** %
Heavy Veh. Factor	0.966
Volume	**200**
Flow Rate	230
Vol. to Cap. Ratio	0.05

ISOLATED RAMP V/C RATIO:	0.05

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	Ramp to US 70 Bus EB
Date Performed	2017	**Jurisdiction**	Segment 2N
Analysis Time Period	PM Peak	**Analysis Year**	2040 Build Alt 11
Project Description	R-2553 US 70 Kinston Bypass		

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**1**
Speed (mph)	**45**
Capacity (vph)	2100
Heavy Veh. %	**5** %
Heavy Veh. Factor	0.976
Volume	**144**
Flow Rate	164
Vol. to Cap. Ratio	0.08

ISOLATED RAMP V/C RATIO:	0.08

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	amp to US 70 Bus EB to CF Harvey Pkwy Ext N
Date Performed	2017	**Jurisdiction**	Segment 3N
Analysis Time Period	PM Peak	**Analysis Year**	2040 Build Alt 11
Project Description	R-2553 US 70 Kinston Bypass		

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**1**
Speed (mph)	**60**
Capacity (vph)	2200
Heavy Veh. %	**7** %
Heavy Veh. Factor	0.966
Volume	**56**
Flow Rate	64
Vol. to Cap. Ratio	0.03

ISOLATED RAMP V/C RATIO:	0.03

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	amp from US 70 Bus WB to Ramp from US 70 W
Date Performed	2017	**Jurisdiction**	Segment 4N
Analysis Time Period	PM Peak	**Analysis Year**	2040 Build Alt 11
Project Description	R-2553 US 70 Kinston Bypass		

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**2**
Speed (mph)	**70**
Capacity (vph)	2200
Heavy Veh. %	**7** %
Heavy Veh. Factor	0.966
Volume	**377**
Flow Rate	434
Vol. to Cap. Ratio	0.10

ISOLATED RAMP V/C RATIO:	0.10

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	North of US 70/US 70 Bus
Date Performed	2017	**Jurisdiction**	Segment 5N
Analysis Time Period	PM Peak	**Analysis Year**	2040 Build Alt 11
Project Description	R-2553 US 70 Kinston Bypass		

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**2**
Speed (mph)	**70**
Capacity (vph)	2200
Heavy Veh. %	**7** %
Heavy Veh. Factor	0.966
Volume	**405**
Flow Rate	466
Vol. to Cap. Ratio	0.11

ISOLATED RAMP V/C RATIO:	0.11

R-2553 US 70 Kinston Bypass, Alternative 11
CF Harvey Parkwy Ext SB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5
General Purpose Segment Data	1S	2S	3S	4S	5S
General Purpose Segment Name	North of US 70 BUS	To US 70 WB	Ramp to US 70 WB to US 70 BUS Weave	US 70 BUS Weave	US 70 BUS Weave to Ramp from US 70 EB
General Purpose Segment Type	BFS	Off-Ramp	BFS	Weave	BFS
Segment Length (ft)	5280	1500	1500	700	3910
Terrain	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70
Mainline Dem. (vph)	481	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	N/A	N/A
ONR Side	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	160	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	Right	N/A
# Lanes: OFR	N/A	1	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	25	N/A
OFR/Exit Dem. (vph)	N/A	320	N/A	99	N/A
OFR Single Unit Truck and Bus (%)	N/A	7	N/A	5	N/A
Total Density (pc/mi/ln)	3.6	4.1	1.2	2.6	1.6
V/C	0.10	0.10	0.03	0.11	0.05
Density Based LOS	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 11
CF Harvey Parkwy Ext SB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5
General Purpose Segment Data	1S	2S	3S	4S	5S
General Purpose Segment Name	North of US 70 BUS	To US 70 WB	Ramp to US 70 WB to US 70 BUS Weave	US 70 BUS Weave	US 70 BUS Weave to Ramp from US 70 EB
General Purpose Segment Type	BFS	Off-Ramp	BFS	Weave	BFS
Segment Length (ft)	5280	1500	1500	700	3910
Terrain	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70
Mainline Dem. (vph)	902	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	N/A	N/A
ONR Side	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	234	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	Right	N/A
# Lanes: OFR	N/A	1	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	25	N/A
OFR/Exit Dem. (vph)	N/A	625	N/A	144	N/A
OFR Single Unit Truck and Bus (%)	N/A	7	N/A	5	N/A
Total Density (pc/mi/ln)	6.7	7.9	2.0	4.2	2.7
V/C	0.19	0.19	0.06	0.16	0.08
Density Based LOS	A	A	A	A	A

2040 Build Alternative 11
Synchro Reports

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	6	4	4	4	14	4	98	6	17	62	6
Future Volume (vph)	10	6	4	4	4	14	4	98	6	17	62	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1706	0	0	1618	0	1770	1846	0	1770	1837	0
Flt Permitted		0.976			0.992		0.950			0.950		
Satd. Flow (perm)	0	1706	0	0	1618	0	1770	1846	0	1770	1837	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		883			854			935			1001	
Travel Time (s)		13.4			12.9			11.6			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	0	0	24	0	4	116	0	19	76	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 17.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	6	4	4	4	14	4	98	6	17	62	6
Future Volume (Veh/h)	10	6	4	4	4	14	4	98	6	17	62	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	7	4	4	4	16	4	109	7	19	69	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1001	
pX, platoon unblocked												
vC, conflicting volume	246	234	72	235	234	112	76			116		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	246	234	72	235	234	112	76			116		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	98	99	100	99	99	98	100			99		
cM capacity (veh/h)	677	649	979	694	649	930	1523			1473		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	22	24	4	116	19	76
Volume Left	11	4	4	0	19	0
Volume Right	4	16	0	7	0	7
cSH	707	824	1523	1700	1473	1700
Volume to Capacity	0.03	0.03	0.00	0.07	0.01	0.04
Queue Length 95th (ft)	2	2	0	0	1	0
Control Delay (s)	10.3	9.5	7.4	0.0	7.5	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	10.3	9.5	0.2		1.5	
Approach LOS	B	A				

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	17.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	4	4	6	6	17	4	62	4	14	98	10
Future Volume (vph)	6	4	4	6	6	17	4	62	4	14	98	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1688	0	0	1636	0	1770	1848	0	1770	1837	0
Flt Permitted		0.977			0.990		0.950			0.950		
Satd. Flow (perm)	0	1688	0	0	1636	0	1770	1848	0	1770	1837	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		883			854			935			1001	
Travel Time (s)		13.4			12.9			11.6			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	0	33	0	4	73	0	16	120	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 17.4%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	4	4	6	6	17	4	62	4	14	98	10
Future Volume (Veh/h)	6	4	4	6	6	17	4	62	4	14	98	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	4	4	7	7	19	4	69	4	16	109	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1001	
pX, platoon unblocked												
vC, conflicting volume	246	228	114	226	231	71	120			73		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	246	228	114	226	231	71	120			73		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	99	99	100	99	99	98	100			99		
cM capacity (veh/h)	673	656	927	707	653	980	1468			1527		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	15	33	4	73	16	120
Volume Left	7	7	4	0	16	0
Volume Right	4	19	0	4	0	11
cSH	721	825	1468	1700	1527	1700
Volume to Capacity	0.02	0.04	0.00	0.04	0.01	0.07
Queue Length 95th (ft)	2	3	0	0	1	0
Control Delay (s)	10.1	9.5	7.5	0.0	7.4	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	10.1	9.5	0.4		0.9	
Approach LOS	B	A				

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	17.4%	ICU Level of Service	A
Analysis Period (min)	15		

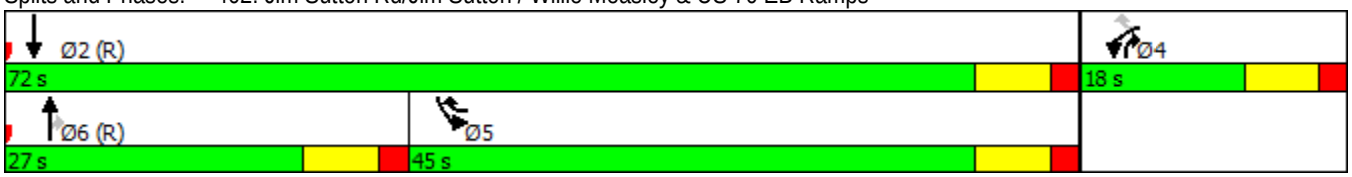
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	33	148	73	51	290	51
Future Volume (vph)	33	148	73	51	290	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200		100	300	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1863	1583	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1863	1583	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	999		1001			1313
Travel Time (s)	27.2		12.4			16.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	37	164	81	57	322	57
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	18.0	45.0	27.0	18.0	45.0	72.0
Total Split (%)	20.0%	50.0%	30.0%	20.0%	50.0%	80.0%
Maximum Green (s)	11.0	38.0	20.0	11.0	38.0	65.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.9	36.6	43.4	55.5	24.5	73.9
Actuated g/C Ratio	0.11	0.41	0.48	0.62	0.27	0.82
v/c Ratio	0.19	0.26	0.09	0.06	0.68	0.04
Control Delay	38.5	16.4	17.2	8.9	32.8	2.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	16.4	17.2	8.9	32.8	2.3
LOS	D	B	B	A	C	A
Approach Delay	20.5		13.8			28.2
Approach LOS	C		B			C
Queue Length 50th (ft)	20	58	25	12	124	5
Queue Length 95th (ft)	48	77	64	34	167	13
Internal Link Dist (ft)	919		921			1233
Turn Bay Length (ft)		200		100	300	
Base Capacity (vph)	250	733	898	946	771	1500
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.22	0.09	0.06	0.42	0.04

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 48 (53%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 23.3 Intersection LOS: C
Intersection Capacity Utilization 36.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps



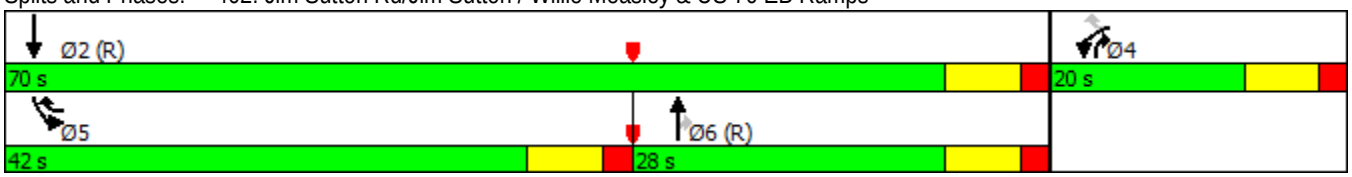
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	46	158	54	30	220	78
Future Volume (vph)	46	158	54	30	220	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200		100	300	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1863	1583	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1863	1583	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	999		1001			1313
Travel Time (s)	27.2		12.4			16.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	51	176	60	33	244	87
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	42.0	28.0	20.0	42.0	70.0
Total Split (%)	22.2%	46.7%	31.1%	22.2%	46.7%	77.8%
Maximum Green (s)	13.0	35.0	21.0	13.0	35.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.4	32.8	47.2	62.7	20.1	73.4
Actuated g/C Ratio	0.12	0.36	0.52	0.70	0.22	0.82
v/c Ratio	0.26	0.31	0.06	0.03	0.63	0.06
Control Delay	38.9	19.6	14.7	6.7	33.2	2.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	19.6	14.7	6.7	33.2	2.3
LOS	D	B	B	A	C	A
Approach Delay	24.0		11.9			25.1
Approach LOS	C		B			C
Queue Length 50th (ft)	27	67	17	6	109	8
Queue Length 95th (ft)	60	94	46	19	156	16
Internal Link Dist (ft)	919		921			1233
Turn Bay Length (ft)		200		100	300	
Base Capacity (vph)	289	856	977	1182	713	1489
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.21	0.06	0.03	0.34	0.06

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 34 (38%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 22.8 Intersection LOS: C
Intersection Capacity Utilization 33.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps



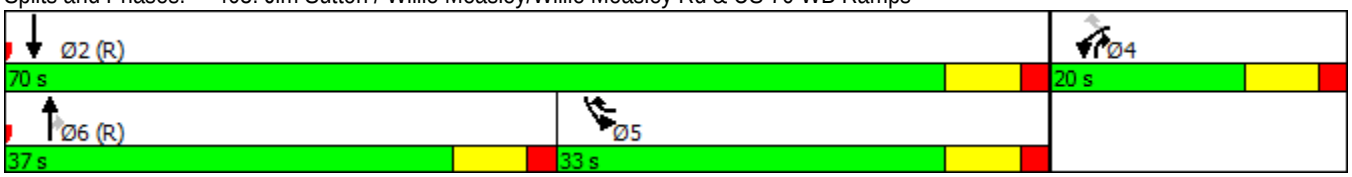
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	30	220	175	46	158	311
Future Volume (vph)	30	220	175	46	158	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	275		100	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	987		1313			996
Travel Time (s)	15.0		16.3			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	244	194	51	176	346
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	33.0	37.0	20.0	33.0	70.0
Total Split (%)	22.2%	36.7%	41.1%	22.2%	36.7%	77.8%
Maximum Green (s)	13.0	26.0	30.0	13.0	26.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.7	30.7	49.3	61.2	18.8	74.1
Actuated g/C Ratio	0.11	0.34	0.55	0.68	0.21	0.82
v/c Ratio	0.18	0.46	0.19	0.05	0.49	0.23
Control Delay	38.4	24.4	10.5	3.9	35.4	2.9

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.4	24.4	10.5	3.9	35.4	2.9
LOS	D	C	B	A	D	A
Approach Delay	26.1		9.1			13.9
Approach LOS	C		A			B
Queue Length 50th (ft)	18	103	47	5	89	39
Queue Length 95th (ft)	44	147	95	15	142	71
Internal Link Dist (ft)	907		1233			916
Turn Bay Length (ft)		275		275	175	
Base Capacity (vph)	289	575	1000	1051	540	1503
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.42	0.19	0.05	0.33	0.23

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.49
Intersection Signal Delay: 16.0 Intersection LOS: B
Intersection Capacity Utilization 38.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps



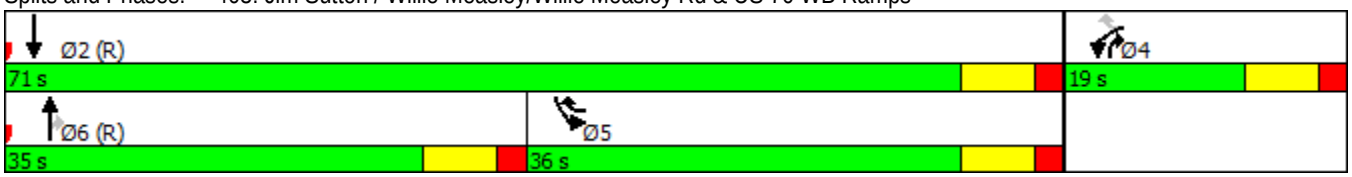
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	51	290	179	33	148	247
Future Volume (vph)	51	290	179	33	148	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	275		100	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	987		1313			996
Travel Time (s)	15.0		16.3			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	322	199	37	164	274
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	19.0	36.0	35.0	19.0	36.0	71.0
Total Split (%)	21.1%	40.0%	38.9%	21.1%	40.0%	78.9%
Maximum Green (s)	12.0	29.0	28.0	12.0	29.0	64.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.7	36.0	44.0	56.8	23.2	73.1
Actuated g/C Ratio	0.12	0.40	0.49	0.63	0.26	0.81
v/c Ratio	0.28	0.52	0.22	0.04	0.37	0.18
Control Delay	39.1	22.0	11.4	6.2	29.0	3.1

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	22.0	11.4	6.2	29.0	3.1
LOS	D	C	B	A	C	A
Approach Delay	24.5		10.6			12.8
Approach LOS	C		B			B
Queue Length 50th (ft)	30	128	32	5	76	32
Queue Length 95th (ft)	64	168	99	16	122	62
Internal Link Dist (ft)	907		1233			916
Turn Bay Length (ft)	275			100	175	
Base Capacity (vph)	270	657	892	951	597	1484
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.49	0.22	0.04	0.27	0.18

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 16.5 Intersection LOS: B
Intersection Capacity Utilization 38.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	8	204	28	5	4	170	128	39	8	188	5
Future Volume (vph)	4	8	204	28	5	4	170	128	39	8	188	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1623	0	0	1772	0	1736	1763	0	1770	1855	0
Flt Permitted		0.999			0.964		0.950			0.950		
Satd. Flow (perm)	0	1623	0	0	1772	0	1736	1763	0	1770	1855	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		970			951			996			1084	
Travel Time (s)		14.7			14.4			12.3			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	240	0	0	41	0	189	185	0	9	215	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 49.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	8	204	28	5	4	170	128	39	8	188	5
Future Volume (Veh/h)	4	8	204	28	5	4	170	128	39	8	188	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	9	227	31	6	4	189	142	43	9	209	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								996				
pX, platoon unblocked												
vC, conflicting volume	757	793	212	1000	774	164	215			185		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	757	793	212	1000	774	164	215			185		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	97	73	78	98	100	86			99		
cM capacity (veh/h)	282	274	828	139	281	881	1343			1390		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	240	41	189	185	9	215
Volume Left	4	31	189	0	9	0
Volume Right	227	4	0	43	0	6
cSH	747	165	1343	1700	1390	1700
Volume to Capacity	0.32	0.25	0.14	0.11	0.01	0.13
Queue Length 95th (ft)	35	23	12	0	0	0
Control Delay (s)	12.1	33.8	8.1	0.0	7.6	0.0
Lane LOS	B	D	A		A	
Approach Delay (s)	12.1	33.8	4.1		0.3	
Approach LOS	B	D				

Intersection Summary				
Average Delay	6.7			
Intersection Capacity Utilization	49.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	170	39	8	8	204	187	28	4	128	4
Future Volume (vph)	5	5	170	39	8	8	204	187	28	4	128	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1625	0	0	1763	0	1736	1792	0	1770	1855	0
Flt Permitted		0.999			0.966		0.950			0.950		
Satd. Flow (perm)	0	1625	0	0	1763	0	1736	1792	0	1770	1855	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		970			951			996			1084	
Travel Time (s)		14.7			14.4			12.3			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	201	0	0	61	0	227	239	0	4	146	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 46.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	170	39	8	8	204	187	28	4	128	4
Future Volume (Veh/h)	5	5	170	39	8	8	204	187	28	4	128	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	6	189	43	9	9	227	208	31	4	142	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								996				
pX, platoon unblocked												
vC, conflicting volume	828	845	144	1020	832	224	146			239		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	828	845	144	1020	832	224	146			239		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	98	79	71	96	99	84			100		
cM capacity (veh/h)	245	251	903	146	256	816	1424			1328		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	201	61	227	239	4	146
Volume Left	6	43	227	0	4	0
Volume Right	189	9	0	31	0	4
cSH	780	179	1424	1700	1328	1700
Volume to Capacity	0.26	0.34	0.16	0.14	0.00	0.09
Queue Length 95th (ft)	26	35	14	0	0	0
Control Delay (s)	11.2	35.1	8.0	0.0	7.7	0.0
Lane LOS	B	E	A		A	
Approach Delay (s)	11.2	35.1	3.9		0.2	
Approach LOS	B	E				

Intersection Summary			
Average Delay	7.1		
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	9	7	7	7	187	7	32	8	123	19	6
Future Volume (vph)	12	9	7	7	7	187	7	32	8	123	19	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1726	0	0	1595	0	1770	1807	0	1770	1792	0
Flt Permitted		0.979			0.998		0.950			0.950		
Satd. Flow (perm)	0	1726	0	0	1595	0	1770	1807	0	1770	1792	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		842			950			832			1210	
Travel Time (s)		19.1			21.6			18.9			27.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	31	0	0	224	0	8	45	0	137	28	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 32.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	9	7	7	7	187	7	32	8	123	19	6
Future Volume (Veh/h)	12	9	7	7	7	187	7	32	8	123	19	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	13	10	8	8	8	208	8	36	9	137	21	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1210	
pX, platoon unblocked												
vC, conflicting volume	562	360	24	364	358	40	28			45		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	562	360	24	364	358	40	28			45		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	98	99	99	98	80	99			91		
cM capacity (veh/h)	318	512	1046	534	513	1025	1585			1563		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	31	224	8	45	137	28
Volume Left	13	8	8	0	137	0
Volume Right	8	208	0	9	0	7
cSH	455	959	1585	1700	1563	1700
Volume to Capacity	0.07	0.23	0.01	0.03	0.09	0.02
Queue Length 95th (ft)	5	23	0	0	7	0
Control Delay (s)	13.5	9.9	7.3	0.0	7.5	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	13.5	9.9	1.1		6.2	
Approach LOS	B	A				

Intersection Summary			
Average Delay	7.9		
Intersection Capacity Utilization	32.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	7	7	8	9	123	7	19	7	187	32	12
Future Volume (vph)	6	7	7	8	9	123	7	19	7	187	32	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1715	0	0	1605	0	1770	1786	0	1770	1788	0
Flt Permitted		0.985			0.997		0.950			0.950		
Satd. Flow (perm)	0	1715	0	0	1605	0	1770	1786	0	1770	1788	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		842			950			832			1210	
Travel Time (s)		19.1			21.6			18.9			27.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	0	0	156	0	8	29	0	208	49	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 32.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	7	7	8	9	123	7	19	7	187	32	12
Future Volume (Veh/h)	6	7	7	8	9	123	7	19	7	187	32	12
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	8	8	9	10	137	8	21	8	208	36	13
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1210	
pX, platoon unblocked												
vC, conflicting volume	638	504	42	505	506	25	49			29		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	638	504	42	505	506	25	49			29		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	98	99	98	98	87	99			87		
cM capacity (veh/h)	296	404	1022	415	403	1045	1558			1584		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	23	156	8	29	208	49
Volume Left	7	9	8	0	208	0
Volume Right	8	137	0	8	0	13
cSH	448	879	1558	1700	1584	1700
Volume to Capacity	0.05	0.18	0.01	0.02	0.13	0.03
Queue Length 95th (ft)	4	16	0	0	11	0
Control Delay (s)	13.5	10.0	7.3	0.0	7.6	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	13.5	10.0	1.6		6.2	
Approach LOS	B	A				

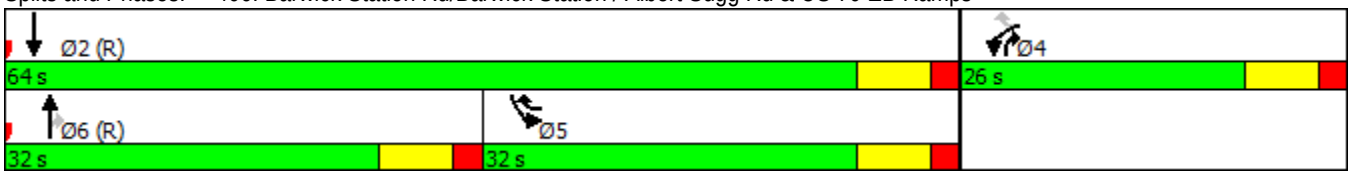
Intersection Summary			
Average Delay	7.4		
Intersection Capacity Utilization	32.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	46	105	76	146	115	109
Future Volume (vph)	46	105	76	146	115	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200		100	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1863	1583	1770	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	1083		1210			1234
Travel Time (s)	29.5		15.0			15.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	51	117	84	162	128	121
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	26.0	32.0	32.0	26.0	32.0	64.0
Total Split (%)	28.9%	35.6%	35.6%	28.9%	35.6%	71.1%
Maximum Green (s)	19.0	25.0	25.0	19.0	25.0	57.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.6	29.4	50.6	66.2	13.8	69.4
Actuated g/C Ratio	0.12	0.33	0.56	0.74	0.15	0.77
v/c Ratio	0.25	0.23	0.08	0.14	0.47	0.08
Control Delay	38.5	21.8	10.8	4.4	28.4	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	38.5	21.8	10.8	4.4	28.4	1.7
LOS	D	C	B	A	C	A
Approach Delay	26.9		6.6			15.4
Approach LOS	C		A			B
Queue Length 50th (ft)	27	48	20	22	64	7
Queue Length 95th (ft)	59	78	50	50	106	16
Internal Link Dist (ft)	1003		1130			1154
Turn Bay Length (ft)		200		100	150	
Base Capacity (vph)	413	533	1047	1163	531	1436
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.22	0.08	0.14	0.24	0.08

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 24 (27%), Referenced to phase 2:SBT and 6:NBT, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.47	
Intersection Signal Delay: 15.0	Intersection LOS: B
Intersection Capacity Utilization 27.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 406: Barwick Station Rd/Barwick Station / Albert Sugg Rd & US 70 EB Ramps

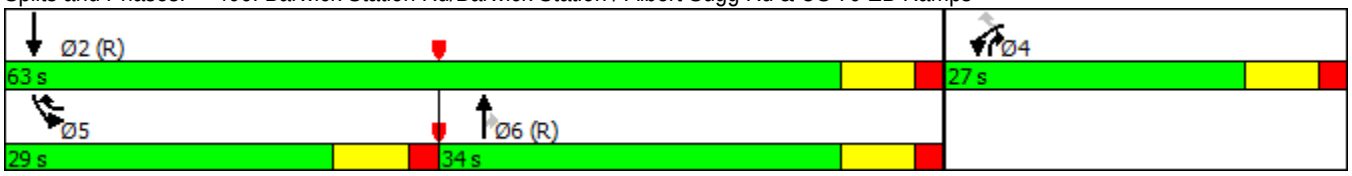


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	59	142	64	91	69	163
Future Volume (vph)	59	142	64	91	69	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200		100	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1863	1583	1770	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	1083		1210			1234
Travel Time (s)	29.5		15.0			15.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	66	158	71	101	77	181
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	27.0	29.0	34.0	27.0	29.0	63.0
Total Split (%)	30.0%	32.2%	37.8%	30.0%	32.2%	70.0%
Maximum Green (s)	20.0	22.0	27.0	20.0	22.0	56.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	11.0	25.0	55.0	71.0	11.8	72.8
Actuated g/C Ratio	0.12	0.28	0.61	0.79	0.13	0.81
v/c Ratio	0.30	0.36	0.06	0.08	0.33	0.12
Control Delay	39.1	26.4	9.6	3.2	24.6	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	39.1	26.4	9.6	3.2	24.6	2.3
LOS	D	C	A	A	C	A
Approach Delay	30.1		5.8			8.9
Approach LOS	C		A			A
Queue Length 50th (ft)	35	70	16	11	18	6
Queue Length 95th (ft)	72	109	41	27	38	13
Internal Link Dist (ft)	1003		1130			1154
Turn Bay Length (ft)		200		100	150	
Base Capacity (vph)	432	655	1138	1419	472	1506
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.24	0.06	0.07	0.16	0.12

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 22 (24%), Referenced to phase 2:SBT and 6:NBT, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.36	
Intersection Signal Delay: 15.4	Intersection LOS: B
Intersection Capacity Utilization 28.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 406: Barwick Station Rd/Barwick Station / Albert Sugg Rd & US 70 EB Ramps



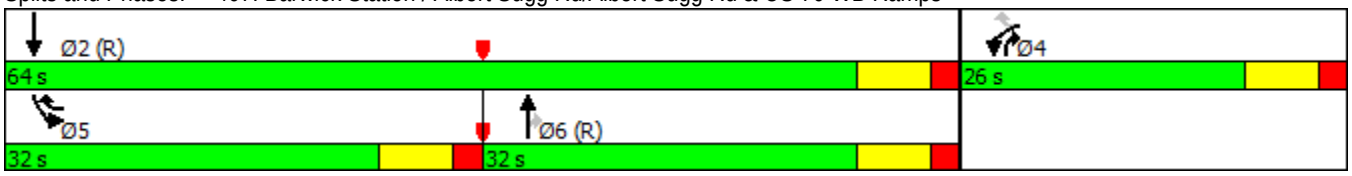
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	91	69	122	59	142	133
Future Volume (vph)	91	69	122	59	142	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1863	1583	1770	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1104		1234			1203
Travel Time (s)	16.7		15.3			14.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	101	77	136	66	158	148
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	26.0	32.0	32.0	26.0	32.0	64.0
Total Split (%)	28.9%	35.6%	35.6%	28.9%	35.6%	71.1%
Maximum Green (s)	19.0	25.0	25.0	19.0	25.0	57.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	12.6	30.1	49.9	67.5	15.3	71.2
Actuated g/C Ratio	0.14	0.33	0.55	0.75	0.17	0.79
v/c Ratio	0.41	0.15	0.13	0.06	0.52	0.10
Control Delay	39.6	17.7	6.8	2.8	39.7	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	39.6	17.7	6.8	2.8	39.7	3.5
LOS	D	B	A	A	D	A
Approach Delay	30.2		5.5			22.2
Approach LOS	C		A			C
Queue Length 50th (ft)	53	29	15	4	83	18
Queue Length 95th (ft)	97	49	86	23	135	41
Internal Link Dist (ft)	1024		1154			1123
Turn Bay Length (ft)		150		100	200	
Base Capacity (vph)	413	734	1033	1315	531	1474
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.10	0.13	0.05	0.30	0.10

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 19.3 Intersection LOS: B
Intersection Capacity Utilization 37.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 407: Barwick Station / Albert Sugg Rd/Albert Sugg Rd & US 70 WB Ramps



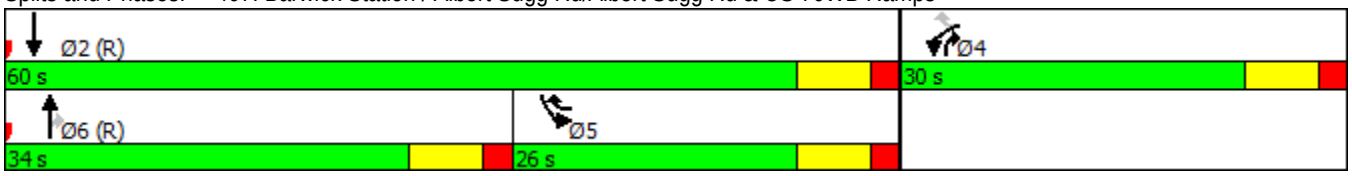
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	146	115	160	46	105	86
Future Volume (vph)	146	115	160	46	105	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1863	1583	1770	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1104		1234			1203
Travel Time (s)	16.7		15.3			14.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	162	128	178	51	117	96
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	30.0	26.0	34.0	30.0	26.0	60.0
Total Split (%)	33.3%	28.9%	37.8%	33.3%	28.9%	66.7%
Maximum Green (s)	23.0	19.0	27.0	23.0	19.0	53.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	15.5	33.8	46.2	66.7	13.3	64.5
Actuated g/C Ratio	0.17	0.38	0.51	0.74	0.15	0.72
v/c Ratio	0.53	0.22	0.19	0.04	0.45	0.07
Control Delay	39.7	18.3	7.2	1.2	39.8	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	39.7	18.3	7.2	1.2	39.8	4.7
LOS	D	B	A	A	D	A
Approach Delay	30.3		5.8			24.0
Approach LOS	C		A			C
Queue Length 50th (ft)	85	49	15	2	62	14
Queue Length 95th (ft)	137	73	121	5	108	34
Internal Link Dist (ft)	1024		1154			1123
Turn Bay Length (ft)		150		100	200	
Base Capacity (vph)	491	588	957	1171	413	1335
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.22	0.19	0.04	0.28	0.07

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.53
Intersection Signal Delay: 20.8 Intersection LOS: C
Intersection Capacity Utilization 38.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 407: Barwick Station / Albert Sugg Rd/Albert Sugg Rd & US 70WB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	24	201	6	4	32	32	128	4	50	5
Future Volume (vph)	4	4	24	201	6	4	32	32	128	4	50	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1659	0	0	1775	0	1770	1639	0	1770	1835	0
Flt Permitted		0.994			0.955		0.950			0.950		
Satd. Flow (perm)	0	1659	0	0	1775	0	1770	1639	0	1770	1835	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		789			856			1203			959	
Travel Time (s)		17.9			19.5			27.3			21.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	35	0	0	234	0	36	178	0	4	62	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 34.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	4	24	201	6	4	32	32	128	4	50	5
Future Volume (Veh/h)	4	4	24	201	6	4	32	32	128	4	50	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	4	27	223	7	4	36	36	142	4	56	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								1203				
pX, platoon unblocked												
vC, conflicting volume	182	317	59	272	249	107	62			178		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	182	317	59	272	249	107	62			178		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	97	65	99	100	98			100		
cM capacity (veh/h)	754	583	1007	646	637	947	1541			1398		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	35	234	36	178	4	62
Volume Left	4	223	36	0	4	0
Volume Right	27	4	0	142	0	6
cSH	898	649	1541	1700	1398	1700
Volume to Capacity	0.04	0.36	0.02	0.10	0.00	0.04
Queue Length 95th (ft)	3	41	2	0	0	0
Control Delay (s)	9.2	13.6	7.4	0.0	7.6	0.0
Lane LOS	A	B	A		A	
Approach Delay (s)	9.2	13.6	1.2		0.5	
Approach LOS	A	B				

Intersection Summary			
Average Delay	6.9		
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	6	32	128	4	4	24	50	201	4	32	4
Future Volume (vph)	5	6	32	128	4	4	24	50	201	4	32	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1668	0	0	1772	0	1770	1639	0	1770	1835	0
Flt Permitted		0.994			0.955		0.950			0.950		
Satd. Flow (perm)	0	1668	0	0	1772	0	1770	1639	0	1770	1835	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		789			856			1203			959	
Travel Time (s)		17.9			19.5			27.3			21.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	49	0	0	150	0	27	279	0	4	40	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 35.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	6	32	128	4	4	24	50	201	4	32	4
Future Volume (Veh/h)	5	6	32	128	4	4	24	50	201	4	32	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	7	36	142	4	4	27	56	223	4	36	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								1203				
pX, platoon unblocked												
vC, conflicting volume	162	379	38	305	270	168	40			279		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	162	379	38	305	270	168	40			279		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	97	77	99	100	98			100		
cM capacity (veh/h)	783	542	1034	609	624	877	1570			1284		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	49	150	27	279	4	40
Volume Left	6	142	27	0	4	0
Volume Right	36	4	0	223	0	4
cSH	885	615	1570	1700	1284	1700
Volume to Capacity	0.06	0.24	0.02	0.16	0.00	0.02
Queue Length 95th (ft)	4	24	1	0	0	0
Control Delay (s)	9.3	12.7	7.3	0.0	7.8	0.0
Lane LOS	A	B	A		A	
Approach Delay (s)	9.3	12.7	0.6		0.7	
Approach LOS	A	B				

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	35.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	835	582	162	0	194
Future Volume (vph)	0	835	582	162	0	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			300	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	100				100	
Satd. Flow (prot)	0	3438	3438	1538	0	1550
Flt Permitted						
Satd. Flow (perm)	0	3438	3438	1538	0	1550
Link Speed (mph)		55	55		45	
Link Distance (ft)		829	929		1176	
Travel Time (s)		10.3	11.5		17.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	928	647	180	0	216
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	835	582	162	0	194
Future Volume (Veh/h)	0	835	582	162	0	194
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	928	647	180	0	216
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	647				1111	324
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	647				1111	324
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	100				100	67
cM capacity (veh/h)	914				197	661

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	464	464	324	324	180	216
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	180	216
cSH	1700	1700	1700	1700	1700	661
Volume to Capacity	0.27	0.27	0.19	0.19	0.11	0.33
Queue Length 95th (ft)	0	0	0	0	0	36
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	13.1
Lane LOS						B
Approach Delay (s)	0.0		0.0			13.1
Approach LOS						B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	758	657	207	0	150
Future Volume (vph)	0	758	657	207	0	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			300	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	100				100	
Satd. Flow (prot)	0	3438	3438	1538	0	1550
Flt Permitted						
Satd. Flow (perm)	0	3438	3438	1538	0	1550
Link Speed (mph)		55	55		45	
Link Distance (ft)		829	929		1176	
Travel Time (s)		10.3	11.5		17.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	842	730	230	0	167
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 34.1%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	758	657	207	0	150
Future Volume (Veh/h)	0	758	657	207	0	150
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	842	730	230	0	167
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	730				1151	365
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	730				1151	365
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	100				100	73
cM capacity (veh/h)	850				185	620

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	421	421	365	365	230	167
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	230	167
cSH	1700	1700	1700	1700	1700	620
Volume to Capacity	0.25	0.25	0.21	0.21	0.14	0.27
Queue Length 95th (ft)	0	0	0	0	0	27
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.9
Lane LOS						B
Approach Delay (s)	0.0		0.0			12.9
Approach LOS						B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	34.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	301	10	10	889	591	198
Future Volume (vph)	301	10	10	889	591	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1671	1495	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1671	1495	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	55	
Link Distance (ft)	1293			1201	1455	
Travel Time (s)	16.0			14.9	18.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	334	11	11	988	657	220
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	49.0	14.0	14.0	111.0	97.0	49.0
Total Split (%)	30.6%	8.8%	8.8%	69.4%	60.6%	30.6%
Maximum Green (s)	42.0	7.0	7.0	104.0	90.0	42.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	38.0	52.1	9.0	112.0	103.5	148.6
Actuated g/C Ratio	0.24	0.33	0.06	0.70	0.65	0.93
v/c Ratio	0.84	0.02	0.11	0.78	0.56	0.15
Control Delay	76.8	34.0	74.5	22.7	14.3	1.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.8	34.0	74.5	22.7	14.3	1.0
LOS	E	C	E	C	B	A
Approach Delay	75.4			23.3	11.0	
Approach LOS	E			C	B	
Queue Length 50th (ft)	333	8	11	654	216	11
Queue Length 95th (ft)	441	23	34	958	576	m0
Internal Link Dist (ft)	1213			1121	1375	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	459	486	96	1267	1171	1439
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.02	0.11	0.78	0.56	0.15

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 152 (95%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 26.5 Intersection LOS: C
Intersection Capacity Utilization 71.8% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 410: NC 11/NC 11/55 & NC 55

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	199	9	9	592	889	302
Future Volume (vph)	199	9	9	592	889	302
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1671	1495	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1671	1495	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	55	
Link Distance (ft)	1293			1201	1455	
Travel Time (s)	16.0			14.9	18.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	221	10	10	658	988	336
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	18.0	14.0	14.0	72.0	58.0	18.0
Total Split (%)	20.0%	15.6%	15.6%	80.0%	64.4%	20.0%
Maximum Green (s)	11.0	7.0	7.0	65.0	51.0	11.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	15.5	29.5	9.0	64.5	58.9	82.4
Actuated g/C Ratio	0.17	0.33	0.10	0.72	0.65	0.92
v/c Ratio	0.77	0.02	0.06	0.51	0.84	0.24
Control Delay	56.1	22.2	37.7	7.2	15.7	1.5

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.1	22.2	37.7	7.2	15.7	1.5
LOS	E	C	D	A	B	A
Approach Delay	54.6			7.6	12.1	
Approach LOS	D			A	B	
Queue Length 50th (ft)	120	4	5	144	192	0
Queue Length 95th (ft)	#260	16	21	183	m#750	m40
Internal Link Dist (ft)	1213			1121	1375	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	288	490	171	1347	1183	1408
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.02	0.06	0.49	0.84	0.24

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 26 (29%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 15.2 Intersection LOS: B
Intersection Capacity Utilization 66.1% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 410: NC 11/NC 11/55 & NC 55

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	252	88	1056	140	26	535
Future Volume (vph)	252	88	1056	140	26	535
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1810	1538	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1810	1538	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	942		1455			1429
Travel Time (s)	25.7		18.0			17.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	5%	5%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	280	98	1173	156	29	594
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	39.0	14.0	107.0	39.0	14.0	121.0
Total Split (%)	24.4%	8.8%	66.9%	24.4%	8.8%	75.6%
Maximum Green (s)	32.0	7.0	100.0	32.0	7.0	114.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	31.4	45.4	104.6	141.0	9.0	118.6
Actuated g/C Ratio	0.20	0.28	0.65	0.88	0.06	0.74
v/c Ratio	0.85	0.23	0.99	0.12	0.31	0.45
Control Delay	84.3	44.6	45.6	1.0	74.4	6.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.3	44.6	45.6	1.0	74.4	6.0
LOS	F	D	D	A	E	A
Approach Delay	74.0		40.4			9.2
Approach LOS	E		D			A
Queue Length 50th (ft)	280	77	~1286	4	30	41
Queue Length 95th (ft)	#413	130	#1574	m13	m68	168
Internal Link Dist (ft)	862		1375			1349
Turn Bay Length (ft)		150		100	100	
Base Capacity (vph)	358	427	1183	1352	94	1316
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.23	0.99	0.12	0.31	0.45

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 37.5 Intersection LOS: D
Intersection Capacity Utilization 77.9% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 411: NC 11/55 & US 70 EB Ramps

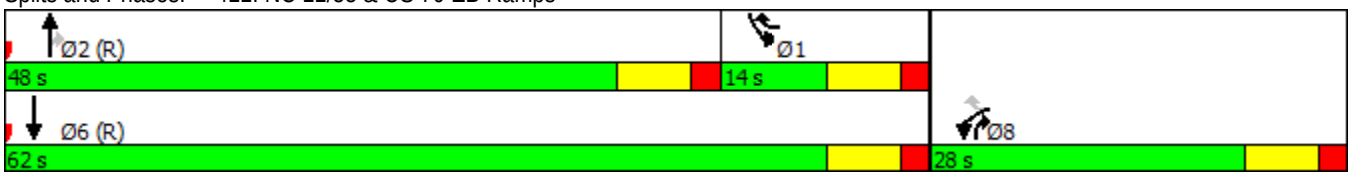
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	315	59	646	141	49	881
Future Volume (vph)	315	59	646	141	49	881
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1810	1538	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1810	1538	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	942		1455			1429
Travel Time (s)	25.7		18.0			17.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	5%	5%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	350	66	718	157	54	979
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	28.0	14.0	48.0	28.0	14.0	62.0
Total Split (%)	31.1%	15.6%	53.3%	31.1%	15.6%	68.9%
Maximum Green (s)	21.0	7.0	41.0	21.0	7.0	55.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	22.2	35.2	46.6	74.8	9.0	57.8
Actuated g/C Ratio	0.25	0.39	0.52	0.83	0.10	0.64
v/c Ratio	0.84	0.11	0.77	0.12	0.32	0.86
Control Delay	51.7	17.0	19.4	1.7	29.7	10.9

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.7	17.0	19.4	1.7	29.7	10.9
LOS	D	B	B	A	C	B
Approach Delay	46.2		16.2			11.9
Approach LOS	D		B			B
Queue Length 50th (ft)	187	23	272	12	29	92
Queue Length 95th (ft)	#329	49	#544	m19	m36	m#121
Internal Link Dist (ft)	862		1375			1349
Turn Bay Length (ft)		150		100	100	
Base Capacity (vph)	432	589	938	1276	168	1141
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.11	0.77	0.12	0.32	0.86

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 8 (9%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 19.7 Intersection LOS: B
Intersection Capacity Utilization 72.2% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 411: NC 11/55 & US 70 EB Ramps



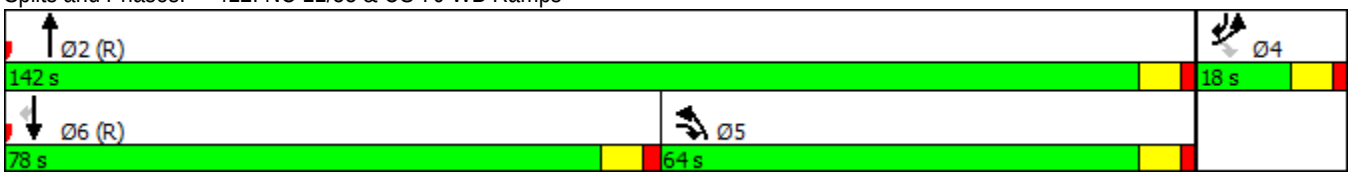
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	49	141	315	829	420	59
Future Volume (vph)	49	141	315	829	420	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250	475			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1687	1509	1687	1776	1776	1509
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1687	1509	1687	1776	1776	1509
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1169			1429	1067	
Travel Time (s)	31.9			17.7	13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	157	350	921	467	66
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	18.0	64.0	64.0	142.0	78.0	18.0
Total Split (%)	11.3%	40.0%	40.0%	88.8%	48.8%	11.3%
Maximum Green (s)	11.0	57.0	57.0	135.0	71.0	11.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	12.6	58.8	41.2	137.4	91.2	108.8
Actuated g/C Ratio	0.08	0.37	0.26	0.86	0.57	0.68
v/c Ratio	0.41	0.28	0.81	0.60	0.46	0.06
Control Delay	78.4	35.2	48.2	1.8	23.9	10.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.4	35.2	48.2	1.8	23.9	10.3
LOS	E	D	D	A	C	B
Approach Delay	46.3			14.6	22.2	
Approach LOS	D			B	C	
Queue Length 50th (ft)	55	116	319	64	277	22
Queue Length 95th (ft)	101	152	m374	m11	454	49
Internal Link Dist (ft)	1089			1349	987	
Turn Bay Length (ft)		250	475			100
Base Capacity (vph)	147	595	622	1535	1012	1010
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.26	0.56	0.60	0.46	0.07

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 42 (26%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 19.9 Intersection LOS: B
Intersection Capacity Utilization 57.9% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 412: NC 11/55 & US 70 WB Ramps



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	26	140	252	453	790	88
Future Volume (vph)	26	140	252	453	790	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250	475			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1687	1509	1687	1776	1776	1509
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1687	1509	1687	1776	1776	1509
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1169			1429	1067	
Travel Time (s)	31.9			17.7	13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	29	156	280	503	878	98
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	14.0	22.0	22.0	76.0	54.0	14.0
Total Split (%)	15.6%	24.4%	24.4%	84.4%	60.0%	15.6%
Maximum Green (s)	7.0	15.0	15.0	69.0	47.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.0	28.2	17.0	74.8	51.8	63.0
Actuated g/C Ratio	0.10	0.31	0.19	0.83	0.58	0.70
v/c Ratio	0.17	0.33	0.88	0.34	0.86	0.09
Control Delay	39.8	24.7	43.8	1.1	28.2	4.6

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	24.7	43.8	1.1	28.2	4.6
LOS	D	C	D	A	C	A
Approach Delay	27.1			16.3	25.8	
Approach LOS	C			B	C	
Queue Length 50th (ft)	15	64	155	19	422	15
Queue Length 95th (ft)	42	114	m#245	m24	#697	30
Internal Link Dist (ft)	1089			1349	987	
Turn Bay Length (ft)		250	475			100
Base Capacity (vph)	168	472	318	1476	1021	1056
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.33	0.88	0.34	0.86	0.09

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 22.1 Intersection LOS: C
Intersection Capacity Utilization 73.9% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 412: NC 11/55 & US 70 WB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	221	104	439	56	18	111
Future Volume (vph)	221	104	439	56	18	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	980		1013			1287
Travel Time (s)	26.7		12.6			16.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	246	116	488	62	20	123
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	29.0	14.0	47.0	29.0	14.0	61.0
Total Split (%)	32.2%	15.6%	52.2%	32.2%	15.6%	67.8%
Maximum Green (s)	22.0	7.0	40.0	22.0	7.0	54.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	19.9	33.9	48.9	74.7	9.1	60.1
Actuated g/C Ratio	0.22	0.38	0.54	0.83	0.10	0.67
v/c Ratio	0.66	0.20	0.51	0.05	0.12	0.10
Control Delay	40.4	18.8	17.4	2.2	40.1	4.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.4	18.8	17.4	2.2	40.1	4.3
LOS	D	B	B	A	D	A
Approach Delay	33.5		15.7			9.3
Approach LOS	C		B			A
Queue Length 50th (ft)	127	43	179	6	11	14
Queue Length 95th (ft)	193	75	302	13	25	28
Internal Link Dist (ft)	900		933			1207
Turn Bay Length (ft)		150		100	100	
Base Capacity (vph)	452	568	967	1290	169	1190
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.20	0.50	0.05	0.12	0.10

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 56 (62%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 20.9 Intersection LOS: C
Intersection Capacity Utilization 43.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 413: US 258 & US 70 EB Ramps

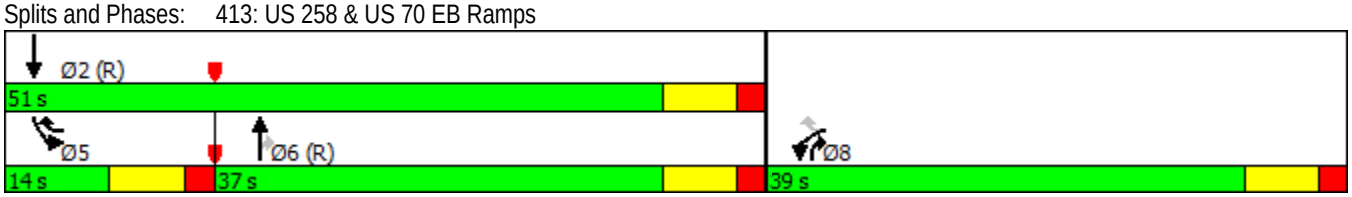
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	321	82	285	47	28	174
Future Volume (vph)	321	82	285	47	28	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	980		1013			1287
Travel Time (s)	26.7		12.6			16.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	357	91	317	52	31	193
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	39.0	14.0	37.0	39.0	14.0	51.0
Total Split (%)	43.3%	15.6%	41.1%	43.3%	15.6%	56.7%
Maximum Green (s)	32.0	7.0	30.0	32.0	7.0	44.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	26.3	40.9	41.9	74.2	9.6	53.7
Actuated g/C Ratio	0.29	0.45	0.47	0.82	0.11	0.60
v/c Ratio	0.73	0.13	0.38	0.04	0.17	0.18
Control Delay	36.9	13.0	20.5	2.4	38.5	7.9

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.9	13.0	20.5	2.4	38.5	7.9
LOS	D	B	C	A	D	A
Approach Delay	32.0		18.0			12.1
Approach LOS	C		B			B
Queue Length 50th (ft)	181	29	119	5	16	32
Queue Length 95th (ft)	247	46	227	13	42	95
Internal Link Dist (ft)	900		933			1207
Turn Bay Length (ft)		150		100	100	
Base Capacity (vph)	637	685	834	1320	180	1059
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.13	0.38	0.04	0.17	0.18

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 22.8 Intersection LOS: C
Intersection Capacity Utilization 49.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 413: US 258 & US 70 EB Ramps



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	47	28	222	321	82	82
Future Volume (vph)	47	28	222	321	82	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		150	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1086		1287			882
Travel Time (s)	16.5		16.0			10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	52	31	247	357	91	91
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	31.0	20.0	39.0	31.0	20.0	59.0
Total Split (%)	34.4%	22.2%	43.3%	34.4%	22.2%	65.6%
Maximum Green (s)	24.0	13.0	32.0	24.0	13.0	52.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	13.4	30.7	52.1	71.5	12.3	66.6
Actuated g/C Ratio	0.15	0.34	0.58	0.79	0.14	0.74
v/c Ratio	0.21	0.06	0.24	0.30	0.40	0.07
Control Delay	33.6	17.2	6.2	1.7	39.8	4.1

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.6	17.2	6.2	1.7	39.8	4.1
LOS	C	B	A	A	D	A
Approach Delay	27.5		3.6			22.0
Approach LOS	C		A			C
Queue Length 50th (ft)	27	12	15	6	48	11
Queue Length 95th (ft)	55	26	51	14	90	30
Internal Link Dist (ft)	1006		1207			802
Turn Bay Length (ft)		100		150	175	
Base Capacity (vph)	487	563	1027	1352	285	1314
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.06	0.24	0.26	0.32	0.07

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.40
Intersection Signal Delay: 9.7 Intersection LOS: A
Intersection Capacity Utilization 35.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 414: US 258 & US 70 WB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	56	18	146	221	104	146
Future Volume (vph)	56	18	146	221	104	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		150	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1086		1287			882
Travel Time (s)	16.5		16.0			10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	62	20	162	246	116	162
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	27.0	27.0	36.0	27.0	27.0	63.0
Total Split (%)	30.0%	30.0%	40.0%	30.0%	30.0%	70.0%
Maximum Green (s)	20.0	20.0	29.0	20.0	20.0	56.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	11.0	29.5	53.3	70.3	13.5	69.0
Actuated g/C Ratio	0.12	0.33	0.59	0.78	0.15	0.77
v/c Ratio	0.30	0.04	0.15	0.21	0.46	0.12
Control Delay	39.2	18.2	5.3	1.1	40.0	3.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	18.2	5.3	1.1	40.0	3.2
LOS	D	B	A	A	D	A
Approach Delay	34.1		2.8			18.6
Approach LOS	C		A			B
Queue Length 50th (ft)	33	8	12	7	61	18
Queue Length 95th (ft)	69	20	36	14	107	39
Internal Link Dist (ft)	1006		1207			802
Turn Bay Length (ft)		100		150	175	
Base Capacity (vph)	412	637	1051	1319	412	1361
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.03	0.15	0.19	0.28	0.12

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 11.8 Intersection LOS: B
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 414: US 258 & US 70 WB Ramps

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	4	8	9	5	38	9	300	8	17	159	16
Future Volume (vph)	30	4	8	9	5	38	9	300	8	17	159	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1751	0	0	1665	0	1703	1785	0	1703	1767	0
Flt Permitted		0.965			0.991		0.950			0.950		
Satd. Flow (perm)	0	1751	0	0	1665	0	1703	1785	0	1703	1767	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1178			1128			1123			927	
Travel Time (s)		17.8			17.1			13.9			11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	46	0	0	58	0	10	342	0	19	195	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 30.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	4	8	9	5	38	9	300	8	17	159	16
Future Volume (Veh/h)	30	4	8	9	5	38	9	300	8	17	159	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	4	9	10	6	42	10	333	9	19	177	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											927	
pX, platoon unblocked												
vC, conflicting volume	622	586	186	584	590	338	195			342		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	622	586	186	584	590	338	195			342		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	91	99	99	98	99	94	99			98		
cM capacity (veh/h)	365	413	856	409	410	705	1354			1195		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	46	58	10	342	19	195
Volume Left	33	10	10	0	19	0
Volume Right	9	42	0	9	0	18
cSH	415	588	1354	1700	1195	1700
Volume to Capacity	0.11	0.10	0.01	0.20	0.02	0.11
Queue Length 95th (ft)	9	8	1	0	1	0
Control Delay (s)	14.7	11.8	7.7	0.0	8.1	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	14.7	11.8	0.2		0.7	
Approach LOS	B	B				

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	30.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	5	9	8	4	17	8	159	9	38	300	30
Future Volume (vph)	16	5	9	8	4	17	8	159	9	38	300	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1742	0	0	1690	0	1703	1778	0	1703	1767	0
Flt Permitted		0.974			0.986		0.950			0.950		
Satd. Flow (perm)	0	1742	0	0	1690	0	1703	1778	0	1703	1767	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1178			1128			1123			927	
Travel Time (s)		17.8			17.1			13.9			11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	34	0	0	32	0	9	187	0	42	366	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 34.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	5	9	8	4	17	8	159	9	38	300	30
Future Volume (Veh/h)	16	5	9	8	4	17	8	159	9	38	300	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	18	6	10	9	4	19	9	177	10	42	333	33
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											927	
pX, platoon unblocked	0.95	0.95	0.95	0.95	0.95		0.95					
vC, conflicting volume	650	638	350	630	650	182	366			187		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	602	590	285	581	602	182	302			187		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	95	98	99	98	99	98	99			97		
cM capacity (veh/h)	367	383	714	381	376	861	1170			1364		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	34	32	9	187	42	366
Volume Left	18	9	9	0	42	0
Volume Right	10	19	0	10	0	33
cSH	432	568	1170	1700	1364	1700
Volume to Capacity	0.08	0.06	0.01	0.11	0.03	0.22
Queue Length 95th (ft)	6	4	1	0	2	0
Control Delay (s)	14.0	11.7	8.1	0.0	7.7	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	14.0	11.7	0.4		0.8	
Approach LOS	B	B				

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	18	20	29	333	176	7
Future Volume (vph)	18	20	29	333	176	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	959			927	1201	
Travel Time (s)	14.5			11.5	14.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	22	32	370	196	8
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	22.0	22.0	22.0	68.0	46.0	22.0
Total Split (%)	24.4%	24.4%	24.4%	75.6%	51.1%	24.4%
Maximum Green (s)	15.0	15.0	15.0	61.0	39.0	15.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.3	15.6	9.7	82.1	72.0	80.7
Actuated g/C Ratio	0.10	0.17	0.11	0.91	0.80	0.90
v/c Ratio	0.11	0.08	0.17	0.23	0.14	0.01
Control Delay	38.0	27.2	38.4	1.9	2.8	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	27.2	38.4	1.9	2.8	0.3
LOS	D	C	D	A	A	A
Approach Delay	32.3			4.8	2.7	
Approach LOS	C			A	A	
Queue Length 50th (ft)	11	12	17	0	18	0
Queue Length 95th (ft)	32	27	43	71	28	1
Internal Link Dist (ft)	879			847	1121	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	321	387	321	1634	1433	1432
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.06	0.10	0.23	0.14	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 10 (11%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.23
Intersection Signal Delay: 5.9 Intersection LOS: A
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 416: NC 58 & US 70 EB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	32	22	174	330	10
Future Volume (vph)	15	32	22	174	330	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	959			927	1201	
Travel Time (s)	14.5			11.5	14.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	36	24	193	367	11
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	17.0	18.0	18.0	73.0	55.0	17.0
Total Split (%)	18.9%	20.0%	20.0%	81.1%	61.1%	18.9%
Maximum Green (s)	10.0	11.0	11.0	66.0	48.0	10.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.2	15.3	9.5	82.2	72.3	80.9
Actuated g/C Ratio	0.10	0.17	0.11	0.91	0.80	0.90
v/c Ratio	0.10	0.14	0.13	0.12	0.26	0.01
Control Delay	37.9	29.2	38.0	1.6	2.4	0.2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	29.2	38.0	1.6	2.4	0.2
LOS	D	C	D	A	A	A
Approach Delay	32.0			5.6	2.3	
Approach LOS	C			A	A	
Queue Length 50th (ft)	9	19	13	0	26	0
Queue Length 95th (ft)	29	38	36	36	31	0
Internal Link Dist (ft)	879			847	1121	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	227	318	245	1636	1438	1396
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.11	0.10	0.12	0.26	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 10 (11%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.26
Intersection Signal Delay: 5.9 Intersection LOS: A
Intersection Capacity Utilization 32.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 416: NC 58 & US 70 EB Ramps

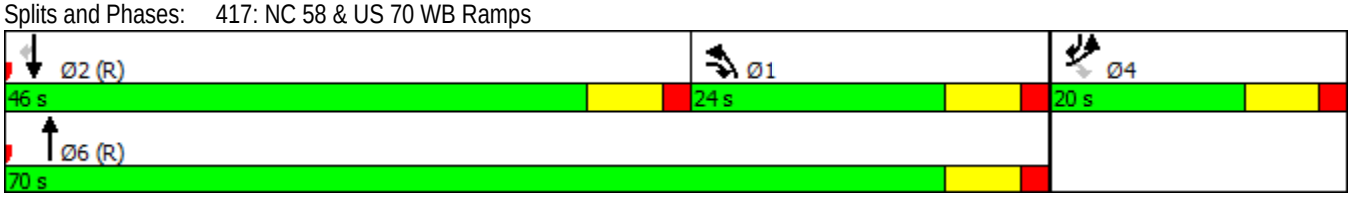
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	22	32	319	161	15
Future Volume (vph)	10	22	32	319	161	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	935			1201	1007	
Travel Time (s)	25.5			14.9	12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	24	36	354	179	17
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	20.0	24.0	24.0	70.0	46.0	20.0
Total Split (%)	22.2%	26.7%	26.7%	77.8%	51.1%	22.2%
Maximum Green (s)	13.0	17.0	17.0	63.0	39.0	13.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.1	15.6	9.9	82.3	72.0	77.7
Actuated g/C Ratio	0.10	0.17	0.11	0.91	0.80	0.86
v/c Ratio	0.06	0.09	0.19	0.22	0.12	0.01
Control Delay	37.6	27.6	38.4	1.3	5.3	2.5

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.6	27.6	38.4	1.3	5.3	2.5
LOS	D	C	D	A	A	A
Approach Delay	30.8			4.8	5.0	
Approach LOS	C			A	A	
Queue Length 50th (ft)	6	13	19	0	18	2
Queue Length 95th (ft)	22	29	47	43	71	6
Internal Link Dist (ft)	855			1121	927	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	283	363	359	1639	1434	1316
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.07	0.10	0.22	0.12	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.22
Intersection Signal Delay: 6.3 — Intersection LOS: A
Intersection Capacity Utilization 35.8% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 417: NC 58 & US 70 WB Ramps



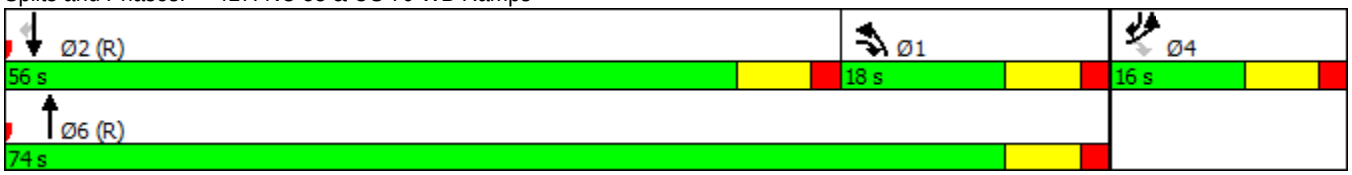
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	29	20	169	311	18
Future Volume (vph)	7	29	20	169	311	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	935			1201	1007	
Travel Time (s)	25.5			14.9	12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	32	22	188	346	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	16.0	18.0	18.0	74.0	56.0	16.0
Total Split (%)	17.8%	20.0%	20.0%	82.2%	62.2%	17.8%
Maximum Green (s)	9.0	11.0	11.0	67.0	49.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.0	15.2	9.6	82.4	72.4	78.0
Actuated g/C Ratio	0.10	0.17	0.11	0.92	0.80	0.87
v/c Ratio	0.05	0.12	0.12	0.11	0.24	0.02
Control Delay	37.4	29.0	38.8	1.3	5.5	2.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	29.0	38.8	1.3	5.5	2.3
LOS	D	C	D	A	A	A
Approach Delay	30.7			5.2	5.3	
Approach LOS	C			A	A	
Queue Length 50th (ft)	4	17	12	0	40	2
Queue Length 95th (ft)	18	36	34	25	134	7
Internal Link Dist (ft)	855			1121	927	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	208	281	245	1640	1442	1301
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.11	0.09	0.11	0.24	0.02

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.24
Intersection Signal Delay: 6.9 Intersection LOS: A
Intersection Capacity Utilization 30.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 417: NC 58 & US 70 WB Ramps



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	14	14	19	68	44	11
Future Volume (vph)	14	14	19	68	44	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1736	1553	1736	1827	1827	1553
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1736	1827	1827	1553
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	1230			1626	1380	
Travel Time (s)	18.6			20.2	17.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	16	21	76	49	12
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	5	5	2	6	7
Permitted Phases		7				6
Detector Phase	7	5	5	2	6	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	24.0	29.0	29.0	66.0	37.0	24.0
Total Split (%)	26.7%	32.2%	32.2%	73.3%	41.1%	26.7%
Maximum Green (s)	17.0	22.0	22.0	59.0	30.0	17.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.2	15.1	9.3	82.2	72.5	82.1
Actuated g/C Ratio	0.10	0.17	0.10	0.91	0.81	0.91
v/c Ratio	0.09	0.06	0.12	0.05	0.03	0.01
Control Delay	37.8	27.3	37.9	1.6	3.8	1.4

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.8	27.3	37.9	1.6	3.8	1.4
LOS	D	C	D	A	A	A
Approach Delay	32.5			9.4	3.3	
Approach LOS	C			A	A	
Queue Length 50th (ft)	8	8	11	0	3	0
Queue Length 95th (ft)	28	22	33	16	17	3
Internal Link Dist (ft)	1150			1546	1300	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	366	514	462	1669	1471	1482
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.03	0.05	0.05	0.03	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.12
Intersection Signal Delay: 11.4 Intersection LOS: B
Intersection Capacity Utilization 25.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 418: Wyse Fork Rd & US 70 EB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	12	21	16	42	66	15
Future Volume (vph)	12	21	16	42	66	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1736	1553	1736	1827	1827	1553
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1736	1827	1827	1553
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	1230			1626	1380	
Travel Time (s)	18.6			20.2	17.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	23	18	47	73	17
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	5	5	2	6	7
Permitted Phases		7				6
Detector Phase	7	5	5	2	6	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	24.0	24.0	24.0	66.0	42.0	24.0
Total Split (%)	26.7%	26.7%	26.7%	73.3%	46.7%	26.7%
Maximum Green (s)	17.0	17.0	17.0	59.0	35.0	17.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.1	17.8	9.2	78.5	69.8	78.4
Actuated g/C Ratio	0.10	0.20	0.10	0.87	0.78	0.87
v/c Ratio	0.07	0.08	0.10	0.03	0.05	0.01
Control Delay	37.6	26.1	37.9	2.0	4.5	1.7

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.6	26.1	37.9	2.0	4.5	1.7
LOS	D	C	D	A	A	A
Approach Delay	30.3			11.9	4.0	
Approach LOS	C			B	A	
Queue Length 50th (ft)	7	10	10	4	11	1
Queue Length 95th (ft)	24	28	30	11	24	4
Internal Link Dist (ft)	1150			1546	1300	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	366	474	366	1593	1418	1453
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.05	0.05	0.03	0.05	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.10
Intersection Signal Delay: 11.6 Intersection LOS: B
Intersection Capacity Utilization 25.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 418: Wyse Fork Rd & US 70 EB Ramps

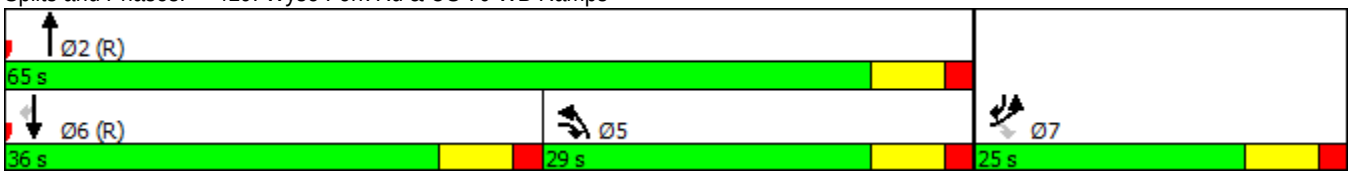
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	16	21	61	39	12
Future Volume (vph)	15	16	21	61	39	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1736	1553	1736	1827	1827	1553
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1736	1827	1827	1553
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1065			1380	1294	
Travel Time (s)	29.0			17.1	16.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	18	23	68	43	13
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	5	5	2	6	7
Permitted Phases		7				6
Detector Phase	7	5	5	2	6	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	25.0	29.0	29.0	65.0	36.0	25.0
Total Split (%)	27.8%	32.2%	32.2%	72.2%	40.0%	27.8%
Maximum Green (s)	18.0	22.0	22.0	58.0	29.0	18.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.2	18.0	9.4	78.4	69.6	78.2
Actuated g/C Ratio	0.10	0.20	0.10	0.87	0.77	0.87
v/c Ratio	0.10	0.06	0.13	0.04	0.03	0.01
Control Delay	37.9	25.3	32.7	1.7	6.2	2.2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	25.3	32.7	1.7	6.2	2.2
LOS	D	C	C	A	A	A
Approach Delay	31.4			9.5	5.3	
Approach LOS	C			A	A	
Queue Length 50th (ft)	9	8	13	5	8	1
Queue Length 95th (ft)	29	24	33	12	22	5
Internal Link Dist (ft)	985			1300	1214	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	385	419	462	1591	1413	1349
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.04	0.05	0.04	0.03	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.13
Intersection Signal Delay: 12.4 — Intersection LOS: B
Intersection Capacity Utilization 25.8% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 419: Wyse Fork Rd & US 70 WB Ramps



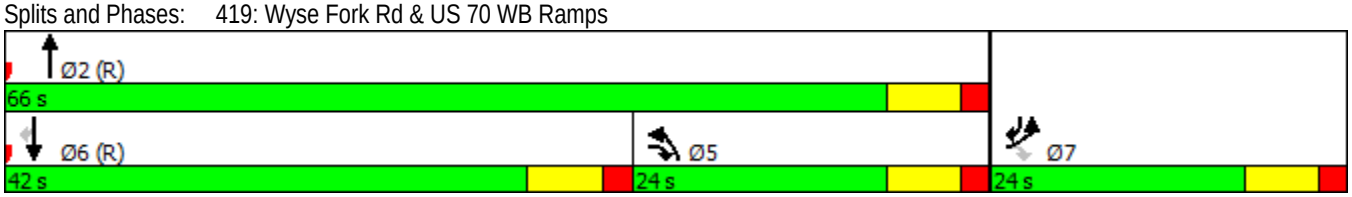
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	11	19	14	40	62	14
Future Volume (vph)	11	19	14	40	62	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1736	1553	1736	1827	1827	1553
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1736	1827	1827	1553
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1065			1380	1294	
Travel Time (s)	29.0			17.1	16.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	21	16	44	69	16
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	5	5	2	6	7
Permitted Phases		7				6
Detector Phase	7	5	5	2	6	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	24.0	24.0	24.0	66.0	42.0	24.0
Total Split (%)	26.7%	26.7%	26.7%	73.3%	46.7%	26.7%
Maximum Green (s)	17.0	17.0	17.0	59.0	35.0	17.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.1	14.9	9.2	82.3	72.7	78.4
Actuated g/C Ratio	0.10	0.17	0.10	0.91	0.81	0.87
v/c Ratio	0.07	0.08	0.09	0.03	0.05	0.01
Control Delay	37.5	28.3	31.1	1.2	5.1	2.1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	28.3	31.1	1.2	5.1	2.1
LOS	D	C	C	A	A	A
Approach Delay	31.7			9.2	4.5	
Approach LOS	C			A	A	
Queue Length 50th (ft)	6	11	8	0	7	1
Queue Length 95th (ft)	23	27	26	8	30	5
Internal Link Dist (ft)	985			1300	1214	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	366	360	366	1671	1476	1353
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.06	0.04	0.03	0.05	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.09
Intersection Signal Delay: 11.1 — Intersection LOS: B
Intersection Capacity Utilization 25.8% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 419: Wyse Fork Rd & US 70 WB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	416	4	4	512	39	6	4	5	49	4	78
Future Volume (vph)	50	416	4	4	512	39	6	4	5	49	4	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1703	3402	0	1687	3337	0	0	1755	0	0	1649	0
Flt Permitted	0.950			0.950				0.980			0.982	
Satd. Flow (perm)	1703	3402	0	1687	3337	0	0	1755	0	0	1649	0
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		978			995			420			957	
Travel Time (s)		12.1			12.3			6.4			14.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	7%	7%	7%	1%	1%	1%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	56	466	0	4	612	0	0	17	0	0	145	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		46			46			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 38.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	416	4	4	512	39	6	4	5	49	4	78
Future Volume (Veh/h)	50	416	4	4	512	39	6	4	5	49	4	78
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	56	462	4	4	569	43	7	4	6	54	4	87
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	612			466			958	1196	233	950	1176	306
vC1, stage 1 conf vol							576	576		598	598	
vC2, stage 2 conf vol							382	620		351	578	
vCu, unblocked vol	612			466			958	1196	233	950	1176	306
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.6	
tF (s)	2.3			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			100			98	99	99	83	99	87
cM capacity (veh/h)	936			1057			289	283	772	319	295	684

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	56	308	158	4	379	233	17	145
Volume Left	56	0	0	4	0	0	7	54
Volume Right	0	0	4	0	0	43	6	87
cSH	936	1700	1700	1057	1700	1700	369	468
Volume to Capacity	0.06	0.18	0.09	0.00	0.22	0.14	0.05	0.31
Queue Length 95th (ft)	5	0	0	0	0	0	4	33
Control Delay (s)	9.1	0.0	0.0	8.4	0.0	0.0	15.2	16.1
Lane LOS	A			A			C	C
Approach Delay (s)	1.0			0.1			15.2	16.1
Approach LOS							C	C

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	512	6	5	416	49	4	4	4	39	4	50
Future Volume (vph)	78	512	6	5	416	49	4	4	4	39	4	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1703	3399	0	1687	3320	0	0	1768	0	0	1660	0
Flt Permitted	0.950			0.950				0.984			0.980	
Satd. Flow (perm)	1703	3399	0	1687	3320	0	0	1768	0	0	1660	0
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		978			995			420			957	
Travel Time (s)		12.1			12.3			6.4			14.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	7%	7%	7%	1%	1%	1%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	576	0	6	516	0	0	12	0	0	103	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		46			46			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 35.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	512	6	5	416	49	4	4	4	39	4	50
Future Volume (Veh/h)	78	512	6	5	416	49	4	4	4	39	4	50
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	87	569	7	6	462	54	4	4	4	43	4	56
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	516			576			1048	1274	288	966	1251	258
vC1, stage 1 conf vol							746	746		501	501	
vC2, stage 2 conf vol							301	528		464	750	
vCu, unblocked vol	516			576			1048	1274	288	966	1251	258
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.6	
tF (s)	2.3			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			99			98	98	99	86	98	92
cM capacity (veh/h)	1018			960			256	256	712	313	266	735

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	87	379	197	6	308	208	12	103
Volume Left	87	0	0	6	0	0	4	43
Volume Right	0	0	7	0	0	54	4	56
cSH	1018	1700	1700	960	1700	1700	326	450
Volume to Capacity	0.09	0.22	0.12	0.01	0.18	0.12	0.04	0.23
Queue Length 95th (ft)	7	0	0	0	0	0	3	22
Control Delay (s)	8.9	0.0	0.0	8.8	0.0	0.0	16.5	15.4
Lane LOS	A			A			C	C
Approach Delay (s)	1.2			0.1			16.5	15.4
Approach LOS							C	C

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	35.5%	ICU Level of Service	A
Analysis Period (min)	15		

2040 Build Alternative 11
SimTraffic Reports

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Summary of All Intervals

Run Number	1	2	3	4	5	AM	Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	9043	9068	9061	9086	9036	9049	9051
Vehs Exited	9034	9041	9060	9112	9000	9052	9050
Starting Vehs	226	195	208	229	192	179	194
Ending Vehs	235	222	209	203	228	176	194
Travel Distance (mi)	5435	5469	5467	5474	5429	5444	5453
Travel Time (hr)	208.2	210.6	208.1	213.2	208.8	210.7	210.0
Total Delay (hr)	76.4	78.7	75.5	80.6	77.8	77.9	77.8
Total Stops	5842	5991	5862	6161	5848	6081	5959
Fuel Used (gal)	219.7	220.7	219.9	221.8	218.0	219.2	219.9

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	AM	Avg
Vehs Entered	9043	9068	9061	9086	9036	9049	9051
Vehs Exited	9034	9041	9060	9112	9000	9052	9050
Starting Vehs	226	195	208	229	192	179	194
Ending Vehs	235	222	209	203	228	176	194
Travel Distance (mi)	5435	5469	5467	5474	5429	5444	5453
Travel Time (hr)	208.2	210.6	208.1	213.2	208.8	210.7	210.0
Total Delay (hr)	76.4	78.7	75.5	80.6	77.8	77.9	77.8
Total Stops	5842	5991	5862	6161	5848	6081	5959
Fuel Used (gal)	219.7	220.7	219.9	221.8	218.0	219.2	219.9

Intersection: 401: Jim Sutton Rd & Service Rd

Movement	EB	WB	SB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	41	41	20
Average Queue (ft)	14	14	1
95th Queue (ft)	37	35	8
Link Distance (ft)	848	806	935
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			100
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	72	150	73	56	286	38
Average Queue (ft)	28	71	22	13	152	5
95th Queue (ft)	62	130	58	39	245	23
Link Distance (ft)	951	951	935	935	1248	1248
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		200		100	300	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	60	229	123	69	173	76
Average Queue (ft)	22	110	42	15	88	21
95th Queue (ft)	52	192	99	48	154	62
Link Distance (ft)	939	939	1248	1248	934	934
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		275		100	175	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 404: Willie Measley Rd & Washington St/Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	97	54	59	15
Average Queue (ft)	42	19	21	1
95th Queue (ft)	71	43	48	7
Link Distance (ft)	924	913	934	1055
Upstream Blk Time (%)				
Queuing Penalty (veh)			100	100
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 405: Barwick Station Rd & Service Rd/Sanderson Way

Movement	EB	WB	SB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	42	82	37
Average Queue (ft)	20	44	5
95th Queue (ft)	45	69	25
Link Distance (ft)	809	899	1140
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			100
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 406: Barwick Station Rd/Barwick Station / Albert Sugg Rd & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	98	125	64	92	132	71
Average Queue (ft)	33	59	18	29	53	13
95th Queue (ft)	74	107	49	70	106	46
Link Distance (ft)	1036	1036	1140	1140	1165	1165
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		200		100	150	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 407: Barwick Station / Albert Sugg Rd/Albert Sugg Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	141	117	72	31	176	72
Average Queue (ft)	59	40	19	5	89	15
95th Queue (ft)	110	91	56	23	148	49
Link Distance (ft)	1058	1058	1165	1165	1141	1141
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 408: Albert Sugg Rd & Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	36	88	33	14
Average Queue (ft)	19	48	2	1
95th Queue (ft)	40	78	15	8
Link Distance (ft)	740	822	1141	929
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 409: US 70 Bus & Innovation Way

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 410: NC 11/NC 11/55 & NC 55

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	454	50	49	553	517	59
Average Queue (ft)	254	9	9	240	194	10
95th Queue (ft)	403	33	30	465	397	38
Link Distance (ft)	1242	1242	1168	1168	1375	1375
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 411: NC 11/55 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	399	134	997	59	84	244
Average Queue (ft)	229	62	522	16	28	75
95th Queue (ft)	376	119	903	48	70	187
Link Distance (ft)	890	890	1375	1375	1370	1370
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 412: NC 11/55 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	129	232	454	177	358	79
Average Queue (ft)	54	101	256	51	164	19
95th Queue (ft)	106	192	416	137	313	57
Link Distance (ft)	1122	1122	1370	1370	1031	1031
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		250	475			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 413: US 258 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	255	133	223	39	54	72
Average Queue (ft)	126	53	95	5	17	18
95th Queue (ft)	222	116	188	24	44	53
Link Distance (ft)	917	917	961	961	1212	1212
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 414: US 258 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	85	55	127	149	147	54
Average Queue (ft)	29	12	42	53	60	9
95th Queue (ft)	66	39	102	117	120	35
Link Distance (ft)	1028	1028	1212	1212	850	850
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		150	175	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 415: NC 58 & Elijah Loftin Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	54	41	12	21
Average Queue (ft)	19	21	1	3
95th Queue (ft)	43	40	7	13
Link Distance (ft)	1137	1082	1094	863
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 416: NC 58 & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	57	66	60	112	65	4
Average Queue (ft)	14	15	18	13	14	0
95th Queue (ft)	43	44	49	58	47	3
Link Distance (ft)	914	914	863	863	1133	1133
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 417: NC 58 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	34	64	86	72	83	20
Average Queue (ft)	8	16	26	10	20	2
95th Queue (ft)	28	47	65	43	58	11
Link Distance (ft)	879	879	1133	1133	961	961
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 418: Wyse Fork Rd & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	43	53	52	31	32	20
Average Queue (ft)	11	11	14	1	4	1
95th Queue (ft)	31	35	40	13	21	9
Link Distance (ft)	1177	1177	1595	1595	1309	1309
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 419: Wyse Fork Rd & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	51	57	74	23	36	4
Average Queue (ft)	12	11	17	2	5	0
95th Queue (ft)	38	36	50	13	24	5
Link Distance (ft)	1012	1012	1309	1309	1252	1252
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 420: Service Rd/Kornegay St & US 70 Bus

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	TR	LTR	LTR
Maximum Queue (ft)	53	19	4	44	133
Average Queue (ft)	16	1	0	11	48
95th Queue (ft)	42	8	3	36	94
Link Distance (ft)	948	962	962	356	892
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100	100			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	2	3	4	5	PM	Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	9144	9128	9115	9096	9007	9220	9113
Vehs Exited	9130	9191	9118	9090	8970	9197	9117
Starting Vehs	170	245	206	202	185	172	188
Ending Vehs	184	182	203	208	222	195	190
Travel Distance (mi)	5485	5476	5470	5448	5381	5508	5461
Travel Time (hr)	201.6	200.0	199.5	202.6	197.3	202.5	200.6
Total Delay (hr)	68.3	66.4	66.7	69.6	66.1	67.8	67.5
Total Stops	5854	5745	5674	5916	5708	5933	5807
Fuel Used (gal)	223.6	222.3	220.1	221.2	217.6	223.7	221.4

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	PM	Avg
Vehs Entered	9144	9128	9115	9096	9007	9220	9113
Vehs Exited	9130	9191	9118	9090	8970	9197	9117
Starting Vehs	170	245	206	202	185	172	188
Ending Vehs	184	182	203	208	222	195	190
Travel Distance (mi)	5485	5476	5470	5448	5381	5508	5461
Travel Time (hr)	201.6	200.0	199.5	202.6	197.3	202.5	200.6
Total Delay (hr)	68.3	66.4	66.7	69.6	66.1	67.8	67.5
Total Stops	5854	5745	5674	5916	5708	5933	5807
Fuel Used (gal)	223.6	222.3	220.1	221.2	217.6	223.7	221.4

Intersection: 401: Jim Sutton Rd & Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	29	44	8	17
Average Queue (ft)	11	17	0	1
95th Queue (ft)	31	38	4	7
Link Distance (ft)	848	806	905	935
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	109	179	63	48	251	37
Average Queue (ft)	40	79	18	8	137	6
95th Queue (ft)	84	150	51	32	224	27
Link Distance (ft)	951	951	935	935	1248	1248
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		200		100	300	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	117	269	106	62	167	81
Average Queue (ft)	43	133	37	9	77	22
95th Queue (ft)	90	233	84	37	143	63
Link Distance (ft)	939	939	1248	1248	934	934
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		275		100	175	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 404: Willie Measley Rd & Washington St/Service Rd

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	L
Maximum Queue (ft)	81	51	71	4	12
Average Queue (ft)	37	23	20	0	0
95th Queue (ft)	62	46	50	3	5
Link Distance (ft)	924	913	934	934	1055
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			100		100
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 405: Barwick Station Rd & Service Rd/Sanderson Way

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	38	76	10	47
Average Queue (ft)	16	38	0	5
95th Queue (ft)	41	62	5	27
Link Distance (ft)	809	899	802	1140
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 406: Barwick Station Rd/Barwick Station / Albert Sugg Rd & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	106	177	65	79	117	36
Average Queue (ft)	45	85	15	16	51	6
95th Queue (ft)	86	148	48	49	104	25
Link Distance (ft)	1036	1036	1140	1140	1165	1165
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		200		100	150	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 407: Barwick Station / Albert Sugg Rd/Albert Sugg Rd & US 70WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	201	140	81	31	148	59
Average Queue (ft)	98	54	18	5	67	14
95th Queue (ft)	165	106	59	21	127	44
Link Distance (ft)	1058	1058	1165	1165	1141	1141
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 408: Albert Sugg Rd & Service Rd

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	L
Maximum Queue (ft)	55	92	14	18	24
Average Queue (ft)	24	41	1	1	1
95th Queue (ft)	47	71	8	8	11
Link Distance (ft)	740	822	1141	1141	929
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			100		100
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 409: US 70 Bus & Innovation Way

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 410: NC 11/NC 11/55 & NC 55

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	254	31	38	230	426	84
Average Queue (ft)	132	5	9	95	174	26
95th Queue (ft)	221	22	30	180	339	65
Link Distance (ft)	1242	1242	1168	1168	1375	1375
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 411: NC 11/55 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	370	95	468	96	94	403
Average Queue (ft)	201	31	221	25	37	164
95th Queue (ft)	319	73	396	70	81	329
Link Distance (ft)	890	890	1375	1375	1370	1370
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 412: NC 11/55 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	78	195	286	99	555	76
Average Queue (ft)	25	84	155	29	263	21
95th Queue (ft)	64	159	266	85	466	57
Link Distance (ft)	1122	1122	1370	1370	1031	1031
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		250	475			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 413: US 258 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	304	107	193	42	78	103
Average Queue (ft)	173	31	80	4	24	34
95th Queue (ft)	272	76	154	22	62	83
Link Distance (ft)	917	917	961	961	1212	1212
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 414: US 258 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	97	53	114	117	167	82
Average Queue (ft)	37	9	28	30	74	14
95th Queue (ft)	82	33	74	81	136	50
Link Distance (ft)	1028	1028	1212	1212	850	850
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		150	175	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 415: NC 58 & Elijah Loftin Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	40	36	20	23
Average Queue (ft)	16	15	2	3
95th Queue (ft)	36	35	13	16
Link Distance (ft)	1137	1082	1094	863
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 416: NC 58 & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	59	72	67	55	105	28
Average Queue (ft)	15	24	17	6	28	2
95th Queue (ft)	43	59	48	30	78	13
Link Distance (ft)	914	914	863	863	1133	1133
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 417: NC 58 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	34	69	66	58	93	31
Average Queue (ft)	4	21	13	6	30	2
95th Queue (ft)	22	56	43	31	76	14
Link Distance (ft)	879	879	1133	1133	961	961
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 418: Wyse Fork Rd & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	38	61	45	18	46	21
Average Queue (ft)	8	13	12	1	4	1
95th Queue (ft)	28	41	37	10	23	11
Link Distance (ft)	1177	1177	1595	1595	1309	1309
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 419: Wyse Fork Rd & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	37	55	56	25	32	12
Average Queue (ft)	9	13	11	2	4	1
95th Queue (ft)	31	41	37	14	20	8
Link Distance (ft)	1012	1012	1309	1309	1252	1252
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 420: Service Rd/Kornegay St & US 70 Bus

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	TR	LTR	LTR
Maximum Queue (ft)	58	12	4	33	92
Average Queue (ft)	21	1	0	8	36
95th Queue (ft)	48	6	3	29	68
Link Distance (ft)	948	962	962	356	892
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100	100			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 0

APPENDIX G

2040 Build Alternative 12

Peak Hour Traffic Volume Development and

FREEVAL-E, Synchro & SimTraffic Reports

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2040 Build Alternative 12
Peak Hour Traffic Volume
Development

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Alternative 12

Volume Development

A project-level traffic forecast, titled "Traffic Forecast Technical Memorandum, Kinston Bypass Alternatives Study", was prepared and finalized in November, 2016. This traffic forecast was used to provide peak hour volumes for the analysis of the selected alternatives in this memorandum. The traffic forecast is included in **Attachment A**.

The Intersection Analysis Utility (IAU), provided by NCDOT, was utilized to calculate AM and PM Peak Hour volumes for at-grade intersections (ramp terminals and any intersections within 1,000 feet of ramp terminals), interchange ramps, and freeway segments within interchanges. Peak hour volumes for freeway segments between interchanges were calculated by finding the forecasted daily two-way volumes along the link, then breaking the daily volume down by multiplying it by the Design Hour Volume Percentage (K), and the Peak Hour Directional Split (D). All of these volumes are shown in **BLACK** in **Figures 6A-6F**.

US 70 and CF Harvey Parkway Extension Freeway Analysis

FREEVAL-E does not use a Peak Hour Factor (PHF) to adjust the peak hour volumes to reflect the peak 15-minute period. Additionally, FREEVAL-E requires balanced peak hour mainline volumes, since only the beginning freeway segment and subsequent ramps have volume inputs. To provide peak 15-minute hourly flow rates for the analysis in FREEVAL-E, each of the peak hour volumes calculated for the freeway segments and ramps was divided by 0.90, which is the recommended PHF in the NCDOT Congestion Management Capacity Analysis Guidelines. To balance the peak hour volumes to use with FREEVAL-E, the highest peak 15-minute hourly flow rate was located along the US 70 corridor within the study area. Once this was located, the mainline US 70 volumes were adjusted in each direction to the eastern and western ends of the network by adding and subtracting the relevant ramp volumes.

For Alternative 12, the location used as the "hold point" for balancing purposes on US 70 was the segment between Jim Sutton Road / Willie Measley Road and US 70 Business (west of Kinston). These volume adjustments are shown in **BLUE** in **Figures 6A-6F**. The ensuing pages of this appendix detail the following step-by-step process used to calculate the volumes used, as well as the various volume redistributions required by the forecast imbalances and mismatches with the roadway designs:

Step 1 – Freeway segment volumes between interchanges were calculated by multiplying the two-way daily volumes by the K and D factors.

Step 2 – Volumes for interchange ramps, and freeway segments inside interchanges were collected from the IAU breakout sheets.

Step 3 – The volumes collected in Step 2 were divided by the NCDOT default PHF of 0.90 to account for the fact that FREEVAL-E does not factor in the PHF, and the highest calculated freeway volume location was used as the base point with which to balance the US 70 freeway corridor.

Step 4 – The volumes of the subsequent freeway segments were adjusted to allow for a balanced peak hour network in both directions.

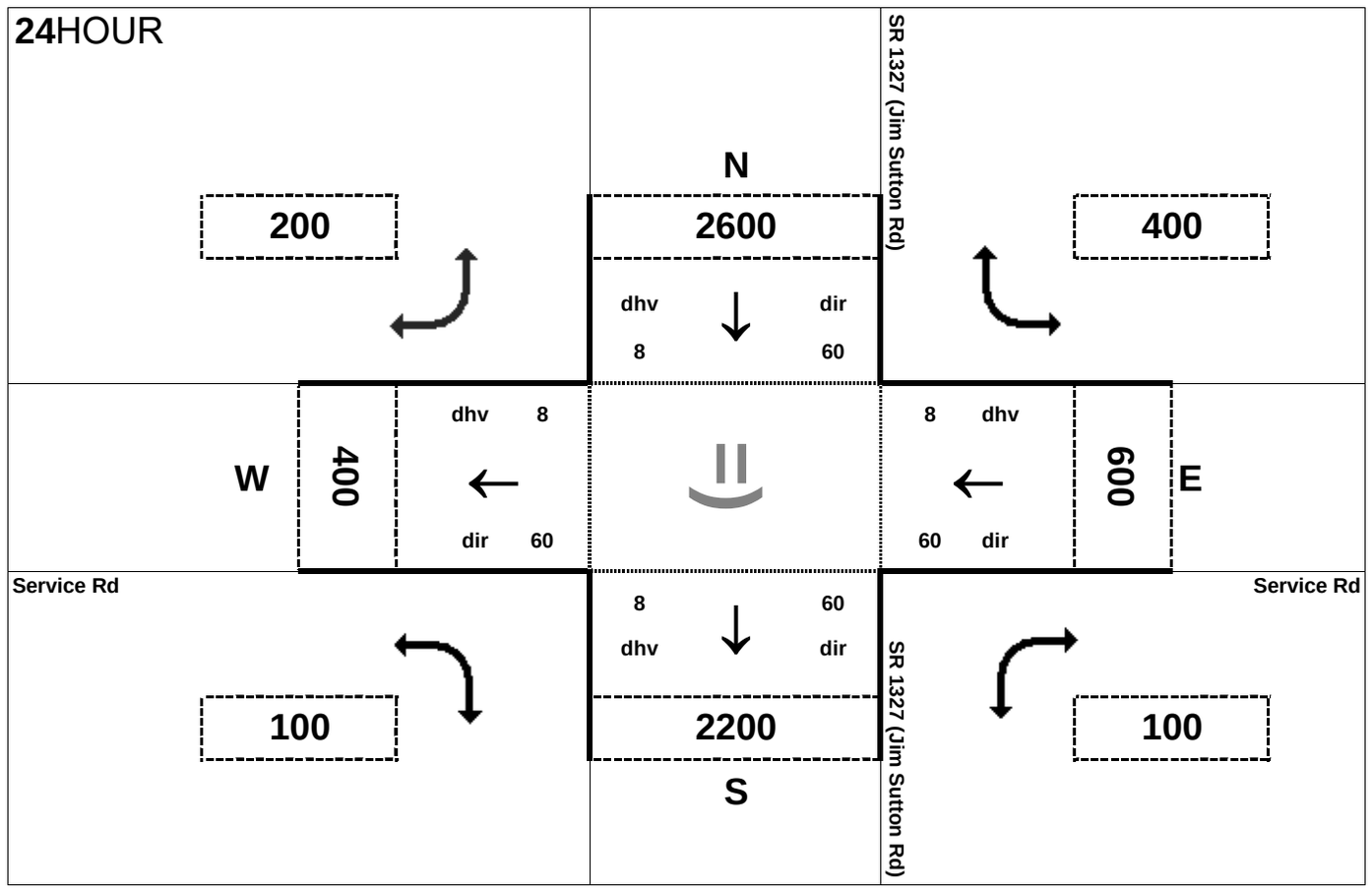
Due to the complex geometries in the US 70/US 70 Business/CF Harvey Parkway interchange, the northbound direction of CF Harvey Parkway could not be analyzed using FREEVAL-E or HCS. Interactions occur too closely together for any of the segments to be analyzed as ramps or freeway segments, and much of this section has only one lane along CF Harvey Parkway northbound. To capture the impact of traffic on the various northbound segments, volume-to-capacity (v/c) checks were performed instead. These segments do not report LOS, but rather a decimal, which indicates how much of the available lane group's capacity is consumed by the demand volume.

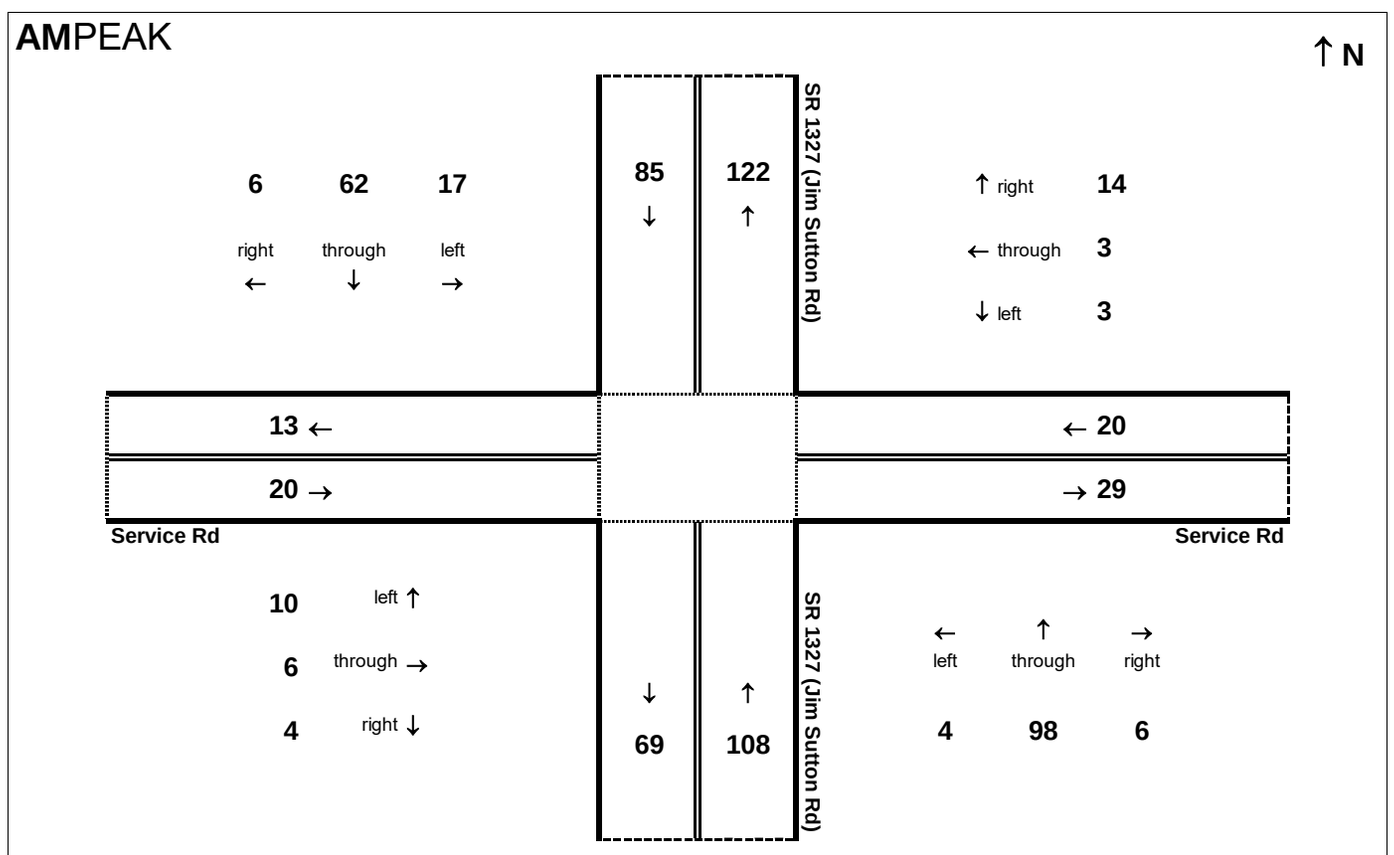
Peak Hour Volume Breakouts Report:
401 Intersection of SR 1327 (Jim Sutton Rd) at Service Rd

Traffic Forecast Release Date:
November-16

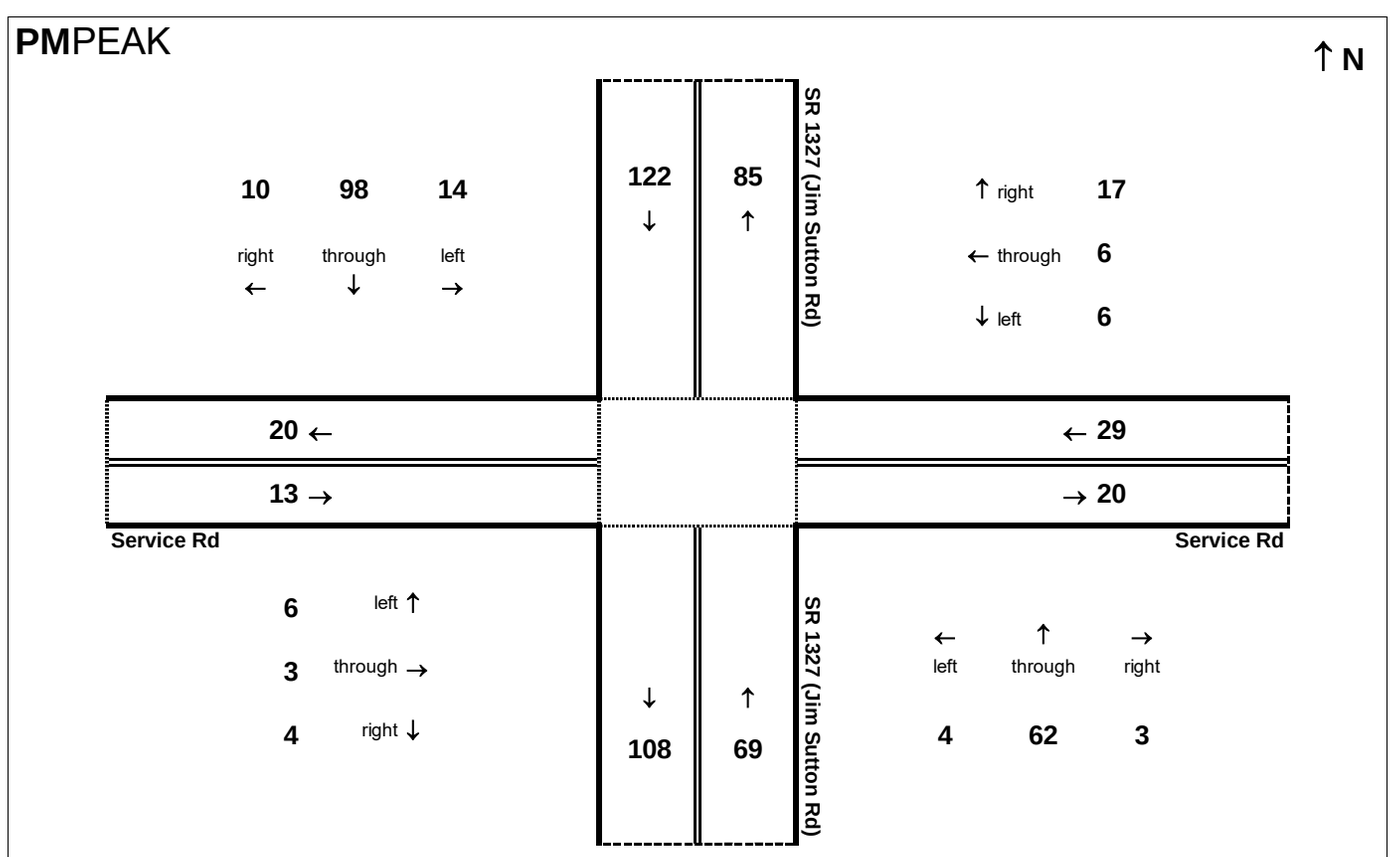
Traffic Data Year:
2040 Build Alt 12

Project:
R-2553





AM peak hour inflow is 233 vehicles. AM peak hour outflow is 232 vehicles.



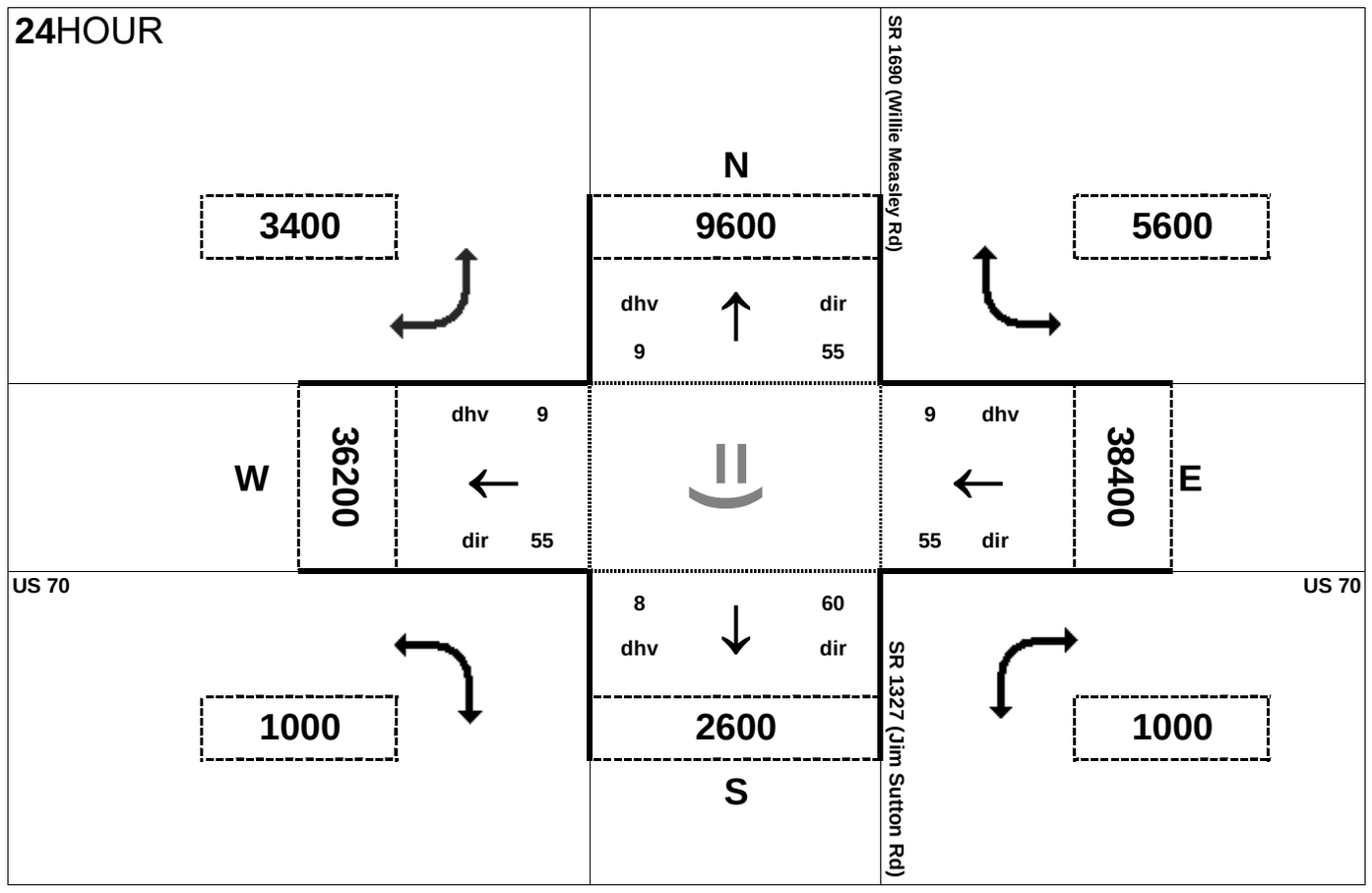
PM peak hour inflow is 232 vehicles. PM peak hour outflow is 233 vehicles.

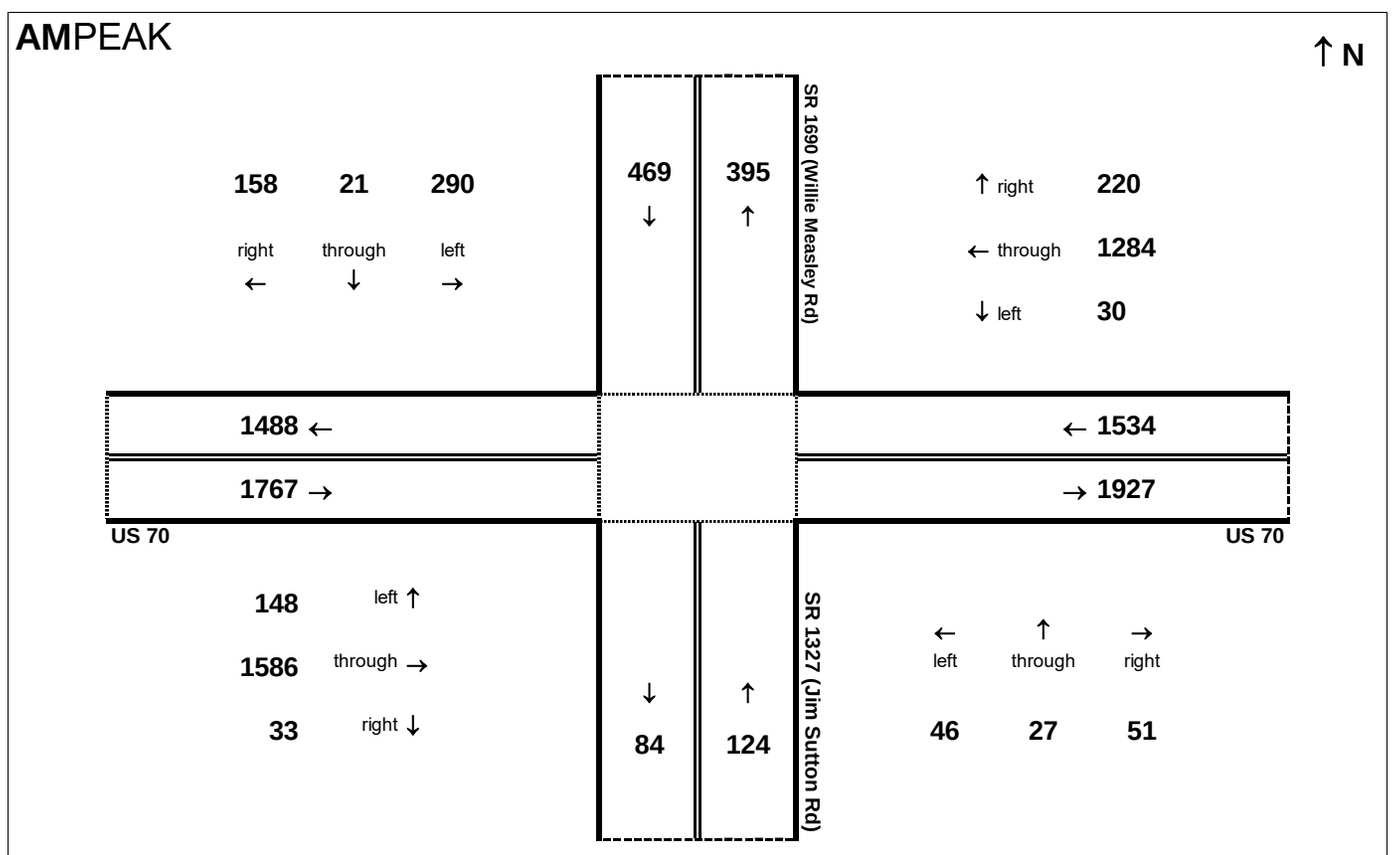
Peak Hour Volume Breakouts Report:
402-3 Intersection of US 70 and Willie Measley Rd / Jim Sutton Rd

Traffic Forecast Release Date:
November-16

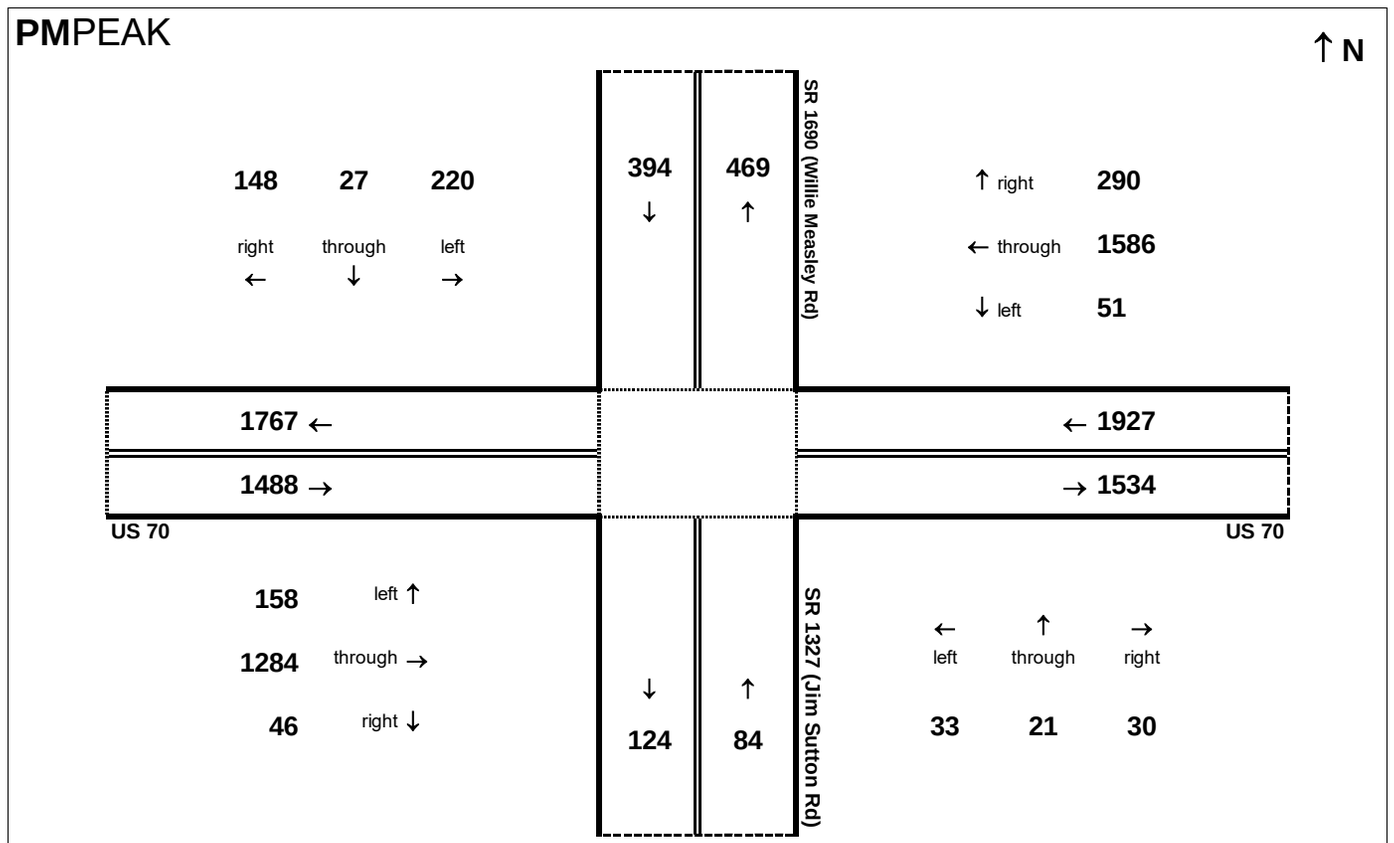
Traffic Data Year:
2040 Build Alt 12

Project:
R-2553





AM peak hour inflow is 3893 vehicles. AM peak hour outflow is 3893 vehicles.



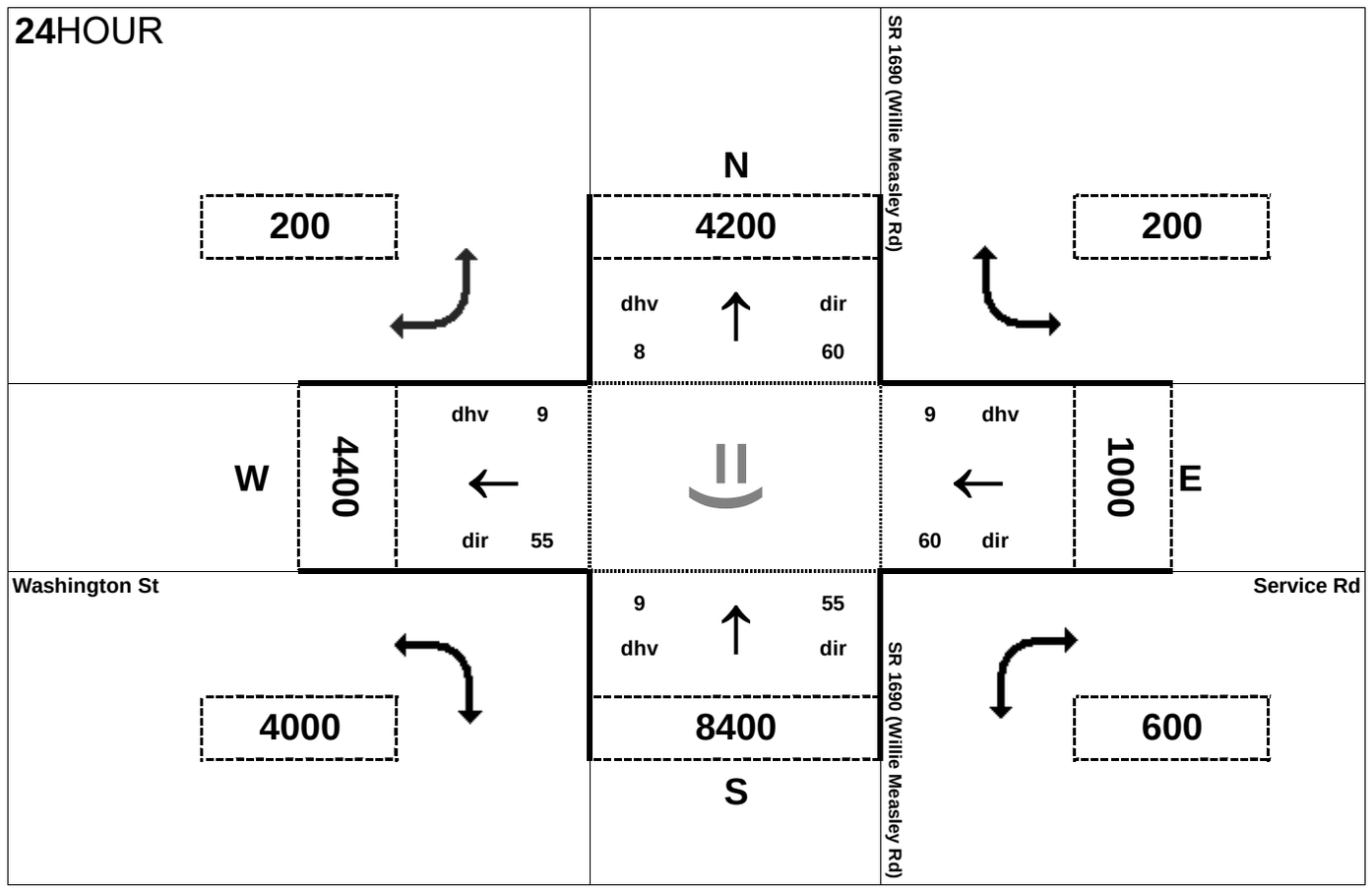
PM peak hour inflow is 3893 vehicles. PM peak hour outflow is 3893 vehicles.

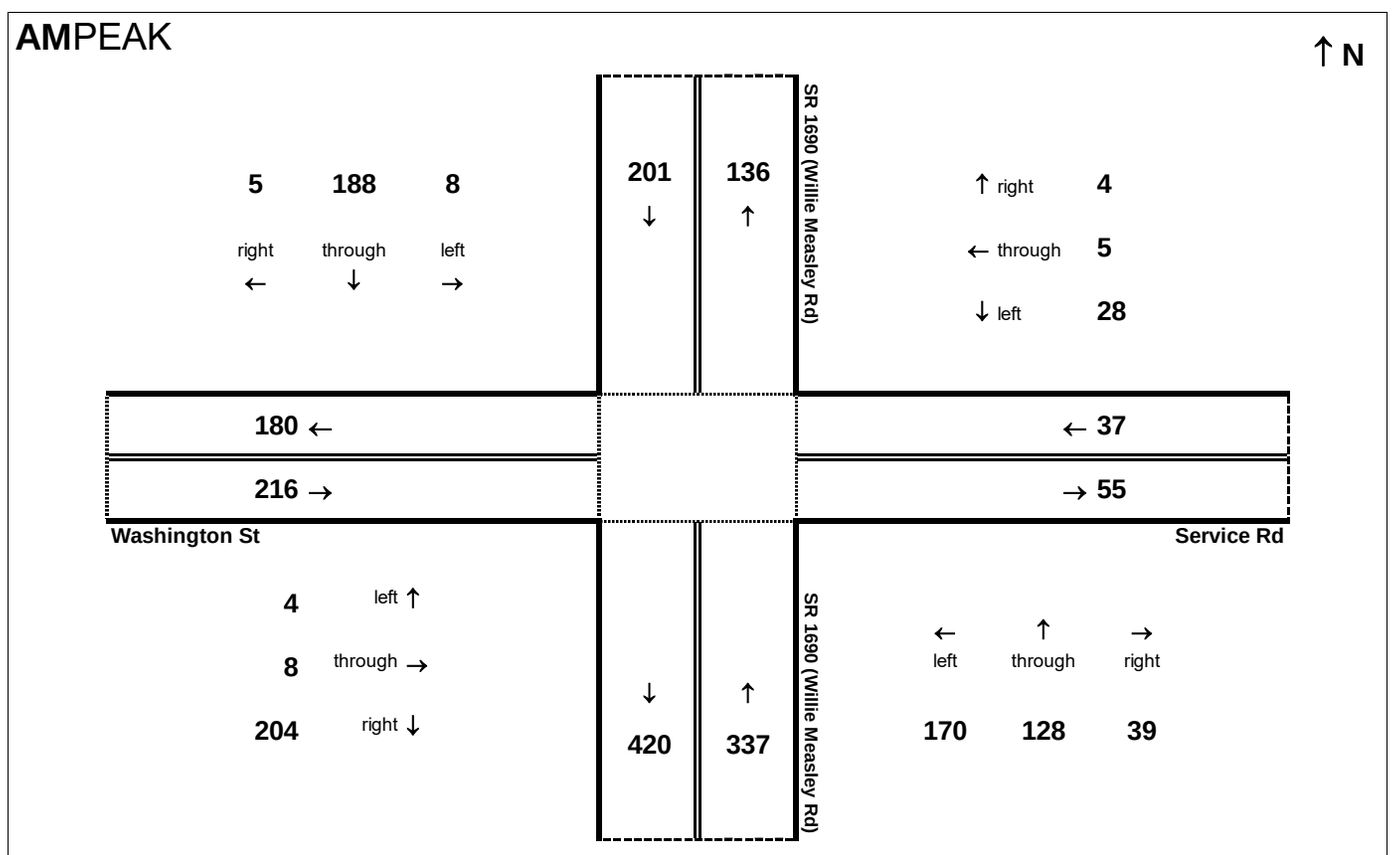
Peak Hour Volume Breakouts Report:
404 Intersection of SR 1690 (Willie Measley Rd) at SR 1603 (Washington St)

Traffic Forecast Release Date:
November-16

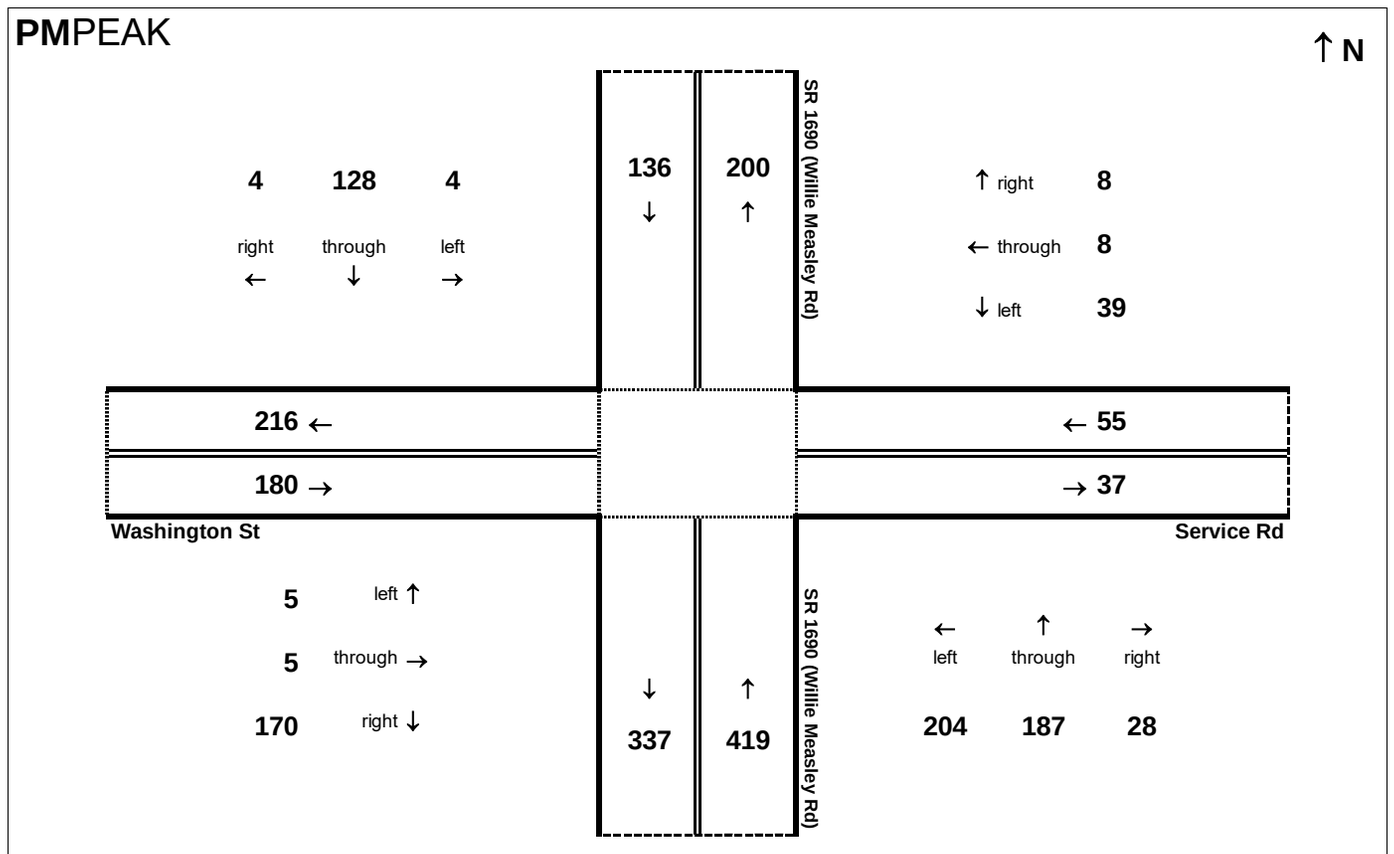
Traffic Data Year:
2040 Build Alt 12

Project:
R-2553





AM peak hour inflow is 789 vehicles. AM peak hour outflow is 789 vehicles.



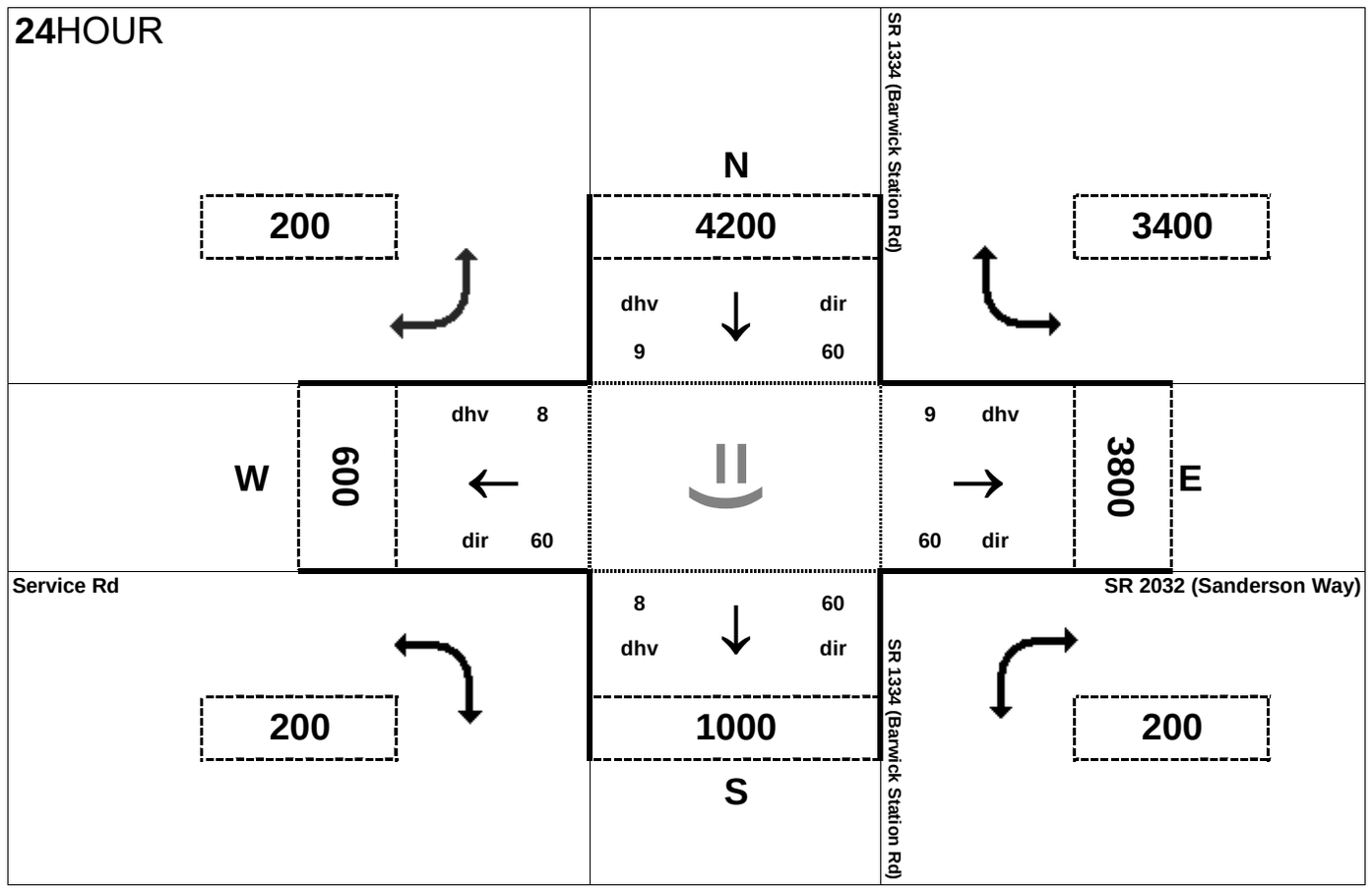
PM peak hour inflow is 789 vehicles. PM peak hour outflow is 789 vehicles.

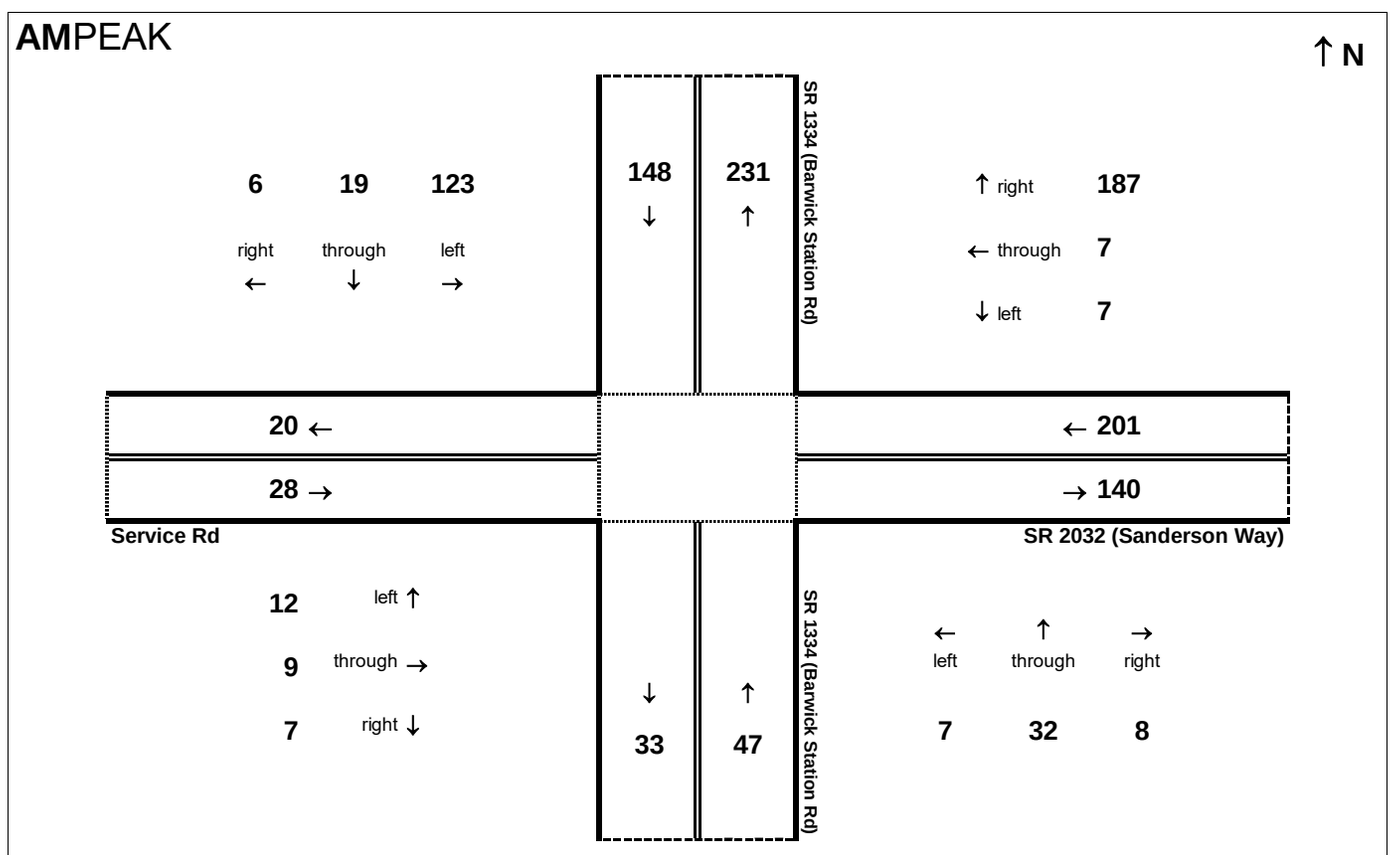
Peak Hour Volume Breakouts Report:
405 Intersection of SR 1334 (Barwick Station Rd) at SR 2032 (Sanderson way)

Traffic Forecast Release Date:
November-16

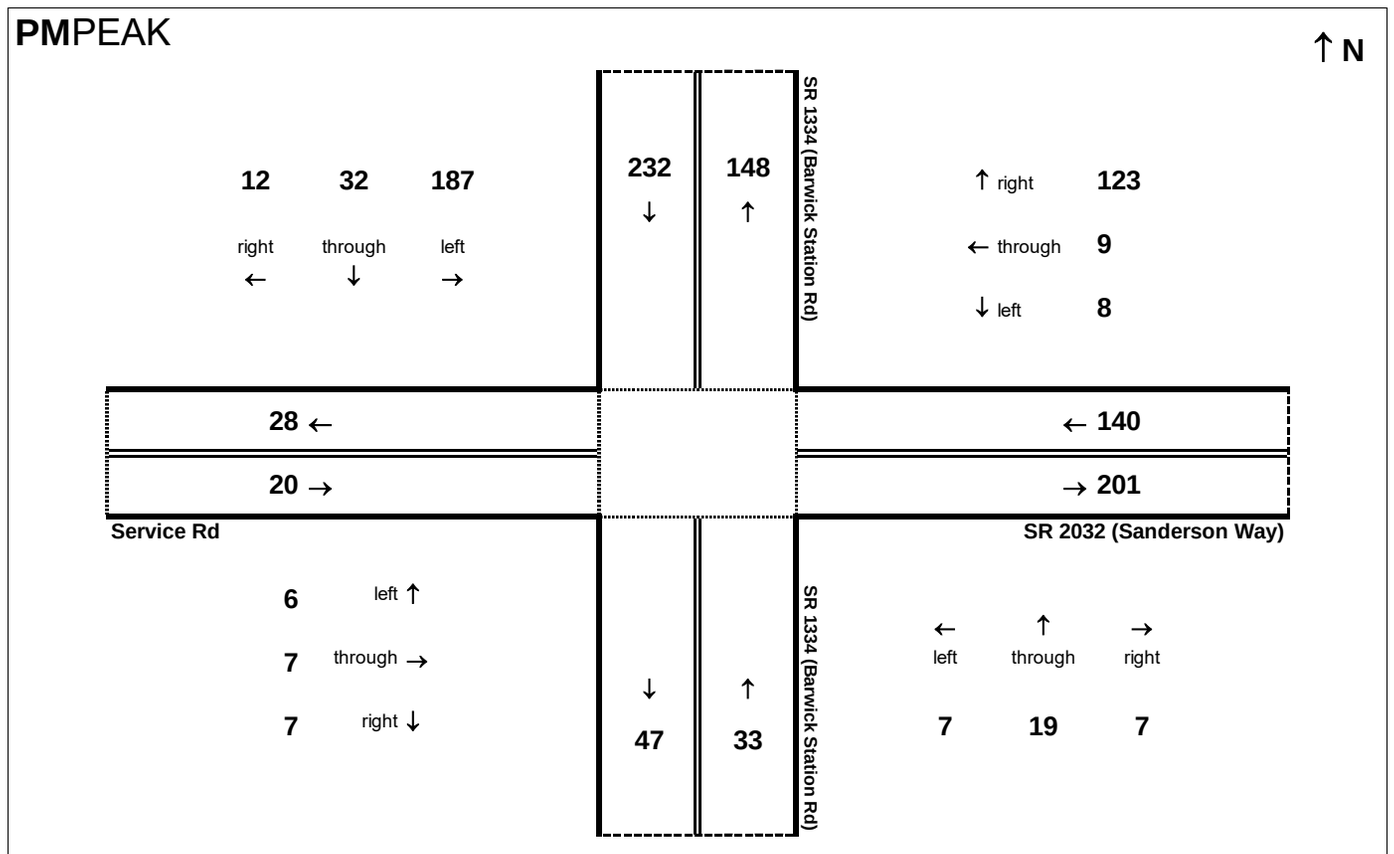
Traffic Data Year:
2040 Build Alt 12

Project:
R-2553





AM peak hour inflow is 424 vehicles. AM peak hour outflow is 425 vehicles.



PM peak hour inflow is 425 vehicles. PM peak hour outflow is 424 vehicles.

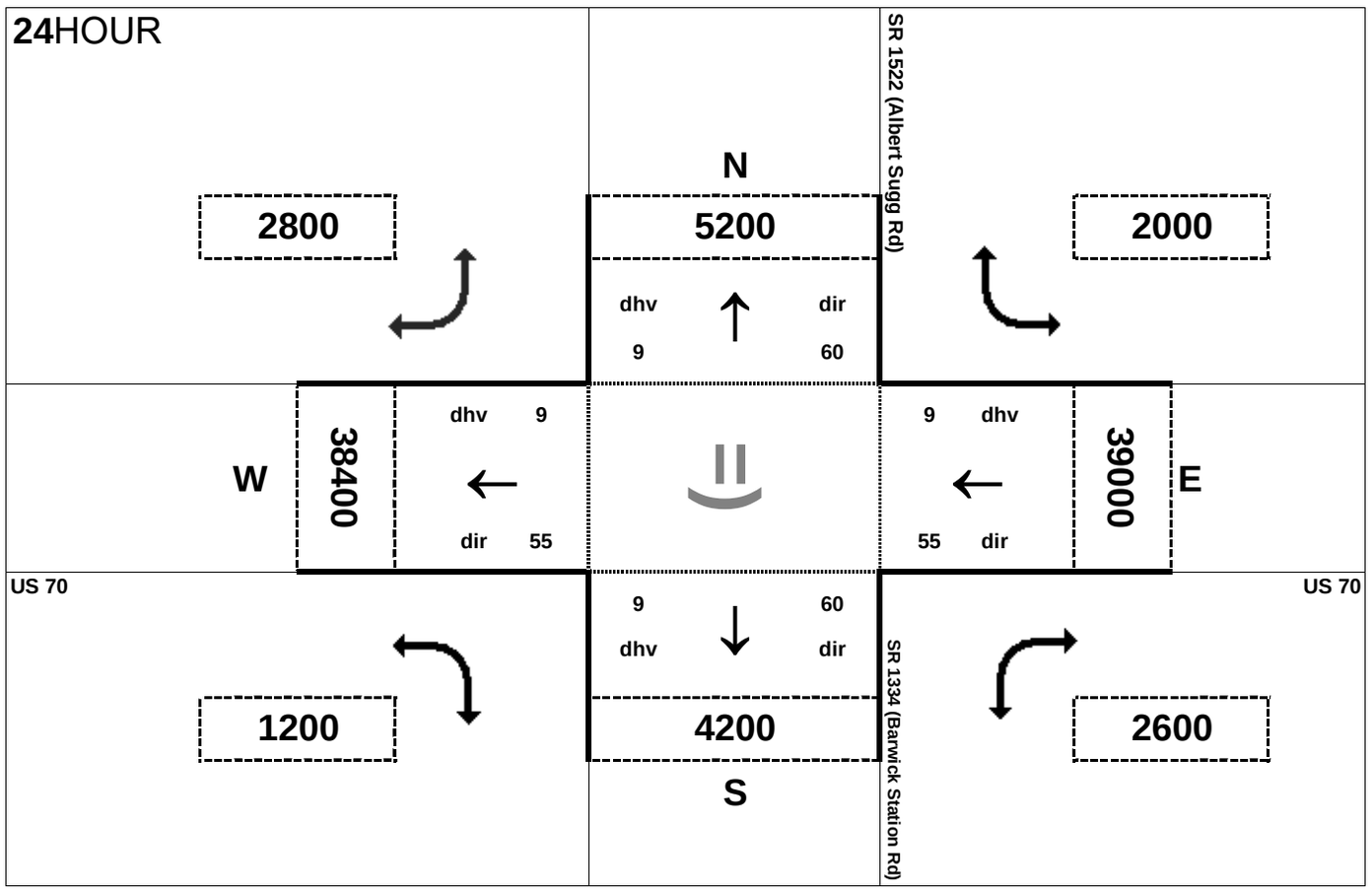
Peak Hour Volume Breakouts Report:
406-7 Intersection of US 70 and SR 1334 (Barwick Station Rd) / SR 1522 (Albert Sugg Rd)

Traffic Forecast Release Date:
November-16

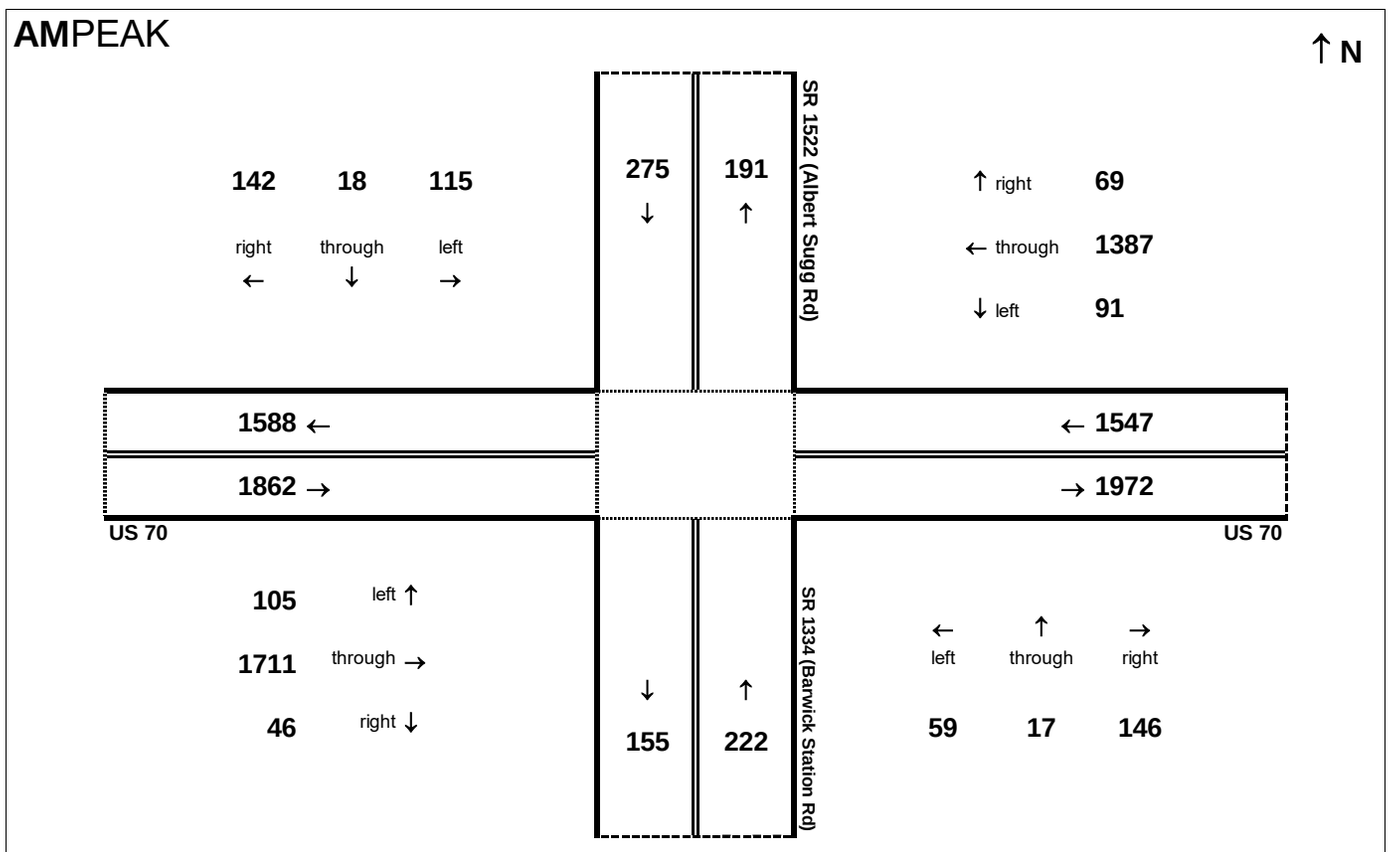
Traffic Data Year:
2040 Build Alt 12

Project:
R-2553

24HOUR

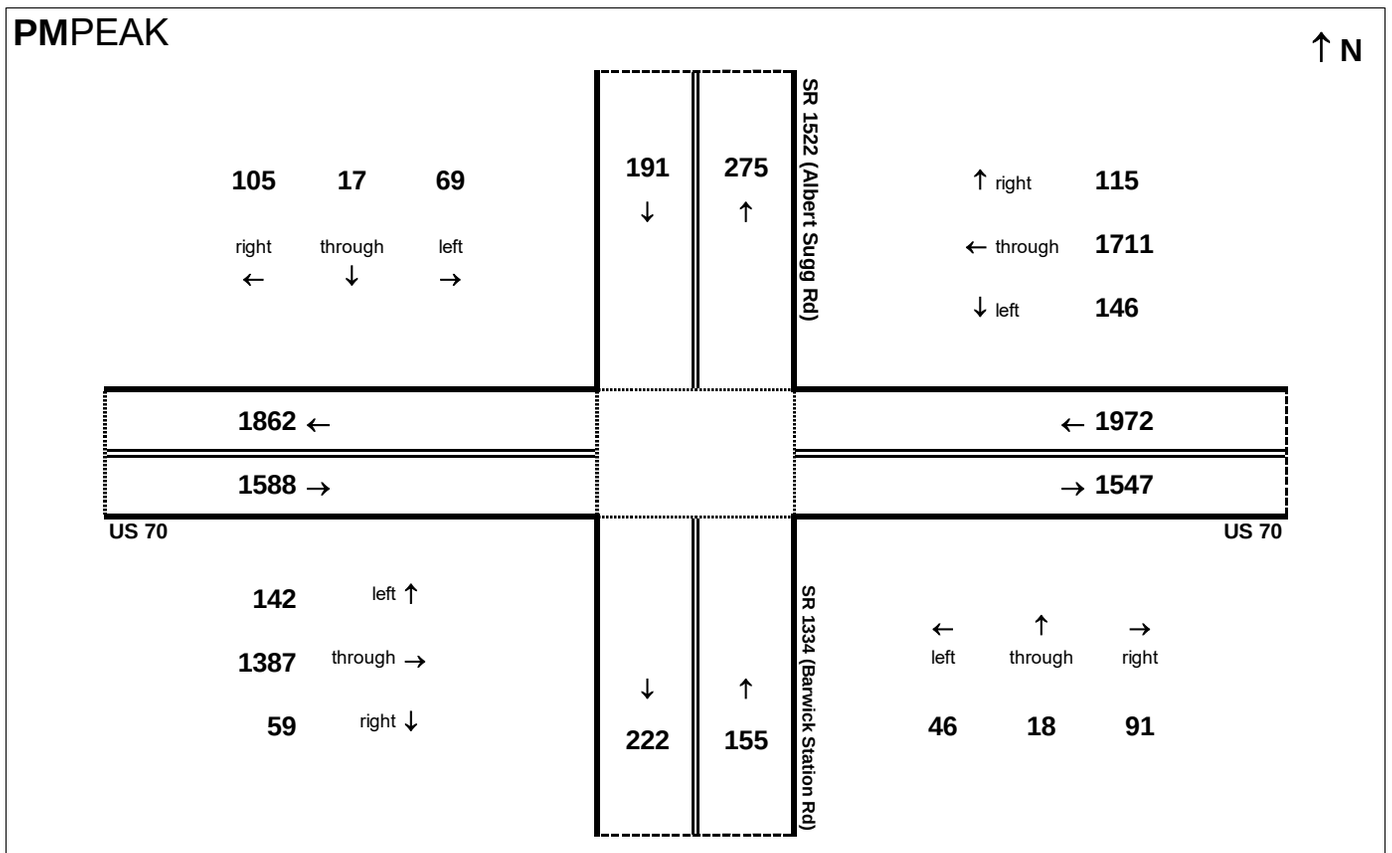


AMPEAK



AM peak hour inflow is 3906 vehicles. AM peak hour outflow is 3906 vehicles.

PMPEAK



PM peak hour inflow is 3905 vehicles. PM peak hour outflow is 3906 vehicles.

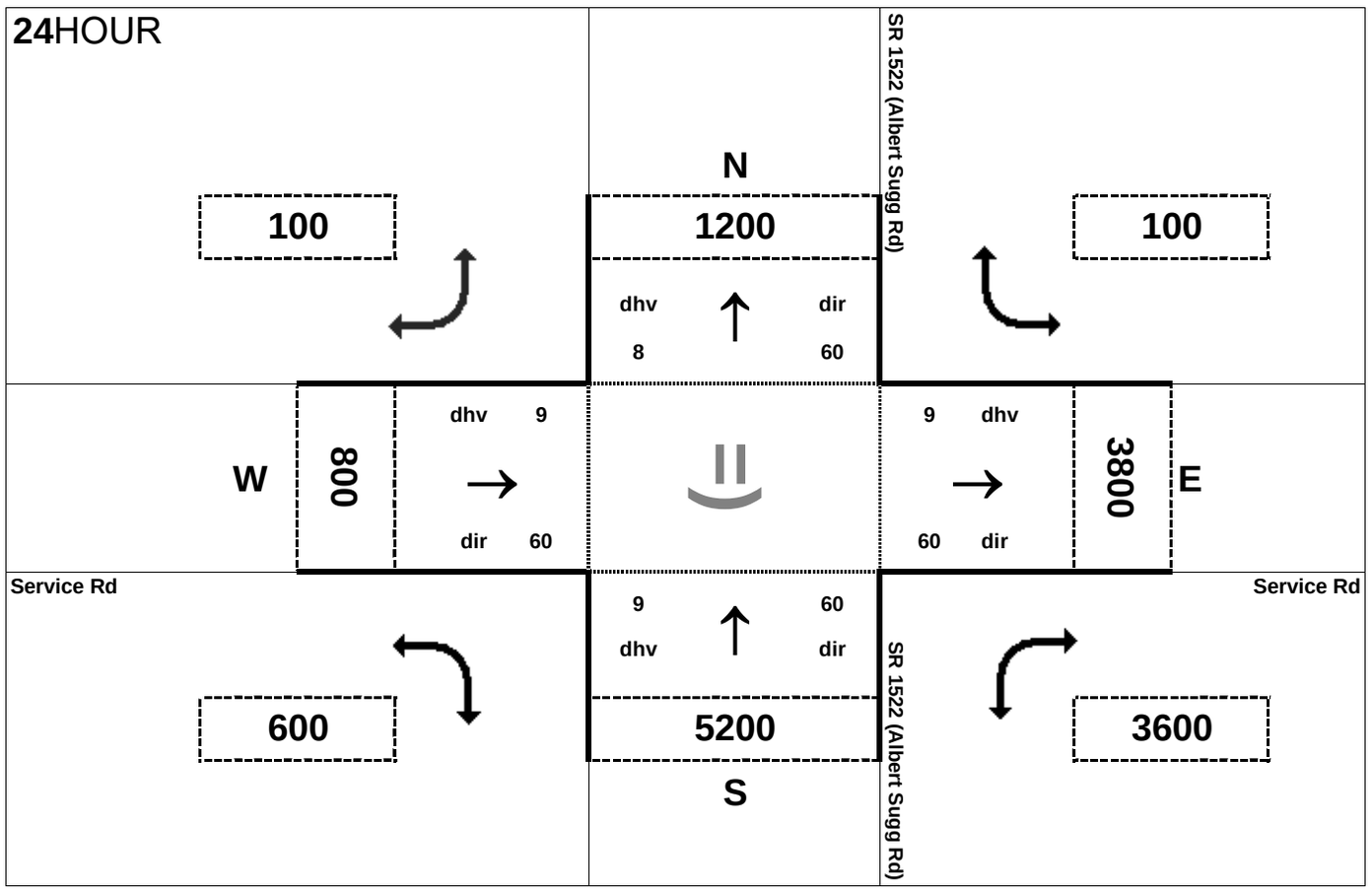
Peak Hour Volume Breakouts Report:
408 Intersection of SR 1522 (Albert Sugg Rd) at Service Rd

Traffic Forecast Release Date:
November-16

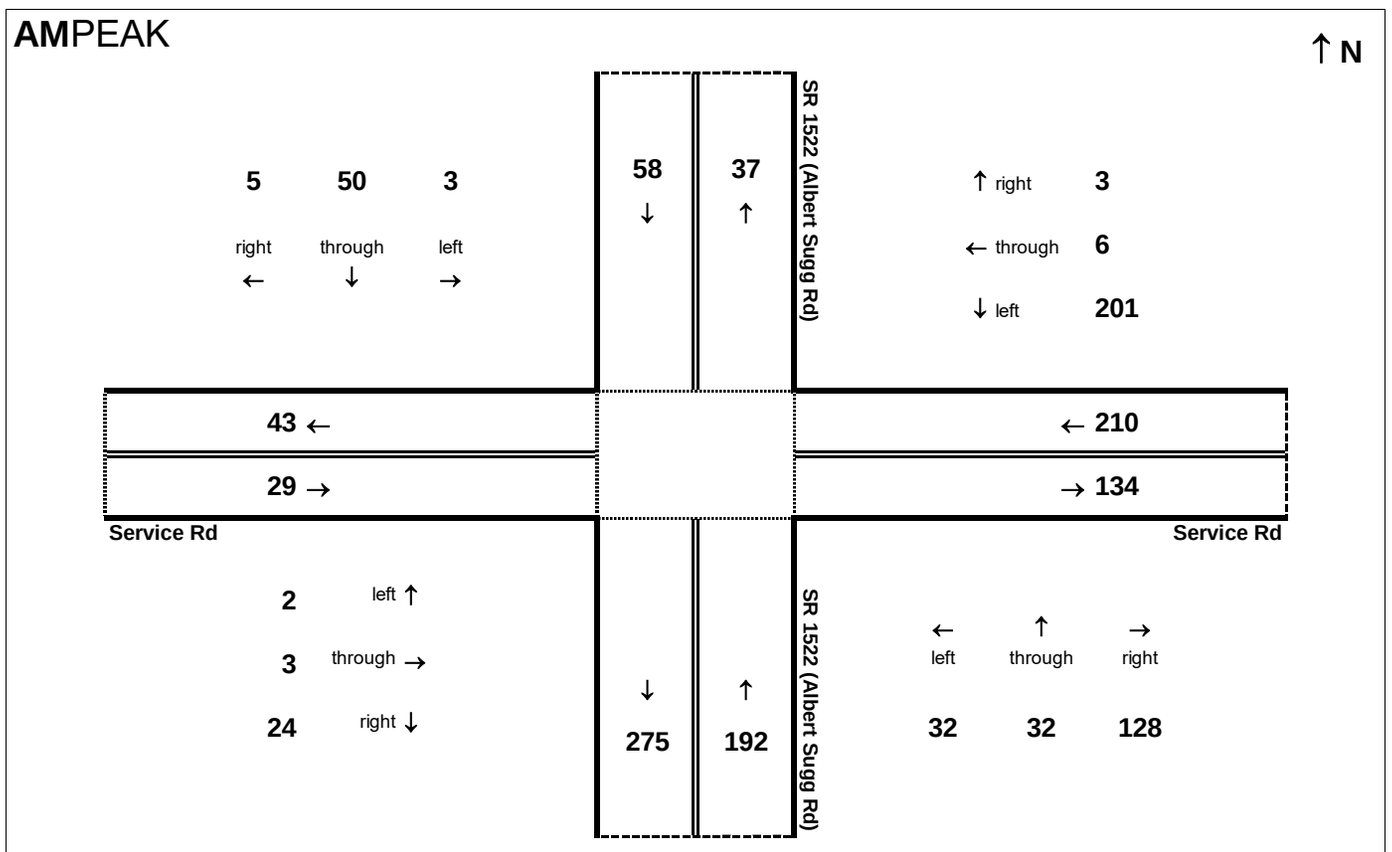
Traffic Data Year:
2040 Build Alt 12

Project:
R-2553

24HOUR

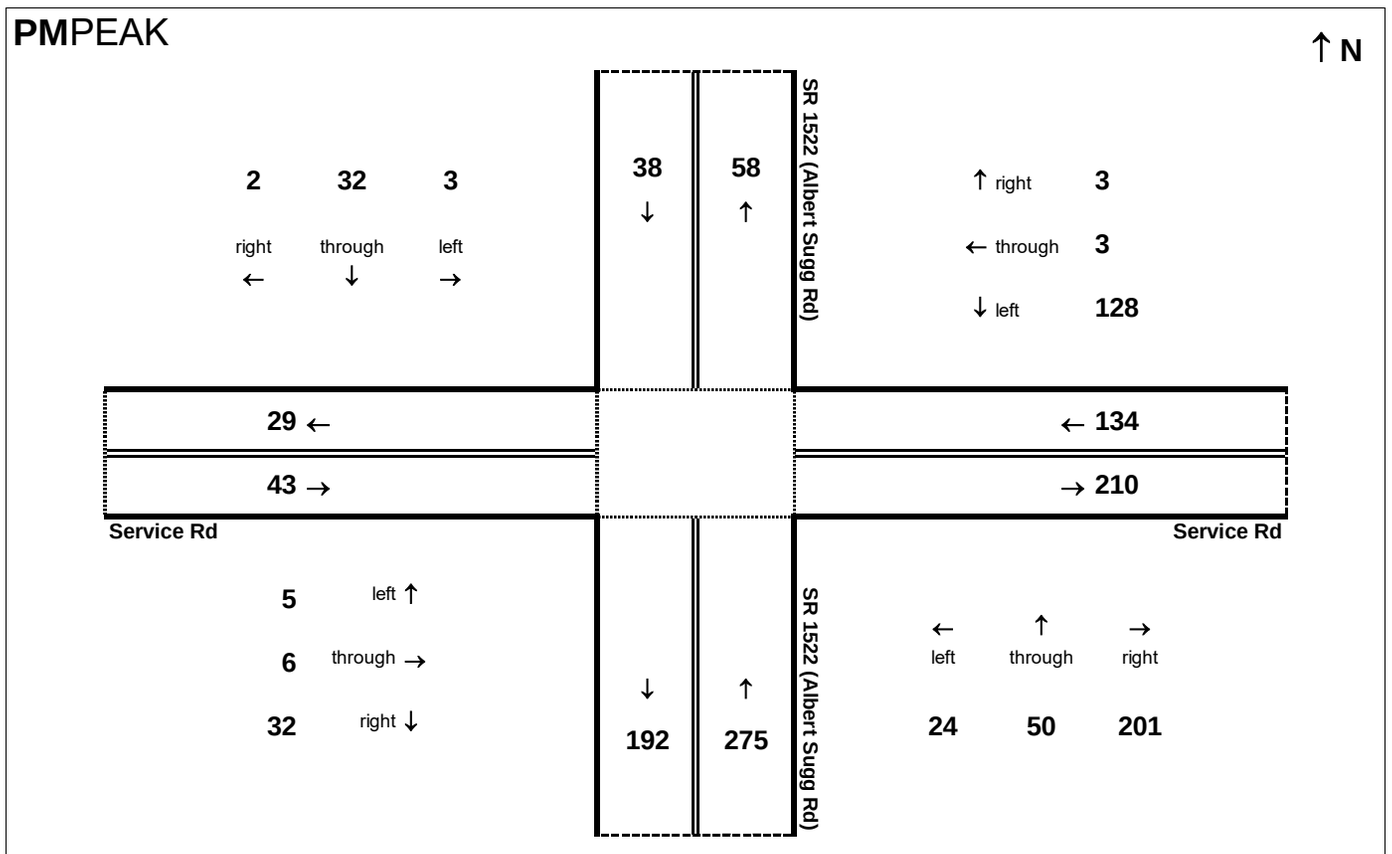


AMPEAK



AM peak hour inflow is 489 vehicles. AM peak hour outflow is 489 vehicles.

PMPEAK



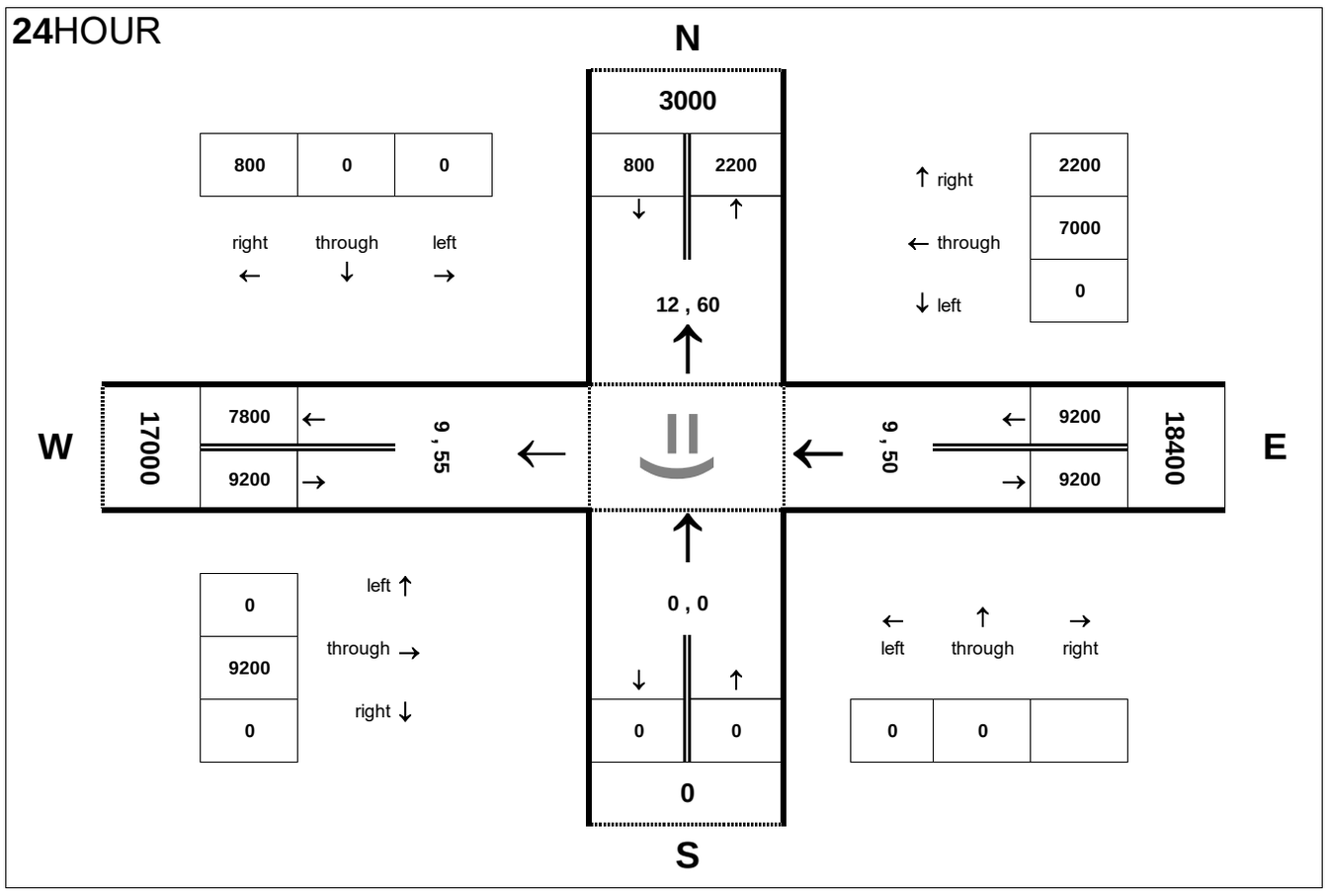
PM peak hour inflow is 489 vehicles. PM peak hour outflow is 489 vehicles.

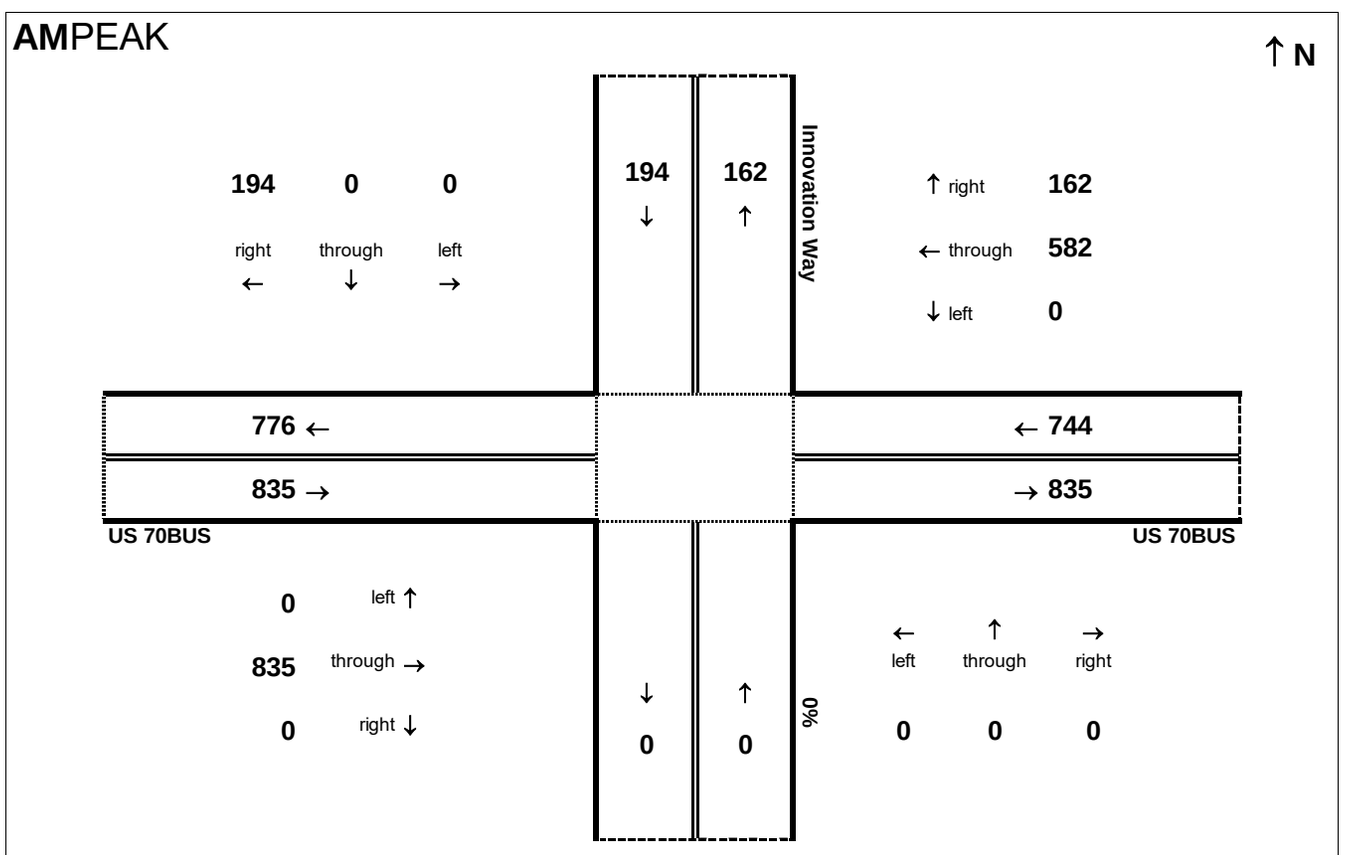
Peak Hour Volume Breakouts Report:
408 Intersection of US 70BUS and Innovation Way

Traffic Forecast Release Date:
November-16

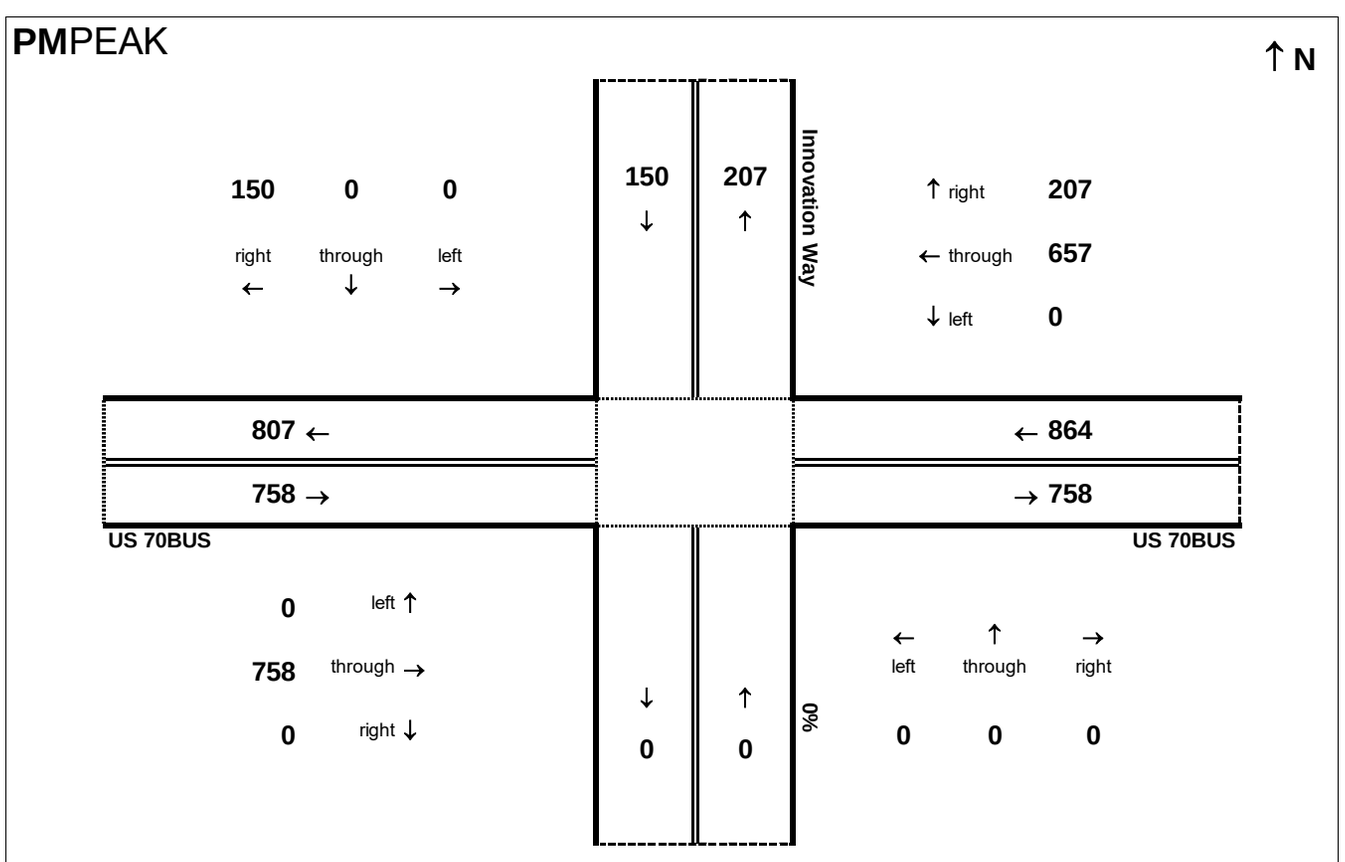
Traffic Data Year:
2040 Build Alt 12

Project:
R-2553





AM peak hour inflow is 1773 vehicles. AM peak hour outflow is 1773 vehicles.



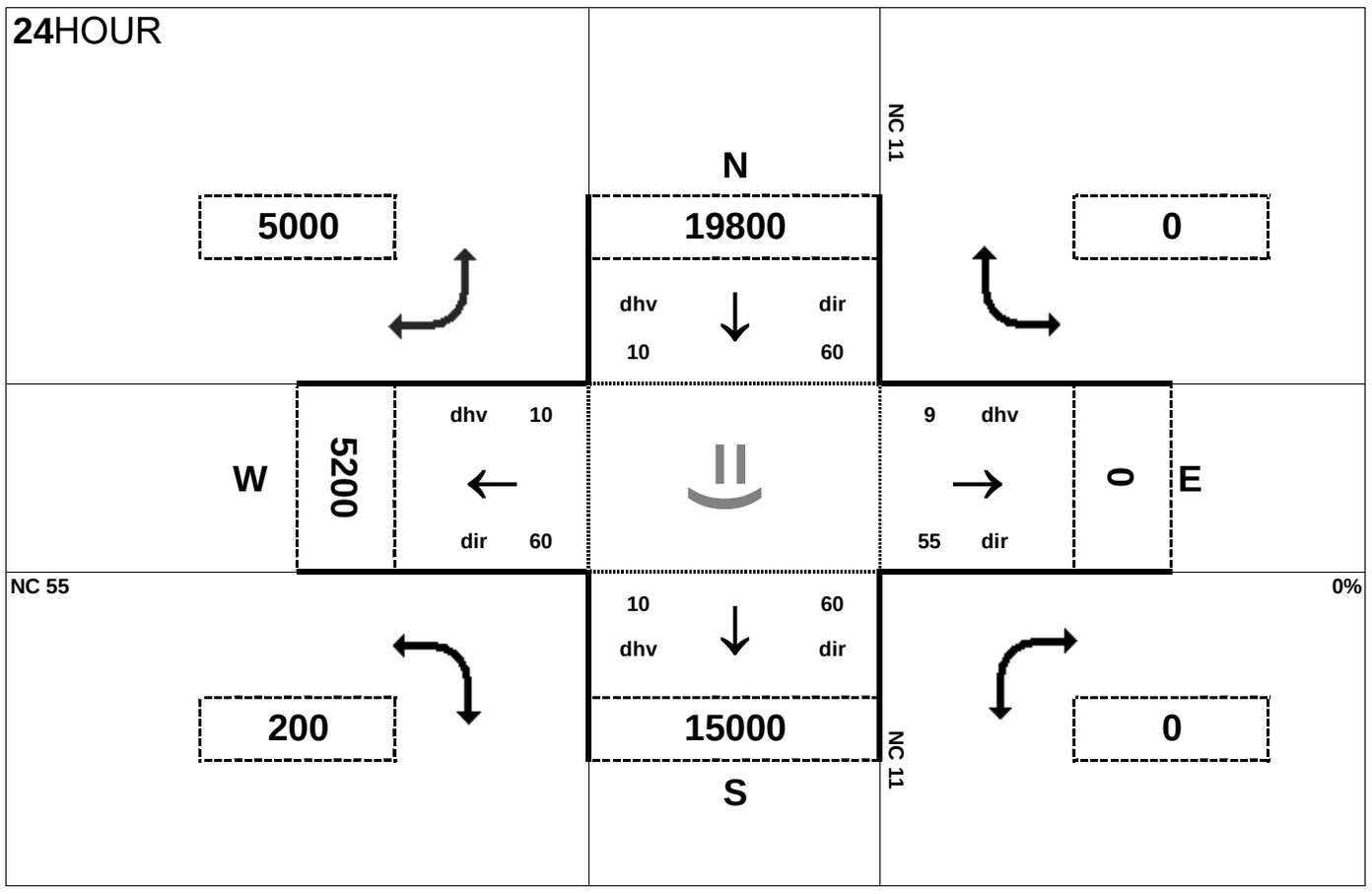
PM peak hour inflow is 1772 vehicles. PM peak hour outflow is 1772 vehicles.

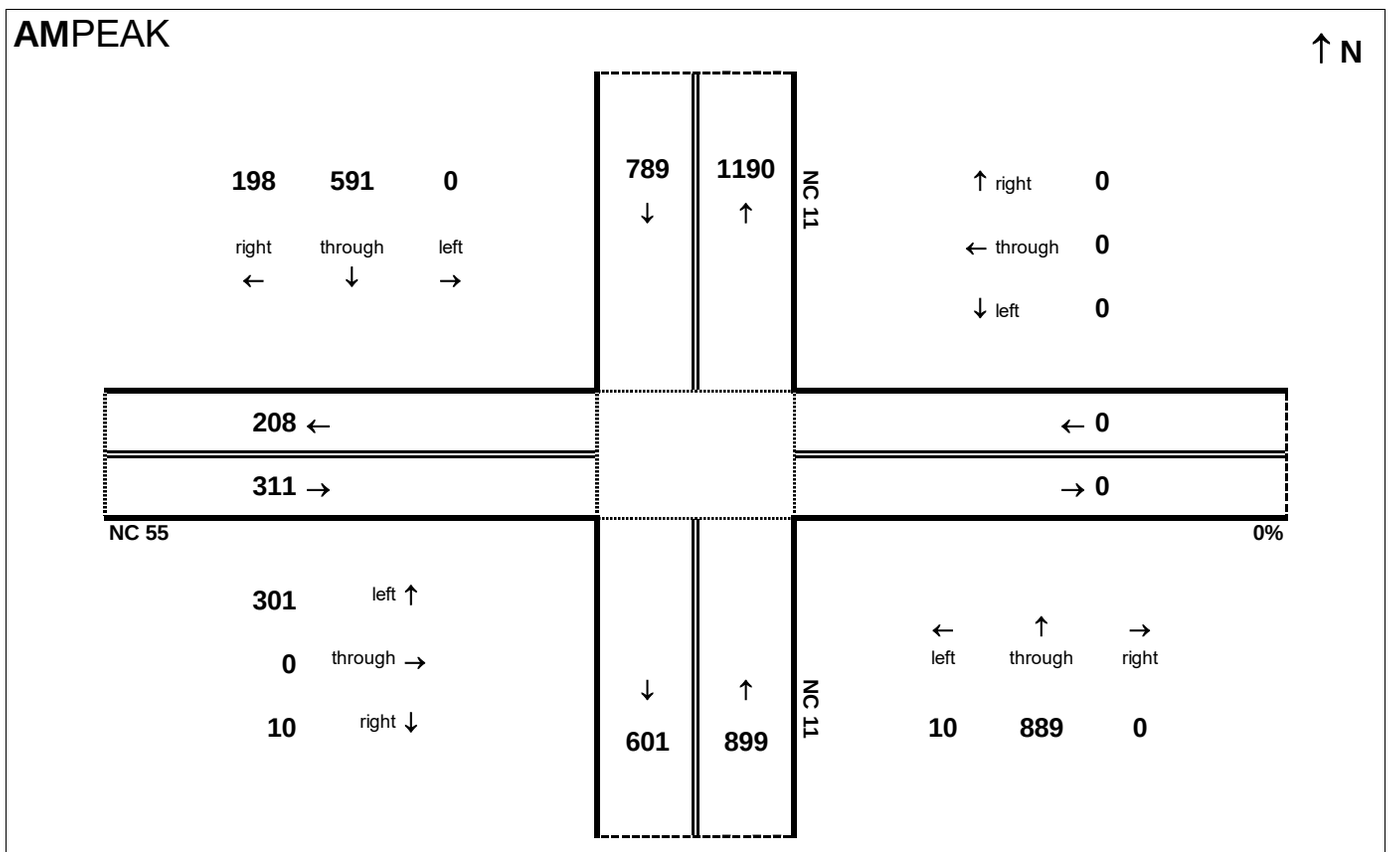
Peak Hour Volume Breakouts Report:
410 Intersection of NC 11 and NC 55

Traffic Forecast Release Date:
November-16

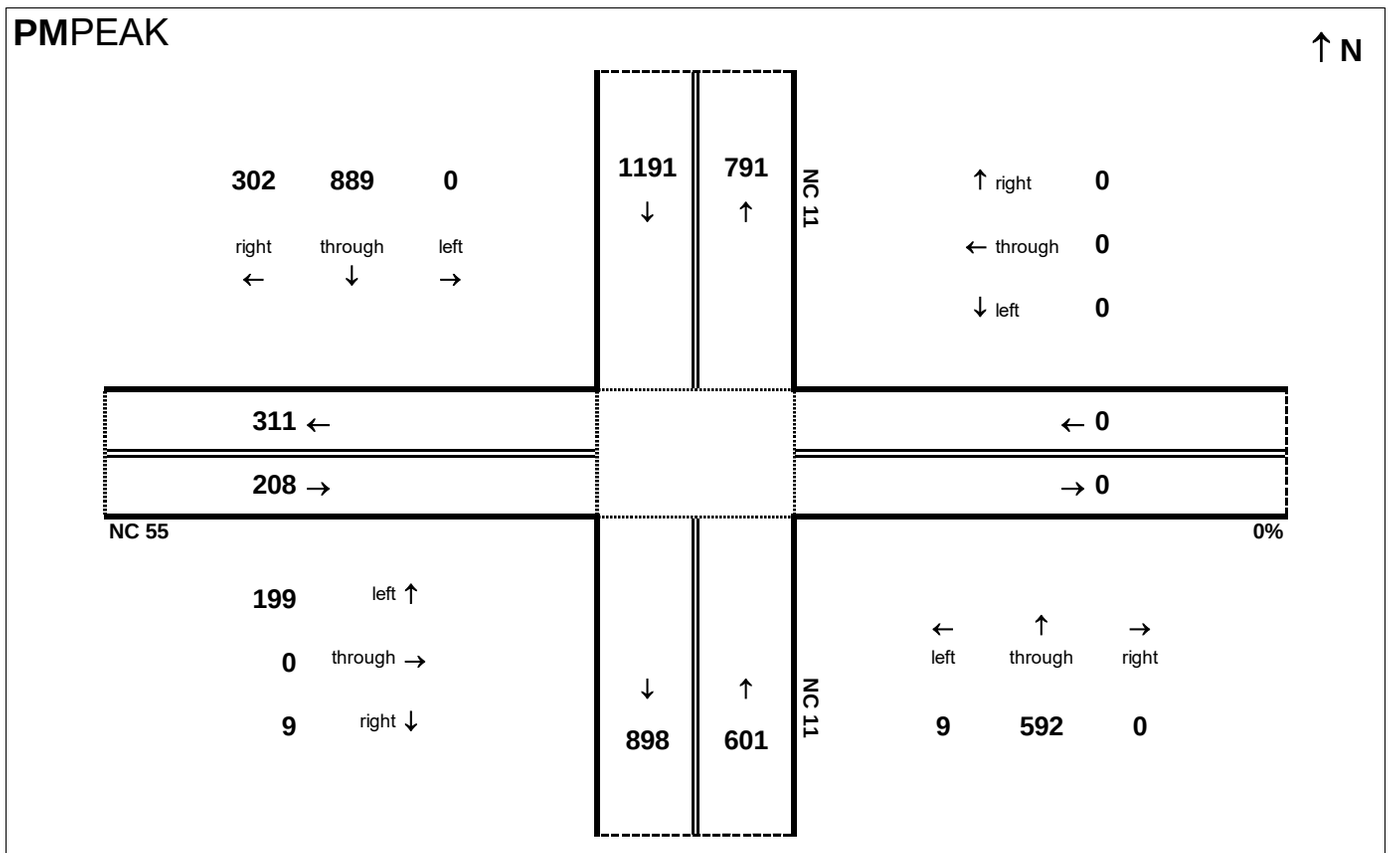
Traffic Data Year:
2040 Build Alt 12

Project:
R-2553





AM peak hour inflow is 2000 vehicles. AM peak hour outflow is 2001 vehicles.



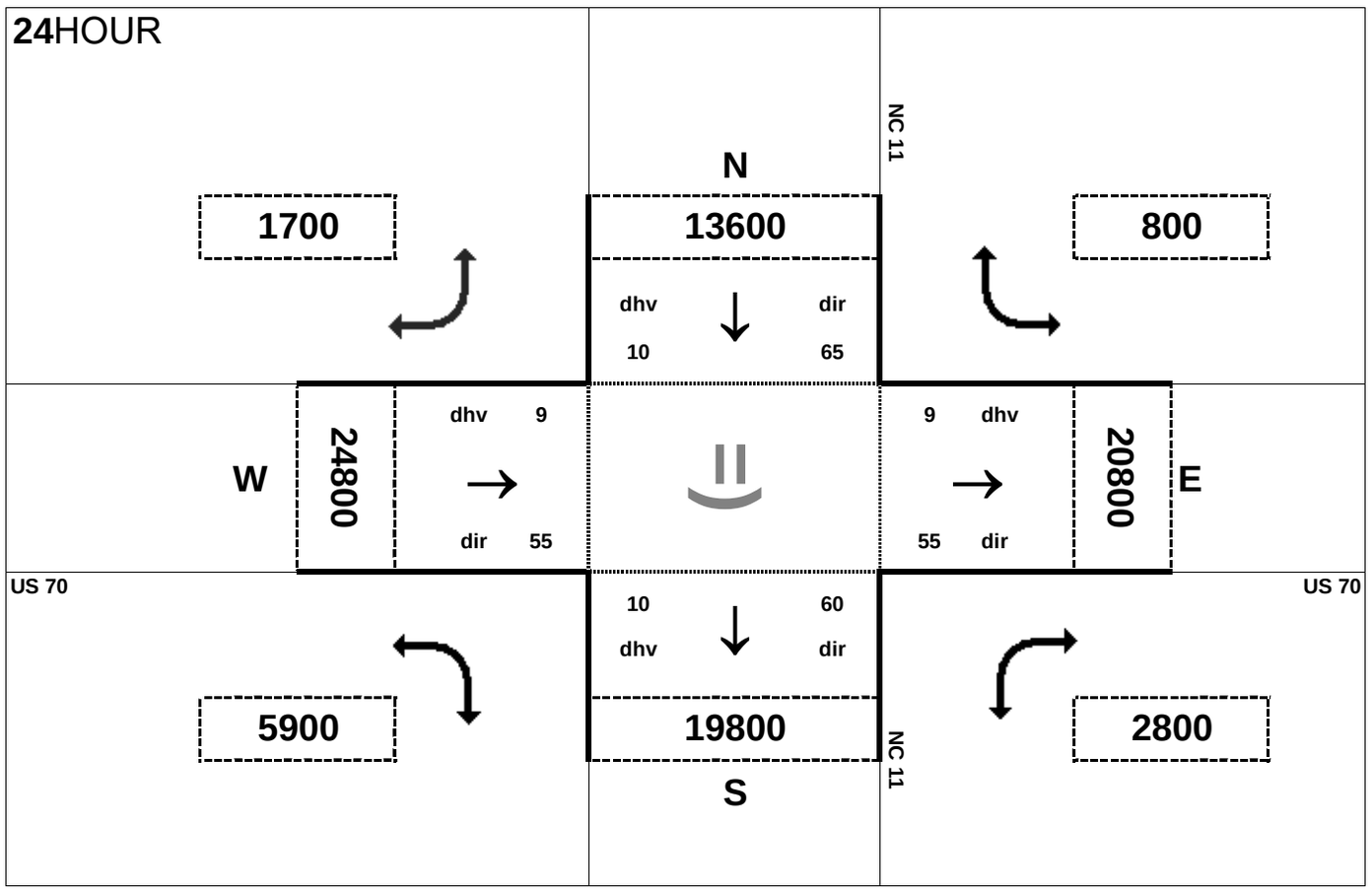
PM peak hour inflow is 1999 vehicles. PM peak hour outflow is 2000 vehicles.

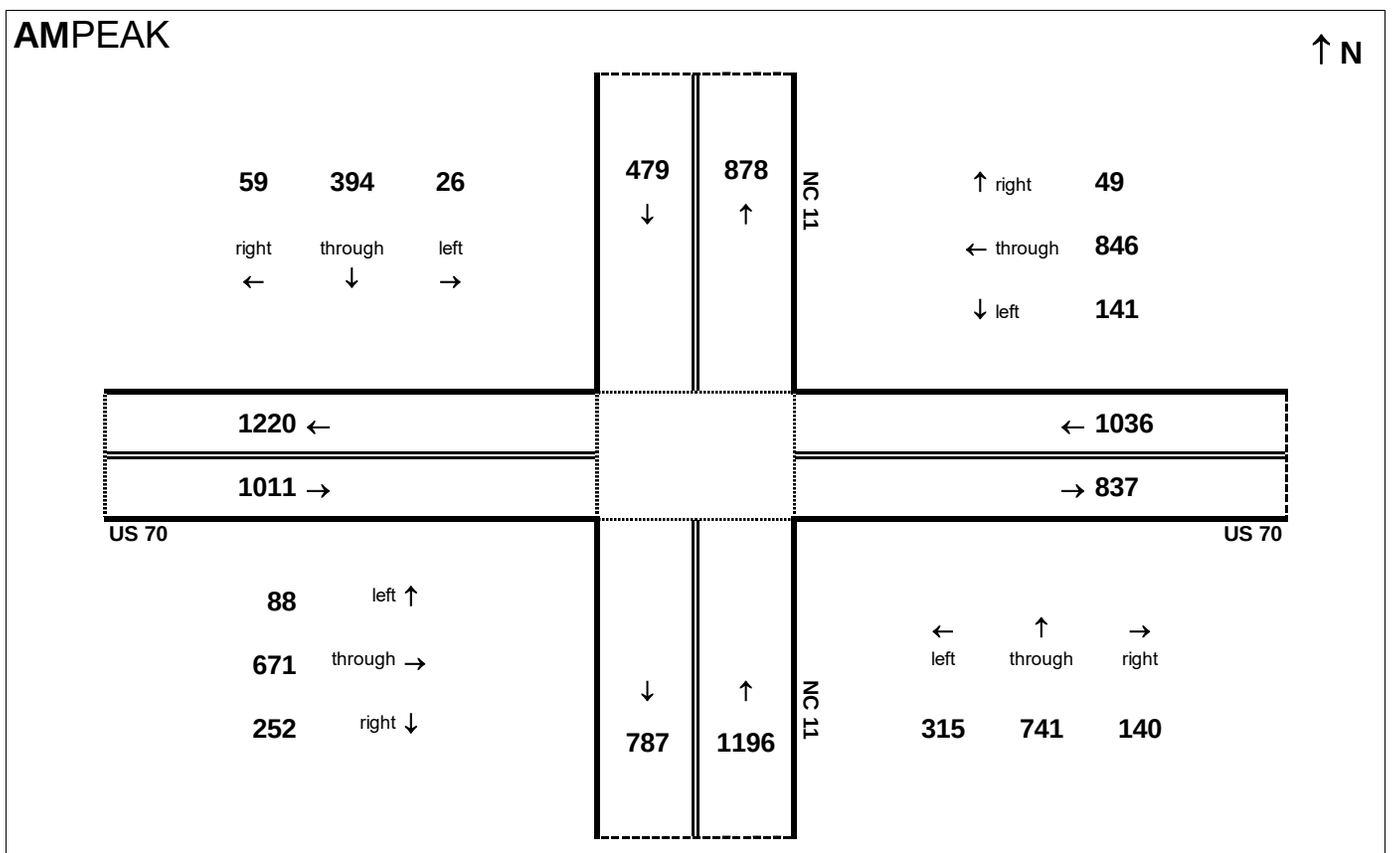
Peak Hour Volume Breakouts Report:
411-12 Intersection of US 70 and NC 11

Traffic Forecast Release Date:
November-16

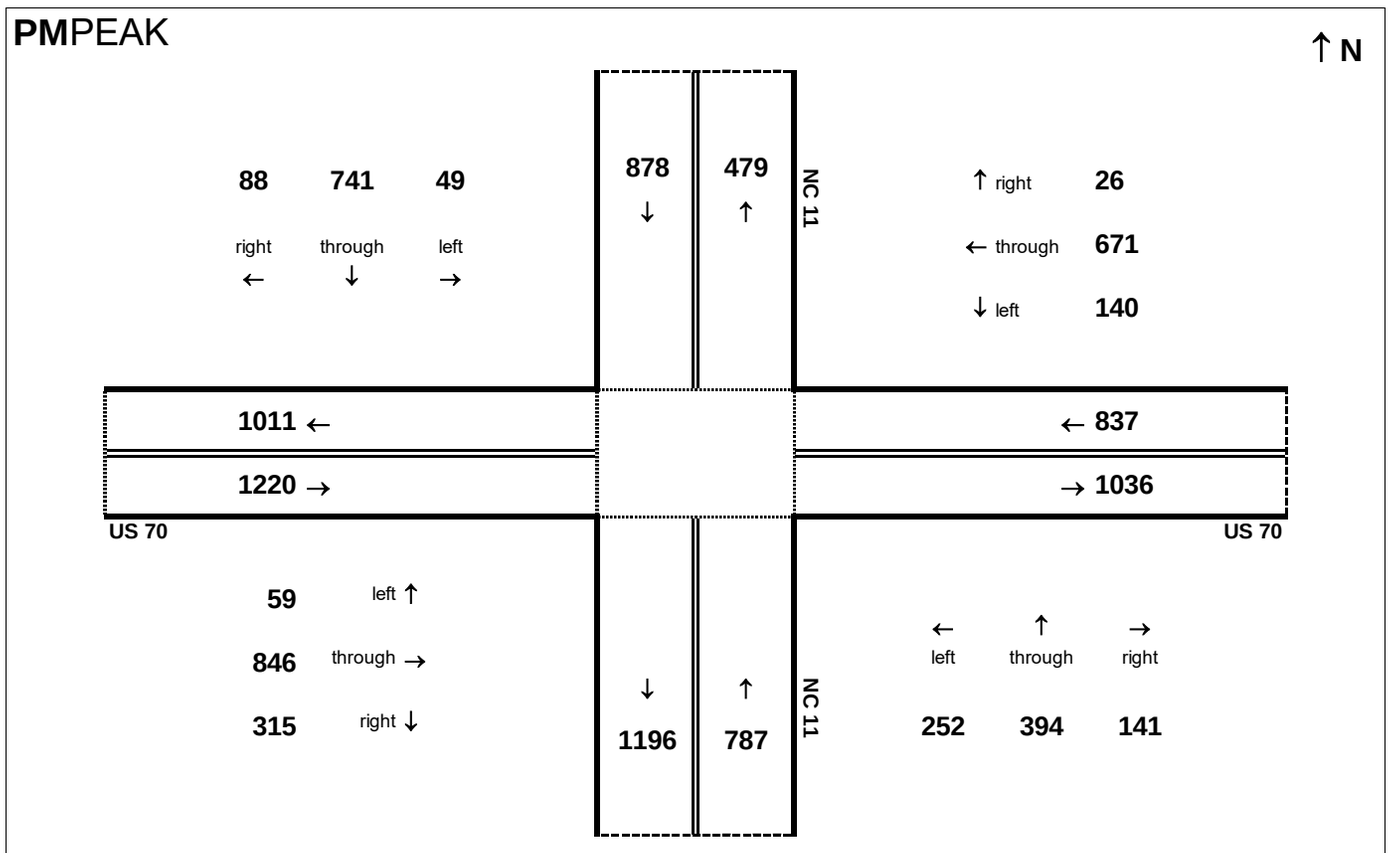
Traffic Data Year:
2040 Build Alt 12

Project:
R-2553





AM peak hour inflow is 3722 vehicles. AM peak hour outflow is 3722 vehicles.



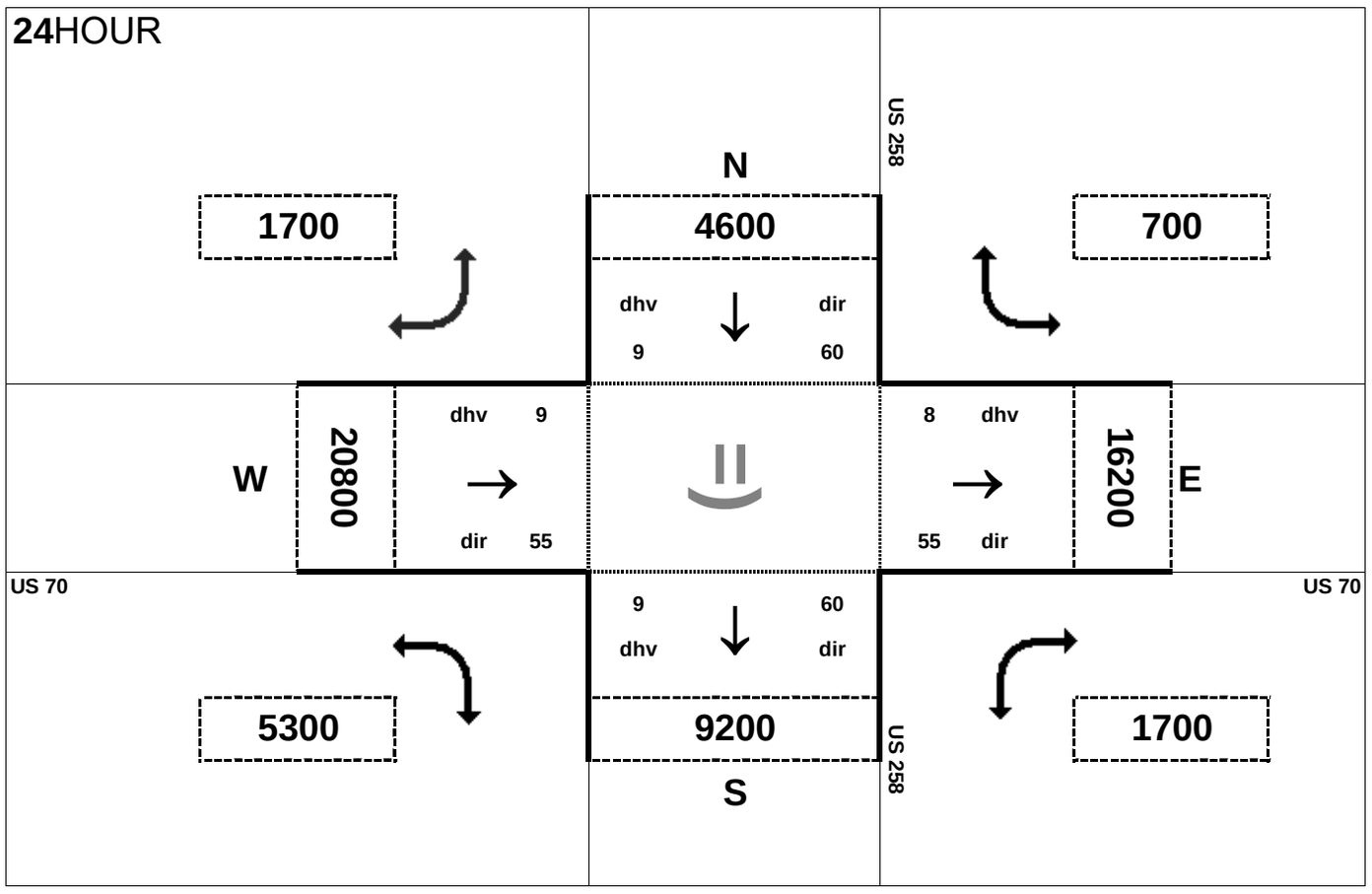
PM peak hour inflow is 3722 vehicles. PM peak hour outflow is 3722 vehicles.

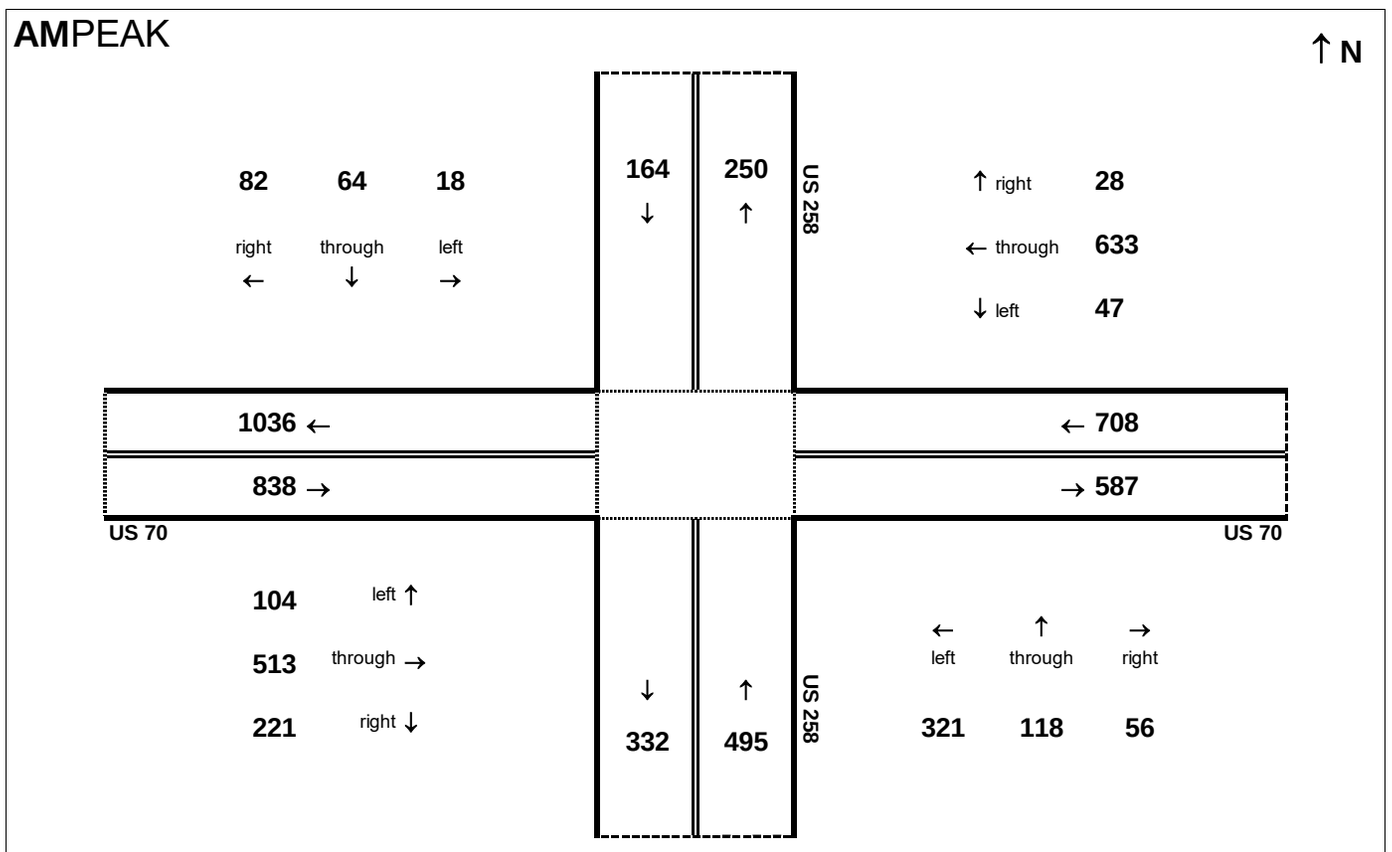
Peak Hour Volume Breakouts Report:
413-14 Intersection of US 70 and US 258

Traffic Forecast Release Date:
November-16

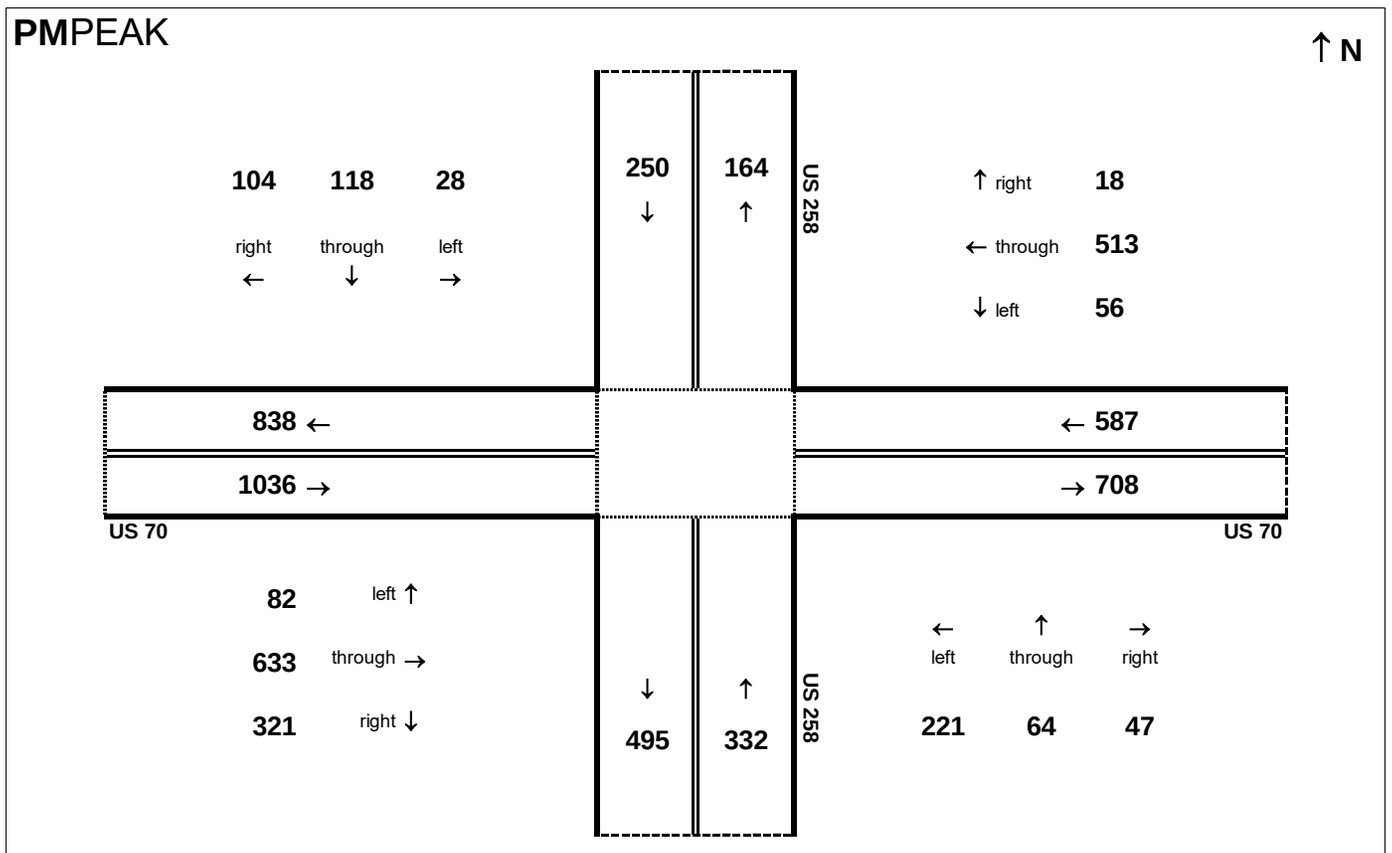
Traffic Data Year:
2040 Build Alt 12

Project:
R-2553





AM peak hour inflow is 2206 vehicles. AM peak hour outflow is 2206 vehicles.



PM peak hour inflow is 2206 vehicles. PM peak hour outflow is 2206 vehicles.

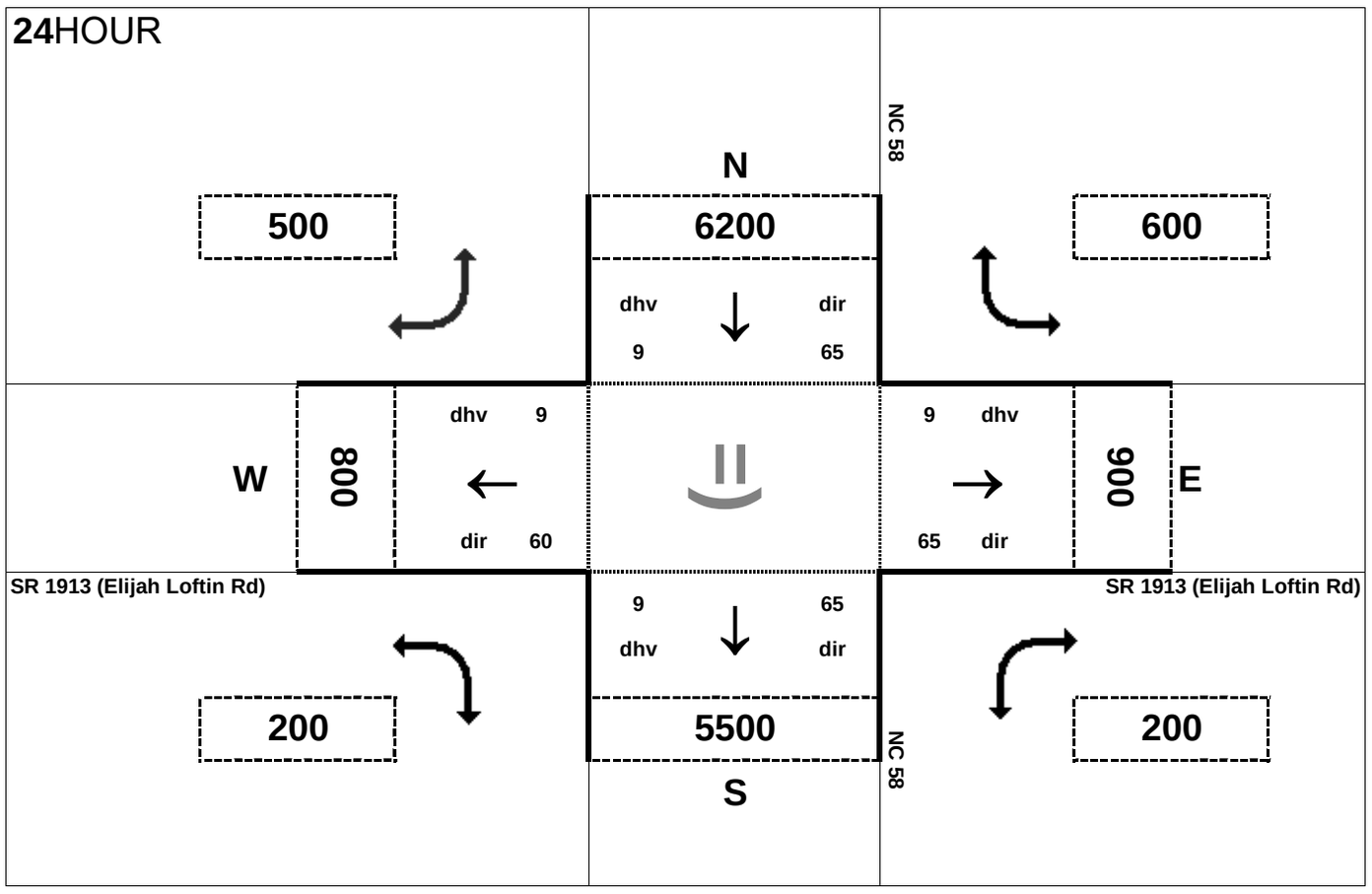
Peak Hour Volume Breakouts Report:
415 Intersection of NC 58 and SR 1913 (Elijah Loftin Rd)

Traffic Forecast Release Date:
November-16

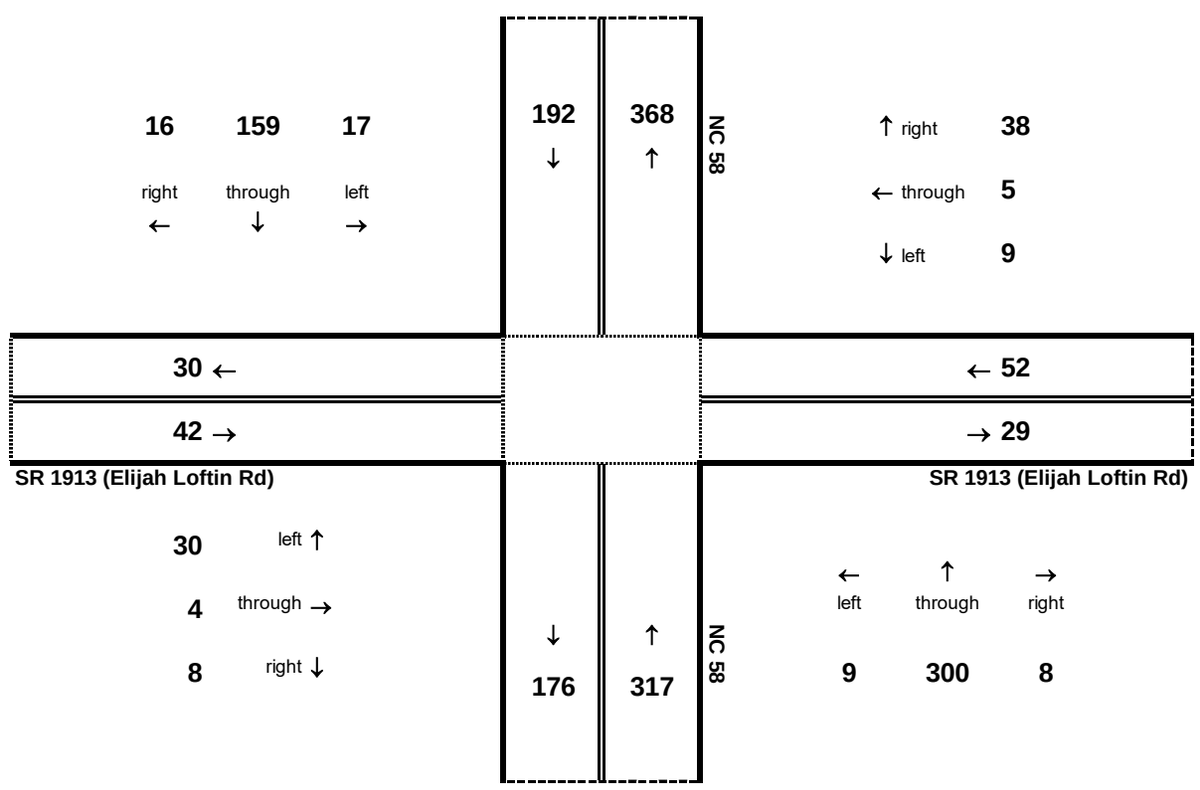
Traffic Data Year:
2040 Build Alt 12

Project:
R-2553

24HOUR

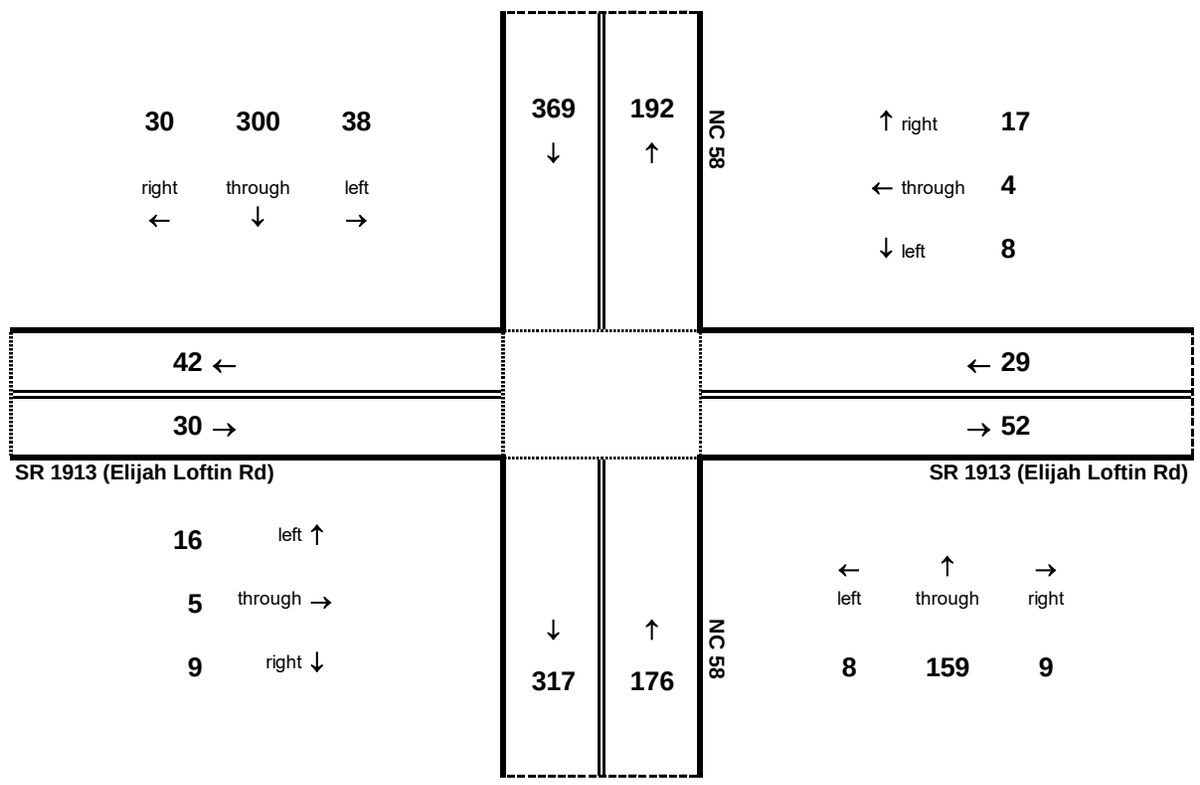


AMPEAK



AM peak hour inflow is 604 vehicles. AM peak hour outflow is 603 vehicles.

PMPEAK



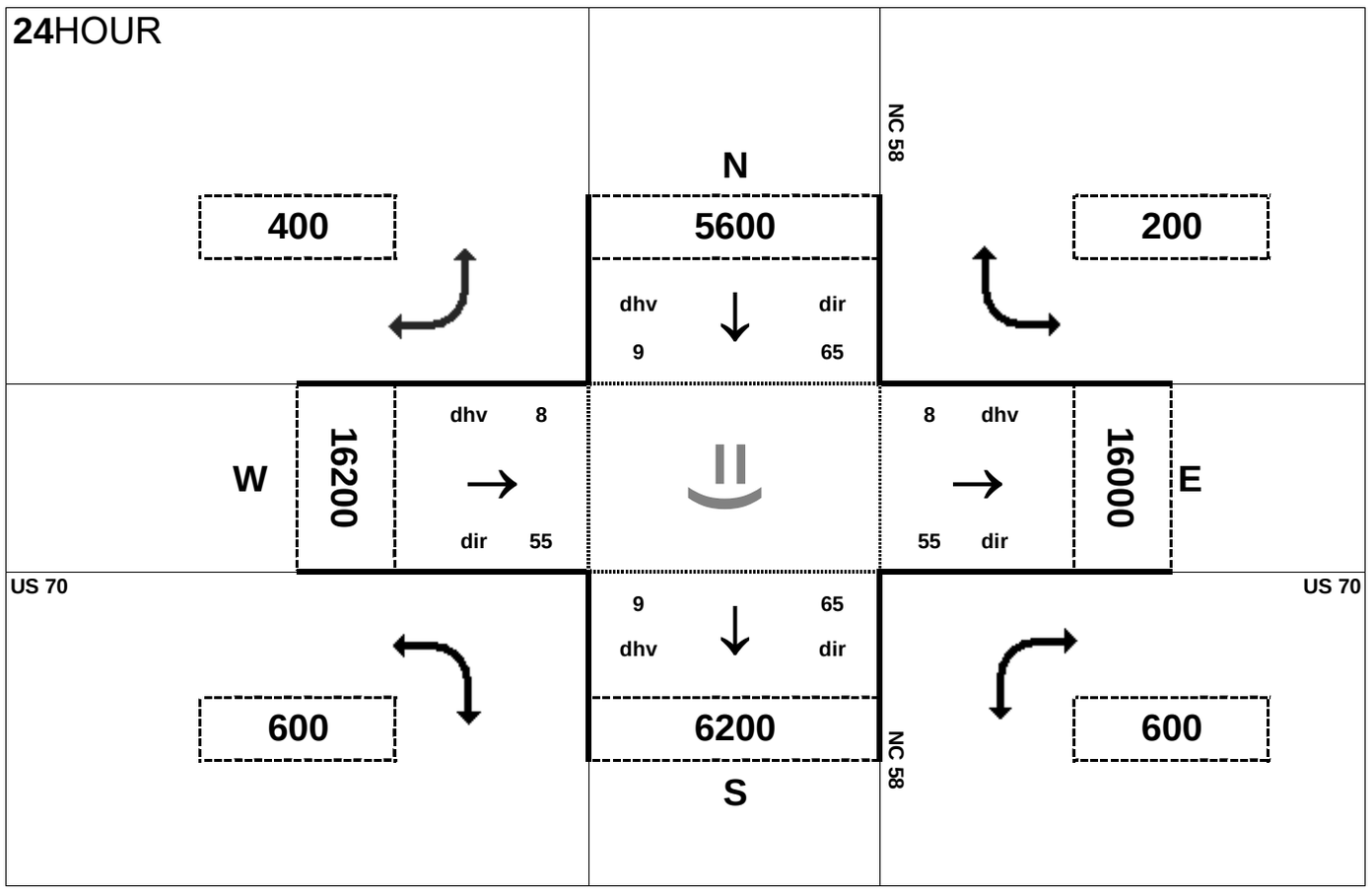
PM peak hour inflow is 603 vehicles. PM peak hour outflow is 604 vehicles.

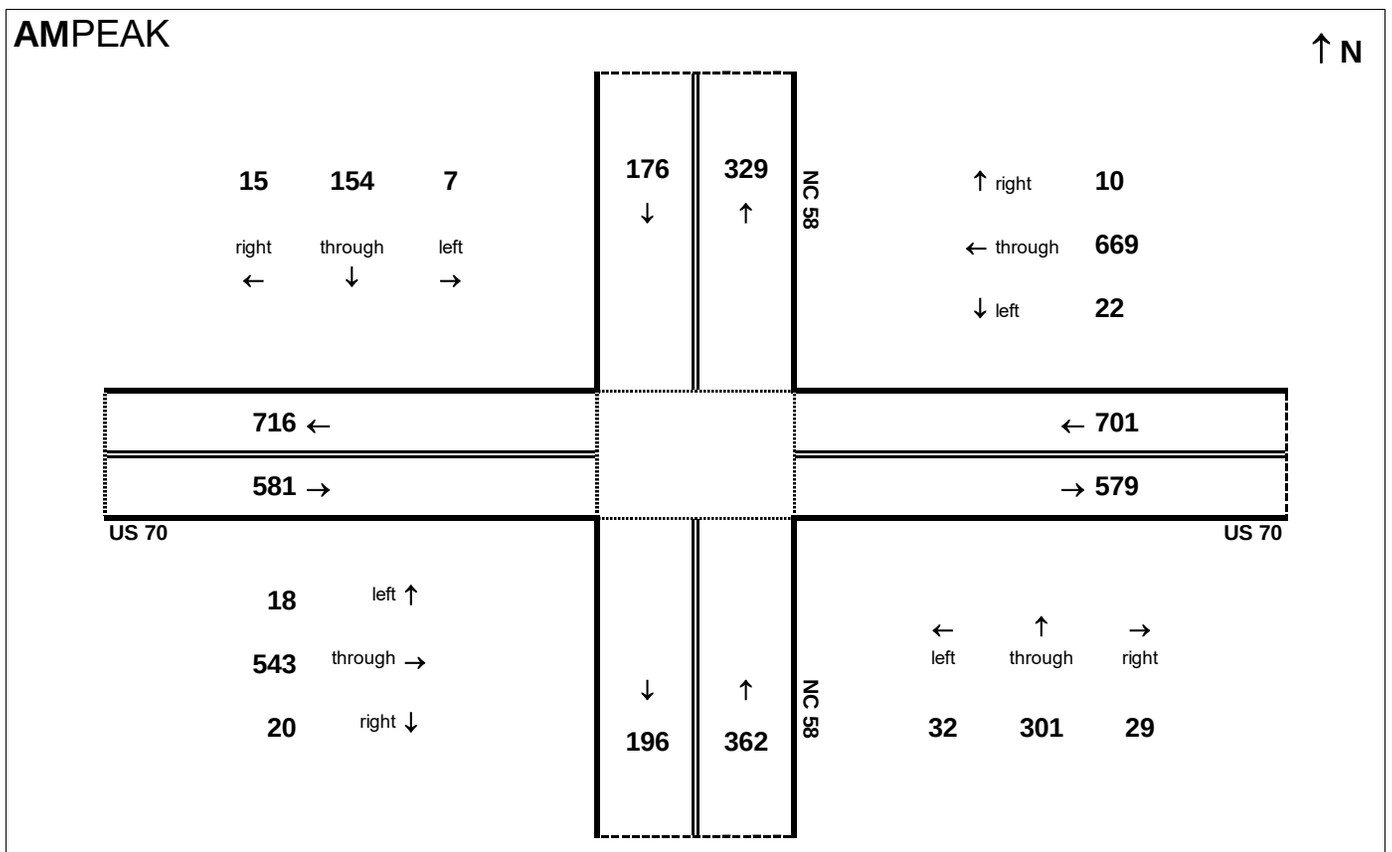
Peak Hour Volume Breakouts Report:
416-17 Intersection of US 70 and NC 58

Traffic Forecast Release Date:
November-16

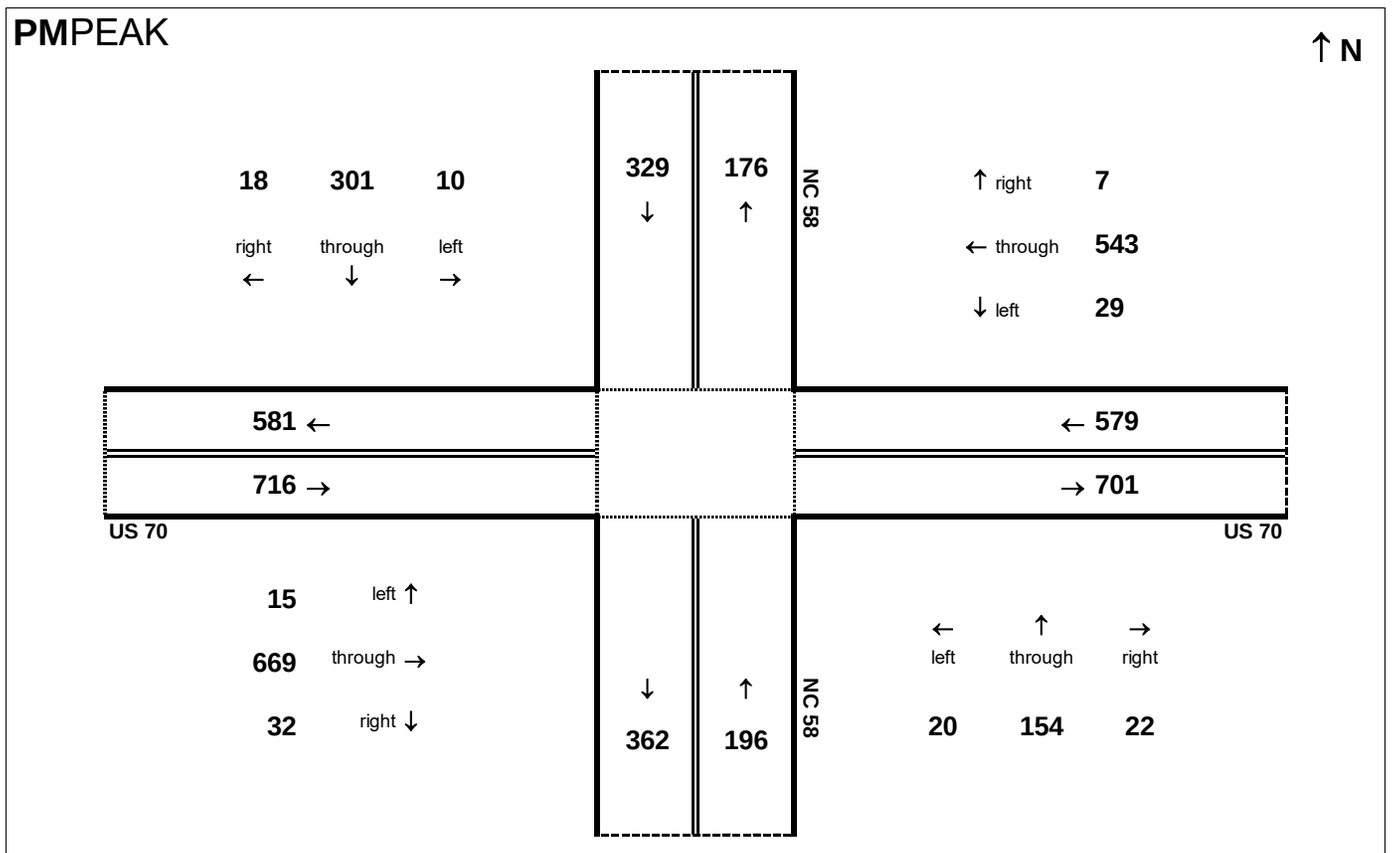
Traffic Data Year:
2040 Build Alt 12

Project:
R-2553





AM peak hour inflow is 1819 vehicles. AM peak hour outflow is 1819 vehicles.



PM peak hour inflow is 1819 vehicles. PM peak hour outflow is 1819 vehicles.

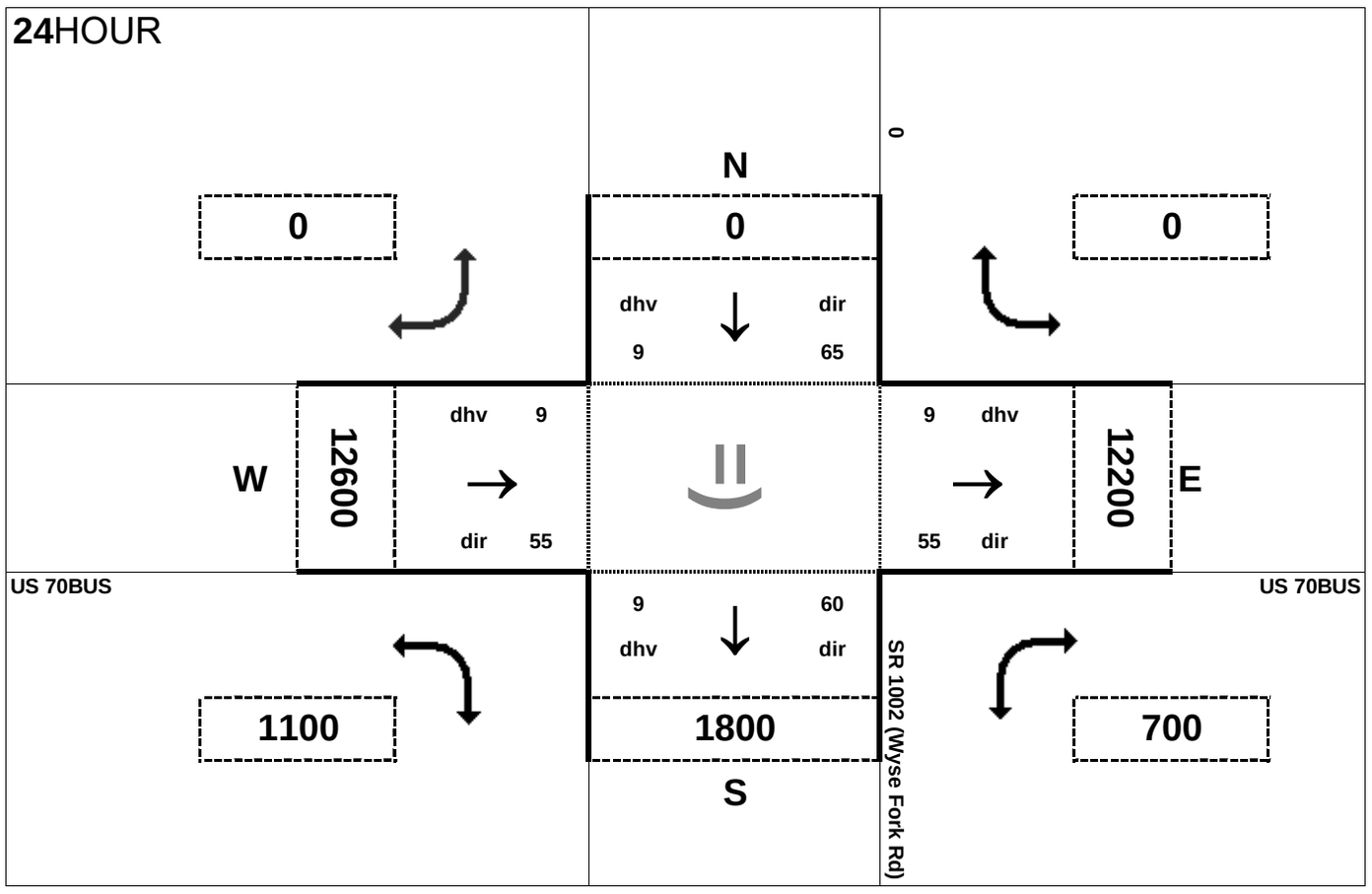
Peak Hour Volume Breakouts Report:
418 Intersection of US 70BUS and SR 1002 (Wyse Fork Rd)

Traffic Forecast Release Date:
November-16

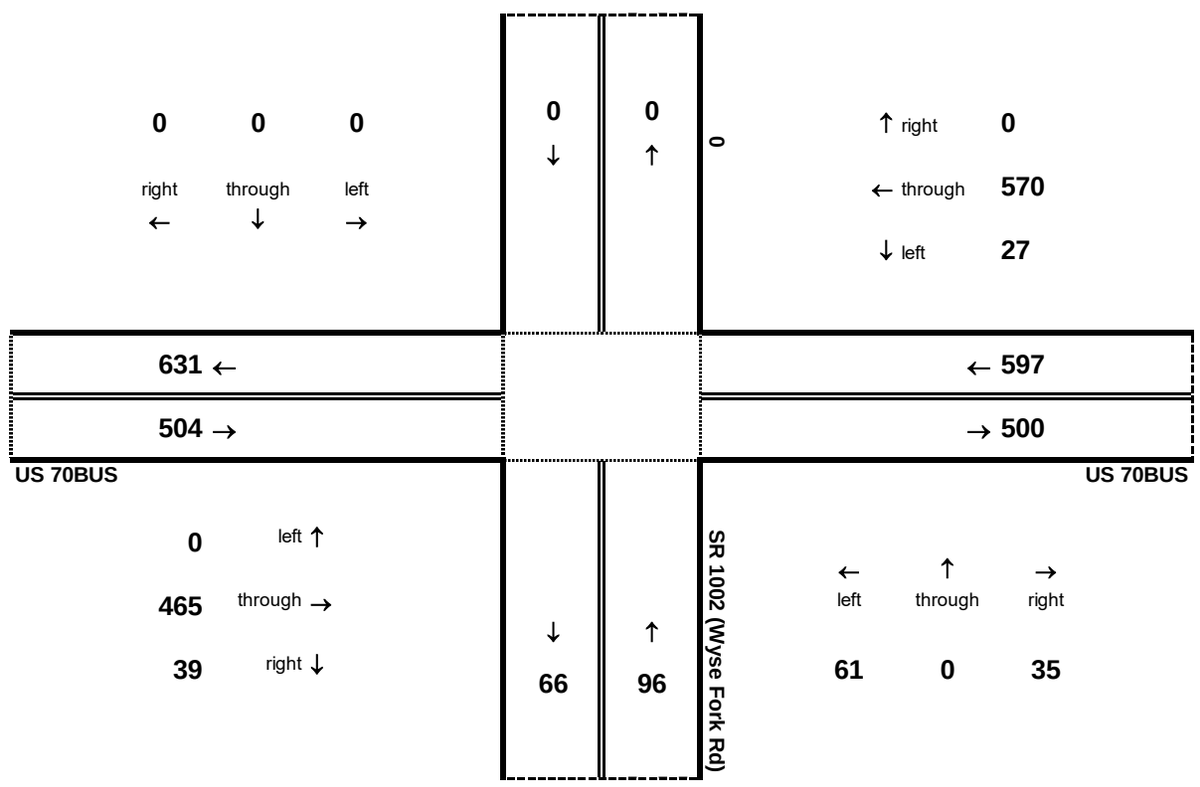
Traffic Data Year:
2040 Build Alt 12

Project:
R-2553

24HOUR

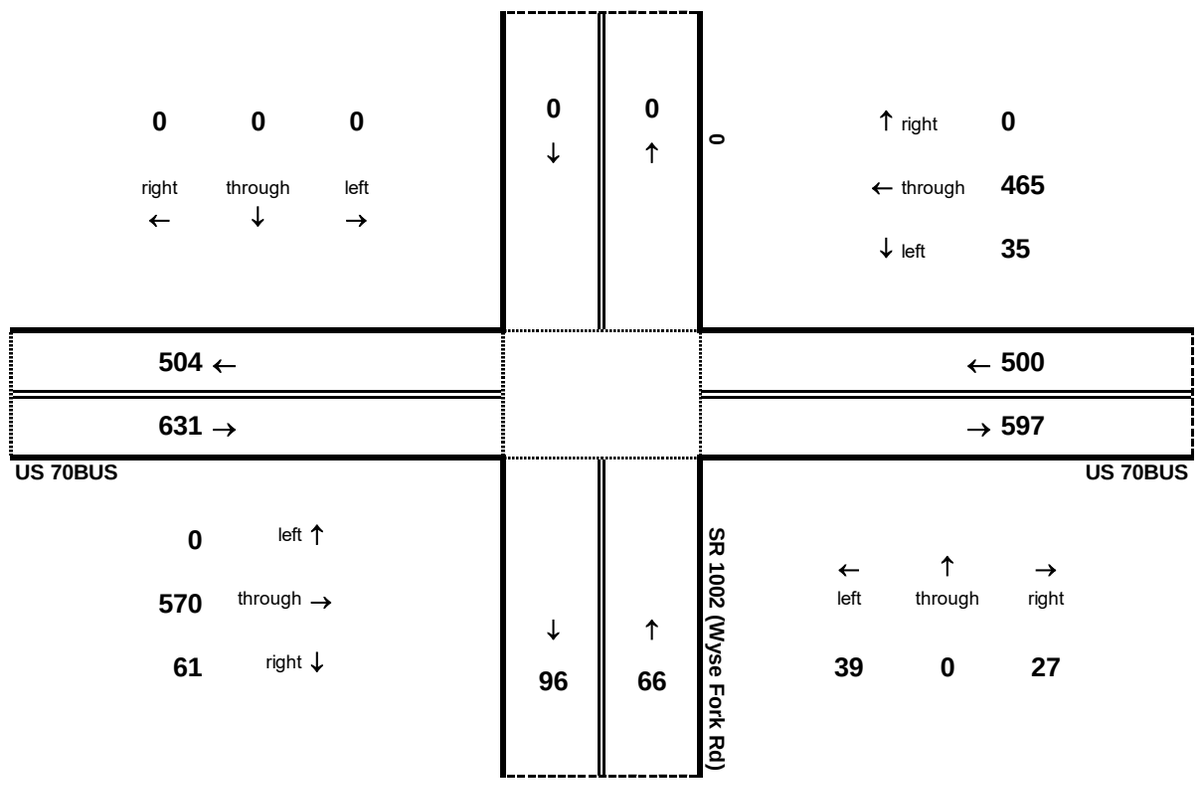


AMPEAK



AM peak hour inflow is 1197 vehicles. AM peak hour outflow is 1197 vehicles.

PMPEAK



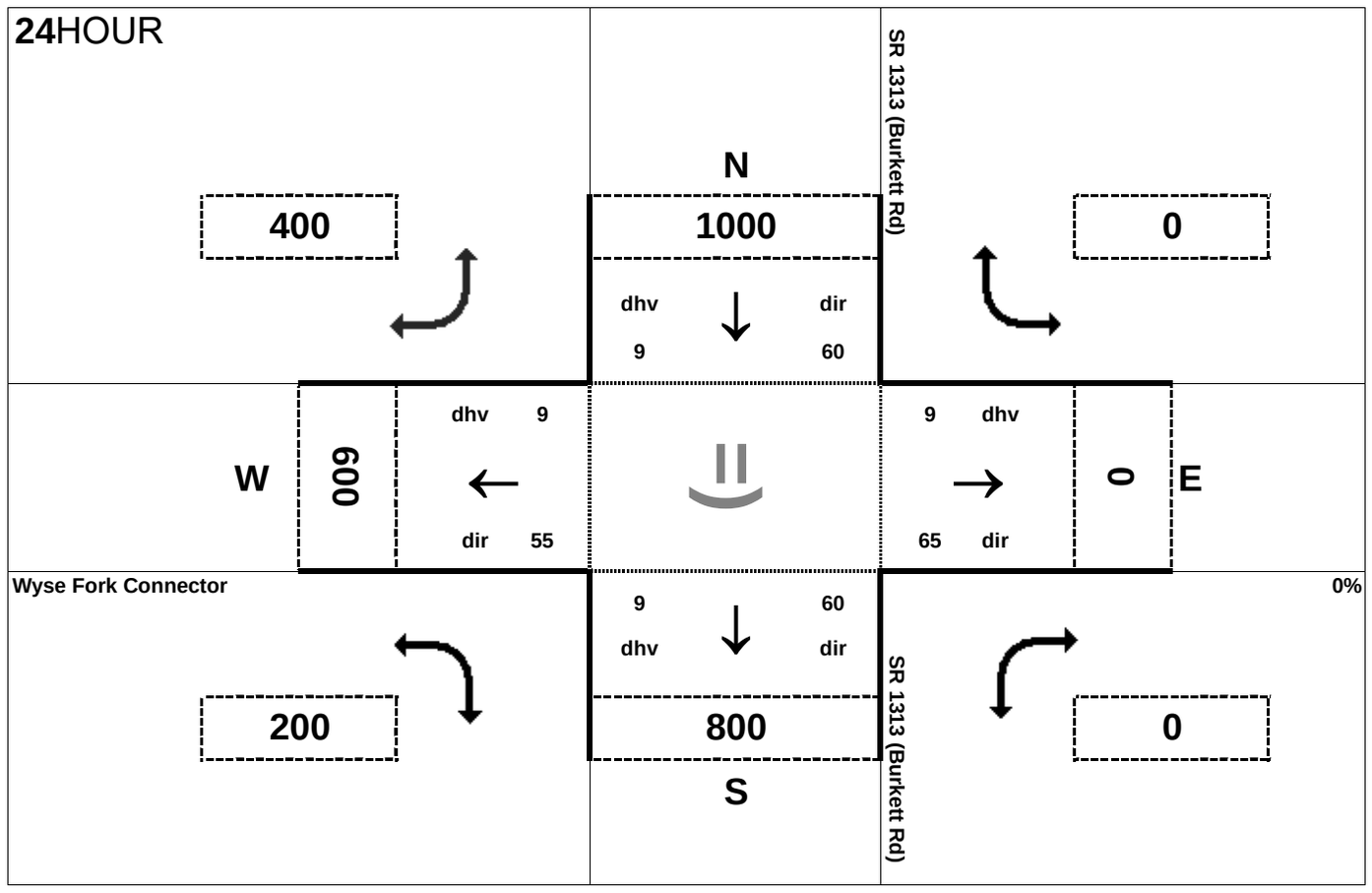
PM peak hour inflow is 1197 vehicles. PM peak hour outflow is 1197 vehicles.

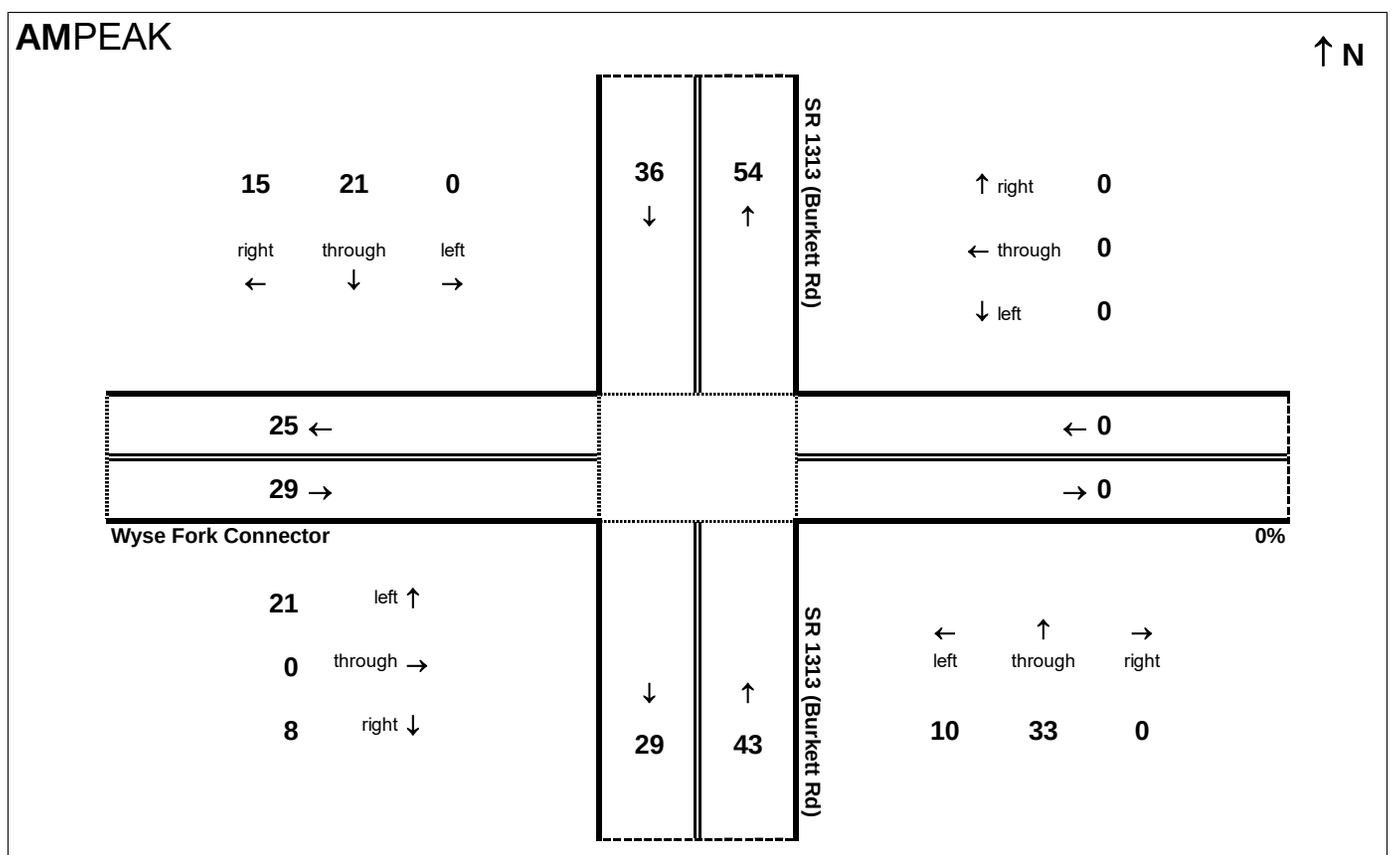
Peak Hour Volume Breakouts Report:
419 SR 1313 (Burkett Rd) at Wyse Fork Connector

Traffic Forecast Release Date:
November-16

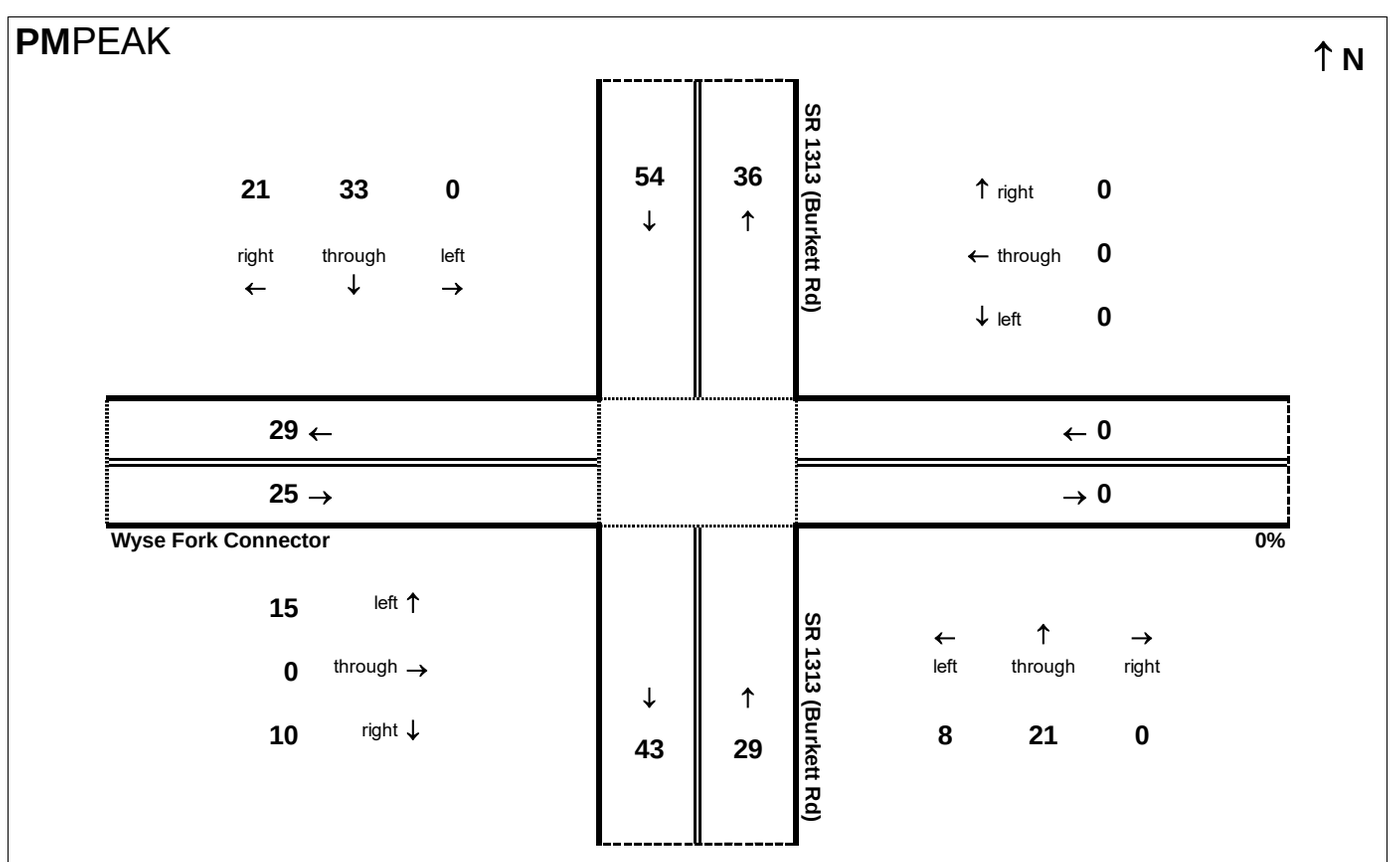
Traffic Data Year:
2040 Build Alt 12

Project:
R-2553





AM peak hour inflow is 108 vehicles. AM peak hour outflow is 108 vehicles.



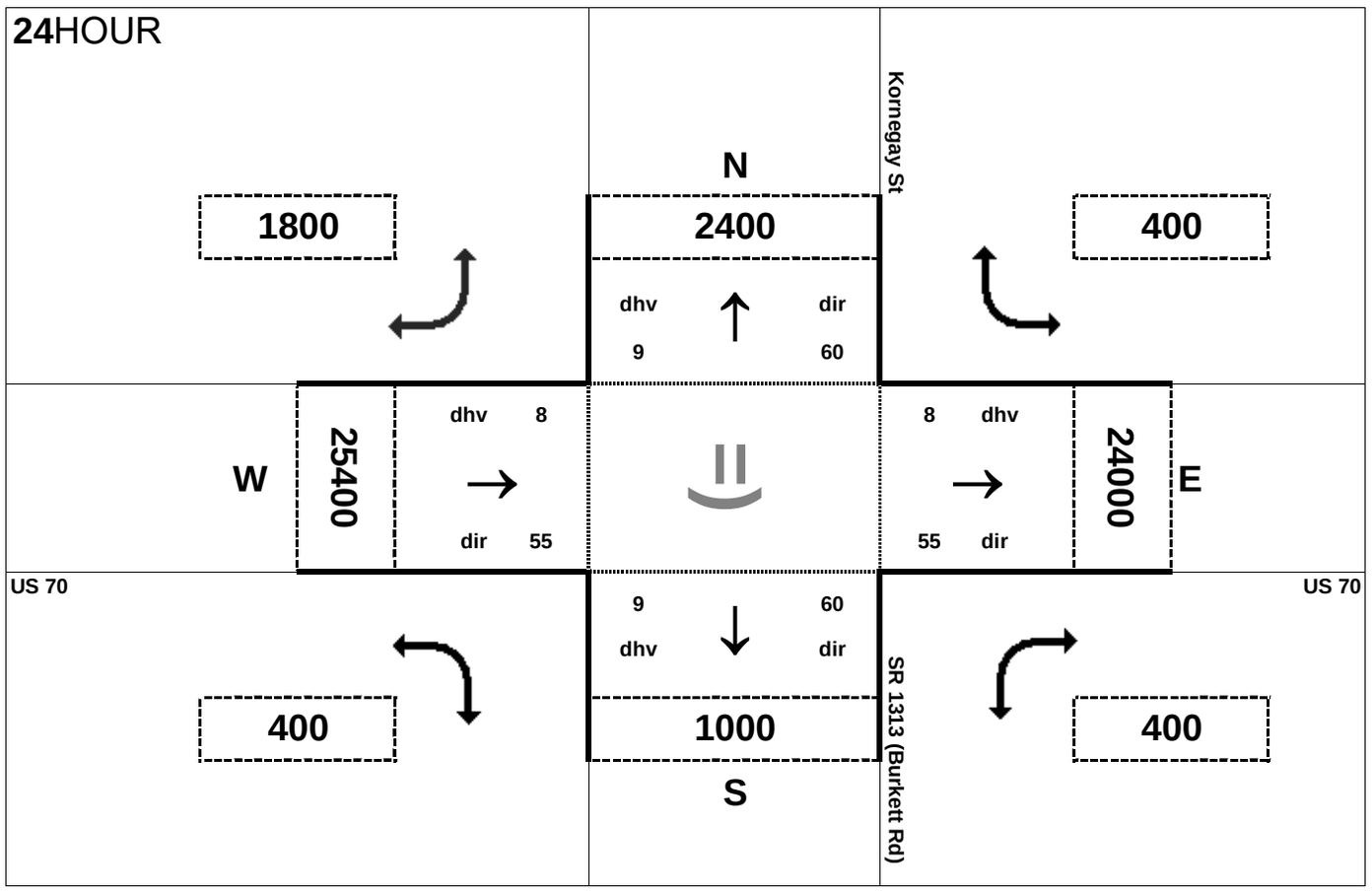
PM peak hour inflow is 108 vehicles. PM peak hour outflow is 108 vehicles.

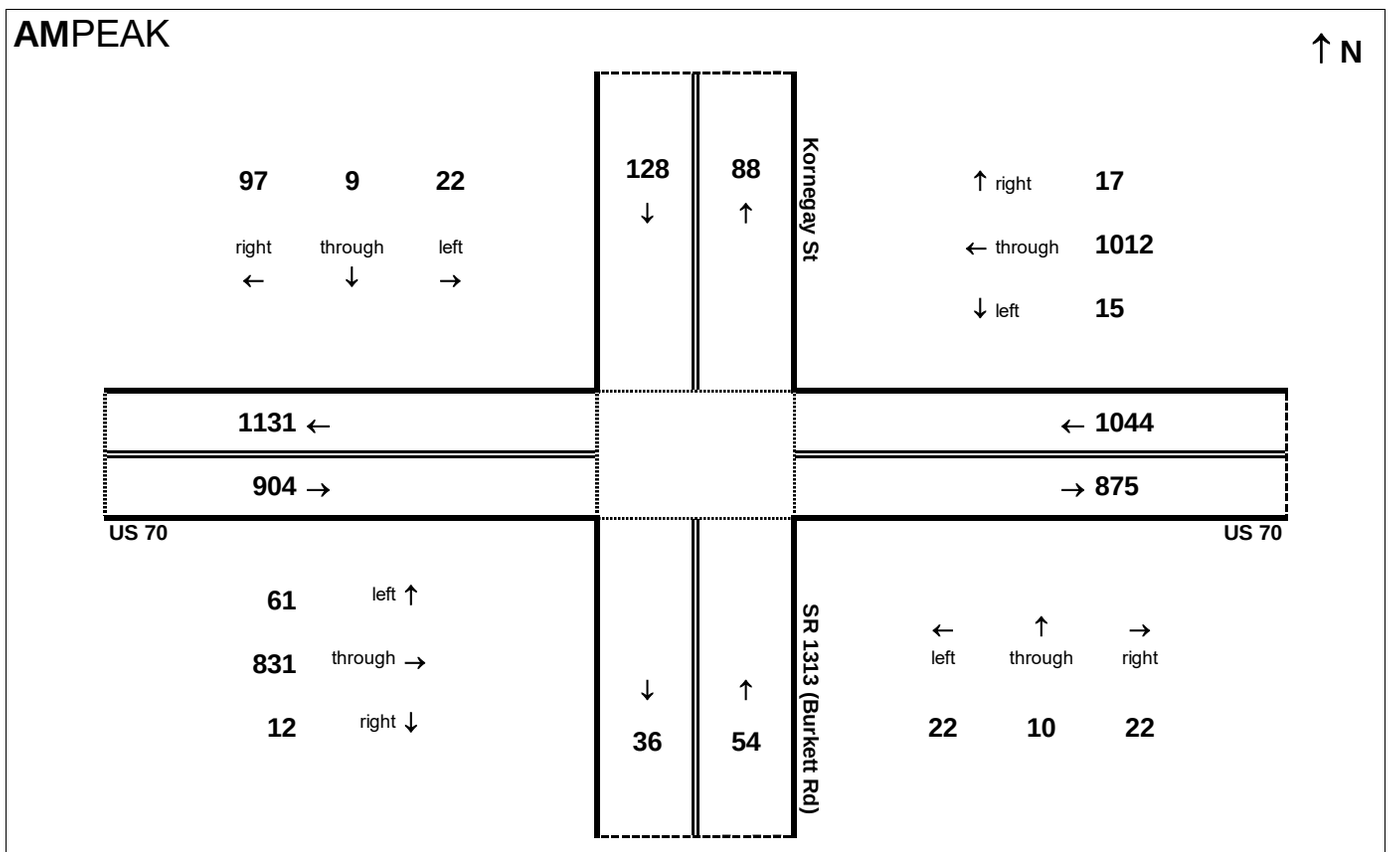
Peak Hour Volume Breakouts Report:
420-21 Intersection of US 70 and Kornegay St / SR 1313 (Burkett Rd)

Traffic Forecast Release Date:
November-16

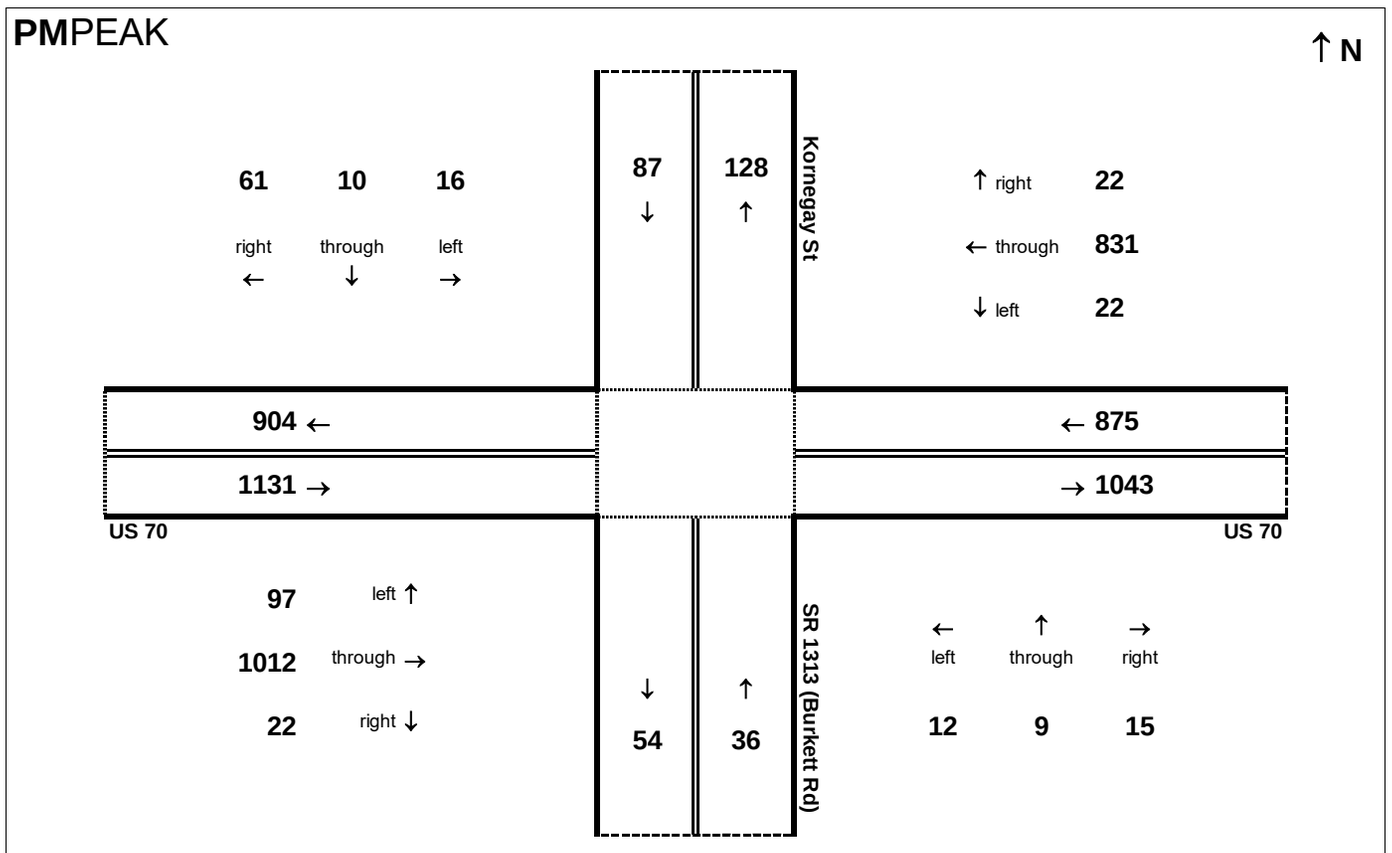
Traffic Data Year:
2040 Build Alt 12

Project:
R-2553





AM peak hour inflow is 2129 vehicles. AM peak hour outflow is 2128 vehicles.



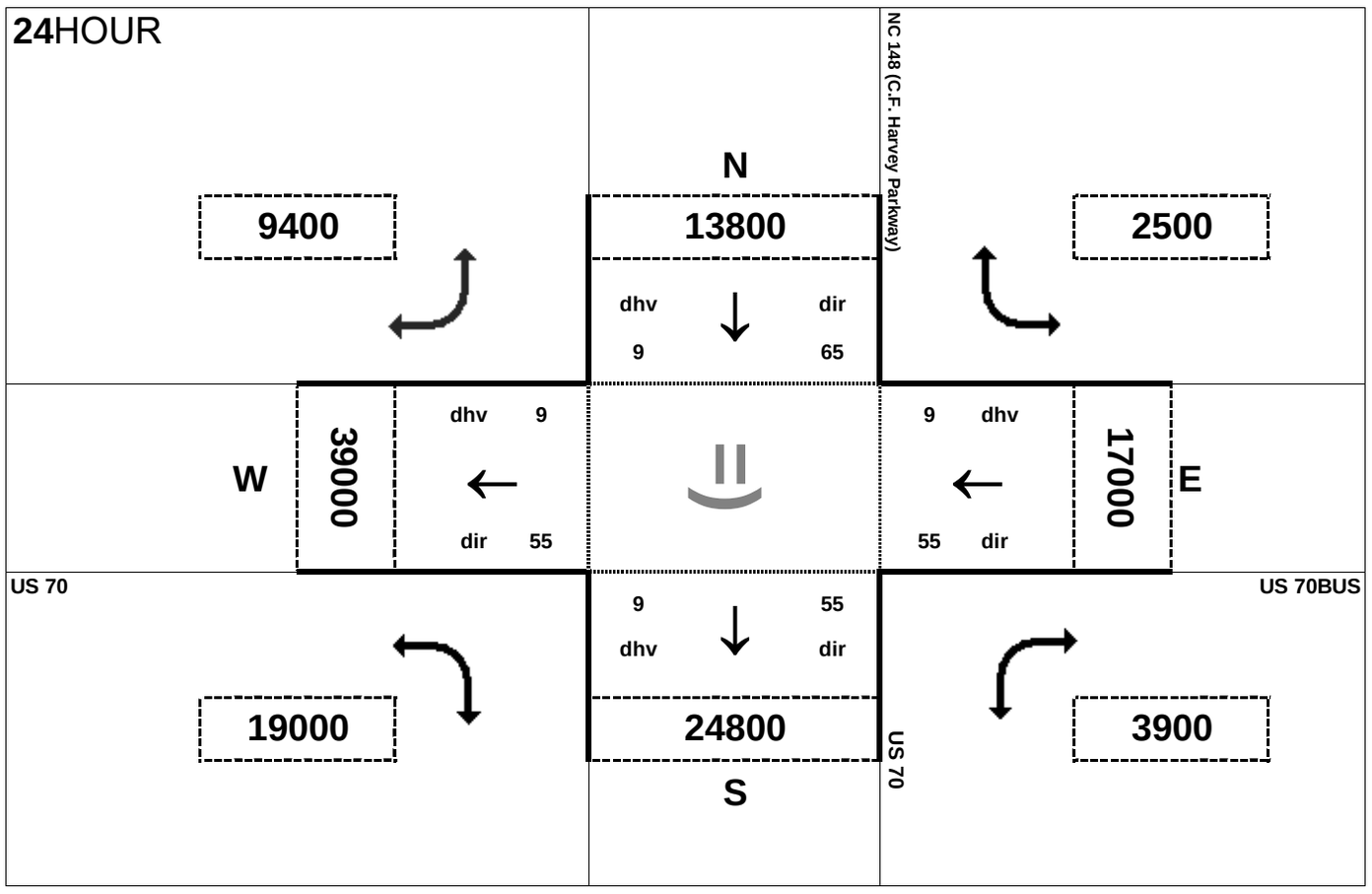
PM peak hour inflow is 2128 vehicles. PM peak hour outflow is 2129 vehicles.

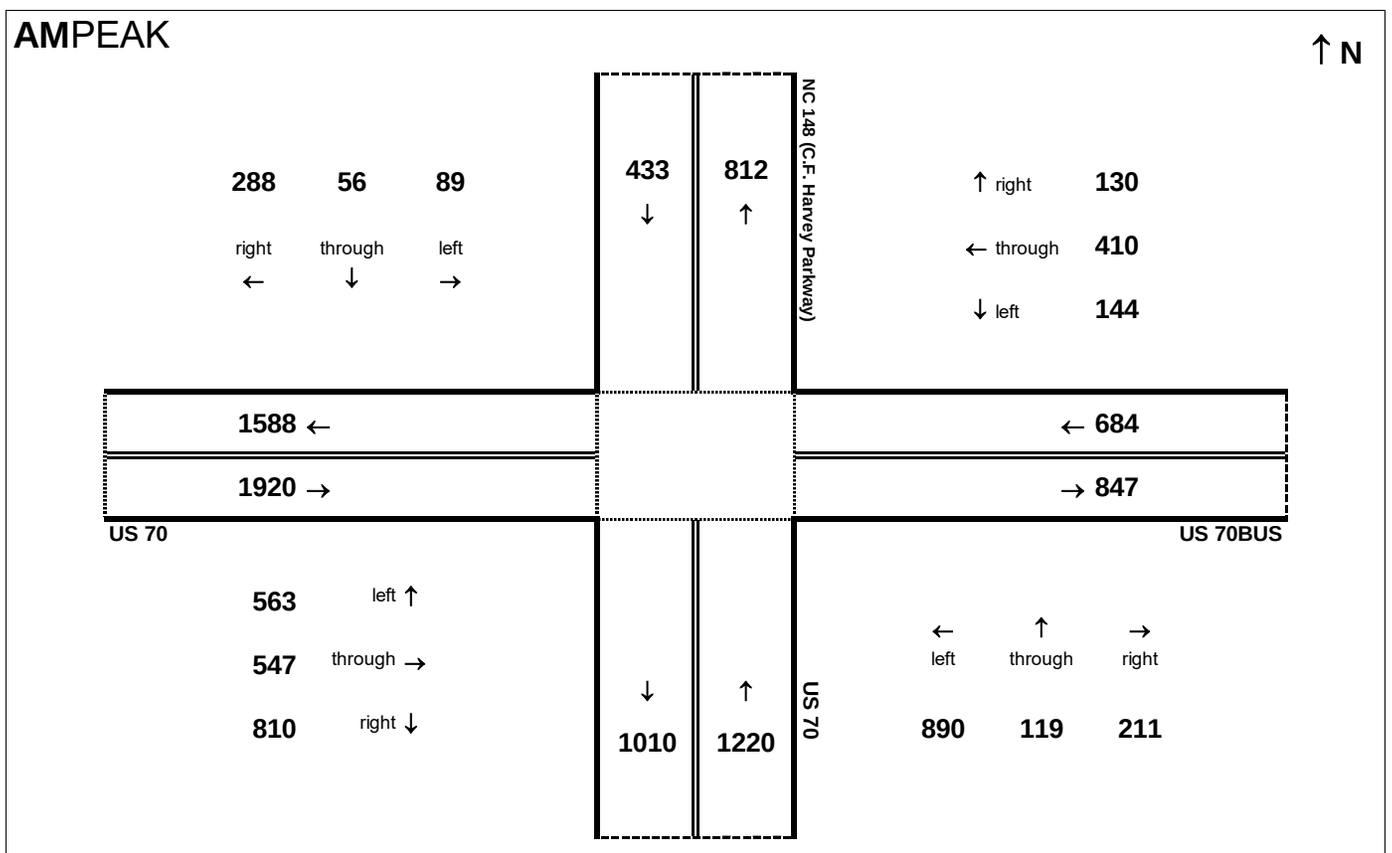
Peak Hour Volume Breakouts Report:
System 1 Intersection of US 70 and US 70BUS / NC 148 (C. F. Harvey Parkway)

Traffic Forecast Release Date:
November-16

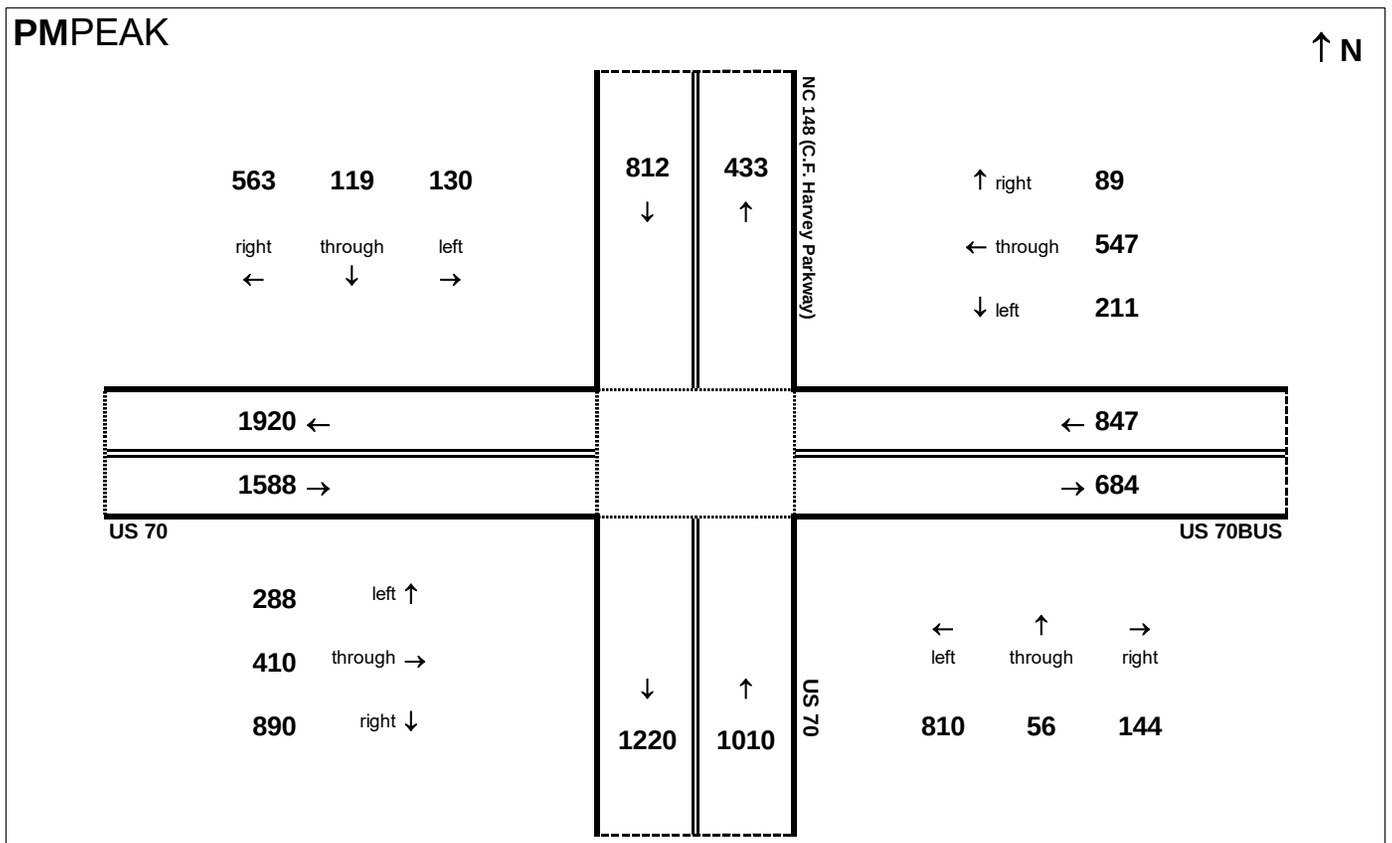
Traffic Data Year:
2040 Build Alt 12

Project:
R-2553





AM peak hour inflow is 4258 vehicles. AM peak hour outflow is 4257 vehicles.



PM peak hour inflow is 4257 vehicles. PM peak hour outflow is 4258 vehicles.

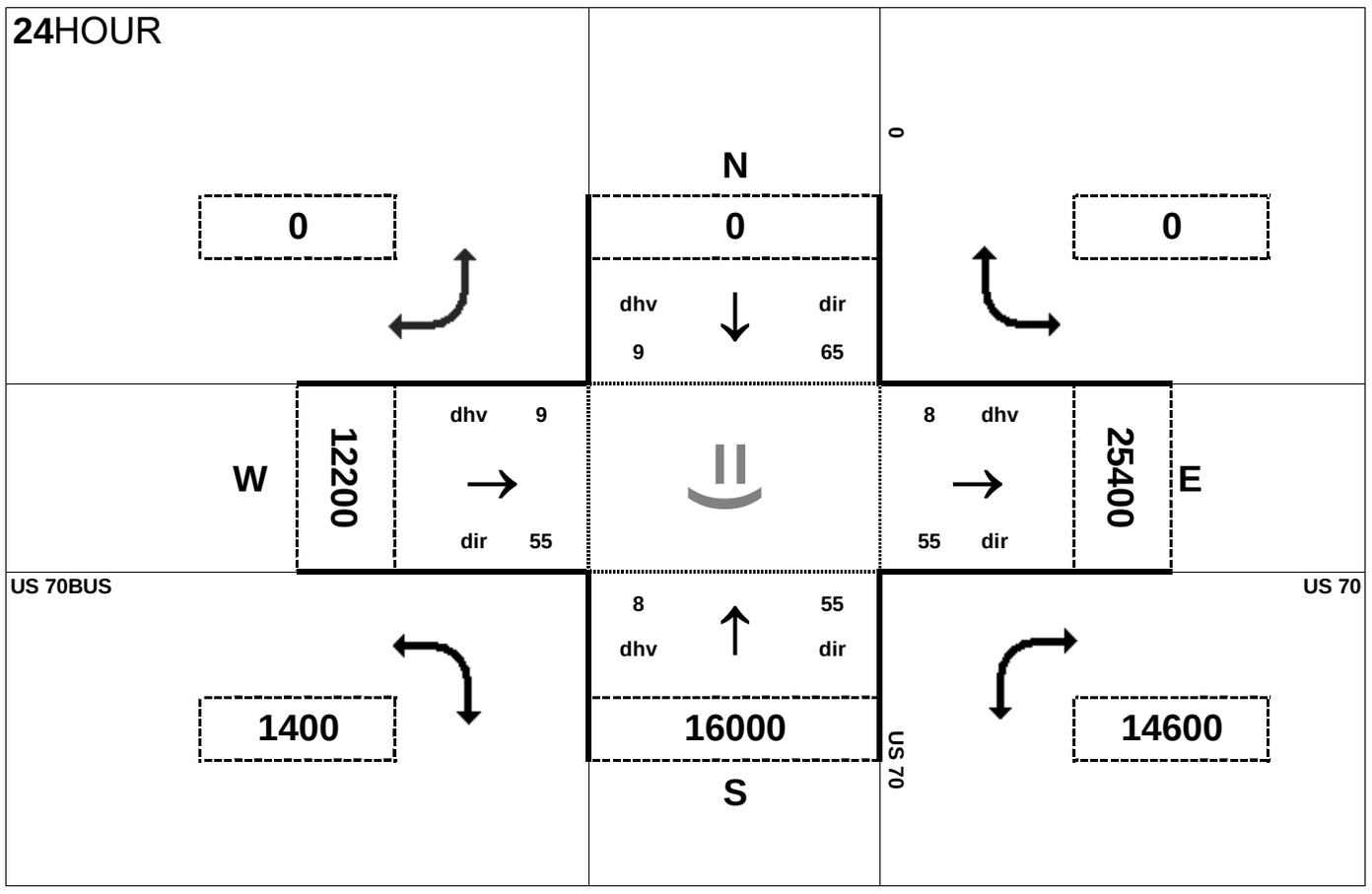
Peak Hour Volume Breakouts Report:
System 2 Intersection of US 70 and US 70BUS
(eastern interchange)

Traffic Forecast Release Date:
November-16

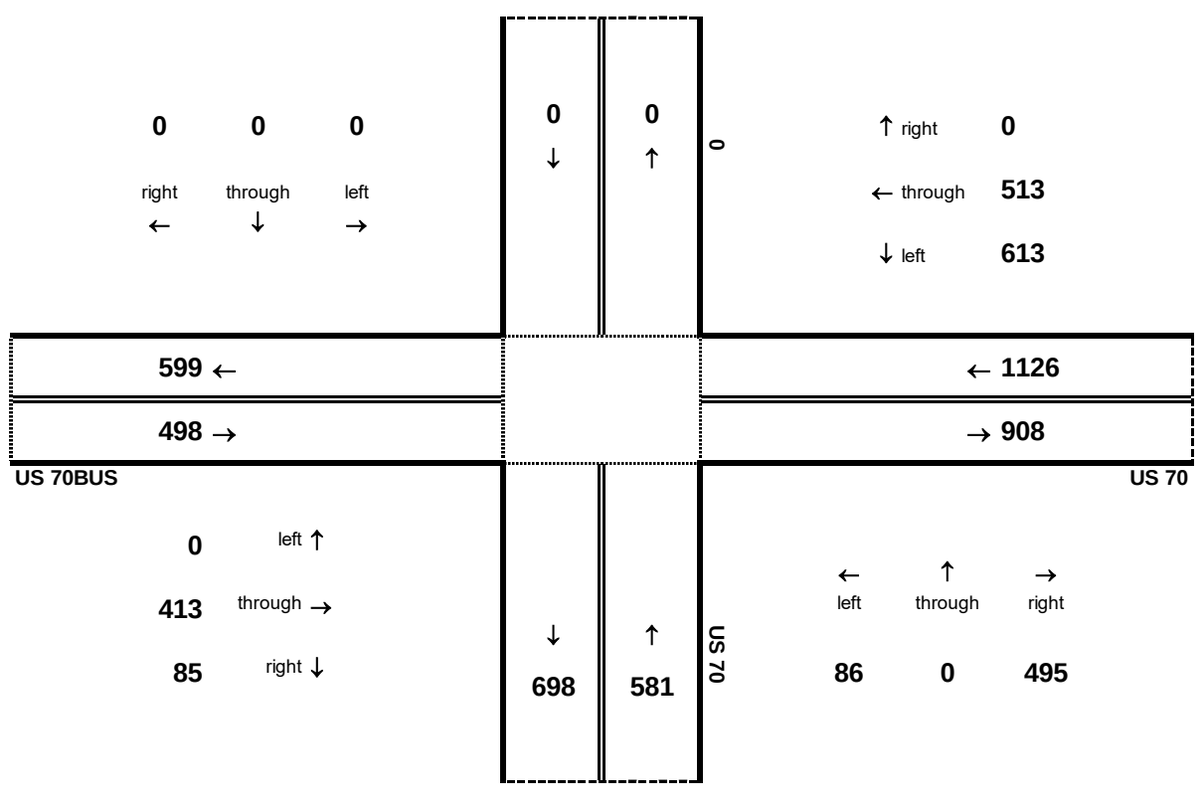
Traffic Data Year:
2040 Build Alt 12

Project:
R-2553

24HOUR

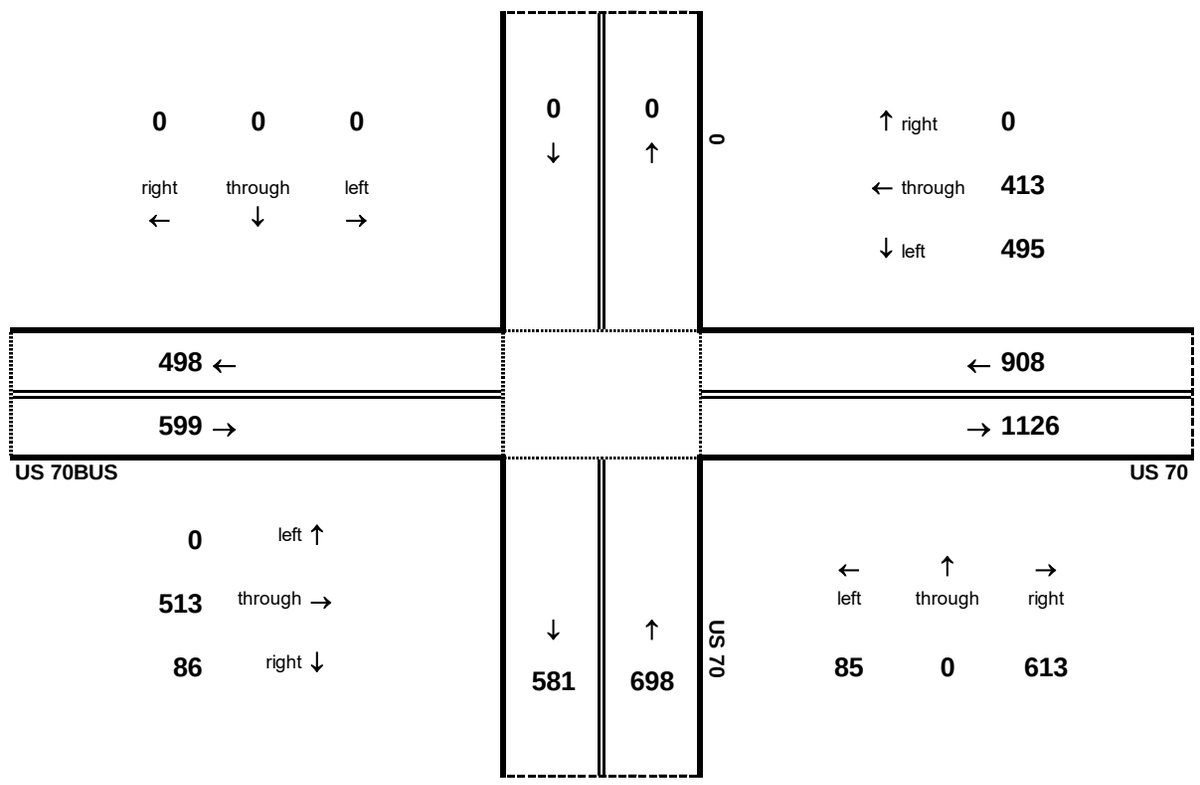


AMPEAK



AM peak hour inflow is 2205 vehicles. AM peak hour outflow is 2205 vehicles.

PMPEAK



PM peak hour inflow is 2205 vehicles. PM peak hour outflow is 2205 vehicles.

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R-2553 Kinson Bypass

2040 Build Alternative 12

Step 1 - Calculating Basic Freeway Segment Volumes

Basic Freeway Segment Volumes - Eastbound							
Seg.	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)	36,200	0.09	0.45	3,258	1,792	1,467
5E	US 70 EB - SR 1690 (Willie Measley Rd) to SR 1522 (Albert Sugg Rd)	38,400	0.09	0.45	3,456	1,901	1,556
9E	US 70 EB - SR 1522 (Albert Sugg Rd) to US 70BUS / C. F. Harvey Pkwy	39,000	0.09	0.45	3,510	1,931	1,580
13E	US 70 EB - US 70BUS / C. F. Harvey Pkwy To NC 11	24,800	0.09	0.55	2,232	1,005	1,228
17E	US 70 EB - NC 11 to US 258	20,800	0.09	0.55	1,872	843	1,030
21E	US 70 EB - US 258 to NC 58	16,200	0.08	0.55	1,296	584	713
25E	US 70 EB - NC 58 to US 70BUS (E)	16,000	0.08	0.55	1,280	576	704
29E	US 70 EB - US 70BUS (E) to Kornegay St	25,400	0.08	0.55	2,032	915	1,118
33E	US 70 EB - East of Kornegay St	24,000	0.08	0.55	1,920	864	1,056

Basic Freeway Segment Volumes - Westbound							
Seg.	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1W	US 70 WB - East of Kornegay St	24,000	0.08	0.45	1,920	1,056	864
5W	US 70 WB - US 70BUS ('E) to Kornegay St	25,400	0.08	0.45	2,032	1,118	915
9W	US 70 WB - NC 58 to US 70BUS ('E)	16,000	0.08	0.45	1,280	704	576
13W	US 70 WB - US 258 to NC 58	16,200	0.08	0.45	1,296	713	584
17W	US 70 WB - NC 11 to US 258	20,800	0.09	0.45	1,872	1,030	843
21W	US 70 WB - US 70BUS / C. F. Harvey Pkwy to NC 11	24,800	0.09	0.45	2,232	1,228	1,005
25W	US 70 WB - SR 1522 (Albert Sugg Rd) to US 70BUS / C. F. Harvey Pkwy	39,000	0.09	0.55	3,510	1,580	1,931
29W	US 70 WB - SR 1690 (Willie Measley Rd) to SR 1522 (Albert Sugg Rd)	38,400	0.09	0.55	3,456	1,556	1,901
33W	US 70 WB - West of SR 1690 (Willie Measley Rd)	36,200	0.09	0.55	3,258	1,467	1,792

Basic Freeway Segment Volumes - Southbound							
Seg.	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1S	C. F. Harvey Pkwy SB - North of US 70 / US 70BUS	13,800	0.09	0.65	1,242	435	808

R-2553 Kinson Bypass
2040 Build Alternative 12
Step 2 - Compiling Ramp Volumes

US 70 Ramp Volumes								
Description	EB Exit		WB Entrance		EB Entrance		WB Exit	
	AM	PM	AM	PM	AM	PM	AM	PM
US 70 at SR 1690 (Willie Measley Rd)	181	204	204	181	341	250	250	341
US 70 at SR 1522 (Albert Sugg Rd)	151	201	201	151	261	160	160	261
US 70 at US 70BUS/C. F. Harvey Pkwy	1,110	698	698	1,110	200	330	330	200
US 70 at NC 11	340	374	374	340	166	190	190	166
US 70 at US 258	325	403	403	325	74	75	75	74
US 70 at NC 58	38	47	47	38	36	32	32	36
US 70 at US 70BUS (E)	86	85	85	86	413	513	513	413
US 70 at Kornegay St	73	119	119	73	44	31	32	44

C. F. Harvey Pkwy Southbound Ramp Volumes			
Description	Ramp	AM	PM
US 70 / US 70BUS at NC 148 (C. F. Harvey Pkwy)	C. F. Harvey Pkwy SB - to US 70 WB	288	563
	C. F. Harvey Pkwy SB - from US 70BUS WB	144	211
	C. F. Harvey Pkwy SB - to US 70BUS EB	89	130

R-2553 Kinson Bypass
2040 Build Alternative 12
Step 3 - Adjusting All Segment Volumes

Eastbound Adjusted Segment Volumes						
Seg.	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)	0.9	1,792	1,467	1,991	1,630
2E	US 70 EB - to SR 1690 (Willie Measley Rd)	0.9	181	204	201	227
4E	US 70 EB - from SR 1690 (Willie Measley Rd)	0.9	341	250	379	278
5E	US 70 EB - SR 1690 (Willie Measley Rd) to SR 1522 (Albert Sugg Rd)	0.9	1,901	1,556	2,112	1,729
6E	US 70 EB - to SR 1522 (Albert Sugg Rd)	0.9	151	201	168	223
8E	US 70 EB - from SR 1522 (Albert Sugg Rd)	0.9	261	160	290	178
9E	US 70 EB - SR 1522 (Albert Sugg Rd) to US 70BUS / C. F. Harvey Pkwy	0.9	1,931	1,580	2,146	1,756
10E	US 70 EB - to US 70BUS / C.F. Harvey	0.9	1,110	698	1,233	776
12E	US 70 EB - from US 70BUS / C.F. Harvey	0.9	200	330	222	367
13E	US 70 EB - US 70BUS/ C. F. Harvey Pkwy to NC 11	0.9	1,005	1,228	1,117	1,364
14E	US 70 EB - to NC 11	0.9	340	374	378	416
16E	US 70 EB - from NC 11	0.9	166	190	184	211
17E	US 70 EB - NC 11 to US 258	0.9	843	1,030	937	1,144
18E	US 70 EB - to US 258	0.9	325	403	361	448
20E	US 70 EB - from US 258	0.9	74	75	82	84
21E	US 70 EB - US 258 to NC 58	0.9	584	713	649	792
22E	US 70 EB - to NC 58	0.9	38	47	42	52
24E	US 70 EB - from NC 58	0.9	36	32	40	36
25E	US 70 EB - NC 58 to US 70BUS (E)	0.9	576	704	640	782
26E	US 70 EB - to US70BUS (E)	0.9	86	85	96	94
28E	US 70 EB - from US70BUS (E)	0.9	413	513	459	570
29E	US 70 EB - US 70BUS (E) to Kornegay St	0.9	915	1,118	1,017	1,242
30E	US 70 EB - to Kornegay St	0.9	73	119	81	132
32E	US 70 EB - from Kornegay St	0.9	44	31	49	35
33E	US 70 EB - East of Kornegay St	0.9	864	1,056	960	1,173

	AM	PM
Max Volume	2,146	1,756

XXX	Ramp
XXX	Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 12
Step 3 - Adjusting All Segment Volumes

Westbound Adjusted Segment Volumes						
Seg.	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1W	US 70 WB - East of Kornegay St	0.9	1,056	864	1,173	960
2W	US 70 WB - to Kornegay St	0.9	32	44	36	49
4W	US 70 WB - from Kornegay St	0.9	119	73	132	81
5W	US 70 WB - US 70BUS (E) to Kornegay St	0.9	1,118	915	1,242	1,017
6W	US 70 WB - to US70BUS (E)	0.9	513	413	570	459
8W	US 70 WB - from US70BUS (E)	0.9	85	86	94	96
9W	US 70 WB - NC 58 to US 70BUS (E)	0.9	704	576	782	640
10W	US 70 WB - to NC 58	0.9	32	36	36	40
12W	US 70 WB - from NC 58	0.9	47	38	52	42
13W	US 70 WB - US 258 to NC 58	0.9	713	584	792	649
14W	US 70 WB - to US 258	0.9	75	74	83	82
16W	US 70 WB - from US 258	0.9	403	325	448	361
17W	US 70 WB - NC 11 to US 258	0.9	1,030	843	1,144	937
18W	US 70 WB - to NC 11	0.9	190	166	211	184
20W	US 70 WB - from NC 11	0.9	374	340	416	378
21W	US 70 WB - US 70BUS / C. F. Harvey Pkwy to NC 11	0.9	1,228	1,005	1,364	1,117
22W	US 70 WB - to US70BUS/ C. F. Harvey Pkwy	0.9	330	200	367	222
24W	US 70 WB - from US70BUS	0.9	698	1,110	776	1,233
25W	US 70 WB - SR 1522 (Albert Sugg Rd) to US 70BUS / C. F. Harvey Pkwy	0.9	1,580	1,931	1,756	2,146
26W	US 70 WB - to SR 1522 (Albert Sugg Rd)	0.9	160	261	178	290
28W	US 70 WB - from SR 1522 (Albert Sugg Rd)	0.9	201	151	223	168
29W	US 70 WB - SR 1690 (Willie Measley Rd) to SR 1522 (Albert Sugg Rd)	0.9	1,556	1,901	1,729	2,112
30W	US 70 WB - to SR 1690 (Willie Measley Rd)	0.9	250	341	278	379
32W	US 70 WB - from SR 1690 (Willie Measley Rd)	0.9	204	181	227	201
33W	US 70 WB - West of SR 1690 (Willie Measley Rd)	0.9	1,467	1,792	1,630	1,991

	AM	PM
Max Volume	1,756	2,146

XXX	Ramp
XXX	Freeway Segment

R-2553 Kinson Bypass

2040 Build Alternative 12

Step 3 - Adjusting All Segment Volumes

Southbound Adjusted Segment Volumes						
Seg.	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1S	C. F. Harvey Pkwy SB - North of US 70 / 70BUS	0.9	435	808	483	898
2S	C. F. Harvey Pkwy SB - to US 70 WB	0.9	288	563	320	625
4S	C. F. Harvey Pkwy SB - from US 70BUS WB (weave)	0.9	144	211	160	234
	C. F. Harvey Pkwy SB - to US 70BUS EB (weave)	0.9	89	130	99	144
5S	C. F. Harvey Pkwy SB - US 70BUS Weave to US 70 EB	0.9	200	330	222	367

XXX	Ramp
XXX	Weave
XXX	Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 12
Step 4 - Balancing Freeway Segment Volumes

US 70 Eastbound Freeway Volume Balancing					
Seg.	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)			1,846	1,750
2E	US 70 EB - to SR 1690 (Willie Measley Rd)	201	227		
3E	US 70 EB - within SR 1690 (Willie Measley Rd) Interchange			1,645	1,523
4E	US 70 EB - from SR 1690 (Willie Measley Rd)	379	278		
5E	US 70 EB - SR 1690 (Willie Measley Rd) to SR 1522 (Albert Sugg Rd)			2,024	1,801
6E	US 70 EB - to SR 1522 (Albert Sugg Rd)	168	223		
7E	US 70 EB - within SR 1522 (Albert Sugg Rd) Interchange			1,856	1,578
8E	US 70 EB - from SR 1522 (Albert Sugg Rd)	290	178		
9E	**US 70 EB - SR 1522 (Albert Sugg Rd) to US 70BUS**			**2,146**	**1,756**
10E	US 70 EB - to US 70BUS / C.F. Harvey	1,233	776		
11E	US 70 EB - within US 70BUS / C.F. Harvey interchange			913	980
12E	US 70 EB - from US 70BUS / C.F. Harvey	222	367		
13E	US 70 EB - US70BUS / C. F. Harvey to NC 11			1,135	1,347
14E	US 70 EB - to NC 11	378	416		
15E	US 70 EB - within NC 11 interchange			757	931
16E	US 70 EB - from NC 11	184	211		
17E	US 70 EB - NC 11 to US 258			941	1,142
18E	US 70 EB - to US 258	361	448		
19E	US 70 EB - within US 258 interchange			580	694
20E	US 70 EB - from US 258	82	84		
21E	US 70 EB - US 258 to NC 58			662	778
22E	US 70 EB - to NC 58	42	52		
23E	US 70 EB - within NC 58 interchange			620	726
24E	US 70 EB - from NC 58	40	36		
25E	US 70 EB - NC 58 to US 70BUS (E)			660	762
26E	US 70 EB - to US70BUS (E)	96	94		
27E	US 70 EB - within US 70BUS (E)			564	668
28E	US 70 EB - from US70BUS (E)	459	570		
29E	US 70 EB - US 70BUS (E) to Kornegay St			1,023	1,238
30E	US 70 EB - to Kornegay St	81	132		
31E	US 70 EB - within Kornegay St interchange			942	1,106
32E	US 70 EB - from Kornegay St	49	35		
33E	US 70 EB - East of Kornegay St			991	1,141

	Max volume balance point
XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 12
Step 4 - Balancing Freeway Segment Volumes

US 70 Westbound Freeway Volume Balancing					
Seg.	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1W	US 70 WB - East of Kornegay St			1,141	991
2W	US 70 WB - to Kornegay St	36	49		
3W	US 70 WB - within Kornegay St interchange			1,105	942
4W	US 70 WB - from Kornegay St	132	81		
5W	US 70 WB - US 70BUS (E) to Kornegay St			1,237	1,023
6W	US 70 WB - to US70BUS (E)	570	459		
7W	US 70 WB - within US 70BUS (E) interchage			667	564
8W	US 70 WB - from US70BUS (E)	94	96		
9W	US 70 WB - NC 58 to US 70BUS (E)			761	660
10W	US 70 WB - to NC 58	36	40		
11W	US 70 WB - within NC 58 interchange			725	620
12W	US 70 WB - from NC 58	52	42		
13W	US 70 WB - US 258 to NC 58			777	662
14W	US 70 WB - to US 258	83	82		
15W	US 70 WB - within US 258 interchange			694	580
16W	US 70 WB - from US 258	448	361		
17W	US 70 WB - NC 11 to US 258			1,142	941
18W	US 70 WB - to NC 11	211	184		
19W	US 70 WB - within NC 11 interchange			931	757
20W	US 70 WB - from NC 11	416	378		
21W	US 70 WB - US 70BUS / C.F. Harvey to NC 11			1,347	1,135
22W	US 70 WB - to US 70BUS / C.F. Harvey	367	222		
23W	US 70 WB - within US 70BUS / C.F. Harvey interchange			980	913
24W	US 70 WB - from US 70BUS / C.F. Harvey	776	1,233		
25W	**US 70 WB - SR 1522 (Albert Sugg Rd) to US 70BUS**			**1,756**	**2,146**
26W	US 70 WB - to SR 1522 (Albert Sugg Rd)	178	290		
27W	US 70 WB - within SR 1522 (Albert Sugg Rd) Interchange			1,578	1,856
28W	US 70 WB - from SR 1522 (Albert Sugg Rd)	223	168		
29W	US 70 WB - SR 1690 (Willie Measley Rd) to SR 1522 (Albert Sugg Rd)			1,801	2,024
30W	US 70 WB - to SR 1690 (Willie Measley Rd)	278	379		
31W	US 70 WB - within SR 1690 (Willie Measley Rd) Interchange			1,523	1,645
32W	US 70 WB - from SR 1690 (Willie Measley Rd)	227	201		
33W	US 70 WB - West of SR 1690 (Willie Measley Rd)			1,750	1,846

	Max volume balance point
XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 12
Step 4 - Balancing Freeway Segment Volumes

C. F. Harvey Pkwy Southbound Freeway Volume Balancing					
Seg.	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1S	C. F. Harvey Pkwy SB - North of US 70 / 70BUS			481	902
2S	C. F. Harvey Pkwy SB - to US 70 WB	320	625		
3S	C. F. Harvey Pkwy SB - within US 70BUS interchange			161	277
4S	C. F. Harvey Pkwy SB - from US 70BUS WB (weave)	160	234		
	C. F. Harvey Pkwy SB - between US 70BUS ramps (weave)			321	511
	C. F. Harvey Pkwy SB - to US 70BUS EB (weave)	99	144		
5S	C. F. Harvey Pkwy SB - US 70BUS Weave to US 70 EB			**222**	**367**

	Volume balance point
XXX	Ramp
XXX	Weave
XXX	Basic Freeway Segment

2040 Build Alternative 12
FREEVAL-E Reports

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R-2553 US 70 Kinston Bypass, Alternative 12

US 70 EB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1E	2E	3E	4E	5E	6E	7E	8E	9E
General Purpose Segment Name	W of Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	Jim Sutton/Willie Measley to Albert Sugg/Barwick Station	To Albert Sugg/Barwick Station	Within Albert Sugg/Barwick Station Int	From Albert Sugg/Barwick Station	Albert Sugg/Barwick Station to US 70 Bus/CF Harvey
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	1500	6380	1500	1500	1500	8280
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1846	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	750	N/A	920	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	379	N/A	N/A	N/A	290	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	2	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	201	N/A	N/A	N/A	168	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	2	N/A	N/A	N/A
Total Density (pc/mi/ln)	13.6	13.9	12.2	15.9	14.9	15.5	13.7	16.9	15.8
V/C	0.40	0.40	0.36	0.44	0.44	0.44	0.40	0.46	0.46
Density Based LOS	B	B	B	B	B	B	B	B	B

R-2553 US 70 Kinston Bypass, Alternative 12
US 70 EB - AM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10E	11E	12E	13E	14E	15E	16E	17E	18E
General Purpose Segment Name	To US 70 Bus/CF Harvey Pkwy	Within US 70 Bus/CF Harvey Int	From US 70 Bus/CF Harvey	US 70 Bus/CF Harvey to NC 11	To NC 11	Within NC 11	From NC 11	NC 11 to US 258	To US 258
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	2500	6200	2500	14000	1500	1500	1500	5760	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	2500	N/A	2500	N/A	750	N/A	920	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	2	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	60	N/A	N/A	N/A	45	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	222	N/A	N/A	N/A	184	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	7	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	2	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	60	N/A	N/A	N/A	25	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	1233	N/A	N/A	N/A	378	N/A	N/A	N/A	361
OFR Single Unit Truck and Bus (%)	7	N/A	N/A	N/A	7	N/A	N/A	N/A	7
Total Density (pc/mi/ln)	0.8	6.7	0.0*	8.4	7.6	5.6	7.2	6.9	5.8
V/C	0.46	0.20	0.24	0.24	0.24	0.16	0.20	0.20	0.20
Density Based LOS	A	A	A	A	A	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 12
US 70 EB - AM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19E	20E	21E	22E	23E	24E	25E	26E	27E
General Purpose Segment Name	Within US 258	From US 258	US 258 to NC 58	To NC 58	Within NC 58	From NC 58	NC 58 to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E) Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	12310	1500	1500	1620	16340	1500	3030
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	1620	N/A	750	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	82	N/A	N/A	N/A	40	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	6	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	25	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	42	N/A	N/A	N/A	96	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	6	N/A	N/A	N/A	6	N/A
Total Density (pc/mi/ln)	4.2	5.0	4.9	5.7	4.5	0.6	4.8	3.3	4.1
V/C	0.12	0.14	0.14	0.14	0.13	0.14	0.14	0.14	0.12
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 12
US 70 EB - AM Peak

Segment	Seg. 28	Seg. 29	Seg. 30	Seg. 31	Seg. 32	Seg. 33
General Purpose Segment Data	28E	29E	30E	31E	32E	33E
General Purpose Segment Name	From US 70 Bus (E)	US 70 Bus (E) to Burkett/Kornegay	To Burkett/Kornegay	Within Burkett/Kornegay Int	From Burkett/Kornegay	East of Burkett/Kornegay
General Purpose Segment Type	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	2500	6280	1500	3000	1500	5280
Terrain	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	2500	N/A	490	N/A	920	N/A
ONR Side	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	2	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	60	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	459	N/A	N/A	N/A	49	N/A
ONR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	4	N/A
OFR Side	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	81	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	-2.2	7.5	8.9	6.9	7.6	7.3
V/C	0.22	0.22	0.22	0.20	0.21	0.21
Density Based LOS	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 12

US 70 EB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1E	2E	3E	4E	5E	6E	7E	8E	9E
General Purpose Segment Name	W of Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	Jim Sutton/Willie Measley to Albert Sugg/Barwick Station	To Albert Sugg/Barwick Station	Within Albert Sugg/Barwick Station Int	From Albert Sugg/Barwick Station	Albert Sugg/Barwick Station to US 70 Bus/CF Harvey
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	1500	6380	1500	1500	1500	8280
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1750	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	750	N/A	920	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	278	N/A	N/A	N/A	178	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	2	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	227	N/A	N/A	N/A	223	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	2	N/A	N/A	N/A
Total Density (pc/mi/ln)	12.9	13.1	11.3	14.1	13.3	13.5	11.7	13.8	13.0
V/C	0.38	0.38	0.33	0.39	0.39	0.39	0.34	0.38	0.38
Density Based LOS	B	B	A	B	B	B	B	B	B

R-2553 US 70 Kinston Bypass, Alternative 12
US 70 EB - PM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10E	11E	12E	13E	14E	15E	16E	17E	18E
General Purpose Segment Name	To US 70 Bus/CF Harvey Pkwy	Within US 70 Bus/CF Harvey Int	From US 70 Bus/CF Harvey	US 70 Bus/CF Harvey to NC 11	To NC 11	Within NC 11	From NC 11	NC 11 to US 258	To US 258
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	2500	6200	2500	14000	1500	1500	1500	5760	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	2500	N/A	2500	N/A	750	N/A	920	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	2	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	60	N/A	N/A	N/A	45	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	367	N/A	N/A	N/A	211	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	7	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	2	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	60	N/A	N/A	N/A	25	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	776	N/A	N/A	N/A	416	N/A	N/A	N/A	448
OFR Single Unit Truck and Bus (%)	7	N/A	N/A	N/A	7	N/A	N/A	N/A	7
Total Density (pc/mi/ln)	0.0*	7.2	0.5	10.0	9.5	6.9	8.8	8.4	7.7
V/C	0.38	0.21	0.29	0.29	0.29	0.20	0.25	0.25	0.25
Density Based LOS	A	A	A	A	A	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 12
US 70 EB - PM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19E	20E	21E	22E	23E	24E	25E	26E	27E
General Purpose Segment Name	Within US 258	From US 258	US 258 to NC 58	To NC 58	Within NC 58	From NC 58	NC 58 to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E) Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	12310	1500	1500	1620	16340	1500	3030
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	1620	N/A	750	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	84	N/A	N/A	N/A	36	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	6	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	25	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	52	N/A	N/A	N/A	94	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	6	N/A	N/A	N/A	6	N/A
Total Density (pc/mi/ln)	5.1	6.0	5.8	6.8	5.4	1.5	5.6	4.3	4.9
V/C	0.15	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.14
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 12
US 70 EB - PM Peak

Segment	Seg. 28	Seg. 29	Seg. 30	Seg. 31	Seg. 32	Seg. 33
General Purpose Segment Data	28E	29E	30E	31E	32E	33E
General Purpose Segment Name	From US 70 Bus (E)	US 70 Bus (E) to Burkett/Kornegay	To Burkett/Kornegay	Within Burkett/Kornegay Int	From Burkett/Kornegay	East of Burkett/Kornegay
General Purpose Segment Type	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	2500	6280	1500	3000	1500	5280
Terrain	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	2500	N/A	490	N/A	920	N/A
ONR Side	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	2	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	60	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	570	N/A	N/A	N/A	35	N/A
ONR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	4	N/A
OFR Side	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	132	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	0.0*	9.1	10.8	8.2	8.9	8.4
V/C	0.27	0.27	0.27	0.24	0.25	0.25
Density Based LOS	A	A	B	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 12

US 70 WB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1W	2W	3W	4W	5W	6W	7W	8W	9W
General Purpose Segment Name	E of Burkett/Kornegay	To Burkett/Kornegay	Within Burkett/Kornegay Int	From Burkett/Kornegay	Burkett/Kornegay to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E) Int	From US 70 Bus (E)	US 70 Bus (E) to NC 58
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	3000	1500	10800	1500	1940	1500	14370
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1141	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	9	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	920	N/A	490	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	132	N/A	N/A	N/A	94	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	4	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	36	N/A	N/A	N/A	570	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	6	N/A	N/A	N/A
Total Density (pc/mi/ln)	8.5	10.1	8.3	9.7	9.2	10.9	5.0	5.9	5.7
V/C	0.25	0.25	0.24	0.27	0.27	0.27	0.15	0.17	0.17
Density Based LOS	A	A	A	A	A	B	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 12
US 70 WB - AM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10W	11W	12W	13W	14W	15W	16W	17W	18W
General Purpose Segment Name	To NC 58	Within NC 58 Int	From NC 58	NC 58 to US 258	To US 258	Within US 258 Int	From US 258	US 258 to NC 11	To NC 11
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	12350	1500	1500	1620	7710	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	52	N/A	N/A	N/A	448	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	6	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	36	N/A	N/A	N/A	83	N/A	N/A	N/A	211
OFR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	7	N/A	N/A	N/A	7
Total Density (pc/mi/ln)	4.4	5.4	6.1	5.8	6.9	5.2	4.4	8.5	7.8
V/C	0.17	0.16	0.17	0.17	0.17	0.15	0.25	0.25	0.25
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 12
US 70 WB - AM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19W	20W	21W	22W	23W	24W	25W	26W	27W
General Purpose Segment Name	Within NC 11 Int	From NC 11	NC 11 to Us 70 Bus/CF Harvey Pkwy	To US 70 Bus/CF Harvey Pkwy	Within US 70 Bus/CF Harvey Int	From US 70 Bus/CF Harvey	US 70 Bus/CF Harvey to Albert Sugg/Barwick Station	To Albert Sugg/Barwick Station	Within Albert Sugg/Barwick Station Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	13200	2500	4620	2500	8050	1500	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	2500	N/A	2500	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	416	N/A	N/A	N/A	776	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	7	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	60	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	367	N/A	N/A	N/A	178	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	7	N/A	N/A	N/A	2	N/A
Total Density (pc/mi/ln)	7.0	10.5	10.0	0.0*	7.3	3.7	13.1	15.6	11.8
V/C	0.20	0.29	0.29	0.29	0.21	0.38	0.38	0.38	0.34
Density Based LOS	A	A	A	A	A	A	B	B	B

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 12
US 70 WB - AM Peak

Segment	Seg. 28	Seg. 29	Seg. 30	Seg. 31	Seg. 32	Seg. 33
General Purpose Segment Data	28W	29W	31W	31W	32W	33W
General Purpose Segment Name	From Albert Sugg/Barwick Station	Albert Sugg/Barwick Station to Jim Sutton/Willie	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	W of Jim Sutton/Willie Measley
General Purpose Segment Type	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1620	6050	1500	1500	1620	5280
Terrain	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	1620	N/A	490	N/A	1620	N/A
ONR Side	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	25	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	223	N/A	N/A	N/A	227	N/A
ONR Single Unit Truck and Bus (%)	2	N/A	N/A	N/A	4	N/A
OFR Side	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	278	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	9.9	13.4	16.0	11.4	9.5	13.0
V/C	0.39	0.39	0.39	0.33	0.38	0.38
Density Based LOS	A	B	B	A	A	B

R-2553 US 70 Kinston Bypass, Alternative 12
US 70 WB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1W	2W	3W	4W	5W	6W	7W	8W	9W
General Purpose Segment Name	E of Burkett/Kornegay	To Burkett/Kornegay	Within Burkett/Kornegay Int	From Burkett/Kornegay	Burkett/Kornegay to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E) Int	From US 70 Bus (E)	US 70 Bus (E) to NC 58
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	3000	1500	10800	1500	1940	1500	14370
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	991	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	9	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	920	N/A	490	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	81	N/A	N/A	N/A	96	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	4	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	49	N/A	N/A	N/A	459	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	6	N/A	N/A	N/A
Total Density (pc/mi/ln)	7.4	8.7	7.0	8.0	7.6	9.0	4.3	5.1	5.0
V/C	0.22	0.22	0.21	0.22	0.22	0.22	0.12	0.14	0.14
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 12
US 70 WB - PM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10W	11W	12W	13W	14W	15W	16W	17W	18W
General Purpose Segment Name	To NC 58	Within NC 58 Int	From NC 58	NC 58 to US 258	To US 258	Within US 258 Int	From US 258	US 258 to NC 11	To NC 11
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	12350	1500	1500	1620	7710	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	42	N/A	N/A	N/A	361	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	6	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	40	N/A	N/A	N/A	82	N/A	N/A	N/A	184
OFR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	7	N/A	N/A	N/A	7
Total Density (pc/mi/ln)	3.5	4.7	5.1	5.0	5.8	4.4	2.9	7.0	6.0
V/C	0.14	0.14	0.14	0.14	0.14	0.13	0.21	0.21	0.21
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 12
US 70 WB - PM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19W	20W	21W	22W	23W	24W	25W	26W	27W
General Purpose Segment Name	Within NC 11 Int	From NC 11	NC 11 to Us 70 Bus/CF Harvey Pkwy	To US 70 Bus/CF Harvey Pkwy	Within US 70 Bus/CF Harvey Int	From US 70 Bus/CF Harvey	US 70 Bus/CF Harvey to Albert Sugg/Barwick Station	To Albert Sugg/Barwick Station	Within Albert Sugg/Barwick Station Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	13200	2500	4620	2500	8050	1500	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	2500	N/A	2500	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	378	N/A	N/A	N/A	1233	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	7	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	60	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	222	N/A	N/A	N/A	290	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	7	N/A	N/A	N/A	2	N/A
Total Density (pc/mi/ln)	5.7	8.8	8.5	0.0*	6.8	6.7	15.9	19.0	13.8
V/C	0.17	0.25	0.25	0.25	0.20	0.46	0.46	0.46	0.40
Density Based LOS	A	A	A	A	A	A	B	B	B

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 12
US 70 WB - PM Peak

Segment	Seg. 28	Seg. 29	Seg. 30	Seg. 31	Seg. 32	Seg. 33
General Purpose Segment Data	28W	29W	30W	31W	32W	33W
General Purpose Segment Name	From Albert Sugg/Barwick Station	Albert Sugg/Barwick Station to Jim Sutton/Willie	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	W of Jim Sutton/Willie Measley
General Purpose Segment Type	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1620	6050	1500	1500	1620	5280
Terrain	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	1620	N/A	490	N/A	1620	N/A
ONR Side	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	25	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	168	N/A	N/A	N/A	201	N/A
ONR Single Unit Truck and Bus (%)	2	N/A	N/A	N/A	4	N/A
OFR Side	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	379	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	11.7	15.1	18.0	12.3	10.3	13.8
V/C	0.44	0.44	0.44	0.36	0.40	0.40
Density Based LOS	B	B	B	B	A	B

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	Ramp from US 70 WB to Ramp to US 70 Bus EE
Date Performed	2017	**Jurisdiction**	Segment 1N
Analysis Time Period	AM Peak	**Analysis Year**	2040 Build Alt 12
Project Description	R-2553 US 70 Kinston Bypass		

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**2**
Speed (mph)	**60**
Capacity (vph)	2200
Heavy Veh. %	**7** %
Heavy Veh. Factor	0.966
Volume	**330**
Flow Rate	380
Vol. to Cap. Ratio	0.09

ISOLATED RAMP V/C RATIO:	0.09

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	Ramp to US 70 Bus EB
Date Performed	2017	**Jurisdiction**	Segment 2N
Analysis Time Period	AM Peak	**Analysis Year**	2040 Build Alt 12
Project Description	R-2553 US 70 Kinston Bypass		

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**1**
Speed (mph)	**45**
Capacity (vph)	2100
Heavy Veh. %	**5** %
Heavy Veh. Factor	0.976
Volume	**211**
Flow Rate	240
Vol. to Cap. Ratio	0.11

ISOLATED RAMP V/C RATIO:	0.11

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	amp to US 70 Bus EB to CF Harvey Pkwy Ext N
Date Performed	2017	**Jurisdiction**	Segment 3N
Analysis Time Period	AM Peak	**Analysis Year**	2040 Build Alt 12
Project Description	R-2553 US 70 Kinston Bypass		

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**1**
Speed (mph)	**60**
Capacity (vph)	2200
Heavy Veh. %	**7** %
Heavy Veh. Factor	0.966
Volume	**119**
Flow Rate	137
Vol. to Cap. Ratio	0.06

ISOLATED RAMP V/C RATIO:	0.06

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	amp from US 70 Bus WB to Ramp from US 70 W
Date Performed	2017	**Jurisdiction**	Segment 4N
Analysis Time Period	AM Peak	**Analysis Year**	2040 Build Alt 12
Project Description	R-2553 US 70 Kinston Bypass		

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**2**
Speed (mph)	**70**
Capacity (vph)	2200
Heavy Veh. %	**7** %
Heavy Veh. Factor	0.966
Volume	**693**
Flow Rate	797
Vol. to Cap. Ratio	0.18

ISOLATED RAMP V/C RATIO:	0.18

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	North of US 70/US 70 Bus
Date Performed	2017	**Jurisdiction**	Segment 5N
Analysis Time Period	AM Peak	**Analysis Year**	2040 Build Alt 12
Project Description	R-2553 US 70 Kinston Bypass		

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**2**
Speed (mph)	**70**
Capacity (vph)	2200
Heavy Veh. %	**7** %
Heavy Veh. Factor	0.966
Volume	**808**
Flow Rate	929
Vol. to Cap. Ratio	0.21

ISOLATED RAMP V/C RATIO:	0.21

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	Ramp from US 70 WB to Ramp to US 70 Bus EE
Date Performed	2017	**Jurisdiction**	Segment 1N
Analysis Time Period	PM Peak	**Analysis Year**	2040 Build Alt 12
Project Description	R-2553 US 70 Kinston Bypass		

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**2**
Speed (mph)	**60**
Capacity (vph)	2200
Heavy Veh. %	**7** %
Heavy Veh. Factor	0.966
Volume	**200**
Flow Rate	230
Vol. to Cap. Ratio	0.05

ISOLATED RAMP V/C RATIO:	0.05

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	Ramp to US 70 Bus EB
Date Performed	2017	**Jurisdiction**	Segment 2N
Analysis Time Period	PM Peak	**Analysis Year**	2040 Build Alt 12
Project Description	R-2553 US 70 Kinston Bypass		

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**1**
Speed (mph)	**45**
Capacity (vph)	2100
Heavy Veh. %	**5** %
Heavy Veh. Factor	0.976
Volume	**144**
Flow Rate	164
Vol. to Cap. Ratio	0.08

ISOLATED RAMP V/C RATIO:	0.08

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	amp to US 70 Bus EB to CF Harvey Pkwy Ext N
Date Performed	2017	**Jurisdiction**	Segment 3N
Analysis Time Period	PM Peak	**Analysis Year**	2040 Build Alt 12
Project Description	R-2553 US 70 Kinston Bypass		

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**1**
Speed (mph)	**60**
Capacity (vph)	2200
Heavy Veh. %	**7** %
Heavy Veh. Factor	0.966
Volume	**56**
Flow Rate	64
Vol. to Cap. Ratio	0.03

ISOLATED RAMP V/C RATIO:	0.03

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	amp from US 70 Bus WB to Ramp from US 70 W
Date Performed	2017	**Jurisdiction**	Segment 4N
Analysis Time Period	PM Peak	**Analysis Year**	2040 Build Alt 12
Project Description	R-2553 US 70 Kinston Bypass		

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**2**
Speed (mph)	**70**
Capacity (vph)	2200
Heavy Veh. %	**7** %
Heavy Veh. Factor	0.966
Volume	**377**
Flow Rate	434
Vol. to Cap. Ratio	0.10

ISOLATED RAMP V/C RATIO:	0.10

FREEWAY MERGE AND DIVERGE SEGMENTS

RAMP ROADWAY CAPACITY FOR ISOLATED RAMPS

General Information		Site Information	
Analyst	AECOM	**Freeway/Dir of Travel**	CF Harvey Pkwy Ext NB
Agency or Company		**Junction**	North of US 70/US 70 Bus
Date Performed	2017	**Jurisdiction**	Segment 5N
Analysis Time Period	PM Peak	**Analysis Year**	2040 Build Alt 12
Project Description	R-2553 US 70 Kinston Bypass		

Inputs

Terrain:	**Level**
Peak Hour Factor	**0.90**
Pop. Factor	**1**
Heavy Veh. PCE	**1.5**

Lanes	**2**
Speed (mph)	**70**
Capacity (vph)	2200
Heavy Veh. %	**7** %
Heavy Veh. Factor	0.966
Volume	**405**
Flow Rate	466
Vol. to Cap. Ratio	0.11

ISOLATED RAMP V/C RATIO:	0.11

R-2553 US 70 Kinston Bypass, Alternative 12
CF Harvey Parkwy Ext SB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5
General Purpose Segment Data	1S	2S	3S	4S	5S
General Purpose Segment Name	North of US 70 BUS	To US 70 WB	Ramp to US 70 WB to US 70 BUS Weave	US 70 BUS Weave	US 70 BUS Weave to Ramp from US 70 EB
General Purpose Segment Type	BFS	Off-Ramp	BFS	Weave	BFS
Segment Length (ft)	5280	1500	1500	700	3910
Terrain	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70
Mainline Dem. (vph)	481	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	N/A	N/A
ONR Side	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	160	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	Right	N/A
# Lanes: OFR	N/A	1	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	25	N/A
OFR/Exit Dem. (vph)	N/A	320	N/A	99	N/A
OFR Single Unit Truck and Bus (%)	N/A	7	N/A	5	N/A
Total Density (pc/mi/ln)	3.6	4.1	1.2	2.6	1.6
V/C	0.10	0.10	0.03	0.11	0.05
Density Based LOS	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 12
CF Harvey Parkwy Ext SB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5
General Purpose Segment Data	1S	2S	3S	4S	5S
General Purpose Segment Name	North of US 70 BUS	To US 70 WB	Ramp to US 70 WB to US 70 BUS Weave	US 70 BUS Weave	US 70 BUS Weave to Ramp from US 70 EB
General Purpose Segment Type	BFS	Off-Ramp	BFS	Weave	BFS
Segment Length (ft)	5280	1500	1500	700	3910
Terrain	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70
Mainline Dem. (vph)	902	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	N/A	N/A
ONR Side	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	234	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	Right	N/A
# Lanes: OFR	N/A	1	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	25	N/A
OFR/Exit Dem. (vph)	N/A	625	N/A	144	N/A
OFR Single Unit Truck and Bus (%)	N/A	7	N/A	5	N/A
Total Density (pc/mi/ln)	6.7	7.9	2.0	4.2	2.7
V/C	0.19	0.19	0.06	0.16	0.08
Density Based LOS	A	A	A	A	A

2040 Build Alternative 12
Synchro Reports

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	6	4	4	4	14	4	98	6	17	62	6
Future Volume (vph)	10	6	4	4	4	14	4	98	6	17	62	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1706	0	0	1618	0	1770	1846	0	1770	1837	0
Flt Permitted		0.976			0.992		0.950			0.950		
Satd. Flow (perm)	0	1706	0	0	1618	0	1770	1846	0	1770	1837	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		883			854			935			1001	
Travel Time (s)		13.4			12.9			11.6			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	0	0	24	0	4	116	0	19	76	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 17.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	6	4	4	4	14	4	98	6	17	62	6
Future Volume (Veh/h)	10	6	4	4	4	14	4	98	6	17	62	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	7	4	4	4	16	4	109	7	19	69	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1001	
pX, platoon unblocked												
vC, conflicting volume	246	234	72	235	234	112	76			116		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	246	234	72	235	234	112	76			116		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	98	99	100	99	99	98	100			99		
cM capacity (veh/h)	677	649	979	694	649	930	1523			1473		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	22	24	4	116	19	76
Volume Left	11	4	4	0	19	0
Volume Right	4	16	0	7	0	7
cSH	707	824	1523	1700	1473	1700
Volume to Capacity	0.03	0.03	0.00	0.07	0.01	0.04
Queue Length 95th (ft)	2	2	0	0	1	0
Control Delay (s)	10.3	9.5	7.4	0.0	7.5	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	10.3	9.5	0.2		1.5	
Approach LOS	B	A				

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	17.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	4	4	6	6	17	4	62	4	14	98	10
Future Volume (vph)	6	4	4	6	6	17	4	62	4	14	98	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1688	0	0	1636	0	1770	1848	0	1770	1837	0
Flt Permitted		0.977			0.990		0.950			0.950		
Satd. Flow (perm)	0	1688	0	0	1636	0	1770	1848	0	1770	1837	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		883			854			935			1001	
Travel Time (s)		13.4			12.9			11.6			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	0	33	0	4	73	0	16	120	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 17.4%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	4	4	6	6	17	4	62	4	14	98	10
Future Volume (Veh/h)	6	4	4	6	6	17	4	62	4	14	98	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	4	4	7	7	19	4	69	4	16	109	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1001	
pX, platoon unblocked												
vC, conflicting volume	246	228	114	226	231	71	120			73		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	246	228	114	226	231	71	120			73		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	99	99	100	99	99	98	100			99		
cM capacity (veh/h)	673	656	927	707	653	980	1468			1527		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	15	33	4	73	16	120
Volume Left	7	7	4	0	16	0
Volume Right	4	19	0	4	0	11
cSH	721	825	1468	1700	1527	1700
Volume to Capacity	0.02	0.04	0.00	0.04	0.01	0.07
Queue Length 95th (ft)	2	3	0	0	1	0
Control Delay (s)	10.1	9.5	7.5	0.0	7.4	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	10.1	9.5	0.4		0.9	
Approach LOS	B	A				

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	17.4%	ICU Level of Service	A
Analysis Period (min)	15		

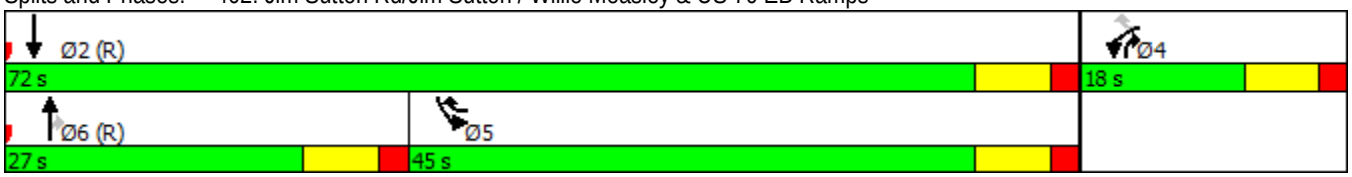
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	33	148	73	51	290	51
Future Volume (vph)	33	148	73	51	290	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200		100	300	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1863	1583	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1863	1583	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	999		1001			1313
Travel Time (s)	27.2		12.4			16.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	37	164	81	57	322	57
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	18.0	45.0	27.0	18.0	45.0	72.0
Total Split (%)	20.0%	50.0%	30.0%	20.0%	50.0%	80.0%
Maximum Green (s)	11.0	38.0	20.0	11.0	38.0	65.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.9	36.6	43.4	55.5	24.5	73.9
Actuated g/C Ratio	0.11	0.41	0.48	0.62	0.27	0.82
v/c Ratio	0.19	0.26	0.09	0.06	0.68	0.04
Control Delay	38.5	16.4	17.2	8.9	32.8	2.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	16.4	17.2	8.9	32.8	2.3
LOS	D	B	B	A	C	A
Approach Delay	20.5		13.8			28.2
Approach LOS	C		B			C
Queue Length 50th (ft)	20	58	25	12	124	5
Queue Length 95th (ft)	48	77	64	34	167	13
Internal Link Dist (ft)	919		921			1233
Turn Bay Length (ft)		200		100	300	
Base Capacity (vph)	250	733	898	946	771	1500
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.22	0.09	0.06	0.42	0.04

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 48 (53%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 23.3 Intersection LOS: C
Intersection Capacity Utilization 36.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps



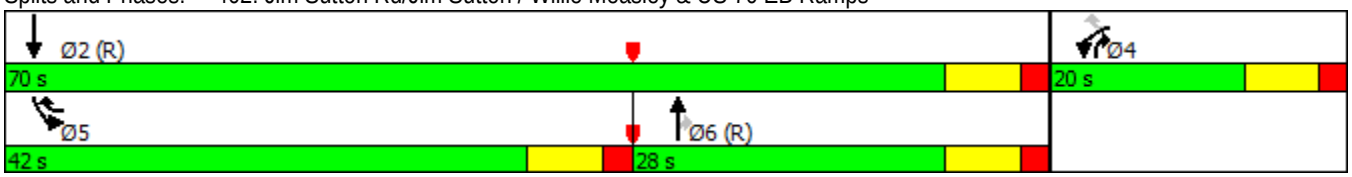
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	46	158	54	30	220	78
Future Volume (vph)	46	158	54	30	220	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200		100	300	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1863	1583	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1863	1583	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	999		1001			1313
Travel Time (s)	27.2		12.4			16.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	51	176	60	33	244	87
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	42.0	28.0	20.0	42.0	70.0
Total Split (%)	22.2%	46.7%	31.1%	22.2%	46.7%	77.8%
Maximum Green (s)	13.0	35.0	21.0	13.0	35.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.4	32.8	47.2	62.7	20.1	73.4
Actuated g/C Ratio	0.12	0.36	0.52	0.70	0.22	0.82
v/c Ratio	0.26	0.31	0.06	0.03	0.63	0.06
Control Delay	38.9	19.6	14.7	6.7	33.2	2.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	19.6	14.7	6.7	33.2	2.3
LOS	D	B	B	A	C	A
Approach Delay	24.0		11.9			25.1
Approach LOS	C		B			C
Queue Length 50th (ft)	27	67	17	6	109	8
Queue Length 95th (ft)	60	94	46	19	156	16
Internal Link Dist (ft)	919		921			1233
Turn Bay Length (ft)		200		100	300	
Base Capacity (vph)	289	856	977	1182	713	1489
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.21	0.06	0.03	0.34	0.06

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 34 (38%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 22.8 Intersection LOS: C
Intersection Capacity Utilization 33.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps



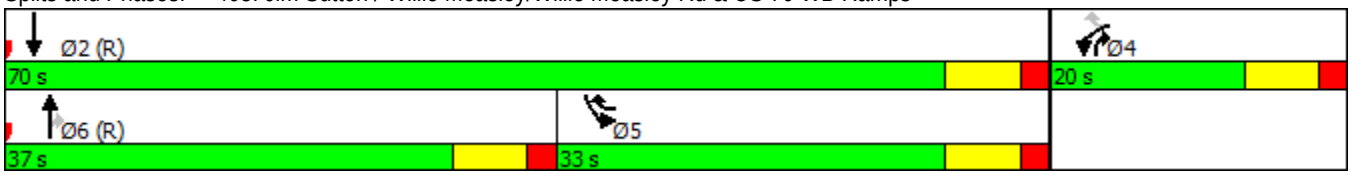
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	30	220	175	46	158	311
Future Volume (vph)	30	220	175	46	158	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	275		100	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	987		1313			996
Travel Time (s)	15.0		16.3			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	244	194	51	176	346
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	33.0	37.0	20.0	33.0	70.0
Total Split (%)	22.2%	36.7%	41.1%	22.2%	36.7%	77.8%
Maximum Green (s)	13.0	26.0	30.0	13.0	26.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.7	30.7	49.3	61.2	18.8	74.1
Actuated g/C Ratio	0.11	0.34	0.55	0.68	0.21	0.82
v/c Ratio	0.18	0.46	0.19	0.05	0.49	0.23
Control Delay	38.4	24.4	10.5	3.9	35.4	2.9

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.4	24.4	10.5	3.9	35.4	2.9
LOS	D	C	B	A	D	A
Approach Delay	26.1		9.1			13.9
Approach LOS	C		A			B
Queue Length 50th (ft)	18	103	47	5	89	39
Queue Length 95th (ft)	44	147	95	15	142	71
Internal Link Dist (ft)	907		1233			916
Turn Bay Length (ft)		275		100	175	
Base Capacity (vph)	289	575	1000	1051	540	1503
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.42	0.19	0.05	0.33	0.23

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.49
Intersection Signal Delay: 16.0 Intersection LOS: B
Intersection Capacity Utilization 38.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps



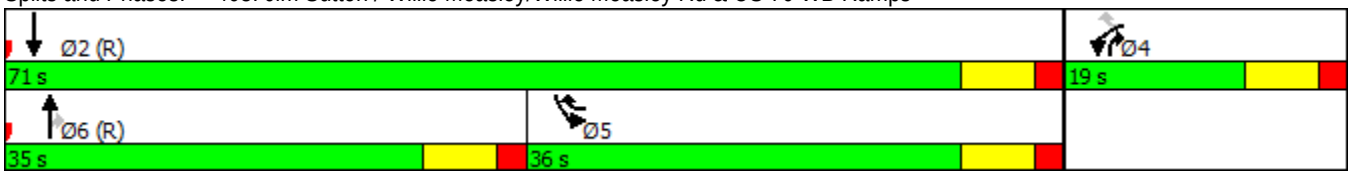
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	51	290	179	33	148	247
Future Volume (vph)	51	290	179	33	148	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	275		100	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	987		1313			996
Travel Time (s)	15.0		16.3			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	322	199	37	164	274
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	19.0	36.0	35.0	19.0	36.0	71.0
Total Split (%)	21.1%	40.0%	38.9%	21.1%	40.0%	78.9%
Maximum Green (s)	12.0	29.0	28.0	12.0	29.0	64.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.7	36.0	44.0	56.8	23.2	73.1
Actuated g/C Ratio	0.12	0.40	0.49	0.63	0.26	0.81
v/c Ratio	0.28	0.52	0.22	0.04	0.37	0.18
Control Delay	39.1	22.0	11.4	6.2	29.0	3.1

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	22.0	11.4	6.2	29.0	3.1
LOS	D	C	B	A	C	A
Approach Delay	24.5		10.6			12.8
Approach LOS	C		B			B
Queue Length 50th (ft)	30	128	32	5	76	32
Queue Length 95th (ft)	64	168	99	16	122	62
Internal Link Dist (ft)	907		1233			916
Turn Bay Length (ft)		275		100	175	
Base Capacity (vph)	270	657	892	951	597	1484
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.49	0.22	0.04	0.27	0.18

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 16.5 Intersection LOS: B
Intersection Capacity Utilization 38.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	8	204	28	5	4	170	128	39	8	188	5
Future Volume (vph)	4	8	204	28	5	4	170	128	39	8	188	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1623	0	0	1772	0	1736	1763	0	1770	1855	0
Flt Permitted		0.999			0.964		0.950			0.950		
Satd. Flow (perm)	0	1623	0	0	1772	0	1736	1763	0	1770	1855	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		970			951			996			1084	
Travel Time (s)		14.7			14.4			12.3			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	240	0	0	41	0	189	185	0	9	215	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 49.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	8	204	28	5	4	170	128	39	8	188	5
Future Volume (Veh/h)	4	8	204	28	5	4	170	128	39	8	188	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	9	227	31	6	4	189	142	43	9	209	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								996				
pX, platoon unblocked												
vC, conflicting volume	757	793	212	1000	774	164	215			185		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	757	793	212	1000	774	164	215			185		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	97	73	78	98	100	86			99		
cM capacity (veh/h)	282	274	828	139	281	881	1343			1390		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	240	41	189	185	9	215
Volume Left	4	31	189	0	9	0
Volume Right	227	4	0	43	0	6
cSH	747	165	1343	1700	1390	1700
Volume to Capacity	0.32	0.25	0.14	0.11	0.01	0.13
Queue Length 95th (ft)	35	23	12	0	0	0
Control Delay (s)	12.1	33.8	8.1	0.0	7.6	0.0
Lane LOS	B	D	A		A	
Approach Delay (s)	12.1	33.8	4.1		0.3	
Approach LOS	B	D				

Intersection Summary				
Average Delay	6.7			
Intersection Capacity Utilization	49.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	170	39	8	8	204	187	28	4	128	4
Future Volume (vph)	5	5	170	39	8	8	204	187	28	4	128	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1625	0	0	1763	0	1736	1792	0	1770	1855	0
Flt Permitted		0.999			0.966		0.950			0.950		
Satd. Flow (perm)	0	1625	0	0	1763	0	1736	1792	0	1770	1855	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		970			951			996			1084	
Travel Time (s)		14.7			14.4			12.3			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	201	0	0	61	0	227	239	0	4	146	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 46.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	170	39	8	8	204	187	28	4	128	4
Future Volume (Veh/h)	5	5	170	39	8	8	204	187	28	4	128	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	6	189	43	9	9	227	208	31	4	142	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								996				
pX, platoon unblocked												
vC, conflicting volume	828	845	144	1020	832	224	146			239		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	828	845	144	1020	832	224	146			239		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	98	79	71	96	99	84			100		
cM capacity (veh/h)	245	251	903	146	256	816	1424			1328		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	201	61	227	239	4	146
Volume Left	6	43	227	0	4	0
Volume Right	189	9	0	31	0	4
cSH	780	179	1424	1700	1328	1700
Volume to Capacity	0.26	0.34	0.16	0.14	0.00	0.09
Queue Length 95th (ft)	26	35	14	0	0	0
Control Delay (s)	11.2	35.1	8.0	0.0	7.7	0.0
Lane LOS	B	E	A		A	
Approach Delay (s)	11.2	35.1	3.9		0.2	
Approach LOS	B	E				

Intersection Summary			
Average Delay	7.1		
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	9	7	7	7	187	7	32	8	123	19	6
Future Volume (vph)	12	9	7	7	7	187	7	32	8	123	19	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1726	0	0	1595	0	1770	1807	0	1770	1792	0
Flt Permitted		0.979			0.998		0.950			0.950		
Satd. Flow (perm)	0	1726	0	0	1595	0	1770	1807	0	1770	1792	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		842			950			832			1210	
Travel Time (s)		19.1			21.6			18.9			27.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	31	0	0	224	0	8	45	0	137	28	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 32.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	9	7	7	7	187	7	32	8	123	19	6
Future Volume (Veh/h)	12	9	7	7	7	187	7	32	8	123	19	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	13	10	8	8	8	208	8	36	9	137	21	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1210	
pX, platoon unblocked												
vC, conflicting volume	562	360	24	364	358	40	28			45		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	562	360	24	364	358	40	28			45		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	98	99	99	98	80	99			91		
cM capacity (veh/h)	318	512	1046	534	513	1025	1585			1563		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	31	224	8	45	137	28
Volume Left	13	8	8	0	137	0
Volume Right	8	208	0	9	0	7
cSH	455	959	1585	1700	1563	1700
Volume to Capacity	0.07	0.23	0.01	0.03	0.09	0.02
Queue Length 95th (ft)	5	23	0	0	7	0
Control Delay (s)	13.5	9.9	7.3	0.0	7.5	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	13.5	9.9	1.1		6.2	
Approach LOS	B	A				

Intersection Summary			
Average Delay	7.9		
Intersection Capacity Utilization	32.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	7	7	8	9	123	7	19	7	187	32	12
Future Volume (vph)	6	7	7	8	9	123	7	19	7	187	32	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1715	0	0	1605	0	1770	1786	0	1770	1788	0
Flt Permitted		0.985			0.997		0.950			0.950		
Satd. Flow (perm)	0	1715	0	0	1605	0	1770	1786	0	1770	1788	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		842			950			832			1210	
Travel Time (s)		19.1			21.6			18.9			27.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	0	0	156	0	8	29	0	208	49	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 32.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	7	7	8	9	123	7	19	7	187	32	12
Future Volume (Veh/h)	6	7	7	8	9	123	7	19	7	187	32	12
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	8	8	9	10	137	8	21	8	208	36	13
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1210	
pX, platoon unblocked												
vC, conflicting volume	638	504	42	505	506	25	49			29		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	638	504	42	505	506	25	49			29		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	98	99	98	98	87	99			87		
cM capacity (veh/h)	296	404	1022	415	403	1045	1558			1584		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	23	156	8	29	208	49
Volume Left	7	9	8	0	208	0
Volume Right	8	137	0	8	0	13
cSH	448	879	1558	1700	1584	1700
Volume to Capacity	0.05	0.18	0.01	0.02	0.13	0.03
Queue Length 95th (ft)	4	16	0	0	11	0
Control Delay (s)	13.5	10.0	7.3	0.0	7.6	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	13.5	10.0	1.6		6.2	
Approach LOS	B	A				

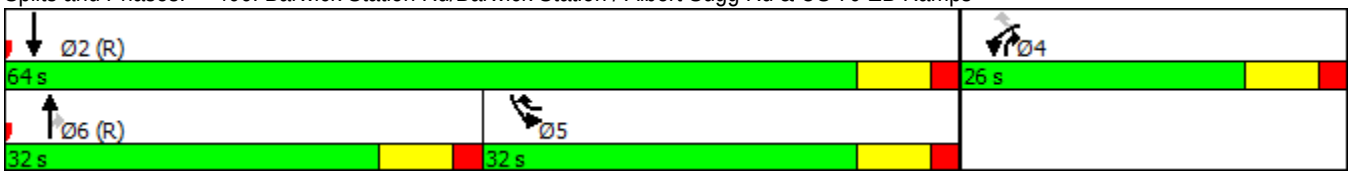
Intersection Summary			
Average Delay	7.4		
Intersection Capacity Utilization	32.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	46	105	76	146	115	109
Future Volume (vph)	46	105	76	146	115	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200		100	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1863	1583	1770	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	1083		1210			1234
Travel Time (s)	29.5		15.0			15.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	51	117	84	162	128	121
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	26.0	32.0	32.0	26.0	32.0	64.0
Total Split (%)	28.9%	35.6%	35.6%	28.9%	35.6%	71.1%
Maximum Green (s)	19.0	25.0	25.0	19.0	25.0	57.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.6	29.4	50.6	66.2	13.8	69.4
Actuated g/C Ratio	0.12	0.33	0.56	0.74	0.15	0.77
v/c Ratio	0.25	0.23	0.08	0.14	0.47	0.08
Control Delay	38.5	21.8	10.8	4.4	28.4	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	38.5	21.8	10.8	4.4	28.4	1.7
LOS	D	C	B	A	C	A
Approach Delay	26.9		6.6			15.4
Approach LOS	C		A			B
Queue Length 50th (ft)	27	48	20	22	64	7
Queue Length 95th (ft)	59	78	50	50	106	16
Internal Link Dist (ft)	1003		1130			1154
Turn Bay Length (ft)		200		100	150	
Base Capacity (vph)	413	533	1047	1163	531	1436
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.22	0.08	0.14	0.24	0.08

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 24 (27%), Referenced to phase 2:SBT and 6:NBT, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.47	
Intersection Signal Delay: 15.0	Intersection LOS: B
Intersection Capacity Utilization 27.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 406: Barwick Station Rd/Barwick Station / Albert Sugg Rd & US 70 EB Ramps



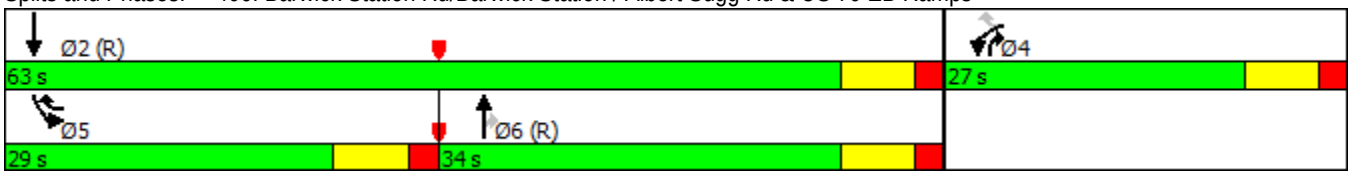
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	59	142	64	91	69	163
Future Volume (vph)	59	142	64	91	69	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		100	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1863	1583	1770	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	1083		1210			1234
Travel Time (s)	29.5		15.0			15.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	66	158	71	101	77	181
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	27.0	29.0	34.0	27.0	29.0	63.0
Total Split (%)	30.0%	32.2%	37.8%	30.0%	32.2%	70.0%
Maximum Green (s)	20.0	22.0	27.0	20.0	22.0	56.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	11.0	25.0	55.0	71.0	11.8	72.8
Actuated g/C Ratio	0.12	0.28	0.61	0.79	0.13	0.81
v/c Ratio	0.30	0.36	0.06	0.08	0.33	0.12
Control Delay	39.1	26.4	9.6	3.2	24.6	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	39.1	26.4	9.6	3.2	24.6	2.3
LOS	D	C	A	A	C	A
Approach Delay	30.1		5.8			8.9
Approach LOS	C		A			A
Queue Length 50th (ft)	35	70	16	11	18	6
Queue Length 95th (ft)	72	109	41	27	38	13
Internal Link Dist (ft)	1003		1130			1154
Turn Bay Length (ft)		100		100	150	
Base Capacity (vph)	432	655	1138	1419	472	1506
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.24	0.06	0.07	0.16	0.12

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 22 (24%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.36
Intersection Signal Delay: 15.4 Intersection LOS: B
Intersection Capacity Utilization 28.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 406: Barwick Station Rd/Barwick Station / Albert Sugg Rd & US 70 EB Ramps



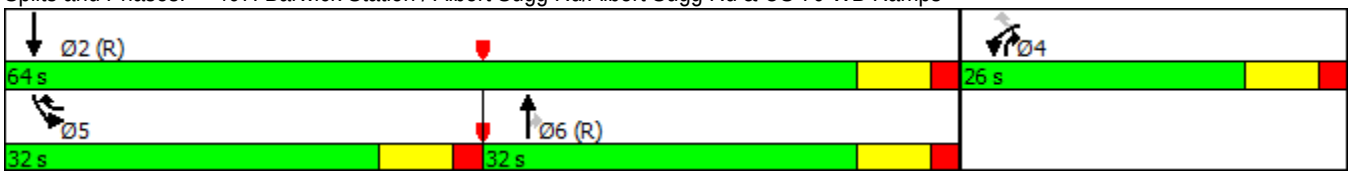
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	91	69	122	59	142	133
Future Volume (vph)	91	69	122	59	142	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1863	1583	1770	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1104		1234			1203
Travel Time (s)	16.7		15.3			14.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	101	77	136	66	158	148
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	26.0	32.0	32.0	26.0	32.0	64.0
Total Split (%)	28.9%	35.6%	35.6%	28.9%	35.6%	71.1%
Maximum Green (s)	19.0	25.0	25.0	19.0	25.0	57.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	12.6	30.1	49.9	67.5	15.3	71.2
Actuated g/C Ratio	0.14	0.33	0.55	0.75	0.17	0.79
v/c Ratio	0.41	0.15	0.13	0.06	0.52	0.10
Control Delay	39.6	17.7	6.8	2.8	39.7	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	39.6	17.7	6.8	2.8	39.7	3.5
LOS	D	B	A	A	D	A
Approach Delay	30.2		5.5			22.2
Approach LOS	C		A			C
Queue Length 50th (ft)	53	29	15	4	83	18
Queue Length 95th (ft)	97	49	86	23	135	41
Internal Link Dist (ft)	1024		1154			1123
Turn Bay Length (ft)		150		100	200	
Base Capacity (vph)	413	734	1033	1315	531	1474
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.10	0.13	0.05	0.30	0.10

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 19.3 Intersection LOS: B
Intersection Capacity Utilization 37.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 407: Barwick Station / Albert Sugg Rd/Albert Sugg Rd & US 70 WB Ramps



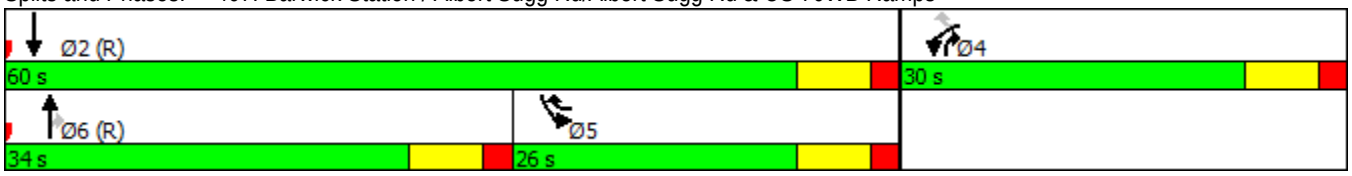
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	146	115	160	46	105	86
Future Volume (vph)	146	115	160	46	105	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1863	1583	1770	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1104		1234			1203
Travel Time (s)	16.7		15.3			14.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	162	128	178	51	117	96
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	30.0	26.0	34.0	30.0	26.0	60.0
Total Split (%)	33.3%	28.9%	37.8%	33.3%	28.9%	66.7%
Maximum Green (s)	23.0	19.0	27.0	23.0	19.0	53.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	15.5	33.8	46.2	66.7	13.3	64.5
Actuated g/C Ratio	0.17	0.38	0.51	0.74	0.15	0.72
v/c Ratio	0.53	0.22	0.19	0.04	0.45	0.07
Control Delay	39.7	18.3	7.2	1.2	39.8	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	39.7	18.3	7.2	1.2	39.8	4.7
LOS	D	B	A	A	D	A
Approach Delay	30.3		5.8			24.0
Approach LOS	C		A			C
Queue Length 50th (ft)	85	49	15	2	62	14
Queue Length 95th (ft)	137	73	121	5	108	34
Internal Link Dist (ft)	1024		1154			1123
Turn Bay Length (ft)		150		100	200	
Base Capacity (vph)	491	588	957	1171	413	1335
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.22	0.19	0.04	0.28	0.07

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.53
Intersection Signal Delay: 20.8 Intersection LOS: C
Intersection Capacity Utilization 38.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 407: Barwick Station / Albert Sugg Rd/Albert Sugg Rd & US 70WB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	24	201	6	4	32	32	128	4	50	5
Future Volume (vph)	4	4	24	201	6	4	32	32	128	4	50	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1659	0	0	1775	0	1770	1639	0	1770	1835	0
Flt Permitted		0.994			0.955		0.950			0.950		
Satd. Flow (perm)	0	1659	0	0	1775	0	1770	1639	0	1770	1835	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		789			856			1203			959	
Travel Time (s)		17.9			19.5			27.3			21.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	35	0	0	234	0	36	178	0	4	62	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 34.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	4	24	201	6	4	32	32	128	4	50	5
Future Volume (Veh/h)	4	4	24	201	6	4	32	32	128	4	50	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	4	27	223	7	4	36	36	142	4	56	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								1203				
pX, platoon unblocked												
vC, conflicting volume	182	317	59	272	249	107	62			178		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	182	317	59	272	249	107	62			178		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	97	65	99	100	98			100		
cM capacity (veh/h)	754	583	1007	646	637	947	1541			1398		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	35	234	36	178	4	62
Volume Left	4	223	36	0	4	0
Volume Right	27	4	0	142	0	6
cSH	898	649	1541	1700	1398	1700
Volume to Capacity	0.04	0.36	0.02	0.10	0.00	0.04
Queue Length 95th (ft)	3	41	2	0	0	0
Control Delay (s)	9.2	13.6	7.4	0.0	7.6	0.0
Lane LOS	A	B	A		A	
Approach Delay (s)	9.2	13.6	1.2		0.5	
Approach LOS	A	B				

Intersection Summary			
Average Delay	6.9		
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	6	32	128	4	4	24	50	201	4	32	4
Future Volume (vph)	5	6	32	128	4	4	24	50	201	4	32	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1668	0	0	1772	0	1770	1639	0	1770	1835	0
Flt Permitted		0.994			0.955		0.950			0.950		
Satd. Flow (perm)	0	1668	0	0	1772	0	1770	1639	0	1770	1835	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		789			856			1203			959	
Travel Time (s)		17.9			19.5			27.3			21.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	49	0	0	150	0	27	279	0	4	40	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 35.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	6	32	128	4	4	24	50	201	4	32	4
Future Volume (Veh/h)	5	6	32	128	4	4	24	50	201	4	32	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	7	36	142	4	4	27	56	223	4	36	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								1203				
pX, platoon unblocked												
vC, conflicting volume	162	379	38	305	270	168	40			279		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	162	379	38	305	270	168	40			279		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	97	77	99	100	98			100		
cM capacity (veh/h)	783	542	1034	609	624	877	1570			1284		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	49	150	27	279	4	40
Volume Left	6	142	27	0	4	0
Volume Right	36	4	0	223	0	4
cSH	885	615	1570	1700	1284	1700
Volume to Capacity	0.06	0.24	0.02	0.16	0.00	0.02
Queue Length 95th (ft)	4	24	1	0	0	0
Control Delay (s)	9.3	12.7	7.3	0.0	7.8	0.0
Lane LOS	A	B	A		A	
Approach Delay (s)	9.3	12.7	0.6		0.7	
Approach LOS	A	B				

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	35.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	835	582	162	0	194
Future Volume (vph)	0	835	582	162	0	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			300	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	100				100	
Satd. Flow (prot)	0	3438	3438	1538	0	1550
Flt Permitted						
Satd. Flow (perm)	0	3438	3438	1538	0	1550
Link Speed (mph)		55	55		45	
Link Distance (ft)		829	929		1176	
Travel Time (s)		10.3	11.5		17.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	928	647	180	0	216
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 34.8%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	835	582	162	0	194
Future Volume (Veh/h)	0	835	582	162	0	194
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	928	647	180	0	216
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	647				1111	324
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	647				1111	324
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	100				100	67
cM capacity (veh/h)	914				197	661

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	464	464	324	324	180	216
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	180	216
cSH	1700	1700	1700	1700	1700	661
Volume to Capacity	0.27	0.27	0.19	0.19	0.11	0.33
Queue Length 95th (ft)	0	0	0	0	0	36
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	13.1
Lane LOS						B
Approach Delay (s)	0.0		0.0			13.1
Approach LOS						B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	758	657	207	0	150
Future Volume (vph)	0	758	657	207	0	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			300	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	100				100	
Satd. Flow (prot)	0	3438	3438	1538	0	1550
Flt Permitted						
Satd. Flow (perm)	0	3438	3438	1538	0	1550
Link Speed (mph)		55	55		45	
Link Distance (ft)		829	929		1176	
Travel Time (s)		10.3	11.5		17.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	842	730	230	0	167
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 34.1%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	758	657	207	0	150
Future Volume (Veh/h)	0	758	657	207	0	150
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	842	730	230	0	167
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	730				1151	365
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	730				1151	365
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	100				100	73
cM capacity (veh/h)	850				185	620

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	421	421	365	365	230	167
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	230	167
cSH	1700	1700	1700	1700	1700	620
Volume to Capacity	0.25	0.25	0.21	0.21	0.14	0.27
Queue Length 95th (ft)	0	0	0	0	0	27
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.9
Lane LOS						B
Approach Delay (s)	0.0		0.0			12.9
Approach LOS						B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	34.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	301	10	10	889	591	198
Future Volume (vph)	301	10	10	889	591	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1671	1495	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1671	1495	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	55	
Link Distance (ft)	1293			1201	1455	
Travel Time (s)	16.0			14.9	18.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	334	11	11	988	657	220
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	49.0	14.0	14.0	111.0	97.0	49.0
Total Split (%)	30.6%	8.8%	8.8%	69.4%	60.6%	30.6%
Maximum Green (s)	42.0	7.0	7.0	104.0	90.0	42.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	38.0	52.1	9.0	112.0	103.5	148.6
Actuated g/C Ratio	0.24	0.33	0.06	0.70	0.65	0.93
v/c Ratio	0.84	0.02	0.11	0.78	0.56	0.15
Control Delay	76.8	34.0	74.5	22.7	14.3	1.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.8	34.0	74.5	22.7	14.3	1.0
LOS	E	C	E	C	B	A
Approach Delay	75.4			23.3	11.0	
Approach LOS	E			C	B	
Queue Length 50th (ft)	333	8	11	654	216	11
Queue Length 95th (ft)	441	23	34	958	576	m0
Internal Link Dist (ft)	1213			1121	1375	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	459	486	96	1267	1171	1439
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.02	0.11	0.78	0.56	0.15

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 152 (95%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 26.5 Intersection LOS: C
Intersection Capacity Utilization 71.8% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 410: NC 11/NC 11/55 & NC 55

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	199	9	9	592	889	302
Future Volume (vph)	199	9	9	592	889	302
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1671	1495	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1671	1495	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	55	
Link Distance (ft)	1293			1201	1455	
Travel Time (s)	16.0			14.9	18.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	221	10	10	658	988	336
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	18.0	14.0	14.0	72.0	58.0	18.0
Total Split (%)	20.0%	15.6%	15.6%	80.0%	64.4%	20.0%
Maximum Green (s)	11.0	7.0	7.0	65.0	51.0	11.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	15.5	29.5	9.0	64.5	58.9	82.4
Actuated g/C Ratio	0.17	0.33	0.10	0.72	0.65	0.92
v/c Ratio	0.77	0.02	0.06	0.51	0.84	0.24
Control Delay	56.1	22.2	37.7	7.2	15.7	1.5

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.1	22.2	37.7	7.2	15.7	1.5
LOS	E	C	D	A	B	A
Approach Delay	54.6			7.6	12.1	
Approach LOS	D			A	B	
Queue Length 50th (ft)	120	4	5	144	192	0
Queue Length 95th (ft)	#260	16	21	183	m#750	m40
Internal Link Dist (ft)	1213			1121	1375	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	288	490	171	1347	1183	1408
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.02	0.06	0.49	0.84	0.24

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 26 (29%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 15.2 Intersection LOS: B
Intersection Capacity Utilization 66.1% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 410: NC 11/NC 11/55 & NC 55

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	252	88	1056	140	26	535
Future Volume (vph)	252	88	1056	140	26	535
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1810	1538	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1810	1538	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	942		1455			1429
Travel Time (s)	25.7		18.0			17.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	5%	5%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	280	98	1173	156	29	594
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	39.0	14.0	107.0	39.0	14.0	121.0
Total Split (%)	24.4%	8.8%	66.9%	24.4%	8.8%	75.6%
Maximum Green (s)	32.0	7.0	100.0	32.0	7.0	114.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	31.4	45.4	104.6	141.0	9.0	118.6
Actuated g/C Ratio	0.20	0.28	0.65	0.88	0.06	0.74
v/c Ratio	0.85	0.23	0.99	0.12	0.31	0.45
Control Delay	84.3	44.6	45.6	1.0	74.4	6.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.3	44.6	45.6	1.0	74.4	6.0
LOS	F	D	D	A	E	A
Approach Delay	74.0		40.4			9.2
Approach LOS	E		D			A
Queue Length 50th (ft)	280	77	~1286	4	30	41
Queue Length 95th (ft)	#413	130	#1574	m13	m68	168
Internal Link Dist (ft)	862		1375			1349
Turn Bay Length (ft)		150		100	100	
Base Capacity (vph)	358	427	1183	1352	94	1316
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.23	0.99	0.12	0.31	0.45

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 37.5 Intersection LOS: D
Intersection Capacity Utilization 77.9% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 411: NC 11/55 & US 70 EB Ramps

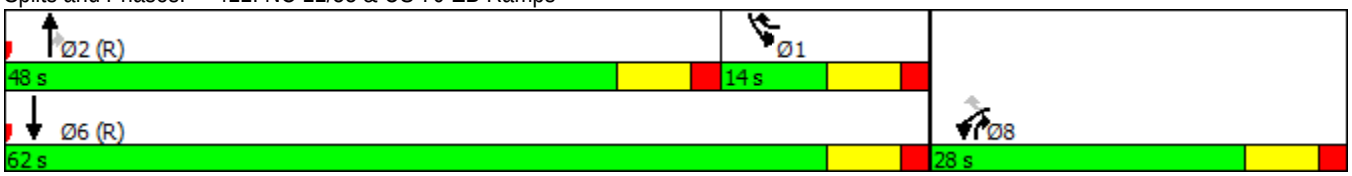
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	315	59	646	141	49	881
Future Volume (vph)	315	59	646	141	49	881
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1810	1538	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1810	1538	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	942		1455			1429
Travel Time (s)	25.7		18.0			17.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	5%	5%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	350	66	718	157	54	979
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	28.0	14.0	48.0	28.0	14.0	62.0
Total Split (%)	31.1%	15.6%	53.3%	31.1%	15.6%	68.9%
Maximum Green (s)	21.0	7.0	41.0	21.0	7.0	55.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	22.2	35.2	46.6	74.8	9.0	57.8
Actuated g/C Ratio	0.25	0.39	0.52	0.83	0.10	0.64
v/c Ratio	0.84	0.11	0.77	0.12	0.32	0.86
Control Delay	51.7	17.0	19.4	1.7	29.7	10.9

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.7	17.0	19.4	1.7	29.7	10.9
LOS	D	B	B	A	C	B
Approach Delay	46.2		16.2			11.9
Approach LOS	D		B			B
Queue Length 50th (ft)	187	23	272	12	29	92
Queue Length 95th (ft)	#329	49	#544	m19	m36	m#121
Internal Link Dist (ft)	862		1375			1349
Turn Bay Length (ft)		150		100	100	
Base Capacity (vph)	432	589	938	1276	168	1141
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.11	0.77	0.12	0.32	0.86

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 8 (9%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 19.7 Intersection LOS: B
Intersection Capacity Utilization 72.2% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 411: NC 11/55 & US 70 EB Ramps



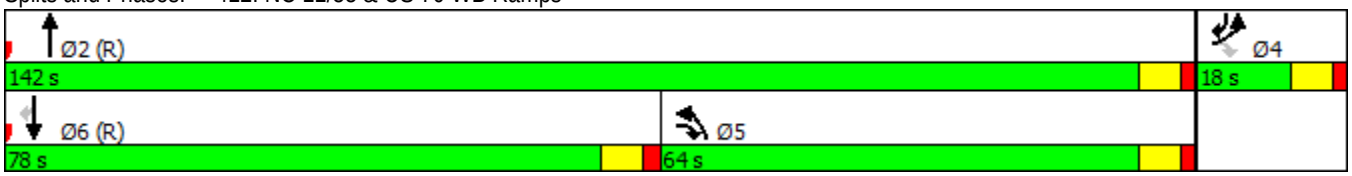
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	49	141	315	829	420	59
Future Volume (vph)	49	141	315	829	420	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250	475			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1687	1509	1687	1776	1776	1509
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1687	1509	1687	1776	1776	1509
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1169			1429	1067	
Travel Time (s)	31.9			17.7	13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	157	350	921	467	66
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	18.0	64.0	64.0	142.0	78.0	18.0
Total Split (%)	11.3%	40.0%	40.0%	88.8%	48.8%	11.3%
Maximum Green (s)	11.0	57.0	57.0	135.0	71.0	11.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	12.6	58.8	41.2	137.4	91.2	108.8
Actuated g/C Ratio	0.08	0.37	0.26	0.86	0.57	0.68
v/c Ratio	0.41	0.28	0.81	0.60	0.46	0.06
Control Delay	78.4	35.2	48.2	1.8	23.9	10.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.4	35.2	48.2	1.8	23.9	10.3
LOS	E	D	D	A	C	B
Approach Delay	46.3			14.6	22.2	
Approach LOS	D			B	C	
Queue Length 50th (ft)	55	116	319	64	277	22
Queue Length 95th (ft)	101	152	m374	m11	454	49
Internal Link Dist (ft)	1089			1349	987	
Turn Bay Length (ft)		250	475			100
Base Capacity (vph)	147	595	622	1535	1012	1010
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.26	0.56	0.60	0.46	0.07

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 42 (26%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 19.9 Intersection LOS: B
Intersection Capacity Utilization 57.9% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 412: NC 11/55 & US 70 WB Ramps



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	26	140	252	453	790	88
Future Volume (vph)	26	140	252	453	790	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250	475			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1687	1509	1687	1776	1776	1509
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1687	1509	1687	1776	1776	1509
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1169			1429	1067	
Travel Time (s)	31.9			17.7	13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	29	156	280	503	878	98
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	14.0	22.0	22.0	76.0	54.0	14.0
Total Split (%)	15.6%	24.4%	24.4%	84.4%	60.0%	15.6%
Maximum Green (s)	7.0	15.0	15.0	69.0	47.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.0	28.2	17.0	74.8	51.8	63.0
Actuated g/C Ratio	0.10	0.31	0.19	0.83	0.58	0.70
v/c Ratio	0.17	0.33	0.88	0.34	0.86	0.09
Control Delay	39.8	24.7	43.8	1.1	28.2	4.6

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	24.7	43.8	1.1	28.2	4.6
LOS	D	C	D	A	C	A
Approach Delay	27.1			16.3	25.8	
Approach LOS	C			B	C	
Queue Length 50th (ft)	15	64	155	19	422	15
Queue Length 95th (ft)	42	114	m#245	m24	#697	30
Internal Link Dist (ft)	1089			1349	987	
Turn Bay Length (ft)		250	475			100
Base Capacity (vph)	168	472	318	1476	1021	1056
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.33	0.88	0.34	0.86	0.09

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 22.1 Intersection LOS: C
Intersection Capacity Utilization 73.9% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 412: NC 11/55 & US 70 WB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	221	104	439	56	18	111
Future Volume (vph)	221	104	439	56	18	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	980		1013			1287
Travel Time (s)	26.7		12.6			16.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	246	116	488	62	20	123
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	29.0	14.0	47.0	29.0	14.0	61.0
Total Split (%)	32.2%	15.6%	52.2%	32.2%	15.6%	67.8%
Maximum Green (s)	22.0	7.0	40.0	22.0	7.0	54.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	19.9	33.9	48.9	74.7	9.1	60.1
Actuated g/C Ratio	0.22	0.38	0.54	0.83	0.10	0.67
v/c Ratio	0.66	0.20	0.51	0.05	0.12	0.10
Control Delay	40.4	18.8	17.4	2.2	40.1	4.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.4	18.8	17.4	2.2	40.1	4.3
LOS	D	B	B	A	D	A
Approach Delay	33.5		15.7			9.3
Approach LOS	C		B			A
Queue Length 50th (ft)	127	43	179	6	11	14
Queue Length 95th (ft)	193	75	302	13	25	28
Internal Link Dist (ft)	900		933			1207
Turn Bay Length (ft)		150		100	100	
Base Capacity (vph)	452	568	967	1290	169	1190
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.20	0.50	0.05	0.12	0.10

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 56 (62%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 20.9 Intersection LOS: C
Intersection Capacity Utilization 43.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 413: US 258 & US 70 EB Ramps

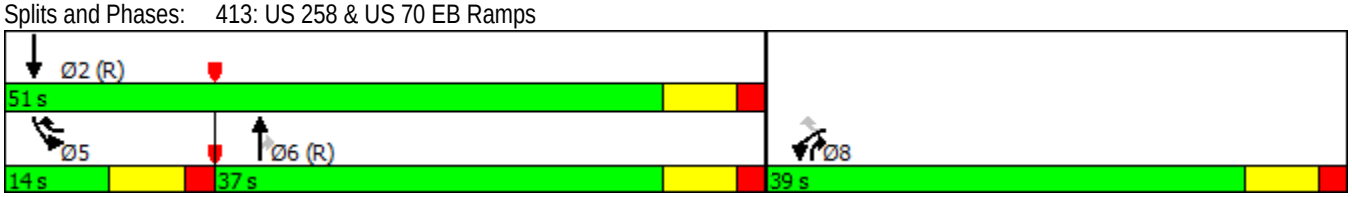
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	321	82	285	47	28	174
Future Volume (vph)	321	82	285	47	28	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	980		1013			1287
Travel Time (s)	26.7		12.6			16.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	357	91	317	52	31	193
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	39.0	14.0	37.0	39.0	14.0	51.0
Total Split (%)	43.3%	15.6%	41.1%	43.3%	15.6%	56.7%
Maximum Green (s)	32.0	7.0	30.0	32.0	7.0	44.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	26.3	40.9	41.9	74.2	9.6	53.7
Actuated g/C Ratio	0.29	0.45	0.47	0.82	0.11	0.60
v/c Ratio	0.73	0.13	0.38	0.04	0.17	0.18
Control Delay	36.9	13.0	20.5	2.4	38.5	7.9

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.9	13.0	20.5	2.4	38.5	7.9
LOS	D	B	C	A	D	A
Approach Delay	32.0		18.0			12.1
Approach LOS	C		B			B
Queue Length 50th (ft)	181	29	119	5	16	32
Queue Length 95th (ft)	247	46	227	13	42	95
Internal Link Dist (ft)	900		933			1207
Turn Bay Length (ft)		150		100	100	
Base Capacity (vph)	637	685	834	1320	180	1059
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.13	0.38	0.04	0.17	0.18

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 22.8 Intersection LOS: C
Intersection Capacity Utilization 49.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 413: US 258 & US 70 EB Ramps



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	47	28	222	321	82	82
Future Volume (vph)	47	28	222	321	82	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		150	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1086		1287			882
Travel Time (s)	16.5		16.0			10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	52	31	247	357	91	91
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	31.0	20.0	39.0	31.0	20.0	59.0
Total Split (%)	34.4%	22.2%	43.3%	34.4%	22.2%	65.6%
Maximum Green (s)	24.0	13.0	32.0	24.0	13.0	52.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	13.4	30.7	52.1	71.5	12.3	66.6
Actuated g/C Ratio	0.15	0.34	0.58	0.79	0.14	0.74
v/c Ratio	0.21	0.06	0.24	0.30	0.40	0.07
Control Delay	33.6	17.2	6.2	1.7	39.8	4.1

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.6	17.2	6.2	1.7	39.8	4.1
LOS	C	B	A	A	D	A
Approach Delay	27.5		3.6			22.0
Approach LOS	C		A			C
Queue Length 50th (ft)	27	12	15	6	48	11
Queue Length 95th (ft)	55	26	51	14	90	30
Internal Link Dist (ft)	1006		1207			802
Turn Bay Length (ft)		100		150	175	
Base Capacity (vph)	487	563	1027	1352	285	1314
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.06	0.24	0.26	0.32	0.07

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.40
Intersection Signal Delay: 9.7 — Intersection LOS: A
Intersection Capacity Utilization 35.9% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 414: US 258 & US 70 WB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	56	18	146	221	104	146
Future Volume (vph)	56	18	146	221	104	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		150	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1086		1287			882
Travel Time (s)	16.5		16.0			10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	62	20	162	246	116	162
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	27.0	27.0	36.0	27.0	27.0	63.0
Total Split (%)	30.0%	30.0%	40.0%	30.0%	30.0%	70.0%
Maximum Green (s)	20.0	20.0	29.0	20.0	20.0	56.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	11.0	29.5	53.3	70.3	13.5	69.0
Actuated g/C Ratio	0.12	0.33	0.59	0.78	0.15	0.77
v/c Ratio	0.30	0.04	0.15	0.21	0.46	0.12
Control Delay	39.2	18.2	5.3	1.1	40.0	3.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	18.2	5.3	1.1	40.0	3.2
LOS	D	B	A	A	D	A
Approach Delay	34.1		2.8			18.6
Approach LOS	C		A			B
Queue Length 50th (ft)	33	8	12	7	61	18
Queue Length 95th (ft)	69	20	36	14	107	39
Internal Link Dist (ft)	1006		1207			802
Turn Bay Length (ft)		100		150	175	
Base Capacity (vph)	412	637	1051	1319	412	1361
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.03	0.15	0.19	0.28	0.12

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 11.8 Intersection LOS: B
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 414: US 258 & US 70 WB Ramps

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	4	8	9	5	38	9	300	8	17	159	16
Future Volume (vph)	30	4	8	9	5	38	9	300	8	17	159	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1751	0	0	1665	0	1703	1785	0	1703	1767	0
Flt Permitted		0.965			0.991		0.950			0.950		
Satd. Flow (perm)	0	1751	0	0	1665	0	1703	1785	0	1703	1767	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1178			1128			1123			927	
Travel Time (s)		17.8			17.1			13.9			11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	46	0	0	58	0	10	342	0	19	195	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 30.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	4	8	9	5	38	9	300	8	17	159	16
Future Volume (Veh/h)	30	4	8	9	5	38	9	300	8	17	159	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	4	9	10	6	42	10	333	9	19	177	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											927	
pX, platoon unblocked												
vC, conflicting volume	622	586	186	584	590	338	195			342		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	622	586	186	584	590	338	195			342		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	91	99	99	98	99	94	99			98		
cM capacity (veh/h)	365	413	856	409	410	705	1354			1195		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	46	58	10	342	19	195
Volume Left	33	10	10	0	19	0
Volume Right	9	42	0	9	0	18
cSH	415	588	1354	1700	1195	1700
Volume to Capacity	0.11	0.10	0.01	0.20	0.02	0.11
Queue Length 95th (ft)	9	8	1	0	1	0
Control Delay (s)	14.7	11.8	7.7	0.0	8.1	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	14.7	11.8	0.2		0.7	
Approach LOS	B	B				

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	30.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	5	9	8	4	17	8	159	9	38	300	30
Future Volume (vph)	16	5	9	8	4	17	8	159	9	38	300	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1742	0	0	1690	0	1703	1778	0	1703	1767	0
Flt Permitted		0.974			0.986		0.950			0.950		
Satd. Flow (perm)	0	1742	0	0	1690	0	1703	1778	0	1703	1767	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1178			1128			1123			927	
Travel Time (s)		17.8			17.1			13.9			11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	34	0	0	32	0	9	187	0	42	366	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 34.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	5	9	8	4	17	8	159	9	38	300	30
Future Volume (Veh/h)	16	5	9	8	4	17	8	159	9	38	300	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	18	6	10	9	4	19	9	177	10	42	333	33
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											927	
pX, platoon unblocked	0.95	0.95	0.95	0.95	0.95		0.95					
vC, conflicting volume	650	638	350	630	650	182	366			187		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	602	590	285	581	602	182	302			187		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	95	98	99	98	99	98	99			97		
cM capacity (veh/h)	367	383	714	381	376	861	1170			1364		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	34	32	9	187	42	366
Volume Left	18	9	9	0	42	0
Volume Right	10	19	0	10	0	33
cSH	432	568	1170	1700	1364	1700
Volume to Capacity	0.08	0.06	0.01	0.11	0.03	0.22
Queue Length 95th (ft)	6	4	1	0	2	0
Control Delay (s)	14.0	11.7	8.1	0.0	7.7	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	14.0	11.7	0.4		0.8	
Approach LOS	B	B				

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	18	20	29	333	176	7
Future Volume (vph)	18	20	29	333	176	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	959			927	1201	
Travel Time (s)	14.5			11.5	14.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	22	32	370	196	8
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	22.0	22.0	22.0	68.0	46.0	22.0
Total Split (%)	24.4%	24.4%	24.4%	75.6%	51.1%	24.4%
Maximum Green (s)	15.0	15.0	15.0	61.0	39.0	15.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.3	15.6	9.7	82.1	72.0	80.7
Actuated g/C Ratio	0.10	0.17	0.11	0.91	0.80	0.90
v/c Ratio	0.11	0.08	0.17	0.23	0.14	0.01
Control Delay	38.0	27.2	38.4	1.9	2.8	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	27.2	38.4	1.9	2.8	0.3
LOS	D	C	D	A	A	A
Approach Delay	32.3			4.8	2.7	
Approach LOS	C			A	A	
Queue Length 50th (ft)	11	12	17	0	18	0
Queue Length 95th (ft)	32	27	43	71	28	1
Internal Link Dist (ft)	879			847	1121	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	321	387	321	1634	1433	1432
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.06	0.10	0.23	0.14	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 10 (11%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.23
Intersection Signal Delay: 5.9 Intersection LOS: A
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 416: NC 58 & US 70 EB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	32	22	174	330	10
Future Volume (vph)	15	32	22	174	330	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	959			927	1201	
Travel Time (s)	14.5			11.5	14.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	36	24	193	367	11
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	17.0	18.0	18.0	73.0	55.0	17.0
Total Split (%)	18.9%	20.0%	20.0%	81.1%	61.1%	18.9%
Maximum Green (s)	10.0	11.0	11.0	66.0	48.0	10.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.2	15.3	9.5	82.2	72.3	80.9
Actuated g/C Ratio	0.10	0.17	0.11	0.91	0.80	0.90
v/c Ratio	0.10	0.14	0.13	0.12	0.26	0.01
Control Delay	37.9	29.2	38.0	1.6	2.4	0.2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	29.2	38.0	1.6	2.4	0.2
LOS	D	C	D	A	A	A
Approach Delay	32.0			5.6	2.3	
Approach LOS	C			A	A	
Queue Length 50th (ft)	9	19	13	0	26	0
Queue Length 95th (ft)	29	38	36	36	31	0
Internal Link Dist (ft)	879			847	1121	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	227	318	245	1636	1438	1396
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.11	0.10	0.12	0.26	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 10 (11%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.26
Intersection Signal Delay: 5.9 Intersection LOS: A
Intersection Capacity Utilization 32.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 416: NC 58 & US 70 EB Ramps

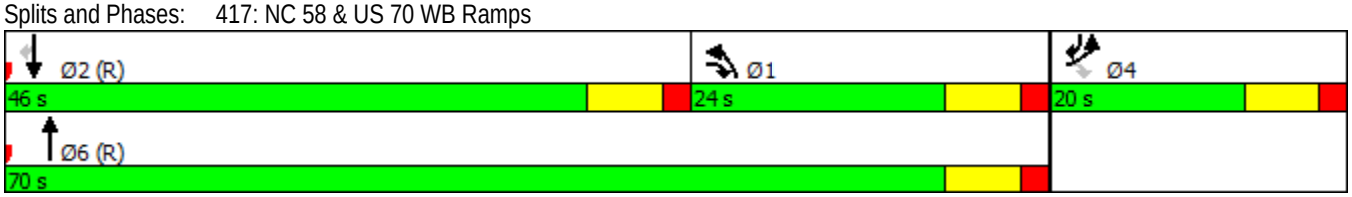
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	22	32	319	161	15
Future Volume (vph)	10	22	32	319	161	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	935			1201	1007	
Travel Time (s)	25.5			14.9	12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	24	36	354	179	17
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	20.0	24.0	24.0	70.0	46.0	20.0
Total Split (%)	22.2%	26.7%	26.7%	77.8%	51.1%	22.2%
Maximum Green (s)	13.0	17.0	17.0	63.0	39.0	13.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.1	15.6	9.9	82.3	72.0	77.7
Actuated g/C Ratio	0.10	0.17	0.11	0.91	0.80	0.86
v/c Ratio	0.06	0.09	0.19	0.22	0.12	0.01
Control Delay	37.6	27.6	38.4	1.3	5.3	2.5

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.6	27.6	38.4	1.3	5.3	2.5
LOS	D	C	D	A	A	A
Approach Delay	30.8			4.8	5.0	
Approach LOS	C			A	A	
Queue Length 50th (ft)	6	13	19	0	18	2
Queue Length 95th (ft)	22	29	47	43	71	6
Internal Link Dist (ft)	855			1121	927	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	283	363	359	1639	1434	1316
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.07	0.10	0.22	0.12	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.22
Intersection Signal Delay: 6.3 — Intersection LOS: A
Intersection Capacity Utilization 35.8% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 417: NC 58 & US 70 WB Ramps



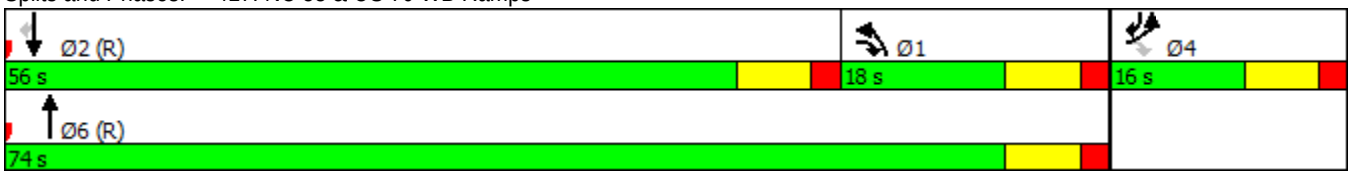
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	29	20	169	311	18
Future Volume (vph)	7	29	20	169	311	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	935			1201	1007	
Travel Time (s)	25.5			14.9	12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	32	22	188	346	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	16.0	18.0	18.0	74.0	56.0	16.0
Total Split (%)	17.8%	20.0%	20.0%	82.2%	62.2%	17.8%
Maximum Green (s)	9.0	11.0	11.0	67.0	49.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.0	15.2	9.6	82.4	72.4	78.0
Actuated g/C Ratio	0.10	0.17	0.11	0.92	0.80	0.87
v/c Ratio	0.05	0.12	0.12	0.11	0.24	0.02
Control Delay	37.4	29.0	38.8	1.3	5.5	2.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	29.0	38.8	1.3	5.5	2.3
LOS	D	C	D	A	A	A
Approach Delay	30.7			5.2	5.3	
Approach LOS	C			A	A	
Queue Length 50th (ft)	4	17	12	0	40	2
Queue Length 95th (ft)	18	36	34	25	134	7
Internal Link Dist (ft)	855			1121	927	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	208	281	245	1640	1442	1301
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.11	0.09	0.11	0.24	0.02

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.24
Intersection Signal Delay: 6.9 Intersection LOS: A
Intersection Capacity Utilization 30.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 417: NC 58 & US 70 WB Ramps



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	465	39	27	570	61	35
Future Volume (vph)	465	39	27	570	61	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	100		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)			100		100	
Satd. Flow (prot)	3406	1524	1703	3406	1684	0
Flt Permitted			0.950		0.969	
Satd. Flow (perm)	3406	1524	1703	3406	1684	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1005			1017	897	
Travel Time (s)	12.5			12.6	11.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	517	43	30	633	107	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	46			46	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	465	39	27	570	61	35
Future Volume (Veh/h)	465	39	27	570	61	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	517	43	30	633	68	39
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	1			1		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			560		894	258
vC1, stage 1 conf vol					517	
vC2, stage 2 conf vol					376	
vCu, unblocked vol			560		894	258
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)			2.3		3.5	3.3
p0 queue free %			97		83	95
cM capacity (veh/h)			980		393	734

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	258	258	43	30	316	316	107
Volume Left	0	0	0	30	0	0	68
Volume Right	0	0	43	0	0	0	39
cSH	1700	1700	1700	980	1700	1700	473
Volume to Capacity	0.15	0.15	0.03	0.03	0.19	0.19	0.23
Queue Length 95th (ft)	0	0	0	2	0	0	22
Control Delay (s)	0.0	0.0	0.0	8.8	0.0	0.0	14.8
Lane LOS				A			B
Approach Delay (s)	0.0			0.4			14.8
Approach LOS							B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	31.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	570	61	35	465	39	27
Future Volume (vph)	570	61	35	465	39	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	100		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)			100		100	
Satd. Flow (prot)	3406	1524	1703	3406	1676	0
Flt Permitted			0.950		0.971	
Satd. Flow (perm)	3406	1524	1703	3406	1676	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1005			1017	897	
Travel Time (s)	12.5			12.6	11.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	633	68	39	517	73	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	46			46	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	570	61	35	465	39	27
Future Volume (Veh/h)	570	61	35	465	39	27
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	633	68	39	517	43	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	1			1		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			701		970	316
vC1, stage 1 conf vol					633	
vC2, stage 2 conf vol					336	
vCu, unblocked vol			701		970	316
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)			2.3		3.5	3.3
p0 queue free %			95		88	96
cM capacity (veh/h)			866		359	673

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	316	316	68	39	258	258	73
Volume Left	0	0	0	39	0	0	43
Volume Right	0	0	68	0	0	0	30
cSH	1700	1700	1700	866	1700	1700	444
Volume to Capacity	0.19	0.19	0.04	0.05	0.15	0.15	0.16
Queue Length 95th (ft)	0	0	0	4	0	0	15
Control Delay (s)	0.0	0.0	0.0	9.4	0.0	0.0	14.7
Lane LOS				A			B
Approach Delay (s)	0.0			0.7			14.7
Approach LOS							B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	32.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	33	21	15	21	8
Future Volume (vph)	10	33	21	15	21	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1824	1774	0	1696	0
Flt Permitted		0.989			0.965	
Satd. Flow (perm)	0	1824	1774	0	1696	0
Link Speed (mph)		45	45		45	
Link Distance (ft)		873	821		789	
Travel Time (s)		13.2	12.4		12.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	1%	1%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	48	40	0	32	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	33	21	15	21	8
Future Volume (Veh/h)	10	33	21	15	21	8
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	37	23	17	23	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	40				90	32
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	40				90	32
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	99
cM capacity (veh/h)	1563				899	1037

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	48	40	32
Volume Left	11	0	23
Volume Right	0	17	9
cSH	1563	1700	934
Volume to Capacity	0.01	0.02	0.03
Queue Length 95th (ft)	1	0	3
Control Delay (s)	1.7	0.0	9.0
Lane LOS	A		A
Approach Delay (s)	1.7	0.0	9.0
Approach LOS			A

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	19.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	21	33	21	15	10
Future Volume (vph)	8	21	33	21	15	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1819	1783	0	1680	0
Flt Permitted		0.986			0.971	
Satd. Flow (perm)	0	1819	1783	0	1680	0
Link Speed (mph)		45	45		45	
Link Distance (ft)		873	821		789	
Travel Time (s)		13.2	12.4		12.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	1%	1%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	32	60	0	28	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	21	33	21	15	10
Future Volume (Veh/h)	8	21	33	21	15	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	23	37	23	17	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	60				90	48
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	60				90	48
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	99
cM capacity (veh/h)	1537				901	1015

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	32	60	28
Volume Left	9	0	17
Volume Right	0	23	11
cSH	1537	1700	942
Volume to Capacity	0.01	0.04	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	2.1	0.0	8.9
Lane LOS	A		A
Approach Delay (s)	2.1	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		

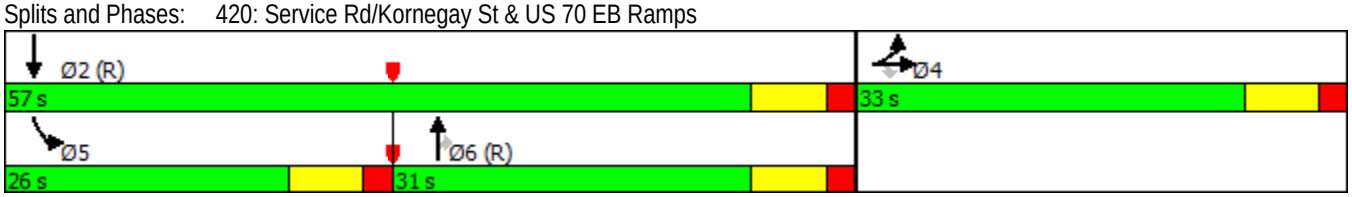
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	4	12	0	0	0	0	32	22	22	24	0
Future Volume (vph)	61	4	12	0	0	0	0	32	22	22	24	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	0		100	100		0
Storage Lanes	0		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1745	1553	0	0	0	0	1881	1599	1736	1827	0
Flt Permitted		0.955								0.950		
Satd. Flow (perm)	0	1745	1553	0	0	0	0	1881	1599	1736	1827	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		937			1062			1018			808	
Travel Time (s)		11.6			13.2			15.4			12.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	0%	0%	0%	1%	1%	1%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	72	13	0	0	0	0	36	24	24	27	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						6		5	2	
Permitted Phases			4						6			
Detector Phase	4	4	4					6	6	5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0					12.0	12.0	7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0					19.0	19.0	14.0	19.0	
Total Split (s)	33.0	33.0	33.0					31.0	31.0	26.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%					34.4%	34.4%	28.9%	63.3%	
Maximum Green (s)	26.0	26.0	26.0					24.0	24.0	19.0	50.0	
Yellow Time (s)	5.0	5.0	5.0					5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-2.0	-2.0					-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					C-Min	C-Min	None	C-Min	
Act Effct Green (s)		11.4	11.4					66.4	66.4	9.4	72.4	
Actuated g/C Ratio		0.13	0.13					0.74	0.74	0.10	0.80	
v/c Ratio		0.33	0.07					0.03	0.02	0.13	0.02	
Control Delay		39.2	34.0					7.1	7.3	37.3	3.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay		39.2	34.0					7.1	7.3	37.3	3.8	
LOS		D	C					A	A	D	A	
Approach Delay		38.4						7.2			19.6	
Approach LOS		D						A			B	
Queue Length 50th (ft)		38	7					4	3	13	2	
Queue Length 95th (ft)		76	23					22	17	42	18	
Internal Link Dist (ft)		857			982			938			728	
Turn Bay Length (ft)			100						100	100		
Base Capacity (vph)		542	483					1387	1179	405	1470	
Starvation Cap Reductn		0	0					0	0	0	0	
Spillback Cap Reductn		0	0					0	0	0	0	
Storage Cap Reductn		0	0					0	0	0	0	
Reduced v/c Ratio		0.13	0.03					0.03	0.02	0.06	0.02	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.33
Intersection Signal Delay: 24.0 Intersection LOS: C
Intersection Capacity Utilization 34.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 420: Service Rd/Kornegay St & US 70 EB Ramps



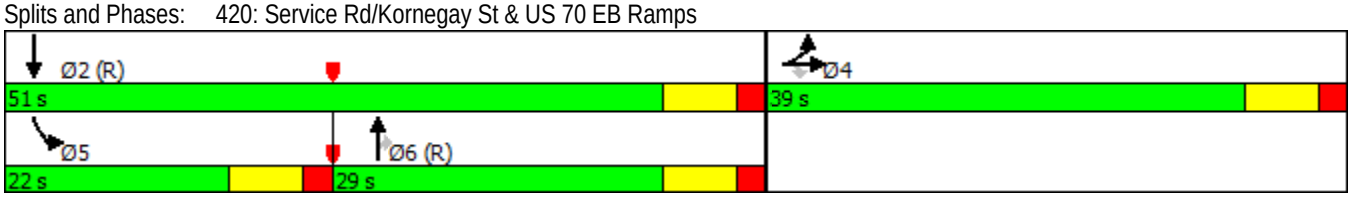
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	4	22	0	0	0	0	21	15	16	32	0
Future Volume (vph)	97	4	22	0	0	0	0	21	15	16	32	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	0		100	100		0
Storage Lanes	0		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1743	1553	0	0	0	0	1881	1599	1736	1827	0
Flt Permitted		0.954								0.950		
Satd. Flow (perm)	0	1743	1553	0	0	0	0	1881	1599	1736	1827	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		937			1062			1018			808	
Travel Time (s)		11.6			13.2			15.4			12.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	0%	0%	0%	1%	1%	1%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	112	24	0	0	0	0	23	17	18	36	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						6		5	2	
Permitted Phases			4						6			
Detector Phase	4	4	4					6	6	5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0					12.0	12.0	7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0					19.0	19.0	14.0	19.0	
Total Split (s)	39.0	39.0	39.0					29.0	29.0	22.0	51.0	
Total Split (%)	43.3%	43.3%	43.3%					32.2%	32.2%	24.4%	56.7%	
Maximum Green (s)	32.0	32.0	32.0					22.0	22.0	15.0	44.0	
Yellow Time (s)	5.0	5.0	5.0					5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-2.0	-2.0					-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					C-Min	C-Min	None	C-Min	
Act Effct Green (s)		13.2	13.2					64.8	64.8	9.2	70.6	
Actuated g/C Ratio		0.15	0.15					0.72	0.72	0.10	0.78	
v/c Ratio		0.44	0.11					0.02	0.01	0.10	0.03	
Control Delay		39.7	32.6					8.2	8.4	31.3	5.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay		39.7	32.6					8.2	8.4	31.3	5.7	
LOS		D	C					A	A	C	A	
Approach Delay		38.4						8.3			14.3	
Approach LOS		D						A			B	
Queue Length 50th (ft)		59	12					3	2	10	11	
Queue Length 95th (ft)		104	33					17	14	35	28	
Internal Link Dist (ft)		857			982			938			728	
Turn Bay Length (ft)			100						100	100		
Base Capacity (vph)		658	586					1353	1150	327	1433	
Starvation Cap Reductn		0	0					0	0	0	0	
Spillback Cap Reductn		0	0					0	0	0	0	
Storage Cap Reductn		0	0					0	0	0	0	
Reduced v/c Ratio		0.17	0.04					0.02	0.01	0.06	0.03	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.44
Intersection Signal Delay: 27.5 Intersection LOS: C
Intersection Capacity Utilization 34.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 420: Service Rd/Kornegay St & US 70 EB Ramps



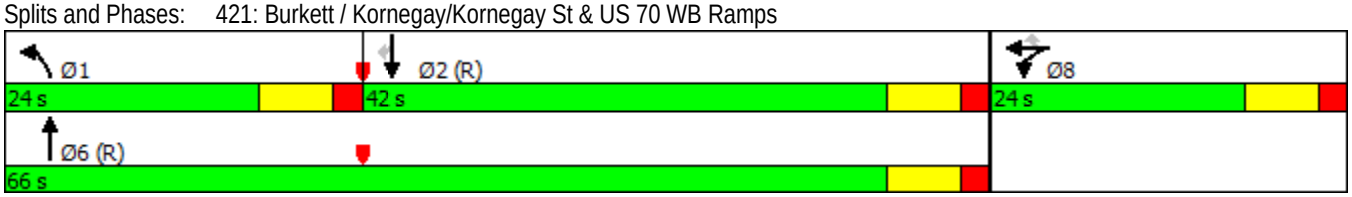
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	15	4	17	22	71	0	0	31	97
Future Volume (vph)	0	0	0	15	4	17	22	71	0	0	31	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		100	100		0	0		100
Storage Lanes	0		0	0		1	1		0	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	0	0	0	1756	1553	1736	1827	0	0	1827	1553
Flt Permitted					0.961		0.950					
Satd. Flow (perm)	0	0	0	0	1756	1553	1736	1827	0	0	1827	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1012			920			808			961	
Travel Time (s)		15.3			13.9			12.2			14.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	21	19	24	79	0	0	34	108
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Split	NA	Perm	Prot	NA			NA	Perm
Protected Phases				8	8		1	6			2	
Permitted Phases						8						2
Detector Phase				8	8	8	1	6			2	2
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0	7.0	12.0			12.0	12.0
Minimum Split (s)				14.0	14.0	14.0	14.0	19.0			19.0	19.0
Total Split (s)				24.0	24.0	24.0	24.0	66.0			42.0	42.0
Total Split (%)				26.7%	26.7%	26.7%	26.7%	73.3%			46.7%	46.7%
Maximum Green (s)				17.0	17.0	17.0	17.0	59.0			35.0	35.0
Yellow Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
All-Red Time (s)				2.0	2.0	2.0	2.0	2.0			2.0	2.0
Lost Time Adjust (s)					-2.0	-2.0	-2.0	-2.0			-2.0	-2.0
Total Lost Time (s)					5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Min			C-Min	C-Min
Act Effct Green (s)					9.4	9.4	9.4	78.2			72.2	72.2
Actuated g/C Ratio					0.10	0.10	0.10	0.87			0.80	0.80
v/c Ratio					0.12	0.12	0.13	0.05			0.02	0.09
Control Delay					37.9	38.1	21.0	0.8			5.7	5.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay					0.0	0.0	0.0	0.0			0.0	0.0
Total Delay					37.9	38.1	21.0	0.8			5.7	5.4
LOS					D	D	C	A			A	A
Approach Delay					38.0			5.5			5.4	
Approach LOS					D			A			A	
Queue Length 50th (ft)					11	10	6	3			3	11
Queue Length 95th (ft)					33	31	16	5			19	47
Internal Link Dist (ft)		932			840			728			881	
Turn Bay Length (ft)						100	100					100
Base Capacity (vph)					370	327	366	1588			1465	1246
Starvation Cap Reductn					0	0	0	0			0	0
Spillback Cap Reductn					0	0	0	0			0	0
Storage Cap Reductn					0	0	0	0			0	0
Reduced v/c Ratio					0.06	0.06	0.07	0.05			0.02	0.09

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.13
Intersection Signal Delay: 10.0 Intersection LOS: B
Intersection Capacity Utilization 34.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 421: Burkett / Kornegay/Kornegay St & US 70 WB Ramps



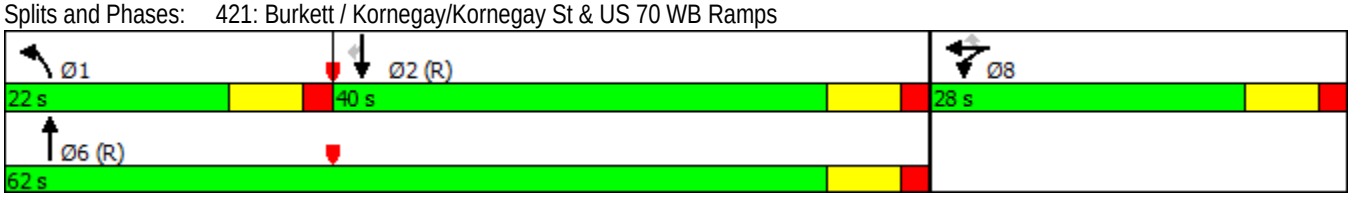
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	22	4	22	12	106	0	0	26	61
Future Volume (vph)	0	0	0	22	4	22	12	106	0	0	26	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		100	100		0	0		100
Storage Lanes	0		0	0		1	1		0	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	0	0	0	1752	1553	1736	1827	0	0	1827	1553
Flt Permitted					0.959		0.950					
Satd. Flow (perm)	0	0	0	0	1752	1553	1736	1827	0	0	1827	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1012			920			808			961	
Travel Time (s)		15.3			13.9			12.2			14.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	28	24	13	118	0	0	29	68
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Split	NA	Perm	Prot	NA			NA	Perm
Protected Phases				8	8		1	6			2	
Permitted Phases						8						2
Detector Phase				8	8	8	1	6			2	2
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0	7.0	12.0			12.0	12.0
Minimum Split (s)				14.0	14.0	14.0	14.0	19.0			19.0	19.0
Total Split (s)				28.0	28.0	28.0	22.0	62.0			40.0	40.0
Total Split (%)				31.1%	31.1%	31.1%	24.4%	68.9%			44.4%	44.4%
Maximum Green (s)				21.0	21.0	21.0	15.0	55.0			33.0	33.0
Yellow Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
All-Red Time (s)				2.0	2.0	2.0	2.0	2.0			2.0	2.0
Lost Time Adjust (s)					-2.0	-2.0	-2.0	-2.0			-2.0	-2.0
Total Lost Time (s)					5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Min			C-Min	C-Min
Act Effct Green (s)					9.6	9.6	9.1	78.0			75.1	75.1
Actuated g/C Ratio					0.11	0.11	0.10	0.87			0.83	0.83
v/c Ratio					0.15	0.15	0.07	0.07			0.02	0.05
Control Delay					38.2	38.3	13.7	0.8			4.4	4.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay					0.0	0.0	0.0	0.0			0.0	0.0
Total Delay					38.2	38.3	13.7	0.8			4.4	4.2
LOS					D	D	B	A			A	A
Approach Delay					38.2			2.1			4.3	
Approach LOS					D			A			A	
Queue Length 50th (ft)					15	13	2	2			3	6
Queue Length 95th (ft)					40	36	7	4			17	32
Internal Link Dist (ft)		932			840			728			881	
Turn Bay Length (ft)						100	100					100
Base Capacity (vph)					447	396	327	1584			1525	1296
Starvation Cap Reductn					0	0	0	0			0	0
Spillback Cap Reductn					0	0	0	0			0	0
Storage Cap Reductn					0	0	0	0			0	0
Reduced v/c Ratio					0.06	0.06	0.04	0.07			0.02	0.05

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.15
Intersection Signal Delay: 9.5 Intersection LOS: A
Intersection Capacity Utilization 34.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 421: Burkett / Kornegay/Kornegay St & US 70 WB Ramps



2040 Build Alternative 12
SimTraffic Reports

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Summary of All Intervals

Run Number	1	2	3	4	5	AM	Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	9043	9068	9061	9086	9036	9049	9051
Vehs Exited	9034	9041	9060	9112	9000	9052	9050
Starting Vehs	226	195	208	229	192	179	194
Ending Vehs	235	222	209	203	228	176	194
Travel Distance (mi)	5435	5469	5467	5474	5429	5444	5453
Travel Time (hr)	208.2	210.6	208.1	213.2	208.8	210.7	210.0
Total Delay (hr)	76.4	78.7	75.5	80.6	77.8	77.9	77.8
Total Stops	5842	5991	5862	6161	5848	6081	5959
Fuel Used (gal)	219.7	220.7	219.9	221.8	218.0	219.2	219.9

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	AM	Avg
Vehs Entered	9043	9068	9061	9086	9036	9049	9051
Vehs Exited	9034	9041	9060	9112	9000	9052	9050
Starting Vehs	226	195	208	229	192	179	194
Ending Vehs	235	222	209	203	228	176	194
Travel Distance (mi)	5435	5469	5467	5474	5429	5444	5453
Travel Time (hr)	208.2	210.6	208.1	213.2	208.8	210.7	210.0
Total Delay (hr)	76.4	78.7	75.5	80.6	77.8	77.9	77.8
Total Stops	5842	5991	5862	6161	5848	6081	5959
Fuel Used (gal)	219.7	220.7	219.9	221.8	218.0	219.2	219.9

Intersection: 401: Jim Sutton Rd & Service Rd

Movement	EB	WB	SB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	41	41	20
Average Queue (ft)	14	14	1
95th Queue (ft)	37	35	8
Link Distance (ft)	848	806	935
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			100
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	72	150	73	56	286	38
Average Queue (ft)	28	71	22	13	152	5
95th Queue (ft)	62	130	58	39	245	23
Link Distance (ft)	951	951	935	935	1248	1248
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		200		100	300	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	60	229	123	69	173	76
Average Queue (ft)	22	110	42	15	88	21
95th Queue (ft)	52	192	99	48	154	62
Link Distance (ft)	939	939	1248	1248	934	934
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		275		100	175	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 404: Willie Measley Rd & Washington St/Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	97	54	59	15
Average Queue (ft)	42	19	21	1
95th Queue (ft)	71	43	48	7
Link Distance (ft)	924	913	934	1055
Upstream Blk Time (%)				
Queuing Penalty (veh)			100	100
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 405: Barwick Station Rd & Service Rd/Sanderson Way

Movement	EB	WB	SB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	42	82	37
Average Queue (ft)	20	44	5
95th Queue (ft)	45	69	25
Link Distance (ft)	809	899	1140
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			100
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 406: Barwick Station Rd/Barwick Station / Albert Sugg Rd & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	98	125	64	92	132	71
Average Queue (ft)	33	59	18	29	53	13
95th Queue (ft)	74	107	49	70	106	46
Link Distance (ft)	1036	1036	1140	1140	1165	1165
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		200		100	150	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 407: Barwick Station / Albert Sugg Rd/Albert Sugg Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	141	117	72	31	176	72
Average Queue (ft)	59	40	19	5	89	15
95th Queue (ft)	110	91	56	23	148	49
Link Distance (ft)	1058	1058	1165	1165	1141	1141
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 408: Albert Sugg Rd & Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	36	88	33	14
Average Queue (ft)	19	48	2	1
95th Queue (ft)	40	78	15	8
Link Distance (ft)	740	822	1141	929
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 409: US 70 Bus & Innovation Way

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 410: NC 11/NC 11/55 & NC 55

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	454	50	49	553	517	59
Average Queue (ft)	254	9	9	240	194	10
95th Queue (ft)	403	33	30	465	397	38
Link Distance (ft)	1242	1242	1168	1168	1375	1375
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 411: NC 11/55 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	399	134	997	59	84	244
Average Queue (ft)	229	62	522	16	28	75
95th Queue (ft)	376	119	903	48	70	187
Link Distance (ft)	890	890	1375	1375	1370	1370
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 412: NC 11/55 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	129	232	454	177	358	79
Average Queue (ft)	54	101	256	51	164	19
95th Queue (ft)	106	192	416	137	313	57
Link Distance (ft)	1122	1122	1370	1370	1031	1031
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		250	475			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 413: US 258 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	255	133	223	39	54	72
Average Queue (ft)	126	53	95	5	17	18
95th Queue (ft)	222	116	188	24	44	53
Link Distance (ft)	917	917	961	961	1212	1212
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 414: US 258 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	85	55	127	149	147	54
Average Queue (ft)	29	12	42	53	60	9
95th Queue (ft)	66	39	102	117	120	35
Link Distance (ft)	1028	1028	1212	1212	850	850
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		150	175	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 415: NC 58 & Elijah Loftin Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	54	41	12	21
Average Queue (ft)	19	21	1	3
95th Queue (ft)	43	40	7	13
Link Distance (ft)	1137	1082	1094	863
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 416: NC 58 & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	57	66	60	112	65	4
Average Queue (ft)	14	15	18	13	14	0
95th Queue (ft)	43	44	49	58	47	3
Link Distance (ft)	914	914	863	863	1133	1133
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 417: NC 58 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	34	64	86	72	83	20
Average Queue (ft)	8	16	26	10	20	2
95th Queue (ft)	28	47	65	43	58	11
Link Distance (ft)	879	879	1133	1133	961	961
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 418: Wyse Fork Rd & US 70 Bus

Movement	EB	WB	NB
Directions Served	R	L	LR
Maximum Queue (ft)	4	50	126
Average Queue (ft)	0	12	41
95th Queue (ft)	3	35	92
Link Distance (ft)	972	994	820
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	100	100	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 419: Burkett Rd & Wyse Fork Conn.

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	9	47
Average Queue (ft)	0	16
95th Queue (ft)	6	40
Link Distance (ft)	852	757
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 420: Service Rd/Kornegay St & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	LT	R	T	R	L	T
Maximum Queue (ft)	104	32	25	22	65	28
Average Queue (ft)	38	7	3	3	19	2
95th Queue (ft)	81	25	17	14	53	13
Link Distance (ft)	902	902	979	979	772	772
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 421: Burkett / Kornegay/Kornegay St & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	L	T	T	R
Maximum Queue (ft)	59	65	64	29	27	78
Average Queue (ft)	14	15	18	3	3	12
95th Queue (ft)	44	46	48	17	16	45
Link Distance (ft)	885	885	772	772	921	921
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	2	3	4	5	PM	Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	9144	9128	9115	9096	9007	9220	9113
Vehs Exited	9130	9191	9118	9090	8970	9197	9117
Starting Vehs	170	245	206	202	185	172	188
Ending Vehs	184	182	203	208	222	195	190
Travel Distance (mi)	5485	5476	5470	5448	5381	5508	5461
Travel Time (hr)	201.6	200.0	199.5	202.6	197.3	202.5	200.6
Total Delay (hr)	68.3	66.4	66.7	69.6	66.1	67.8	67.5
Total Stops	5854	5745	5674	5916	5708	5933	5807
Fuel Used (gal)	223.6	222.3	220.1	221.2	217.6	223.7	221.4

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	PM	Avg
Vehs Entered	9144	9128	9115	9096	9007	9220	9113
Vehs Exited	9130	9191	9118	9090	8970	9197	9117
Starting Vehs	170	245	206	202	185	172	188
Ending Vehs	184	182	203	208	222	195	190
Travel Distance (mi)	5485	5476	5470	5448	5381	5508	5461
Travel Time (hr)	201.6	200.0	199.5	202.6	197.3	202.5	200.6
Total Delay (hr)	68.3	66.4	66.7	69.6	66.1	67.8	67.5
Total Stops	5854	5745	5674	5916	5708	5933	5807
Fuel Used (gal)	223.6	222.3	220.1	221.2	217.6	223.7	221.4

Intersection: 401: Jim Sutton Rd & Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	29	44	8	17
Average Queue (ft)	11	17	0	1
95th Queue (ft)	31	38	4	7
Link Distance (ft)	848	806	905	935
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	109	179	63	48	251	37
Average Queue (ft)	40	79	18	8	137	6
95th Queue (ft)	84	150	51	32	224	27
Link Distance (ft)	951	951	935	935	1248	1248
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		200		100	300	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	117	269	106	62	167	81
Average Queue (ft)	43	133	37	9	77	22
95th Queue (ft)	90	233	84	37	143	63
Link Distance (ft)	939	939	1248	1248	934	934
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		275		100	175	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 404: Willie Measley Rd & Washington St/Service Rd

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	L
Maximum Queue (ft)	81	51	71	4	12
Average Queue (ft)	37	23	20	0	0
95th Queue (ft)	62	46	50	3	5
Link Distance (ft)	924	913	934	934	1055
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			100		100
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 405: Barwick Station Rd & Service Rd/Sanderson Way

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	38	76	10	47
Average Queue (ft)	16	38	0	5
95th Queue (ft)	41	62	5	27
Link Distance (ft)	809	899	802	1140
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 406: Barwick Station Rd/Barwick Station / Albert Sugg Rd & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	106	177	65	79	117	36
Average Queue (ft)	45	85	15	16	51	6
95th Queue (ft)	86	148	48	49	104	25
Link Distance (ft)	1036	1036	1140	1140	1165	1165
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		200		100	150	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 407: Barwick Station / Albert Sugg Rd/Albert Sugg Rd & US 70WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	201	140	81	31	148	59
Average Queue (ft)	98	54	18	5	67	14
95th Queue (ft)	165	106	59	21	127	44
Link Distance (ft)	1058	1058	1165	1165	1141	1141
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 408: Albert Sugg Rd & Service Rd

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	L
Maximum Queue (ft)	55	92	14	18	24
Average Queue (ft)	24	41	1	1	1
95th Queue (ft)	47	71	8	8	11
Link Distance (ft)	740	822	1141	1141	929
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			100		100
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 409: US 70 Bus & Innovation Way

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 410: NC 11/NC 11/55 & NC 55

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	254	31	38	230	426	84
Average Queue (ft)	132	5	9	95	174	26
95th Queue (ft)	221	22	30	180	339	65
Link Distance (ft)	1242	1242	1168	1168	1375	1375
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 411: NC 11/55 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	370	95	468	96	94	403
Average Queue (ft)	201	31	221	25	37	164
95th Queue (ft)	319	73	396	70	81	329
Link Distance (ft)	890	890	1375	1375	1370	1370
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 412: NC 11/55 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	78	195	286	99	555	76
Average Queue (ft)	25	84	155	29	263	21
95th Queue (ft)	64	159	266	85	466	57
Link Distance (ft)	1122	1122	1370	1370	1031	1031
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		250	475			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 413: US 258 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	304	107	193	42	78	103
Average Queue (ft)	173	31	80	4	24	34
95th Queue (ft)	272	76	154	22	62	83
Link Distance (ft)	917	917	961	961	1212	1212
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 414: US 258 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	97	53	114	117	167	82
Average Queue (ft)	37	9	28	30	74	14
95th Queue (ft)	82	33	74	81	136	50
Link Distance (ft)	1028	1028	1212	1212	850	850
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		150	175	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 415: NC 58 & Elijah Loftin Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	40	36	20	23
Average Queue (ft)	16	15	2	3
95th Queue (ft)	36	35	13	16
Link Distance (ft)	1137	1082	1094	863
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 416: NC 58 & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	59	72	67	55	105	28
Average Queue (ft)	15	24	17	6	28	2
95th Queue (ft)	43	59	48	30	78	13
Link Distance (ft)	914	914	863	863	1133	1133
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 417: NC 58 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	34	69	66	58	93	31
Average Queue (ft)	4	21	13	6	30	2
95th Queue (ft)	22	56	43	31	76	14
Link Distance (ft)	879	879	1133	1133	961	961
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 418: Wyse Fork Rd & US 70 Bus

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	54	88
Average Queue (ft)	14	27
95th Queue (ft)	39	61
Link Distance (ft)	994	820
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	100	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 419: Burkett Rd & Wyse Fork Conn.

Movement	SB
Directions Served	LR
Maximum Queue (ft)	40
Average Queue (ft)	13
95th Queue (ft)	34
Link Distance (ft)	757
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 420: Service Rd/Kornegay St & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	LT	R	T	R	L	T
Maximum Queue (ft)	134	65	38	18	41	29
Average Queue (ft)	62	16	4	2	12	2
95th Queue (ft)	118	49	21	12	35	15
Link Distance (ft)	902	902	979	979	772	772
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 421: Burkett / Kornegay/Kornegay St & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	L	T	T	R
Maximum Queue (ft)	66	73	55	40	27	58
Average Queue (ft)	21	20	12	3	3	9
95th Queue (ft)	52	55	38	21	15	35
Link Distance (ft)	885	885	772	772	921	921
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 0

APPENDIX H

2040 Build Alternative 31

Peak Hour Traffic Volume Development and

FREEVAL-E, Synchro & SimTraffic Reports

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2040 Build Alternative 31
Peak Hour Traffic Volume
Development

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Alternative 31

Volume Development

A project-level traffic forecast, titled "Traffic Forecast Technical Memorandum, Kinston Bypass Alternatives Study", was prepared and finalized in November, 2016. This traffic forecast was used to provide peak hour volumes for the analysis of the selected alternatives in this memorandum. The traffic forecast is included in **Attachment A**.

The Intersection Analysis Utility (IAU), provided by NCDOT, was utilized to calculate AM and PM Peak Hour volumes for at-grade intersections (ramp terminals and any intersections within 1,000 feet of ramp terminals), interchange ramps, and freeway segments within interchanges. Peak hour volumes for freeway segments between interchanges were calculated by finding the forecasted daily two-way volumes along the link, then breaking the daily volume down by multiplying it by the Design Hour Volume Percentage (K), and the Peak Hour Directional Split (D).

The traffic forecast was completed prior to the inclusion of all turning movements at the interchange of US 70 Business and CF Harvey Parkway. To correct for this, traffic volumes have been rerouted to project volumes onto these ramps based on engineering assumptions. It was assumed that, prior to the inclusion of the two ramps, traffic on US 70 Business EB wishing to access CF Harvey Parkway SB would travel through the interchange to the east, make a U-turn back to US 70 Business WB, and use the loop ramp to CF Harvey Parkway SB. Similarly, traffic on CF Harvey Parkway Extension NB wishing to access US 70 Business WB would first take the ramp to US 70 Business EB, perform a U-turn, and then travel through the interchange on US 70 Business WB. It was assumed that a total of 500 vehicles per day would make these turning maneuvers. Therefore, 500 vehicles were transferred from the southeast turning quadrant and moved to the southwest turning quadrant in the IAU for this interchange. The volume on the east leg of the IAU was also adjusted accordingly to provide volume balanced within the interchange.

It should be noted that two partial three-leg interchanges exist for Alternative 31: US 70 at US 70 Business West of Kinston, and US 70 at NC 148 (CF Harvey Parkway) Extension. For these interchanges, the IAU was not utilized because the two turning movement volumes are assumed to simply be the upstream or downstream broken-out link volumes. All of these volumes are shown in **BLACK** in **Figures 7A-7G**.

US 70 and CF Harvey Parkway Extension Freeway Analysis

FREEVAL-E does not use a Peak Hour Factor (PHF) to adjust the peak hour volumes to reflect the peak 15-minute period. Additionally, FREEVAL-E requires balanced peak hour mainline volumes, since only the beginning freeway segment and subsequent ramps have volume inputs. To provide peak 15-minute hourly flow rates for the analysis in FREEVAL-E, each of the peak hour volumes calculated for the freeway segments and ramps was divided by 0.90, which is the recommended PHF in the NCDOT Congestion Management Capacity Analysis Guidelines. To balance the peak hour volumes to use with FREEVAL-E, the highest peak 15-minute hourly flow rate was located along the US 70 corridor within the study area. Once this was located, the mainline US 70 volumes were adjusted in each direction to the eastern and western ends of the network by adding and subtracting the relevant ramp volumes.

For Alternative 31, the location used as the "hold point" for balancing purposes on US 70 was the segment between Jim Sutton Road / Willie Measley Road and US 70 Business (west of Kinston). For CF Harvey Parkway Extension, the volumes were balanced using the adjoining segment to US 70 as the hold point, and balancing northward. These volume adjustments are shown in **BLUE** in **Figures 7A-7G**. The ensuing pages of this appendix detail the following step-by-step process used to calculate the volumes used, as well as the various volume redistributions required by the forecast imbalances and mismatches with the roadway designs:

Step 1 – Freeway segment volumes between interchanges were calculated by multiplying the two-way daily volumes by the K and D factors.

Step 2 – Volumes for interchange ramps, and freeway segments inside interchanges were collected from the IAU breakout sheets.

Step 3 – The volumes collected in Step 2 were divided by the NCDOT default PHF of 0.90 to account for the fact that FREEVAL-E does not factor in the PHF, and the highest calculated freeway volume location was used as the base point with which to balance the US 70 freeway corridor.

Step 4 – The volumes of the subsequent freeway segments were adjusted to allow for a balanced peak hour network in both directions, as well as along CF Harvey Parkway Extension.

The current functional designs for Alternative 31 shows ramps that accommodate only six of the eight turning movements at the interchange of US 70 Business and CF Harvey Parkway. During the analysis of these alternatives, it was decided that the interchange should include ramps to accommodate all turning movements. Therefore, a loop ramp from CF Harvey Parkway Extension NB to US 70 Business WB would be included as well as a ramp from US 70 Business EB to CF Harvey Parkway SB.

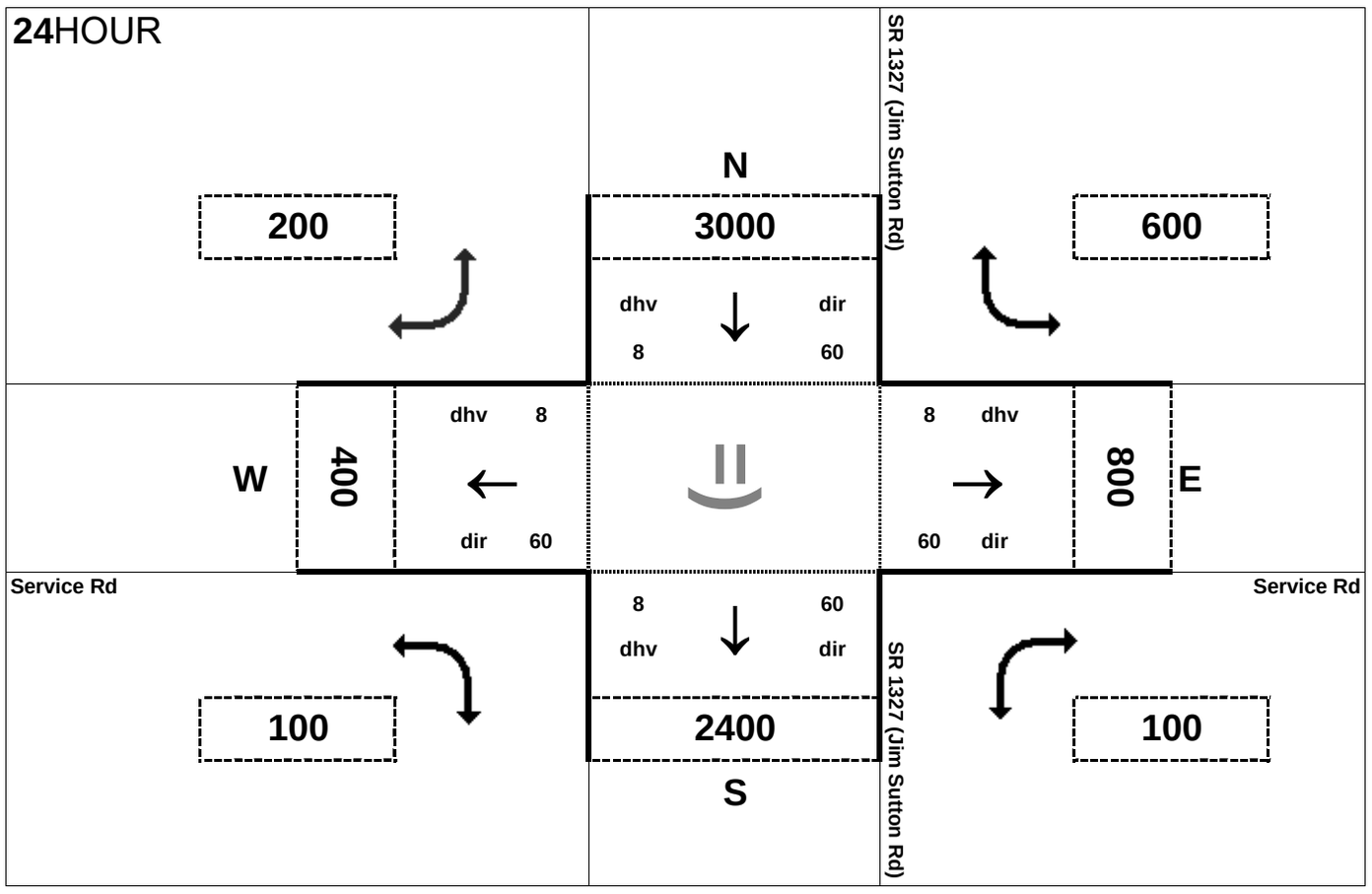
Peak Hour Volume Breakouts Report:
401 Intersection of SR 1327 (Jim Sutton Rd) at Service Rd

Traffic Forecast Release Date:
November-16

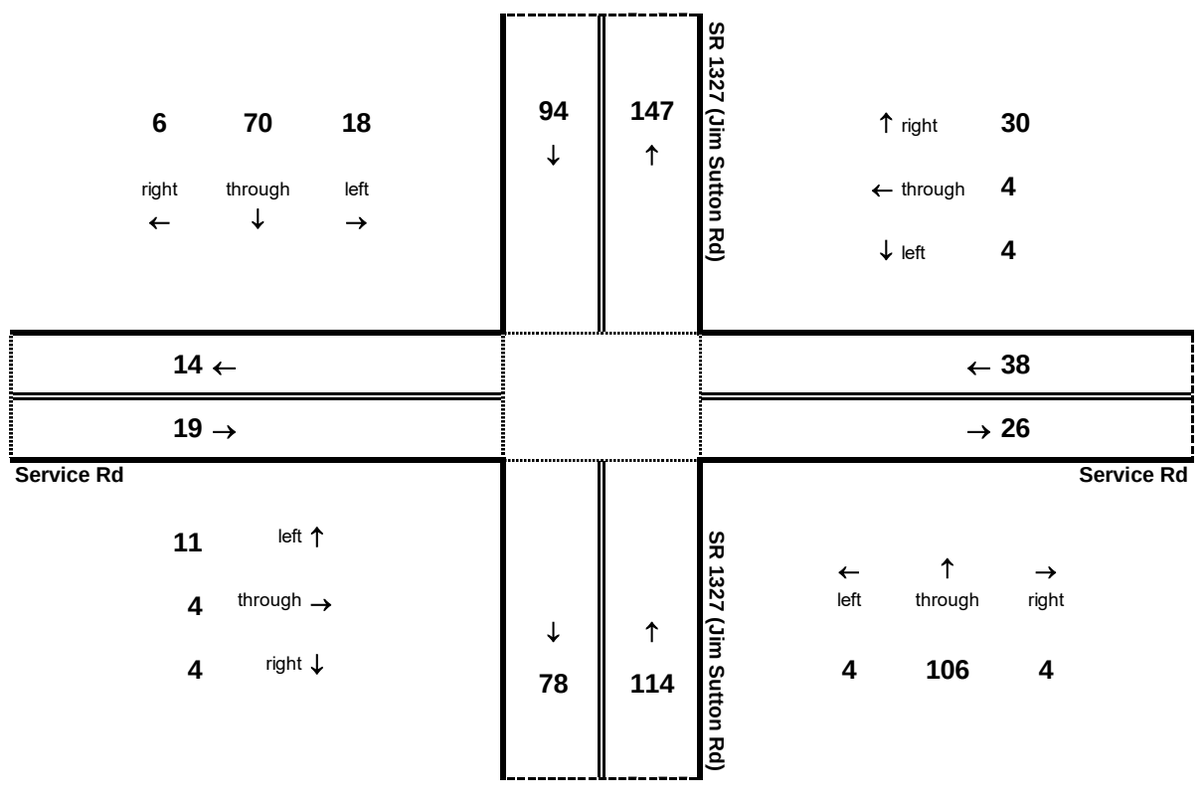
Traffic Data Year:
2040 Build Alt 31

Project:
R-2553

24HOUR

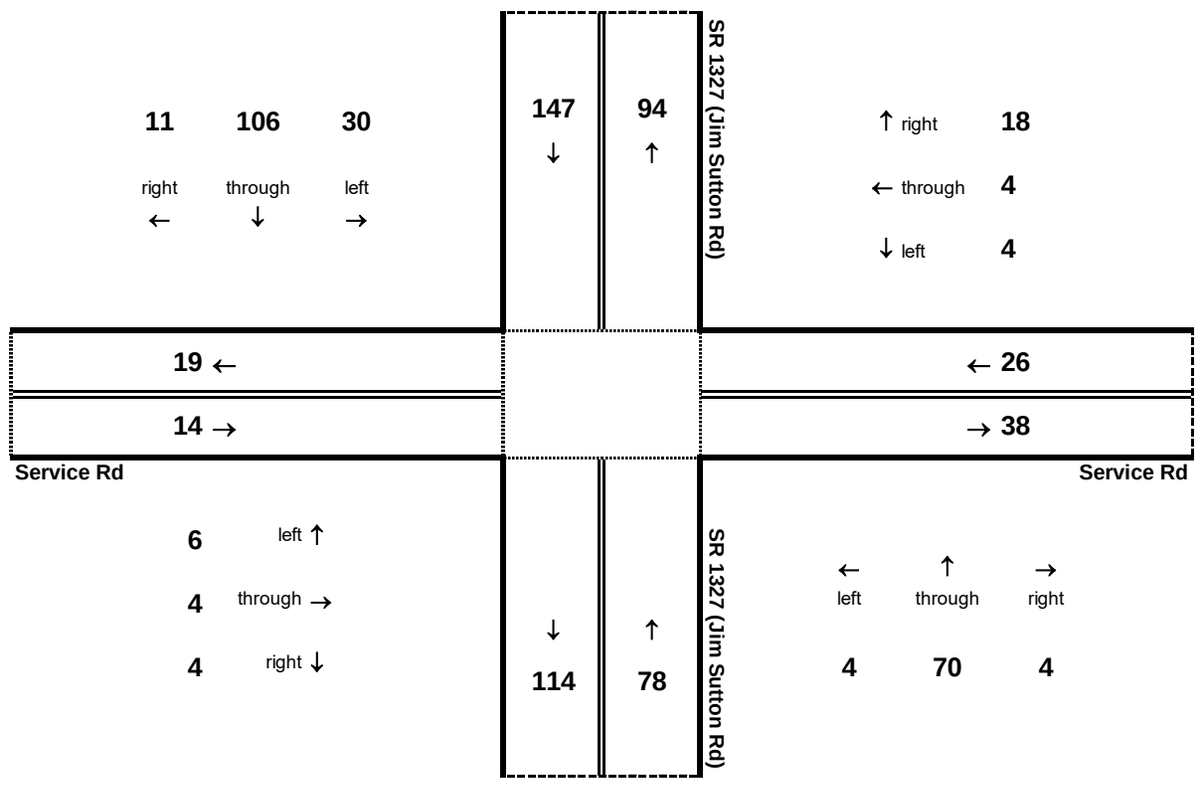


AMPEAK



AM peak hour inflow is 264 vehicles. AM peak hour outflow is 264 vehicles.

PMPEAK



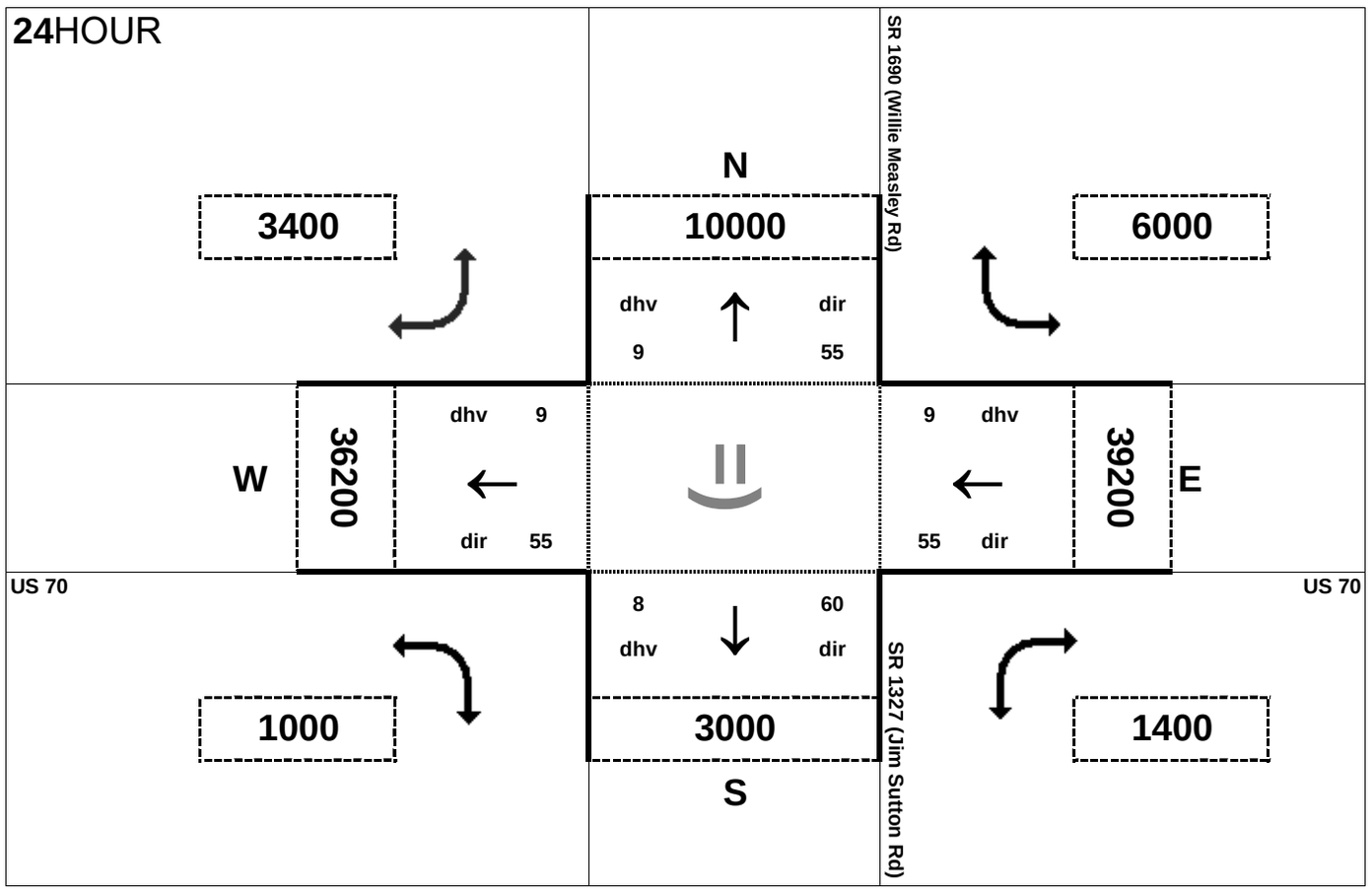
PM peak hour inflow is 264 vehicles. PM peak hour outflow is 264 vehicles.

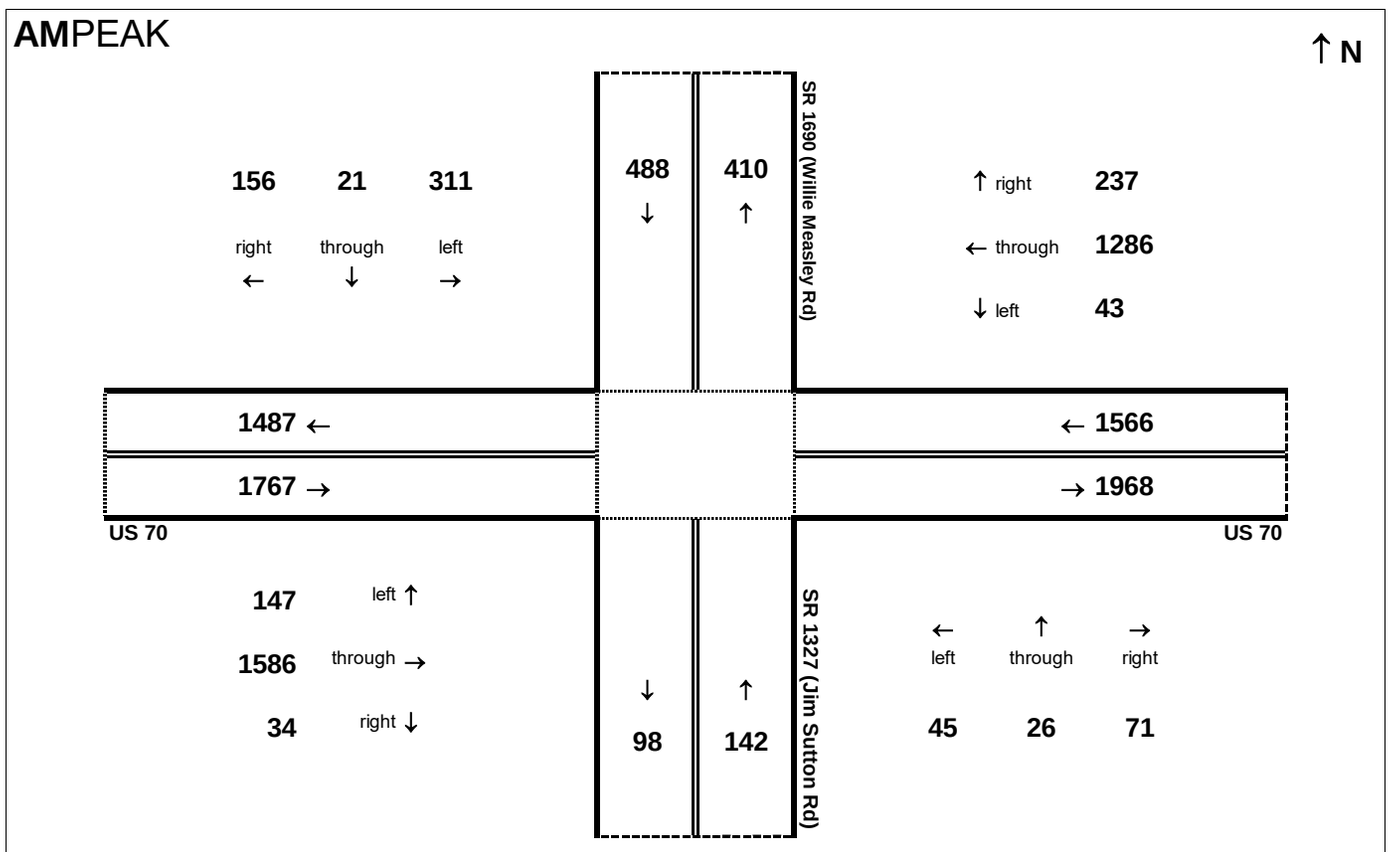
Peak Hour Volume Breakouts Report:
402-3 Intersection of US 70 and Willie Measley Rd / Jim Sutton Rd

Traffic Forecast Release Date:
November-16

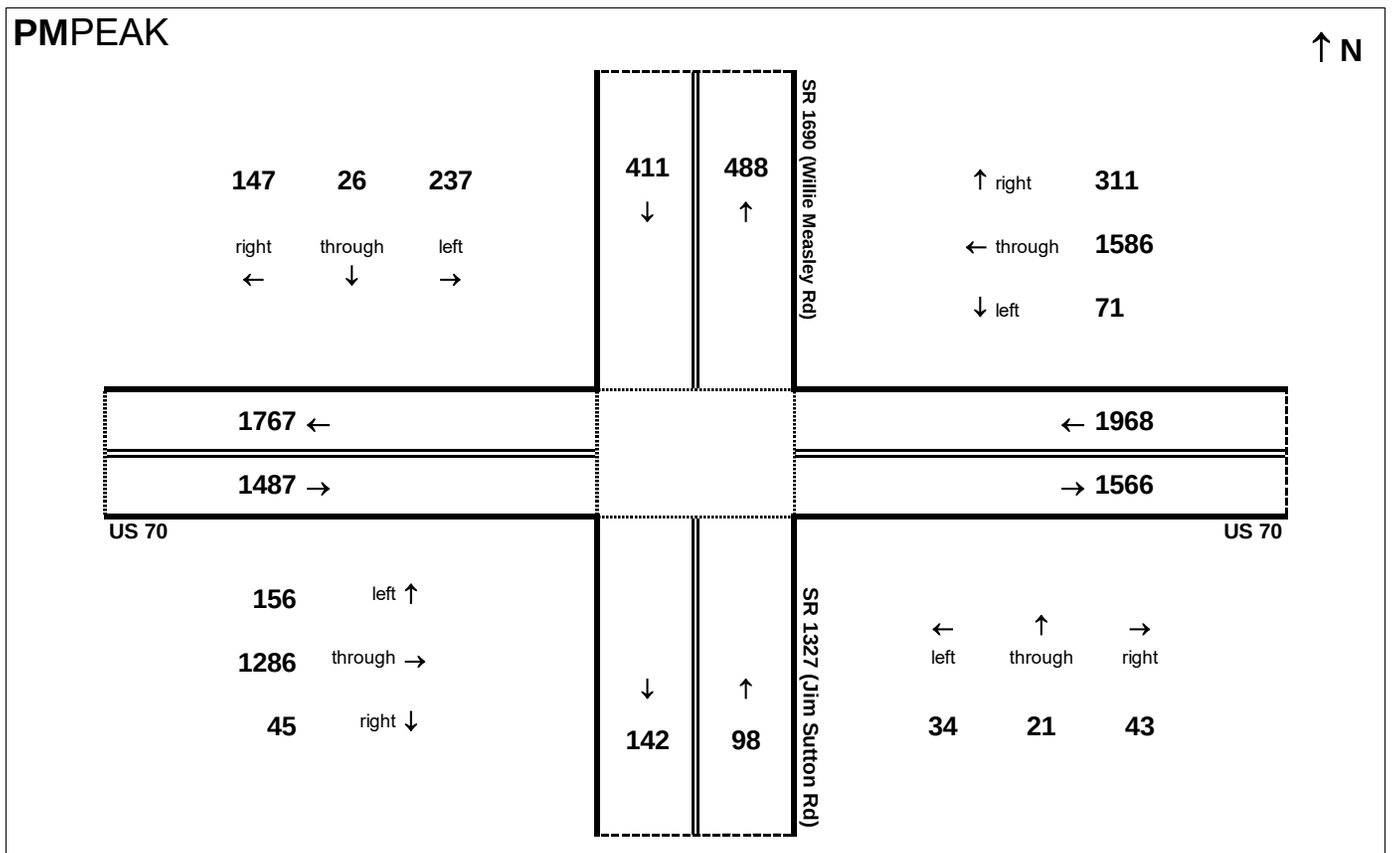
Traffic Data Year:
2040 Build Alt 31

Project:
R-2553





AM peak hour inflow is 3963 vehicles. AM peak hour outflow is 3963 vehicles.



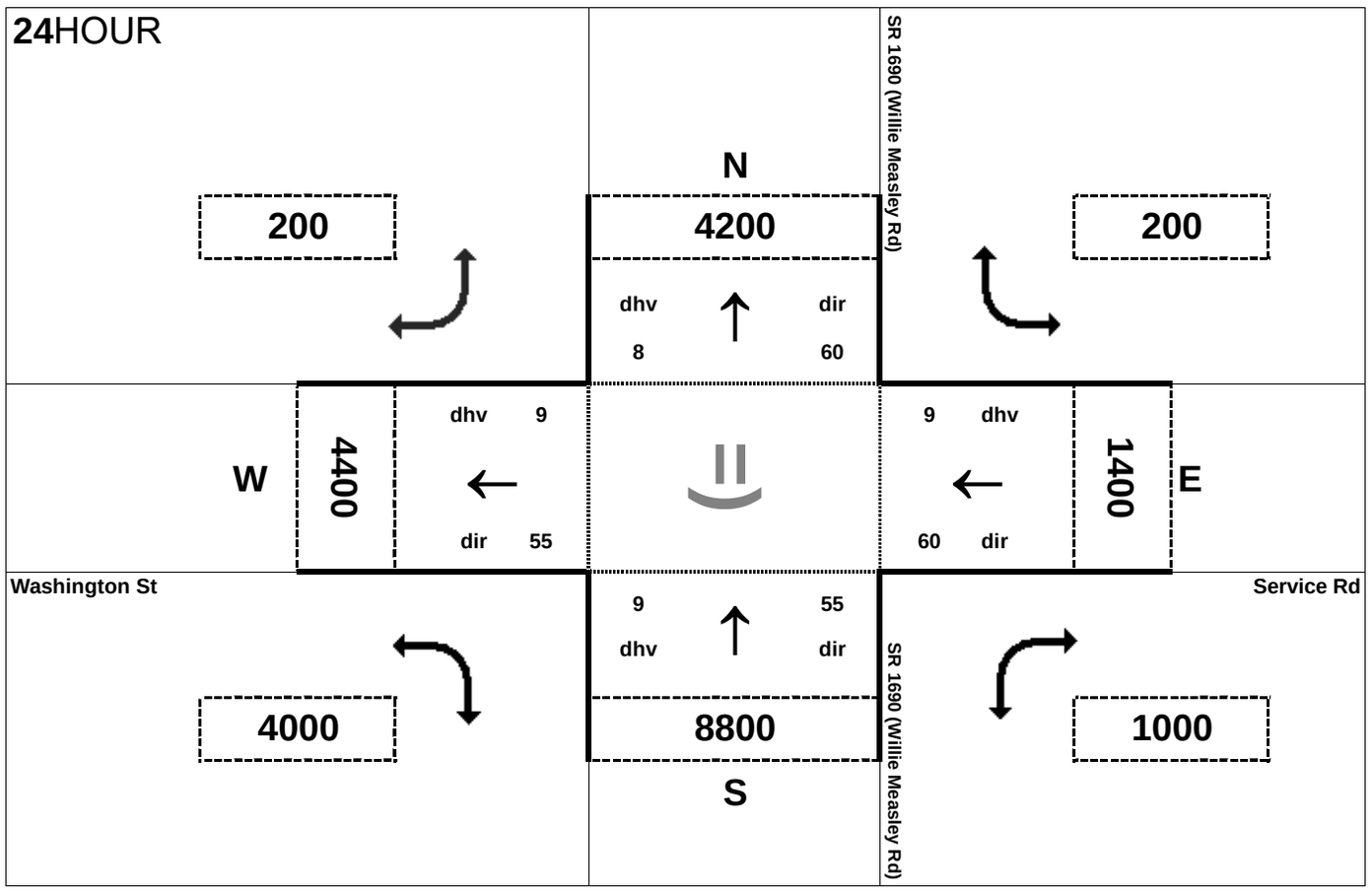
PM peak hour inflow is 3963 vehicles. PM peak hour outflow is 3963 vehicles.

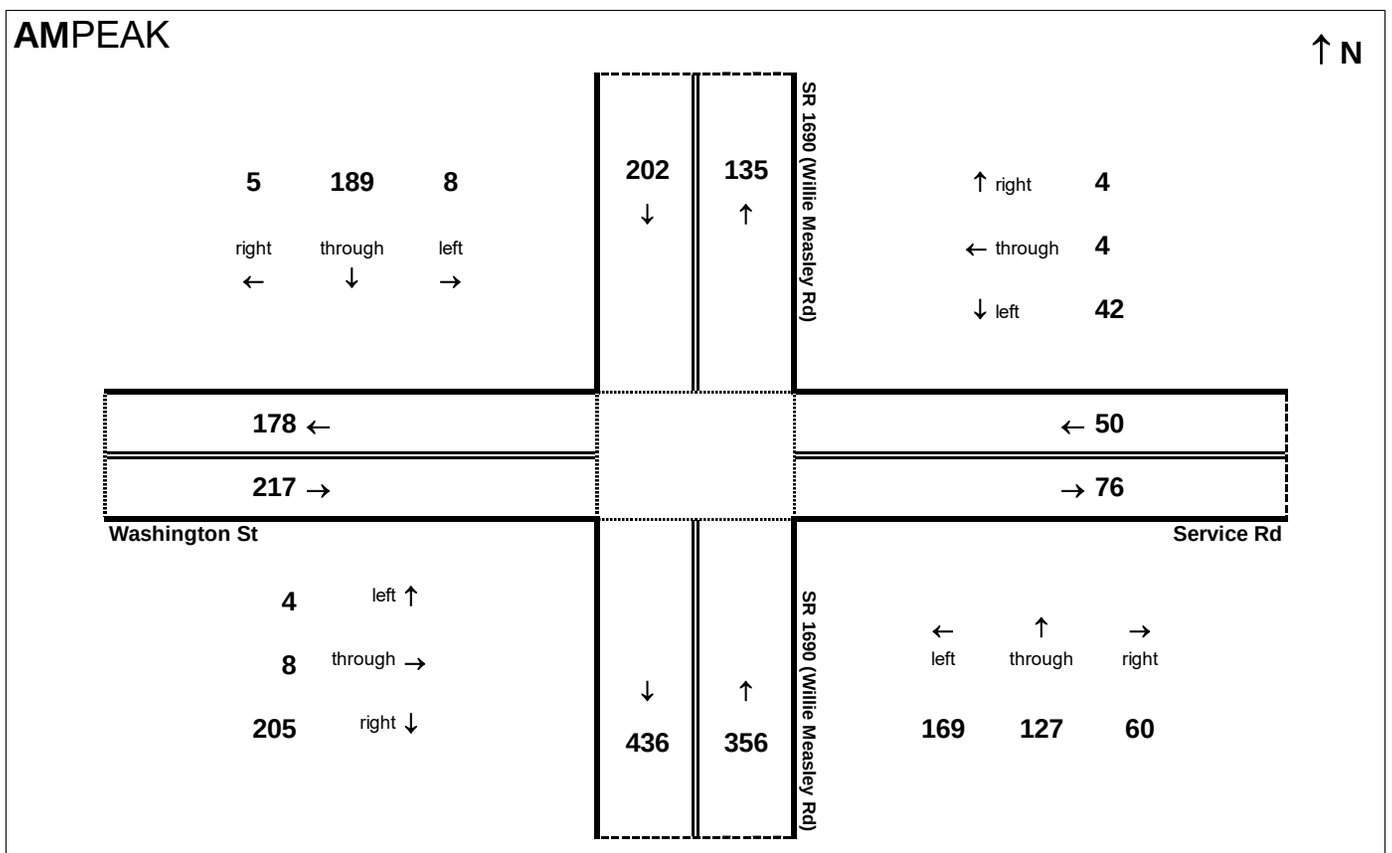
Peak Hour Volume Breakouts Report:
404 Intersection of SR 1690 (Willie Measley Rd) at SR 1603 (Washington St)

Traffic Forecast Release Date:
November-16

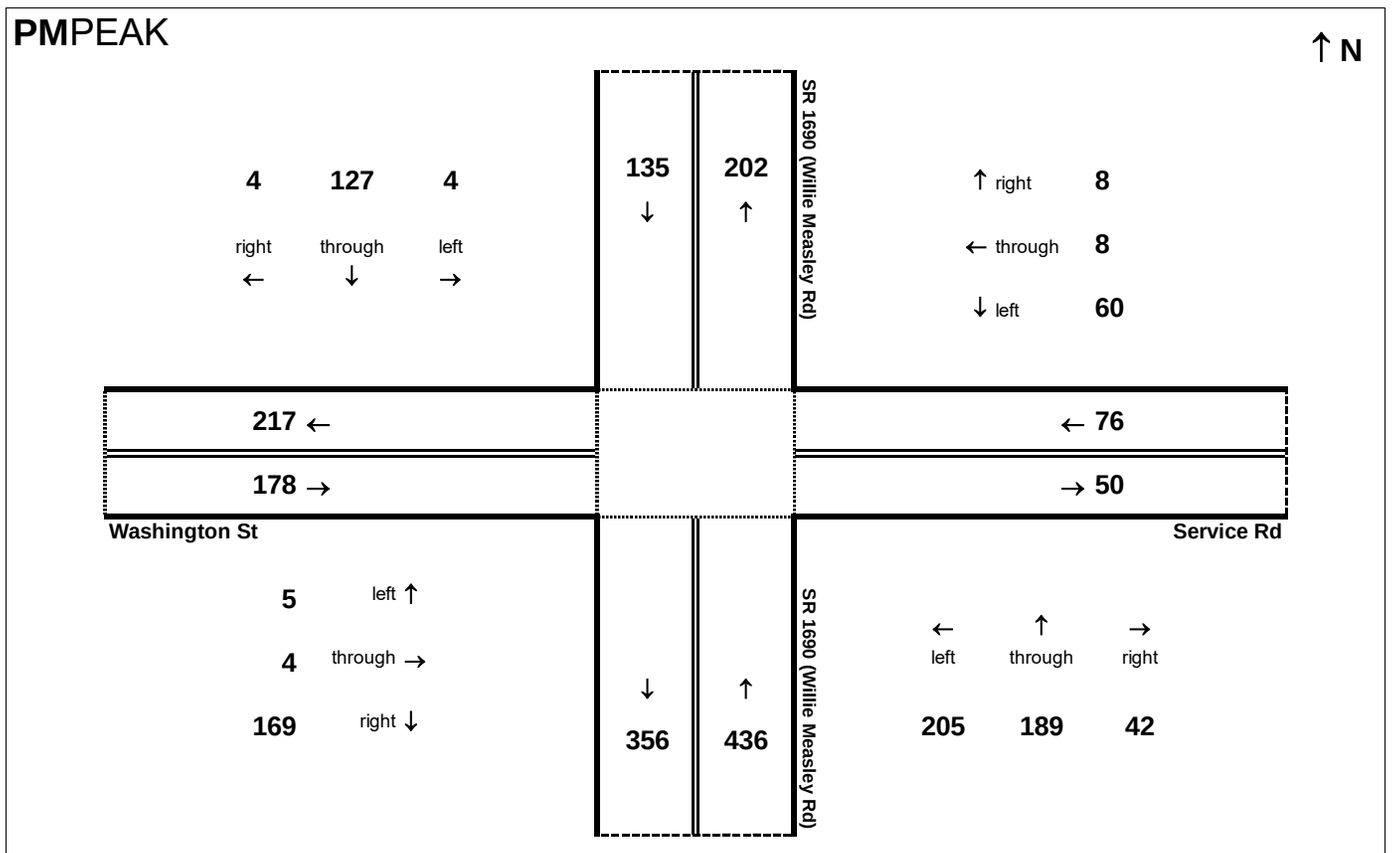
Traffic Data Year:
2040 Build Alt 31

Project:
R-2553





AM peak hour inflow is 825 vehicles. AM peak hour outflow is 825 vehicles.



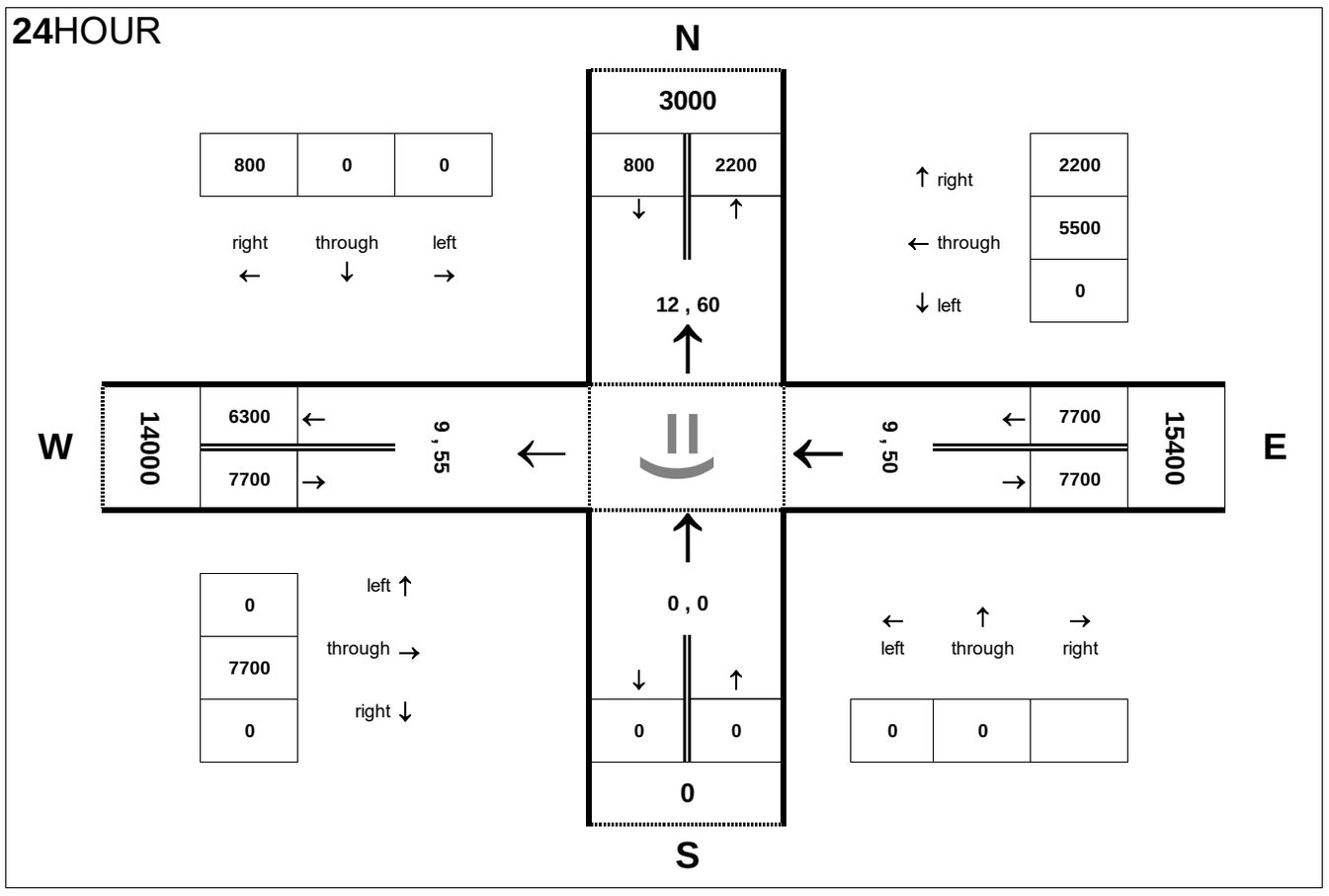
PM peak hour inflow is 825 vehicles. PM peak hour outflow is 824 vehicles.

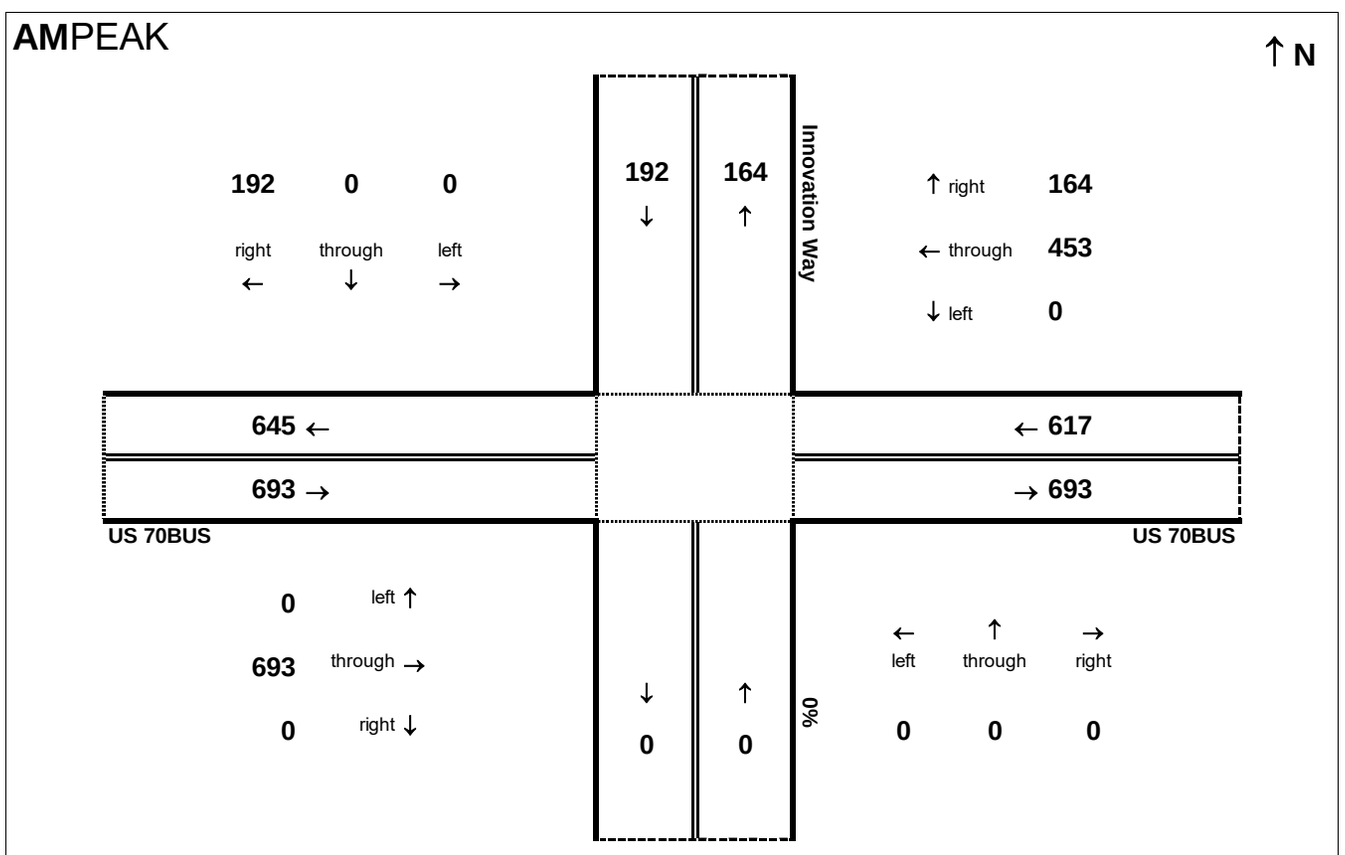
Peak Hour Volume Breakouts Report:
405 Intersection of US 70BUS and Innovation Way

Traffic Forecast Release Date:
November-16

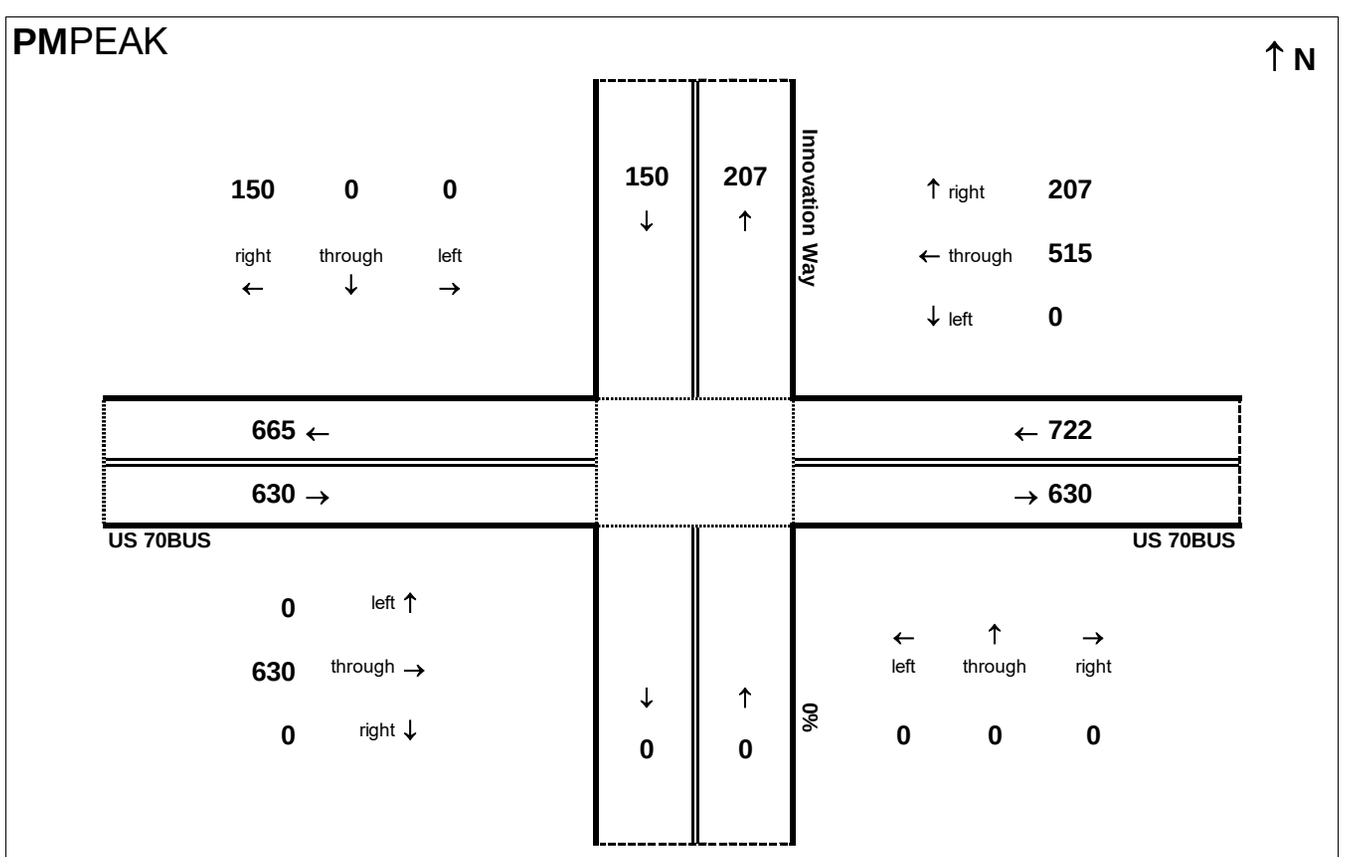
Traffic Data Year:
2040 Build Alt 31

Project:
R-2553





AM peak hour inflow is 1503 vehicles. AM peak hour outflow is 1503 vehicles.



PM peak hour inflow is 1503 vehicles. PM peak hour outflow is 1503 vehicles.

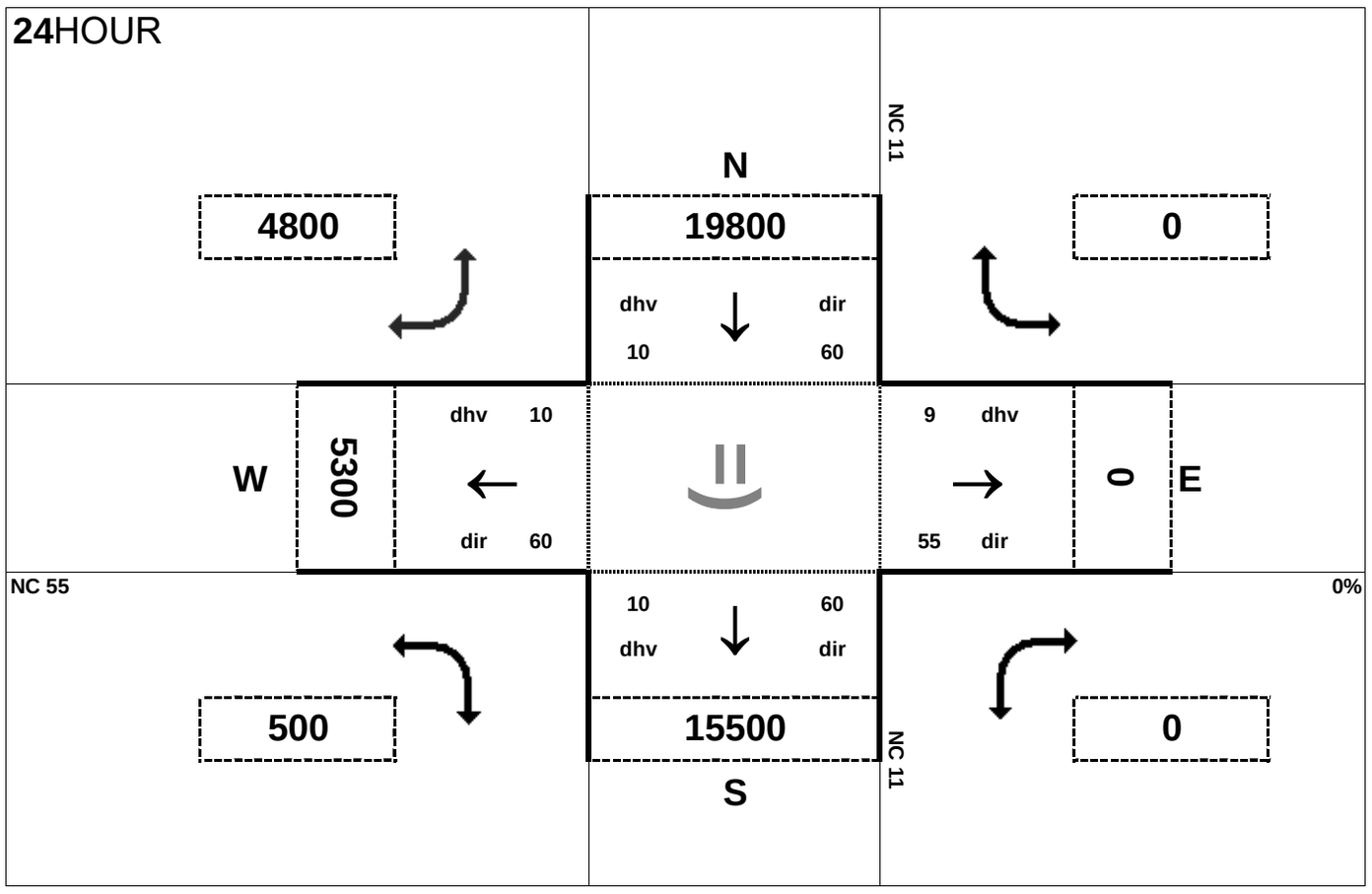
Peak Hour Volume Breakouts Report:
406 Intersection of NC 11 and NC 55

Traffic Forecast Release Date:
November-16

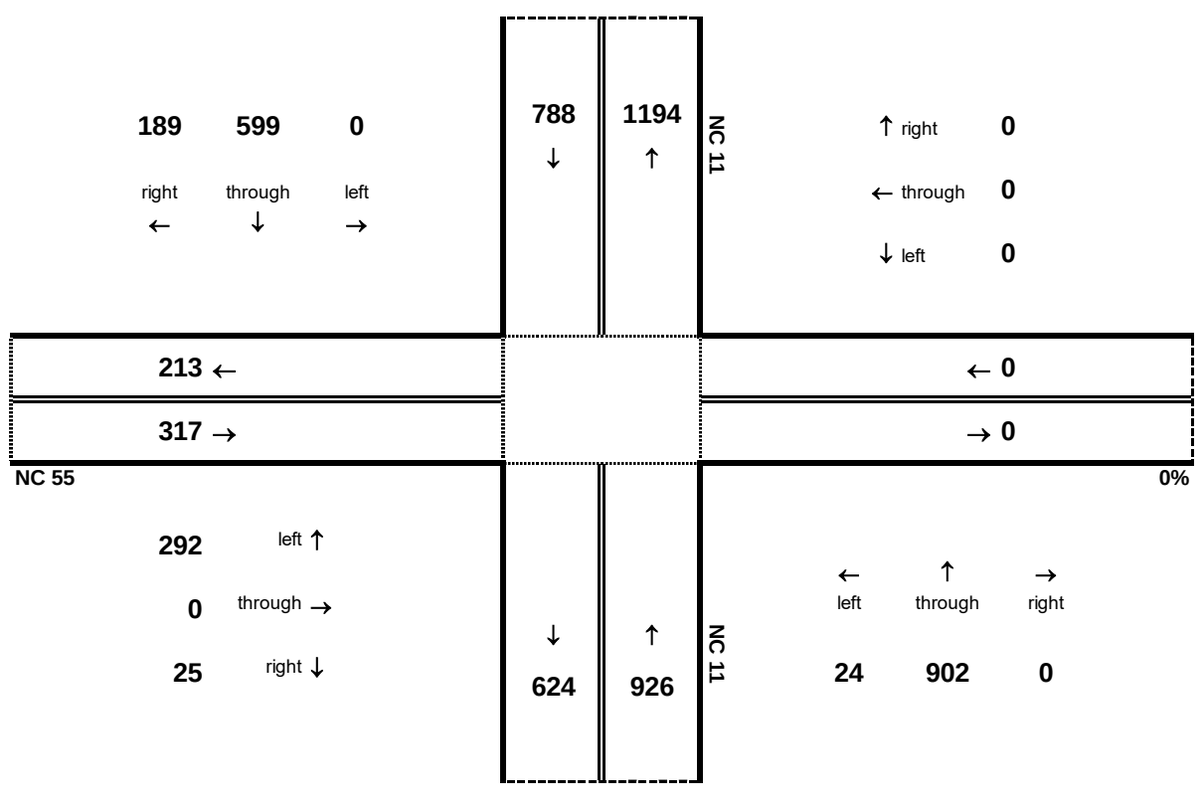
Traffic Data Year:
2040 Build Alt 31

Project:
R-2553

24HOUR

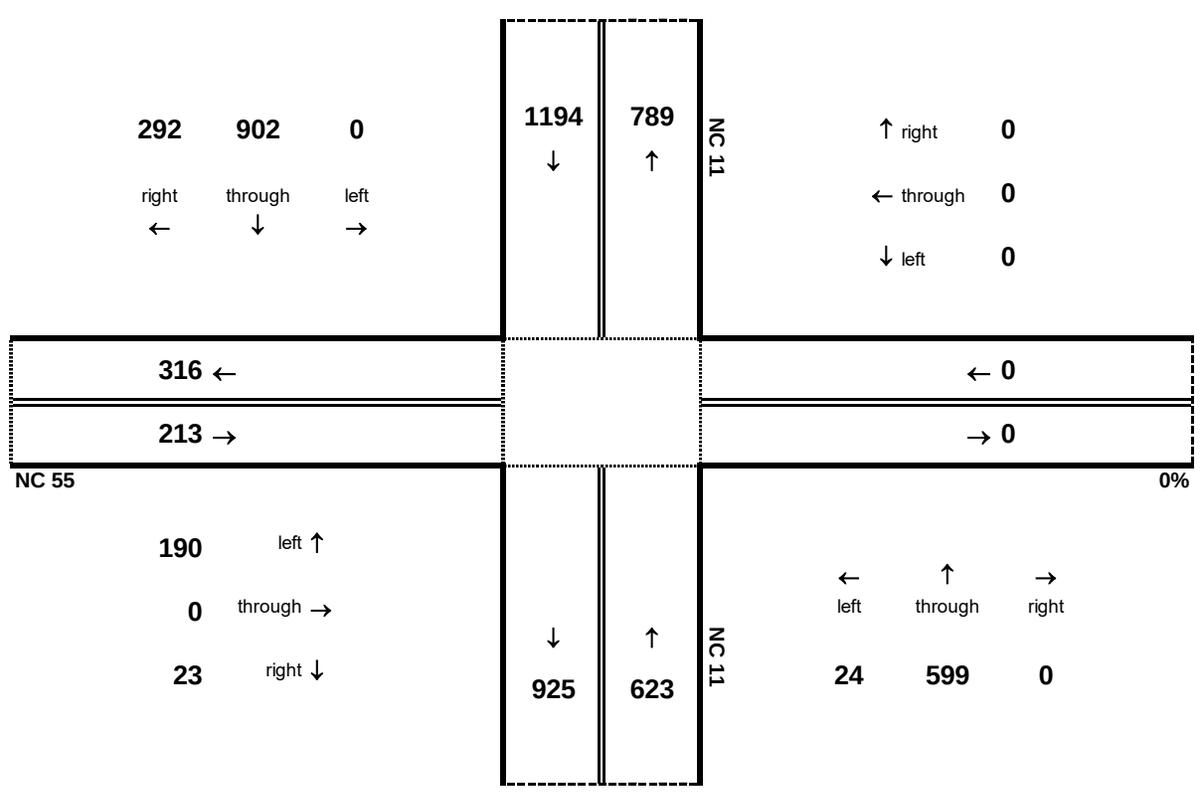


AMPEAK



AM peak hour inflow is 2031 vehicles. AM peak hour outflow is 2030 vehicles.

PMPEAK



PM peak hour inflow is 2030 vehicles. PM peak hour outflow is 2029 vehicles.

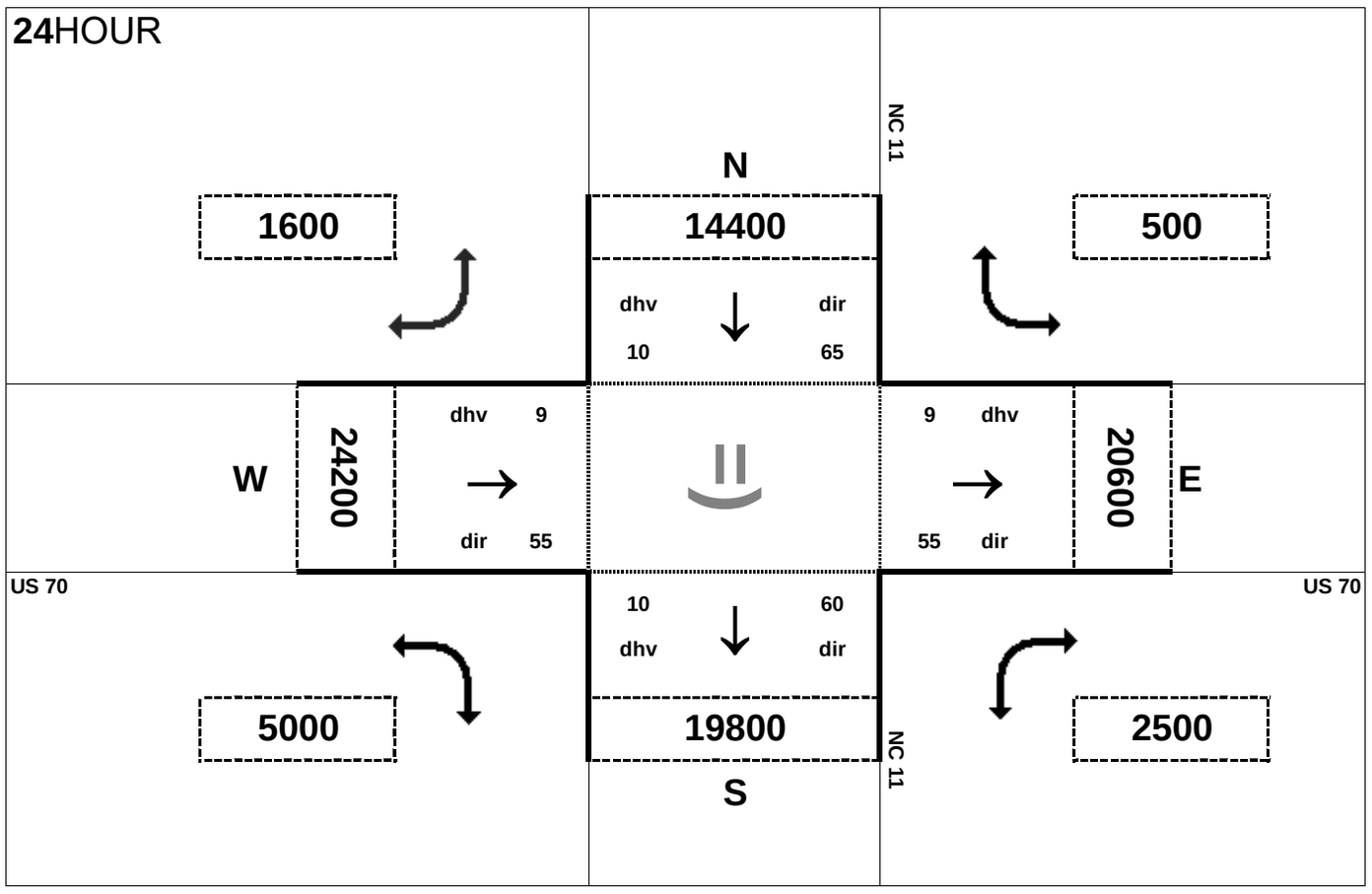
Peak Hour Volume Breakouts Report:
407-8 Intersection of US 70 and NC 11

Traffic Forecast Release Date:
November-16

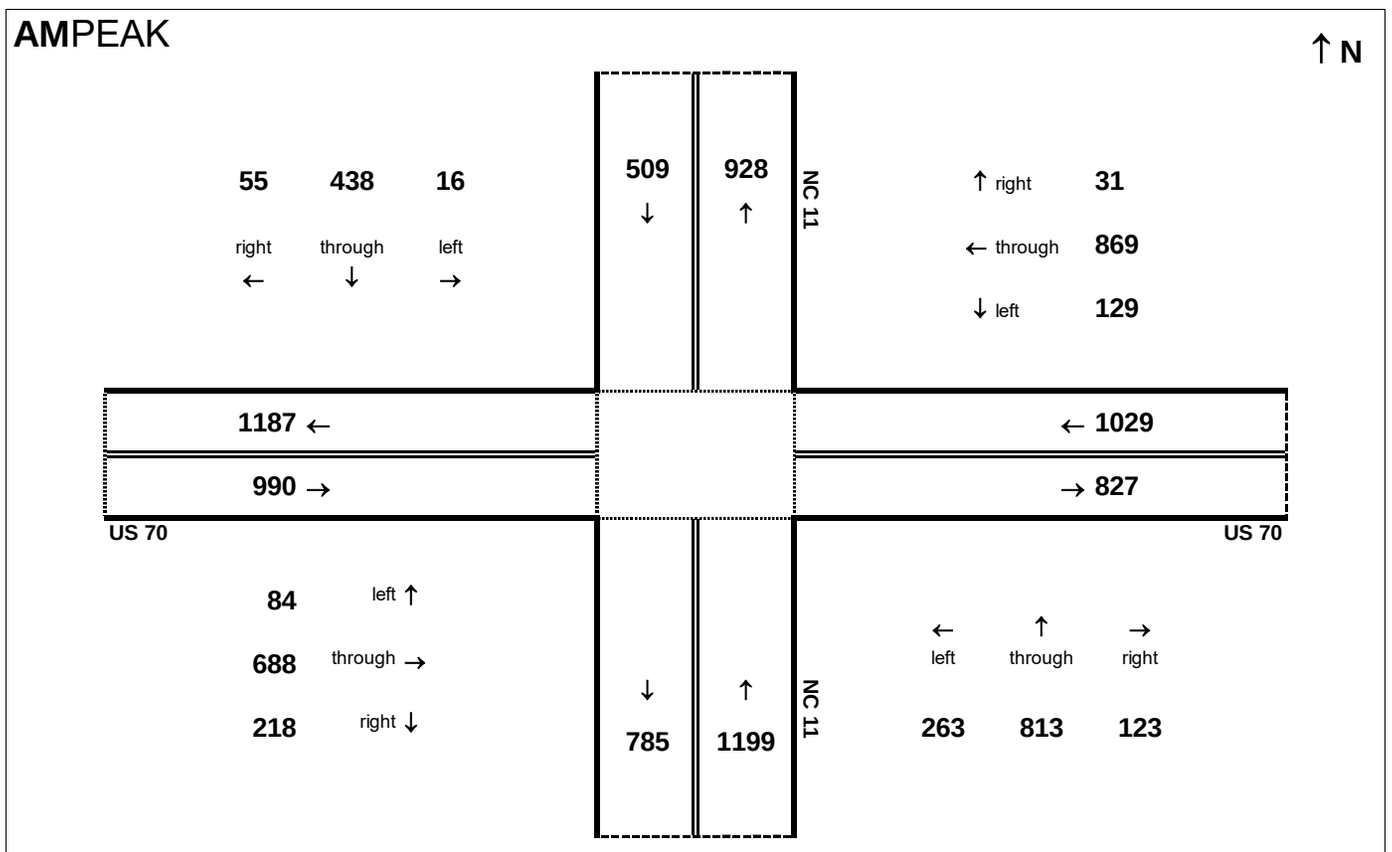
Traffic Data Year:
2040 Build Alt 31

Project:
R-2553

24HOUR

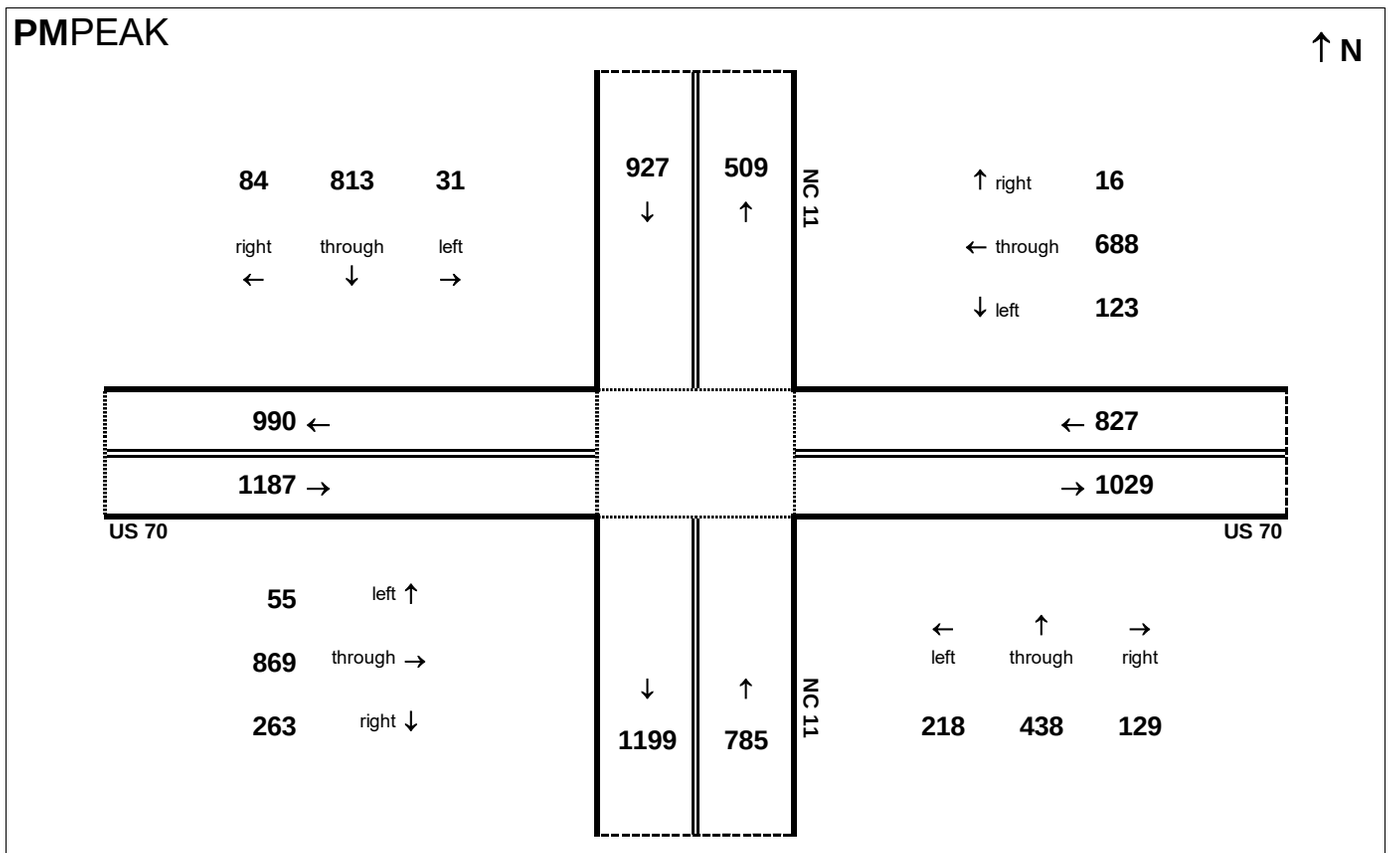


AMPEAK



AM peak hour inflow is 3726 vehicles. AM peak hour outflow is 3726 vehicles.

PMPEAK



PM peak hour inflow is 3726 vehicles. PM peak hour outflow is 3726 vehicles.

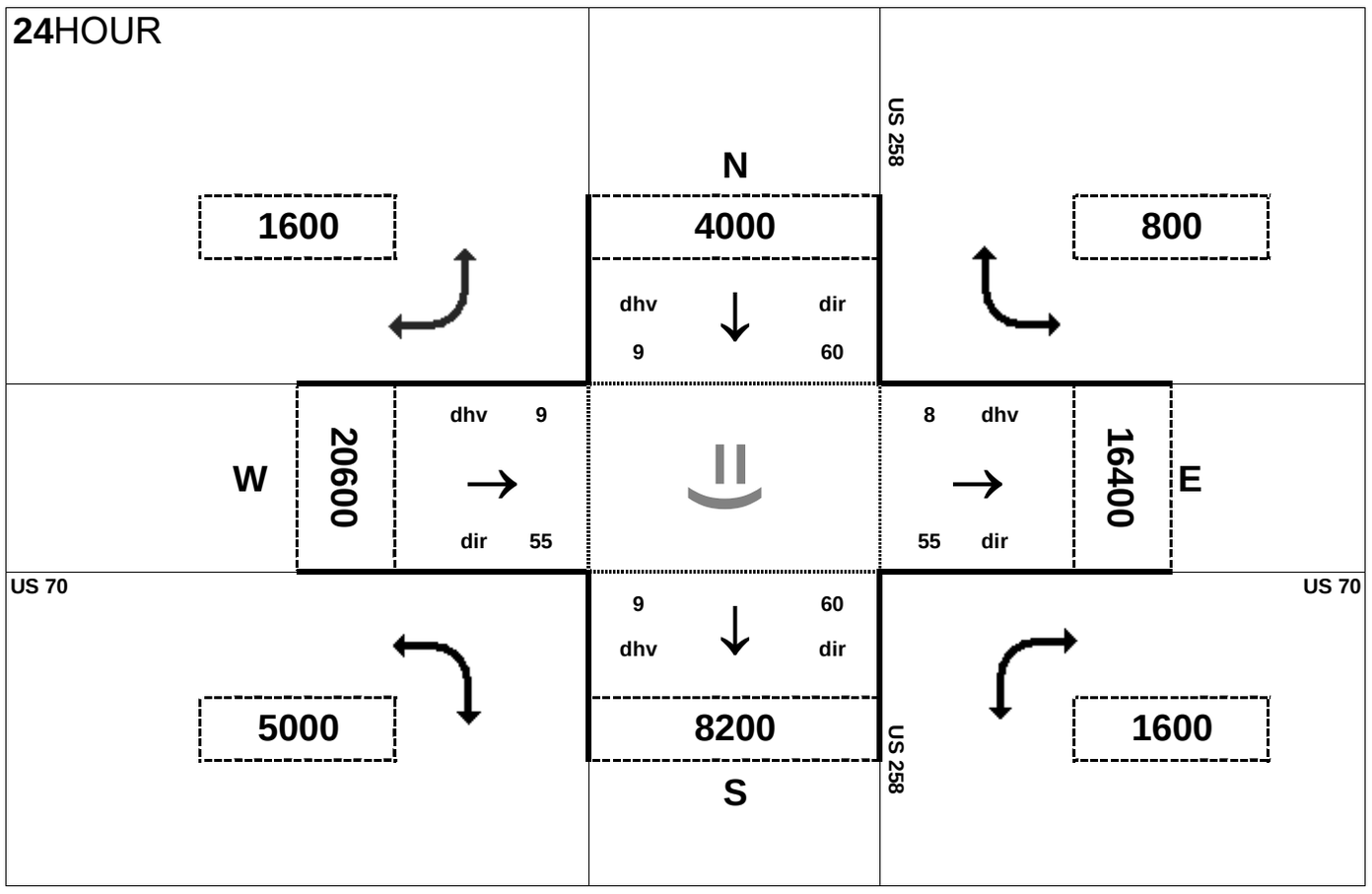
Peak Hour Volume Breakouts Report:
409-10 Intersection of US 70 and US 258

Traffic Forecast Release Date:
November-16

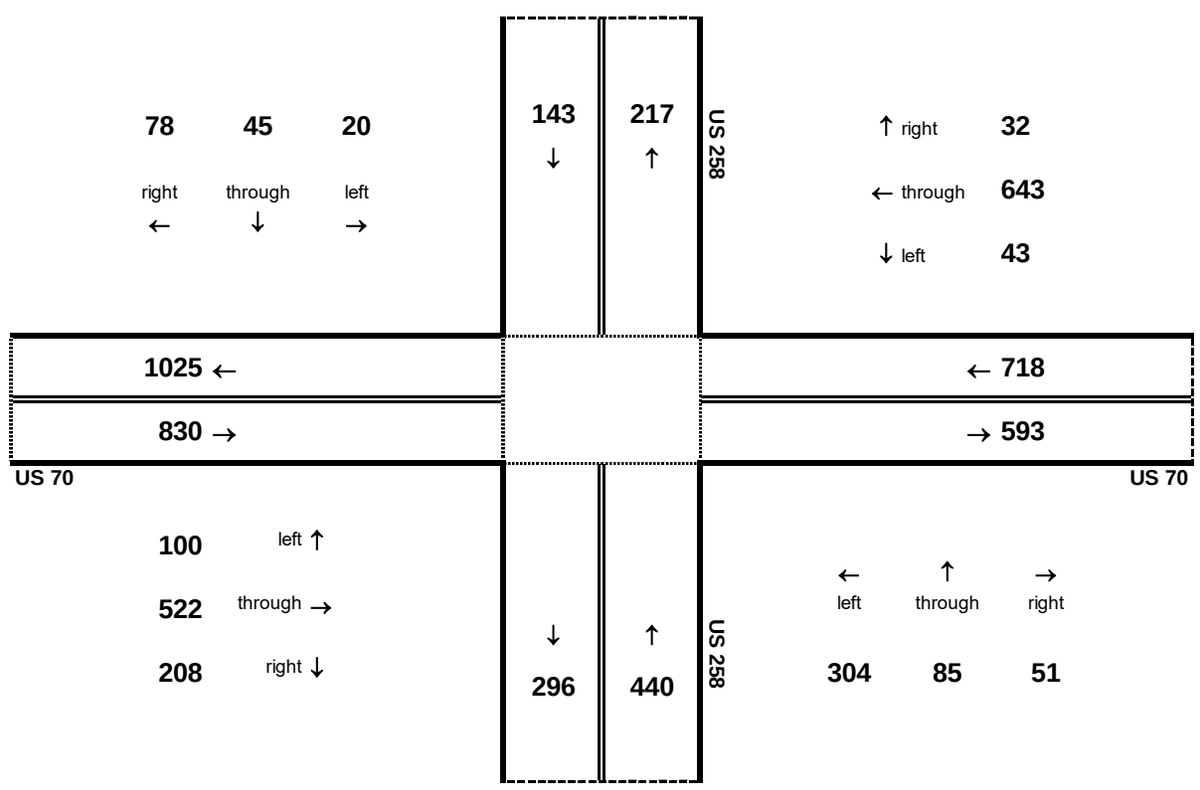
Traffic Data Year:
2040 Build Alt 31

Project:
R-2553

24HOUR

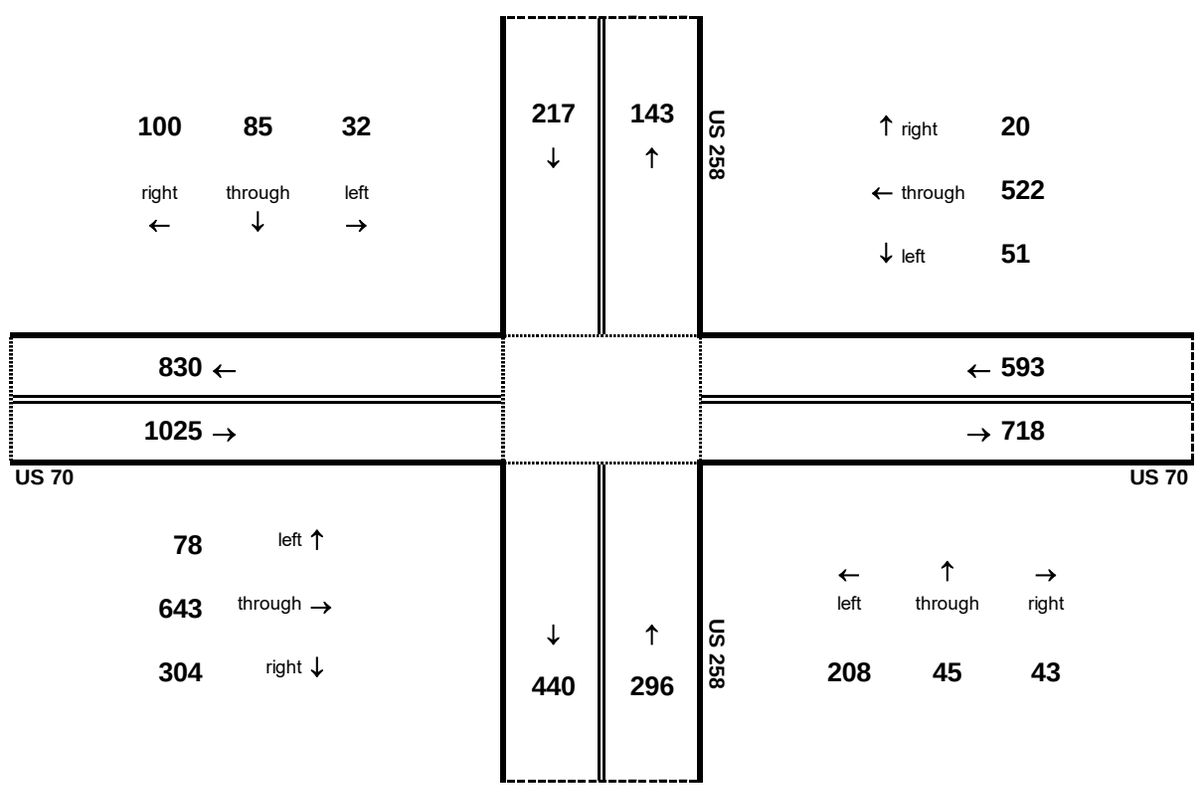


AMPEAK



AM peak hour inflow is 2132 vehicles. AM peak hour outflow is 2132 vehicles.

PMPEAK



PM peak hour inflow is 2132 vehicles. PM peak hour outflow is 2132 vehicles.

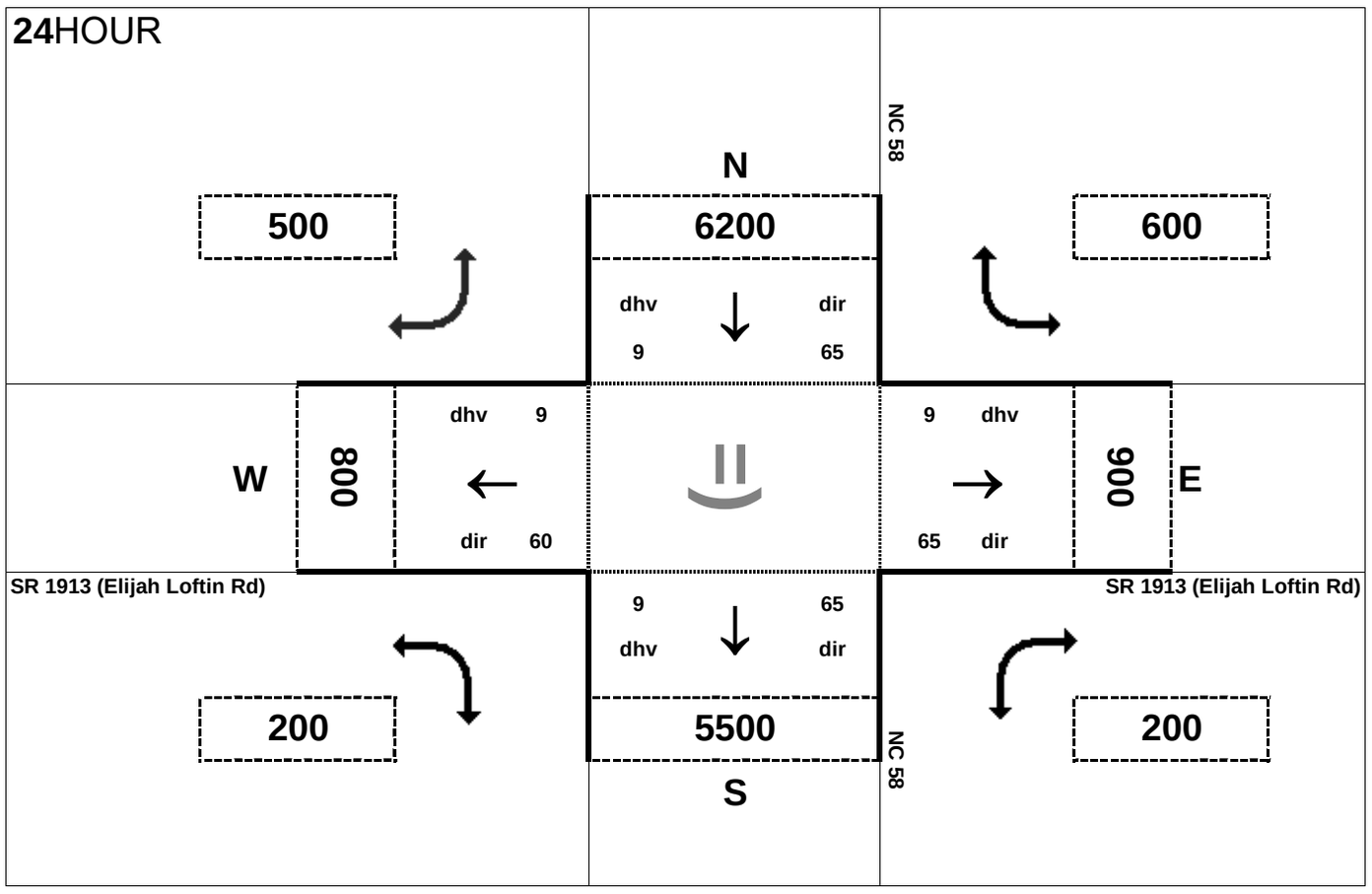
Peak Hour Volume Breakouts Report:
411 Intersection of NC 58 and SR 1913 (Elijah Loftin Rd)

Traffic Forecast Release Date:
November-16

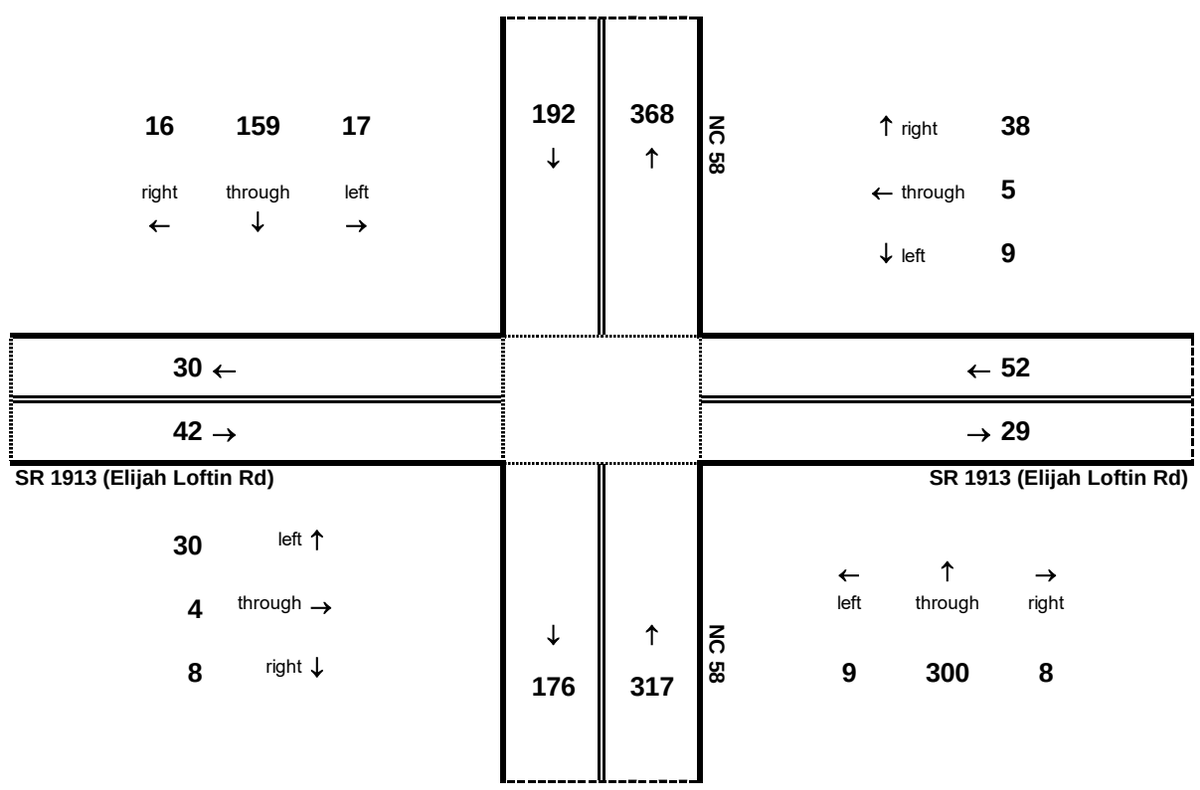
Traffic Data Year:
2040 Build Alt 31

Project:
R-2553

24HOUR

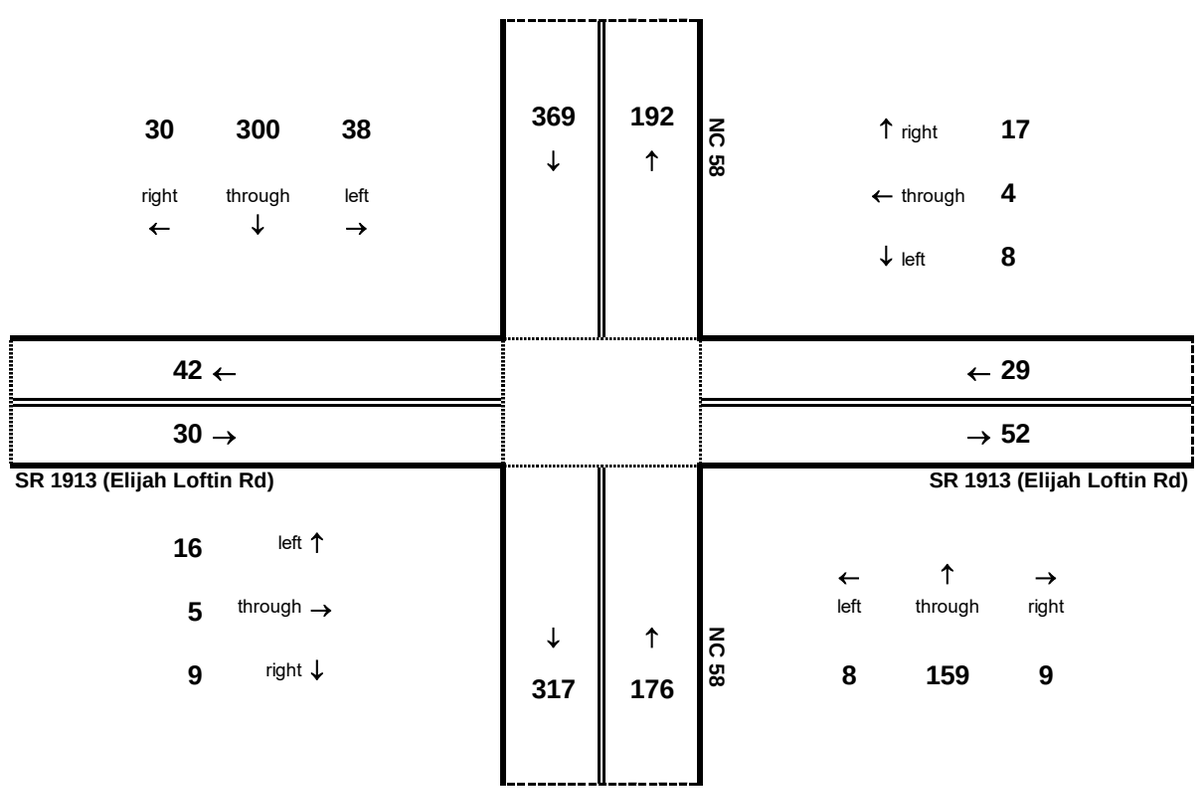


AMPEAK



AM peak hour inflow is 604 vehicles. AM peak hour outflow is 603 vehicles.

PMPEAK



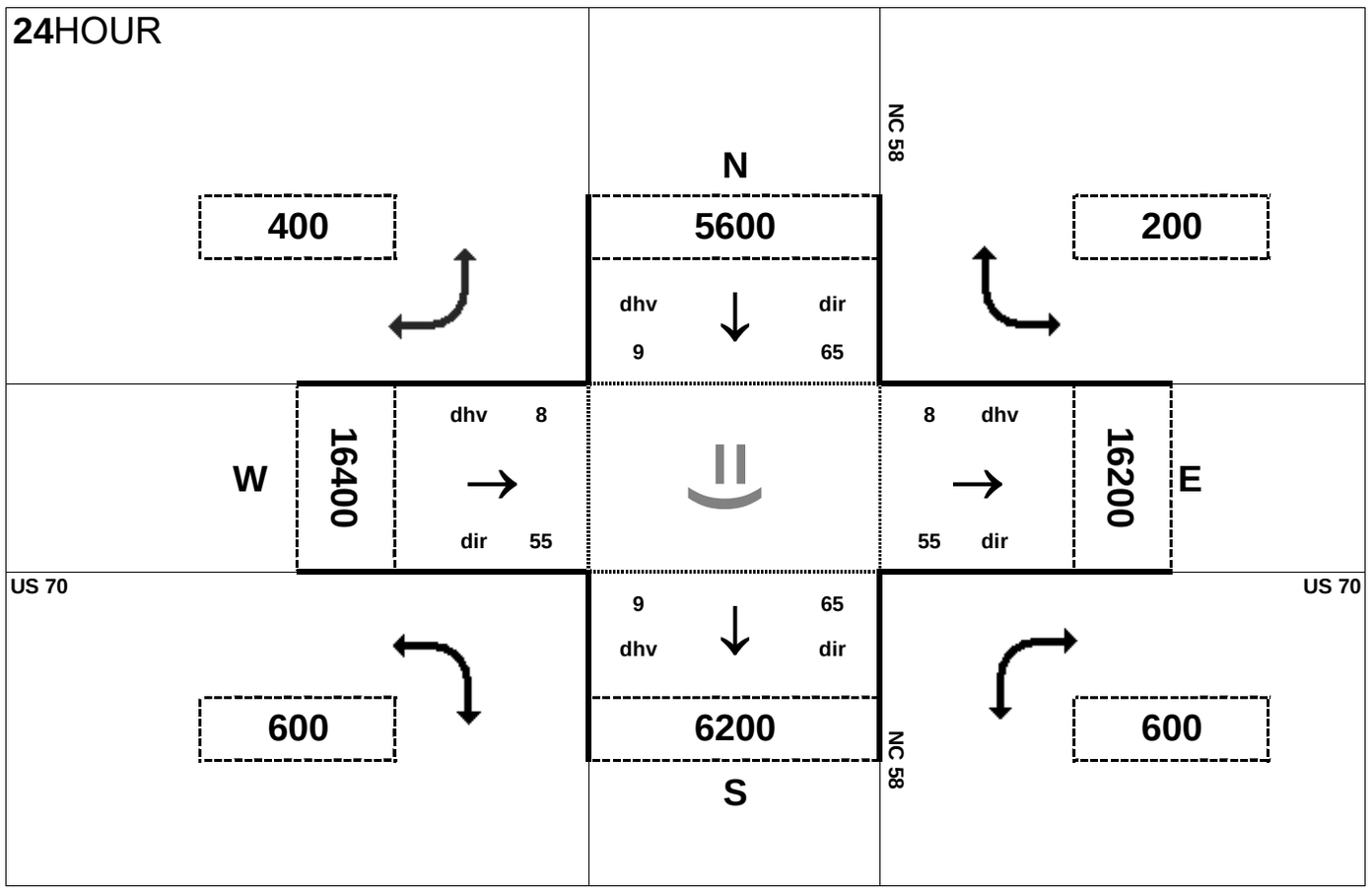
PM peak hour inflow is 603 vehicles. PM peak hour outflow is 604 vehicles.

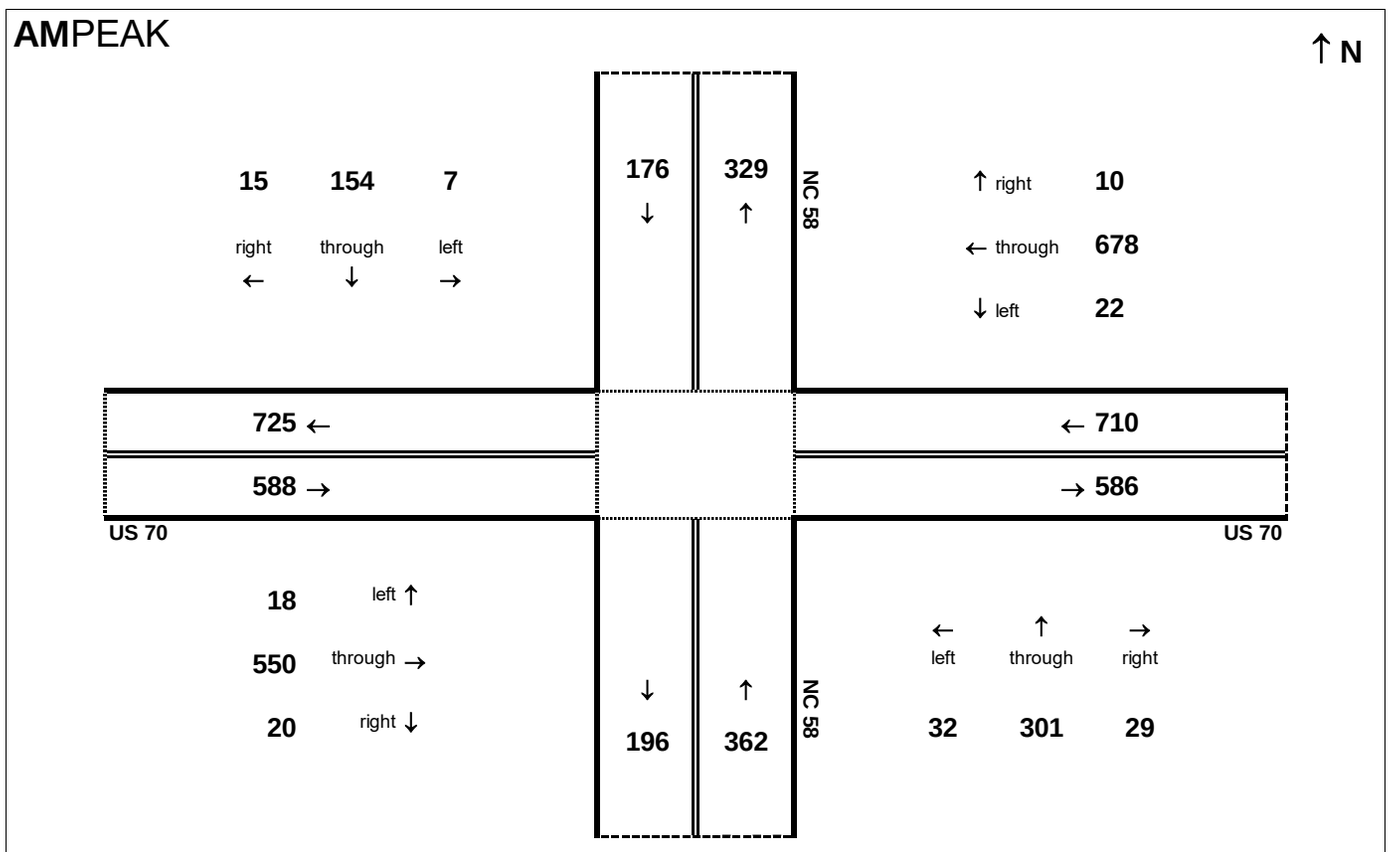
Peak Hour Volume Breakouts Report:
412-13 Intersection of US 70 and NC 58

Traffic Forecast Release Date:
November-16

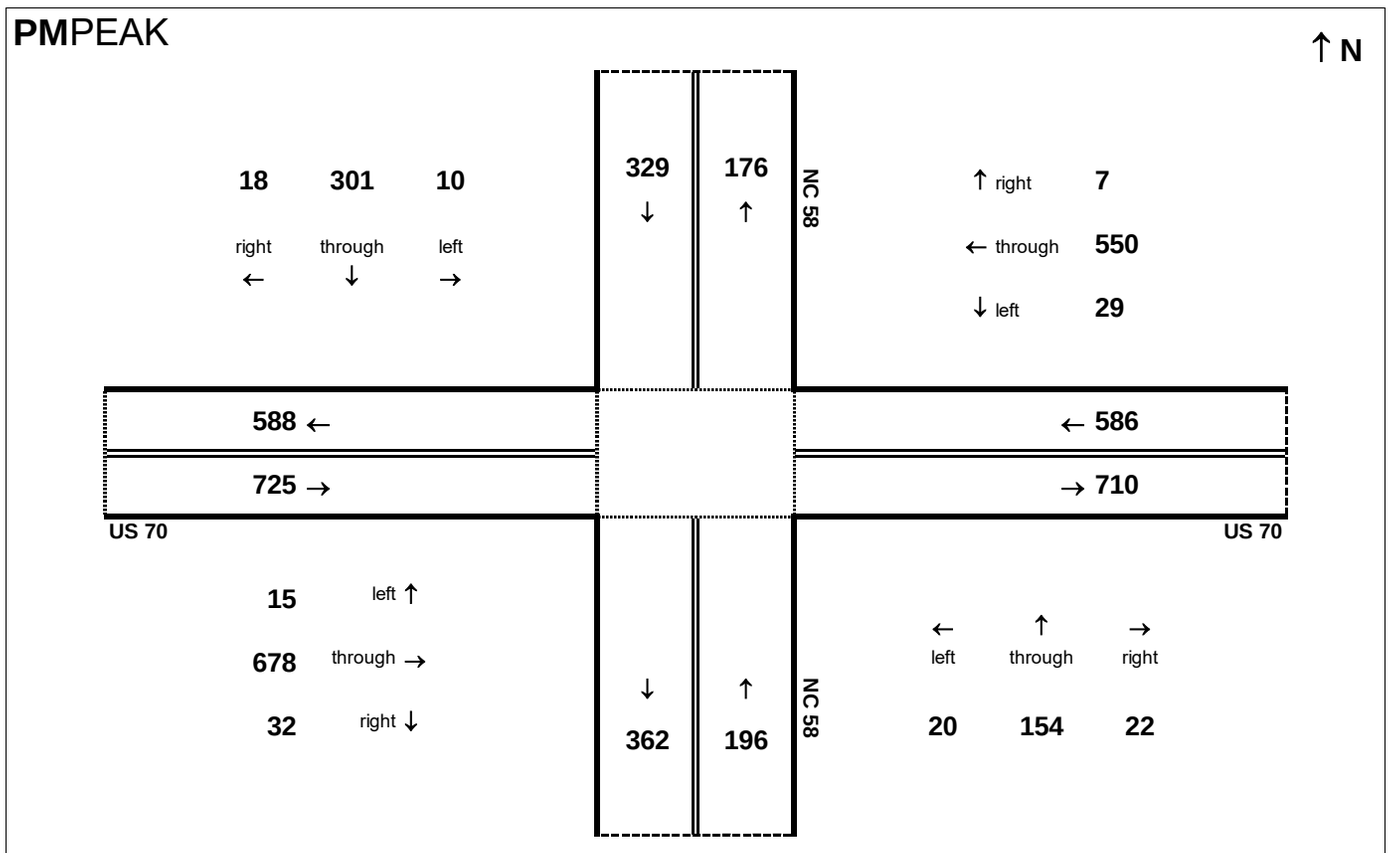
Traffic Data Year:
2040 Build Alt 31

Project:
R-2553





AM peak hour inflow is 1835 vehicles. AM peak hour outflow is 1835 vehicles.



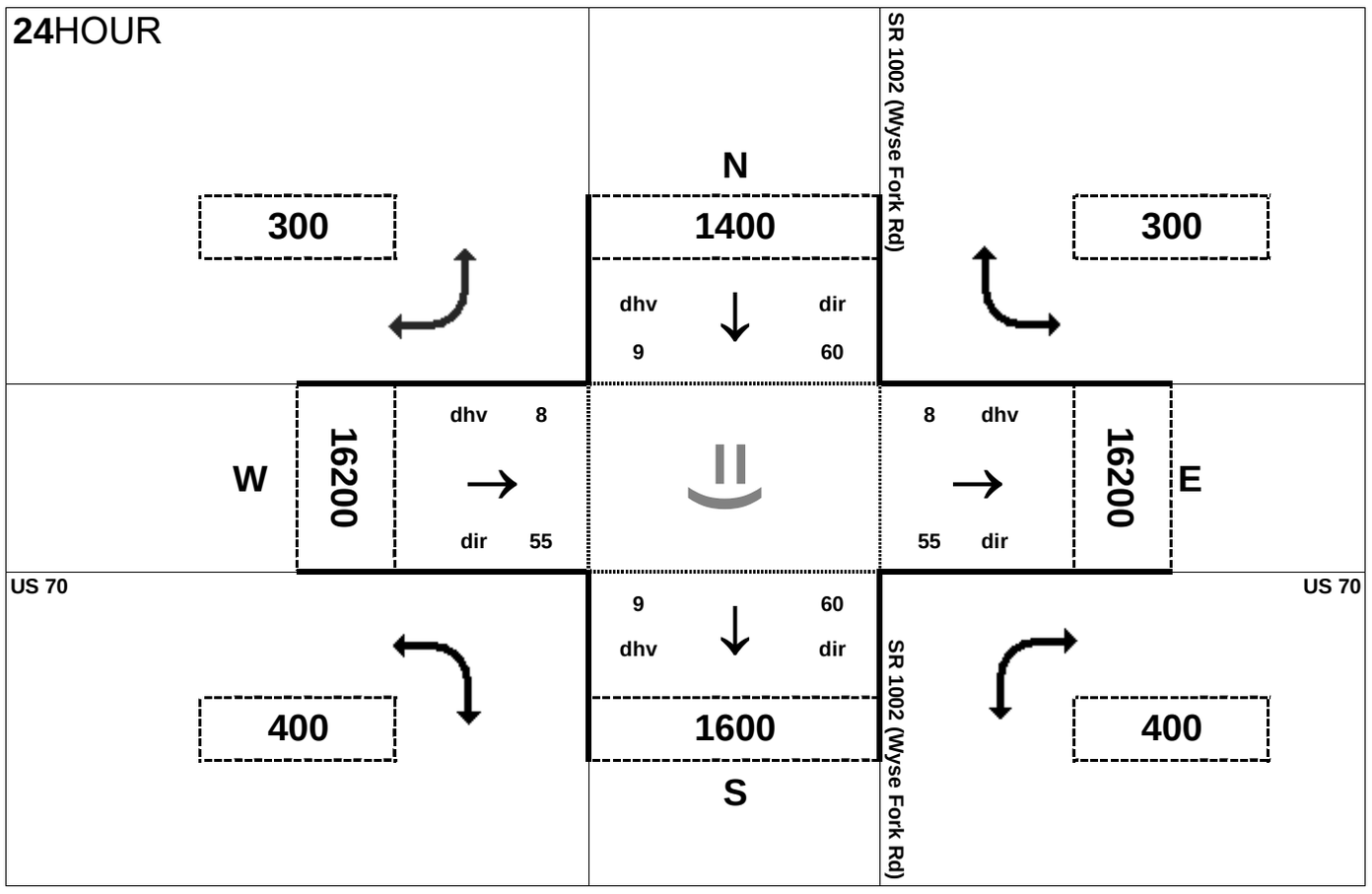
PM peak hour inflow is 1835 vehicles. PM peak hour outflow is 1835 vehicles.

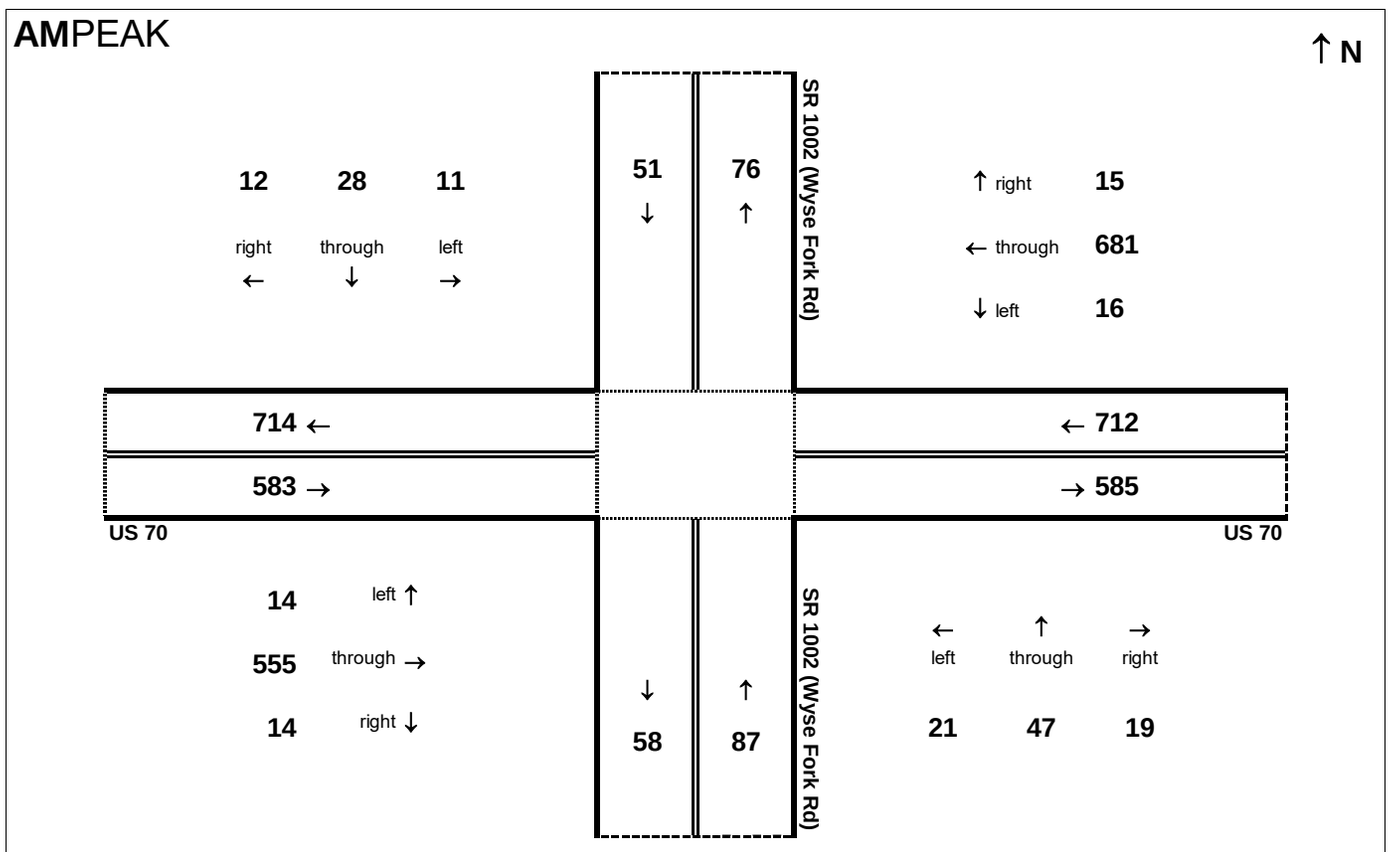
Peak Hour Volume Breakouts Report:
414-15 Intersection of US 70 and SR 1002 (Wyse Fork Rd)

Traffic Forecast Release Date:
November-16

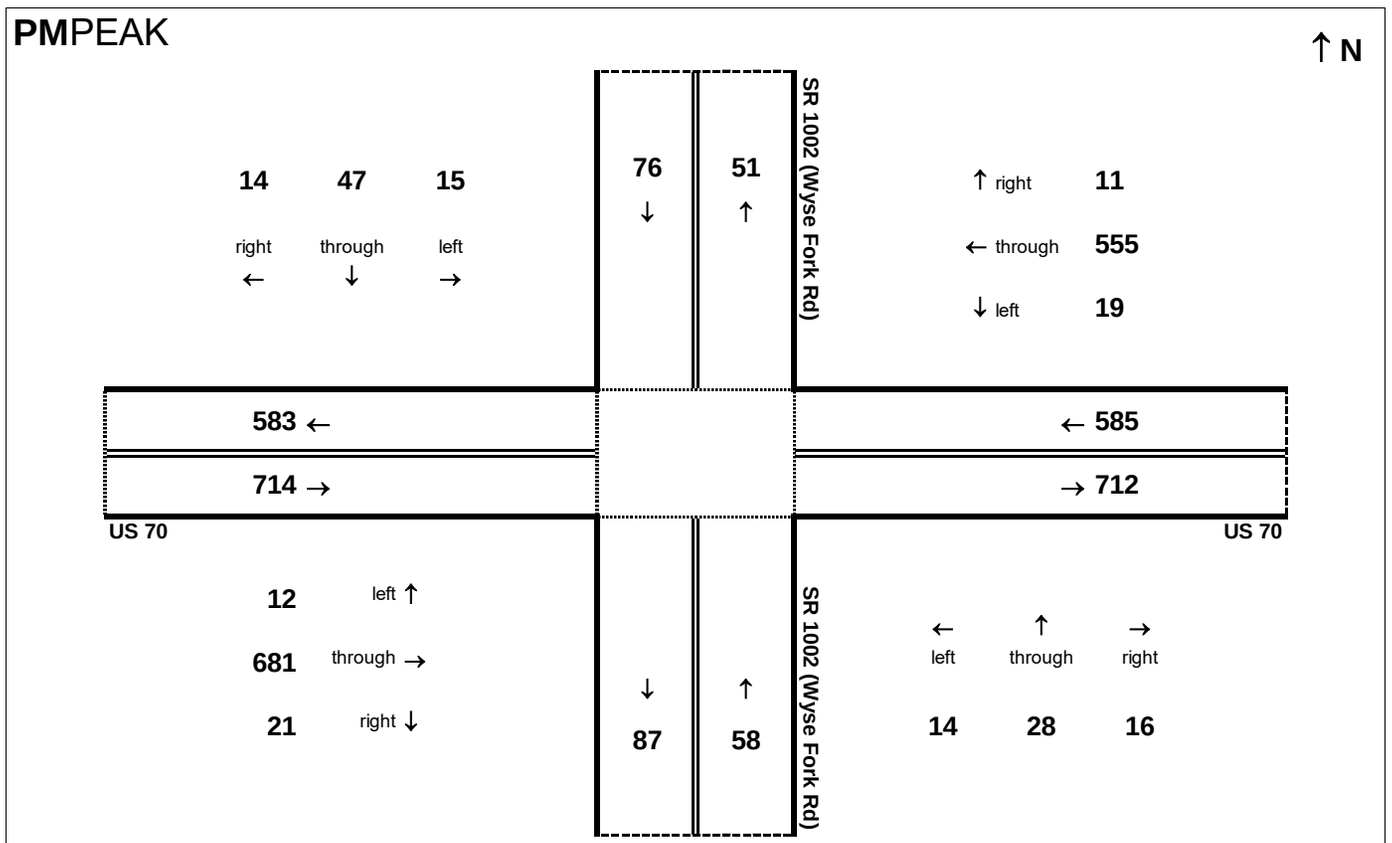
Traffic Data Year:
2040 Build Alt 31

Project:
R-2553





AM peak hour inflow is 1430 vehicles. AM peak hour outflow is 1432 vehicles.



PM peak hour inflow is 1432 vehicles. PM peak hour outflow is 1431 vehicles.

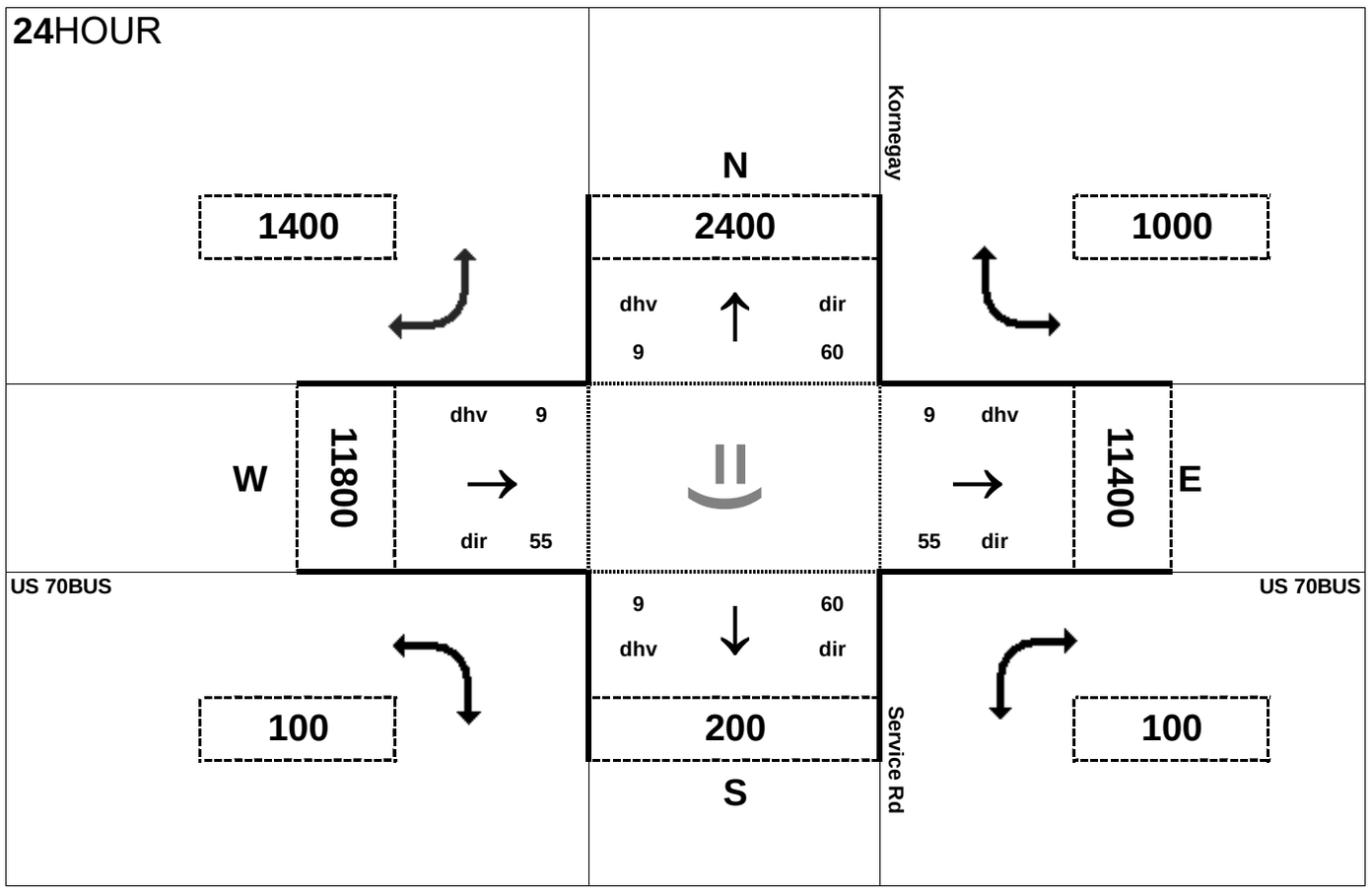
Peak Hour Volume Breakouts Report:
416 Intersection of US 70BUS and Kornegay St

Traffic Forecast Release Date:
November-16

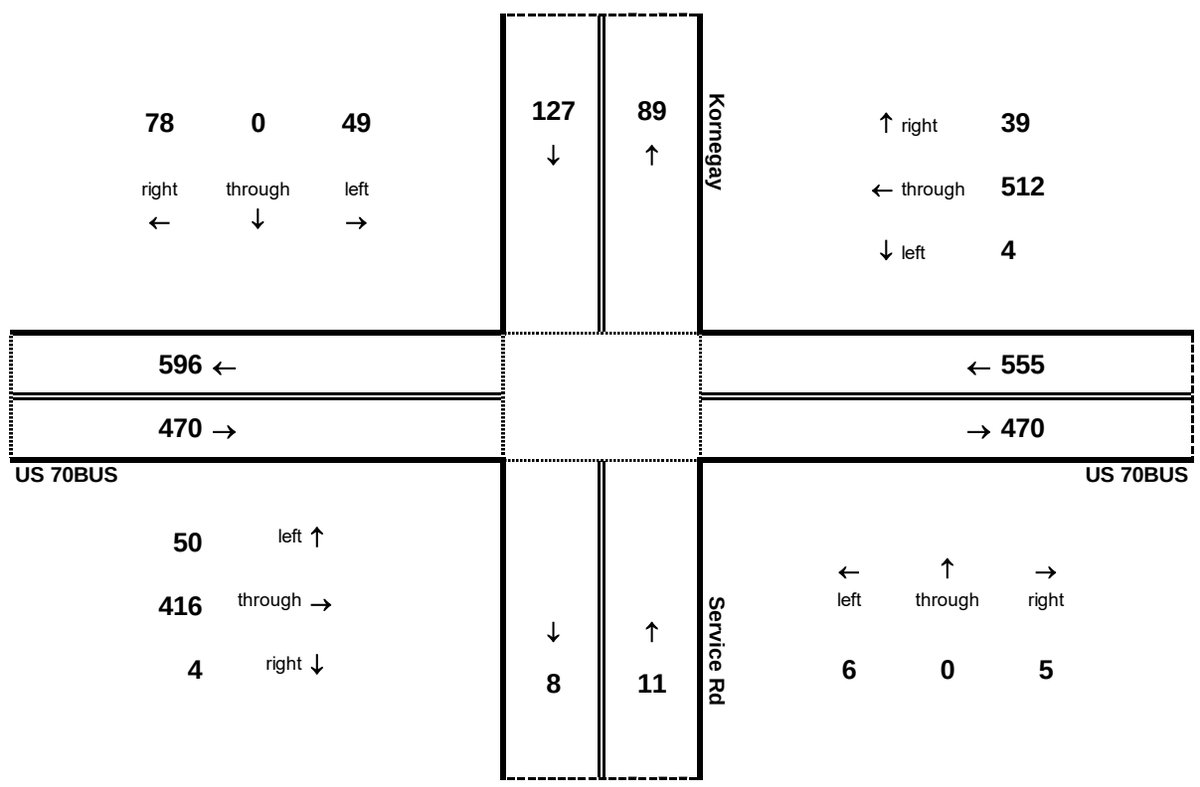
Traffic Data Year:
2040 Build Alt 31

Project:
R-2553

24HOUR

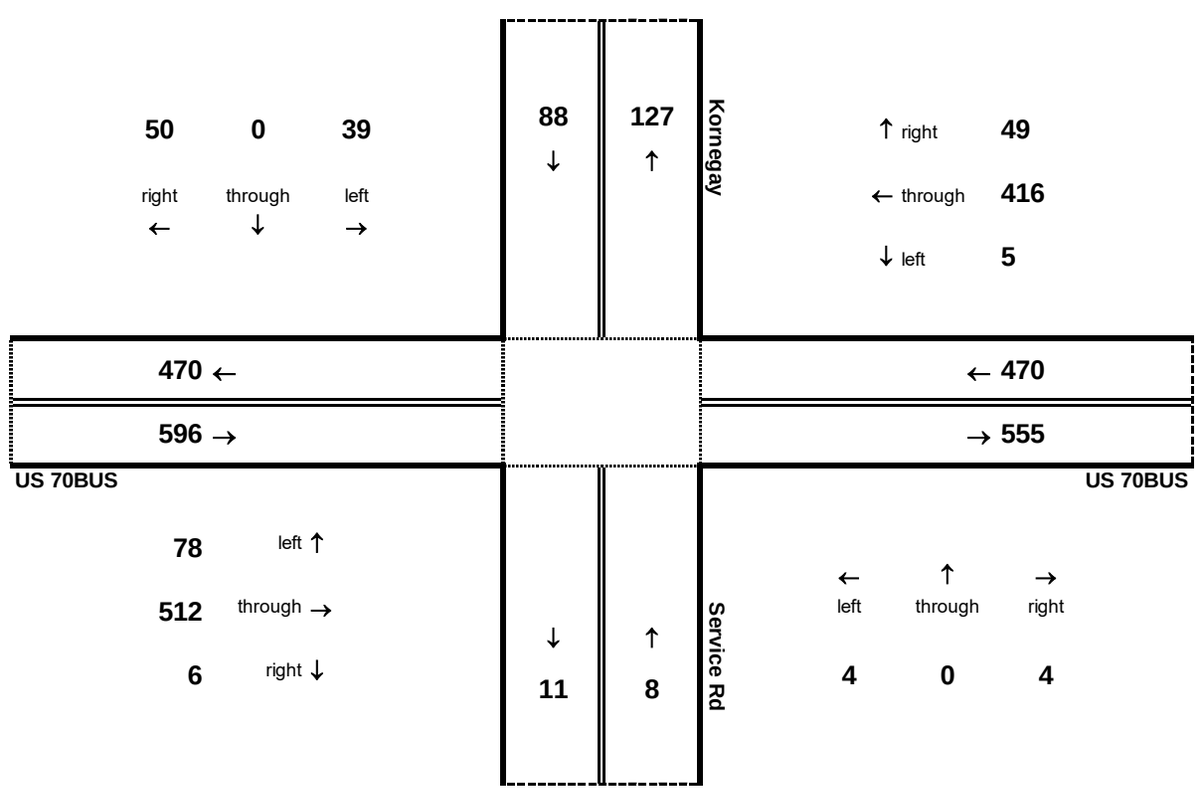


AMPEAK



AM peak hour inflow is 1161 vehicles. AM peak hour outflow is 1160 vehicles.

PMPEAK



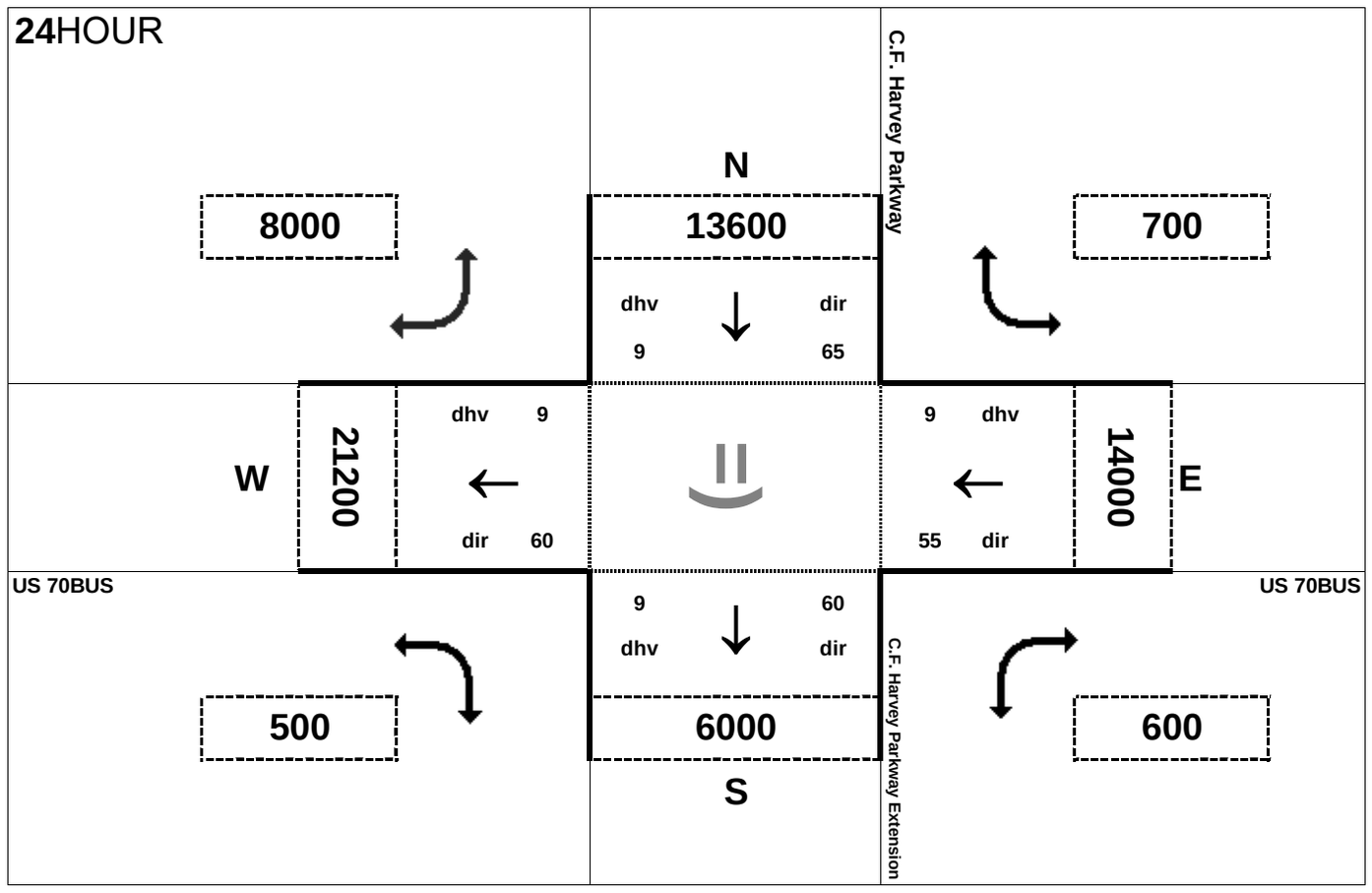
PM peak hour inflow is 1160 vehicles. PM peak hour outflow is 1161 vehicles.

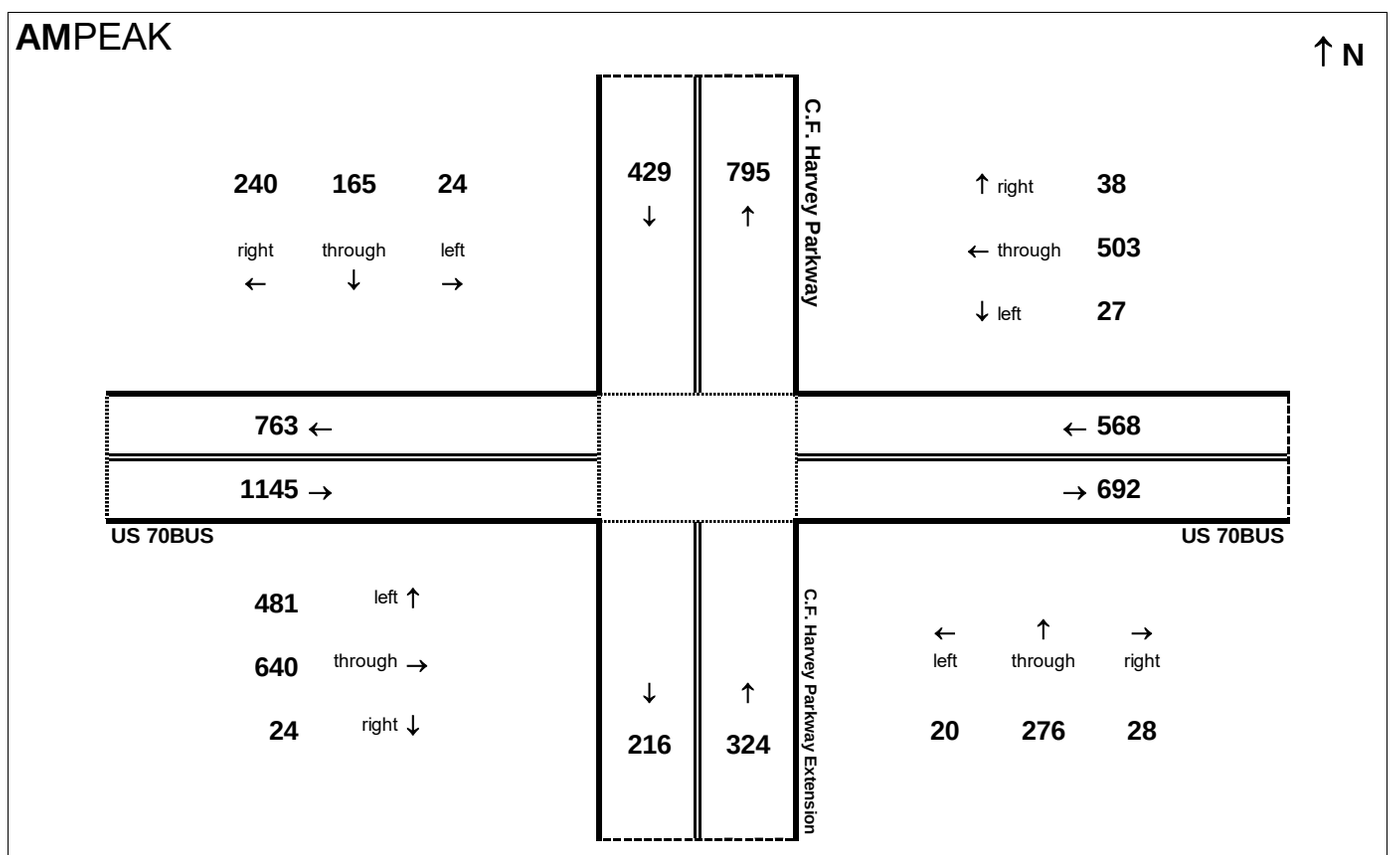
Peak Hour Volume Breakouts Report:
System 1 Intersection of US 70BUS and C. F. Harvey Parkway

Traffic Forecast Release Date:
November-16

Traffic Data Year:
2040 Build Alt 31

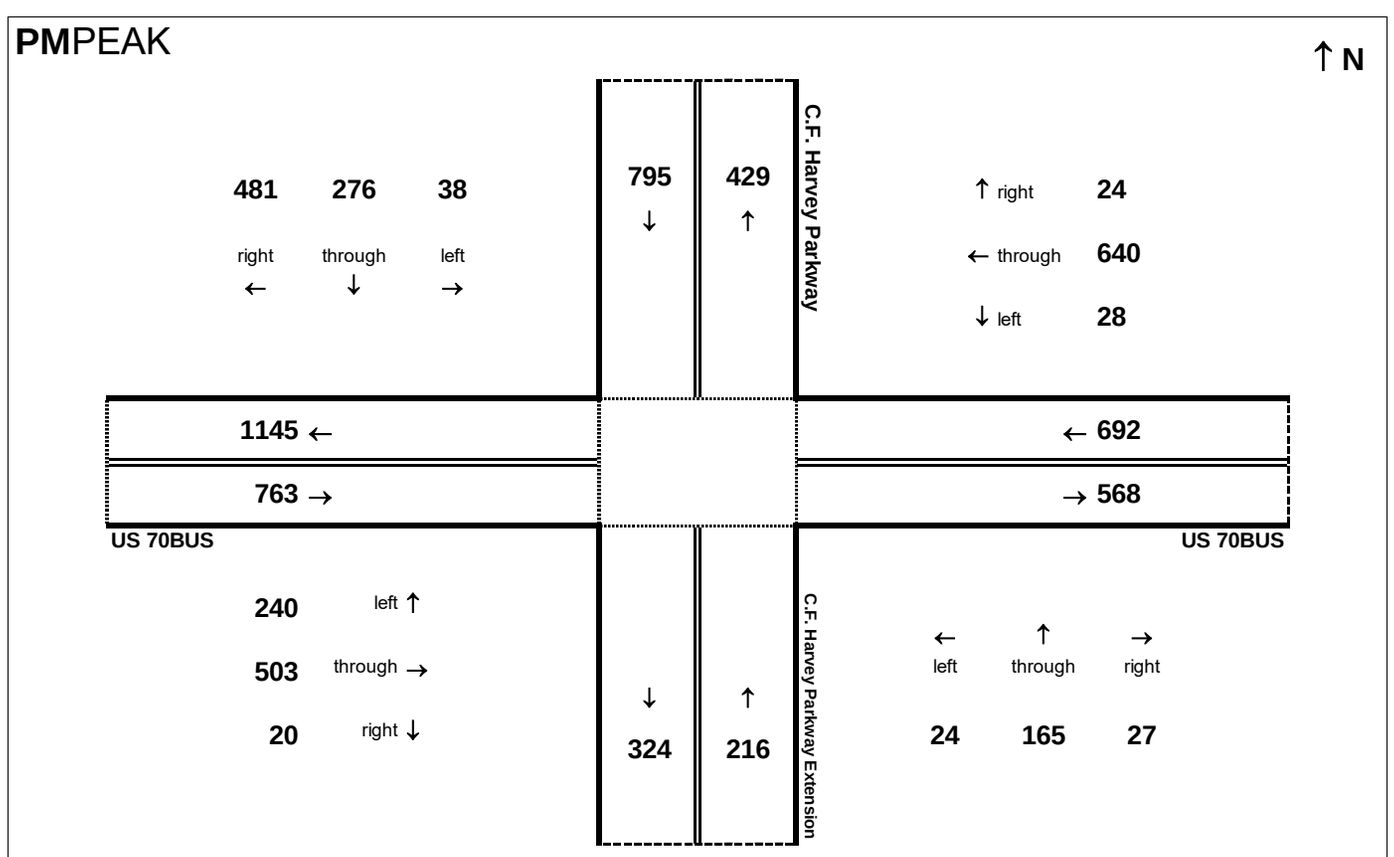
Project:
R-2553





AM peak hour inflow is 2466 vehicles. AM peak hour outflow is 2466 vehicles.

Note: Volumes have been redistributed at this interchange based on the inclusion of the CF Harvey Parkway Extension NB loop ramp to US 70 Business WB, and the US 70 Business EB ramp to CF Harvey Parkway Extension SB. 500 vehicles are assumed to be redistributed from the southeast turning movement quadrant (1100 to 600) to the southwest turning movement quadrant (0 to 500). The volumes on the east leg of US 70 Business has also been adjusted to account for this change (15000 to 14000). More information is described in detail in the memorandum.



PM peak hour inflow is 2467 vehicles. PM peak hour outflow is 2466 vehicles.

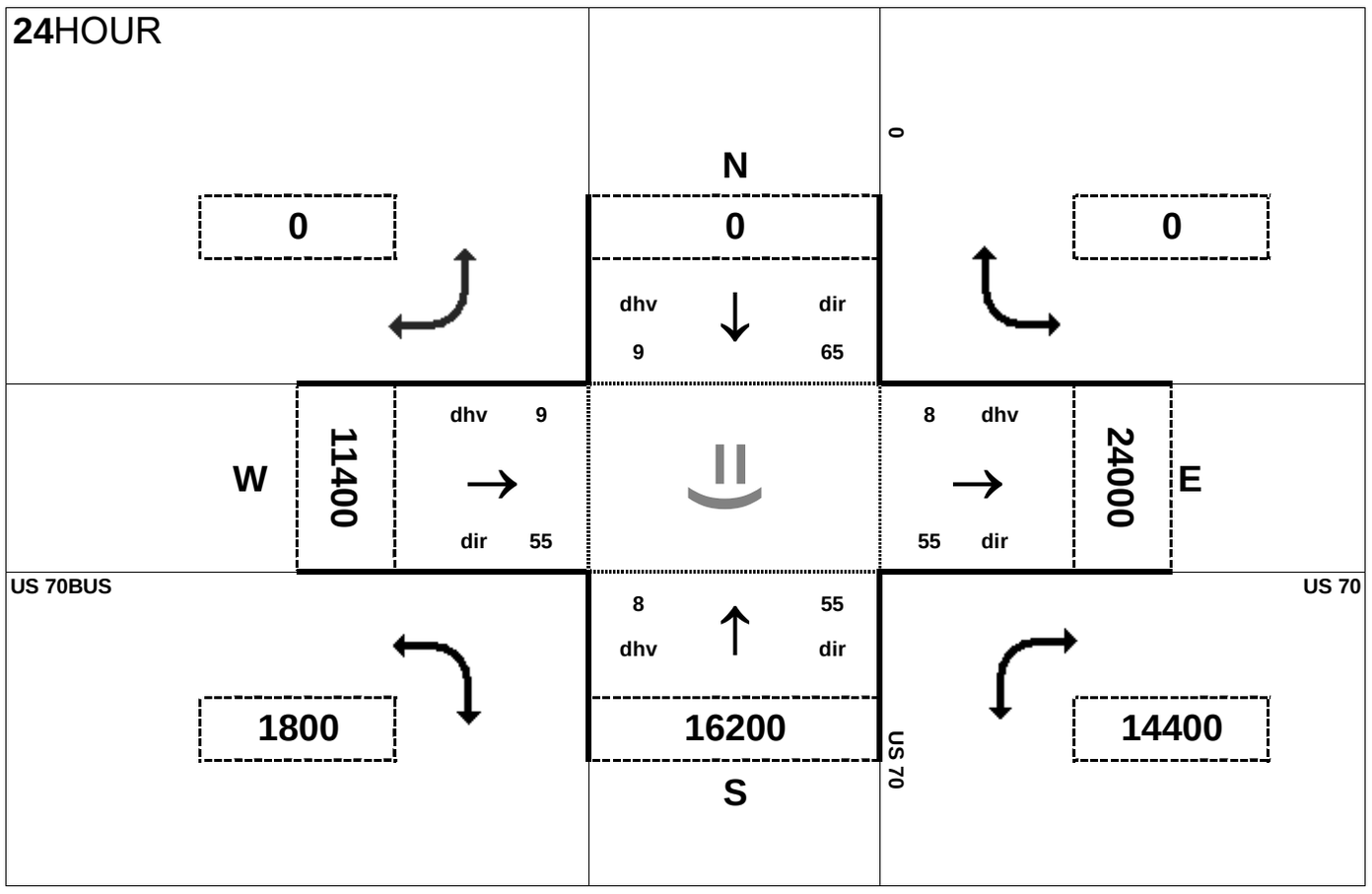
Peak Hour Volume Breakouts Report:
System 2 Intersection of US 70 and US 70BUS (eastern)

Traffic Forecast Release Date:
November-16

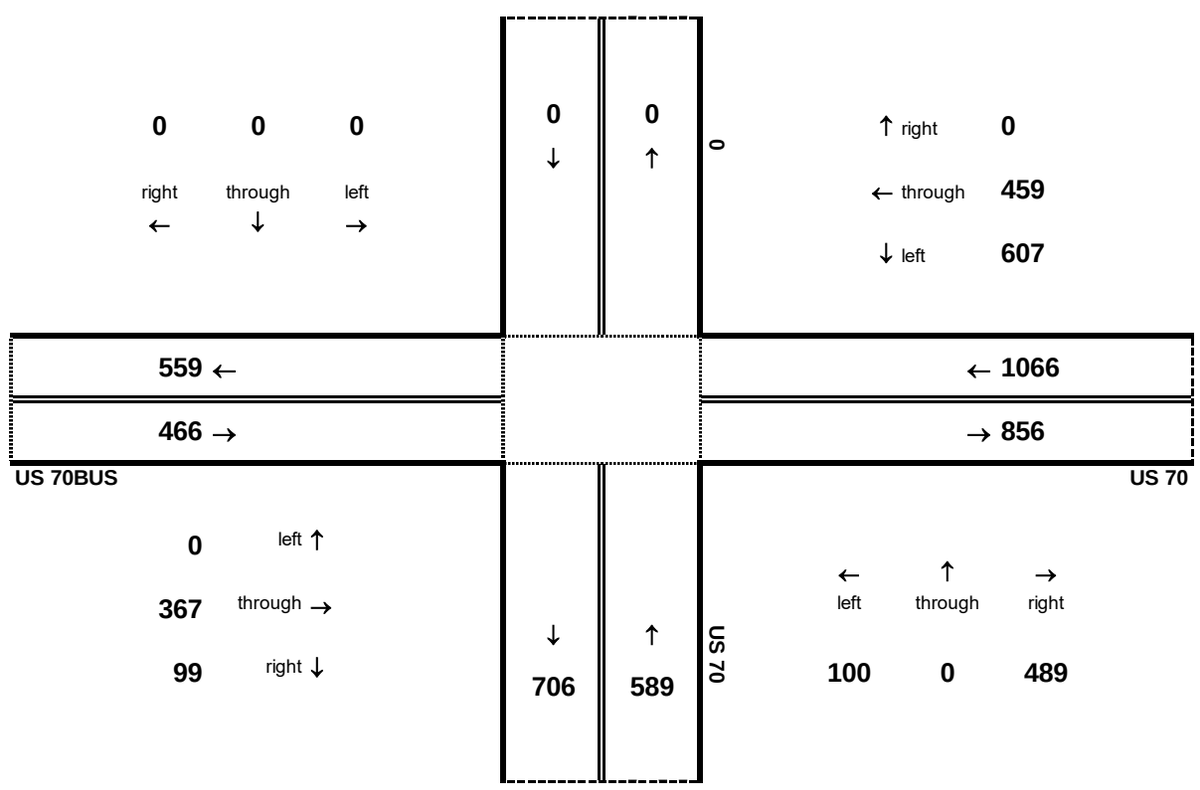
Traffic Data Year:
2040 Build Alt 31

Project:
R-2553

24HOUR

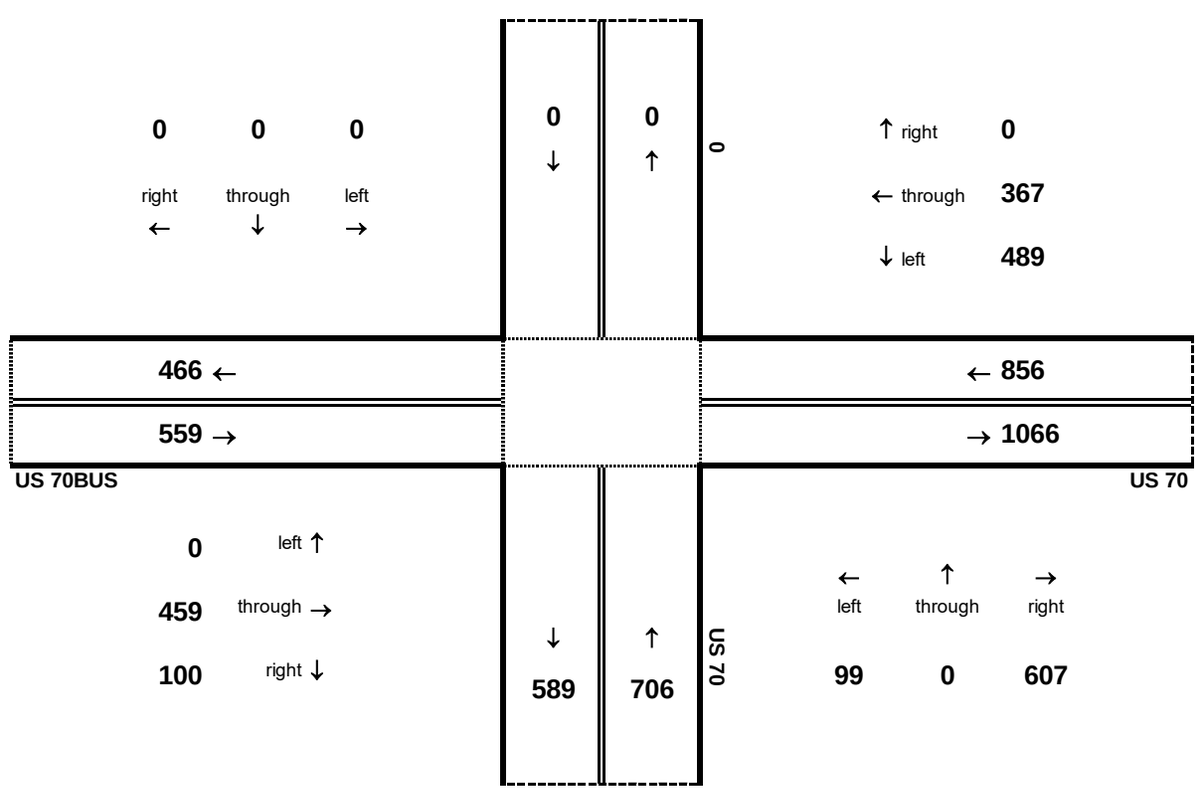


AMPEAK



AM peak hour inflow is 2121 vehicles. AM peak hour outflow is 2121 vehicles.

PMPEAK



PM peak hour inflow is 2121 vehicles. PM peak hour outflow is 2121 vehicles.

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R-2553 Kinson Bypass
2040 Build Alternative 31
Step 1 - Calculating Basic Freeway Segment Volumes

Basic Freeway Segment Volumes - Eastbound							
Segment	Description	AADT	K	D (PM)	Total	AM	PM
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)	36,200	0.09	0.45	3,258	1,792	1,467
5E	US 70 EB - SR 1690 (Willie Measley Rd) to US 70BUS	39,200	0.09	0.45	3,528	1,941	1,588
7E	US 70 EB - US 70BUS to US 70BUS / C. F. Harvey Pkwy	18,200	0.09	0.55	1,638	738	901
9E	US 70 EB - US 70BUS / C. F. Harvey Pkwy To NC 11	24,200	0.09	0.55	2,178	981	1,198
13E	US 70 EB - NC 11 to US 258	20,600	0.09	0.55	1,854	835	1,020
17E	US 70 EB - US 258 to NC 58	16,400	0.08	0.55	1,312	591	722
21E	US 70 EB - NC 58 to SR 1002 (Wyse Fork Rd)	16,200	0.08	0.55	1,296	584	713
25E	US 70 EB - SR 1002 (Wyse Fork Rd) to US 70BUS	16,200	0.08	0.55	1,296	584	713
29E	US 70 EB - East of US 70BUS	24,000	0.08	0.55	1,920	864	1,056

Basic Freeway Segment Volumes - Westbound							
Segment	Description	AADT	K	D (PM)	Total	AM	PM
1W	US 70 WB - East of US 70BUS	24,000	0.08	0.45	1,920	1,056	864
5W	US 70 WB - SR 1002 (Wyse Fork Rd) to US 70BUS	16,200	0.08	0.45	1,296	713	584
9W	US 70 WB - NC 58 to SR 1002 (Wyse Fork Rd)	16,200	0.08	0.45	1,296	713	584
13W	US 70 WB - US 258 to NC 58	16,400	0.08	0.45	1,312	722	591
17W	US 70 WB - NC 11 to US 258	20,600	0.09	0.45	1,854	1,020	835
21W	US 70 WB - US 70BUS / C. F. Harvey Pkwy To NC 11	24,200	0.09	0.45	2,178	1,198	981
23W	US 70 WB - US 70BUS to US 70BUS / C. F. Harvey Pkwy	18,200	0.09	0.45	1,638	901	738
25W	US 70 WB - SR 1690 (Willie Measley Rd) to US 70BUS	39,200	0.09	0.55	3,528	1,588	1,941
29W	US 70 WB - West of SR 1690 (Willie Measley Rd)	36,200	0.09	0.55	3,258	1,467	1,792

Basic Freeway Segment Volumes - Northbound							
Segment	Description	AADT	K	D (PM)	Total	AM	PM
1N	C. F. Harvey Pkwy NB - From US 70 to NC 148	6,000	0.09	0.40	540	324	216
7N	C. F. Harvey Pkwy NB - North of US 70BUS	13,600	0.09	0.35	1,224	796	429

Basic Freeway Segment Volumes - Southbound							
Segment	Description	AADT	K	D (PM)	Total	AM	PM
1S	C. F. Harvey Pkwy SB - North of US 70BUS	13,600	0.09	0.65	1,224	429	796
7S	C. F. Harvey Pkwy SB - From US 70 to NC 148	6,000	0.09	0.60	540	216	324

Segment Volumes - US 70BUS							
Segment	Description	AADT	K	D (PM)	Total	AM	PM
-	US 70BUS EB - East of US 70 (western)	21,000	0.09	0.40	1,890	1,134	756
-	US 70BUS WB - East of US 70 (western)	21,000	0.09	0.60	1,890	756	1,134

R-2553 Kinson Bypass
2040 Build Alternative 31
Step 2 - Compiling Ramp Volumes

US 70 Ramp Volumes								
	EB Exit		WB Entrance		EB Entrance		WB Exit	
Description	AM	PM	AM	PM	AM	PM	AM	PM
US 70 at SR 1690	181	201	201	181	382	280	280	382
US 70 at US70BUS (western int)	1,134	756	756	1,134	-	-	-	-
US 70 at C. F. Harvey Pkwy	-	-	-	-	216	324	324	216
US 70 at NC 11	302	318	318	302	139	160	160	139
US 70at US 258	308	382	382	308	71	75	75	71
US 70 at NC 58	38	47	47	38	36	32	32	36
US 70 at SR 1002 (Wyse Fork Rd)	28	33	33	28	30	31	31	30
US 70 at US 70BUS (eastern int)	100	99	99	100	367	459	459	367

C. F. Harvey Pkwy Northbound Ramp Volumes			
Description	Ramp	AM	PM
US 70BUS at NC 148 (C F Harvey Pkwy)	Northbound Exit to Eastbound	28	27
	Northbound Exit to Westbound	20	24
	Nortbound Entrance from Westbound	38	24
	Northbound Entrance from Eastbound	481	240

C. F. Harvey Pkwy Southbound Ramp Volumes			
Description	Ramp	AM	PM
US 70BUS at NC 148 (C F Harvey Pkwy)	Southbound Exit to Westbound	240	481
	Southbound Entrance from Westbound	27	28
	Southbound Exit to Eastbound	24	38
	Southbound Entrance from Eastbound	24	20

R-2553 Kinson Bypass
2040 Build Alternative 31
Step 3 - Adjusting All Segment Volumes

Eastbound Adjusted Segment Volumes						
Segment	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)	0.9	1,792	1,467	1,991	1,630
2E	US 70 EB - to SR 1690 (Willie Measley Rd)	0.9	181	201	201	223
4E	US 70 EB - from SR 1690 (Willie Measley Rd)	0.9	382	280	424	311
5E	US 70 EB - SR 1690 (Willie Measley Rd) to US 70BUS	0.9	1,941	1,588	2,157	1,764
6E	US 70 EB - to US70BUS (western int)	0.9	1,134	756	1,260	840
7E	US 70 EB - US 70BUS to USBUS / C. F. Harvey Pkwy	0.9	738	901	820	1,001
8E	US 70 EB - from US70BUS / C. F. Harvey Pkwy	0.9	216	324	240	360
9E	US 70 EB - US 70BUS/ C. F. Harvey Pkwy to NC 11	0.9	981	1,198	1,090	1,331
10E	US 70 EB - to NC 11	0.9	302	318	336	353
12E	US 70 EB - from NC 11	0.9	139	160	154	178
13E	US 70 EB - NC 11 to US 258	0.9	835	1,020	928	1,133
14E	US 70 EB - to US 258	0.9	308	382	342	424
16E	US 70 EB - from US 258	0.9	71	75	79	83
17E	US 70 EB - US 258 to NC 58	0.9	591	722	657	802
18E	US 70 EB - to NC 58	0.9	38	47	42	52
20E	US 70 EB - from NC 58	0.9	36	32	40	36
21E	US 70 EB - NC 58 to SR 1002 (Wyse Fork Rd)	0.9	584	713	649	792
22E	US 70 EB - to SR 1002 (Wyse Fork Rd)	0.9	28	33	31	37
24E	US 70 EB - from SR 1002 (Wyse Fork Rd)	0.9	30	31	33	34
25E	US 70 EB - SR 1002 (Wyse Fork Rd) to US 70BUS	0.9	584	713	649	792
26E	US 70 EB - to US70BUS (eastern int)	0.9	100	99	111	110
28E	US 70 EB - from US70BUS (eastern int)	0.9	367	459	408	510
29E	US 70 EB - East of US 70BUS	0.9	864	1,056	960	1,173

	AM	PM
Max Volume	2,157	1,764

XXX	Ramp
XXX	Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 31
Step 3 - Adjusting All Segment Volumes

Westbound Adjusted Segment Volumes						
Segment	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1W	US 70 WB - East of US 70BUS	0.9	1,056	864	1,173	960
2W	US 70 WB - to US70BUS (eastern int)	0.9	459	367	510	408
4W	US 70 WB - from US70BUS (eastern int)	0.9	99	100	110	111
5W	US 70 WB - SR 1002 (Wyse Fork Rd) to US 70BUS	0.9	713	584	792	649
6W	US 70 WB - to SR 1002 (Wyse Fork Rd)	0.9	31	30	34	33
8W	US 70 WB - from SR 1002 (Wyse Fork Rd)	0.9	33	28	37	31
9W	US 70 WB - NC 58 to SR 1002 (Wyse Fork Rd)	0.9	713	584	792	649
10W	US 70 WB - to NC 58	0.9	32	36	36	40
12W	US 70 WB - from NC 58	0.9	47	38	52	42
13W	US 70 WB - US 258 to NC 58	0.9	722	591	802	657
14W	US 70 WB - to US 258	0.9	75	71	83	79
16W	US 70 WB - from US 258	0.9	382	308	424	342
17W	US 70 WB - NC 11 to US 258	0.9	1,020	835	1,133	928
18W	US 70 WB - to NC 11	0.9	160	139	178	154
20W	US 70 WB - from NC 11	0.9	318	302	353	335
21W	US 70 WB - US 70BUS / C. F. Harvey Pkwy to NC 11	0.9	1,198	981	1,331	1,090
22W	US 70 WB - to US70BUS/ C. F. Harvey Pkwy	0.9	324	216	360	240
23W	US 70 WB - US 70BUS to US 70BUS / C. F. Harvey Pkwy	0.9	901	738	1,001	820
24W	US 70 WB - from US70BUS	0.9	756	1,134	840	1,260
25W	US 70 WB - SR 1690 (Willie Measley Rd) to US 70BUS	0.9	1,588	1,941	1,764	2,157
26W	US 70 WB - to SR 1690 (Willie Measley Rd)	0.9	280	382	311	424
28W	US 70 WB - from SR 1690 (Willie Measley Rd)	0.9	201	181	223	201
29W	US 70 WB - West of SR 1690 (Willie Measley Rd)	0.9	1,467	1,792	1,630	1,991

	AM	PM
Max Volume	1,764	2,157

XXX	Ramp
XXX	Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 31
Step 3 - Adjusting All Segment Volumes

Northbound Adjusted Segment Volumes						
Segment	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1N	C. F. Harvey Pkwy NB - US 70 to US 70BUS / NC 148	0.9	324	216	360	240
2N	C. F. Harvey Pkwy NB - to US 70BUS EB	0.9	28	27	31	30
4N	C. F. Harvey Pkwy NB - to US 70BUS WB	0.9	20	24	22	27
6N	C. F. Harvey Pkwy NB - from US 70BUS	0.9	519	264	577	293
7N	C. F. Harvey Pkwy NB - North of US 70BUS	0.9	796	429	884	477

Southbound Adjusted Segment Volumes						
Segment	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1S	C. F. Harvey Pkwy SB - North of US 70BUS	0.9	429	796	477	884
2S	C. F. Harvey Pkwy SB - to US 70BUS WB	0.9	240	481	267	535
4S	C. F. Harvey Pkwy SB - From US 70BUS WB	0.9	27	28	30	31
	C. F. Harvey Pkwy SB - to US 7BUS EB	0.9	24	38	27	42
6S	C. F. Harvey Pkwy SB - from US 70BUS EB	0.9	24	20	27	22
7S	C. F. Harvey Pkwy SB - US 70 to US 70BUS / NC 148	0.9	216	324	240	360

XXX	Ramp
XXX	Weave
XXX	Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 31
Step 4 - Balancing Freeway Segment Volumes

US 70 Eastbound Freeway Volume Balancing					
Segment	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)			1,934	1,676
2E	US 70 EB - to SR 1690 (Willie Measley Rd)	201	223		
3E	US 70 EB - within SR 1690 (Willie Measley Rd) Interchange			1,733	1,453
4E	US 70 EB - from SR 1690 (Willie Measley Rd)	424	311		
5E	US 70 EB - SR 1690 (Willie Measley Rd) to US 70BUS			**2,157**	**1,764**
6E	US 70 EB - to US70BUS (western int)	1,260	840		
7E	US 70 EB - US 70BUS to US70BUS / C F Harvey Pkwy			897	924
8E	US 70 EB - from US70BUS / C F Harvey Pkwy	240	360		
9E	US 70 EB - US70BUS / C F Harvey Pkwy to NC 11			1,137	1,284
10E	US 70 EB - to NC 11	336	353		
11E	US 70 EB - within NC 11 interchange			801	931
12E	US 70 EB - from NC 11	154	178		
13E	US 70 EB - NC 11 to US 258			955	1,109
14E	US 70 EB - to US 258	342	424		
15E	US 70 EB - within US 258 interchange			613	685
16E	US 70 EB - from US 258	79	83		
17E	US 70 EB - US 258 to NC 58			692	768
18E	US 70 EB - to NC 58	42	52		
19E	US 70 EB - within NC 58 interchange			650	716
20E	US 70 EB - from NC 58	40	36		
21E	US 70 EB - NC 58 to SR 1002 (Wyse Fork Rd)			690	752
22E	US 70 EB - to SR 1002 (Wyse Fork Rd)	31	37		
23E	US 70 EB - within SR 1002 (Wyse Fork Rd) interchange			659	715
24E	US 70 EB - from SR 1002 (Wyse Fork Rd)	33	34		
25E	US 70 EB - SR 1002 (Wyse Fork Rd) to US 70BUS			692	749
26E	US 70 EB - to US70BUS (eastern int)	111	110		
27E	US 70 EB - within US 70BUS (eastern int)			581	639
28E	US 70 EB - from US70BUS (eastern int)	408	510		
29E	US 70 EB - East of US 70BUS			989	1,149

	Max volume balance point
XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 31
Step 4 - Balancing Freeway Segment Volumes

US 70 Westbound Freeway Volume Balancing					
Segment	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1W	US 70 WB - East of US 70BUS			1,149	990
2W	US 70 WB - to US70BUS (eastern int)	510	408		
3W	US 70 WB - within US 70BUS (eastern int)			639	582
4W	US 70 WB - from US70BUS (eastern int)	110	111		
5W	US 70 WB - SR 1002 (Wyse Fork Rd) to US 70BUS			749	693
6W	US 70 WB - to SR 1002 (Wyse Fork Rd)	34	33		
7W	US 70 WB - within SR 1002 (Wyse Fork Rd) interchange			715	660
8W	US 70 WB - from SR 1002 (Wyse Fork Rd)	37	31		
9W	US 70 WB - NC 58 to SR 1002 (Wyse Fork Rd)			752	691
10W	US 70 WB - to NC 58	36	40		
11W	US 70 WB - within NC 58 interchange			716	651
12W	US 70 WB - from NC 58	52	42		
13W	US 70 WB - US 258 to NC 58			768	693
14W	US 70 WB - to US 258	83	79		
15W	US 70 WB - within US 258 interchange			685	614
16W	US 70 WB - from US 258	424	342		
17W	US 70 WB - NC 11 to US 258			1,109	956
18W	US 70 WB - to NC 11	178	154		
19W	US 70 WB - within NC 11 interchange			931	802
20W	US 70 WB - from NC 11	353	335		
21W	US 70 WB - US 70BUS / C F Harvey Pkwy to NC 11			1,284	1,137
22W	US 70 WB - to US 70BUS / C F Harvey Pwky	360	240		
23W	US 70 WB - US 70BUS to US 70BUS / C F Harvey Pwky			924	897
24W	US 70 WB - from US70BUS (western int)	840	1,260		
25W	**US 70 WB - SR 1690 (Willie Measley Rd) to US 70BUS**			**1,764**	**2,157**
26W	US 70 WB - to SR 1690 (Willie Measley Rd)	311	424		
27W	US 70 WB - within SR 1690 (Willie Measley Rd) Interchange			1,453	1,733
28W	US 70 WB - from SR 1690 (Willie Measley Rd)	223	201		
29W	US 70 WB - West of SR 1690 (Willie Measley Rd)			1,676	1,934

	Max volume balance point
XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 31
Step 4 - Balancing Freeway Segment Volumes

C. F. Harvey Pkwy Northbound Freeway Volume Balancing					
Segment	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1N	C. F. Harvey Pkwy NB - US 70 to US 70BUS / NC 148			360	240
2N	C. F. Harvey Pkwy NB - to US 70BUS EB	31	30		
3N	C. F. Harvey Pkwy NB - within US 70BUS interchange			329	210
4N	C. F. Harvey Pkwy NB - to US 70BUS WB	22	27		
5N	C. F. Harvey Pkwy NB - within US 70BUS interchange			307	183
6N	C. F. Harvey Pkwy NB - from US 70BUS	577	293		
7N	C. F. Harvey Pkwy NB - North of US 70BUS			884	476

C. F. Harvey Pkwy Southbound Freeway Volume Balancing					
Segment	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1S	C. F. Harvey Pkwy SB - North of US 70BUS			477	884
2S	C. F. Harvey Pkwy SB - to US 70BUS	267	535		
3S	C. F. Harvey Pkwy SB - within US 70BUS interchange			210	349
4S	C. F. Harvey Pkwy SB - from US 70BUS EB	30	31		
	C. F. Harvey Pkwy SB - between US 70BUS EB ramps			240	380
	C. F. Harvey Pkwy SB - to US 70BUS EB	27	42		
5S	C. F. Harvey Pkwy SB - within US 70BUS interchange			213	338
6S	C. F. Harvey Pkwy SB - from US 70BUS EB	27	22		
7S	C. F. Harvey Pkwy SB - US 70 to US 70BUS / NC 148			240	360

	Volume balance point
XXX	Ramp
XXX	Weave
XXX	Basic Freeway Segment

2040 Build Alternative 31
FREEVAL-E Reports

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R-2553 US 70 Kinston Bypass, Alternative 31
US 70 EB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1E	2E	3E	4E	5E	6E	7E	8E	9E
General Purpose Segment Name	W of Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	Jim Sutton/Willie Measley to US 70 Bus (W)	To US 70 Bus (W)	US 70 Bus (W) to CF Harvey Pkwy	From CF Harvey Pkwy	CF Harvey Pkwy to NC 11
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	1500	9380	2500	15070	2500	7920
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1934	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	750	N/A	920	N/A	2500	N/A	2500	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	2	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	60	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	424	N/A	N/A	N/A	240	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	2	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	60	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	201	N/A	N/A	N/A	1260	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	14.3	14.7	12.8	16.9	15.9	0.9	6.7	0.0*	8.5
V/C	0.42	0.42	0.37	0.46	0.46	0.46	0.20	0.25	0.25
Density Based LOS	B	B	B	B	B	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 31
US 70 EB - AM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10E	11E	12E	13E	14E	15E	16E	17E	18E
General Purpose Segment Name	To NC 11	Within NC 11	From NC 11	NC 11 to US 258	To US 258	Within US 258	From US 258	US 258 to NC 58	To NC 58
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	5760	1500	1500	1500	12310	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	750	N/A	920	N/A	490
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	45	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	154	N/A	N/A	N/A	79	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	7	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	25	N/A	N/A	N/A	45
OFR/Exit Dem. (vph)	336	N/A	N/A	N/A	342	N/A	N/A	N/A	42
OFR Single Unit Truck and Bus (%)	7	N/A	N/A	N/A	7	N/A	N/A	N/A	6
Total Density (pc/mi/ln)	7.7	6.0	7.4	7.1	6.1	4.6	5.3	5.2	6.1
V/C	0.25	0.17	0.21	0.21	0.21	0.13	0.15	0.15	0.15
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 31
US 70 EB - AM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19E	20E	21E	22E	23E	24E	25E	26E	27E
General Purpose Segment Name	Within NC 58	From NC 58	NC 58 to Wyse Fork	To Wyse Fork	Within Wyse Fork Int	From Wyse Fork	Wyse Fork to US 70 BUS (E)	To US 70 BUS (E)	Within US 70 BUS (E) Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1620	15920	1500	1500	1620	12900	1500	1550
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	1620	N/A	490	N/A	1620	N/A	750	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	25	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	40	N/A	N/A	N/A	33	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	6	N/A	N/A	N/A	4	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	25	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	31	N/A	N/A	N/A	111	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	7	N/A
Total Density (pc/mi/ln)	4.9	0.9	5.2	6.0	4.9	0.9	5.2	3.7	4.3
V/C	0.14	0.15	0.15	0.15	0.14	0.15	0.15	0.15	0.13
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 31
US 70 EB - AM Peak

Segment	Seg. 28	Seg. 29
General Purpose Segment Data	28E	29E
General Purpose Segment Name	From US 70 BUS (E)	East of US 70 BUS (E)
General Purpose Segment Type	On-Ramp	BFS
Segment Length (ft)	2500	5280
Terrain	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5
# of Lanes: Mainline	2	2
Free Flow Speed (mph)	70	70
Mainline Dem. (vph)	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	920	N/A
ONR Side	Right	N/A
# Lanes: ONR	2	N/A
ONR Free Flow Speed (mph)	60	N/A
ONR/Entering Dem. (vph)	408	N/A
ONR Single Unit Truck and Bus (%)	7	N/A
OFR Side	N/A	N/A
# Lanes: OFR	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A
Total Density (pc/mi/ln)	7.6	7.4
V/C	0.21	0.21
Density Based LOS	A	A

R-2553 US 70 Kinston Bypass, Alternative 31
US 70 EB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1E	2E	3E	4E	5E	6E	7E	8E	9E
General Purpose Segment Name	W of Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	Jim Sutton/Willie Measley to US 70 Bus (W)	To US 70 Bus (W)	US 70 Bus (W) to CF Harvey Pkwy	From CF Harvey Pkwy	CF Harvey Pkwy to NC 11
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	1500	9380	2500	15070	2500	7920
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1676	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	750	N/A	920	N/A	2500	N/A	2500	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	2	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	60	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	311	N/A	N/A	N/A	360	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	2	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	60	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	223	N/A	N/A	N/A	840	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	12.4	12.4	10.8	13.8	13.0	0.0*	6.9	0.1	9.5
V/C	0.36	0.36	0.31	0.38	0.38	0.38	0.20	0.28	0.28
Density Based LOS	B	B	A	B	B	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 31
US 70 EB - PM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10E	11E	12E	13E	14E	15E	16E	17E	18E
General Purpose Segment Name	To NC 11	Within NC 11	From NC 11	NC 11 to US 258	To US 258	Within US 258	From US 258	US 258 to NC 58	To NC 58
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	5760	1500	1500	1500	12310	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	750	N/A	920	N/A	490
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	45	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	178	N/A	N/A	N/A	83	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	7	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	25	N/A	N/A	N/A	45
OFR/Exit Dem. (vph)	353	N/A	N/A	N/A	424	N/A	N/A	N/A	52
OFR Single Unit Truck and Bus (%)	7	N/A	N/A	N/A	7	N/A	N/A	N/A	6
Total Density (pc/mi/ln)	9.0	6.9	8.6	8.2	7.4	5.1	5.9	5.7	6.7
V/C	0.28	0.20	0.24	0.24	0.24	0.15	0.17	0.17	0.17
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 31
US 70 EB - PM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19E	20E	21E	22E	23E	24E	25E	26E	27E
General Purpose Segment Name	Within NC 58	From NC 58	NC 58 to Wyse Fork	To Wyse Fork	Within Wyse Fork Int	From Wyse Fork	Wyse Fork to US 70 BUS (E)	To US 70 BUS (E)	Within US 70 BUS (E) Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1620	15920	1500	1500	1620	12900	1500	1550
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	1620	N/A	490	N/A	1620	N/A	750	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	25	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	36	N/A	N/A	N/A	34	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	6	N/A	N/A	N/A	4	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	25	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	37	N/A	N/A	N/A	110	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	7	N/A
Total Density (pc/mi/ln)	5.3	1.4	5.6	6.6	5.3	1.4	5.6	4.2	4.7
V/C	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.14
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 31
US 70 EB - PM Peak

Segment	Seg. 28	Seg. 29
General Purpose Segment Data	28E	29E
General Purpose Segment Name	From US 70 BUS (E)	East of US 70 BUS (E)
General Purpose Segment Type	On-Ramp	BFS
Segment Length (ft)	2500	5280
Terrain	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5
# of Lanes: Mainline	2	2
Free Flow Speed (mph)	70	70
Mainline Dem. (vph)	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	920	N/A
ONR Side	Right	N/A
# Lanes: ONR	2	N/A
ONR Free Flow Speed (mph)	60	N/A
ONR/Entering Dem. (vph)	510	N/A
ONR Single Unit Truck and Bus (%)	7	N/A
OFR Side	N/A	N/A
# Lanes: OFR	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A
Total Density (pc/mi/ln)	8.8	8.5
V/C	0.25	0.25
Density Based LOS	A	A

R-2553 US 70 Kinston Bypass, Alternative 31
US 70 WB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1W	2W	3W	4W	5W	6W	7W	8W	9W
General Purpose Segment Name	E of US 70 BUS (E)	To US 70 BUS (E)	Within US 70 BUS (E) Int	From US 70 BUS (E)	US 70 BUS (E) to Wyse Fork	To Wyse Fork	Within Wyse Fork Int	From Wyse Fork	Wyse Fork to NC 58
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	3350	1500	10810	1500	1500	1500	15760
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1149	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	9	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	920	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	110	N/A	N/A	N/A	37	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	7	N/A	N/A	N/A	4	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	510	N/A	N/A	N/A	34	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	8.6	10.2	4.8	5.8	5.6	4.3	5.4	5.9	5.6
V/C	0.25	0.25	0.14	0.16	0.16	0.16	0.16	0.16	0.16
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 31
US 70 WB - AM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10W	11W	12W	13W	14W	15W	16W	17W	18W
General Purpose Segment Name	To NC 58	Within NC 58 Int	From NC 58	NC 58 to US 258	To US 258	Within US 258 Int	From US 258	US 258 to NC 11	To NC 11
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	12350	1500	1500	1620	7710	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	52	N/A	N/A	N/A	424	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	6	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	36	N/A	N/A	N/A	83	N/A	N/A	N/A	178
OFR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	7	N/A	N/A	N/A	7
Total Density (pc/mi/ln)	4.3	5.4	6.0	5.8	6.8	5.1	4.2	8.3	7.5
V/C	0.16	0.16	0.17	0.17	0.17	0.15	0.24	0.24	0.24
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 31
US 70 WB - AM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19W	20W	21W	22W	23W	24W	25W	26W	27W
General Purpose Segment Name	Within NC 11 Int	From NC 11	NC 11 to CF Harvey Pkwy	To CF Harvey Pkwy	CF Harvey Pkwy to US 70 BUS (W)	From US 70 BUS (W)	US 70 Bus (W) to Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	7590	2500	11300	1500	11160	1500	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	920	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	353	N/A	N/A	N/A	840	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	5	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	360	N/A	N/A	N/A	311	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	5	N/A	N/A	N/A	4	N/A
Total Density (pc/mi/ln)	7.0	10.0	9.6	11.4	6.9	13.7	13.1	15.6	10.8
V/C	0.20	0.28	0.28	0.28	0.20	0.38	0.38	0.38	0.32
Density Based LOS	A	A	A	B	A	B	B	B	A

R-2553 US 70 Kinston Bypass, Alternative 31
US 70 WB - AM Peak

Segment	Seg. 28	Seg. 29
General Purpose Segment Data	28W	29W
General Purpose Segment Name	From Jim Sutton/Willie Measley	W of Jim Sutton/Willie Measley
General Purpose Segment Type	On-Ramp	BFS
Segment Length (ft)	1620	5280
Terrain	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5
# of Lanes: Mainline	2	2
Free Flow Speed (mph)	70	70
Mainline Dem. (vph)	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	1620	N/A
ONR Side	Right	N/A
# Lanes: ONR	1	N/A
ONR Free Flow Speed (mph)	25	N/A
ONR/Entering Dem. (vph)	223	N/A
ONR Single Unit Truck and Bus (%)	4	N/A
OFR Side	N/A	N/A
# Lanes: OFR	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A
Total Density (pc/mi/ln)	8.8	12.4
V/C	0.36	0.36
Density Based LOS	A	B

R-2553 US 70 Kinston Bypass, Alternative 31
US 70 WB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1W	2W	3W	4W	5W	6W	7W	8W	9W
General Purpose Segment Name	E of US 70 BUS (E)	To US 70 BUS (E)	Within US 70 BUS (E) Int	From US 70 BUS (E)	US 70 BUS (E) to Wyse Fork	To Wyse Fork	Within Wyse Fork Int	From Wyse Fork	Wyse Fork to NC 58
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	3350	1500	10810	1500	1500	1500	15760
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	990	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	9	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	920	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	111	N/A	N/A	N/A	31	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	7	N/A	N/A	N/A	4	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	408	N/A	N/A	N/A	33	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	7.4	8.7	4.4	5.3	5.2	3.8	5.0	5.4	5.2
V/C	0.22	0.22	0.13	0.15	0.15	0.15	0.14	0.15	0.15
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 31
US 70 WB - PM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10W	11W	12W	13W	14W	15W	16W	17W	18W
General Purpose Segment Name	To NC 58	Within NC 58 Int	From NC 58	NC 58 to US 258	To US 258	Within US 258 Int	From US 258	US 258 to NC 11	To NC 11
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	12350	1500	1500	1620	7710	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	42	N/A	N/A	N/A	342	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	6	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	40	N/A	N/A	N/A	79	N/A	N/A	N/A	154
OFR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	7	N/A	N/A	N/A	7
Total Density (pc/mi/ln)	3.7	4.9	5.4	5.2	6.1	4.6	3.0	7.1	6.1
V/C	0.15	0.14	0.15	0.15	0.15	0.13	0.21	0.21	0.21
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 31
US 70 WB - PM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19W	20W	21W	22W	23W	24W	25W	26W	27W
General Purpose Segment Name	Within NC 11 Int	From NC 11	NC 11 to CF Harvey Pkwy	To CF Harvey Pkwy	CF Harvey Pkwy to US 70 BUS (W)	From US 70 BUS (W)	US 70 Bus (W) to Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	7590	2500	11300	1500	11160	1500	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	920	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	335	N/A	N/A	N/A	1260	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	5	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	240	N/A	N/A	N/A	424	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	5	N/A	N/A	N/A	4	N/A
Total Density (pc/mi/ln)	6.0	8.8	8.5	10.0	6.7	16.6	15.9	19.0	12.9
V/C	0.17	0.25	0.25	0.25	0.20	0.47	0.47	0.47	0.37
Density Based LOS	A	A	A	A	A	B	B	B	B

R-2553 US 70 Kinston Bypass, Alternative 31
US 70 WB - PM Peak

Segment	Seg. 28	Seg. 29
General Purpose Segment Data	28W	29W
General Purpose Segment Name	From Jim Sutton/Willie Measley	W of Jim Sutton/Willie Measley
General Purpose Segment Type	On-Ramp	BFS
Segment Length (ft)	1620	5280
Terrain	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5
# of Lanes: Mainline	2	2
Free Flow Speed (mph)	70	70
Mainline Dem. (vph)	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	1620	N/A
ONR Side	Right	N/A
# Lanes: ONR	1	N/A
ONR Free Flow Speed (mph)	25	N/A
ONR/Entering Dem. (vph)	201	N/A
ONR Single Unit Truck and Bus (%)	4	N/A
OFR Side	N/A	N/A
# Lanes: OFR	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A
Total Density (pc/mi/ln)	10.9	14.3
V/C	0.42	0.42
Density Based LOS	B	B

R-2553 US 70 Kinston Bypass, Alternative 31
CF Harvey Parkwy Ext NB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7
General Purpose Segment Data	1N	2N	3N	4N	5N	6N	7N
General Purpose Segment Name	US 70 to US 70 BUS/NC 148	To US 70 BUS EB	Ramp to US 70 BUS EB to Ramp to US 70 BUS WB	To US 70 BUS WB	Within US 70 BUS Int	From US 70 BUS	North of US 70 BUS
General Purpose Segment Type	BFS	Off-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1660	1500	1500	1500	1500	1500	5280
Terrain	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70
Mainline Dem. (vph)	360	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	5	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	N/A	N/A	577	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	31	N/A	22	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	5	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	2.6	3.0	2.4	0.4	2.2	6.5	6.5
V/C	0.08	0.08	0.07	0.07	0.07	0.19	0.19
Density Based LOS	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 31
CF Harvey Parkwy Ext NB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7
General Purpose Segment Data	1N	2N	3N	4N	5N	6N	7N
General Purpose Segment Name	US 70 to US 70 BUS/NC 148	To US 70 BUS EB	Ramp to US 70 BUS EB to Ramp to US 70 BUS WB	To US 70 BUS WB	Within US 70 BUS Int	From US 70 BUS	North of US 70 BUS
General Purpose Segment Type	BFS	Off-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1660	1500	1500	1500	1500	1500	5280
Terrain	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70
Mainline Dem. (vph)	240	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	5	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	N/A	N/A	293	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	30	N/A	27	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	5	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	1.8	2.0	1.5	0.0*	1.3	3.4	3.5
V/C	0.05	0.05	0.04	0.04	0.04	0.10	0.10
Density Based LOS	A	A	A	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 31
CF Harvey Parkwy Ext SB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7
General Purpose Segment Data	1S	2S	3S	4S	5S	6S	7S
General Purpose Segment Name	North of US 70 BUS	To US 70 BUS WB	Ramp to US 70 BUS WB to US 70 BUS Weave	US 70 BUS Weave	US 70 BUS Weave to Ramp from US 70 BUS EB	From US 70 BUS EB	US 70 BUS EB to US 70
General Purpose Segment Type	BFS	Off-Ramp	BFS	Weave	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	700	1500	1500	1880
Terrain	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70
Mainline Dem. (vph)	477	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	N/A	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	25	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	30	N/A	27	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	5	N/A	5	N/A
OFR Side	N/A	Right	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	267	N/A	27	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	5	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	3.5	4.1	1.6	1.8	1.6	1.7	1.8
V/C	0.10	0.10	0.05	0.06	0.05	0.05	0.05
Density Based LOS	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 31
CF Harvey Parkwy Ext SB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7
General Purpose Segment Data	1S	2S	3S	4S	5S	6S	7S
General Purpose Segment Name	North of US 70 BUS	To US 70 BUS WB	Ramp to US 70 BUS WB to US 70 BUS Weave	US 70 BUS Weave	US 70 BUS Weave to Ramp from US 70 BUS EB	From US 70 BUS EB	US 70 BUS EB to US 70
General Purpose Segment Type	BFS	Off-Ramp	BFS	Weave	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	700	1500	1500	1880
Terrain	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70
Mainline Dem. (vph)	884	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	N/A	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	25	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	31	N/A	22	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	5	N/A	5	N/A
OFR Side	N/A	Right	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	535	N/A	42	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	5	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	6.5	7.7	2.6	2.9	2.5	2.6	2.7
V/C	0.19	0.19	0.08	0.09	0.07	0.08	0.08
Density Based LOS	A	A	A	A	A	A	A

2040 Build Alternative 31
Synchro Reports

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	4	4	4	4	30	4	106	4	18	70	6
Future Volume (vph)	11	4	4	4	4	30	4	106	4	18	70	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1693	0	0	1589	0	1770	1853	0	1770	1840	0
Flt Permitted		0.971			0.995		0.950			0.950		
Satd. Flow (perm)	0	1693	0	0	1589	0	1770	1853	0	1770	1840	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		883			854			935			1001	
Travel Time (s)		13.4			12.9			11.6			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	0	0	41	0	4	122	0	20	85	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 18.1%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	4	4	4	4	30	4	106	4	18	70	6
Future Volume (Veh/h)	11	4	4	4	4	30	4	106	4	18	70	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	12	4	4	4	4	33	4	118	4	20	78	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1001	
pX, platoon unblocked												
vC, conflicting volume	282	252	82	252	253	120	85			122		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	282	252	82	252	253	120	85			122		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	98	99	100	99	99	96	100			99		
cM capacity (veh/h)	627	634	967	678	633	921	1512			1465		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	20	41	4	122	20	85
Volume Left	12	4	4	0	20	0
Volume Right	4	33	0	4	0	7
cSH	676	853	1512	1700	1465	1700
Volume to Capacity	0.03	0.05	0.00	0.07	0.01	0.05
Queue Length 95th (ft)	2	4	0	0	1	0
Control Delay (s)	10.5	9.4	7.4	0.0	7.5	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	10.5	9.4	0.2		1.4	
Approach LOS	B	A				

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	4	4	4	4	18	4	70	4	30	106	11
Future Volume (vph)	6	4	4	4	4	18	4	70	4	30	106	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1688	0	0	1609	0	1770	1850	0	1770	1837	0
Flt Permitted		0.977			0.993		0.950			0.950		
Satd. Flow (perm)	0	1688	0	0	1609	0	1770	1850	0	1770	1837	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		883			854			935			1001	
Travel Time (s)		13.4			12.9			11.6			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	0	28	0	4	82	0	33	130	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 18.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	4	4	4	4	18	4	70	4	30	106	11
Future Volume (Veh/h)	6	4	4	4	4	18	4	70	4	30	106	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	4	4	4	4	20	4	78	4	33	118	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1001	
pX, platoon unblocked												
vC, conflicting volume	298	280	124	278	284	80	130			82		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	298	280	124	278	284	80	130			82		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	99	99	100	99	99	98	100			98		
cM capacity (veh/h)	618	606	916	648	603	969	1455			1515		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	15	28	4	82	33	130
Volume Left	7	4	4	0	33	0
Volume Right	4	20	0	4	0	12
cSH	673	837	1455	1700	1515	1700
Volume to Capacity	0.02	0.03	0.00	0.05	0.02	0.08
Queue Length 95th (ft)	2	3	0	0	2	0
Control Delay (s)	10.5	9.4	7.5	0.0	7.4	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	10.5	9.4	0.3		1.5	
Approach LOS	B	A				

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	18.3%	ICU Level of Service	A
Analysis Period (min)	15		

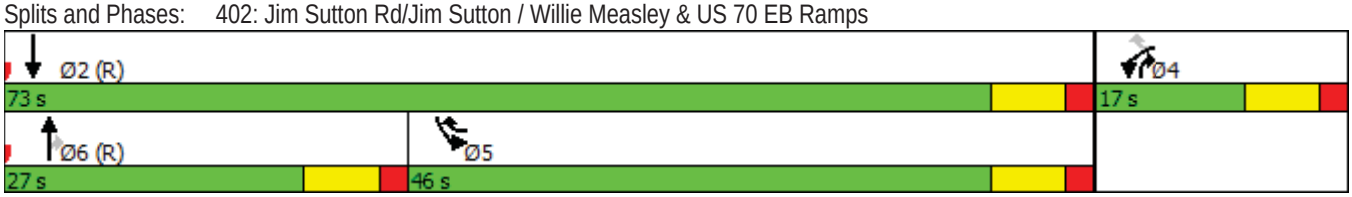
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	34	147	71	71	311	64
Future Volume (vph)	34	147	71	71	311	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		100	325	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1863	1583	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1863	1583	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	999		1001			1313
Travel Time (s)	27.2		12.4			16.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	163	79	79	346	71
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	17.0	46.0	27.0	17.0	46.0	73.0
Total Split (%)	18.9%	51.1%	30.0%	18.9%	51.1%	81.1%
Maximum Green (s)	10.0	39.0	20.0	10.0	39.0	66.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.0	38.0	42.0	54.1	25.9	73.8
Actuated g/C Ratio	0.11	0.42	0.47	0.60	0.29	0.82
v/c Ratio	0.20	0.25	0.09	0.08	0.69	0.05
Control Delay	38.4	15.3	18.3	9.6	31.6	2.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.4	15.3	18.3	9.6	31.6	2.3
LOS	D	B	B	A	C	A
Approach Delay	19.7		14.0			26.6
Approach LOS	B		B			C
Queue Length 50th (ft)	20	55	25	17	132	6
Queue Length 95th (ft)	49	73	65	46	179	15
Internal Link Dist (ft)	919		921			1233
Turn Bay Length (ft)		175		100	325	
Base Capacity (vph)	231	755	868	924	790	1499
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.22	0.09	0.09	0.44	0.05

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 24 (27%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 22.3 Intersection LOS: C
Intersection Capacity Utilization 38.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps



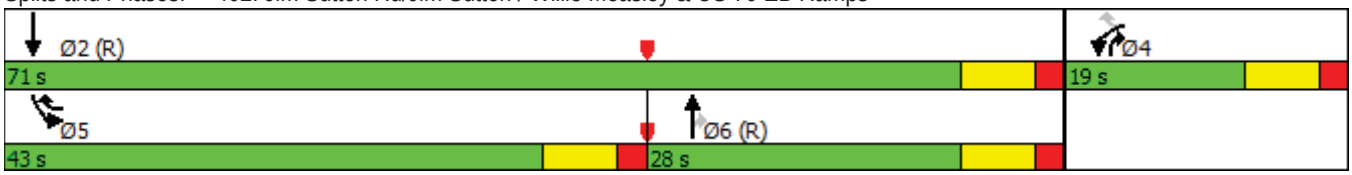
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	45	156	55	43	237	97
Future Volume (vph)	45	156	55	43	237	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		100	325	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1863	1583	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1863	1583	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	999		1001			1313
Travel Time (s)	27.2		12.4			16.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	50	173	61	48	263	108
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	19.0	43.0	28.0	19.0	43.0	71.0
Total Split (%)	21.1%	47.8%	31.1%	21.1%	47.8%	78.9%
Maximum Green (s)	12.0	36.0	21.0	12.0	36.0	64.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.4	33.8	46.2	61.6	21.2	73.4
Actuated g/C Ratio	0.12	0.38	0.51	0.68	0.24	0.82
v/c Ratio	0.25	0.30	0.06	0.04	0.64	0.07
Control Delay	38.9	18.7	15.4	7.2	31.2	2.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	18.7	15.4	7.2	31.2	2.3
LOS	D	B	B	A	C	A
Approach Delay	23.3		11.8			22.8
Approach LOS	C		B			C
Queue Length 50th (ft)	26	65	18	9	117	9
Queue Length 95th (ft)	59	90	48	26	168	18
Internal Link Dist (ft)	919		921			1233
Turn Bay Length (ft)		175		100	325	
Base Capacity (vph)	270	872	957	1147	732	1490
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.20	0.06	0.04	0.36	0.07

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 11 (12%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 21.2 Intersection LOS: C
Intersection Capacity Utilization 34.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps



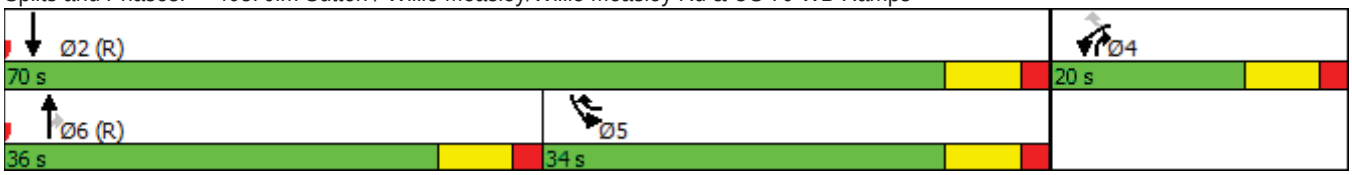
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	43	237	173	45	156	332
Future Volume (vph)	43	237	173	45	156	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	275		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	987		1313			996
Travel Time (s)	15.0		16.3			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	263	192	50	173	369
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	34.0	36.0	20.0	34.0	70.0
Total Split (%)	22.2%	37.8%	40.0%	22.2%	37.8%	77.8%
Maximum Green (s)	13.0	27.0	29.0	13.0	27.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.3	32.3	47.7	60.2	19.8	73.5
Actuated g/C Ratio	0.11	0.36	0.53	0.67	0.22	0.82
v/c Ratio	0.24	0.47	0.20	0.05	0.45	0.25
Control Delay	38.8	23.5	11.4	4.2	33.7	3.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.8	23.5	11.4	4.2	33.7	3.2
LOS	D	C	B	A	C	A
Approach Delay	25.9		9.9			13.0
Approach LOS	C		A			B
Queue Length 50th (ft)	25	108	48	5	86	45
Queue Length 95th (ft)	57	151	99	16	138	83
Internal Link Dist (ft)	907		1233			916
Turn Bay Length (ft)		275		100	200	
Base Capacity (vph)	289	602	968	1026	559	1491
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.44	0.20	0.05	0.31	0.25

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.47
Intersection Signal Delay: 16.0 Intersection LOS: B
Intersection Capacity Utilization 38.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps



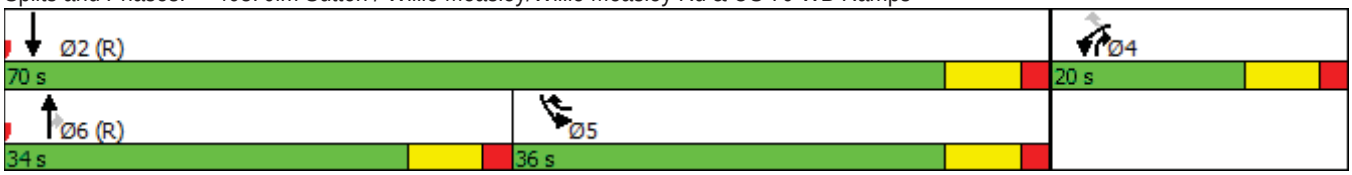
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	71	311	177	34	147	263
Future Volume (vph)	71	311	177	34	147	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	275		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	987		1313			996
Travel Time (s)	15.0		16.3			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	79	346	197	38	163	292
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	36.0	34.0	20.0	36.0	70.0
Total Split (%)	22.2%	40.0%	37.8%	22.2%	40.0%	77.8%
Maximum Green (s)	13.0	29.0	27.0	13.0	29.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	11.6	38.1	41.9	55.7	24.3	72.2
Actuated g/C Ratio	0.13	0.42	0.47	0.62	0.27	0.80
v/c Ratio	0.35	0.53	0.23	0.04	0.35	0.20
Control Delay	39.5	20.8	13.1	6.7	27.8	3.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.5	20.8	13.1	6.7	27.8	3.5
LOS	D	C	B	A	C	A
Approach Delay	24.2		12.1			12.2
Approach LOS	C		B			B
Queue Length 50th (ft)	42	134	35	5	75	37
Queue Length 95th (ft)	81	168	155	18	118	73
Internal Link Dist (ft)	907		1233			916
Turn Bay Length (ft)		275		100	200	
Base Capacity (vph)	289	682	850	946	597	1465
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.51	0.23	0.04	0.27	0.20

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.53
Intersection Signal Delay: 16.8 Intersection LOS: B
Intersection Capacity Utilization 39.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	8	205	42	4	4	169	127	60	8	189	5
Future Volume (vph)	4	8	205	42	4	4	169	127	60	8	189	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1623	0	0	1769	0	1736	1739	0	1770	1855	0
Flt Permitted		0.999			0.959		0.950			0.950		
Satd. Flow (perm)	0	1623	0	0	1769	0	1736	1739	0	1770	1855	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		970			951			996			1084	
Travel Time (s)		14.7			14.4			12.3			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	241	0	0	55	0	188	208	0	9	216	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 49.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	8	205	42	4	4	169	127	60	8	189	5
Future Volume (Veh/h)	4	8	205	42	4	4	169	127	60	8	189	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	9	228	47	4	4	188	141	67	9	210	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								996				
pX, platoon unblocked												
vC, conflicting volume	754	815	213	1011	784	174	216			208		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	754	815	213	1011	784	174	216			208		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	97	72	66	99	100	86			99		
cM capacity (veh/h)	285	266	827	137	277	869	1342			1363		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	241	55	188	208	9	216
Volume Left	4	47	188	0	9	0
Volume Right	228	4	0	67	0	6
cSH	745	152	1342	1700	1363	1700
Volume to Capacity	0.32	0.36	0.14	0.12	0.01	0.13
Queue Length 95th (ft)	35	38	12	0	0	0
Control Delay (s)	12.1	41.7	8.1	0.0	7.7	0.0
Lane LOS	B	E	A		A	
Approach Delay (s)	12.1	41.7	3.9		0.3	
Approach LOS	B	E				

Intersection Summary			
Average Delay	7.4		
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	4	169	60	8	8	205	189	42	4	127	4
Future Volume (vph)	5	4	169	60	8	8	205	189	42	4	127	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1621	0	0	1767	0	1736	1778	0	1770	1855	0
Flt Permitted		0.998			0.962		0.950			0.950		
Satd. Flow (perm)	0	1621	0	0	1767	0	1736	1778	0	1770	1855	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		970			951			996			1084	
Travel Time (s)		14.7			14.4			12.3			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	198	0	0	85	0	228	257	0	4	145	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 46.8%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	4	169	60	8	8	205	189	42	4	127	4
Future Volume (Veh/h)	5	4	169	60	8	8	205	189	42	4	127	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	4	188	67	9	9	228	210	47	4	141	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								996				
pX, platoon unblocked												
vC, conflicting volume	830	864	143	1028	842	234	145			257		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	830	864	143	1028	842	234	145			257		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	98	79	54	96	99	84			100		
cM capacity (veh/h)	244	245	905	145	252	806	1425			1308		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	198	85	228	257	4	145
Volume Left	6	67	228	0	4	0
Volume Right	188	9	0	47	0	4
cSH	796	167	1425	1700	1308	1700
Volume to Capacity	0.25	0.51	0.16	0.15	0.00	0.09
Queue Length 95th (ft)	25	62	14	0	0	0
Control Delay (s)	11.0	46.9	8.0	0.0	7.8	0.0
Lane LOS	B	E	A		A	
Approach Delay (s)	11.0	46.9	3.8		0.2	
Approach LOS	B	E				

Intersection Summary			
Average Delay	8.7		
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Volume (vph)	0	693	453	164	0	192
Future Volume (vph)	0	693	453	164	0	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			300	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	100				100	
Satd. Flow (prot)	0	3471	3471	1553	0	1550
Flt Permitted						
Satd. Flow (perm)	0	3471	3471	1553	0	1550
Link Speed (mph)		55	55		45	
Link Distance (ft)		1000	953		1176	
Travel Time (s)		12.4	11.8		17.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	770	503	182	0	213
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	693	453	164	0	192
Future Volume (Veh/h)	0	693	453	164	0	192
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	770	503	182	0	213
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	503				888	252
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	503				888	252
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	100				100	71
cM capacity (veh/h)	1044				276	736

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	385	385	252	252	182	213
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	182	213
cSH	1700	1700	1700	1700	1700	736
Volume to Capacity	0.23	0.23	0.15	0.15	0.11	0.29
Queue Length 95th (ft)	0	0	0	0	0	30
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.9
Lane LOS						B
Approach Delay (s)	0.0		0.0			11.9
Approach LOS						B

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	31.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	630	515	207	0	150
Future Volume (vph)	0	630	515	207	0	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			300	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	100				100	
Satd. Flow (prot)	0	3471	3471	1553	0	1550
Flt Permitted						
Satd. Flow (perm)	0	3471	3471	1553	0	1550
Link Speed (mph)		55	55		45	
Link Distance (ft)		1000	953		1176	
Travel Time (s)		12.4	11.8		17.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	700	572	230	0	167
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 30.2%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	630	515	207	0	150
Future Volume (Veh/h)	0	630	515	207	0	150
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	700	572	230	0	167
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	572				922	286
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	572				922	286
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	100				100	76
cM capacity (veh/h)	983				262	699

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	350	350	286	286	230	167
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	230	167
cSH	1700	1700	1700	1700	1700	699
Volume to Capacity	0.21	0.21	0.17	0.17	0.14	0.24
Queue Length 95th (ft)	0	0	0	0	0	23
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.8
Lane LOS						B
Approach Delay (s)	0.0		0.0			11.8
Approach LOS						B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	30.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	292	25	24	902	599	189
Future Volume (vph)	292	25	24	902	599	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	300			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1671	1495	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1671	1495	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	55	
Link Distance (ft)	1293			1201	1455	
Travel Time (s)	16.0			14.9	18.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	324	28	27	1002	666	210
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	44.0	14.0	14.0	106.0	92.0	44.0
Total Split (%)	29.3%	9.3%	9.3%	70.7%	61.3%	29.3%
Maximum Green (s)	37.0	7.0	7.0	99.0	85.0	37.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	34.6	48.7	9.2	105.4	94.1	134.6
Actuated g/C Ratio	0.23	0.32	0.06	0.70	0.63	0.90
v/c Ratio	0.84	0.06	0.26	0.79	0.59	0.15
Control Delay	74.4	33.2	73.7	21.7	15.2	1.1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.4	33.2	73.7	21.7	15.2	1.1
LOS	E	C	E	C	B	A
Approach Delay	71.1			23.1	11.8	
Approach LOS	E			C	B	
Queue Length 50th (ft)	301	18	26	627	226	12
Queue Length 95th (ft)	412	42	60	901	561	m17
Internal Link Dist (ft)	1213			1121	1375	
Turn Bay Length (ft)		100	300			100
Base Capacity (vph)	434	485	105	1271	1134	1400
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.06	0.26	0.79	0.59	0.15

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 144 (96%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 26.2 Intersection LOS: C
Intersection Capacity Utilization 72.0% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 406: NC 11/NC 11/55 & NC 55

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	190	23	24	599	902	292
Future Volume (vph)	190	23	24	599	902	292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	300			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1671	1495	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1671	1495	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	55	
Link Distance (ft)	1293			1201	1455	
Travel Time (s)	16.0			14.9	18.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	211	26	27	666	1002	324
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	18.0	14.0	14.0	72.0	58.0	18.0
Total Split (%)	20.0%	15.6%	15.6%	80.0%	64.4%	20.0%
Maximum Green (s)	11.0	7.0	7.0	65.0	51.0	11.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	14.4	28.4	9.0	65.6	57.2	78.6
Actuated g/C Ratio	0.16	0.32	0.10	0.73	0.64	0.87
v/c Ratio	0.79	0.06	0.16	0.50	0.87	0.24
Control Delay	60.0	22.8	39.5	6.7	18.4	1.8

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.0	22.8	39.5	6.7	18.4	1.8
LOS	E	C	D	A	B	A
Approach Delay	56.0			8.0	14.4	
Approach LOS	E			A	B	
Queue Length 50th (ft)	119	11	14	125	394	19
Queue Length 95th (ft)	#245	30	40	186	m#768	m30
Internal Link Dist (ft)	1213			1121	1375	
Turn Bay Length (ft)		100	300			100
Base Capacity (vph)	266	471	171	1347	1150	1343
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.06	0.16	0.49	0.87	0.24

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 28 (31%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 16.8 Intersection LOS: B
Intersection Capacity Utilization 66.3% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 406: NC 11/NC 11/55 & NC 55

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	218	84	1076	123	16	567
Future Volume (vph)	218	84	1076	123	16	567
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1810	1538	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1810	1538	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	942		1455			1429
Travel Time (s)	25.7		18.0			17.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	5%	5%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	242	93	1196	137	18	630
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	32.0	14.0	104.0	32.0	14.0	118.0
Total Split (%)	21.3%	9.3%	69.3%	21.3%	9.3%	78.7%
Maximum Green (s)	25.0	7.0	97.0	25.0	7.0	111.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	25.6	39.6	100.4	131.0	9.0	114.4
Actuated g/C Ratio	0.17	0.26	0.67	0.87	0.06	0.76
v/c Ratio	0.84	0.23	0.99	0.10	0.18	0.47
Control Delay	85.0	44.6	41.7	1.1	66.4	5.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.0	44.6	41.7	1.1	66.4	5.5
LOS	F	D	D	A	E	A
Approach Delay	73.8		37.5			7.2
Approach LOS	E		D			A
Queue Length 50th (ft)	229	71	~999	6	16	33
Queue Length 95th (ft)	#361	123	#1497	m11	m40	146
Internal Link Dist (ft)	862		1375			1349
Turn Bay Length (ft)		175		100	100	
Base Capacity (vph)	303	398	1211	1335	101	1354
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.23	0.99	0.10	0.18	0.47

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 34.3 Intersection LOS: C
Intersection Capacity Utilization 77.0% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 407: NC 11/55 & US 70 EB Ramps

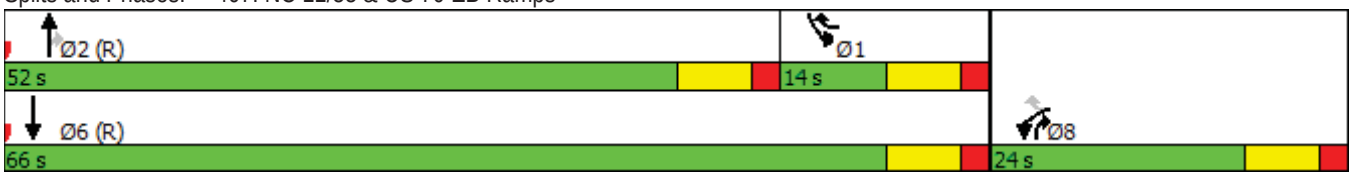
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	263	55	656	129	31	936
Future Volume (vph)	263	55	656	129	31	936
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1810	1538	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1810	1538	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	942		1455			1429
Travel Time (s)	25.7		18.0			17.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	5%	5%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	292	61	729	143	34	1040
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	24.0	14.0	52.0	24.0	14.0	66.0
Total Split (%)	26.7%	15.6%	57.8%	26.7%	15.6%	73.3%
Maximum Green (s)	17.0	7.0	45.0	17.0	7.0	59.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	18.9	32.6	49.2	74.1	9.7	61.1
Actuated g/C Ratio	0.21	0.36	0.55	0.82	0.11	0.68
v/c Ratio	0.83	0.11	0.74	0.11	0.19	0.86
Control Delay	54.8	19.1	16.3	1.9	26.5	9.7

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.8	19.1	16.3	1.9	26.5	9.7
LOS	D	B	B	A	C	A
Approach Delay	48.6		13.9			10.2
Approach LOS	D		B			B
Queue Length 50th (ft)	160	22	216	12	17	79
Queue Length 95th (ft)	#293	50	360	m18	m22	m106
Internal Link Dist (ft)	862		1375			1349
Turn Bay Length (ft)		175		100	100	
Base Capacity (vph)	362	546	1011	1257	182	1213
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.11	0.72	0.11	0.19	0.86

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 6 (7%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 17.5 Intersection LOS: B
Intersection Capacity Utilization 72.2% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 407: NC 11/55 & US 70 EB Ramps



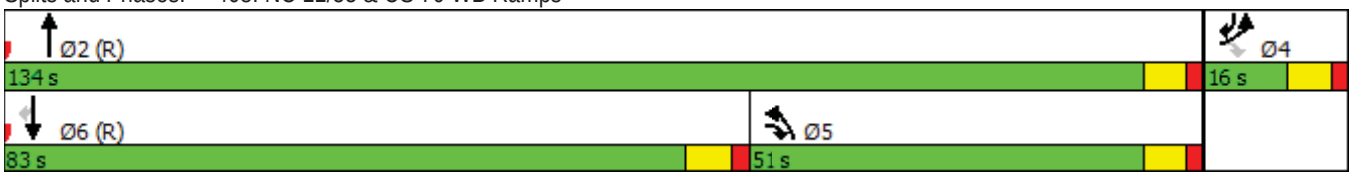
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	31	129	263	897	454	55
Future Volume (vph)	31	129	263	897	454	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	225	400			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1687	1509	1687	1776	1776	1509
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1687	1509	1687	1776	1776	1509
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1169			1429	1067	
Travel Time (s)	31.9			17.7	13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	34	143	292	997	504	61
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	16.0	51.0	51.0	134.0	83.0	16.0
Total Split (%)	10.7%	34.0%	34.0%	89.3%	55.3%	10.7%
Maximum Green (s)	9.0	44.0	44.0	127.0	76.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	10.8	46.3	33.4	133.0	93.7	106.6
Actuated g/C Ratio	0.07	0.31	0.22	0.89	0.62	0.71
v/c Ratio	0.28	0.31	0.78	0.63	0.45	0.06
Control Delay	71.3	38.7	48.3	1.4	18.8	8.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.3	38.7	48.3	1.4	18.8	8.0
LOS	E	D	D	A	B	A
Approach Delay	44.9			12.0	17.6	
Approach LOS	D			B	B	
Queue Length 50th (ft)	32	104	253	89	259	17
Queue Length 95th (ft)	69	144	m296	m9	428	39
Internal Link Dist (ft)	1089			1349	987	
Turn Bay Length (ft)		225	400			100
Base Capacity (vph)	130	511	517	1583	1108	1057
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.28	0.56	0.63	0.45	0.06

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 44 (29%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 16.4 Intersection LOS: B
Intersection Capacity Utilization 61.4% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 408: NC 11/55 & US 70 WB Ramps



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	123	218	493	844	84
Future Volume (vph)	16	123	218	493	844	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	225	400			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1687	1509	1687	1776	1776	1509
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1687	1509	1687	1776	1776	1509
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1169			1429	1067	
Travel Time (s)	31.9			17.7	13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	137	242	548	938	93
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	14.0	20.0	20.0	76.0	56.0	14.0
Total Split (%)	15.6%	22.2%	22.2%	84.4%	62.2%	15.6%
Maximum Green (s)	7.0	13.0	13.0	69.0	49.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.0	26.2	15.0	74.8	53.8	65.0
Actuated g/C Ratio	0.10	0.29	0.17	0.83	0.60	0.72
v/c Ratio	0.11	0.31	0.86	0.37	0.88	0.09
Control Delay	38.6	25.8	46.6	1.3	29.1	3.9

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.6	25.8	46.6	1.3	29.1	3.9
LOS	D	C	D	A	C	A
Approach Delay	27.3			15.2	26.9	
Approach LOS	C			B	C	
Queue Length 50th (ft)	10	58	133	19	456	13
Queue Length 95th (ft)	30	105	m#230	41	#750	26
Internal Link Dist (ft)	1089			1349	987	
Turn Bay Length (ft)		225	400			100
Base Capacity (vph)	168	440	282	1476	1060	1088
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.31	0.86	0.37	0.88	0.09

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 22.2 Intersection LOS: C
Intersection Capacity Utilization 74.8% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 408: NC 11/55 & US 70 WB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	208	100	389	51	20	88
Future Volume (vph)	208	100	389	51	20	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	980		1013			1287
Travel Time (s)	26.7		12.6			16.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	231	111	432	57	22	98
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	30.0	14.0	46.0	30.0	14.0	60.0
Total Split (%)	33.3%	15.6%	51.1%	33.3%	15.6%	66.7%
Maximum Green (s)	23.0	7.0	39.0	23.0	7.0	53.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	19.5	33.8	49.0	74.4	9.4	60.5
Actuated g/C Ratio	0.22	0.38	0.54	0.83	0.10	0.67
v/c Ratio	0.63	0.20	0.45	0.05	0.13	0.08
Control Delay	39.4	18.4	16.7	2.4	44.2	4.1

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.4	18.4	16.7	2.4	44.2	4.1
LOS	D	B	B	A	D	A
Approach Delay	32.6		15.0			11.4
Approach LOS	C		B			B
Queue Length 50th (ft)	120	42	149	5	13	10
Queue Length 95th (ft)	179	68	273	13	26	22
Internal Link Dist (ft)	900		933			1207
Turn Bay Length (ft)		150		100	100	
Base Capacity (vph)	471	567	974	1303	175	1197
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.20	0.44	0.04	0.13	0.08

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 56 (62%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 20.9 Intersection LOS: C
Intersection Capacity Utilization 40.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 409: US 258 & US 70 EB Ramps

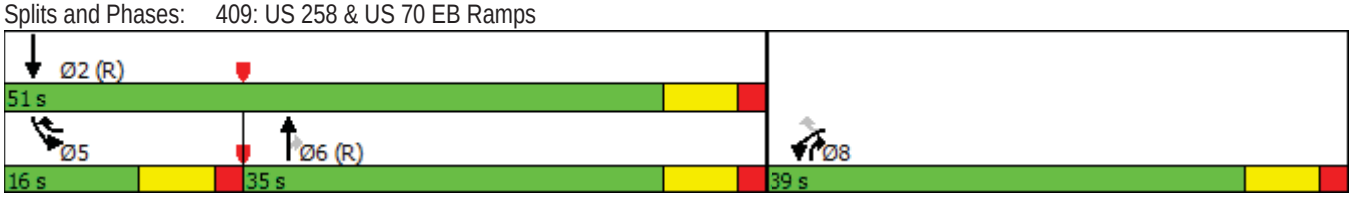
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	304	78	253	43	32	136
Future Volume (vph)	304	78	253	43	32	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	980		1013			1287
Travel Time (s)	26.7		12.6			16.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	338	87	281	48	36	151
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	39.0	16.0	35.0	39.0	16.0	51.0
Total Split (%)	43.3%	17.8%	38.9%	43.3%	17.8%	56.7%
Maximum Green (s)	32.0	9.0	28.0	32.0	9.0	44.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	25.3	40.2	42.6	73.9	9.9	54.7
Actuated g/C Ratio	0.28	0.45	0.47	0.82	0.11	0.61
v/c Ratio	0.71	0.13	0.33	0.04	0.19	0.14
Control Delay	37.1	13.3	19.4	2.6	34.1	7.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	13.3	19.4	2.6	34.1	7.2
LOS	D	B	B	A	C	A
Approach Delay	32.2		17.0			12.4
Approach LOS	C		B			B
Queue Length 50th (ft)	172	28	102	5	15	23
Queue Length 95th (ft)	236	45	198	13	43	80
Internal Link Dist (ft)	900		933			1207
Turn Bay Length (ft)		150		100	100	
Base Capacity (vph)	637	695	840	1329	209	1079
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.13	0.33	0.04	0.17	0.14

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 66 (73%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 23.0 Intersection LOS: C
Intersection Capacity Utilization 48.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 409: US 258 & US 70 EB Ramps



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	43	32	185	304	78	65
Future Volume (vph)	43	32	185	304	78	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		175	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1086		1287			882
Travel Time (s)	16.5		16.0			10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	36	206	338	87	72
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	32.0	22.0	36.0	32.0	22.0	58.0
Total Split (%)	35.6%	24.4%	40.0%	35.6%	24.4%	64.4%
Maximum Green (s)	25.0	15.0	29.0	25.0	15.0	51.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	13.1	30.3	52.5	71.6	12.2	66.9
Actuated g/C Ratio	0.15	0.34	0.58	0.80	0.14	0.74
v/c Ratio	0.20	0.07	0.20	0.28	0.38	0.05
Control Delay	33.5	17.6	6.2	2.0	39.7	4.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	17.6	6.2	2.0	39.7	4.2
LOS	C	B	A	A	D	A
Approach Delay	26.7		3.6			23.6
Approach LOS	C		A			C
Queue Length 50th (ft)	25	14	9	6	46	8
Queue Length 95th (ft)	51	28	47	15	87	27
Internal Link Dist (ft)	1006		1207			802
Turn Bay Length (ft)		100		175	175	
Base Capacity (vph)	506	589	1036	1373	318	1319
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.06	0.20	0.25	0.27	0.05

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.38
Intersection Signal Delay: 10.1 Intersection LOS: B
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 410: US 258 & US 70 WB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	51	20	123	208	100	117
Future Volume (vph)	51	20	123	208	100	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		175	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1086		1287			882
Travel Time (s)	16.5		16.0			10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	22	137	231	111	130
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	28.0	28.0	34.0	28.0	28.0	62.0
Total Split (%)	31.1%	31.1%	37.8%	31.1%	31.1%	68.9%
Maximum Green (s)	21.0	21.0	27.0	21.0	21.0	55.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.8	29.0	53.8	70.5	13.3	69.2
Actuated g/C Ratio	0.12	0.32	0.60	0.78	0.15	0.77
v/c Ratio	0.28	0.05	0.13	0.20	0.45	0.10
Control Delay	39.2	18.8	6.5	1.2	40.0	3.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	18.8	6.5	1.2	40.0	3.0
LOS	D	B	A	A	D	A
Approach Delay	33.5		3.2			20.0
Approach LOS	C		A			C
Queue Length 50th (ft)	30	9	19	7	58	14
Queue Length 95th (ft)	64	22	34	13	104	31
Internal Link Dist (ft)	1006		1207			802
Turn Bay Length (ft)		100		175	175	
Base Capacity (vph)	431	649	1061	1340	431	1366
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.03	0.13	0.17	0.26	0.10

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.45
Intersection Signal Delay: 12.6 Intersection LOS: B
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 410: US 258 & US 70 WB Ramps

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	4	8	9	5	38	9	300	8	17	159	16
Future Volume (vph)	30	4	8	9	5	38	9	300	8	17	159	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1751	0	0	1665	0	1703	1785	0	1703	1767	0
Flt Permitted		0.965			0.991		0.950			0.950		
Satd. Flow (perm)	0	1751	0	0	1665	0	1703	1785	0	1703	1767	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1178			1128			1123			927	
Travel Time (s)		17.8			17.1			13.9			11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	46	0	0	58	0	10	342	0	19	195	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 30.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	4	8	9	5	38	9	300	8	17	159	16
Future Volume (Veh/h)	30	4	8	9	5	38	9	300	8	17	159	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	4	9	10	6	42	10	333	9	19	177	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											927	
pX, platoon unblocked												
vC, conflicting volume	622	586	186	584	590	338	195			342		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	622	586	186	584	590	338	195			342		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	91	99	99	98	99	94	99			98		
cM capacity (veh/h)	365	413	856	409	410	705	1354			1195		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	46	58	10	342	19	195
Volume Left	33	10	10	0	19	0
Volume Right	9	42	0	9	0	18
cSH	415	588	1354	1700	1195	1700
Volume to Capacity	0.11	0.10	0.01	0.20	0.02	0.11
Queue Length 95th (ft)	9	8	1	0	1	0
Control Delay (s)	14.7	11.8	7.7	0.0	8.1	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	14.7	11.8	0.2		0.7	
Approach LOS	B	B				

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	30.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	5	9	8	4	17	8	159	9	38	300	30
Future Volume (vph)	16	5	9	8	4	17	8	159	9	38	300	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1742	0	0	1690	0	1703	1778	0	1703	1767	0
Flt Permitted		0.974			0.986		0.950			0.950		
Satd. Flow (perm)	0	1742	0	0	1690	0	1703	1778	0	1703	1767	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1178			1128			1123			927	
Travel Time (s)		17.8			17.1			13.9			11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	34	0	0	32	0	9	187	0	42	366	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 34.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	5	9	8	4	17	8	159	9	38	300	30
Future Volume (Veh/h)	16	5	9	8	4	17	8	159	9	38	300	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	18	6	10	9	4	19	9	177	10	42	333	33
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											927	
pX, platoon unblocked	0.95	0.95	0.95	0.95	0.95		0.95					
vC, conflicting volume	650	638	350	630	650	182	366			187		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	602	590	285	581	602	182	302			187		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	95	98	99	98	99	98	99			97		
cM capacity (veh/h)	367	383	714	381	376	861	1170			1364		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	34	32	9	187	42	366
Volume Left	18	9	9	0	42	0
Volume Right	10	19	0	10	0	33
cSH	432	568	1170	1700	1364	1700
Volume to Capacity	0.08	0.06	0.01	0.11	0.03	0.22
Queue Length 95th (ft)	6	4	1	0	2	0
Control Delay (s)	14.0	11.7	8.1	0.0	7.7	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	14.0	11.7	0.4		0.8	
Approach LOS	B	B				

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	18	20	29	333	176	7
Future Volume (vph)	18	20	29	333	176	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	959			927	1201	
Travel Time (s)	14.5			11.5	14.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	22	32	370	196	8
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	22.0	22.0	22.0	68.0	46.0	22.0
Total Split (%)	24.4%	24.4%	24.4%	75.6%	51.1%	24.4%
Maximum Green (s)	15.0	15.0	15.0	61.0	39.0	15.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.3	15.6	9.7	82.1	72.0	80.7
Actuated g/C Ratio	0.10	0.17	0.11	0.91	0.80	0.90
v/c Ratio	0.11	0.08	0.17	0.23	0.14	0.01
Control Delay	38.0	27.2	38.4	1.9	2.8	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	27.2	38.4	1.9	2.8	0.3
LOS	D	C	D	A	A	A
Approach Delay	32.3			4.8	2.7	
Approach LOS	C			A	A	
Queue Length 50th (ft)	11	12	17	0	18	0
Queue Length 95th (ft)	32	27	43	71	28	1
Internal Link Dist (ft)	879			847	1121	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	321	387	321	1634	1433	1432
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.06	0.10	0.23	0.14	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 28 (31%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.23
Intersection Signal Delay: 5.9 Intersection LOS: A
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 412: NC 58 & US 70 EB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	32	22	174	330	10
Future Volume (vph)	15	32	22	174	330	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	959			927	1201	
Travel Time (s)	14.5			11.5	14.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	36	24	193	367	11
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	17.0	18.0	18.0	73.0	55.0	17.0
Total Split (%)	18.9%	20.0%	20.0%	81.1%	61.1%	18.9%
Maximum Green (s)	10.0	11.0	11.0	66.0	48.0	10.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.2	15.3	9.5	82.2	72.3	80.9
Actuated g/C Ratio	0.10	0.17	0.11	0.91	0.80	0.90
v/c Ratio	0.10	0.14	0.13	0.12	0.26	0.01
Control Delay	37.9	29.2	38.0	1.6	2.4	0.2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	29.2	38.0	1.6	2.4	0.2
LOS	D	C	D	A	A	A
Approach Delay	32.0			5.6	2.4	
Approach LOS	C			A	A	
Queue Length 50th (ft)	9	19	13	0	24	0
Queue Length 95th (ft)	29	38	36	36	27	0
Internal Link Dist (ft)	879			847	1121	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	227	318	245	1636	1438	1396
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.11	0.10	0.12	0.26	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 29 (32%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.26
Intersection Signal Delay: 5.9 Intersection LOS: A
Intersection Capacity Utilization 32.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 412: NC 58 & US 70 EB Ramps

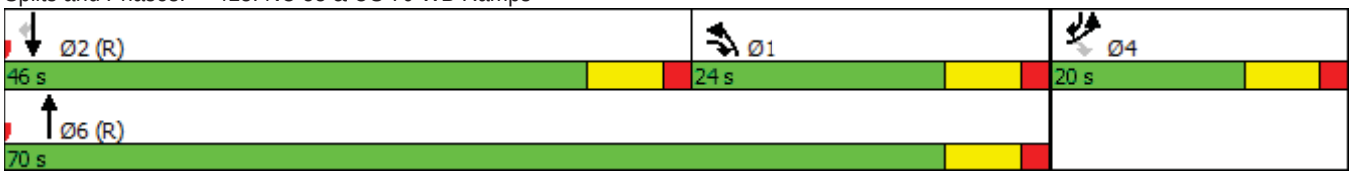
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	22	32	319	161	15
Future Volume (vph)	10	22	32	319	161	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	935			1201	1007	
Travel Time (s)	25.5			14.9	12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	24	36	354	179	17
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	20.0	24.0	24.0	70.0	46.0	20.0
Total Split (%)	22.2%	26.7%	26.7%	77.8%	51.1%	22.2%
Maximum Green (s)	13.0	17.0	17.0	63.0	39.0	13.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.1	15.6	9.9	82.3	72.0	77.7
Actuated g/C Ratio	0.10	0.17	0.11	0.91	0.80	0.86
v/c Ratio	0.06	0.09	0.19	0.22	0.12	0.01
Control Delay	37.6	27.6	38.4	1.3	5.3	2.5

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.6	27.6	38.4	1.3	5.3	2.5
LOS	D	C	D	A	A	A
Approach Delay	30.8			4.8	5.0	
Approach LOS	C			A	A	
Queue Length 50th (ft)	6	13	19	0	18	2
Queue Length 95th (ft)	22	29	47	43	71	6
Internal Link Dist (ft)	855			1121	927	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	283	363	359	1639	1434	1316
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.07	0.10	0.22	0.12	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 16 (18%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.22
Intersection Signal Delay: 6.3 Intersection LOS: A
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 413: NC 58 & US 70 WB Ramps



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	29	20	169	311	18
Future Volume (vph)	7	29	20	169	311	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	935			1201	1007	
Travel Time (s)	25.5			14.9	12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	32	22	188	346	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	16.0	18.0	18.0	74.0	56.0	16.0
Total Split (%)	17.8%	20.0%	20.0%	82.2%	62.2%	17.8%
Maximum Green (s)	9.0	11.0	11.0	67.0	49.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.0	15.2	9.6	82.4	72.4	78.0
Actuated g/C Ratio	0.10	0.17	0.11	0.92	0.80	0.87
v/c Ratio	0.05	0.12	0.12	0.11	0.24	0.02
Control Delay	37.4	29.0	38.7	1.3	5.5	2.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	29.0	38.7	1.3	5.5	2.3
LOS	D	C	D	A	A	A
Approach Delay	30.7			5.2	5.3	
Approach LOS	C			A	A	
Queue Length 50th (ft)	4	17	12	0	40	2
Queue Length 95th (ft)	18	36	34	27	134	7
Internal Link Dist (ft)	855			1121	927	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	208	281	245	1640	1442	1301
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.11	0.09	0.11	0.24	0.02

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 16 (18%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.24
Intersection Signal Delay: 6.9 Intersection LOS: A
Intersection Capacity Utilization 30.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 413: NC 58 & US 70 WB Ramps

414: Wyse Fork Rd & US 70 EB Ramps

Alternative 31 AM Peak

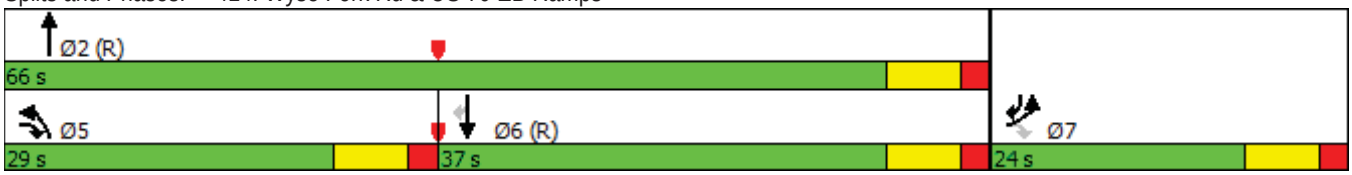
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	14	14	19	68	44	11
Future Volume (vph)	14	14	19	68	44	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1736	1553	1736	1827	1827	1553
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1736	1827	1827	1553
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	1230			1626	1380	
Travel Time (s)	18.6			20.2	17.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	16	21	76	49	12
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	5	5	2	6	7
Permitted Phases		7				6
Detector Phase	7	5	5	2	6	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	24.0	29.0	29.0	66.0	37.0	24.0
Total Split (%)	26.7%	32.2%	32.2%	73.3%	41.1%	26.7%
Maximum Green (s)	17.0	22.0	22.0	59.0	30.0	17.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.2	15.1	9.3	82.2	72.5	82.1
Actuated g/C Ratio	0.10	0.17	0.10	0.91	0.81	0.91
v/c Ratio	0.09	0.06	0.12	0.05	0.03	0.01
Control Delay	37.8	27.3	37.9	1.6	3.8	1.4

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.8	27.3	37.9	1.6	3.8	1.4
LOS	D	C	D	A	A	A
Approach Delay	32.5			9.4	3.3	
Approach LOS	C			A	A	
Queue Length 50th (ft)	8	8	11	0	3	0
Queue Length 95th (ft)	28	22	33	16	17	3
Internal Link Dist (ft)	1150			1546	1300	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	366	514	462	1669	1471	1482
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.03	0.05	0.05	0.03	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 82 (91%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.12
Intersection Signal Delay: 11.4 Intersection LOS: B
Intersection Capacity Utilization 25.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 414: Wyse Fork Rd & US 70 EB Ramps



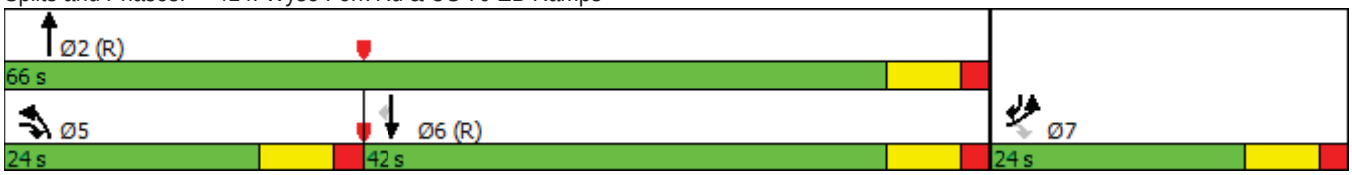
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	12	21	16	42	66	15
Future Volume (vph)	12	21	16	42	66	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1736	1553	1736	1827	1827	1553
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1736	1827	1827	1553
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	1230			1626	1380	
Travel Time (s)	18.6			20.2	17.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	23	18	47	73	17
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	5	5	2	6	7
Permitted Phases		7				6
Detector Phase	7	5	5	2	6	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	24.0	24.0	24.0	66.0	42.0	24.0
Total Split (%)	26.7%	26.7%	26.7%	73.3%	46.7%	26.7%
Maximum Green (s)	17.0	17.0	17.0	59.0	35.0	17.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.1	17.8	9.2	78.5	69.8	78.4
Actuated g/C Ratio	0.10	0.20	0.10	0.87	0.78	0.87
v/c Ratio	0.07	0.08	0.10	0.03	0.05	0.01
Control Delay	37.6	26.1	37.9	2.0	4.5	1.7

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.6	26.1	37.9	2.0	4.5	1.7
LOS	D	C	D	A	A	A
Approach Delay	30.3			11.9	4.0	
Approach LOS	C			B	A	
Queue Length 50th (ft)	7	10	10	4	11	1
Queue Length 95th (ft)	24	28	30	11	24	4
Internal Link Dist (ft)	1150			1546	1300	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	366	474	366	1593	1418	1453
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.05	0.05	0.03	0.05	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 83 (92%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.10
Intersection Signal Delay: 11.6 Intersection LOS: B
Intersection Capacity Utilization 25.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 414: Wyse Fork Rd & US 70 EB Ramps



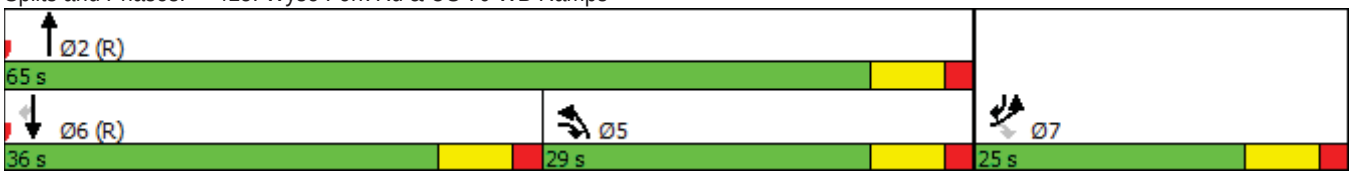
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	16	21	61	39	12
Future Volume (vph)	15	16	21	61	39	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1736	1553	1736	1827	1827	1553
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1736	1827	1827	1553
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1065			1380	1294	
Travel Time (s)	29.0			17.1	16.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	18	23	68	43	13
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	5	5	2	6	7
Permitted Phases		7				6
Detector Phase	7	5	5	2	6	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	25.0	29.0	29.0	65.0	36.0	25.0
Total Split (%)	27.8%	32.2%	32.2%	72.2%	40.0%	27.8%
Maximum Green (s)	18.0	22.0	22.0	58.0	29.0	18.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.2	18.0	9.4	78.4	69.6	78.2
Actuated g/C Ratio	0.10	0.20	0.10	0.87	0.77	0.87
v/c Ratio	0.10	0.06	0.13	0.04	0.03	0.01
Control Delay	37.9	25.3	32.7	1.7	6.2	2.2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	25.3	32.7	1.7	6.2	2.2
LOS	D	C	C	A	A	A
Approach Delay	31.4			9.5	5.3	
Approach LOS	C			A	A	
Queue Length 50th (ft)	9	8	13	5	8	1
Queue Length 95th (ft)	29	24	33	12	22	5
Internal Link Dist (ft)	985			1300	1214	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	385	419	462	1591	1413	1349
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.04	0.05	0.04	0.03	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 16 (18%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.13
Intersection Signal Delay: 12.4 Intersection LOS: B
Intersection Capacity Utilization 25.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 415: Wyse Fork Rd & US 70 WB Ramps



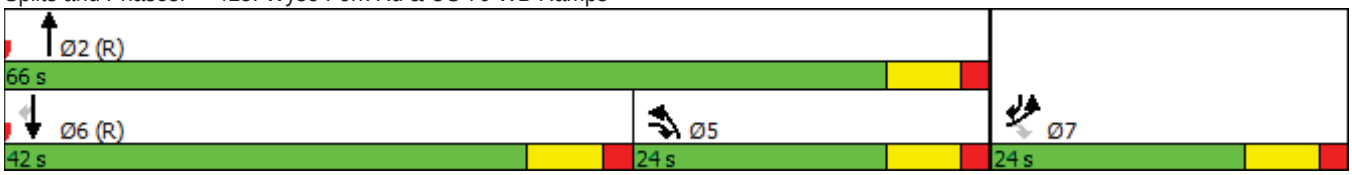
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	11	19	14	40	62	14
Future Volume (vph)	11	19	14	40	62	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1736	1553	1736	1827	1827	1553
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1736	1827	1827	1553
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1065			1380	1294	
Travel Time (s)	29.0			17.1	16.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	21	16	44	69	16
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	5	5	2	6	7
Permitted Phases		7				6
Detector Phase	7	5	5	2	6	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	24.0	24.0	24.0	66.0	42.0	24.0
Total Split (%)	26.7%	26.7%	26.7%	73.3%	46.7%	26.7%
Maximum Green (s)	17.0	17.0	17.0	59.0	35.0	17.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.1	14.9	9.2	82.3	72.7	78.4
Actuated g/C Ratio	0.10	0.17	0.10	0.91	0.81	0.87
v/c Ratio	0.07	0.08	0.09	0.03	0.05	0.01
Control Delay	37.5	28.3	31.0	1.2	5.1	2.1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	28.3	31.0	1.2	5.1	2.1
LOS	D	C	C	A	A	A
Approach Delay	31.7			9.2	4.5	
Approach LOS	C			A	A	
Queue Length 50th (ft)	6	11	8	0	7	1
Queue Length 95th (ft)	23	27	27	8	30	5
Internal Link Dist (ft)	985			1300	1214	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	366	360	366	1671	1476	1353
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.06	0.04	0.03	0.05	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 16 (18%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.09
Intersection Signal Delay: 11.1 Intersection LOS: B
Intersection Capacity Utilization 25.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 415: Wyse Fork Rd & US 70 WB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	416	4	4	512	39	6	4	5	49	4	78
Future Volume (vph)	50	416	4	4	512	39	6	4	5	49	4	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1687	3370	0	1687	3337	0	0	1755	0	0	1649	0
Flt Permitted	0.950			0.950				0.980			0.982	
Satd. Flow (perm)	1687	3370	0	1687	3337	0	0	1755	0	0	1649	0
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		978			995			420			957	
Travel Time (s)		12.1			12.3			6.4			14.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%	1%	1%	1%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	56	466	0	4	612	0	0	17	0	0	145	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		46			46			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 38.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	416	4	4	512	39	6	4	5	49	4	78
Future Volume (Veh/h)	50	416	4	4	512	39	6	4	5	49	4	78
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	56	462	4	4	569	43	7	4	6	54	4	87
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	612			466			958	1196	233	950	1176	306
vC1, stage 1 conf vol							576	576		598	598	
vC2, stage 2 conf vol							382	620		351	578	
vCu, unblocked vol	612			466			958	1196	233	950	1176	306
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.6	
tF (s)	2.3			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			100			98	99	99	83	99	87
cM capacity (veh/h)	930			1057			289	283	772	319	295	684

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	56	308	158	4	379	233	17	145
Volume Left	56	0	0	4	0	0	7	54
Volume Right	0	0	4	0	0	43	6	87
cSH	930	1700	1700	1057	1700	1700	369	468
Volume to Capacity	0.06	0.18	0.09	0.00	0.22	0.14	0.05	0.31
Queue Length 95th (ft)	5	0	0	0	0	0	4	33
Control Delay (s)	9.1	0.0	0.0	8.4	0.0	0.0	15.2	16.1
Lane LOS	A			A			C	C
Approach Delay (s)	1.0			0.1			15.2	16.1
Approach LOS							C	C

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	512	6	5	416	49	4	4	4	39	4	50
Future Volume (vph)	78	512	6	5	416	49	4	4	4	39	4	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1687	3367	0	1687	3320	0	0	1768	0	0	1660	0
Flt Permitted	0.950			0.950				0.984			0.980	
Satd. Flow (perm)	1687	3367	0	1687	3320	0	0	1768	0	0	1660	0
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		978			995			420			957	
Travel Time (s)		12.1			12.3			6.4			14.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%	1%	1%	1%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	576	0	6	516	0	0	12	0	0	103	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		46			46			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 35.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	512	6	5	416	49	4	4	4	39	4	50
Future Volume (Veh/h)	78	512	6	5	416	49	4	4	4	39	4	50
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	87	569	7	6	462	54	4	4	4	43	4	56
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	516			576			1048	1274	288	966	1251	258
vC1, stage 1 conf vol							746	746		501	501	
vC2, stage 2 conf vol							301	528		464	750	
vCu, unblocked vol	516			576			1048	1274	288	966	1251	258
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.6	
tF (s)	2.3			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			99			98	98	99	86	98	92
cM capacity (veh/h)	1012			960			256	256	712	312	266	735

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	87	379	197	6	308	208	12	103
Volume Left	87	0	0	6	0	0	4	43
Volume Right	0	0	7	0	0	54	4	56
cSH	1012	1700	1700	960	1700	1700	326	450
Volume to Capacity	0.09	0.22	0.12	0.01	0.18	0.12	0.04	0.23
Queue Length 95th (ft)	7	0	0	0	0	0	3	22
Control Delay (s)	8.9	0.0	0.0	8.8	0.0	0.0	16.5	15.4
Lane LOS	A			A			C	C
Approach Delay (s)	1.2			0.1			16.5	15.4
Approach LOS							C	C

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	35.5%	ICU Level of Service	A
Analysis Period (min)	15		

2040 Build Alternative 31
SimTraffic Reports

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Summary of All Intervals

Run Number	1	2	3	4	5	AM	Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	8340	8247	8423	8275	8282	8456	8334
Vehs Exited	8317	8231	8438	8278	8257	8434	8323
Starting Vehs	179	162	201	164	144	176	160
Ending Vehs	202	178	186	161	169	198	173
Travel Distance (mi)	4905	4873	4993	4885	4894	5051	4933
Travel Time (hr)	176.7	185.4	185.4	174.0	180.0	185.5	181.2
Total Delay (hr)	63.8	73.1	70.3	61.4	67.0	69.2	67.5
Total Stops	4826	5082	5067	4797	4916	5032	4950
Fuel Used (gal)	197.1	198.4	201.6	196.2	198.0	204.7	199.3

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	AM	Avg
Vehs Entered	8340	8247	8423	8275	8282	8456	8334
Vehs Exited	8317	8231	8438	8278	8257	8434	8323
Starting Vehs	179	162	201	164	144	176	160
Ending Vehs	202	178	186	161	169	198	173
Travel Distance (mi)	4905	4873	4993	4885	4894	5051	4933
Travel Time (hr)	176.7	185.4	185.4	174.0	180.0	185.5	181.2
Total Delay (hr)	63.8	73.1	70.3	61.4	67.0	69.2	67.5
Total Stops	4826	5082	5067	4797	4916	5032	4950
Fuel Used (gal)	197.1	198.4	201.6	196.2	198.0	204.7	199.3

Intersection: 401: Jim Sutton Rd & Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	46	52	4	24
Average Queue (ft)	14	20	0	2
95th Queue (ft)	38	43	3	12
Link Distance (ft)	848	806	905	935
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	65	171	80	78	310	36
Average Queue (ft)	26	76	24	22	164	5
95th Queue (ft)	60	145	61	61	268	23
Link Distance (ft)	951	951	935	935	1248	1248
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		100	325	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	86	267	164	73	188	91
Average Queue (ft)	35	116	51	16	91	30
95th Queue (ft)	74	201	117	50	161	74
Link Distance (ft)	939	939	1248	1248	934	934
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		275		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 404: Willie Measley Rd & Washington St/Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	94	63	62	16
Average Queue (ft)	43	22	21	1
95th Queue (ft)	73	48	49	8
Link Distance (ft)	924	913	934	1055
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 405: US 70 Bus & Innovation Way

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 406: NC 11/NC 11/55 & NC 55

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	410	63	277	533	451	62
Average Queue (ft)	234	14	32	227	182	13
95th Queue (ft)	364	43	179	440	360	46
Link Distance (ft)	1242	1242	1168	1168	1375	1375
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	300			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 407: NC 11/55 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	356	166	816	55	63	239
Average Queue (ft)	206	62	452	13	14	70
95th Queue (ft)	320	127	794	40	45	186
Link Distance (ft)	890	890	1375	1375	1370	1370
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 408: NC 11/55 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	64	215	399	162	356	65
Average Queue (ft)	28	97	208	45	153	14
95th Queue (ft)	58	187	351	128	296	44
Link Distance (ft)	1122	1122	1370	1370	1031	1031
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		225	400			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 409: US 258 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	222	137	185	29	69	84
Average Queue (ft)	120	49	76	5	17	12
95th Queue (ft)	201	105	153	21	48	46
Link Distance (ft)	917	917	961	961	1212	1212
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 410: US 258 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	92	75	118	162	135	54
Average Queue (ft)	27	14	37	54	58	6
95th Queue (ft)	67	43	89	120	114	31
Link Distance (ft)	1028	1028	1212	1212	850	850
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		175	175	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 411: NC 58 & Elijah Loftin Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	46	44	15	24
Average Queue (ft)	18	21	1	2
95th Queue (ft)	37	39	8	13
Link Distance (ft)	1137	1082	1094	863
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 412: NC 58 & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	57	65	79	69	76	19
Average Queue (ft)	17	15	25	13	16	1
95th Queue (ft)	48	45	61	50	52	8
Link Distance (ft)	914	914	863	863	1133	1133
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 413: NC 58 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	52	65	74	70	75	30
Average Queue (ft)	10	18	22	13	17	1
95th Queue (ft)	35	48	56	49	54	13
Link Distance (ft)	879	879	1133	1133	961	961
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 414: Wyse Fork Rd & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	61	49	54	34	37	20
Average Queue (ft)	11	10	15	3	3	1
95th Queue (ft)	39	36	40	17	19	8
Link Distance (ft)	1177	1177	1595	1595	1309	1309
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 415: Wyse Fork Rd & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	47	49	57	40	32	7
Average Queue (ft)	12	15	17	3	4	0
95th Queue (ft)	37	42	45	20	20	5
Link Distance (ft)	1012	1012	1309	1309	1252	1252
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 416: Service Rd/Kornegay St & US 70 Bus

Movement	EB	WB	WB	WB	NB	SB
Directions Served	L	L	T	TR	LTR	LTR
Maximum Queue (ft)	64	15	3	5	47	146
Average Queue (ft)	19	1	0	0	12	51
95th Queue (ft)	50	7	2	4	36	111
Link Distance (ft)	948	962	962	962	356	892
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100	100				
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	2	3	4	5	PM	Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	8308	8262	8280	8375	8157	8362	8291
Vehs Exited	8322	8276	8265	8360	8160	8370	8292
Starting Vehs	185	169	165	154	186	180	156
Ending Vehs	171	155	180	169	183	172	161
Travel Distance (mi)	4875	4890	4833	4913	4794	4916	4870
Travel Time (hr)	177.4	176.2	171.8	177.3	170.2	175.6	174.7
Total Delay (hr)	65.4	63.3	60.7	63.7	59.3	61.9	62.4
Total Stops	4976	4946	4839	4899	4770	4920	4893
Fuel Used (gal)	197.6	199.0	196.4	199.4	194.5	200.5	197.9

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	PM	Avg
Vehs Entered	8308	8262	8280	8375	8157	8362	8291
Vehs Exited	8322	8276	8265	8360	8160	8370	8292
Starting Vehs	185	169	165	154	186	180	156
Ending Vehs	171	155	180	169	183	172	161
Travel Distance (mi)	4875	4890	4833	4913	4794	4916	4870
Travel Time (hr)	177.4	176.2	171.8	177.3	170.2	175.6	174.7
Total Delay (hr)	65.4	63.3	60.7	63.7	59.3	61.9	62.4
Total Stops	4976	4946	4839	4899	4770	4920	4893
Fuel Used (gal)	197.6	199.0	196.4	199.4	194.5	200.5	197.9

Intersection: 401: Jim Sutton Rd & Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	29	51	4	16
Average Queue (ft)	9	15	0	1
95th Queue (ft)	30	38	3	9
Link Distance (ft)	848	806	905	935
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	112	174	56	61	260	44
Average Queue (ft)	42	86	15	12	139	6
95th Queue (ft)	89	152	44	41	223	29
Link Distance (ft)	951	951	935	935	1248	1248
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		100	325	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	115	269	93	43	159	89
Average Queue (ft)	51	137	30	8	80	21
95th Queue (ft)	101	237	74	29	138	61
Link Distance (ft)	939	939	1248	1248	934	934
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		275		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 404: Willie Measley Rd & Washington St/Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	76	81	70	16
Average Queue (ft)	39	30	20	1
95th Queue (ft)	65	58	52	7
Link Distance (ft)	924	913	934	1055
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 405: US 70 Bus & Innovation Way

Movement	SB
Directions Served	R
Maximum Queue (ft)	18
Average Queue (ft)	1
95th Queue (ft)	14
Link Distance (ft)	1140
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 406: NC 11/NC 11/55 & NC 55

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	246	82	71	218	407	89
Average Queue (ft)	131	17	19	90	169	30
95th Queue (ft)	223	52	51	178	332	72
Link Distance (ft)	1242	1242	1168	1168	1375	1375
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	300			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 407: NC 11/55 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	324	87	440	93	82	407
Average Queue (ft)	169	29	216	25	23	145
95th Queue (ft)	274	68	388	68	63	296
Link Distance (ft)	890	890	1375	1375	1370	1370
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 408: NC 11/55 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	67	176	266	150	448	71
Average Queue (ft)	16	77	143	29	231	20
95th Queue (ft)	49	140	244	100	403	55
Link Distance (ft)	1122	1122	1370	1370	1031	1031
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		225	400			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 409: US 258 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	332	88	201	37	89	77
Average Queue (ft)	179	30	76	5	26	23
95th Queue (ft)	283	71	158	25	66	63
Link Distance (ft)	917	917	961	961	1212	1212
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 410: US 258 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	95	37	87	106	168	60
Average Queue (ft)	34	8	23	30	74	11
95th Queue (ft)	73	26	61	77	141	41
Link Distance (ft)	1028	1028	1212	1212	850	850
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		175	175	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 411: NC 58 & Elijah Loftin Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	37	31	28	24
Average Queue (ft)	14	13	2	3
95th Queue (ft)	34	33	14	15
Link Distance (ft)	1137	1082	1094	863
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 412: NC 58 & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	52	84	61	67	85	17
Average Queue (ft)	12	23	16	8	24	2
95th Queue (ft)	37	59	47	38	66	12
Link Distance (ft)	914	914	863	863	1133	1133
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 413: NC 58 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	33	77	71	53	120	22
Average Queue (ft)	6	22	14	6	32	2
95th Queue (ft)	25	56	43	31	87	13
Link Distance (ft)	879	879	1133	1133	961	961
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 414: Wyse Fork Rd & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	33	54	42	23	42	36
Average Queue (ft)	8	15	11	1	6	2
95th Queue (ft)	27	42	36	11	26	14
Link Distance (ft)	1177	1177	1595	1595	1309	1309
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 415: Wyse Fork Rd & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	34	53	36	26	45	16
Average Queue (ft)	8	15	10	2	5	1
95th Queue (ft)	28	43	32	14	25	10
Link Distance (ft)	1012	1012	1309	1309	1252	1252
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 416: Service Rd/Kornegay St & US 70 Bus

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	74	3	19	9	33	124
Average Queue (ft)	23	0	2			43
95th Queue (ft)	54	2	12	7	30	91
Link Distance (ft)	948	948	962	962	356	892
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100		100			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 0

APPENDIX I

2040 Build Alternative 32

Peak Hour Traffic Volume Development and

FREEVAL-E, Synchro & SimTraffic Reports

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2040 Build Alternative 32
Peak Hour Traffic Volume
Development

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Alternative 32

Volume Development

A project-level traffic forecast, titled "Traffic Forecast Technical Memorandum, Kinston Bypass Alternatives Study", was prepared and finalized in November, 2016. This traffic forecast was used to provide peak hour volumes for the analysis of the selected alternatives in this memorandum. The traffic forecast is included in **Attachment A**.

The Intersection Analysis Utility (IAU), provided by NCDOT, was utilized to calculate AM and PM Peak Hour volumes for at-grade intersections (ramp terminals and any intersections within 1,000 feet of ramp terminals), interchange ramps, and freeway segments within interchanges. Peak hour volumes for freeway segments between interchanges were calculated by finding the forecasted daily two-way volumes along the link, then breaking the daily volume down by multiplying it by the Design Hour Volume Percentage (K), and the Peak Hour Directional Split (D).

The traffic forecast was completed prior to the inclusion of all turning movements at the interchange of US 70 Business and CF Harvey Parkway. To correct for this, traffic volumes have been rerouted to project volumes onto these ramps based on engineering assumptions. It was assumed that, prior to the inclusion of the two ramps, traffic on US 70 Business EB wishing to access CF Harvey Parkway SB would travel through the interchange to the east, make a U-turn back to US 70 Business WB, and use the loop ramp to CF Harvey Parkway SB. Similarly, traffic on CF Harvey Parkway Extension NB wishing to access US 70 Business WB would first take the ramp to US 70 Business EB, perform a U-turn, and then travel through the interchange on US 70 Business WB. It was assumed that a total of 500 vehicles per day would make these turning maneuvers. Therefore, 500 vehicles were transferred from the southeast turning quadrant and moved to the southwest turning quadrant in the IAU for this interchange. The volume on the east leg of the IAU was also adjusted accordingly to provide volume balanced within the interchange.

It should be noted that two partial three-leg interchanges exist for Alternative 32: US 70 at US 70 Business West of Kinston, and US 70 at NC 148 (CF Harvey Parkway) Extension. For these interchanges, the IAU was not utilized because the two turning movement volumes are assumed to simply be the upstream or downstream broken-out link volumes. All of these volumes are shown in **BLACK** in **Figures 8A-8G**.

US 70 and CF Harvey Parkway Extension Freeway Analysis

FREEVAL-E does not use a Peak Hour Factor (PHF) to adjust the peak hour volumes to reflect the peak 15-minute period. Additionally, FREEVAL-E requires balanced peak hour mainline volumes, since only the beginning freeway segment and subsequent ramps have volume inputs. To provide peak 15-minute hourly flow rates for the analysis in FREEVAL-E, each of the peak hour volumes calculated for the freeway segments and ramps was divided by 0.90, which is the recommended PHF in the NCDOT Congestion Management Capacity Analysis Guidelines. To balance the peak hour volumes to use with FREEVAL-E, the highest peak 15-minute hourly flow rate was located along the US 70 corridor within the study area. Once this was located, the mainline US 70 volumes were adjusted in each direction to the eastern and western ends of the network by adding and subtracting the relevant ramp volumes.

For Alternative 32, the location used as the "hold point" for balancing purposes on US 70 was the segment between Jim Sutton Road / Willie Measley Road and US 70 Business (west of Kinston). For CF Harvey Parkway Extension, the volumes were balanced using the adjoining segment to US 70 as the hold point, and balancing northward. These volume adjustments are shown in **BLUE** in **Figures 8A-8G**. The ensuing pages of this appendix detail the following step-by-step process used to calculate the volumes used, as well as the various volume redistributions required by the forecast imbalances and mismatches with the roadway designs:

Step 1 – Freeway segment volumes between interchanges were calculated by multiplying the two-way daily volumes by the K and D factors.

Step 2 – Volumes for interchange ramps, and freeway segments inside interchanges were collected from the IAU breakout sheets.

Step 3 – The volumes collected in Step 2 were divided by the NCDOT default PHF of 0.90 to account for the fact that FREEVAL-E does not factor in the PHF, and the highest calculated freeway volume location was used as the base point with which to balance the US 70 freeway corridor.

Step 4 – The volumes of the subsequent freeway segments were adjusted to allow for a balanced peak hour network in both directions, as well as along CF Harvey Parkway Extension.

The current functional designs for Alternative 32 shows ramps that accommodate only six of the eight turning movements at the interchange of US 70 Business and CF Harvey Parkway. During the analysis of these alternatives, it was decided that the interchange should include ramps to accommodate all turning movements. Therefore, a loop ramp from CF Harvey Parkway Extension NB to US 70 Business WB would be included as well as a ramp from US 70 Business EB to CF Harvey Parkway SB.

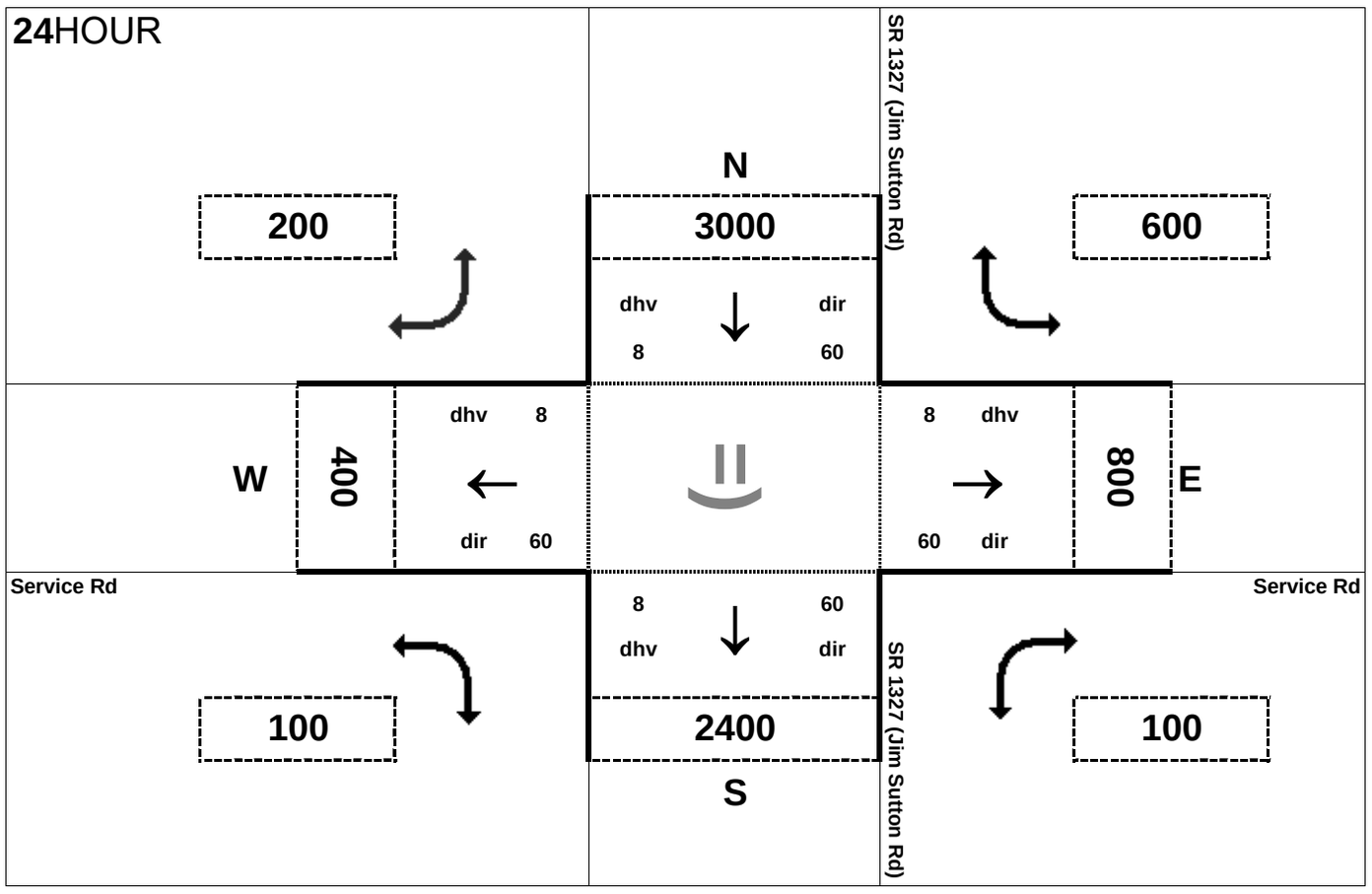
Peak Hour Volume Breakouts Report:
401 Intersection of SR 1327 (Jim Sutton Rd) at Service Rd

Traffic Forecast Release Date:
November-16

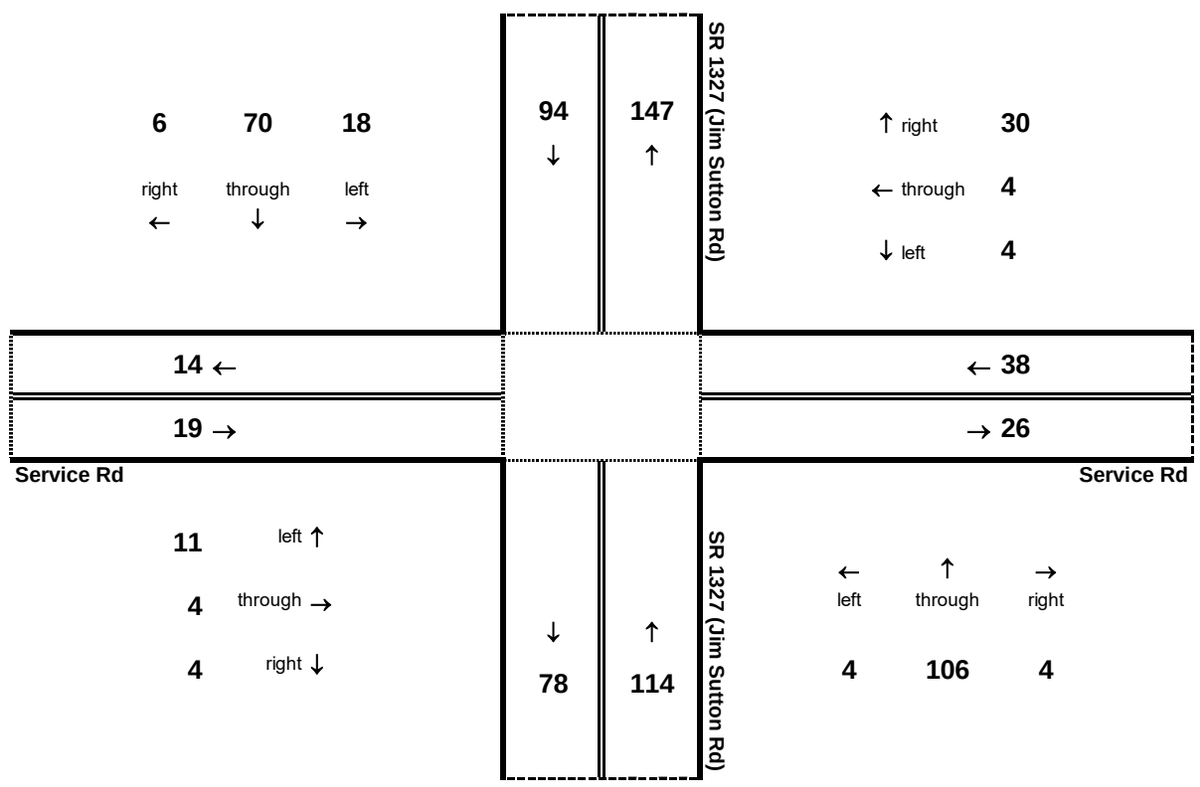
Traffic Data Year:
2040 Build Alt 32

Project:
R-2553

24HOUR

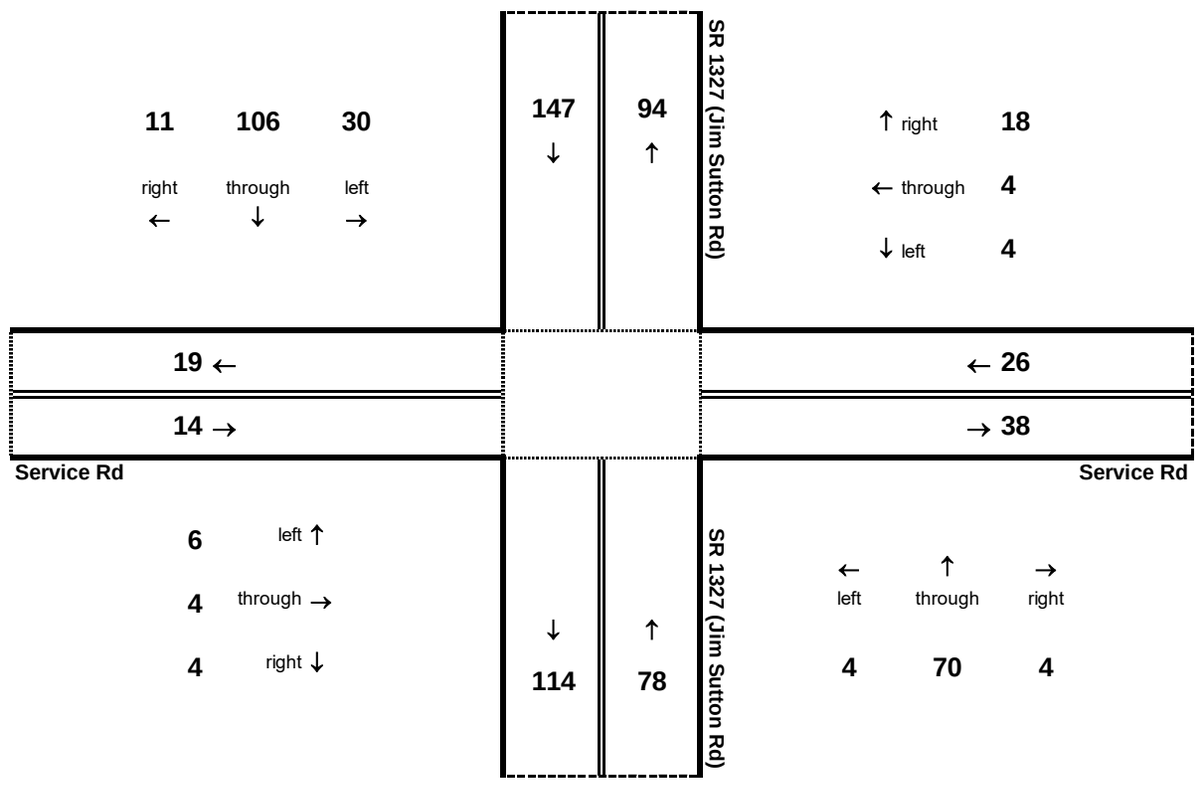


AMPEAK



AM peak hour inflow is 264 vehicles. AM peak hour outflow is 264 vehicles.

PMPEAK



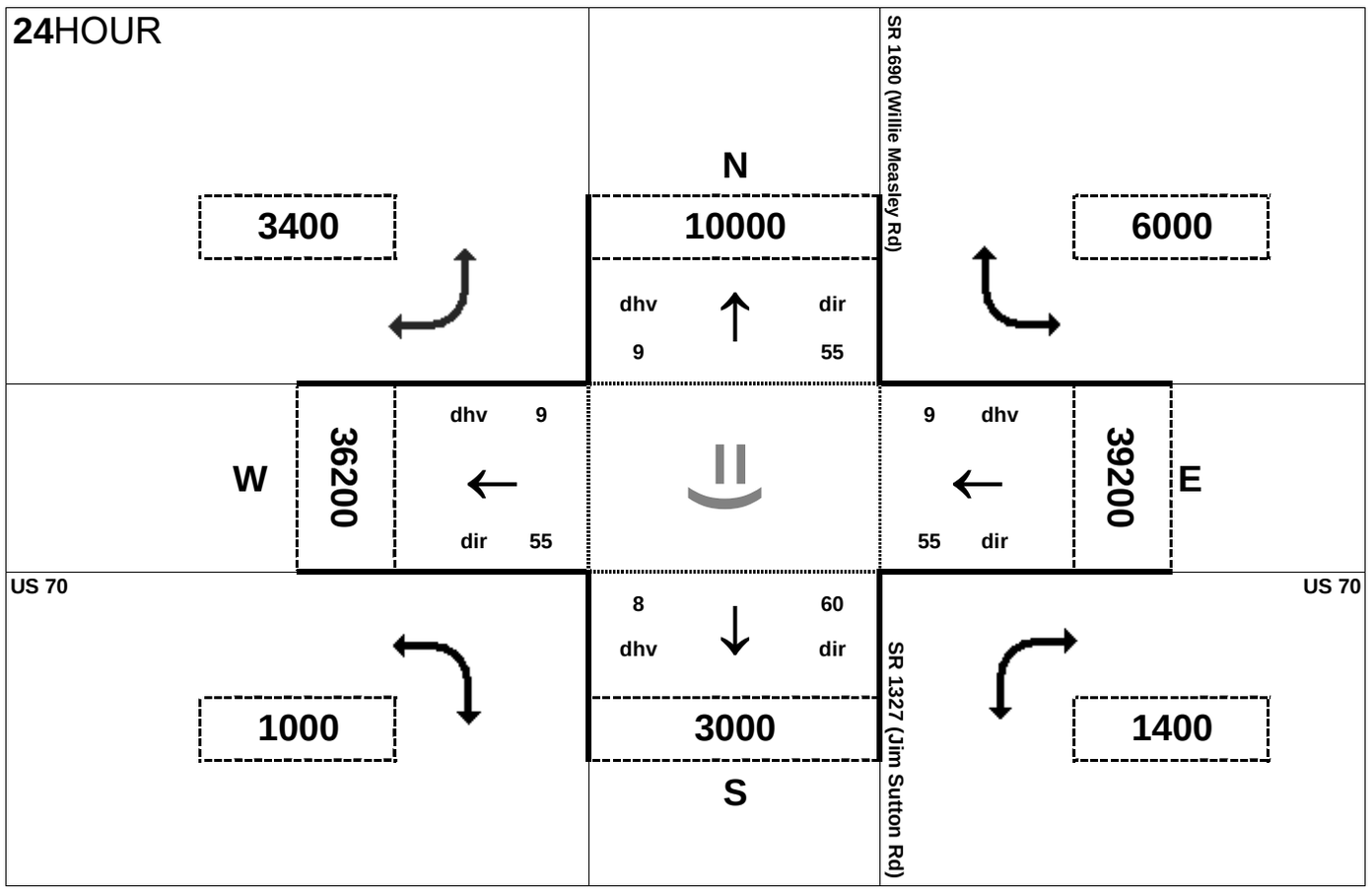
PM peak hour inflow is 264 vehicles. PM peak hour outflow is 264 vehicles.

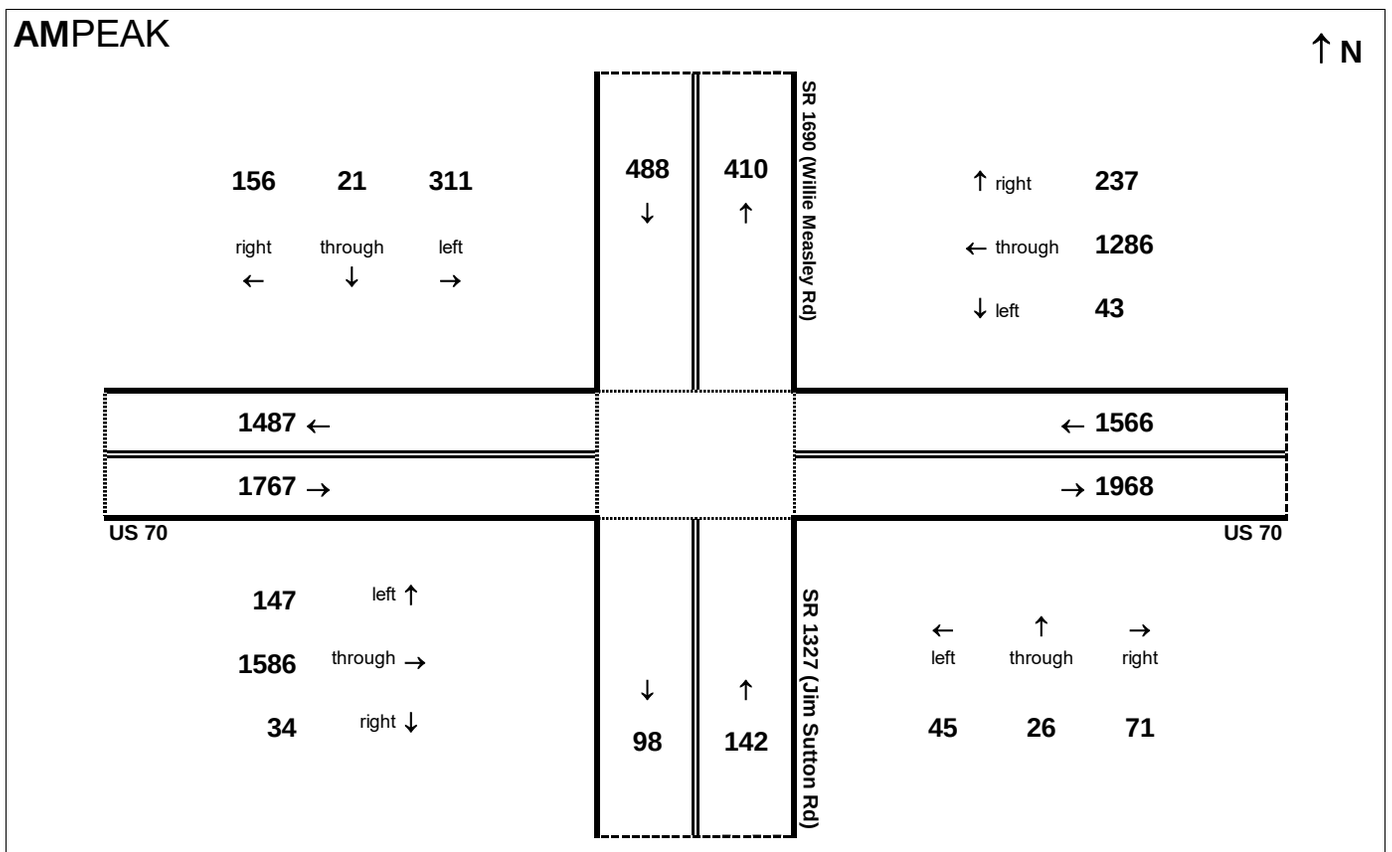
Peak Hour Volume Breakouts Report:
402-3 Intersection of US 70 and Willie Measley Rd / Jim Sutton Rd

Traffic Forecast Release Date:
November-16

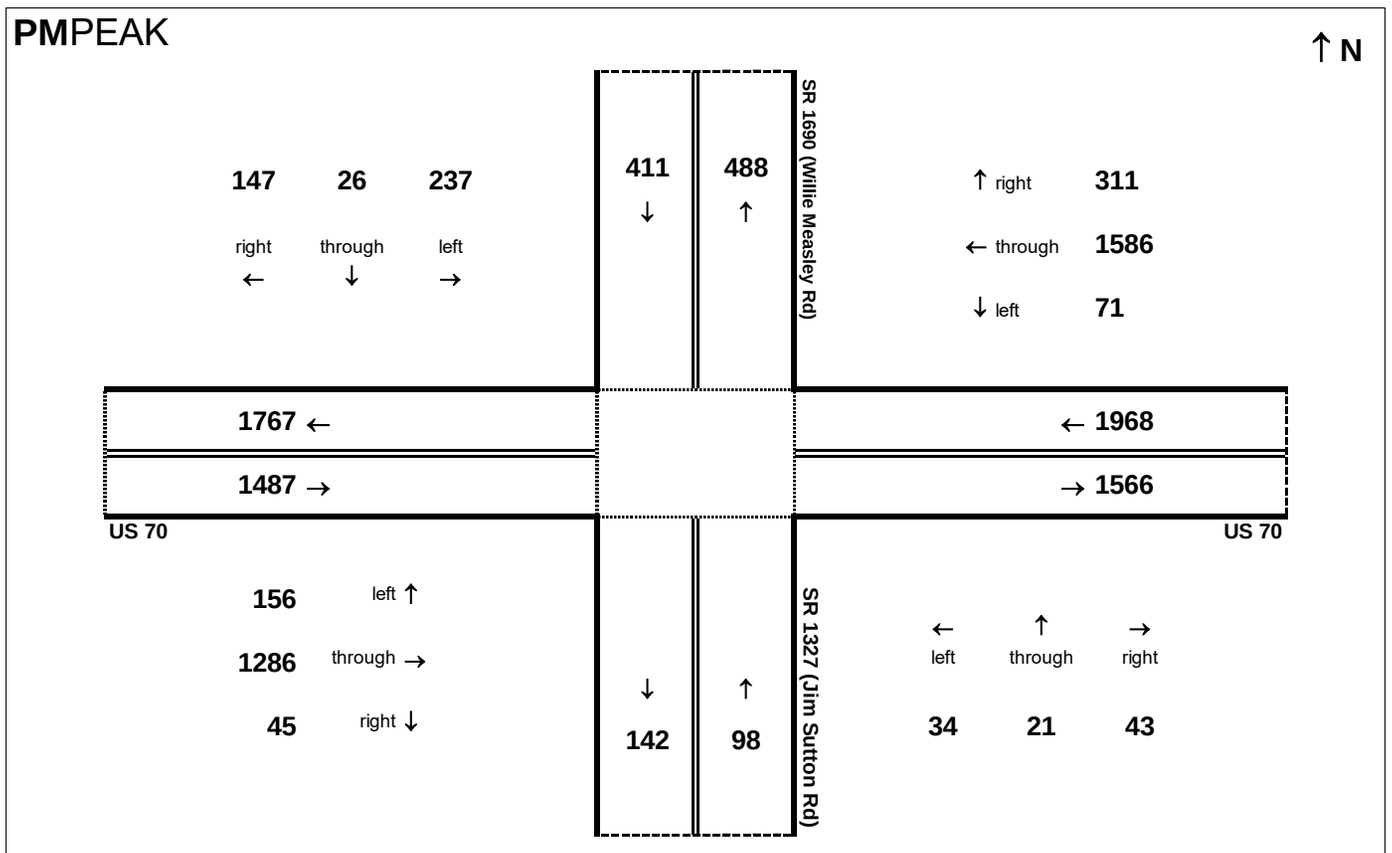
Traffic Data Year:
2040 Build Alt 32

Project:
R-2553





AM peak hour inflow is 3963 vehicles. AM peak hour outflow is 3963 vehicles.



PM peak hour inflow is 3963 vehicles. PM peak hour outflow is 3963 vehicles.

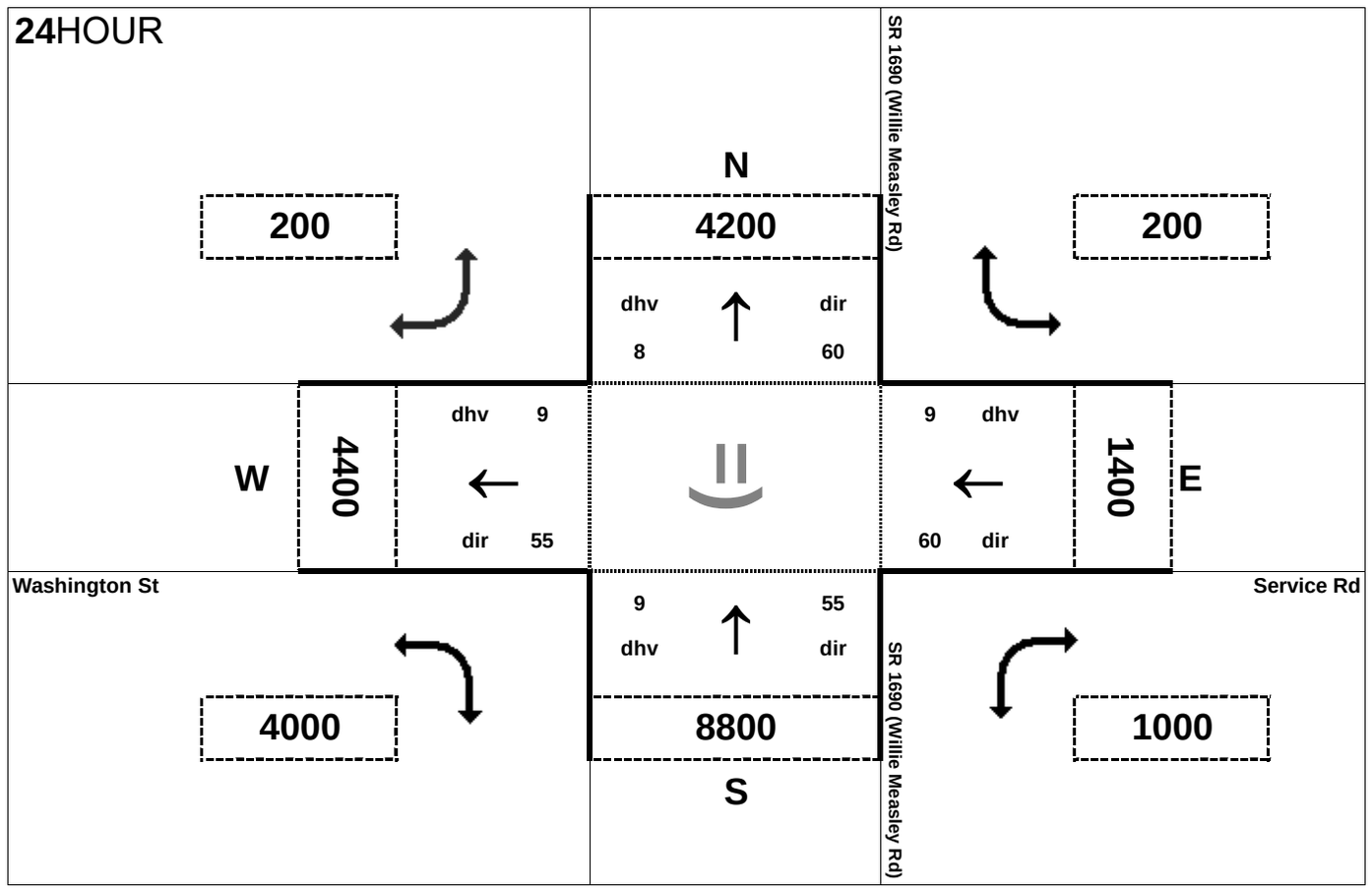
Peak Hour Volume Breakouts Report:
404 Intersection of SR 1690 (Willie Measley Rd) at SR 1603 (Washington St)

Traffic Forecast Release Date:
November-16

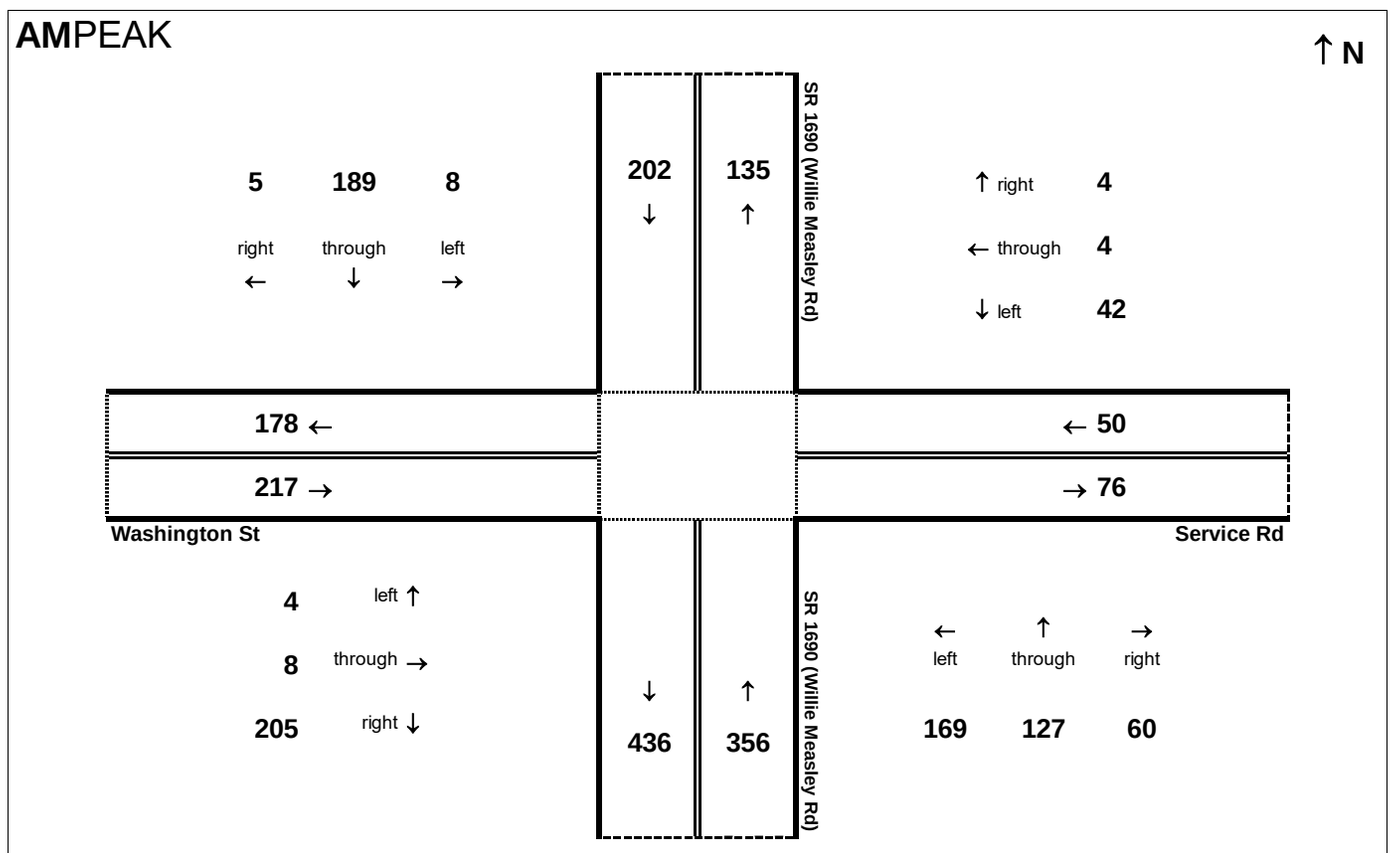
Traffic Data Year:
2040 Build Alt 32

Project:
R-2553

24HOUR

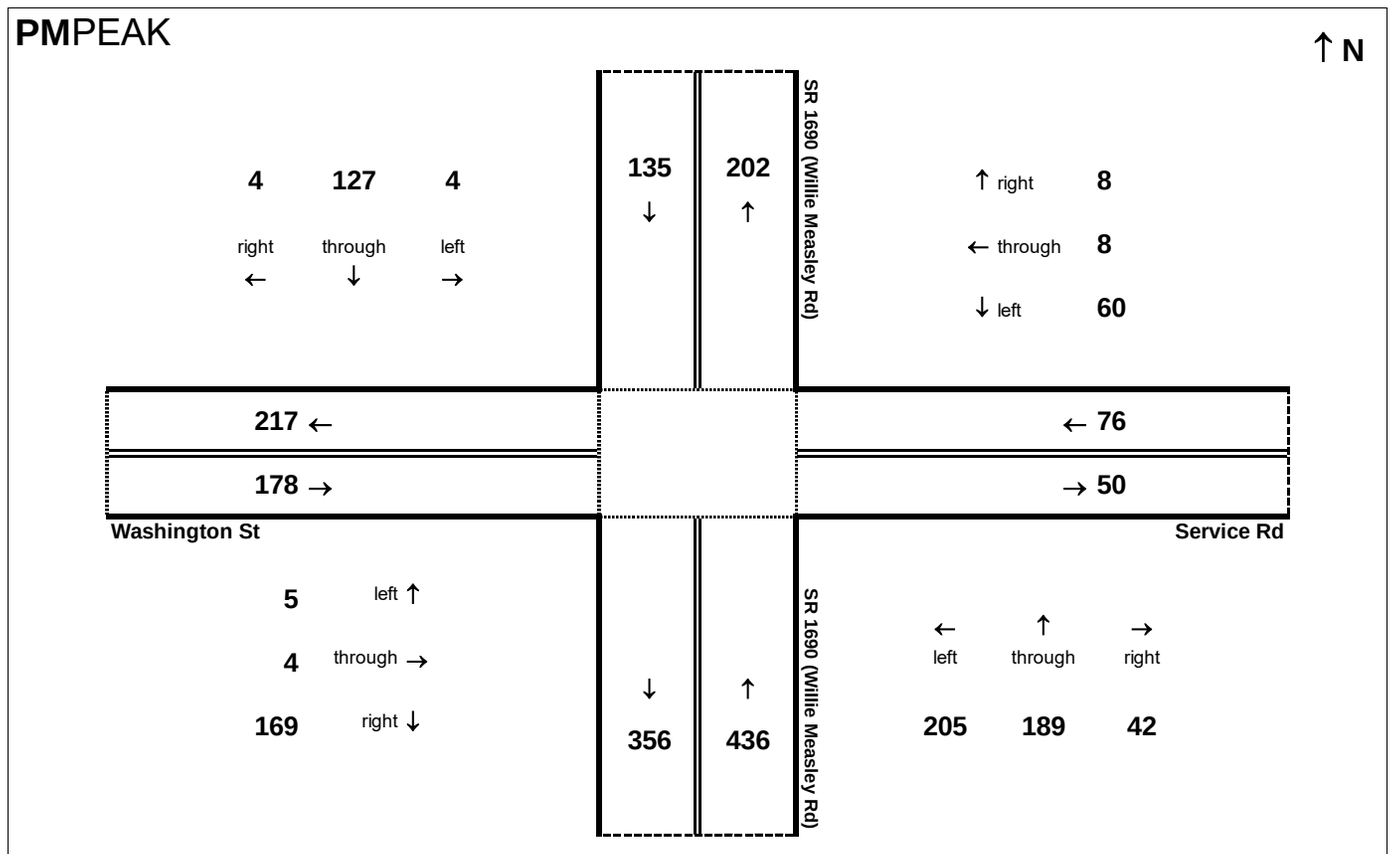


AMPEAK



AM peak hour inflow is 825 vehicles. AM peak hour outflow is 825 vehicles.

PMPEAK



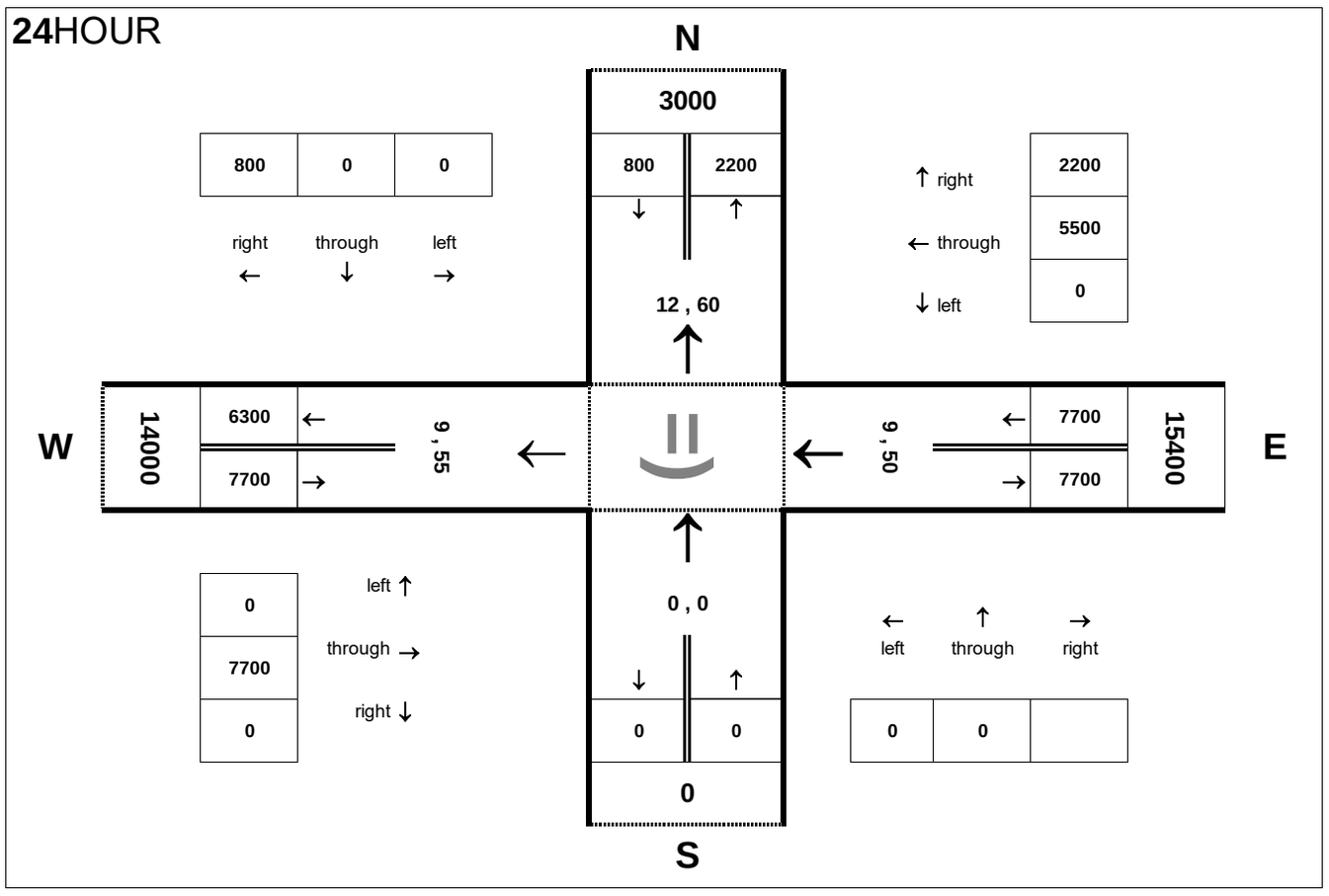
PM peak hour inflow is 825 vehicles. PM peak hour outflow is 824 vehicles.

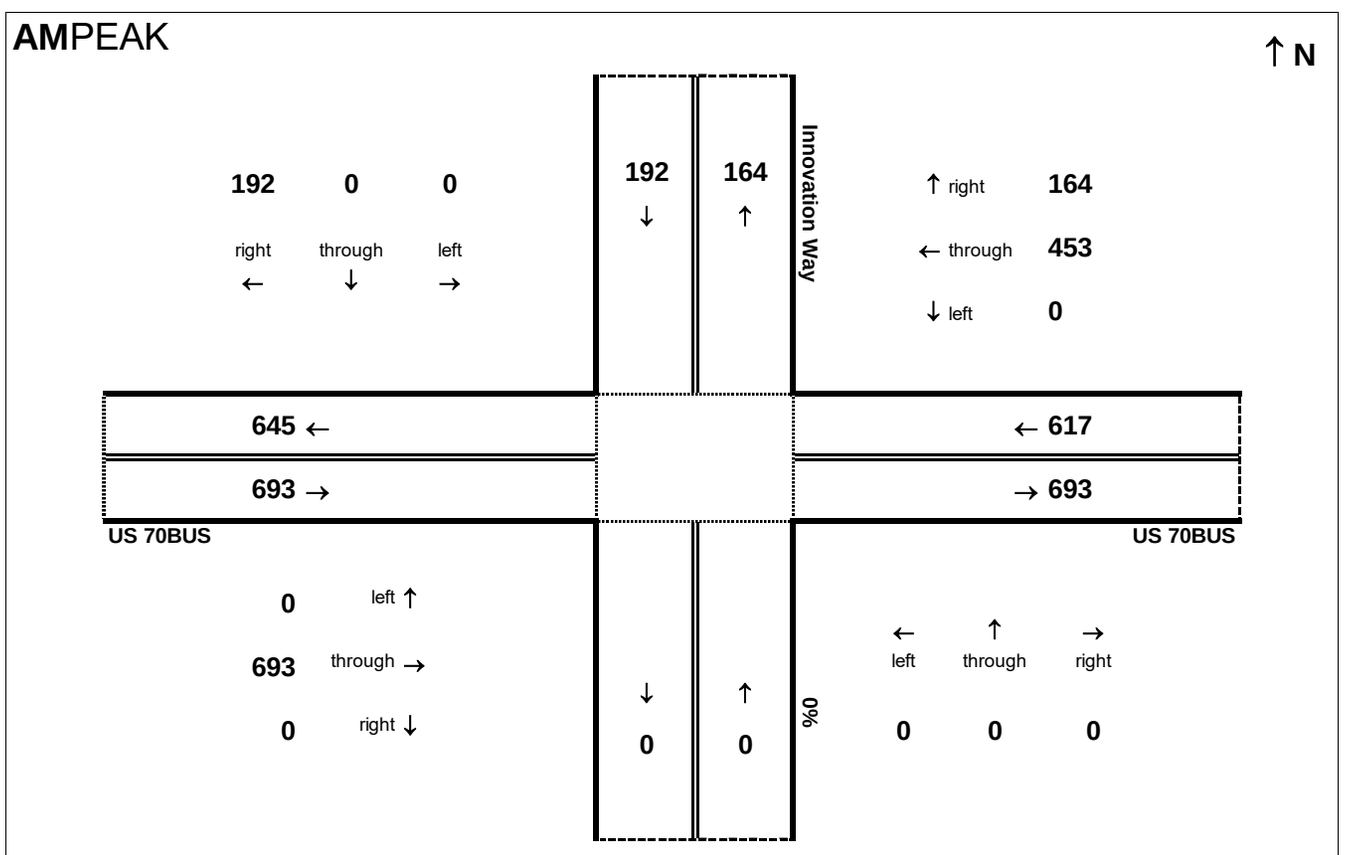
Peak Hour Volume Breakouts Report:
405 Intersection of US 70BUS and Innovation Way

Traffic Forecast Release Date:
November-16

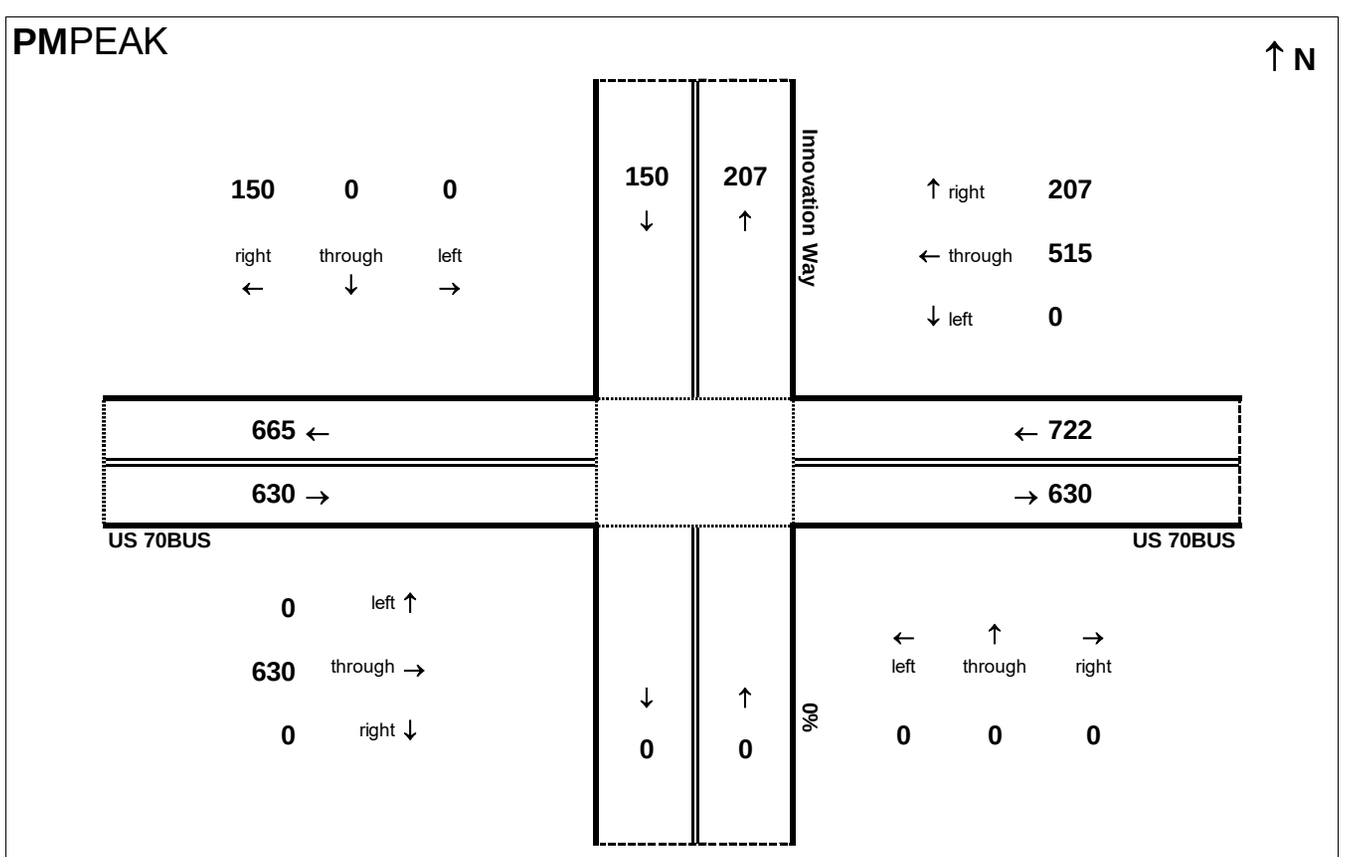
Traffic Data Year:
2040 Build Alt 32

Project:
R-2553





AM peak hour inflow is 1503 vehicles. AM peak hour outflow is 1503 vehicles.



PM peak hour inflow is 1503 vehicles. PM peak hour outflow is 1503 vehicles.

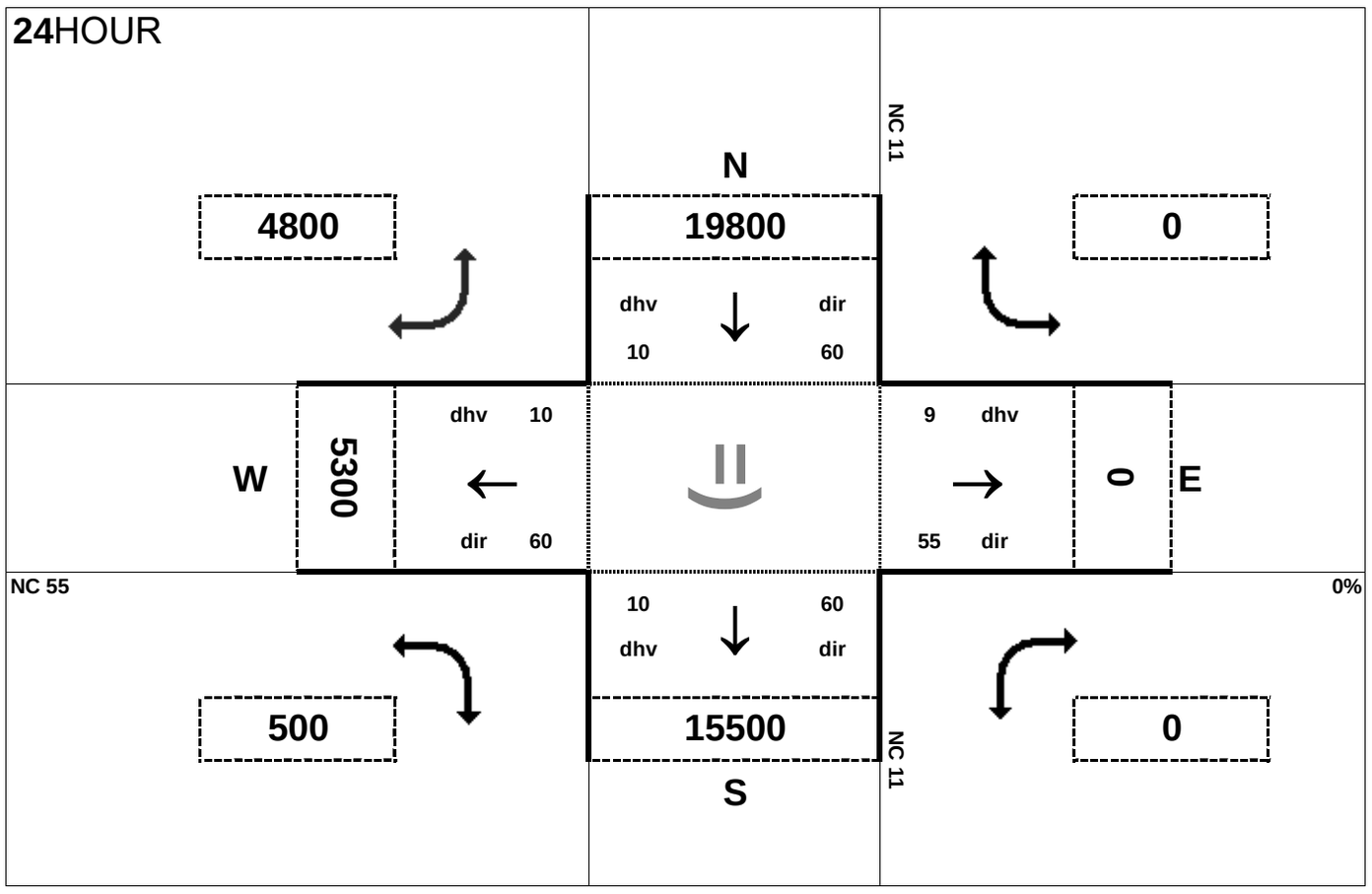
Peak Hour Volume Breakouts Report:
406 Intersection of NC 11 and NC 55

Traffic Forecast Release Date:
November-16

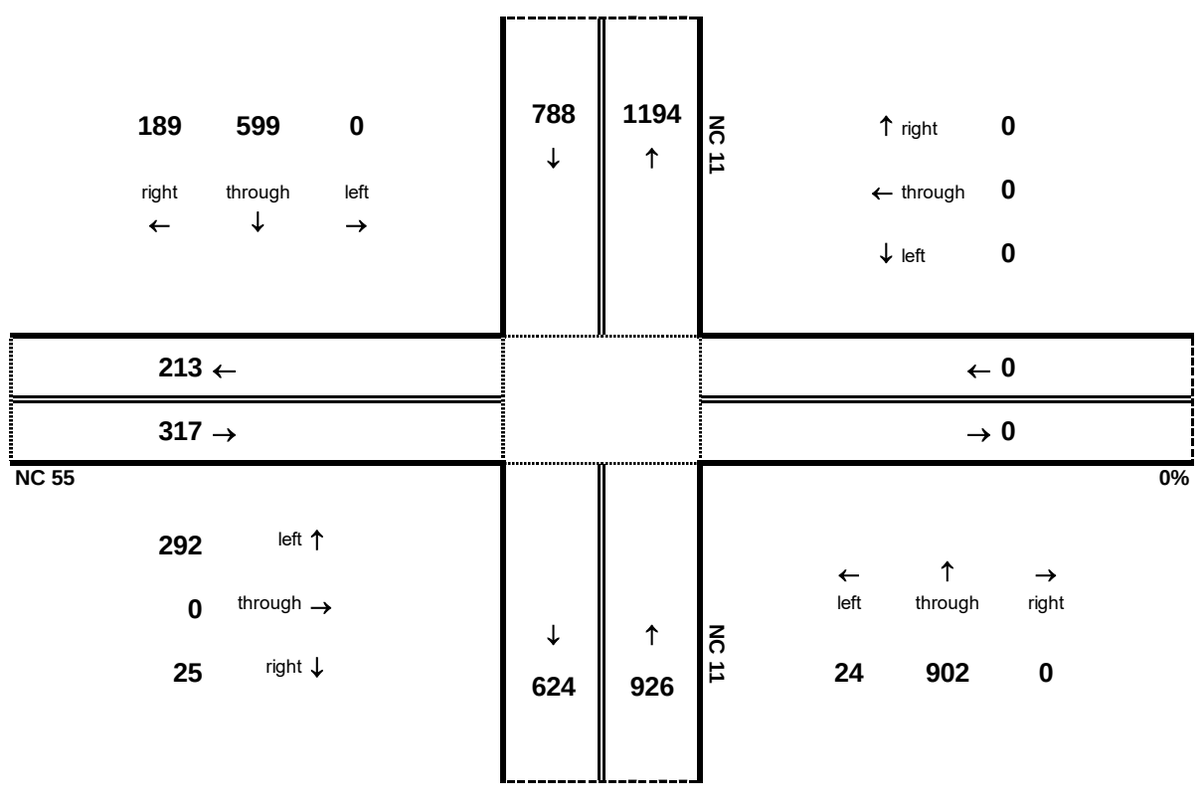
Traffic Data Year:
2040 Build Alt 32

Project:
R-2553

24HOUR

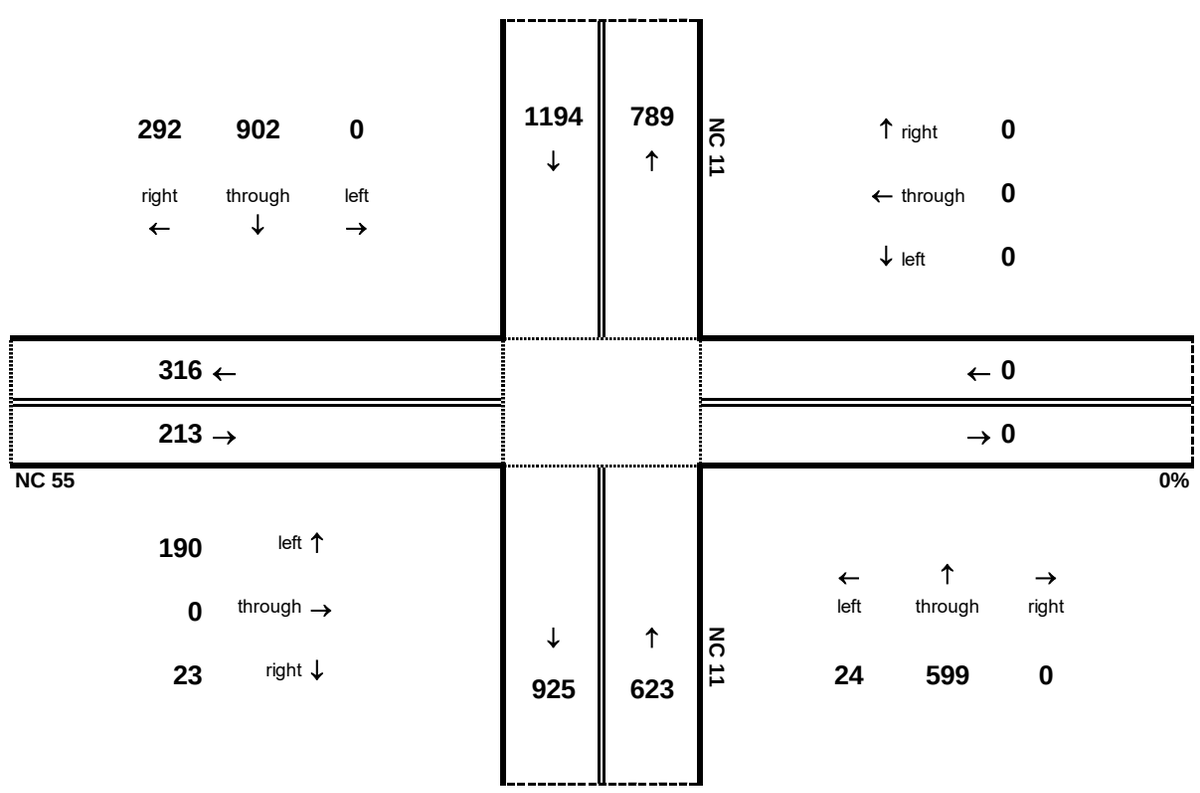


AMPEAK



AM peak hour inflow is 2031 vehicles. AM peak hour outflow is 2030 vehicles.

PMPEAK



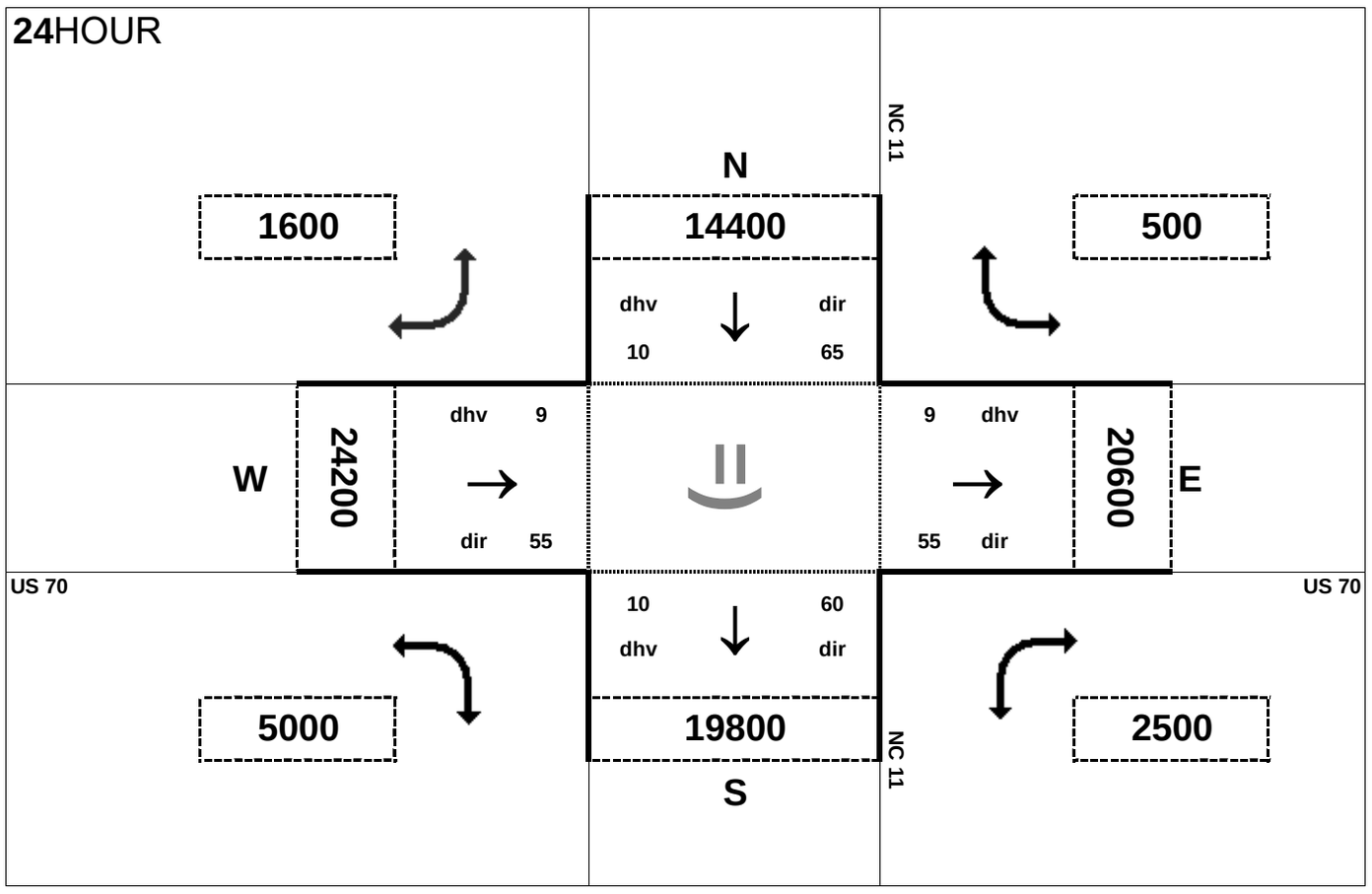
PM peak hour inflow is 2030 vehicles. PM peak hour outflow is 2029 vehicles.

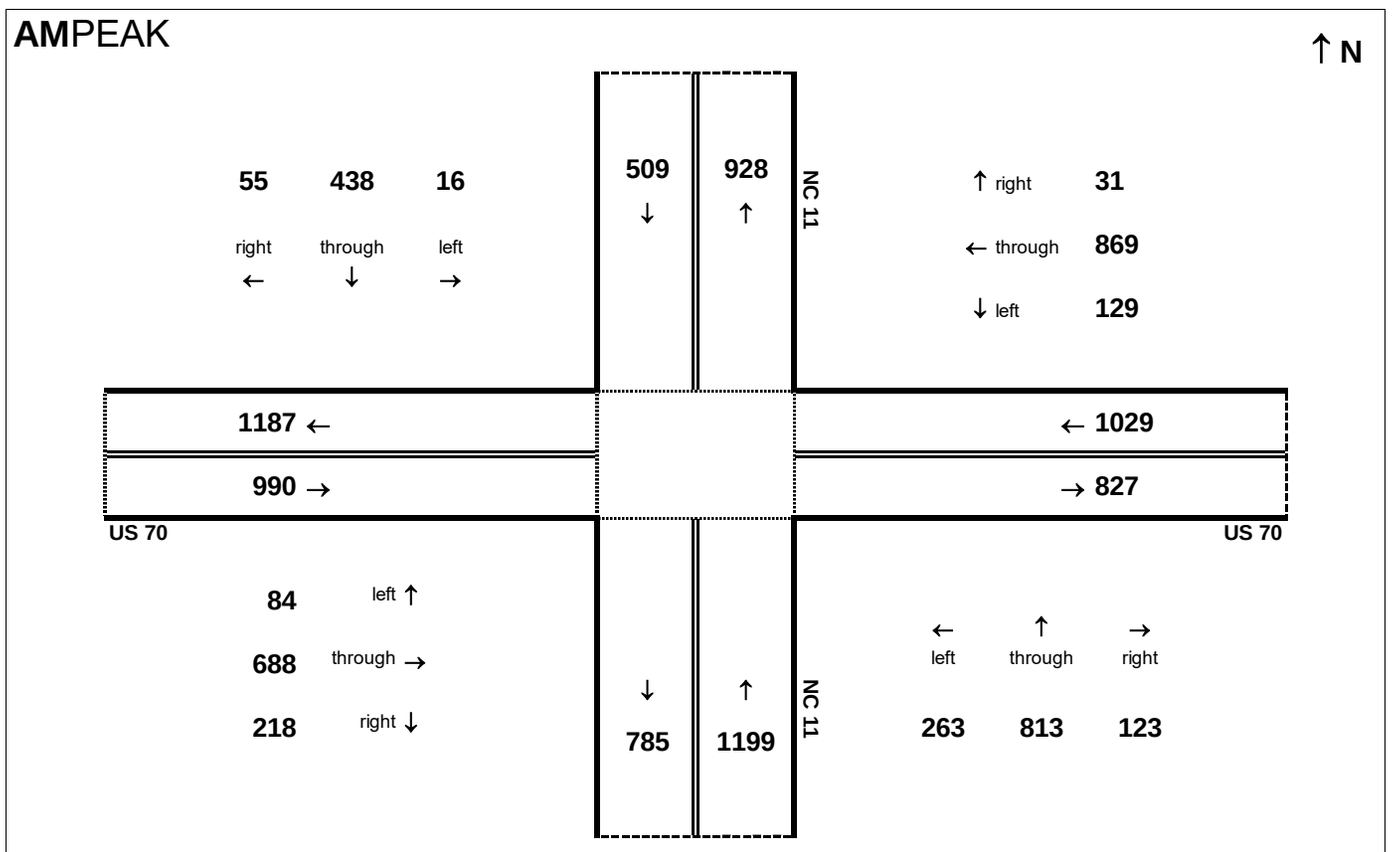
Peak Hour Volume Breakouts Report:
407-8 Intersection of US 70 and NC 11

Traffic Forecast Release Date:
November-16

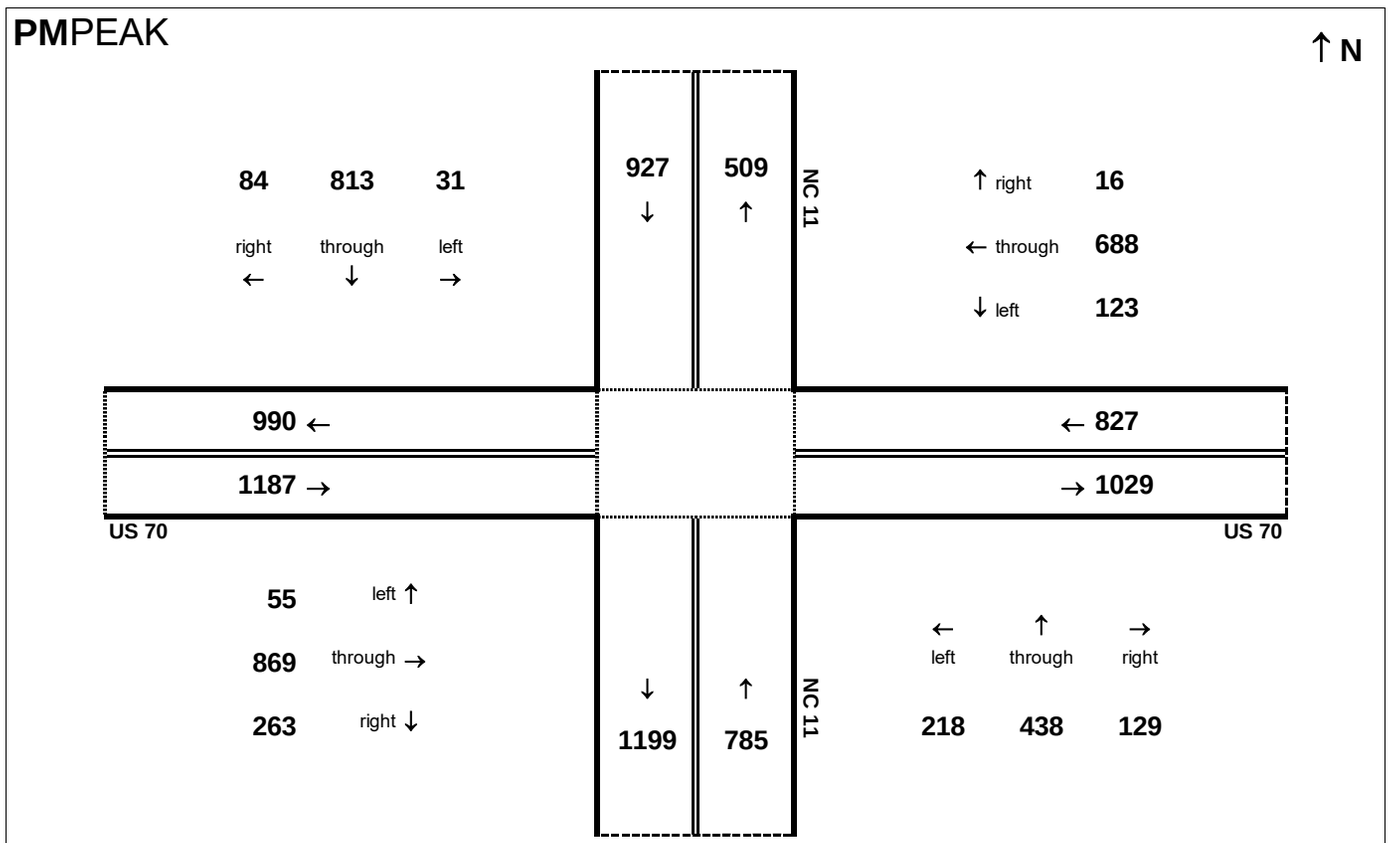
Traffic Data Year:
2040 Build Alt 32

Project:
R-2553





AM peak hour inflow is 3726 vehicles. AM peak hour outflow is 3726 vehicles.



PM peak hour inflow is 3726 vehicles. PM peak hour outflow is 3726 vehicles.

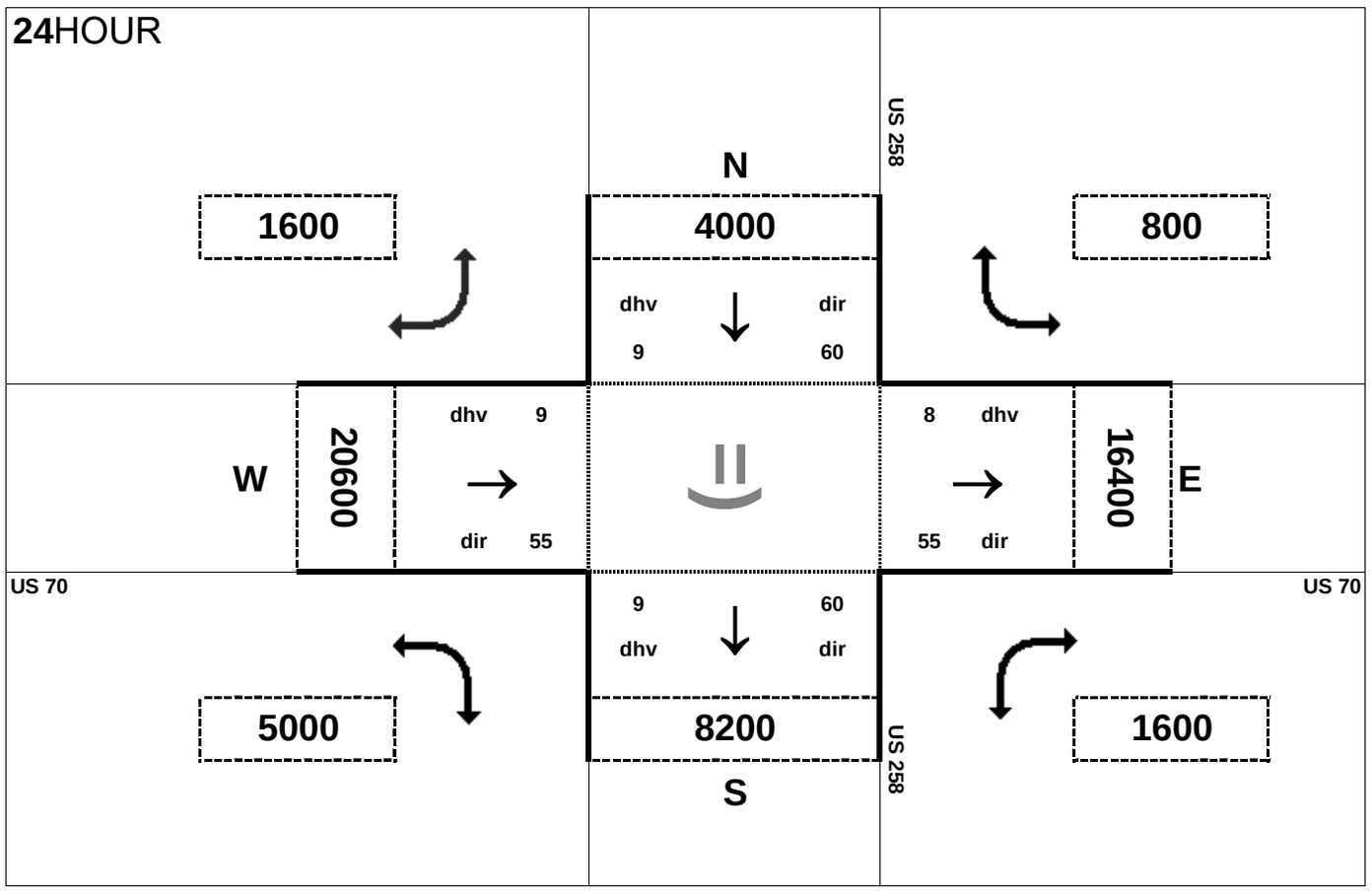
Peak Hour Volume Breakouts Report:
409-10 Intersection of US 70 and US 258

Traffic Forecast Release Date:
November-16

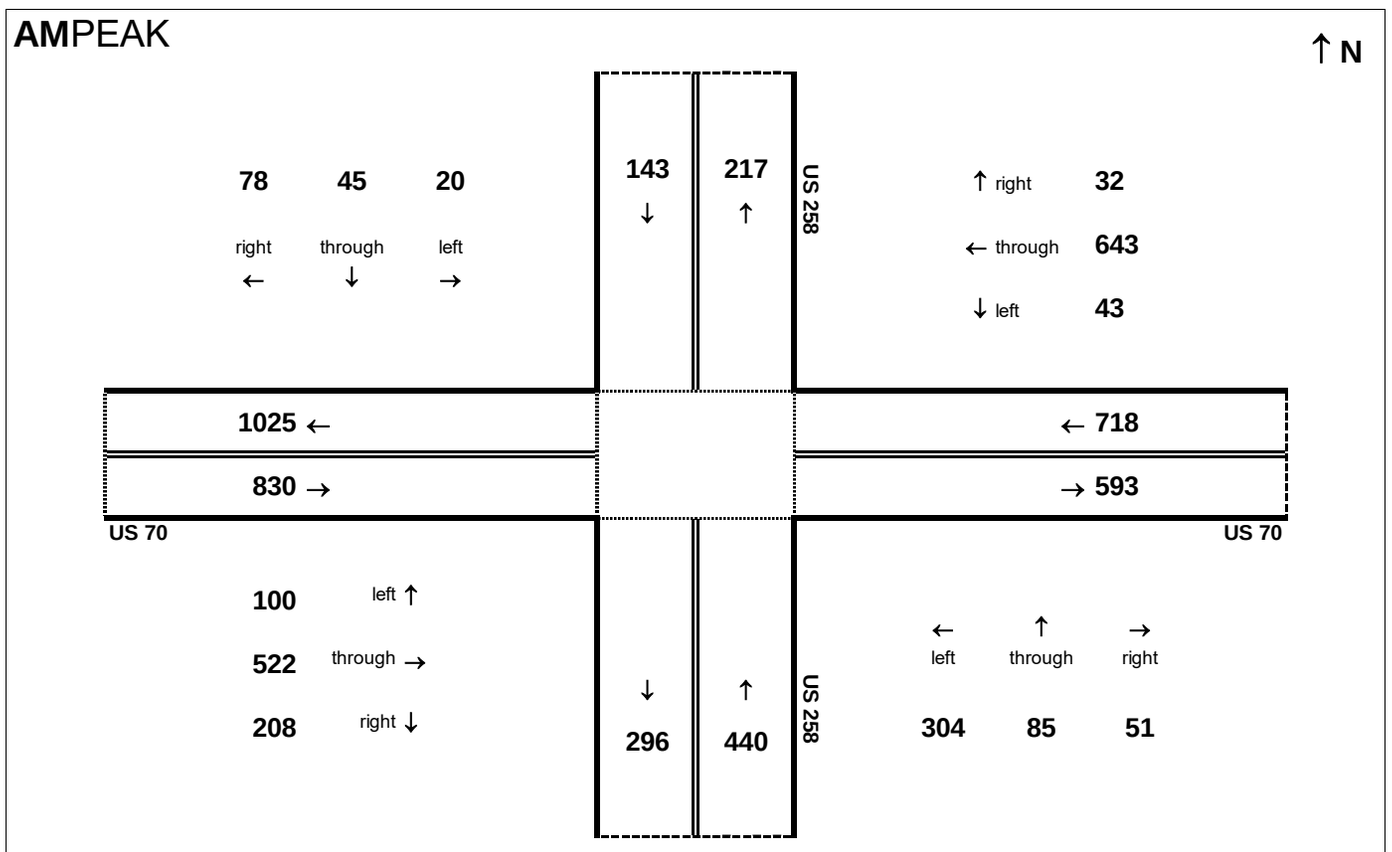
Traffic Data Year:
2040 Build Alt 32

Project:
R-2553

24HOUR

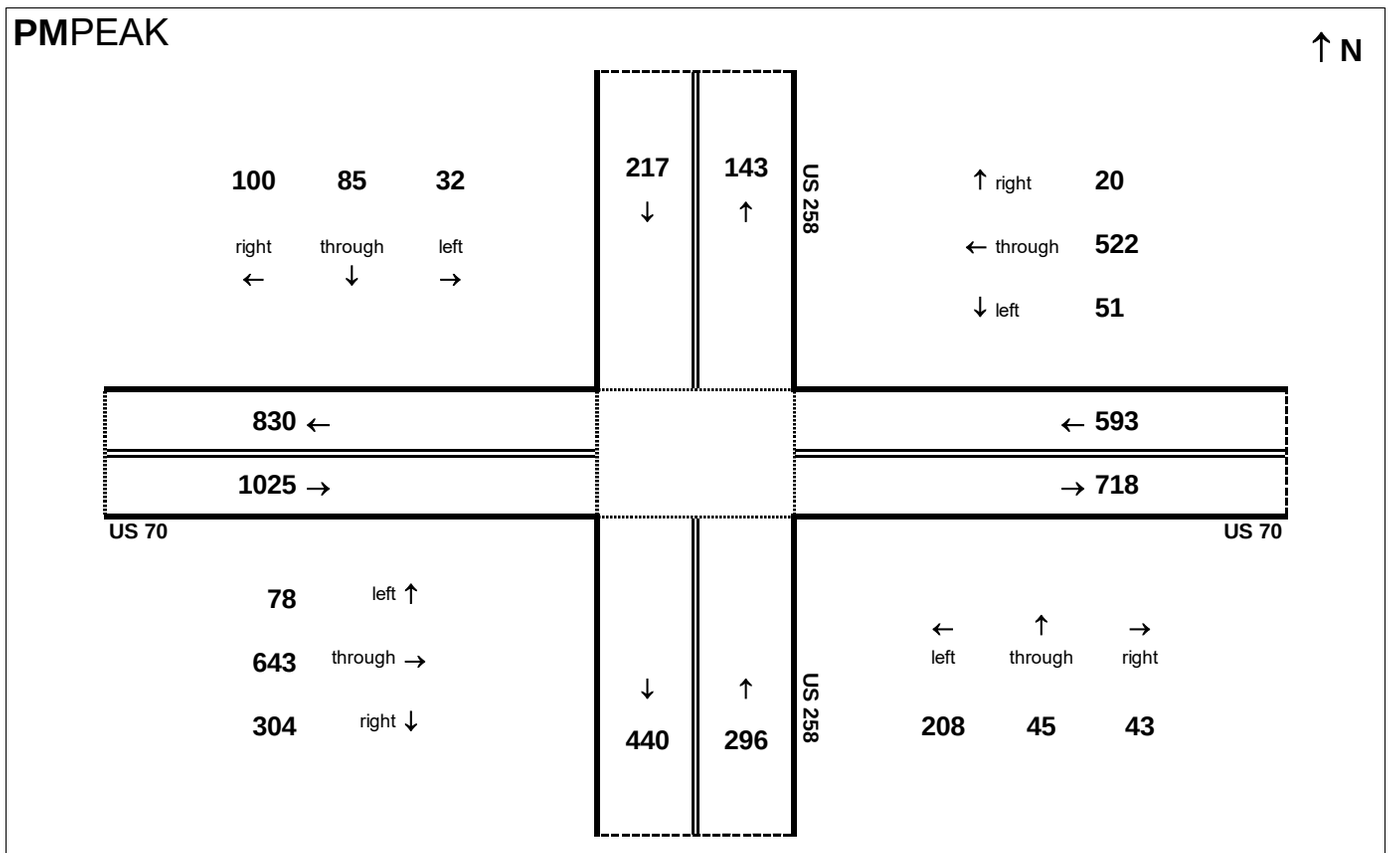


AMPEAK



AM peak hour inflow is 2132 vehicles. AM peak hour outflow is 2132 vehicles.

PMPEAK



PM peak hour inflow is 2132 vehicles. PM peak hour outflow is 2132 vehicles.

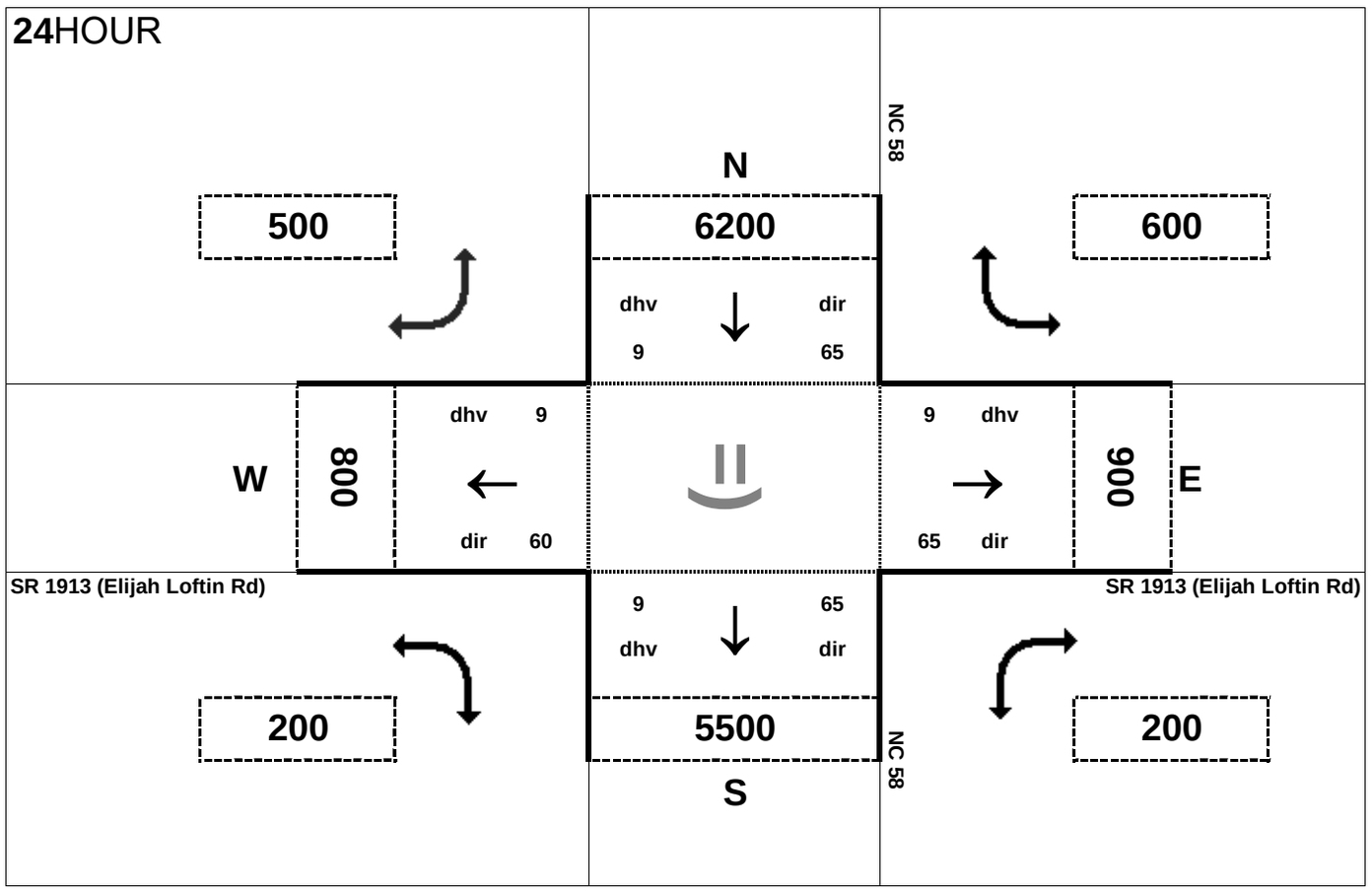
Peak Hour Volume Breakouts Report:
411 Intersection of NC 58 and SR 1913 (Elijah Loftin Rd)

Traffic Forecast Release Date:
November-16

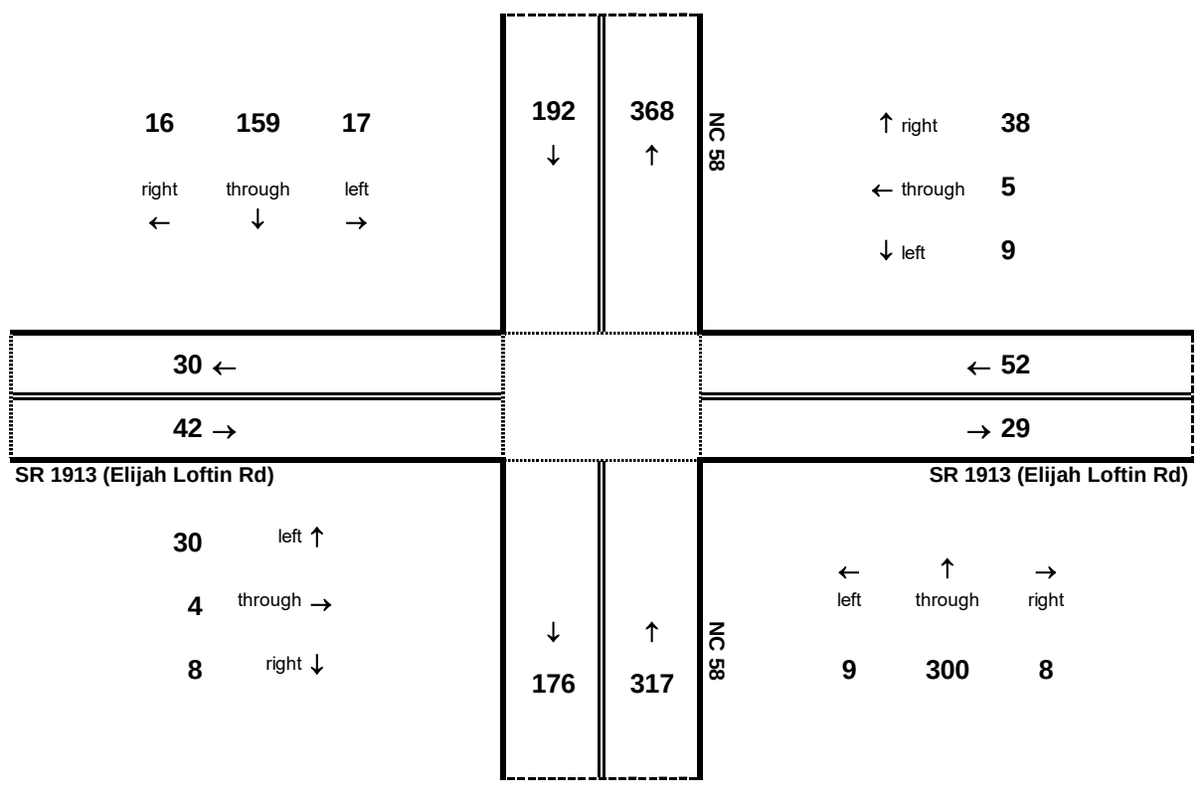
Traffic Data Year:
2040 Build Alt 32

Project:
R-2553

24HOUR

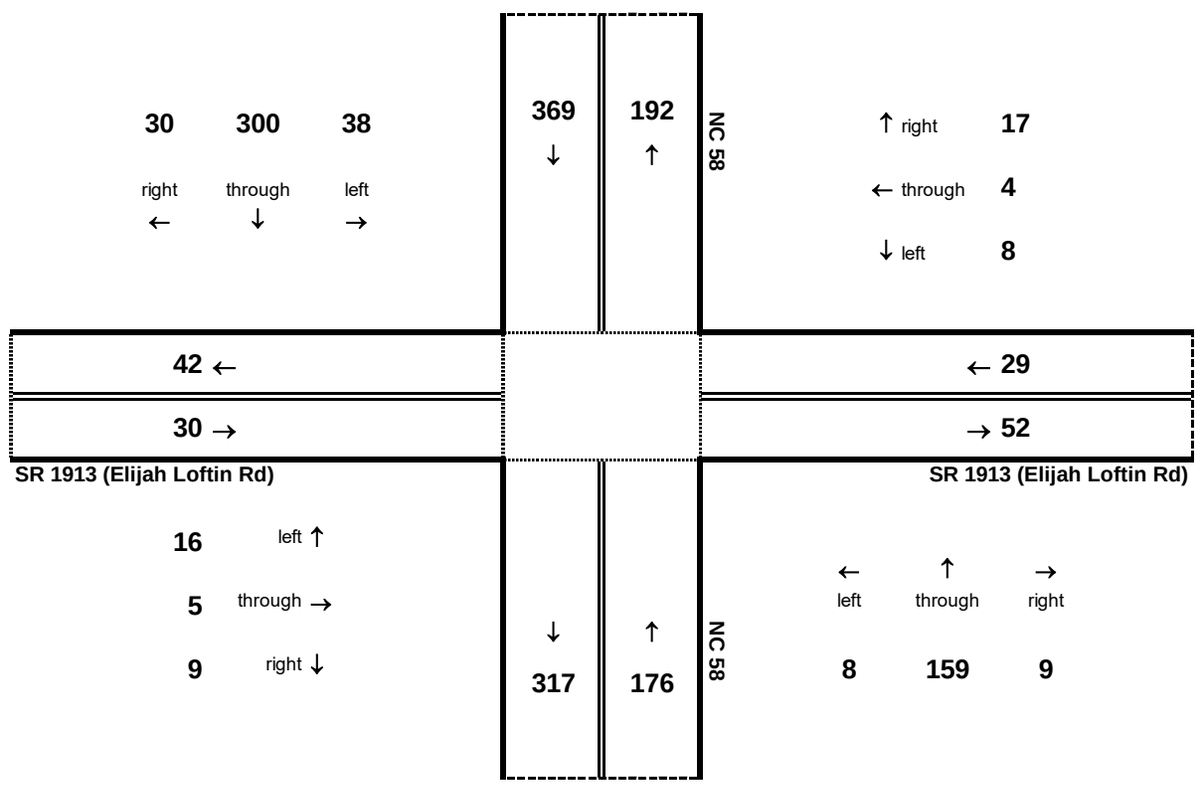


AMPEAK



AM peak hour inflow is 604 vehicles. AM peak hour outflow is 603 vehicles.

PMPEAK



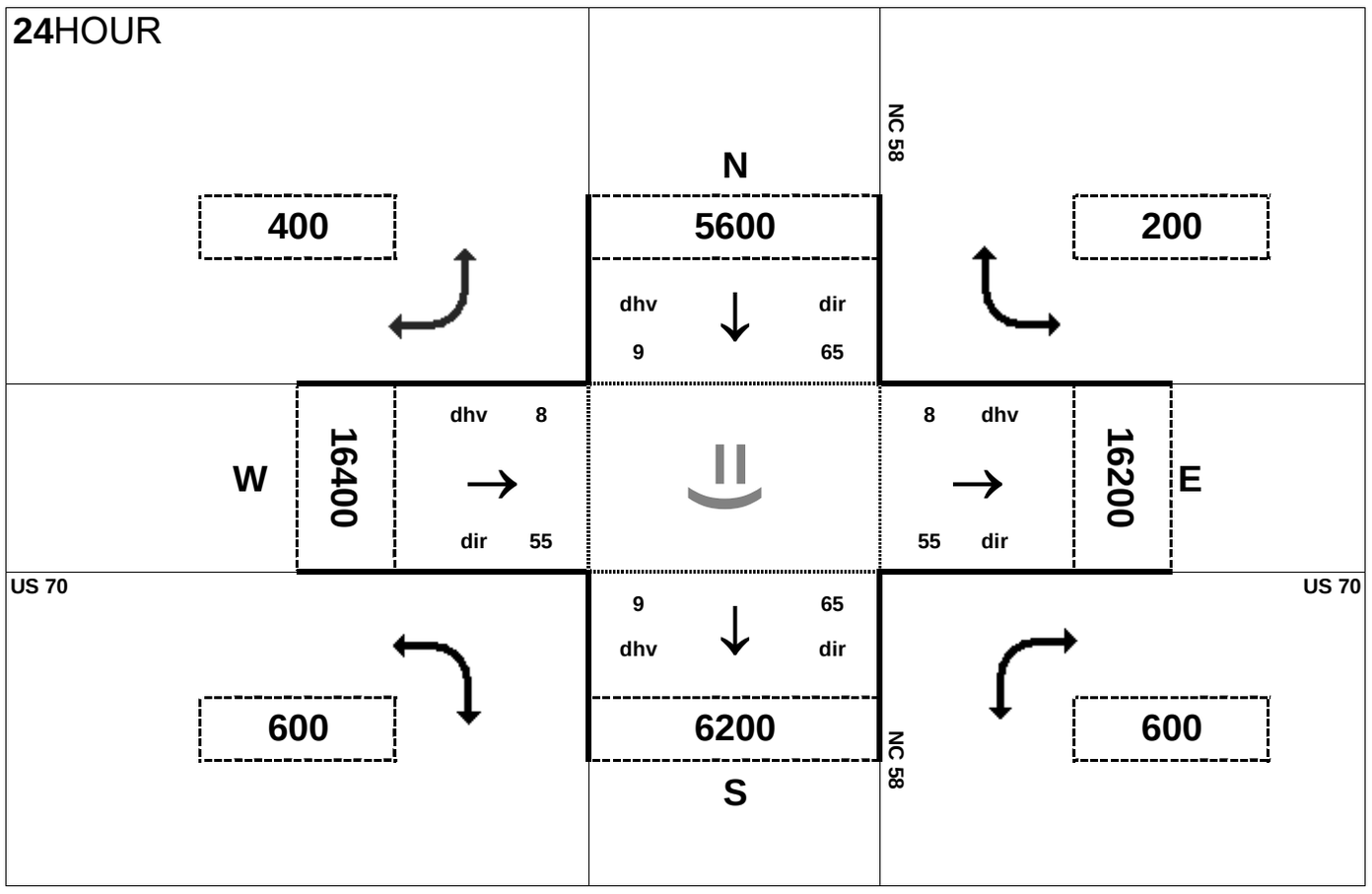
PM peak hour inflow is 603 vehicles. PM peak hour outflow is 604 vehicles.

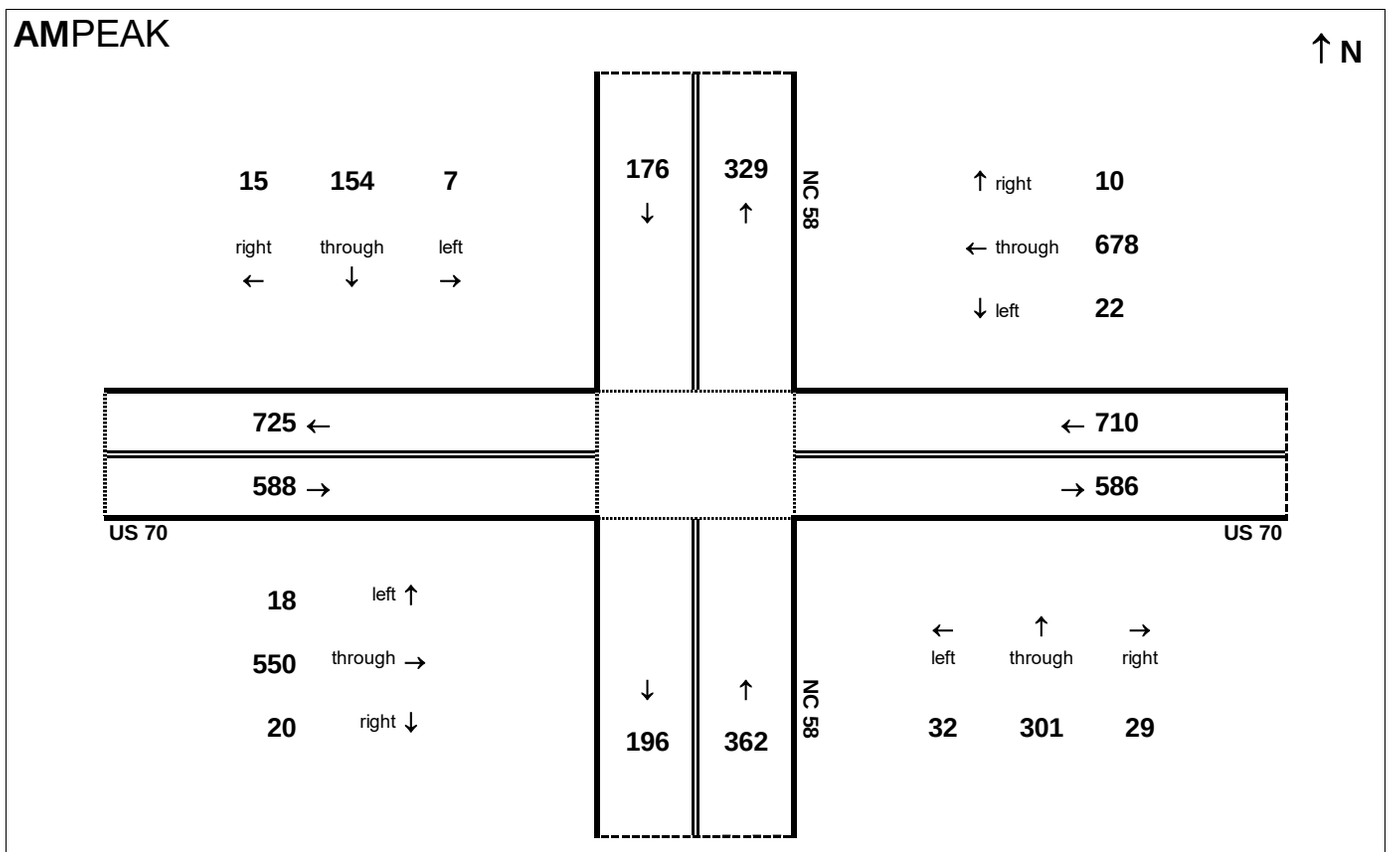
Peak Hour Volume Breakouts Report:
412-13 Intersection of US 70 and NC 58

Traffic Forecast Release Date:
November-16

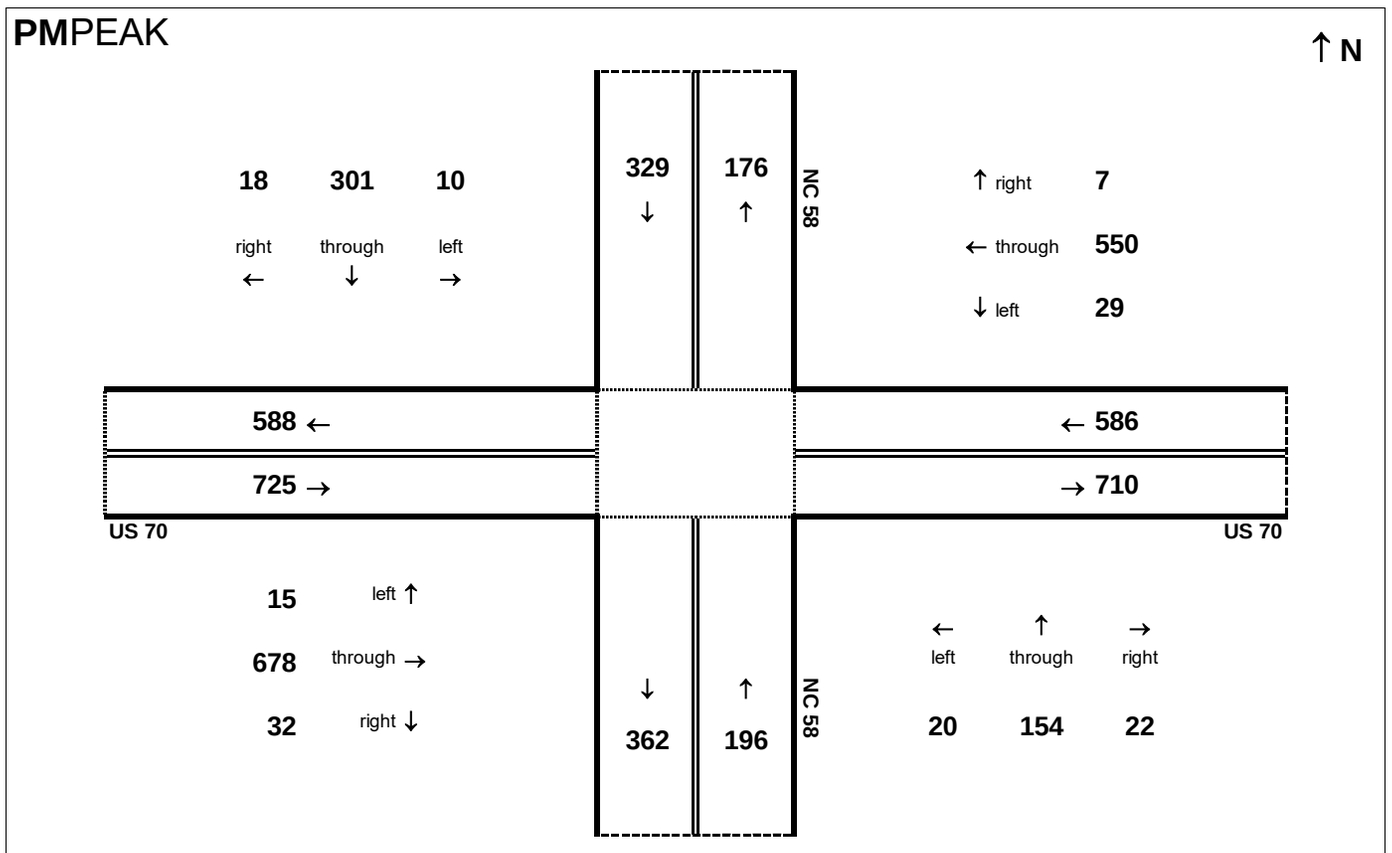
Traffic Data Year:
2040 Build Alt 32

Project:
R-2553





AM peak hour inflow is 1835 vehicles. AM peak hour outflow is 1835 vehicles.



PM peak hour inflow is 1835 vehicles. PM peak hour outflow is 1835 vehicles.

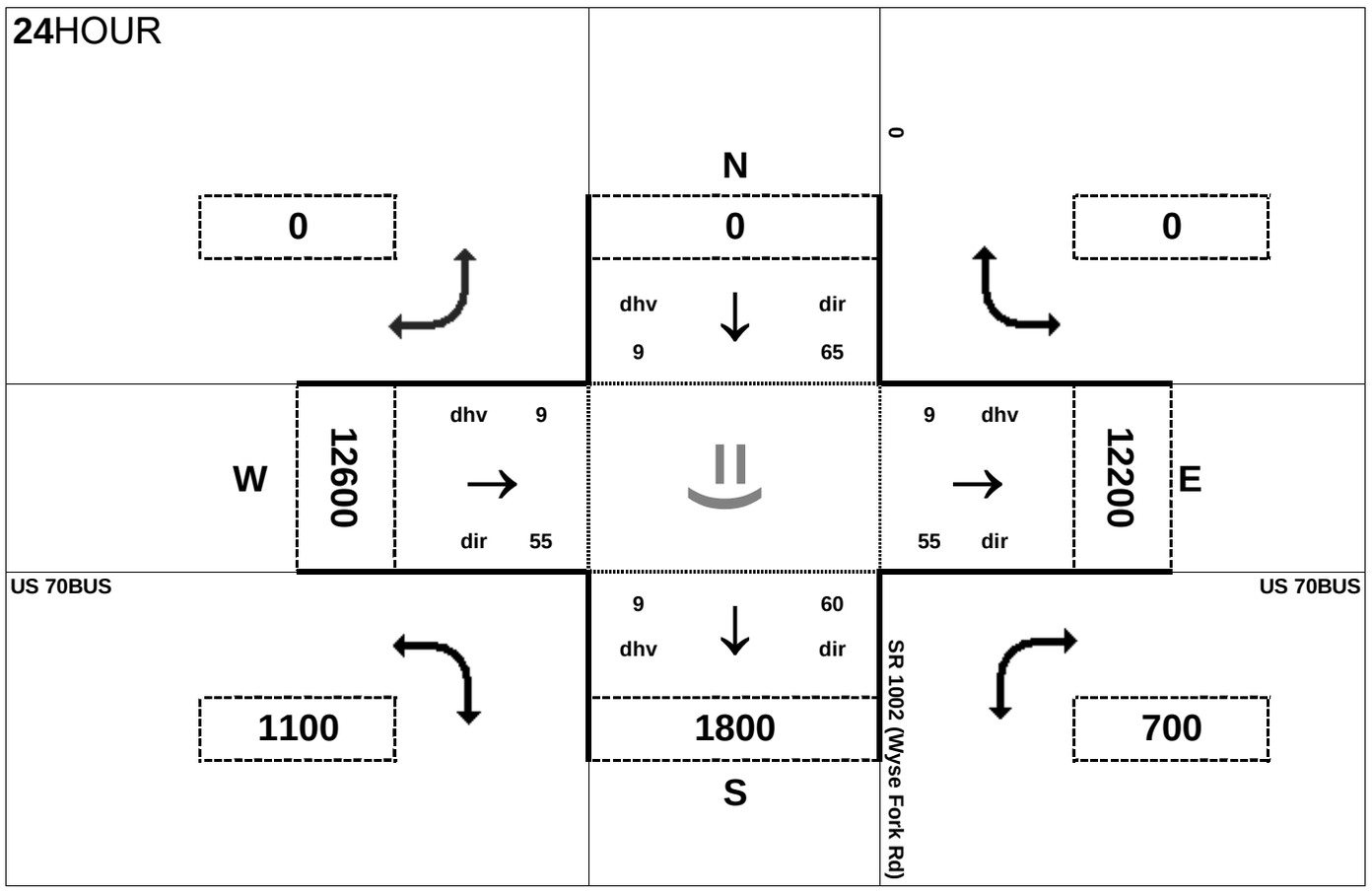
Peak Hour Volume Breakouts Report:
414 Intersection of US 70BUS SR 1002 (Wyse Fork Rd)

Traffic Forecast Release Date:
November-16

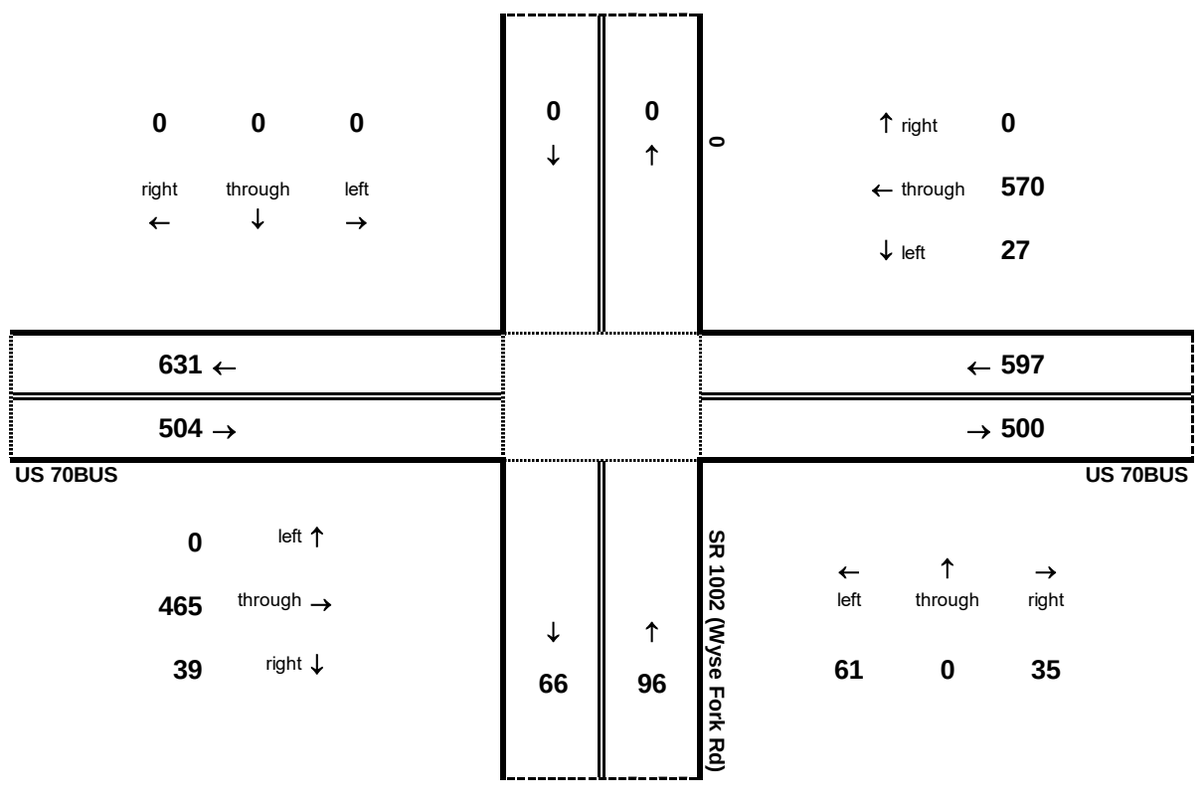
Traffic Data Year:
2040 Build Alt 32

Project:
R-2553

24HOUR

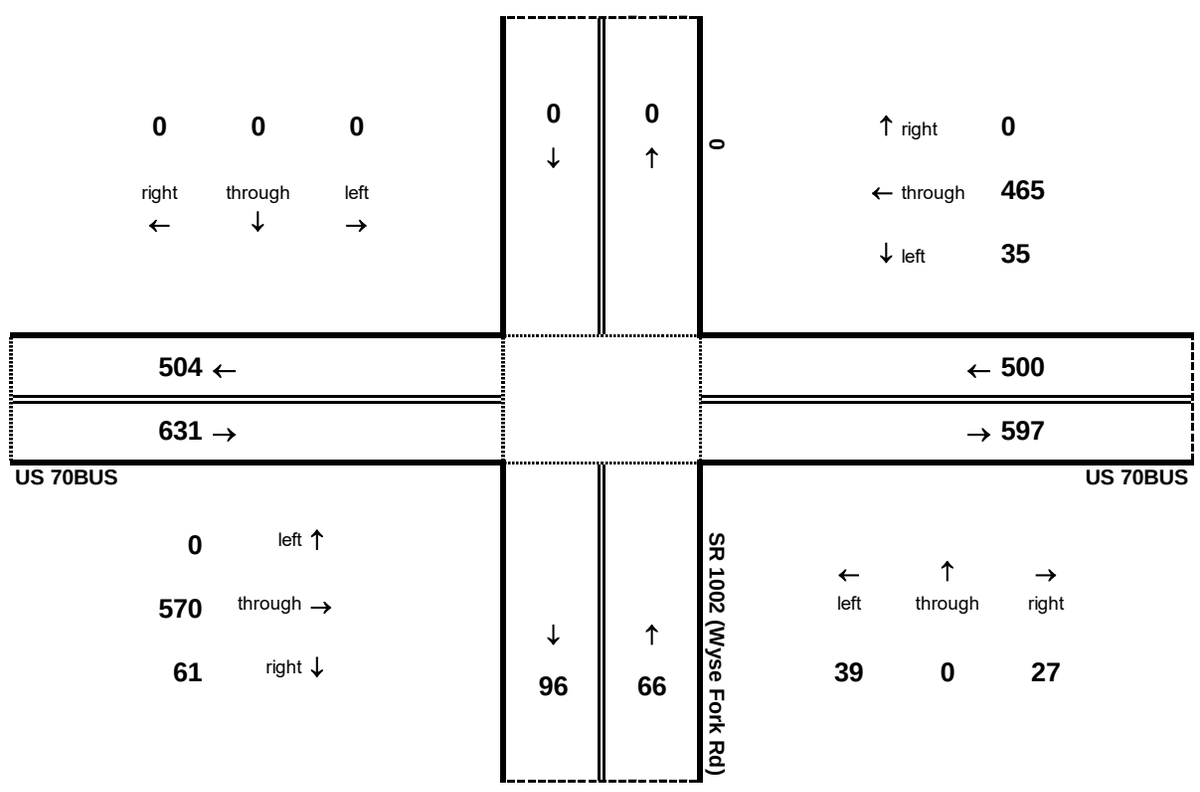


AMPEAK



AM peak hour inflow is 1197 vehicles. AM peak hour outflow is 1197 vehicles.

PMPEAK



PM peak hour inflow is 1197 vehicles. PM peak hour outflow is 1197 vehicles.

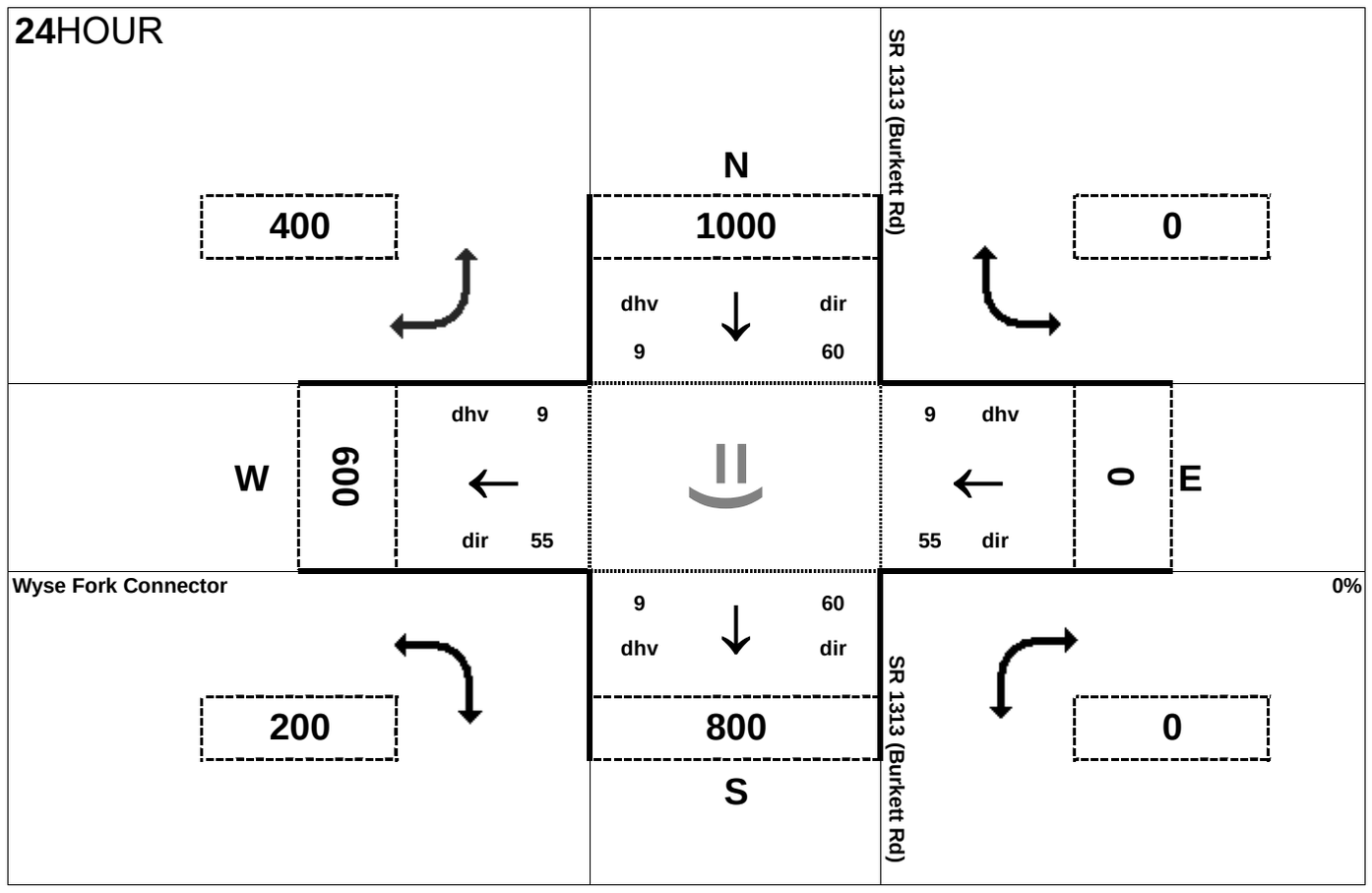
Peak Hour Volume Breakouts Report:
415 Intersection of SR 1313 (Burkett Rd) at Wyse Fork Connector

Traffic Forecast Release Date:
November-16

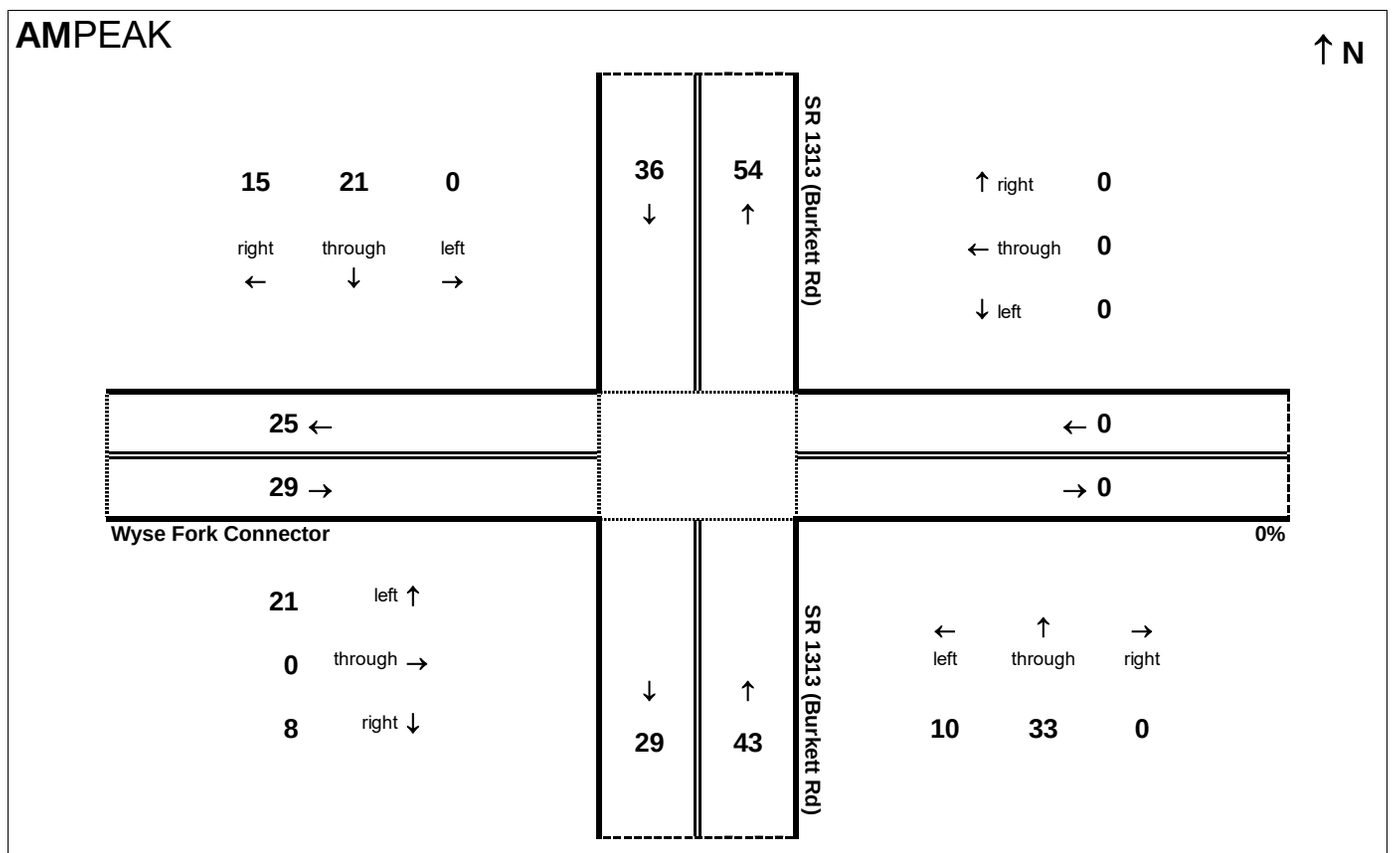
Traffic Data Year:
2040 Build Alt 32

Project:
R-2553

24HOUR

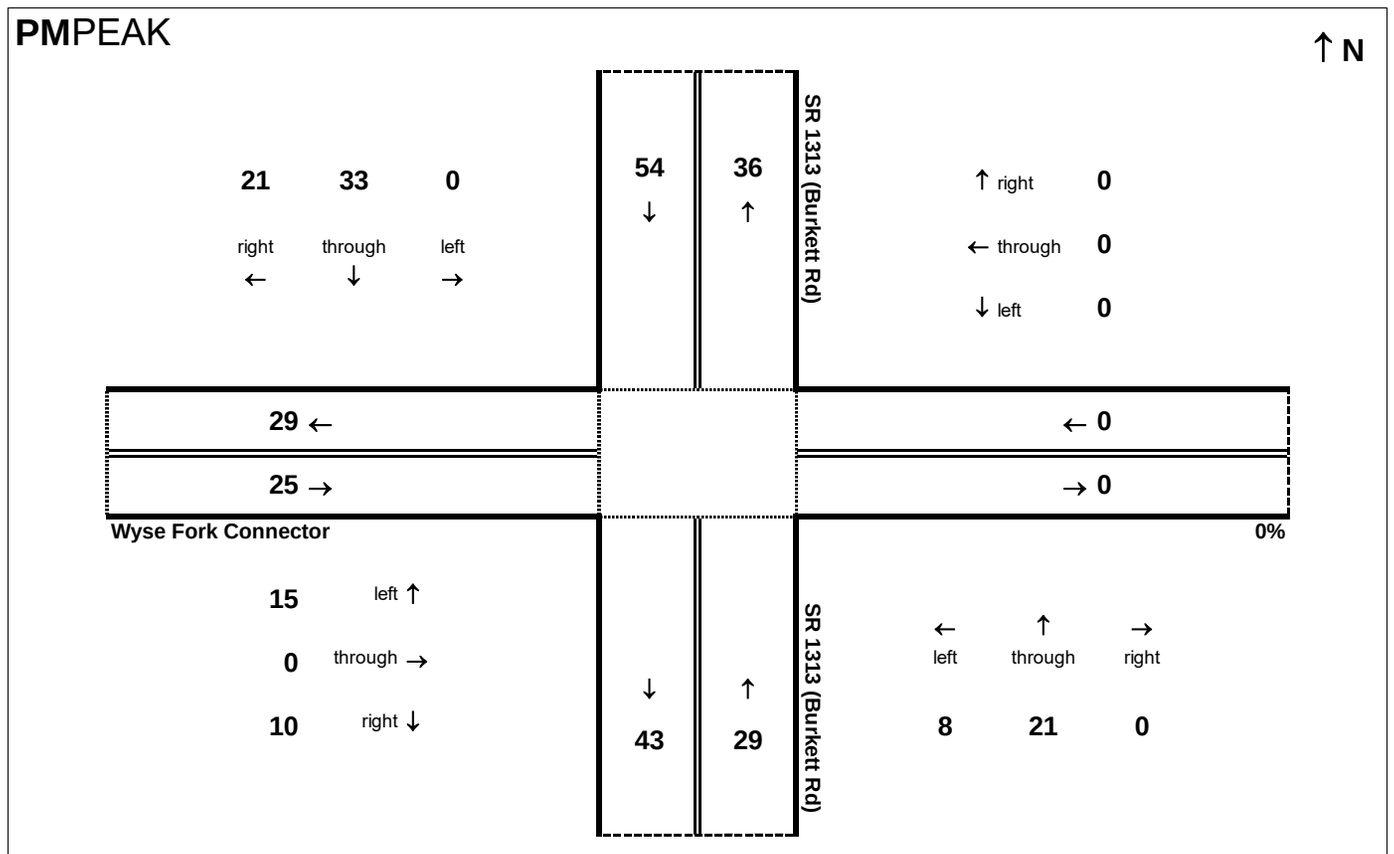


AMPEAK



AM peak hour inflow is 108 vehicles. AM peak hour outflow is 108 vehicles.

PMPEAK



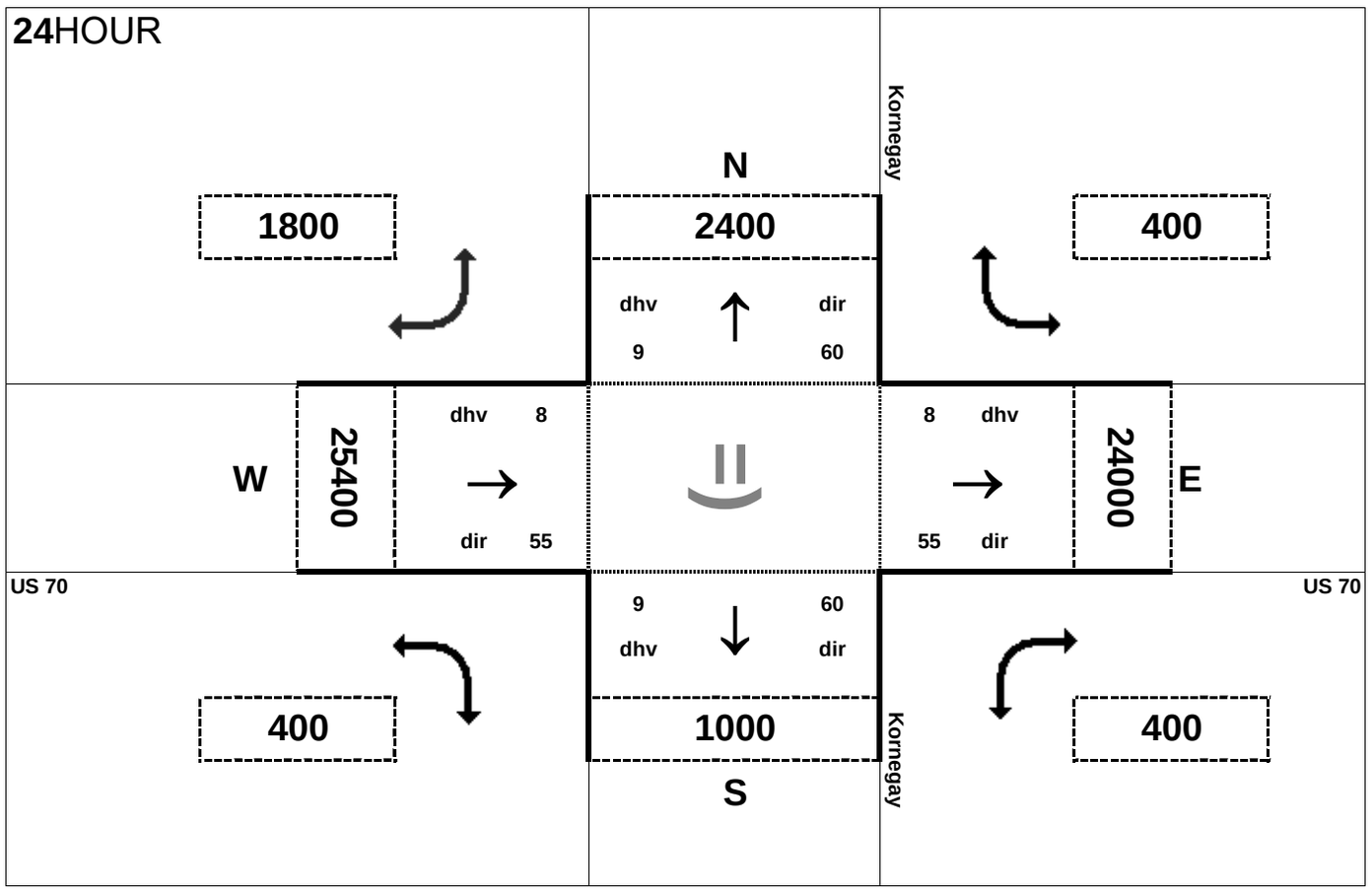
PM peak hour inflow is 108 vehicles. PM peak hour outflow is 108 vehicles.

Peak Hour Volume Breakouts Report:
416-17 Intersection of US 70 and Kornegay St

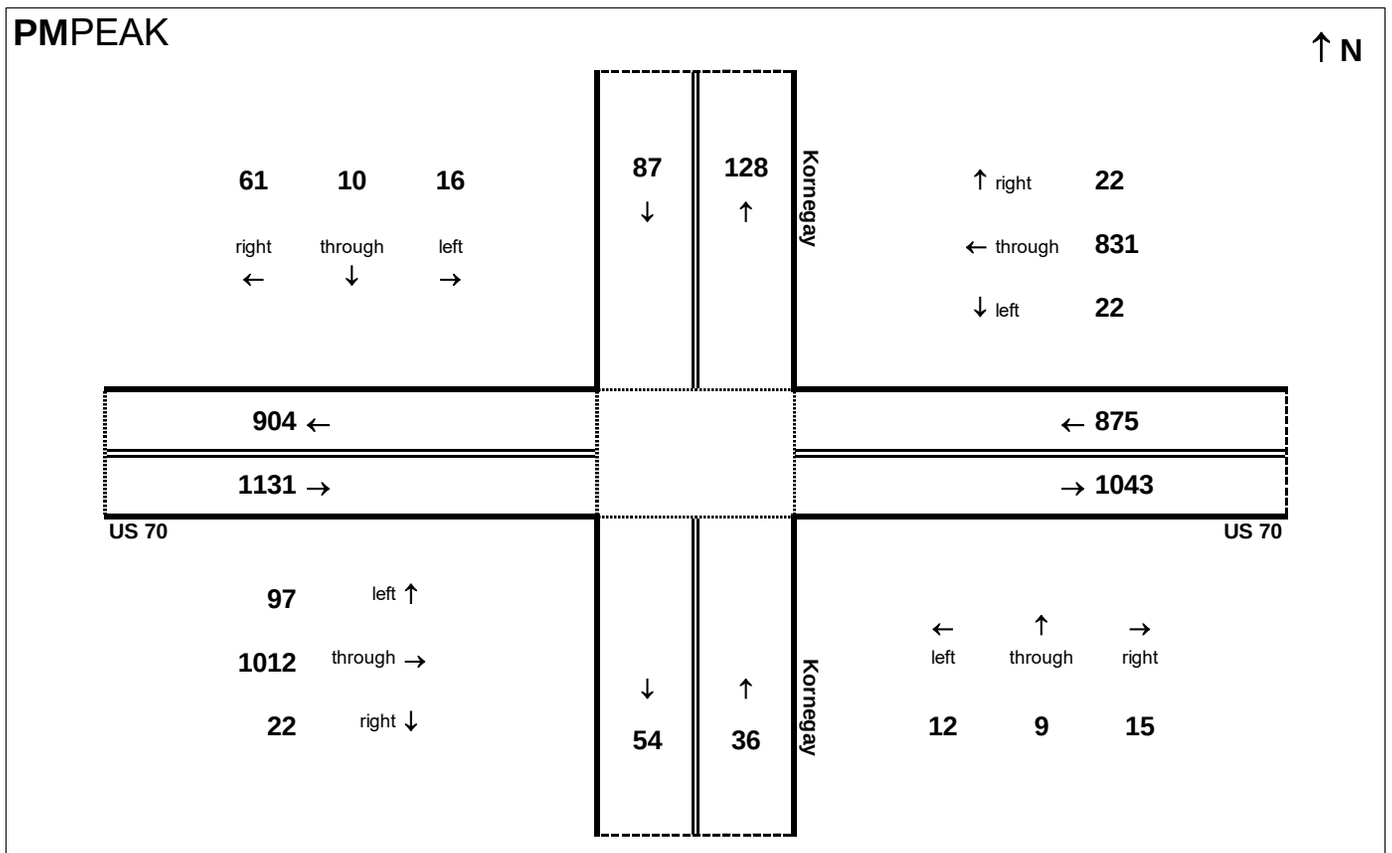
Traffic Forecast Release Date:
November-16

Traffic Data Year:
2040 Build Alt 32

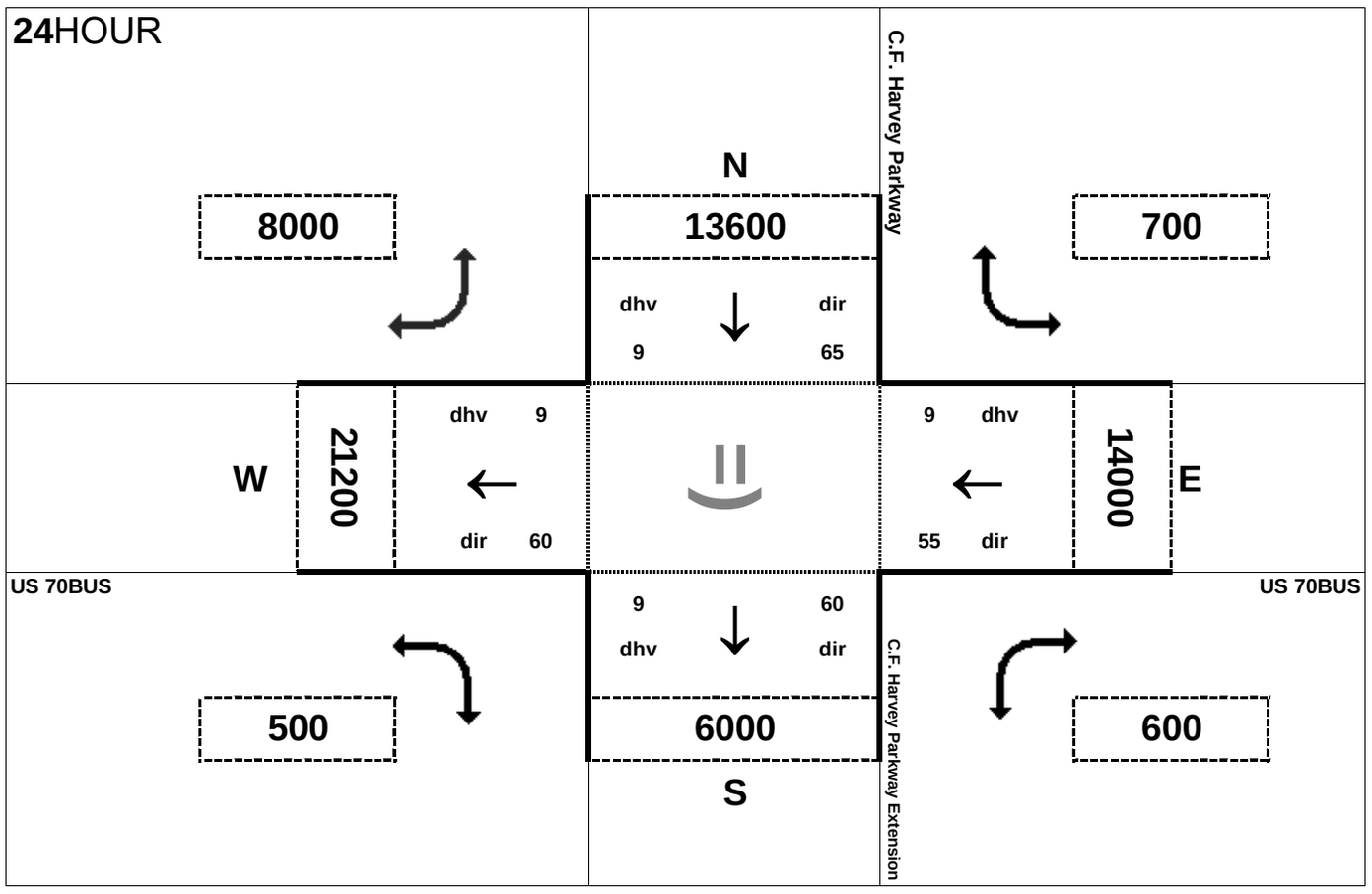
Project:
R-2553



AM peak hour inflow is 2129 vehicles. AM peak hour outflow is 2128 vehicles.



PM peak hour inflow is 2128 vehicles. PM peak hour outflow is 2129 vehicles.

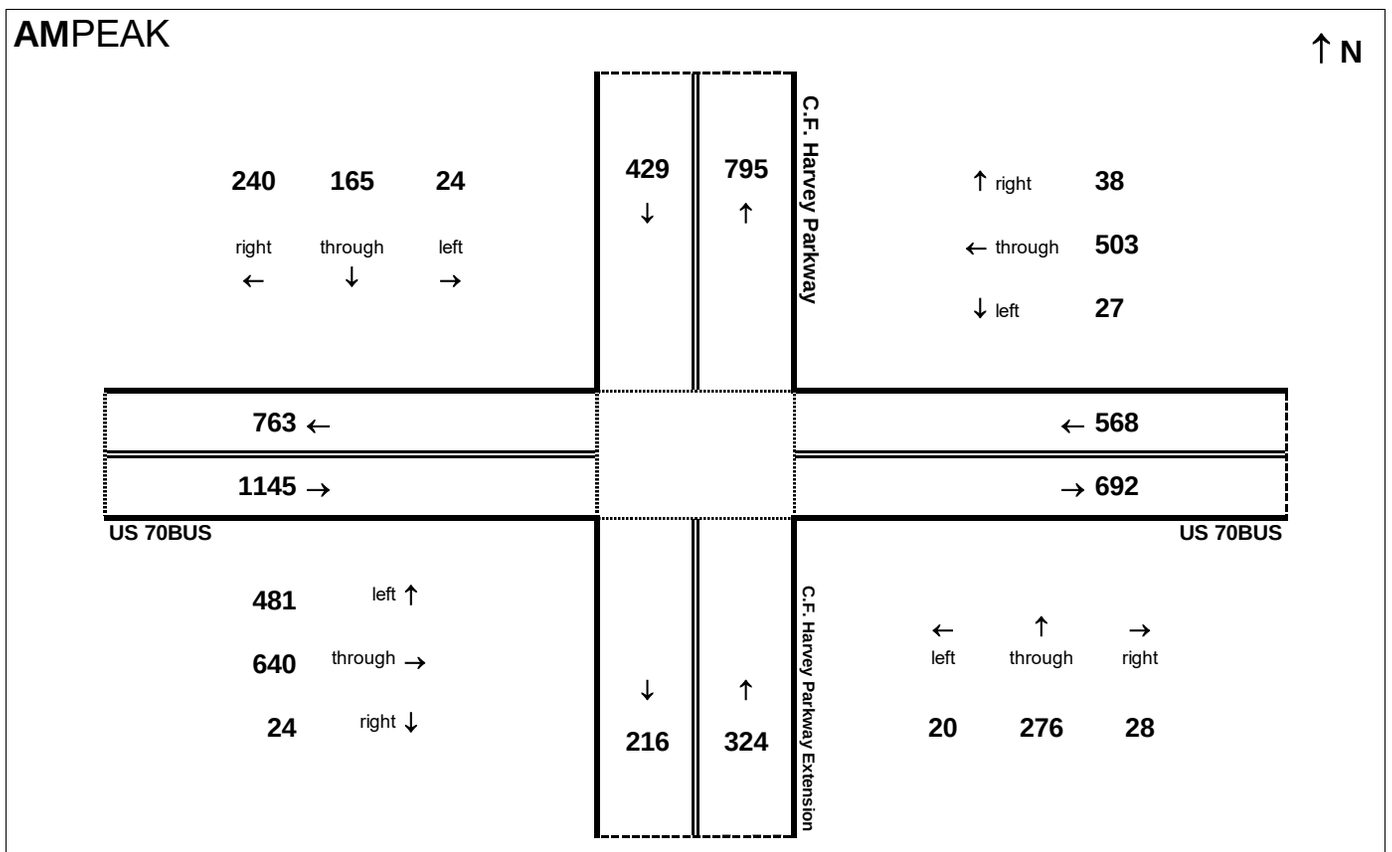


Peak Hour Volume Breakouts Report:
System 1 Intersection of US 70BUS and C. F. Harvey Parkway

Traffic Forecast Release Date:
November-16

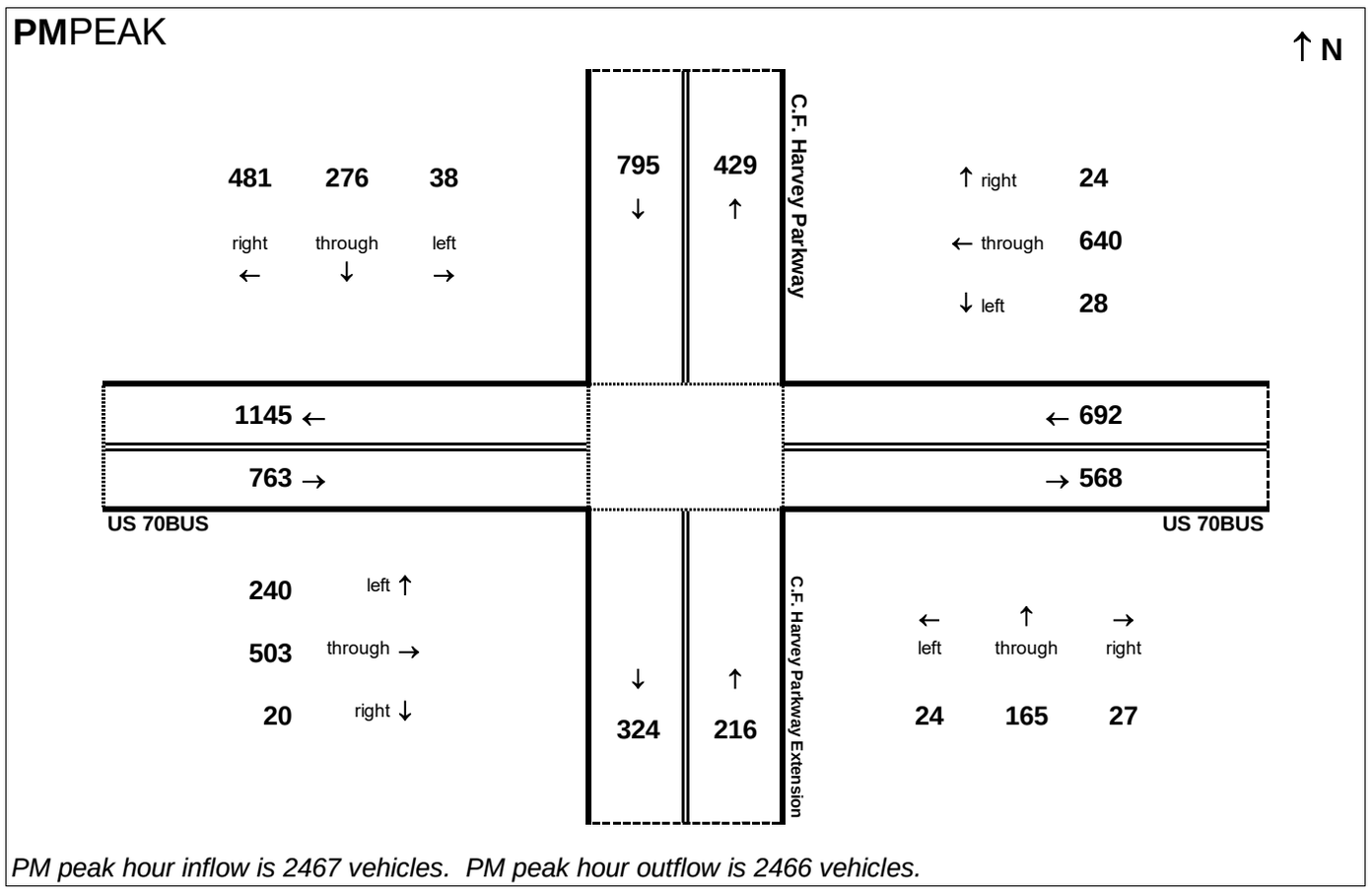
Traffic Data Year:
2040 Build Alt 32

Project:
R-2553



AM peak hour inflow is 2466 vehicles. AM peak hour outflow is 2466 vehicles.

Note: Volumes have been redistributed at this interchange based on the inclusion of the CF Harvey Parkway Extension NB loop ramp to US 70 Business WB, and the US 70 Business EB ramp to CF Harvey Parkway Extension SB. 500 vehicles are assumed to be redistributed from the southeast turning movement quadrant (1100 to 600) to the southwest turning movement quadrant (0 to 500). The volumes on the east leg of US 70 Business has also been adjusted to account for this change (15000 to 14000). More information is described in detail in the memorandum.



PM peak hour inflow is 2467 vehicles. PM peak hour outflow is 2466 vehicles.

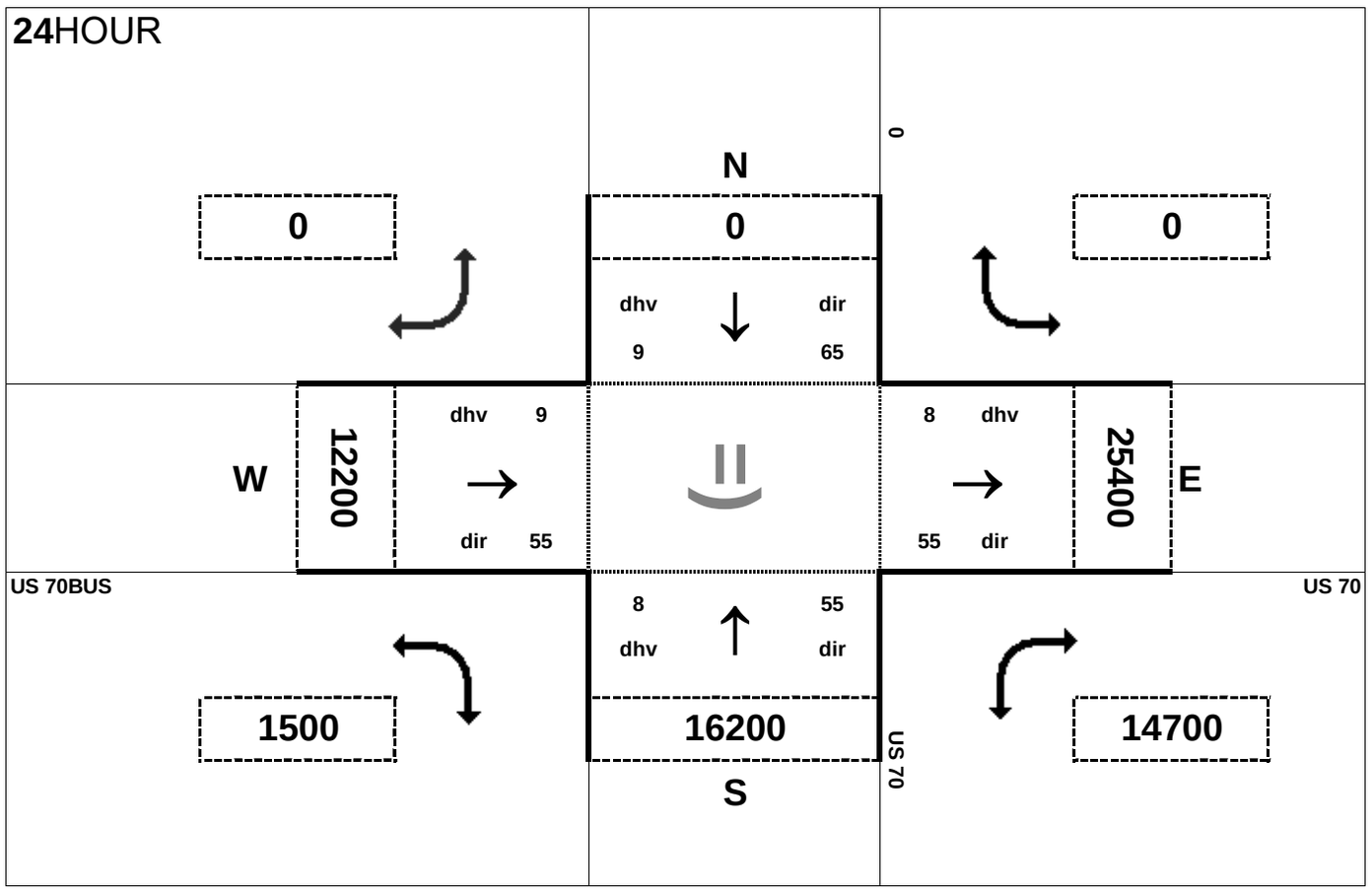
Peak Hour Volume Breakouts Report:
System 2 Intersection of US 70 and US 70BUS (eastern)

Traffic Forecast Release Date:
November-16

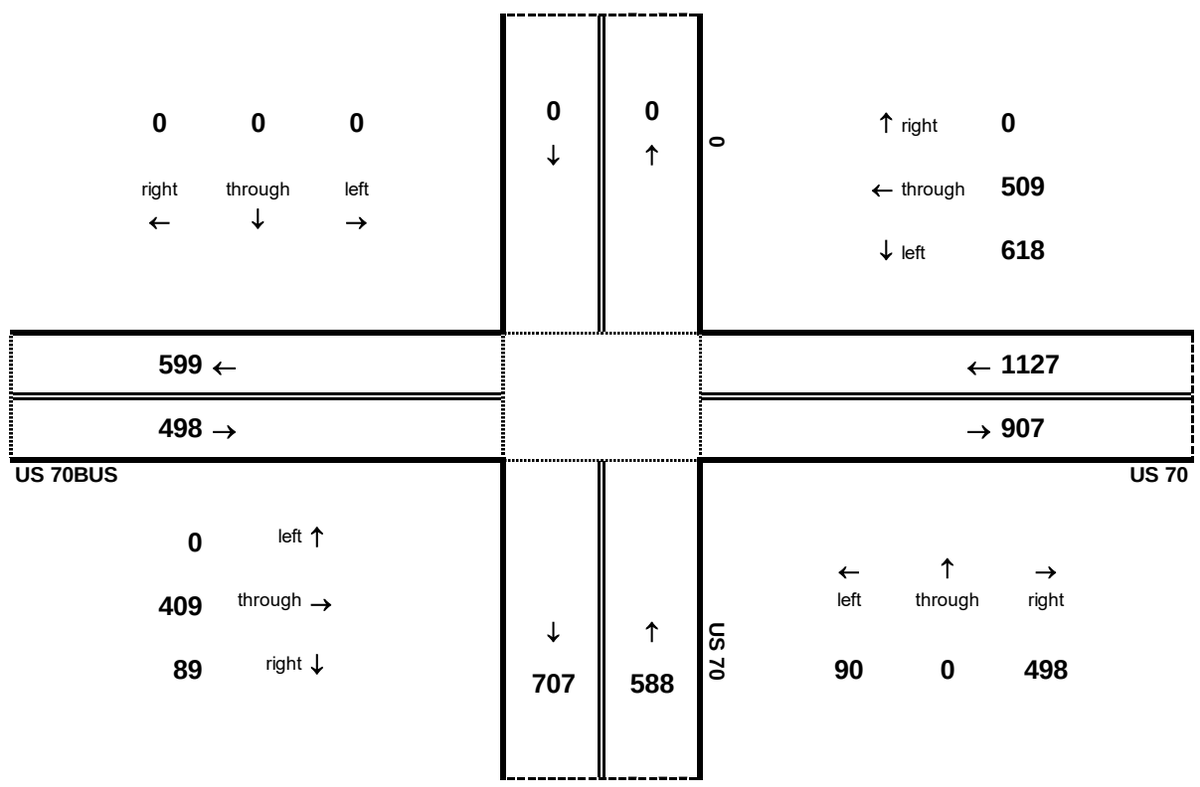
Traffic Data Year:
2040 Build Alt 32

Project:
R-2553

24HOUR

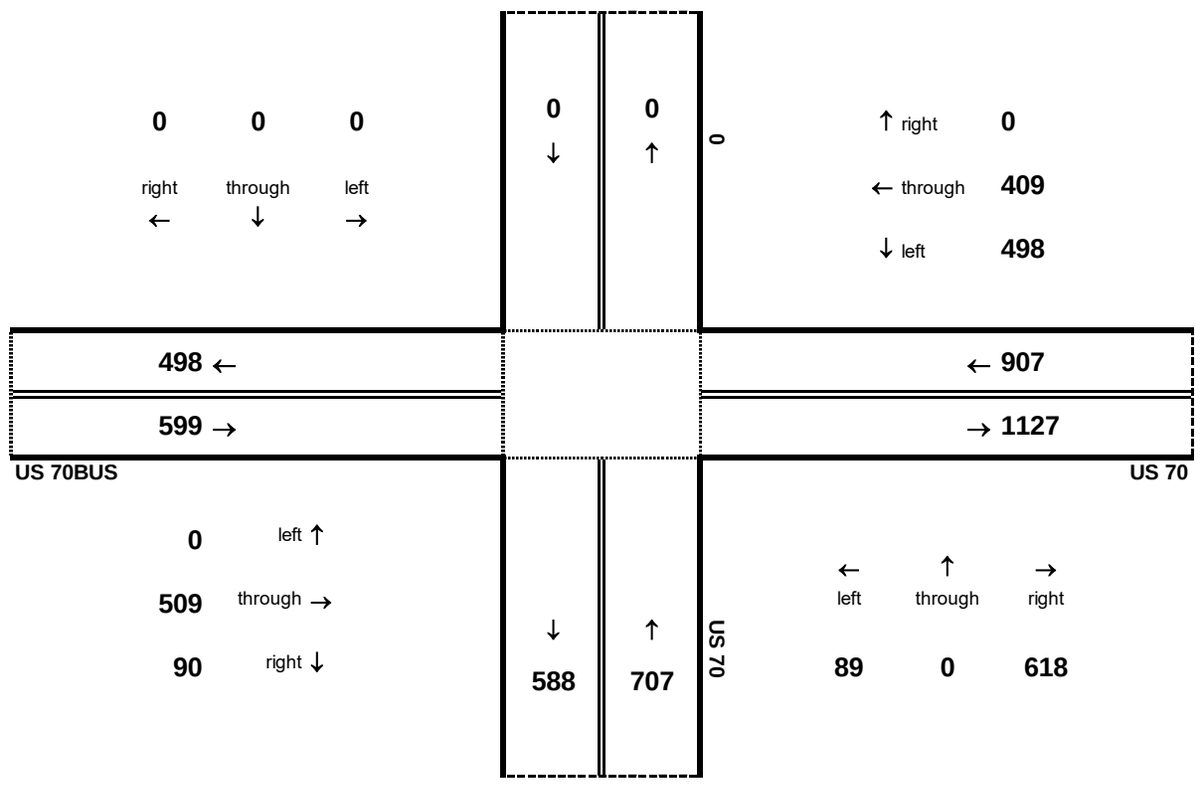


AMPEAK



AM peak hour inflow is 2213 vehicles. AM peak hour outflow is 2213 vehicles.

PMPEAK



PM peak hour inflow is 2213 vehicles. PM peak hour outflow is 2213 vehicles.

R-2553 Kinson Bypass
2040 Build Alternative 32
Step 1 - Calculating Basic Freeway Segment Volumes

Basic Freeway Segment Volumes - Eastbound							
Segment	Description	AADT	K	D (PM)	Total	AM	PM
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)	36,200	0.09	0.45	3,258	1,792	1,467
5E	US 70 EB - SR 1690 (Willie Measley Rd) to US 70BUS	39,200	0.09	0.45	3,528	1,941	1,588
7E	US 70 EB - US 70BUS to C. F. Harvey Pkwy	18,200	0.09	0.55	1,638	738	901
9E	US 70 EB - US 70BUS / C. F. Harvey Pkwy To NC 11	24,200	0.09	0.55	2,178	981	1,198
13E	US 70 EB - NC 11 to US 258	20,600	0.09	0.55	1,854	835	1,020
17E	US 70 EB - US 258 to NC 58	16,400	0.08	0.55	1,312	591	722
21E	US 70 EB - NC 58 to US 70BUS	16,200	0.08	0.55	1,296	584	713
25E	US 70 EB - US 70BUS to Kornegay St	25,400	0.08	0.55	2,032	915	1,118
29E	US 70 EB - East of Kornegay St	24,000	0.08	0.55	1,920	864	1,056

Basic Freeway Segment Volumes - Westbound							
Segment	Description	AADT	K	D (PM)	Total	AM	PM
1W	US 70 WB - East of Kornegay St	24,000	0.08	0.45	1,920	1,056	864
5W	US 70 WB - US 70BUS to Kornegay St	25,400	0.08	0.45	2,032	1,118	915
9W	US 70 WB - NC 58 to US 70BUS	16,200	0.08	0.45	1,296	713	584
13W	US 70 WB - US 258 to NC 58	16,400	0.08	0.45	1,312	722	591
17W	US 70 WB - NC 11 to US 258	20,600	0.09	0.45	1,854	1,020	835
21W	US 70 WB - US 70BUS / C. F. Harvey Pkwy To NC 11	24,200	0.09	0.45	2,178	1,198	981
23W	US 70 WB - US 70BUS to US 70BUS / C. F. Harvey Pkwy	18,200	0.09	0.45	1,638	901	738
25W	US 70 WB - SR 1690 (Willie Measley Rd) to US 70BUS	39,200	0.09	0.55	3,528	1,588	1,941
29W	US 70 WB - West of SR 1690 (Willie Measley Rd)	36,200	0.09	0.55	3,258	1,467	1,792

Basic Freeway Segment Volumes - Northbound							
Segment	Description	AADT	K	D (PM)	Total	AM	PM
1N	C. F. Harvey Pkwy NB - From US 70 to NC 148	6,000	0.09	0.40	540	324	216
7N	C. F. Harvey Pkwy NB - North of US 70BUS	13,600	0.09	0.35	1,224	796	429

Basic Freeway Segment Volumes - Southbound							
Segment	Description	AADT	K	D (PM)	Total	AM	PM
1S	C. F. Harvey Pkwy SB - North of US 70BUS	13,600	0.09	0.65	1,224	429	796
7S	C. F. Harvey Pkwy SB - From US 70 to NC 148	6,000	0.09	0.60	540	216	324

Segment Volumes - US 70BUS							
Segment	Description	AADT	K	D (PM)	Total	AM	PM
-	US 70BUS EB - East of US 70 (western)	21,000	0.09	0.40	1,890	1,134	756
-	US 70BUS WB - East of US 70 (western)	21,000	0.09	0.60	1,890	756	1,134

R-2553 Kinson Bypass
2040 Build Alternative 32
Step 2 - Compiling Ramp Volumes

US 70 Ramp Volumes								
	EB Exit		WB Entrance		EB Entrance		WB Exit	
Description	AM	PM	AM	PM	AM	PM	AM	PM
US 70 at SR 1690	181	201	201	181	382	280	280	382
US 70 at US70BUS (western int)	1,134	756	756	1,134	-	-	-	-
US 70 at C. F. Harvey Pkwy	-	-	-	-	216	324	324	216
US 70 at NC 11	302	318	318	302	139	160	160	139
US 70at US 258	308	382	382	308	71	75	75	71
US 70 at NC 58	38	47	47	38	36	32	32	36
US 70 at US 70BUS (eastern int)	90	89	89	90	409	509	509	409
US 70 at Kornegay St	73	119	119	73	44	31	32	44

C. F. Harvey Pkwy Northbound Ramp Volumes			
Description	Ramp	AM	PM
US 70BUS at NC 148 (C F Harvey Pkwy)	Northbound Exit to Eastbound	28	27
	Northbound Exit to Westbound	20	24
	Nortbound Entrance from Westbound	38	24
	Northbound Entrance from Eastbound	481	240

C. F. Harvey Pkwy Southbound Ramp Volumes			
Description	Ramp	AM	PM
US 70BUS at NC 148 (C F Harvey Pkwy)	Southbound Exit to Westbound	240	481
	Southbound Entrance from Westbound	27	28
	Southbound Exit to Eastbound	24	38
	Southbound Entrance from Eastbound	24	20

R-2553 Kinson Bypass
2040 Build Alternative 32
Step 3 - Adjusting All Segment Volumes

Eastbound Adjusted Segment Volumes						
Segment	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)	0.9	1,792	1,467	1,991	1,630
2E	US 70 EB - to SR 1690 (Willie Measley Rd)	0.9	181	201	201	223
4E	US 70 EB - from SR 1690 (Willie Measley Rd)	0.9	382	280	424	311
5E	US 70 EB - SR 1690 (Willie Measley Rd) to US 70BUS	0.9	1,941	1,588	2,157	1,764
6E	US 70 EB - to US70BUS (western int)	0.9	1,134	756	1,260	840
7E	US 70 EB - US 70BUS to USBUS / C. F. Harvey Pkwy	0.9	738	901	820	1,001
8E	US 70 EB - from US70BUS / C. F. Harvey Pkwy	0.9	216	324	240	360
9E	US 70 EB - US 70BUS/ C. F. Harvey Pkwy to NC 11	0.9	981	1,198	1,090	1,331
10E	US 70 EB - to NC 11	0.9	302	318	336	353
12E	US 70 EB - from NC 11	0.9	139	160	154	178
13E	US 70 EB - NC 11 to US 258	0.9	835	1,020	928	1,133
14E	US 70 EB - to US 258	0.9	308	382	342	424
16E	US 70 EB - from US 258	0.9	71	75	79	83
17E	US 70 EB - US 258 to NC 58	0.9	591	722	657	802
18E	US 70 EB - to NC 58	0.9	38	47	42	52
20E	US 70 EB - from NC 58	0.9	36	32	40	36
21E	US 70 EB - NC 58 to US 70BUS	0.9	584	713	649	792
22E	US 70 EB - to US70BUS (eastern int)	0.9	90	89	100	99
24E	US 70 EB - from US70BUS (eastern int)	0.9	409	509	454	566
25E	US 70 EB - US 70BUS to Kornegay St	0.9	915	1,118	1,017	1,242
26E	US 70 EB - to Kornegay St	0.9	73	119	81	132
28E	US 70 EB - from Kornegay St	0.9	44	31	49	35
29E	US 70 EB - East of Kornegay St	0.9	864	1,056	960	1,173

	AM	PM
Max Volume	2,157	1,764

XXX	Ramp
XXX	Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 32
Step 3 - Adjusting All Segment Volumes

Westbound Adjusted Segment Volumes						
Segment	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1W	US 70 WB - East of Kornegay St	0.9	1,056	864	1,173	960
2W	US 70 WB - to Kornegay St	0.9	32	44	36	49
4W	US 70 WB - to Kornegay St	0.9	119	73	132	81
5W	US 70 WB - US 70BUS to Kornegay St	0.9	1,118	915	1,242	1,017
6W	US 70 WB - to US70BUS (eastern int)	0.9	509	409	566	454
8W	US 70 WB - from US70BUS (eastern int)	0.9	89	90	99	100
9W	US 70 WB - NC 58 to US 70BUS	0.9	713	584	792	649
10W	US 70 WB - to NC 58	0.9	32	36	36	40
12W	US 70 WB - from NC 58	0.9	47	38	52	42
13W	US 70 WB - US 258 to NC 58	0.9	722	591	802	657
14W	US 70 WB - to US 258	0.9	75	71	83	79
16W	US 70 WB - from US 258	0.9	382	308	424	342
17W	US 70 WB - NC 11 to US 258	0.9	1,020	835	1,133	928
18W	US 70 WB - to NC 11	0.9	160	139	178	154
20W	US 70 WB - from NC 11	0.9	318	302	353	335
21W	US 70 WB - US 70BUS / C. F. Harvey Pkwy to NC 11	0.9	1,198	981	1,331	1,090
22W	US 70 WB - to US70BUS/ C. F. Harvey Pkwy	0.9	324	216	360	240
23W	US 70 WB - US 70BUS to US 70BUS / C. F. Harvey Pkwy	0.9	901	738	1,001	820
24W	US 70 WB - from US70BUS	0.9	756	1,134	840	1,260
25W	US 70 WB - SR 1690 (Willie Measley Rd) to US 70BUS	0.9	1,588	1,941	1,764	2,157
26W	US 70 WB - to SR 1690 (Willie Measley Rd)	0.9	280	382	311	424
28W	US 70 WB - from SR 1690 (Willie Measley Rd)	0.9	201	181	223	201
29W	US 70 WB - West of SR 1690 (Willie Measley Rd)	0.9	1,467	1,792	1,630	1,991

	AM	PM
Max Volume	1,764	2,157

XXX	Ramp
XXX	Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 32
Step 3 - Adjusting All Segment Volumes

Northbound Adjusted Segment Volumes						
Segment	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1N	C. F. Harvey Pkwy NB - US 70 to US 70BUS / NC 148	0.9	324	216	360	240
2N	C. F. Harvey Pkwy NB - to US 70BUS EB	0.9	28	27	31	30
4N	C. F. Harvey Pkwy NB - to US 70BUS WB	0.9	20	24	22	27
6N	C. F. Harvey Pkwy NB - from US 70BUS	0.9	519	264	577	293
7N	C. F. Harvey Pkwy NB - North of US 70BUS	0.9	796	429	884	477

Southbound Adjusted Segment Volumes						
Segment	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1S	C. F. Harvey Pkwy SB - North of US 70BUS	0.9	429	796	477	884
2S	C. F. Harvey Pkwy SB - to US 70BUS WB	0.9	240	481	267	535
4S	C. F. Harvey Pkwy SB - From US 70BUS WB	0.9	27	28	30	31
	C. F. Harvey Pkwy SB - to US 7BUS EB	0.9	24	38	27	42
6S	C. F. Harvey Pkwy SB - from US 70BUS EB	0.9	24	20	27	22
7S	C. F. Harvey Pkwy SB - US 70 to US 70BUS / NC 148	0.9	216	324	240	360

XXX	Ramp
XXX	Weave
XXX	Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 32
Step 4 - Balancing Freeway Segment Volumes

US 70 Eastbound Freeway Volume Balancing					
Segment	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)			1,934	1,676
2E	US 70 EB - to SR 1690 (Willie Measley Rd)	201	223		
3E	US 70 EB - within SR 1690 (Willie Measley Rd) Interchange			1,733	1,453
4E	US 70 EB - from SR 1690 (Willie Measley Rd)	424	311		
5E	**US 70 EB - SR 1690 (Willie Measley Rd) to US 70BUS**			**2,157**	**1,764**
6E	US 70 EB - to US70BUS (western int)	1,260	840		
7E	US 70 EB - US 70BUS to US70BUS / C. F. Harvey Pkwy			897	924
8E	US 70 EB - from US70BUS / C. F. Harvey Pkwy	240	360		
9E	US 70 EB - US70BUS / C. F. Harvey Pkwy to NC 11			1,137	1,284
10E	US 70 EB - to NC 11	336	353		
11E	US 70 EB - within NC 11 interchange			801	931
12E	US 70 EB - from NC 11	154	178		
13E	US 70 EB - NC 11 to US 258			955	1,109
14E	US 70 EB - to US 258	342	424		
15E	US 70 EB - within US 258 interchange			613	685
16E	US 70 EB - from US 258	79	83		
17E	US 70 EB - US 258 to NC 58			692	768
18E	US 70 EB - to NC 58	42	52		
19E	US 70 EB - within NC 58 interchange			650	716
20E	US 70 EB - from NC 58	40	36		
21E	US 70 EB - NC 58 to US 70BUS			690	752
22E	US 70 EB - to US70BUS (eastern int)	100	99		
23E	US 70 EB - within US 70BUS (eastern int)			590	653
24E	US 70 EB - from US70BUS (eastern int)	454	566		
25E	US 70 EB - US 70BUS to Kornegay St			1,044	1,219
26E	US 70 EB - to Kornegay St	81	132		
27E	US 70 EB - within Kornegay St interchange			963	1,087
28E	US 70 EB - from Kornegay St	49	35		
29E	US 70 EB - East of Kornegay St			1,012	1,122

	Max volume balance point
XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 32
Step 4 - Balancing Freeway Segment Volumes

US 70 Westbound Freeway Volume Balancing					
Segment	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1W	US 70 WB - East of Kornegay St			1,123	1,013
2W	US 70 WB - to Kornegay St	36	49		
3W	US 70 WB - within Kornegay St interchange			1,087	964
4W	US 70 WB - to Kornegay St	132	81		
5W	US 70 WB - US 70BUS to Kornegay St			1,219	1,045
6W	US 70 WB - to US70BUS (eastern int)	566	454		
7W	US 70 WB - within US 70BUS (eastern int)			653	591
8W	US 70 WB - from US70BUS (eastern int)	99	100		
9W	US 70 WB - NC 58 to US 70BUS			752	691
10W	US 70 WB - to NC 58	36	40		
11W	US 70 WB - within NC 58 interchange			716	651
12W	US 70 WB - from NC 58	52	42		
13W	US 70 WB - US 258 to NC 58			768	693
14W	US 70 WB - to US 258	83	79		
15W	US 70 WB - within US 258 interchange			685	614
16W	US 70 WB - from US 258	424	342		
17W	US 70 WB - NC 11 to US 258			1,109	956
18W	US 70 WB - to NC 11	178	154		
19W	US 70 WB - within NC 11 interchange			931	802
20W	US 70 WB - from NC 11	353	335		
21W	US 70 WB - US 70BUS / C. F. Harvey Pkwy to NC 11			1,284	1,137
22W	US 70 WB - to US 70BUS / C. F. Harvey Pwky	360	240		
23W	US 70 WB - US 70BUS to US 70BUS / C. F. Harvey Pwky			924	897
24W	US 70 WB - from US70BUS (western int)	840	1,260		
25W	**US 70 WB - SR 1690 (Willie Measley Rd) to US 70BUS**			**1,764**	**2,157**
26W	US 70 WB - to SR 1690 (Willie Measley Rd)	311	424		
27W	US 70 WB - within SR 1690 (Willie Measley Rd) Interchange			1,453	1,733
28W	US 70 WB - from SR 1690 (Willie Measley Rd)	223	201		
29W	US 70 WB - West of SR 1690 (Willie Measley Rd)			1,676	1,934

	Max volume balance point
XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 32
Step 4 - Balancing Freeway Segment Volumes

C. F. Harvey Northbound Freeway Volume Balancing					
Segment	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1N	C. F. Harvey Pkwy NB - US 70 to US 70BUS / NC 148			**360**	**240**
2N	C. F. Harvey Pkwy NB - to US 70BUS EB	31	30		
3N	C. F. Harvey Pkwy NB - within US 70BUS interchange			329	210
4N	C. F. Harvey Pkwy NB - to US 70BUS WB	22	27		
5N	C. F. Harvey Pkwy NB - within US 70BUS interchange			307	183
6N	C. F. Harvey Pkwy NB - from US 70BUS	577	293		
7N	C. F. Harvey Pkwy NB - North of US 70BUS			884	476

C. F. Harvey Pkwy Southbound Freeway Volume Balancing					
Segment	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1S	C. F. Harvey Pkwy SB - North of US 70BUS			477	884
2S	C. F. Harvey Pkwy SB - to US 70BUS	267	535		
3S	C. F. Harvey Pkwy SB - within US 70BUS interchange			210	349
4S	C. F. Harvey Pkwy SB - from US 70BUS EB	30	31		
	C. F. Harvey Pkwy SB - between US 70BUS EB ramps			240	380
	C. F. Harvey Pkwy SB - to US 70BUS EB	27	42		
5S	C. F. Harvey Pkwy SB - within US 70BUS interchange			213	338
6S	C. F. Harvey Pkwy SB - from US 70BUS EB	27	22		
7S	C. F. Harvey Pkwy SB - US 70 to US 70BUS / NC 148			**240**	**360**

	Volume balance point
XXX	Ramp
XXX	Weave
XXX	Basic Freeway Segment

2040 Build Alternative 32
FREEVAL-E Reports

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R-2553 US 70 Kinston Bypass, Alternative 32
US 70 EB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1E	2E	3E	4E	5E	6E	7E	8E	9E
General Purpose Segment Name	W of Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	Jim Sutton/Willie Measley to US 70 Bus (W)	To US 70 Bus (W)	US 70 Bus (W) to CF Harvey Pkwy	From CF Harvey Pkwy	CF Harvey Pkwy to NC 11
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	1500	9380	2500	15070	2500	7920
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1934	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	750	N/A	920	N/A	2500	N/A	2500	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	2	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	60	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	424	N/A	N/A	N/A	240	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	2	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	60	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	201	N/A	N/A	N/A	1260	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	14.3	14.7	12.8	16.9	15.9	0.9	6.7	0.0*	8.5
V/C	0.42	0.42	0.37	0.46	0.46	0.46	0.20	0.25	0.25
Density Based LOS	B	B	B	B	B	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 32
US 70 EB - AM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10E	11E	12E	13E	14E	15E	16E	17E	18E
General Purpose Segment Name	To NC 11	Within NC 11	From NC 11	NC 11 to US 258	To US 258	Within US 258	From US 258	US 258 to NC 58	To NC 58
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	5760	1500	1500	1500	12310	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	750	N/A	920	N/A	490
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	45	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	154	N/A	N/A	N/A	79	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	7	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	25	N/A	N/A	N/A	45
OFR/Exit Dem. (vph)	336	N/A	N/A	N/A	342	N/A	N/A	N/A	42
OFR Single Unit Truck and Bus (%)	7	N/A	N/A	N/A	7	N/A	N/A	N/A	6
Total Density (pc/mi/ln)	7.7	6.0	7.4	7.1	6.1	4.6	5.3	5.2	6.1
V/C	0.25	0.17	0.21	0.21	0.21	0.13	0.15	0.15	0.15
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 32
US 70 EB - AM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19E	20E	21E	22E	23E	24E	25E	26E	27E
General Purpose Segment Name	Within NC 58	From NC 58	NC 58 to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E)	From US 70 Bus (E)	US 70 Bus (E) to Kornegay	To Kornegay	Within Kornegay
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1620	16340	1500	3030	2500	6280	1500	3000
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	1620	N/A	750	N/A	2500	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	2	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	60	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	40	N/A	N/A	N/A	454	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	6	N/A	N/A	N/A	6	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	25	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	100	N/A	N/A	N/A	81	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	6	N/A	N/A	N/A	4	N/A
Total Density (pc/mi/ln)	4.9	0.9	5.2	3.7	4.4	0.0*	7.8	9.2	7.2
V/C	0.14	0.15	0.15	0.15	0.13	0.23	0.23	0.23	0.21
Density Based LOS	A	A	A	A	A	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 32
US 70 EB - AM Peak

Segment	Seg. 28	Seg. 29
General Purpose Segment Data	28E	29E
General Purpose Segment Name	From Kornegay	East of Kornegay
General Purpose Segment Type	On-Ramp	BFS
Segment Length (ft)	1500	5280
Terrain	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5
# of Lanes: Mainline	2	2
Free Flow Speed (mph)	70	70
Mainline Dem. (vph)	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	920	N/A
ONR Side	Right	N/A
# Lanes: ONR	1	N/A
ONR Free Flow Speed (mph)	45	N/A
ONR/Entering Dem. (vph)	49	N/A
ONR Single Unit Truck and Bus (%)	4	N/A
OFR Side	N/A	N/A
# Lanes: OFR	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A
Total Density (pc/mi/ln)	7.9	7.5
V/C	0.22	0.22
Density Based LOS	A	A

R-2553 US 70 Kinston Bypass, Alternative 32
US 70 EB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1E	2E	3E	4E	5E	6E	7E	8E	9E
General Purpose Segment Name	W of Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	Jim Sutton/Willie Measley to US 70 Bus (W)	To US 70 Bus (W)	US 70 Bus (W) to CF Harvey Pkwy	From CF Harvey Pkwy	CF Harvey Pkwy to NC 11
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	1500	9380	2500	15070	2500	7920
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1676	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	750	N/A	920	N/A	2500	N/A	2500	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	2	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	60	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	311	N/A	N/A	N/A	360	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	2	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	60	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	223	N/A	N/A	N/A	840	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	12.4	12.4	10.8	13.8	13.0	0.0*	6.9	0.1	9.5
V/C	0.36	0.36	0.31	0.38	0.38	0.38	0.20	0.28	0.28
Density Based LOS	B	B	A	B	B	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 32
US 70 EB - PM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10E	11E	12E	13E	14E	15E	16E	17E	18E
General Purpose Segment Name	To NC 11	Within NC 11	From NC 11	NC 11 to US 258	To US 258	Within US 258	From US 258	US 258 to NC 58	To NC 58
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	5760	1500	1500	1500	12310	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	750	N/A	920	N/A	490
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	45	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	178	N/A	N/A	N/A	83	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	7	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	25	N/A	N/A	N/A	45
OFR/Exit Dem. (vph)	353	N/A	N/A	N/A	424	N/A	N/A	N/A	52
OFR Single Unit Truck and Bus (%)	7	N/A	N/A	N/A	7	N/A	N/A	N/A	6
Total Density (pc/mi/ln)	9.0	6.9	8.6	8.2	7.4	5.1	5.9	5.7	6.7
V/C	0.28	0.20	0.24	0.24	0.24	0.15	0.17	0.17	0.17
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 32
US 70 EB - PM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19E	20E	21E	22E	23E	24E	25E	26E	27E
General Purpose Segment Name	Within NC 58	From NC 58	NC 58 to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E)	From US 70 Bus (E)	US 70 Bus (E) to Kornegay	To Kornegay	Within Kornegay
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1620	16340	1500	3030	2500	6280	1500	3000
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	1620	N/A	750	N/A	2500	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	2	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	60	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	36	N/A	N/A	N/A	566	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	6	N/A	N/A	N/A	6	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	25	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	99	N/A	N/A	N/A	132	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	6	N/A	N/A	N/A	4	N/A
Total Density (pc/mi/ln)	5.3	1.4	5.6	4.2	4.9	0.0*	9.0	10.7	8.1
V/C	0.16	0.16	0.16	0.16	0.14	0.26	0.26	0.26	0.24
Density Based LOS	A	A	A	A	A	A	A	B	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 32
US 70 EB - PM Peak

Segment	Seg. 28	Seg. 29
General Purpose Segment Data	28E	29E
General Purpose Segment Name	From Kornegay	East of Kornegay
General Purpose Segment Type	On-Ramp	BFS
Segment Length (ft)	1500	5280
Terrain	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5
# of Lanes: Mainline	2	2
Free Flow Speed (mph)	70	70
Mainline Dem. (vph)	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	920	N/A
ONR Side	Right	N/A
# Lanes: ONR	1	N/A
ONR Free Flow Speed (mph)	45	N/A
ONR/Entering Dem. (vph)	35	N/A
ONR Single Unit Truck and Bus (%)	4	N/A
OFR Side	N/A	N/A
# Lanes: OFR	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A
Total Density (pc/mi/ln)	8.8	8.3
V/C	0.24	0.24
Density Based LOS	A	A

R-2553 US 70 Kinston Bypass, Alternative 32
US 70 WB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1W	2W	3W	4W	5W	6W	7W	8W	9W
General Purpose Segment Name	E of Burkett/Kornegay	To Burkett/Kornegay	Within Burkett/Kornegay Int	From Burkett/Kornegay	Burkett/Kornegay to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E) Int	From US 70 Bus (E)	US 70 Bus (E) to NC 58
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	3000	1500	10800	1500	1940	1500	14370
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1123	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	9	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	920	N/A	490	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	132	N/A	N/A	N/A	99	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	6	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	36	N/A	N/A	N/A	566	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	6	N/A	N/A	N/A
Total Density (pc/mi/ln)	8.4	9.9	8.1	9.6	9.1	10.8	4.9	5.8	5.6
V/C	0.24	0.24	0.24	0.26	0.26	0.26	0.14	0.16	0.16
Density Based LOS	A	A	A	A	A	B	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 32
US 70 WB - AM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10W	11W	12W	13W	14W	15W	16W	17W	18W
General Purpose Segment Name	To NC 58	Within NC 58 Int	From NC 58	NC 58 to US 258	To US 258	Within US 258 Int	From US 258	US 258 to NC 11	To NC 11
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	12350	1500	1500	1620	7710	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	52	N/A	N/A	N/A	424	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	6	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	36	N/A	N/A	N/A	83	N/A	N/A	N/A	178
OFR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	7	N/A	N/A	N/A	7
Total Density (pc/mi/ln)	4.3	5.4	6.0	5.8	6.8	5.2	4.2	8.3	7.5
V/C	0.16	0.16	0.17	0.17	0.17	0.15	0.24	0.24	0.24
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 32
US 70 WB - AM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19W	20W	21W	22W	23W	24W	25W	26W	27W
General Purpose Segment Name	Within NC 11 Int	From NC 11	NC 11 to CF Harvey Pkwy	To CF Harvey Pkwy	CF Harvey Pkwy to US 70 BUS (W)	From US 70 BUS (W)	US 70 Bus (W) to Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	7590	2500	11300	1500	11160	1500	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	920	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	353	N/A	N/A	N/A	840	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	5	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	360	N/A	N/A	N/A	311	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	5	N/A	N/A	N/A	4	N/A
Total Density (pc/mi/ln)	7.0	10.0	9.6	11.4	6.9	13.7	13.1	15.6	10.8
V/C	0.20	0.28	0.28	0.28	0.20	0.38	0.38	0.38	0.32
Density Based LOS	A	A	A	B	A	B	B	B	A

R-2553 US 70 Kinston Bypass, Alternative 32
US 70 WB - AM Peak

Segment	Seg. 28	Seg. 29
General Purpose Segment Data	28W	29W
General Purpose Segment Name	From Jim Sutton/Willie Measley	W of Jim Sutton/Willie Measley
General Purpose Segment Type	On-Ramp	BFS
Segment Length (ft)	1620	5280
Terrain	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5
# of Lanes: Mainline	2	2
Free Flow Speed (mph)	70	70
Mainline Dem. (vph)	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	1620	N/A
ONR Side	Right	N/A
# Lanes: ONR	1	N/A
ONR Free Flow Speed (mph)	25	N/A
ONR/Entering Dem. (vph)	223	N/A
ONR Single Unit Truck and Bus (%)	4	N/A
OFR Side	N/A	N/A
# Lanes: OFR	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A
Total Density (pc/mi/ln)	8.8	12.5
V/C	0.36	0.36
Density Based LOS	A	B

R-2553 US 70 Kinston Bypass, Alternative 32
US 70 WB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1W	2W	3W	4W	5W	6W	7W	8W	9W
General Purpose Segment Name	E of Burkett/Kornegay	To Burkett/Kornegay	Within Burkett/Kornegay Int	From Burkett/Kornegay	Burkett/Kornegay to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E) Int	From US 70 Bus (E)	US 70 Bus (E) to NC 58
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	3000	1500	10800	1500	1940	1500	14370
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1013	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	9	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	920	N/A	490	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	81	N/A	N/A	N/A	100	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	6	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	49	N/A	N/A	N/A	454	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	6	N/A	N/A	N/A
Total Density (pc/mi/ln)	7.6	8.9	7.2	8.2	7.8	9.2	4.5	5.3	5.2
V/C	0.22	0.22	0.21	0.23	0.23	0.23	0.13	0.15	0.15
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 32
US 70 WB - PM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10W	11W	12W	13W	14W	15W	16W	17W	18W
General Purpose Segment Name	To NC 58	Within NC 58 Int	From NC 58	NC 58 to US 258	To US 258	Within US 258 Int	From US 258	US 258 to NC 11	To NC 11
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	12350	1500	1500	1620	7710	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	42	N/A	N/A	N/A	342	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	6	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	40	N/A	N/A	N/A	79	N/A	N/A	N/A	154
OFR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	7	N/A	N/A	N/A	7
Total Density (pc/mi/ln)	3.8	4.9	5.4	5.2	6.1	4.6	3.0	7.1	6.1
V/C	0.15	0.14	0.15	0.15	0.15	0.13	0.21	0.21	0.21
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 32
US 70 WB - PM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19W	20W	21W	22W	23W	24W	25W	26W	27W
General Purpose Segment Name	Within NC 11 Int	From NC 11	NC 11 to CF Harvey Pkwy	To CF Harvey Pkwy	CF Harvey Pkwy to US 70 BUS (W)	From US 70 BUS (W)	US 70 Bus (W) to Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	7590	2500	11300	1500	11160	1500	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	920	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	335	N/A	N/A	N/A	1260	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	5	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	240	N/A	N/A	N/A	424	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	5	N/A	N/A	N/A	4	N/A
Total Density (pc/mi/ln)	6.0	8.8	8.5	10.1	6.7	16.6	16.0	19.1	12.9
V/C	0.18	0.25	0.25	0.25	0.20	0.47	0.47	0.47	0.38
Density Based LOS	A	A	A	A	A	B	B	B	B

R-2553 US 70 Kinston Bypass, Alternative 32
US 70 WB - PM Peak

Segment	Seg. 28	Seg. 29
General Purpose Segment Data	28W	29W
General Purpose Segment Name	From Jim Sutton/Willie Measley	W of Jim Sutton/Willie Measley
General Purpose Segment Type	On-Ramp	BFS
Segment Length (ft)	1620	5280
Terrain	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5
# of Lanes: Mainline	2	2
Free Flow Speed (mph)	70	70
Mainline Dem. (vph)	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	1620	N/A
ONR Side	Right	N/A
# Lanes: ONR	1	N/A
ONR Free Flow Speed (mph)	25	N/A
ONR/Entering Dem. (vph)	201	N/A
ONR Single Unit Truck and Bus (%)	4	N/A
OFR Side	N/A	N/A
# Lanes: OFR	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A
Total Density (pc/mi/ln)	10.9	14.3
V/C	0.42	0.42
Density Based LOS	B	B

R-2553 US 70 Kinston Bypass, Alternative 32
CF Harvey Parkwy Ext NB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7
General Purpose Segment Data	1N	2N	3N	4N	5N	6N	7N
General Purpose Segment Name	US 70 to US 70 BUS/NC 148	To US 70 BUS EB	Ramp to US 70 BUS EB to Ramp to US 70 BUS WB	To US 70 BUS WB	Within US 70 BUS Int	From US 70 BUS	North of US 70 BUS
General Purpose Segment Type	BFS	Off-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1660	1500	1500	1500	1500	1500	5280
Terrain	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70
Mainline Dem. (vph)	360	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	5	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	N/A	N/A	577	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	31	N/A	22	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	5	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	2.6	3.0	2.4	0.4	2.2	6.5	6.5
V/C	0.08	0.08	0.07	0.07	0.07	0.19	0.19
Density Based LOS	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 32
CF Harvey Parkwy Ext NB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7
General Purpose Segment Data	1N	2N	3N	4N	5N	6N	7N
General Purpose Segment Name	US 70 to US 70 BUS/NC 148	To US 70 BUS EB	Ramp to US 70 BUS EB to Ramp to US 70 BUS WB	To US 70 BUS WB	Within US 70 BUS Int	From US 70 BUS	North of US 70 BUS
General Purpose Segment Type	BFS	Off-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1660	1500	1500	1500	1500	1500	5280
Terrain	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70
Mainline Dem. (vph)	240	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	5	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	N/A	N/A	293	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	30	N/A	27	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	5	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	1.8	2.0	1.5	0.0*	1.3	3.4	3.5
V/C	0.05	0.05	0.04	0.04	0.04	0.10	0.10
Density Based LOS	A	A	A	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 32
CF Harvey Parkwy Ext SB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7
General Purpose Segment Data	1S	2S	3S	4S	5S	6S	7S
General Purpose Segment Name	North of US 70 BUS	To US 70 BUS WB	Ramp to US 70 BUS WB to US 70 BUS Weave	US 70 BUS Weave	US 70 BUS Weave to Ramp from US 70 BUS EB	From US 70 BUS EB	US 70 BUS EB to US 70
General Purpose Segment Type	BFS	Off-Ramp	BFS	Weave	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	700	1500	1500	1880
Terrain	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70
Mainline Dem. (vph)	477	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	N/A	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	25	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	30	N/A	27	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	5	N/A	5	N/A
OFR Side	N/A	Right	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	267	N/A	27	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	5	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	3.5	4.1	1.6	1.8	1.6	1.7	1.8
V/C	0.10	0.10	0.05	0.06	0.05	0.05	0.05
Density Based LOS	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 32
CF Harvey Parkwy Ext SB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7
General Purpose Segment Data	1S	2S	3S	4S	5S	6S	7S
General Purpose Segment Name	North of US 70 BUS	To US 70 BUS WB	Ramp to US 70 BUS WB to US 70 BUS Weave	US 70 BUS Weave	US 70 BUS Weave to Ramp from US 70 BUS EB	From US 70 BUS EB	US 70 BUS EB to US 70
General Purpose Segment Type	BFS	Off-Ramp	BFS	Weave	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	700	1500	1500	1880
Terrain	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70
Mainline Dem. (vph)	884	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	N/A	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	25	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	31	N/A	22	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	5	N/A	5	N/A
OFR Side	N/A	Right	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	535	N/A	42	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	5	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	6.5	7.7	2.6	2.9	2.5	2.6	2.7
V/C	0.19	0.19	0.08	0.09	0.07	0.08	0.08
Density Based LOS	A	A	A	A	A	A	A

2040 Build Alternative 32
Synchro Reports

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	4	4	4	4	30	4	106	4	18	70	6
Future Volume (vph)	11	4	4	4	4	30	4	106	4	18	70	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1693	0	0	1589	0	1770	1853	0	1770	1840	0
Flt Permitted		0.971			0.995		0.950			0.950		
Satd. Flow (perm)	0	1693	0	0	1589	0	1770	1853	0	1770	1840	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		883			854			935			1001	
Travel Time (s)		13.4			12.9			11.6			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	0	0	41	0	4	122	0	20	85	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 18.1%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	4	4	4	4	30	4	106	4	18	70	6
Future Volume (Veh/h)	11	4	4	4	4	30	4	106	4	18	70	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	12	4	4	4	4	33	4	118	4	20	78	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1001	
pX, platoon unblocked												
vC, conflicting volume	282	252	82	252	253	120	85			122		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	282	252	82	252	253	120	85			122		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	98	99	100	99	99	96	100			99		
cM capacity (veh/h)	627	634	967	678	633	921	1512			1465		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	20	41	4	122	20	85
Volume Left	12	4	4	0	20	0
Volume Right	4	33	0	4	0	7
cSH	676	853	1512	1700	1465	1700
Volume to Capacity	0.03	0.05	0.00	0.07	0.01	0.05
Queue Length 95th (ft)	2	4	0	0	1	0
Control Delay (s)	10.5	9.4	7.4	0.0	7.5	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	10.5	9.4	0.2		1.4	
Approach LOS	B	A				

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	4	4	4	4	18	4	70	4	30	106	11
Future Volume (vph)	6	4	4	4	4	18	4	70	4	30	106	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1688	0	0	1609	0	1770	1850	0	1770	1837	0
Flt Permitted		0.977			0.993		0.950			0.950		
Satd. Flow (perm)	0	1688	0	0	1609	0	1770	1850	0	1770	1837	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		883			854			935			1001	
Travel Time (s)		13.4			12.9			11.6			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	0	28	0	4	82	0	33	130	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 18.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	4	4	4	4	18	4	70	4	30	106	11
Future Volume (Veh/h)	6	4	4	4	4	18	4	70	4	30	106	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	4	4	4	4	20	4	78	4	33	118	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1001	
pX, platoon unblocked												
vC, conflicting volume	298	280	124	278	284	80	130			82		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	298	280	124	278	284	80	130			82		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	99	99	100	99	99	98	100			98		
cM capacity (veh/h)	618	606	916	648	603	969	1455			1515		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	15	28	4	82	33	130
Volume Left	7	4	4	0	33	0
Volume Right	4	20	0	4	0	12
cSH	673	837	1455	1700	1515	1700
Volume to Capacity	0.02	0.03	0.00	0.05	0.02	0.08
Queue Length 95th (ft)	2	3	0	0	2	0
Control Delay (s)	10.5	9.4	7.5	0.0	7.4	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	10.5	9.4	0.3		1.5	
Approach LOS	B	A				

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	18.3%	ICU Level of Service	A
Analysis Period (min)	15		

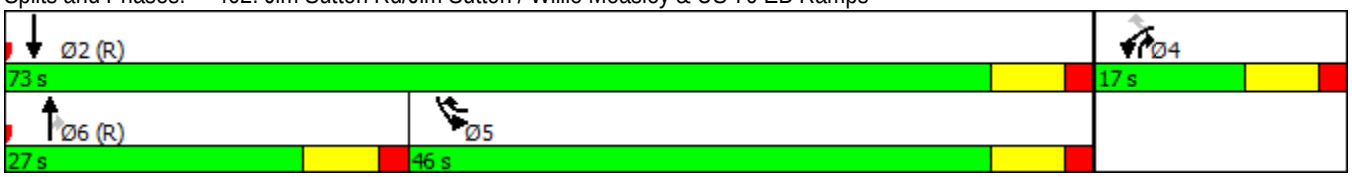
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	34	147	71	71	311	64
Future Volume (vph)	34	147	71	71	311	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		100	325	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1863	1583	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1863	1583	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	999		1001			1313
Travel Time (s)	27.2		12.4			16.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	163	79	79	346	71
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	17.0	46.0	27.0	17.0	46.0	73.0
Total Split (%)	18.9%	51.1%	30.0%	18.9%	51.1%	81.1%
Maximum Green (s)	10.0	39.0	20.0	10.0	39.0	66.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.0	38.0	42.0	54.1	25.9	73.8
Actuated g/C Ratio	0.11	0.42	0.47	0.60	0.29	0.82
v/c Ratio	0.20	0.25	0.09	0.08	0.69	0.05
Control Delay	38.4	15.3	18.3	9.6	31.6	2.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.4	15.3	18.3	9.6	31.6	2.3
LOS	D	B	B	A	C	A
Approach Delay	19.7		14.0			26.6
Approach LOS	B		B			C
Queue Length 50th (ft)	20	55	25	17	132	6
Queue Length 95th (ft)	49	73	65	46	179	15
Internal Link Dist (ft)	919		921			1233
Turn Bay Length (ft)		175		100	325	
Base Capacity (vph)	231	755	868	924	790	1499
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.22	0.09	0.09	0.44	0.05

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 24 (27%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 22.3 Intersection LOS: C
Intersection Capacity Utilization 38.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps



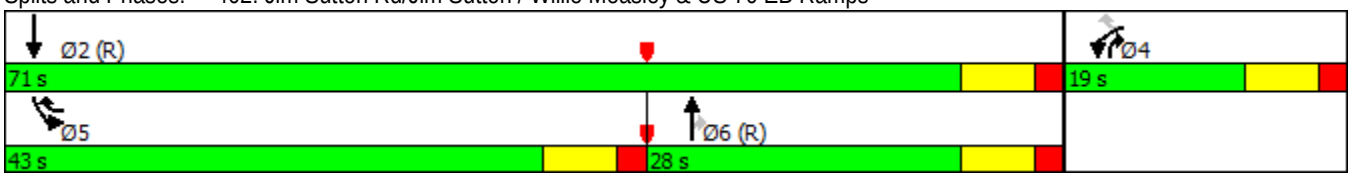
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	45	156	55	43	237	97
Future Volume (vph)	45	156	55	43	237	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		100	325	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1863	1583	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1863	1583	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	999		1001			1313
Travel Time (s)	27.2		12.4			16.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	50	173	61	48	263	108
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	19.0	43.0	28.0	19.0	43.0	71.0
Total Split (%)	21.1%	47.8%	31.1%	21.1%	47.8%	78.9%
Maximum Green (s)	12.0	36.0	21.0	12.0	36.0	64.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.4	33.8	46.2	61.6	21.2	73.4
Actuated g/C Ratio	0.12	0.38	0.51	0.68	0.24	0.82
v/c Ratio	0.25	0.30	0.06	0.04	0.64	0.07
Control Delay	38.9	18.7	15.4	7.2	31.2	2.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	18.7	15.4	7.2	31.2	2.3
LOS	D	B	B	A	C	A
Approach Delay	23.3		11.8			22.8
Approach LOS	C		B			C
Queue Length 50th (ft)	26	65	18	9	117	9
Queue Length 95th (ft)	59	90	48	26	168	18
Internal Link Dist (ft)	919		921			1233
Turn Bay Length (ft)		175		100	325	
Base Capacity (vph)	270	872	957	1147	732	1490
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.20	0.06	0.04	0.36	0.07

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 11 (12%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 21.2 Intersection LOS: C
Intersection Capacity Utilization 34.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps



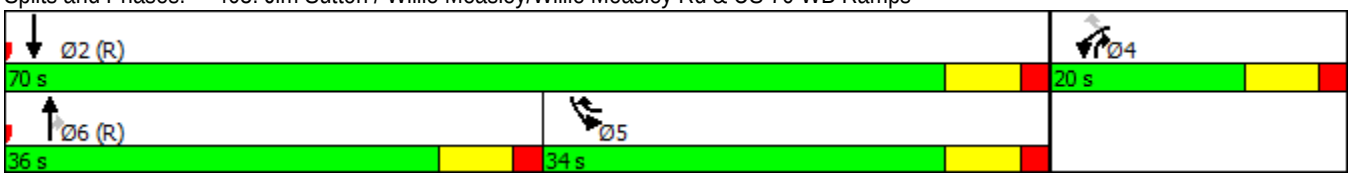
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	43	237	173	45	156	332
Future Volume (vph)	43	237	173	45	156	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	275		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	987		1313			996
Travel Time (s)	15.0		16.3			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	263	192	50	173	369
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	34.0	36.0	20.0	34.0	70.0
Total Split (%)	22.2%	37.8%	40.0%	22.2%	37.8%	77.8%
Maximum Green (s)	13.0	27.0	29.0	13.0	27.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.3	32.3	47.7	60.2	19.8	73.5
Actuated g/C Ratio	0.11	0.36	0.53	0.67	0.22	0.82
v/c Ratio	0.24	0.47	0.20	0.05	0.45	0.25
Control Delay	38.8	23.5	11.4	4.2	33.7	3.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.8	23.5	11.4	4.2	33.7	3.2
LOS	D	C	B	A	C	A
Approach Delay	25.9		9.9			13.0
Approach LOS	C		A			B
Queue Length 50th (ft)	25	108	48	5	86	45
Queue Length 95th (ft)	57	151	99	16	138	83
Internal Link Dist (ft)	907		1233			916
Turn Bay Length (ft)		275		100	200	
Base Capacity (vph)	289	602	968	1026	559	1491
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.44	0.20	0.05	0.31	0.25

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.47
Intersection Signal Delay: 16.0 Intersection LOS: B
Intersection Capacity Utilization 38.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps



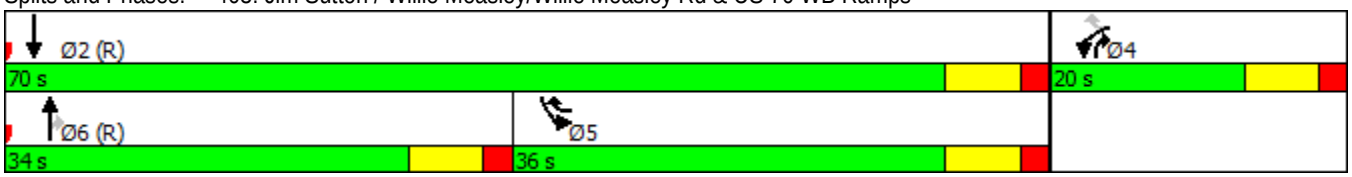
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	71	311	177	34	147	263
Future Volume (vph)	71	311	177	34	147	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	275		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	987		1313			996
Travel Time (s)	15.0		16.3			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	79	346	197	38	163	292
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	36.0	34.0	20.0	36.0	70.0
Total Split (%)	22.2%	40.0%	37.8%	22.2%	40.0%	77.8%
Maximum Green (s)	13.0	29.0	27.0	13.0	29.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	11.6	38.1	41.9	55.7	24.3	72.2
Actuated g/C Ratio	0.13	0.42	0.47	0.62	0.27	0.80
v/c Ratio	0.35	0.53	0.23	0.04	0.35	0.20
Control Delay	39.5	20.8	13.1	6.7	27.8	3.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.5	20.8	13.1	6.7	27.8	3.5
LOS	D	C	B	A	C	A
Approach Delay	24.2		12.1			12.2
Approach LOS	C		B			B
Queue Length 50th (ft)	42	134	35	5	75	37
Queue Length 95th (ft)	81	168	155	18	118	73
Internal Link Dist (ft)	907		1233			916
Turn Bay Length (ft)		275		100	200	
Base Capacity (vph)	289	682	850	946	597	1465
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.51	0.23	0.04	0.27	0.20

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.53
Intersection Signal Delay: 16.8 Intersection LOS: B
Intersection Capacity Utilization 39.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	8	205	42	4	4	169	127	60	8	189	5
Future Volume (vph)	4	8	205	42	4	4	169	127	60	8	189	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1623	0	0	1769	0	1736	1739	0	1770	1855	0
Flt Permitted		0.999			0.959		0.950			0.950		
Satd. Flow (perm)	0	1623	0	0	1769	0	1736	1739	0	1770	1855	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		970			951			996			1084	
Travel Time (s)		14.7			14.4			12.3			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	241	0	0	55	0	188	208	0	9	216	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 49.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	8	205	42	4	4	169	127	60	8	189	5
Future Volume (Veh/h)	4	8	205	42	4	4	169	127	60	8	189	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	9	228	47	4	4	188	141	67	9	210	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								996				
pX, platoon unblocked												
vC, conflicting volume	754	815	213	1011	784	174	216			208		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	754	815	213	1011	784	174	216			208		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	97	72	66	99	100	86			99		
cM capacity (veh/h)	285	266	827	137	277	869	1342			1363		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	241	55	188	208	9	216
Volume Left	4	47	188	0	9	0
Volume Right	228	4	0	67	0	6
cSH	745	152	1342	1700	1363	1700
Volume to Capacity	0.32	0.36	0.14	0.12	0.01	0.13
Queue Length 95th (ft)	35	38	12	0	0	0
Control Delay (s)	12.1	41.7	8.1	0.0	7.7	0.0
Lane LOS	B	E	A		A	
Approach Delay (s)	12.1	41.7	3.9		0.3	
Approach LOS	B	E				

Intersection Summary			
Average Delay	7.4		
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	4	169	60	8	8	205	189	42	4	127	4
Future Volume (vph)	5	4	169	60	8	8	205	189	42	4	127	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1621	0	0	1767	0	1736	1778	0	1770	1855	0
Flt Permitted		0.998			0.962		0.950			0.950		
Satd. Flow (perm)	0	1621	0	0	1767	0	1736	1778	0	1770	1855	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		970			951			996			1084	
Travel Time (s)		14.7			14.4			12.3			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	198	0	0	85	0	228	257	0	4	145	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 46.8%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	4	169	60	8	8	205	189	42	4	127	4
Future Volume (Veh/h)	5	4	169	60	8	8	205	189	42	4	127	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	4	188	67	9	9	228	210	47	4	141	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								996				
pX, platoon unblocked												
vC, conflicting volume	830	864	143	1028	842	234	145			257		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	830	864	143	1028	842	234	145			257		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	98	79	54	96	99	84			100		
cM capacity (veh/h)	244	245	905	145	252	806	1425			1308		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	198	85	228	257	4	145
Volume Left	6	67	228	0	4	0
Volume Right	188	9	0	47	0	4
cSH	796	167	1425	1700	1308	1700
Volume to Capacity	0.25	0.51	0.16	0.15	0.00	0.09
Queue Length 95th (ft)	25	62	14	0	0	0
Control Delay (s)	11.0	46.9	8.0	0.0	7.8	0.0
Lane LOS	B	E	A		A	
Approach Delay (s)	11.0	46.9	3.8		0.2	
Approach LOS	B	E				

Intersection Summary			
Average Delay	8.7		
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	693	453	164	0	192
Future Volume (vph)	0	693	453	164	0	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			300	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	100				100	
Satd. Flow (prot)	0	3471	3471	1553	0	1550
Flt Permitted						
Satd. Flow (perm)	0	3471	3471	1553	0	1550
Link Speed (mph)		55	55		45	
Link Distance (ft)		1000	953		1176	
Travel Time (s)		12.4	11.8		17.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	770	503	182	0	213
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 31.1%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	693	453	164	0	192
Future Volume (Veh/h)	0	693	453	164	0	192
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	770	503	182	0	213
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	503				888	252
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	503				888	252
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	100				100	71
cM capacity (veh/h)	1044				276	736

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	385	385	252	252	182	213
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	182	213
cSH	1700	1700	1700	1700	1700	736
Volume to Capacity	0.23	0.23	0.15	0.15	0.11	0.29
Queue Length 95th (ft)	0	0	0	0	0	30
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.9
Lane LOS						B
Approach Delay (s)	0.0		0.0			11.9
Approach LOS						B

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	31.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	630	515	207	0	150
Future Volume (vph)	0	630	515	207	0	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			300	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	100				100	
Satd. Flow (prot)	0	3471	3471	1553	0	1550
Flt Permitted						
Satd. Flow (perm)	0	3471	3471	1553	0	1550
Link Speed (mph)		55	55		45	
Link Distance (ft)		1000	953		1176	
Travel Time (s)		12.4	11.8		17.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	700	572	230	0	167
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 30.2%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	630	515	207	0	150
Future Volume (Veh/h)	0	630	515	207	0	150
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	700	572	230	0	167
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	572				922	286
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	572				922	286
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	100				100	76
cM capacity (veh/h)	983				262	699

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	350	350	286	286	230	167
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	230	167
cSH	1700	1700	1700	1700	1700	699
Volume to Capacity	0.21	0.21	0.17	0.17	0.14	0.24
Queue Length 95th (ft)	0	0	0	0	0	23
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.8
Lane LOS						B
Approach Delay (s)	0.0		0.0			11.8
Approach LOS						B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	30.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	292	25	24	902	599	189
Future Volume (vph)	292	25	24	902	599	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	300			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1671	1495	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1671	1495	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	55	
Link Distance (ft)	1293			1201	1455	
Travel Time (s)	16.0			14.9	18.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	324	28	27	1002	666	210
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	44.0	14.0	14.0	106.0	92.0	44.0
Total Split (%)	29.3%	9.3%	9.3%	70.7%	61.3%	29.3%
Maximum Green (s)	37.0	7.0	7.0	99.0	85.0	37.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	34.6	48.7	9.2	105.4	94.1	134.6
Actuated g/C Ratio	0.23	0.32	0.06	0.70	0.63	0.90
v/c Ratio	0.84	0.06	0.26	0.79	0.59	0.15
Control Delay	74.4	33.2	73.7	21.7	15.2	1.1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.4	33.2	73.7	21.7	15.2	1.1
LOS	E	C	E	C	B	A
Approach Delay	71.1			23.1	11.8	
Approach LOS	E			C	B	
Queue Length 50th (ft)	301	18	26	627	226	12
Queue Length 95th (ft)	412	42	60	901	561	m17
Internal Link Dist (ft)	1213			1121	1375	
Turn Bay Length (ft)		100	300			100
Base Capacity (vph)	434	485	105	1271	1134	1400
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.06	0.26	0.79	0.59	0.15

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 144 (96%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 26.2 Intersection LOS: C
Intersection Capacity Utilization 72.0% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 406: NC 11/NC 11/55 & NC 55

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	190	23	24	599	902	292
Future Volume (vph)	190	23	24	599	902	292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	300			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1671	1495	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1671	1495	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	55	
Link Distance (ft)	1293			1201	1455	
Travel Time (s)	16.0			14.9	18.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	211	26	27	666	1002	324
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	18.0	14.0	14.0	72.0	58.0	18.0
Total Split (%)	20.0%	15.6%	15.6%	80.0%	64.4%	20.0%
Maximum Green (s)	11.0	7.0	7.0	65.0	51.0	11.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	14.4	28.4	9.0	65.6	57.2	78.6
Actuated g/C Ratio	0.16	0.32	0.10	0.73	0.64	0.87
v/c Ratio	0.79	0.06	0.16	0.50	0.87	0.24
Control Delay	60.0	22.8	39.5	6.7	18.4	1.8

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.0	22.8	39.5	6.7	18.4	1.8
LOS	E	C	D	A	B	A
Approach Delay	56.0			8.0	14.4	
Approach LOS	E			A	B	
Queue Length 50th (ft)	119	11	14	125	394	19
Queue Length 95th (ft)	#245	30	40	186	m#768	m30
Internal Link Dist (ft)	1213			1121	1375	
Turn Bay Length (ft)		100	300			100
Base Capacity (vph)	266	471	171	1347	1150	1343
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.06	0.16	0.49	0.87	0.24

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 28 (31%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 16.8 Intersection LOS: B
Intersection Capacity Utilization 66.3% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 406: NC 11/NC 11/55 & NC 55

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	218	84	1076	123	16	567
Future Volume (vph)	218	84	1076	123	16	567
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1810	1538	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1810	1538	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	942		1455			1429
Travel Time (s)	25.7		18.0			17.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	5%	5%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	242	93	1196	137	18	630
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	32.0	14.0	104.0	32.0	14.0	118.0
Total Split (%)	21.3%	9.3%	69.3%	21.3%	9.3%	78.7%
Maximum Green (s)	25.0	7.0	97.0	25.0	7.0	111.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	25.6	39.6	100.4	131.0	9.0	114.4
Actuated g/C Ratio	0.17	0.26	0.67	0.87	0.06	0.76
v/c Ratio	0.84	0.23	0.99	0.10	0.18	0.47
Control Delay	85.0	44.6	41.7	1.1	66.4	5.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.0	44.6	41.7	1.1	66.4	5.5
LOS	F	D	D	A	E	A
Approach Delay	73.8		37.5			7.2
Approach LOS	E		D			A
Queue Length 50th (ft)	229	71	~999	6	16	33
Queue Length 95th (ft)	#361	123	#1497	m11	m40	146
Internal Link Dist (ft)	862		1375			1349
Turn Bay Length (ft)		175		100	100	
Base Capacity (vph)	303	398	1211	1335	101	1354
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.23	0.99	0.10	0.18	0.47

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 34.3 Intersection LOS: C
Intersection Capacity Utilization 77.0% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 407: NC 11/55 & US 70 EB Ramps

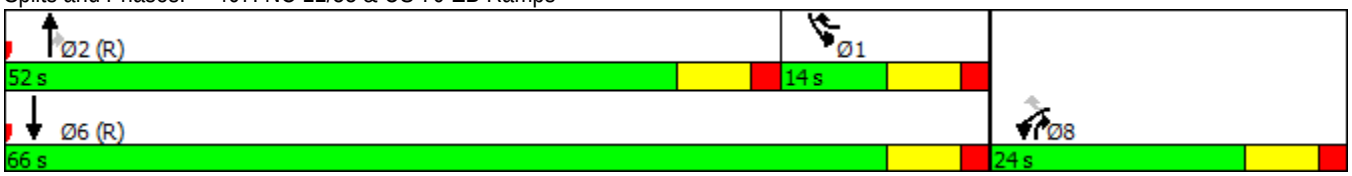
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	263	55	656	129	31	936
Future Volume (vph)	263	55	656	129	31	936
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1810	1538	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1810	1538	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	942		1455			1429
Travel Time (s)	25.7		18.0			17.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	5%	5%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	292	61	729	143	34	1040
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	24.0	14.0	52.0	24.0	14.0	66.0
Total Split (%)	26.7%	15.6%	57.8%	26.7%	15.6%	73.3%
Maximum Green (s)	17.0	7.0	45.0	17.0	7.0	59.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	18.9	32.6	49.2	74.1	9.7	61.1
Actuated g/C Ratio	0.21	0.36	0.55	0.82	0.11	0.68
v/c Ratio	0.83	0.11	0.74	0.11	0.19	0.86
Control Delay	54.8	19.1	16.3	1.9	26.5	9.7

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.8	19.1	16.3	1.9	26.5	9.7
LOS	D	B	B	A	C	A
Approach Delay	48.6		13.9			10.2
Approach LOS	D		B			B
Queue Length 50th (ft)	160	22	216	12	17	79
Queue Length 95th (ft)	#293	50	360	m18	m22	m106
Internal Link Dist (ft)	862		1375			1349
Turn Bay Length (ft)		175		100	100	
Base Capacity (vph)	362	546	1011	1257	182	1213
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.11	0.72	0.11	0.19	0.86

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 6 (7%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 17.5 Intersection LOS: B
Intersection Capacity Utilization 72.2% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 407: NC 11/55 & US 70 EB Ramps



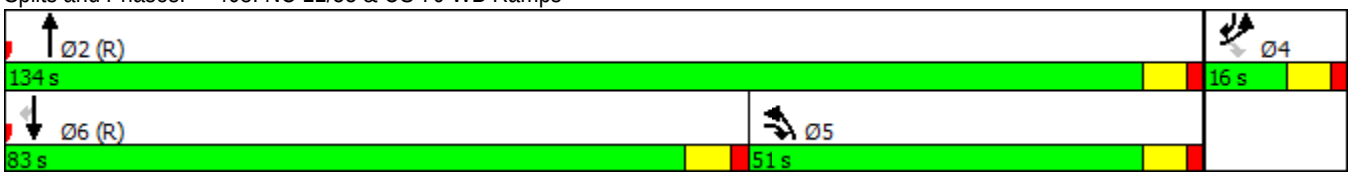
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	31	129	263	897	454	55
Future Volume (vph)	31	129	263	897	454	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	225	400			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1687	1509	1687	1776	1776	1509
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1687	1509	1687	1776	1776	1509
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1169			1429	1067	
Travel Time (s)	31.9			17.7	13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	34	143	292	997	504	61
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	16.0	51.0	51.0	134.0	83.0	16.0
Total Split (%)	10.7%	34.0%	34.0%	89.3%	55.3%	10.7%
Maximum Green (s)	9.0	44.0	44.0	127.0	76.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	10.8	46.3	33.4	133.0	93.7	106.6
Actuated g/C Ratio	0.07	0.31	0.22	0.89	0.62	0.71
v/c Ratio	0.28	0.31	0.78	0.63	0.45	0.06
Control Delay	71.3	38.7	48.3	1.4	18.8	8.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.3	38.7	48.3	1.4	18.8	8.0
LOS	E	D	D	A	B	A
Approach Delay	44.9			12.0	17.6	
Approach LOS	D			B	B	
Queue Length 50th (ft)	32	104	253	89	259	17
Queue Length 95th (ft)	69	144	m296	m9	428	39
Internal Link Dist (ft)	1089			1349	987	
Turn Bay Length (ft)		225	400			100
Base Capacity (vph)	130	511	517	1583	1108	1057
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.28	0.56	0.63	0.45	0.06

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 44 (29%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 16.4 Intersection LOS: B
Intersection Capacity Utilization 61.4% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 408: NC 11/55 & US 70 WB Ramps



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	123	218	493	844	84
Future Volume (vph)	16	123	218	493	844	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	225	400			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1687	1509	1687	1776	1776	1509
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1687	1509	1687	1776	1776	1509
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1169			1429	1067	
Travel Time (s)	31.9			17.7	13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	137	242	548	938	93
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	14.0	20.0	20.0	76.0	56.0	14.0
Total Split (%)	15.6%	22.2%	22.2%	84.4%	62.2%	15.6%
Maximum Green (s)	7.0	13.0	13.0	69.0	49.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.0	26.2	15.0	74.8	53.8	65.0
Actuated g/C Ratio	0.10	0.29	0.17	0.83	0.60	0.72
v/c Ratio	0.11	0.31	0.86	0.37	0.88	0.09
Control Delay	38.6	25.8	46.6	1.3	29.1	3.9

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.6	25.8	46.6	1.3	29.1	3.9
LOS	D	C	D	A	C	A
Approach Delay	27.3			15.2	26.9	
Approach LOS	C			B	C	
Queue Length 50th (ft)	10	58	133	19	456	13
Queue Length 95th (ft)	30	105	m#230	41	#750	26
Internal Link Dist (ft)	1089			1349	987	
Turn Bay Length (ft)		225	400			100
Base Capacity (vph)	168	440	282	1476	1060	1088
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.31	0.86	0.37	0.88	0.09

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 22.2 Intersection LOS: C
Intersection Capacity Utilization 74.8% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 408: NC 11/55 & US 70 WB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	208	100	389	51	20	88
Future Volume (vph)	208	100	389	51	20	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	980		1013			1287
Travel Time (s)	26.7		12.6			16.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	231	111	432	57	22	98
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	30.0	14.0	46.0	30.0	14.0	60.0
Total Split (%)	33.3%	15.6%	51.1%	33.3%	15.6%	66.7%
Maximum Green (s)	23.0	7.0	39.0	23.0	7.0	53.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	19.5	33.8	49.0	74.4	9.4	60.5
Actuated g/C Ratio	0.22	0.38	0.54	0.83	0.10	0.67
v/c Ratio	0.63	0.20	0.45	0.05	0.13	0.08
Control Delay	39.4	18.4	16.7	2.4	44.2	4.1

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.4	18.4	16.7	2.4	44.2	4.1
LOS	D	B	B	A	D	A
Approach Delay	32.6		15.0			11.4
Approach LOS	C		B			B
Queue Length 50th (ft)	120	42	149	5	13	10
Queue Length 95th (ft)	179	68	273	13	26	22
Internal Link Dist (ft)	900		933			1207
Turn Bay Length (ft)		150		100	100	
Base Capacity (vph)	471	567	974	1303	175	1197
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.20	0.44	0.04	0.13	0.08

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 56 (62%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 20.9 Intersection LOS: C
Intersection Capacity Utilization 40.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 409: US 258 & US 70 EB Ramps

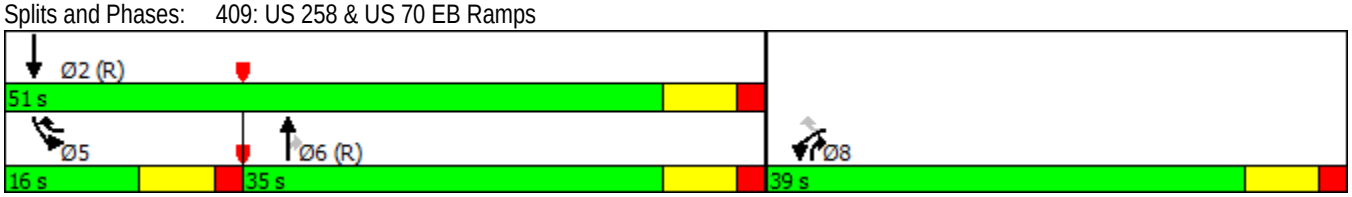
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	304	78	253	43	32	136
Future Volume (vph)	304	78	253	43	32	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	980		1013			1287
Travel Time (s)	26.7		12.6			16.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	338	87	281	48	36	151
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	39.0	16.0	35.0	39.0	16.0	51.0
Total Split (%)	43.3%	17.8%	38.9%	43.3%	17.8%	56.7%
Maximum Green (s)	32.0	9.0	28.0	32.0	9.0	44.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	25.3	40.2	42.6	73.9	9.9	54.7
Actuated g/C Ratio	0.28	0.45	0.47	0.82	0.11	0.61
v/c Ratio	0.71	0.13	0.33	0.04	0.19	0.14
Control Delay	37.1	13.3	19.4	2.6	34.1	7.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	13.3	19.4	2.6	34.1	7.2
LOS	D	B	B	A	C	A
Approach Delay	32.2		17.0			12.4
Approach LOS	C		B			B
Queue Length 50th (ft)	172	28	102	5	15	23
Queue Length 95th (ft)	236	45	198	13	43	80
Internal Link Dist (ft)	900		933			1207
Turn Bay Length (ft)		150		100	100	
Base Capacity (vph)	637	695	840	1329	209	1079
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.13	0.33	0.04	0.17	0.14

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 66 (73%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 23.0 Intersection LOS: C
Intersection Capacity Utilization 48.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 409: US 258 & US 70 EB Ramps



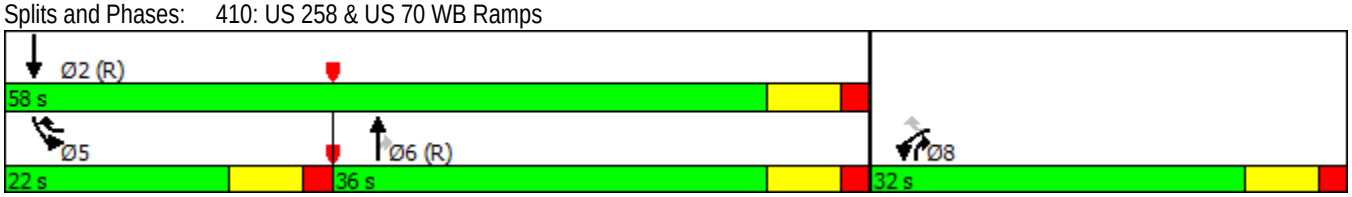
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	43	32	185	304	78	65
Future Volume (vph)	43	32	185	304	78	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		175	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1086		1287			882
Travel Time (s)	16.5		16.0			10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	36	206	338	87	72
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	32.0	22.0	36.0	32.0	22.0	58.0
Total Split (%)	35.6%	24.4%	40.0%	35.6%	24.4%	64.4%
Maximum Green (s)	25.0	15.0	29.0	25.0	15.0	51.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	13.1	30.3	52.5	71.6	12.2	66.9
Actuated g/C Ratio	0.15	0.34	0.58	0.80	0.14	0.74
v/c Ratio	0.20	0.07	0.20	0.28	0.38	0.05
Control Delay	33.5	17.6	6.2	2.0	39.7	4.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	17.6	6.2	2.0	39.7	4.2
LOS	C	B	A	A	D	A
Approach Delay	26.7		3.6			23.6
Approach LOS	C		A			C
Queue Length 50th (ft)	25	14	9	6	46	8
Queue Length 95th (ft)	51	28	47	15	87	27
Internal Link Dist (ft)	1006		1207			802
Turn Bay Length (ft)		100		175	175	
Base Capacity (vph)	506	589	1036	1373	318	1319
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.06	0.20	0.25	0.27	0.05

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.38
Intersection Signal Delay: 10.1 Intersection LOS: B
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 410: US 258 & US 70 WB Ramps



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	51	20	123	208	100	117
Future Volume (vph)	51	20	123	208	100	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		175	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1086		1287			882
Travel Time (s)	16.5		16.0			10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	22	137	231	111	130
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	28.0	28.0	34.0	28.0	28.0	62.0
Total Split (%)	31.1%	31.1%	37.8%	31.1%	31.1%	68.9%
Maximum Green (s)	21.0	21.0	27.0	21.0	21.0	55.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.8	29.0	53.8	70.5	13.3	69.2
Actuated g/C Ratio	0.12	0.32	0.60	0.78	0.15	0.77
v/c Ratio	0.28	0.05	0.13	0.20	0.45	0.10
Control Delay	39.2	18.8	6.5	1.2	40.0	3.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	18.8	6.5	1.2	40.0	3.0
LOS	D	B	A	A	D	A
Approach Delay	33.5		3.2			20.0
Approach LOS	C		A			C
Queue Length 50th (ft)	30	9	19	7	58	14
Queue Length 95th (ft)	64	22	34	13	104	31
Internal Link Dist (ft)	1006		1207			802
Turn Bay Length (ft)		100		175	175	
Base Capacity (vph)	431	649	1061	1340	431	1366
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.03	0.13	0.17	0.26	0.10

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.45
Intersection Signal Delay: 12.6 Intersection LOS: B
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 410: US 258 & US 70 WB Ramps

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	4	8	9	5	38	9	300	8	17	159	16
Future Volume (vph)	30	4	8	9	5	38	9	300	8	17	159	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1751	0	0	1665	0	1703	1785	0	1703	1767	0
Flt Permitted		0.965			0.991		0.950			0.950		
Satd. Flow (perm)	0	1751	0	0	1665	0	1703	1785	0	1703	1767	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1178			1128			1123			927	
Travel Time (s)		17.8			17.1			13.9			11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	46	0	0	58	0	10	342	0	19	195	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 30.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	4	8	9	5	38	9	300	8	17	159	16
Future Volume (Veh/h)	30	4	8	9	5	38	9	300	8	17	159	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	4	9	10	6	42	10	333	9	19	177	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											927	
pX, platoon unblocked												
vC, conflicting volume	622	586	186	584	590	338	195			342		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	622	586	186	584	590	338	195			342		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	91	99	99	98	99	94	99			98		
cM capacity (veh/h)	365	413	856	409	410	705	1354			1195		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	46	58	10	342	19	195
Volume Left	33	10	10	0	19	0
Volume Right	9	42	0	9	0	18
cSH	415	588	1354	1700	1195	1700
Volume to Capacity	0.11	0.10	0.01	0.20	0.02	0.11
Queue Length 95th (ft)	9	8	1	0	1	0
Control Delay (s)	14.7	11.8	7.7	0.0	8.1	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	14.7	11.8	0.2		0.7	
Approach LOS	B	B				

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	30.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	5	9	8	4	17	8	159	9	38	300	30
Future Volume (vph)	16	5	9	8	4	17	8	159	9	38	300	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1742	0	0	1690	0	1703	1778	0	1703	1767	0
Flt Permitted		0.974			0.986		0.950			0.950		
Satd. Flow (perm)	0	1742	0	0	1690	0	1703	1778	0	1703	1767	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1178			1128			1123			927	
Travel Time (s)		17.8			17.1			13.9			11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	34	0	0	32	0	9	187	0	42	366	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 34.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	5	9	8	4	17	8	159	9	38	300	30
Future Volume (Veh/h)	16	5	9	8	4	17	8	159	9	38	300	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	18	6	10	9	4	19	9	177	10	42	333	33
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											927	
pX, platoon unblocked	0.95	0.95	0.95	0.95	0.95		0.95					
vC, conflicting volume	650	638	350	630	650	182	366			187		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	602	590	285	581	602	182	302			187		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	95	98	99	98	99	98	99			97		
cM capacity (veh/h)	367	383	714	381	376	861	1170			1364		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	34	32	9	187	42	366
Volume Left	18	9	9	0	42	0
Volume Right	10	19	0	10	0	33
cSH	432	568	1170	1700	1364	1700
Volume to Capacity	0.08	0.06	0.01	0.11	0.03	0.22
Queue Length 95th (ft)	6	4	1	0	2	0
Control Delay (s)	14.0	11.7	8.1	0.0	7.7	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	14.0	11.7	0.4		0.8	
Approach LOS	B	B				

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	18	20	29	333	176	7
Future Volume (vph)	18	20	29	333	176	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	959			927	1201	
Travel Time (s)	14.5			11.5	14.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	22	32	370	196	8
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	22.0	22.0	22.0	68.0	46.0	22.0
Total Split (%)	24.4%	24.4%	24.4%	75.6%	51.1%	24.4%
Maximum Green (s)	15.0	15.0	15.0	61.0	39.0	15.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.3	15.6	9.7	82.1	72.0	80.7
Actuated g/C Ratio	0.10	0.17	0.11	0.91	0.80	0.90
v/c Ratio	0.11	0.08	0.17	0.23	0.14	0.01
Control Delay	38.0	27.2	38.4	1.9	2.8	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	27.2	38.4	1.9	2.8	0.3
LOS	D	C	D	A	A	A
Approach Delay	32.3			4.8	2.7	
Approach LOS	C			A	A	
Queue Length 50th (ft)	11	12	17	0	18	0
Queue Length 95th (ft)	32	27	43	71	28	1
Internal Link Dist (ft)	879			847	1121	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	321	387	321	1634	1433	1432
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.06	0.10	0.23	0.14	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 28 (31%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.23
Intersection Signal Delay: 5.9 Intersection LOS: A
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 412: NC 58 & US 70 EB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	32	22	174	330	10
Future Volume (vph)	15	32	22	174	330	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	959			927	1201	
Travel Time (s)	14.5			11.5	14.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	36	24	193	367	11
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	17.0	18.0	18.0	73.0	55.0	17.0
Total Split (%)	18.9%	20.0%	20.0%	81.1%	61.1%	18.9%
Maximum Green (s)	10.0	11.0	11.0	66.0	48.0	10.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.2	15.3	9.5	82.2	72.3	80.9
Actuated g/C Ratio	0.10	0.17	0.11	0.91	0.80	0.90
v/c Ratio	0.10	0.14	0.13	0.12	0.26	0.01
Control Delay	37.9	29.2	38.0	1.6	2.4	0.2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	29.2	38.0	1.6	2.4	0.2
LOS	D	C	D	A	A	A
Approach Delay	32.0			5.6	2.4	
Approach LOS	C			A	A	
Queue Length 50th (ft)	9	19	13	0	24	0
Queue Length 95th (ft)	29	38	36	36	27	0
Internal Link Dist (ft)	879			847	1121	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	227	318	245	1636	1438	1396
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.11	0.10	0.12	0.26	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 29 (32%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.26
Intersection Signal Delay: 5.9 Intersection LOS: A
Intersection Capacity Utilization 32.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 412: NC 58 & US 70 EB Ramps

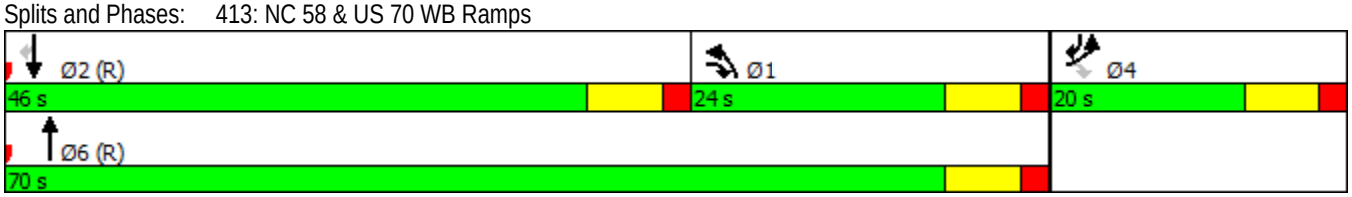
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	22	32	319	161	15
Future Volume (vph)	10	22	32	319	161	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	935			1201	1007	
Travel Time (s)	25.5			14.9	12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	24	36	354	179	17
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	20.0	24.0	24.0	70.0	46.0	20.0
Total Split (%)	22.2%	26.7%	26.7%	77.8%	51.1%	22.2%
Maximum Green (s)	13.0	17.0	17.0	63.0	39.0	13.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.1	15.6	9.9	82.3	72.0	77.7
Actuated g/C Ratio	0.10	0.17	0.11	0.91	0.80	0.86
v/c Ratio	0.06	0.09	0.19	0.22	0.12	0.01
Control Delay	37.6	27.6	38.4	1.3	5.3	2.5

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.6	27.6	38.4	1.3	5.3	2.5
LOS	D	C	D	A	A	A
Approach Delay	30.8			4.8	5.0	
Approach LOS	C			A	A	
Queue Length 50th (ft)	6	13	19	0	18	2
Queue Length 95th (ft)	22	29	47	43	71	6
Internal Link Dist (ft)	855			1121	927	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	283	363	359	1639	1434	1316
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.07	0.10	0.22	0.12	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 16 (18%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.22
Intersection Signal Delay: 6.3 — Intersection LOS: A
Intersection Capacity Utilization 35.8% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 413: NC 58 & US 70 WB Ramps



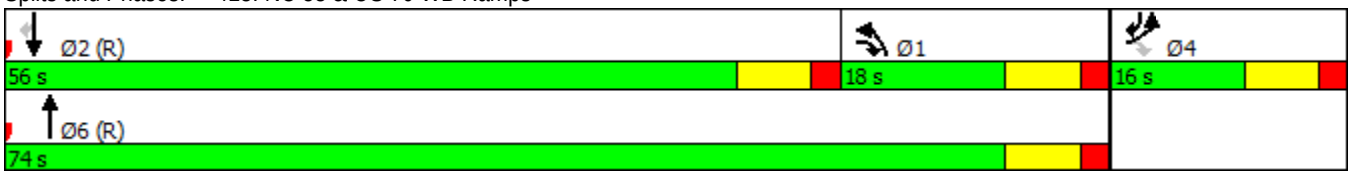
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	29	20	169	311	18
Future Volume (vph)	7	29	20	169	311	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	935			1201	1007	
Travel Time (s)	25.5			14.9	12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	32	22	188	346	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	16.0	18.0	18.0	74.0	56.0	16.0
Total Split (%)	17.8%	20.0%	20.0%	82.2%	62.2%	17.8%
Maximum Green (s)	9.0	11.0	11.0	67.0	49.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.0	15.2	9.6	82.4	72.4	78.0
Actuated g/C Ratio	0.10	0.17	0.11	0.92	0.80	0.87
v/c Ratio	0.05	0.12	0.12	0.11	0.24	0.02
Control Delay	37.4	29.0	38.7	1.3	5.5	2.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	29.0	38.7	1.3	5.5	2.3
LOS	D	C	D	A	A	A
Approach Delay	30.7			5.2	5.3	
Approach LOS	C			A	A	
Queue Length 50th (ft)	4	17	12	0	40	2
Queue Length 95th (ft)	18	36	34	27	134	7
Internal Link Dist (ft)	855			1121	927	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	208	281	245	1640	1442	1301
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.11	0.09	0.11	0.24	0.02

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 16 (18%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.24
Intersection Signal Delay: 6.9 Intersection LOS: A
Intersection Capacity Utilization 30.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 413: NC 58 & US 70 WB Ramps



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	465	39	27	570	61	35
Future Volume (vph)	465	39	27	570	61	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	100		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)			100		100	
Satd. Flow (prot)	3406	1524	1703	3406	1684	0
Flt Permitted			0.950		0.969	
Satd. Flow (perm)	3406	1524	1703	3406	1684	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1005			1017	897	
Travel Time (s)	12.5			12.6	11.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	517	43	30	633	107	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	46			46	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	465	39	27	570	61	35
Future Volume (Veh/h)	465	39	27	570	61	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	517	43	30	633	68	39
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	1			1		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			560		894	258
vC1, stage 1 conf vol					517	
vC2, stage 2 conf vol					376	
vCu, unblocked vol			560		894	258
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)			2.3		3.5	3.3
p0 queue free %			97		83	95
cM capacity (veh/h)			980		393	734

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	258	258	43	30	316	316	107
Volume Left	0	0	0	30	0	0	68
Volume Right	0	0	43	0	0	0	39
cSH	1700	1700	1700	980	1700	1700	473
Volume to Capacity	0.15	0.15	0.03	0.03	0.19	0.19	0.23
Queue Length 95th (ft)	0	0	0	2	0	0	22
Control Delay (s)	0.0	0.0	0.0	8.8	0.0	0.0	14.8
Lane LOS				A			B
Approach Delay (s)	0.0			0.4			14.8
Approach LOS							B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	31.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	570	61	35	465	39	27
Future Volume (vph)	570	61	35	465	39	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	100		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)			100		100	
Satd. Flow (prot)	3406	1524	1703	3406	1676	0
Flt Permitted			0.950		0.971	
Satd. Flow (perm)	3406	1524	1703	3406	1676	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1005			1017	897	
Travel Time (s)	12.5			12.6	11.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	633	68	39	517	73	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	46			46	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	570	61	35	465	39	27
Future Volume (Veh/h)	570	61	35	465	39	27
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	633	68	39	517	43	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	1			1		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			701		970	316
vC1, stage 1 conf vol					633	
vC2, stage 2 conf vol					336	
vCu, unblocked vol			701		970	316
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)			2.3		3.5	3.3
p0 queue free %			95		88	96
cM capacity (veh/h)			866		359	673

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	316	316	68	39	258	258	73
Volume Left	0	0	0	39	0	0	43
Volume Right	0	0	68	0	0	0	30
cSH	1700	1700	1700	866	1700	1700	444
Volume to Capacity	0.19	0.19	0.04	0.05	0.15	0.15	0.16
Queue Length 95th (ft)	0	0	0	4	0	0	15
Control Delay (s)	0.0	0.0	0.0	9.4	0.0	0.0	14.7
Lane LOS				A			B
Approach Delay (s)	0.0			0.7			14.7
Approach LOS							B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	32.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	33	21	15	21	8
Future Volume (vph)	10	33	21	15	21	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1824	1774	0	1696	0
Flt Permitted		0.989			0.965	
Satd. Flow (perm)	0	1824	1774	0	1696	0
Link Speed (mph)		45	45		45	
Link Distance (ft)		873	821		789	
Travel Time (s)		13.2	12.4		12.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	1%	1%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	48	40	0	32	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	33	21	15	21	8
Future Volume (Veh/h)	10	33	21	15	21	8
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	37	23	17	23	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	40				90	32
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	40				90	32
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	99
cM capacity (veh/h)	1563				899	1037

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	48	40	32
Volume Left	11	0	23
Volume Right	0	17	9
cSH	1563	1700	934
Volume to Capacity	0.01	0.02	0.03
Queue Length 95th (ft)	1	0	3
Control Delay (s)	1.7	0.0	9.0
Lane LOS	A		A
Approach Delay (s)	1.7	0.0	9.0
Approach LOS			A

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	19.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	21	33	21	15	10
Future Volume (vph)	8	21	33	21	15	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1819	1783	0	1680	0
Flt Permitted		0.986			0.971	
Satd. Flow (perm)	0	1819	1783	0	1680	0
Link Speed (mph)		45	45		45	
Link Distance (ft)		873	821		789	
Travel Time (s)		13.2	12.4		12.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	1%	1%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	32	60	0	28	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	21	33	21	15	10
Future Volume (Veh/h)	8	21	33	21	15	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	23	37	23	17	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	60				90	48
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	60				90	48
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	99
cM capacity (veh/h)	1537				901	1015

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	32	60	28
Volume Left	9	0	17
Volume Right	0	23	11
cSH	1537	1700	942
Volume to Capacity	0.01	0.04	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	2.1	0.0	8.9
Lane LOS	A		A
Approach Delay (s)	2.1	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		

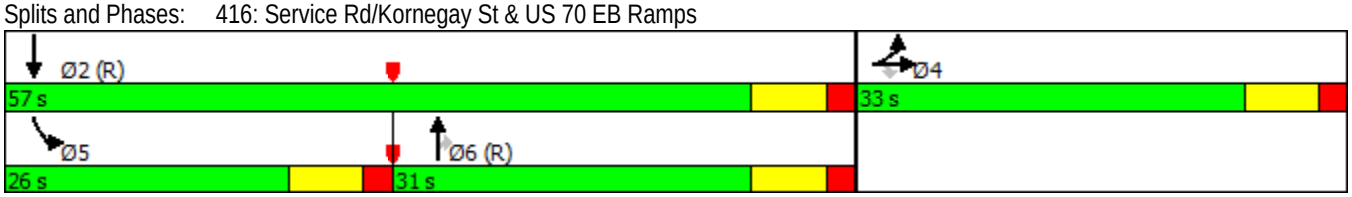
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	4	12	0	0	0	0	32	22	22	24	0
Future Volume (vph)	61	4	12	0	0	0	0	32	22	22	24	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	0		100	100		0
Storage Lanes	0		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1745	1553	0	0	0	0	1881	1599	1736	1827	0
Flt Permitted		0.955								0.950		
Satd. Flow (perm)	0	1745	1553	0	0	0	0	1881	1599	1736	1827	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		937			1062			1018			808	
Travel Time (s)		11.6			13.2			15.4			12.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	0%	0%	0%	1%	1%	1%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	72	13	0	0	0	0	36	24	24	27	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						6		5	2	
Permitted Phases			4						6			
Detector Phase	4	4	4					6	6	5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0					12.0	12.0	7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0					19.0	19.0	14.0	19.0	
Total Split (s)	33.0	33.0	33.0					31.0	31.0	26.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%					34.4%	34.4%	28.9%	63.3%	
Maximum Green (s)	26.0	26.0	26.0					24.0	24.0	19.0	50.0	
Yellow Time (s)	5.0	5.0	5.0					5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-2.0	-2.0					-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					C-Min	C-Min	None	C-Min	
Act Effct Green (s)		11.4	11.4					66.4	66.4	9.4	72.4	
Actuated g/C Ratio		0.13	0.13					0.74	0.74	0.10	0.80	
v/c Ratio		0.33	0.07					0.03	0.02	0.13	0.02	
Control Delay		39.2	34.0					7.1	7.3	37.3	3.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay		39.2	34.0					7.1	7.3	37.3	3.8	
LOS		D	C					A	A	D	A	
Approach Delay		38.4						7.2			19.6	
Approach LOS		D						A			B	
Queue Length 50th (ft)		38	7					4	3	13	2	
Queue Length 95th (ft)		76	23					22	17	42	18	
Internal Link Dist (ft)		857			982			938			728	
Turn Bay Length (ft)			100						100	100		
Base Capacity (vph)		542	483					1387	1179	405	1470	
Starvation Cap Reductn		0	0					0	0	0	0	
Spillback Cap Reductn		0	0					0	0	0	0	
Storage Cap Reductn		0	0					0	0	0	0	
Reduced v/c Ratio		0.13	0.03					0.03	0.02	0.06	0.02	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.33
Intersection Signal Delay: 24.0 Intersection LOS: C
Intersection Capacity Utilization 34.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 416: Service Rd/Kornegay St & US 70 EB Ramps



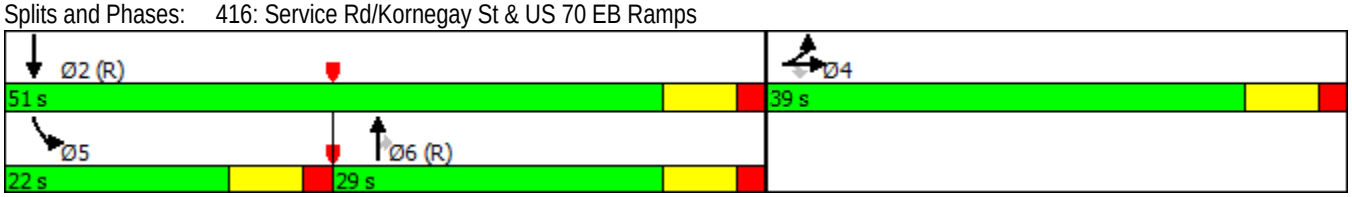
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	4	22	0	0	0	0	21	15	16	32	0
Future Volume (vph)	97	4	22	0	0	0	0	21	15	16	32	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	0		100	100		0
Storage Lanes	0		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1743	1553	0	0	0	0	1881	1599	1736	1827	0
Flt Permitted		0.954								0.950		
Satd. Flow (perm)	0	1743	1553	0	0	0	0	1881	1599	1736	1827	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		937			1062			1018			808	
Travel Time (s)		11.6			13.2			15.4			12.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	0%	0%	0%	1%	1%	1%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	112	24	0	0	0	0	23	17	18	36	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						6		5	2	
Permitted Phases			4						6			
Detector Phase	4	4	4					6	6	5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0					12.0	12.0	7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0					19.0	19.0	14.0	19.0	
Total Split (s)	39.0	39.0	39.0					29.0	29.0	22.0	51.0	
Total Split (%)	43.3%	43.3%	43.3%					32.2%	32.2%	24.4%	56.7%	
Maximum Green (s)	32.0	32.0	32.0					22.0	22.0	15.0	44.0	
Yellow Time (s)	5.0	5.0	5.0					5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-2.0	-2.0					-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					C-Min	C-Min	None	C-Min	
Act Effct Green (s)		13.2	13.2					64.8	64.8	9.2	70.6	
Actuated g/C Ratio		0.15	0.15					0.72	0.72	0.10	0.78	
v/c Ratio		0.44	0.11					0.02	0.01	0.10	0.03	
Control Delay		39.7	32.6					8.2	8.4	31.3	5.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay		39.7	32.6					8.2	8.4	31.3	5.7	
LOS		D	C					A	A	C	A	
Approach Delay		38.4						8.3			14.3	
Approach LOS		D						A			B	
Queue Length 50th (ft)		59	12					3	2	10	11	
Queue Length 95th (ft)		104	33					17	14	35	28	
Internal Link Dist (ft)		857			982			938			728	
Turn Bay Length (ft)			100						100	100		
Base Capacity (vph)		658	586					1353	1150	327	1433	
Starvation Cap Reductn		0	0					0	0	0	0	
Spillback Cap Reductn		0	0					0	0	0	0	
Storage Cap Reductn		0	0					0	0	0	0	
Reduced v/c Ratio		0.17	0.04					0.02	0.01	0.06	0.03	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.44
Intersection Signal Delay: 27.5 Intersection LOS: C
Intersection Capacity Utilization 34.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 416: Service Rd/Kornegay St & US 70 EB Ramps



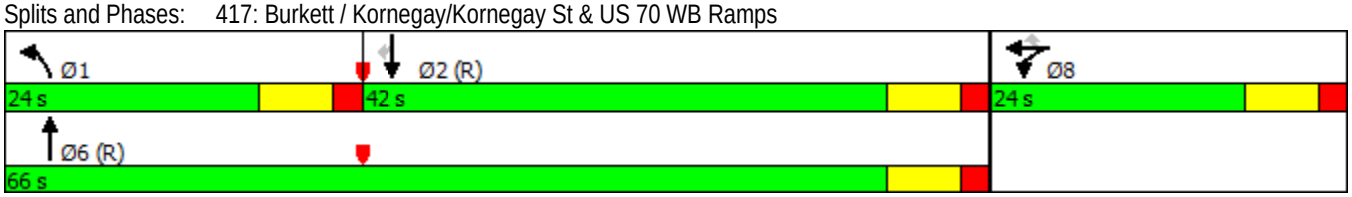
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	15	4	17	22	71	0	0	31	97
Future Volume (vph)	0	0	0	15	4	17	22	71	0	0	31	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		100	100		0	0		100
Storage Lanes	0		0	0		1	1		0	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	0	0	0	1756	1553	1736	1827	0	0	1827	1553
Flt Permitted					0.961		0.950					
Satd. Flow (perm)	0	0	0	0	1756	1553	1736	1827	0	0	1827	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1012			920			808			961	
Travel Time (s)		15.3			13.9			12.2			14.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	21	19	24	79	0	0	34	108
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Split	NA	Perm	Prot	NA			NA	Perm
Protected Phases				8	8		1	6			2	
Permitted Phases						8						2
Detector Phase				8	8	8	1	6			2	2
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0	7.0	12.0			12.0	12.0
Minimum Split (s)				14.0	14.0	14.0	14.0	19.0			19.0	19.0
Total Split (s)				24.0	24.0	24.0	24.0	66.0			42.0	42.0
Total Split (%)				26.7%	26.7%	26.7%	26.7%	73.3%			46.7%	46.7%
Maximum Green (s)				17.0	17.0	17.0	17.0	59.0			35.0	35.0
Yellow Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
All-Red Time (s)				2.0	2.0	2.0	2.0	2.0			2.0	2.0
Lost Time Adjust (s)					-2.0	-2.0	-2.0	-2.0			-2.0	-2.0
Total Lost Time (s)					5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Min			C-Min	C-Min
Act Effct Green (s)					9.4	9.4	9.4	78.2			72.2	72.2
Actuated g/C Ratio					0.10	0.10	0.10	0.87			0.80	0.80
v/c Ratio					0.12	0.12	0.13	0.05			0.02	0.09
Control Delay					37.9	38.1	21.0	0.8			5.7	5.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay					0.0	0.0	0.0	0.0			0.0	0.0
Total Delay					37.9	38.1	21.0	0.8			5.7	5.4
LOS					D	D	C	A			A	A
Approach Delay					38.0			5.5			5.4	
Approach LOS					D			A			A	
Queue Length 50th (ft)					11	10	6	3			3	11
Queue Length 95th (ft)					33	31	16	5			19	47
Internal Link Dist (ft)		932			840			728			881	
Turn Bay Length (ft)						100	100					100
Base Capacity (vph)					370	327	366	1588			1465	1246
Starvation Cap Reductn					0	0	0	0			0	0
Spillback Cap Reductn					0	0	0	0			0	0
Storage Cap Reductn					0	0	0	0			0	0
Reduced v/c Ratio					0.06	0.06	0.07	0.05			0.02	0.09

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.13
Intersection Signal Delay: 10.0 Intersection LOS: B
Intersection Capacity Utilization 34.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 417: Burkett / Kornegay/Kornegay St & US 70 WB Ramps



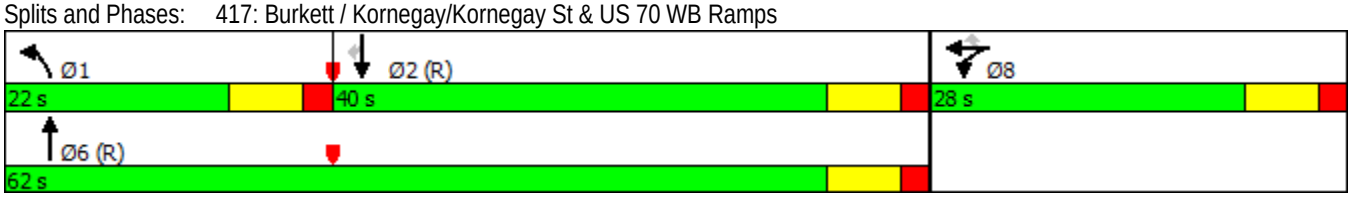
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	22	4	22	12	106	0	0	26	61
Future Volume (vph)	0	0	0	22	4	22	12	106	0	0	26	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		100	100		0	0		100
Storage Lanes	0		0	0		1	1		0	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	0	0	0	1752	1553	1736	1827	0	0	1827	1553
Flt Permitted					0.959		0.950					
Satd. Flow (perm)	0	0	0	0	1752	1553	1736	1827	0	0	1827	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1012			920			808			961	
Travel Time (s)		15.3			13.9			12.2			14.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	28	24	13	118	0	0	29	68
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Split	NA	Perm	Prot	NA			NA	Perm
Protected Phases				8	8		1	6			2	
Permitted Phases						8						2
Detector Phase				8	8	8	1	6			2	2
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0	7.0	12.0			12.0	12.0
Minimum Split (s)				14.0	14.0	14.0	14.0	19.0			19.0	19.0
Total Split (s)				28.0	28.0	28.0	22.0	62.0			40.0	40.0
Total Split (%)				31.1%	31.1%	31.1%	24.4%	68.9%			44.4%	44.4%
Maximum Green (s)				21.0	21.0	21.0	15.0	55.0			33.0	33.0
Yellow Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
All-Red Time (s)				2.0	2.0	2.0	2.0	2.0			2.0	2.0
Lost Time Adjust (s)					-2.0	-2.0	-2.0	-2.0			-2.0	-2.0
Total Lost Time (s)					5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Min			C-Min	C-Min
Act Effct Green (s)					9.6	9.6	9.1	78.0			75.1	75.1
Actuated g/C Ratio					0.11	0.11	0.10	0.87			0.83	0.83
v/c Ratio					0.15	0.15	0.07	0.07			0.02	0.05
Control Delay					38.2	38.3	13.7	0.8			4.4	4.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay					0.0	0.0	0.0	0.0			0.0	0.0
Total Delay					38.2	38.3	13.7	0.8			4.4	4.2
LOS					D	D	B	A			A	A
Approach Delay					38.2			2.1			4.3	
Approach LOS					D			A			A	
Queue Length 50th (ft)					15	13	2	2			3	6
Queue Length 95th (ft)					40	36	7	4			17	32
Internal Link Dist (ft)		932			840			728			881	
Turn Bay Length (ft)						100	100					100
Base Capacity (vph)					447	396	327	1584			1525	1296
Starvation Cap Reductn					0	0	0	0			0	0
Spillback Cap Reductn					0	0	0	0			0	0
Storage Cap Reductn					0	0	0	0			0	0
Reduced v/c Ratio					0.06	0.06	0.04	0.07			0.02	0.05

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.15
Intersection Signal Delay: 9.5 Intersection LOS: A
Intersection Capacity Utilization 34.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 417: Burkett / Kornegay/Kornegay St & US 70 WB Ramps



2040 Build Alternative 32
SimTraffic Reports

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Summary of All Intervals

Run Number	1	2	3	4	5	AM	Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	8340	8247	8423	8275	8282	8456	8334
Vehs Exited	8317	8231	8438	8278	8257	8434	8323
Starting Vehs	179	162	201	164	144	176	160
Ending Vehs	202	178	186	161	169	198	173
Travel Distance (mi)	4905	4873	4993	4885	4894	5051	4933
Travel Time (hr)	176.7	185.4	185.4	174.0	180.0	185.5	181.2
Total Delay (hr)	63.8	73.1	70.3	61.4	67.0	69.2	67.5
Total Stops	4826	5082	5067	4797	4916	5032	4950
Fuel Used (gal)	197.1	198.4	201.6	196.2	198.0	204.7	199.3

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	AM	Avg
Vehs Entered	8340	8247	8423	8275	8282	8456	8334
Vehs Exited	8317	8231	8438	8278	8257	8434	8323
Starting Vehs	179	162	201	164	144	176	160
Ending Vehs	202	178	186	161	169	198	173
Travel Distance (mi)	4905	4873	4993	4885	4894	5051	4933
Travel Time (hr)	176.7	185.4	185.4	174.0	180.0	185.5	181.2
Total Delay (hr)	63.8	73.1	70.3	61.4	67.0	69.2	67.5
Total Stops	4826	5082	5067	4797	4916	5032	4950
Fuel Used (gal)	197.1	198.4	201.6	196.2	198.0	204.7	199.3

Intersection: 401: Jim Sutton Rd & Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	46	52	4	24
Average Queue (ft)	14	20	0	2
95th Queue (ft)	38	43	3	12
Link Distance (ft)	848	806	905	935
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	65	171	80	78	310	36
Average Queue (ft)	26	76	24	22	164	5
95th Queue (ft)	60	145	61	61	268	23
Link Distance (ft)	951	951	935	935	1248	1248
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		100	325	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	86	267	164	73	188	91
Average Queue (ft)	35	116	51	16	91	30
95th Queue (ft)	74	201	117	50	161	74
Link Distance (ft)	939	939	1248	1248	934	934
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		275		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 404: Willie Measley Rd & Washington St/Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	94	63	62	16
Average Queue (ft)	43	22	21	1
95th Queue (ft)	73	48	49	8
Link Distance (ft)	924	913	934	1055
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 405: US 70 Bus & Innovation Way

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 406: NC 11/NC 11/55 & NC 55

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	410	63	277	533	451	62
Average Queue (ft)	234	14	32	227	182	13
95th Queue (ft)	364	43	179	440	360	46
Link Distance (ft)	1242	1242	1168	1168	1375	1375
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	300			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 407: NC 11/55 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	356	166	816	55	63	239
Average Queue (ft)	206	62	452	13	14	70
95th Queue (ft)	320	127	794	40	45	186
Link Distance (ft)	890	890	1375	1375	1370	1370
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 408: NC 11/55 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	64	215	399	162	356	65
Average Queue (ft)	28	97	208	45	153	14
95th Queue (ft)	58	187	351	128	296	44
Link Distance (ft)	1122	1122	1370	1370	1031	1031
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		225	400			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 409: US 258 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	222	137	185	29	69	84
Average Queue (ft)	120	49	76	5	17	12
95th Queue (ft)	201	105	153	21	48	46
Link Distance (ft)	917	917	961	961	1212	1212
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 410: US 258 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	92	75	118	162	135	54
Average Queue (ft)	27	14	37	54	58	6
95th Queue (ft)	67	43	89	120	114	31
Link Distance (ft)	1028	1028	1212	1212	850	850
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		175	175	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 411: NC 58 & Elijah Loftin Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	46	44	15	24
Average Queue (ft)	18	21	1	2
95th Queue (ft)	37	39	8	13
Link Distance (ft)	1137	1082	1094	863
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 412: NC 58 & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	57	65	79	69	76	19
Average Queue (ft)	17	15	25	13	16	1
95th Queue (ft)	48	45	61	50	52	8
Link Distance (ft)	914	914	863	863	1133	1133
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 413: NC 58 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	52	65	74	70	75	30
Average Queue (ft)	10	18	22	13	17	1
95th Queue (ft)	35	48	56	49	54	13
Link Distance (ft)	879	879	1133	1133	961	961
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 414: Wyse Fork Rd & US 70 Bus

Movement	EB	WB	NB
Directions Served	R	L	LR
Maximum Queue (ft)	4	50	126
Average Queue (ft)	0	12	41
95th Queue (ft)	3	35	92
Link Distance (ft)	972	994	820
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	100	100	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 415: Burkett Rd & Wyse Fork Conn.

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	9	47
Average Queue (ft)	0	16
95th Queue (ft)	6	40
Link Distance (ft)	852	757
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 416: Service Rd/Kornegay St & US 70 Bus

Movement	EB	EB	NB	NB	SB	SB
Directions Served	LT	R	T	R	L	T
Maximum Queue (ft)	104	32	25	22	65	28
Average Queue (ft)	38	7	3	3	19	2
95th Queue (ft)	81	25	17	14	53	13
Link Distance (ft)	902	902	979	979	772	772
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 417: Burkett / Kornegay/Kornegay St & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	L	T	T	R
Maximum Queue (ft)	59	65	64	29	27	78
Average Queue (ft)	14	15	18	3	3	12
95th Queue (ft)	44	46	48	17	16	45
Link Distance (ft)	885	885	772	772	921	921
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	2	3	4	5	PM	Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	8308	8262	8280	8375	8157	8362	8291
Vehs Exited	8322	8276	8265	8360	8160	8370	8292
Starting Vehs	185	169	165	154	186	180	156
Ending Vehs	171	155	180	169	183	172	161
Travel Distance (mi)	4875	4890	4833	4913	4794	4916	4870
Travel Time (hr)	177.4	176.2	171.8	177.3	170.2	175.6	174.7
Total Delay (hr)	65.4	63.3	60.7	63.7	59.3	61.9	62.4
Total Stops	4976	4946	4839	4899	4770	4920	4893
Fuel Used (gal)	197.6	199.0	196.4	199.4	194.5	200.5	197.9

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	PM	Avg
Vehs Entered	8308	8262	8280	8375	8157	8362	8291
Vehs Exited	8322	8276	8265	8360	8160	8370	8292
Starting Vehs	185	169	165	154	186	180	156
Ending Vehs	171	155	180	169	183	172	161
Travel Distance (mi)	4875	4890	4833	4913	4794	4916	4870
Travel Time (hr)	177.4	176.2	171.8	177.3	170.2	175.6	174.7
Total Delay (hr)	65.4	63.3	60.7	63.7	59.3	61.9	62.4
Total Stops	4976	4946	4839	4899	4770	4920	4893
Fuel Used (gal)	197.6	199.0	196.4	199.4	194.5	200.5	197.9

Intersection: 401: Jim Sutton Rd & Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	29	51	4	16
Average Queue (ft)	9	15	0	1
95th Queue (ft)	30	38	3	9
Link Distance (ft)	848	806	905	935
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	112	174	56	61	260	44
Average Queue (ft)	42	86	15	12	139	6
95th Queue (ft)	89	152	44	41	223	29
Link Distance (ft)	951	951	935	935	1248	1248
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		100	325	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	115	269	93	43	159	89
Average Queue (ft)	51	137	30	8	80	21
95th Queue (ft)	101	237	74	29	138	61
Link Distance (ft)	939	939	1248	1248	934	934
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		275		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 404: Willie Measley Rd & Washington St/Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	76	81	70	16
Average Queue (ft)	39	30	20	1
95th Queue (ft)	65	58	52	7
Link Distance (ft)	924	913	934	1055
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 405: US 70 Bus & Innovation Way

Movement	SB
Directions Served	R
Maximum Queue (ft)	18
Average Queue (ft)	1
95th Queue (ft)	14
Link Distance (ft)	1140
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 406: NC 11/NC 11/55 & NC 55

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	246	82	71	218	407	89
Average Queue (ft)	131	17	19	90	169	30
95th Queue (ft)	223	52	51	178	332	72
Link Distance (ft)	1242	1242	1168	1168	1375	1375
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	300			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 407: NC 11/55 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	324	87	440	93	82	407
Average Queue (ft)	169	29	216	25	23	145
95th Queue (ft)	274	68	388	68	63	296
Link Distance (ft)	890	890	1375	1375	1370	1370
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 408: NC 11/55 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	67	176	266	150	448	71
Average Queue (ft)	16	77	143	29	231	20
95th Queue (ft)	49	140	244	100	403	55
Link Distance (ft)	1122	1122	1370	1370	1031	1031
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		225	400			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 409: US 258 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	332	88	201	37	89	77
Average Queue (ft)	179	30	76	5	26	23
95th Queue (ft)	283	71	158	25	66	63
Link Distance (ft)	917	917	961	961	1212	1212
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 410: US 258 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	95	37	87	106	168	60
Average Queue (ft)	34	8	23	30	74	11
95th Queue (ft)	73	26	61	77	141	41
Link Distance (ft)	1028	1028	1212	1212	850	850
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		175	175	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 411: NC 58 & Elijah Loftin Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	37	31	28	24
Average Queue (ft)	14	13	2	3
95th Queue (ft)	34	33	14	15
Link Distance (ft)	1137	1082	1094	863
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 412: NC 58 & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	52	84	61	67	85	17
Average Queue (ft)	12	23	16	8	24	2
95th Queue (ft)	37	59	47	38	66	12
Link Distance (ft)	914	914	863	863	1133	1133
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 413: NC 58 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	33	77	71	53	120	22
Average Queue (ft)	6	22	14	6	32	2
95th Queue (ft)	25	56	43	31	87	13
Link Distance (ft)	879	879	1133	1133	961	961
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 414: Wyse Fork Rd & US 70 Bus

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	54	88
Average Queue (ft)	14	27
95th Queue (ft)	39	61
Link Distance (ft)	994	820
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	100	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 415: Burkett Rd & Wyse Fork Conn.

Movement	SB
Directions Served	LR
Maximum Queue (ft)	40
Average Queue (ft)	13
95th Queue (ft)	34
Link Distance (ft)	757
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 416: Service Rd/Kornegay St & US 70 Bus

Movement	EB	EB	NB	NB	SB	SB
Directions Served	LT	R	T	R	L	T
Maximum Queue (ft)	134	65	38	18	41	29
Average Queue (ft)	62	16	4	2	12	2
95th Queue (ft)	118	49	21	12	35	15
Link Distance (ft)	902	902	979	979	772	772
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 417: Burkett / Kornegay/Kornegay St & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	L	T	T	R
Maximum Queue (ft)	66	73	55	40	27	58
Average Queue (ft)	21	20	12	3	3	9
95th Queue (ft)	52	55	38	21	15	35
Link Distance (ft)	885	885	772	772	921	921
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 0

APPENDIX J

2040 Build Alternative 63

Peak Hour Traffic Volume Development and

FREEVAL-E, Synchro & SimTraffic Reports

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2040 Build Alternative 63
Peak Hour Traffic Volume
Development

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Alternative 63

Volume Development

A project-level traffic forecast, titled "Traffic Forecast Technical Memorandum, Kinston Bypass Alternatives Study", was prepared and finalized in November, 2016. This traffic forecast was used to provide peak hour volumes for the analysis of the selected alternatives in this memorandum. The traffic forecast is included in **Attachment A**.

The Intersection Analysis Utility (IAU), provided by NCDOT, was utilized to calculate AM and PM Peak Hour volumes for at-grade intersections (ramp terminals and any intersections within 1,000 feet of ramp terminals), interchange ramps, and freeway segments within interchanges. Peak hour volumes for freeway segments between interchanges were calculated by finding the forecasted daily two-way volumes along the link, then breaking the daily volume down by multiplying it by the Design Hour Volume Percentage (K), and the Peak Hour Directional Split (D).

The traffic forecast was completed prior to the inclusion of all turning movements at the interchange of US 70 Business and CF Harvey Parkway. To correct for this, traffic volumes have been rerouted to project volumes onto these ramps based on engineering assumptions. It was assumed that, prior to the inclusion of the two ramps, traffic on US 70 Business EB wishing to access CF Harvey Parkway SB would travel through the interchange to the east, make a U-turn back to US 70 Business WB, and use the loop ramp to CF Harvey Parkway SB. Similarly, traffic on CF Harvey Parkway Extension NB wishing to access US 70 Business WB would first take the ramp to US 70 Business EB, perform a U-turn, and then travel through the interchange on US 70 Business WB. It was assumed that a total of 500 vehicles per day would make these turning maneuvers. Therefore, 500 vehicles were transferred from the southeast turning quadrant and moved to the southwest turning quadrant in the IAU for this interchange. The volume on the east leg of the IAU was also adjusted accordingly to provide volume balanced within the interchange.

It should be noted that two partial three-leg interchanges exist for Alternative 63: US 70 at US 70 Business West of Kinston, and US 70 at NC 148 (CF Harvey Parkway) Extension. For these interchanges, the IAU was not utilized because the two turning movement volumes are assumed to simply be the upstream or downstream broken-out link volumes. All of these volumes are shown in **BLACK** in **Figures 9A-9G**.

US 70 and CF Harvey Parkway Extension Freeway Analysis

FREEVAL-E does not use a Peak Hour Factor (PHF) to adjust the peak hour volumes to reflect the peak 15-minute period. Additionally, FREEVAL-E requires balanced peak hour mainline volumes, since only the beginning freeway segment and subsequent ramps have volume inputs. To provide peak 15-minute hourly flow rates for the analysis in FREEVAL-E, each of the peak hour volumes calculated for the freeway segments and ramps was divided by 0.90, which is the recommended PHF in the NCDOT Congestion Management Capacity Analysis Guidelines. To balance the peak hour volumes to use with FREEVAL-E, the highest peak 15-minute hourly flow rate was located along the US 70 corridor within the study area. Once this was located, the mainline US 70 volumes were adjusted in each direction to the eastern and western ends of the network by adding and subtracting the relevant ramp volumes.

For Alternative 63, the location used as the "hold point" for balancing purposes on US 70 was the segment between Jim Sutton Road / Willie Measley Road and US 70 Business (west of Kinston). For CF Harvey Parkway Extension, the volumes were balanced using the adjoining segment to US 70 as the hold point, and balancing northward. These volume adjustments are shown in **BLUE** in **Figures 9A-9G**. The ensuing pages of this appendix detail the following step-by-step process used to calculate the volumes used, as well as the various volume redistributions required by the forecast imbalances and mismatches with the roadway designs:

Step 1 – Freeway segment volumes between interchanges were calculated by multiplying the two-way daily volumes by the K and D factors.

Step 2 – Volumes for interchange ramps, and freeway segments inside interchanges were collected from the IAU breakout sheets.

Step 3 – The volumes collected in Step 2 were divided by the NCDOT default PHF of 0.90 to account for the fact that FREEVAL-E does not factor in the PHF, and the highest calculated freeway volume location was used as the base point with which to balance the US 70 freeway corridor.

Step 4 – The volumes of the subsequent freeway segments were adjusted to allow for a balanced peak hour network in both directions, as well as along CF Harvey Parkway Extension.

The current functional designs for Alternative 63 show ramps that accommodate only six of the eight turning movements at the interchange of US 70 Business and CF Harvey Parkway. During the analysis of these alternatives, it was decided that the interchange should include ramps to accommodate all turning movements. Therefore, a loop ramp from CF Harvey Parkway Extension NB to US 70 Business WB would be included as well as a ramp from US 70 Business EB to CF Harvey Parkway SB.

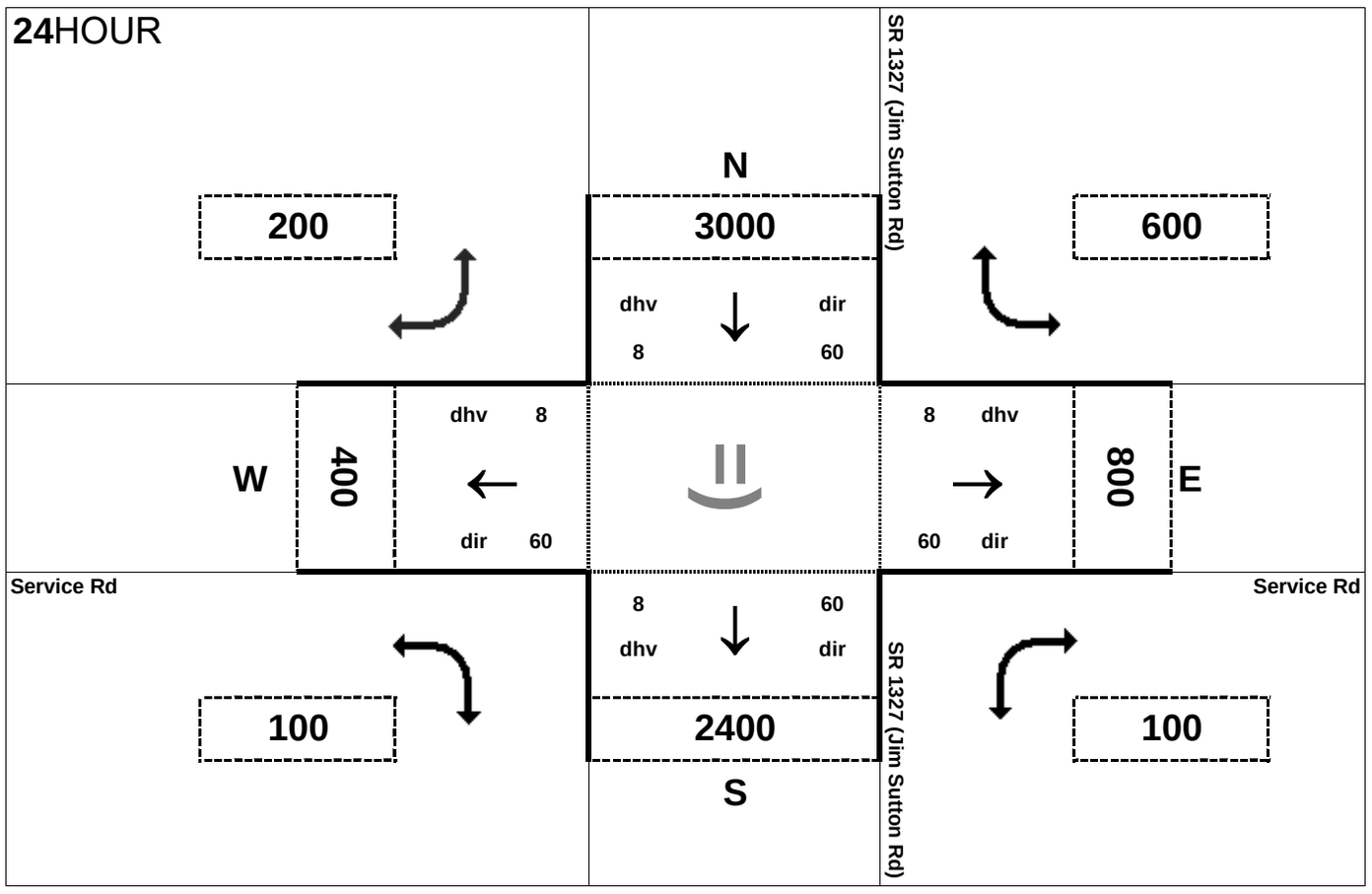
Peak Hour Volume Breakouts Report:
401 Intersection of SR 1327 (Jim Sutton Rd) at Service Rd

Traffic Forecast Release Date:
November-16

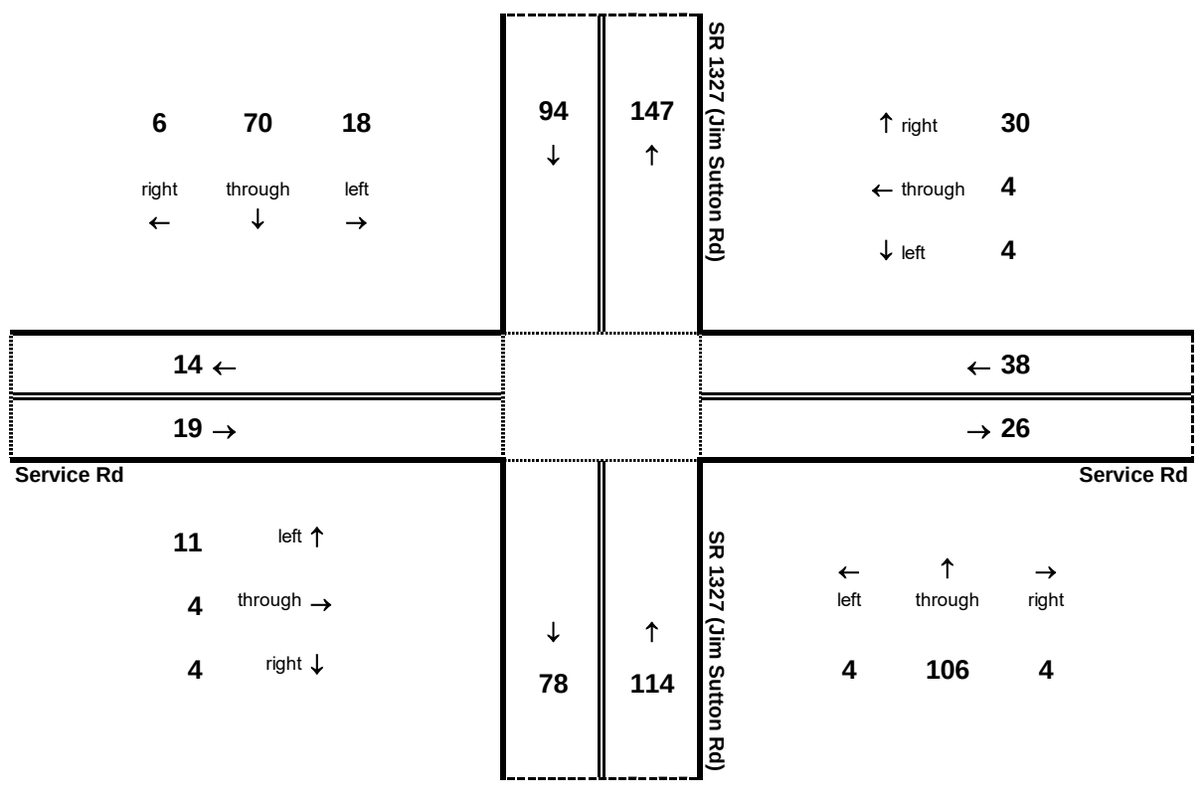
Traffic Data Year:
2040 Build Alt 63

Project:
R-2553

24HOUR

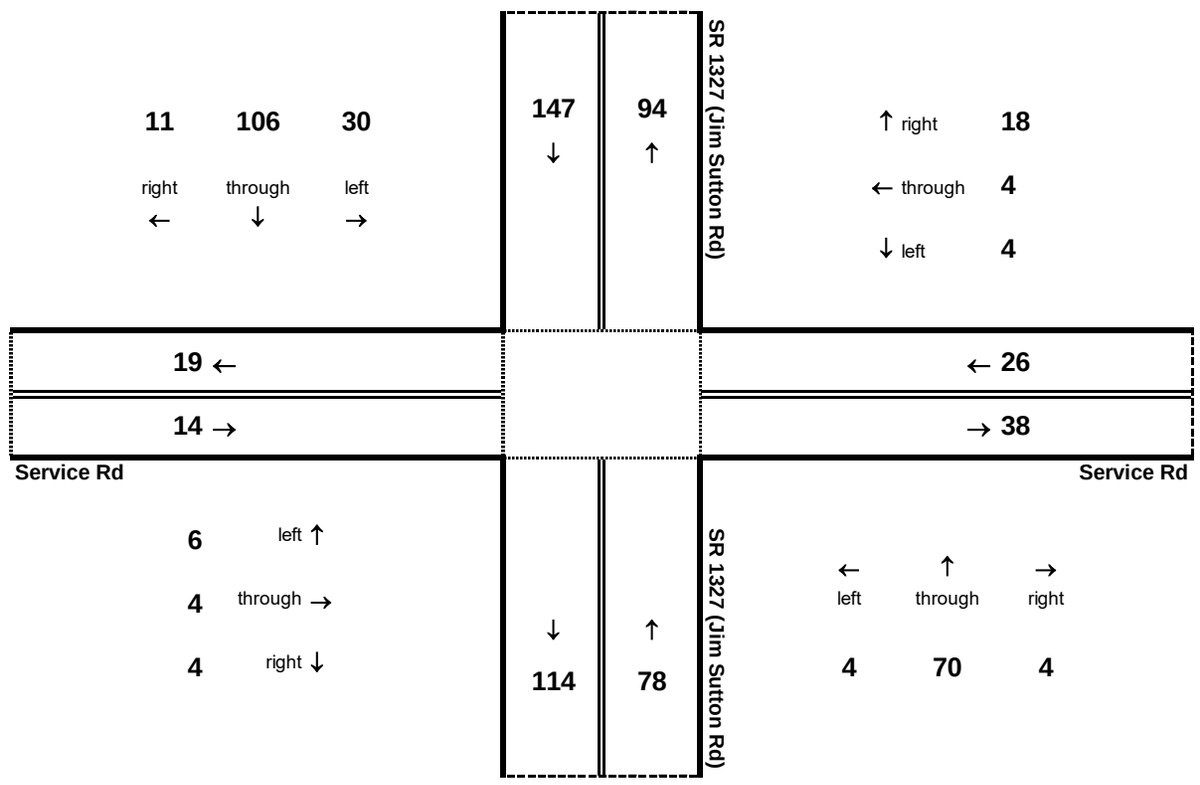


AMPEAK



AM peak hour inflow is 264 vehicles. AM peak hour outflow is 264 vehicles.

PMPEAK



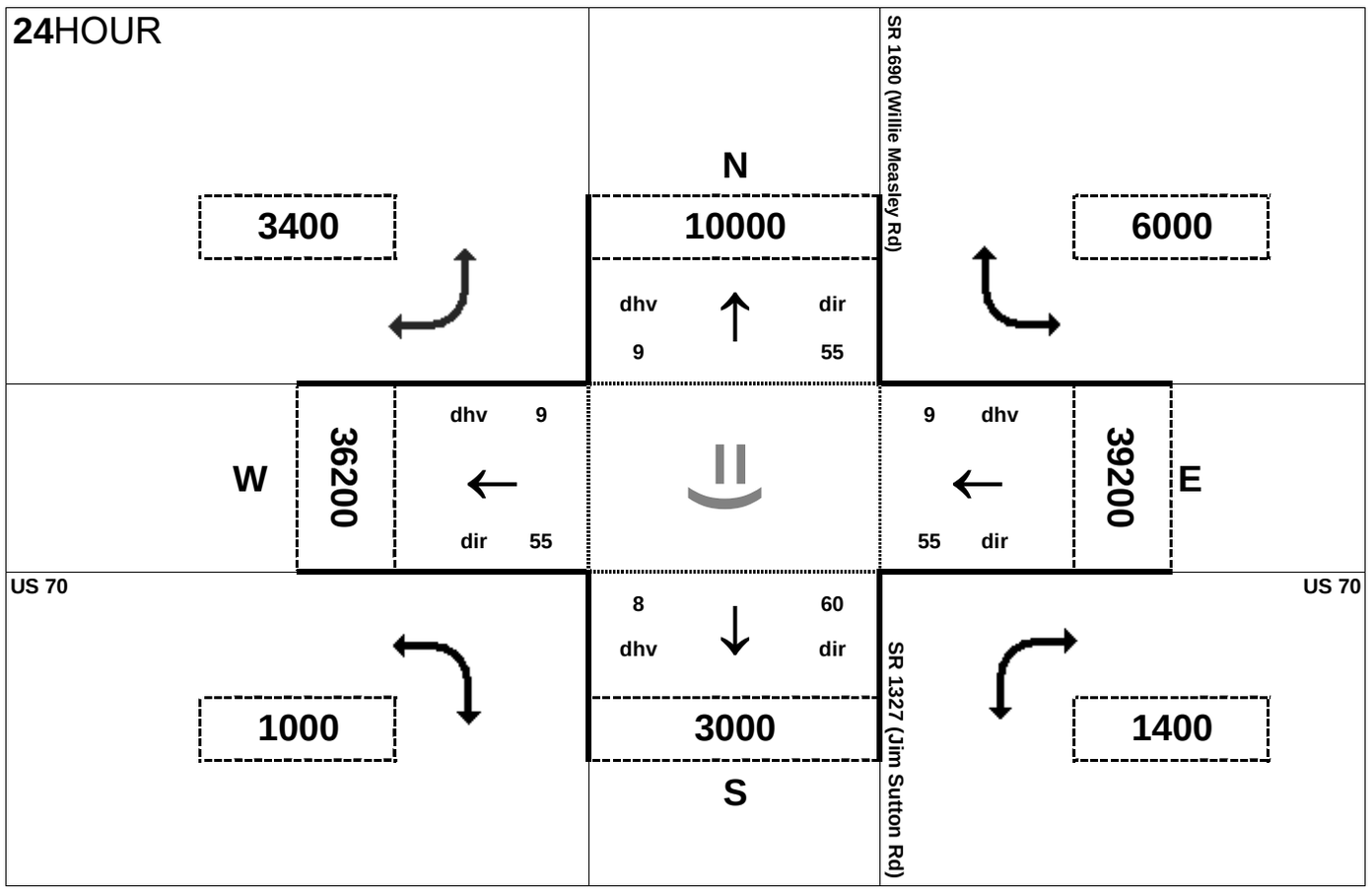
PM peak hour inflow is 264 vehicles. PM peak hour outflow is 264 vehicles.

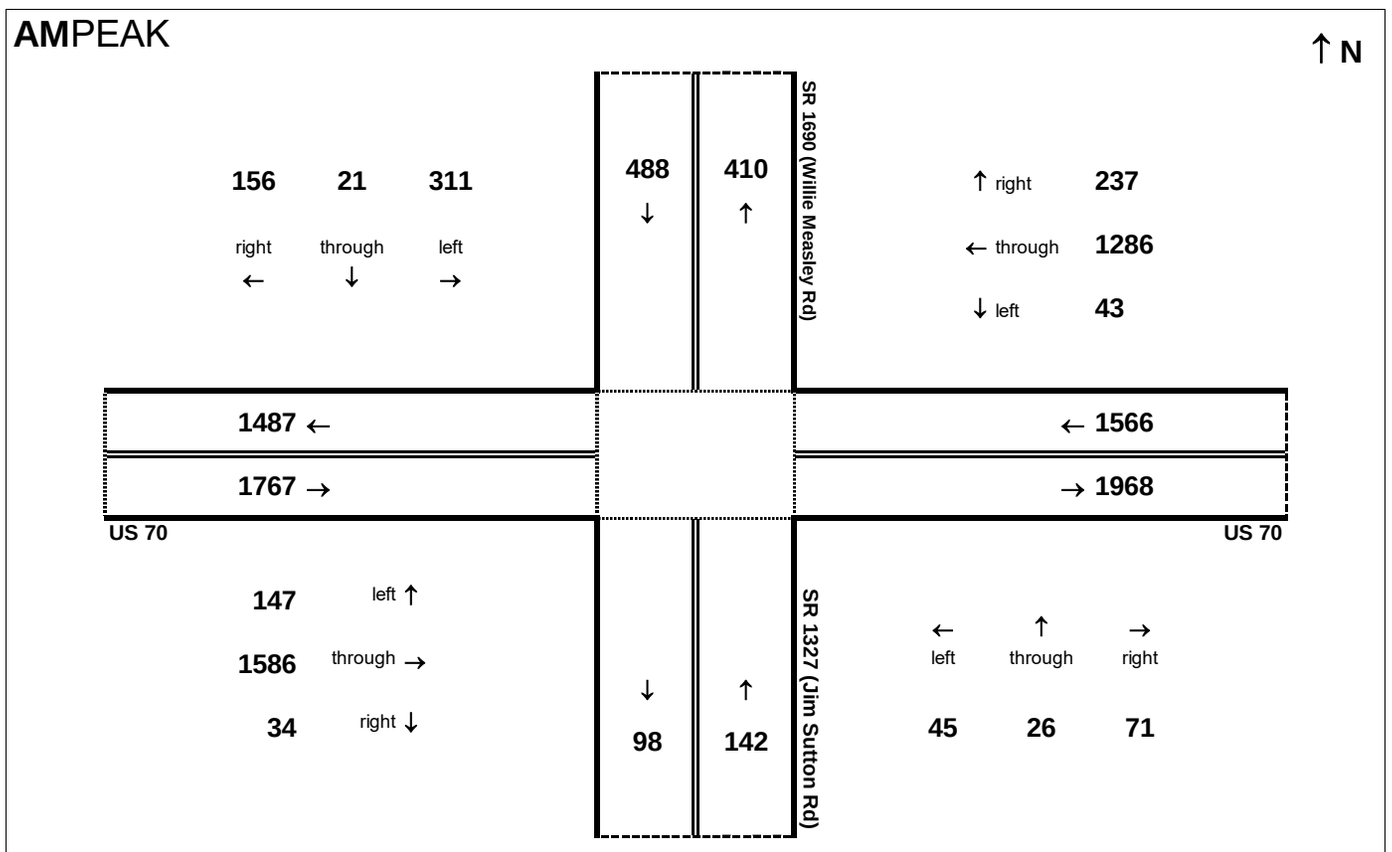
Peak Hour Volume Breakouts Report:
402-3 Intersection of US 70 and Willie Measley Rd / Jim Sutton Rd

Traffic Forecast Release Date:
November-16

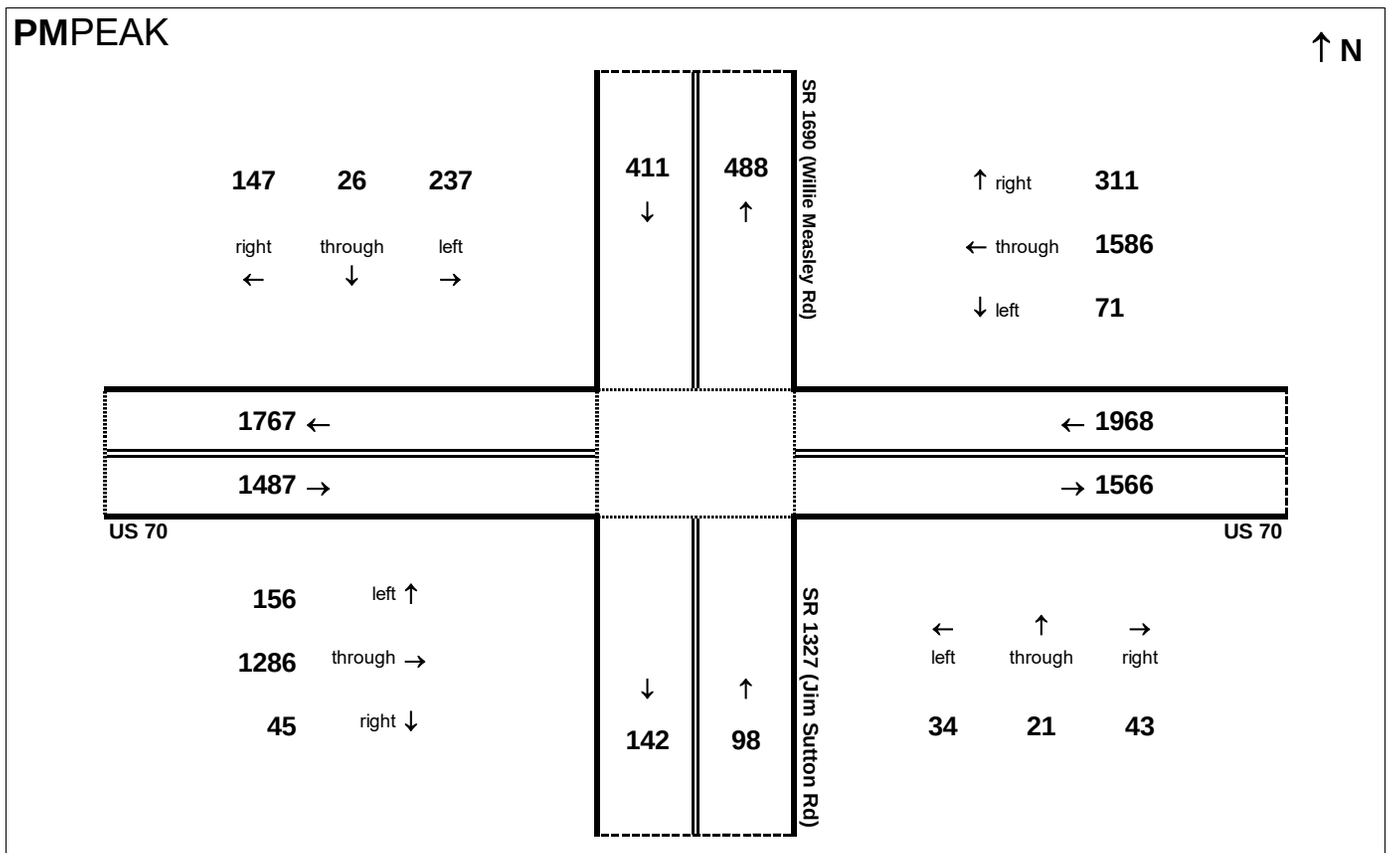
Traffic Data Year:
2040 Build Alt 63

Project:
R-2553





AM peak hour inflow is 3963 vehicles. AM peak hour outflow is 3963 vehicles.



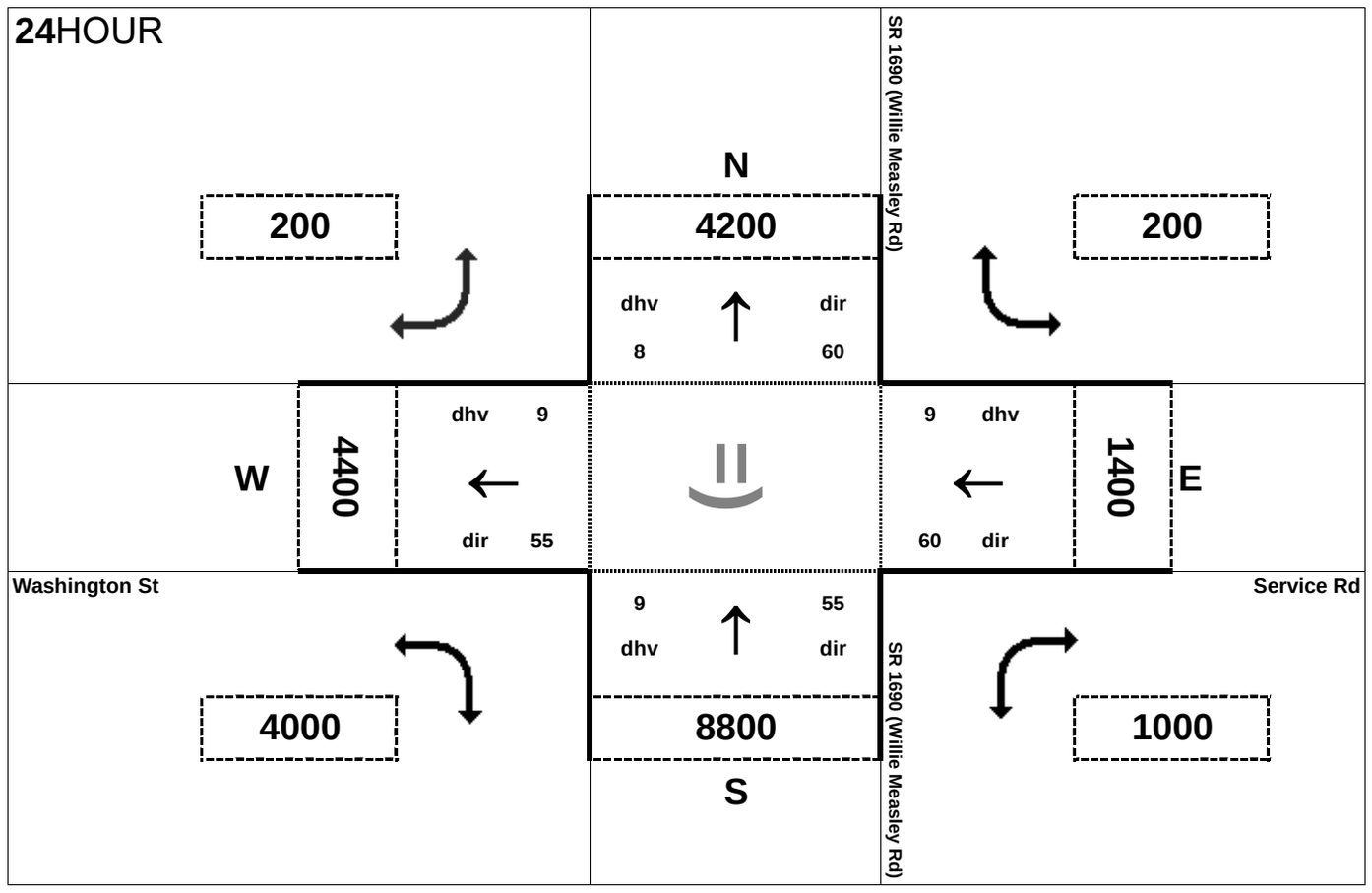
PM peak hour inflow is 3963 vehicles. PM peak hour outflow is 3963 vehicles.

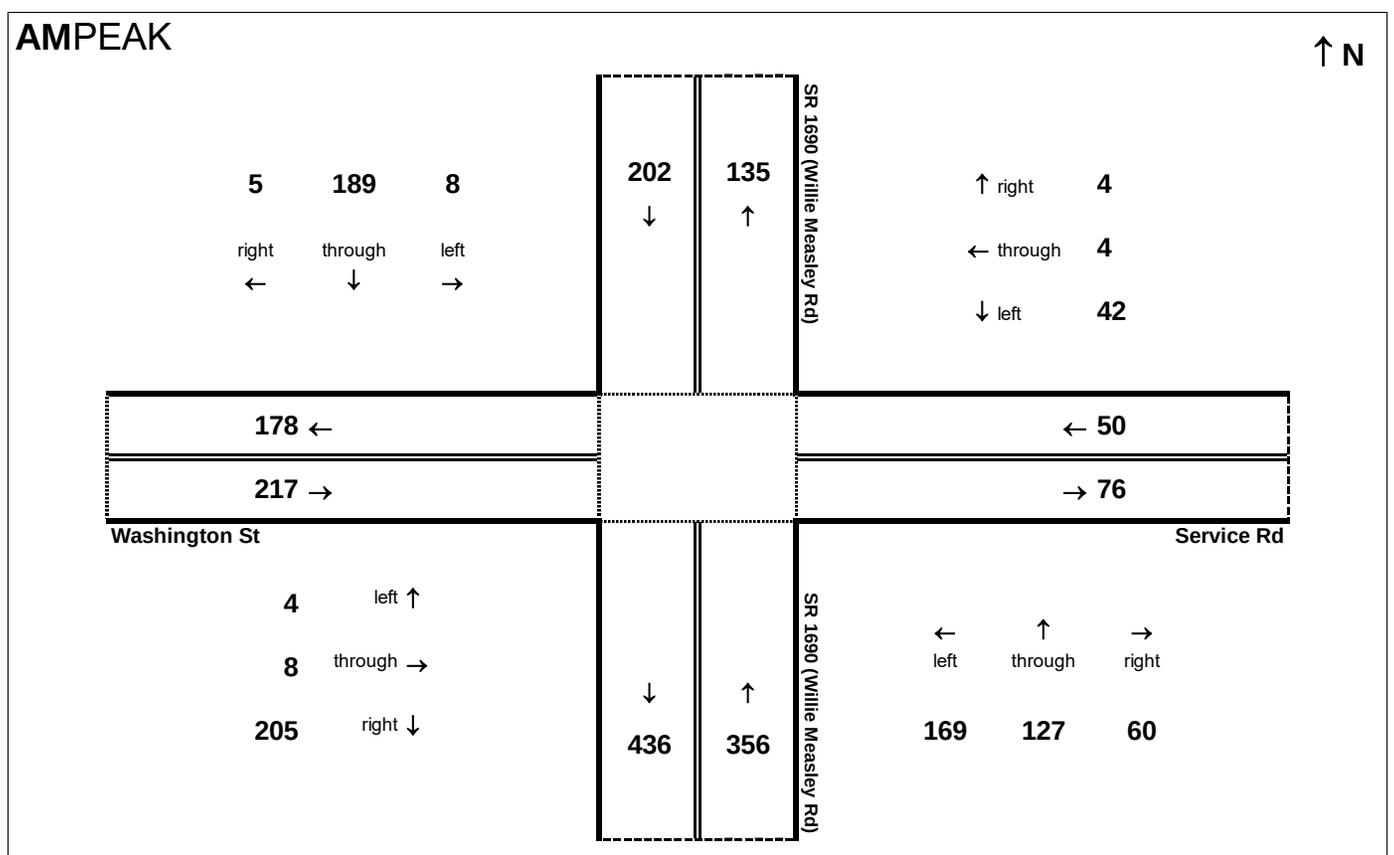
Peak Hour Volume Breakouts Report:
404 Intersection of SR 1690 (Willie Measley Rd) at SR 1603 (Washington St)

Traffic Forecast Release Date:
November-16

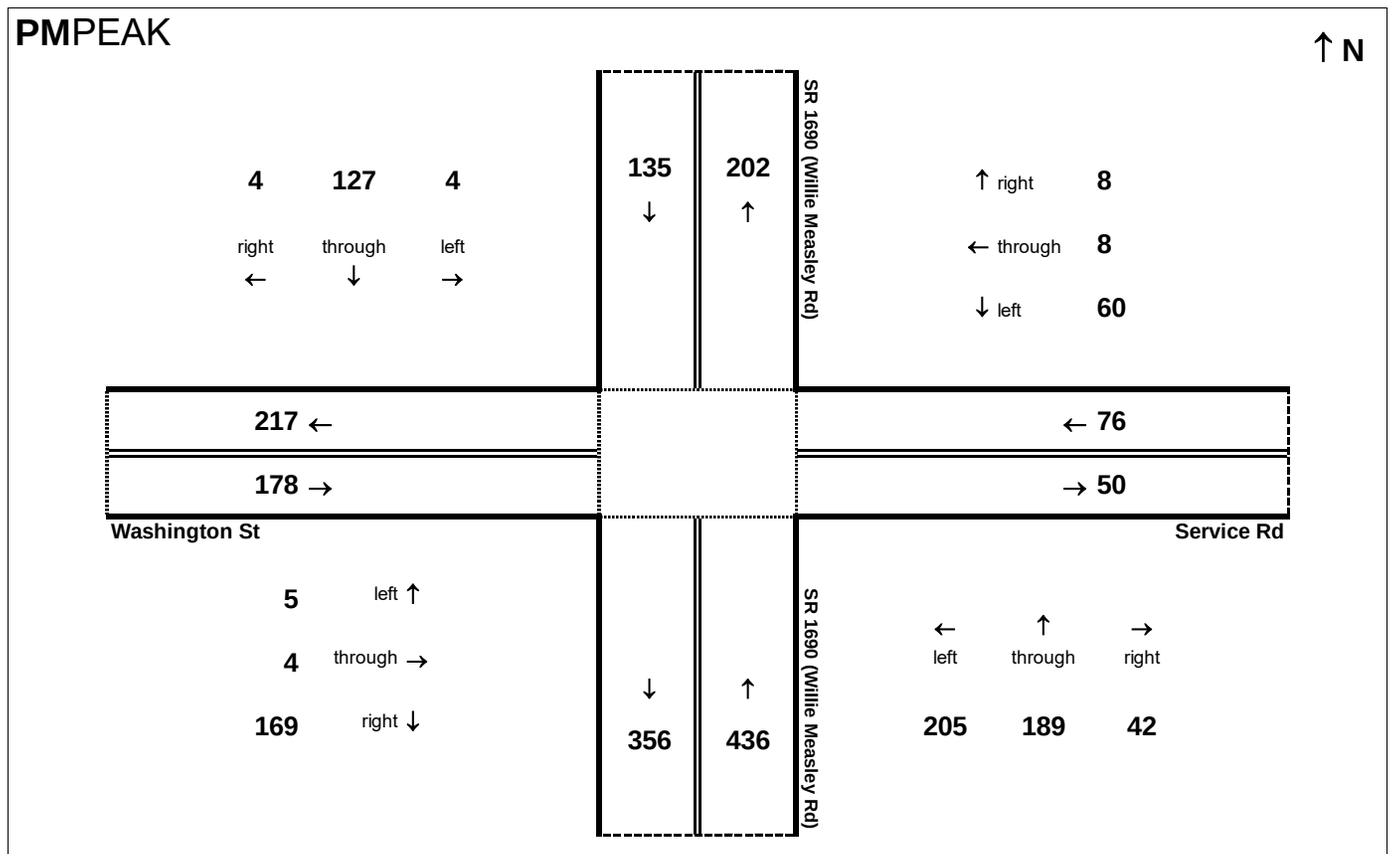
Traffic Data Year:
2040 Build Alt 63

Project:
R-2553





AM peak hour inflow is 825 vehicles. AM peak hour outflow is 825 vehicles.



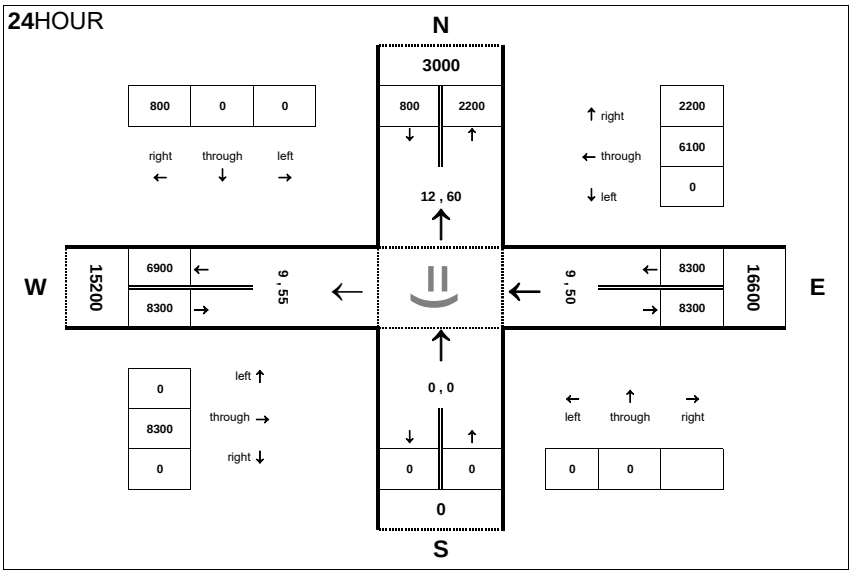
PM peak hour inflow is 825 vehicles. PM peak hour outflow is 824 vehicles.

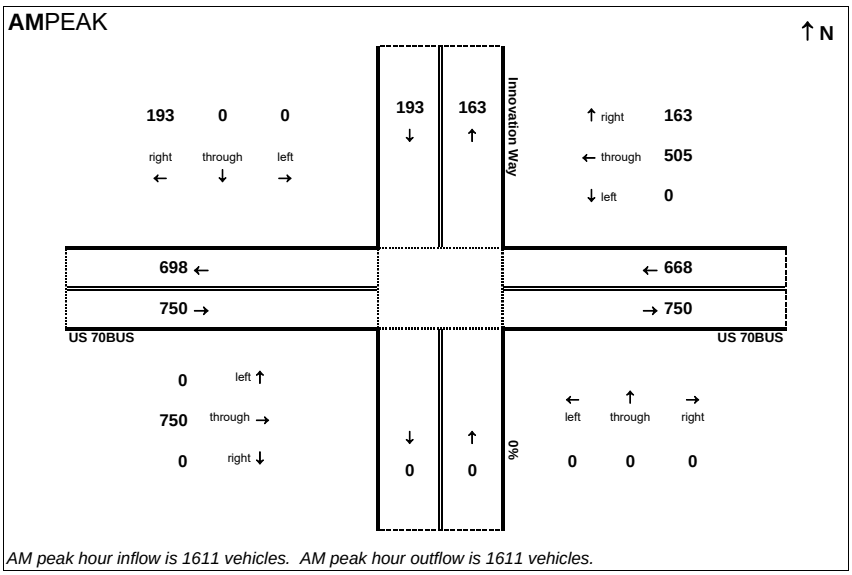
Peak Hour Volume Breakouts Report:
405 Intersection of US 70BUS and Innovation Way

Traffic Forecast Release Date:
November-16

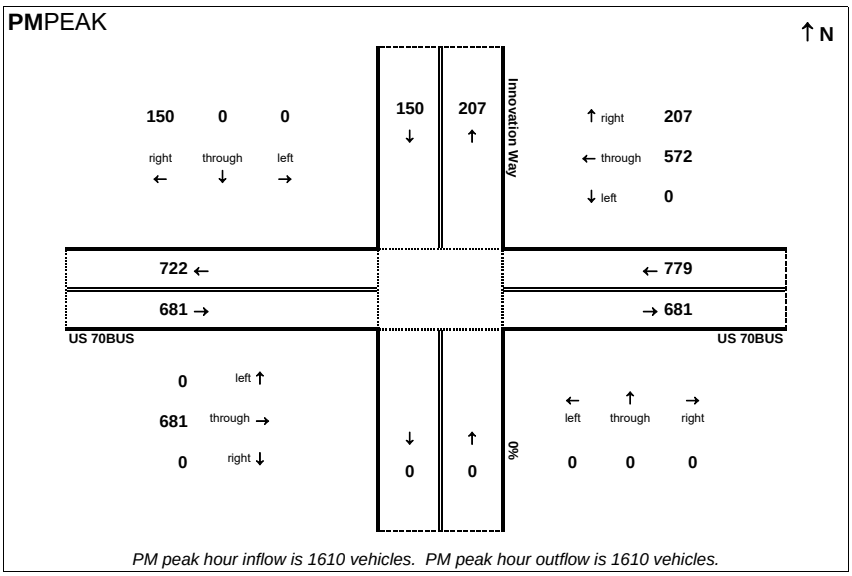
Traffic Data Year:
2040 Build Alt 63

Project:
R-2553





AM peak hour inflow is 1611 vehicles. AM peak hour outflow is 1611 vehicles.



PM peak hour inflow is 1610 vehicles. PM peak hour outflow is 1610 vehicles.

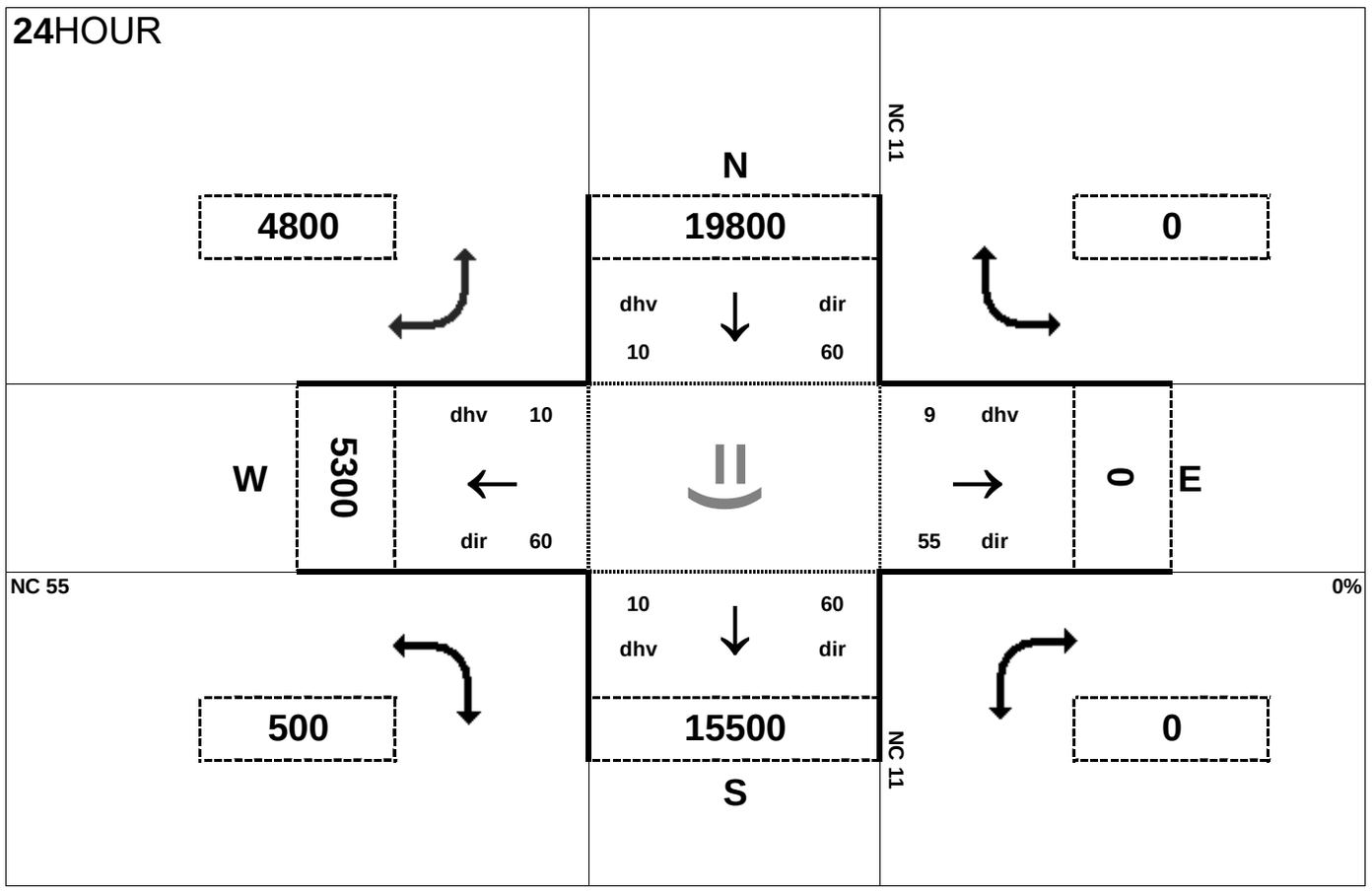
Peak Hour Volume Breakouts Report:
406 Intersection of NC 11 and NC 55

Traffic Forecast Release Date:
November-16

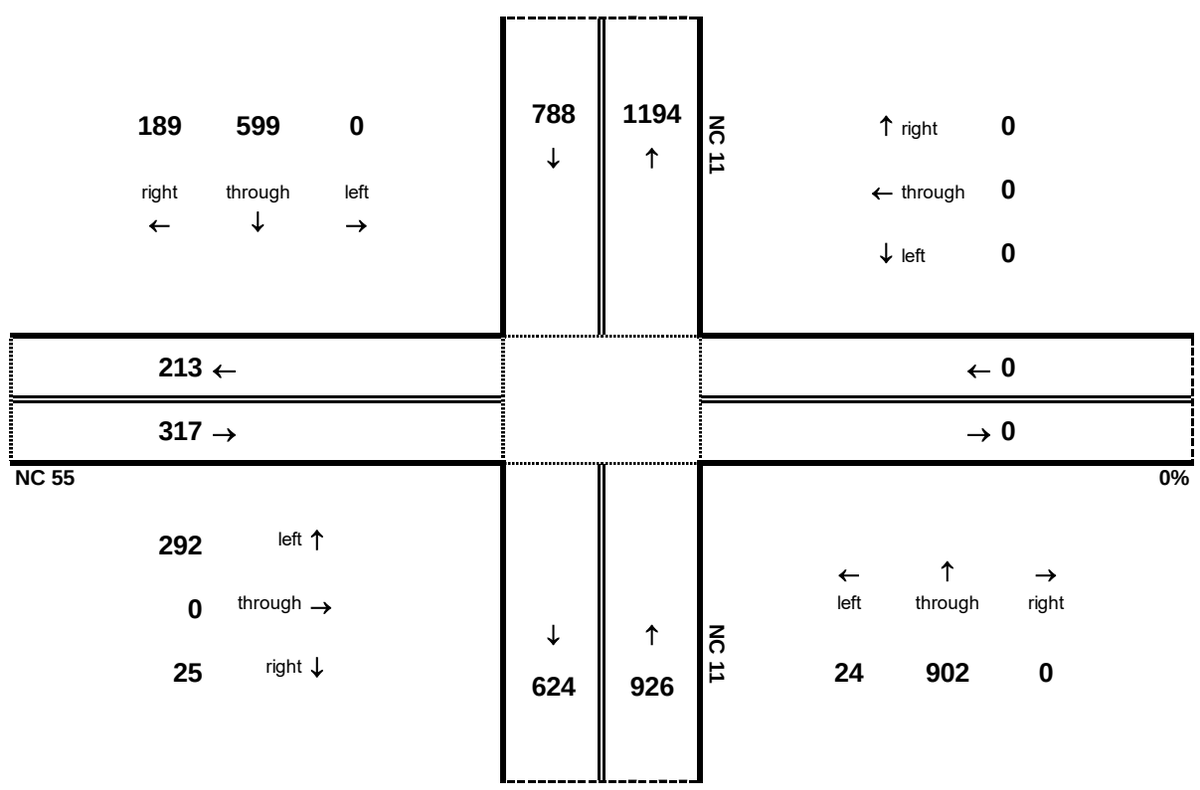
Traffic Data Year:
2040 Build Alt 63

Project:
R-2553

24HOUR

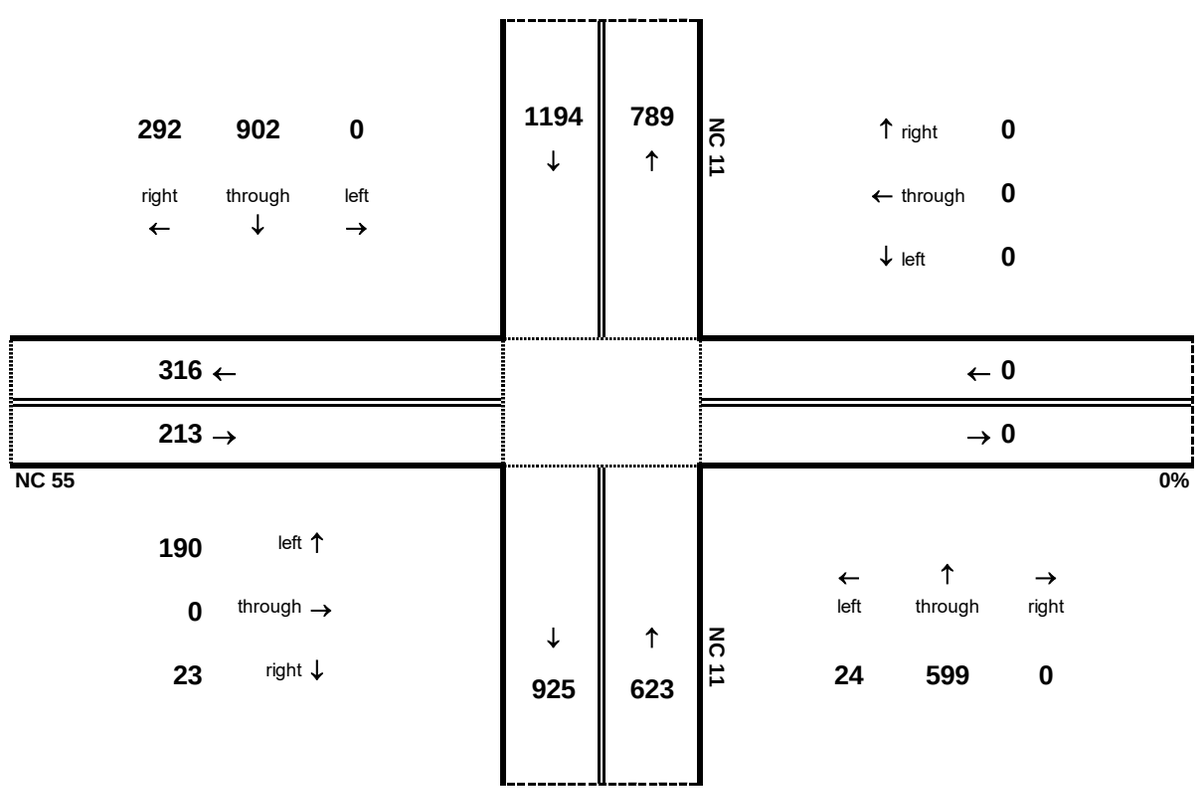


AMPEAK



AM peak hour inflow is 2031 vehicles. AM peak hour outflow is 2030 vehicles.

PMPEAK



PM peak hour inflow is 2030 vehicles. PM peak hour outflow is 2029 vehicles.

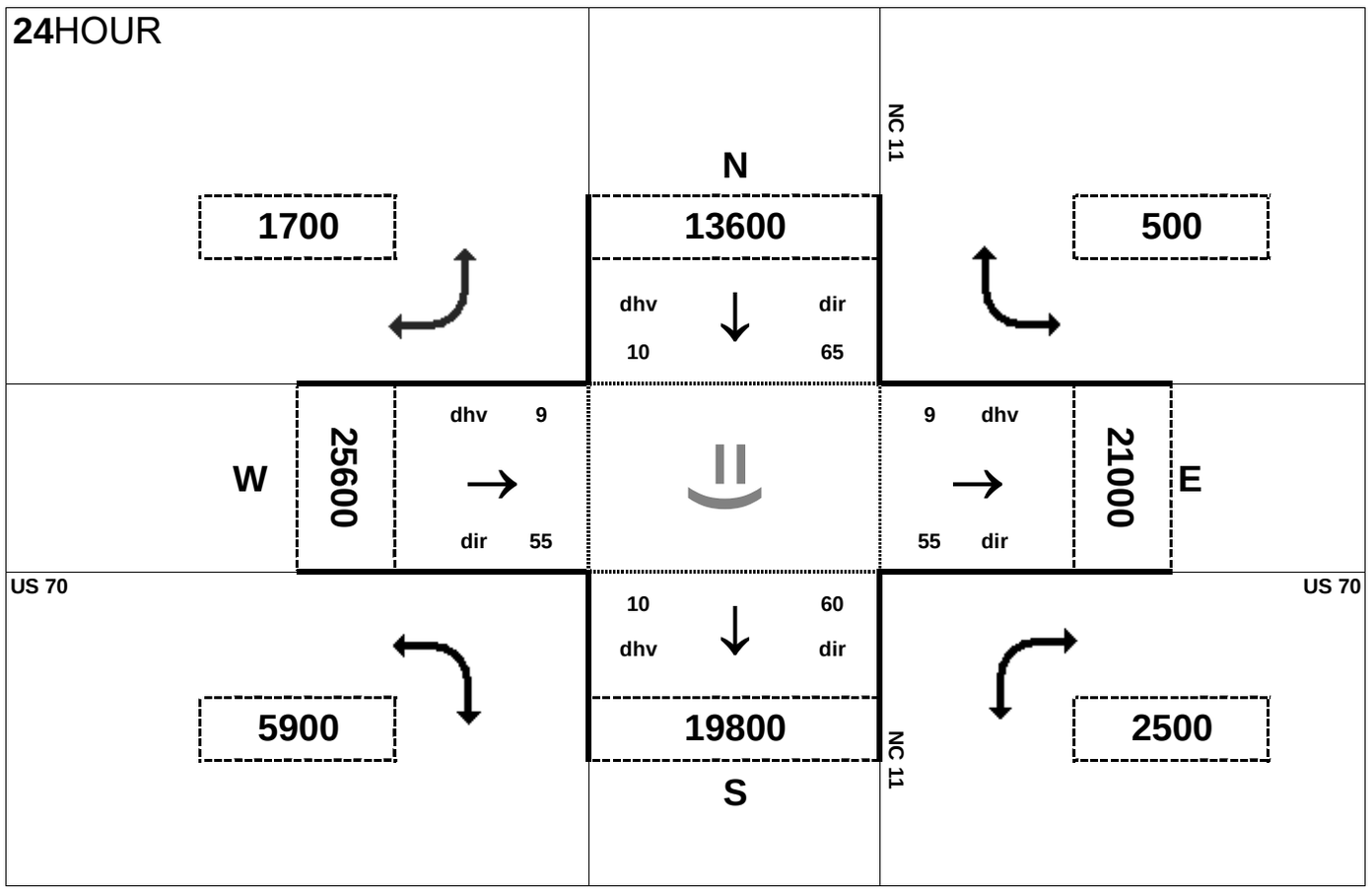
Peak Hour Volume Breakouts Report:
407-8 Intersection of US 70 and NC 11

Traffic Forecast Release Date:
November-16

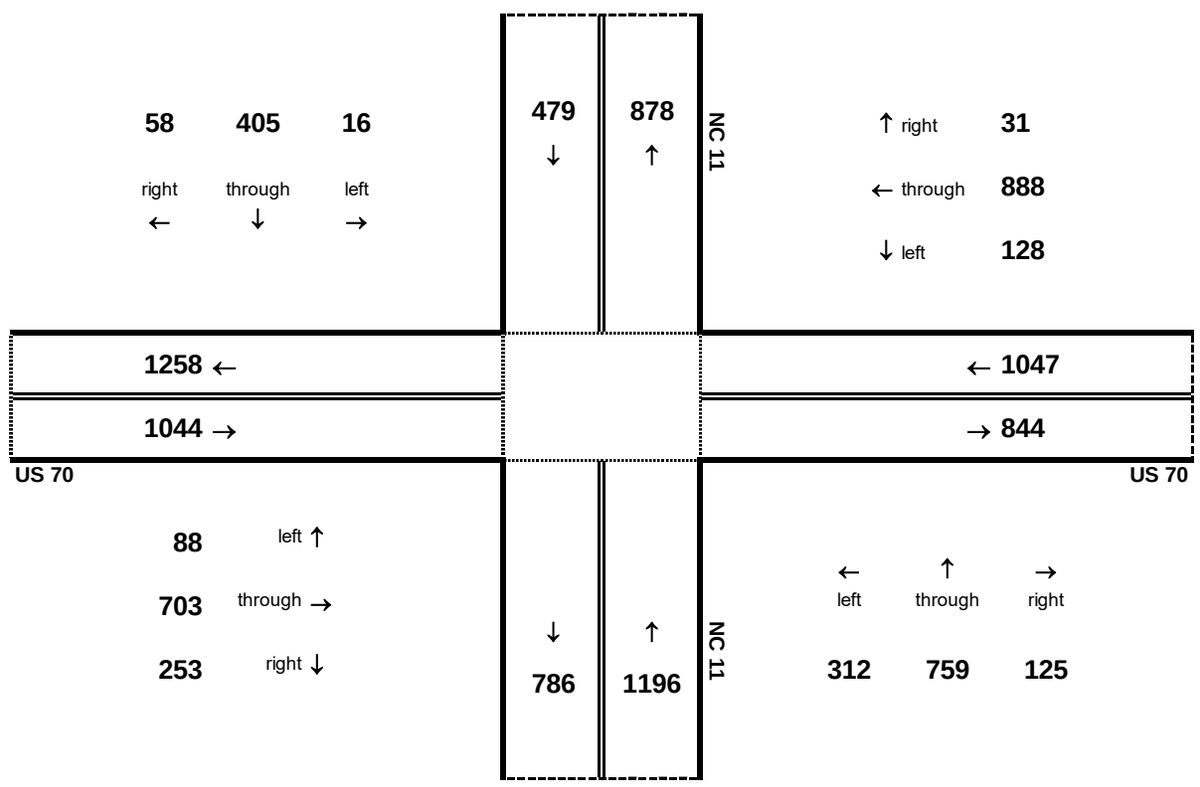
Traffic Data Year:
2040 Build Alt 63

Project:
R-2553

24HOUR

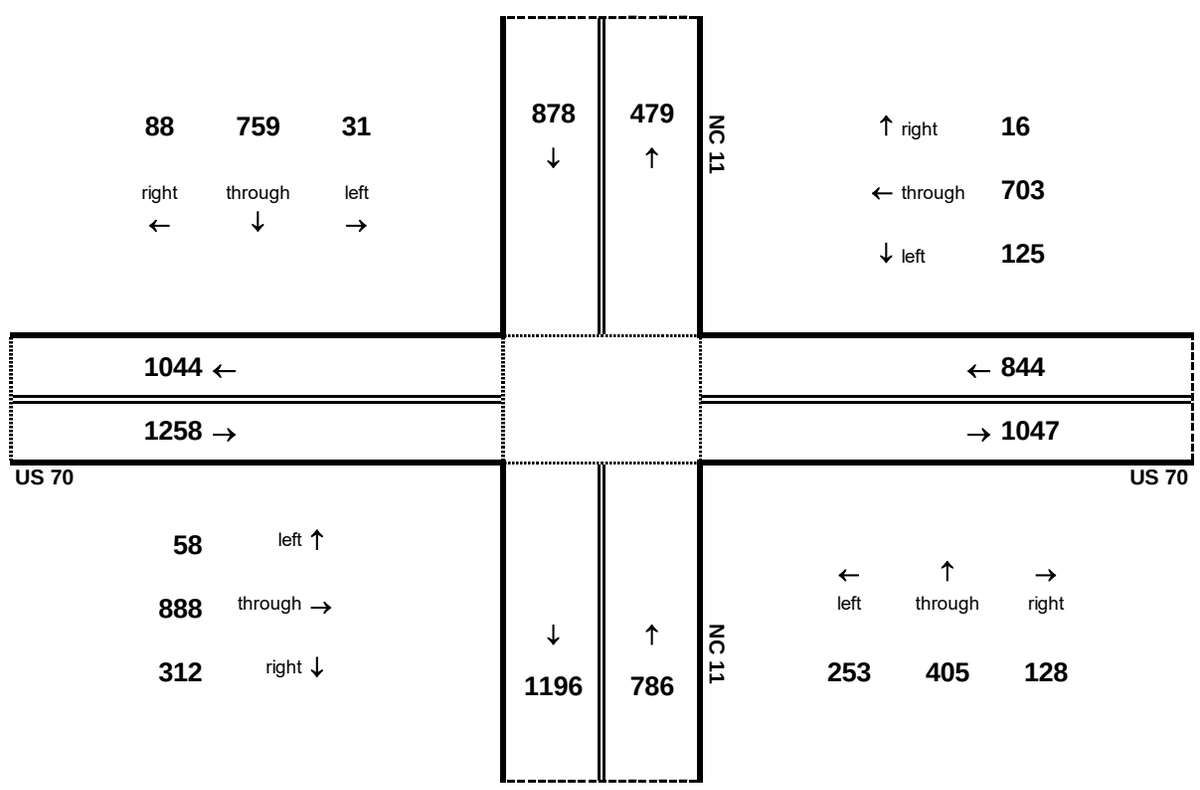


AMPEAK



AM peak hour inflow is 3766 vehicles. AM peak hour outflow is 3767 vehicles.

PMPEAK



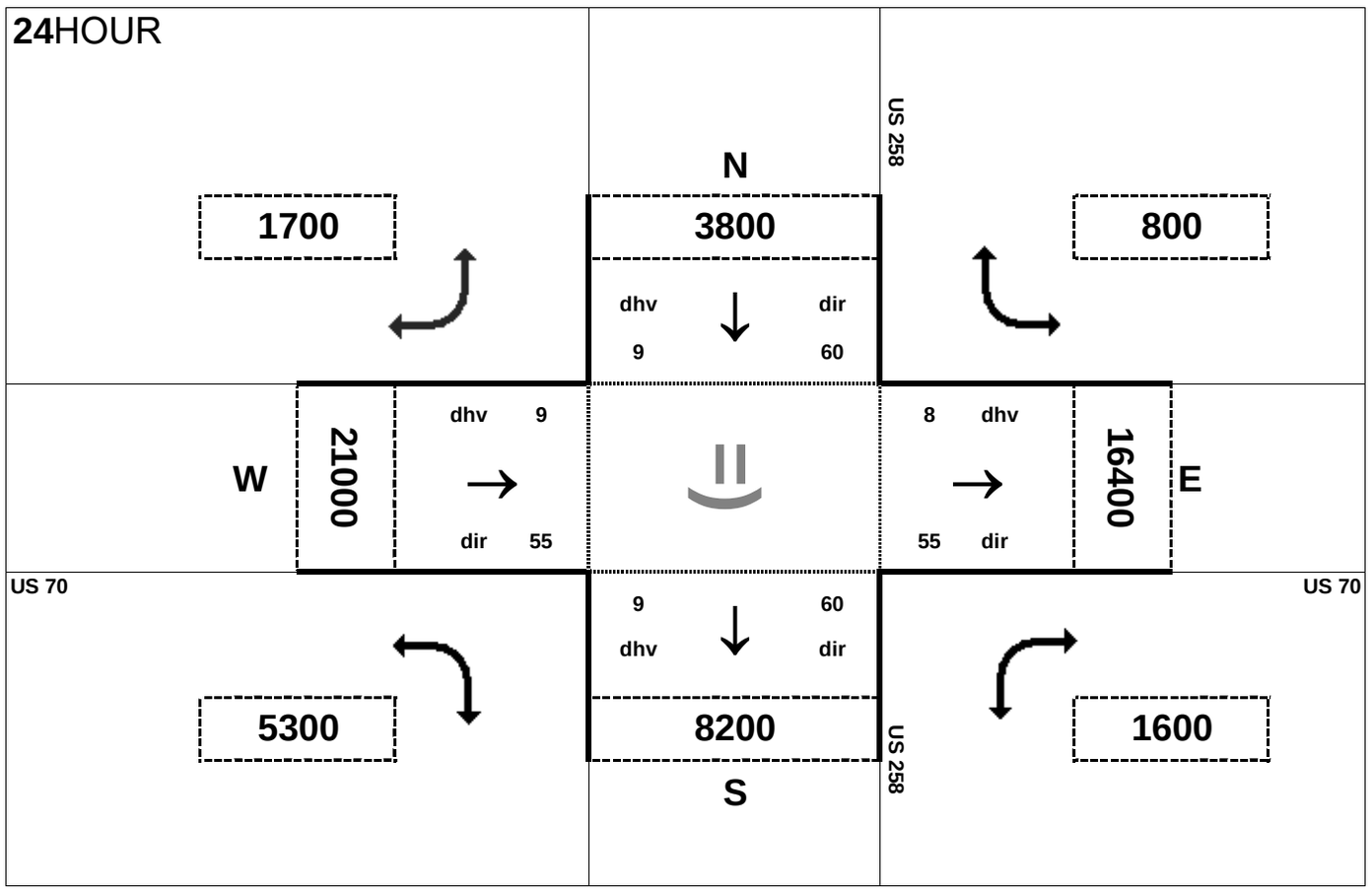
PM peak hour inflow is 3767 vehicles. PM peak hour outflow is 3766 vehicles.

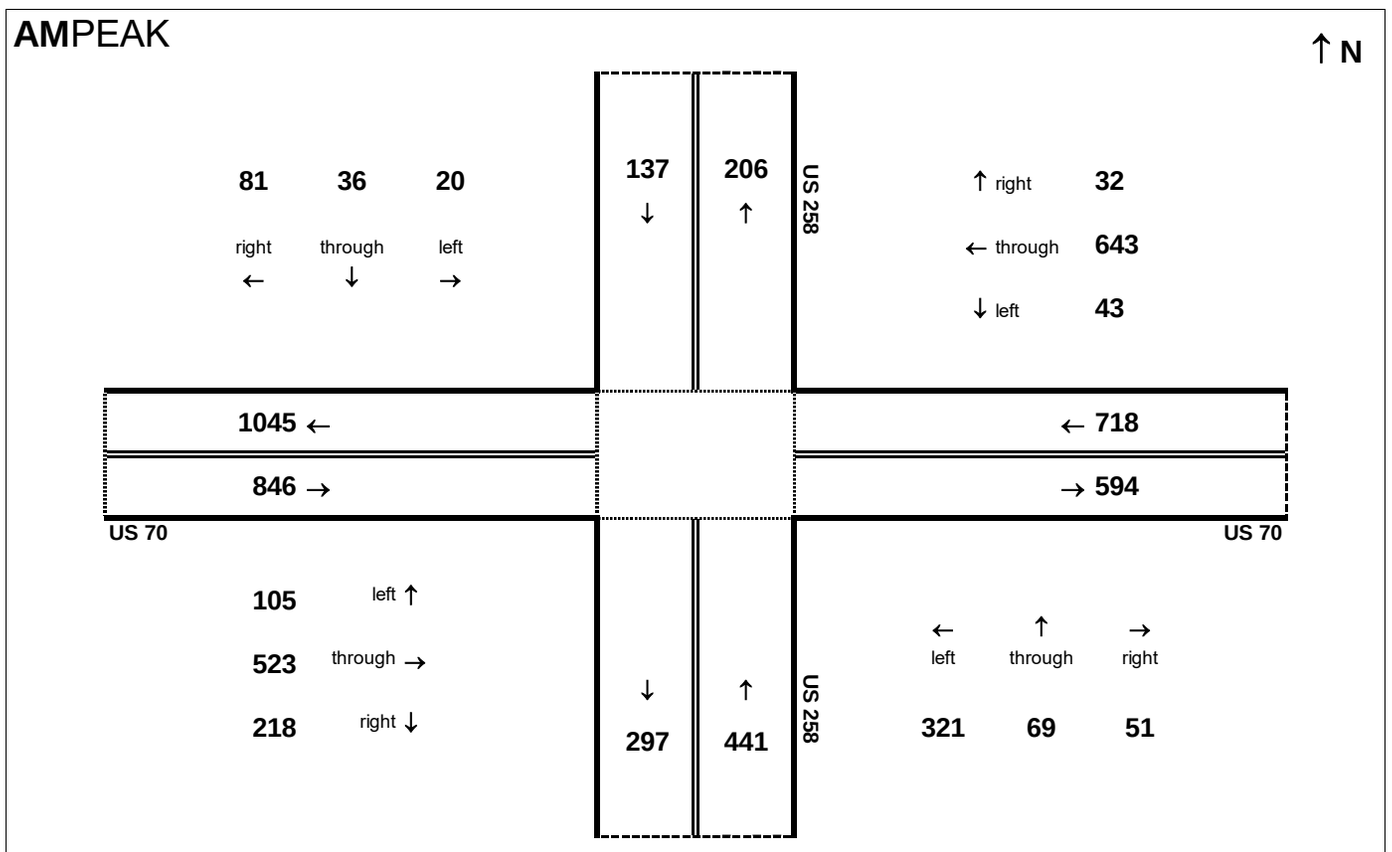
Peak Hour Volume Breakouts Report:
409-10 Intersection of US 70 and US 258

Traffic Forecast Release Date:
November-16

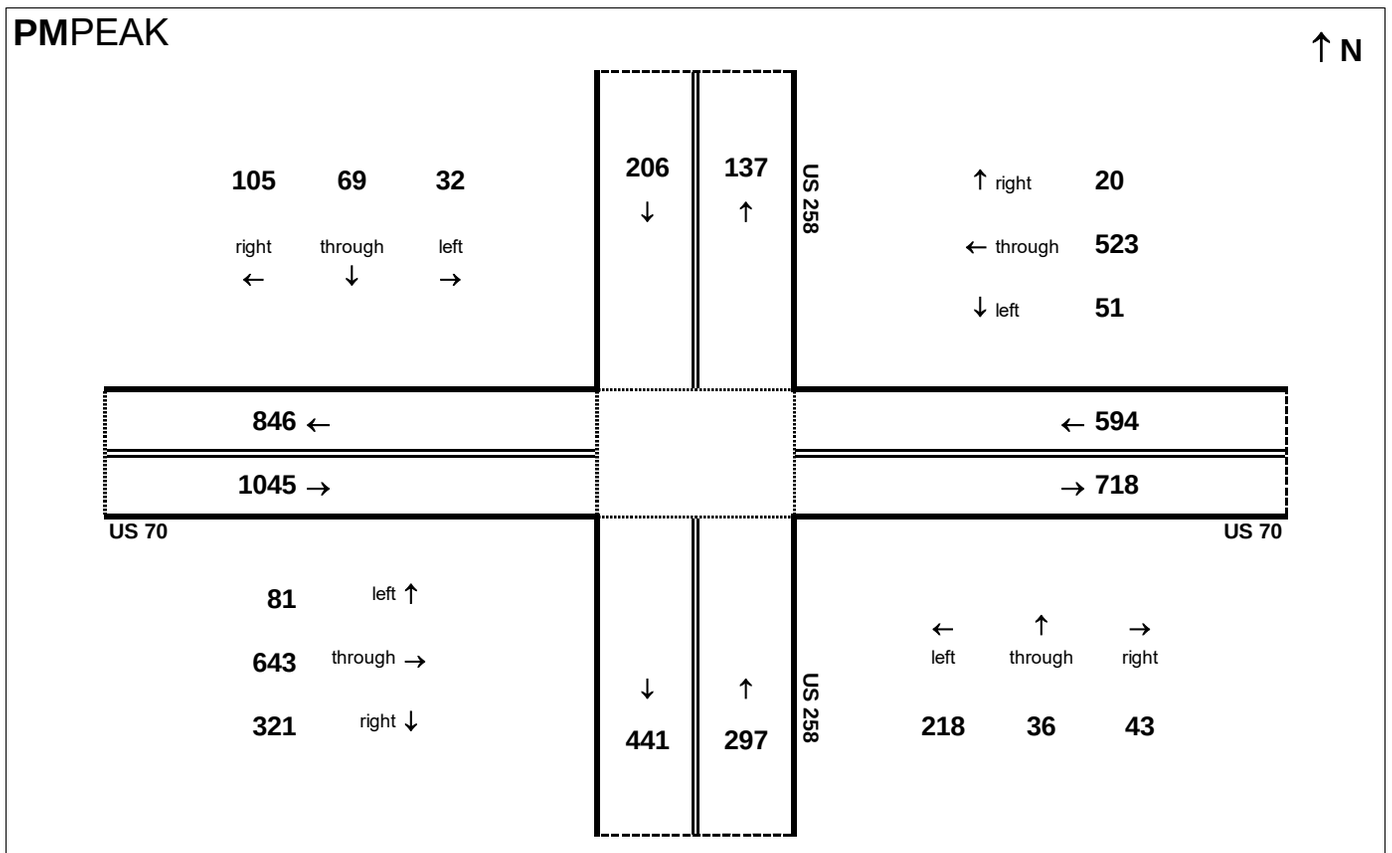
Traffic Data Year:
2040 Build Alt 63

Project:
R-2553





AM peak hour inflow is 2141 vehicles. AM peak hour outflow is 2141 vehicles.



PM peak hour inflow is 2141 vehicles. PM peak hour outflow is 2141 vehicles.

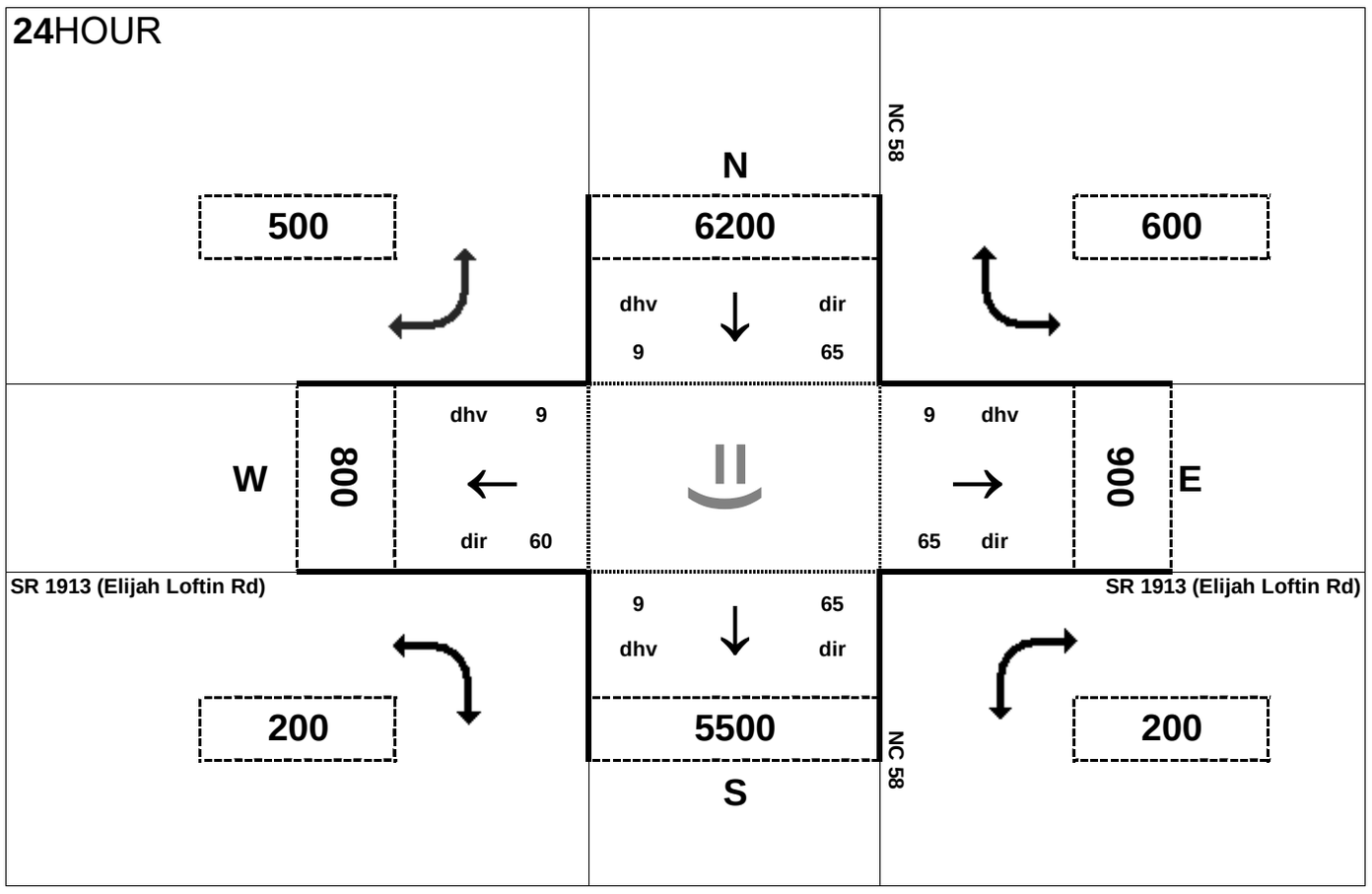
Peak Hour Volume Breakouts Report:
411 Intersection of NC 58 and SR 1913 (Elijah Loftin Rd)

Traffic Forecast Release Date:
November-16

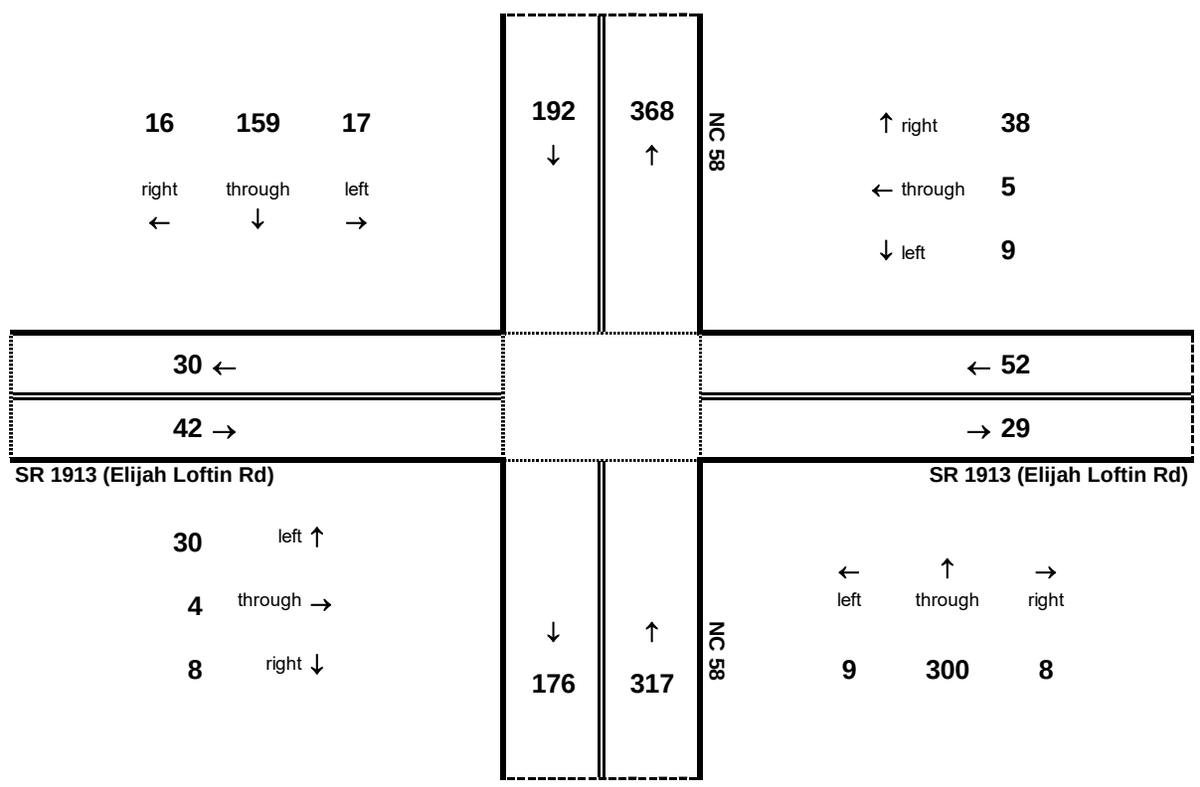
Traffic Data Year:
2040 Build Alt 63

Project:
R-2553

24HOUR

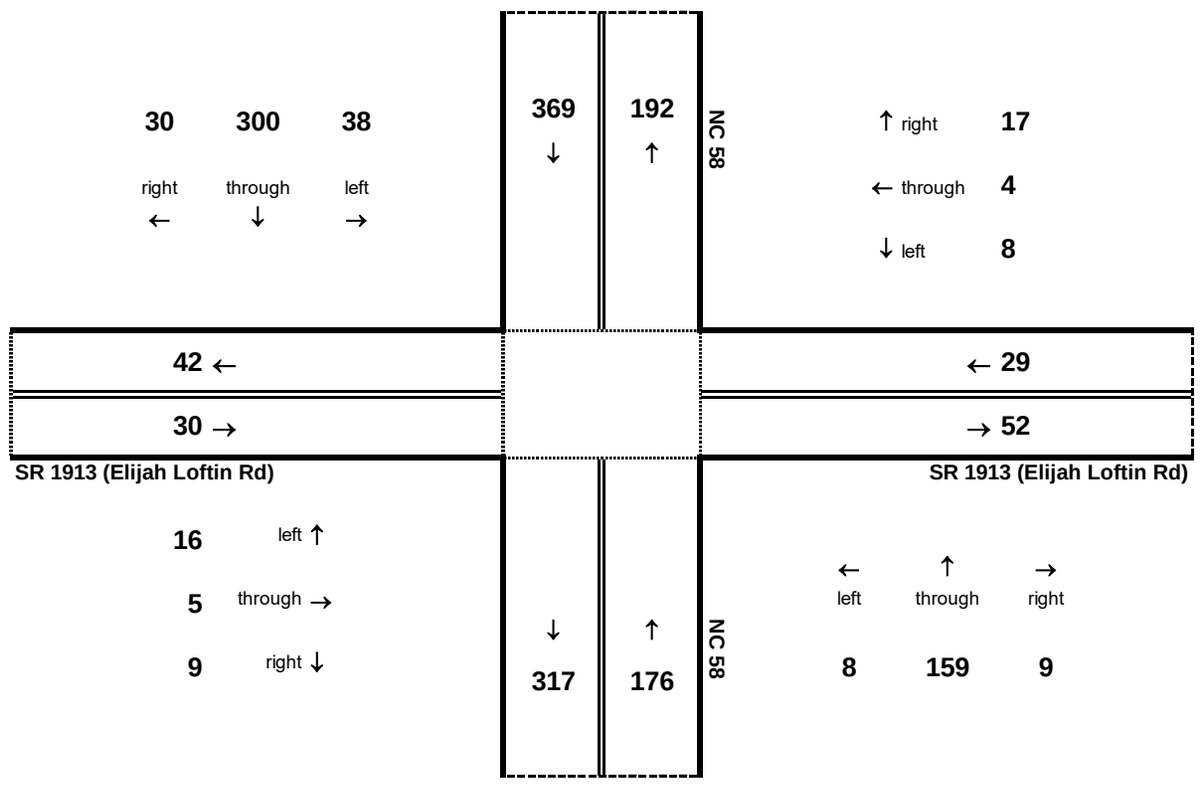


AMPEAK



AM peak hour inflow is 604 vehicles. AM peak hour outflow is 603 vehicles.

PMPEAK



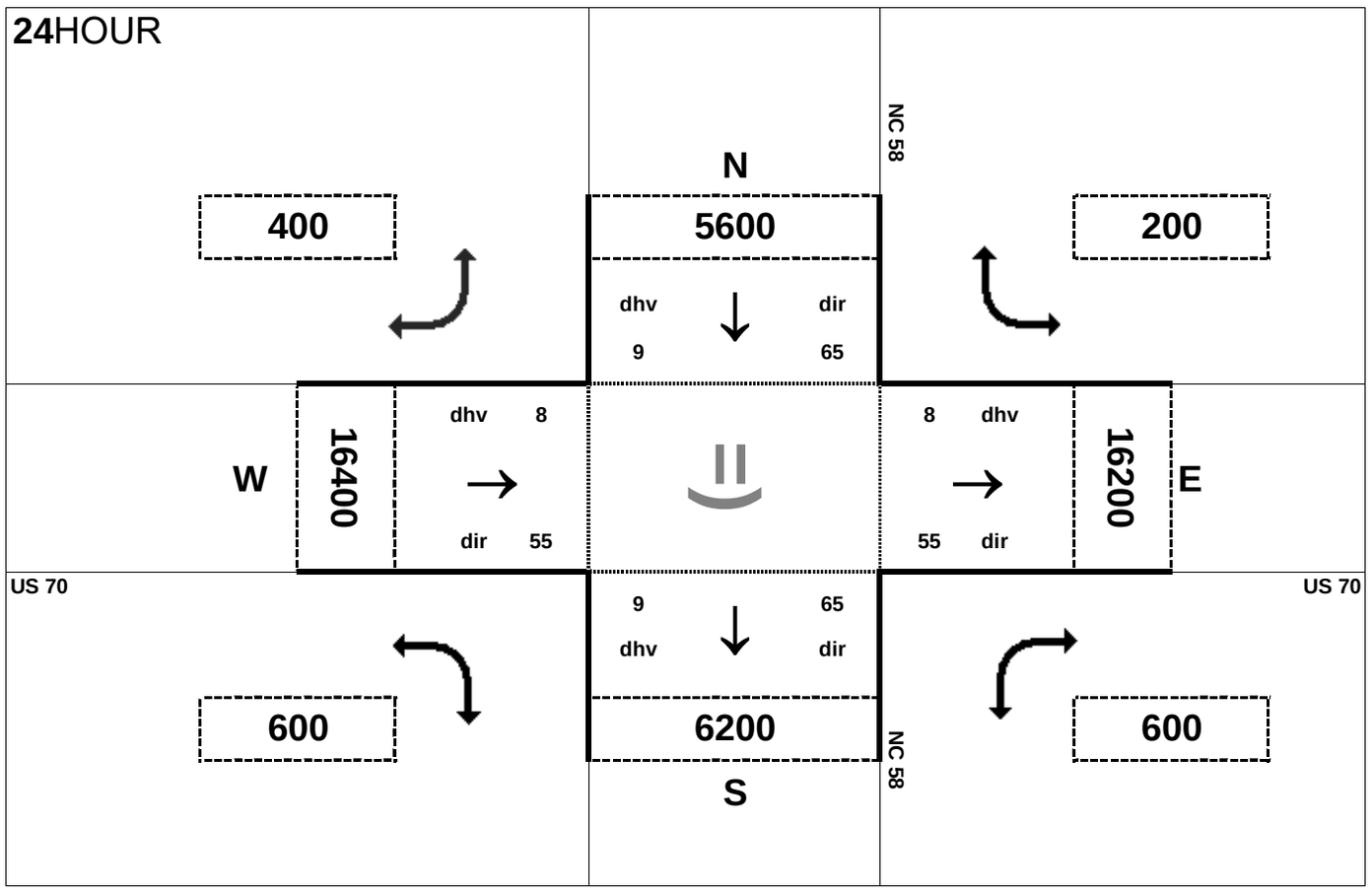
PM peak hour inflow is 603 vehicles. PM peak hour outflow is 604 vehicles.

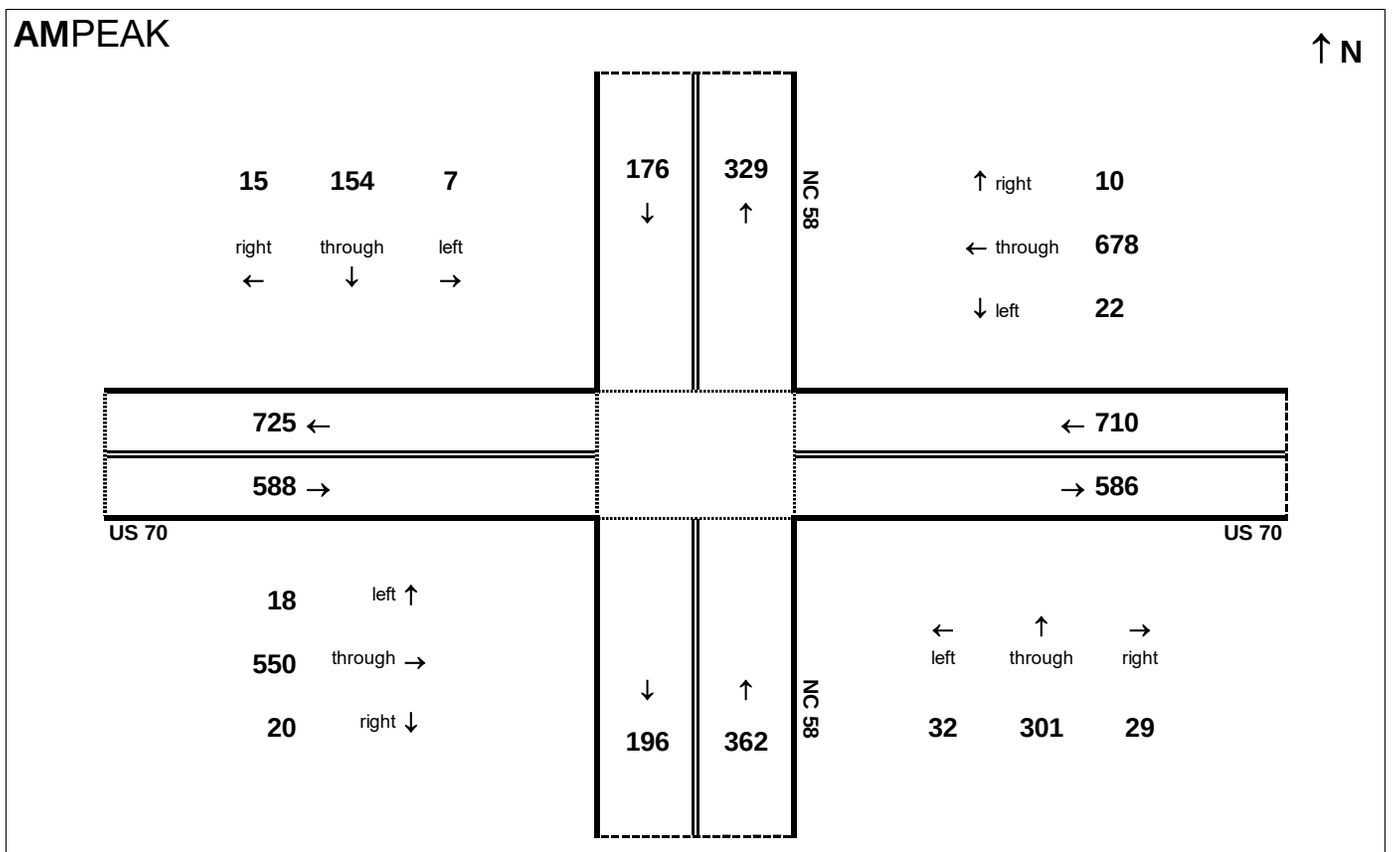
Peak Hour Volume Breakouts Report:
412-13 Intersection of US 70 and NC 58

Traffic Forecast Release Date:
November-16

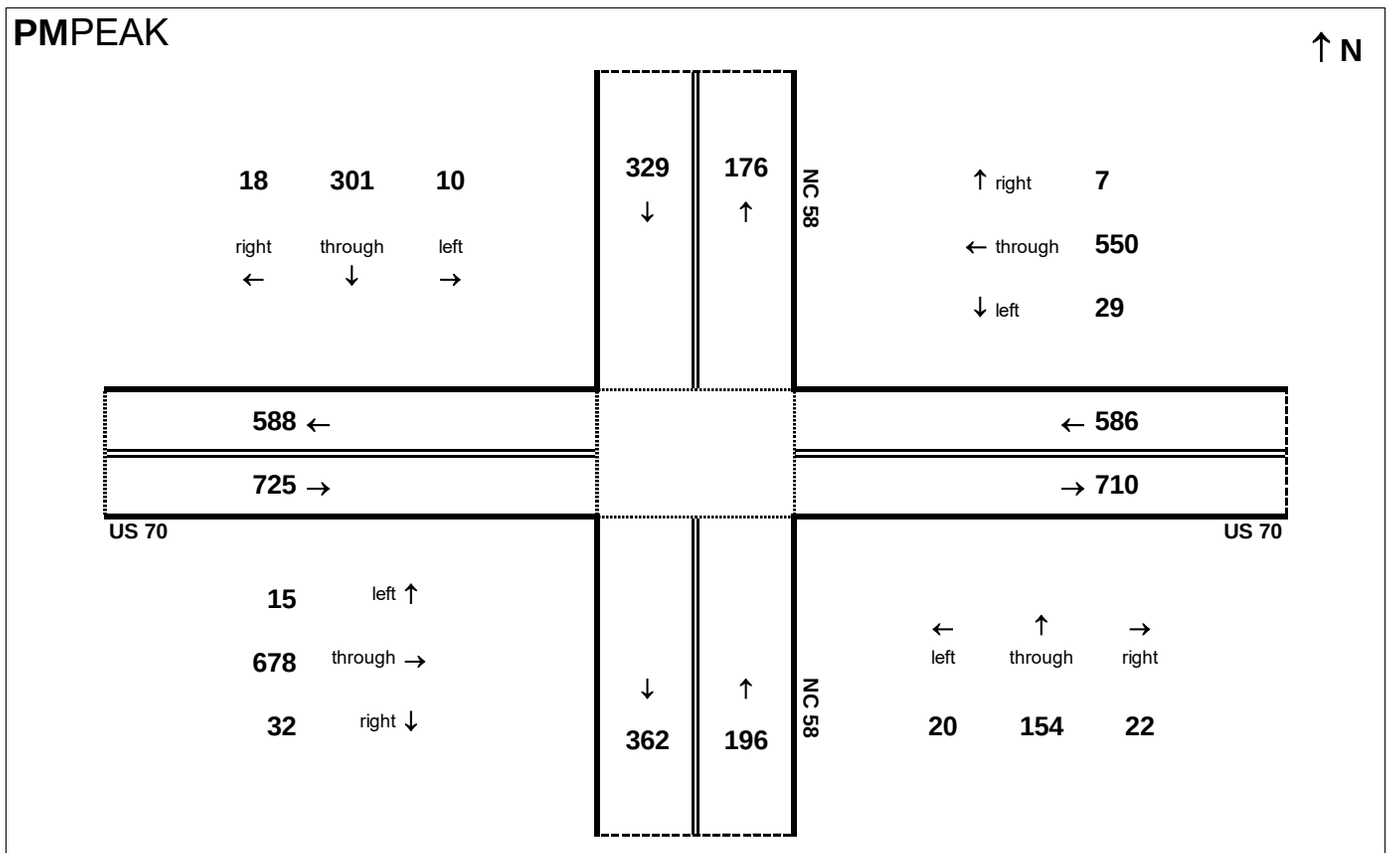
Traffic Data Year:
2040 Build Alt 63

Project:
R-2553





AM peak hour inflow is 1835 vehicles. AM peak hour outflow is 1835 vehicles.



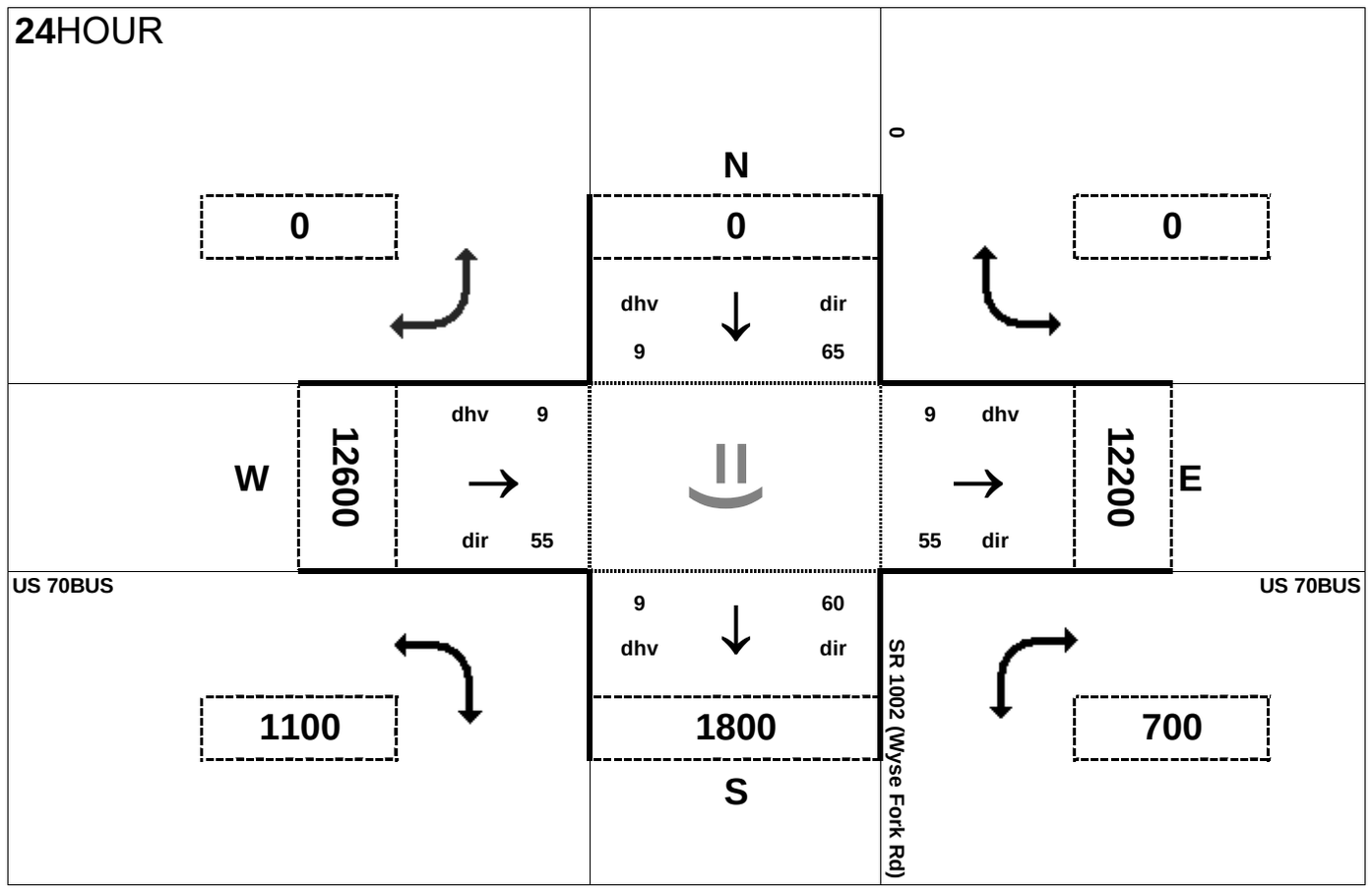
PM peak hour inflow is 1835 vehicles. PM peak hour outflow is 1835 vehicles.

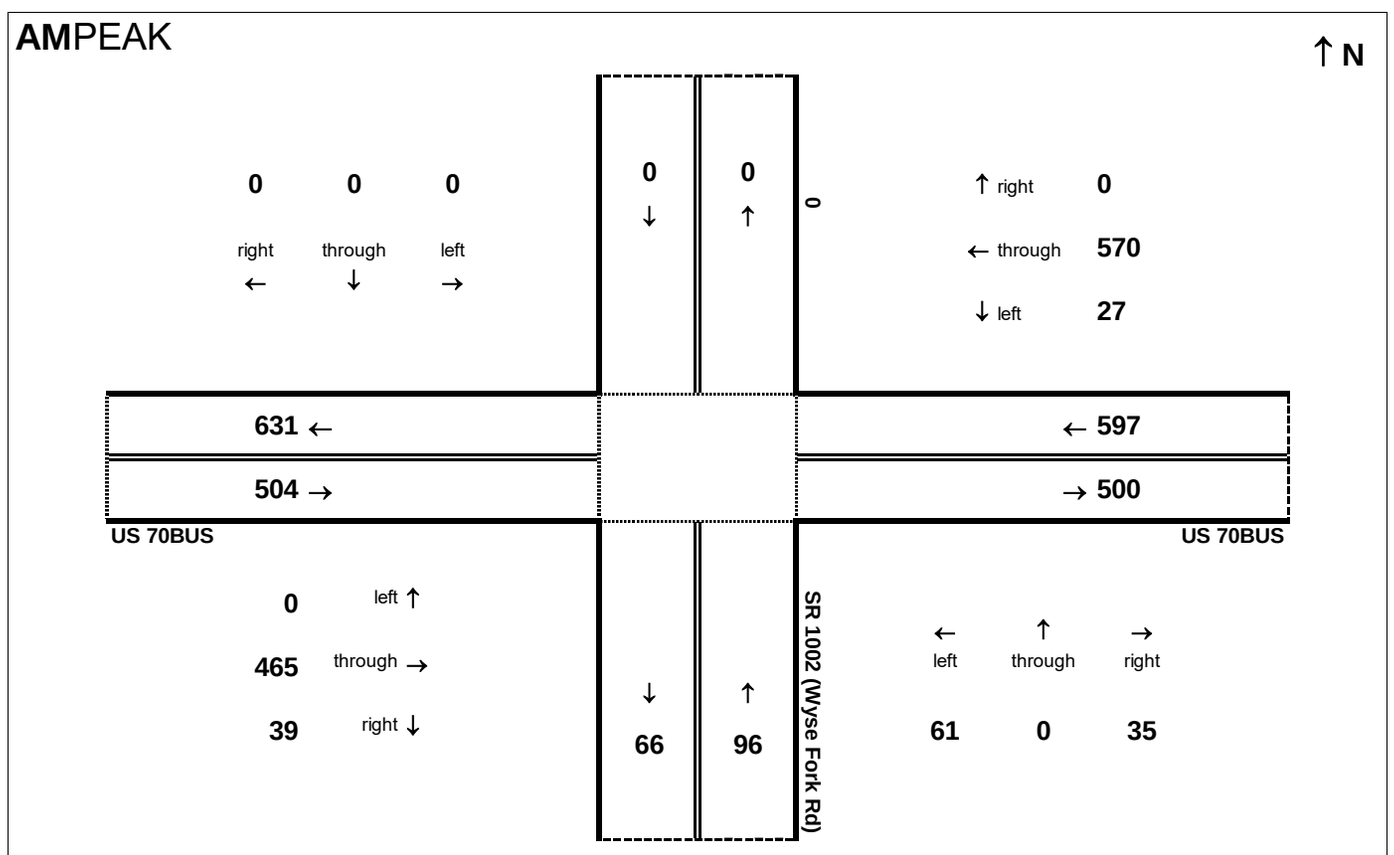
Peak Hour Volume Breakouts Report:
414 Intersection of US 70BUS SR 1002 (Wyse Fork Rd)

Traffic Forecast Release Date:
November-16

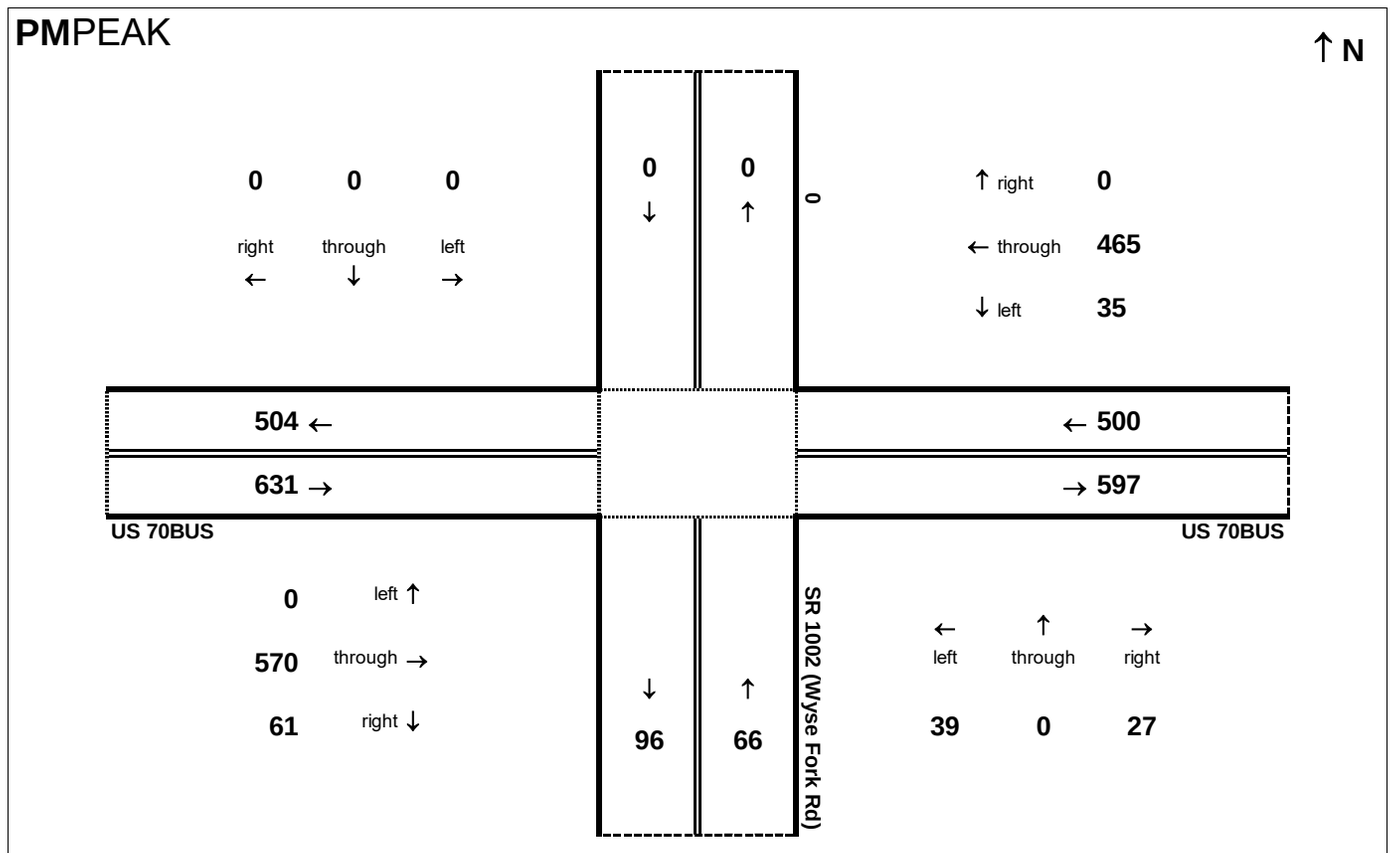
Traffic Data Year:
2040 Build Alt 63

Project:
R-2553





AM peak hour inflow is 1197 vehicles. AM peak hour outflow is 1197 vehicles.



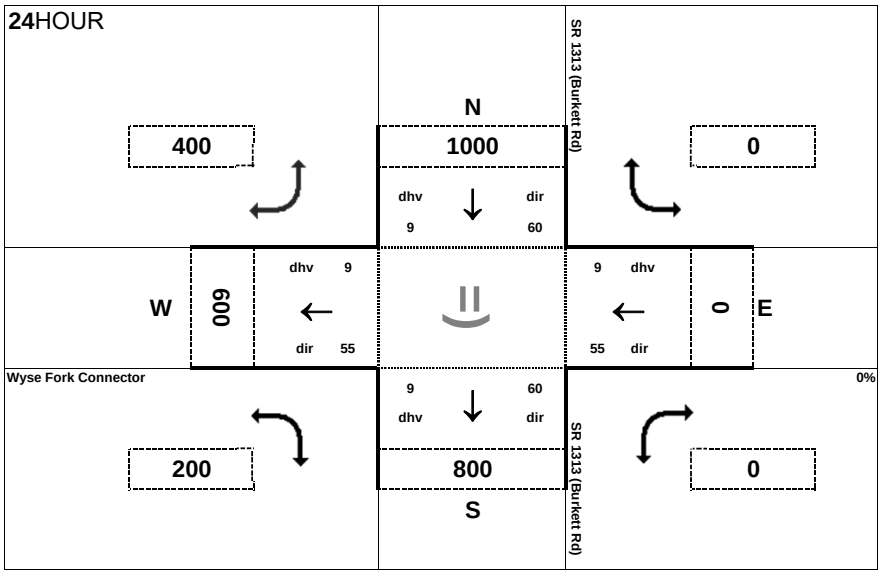
PM peak hour inflow is 1197 vehicles. PM peak hour outflow is 1197 vehicles.

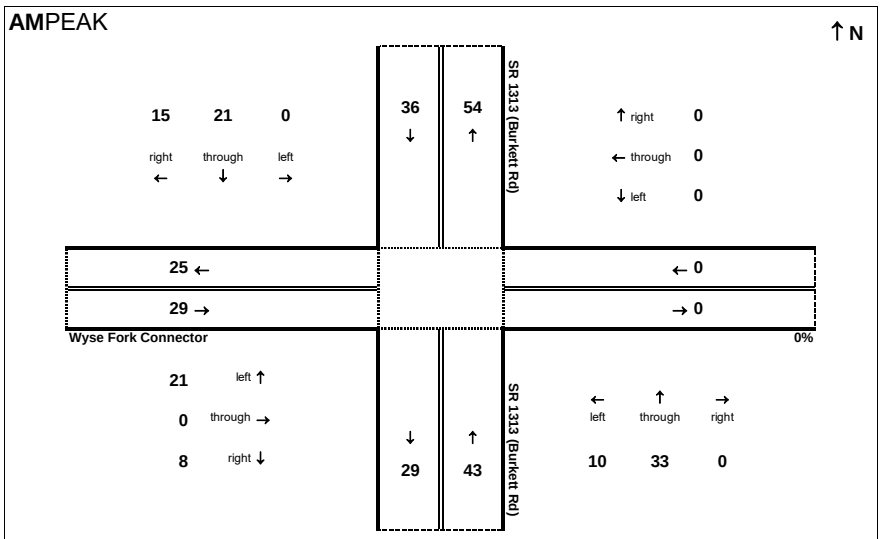
Peak Hour Volume Breakouts Report:
415 Intersection of SR 1313 (Burkett Rd) at Wyse Fork Connector

Traffic Forecast Release Date:
November-16

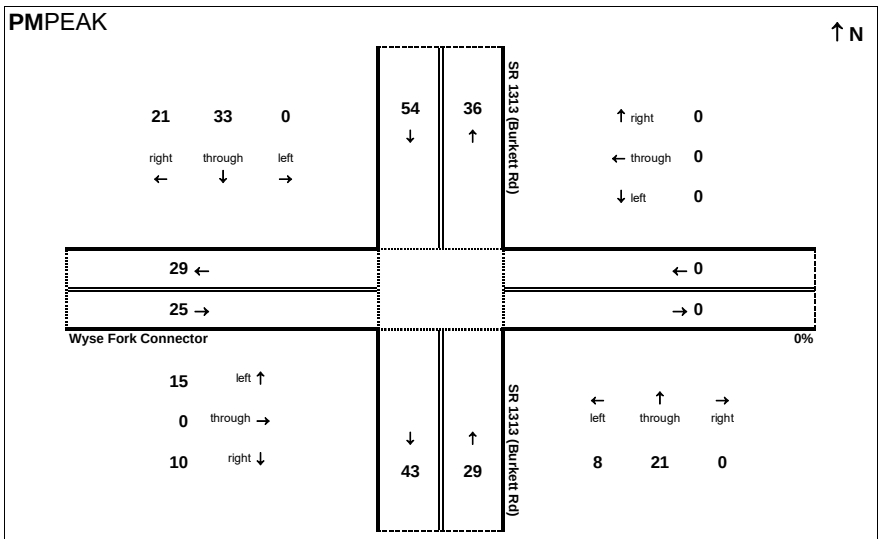
Traffic Data Year:
2040 Build Alt 63

Project:
R-2553





AM peak hour inflow is 108 vehicles. AM peak hour outflow is 108 vehicles.



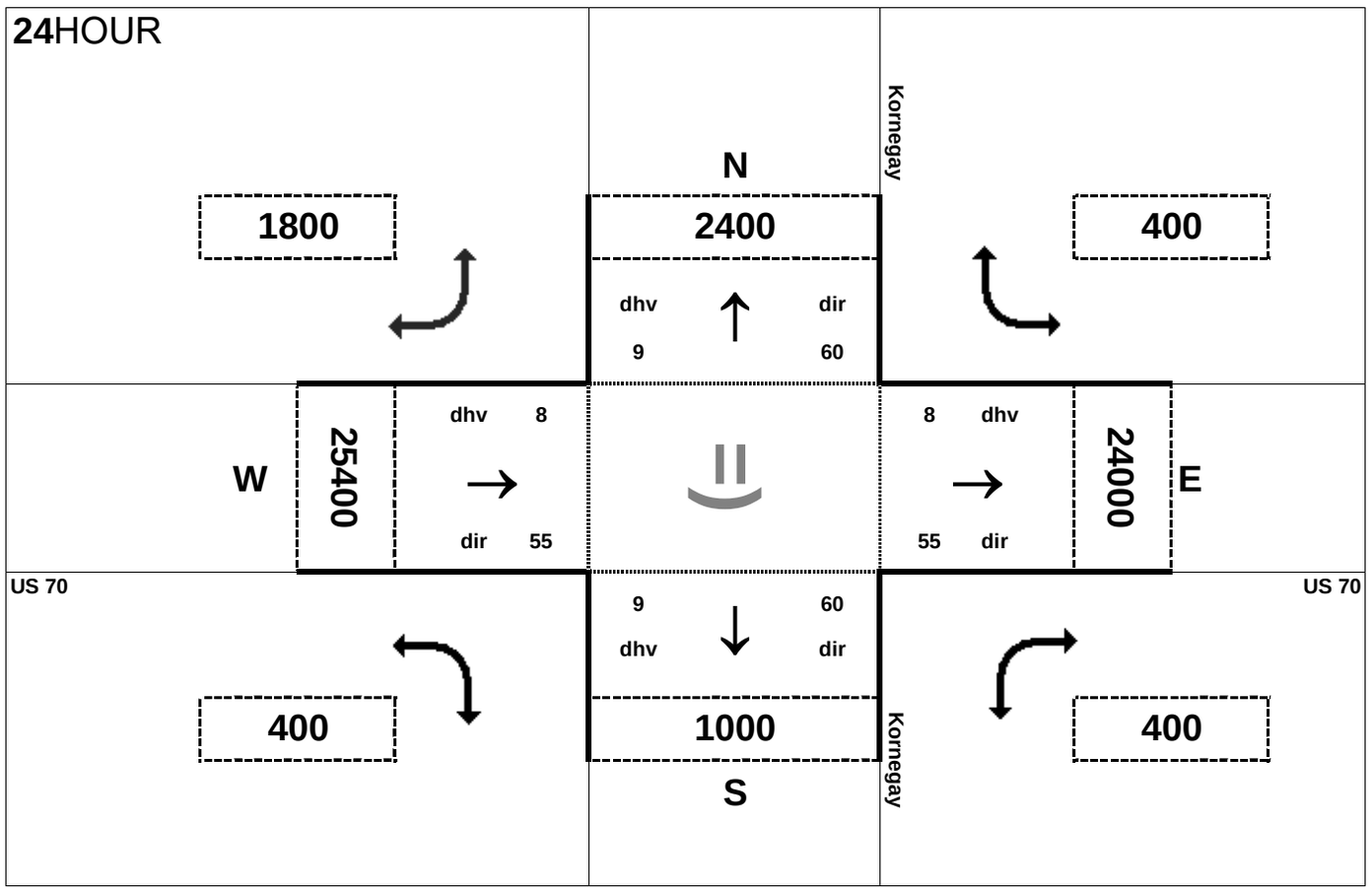
PM peak hour inflow is 108 vehicles. PM peak hour outflow is 108 vehicles.

Peak Hour Volume Breakouts Report:
416-17 Intersection of US 70 and Kornegay St

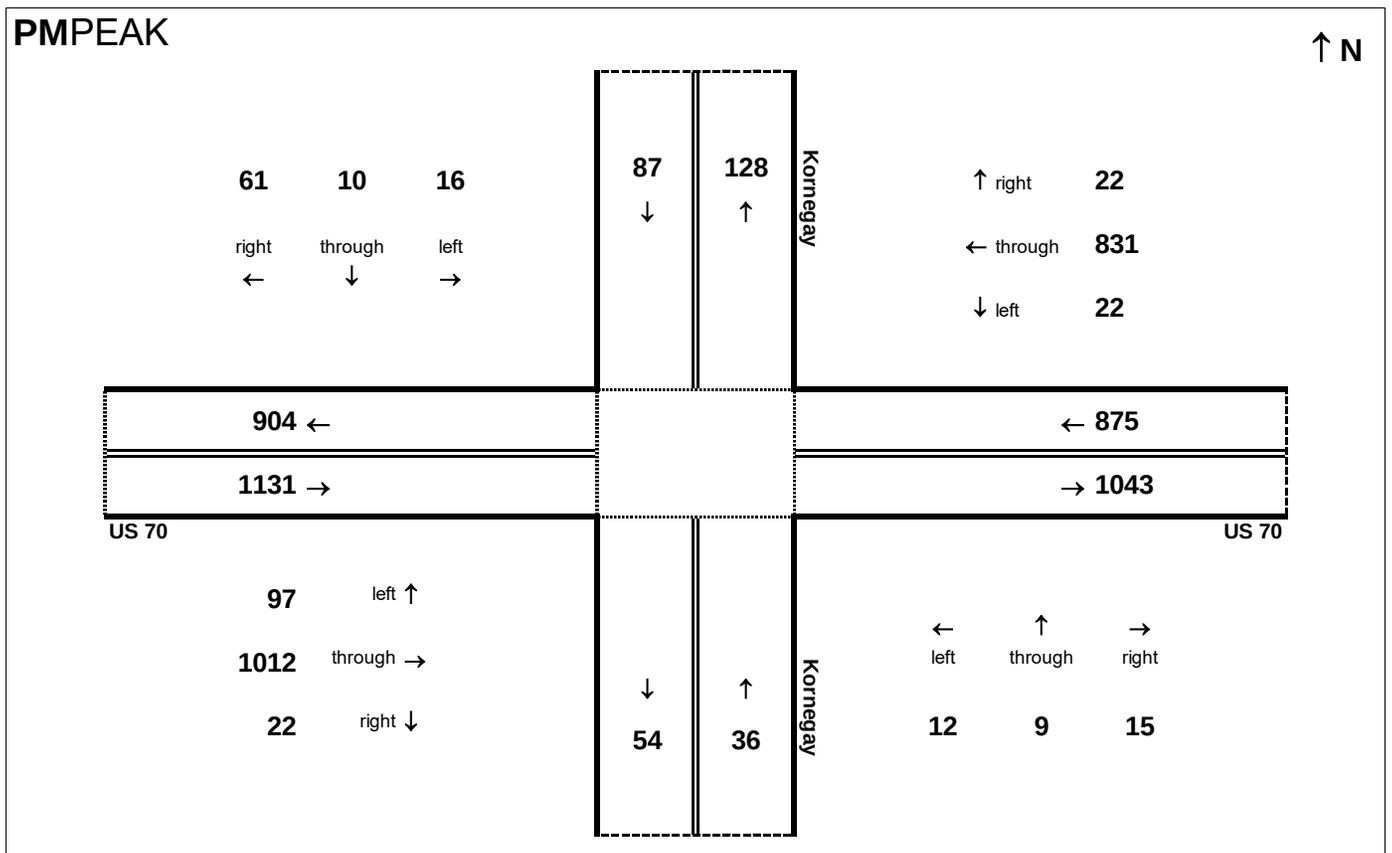
Traffic Forecast Release Date:
November-16

Traffic Data Year:
2040 Build Alt 63

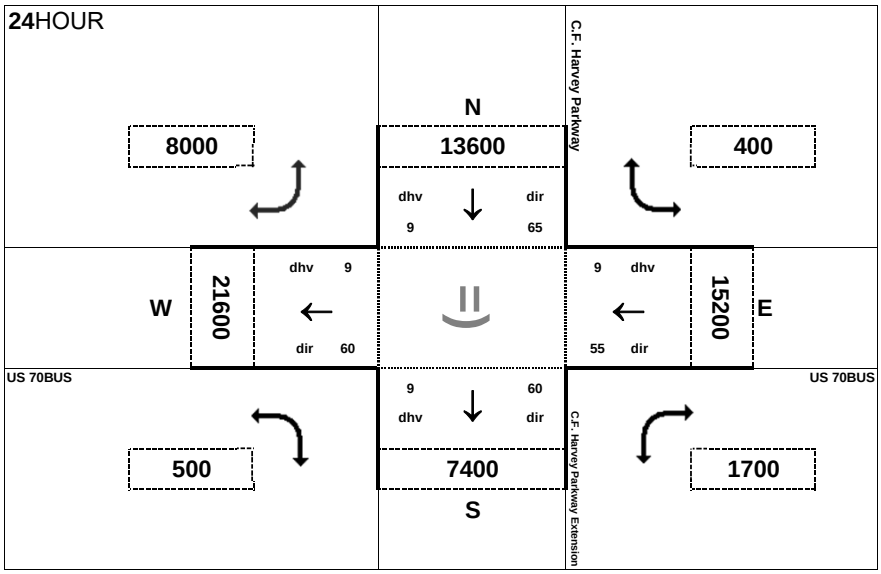
Project:
R-2553

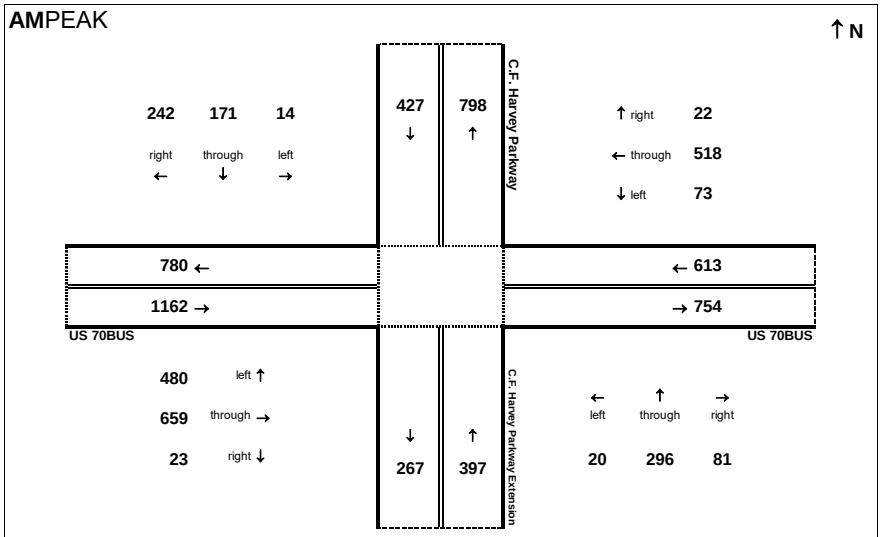


AM peak hour inflow is 2129 vehicles. AM peak hour outflow is 2128 vehicles.

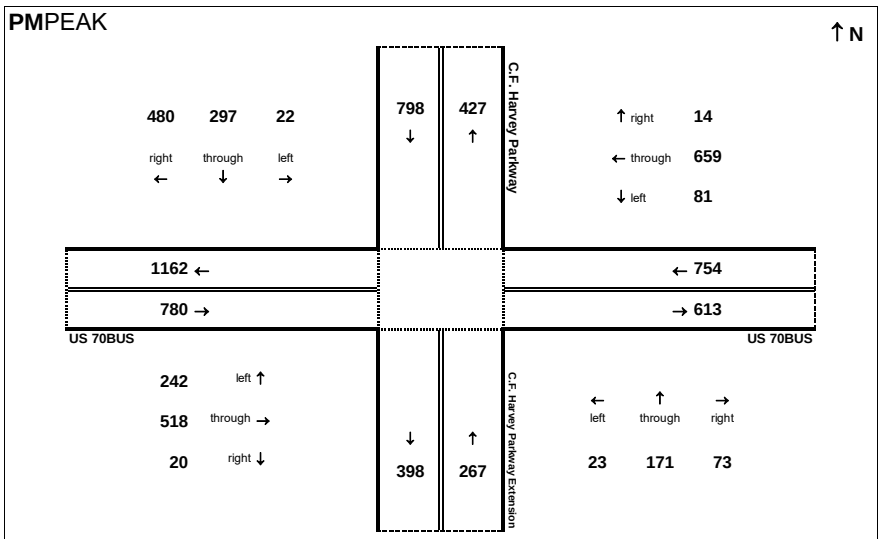


PM peak hour inflow is 2128 vehicles. PM peak hour outflow is 2129 vehicles.





AM peak hour inflow is 2601 vehicles. AM peak hour outflow is 2600 vehicles.



PM peak hour inflow is 2600 vehicles. PM peak hour outflow is 2601 vehicles.

Peak Hour Volume Breakouts Report:
System 2 Intersection of US 70BUS and C. F. Harvey Parkway

Traffic Forecast Release Date:
November-16

Traffic Data Year:
2040 Build Alt 63

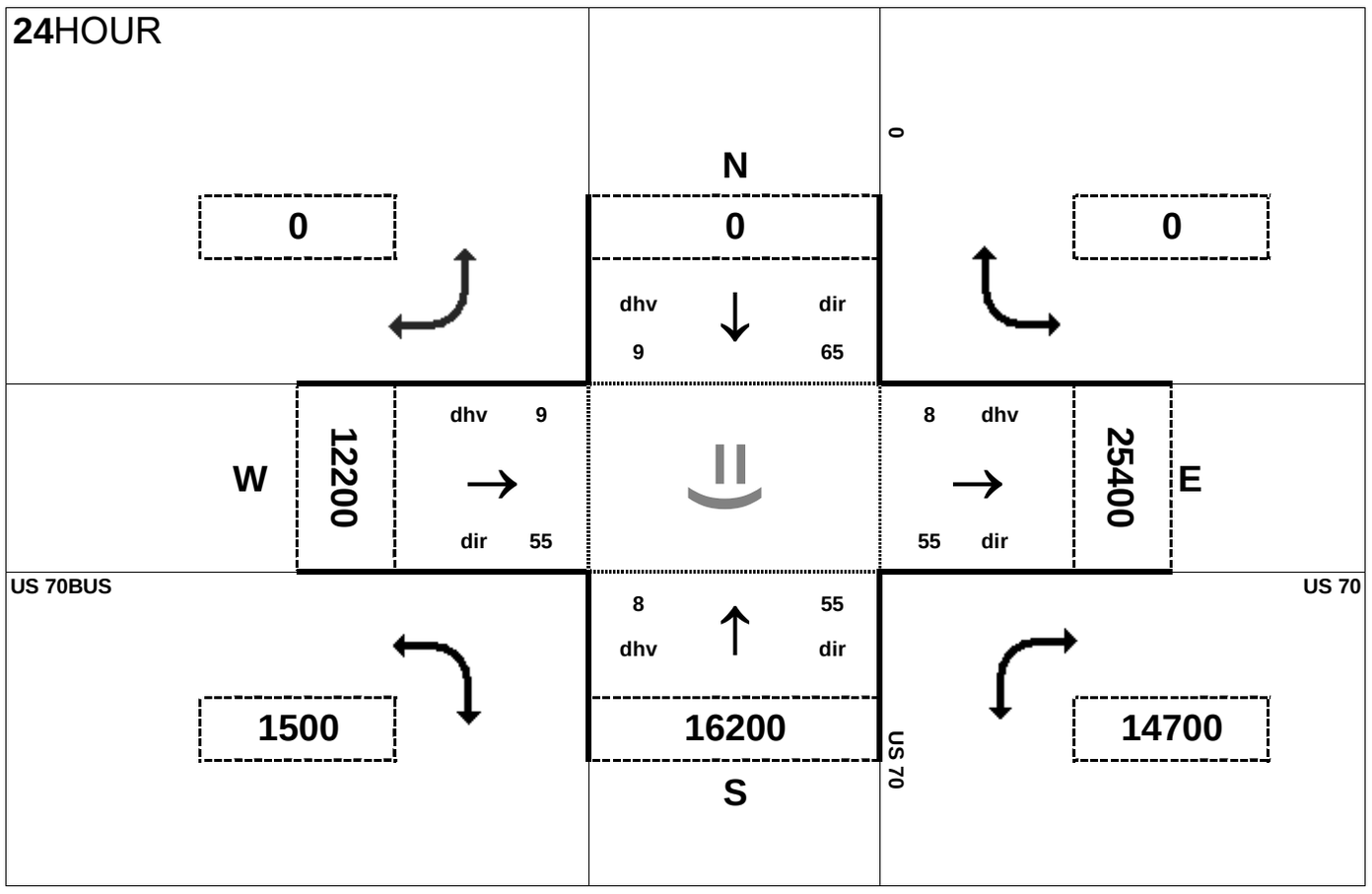
Project:
R-2553

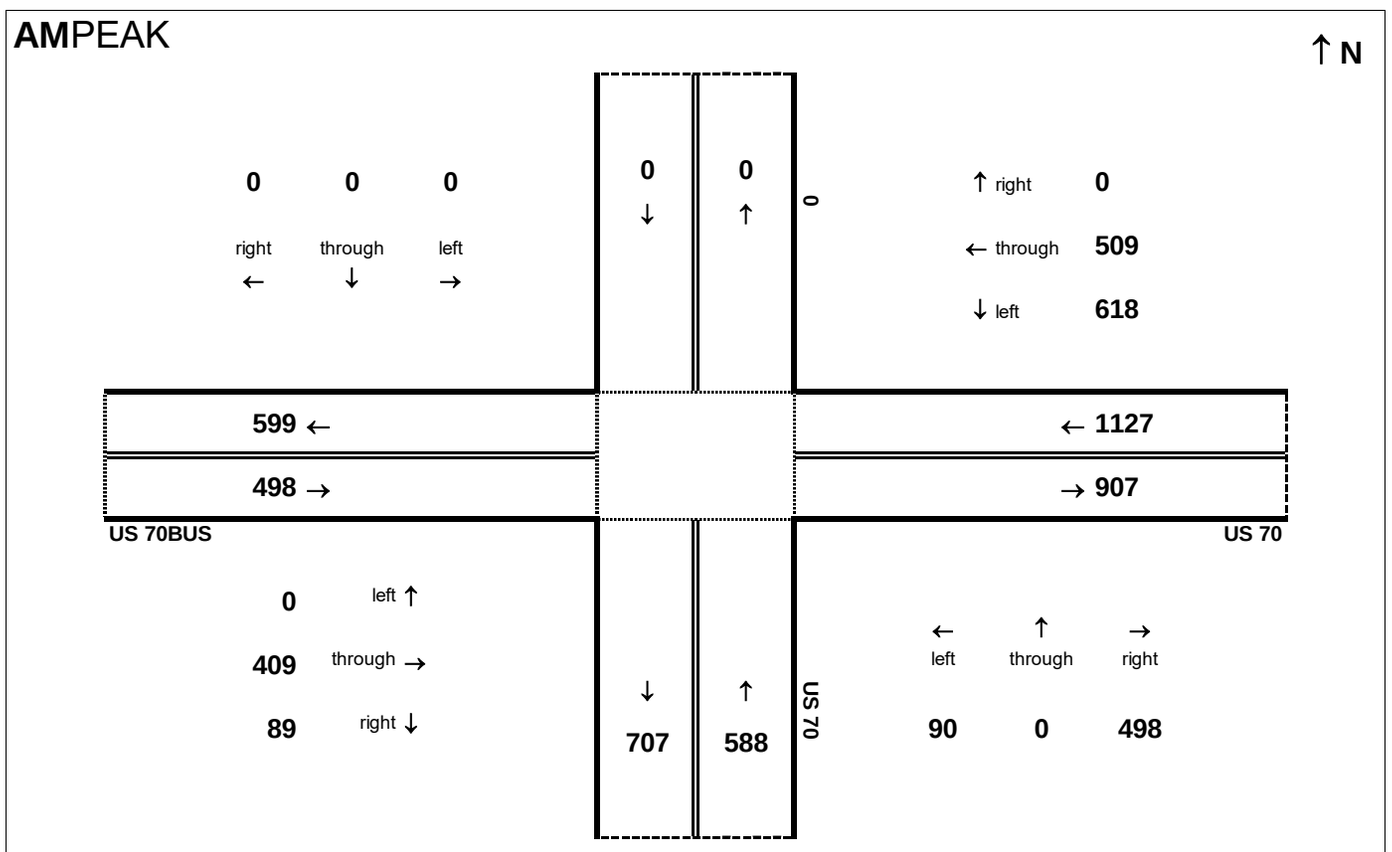
Peak Hour Volume Breakouts Report:
System 4 Intersection of US 70 and US 70BUS (eastern)

Traffic Forecast Release Date:
November-16

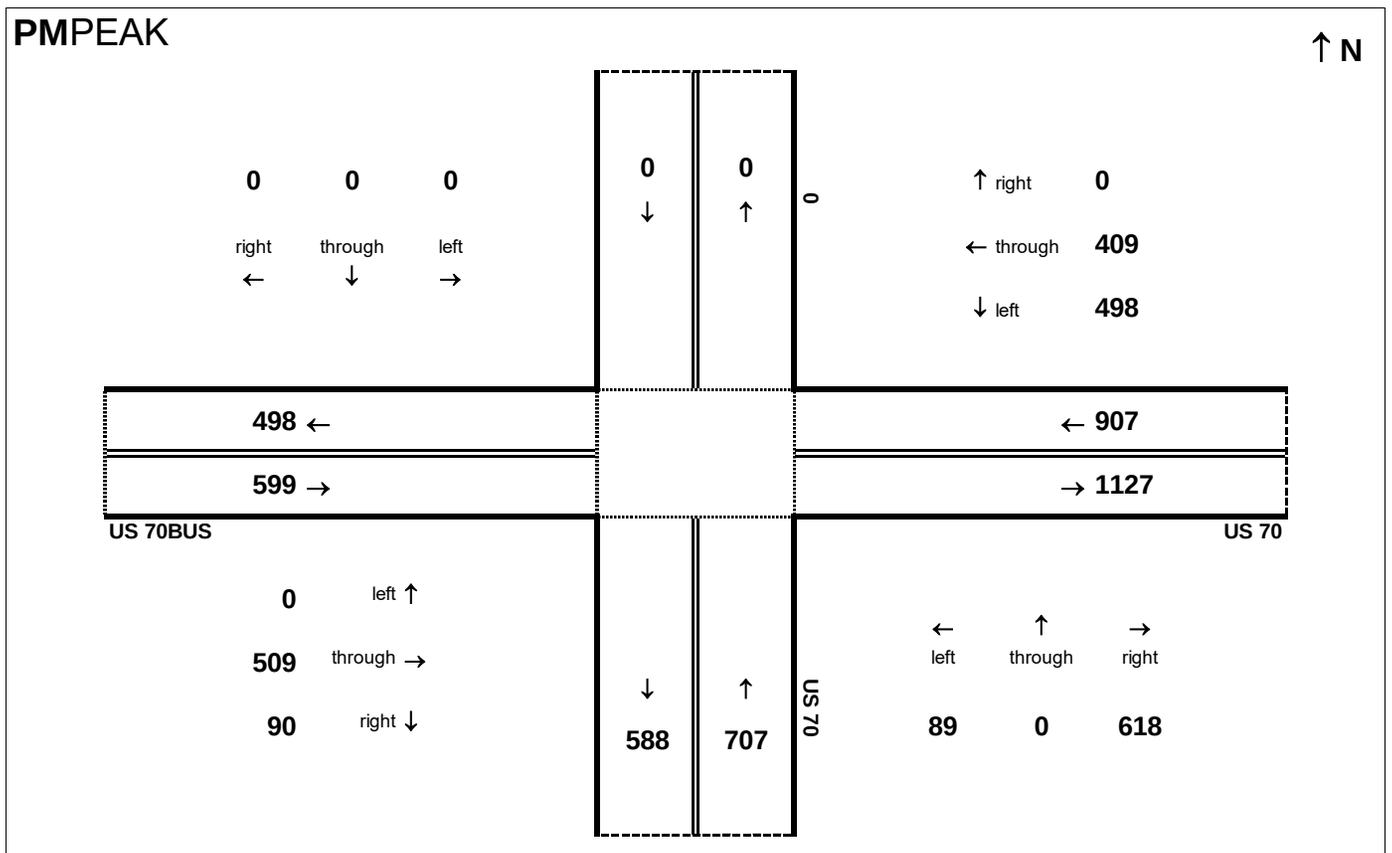
Traffic Data Year:
2040 Build Alt 63

Project:
R-2553





AM peak hour inflow is 2213 vehicles. AM peak hour outflow is 2213 vehicles.



PM peak hour inflow is 2213 vehicles. PM peak hour outflow is 2213 vehicles.

R-2553 Kinson Bypass

2040 Build Alternative 63

Step 1 - Calculating Basic Freeway Segment Volumes

Basic Freeway Segment Volumes - Eastbound							
Segment	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)	36,200	0.09	0.45	3,258	1,792	1,467
5E	US 70 EB - SR 1690 (Willie Measley Rd) to US 70BUS	39,200	0.09	0.45	3,528	1,941	1,588
7E	US 70 EB - US 70BUS to C. F. Harvey Pkwy	18,200	0.09	0.55	1,638	738	901
9E	US 70 EB - US 70BUS / C. F. Harvey Pkwy To NC 11	25,600	0.09	0.55	2,304	1,037	1,268
13E	US 70 EB - NC 11 to US 258	21,000	0.09	0.55	1,890	851	1,040
17E	US 70 EB - US 258 to NC 58	16,400	0.08	0.55	1,312	591	722
21E	US 70 EB - NC 58 to US 70BUS	16,200	0.08	0.55	1,296	584	713
25E	US 70 EB - US 70BUS to Kornegay St	25,400	0.08	0.55	2,032	915	1,118
29E	US 70 EB - East of Kornegay St	24,000	0.08	0.55	1,920	864	1,056

Basic Freeway Segment Volumes - Westbound							
Segment	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1W	US 70 WB - East of Kornegay St	24,000	0.08	0.45	1,920	1,056	864
5W	US 70 WB - US 70BUS to Kornegay St	25,400	0.08	0.45	2,032	1,118	915
9W	US 70 WB - NC 58 to US 70BUS	16,200	0.08	0.45	1,296	713	584
13W	US 70 WB - US 258 to NC 58	16,400	0.08	0.45	1,312	722	591
17W	US 70 WB - NC 11 to US 258	21,000	0.09	0.45	1,890	1,040	851
21W	US 70 WB - US 70BUS / C. F. Harvey Pkwy To NC 11	25,600	0.09	0.45	2,304	1,268	1,037
23W	US 70 WB - US 70BUS to US 70BUS / C. F. Harvey Pkwy	18,200	0.09	0.45	1,638	901	738
25W	US 70 WB - SR 1690 (Willie Measley Rd) to US 70BUS	39,200	0.09	0.55	3,528	1,588	1,941
29W	US 70 WB - West of SR 1690 (Willie Measley Rd)	36,200	0.09	0.55	3,258	1,467	1,792

Basic Freeway Segment Volumes - Northbound							
Segment	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1N	C. F. Harvey Pkwy NB - From US 70 to NC 148	7,400	0.09	0.40	666	400	267
7N	C. F. Harvey Pkwy NB - North of US 70BUS	13,600	0.09	0.35	1,224	796	429

Basic Freeway Segment Volumes - Southbound							
Segment	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1S	C. F. Harvey Pkwy SB - North of US 70BUS	13,600	0.09	0.65	1,224	429	796
7S	C. F. Harvey Pkwy SB - From US 70 to NC 148	7,400	0.09	0.60	666	267	400

Segment Volumes - US 70BUS							
Segment	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
-	US 70BUS EB - East of US 70 (western)	21,000	0.09	0.40	1,890	1,134	756
-	US 70BUS WB - East of US 70 (western)	21,000	0.09	0.60	1,890	756	1,134

R-2553 Kinson Bypass
2040 Build Alternative 63
Step 2 - Compiling Ramp Volumes

US 70 Ramp Volumes								
	EB Exit		WB Entrance		EB Entrance		WB Exit	
Description	AM	PM	AM	PM	AM	PM	AM	PM
US 70 at SR 1690	181	201	201	181	382	280	280	382
US 70 at US70BUS (western int)	1,134	756	756	1,134	-	-	-	-
US 70 at C. F. Harvey Pkwy	-	-	-	-	267	400	400	267
US 70 at NC 11	341	370	370	341	141	159	159	141
US 70at US 258	323	402	402	323	71	75	75	71
US 70 at NC 58	38	47	47	38	36	32	32	36
US 70 at US 70BUS (eastern int)	90	89	89	90	409	509	509	409
US 70 at Kornegay St	73	119	119	73	44	31	32	44

C. F. Harvey Pkwy Northbound Ramp Volumes			
Description	Ramp	AM	PM
US 70BUS at NC 148 (C F Harvey Pkwy)	Northbound Exit to Eastbound	81	73
	Northbound Exit to Westbound	20	23
	Nortbound Entrance from Westbound	22	14
	Northbound Entrance from Eastbound	480	242

C. F. Harvey Pkwy Southbound Ramp Volumes			
Description	Ramp	AM	PM
US 70BUS at NC 148 (C F Harvey Pkwy)	Southbound Exit to Westbound	242	480
	Southbound Entrance from Westbound	73	81
	Southbound Exit to Eastbound	14	22
	Southbound Entrance from Eastbound	23	20

R-2553 Kinson Bypass
2040 Build Alternative 63
Step 3 - Adjusting All Segment Volumes

Eastbound Adjusted Segment Volumes						
Segment	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)	0.9	1,792	1,467	1,991	1,630
2E	US 70 EB - to SR 1690 (Willie Measley Rd)	0.9	181	201	201	223
4E	US 70 EB - from SR 1690 (Willie Measley Rd)	0.9	382	280	424	311
5E	US 70 EB - SR 1690 (Willie Measley Rd) to US 70BUS	0.9	1,941	1,588	2,157	1,764
6E	US 70 EB - to US70BUS (western int)	0.9	1,134	756	1,260	840
7E	US 70 EB - US 70BUS to USBUS / C. F. Harvey Pkwy	0.9	738	901	820	1,001
8E	US 70 EB - from US70BUS / C. F. Harvey Pkwy	0.9	267	400	297	444
9E	US 70 EB - US 70BUS/ C. F. Harvey Pkwy to NC 11	0.9	1,037	1,268	1,152	1,409
10E	US 70 EB - to NC 11	0.9	341	370	379	411
12E	US 70 EB - from NC 11	0.9	141	159	157	177
13E	US 70 EB - NC 11 to US 258	0.9	851	1,040	946	1,156
14E	US 70 EB - to US 258	0.9	323	402	359	447
16E	US 70 EB - from US 258	0.9	71	75	79	83
17E	US 70 EB - US 258 to NC 58	0.9	591	722	657	802
18E	US 70 EB - to NC 58	0.9	38	47	42	52
20E	US 70 EB - from NC 58	0.9	36	32	40	36
21E	US 70 EB - NC 58 to US 70BUS	0.9	584	713	649	792
22E	US 70 EB - to US70BUS (eastern int)	0.9	90	89	100	99
24E	US 70 EB - from US70BUS (eastern int)	0.9	409	509	454	566
25E	US 70 EB - US 70BUS to Kornegay St	0.9	915	1,118	1,017	1,242
26E	US 70 EB - to Kornegay St	0.9	73	119	81	132
28E	US 70 EB - from Kornegay St	0.9	44	31	49	35
29E	US 70 EB - East of Kornegay St	0.9	864	1,056	960	1,173

	AM	PM
Max Volume	2,157	1,764

XXX	Ramp
XXX	Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 63
Step 3 - Adjusting All Segment Volumes

Westbound Adjusted Segment Volumes						
Segment	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1W	US 70 WB - East of Kornegay St	0.9	1,056	864	1,173	960
2W	US 70 WB - to Kornegay St	0.9	32	44	36	49
4W	US 70 WB - to Kornegay St	0.9	119	73	132	81
5W	US 70 WB - US 70BUS to Kornegay St	0.9	1,118	915	1,242	1,017
6W	US 70 WB - to US70BUS (eastern int)	0.9	509	409	566	454
8W	US 70 WB - from US70BUS (eastern int)	0.9	89	90	99	100
9W	US 70 WB - NC 58 to US 70BUS	0.9	713	584	792	649
10W	US 70 WB - to NC 58	0.9	32	36	36	40
12W	US 70 WB - from NC 58	0.9	47	38	52	42
13W	US 70 WB - US 258 to NC 58	0.9	722	591	802	657
14W	US 70 WB - to US 258	0.9	75	71	83	79
16W	US 70 WB - from US 258	0.9	402	323	447	359
17W	US 70 WB - NC 11 to US 258	0.9	1,040	851	1,156	946
18W	US 70 WB - to NC 11	0.9	159	141	177	157
20W	US 70 WB - from NC 11	0.9	370	341	411	379
21W	US 70 WB - US 70BUS / C. F. Harvey Pkwy to NC 11	0.9	1,268	1,037	1,409	1,152
22W	US 70 WB - to US70BUS/ C. F. Harvey Pkwy	0.9	400	267	444	297
23W	US 70 WB - US 70BUS to US 70BUS / C. F. Harvey Pkwy	0.9	901	738	1,001	820
24W	US 70 WB - from US70BUS	0.9	756	1,134	840	1,260
25W	US 70 WB - SR 1690 (Willie Measley Rd) to US 70BUS	0.9	1,588	1,941	1,764	2,157
26W	US 70 WB - to SR 1690 (Willie Measley Rd)	0.9	280	382	311	424
28W	US 70 WB - from SR 1690 (Willie Measley Rd)	0.9	201	181	223	201
29W	US 70 WB - West of SR 1690 (Willie Measley Rd)	0.9	1,467	1,792	1,630	1,991

	AM	PM
Max Volume	1,764	2,157

XXX	Ramp
XXX	Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 63
Step 3 - Adjusting All Segment Volumes

Northbound Adjusted Segment Volumes						
Segment	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1N	C. F. Harvey Pkwy NB - US 70 to US 70BUS / NC 148	0.9	400	267	444	297
2N	C. F. Harvey Pkwy NB - to US 70BUS EB	0.9	81	73	90	81
4N	C. F. Harvey Pkwy NB - to US 70BUS WB	0.9	20	23	22	26
6N	C. F. Harvey Pkwy NB - from US 70BUS	0.9	502	256	558	284
7N	C. F. Harvey Pkwy NB - North of US 70BUS	0.9	796	429	884	477

Southbound Adjusted Segment Volumes						
Segment	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1S	C. F. Harvey Pkwy SB - North of US 70BUS	0.9	429	796	477	884
2S	C. F. Harvey Pkwy SB - to US 70BUS WB	0.9	242	480	269	533
4S	C. F. Harvey Pkwy SB - From US 70BUS WB	0.9	73	81	81	90
	C. F. Harvey Pkwy SB - to US 7BUS EB	0.9	14	22	16	25
6S	C. F. Harvey Pkwy SB - from US 70BUS EB	0.9	23	20	26	22
7S	C. F. Harvey Pkwy SB - US 70 to US 70BUS / NC 148	0.9	267	400	297	444

XXX	Ramp
XXX	Weave
XXX	Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 63
Step 4 - Balancing Freeway Segment Volumes

US 70 Eastbound Freeway Volume Balancing					
Segment	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)			1,934	1,676
2E	US 70 EB - to SR 1690 (Willie Measley Rd)	201	223		
3E	US 70 EB - within SR 1690 (Willie Measley Rd) Interchange			1,733	1,453
4E	US 70 EB - from SR 1690 (Willie Measley Rd)	424	311		
5E	**US 70 EB - SR 1690 (Willie Measley Rd) to US 70BUS**			**2,157**	**1,764**
6E	US 70 EB - to US70BUS (western int)	1,260	840		
7E	US 70 EB - US 70BUS to US70BUS / C. F. Harvey Pkwy			897	924
8E	US 70 EB - from US70BUS / C. F. Harvey Pkwy	297	444		
9E	US 70 EB - US70BUS / C. F. Harvey Pkwy to NC 11			1,194	1,368
10E	US 70 EB - to NC 11	379	411		
11E	US 70 EB - within NC 11 interchange			815	957
12E	US 70 EB - from NC 11	157	177		
13E	US 70 EB - NC 11 to US 258			972	1,134
14E	US 70 EB - to US 258	359	447		
15E	US 70 EB - within US 258 interchange			613	687
16E	US 70 EB - from US 258	79	83		
17E	US 70 EB - US 258 to NC 58			692	770
18E	US 70 EB - to NC 58	42	52		
19E	US 70 EB - within NC 58 interchange			650	718
20E	US 70 EB - from NC 58	40	36		
21E	US 70 EB - NC 58 to US 70BUS			690	754
22E	US 70 EB - to US70BUS (eastern int)	100	99		
23E	US 70 EB - within US 70BUS (eastern int)			590	655
24E	US 70 EB - from US70BUS (eastern int)	454	566		
25E	US 70 EB - US 70BUS to Kornegay St			1,044	1,221
26E	US 70 EB - to Kornegay St	81	132		
27E	US 70 EB - within Kornegay St interchange			963	1,089
28E	US 70 EB - from Kornegay St	49	35		
29E	US 70 EB - East of Kornegay St			1,012	1,124

	Max volume balance point
XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 63
Step 4 - Balancing Freeway Segment Volumes

US 70 Westbound Freeway Volume Balancing					
Segment	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1W	US 70 WB - East of Kornegay St			1,125	1,012
2W	US 70 WB - to Kornegay St	36	49		
3W	US 70 WB - within Kornegay St interchange			1,089	963
4W	US 70 WB - to Kornegay St	132	81		
5W	US 70 WB - US 70BUS to Kornegay St			1,221	1,044
6W	US 70 WB - to US70BUS (eastern int)	566	454		
7W	US 70 WB - within US 70BUS (eastern int)			655	590
8W	US 70 WB - from US70BUS (eastern int)	99	100		
9W	US 70 WB - NC 58 to US 70BUS			754	690
10W	US 70 WB - to NC 58	36	40		
11W	US 70 WB - within NC 58 interchange			718	650
12W	US 70 WB - from NC 58	52	42		
13W	US 70 WB - US 258 to NC 58			770	692
14W	US 70 WB - to US 258	83	79		
15W	US 70 WB - within US 258 interchange			687	613
16W	US 70 WB - from US 258	447	359		
17W	US 70 WB - NC 11 to US 258			1,134	972
18W	US 70 WB - to NC 11	177	157		
19W	US 70 WB - within NC 11 interchange			957	815
20W	US 70 WB - from NC 11	411	379		
21W	US 70 WB - US 70BUS / C. F. Harvey Pkwy to NC 11			1,368	1,194
22W	US 70 WB - to US 70BUS / C. F. Harvey Pwky	444	297		
23W	US 70 WB - US 70BUS to US 70BUS / C. F. Harvey Pwky			924	897
24W	US 70 WB - from US70BUS (western int)	840	1,260		
25W	US 70 WB - SR 1690 (Willie Measley Rd) to US 70BUS			**1,764**	**2,157**
26W	US 70 WB - to SR 1690 (Willie Measley Rd)	311	424		
27W	US 70 WB - within SR 1690 (Willie Measley Rd) Interchange			1,453	1,733
28W	US 70 WB - from SR 1690 (Willie Measley Rd)	223	201		
29W	US 70 WB - West of SR 1690 (Willie Measley Rd)			1,676	1,934

	Max volume balance point
XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 63
Step 4 - Balancing Freeway Segment Volumes

C. F. Harvey Northbound Freeway Volume Balancing					
Segment	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1N	C. F. Harvey Pkwy NB - US 70 to US 70BUS / NC 148			**444**	**297**
2N	C. F. Harvey Pkwy NB - to US 70BUS EB	90	81		
3N	C. F. Harvey Pkwy NB - within US 70BUS interchange			354	216
4N	C. F. Harvey Pkwy NB - to US 70BUS WB	22	26		
5N	C. F. Harvey Pkwy NB - within US 70BUS interchange			332	190
6N	C. F. Harvey Pkwy NB - from US 70BUS	558	284		
7N	C. F. Harvey Pkwy NB - North of US 70BUS			890	474

C. F. Harvey Pkwy Southbound Freeway Volume Balancing					
Segment	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1S	C. F. Harvey Pkwy SB - North of US 70BUS			475	890
2S	C. F. Harvey Pkwy SB - to US 70BUS	269	533		
3S	C. F. Harvey Pkwy SB - within US 70BUS interchange			206	357
4S	C. F. Harvey Pkwy SB - from US 70BUS EB	81	90		
	C. F. Harvey Pkwy SB - between US 70BUS EB ramps			287	447
	C. F. Harvey Pkwy SB - to US 70BUS EB	16	25		
5S	C. F. Harvey Pkwy SB - within US 70BUS interchange			271	422
6S	C. F. Harvey Pkwy SB - from US 70BUS EB	26	22		
7S	C. F. Harvey Pkwy SB - US 70 to US 70BUS / NC 148			**297**	**444**

	Volume balance point
XXX	Ramp
XXX	Weave
XXX	Basic Freeway Segment

2040 Build Alternative 63
FREEVAL-E Reports

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R-2553 US 70 Kinston Bypass, Alternative 63
US 70 EB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1E	2E	3E	4E	5E	6E	7E	8E	9E
General Purpose Segment Name	W of Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	Jim Sutton/Willie Measley to US 70 Bus (W)	To US 70 Bus (W)	US 70 Bus (W) to CF Harvey Pkwy	From CF Harvey Pkwy	CF Harvey Pkwy to NC 11
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	1500	9380	2500	18020	2500	5600
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1934	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	750	N/A	920	N/A	2500	N/A	2500	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	2	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	60	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	424	N/A	N/A	N/A	297	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	2	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	60	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	201	N/A	N/A	N/A	1260	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	14.3	14.7	12.8	16.9	15.9	0.9	6.7	0.0*	8.9
V/C	0.42	0.42	0.37	0.46	0.46	0.46	0.20	0.26	0.26
Density Based LOS	B	B	B	B	B	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 63
US 70 EB - AM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10E	11E	12E	13E	14E	15E	16E	17E	18E
General Purpose Segment Name	To NC 11	Within NC 11	From NC 11	NC 11 to US 258	To US 258	Within US 258	From US 258	US 258 to NC 58	To NC 58
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	5760	1500	1500	1500	12310	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	750	N/A	920	N/A	490
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	45	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	157	N/A	N/A	N/A	79	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	7	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	25	N/A	N/A	N/A	45
OFR/Exit Dem. (vph)	379	N/A	N/A	N/A	359	N/A	N/A	N/A	42
OFR Single Unit Truck and Bus (%)	7	N/A	N/A	N/A	7	N/A	N/A	N/A	6
Total Density (pc/mi/ln)	8.2	6.1	7.5	7.2	6.2	4.6	5.3	5.2	6.1
V/C	0.26	0.18	0.21	0.21	0.21	0.13	0.15	0.15	0.15
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 63
US 70 EB - AM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19E	20E	21E	22E	23E	24E	25E	26E	27E
General Purpose Segment Name	Within NC 58	From NC 58	NC 58 to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E)	From US 70 Bus (E)	US 70 Bus (E) to Kornegay	To Kornegay	Within Kornegay
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1620	16340	1500	3030	2500	6280	1500	3000
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	1620	N/A	750	N/A	2500	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	2	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	60	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	40	N/A	N/A	N/A	454	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	6	N/A	N/A	N/A	6	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	25	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	100	N/A	N/A	N/A	81	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	6	N/A	N/A	N/A	4	N/A
Total Density (pc/mi/ln)	4.9	0.9	5.1	3.7	4.4	0.0*	7.8	9.2	7.2
V/C	0.14	0.15	0.15	0.15	0.13	0.23	0.23	0.23	0.21
Density Based LOS	A	A	A	A	A	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 63
US 70 EB - AM Peak

Segment	Seg. 28	Seg. 29
General Purpose Segment Data	28E	29E
General Purpose Segment Name	From Kornegay	East of Kornegay
General Purpose Segment Type	On-Ramp	BFS
Segment Length (ft)	1500	5280
Terrain	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5
# of Lanes: Mainline	2	2
Free Flow Speed (mph)	70	70
Mainline Dem. (vph)	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	920	N/A
ONR Side	Right	N/A
# Lanes: ONR	1	N/A
ONR Free Flow Speed (mph)	45	N/A
ONR/Entering Dem. (vph)	49	N/A
ONR Single Unit Truck and Bus (%)	4	N/A
OFR Side	N/A	N/A
# Lanes: OFR	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A
Total Density (pc/mi/ln)	7.9	7.5
V/C	0.22	0.22
Density Based LOS	A	A

R-2553 US 70 Kinston Bypass, Alternative 63
US 70 EB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1E	2E	3E	4E	5E	6E	7E	8E	9E
General Purpose Segment Name	W of Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	Jim Sutton/Willie Measley to US 70 Bus (W)	To US 70 Bus (W)	US 70 Bus (W) to CF Harvey Pkwy	From CF Harvey Pkwy	CF Harvey Pkwy to NC 11
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	1500	9380	2500	18020	2500	5600
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1676	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	750	N/A	920	N/A	2500	N/A	2500	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	2	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	60	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	311	N/A	N/A	N/A	444	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	2	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	60	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	223	N/A	N/A	N/A	840	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	12.4	12.4	10.8	13.8	13.0	0.0*	6.9	0.7	10.1
V/C	0.36	0.36	0.31	0.38	0.38	0.38	0.20	0.30	0.30
Density Based LOS	B	B	A	B	B	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 63
US 70 EB - PM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10E	11E	12E	13E	14E	15E	16E	17E	18E
General Purpose Segment Name	To NC 11	Within NC 11	From NC 11	NC 11 to US 258	To US 258	Within US 258	From US 258	US 258 to NC 58	To NC 58
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	5760	1500	1500	1500	12310	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	750	N/A	920	N/A	490
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	45	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	177	N/A	N/A	N/A	83	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	7	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	25	N/A	N/A	N/A	45
OFR/Exit Dem. (vph)	411	N/A	N/A	N/A	447	N/A	N/A	N/A	52
OFR Single Unit Truck and Bus (%)	7	N/A	N/A	N/A	7	N/A	N/A	N/A	6
Total Density (pc/mi/ln)	9.7	7.1	8.8	8.4	7.6	5.1	5.9	5.7	6.7
V/C	0.30	0.21	0.25	0.25	0.25	0.15	0.17	0.17	0.17
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 63
US 70 EB - PM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19E	20E	21E	22E	23E	24E	25E	26E	27E
General Purpose Segment Name	Within NC 58	From NC 58	NC 58 to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E)	From US 70 Bus (E)	US 70 Bus (E) to Kornegay	To Kornegay	Within Kornegay
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1620	16340	1500	3030	2500	6280	1500	3000
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	1620	N/A	750	N/A	2500	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	2	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	60	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	36	N/A	N/A	N/A	566	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	6	N/A	N/A	N/A	6	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	25	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	99	N/A	N/A	N/A	132	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	6	N/A	N/A	N/A	4	N/A
Total Density (pc/mi/ln)	5.3	1.4	5.6	4.2	4.9	0.0*	9.0	10.7	8.1
V/C	0.16	0.16	0.16	0.16	0.14	0.26	0.26	0.26	0.24
Density Based LOS	A	A	A	A	A	A	A	B	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 63
US 70 EB - PM Peak

Segment	Seg. 28	Seg. 29
General Purpose Segment Data	28E	29E
General Purpose Segment Name	From Kornegay	East of Kornegay
General Purpose Segment Type	On-Ramp	BFS
Segment Length (ft)	1500	5280
Terrain	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5
# of Lanes: Mainline	2	2
Free Flow Speed (mph)	70	70
Mainline Dem. (vph)	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	920	N/A
ONR Side	Right	N/A
# Lanes: ONR	1	N/A
ONR Free Flow Speed (mph)	45	N/A
ONR/Entering Dem. (vph)	35	N/A
ONR Single Unit Truck and Bus (%)	4	N/A
OFR Side	N/A	N/A
# Lanes: OFR	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A
Total Density (pc/mi/ln)	8.8	8.3
V/C	0.24	0.24
Density Based LOS	A	A

R-2553 US 70 Kinston Bypass, Alternative 63
US 70 WB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1W	2W	3W	4W	5W	6W	7W	8W	9W
General Purpose Segment Name	E of Burkett/Kornegay	To Burkett/Kornegay	Within Burkett/Kornegay Int	From Burkett/Kornegay	Burkett/Kornegay to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E) Int	From US 70 Bus (E)	US 70 Bus (E) to NC 58
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	3000	1500	10800	1500	1940	1500	14370
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1125	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	9	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	920	N/A	490	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	132	N/A	N/A	N/A	99	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	6	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	36	N/A	N/A	N/A	566	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	6	N/A	N/A	N/A
Total Density (pc/mi/ln)	8.4	10.0	8.1	9.6	9.1	10.8	4.9	5.9	5.7
V/C	0.24	0.24	0.24	0.27	0.27	0.27	0.14	0.17	0.17
Density Based LOS	A	A	A	A	A	B	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 63
US 70 WB - AM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10W	11W	12W	13W	14W	15W	16W	17W	18W
General Purpose Segment Name	To NC 58	Within NC 58 Int	From NC 58	NC 58 to US 258	To US 258	Within US 258 Int	From US 258	US 258 to NC 11	To NC 11
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	12350	1500	1500	1620	7710	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	52	N/A	N/A	N/A	447	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	6	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	36	N/A	N/A	N/A	83	N/A	N/A	N/A	177
OFR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	7	N/A	N/A	N/A	7
Total Density (pc/mi/ln)	4.3	5.4	6.0	5.8	6.8	5.2	4.4	8.5	7.7
V/C	0.17	0.16	0.17	0.17	0.17	0.15	0.25	0.25	0.25
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 63
US 70 WB - AM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19W	20W	21W	22W	23W	24W	25W	26W	27W
General Purpose Segment Name	Within NC 11 Int	From NC 11	NC 11 to CF Harvey Pkwy	To CF Harvey Pkwy	CF Harvey Pkwy to US 70 BUS (W)	From US 70 BUS (W)	US 70 Bus (W) to Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	4140	2500	12380	1500	11160	1500	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	920	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	411	N/A	N/A	N/A	840	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	5	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	444	N/A	N/A	N/A	311	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	5	N/A	N/A	N/A	4	N/A
Total Density (pc/mi/ln)	7.2	10.7	10.2	12.1	6.9	16.4	13.1	15.6	10.8
V/C	0.21	0.30	0.30	0.30	0.20	0.38	0.38	0.38	0.32
Density Based LOS	A	B	A	B	A	B	B	B	A

R-2553 US 70 Kinston Bypass, Alternative 63
US 70 WB - AM Peak

Segment	Seg. 28	Seg. 29
General Purpose Segment Data	28W	29W
General Purpose Segment Name	From Jim Sutton/Willie Measley	W of Jim Sutton/Willie Measley
General Purpose Segment Type	On-Ramp	BFS
Segment Length (ft)	1620	5280
Terrain	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5
# of Lanes: Mainline	2	2
Free Flow Speed (mph)	70	70
Mainline Dem. (vph)	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	1620	N/A
ONR Side	Right	N/A
# Lanes: ONR	1	N/A
ONR Free Flow Speed (mph)	25	N/A
ONR/Entering Dem. (vph)	223	N/A
ONR Single Unit Truck and Bus (%)	4	N/A
OFR Side	N/A	N/A
# Lanes: OFR	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A
Total Density (pc/mi/ln)	8.9	12.5
V/C	0.36	0.36
Density Based LOS	A	B

R-2553 US 70 Kinston Bypass, Alternative 63
US 70 WB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1W	2W	3W	4W	5W	6W	7W	8W	9W
General Purpose Segment Name	E of Burkett/Kornegay	To Burkett/Kornegay	Within Burkett/Kornegay Int	From Burkett/Kornegay	Burkett/Kornegay to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E) Int	From US 70 Bus (E)	US 70 Bus (E) to NC 58
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	3000	1500	10800	1500	1940	1500	14370
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1012	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	9	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	920	N/A	490	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	81	N/A	N/A	N/A	100	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	6	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	49	N/A	N/A	N/A	454	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	6	N/A	N/A	N/A
Total Density (pc/mi/ln)	7.6	8.9	7.2	8.2	7.8	9.2	4.4	5.3	5.2
V/C	0.22	0.22	0.21	0.23	0.23	0.23	0.13	0.15	0.15
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 63
US 70 WB - PM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10W	11W	12W	13W	14W	15W	16W	17W	18W
General Purpose Segment Name	To NC 58	Within NC 58 Int	From NC 58	NC 58 to US 258	To US 258	Within US 258 Int	From US 258	US 258 to NC 11	To NC 11
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	12350	1500	1500	1620	7710	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	42	N/A	N/A	N/A	359	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	6	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	40	N/A	N/A	N/A	79	N/A	N/A	N/A	157
OFR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	7	N/A	N/A	N/A	7
Total Density (pc/mi/ln)	3.7	4.9	5.4	5.2	6.1	4.6	3.1	7.3	6.3
V/C	0.15	0.14	0.15	0.15	0.15	0.13	0.21	0.21	0.21
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 63
US 70 WB - PM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19W	20W	21W	22W	23W	24W	25W	26W	27W
General Purpose Segment Name	Within NC 11 Int	From NC 11	NC 11 to CF Harvey Pkwy	To CF Harvey Pkwy	CF Harvey Pkwy to US 70 BUS (W)	From US 70 BUS (W)	US 70 Bus (W) to Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	4140	2500	12380	1500	11160	1500	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	920	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	379	N/A	N/A	N/A	1260	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	5	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	297	N/A	N/A	N/A	424	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	5	N/A	N/A	N/A	4	N/A
Total Density (pc/mi/ln)	6.1	9.3	8.9	10.6	6.7	19.3	16.0	19.1	12.9
V/C	0.18	0.26	0.26	0.26	0.20	0.47	0.47	0.47	0.38
Density Based LOS	A	A	A	B	A	B	B	B	B

R-2553 US 70 Kinston Bypass, Alternative 63
US 70 WB - PM Peak

Segment	Seg. 28	Seg. 29
General Purpose Segment Data	28W	29W
General Purpose Segment Name	From Jim Sutton/Willie Measley	W of Jim Sutton/Willie Measley
General Purpose Segment Type	On-Ramp	BFS
Segment Length (ft)	1620	5280
Terrain	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5
# of Lanes: Mainline	2	2
Free Flow Speed (mph)	70	70
Mainline Dem. (vph)	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	1620	N/A
ONR Side	Right	N/A
# Lanes: ONR	1	N/A
ONR Free Flow Speed (mph)	25	N/A
ONR/Entering Dem. (vph)	201	N/A
ONR Single Unit Truck and Bus (%)	4	N/A
OFR Side	N/A	N/A
# Lanes: OFR	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A
Total Density (pc/mi/ln)	10.9	14.3
V/C	0.42	0.42
Density Based LOS	B	B

R-2553 US 70 Kinston Bypass, Alternative 63
CF Harvey Parkwy Ext NB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7
General Purpose Segment Data	1N	2N	3N	4N	5N	6N	7N
General Purpose Segment Name	US 70 to US 70 BUS/NC 148	To US 70 BUS EB	Ramp to US 70 BUS EB to Ramp to US 70 BUS WB	To US 70 BUS WB	Within US 70 BUS Int	From US 70 BUS	North of US 70 BUS
General Purpose Segment Type	BFS	Off-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	6400	1500	1500	1500	1500	1500	5280
Terrain	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70
Mainline Dem. (vph)	444	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	5	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	N/A	N/A	558	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	90	N/A	22	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	5	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	3.3	3.8	2.6	0.6	2.4	6.6	6.5
V/C	0.09	0.09	0.08	0.08	0.07	0.19	0.19
Density Based LOS	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 63
CF Harvey Parkwy Ext NB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7
General Purpose Segment Data	1N	2N	3N	4N	5N	6N	7N
General Purpose Segment Name	US 70 to US 70 BUS/NC 148	To US 70 BUS EB	Ramp to US 70 BUS EB to Ramp to US 70 BUS WB	To US 70 BUS WB	Within US 70 BUS Int	From US 70 BUS	North of US 70 BUS
General Purpose Segment Type	BFS	Off-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	6400	1500	1500	1500	1500	1500	5280
Terrain	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70
Mainline Dem. (vph)	297	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	5	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	N/A	N/A	284	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	81	N/A	26	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	5	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	2.2	2.5	1.6	0.0*	1.4	3.4	3.5
V/C	0.06	0.06	0.05	0.05	0.04	0.10	0.10
Density Based LOS	A	A	A	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 63
CF Harvey Parkwy Ext SB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7
General Purpose Segment Data	1S	2S	3S	4S	5S	6S	7S
General Purpose Segment Name	North of US 70 BUS	To US 70 BUS WB	Ramp to US 70 BUS WB to US 70 BUS Weave	US 70 BUS Weave	US 70 BUS Weave to Ramp from US 70 BUS EB	From US 70 BUS EB	US 70 BUS EB to US 70
General Purpose Segment Type	BFS	Off-Ramp	BFS	Weave	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	700	1500	1500	5610
Terrain	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70
Mainline Dem. (vph)	475	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	N/A	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	25	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	81	N/A	26	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	5	N/A	5	N/A
OFR Side	N/A	Right	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	269	N/A	16	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	5	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	3.5	4.1	1.5	2.2	2.0	2.1	2.2
V/C	0.10	0.10	0.04	0.07	0.06	0.06	0.06
Density Based LOS	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 63
CF Harvey Parkwy Ext SB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7
General Purpose Segment Data	1S	2S	3S	4S	5S	6S	7S
General Purpose Segment Name	North of US 70 BUS	To US 70 BUS WB	Ramp to US 70 BUS WB to US 70 BUS Weave	US 70 BUS Weave	US 70 BUS Weave to Ramp from US 70 BUS EB	From US 70 BUS EB	US 70 BUS EB to US 70
General Purpose Segment Type	BFS	Off-Ramp	BFS	Weave	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	700	1500	1500	5610
Terrain	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70
Mainline Dem. (vph)	890	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	N/A	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	25	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	90	N/A	22	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	5	N/A	5	N/A
OFR Side	N/A	Right	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	533	N/A	25	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	5	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	6.6	7.8	2.7	3.5	3.2	3.3	3.3
V/C	0.19	0.19	0.08	0.11	0.09	0.10	0.10
Density Based LOS	A	A	A	A	A	A	A

2040 Build Alternative 63
Synchro Reports

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	4	4	4	4	30	4	106	4	18	70	6
Future Volume (vph)	11	4	4	4	4	30	4	106	4	18	70	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1693	0	0	1589	0	1770	1853	0	1770	1840	0
Flt Permitted		0.971			0.995		0.950			0.950		
Satd. Flow (perm)	0	1693	0	0	1589	0	1770	1853	0	1770	1840	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		883			854			935			1001	
Travel Time (s)		13.4			12.9			11.6			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	0	0	41	0	4	122	0	20	85	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 18.1%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	4	4	4	4	30	4	106	4	18	70	6
Future Volume (Veh/h)	11	4	4	4	4	30	4	106	4	18	70	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	12	4	4	4	4	33	4	118	4	20	78	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1001	
pX, platoon unblocked												
vC, conflicting volume	282	252	82	252	253	120	85			122		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	282	252	82	252	253	120	85			122		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	98	99	100	99	99	96	100			99		
cM capacity (veh/h)	627	634	967	678	633	921	1512			1465		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	20	41	4	122	20	85
Volume Left	12	4	4	0	20	0
Volume Right	4	33	0	4	0	7
cSH	676	853	1512	1700	1465	1700
Volume to Capacity	0.03	0.05	0.00	0.07	0.01	0.05
Queue Length 95th (ft)	2	4	0	0	1	0
Control Delay (s)	10.5	9.4	7.4	0.0	7.5	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	10.5	9.4	0.2		1.4	
Approach LOS	B	A				

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	4	4	4	4	18	4	70	4	30	106	11
Future Volume (vph)	6	4	4	4	4	18	4	70	4	30	106	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1688	0	0	1609	0	1770	1850	0	1770	1837	0
Flt Permitted		0.977			0.993		0.950			0.950		
Satd. Flow (perm)	0	1688	0	0	1609	0	1770	1850	0	1770	1837	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		883			854			935			1001	
Travel Time (s)		13.4			12.9			11.6			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	0	28	0	4	82	0	33	130	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 18.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	4	4	4	4	18	4	70	4	30	106	11
Future Volume (Veh/h)	6	4	4	4	4	18	4	70	4	30	106	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	4	4	4	4	20	4	78	4	33	118	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1001	
pX, platoon unblocked												
vC, conflicting volume	298	280	124	278	284	80	130			82		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	298	280	124	278	284	80	130			82		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	99	99	100	99	99	98	100			98		
cM capacity (veh/h)	618	606	916	648	603	969	1455			1515		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	15	28	4	82	33	130
Volume Left	7	4	4	0	33	0
Volume Right	4	20	0	4	0	12
cSH	673	837	1455	1700	1515	1700
Volume to Capacity	0.02	0.03	0.00	0.05	0.02	0.08
Queue Length 95th (ft)	2	3	0	0	2	0
Control Delay (s)	10.5	9.4	7.5	0.0	7.4	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	10.5	9.4	0.3		1.5	
Approach LOS	B	A				

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	18.3%	ICU Level of Service	A
Analysis Period (min)	15		

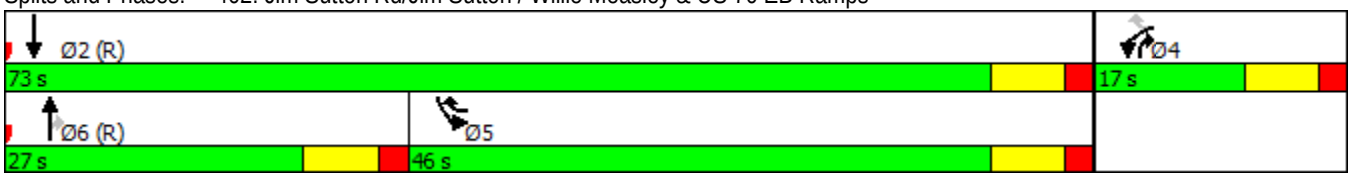
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	34	147	71	71	311	64
Future Volume (vph)	34	147	71	71	311	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		100	325	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1863	1583	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1863	1583	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	999		1001			1313
Travel Time (s)	27.2		12.4			16.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	163	79	79	346	71
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	17.0	46.0	27.0	17.0	46.0	73.0
Total Split (%)	18.9%	51.1%	30.0%	18.9%	51.1%	81.1%
Maximum Green (s)	10.0	39.0	20.0	10.0	39.0	66.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.0	38.0	42.0	54.1	25.9	73.8
Actuated g/C Ratio	0.11	0.42	0.47	0.60	0.29	0.82
v/c Ratio	0.20	0.25	0.09	0.08	0.69	0.05
Control Delay	38.4	15.3	18.3	9.6	31.6	2.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.4	15.3	18.3	9.6	31.6	2.3
LOS	D	B	B	A	C	A
Approach Delay	19.7		14.0			26.6
Approach LOS	B		B			C
Queue Length 50th (ft)	20	55	25	17	132	6
Queue Length 95th (ft)	49	73	65	46	179	15
Internal Link Dist (ft)	919		921			1233
Turn Bay Length (ft)		175		100	325	
Base Capacity (vph)	231	755	868	924	790	1499
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.22	0.09	0.09	0.44	0.05

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 24 (27%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 22.3 Intersection LOS: C
Intersection Capacity Utilization 38.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps



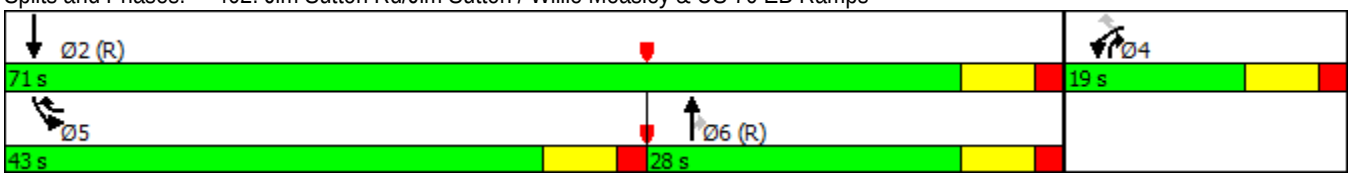
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	45	156	55	43	237	97
Future Volume (vph)	45	156	55	43	237	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		100	325	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1863	1583	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1863	1583	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	999		1001			1313
Travel Time (s)	27.2		12.4			16.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	50	173	61	48	263	108
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	19.0	43.0	28.0	19.0	43.0	71.0
Total Split (%)	21.1%	47.8%	31.1%	21.1%	47.8%	78.9%
Maximum Green (s)	12.0	36.0	21.0	12.0	36.0	64.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.4	33.8	46.2	61.6	21.2	73.4
Actuated g/C Ratio	0.12	0.38	0.51	0.68	0.24	0.82
v/c Ratio	0.25	0.30	0.06	0.04	0.64	0.07
Control Delay	38.9	18.7	15.4	7.2	31.2	2.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	18.7	15.4	7.2	31.2	2.3
LOS	D	B	B	A	C	A
Approach Delay	23.3		11.8			22.7
Approach LOS	C		B			C
Queue Length 50th (ft)	26	65	18	9	119	6
Queue Length 95th (ft)	59	90	48	26	171	19
Internal Link Dist (ft)	919		921			1233
Turn Bay Length (ft)		175		100	325	
Base Capacity (vph)	270	872	957	1147	732	1490
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.20	0.06	0.04	0.36	0.07

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 10 (11%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 21.2 Intersection LOS: C
Intersection Capacity Utilization 34.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps



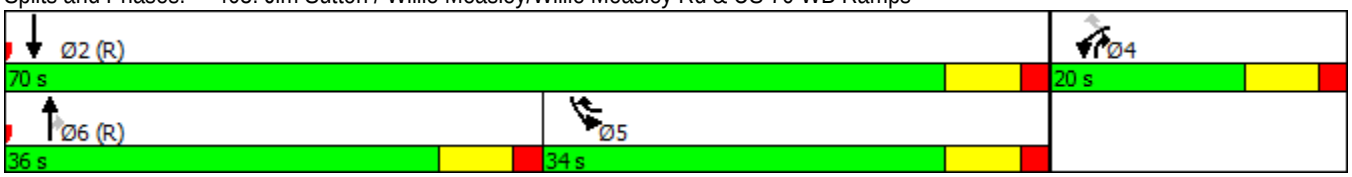
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	43	237	173	45	156	332
Future Volume (vph)	43	237	173	45	156	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	275		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	987		1313			996
Travel Time (s)	15.0		16.3			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	263	192	50	173	369
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	34.0	36.0	20.0	34.0	70.0
Total Split (%)	22.2%	37.8%	40.0%	22.2%	37.8%	77.8%
Maximum Green (s)	13.0	27.0	29.0	13.0	27.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.3	32.3	47.7	60.2	19.8	73.5
Actuated g/C Ratio	0.11	0.36	0.53	0.67	0.22	0.82
v/c Ratio	0.24	0.47	0.20	0.05	0.45	0.25
Control Delay	38.8	23.5	11.4	4.2	33.7	3.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.8	23.5	11.4	4.2	33.7	3.2
LOS	D	C	B	A	C	A
Approach Delay	25.9		9.9			13.0
Approach LOS	C		A			B
Queue Length 50th (ft)	25	108	48	5	86	45
Queue Length 95th (ft)	57	151	99	16	138	83
Internal Link Dist (ft)	907		1233			916
Turn Bay Length (ft)		275		100	200	
Base Capacity (vph)	289	602	968	1026	559	1491
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.44	0.20	0.05	0.31	0.25

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.47
Intersection Signal Delay: 16.0 Intersection LOS: B
Intersection Capacity Utilization 38.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps



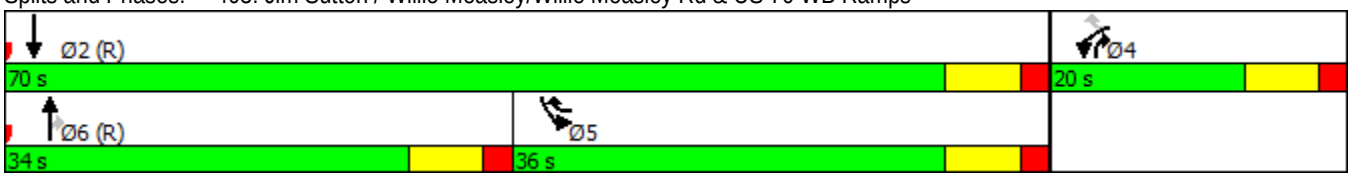
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	71	311	177	34	147	263
Future Volume (vph)	71	311	177	34	147	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	275		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	987		1313			996
Travel Time (s)	15.0		16.3			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	79	346	197	38	163	292
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	36.0	34.0	20.0	36.0	70.0
Total Split (%)	22.2%	40.0%	37.8%	22.2%	40.0%	77.8%
Maximum Green (s)	13.0	29.0	27.0	13.0	29.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	11.6	38.1	41.9	55.7	24.3	72.2
Actuated g/C Ratio	0.13	0.42	0.47	0.62	0.27	0.80
v/c Ratio	0.35	0.53	0.23	0.04	0.35	0.20
Control Delay	39.5	20.8	13.2	6.7	27.8	3.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.5	20.8	13.2	6.7	27.8	3.5
LOS	D	C	B	A	C	A
Approach Delay	24.2		12.1			12.2
Approach LOS	C		B			B
Queue Length 50th (ft)	42	134	34	5	75	37
Queue Length 95th (ft)	81	168	155	17	118	73
Internal Link Dist (ft)	907		1233			916
Turn Bay Length (ft)		275		100	200	
Base Capacity (vph)	289	682	850	946	597	1465
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.51	0.23	0.04	0.27	0.20

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.53
Intersection Signal Delay: 16.8 Intersection LOS: B
Intersection Capacity Utilization 39.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	8	205	42	4	4	169	127	60	8	189	5
Future Volume (vph)	4	8	205	42	4	4	169	127	60	8	189	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1623	0	0	1769	0	1736	1739	0	1770	1855	0
Flt Permitted		0.999			0.959		0.950			0.950		
Satd. Flow (perm)	0	1623	0	0	1769	0	1736	1739	0	1770	1855	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		970			951			996			1084	
Travel Time (s)		14.7			14.4			12.3			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	241	0	0	55	0	188	208	0	9	216	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 49.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	8	205	42	4	4	169	127	60	8	189	5
Future Volume (Veh/h)	4	8	205	42	4	4	169	127	60	8	189	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	9	228	47	4	4	188	141	67	9	210	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								996				
pX, platoon unblocked												
vC, conflicting volume	754	815	213	1011	784	174	216			208		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	754	815	213	1011	784	174	216			208		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	97	72	66	99	100	86			99		
cM capacity (veh/h)	285	266	827	137	277	869	1342			1363		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	241	55	188	208	9	216
Volume Left	4	47	188	0	9	0
Volume Right	228	4	0	67	0	6
cSH	745	152	1342	1700	1363	1700
Volume to Capacity	0.32	0.36	0.14	0.12	0.01	0.13
Queue Length 95th (ft)	35	38	12	0	0	0
Control Delay (s)	12.1	41.7	8.1	0.0	7.7	0.0
Lane LOS	B	E	A		A	
Approach Delay (s)	12.1	41.7	3.9		0.3	
Approach LOS	B	E				

Intersection Summary			
Average Delay	7.4		
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	4	169	60	8	8	205	189	42	4	127	4
Future Volume (vph)	5	4	169	60	8	8	205	189	42	4	127	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1621	0	0	1767	0	1736	1778	0	1770	1855	0
Flt Permitted		0.998			0.962		0.950			0.950		
Satd. Flow (perm)	0	1621	0	0	1767	0	1736	1778	0	1770	1855	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		970			951			996			1084	
Travel Time (s)		14.7			14.4			12.3			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	198	0	0	85	0	228	257	0	4	145	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 46.8%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	4	169	60	8	8	205	189	42	4	127	4
Future Volume (Veh/h)	5	4	169	60	8	8	205	189	42	4	127	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	4	188	67	9	9	228	210	47	4	141	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								996				
pX, platoon unblocked												
vC, conflicting volume	830	864	143	1028	842	234	145			257		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	830	864	143	1028	842	234	145			257		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	98	79	54	96	99	84			100		
cM capacity (veh/h)	244	245	905	145	252	806	1425			1308		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	198	85	228	257	4	145
Volume Left	6	67	228	0	4	0
Volume Right	188	9	0	47	0	4
cSH	796	167	1425	1700	1308	1700
Volume to Capacity	0.25	0.51	0.16	0.15	0.00	0.09
Queue Length 95th (ft)	25	62	14	0	0	0
Control Delay (s)	11.0	46.9	8.0	0.0	7.8	0.0
Lane LOS	B	E	A		A	
Approach Delay (s)	11.0	46.9	3.8		0.2	
Approach LOS	B	E				

Intersection Summary			
Average Delay	8.7		
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	750	505	163	0	193
Future Volume (vph)	0	750	505	163	0	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			300	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	100				100	
Satd. Flow (prot)	0	3471	3471	1553	0	1550
Flt Permitted						
Satd. Flow (perm)	0	3471	3471	1553	0	1550
Link Speed (mph)		55	55		45	
Link Distance (ft)		1000	953		1176	
Travel Time (s)		12.4	11.8		17.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	833	561	181	0	214
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 32.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	750	505	163	0	193
Future Volume (Veh/h)	0	750	505	163	0	193
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	833	561	181	0	214
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	561				978	280
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	561				978	280
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	100				100	70
cM capacity (veh/h)	993				241	705

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	416	416	280	280	181	214
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	181	214
cSH	1700	1700	1700	1700	1700	705
Volume to Capacity	0.24	0.24	0.17	0.17	0.11	0.30
Queue Length 95th (ft)	0	0	0	0	0	32
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.3
Lane LOS						B
Approach Delay (s)	0.0		0.0			12.3
Approach LOS						B

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	32.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	681	572	207	0	150
Future Volume (vph)	0	681	572	207	0	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			300	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	100				100	
Satd. Flow (prot)	0	3471	3471	1553	0	1550
Flt Permitted						
Satd. Flow (perm)	0	3471	3471	1553	0	1550
Link Speed (mph)		55	55		45	
Link Distance (ft)		1000	953		1176	
Travel Time (s)		12.4	11.8		17.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	757	636	230	0	167
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	681	572	207	0	150
Future Volume (Veh/h)	0	681	572	207	0	150
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	757	636	230	0	167
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	636				1014	318
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	636				1014	318
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	100				100	75
cM capacity (veh/h)	930				228	666

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	378	378	318	318	230	167
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	230	167
cSH	1700	1700	1700	1700	1700	666
Volume to Capacity	0.22	0.22	0.19	0.19	0.14	0.25
Queue Length 95th (ft)	0	0	0	0	0	25
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.2
Lane LOS						B
Approach Delay (s)	0.0		0.0			12.2
Approach LOS						B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	31.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	292	25	24	902	599	189
Future Volume (vph)	292	25	24	902	599	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			125
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1671	1495	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1671	1495	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	55	
Link Distance (ft)	1293			1201	1455	
Travel Time (s)	16.0			14.9	18.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	324	28	27	1002	666	210
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	50.0	14.0	14.0	120.0	106.0	50.0
Total Split (%)	29.4%	8.2%	8.2%	70.6%	62.4%	29.4%
Maximum Green (s)	43.0	7.0	7.0	113.0	99.0	43.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	39.0	53.3	9.4	121.0	109.5	154.4
Actuated g/C Ratio	0.23	0.31	0.06	0.71	0.64	0.91
v/c Ratio	0.85	0.06	0.28	0.78	0.57	0.15
Control Delay	82.4	38.7	85.1	22.4	14.2	1.7

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.5	0.0	0.0	0.8	0.0	0.0
Total Delay	82.9	38.7	85.1	23.3	14.2	1.7
LOS	F	D	F	C	B	A
Approach Delay	79.4			24.9	11.2	
Approach LOS	E			C	B	
Queue Length 50th (ft)	346	22	29	689	219	17
Queue Length 95th (ft)	455	46	66	996	523	m52
Internal Link Dist (ft)	1213			1121	1375	
Turn Bay Length (ft)		100	100			125
Base Capacity (vph)	442	468	95	1288	1165	1424
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	13	0	0	93	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.06	0.28	0.84	0.57	0.15

Intersection Summary

Area Type: Other
Cycle Length: 170
Actuated Cycle Length: 170
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 28.1 Intersection LOS: C
Intersection Capacity Utilization 72.0% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 406: NC 11/NC 11/55 & NC 55

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	190	23	24	599	902	292
Future Volume (vph)	190	23	24	599	902	292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			125
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1671	1495	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1671	1495	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	55	
Link Distance (ft)	1293			1201	1455	
Travel Time (s)	16.0			14.9	18.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	211	26	27	666	1002	324
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	20.0	14.0	14.0	80.0	66.0	20.0
Total Split (%)	20.0%	14.0%	14.0%	80.0%	66.0%	20.0%
Maximum Green (s)	13.0	7.0	7.0	73.0	59.0	13.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	15.7	24.1	9.0	74.3	65.9	88.6
Actuated g/C Ratio	0.16	0.24	0.09	0.74	0.66	0.89
v/c Ratio	0.81	0.07	0.18	0.50	0.84	0.24
Control Delay	65.1	27.0	45.0	6.7	16.9	1.6

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.1	27.0	45.0	6.7	16.9	1.6
LOS	E	C	D	A	B	A
Approach Delay	60.9			8.2	13.1	
Approach LOS	E			A	B	
Queue Length 50th (ft)	132	12	16	139	338	17
Queue Length 95th (ft)	#258	32	43	202	#841	m37
Internal Link Dist (ft)	1213			1121	1375	
Turn Bay Length (ft)		100	100			125
Base Capacity (vph)	262	360	154	1358	1193	1347
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.07	0.18	0.49	0.84	0.24

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 18 (18%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 16.6 Intersection LOS: B
Intersection Capacity Utilization 66.3% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 406: NC 11/NC 11/55 & NC 55

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	253	88	1071	125	16	533
Future Volume (vph)	253	88	1071	125	16	533
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		175	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1810	1538	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1810	1538	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	942		1455			1429
Travel Time (s)	25.7		18.0			17.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	5%	5%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	281	98	1190	139	18	592
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	42.0	14.0	114.0	42.0	14.0	128.0
Total Split (%)	24.7%	8.2%	67.1%	24.7%	8.2%	75.3%
Maximum Green (s)	35.0	7.0	107.0	35.0	7.0	121.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	33.5	47.5	112.5	151.0	9.0	126.5
Actuated g/C Ratio	0.20	0.28	0.66	0.89	0.05	0.74
v/c Ratio	0.85	0.23	0.99	0.10	0.20	0.45
Control Delay	87.9	47.8	47.2	1.1	78.1	6.4

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.2	0.0	0.0	0.0
Total Delay	87.9	47.8	47.4	1.1	78.1	6.4
LOS	F	D	D	A	E	A
Approach Delay	77.5		42.6			8.5
Approach LOS	E		D			A
Queue Length 50th (ft)	300	83	~1260	11	21	333
Queue Length 95th (ft)	414	137	#1676	m10	m47	140
Internal Link Dist (ft)	862		1375			1349
Turn Bay Length (ft)		175		175	100	
Base Capacity (vph)	367	421	1197	1359	89	1321
Starvation Cap Reductn	0	0	1	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.23	0.99	0.10	0.20	0.45

Intersection Summary

Area Type: Other
Cycle Length: 170
Actuated Cycle Length: 170
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 39.3 Intersection LOS: D
Intersection Capacity Utilization 78.7% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 407: NC 11/55 & US 70 EB Ramps

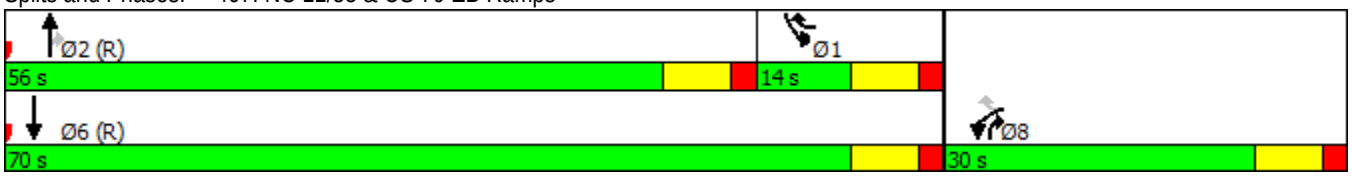
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	312	58	658	128	31	884
Future Volume (vph)	312	58	658	128	31	884
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		175	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1810	1538	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1810	1538	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	942		1455			1429
Travel Time (s)	25.7		18.0			17.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	5%	5%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	347	64	731	142	34	982
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	30.0	14.0	56.0	30.0	14.0	70.0
Total Split (%)	30.0%	14.0%	56.0%	30.0%	14.0%	70.0%
Maximum Green (s)	23.0	7.0	49.0	23.0	7.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	24.1	37.5	54.3	84.4	9.4	65.9
Actuated g/C Ratio	0.24	0.38	0.54	0.84	0.09	0.66
v/c Ratio	0.85	0.11	0.74	0.11	0.22	0.84
Control Delay	57.2	20.0	18.2	1.6	31.8	10.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.2	20.0	18.2	1.6	31.8	10.0
LOS	E	B	B	A	C	A
Approach Delay	51.4		15.5			10.7
Approach LOS	D		B			B
Queue Length 50th (ft)	210	25	321	12	20	95
Queue Length 95th (ft)	#356	54	397	m17	m26	#124
Internal Link Dist (ft)	862		1375			1349
Turn Bay Length (ft)		175		175	100	
Base Capacity (vph)	421	565	991	1296	158	1171
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.11	0.74	0.11	0.22	0.84

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 8 (8%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 19.8 Intersection LOS: B
Intersection Capacity Utilization 72.1% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 407: NC 11/55 & US 70 EB Ramps



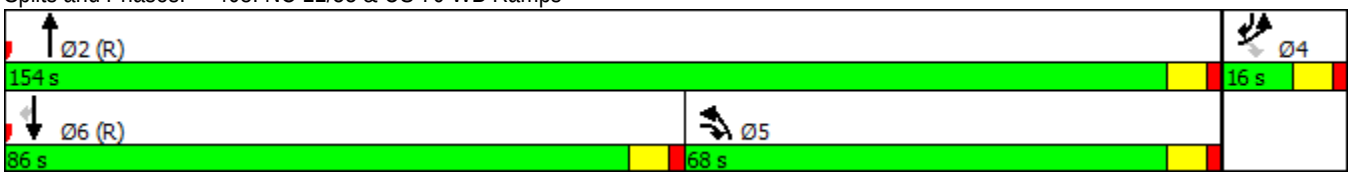
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	31	128	312	847	421	58
Future Volume (vph)	31	128	312	847	421	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	275	450			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1687	1509	1687	1776	1776	1509
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1687	1509	1687	1776	1776	1509
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1169			1429	1067	
Travel Time (s)	31.9			17.7	13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	34	142	347	941	468	64
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	16.0	68.0	68.0	154.0	86.0	16.0
Total Split (%)	9.4%	40.0%	40.0%	90.6%	50.6%	9.4%
Maximum Green (s)	9.0	61.0	61.0	147.0	79.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	11.1	59.2	43.1	148.9	100.8	116.9
Actuated g/C Ratio	0.07	0.35	0.25	0.88	0.59	0.69
v/c Ratio	0.31	0.27	0.81	0.61	0.44	0.06
Control Delay	82.4	39.4	50.3	1.6	22.5	10.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	82.4	39.4	50.3	1.9	22.5	10.3
LOS	F	D	D	A	C	B
Approach Delay	47.7			14.9	21.1	
Approach LOS	D			B	C	
Queue Length 50th (ft)	37	114	341	79	278	22
Queue Length 95th (ft)	76	153	m393	m10	450	49
Internal Link Dist (ft)	1089			1349	987	
Turn Bay Length (ft)		275	450			100
Base Capacity (vph)	118	581	625	1564	1052	1017
Starvation Cap Reductn	0	0	0	165	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.24	0.56	0.67	0.44	0.06

Intersection Summary

Area Type: Other
Cycle Length: 170
Actuated Cycle Length: 170
Offset: 46 (27%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 19.4 Intersection LOS: B
Intersection Capacity Utilization 58.7% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 408: NC 11/55 & US 70 WB Ramps



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	125	253	463	790	88
Future Volume (vph)	16	125	253	463	790	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	275	450			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1687	1509	1687	1776	1776	1509
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1687	1509	1687	1776	1776	1509
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1169			1429	1067	
Travel Time (s)	31.9			17.7	13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	139	281	514	878	98
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	14.0	25.0	25.0	86.0	61.0	14.0
Total Split (%)	14.0%	25.0%	25.0%	86.0%	61.0%	14.0%
Maximum Green (s)	7.0	18.0	18.0	79.0	54.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.0	31.1	19.9	84.8	58.9	70.1
Actuated g/C Ratio	0.09	0.31	0.20	0.85	0.59	0.70
v/c Ratio	0.12	0.30	0.84	0.34	0.84	0.09
Control Delay	43.9	26.8	44.9	1.1	27.4	5.1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.9	26.8	44.9	1.1	27.4	5.1
LOS	D	C	D	A	C	A
Approach Delay	28.8			16.6	25.2	
Approach LOS	C			B	C	
Queue Length 50th (ft)	11	64	185	13	458	17
Queue Length 95th (ft)	33	113	m#297	28	#741	33
Internal Link Dist (ft)	1089			1349	987	
Turn Bay Length (ft)		275	450			100
Base Capacity (vph)	151	476	343	1506	1052	1057
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.29	0.82	0.34	0.83	0.09

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 21.9 Intersection LOS: C
Intersection Capacity Utilization 73.9% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 408: NC 11/55 & US 70 WB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	218	105	390	51	20	79
Future Volume (vph)	218	105	390	51	20	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	125		100	125	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	980		1013			1287
Travel Time (s)	26.7		12.6			16.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	242	117	433	57	22	88
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	30.0	14.0	46.0	30.0	14.0	60.0
Total Split (%)	33.3%	15.6%	51.1%	33.3%	15.6%	66.7%
Maximum Green (s)	23.0	7.0	39.0	23.0	7.0	53.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	20.0	34.4	48.4	74.4	9.4	60.0
Actuated g/C Ratio	0.22	0.38	0.54	0.83	0.10	0.67
v/c Ratio	0.65	0.20	0.45	0.05	0.13	0.07
Control Delay	39.4	18.2	17.1	2.4	43.3	4.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.4	18.2	17.1	2.4	43.3	4.2
LOS	D	B	B	A	D	A
Approach Delay	32.5		15.4			12.0
Approach LOS	C		B			B
Queue Length 50th (ft)	125	44	152	5	13	9
Queue Length 95th (ft)	186	70	277	13	25	18
Internal Link Dist (ft)	900		933			1207
Turn Bay Length (ft)		125		100	125	
Base Capacity (vph)	473	576	966	1297	175	1189
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.20	0.45	0.04	0.13	0.07

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 56 (62%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 21.4 Intersection LOS: C
Intersection Capacity Utilization 40.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 409: US 258 & US 70 EB Ramps

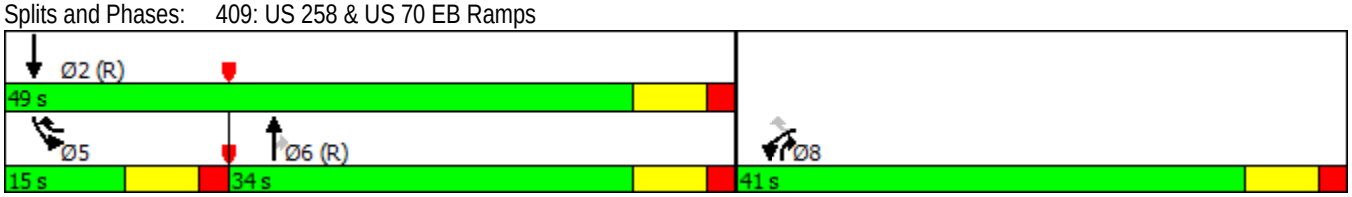
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	321	81	254	43	32	120
Future Volume (vph)	321	81	254	43	32	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	125		100	125	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	980		1013			1287
Travel Time (s)	26.7		12.6			16.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	357	90	282	48	36	133
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	41.0	15.0	34.0	41.0	15.0	49.0
Total Split (%)	45.6%	16.7%	37.8%	45.6%	16.7%	54.4%
Maximum Green (s)	34.0	8.0	27.0	34.0	8.0	42.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	26.4	41.3	41.5	73.9	9.9	53.6
Actuated g/C Ratio	0.29	0.46	0.46	0.82	0.11	0.60
v/c Ratio	0.72	0.13	0.34	0.04	0.19	0.13
Control Delay	36.5	12.7	20.4	2.6	33.8	7.4

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.5	12.7	20.4	2.6	33.8	7.4
LOS	D	B	C	A	C	A
Approach Delay	31.7		17.8			13.0
Approach LOS	C		B			B
Queue Length 50th (ft)	181	29	105	5	16	20
Queue Length 95th (ft)	245	44	204	13	43	77
Internal Link Dist (ft)	900		933			1207
Turn Bay Length (ft)		125		100	125	
Base Capacity (vph)	674	701	818	1340	195	1056
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.13	0.34	0.04	0.18	0.13

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 23.5 — Intersection LOS: C
Intersection Capacity Utilization 49.5% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 409: US 258 & US 70 EB Ramps



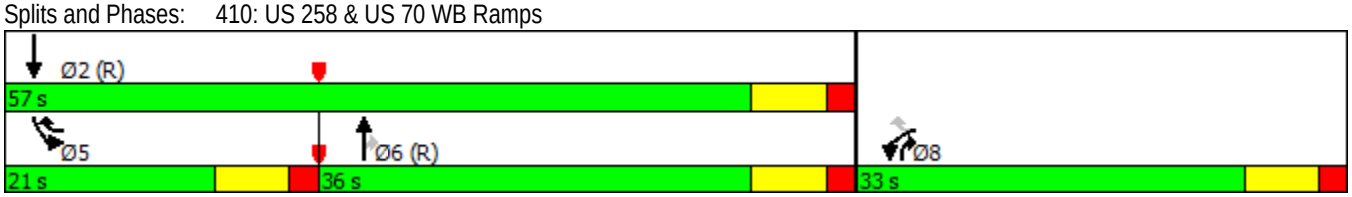
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	43	32	174	321	81	56
Future Volume (vph)	43	32	174	321	81	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		175	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1086		1287			882
Travel Time (s)	16.5		16.0			10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	36	193	357	90	62
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	33.0	21.0	36.0	33.0	21.0	57.0
Total Split (%)	36.7%	23.3%	40.0%	36.7%	23.3%	63.3%
Maximum Green (s)	26.0	14.0	29.0	26.0	14.0	50.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	14.4	31.7	51.1	71.5	12.3	65.6
Actuated g/C Ratio	0.16	0.35	0.57	0.79	0.14	0.73
v/c Ratio	0.18	0.07	0.19	0.30	0.39	0.05
Control Delay	31.4	16.2	7.1	2.3	39.8	4.9

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.4	16.2	7.1	2.3	39.8	4.9
LOS	C	B	A	A	D	A
Approach Delay	24.9		4.0			25.5
Approach LOS	C		A			C
Queue Length 50th (ft)	24	14	10	6	47	8
Queue Length 95th (ft)	49	26	48	16	89	27
Internal Link Dist (ft)	1006		1207			802
Turn Bay Length (ft)		100		175	175	
Base Capacity (vph)	524	594	1008	1363	299	1294
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.06	0.19	0.26	0.30	0.05

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.39
Intersection Signal Delay: 10.4 — Intersection LOS: B
Intersection Capacity Utilization 35.8% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 410: US 258 & US 70 WB Ramps



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	51	20	117	218	105	101
Future Volume (vph)	51	20	117	218	105	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		175	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1086		1287			882
Travel Time (s)	16.5		16.0			10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	22	130	242	117	112
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	27.0	29.0	34.0	27.0	29.0	63.0
Total Split (%)	30.0%	32.2%	37.8%	30.0%	32.2%	70.0%
Maximum Green (s)	20.0	22.0	27.0	20.0	22.0	56.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.8	29.3	53.5	70.3	13.5	69.2
Actuated g/C Ratio	0.12	0.33	0.59	0.78	0.15	0.77
v/c Ratio	0.28	0.04	0.12	0.21	0.46	0.08
Control Delay	39.2	18.5	5.7	1.2	40.1	3.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	18.5	5.7	1.2	40.1	3.0
LOS	D	B	A	A	D	A
Approach Delay	33.4		2.8			21.9
Approach LOS	C		A			C
Queue Length 50th (ft)	30	9	12	8	62	12
Queue Length 95th (ft)	64	22	32	15	108	28
Internal Link Dist (ft)	1006		1207			802
Turn Bay Length (ft)		100		175	175	
Base Capacity (vph)	412	666	1055	1322	449	1366
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.03	0.12	0.18	0.26	0.08

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 12.8 Intersection LOS: B
Intersection Capacity Utilization 27.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 410: US 258 & US 70 WB Ramps

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	4	8	9	5	38	9	300	8	17	159	16
Future Volume (vph)	30	4	8	9	5	38	9	300	8	17	159	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1751	0	0	1665	0	1703	1785	0	1703	1767	0
Flt Permitted		0.965			0.991		0.950			0.950		
Satd. Flow (perm)	0	1751	0	0	1665	0	1703	1785	0	1703	1767	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1178			1128			1123			927	
Travel Time (s)		17.8			17.1			13.9			11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	46	0	0	58	0	10	342	0	19	195	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 30.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	4	8	9	5	38	9	300	8	17	159	16
Future Volume (Veh/h)	30	4	8	9	5	38	9	300	8	17	159	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	4	9	10	6	42	10	333	9	19	177	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											927	
pX, platoon unblocked												
vC, conflicting volume	622	586	186	584	590	338	195			342		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	622	586	186	584	590	338	195			342		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	91	99	99	98	99	94	99			98		
cM capacity (veh/h)	365	413	856	409	410	705	1354			1195		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	46	58	10	342	19	195
Volume Left	33	10	10	0	19	0
Volume Right	9	42	0	9	0	18
cSH	415	588	1354	1700	1195	1700
Volume to Capacity	0.11	0.10	0.01	0.20	0.02	0.11
Queue Length 95th (ft)	9	8	1	0	1	0
Control Delay (s)	14.7	11.8	7.7	0.0	8.1	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	14.7	11.8	0.2		0.7	
Approach LOS	B	B				

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	30.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	5	9	8	4	17	8	159	9	38	300	30
Future Volume (vph)	16	5	9	8	4	17	8	159	9	38	300	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1742	0	0	1690	0	1703	1778	0	1703	1767	0
Flt Permitted		0.974			0.986		0.950			0.950		
Satd. Flow (perm)	0	1742	0	0	1690	0	1703	1778	0	1703	1767	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1178			1128			1123			927	
Travel Time (s)		17.8			17.1			13.9			11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	34	0	0	32	0	9	187	0	42	366	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 34.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	5	9	8	4	17	8	159	9	38	300	30
Future Volume (Veh/h)	16	5	9	8	4	17	8	159	9	38	300	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	18	6	10	9	4	19	9	177	10	42	333	33
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											927	
pX, platoon unblocked	0.95	0.95	0.95	0.95	0.95		0.95					
vC, conflicting volume	650	638	350	630	650	182	366			187		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	602	590	285	581	602	182	302			187		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	95	98	99	98	99	98	99			97		
cM capacity (veh/h)	367	383	714	381	376	861	1170			1364		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	34	32	9	187	42	366
Volume Left	18	9	9	0	42	0
Volume Right	10	19	0	10	0	33
cSH	432	568	1170	1700	1364	1700
Volume to Capacity	0.08	0.06	0.01	0.11	0.03	0.22
Queue Length 95th (ft)	6	4	1	0	2	0
Control Delay (s)	14.0	11.7	8.1	0.0	7.7	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	14.0	11.7	0.4		0.8	
Approach LOS	B	B				

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	18	20	29	333	176	7
Future Volume (vph)	18	20	29	333	176	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	959			927	1201	
Travel Time (s)	14.5			11.5	14.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	22	32	370	196	8
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	22.0	22.0	22.0	68.0	46.0	22.0
Total Split (%)	24.4%	24.4%	24.4%	75.6%	51.1%	24.4%
Maximum Green (s)	15.0	15.0	15.0	61.0	39.0	15.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.3	15.6	9.7	82.1	72.0	80.7
Actuated g/C Ratio	0.10	0.17	0.11	0.91	0.80	0.90
v/c Ratio	0.11	0.08	0.17	0.23	0.14	0.01
Control Delay	38.0	27.2	38.4	1.9	2.8	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	27.2	38.4	1.9	2.8	0.3
LOS	D	C	D	A	A	A
Approach Delay	32.3			4.8	2.7	
Approach LOS	C			A	A	
Queue Length 50th (ft)	11	12	17	0	18	0
Queue Length 95th (ft)	32	27	43	71	28	1
Internal Link Dist (ft)	879			847	1121	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	321	387	321	1634	1433	1432
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.06	0.10	0.23	0.14	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 28 (31%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.23
Intersection Signal Delay: 5.9 Intersection LOS: A
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 412: NC 58 & US 70 EB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	32	22	174	330	10
Future Volume (vph)	15	32	22	174	330	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	959			927	1201	
Travel Time (s)	14.5			11.5	14.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	36	24	193	367	11
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	17.0	18.0	18.0	73.0	55.0	17.0
Total Split (%)	18.9%	20.0%	20.0%	81.1%	61.1%	18.9%
Maximum Green (s)	10.0	11.0	11.0	66.0	48.0	10.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.2	15.3	9.5	82.2	72.3	80.9
Actuated g/C Ratio	0.10	0.17	0.11	0.91	0.80	0.90
v/c Ratio	0.10	0.14	0.13	0.12	0.26	0.01
Control Delay	37.9	29.2	38.0	1.6	2.4	0.2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	29.2	38.0	1.6	2.4	0.2
LOS	D	C	D	A	A	A
Approach Delay	32.0			5.6	2.3	
Approach LOS	C			A	A	
Queue Length 50th (ft)	9	19	13	0	26	0
Queue Length 95th (ft)	29	38	36	36	31	0
Internal Link Dist (ft)	879			847	1121	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	227	318	245	1636	1438	1396
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.11	0.10	0.12	0.26	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 28 (31%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.26
Intersection Signal Delay: 5.9 Intersection LOS: A
Intersection Capacity Utilization 32.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 412: NC 58 & US 70 EB Ramps

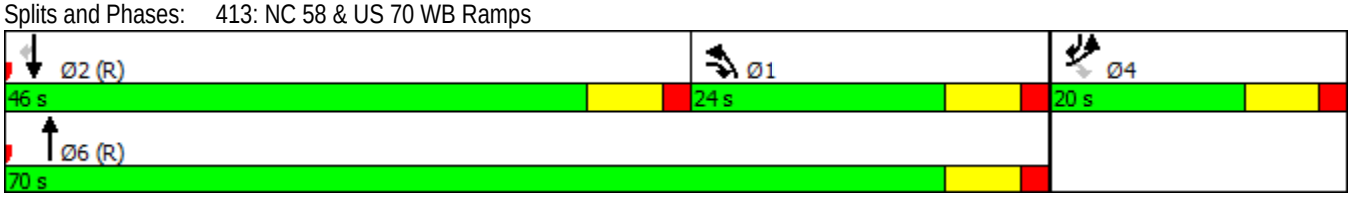
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	22	32	319	161	15
Future Volume (vph)	10	22	32	319	161	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	935			1201	1007	
Travel Time (s)	25.5			14.9	12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	24	36	354	179	17
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	20.0	24.0	24.0	70.0	46.0	20.0
Total Split (%)	22.2%	26.7%	26.7%	77.8%	51.1%	22.2%
Maximum Green (s)	13.0	17.0	17.0	63.0	39.0	13.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.1	15.6	9.9	82.3	72.0	77.7
Actuated g/C Ratio	0.10	0.17	0.11	0.91	0.80	0.86
v/c Ratio	0.06	0.09	0.19	0.22	0.12	0.01
Control Delay	37.6	27.6	38.4	1.3	5.3	2.5

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.6	27.6	38.4	1.3	5.3	2.5
LOS	D	C	D	A	A	A
Approach Delay	30.8			4.8	5.0	
Approach LOS	C			A	A	
Queue Length 50th (ft)	6	13	19	0	18	2
Queue Length 95th (ft)	22	29	47	43	71	6
Internal Link Dist (ft)	855			1121	927	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	283	363	359	1639	1434	1316
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.07	0.10	0.22	0.12	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 16 (18%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.22
Intersection Signal Delay: 6.3 Intersection LOS: A
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 413: NC 58 & US 70 WB Ramps



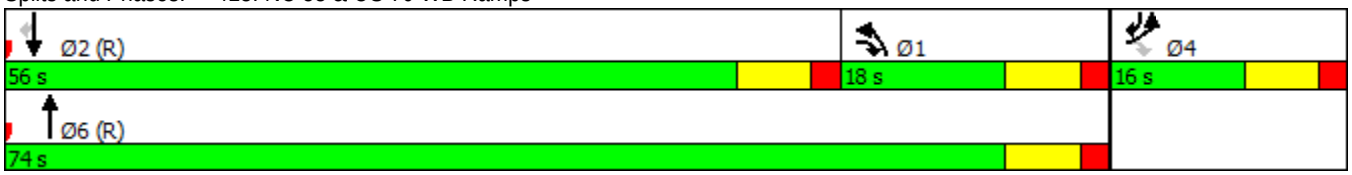
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	29	20	169	311	18
Future Volume (vph)	7	29	20	169	311	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	935			1201	1007	
Travel Time (s)	25.5			14.9	12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	32	22	188	346	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	16.0	18.0	18.0	74.0	56.0	16.0
Total Split (%)	17.8%	20.0%	20.0%	82.2%	62.2%	17.8%
Maximum Green (s)	9.0	11.0	11.0	67.0	49.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.0	15.2	9.6	82.4	72.4	78.0
Actuated g/C Ratio	0.10	0.17	0.11	0.92	0.80	0.87
v/c Ratio	0.05	0.12	0.12	0.11	0.24	0.02
Control Delay	37.4	29.0	38.8	1.3	5.5	2.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	29.0	38.8	1.3	5.5	2.3
LOS	D	C	D	A	A	A
Approach Delay	30.7			5.2	5.3	
Approach LOS	C			A	A	
Queue Length 50th (ft)	4	17	12	0	40	2
Queue Length 95th (ft)	18	36	34	25	134	7
Internal Link Dist (ft)	855			1121	927	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	208	281	245	1640	1442	1301
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.11	0.09	0.11	0.24	0.02

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 16 (18%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.24
Intersection Signal Delay: 6.9 Intersection LOS: A
Intersection Capacity Utilization 30.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 413: NC 58 & US 70 WB Ramps



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	465	39	27	570	61	35
Future Volume (vph)	465	39	27	570	61	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	100		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)			100		100	
Satd. Flow (prot)	3406	1524	1703	3406	1684	0
Flt Permitted			0.950		0.969	
Satd. Flow (perm)	3406	1524	1703	3406	1684	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1005			1017	897	
Travel Time (s)	12.5			12.6	11.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	517	43	30	633	107	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	46			46	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	465	39	27	570	61	35
Future Volume (Veh/h)	465	39	27	570	61	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	517	43	30	633	68	39
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	1			1		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			560		894	258
vC1, stage 1 conf vol					517	
vC2, stage 2 conf vol					376	
vCu, unblocked vol			560		894	258
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)			2.3		3.5	3.3
p0 queue free %			97		83	95
cM capacity (veh/h)			980		393	734

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	258	258	43	30	316	316	107
Volume Left	0	0	0	30	0	0	68
Volume Right	0	0	43	0	0	0	39
cSH	1700	1700	1700	980	1700	1700	473
Volume to Capacity	0.15	0.15	0.03	0.03	0.19	0.19	0.23
Queue Length 95th (ft)	0	0	0	2	0	0	22
Control Delay (s)	0.0	0.0	0.0	8.8	0.0	0.0	14.8
Lane LOS				A			B
Approach Delay (s)	0.0			0.4			14.8
Approach LOS							B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	31.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	570	61	35	465	39	27
Future Volume (vph)	570	61	35	465	39	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	100		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)			100		100	
Satd. Flow (prot)	3406	1524	1703	3406	1676	0
Flt Permitted			0.950		0.971	
Satd. Flow (perm)	3406	1524	1703	3406	1676	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1005			1017	897	
Travel Time (s)	12.5			12.6	11.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	633	68	39	517	73	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	46			46	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	570	61	35	465	39	27
Future Volume (Veh/h)	570	61	35	465	39	27
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	633	68	39	517	43	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	1			1		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			701		970	316
vC1, stage 1 conf vol					633	
vC2, stage 2 conf vol					336	
vCu, unblocked vol			701		970	316
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)			2.3		3.5	3.3
p0 queue free %			95		88	96
cM capacity (veh/h)			866		359	673

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	316	316	68	39	258	258	73
Volume Left	0	0	0	39	0	0	43
Volume Right	0	0	68	0	0	0	30
cSH	1700	1700	1700	866	1700	1700	444
Volume to Capacity	0.19	0.19	0.04	0.05	0.15	0.15	0.16
Queue Length 95th (ft)	0	0	0	4	0	0	15
Control Delay (s)	0.0	0.0	0.0	9.4	0.0	0.0	14.7
Lane LOS				A			B
Approach Delay (s)	0.0			0.7			14.7
Approach LOS							B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	32.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	33	21	15	21	8
Future Volume (vph)	10	33	21	15	21	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1824	1774	0	1696	0
Flt Permitted		0.989			0.965	
Satd. Flow (perm)	0	1824	1774	0	1696	0
Link Speed (mph)		45	45		45	
Link Distance (ft)		873	821		789	
Travel Time (s)		13.2	12.4		12.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	1%	1%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	48	40	0	32	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	33	21	15	21	8
Future Volume (Veh/h)	10	33	21	15	21	8
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	37	23	17	23	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	40				90	32
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	40				90	32
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	99
cM capacity (veh/h)	1563				899	1037

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	48	40	32
Volume Left	11	0	23
Volume Right	0	17	9
cSH	1563	1700	934
Volume to Capacity	0.01	0.02	0.03
Queue Length 95th (ft)	1	0	3
Control Delay (s)	1.7	0.0	9.0
Lane LOS	A		A
Approach Delay (s)	1.7	0.0	9.0
Approach LOS			A

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	19.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	21	33	21	15	10
Future Volume (vph)	8	21	33	21	15	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1819	1783	0	1680	0
Flt Permitted		0.986			0.971	
Satd. Flow (perm)	0	1819	1783	0	1680	0
Link Speed (mph)		45	45		45	
Link Distance (ft)		873	821		789	
Travel Time (s)		13.2	12.4		12.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	1%	1%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	32	60	0	28	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	21	33	21	15	10
Future Volume (Veh/h)	8	21	33	21	15	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	23	37	23	17	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	60				90	48
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	60				90	48
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	99
cM capacity (veh/h)	1537				901	1015

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	32	60	28
Volume Left	9	0	17
Volume Right	0	23	11
cSH	1537	1700	942
Volume to Capacity	0.01	0.04	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	2.1	0.0	8.9
Lane LOS	A		A
Approach Delay (s)	2.1	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		

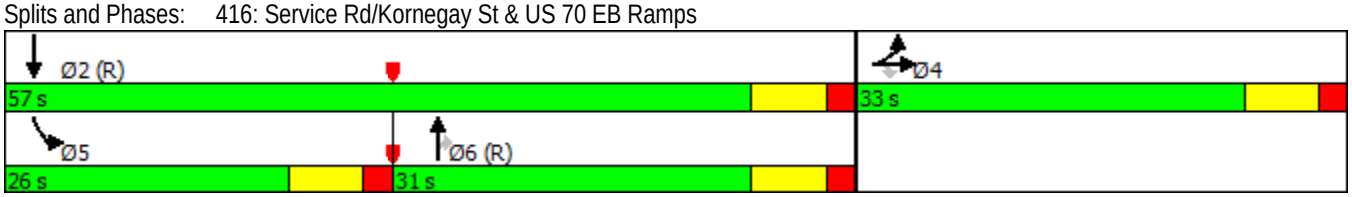
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	4	12	0	0	0	0	32	22	22	24	0
Future Volume (vph)	61	4	12	0	0	0	0	32	22	22	24	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	0		100	100		0
Storage Lanes	0		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1745	1553	0	0	0	0	1881	1599	1736	1827	0
Flt Permitted		0.955								0.950		
Satd. Flow (perm)	0	1745	1553	0	0	0	0	1881	1599	1736	1827	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		937			1062			1018			808	
Travel Time (s)		11.6			13.2			15.4			12.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	0%	0%	0%	1%	1%	1%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	72	13	0	0	0	0	36	24	24	27	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						6		5	2	
Permitted Phases			4						6			
Detector Phase	4	4	4					6	6	5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0					12.0	12.0	7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0					19.0	19.0	14.0	19.0	
Total Split (s)	33.0	33.0	33.0					31.0	31.0	26.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%					34.4%	34.4%	28.9%	63.3%	
Maximum Green (s)	26.0	26.0	26.0					24.0	24.0	19.0	50.0	
Yellow Time (s)	5.0	5.0	5.0					5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-2.0	-2.0					-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					C-Min	C-Min	None	C-Min	
Act Effct Green (s)		11.4	11.4					66.4	66.4	9.4	72.4	
Actuated g/C Ratio		0.13	0.13					0.74	0.74	0.10	0.80	
v/c Ratio		0.33	0.07					0.03	0.02	0.13	0.02	
Control Delay		39.2	34.0					7.1	7.3	37.3	3.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay		39.2	34.0					7.1	7.3	37.3	3.8	
LOS		D	C					A	A	D	A	
Approach Delay		38.4						7.2			19.6	
Approach LOS		D						A			B	
Queue Length 50th (ft)		38	7					4	3	13	2	
Queue Length 95th (ft)		76	23					22	17	42	18	
Internal Link Dist (ft)		857			982			938			728	
Turn Bay Length (ft)			100						100	100		
Base Capacity (vph)		542	483					1387	1179	405	1470	
Starvation Cap Reductn		0	0					0	0	0	0	
Spillback Cap Reductn		0	0					0	0	0	0	
Storage Cap Reductn		0	0					0	0	0	0	
Reduced v/c Ratio		0.13	0.03					0.03	0.02	0.06	0.02	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.33
Intersection Signal Delay: 24.0 Intersection LOS: C
Intersection Capacity Utilization 34.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 416: Service Rd/Kornegay St & US 70 EB Ramps



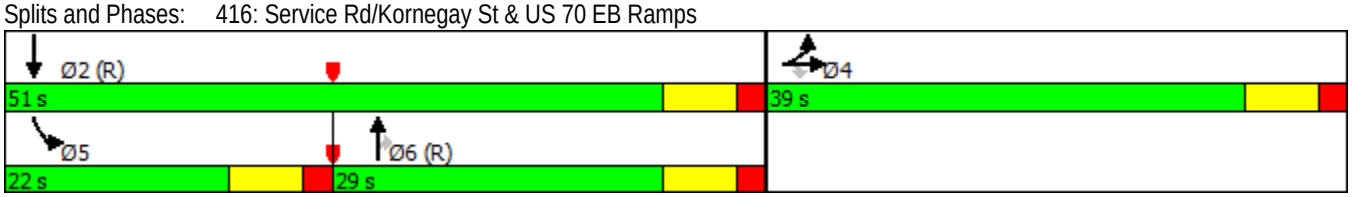
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	4	22	0	0	0	0	21	15	16	32	0
Future Volume (vph)	97	4	22	0	0	0	0	21	15	16	32	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	0		100	100		0
Storage Lanes	0		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1743	1553	0	0	0	0	1881	1599	1736	1827	0
Flt Permitted		0.954								0.950		
Satd. Flow (perm)	0	1743	1553	0	0	0	0	1881	1599	1736	1827	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		937			1062			1018			808	
Travel Time (s)		11.6			13.2			15.4			12.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	0%	0%	0%	1%	1%	1%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	112	24	0	0	0	0	23	17	18	36	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						6		5	2	
Permitted Phases			4						6			
Detector Phase	4	4	4					6	6	5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0					12.0	12.0	7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0					19.0	19.0	14.0	19.0	
Total Split (s)	39.0	39.0	39.0					29.0	29.0	22.0	51.0	
Total Split (%)	43.3%	43.3%	43.3%					32.2%	32.2%	24.4%	56.7%	
Maximum Green (s)	32.0	32.0	32.0					22.0	22.0	15.0	44.0	
Yellow Time (s)	5.0	5.0	5.0					5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-2.0	-2.0					-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					C-Min	C-Min	None	C-Min	
Act Effct Green (s)		13.2	13.2					64.8	64.8	9.2	70.6	
Actuated g/C Ratio		0.15	0.15					0.72	0.72	0.10	0.78	
v/c Ratio		0.44	0.11					0.02	0.01	0.10	0.03	
Control Delay		39.7	32.6					8.2	8.4	31.3	5.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay		39.7	32.6					8.2	8.4	31.3	5.7	
LOS		D	C					A	A	C	A	
Approach Delay		38.4						8.3			14.3	
Approach LOS		D						A			B	
Queue Length 50th (ft)		59	12					3	2	10	11	
Queue Length 95th (ft)		104	33					17	14	35	28	
Internal Link Dist (ft)		857			982			938			728	
Turn Bay Length (ft)			100						100	100		
Base Capacity (vph)		658	586					1353	1150	327	1433	
Starvation Cap Reductn		0	0					0	0	0	0	
Spillback Cap Reductn		0	0					0	0	0	0	
Storage Cap Reductn		0	0					0	0	0	0	
Reduced v/c Ratio		0.17	0.04					0.02	0.01	0.06	0.03	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.44
Intersection Signal Delay: 27.5 Intersection LOS: C
Intersection Capacity Utilization 34.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 416: Service Rd/Kornegay St & US 70 EB Ramps



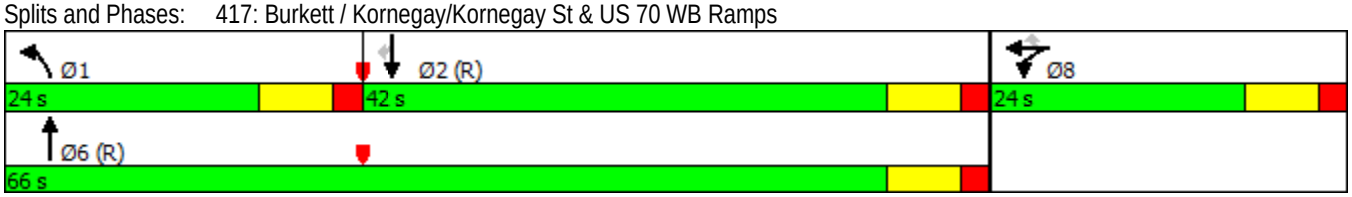
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	15	4	17	22	71	0	0	31	97
Future Volume (vph)	0	0	0	15	4	17	22	71	0	0	31	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		100	100		0	0		100
Storage Lanes	0		0	0		1	1		0	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	0	0	0	1756	1553	1736	1827	0	0	1827	1553
Flt Permitted					0.961		0.950					
Satd. Flow (perm)	0	0	0	0	1756	1553	1736	1827	0	0	1827	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1012			920			808			961	
Travel Time (s)		15.3			13.9			12.2			14.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	21	19	24	79	0	0	34	108
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Split	NA	Perm	Prot	NA			NA	Perm
Protected Phases				8	8		1	6			2	
Permitted Phases						8						2
Detector Phase				8	8	8	1	6			2	2
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0	7.0	12.0			12.0	12.0
Minimum Split (s)				14.0	14.0	14.0	14.0	19.0			19.0	19.0
Total Split (s)				24.0	24.0	24.0	24.0	66.0			42.0	42.0
Total Split (%)				26.7%	26.7%	26.7%	26.7%	73.3%			46.7%	46.7%
Maximum Green (s)				17.0	17.0	17.0	17.0	59.0			35.0	35.0
Yellow Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
All-Red Time (s)				2.0	2.0	2.0	2.0	2.0			2.0	2.0
Lost Time Adjust (s)					-2.0	-2.0	-2.0	-2.0			-2.0	-2.0
Total Lost Time (s)					5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Min			C-Min	C-Min
Act Effct Green (s)					9.4	9.4	9.4	78.2			72.2	72.2
Actuated g/C Ratio					0.10	0.10	0.10	0.87			0.80	0.80
v/c Ratio					0.12	0.12	0.13	0.05			0.02	0.09
Control Delay					37.9	38.1	21.0	0.8			5.7	5.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay					0.0	0.0	0.0	0.0			0.0	0.0
Total Delay					37.9	38.1	21.0	0.8			5.7	5.4
LOS					D	D	C	A			A	A
Approach Delay					38.0			5.5			5.4	
Approach LOS					D			A			A	
Queue Length 50th (ft)					11	10	6	3			3	11
Queue Length 95th (ft)					33	31	16	5			19	47
Internal Link Dist (ft)		932			840			728			881	
Turn Bay Length (ft)						100	100					100
Base Capacity (vph)					370	327	366	1588			1465	1246
Starvation Cap Reductn					0	0	0	0			0	0
Spillback Cap Reductn					0	0	0	0			0	0
Storage Cap Reductn					0	0	0	0			0	0
Reduced v/c Ratio					0.06	0.06	0.07	0.05			0.02	0.09

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.13
Intersection Signal Delay: 10.0 Intersection LOS: B
Intersection Capacity Utilization 34.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 417: Burkett / Kornegay/Kornegay St & US 70 WB Ramps



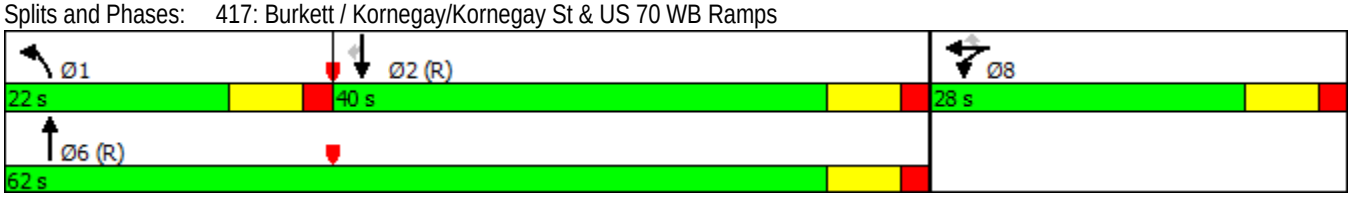
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	22	4	22	12	106	0	0	26	61
Future Volume (vph)	0	0	0	22	4	22	12	106	0	0	26	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		100	100		0	0		100
Storage Lanes	0		0	0		1	1		0	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	0	0	0	1752	1553	1736	1827	0	0	1827	1553
Flt Permitted					0.959		0.950					
Satd. Flow (perm)	0	0	0	0	1752	1553	1736	1827	0	0	1827	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1012			920			808			961	
Travel Time (s)		15.3			13.9			12.2			14.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	28	24	13	118	0	0	29	68
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Split	NA	Perm	Prot	NA			NA	Perm
Protected Phases				8	8		1	6			2	
Permitted Phases						8						2
Detector Phase				8	8	8	1	6			2	2
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0	7.0	12.0			12.0	12.0
Minimum Split (s)				14.0	14.0	14.0	14.0	19.0			19.0	19.0
Total Split (s)				28.0	28.0	28.0	22.0	62.0			40.0	40.0
Total Split (%)				31.1%	31.1%	31.1%	24.4%	68.9%			44.4%	44.4%
Maximum Green (s)				21.0	21.0	21.0	15.0	55.0			33.0	33.0
Yellow Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
All-Red Time (s)				2.0	2.0	2.0	2.0	2.0			2.0	2.0
Lost Time Adjust (s)					-2.0	-2.0	-2.0	-2.0			-2.0	-2.0
Total Lost Time (s)					5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Min			C-Min	C-Min
Act Effct Green (s)					9.6	9.6	9.1	78.0			75.1	75.1
Actuated g/C Ratio					0.11	0.11	0.10	0.87			0.83	0.83
v/c Ratio					0.15	0.15	0.07	0.07			0.02	0.05
Control Delay					38.2	38.3	13.7	0.8			4.4	4.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay					0.0	0.0	0.0	0.0			0.0	0.0
Total Delay					38.2	38.3	13.7	0.8			4.4	4.2
LOS					D	D	B	A			A	A
Approach Delay					38.2			2.1			4.3	
Approach LOS					D			A			A	
Queue Length 50th (ft)					15	13	2	2			3	6
Queue Length 95th (ft)					40	36	7	4			17	32
Internal Link Dist (ft)		932			840			728			881	
Turn Bay Length (ft)						100	100					100
Base Capacity (vph)					447	396	327	1584			1525	1296
Starvation Cap Reductn					0	0	0	0			0	0
Spillback Cap Reductn					0	0	0	0			0	0
Storage Cap Reductn					0	0	0	0			0	0
Reduced v/c Ratio					0.06	0.06	0.04	0.07			0.02	0.05

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.15
Intersection Signal Delay: 9.5 Intersection LOS: A
Intersection Capacity Utilization 34.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 417: Burkett / Kornegay/Kornegay St & US 70 WB Ramps



2040 Build Alternative 63
SimTraffic Reports

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Summary of All Intervals

Run Number	1	2	3	4	5	AM	Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	8340	8247	8423	8275	8282	8456	8334
Vehs Exited	8317	8231	8438	8278	8257	8434	8323
Starting Vehs	179	162	201	164	144	176	160
Ending Vehs	202	178	186	161	169	198	173
Travel Distance (mi)	4905	4873	4993	4885	4894	5051	4933
Travel Time (hr)	176.7	185.4	185.4	174.0	180.0	185.5	181.2
Total Delay (hr)	63.8	73.1	70.3	61.4	67.0	69.2	67.5
Total Stops	4826	5082	5067	4797	4916	5032	4950
Fuel Used (gal)	197.1	198.4	201.6	196.2	198.0	204.7	199.3

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	AM	Avg
Vehs Entered	8340	8247	8423	8275	8282	8456	8334
Vehs Exited	8317	8231	8438	8278	8257	8434	8323
Starting Vehs	179	162	201	164	144	176	160
Ending Vehs	202	178	186	161	169	198	173
Travel Distance (mi)	4905	4873	4993	4885	4894	5051	4933
Travel Time (hr)	176.7	185.4	185.4	174.0	180.0	185.5	181.2
Total Delay (hr)	63.8	73.1	70.3	61.4	67.0	69.2	67.5
Total Stops	4826	5082	5067	4797	4916	5032	4950
Fuel Used (gal)	197.1	198.4	201.6	196.2	198.0	204.7	199.3

Intersection: 401: Jim Sutton Rd & Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	46	52	4	24
Average Queue (ft)	14	20	0	2
95th Queue (ft)	38	43	3	12
Link Distance (ft)	848	806	905	935
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	65	171	80	78	310	36
Average Queue (ft)	26	76	24	22	164	5
95th Queue (ft)	60	145	61	61	268	23
Link Distance (ft)	951	951	935	935	1248	1248
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		100	325	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	86	267	164	73	188	91
Average Queue (ft)	35	116	51	16	91	30
95th Queue (ft)	74	201	117	50	161	74
Link Distance (ft)	939	939	1248	1248	934	934
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		275		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 404: Willie Measley Rd & Washington St/Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	94	63	62	16
Average Queue (ft)	43	22	21	1
95th Queue (ft)	73	48	49	8
Link Distance (ft)	924	913	934	1055
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 405: US 70 Bus & Innovation Way

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 406: NC 11/NC 11/55 & NC 55

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	458	72	83	592	488	66
Average Queue (ft)	251	14	25	246	186	12
95th Queue (ft)	406	48	62	471	389	45
Link Distance (ft)	1242	1242	1168	1168	1375	1375
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			125
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 407: NC 11/55 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	434	168	963	158	72	254
Average Queue (ft)	251	70	528	20	14	75
95th Queue (ft)	401	141	980	102	48	185
Link Distance (ft)	890	890	1375	1375	1370	1370
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		175	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 408: NC 11/55 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	75	264	449	185	384	67
Average Queue (ft)	32	95	249	47	151	17
95th Queue (ft)	66	197	408	136	295	50
Link Distance (ft)	1122	1122	1370	1370	1031	1031
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		275	450			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 409: US 258 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	303	124	207	45	59	57
Average Queue (ft)	132	53	85	5	16	11
95th Queue (ft)	236	110	172	26	42	39
Link Distance (ft)	917	917	961	961	1212	1212
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		125		100	125	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 410: US 258 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	90	58	133	164	148	42
Average Queue (ft)	29	14	42	59	61	6
95th Queue (ft)	68	41	101	125	118	27
Link Distance (ft)	1028	1028	1212	1212	850	850
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		175	175	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 411: NC 58 & Elijah Loftin Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	46	44	15	24
Average Queue (ft)	18	21	1	2
95th Queue (ft)	37	39	8	13
Link Distance (ft)	1137	1082	1094	863
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 412: NC 58 & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	57	65	79	69	76	19
Average Queue (ft)	17	15	25	13	16	1
95th Queue (ft)	48	45	61	50	52	8
Link Distance (ft)	914	914	863	863	1133	1133
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 413: NC 58 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	52	65	74	70	75	30
Average Queue (ft)	10	18	22	13	17	1
95th Queue (ft)	35	48	56	49	54	13
Link Distance (ft)	879	879	1133	1133	961	961
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 414: Wyse Fork Rd & US 70 Bus

Movement	EB	WB	NB
Directions Served	R	L	LR
Maximum Queue (ft)	4	50	126
Average Queue (ft)	0	12	41
95th Queue (ft)	3	35	92
Link Distance (ft)	972	994	820
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	100	100	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 415: Burkett Rd & Wyse Fork Conn.

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	9	47
Average Queue (ft)	0	16
95th Queue (ft)	6	40
Link Distance (ft)	852	757
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 416: Service Rd/Kornegay St & US 70 Bus

Movement	EB	EB	NB	NB	SB	SB
Directions Served	LT	R	T	R	L	T
Maximum Queue (ft)	104	32	25	22	65	28
Average Queue (ft)	38	7	3	3	19	2
95th Queue (ft)	81	25	17	14	53	13
Link Distance (ft)	902	902	979	979	772	772
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 417: Burkett / Kornegay/Kornegay St & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	L	T	T	R
Maximum Queue (ft)	59	65	64	29	27	78
Average Queue (ft)	14	15	18	3	3	12
95th Queue (ft)	44	46	48	17	16	45
Link Distance (ft)	885	885	772	772	921	921
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	2	3	4	5	PM	Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	8308	8262	8280	8375	8157	8362	8291
Vehs Exited	8322	8276	8265	8360	8160	8370	8292
Starting Vehs	185	169	165	154	186	180	156
Ending Vehs	171	155	180	169	183	172	161
Travel Distance (mi)	4875	4890	4833	4913	4794	4916	4870
Travel Time (hr)	177.4	176.2	171.8	177.3	170.2	175.6	174.7
Total Delay (hr)	65.4	63.3	60.7	63.7	59.3	61.9	62.4
Total Stops	4976	4946	4839	4899	4770	4920	4893
Fuel Used (gal)	197.6	199.0	196.4	199.4	194.5	200.5	197.9

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	PM	Avg
Vehs Entered	8308	8262	8280	8375	8157	8362	8291
Vehs Exited	8322	8276	8265	8360	8160	8370	8292
Starting Vehs	185	169	165	154	186	180	156
Ending Vehs	171	155	180	169	183	172	161
Travel Distance (mi)	4875	4890	4833	4913	4794	4916	4870
Travel Time (hr)	177.4	176.2	171.8	177.3	170.2	175.6	174.7
Total Delay (hr)	65.4	63.3	60.7	63.7	59.3	61.9	62.4
Total Stops	4976	4946	4839	4899	4770	4920	4893
Fuel Used (gal)	197.6	199.0	196.4	199.4	194.5	200.5	197.9

Intersection: 401: Jim Sutton Rd & Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	29	51	4	16
Average Queue (ft)	9	15	0	1
95th Queue (ft)	30	38	3	9
Link Distance (ft)	848	806	905	935
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	112	174	56	61	260	44
Average Queue (ft)	42	86	15	12	139	6
95th Queue (ft)	89	152	44	41	223	29
Link Distance (ft)	951	951	935	935	1248	1248
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		100	325	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	115	269	93	43	159	89
Average Queue (ft)	51	137	30	8	80	21
95th Queue (ft)	101	237	74	29	138	61
Link Distance (ft)	939	939	1248	1248	934	934
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		275		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 404: Willie Measley Rd & Washington St/Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	76	81	70	16
Average Queue (ft)	39	30	20	1
95th Queue (ft)	65	58	52	7
Link Distance (ft)	924	913	934	1055
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 405: US 70 Bus & Innovation Way

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 406: NC 11/NC 11/55 & NC 55

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	293	83	72	220	514	113
Average Queue (ft)	138	18	22	94	243	38
95th Queue (ft)	247	56	56	179	458	91
Link Distance (ft)	1242	1242	1168	1168	1375	1375
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			125
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 407: NC 11/55 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	383	115	503	114	76	403
Average Queue (ft)	202	34	237	21	25	165
95th Queue (ft)	324	82	416	69	61	349
Link Distance (ft)	890	890	1375	1375	1370	1370
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		175	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 408: NC 11/55 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	55	174	328	121	500	98
Average Queue (ft)	15	71	162	23	244	23
95th Queue (ft)	43	133	281	83	433	64
Link Distance (ft)	1122	1122	1370	1370	1031	1031
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		275	450			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 409: US 258 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	375	95	210	41	100	58
Average Queue (ft)	188	31	78	4	30	17
95th Queue (ft)	311	71	163	22	76	47
Link Distance (ft)	917	917	961	961	1212	1212
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		125		100	125	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 410: US 258 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	108	55	91	90	167	59
Average Queue (ft)	37	10	26	29	72	11
95th Queue (ft)	84	34	66	75	137	38
Link Distance (ft)	1028	1028	1212	1212	850	850
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		175	175	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 411: NC 58 & Elijah Loftin Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	37	31	28	24
Average Queue (ft)	14	13	2	3
95th Queue (ft)	34	33	14	15
Link Distance (ft)	1137	1082	1094	863
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 412: NC 58 & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	52	84	61	67	85	17
Average Queue (ft)	12	23	16	8	24	2
95th Queue (ft)	37	59	47	38	66	12
Link Distance (ft)	914	914	863	863	1133	1133
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 413: NC 58 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	33	77	71	53	120	22
Average Queue (ft)	6	22	14	6	32	2
95th Queue (ft)	25	56	43	31	87	13
Link Distance (ft)	879	879	1133	1133	961	961
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 414: Wyse Fork Rd & US 70 Bus

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	54	88
Average Queue (ft)	14	27
95th Queue (ft)	39	61
Link Distance (ft)	994	820
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	100	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 415: Burkett Rd & Wyse Fork Conn.

Movement	SB
Directions Served	LR
Maximum Queue (ft)	40
Average Queue (ft)	13
95th Queue (ft)	34
Link Distance (ft)	757
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 416: Service Rd/Kornegay St & US 70 Bus

Movement	EB	EB	NB	NB	SB	SB
Directions Served	LT	R	T	R	L	T
Maximum Queue (ft)	134	65	38	18	41	29
Average Queue (ft)	62	16	4	2	12	2
95th Queue (ft)	118	49	21	12	35	15
Link Distance (ft)	902	902	979	979	772	772
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 417: Burkett / Kornegay/Kornegay St & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	L	T	T	R
Maximum Queue (ft)	66	73	55	40	27	58
Average Queue (ft)	21	20	12	3	3	9
95th Queue (ft)	52	55	38	21	15	35
Link Distance (ft)	885	885	772	772	921	921
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 0

APPENDIX K

2040 Build Alternative 65

Peak Hour Traffic Volume Development and

FREEVAL-E, Synchro & SimTraffic Reports

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2040 Build Alternative 65
Peak Hour Traffic Volume
Development

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Alternative 65

Volume Development

A project-level traffic forecast, titled "Traffic Forecast Technical Memorandum, Kinston Bypass Alternatives Study", was prepared and finalized in November, 2016. This traffic forecast was used to provide peak hour volumes for the analysis of the selected alternatives in this memorandum. The traffic forecast is included in **Attachment A**.

The Intersection Analysis Utility (IAU), provided by NCDOT, was utilized to calculate AM and PM Peak Hour volumes for at-grade intersections (ramp terminals and any intersections within 1,000 feet of ramp terminals), interchange ramps, and freeway segments within interchanges. Peak hour volumes for freeway segments between interchanges were calculated by finding the forecasted daily two-way volumes along the link, then breaking the daily volume down by multiplying it by the Design Hour Volume Percentage (K), and the Peak Hour Directional Split (D).

The traffic forecast was completed prior to the inclusion of all turning movements at the interchange of US 70 Business and CF Harvey Parkway. To correct for this, traffic volumes have been rerouted to project volumes onto these ramps based on engineering assumptions. It was assumed that, prior to the inclusion of the two ramps, traffic on US 70 Business EB wishing to access CF Harvey Parkway SB would travel through the interchange to the east, make a U-turn back to US 70 Business WB, and use the loop ramp to CF Harvey Parkway SB. Similarly, traffic on CF Harvey Parkway Extension NB wishing to access US 70 Business WB would first take the ramp to US 70 Business EB, perform a U-turn, and then travel through the interchange on US 70 Business WB. It was assumed that a total of 500 vehicles per day would make these turning maneuvers. Therefore, 500 vehicles were transferred from the southeast turning quadrant and moved to the southwest turning quadrant in the IAU for this interchange. The volume on the east leg of the IAU was also adjusted accordingly to provide volume balanced within the interchange.

It should be noted that two partial three-leg interchanges exist for Alternative 65: US 70 at US 70 Business West of Kinston, and US 70 at NC 148 (CF Harvey Parkway) Extension. For these interchanges, the IAU was not utilized because the two turning movement volumes are assumed to simply be the upstream or downstream broken-out link volumes. All of these volumes are shown in **BLACK** in **Figures 10A-10G**.

US 70 and CF Harvey Parkway Extension Freeway Analysis

FREEVAL-E does not use a Peak Hour Factor (PHF) to adjust the peak hour volumes to reflect the peak 15-minute period. Additionally, FREEVAL-E requires balanced peak hour mainline volumes, since only the beginning freeway segment and subsequent ramps have volume inputs. To provide peak 15-minute hourly flow rates for the analysis in FREEVAL-E, each of the peak hour volumes calculated for the freeway segments and ramps was divided by 0.90, which is the recommended PHF in the NCDOT Congestion Management Capacity Analysis Guidelines. To balance the peak hour volumes to use with FREEVAL-E, the highest peak 15-minute hourly flow rate was located along the US 70 corridor within the study area. Once this was located, the mainline US 70 volumes were adjusted in each direction to the eastern and western ends of the network by adding and subtracting the relevant ramp volumes.

For Alternative 65, the location used as the "hold point" for balancing purposes on US 70 was the segment between Jim Sutton Road / Willie Measley Road and US 70 Business (west of Kinston). For CF Harvey Parkway Extension, the volumes were balanced using the adjoining segment to US 70 as the hold point, and balancing northward. These volume adjustments are shown in **BLUE** in **Figures 10A-10G**. The ensuing pages of this appendix detail the following step-by-step process used to calculate the volumes used, as well as the various volume redistributions required by the forecast imbalances and mismatches with the roadway designs:

Step 1 – Freeway segment volumes between interchanges were calculated by multiplying the two-way daily volumes by the K and D factors.

Step 2 – Volumes for interchange ramps, and freeway segments inside interchanges were collected from the IAU breakout sheets.

Step 3 – The volumes collected in Step 2 were divided by the NCDOT default PHF of 0.90 to account for the fact that FREEVAL-E does not factor in the PHF, and the highest calculated freeway volume location was used as the base point with which to balance the US 70 freeway corridor.

Step 4 – The volumes of the subsequent freeway segments were adjusted to allow for a balanced peak hour network in both directions, as well as along CF Harvey Parkway Extension.

The current functional designs for Alternative 65 show ramps that accommodate only six of the eight turning movements at the interchange of US 70 Business and CF Harvey Parkway. During the analysis of these alternatives, it was decided that the interchange should include ramps to accommodate all turning movements. Therefore, a loop ramp from CF Harvey Parkway Extension NB to US 70 Business WB would be included as well as a ramp from US 70 Business EB to CF Harvey Parkway SB.

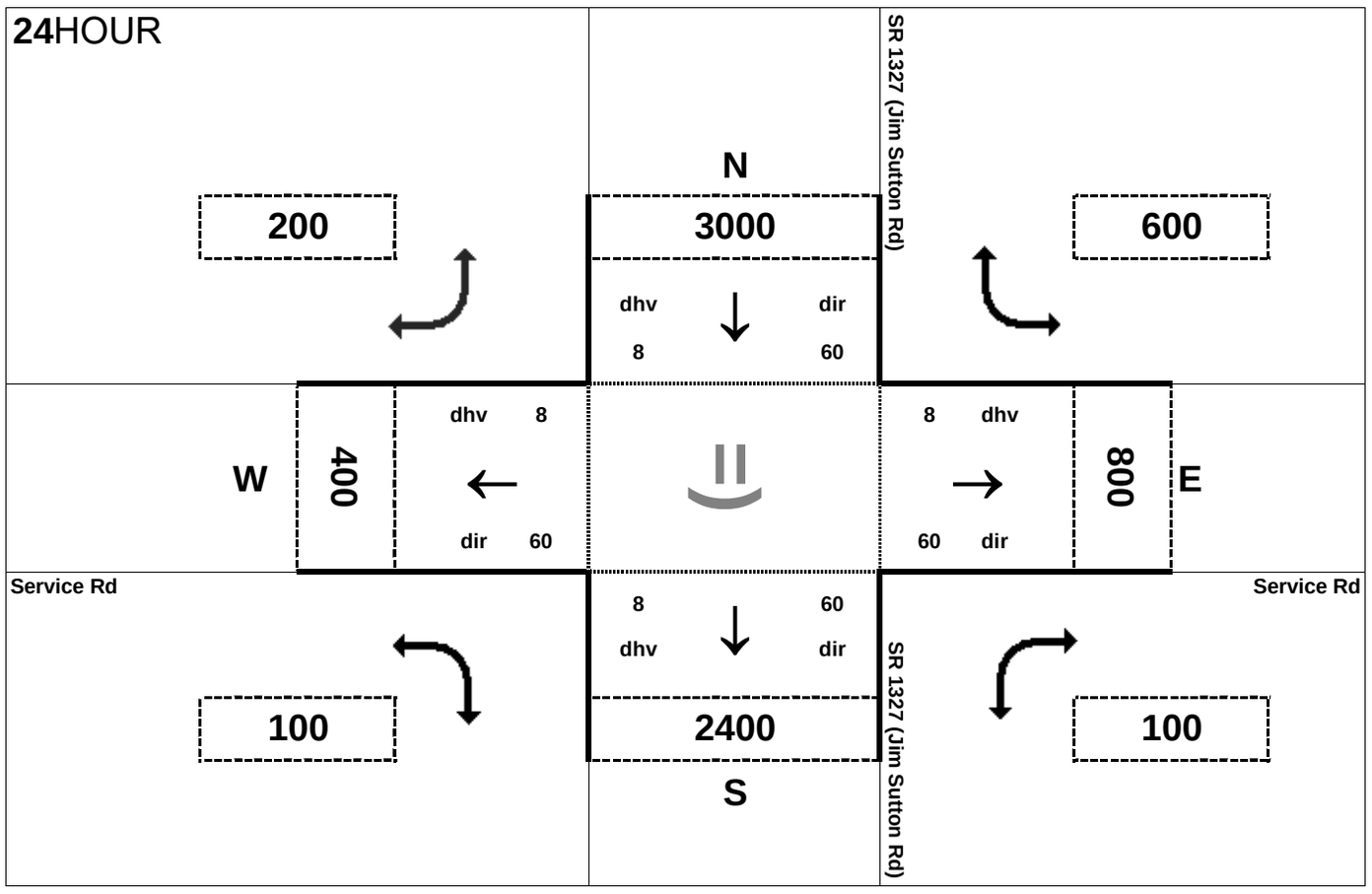
Peak Hour Volume Breakouts Report:
401 Intersection of SR 1327 (Jim Sutton Rd) at Service Rd

Traffic Forecast Release Date:
November-16

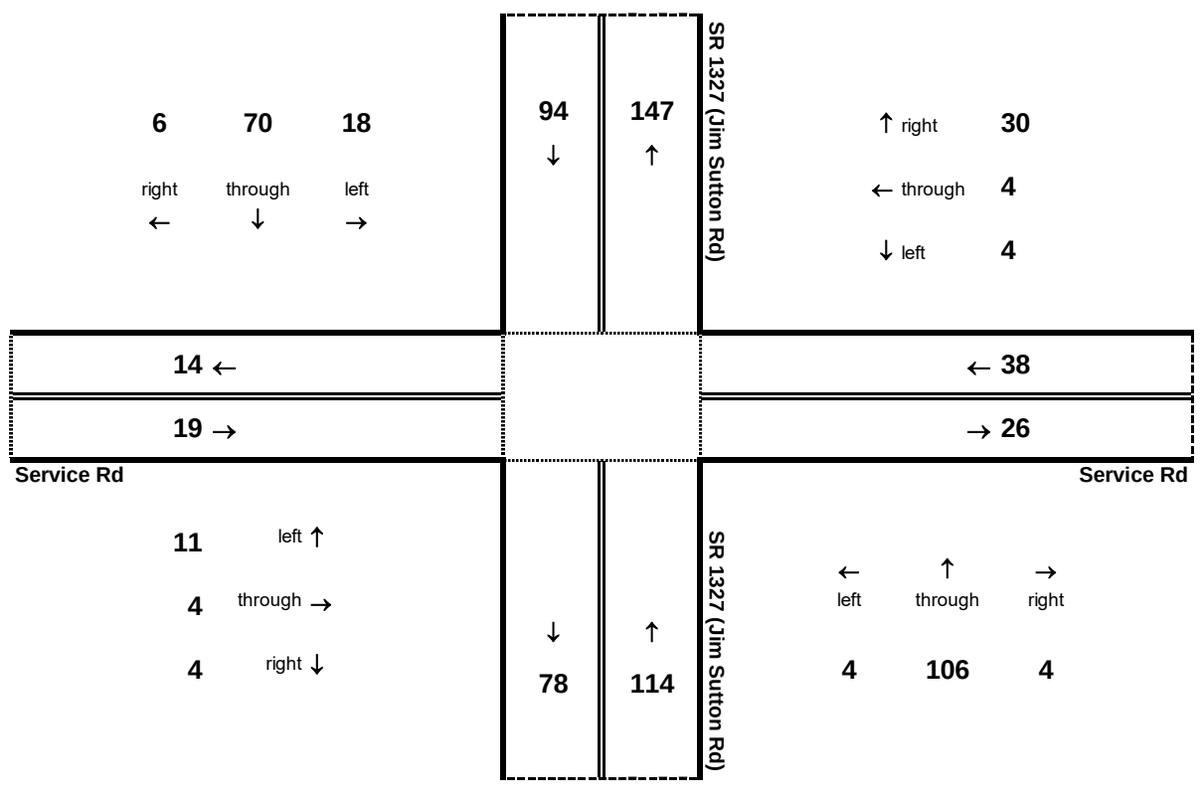
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553

24HOUR

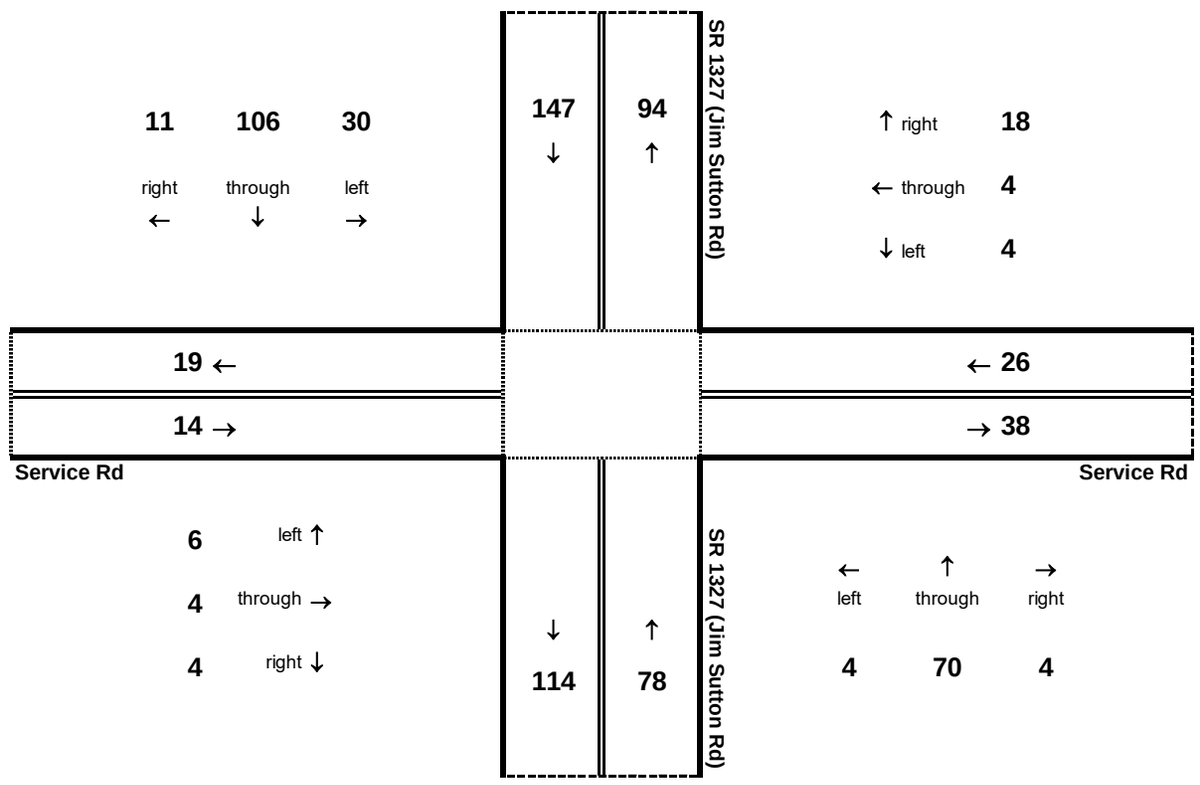


AMPEAK



AM peak hour inflow is 264 vehicles. AM peak hour outflow is 264 vehicles.

PMPEAK



PM peak hour inflow is 264 vehicles. PM peak hour outflow is 264 vehicles.

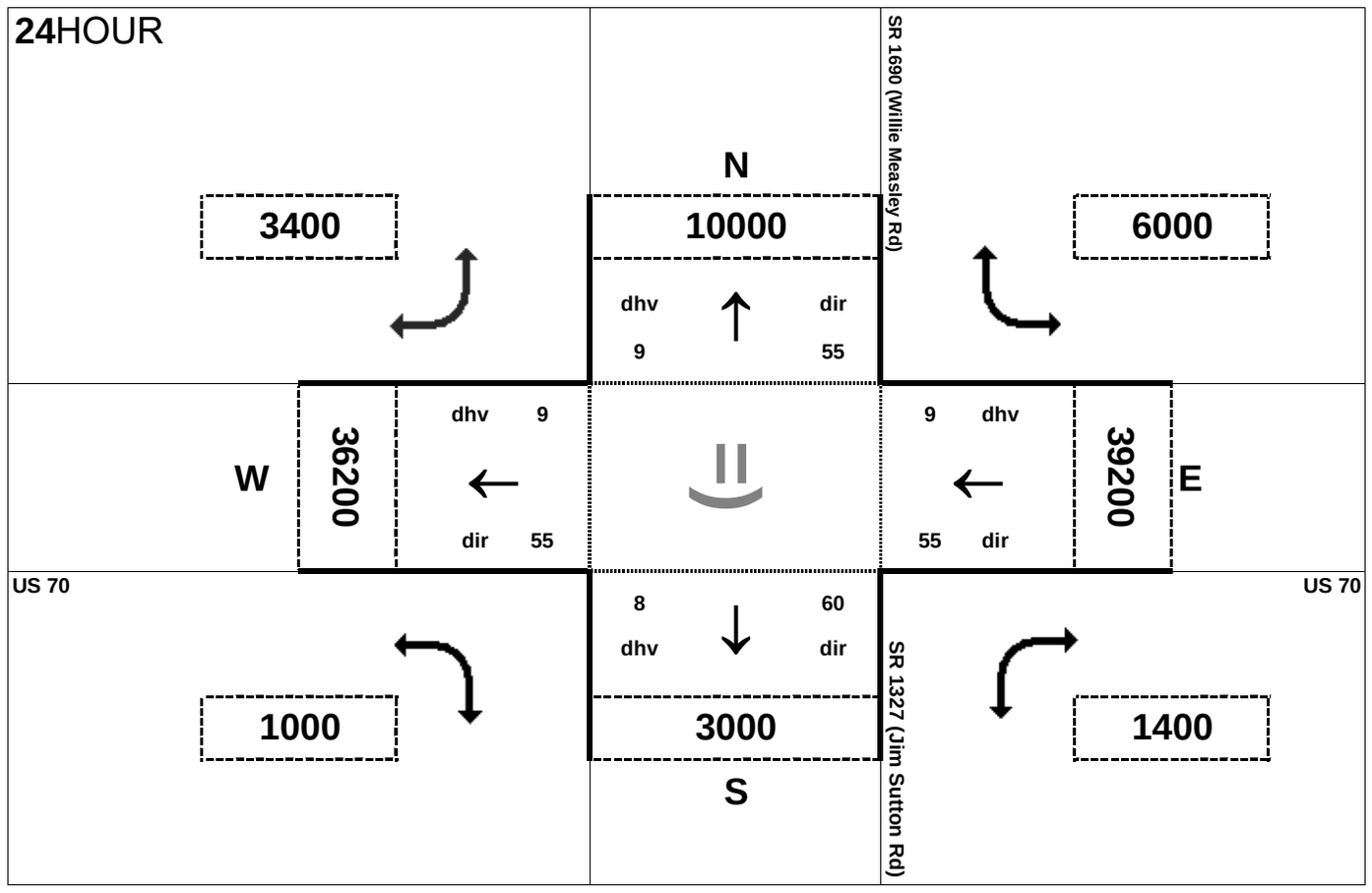
Peak Hour Volume Breakouts Report:
402-3 Intersection of US 70 and Willie Measley Rd / Jim Sutton Rd

Traffic Forecast Release Date:
November-16

Traffic Data Year:
2040 Build Alt 65

Project:
R-2553

24HOUR



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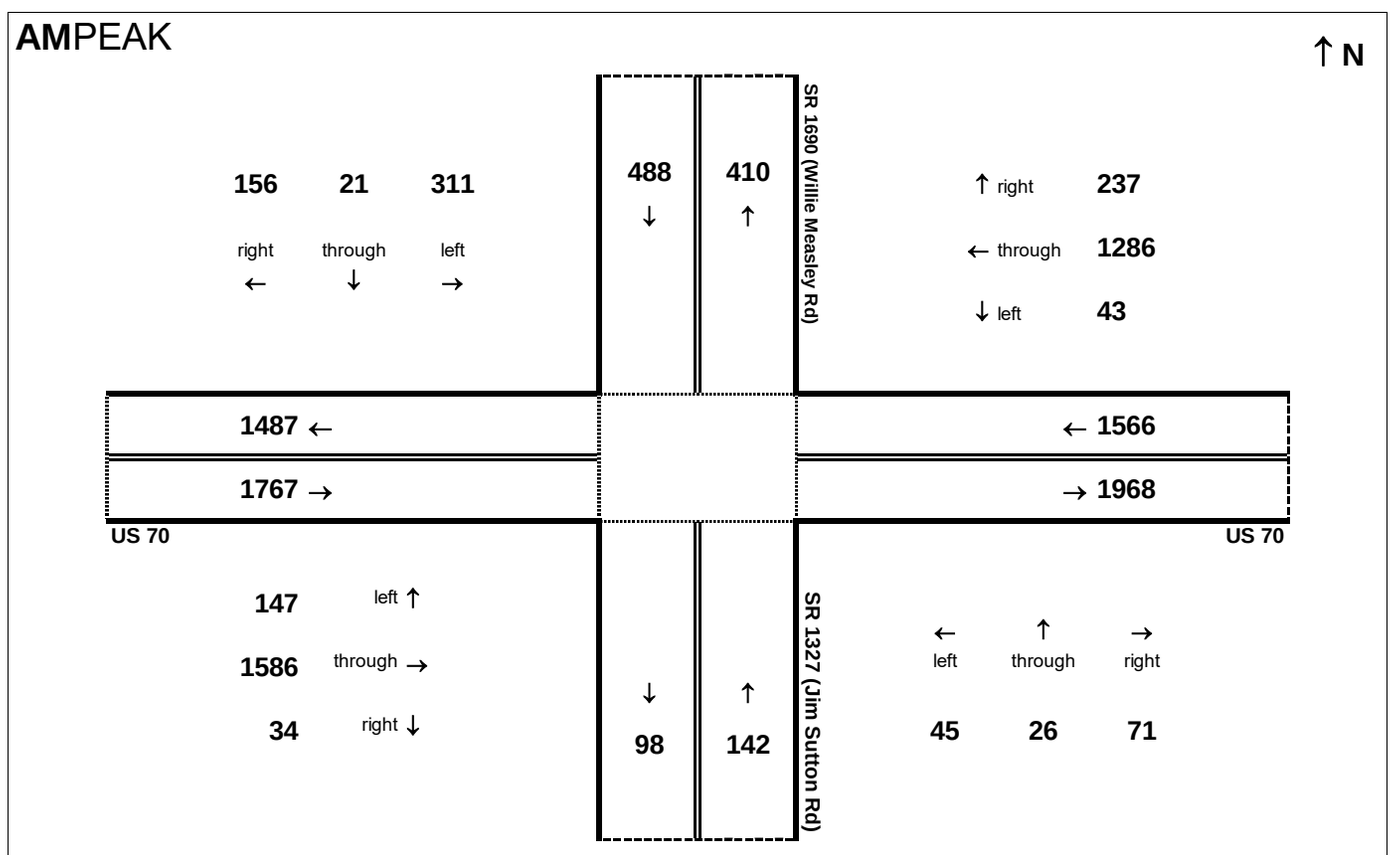
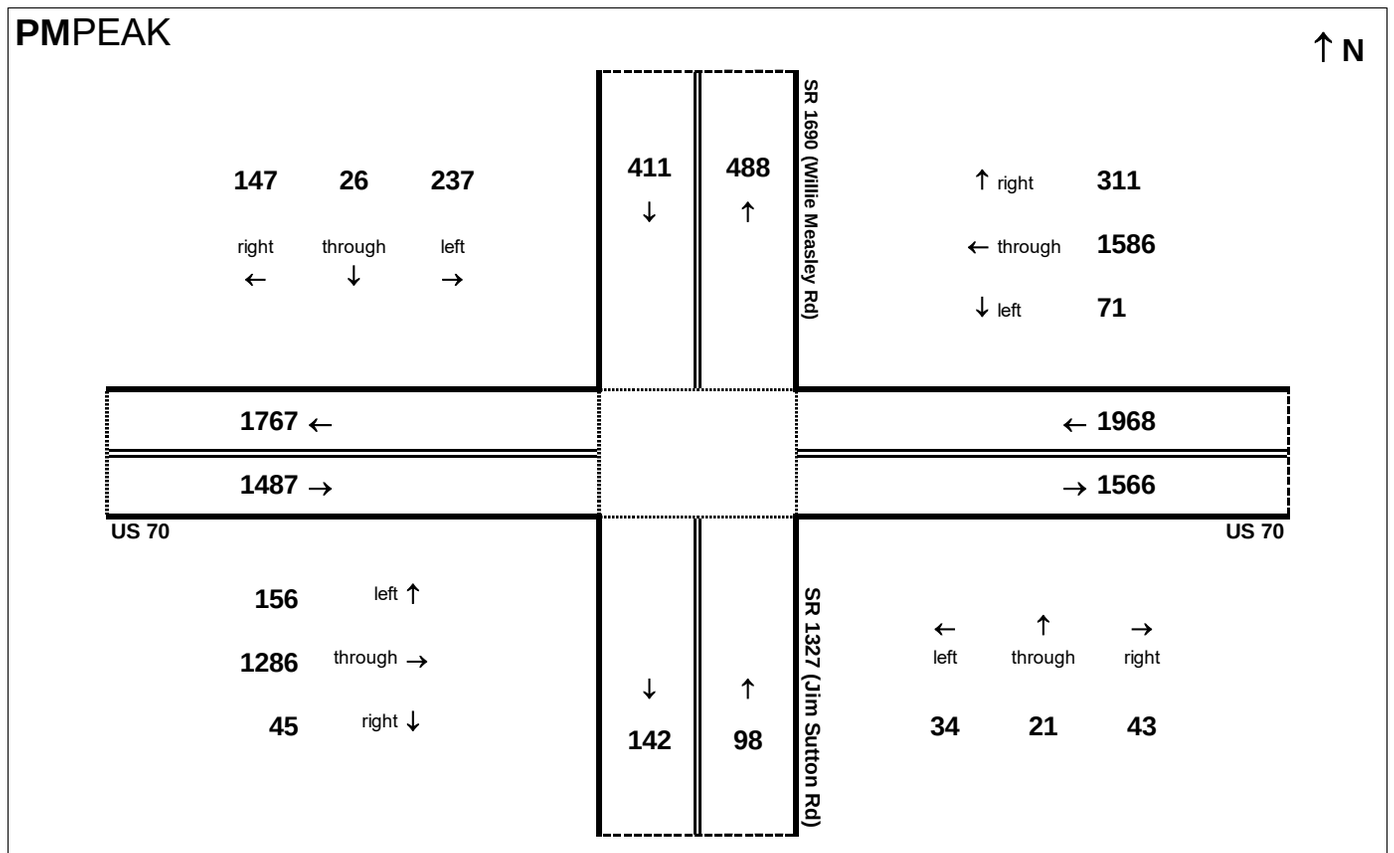


AM peak hour inflow is 3963 vehicles. AM peak hour outflow is 3963 vehicles.

PMPEAK



PM peak hour inflow is 3963 vehicles. PM peak hour outflow is 3963 vehicles.

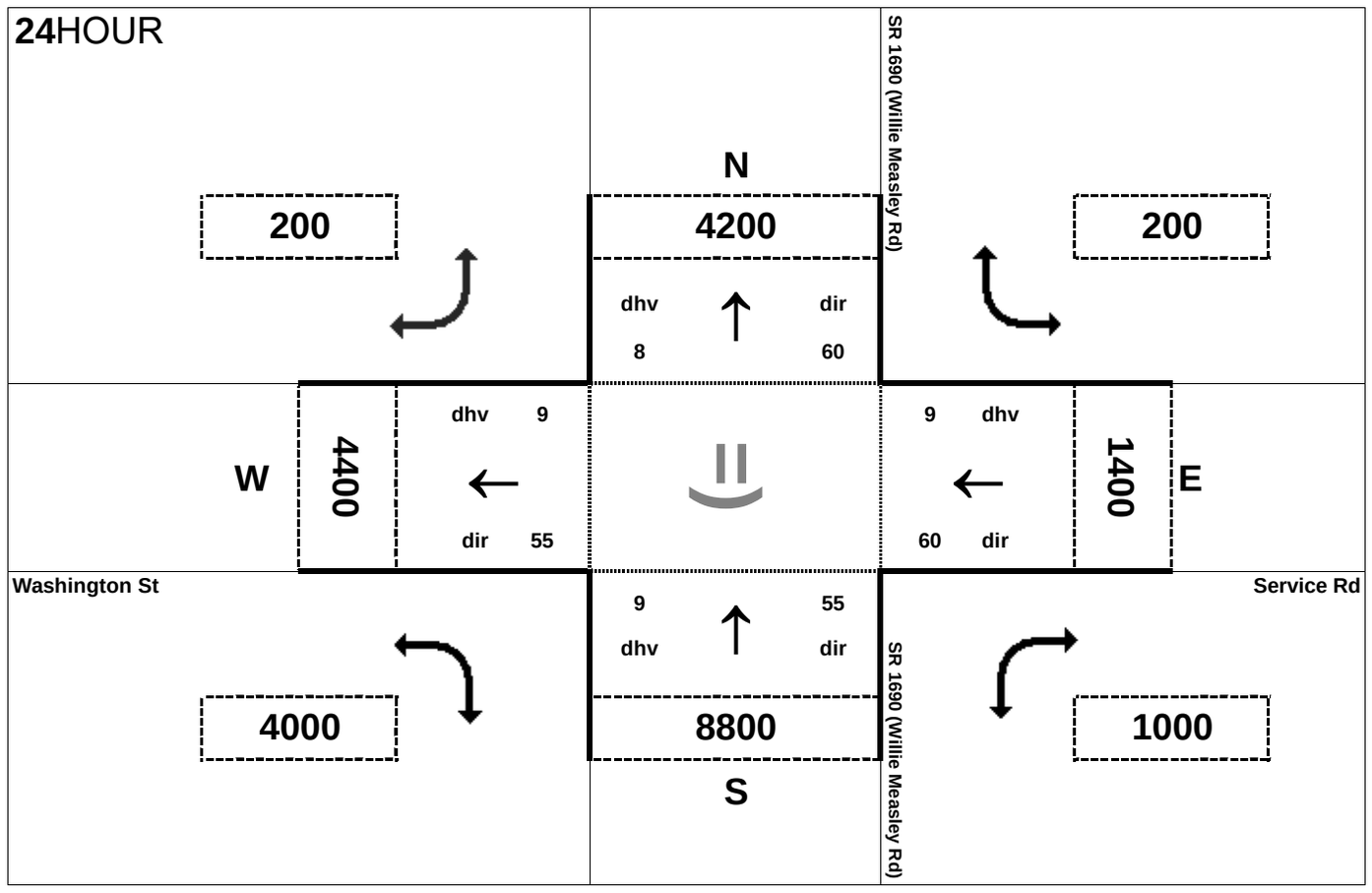
Peak Hour Volume Breakouts Report:
404 Intersection of SR 1690 (Willie Measley Rd) at SR 1603 (Washington St)

Traffic Forecast Release Date:
November-16

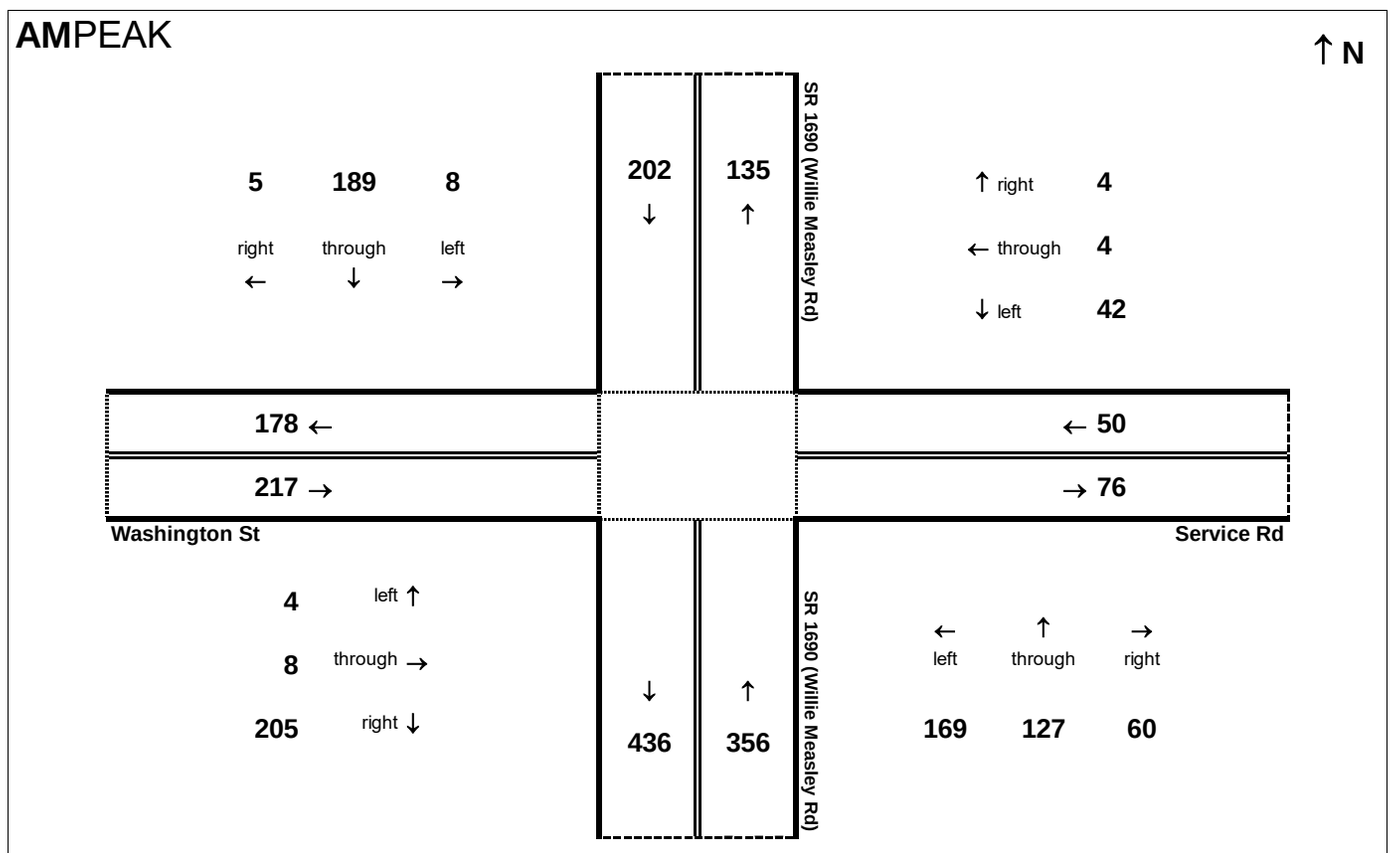
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553

24HOUR

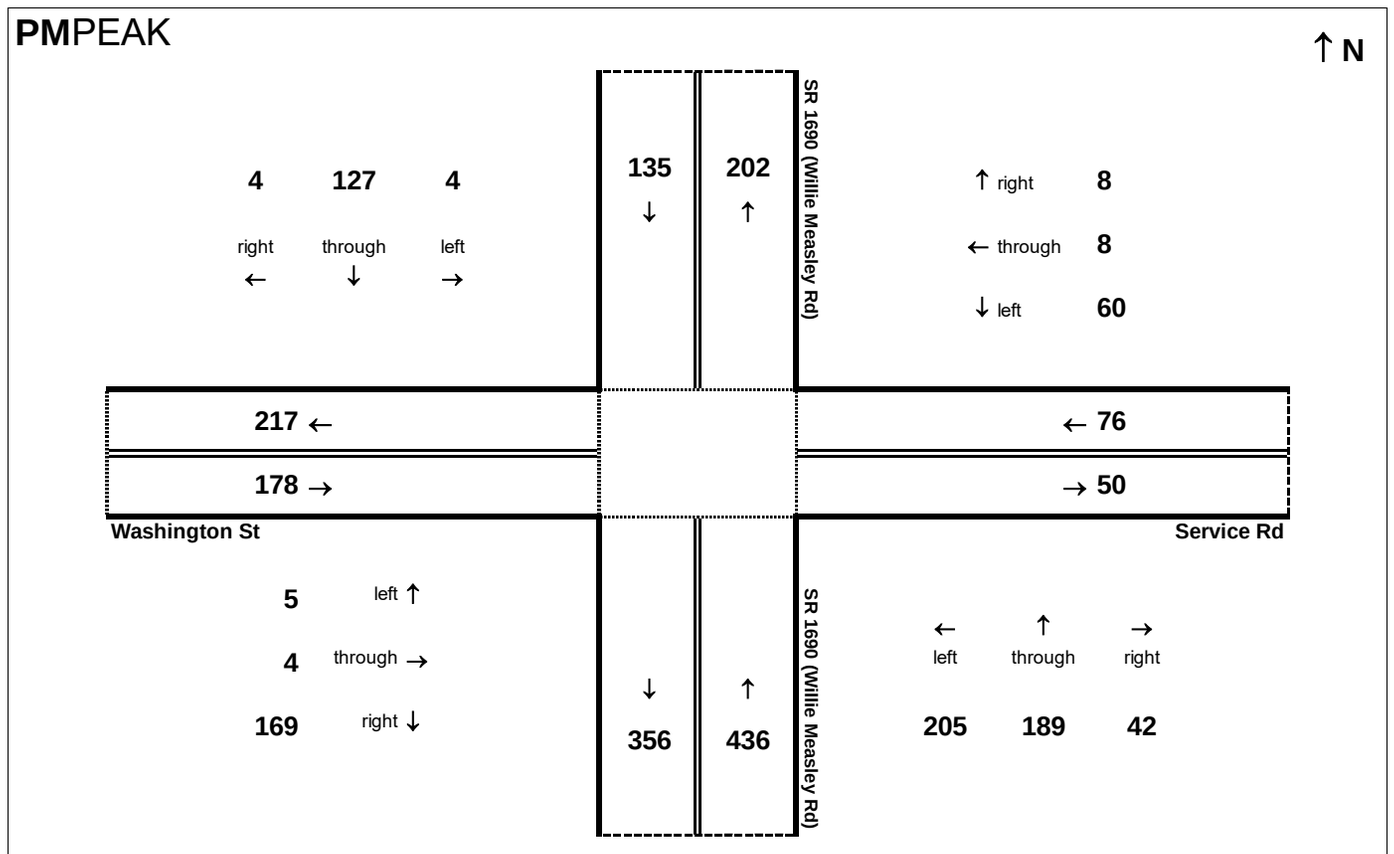


AMPEAK



AM peak hour inflow is 825 vehicles. AM peak hour outflow is 825 vehicles.

PMPEAK



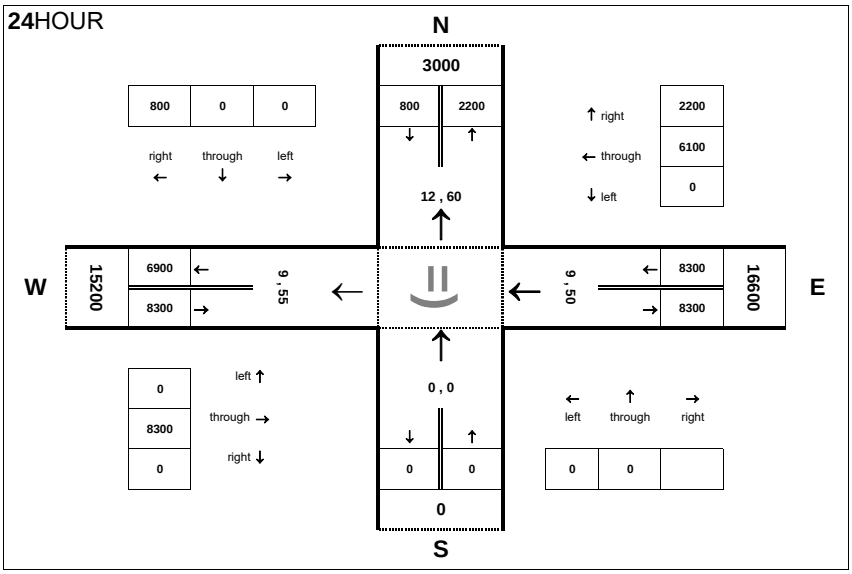
PM peak hour inflow is 825 vehicles. PM peak hour outflow is 824 vehicles.

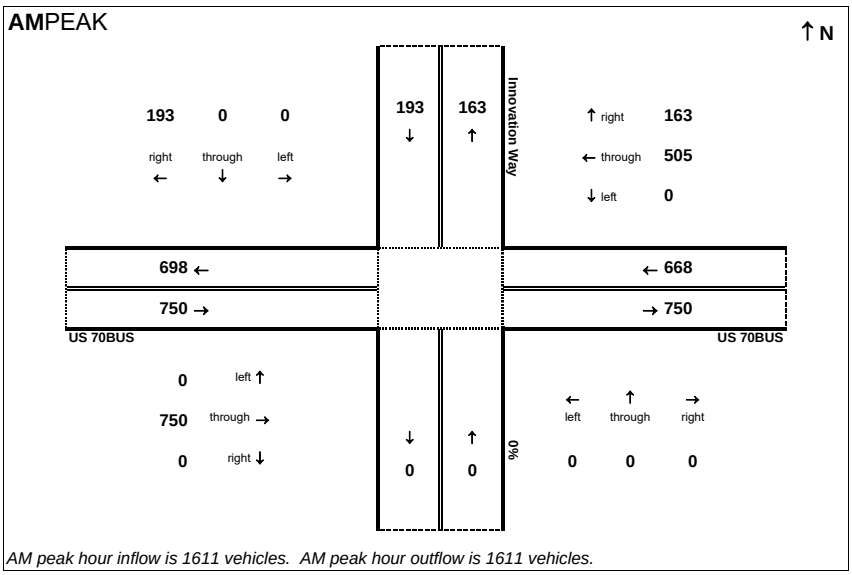
Peak Hour Volume Breakouts Report:
405 Intersection of US 70BUS and Innovation Way

Traffic Forecast Release Date:
November-16

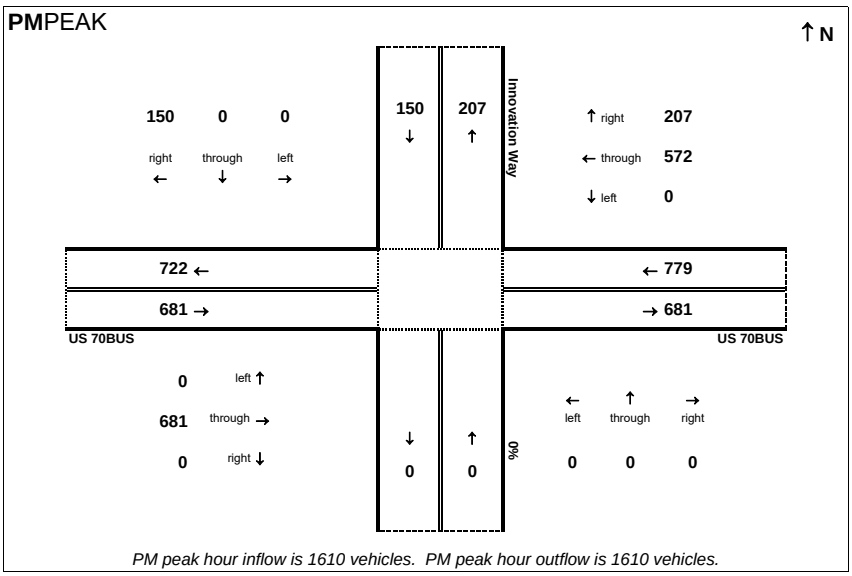
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553





AM peak hour inflow is 1611 vehicles. AM peak hour outflow is 1611 vehicles.



PM peak hour inflow is 1610 vehicles. PM peak hour outflow is 1610 vehicles.

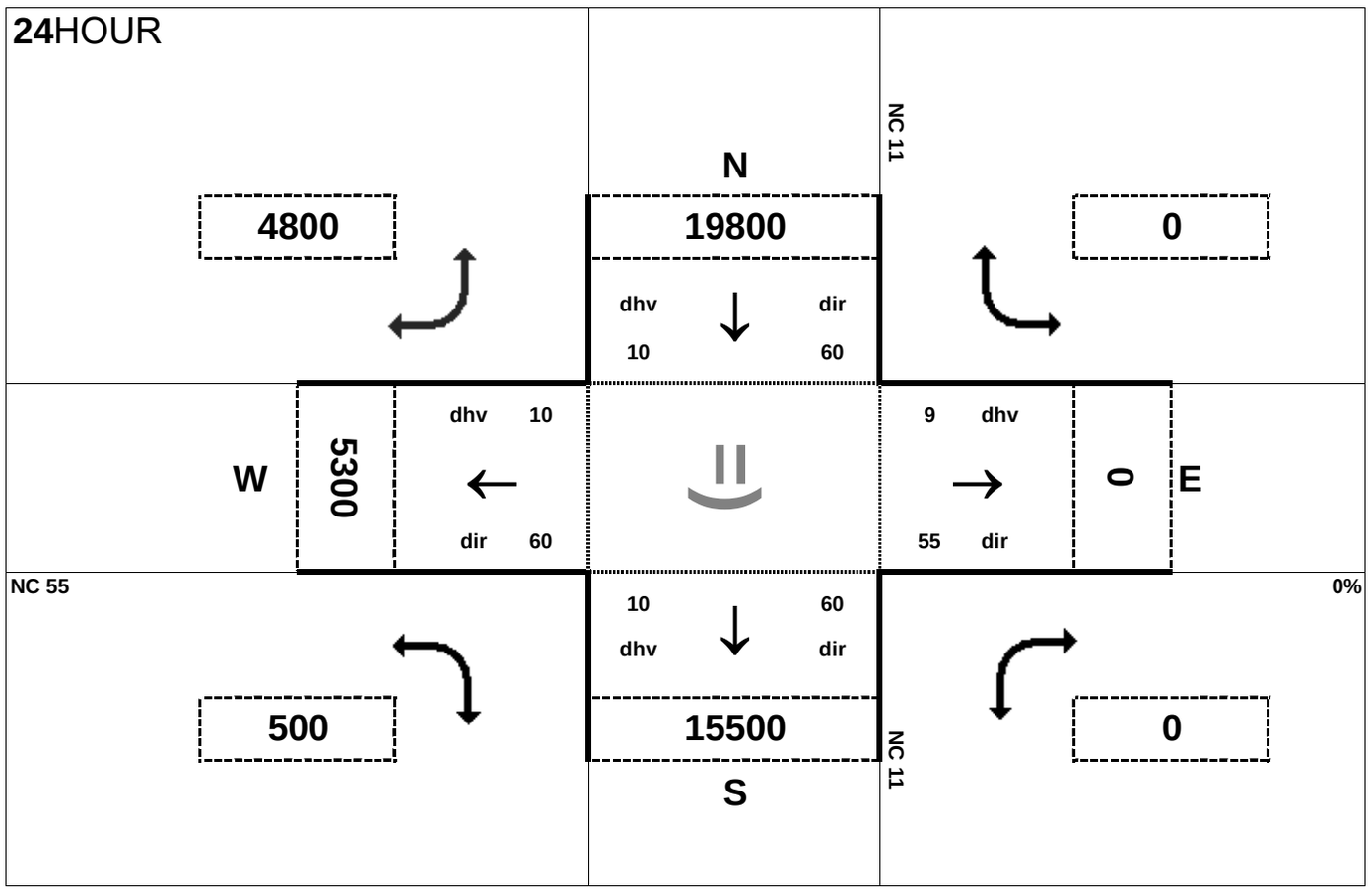
Peak Hour Volume Breakouts Report:
406 Intersection of NC 11 and NC 55

Traffic Forecast Release Date:
November-16

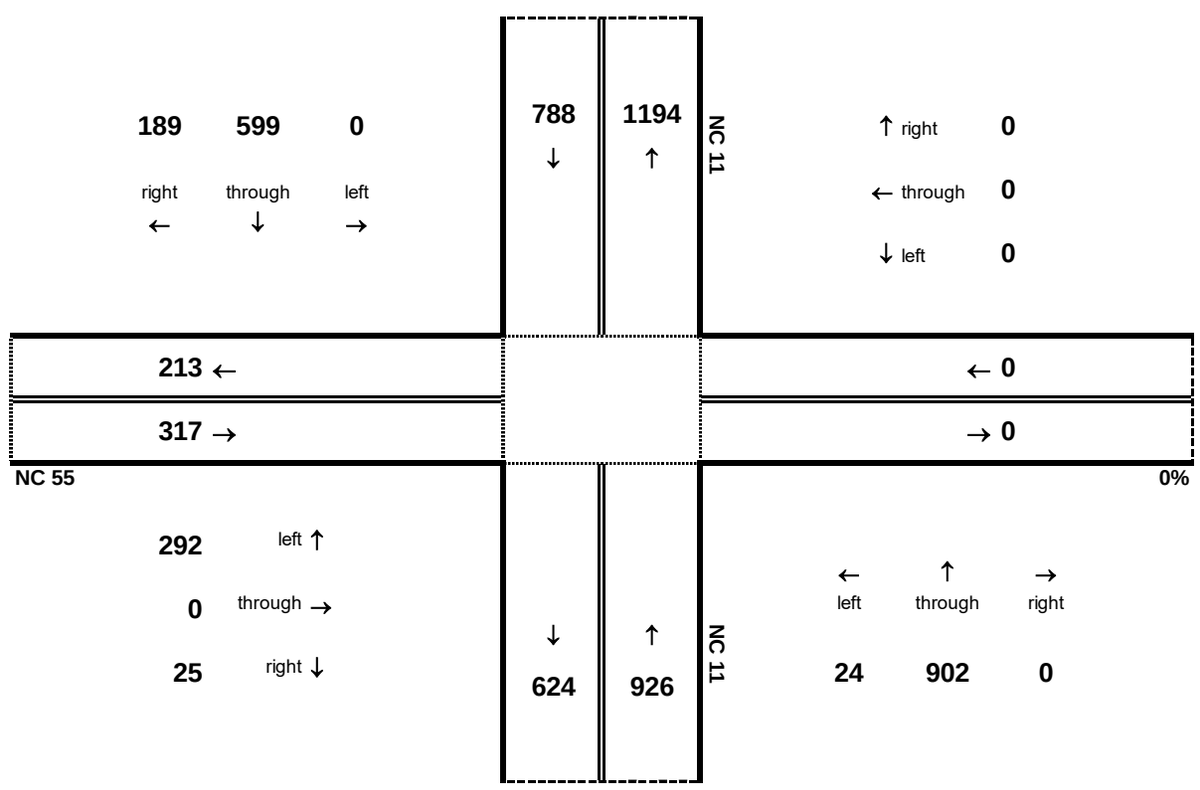
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553

24HOUR

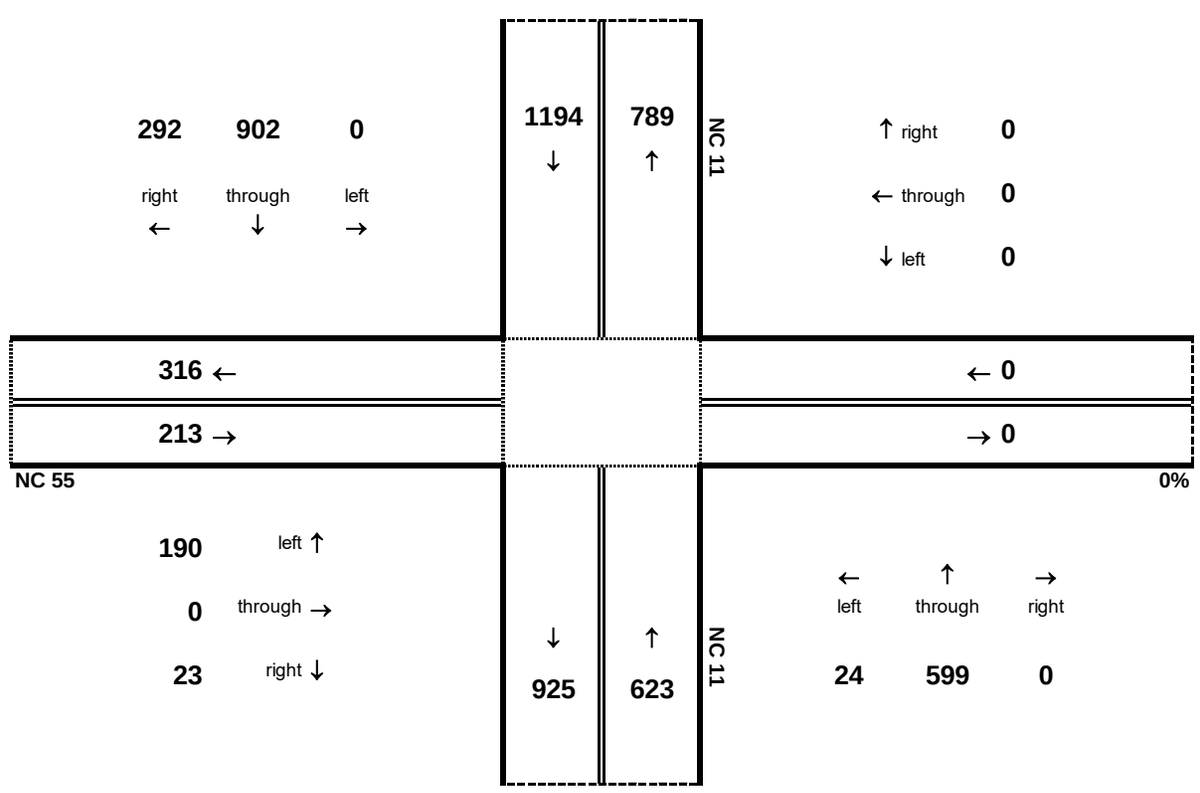


AMPEAK



AM peak hour inflow is 2031 vehicles. AM peak hour outflow is 2030 vehicles.

PMPEAK



PM peak hour inflow is 2030 vehicles. PM peak hour outflow is 2029 vehicles.

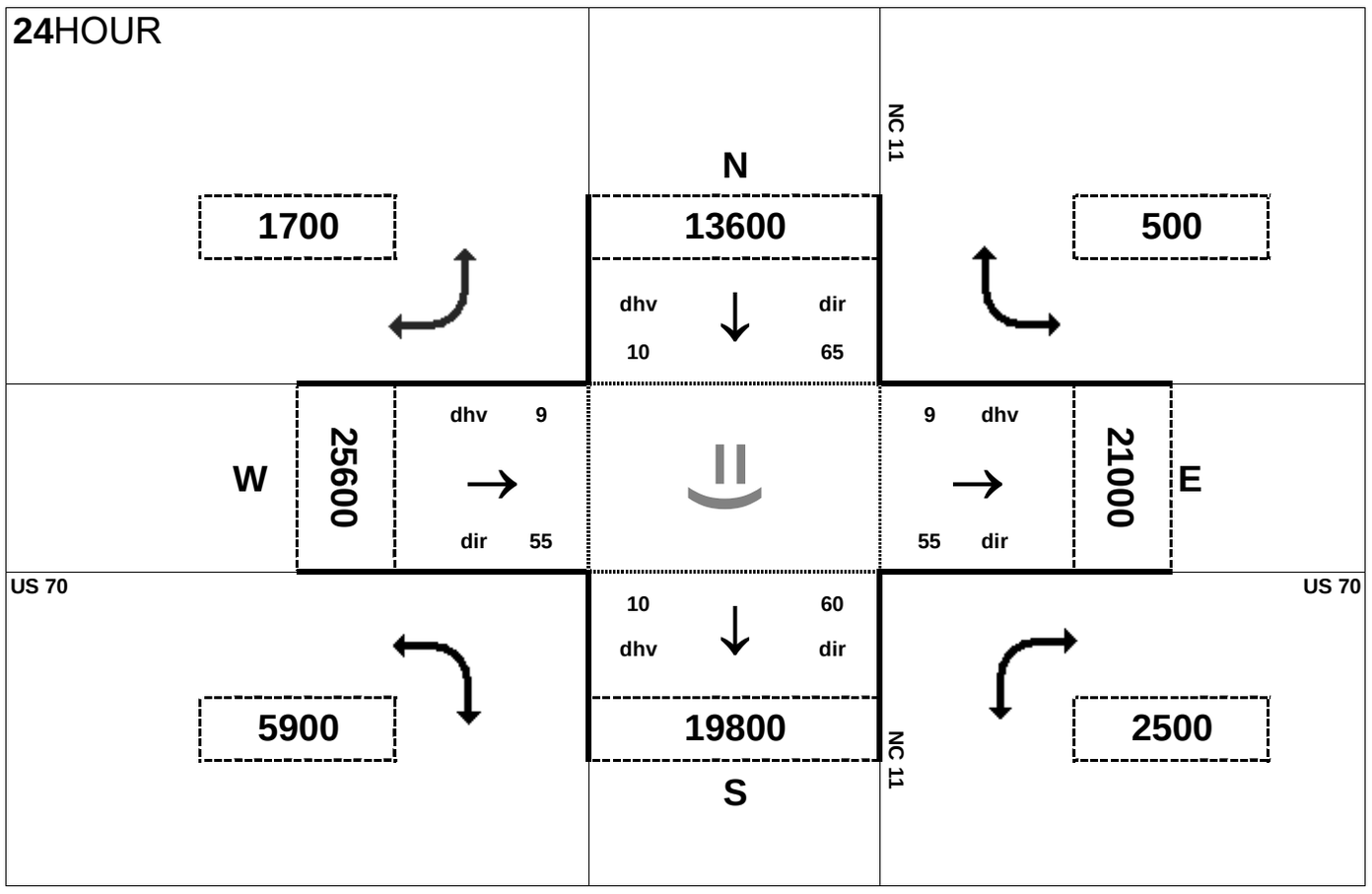
Peak Hour Volume Breakouts Report:
407-8 Intersection of US 70 and NC 11

Traffic Forecast Release Date:
November-16

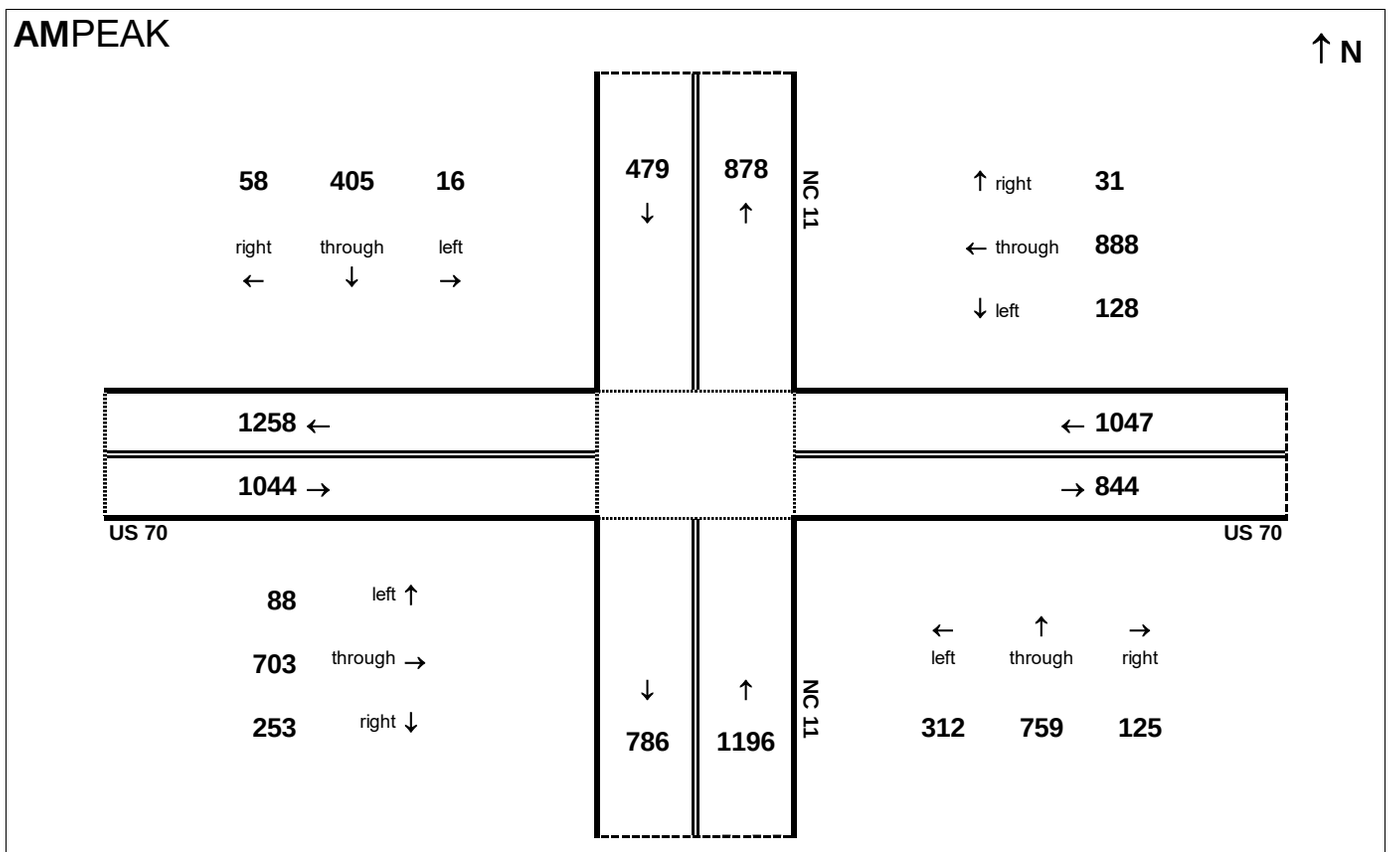
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553

24HOUR

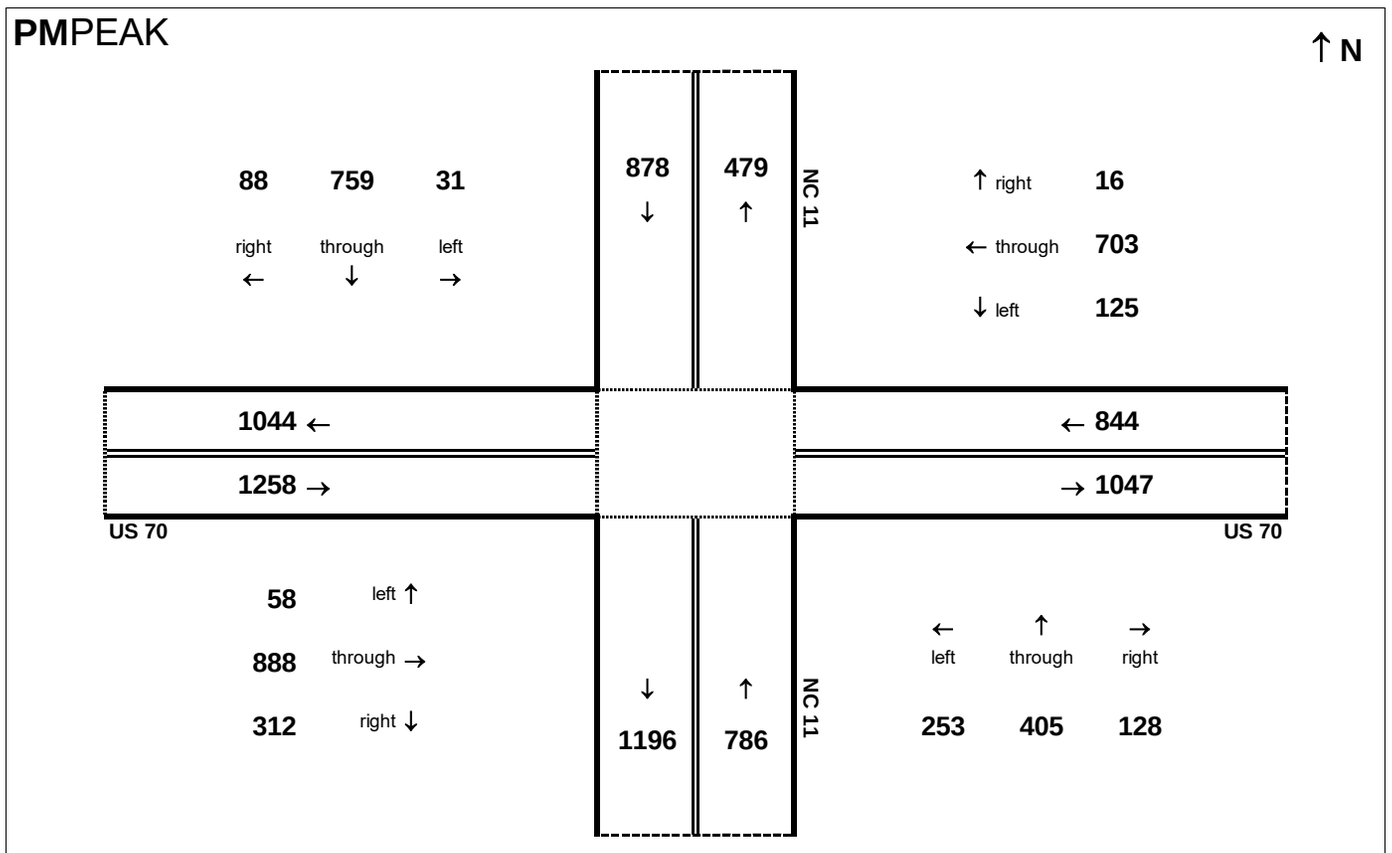


AMPEAK



AM peak hour inflow is 3766 vehicles. AM peak hour outflow is 3767 vehicles.

PMPEAK



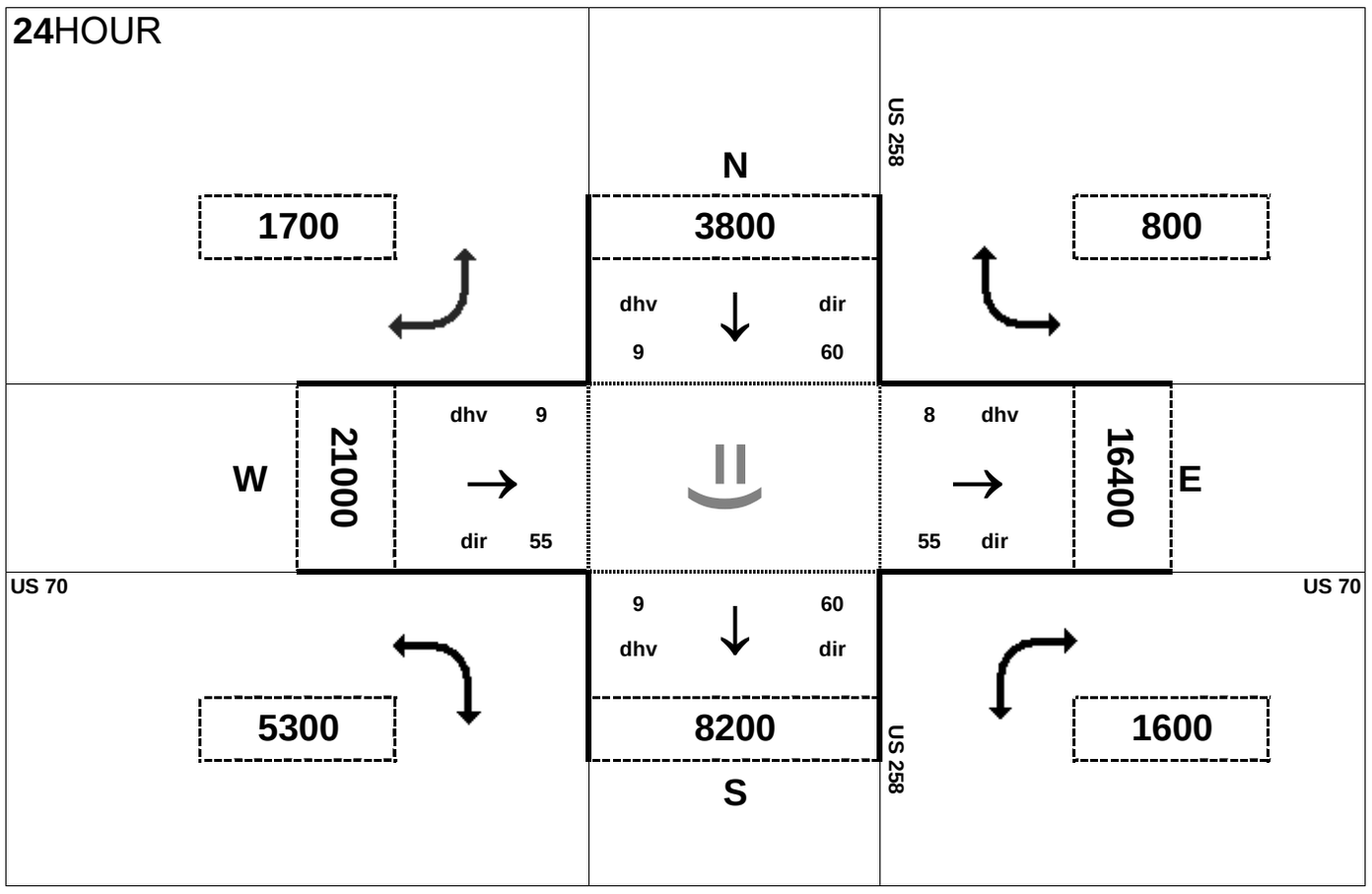
PM peak hour inflow is 3767 vehicles. PM peak hour outflow is 3766 vehicles.

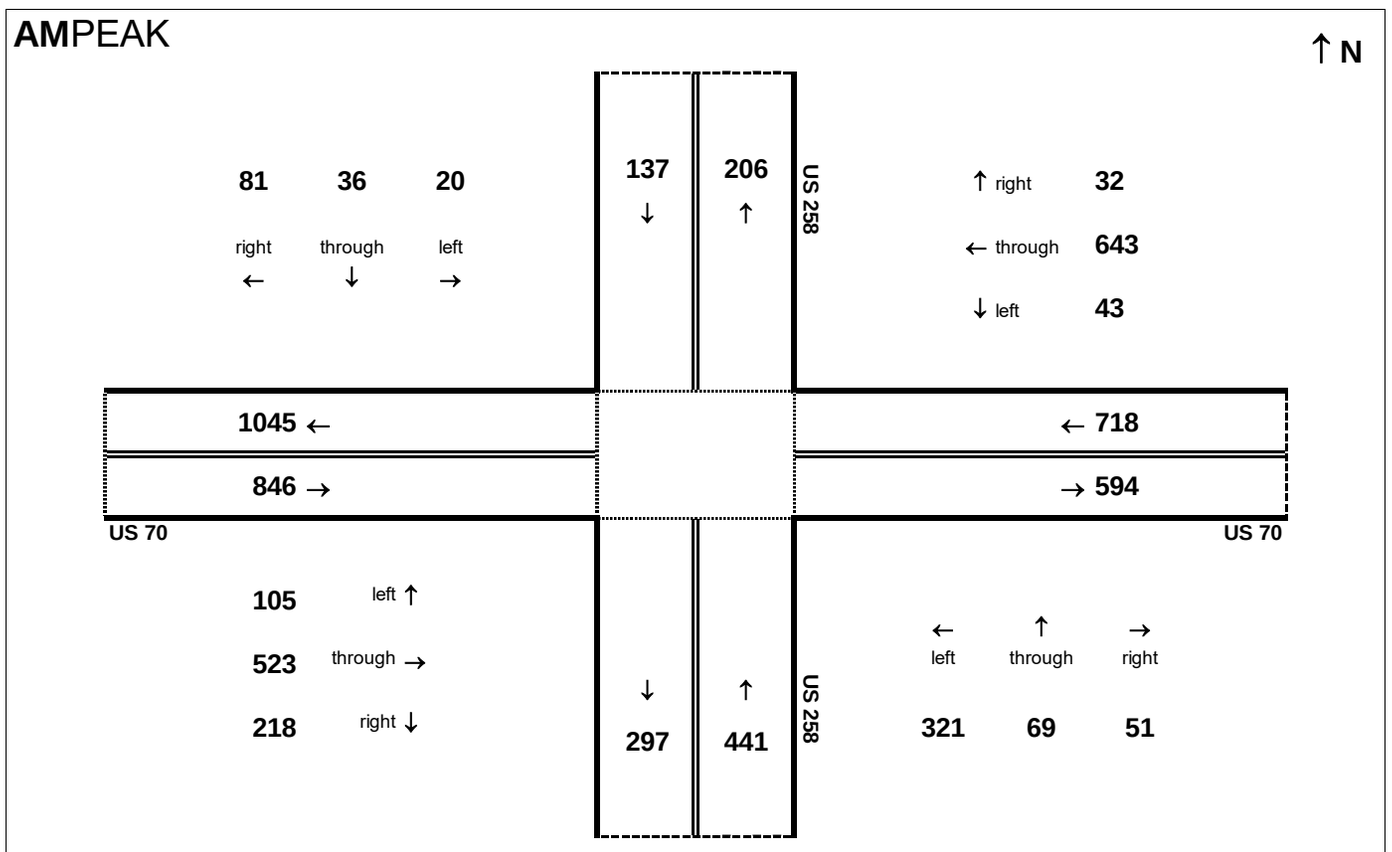
Peak Hour Volume Breakouts Report:
409-10 Intersection of US 70 and US 258

Traffic Forecast Release Date:
November-16

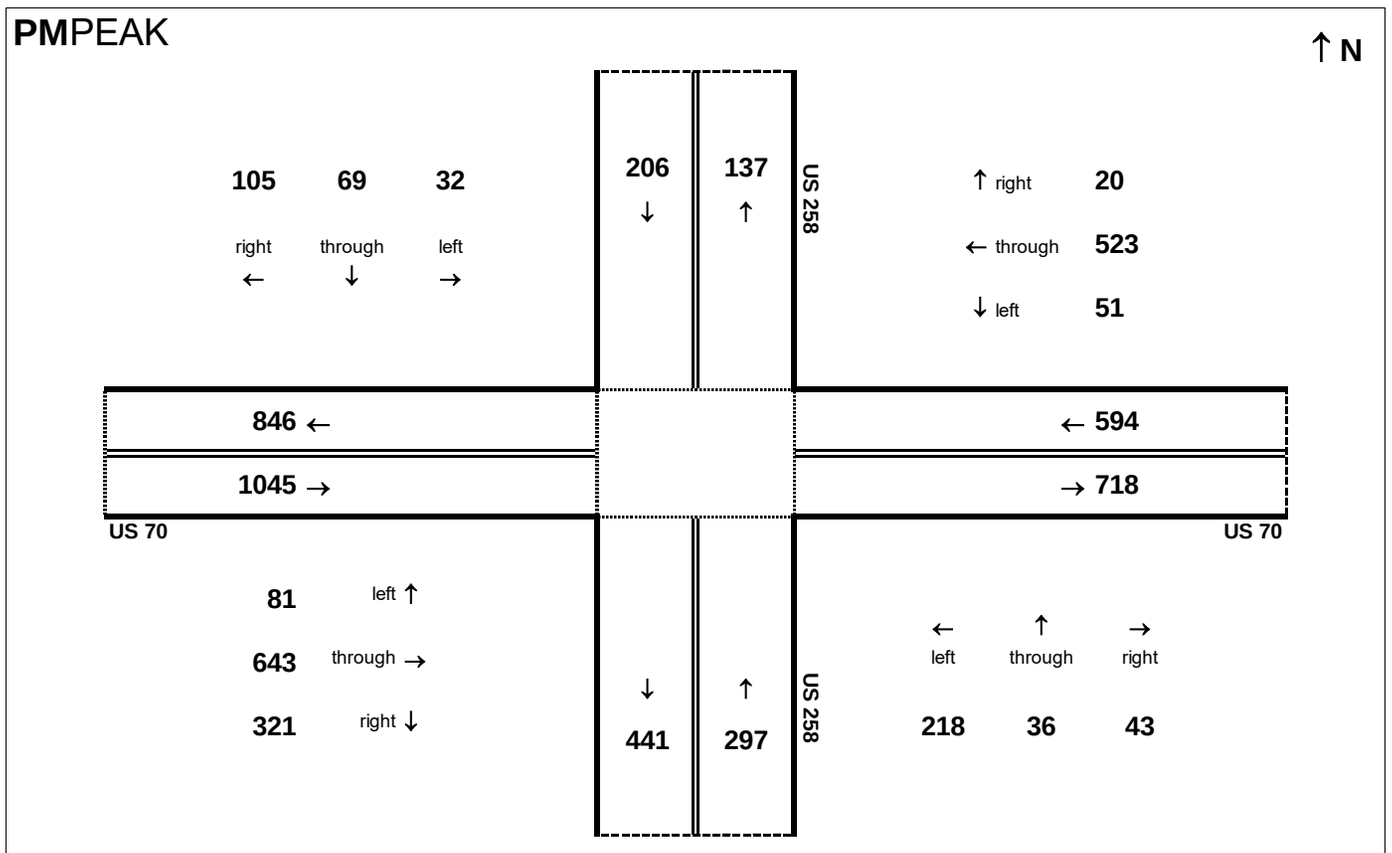
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553





AM peak hour inflow is 2141 vehicles. AM peak hour outflow is 2141 vehicles.



PM peak hour inflow is 2141 vehicles. PM peak hour outflow is 2141 vehicles.

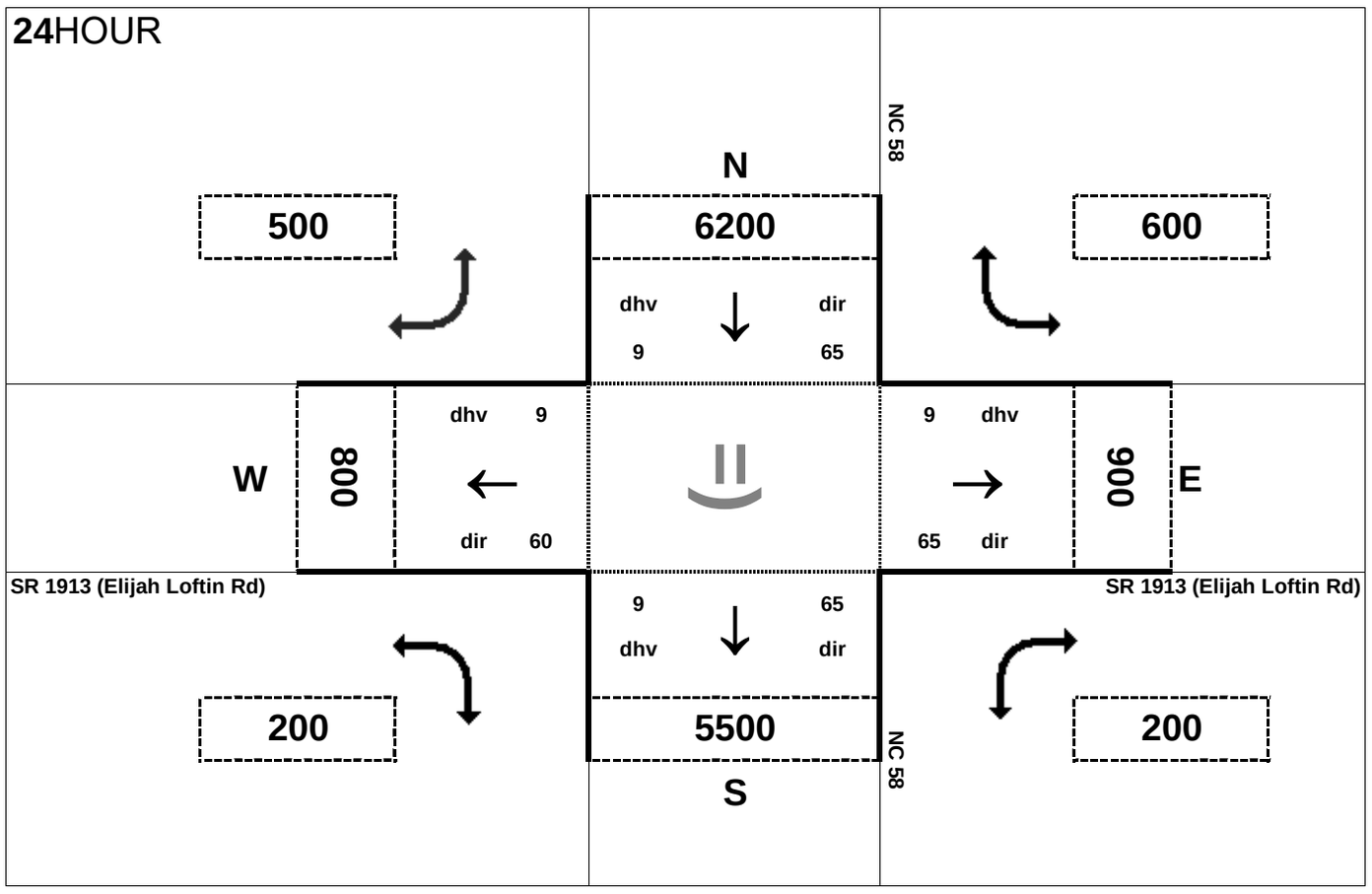
Peak Hour Volume Breakouts Report:
411 Intersection of NC 58 and SR 1913 (Elijah Loftin Rd)

Traffic Forecast Release Date:
November-16

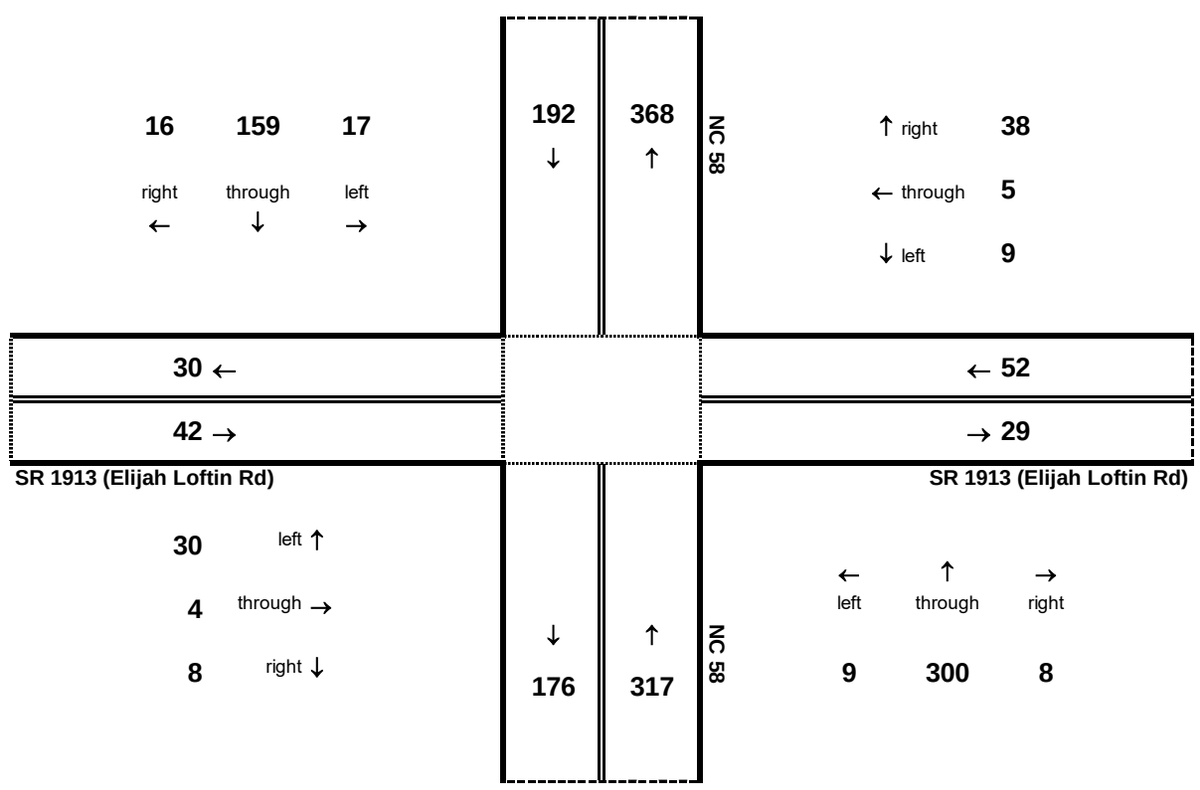
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553

24HOUR

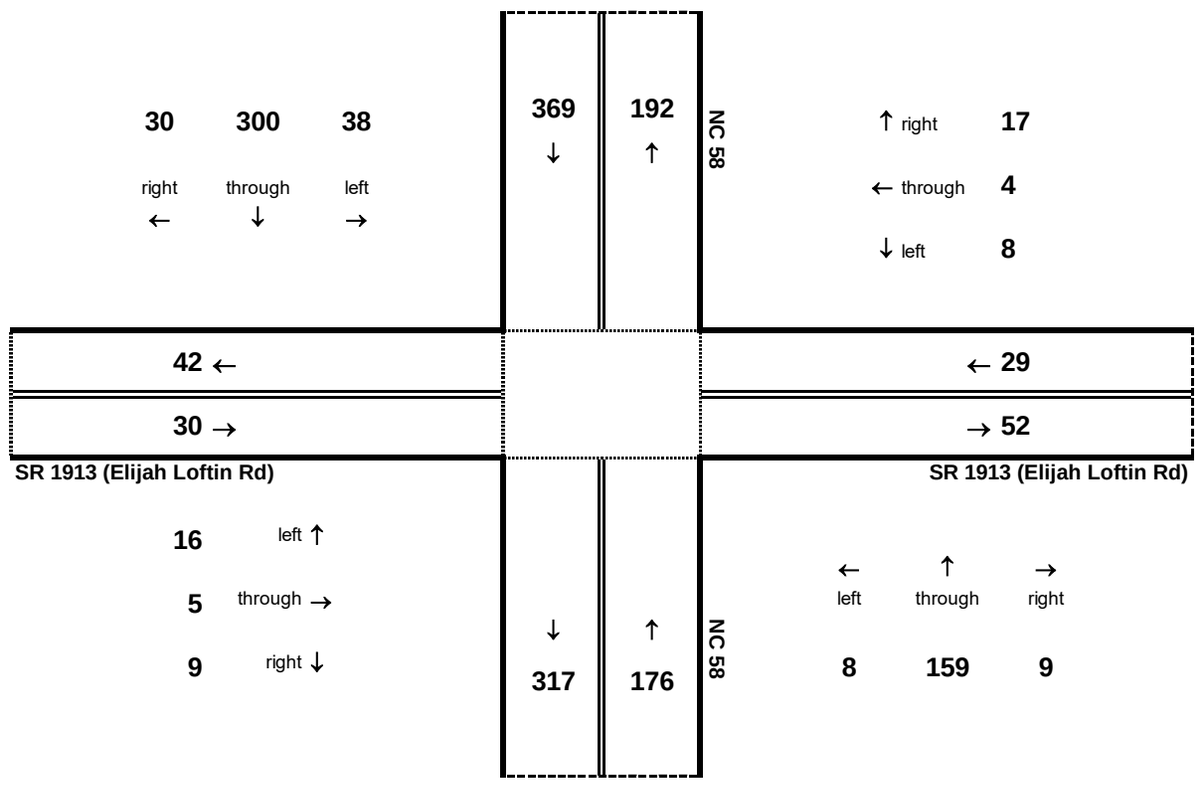


AMPEAK



AM peak hour inflow is 604 vehicles. AM peak hour outflow is 603 vehicles.

PMPEAK



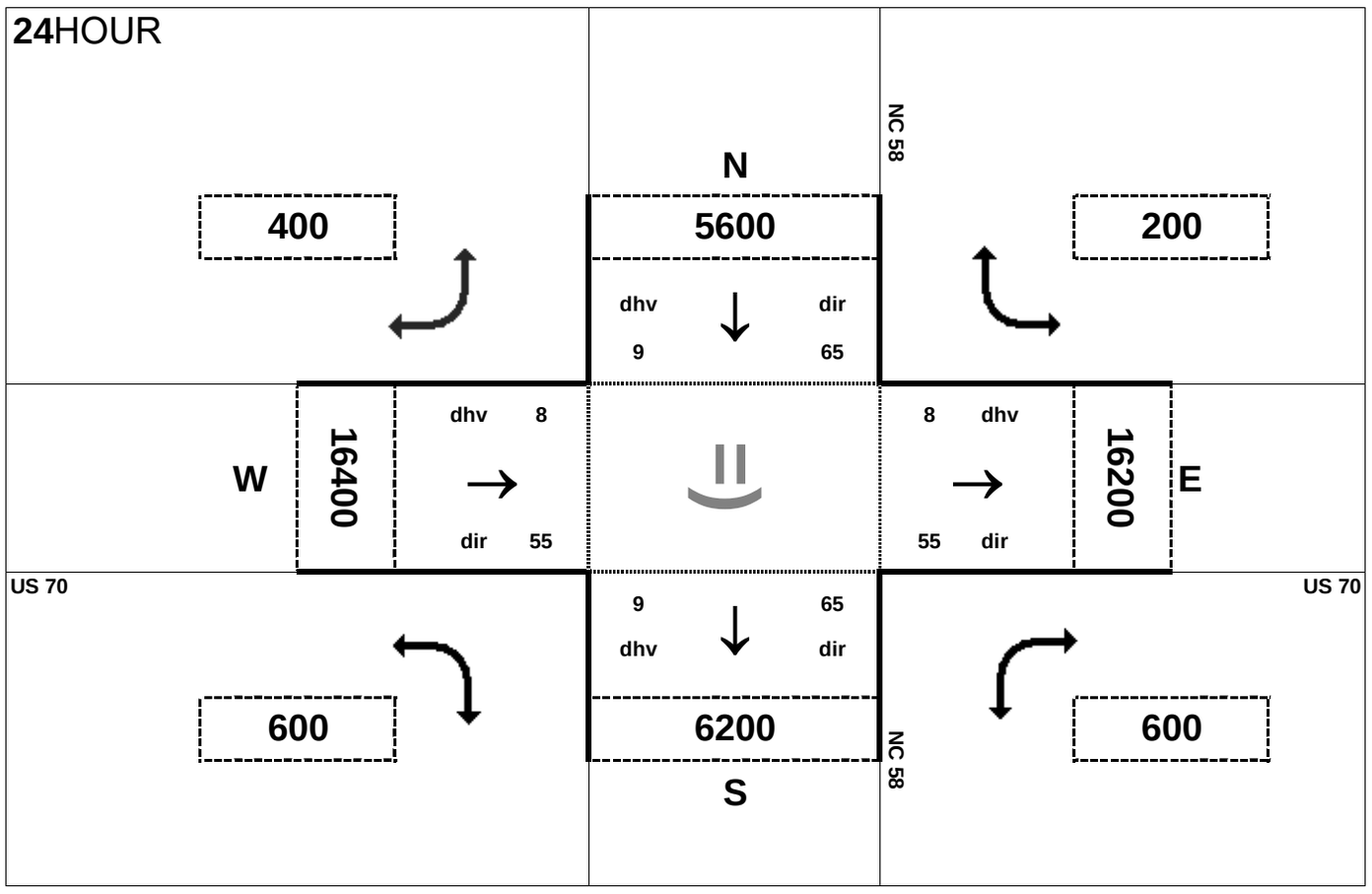
PM peak hour inflow is 603 vehicles. PM peak hour outflow is 604 vehicles.

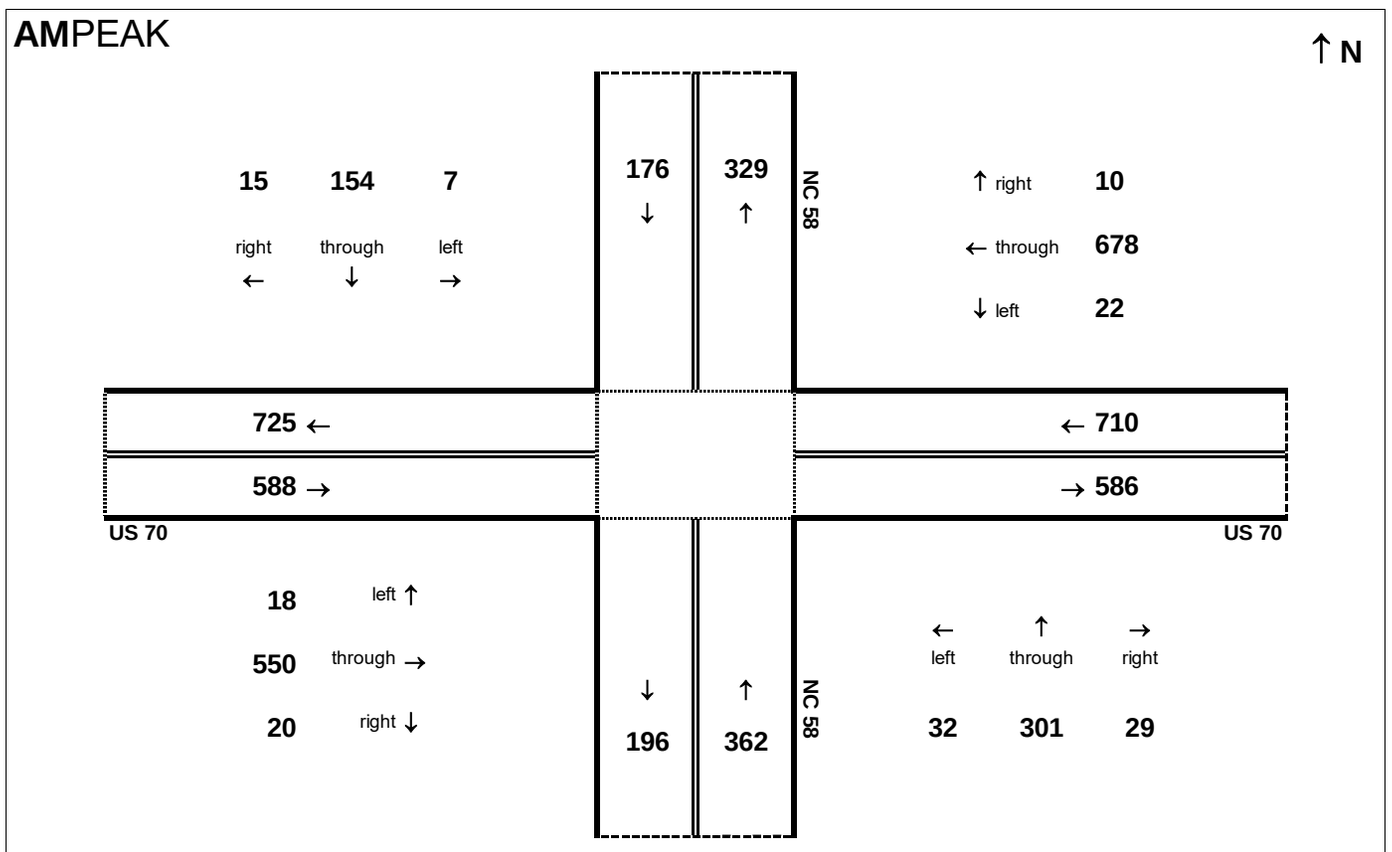
Peak Hour Volume Breakouts Report:
412-13 Intersection of US 70 and NC 58

Traffic Forecast Release Date:
November-16

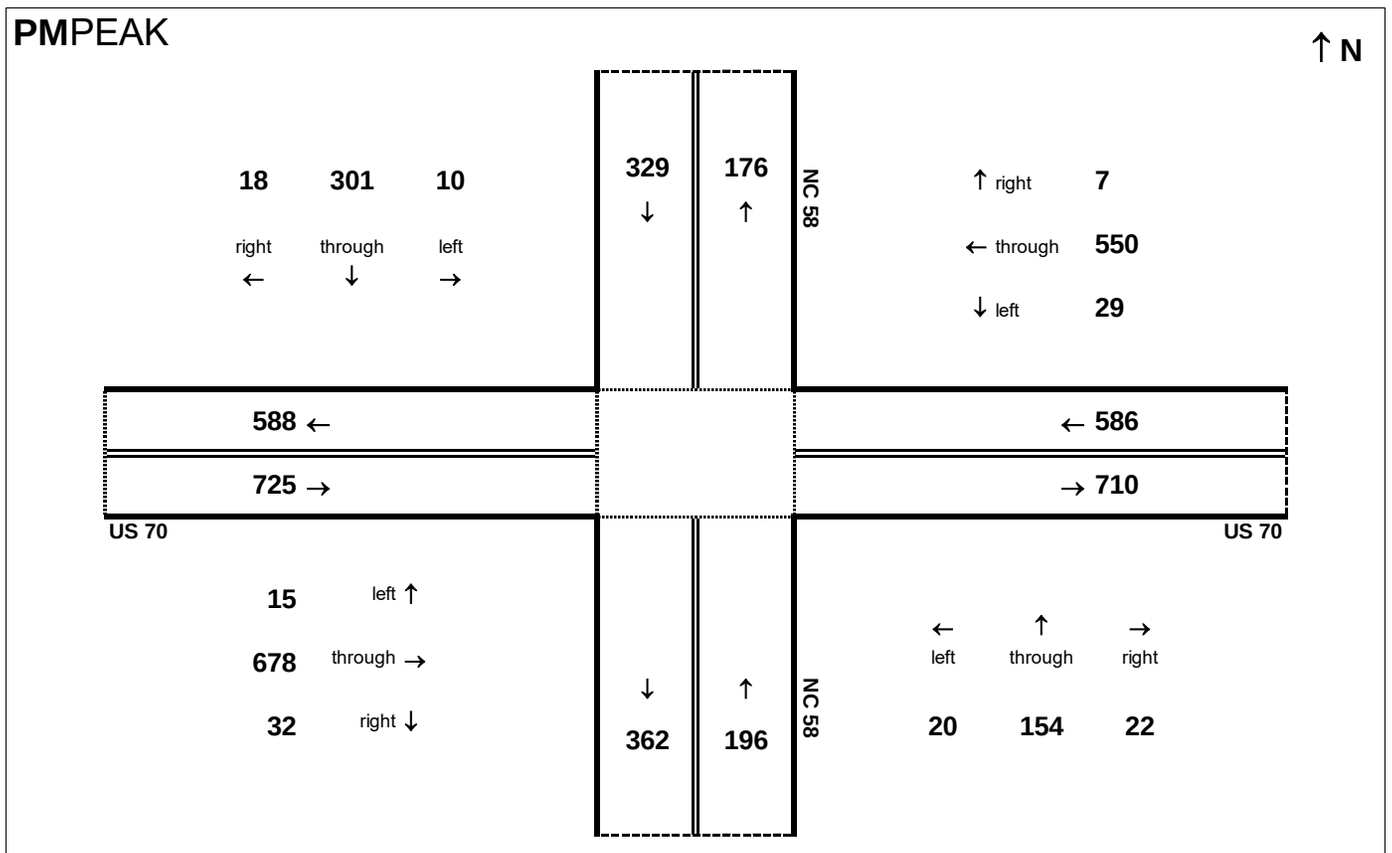
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553





AM peak hour inflow is 1835 vehicles. AM peak hour outflow is 1835 vehicles.



PM peak hour inflow is 1835 vehicles. PM peak hour outflow is 1835 vehicles.

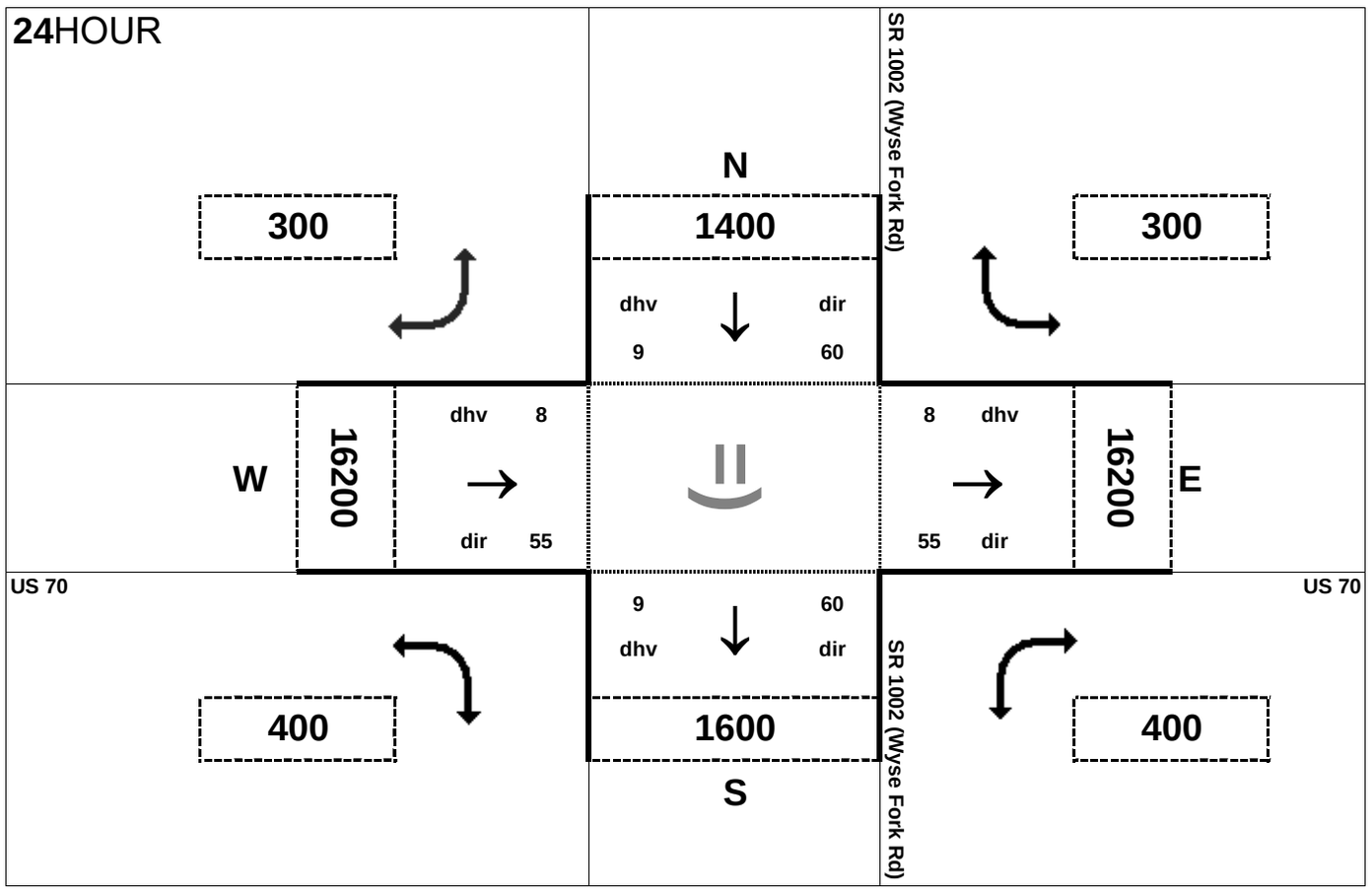
Peak Hour Volume Breakouts Report:
414-15 Intersection of US 70 and SR 1002 (Wyse Fork Rd)

Traffic Forecast Release Date:
November-16

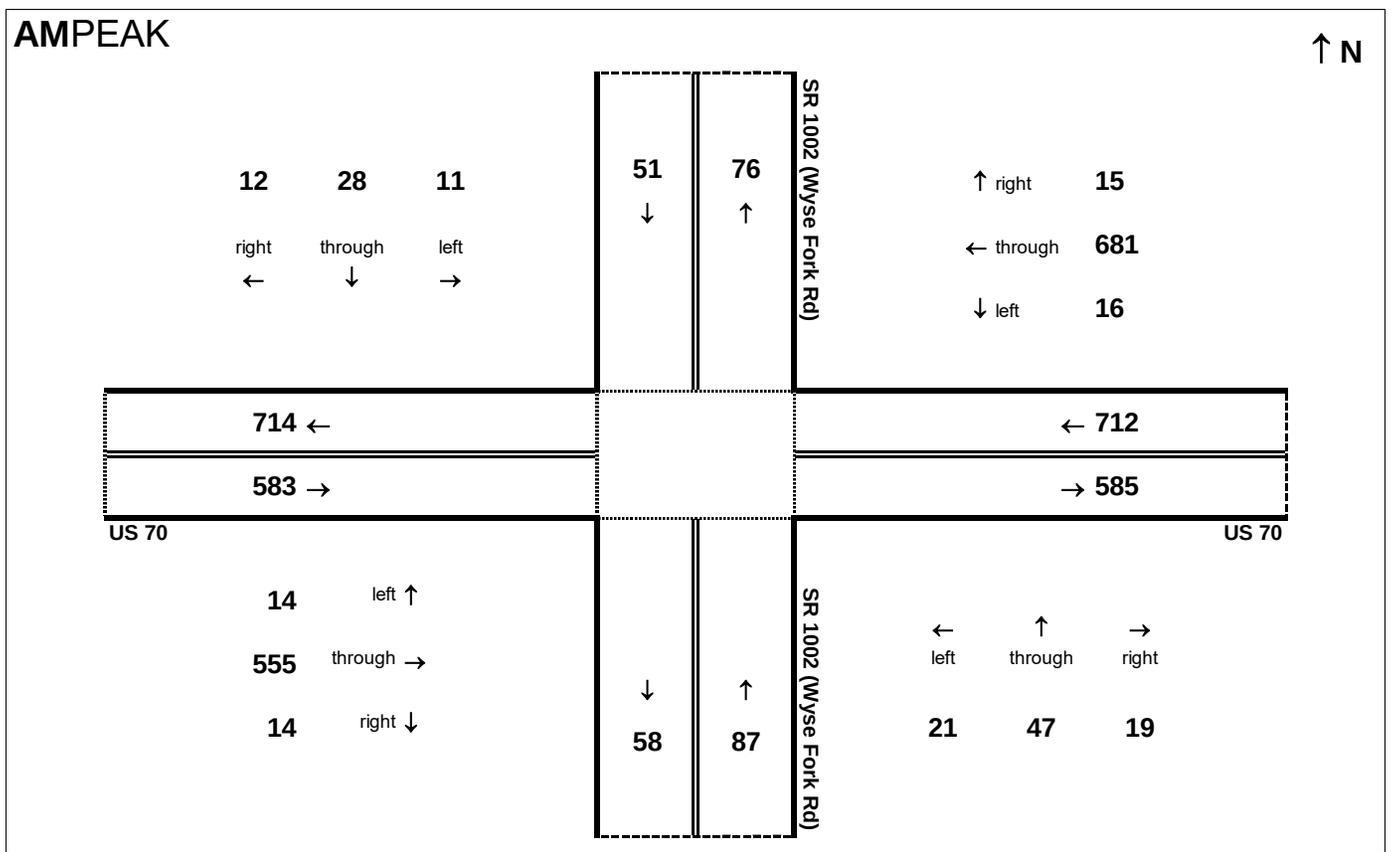
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553

24HOUR

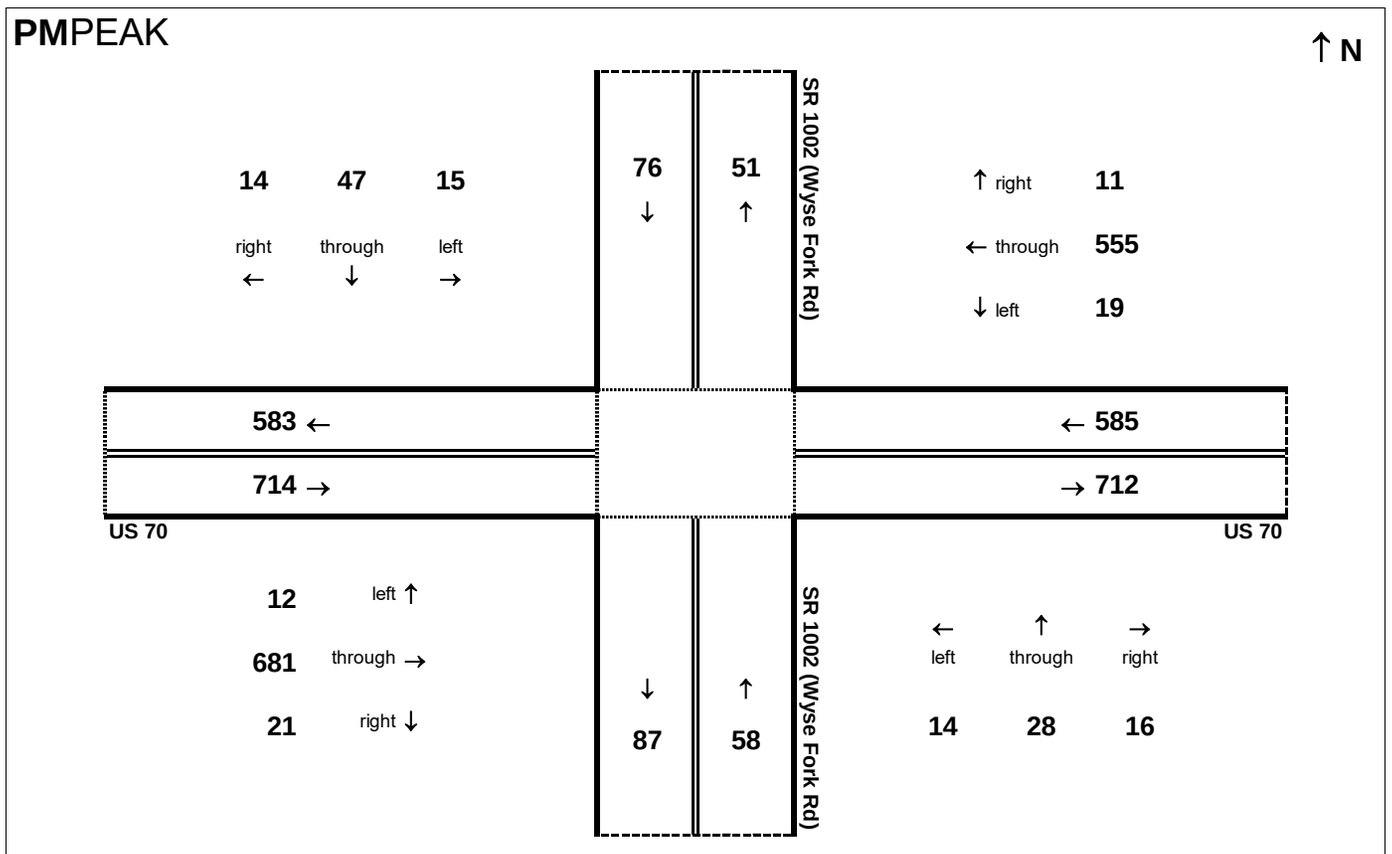


AMPEAK



AM peak hour inflow is 1430 vehicles. AM peak hour outflow is 1432 vehicles.

PMPEAK



PM peak hour inflow is 1432 vehicles. PM peak hour outflow is 1431 vehicles.

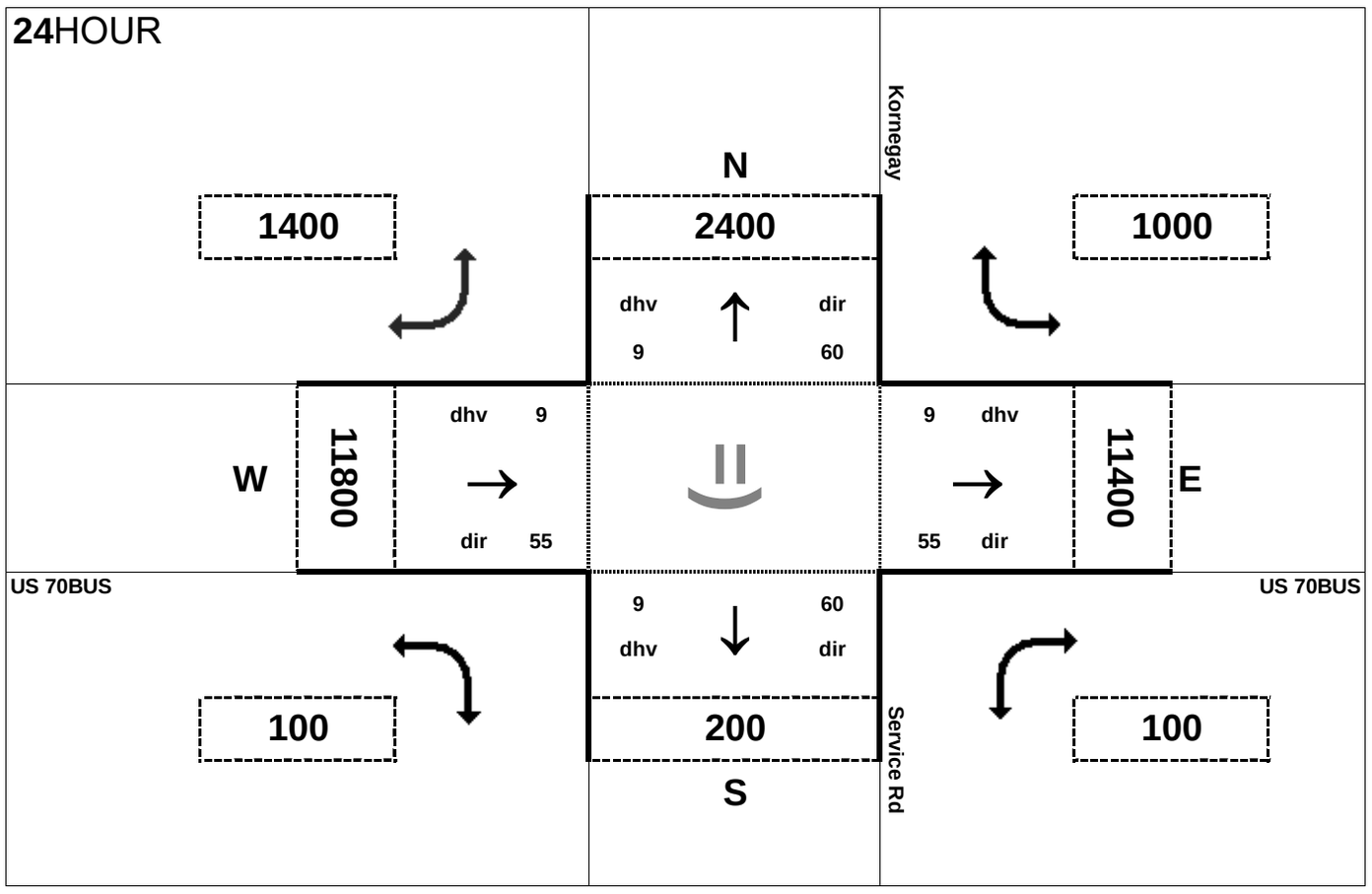
Peak Hour Volume Breakouts Report:
416 Intersection of US 70BUS and Kornegay St

Traffic Forecast Release Date:
November-16

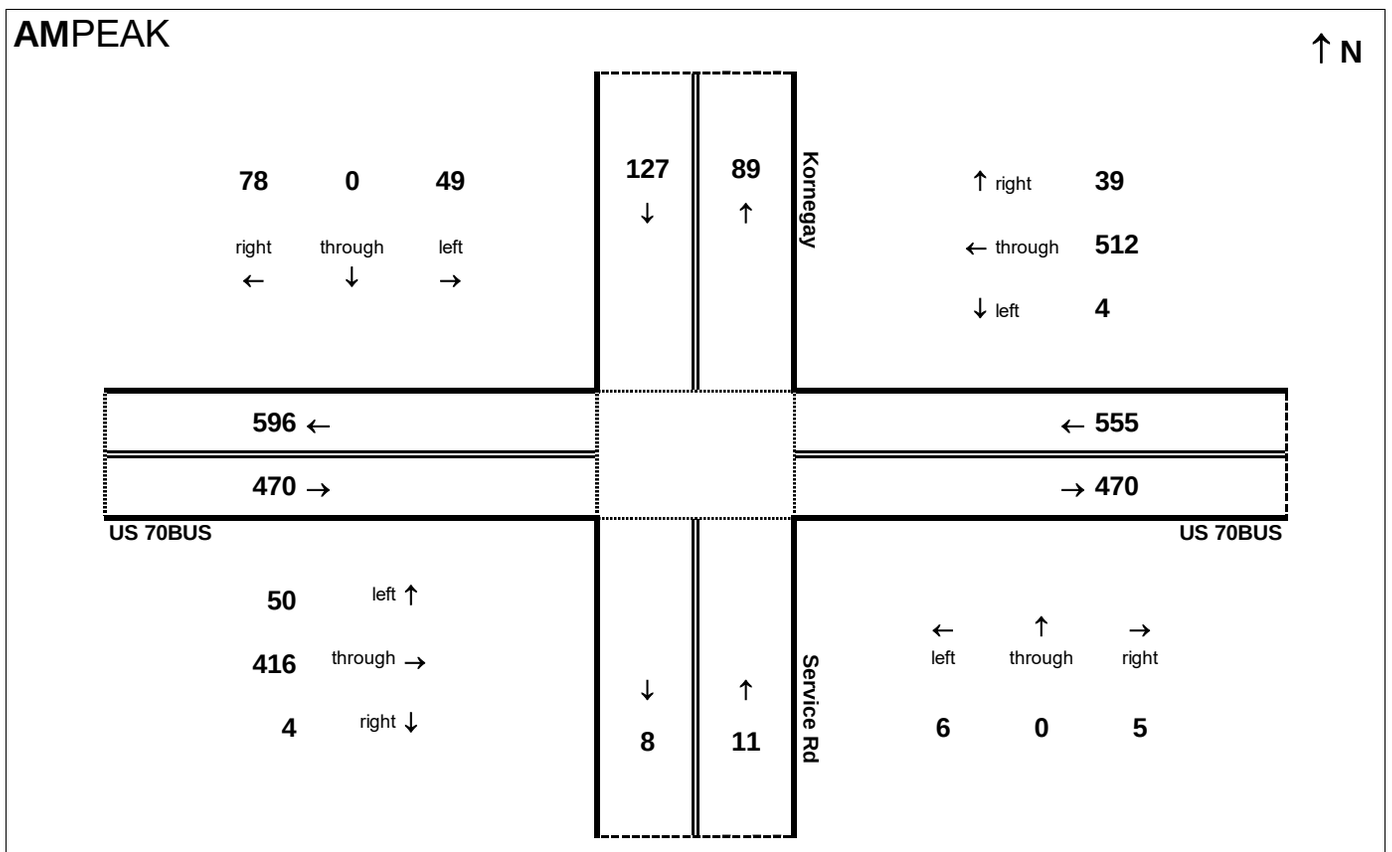
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553

24HOUR

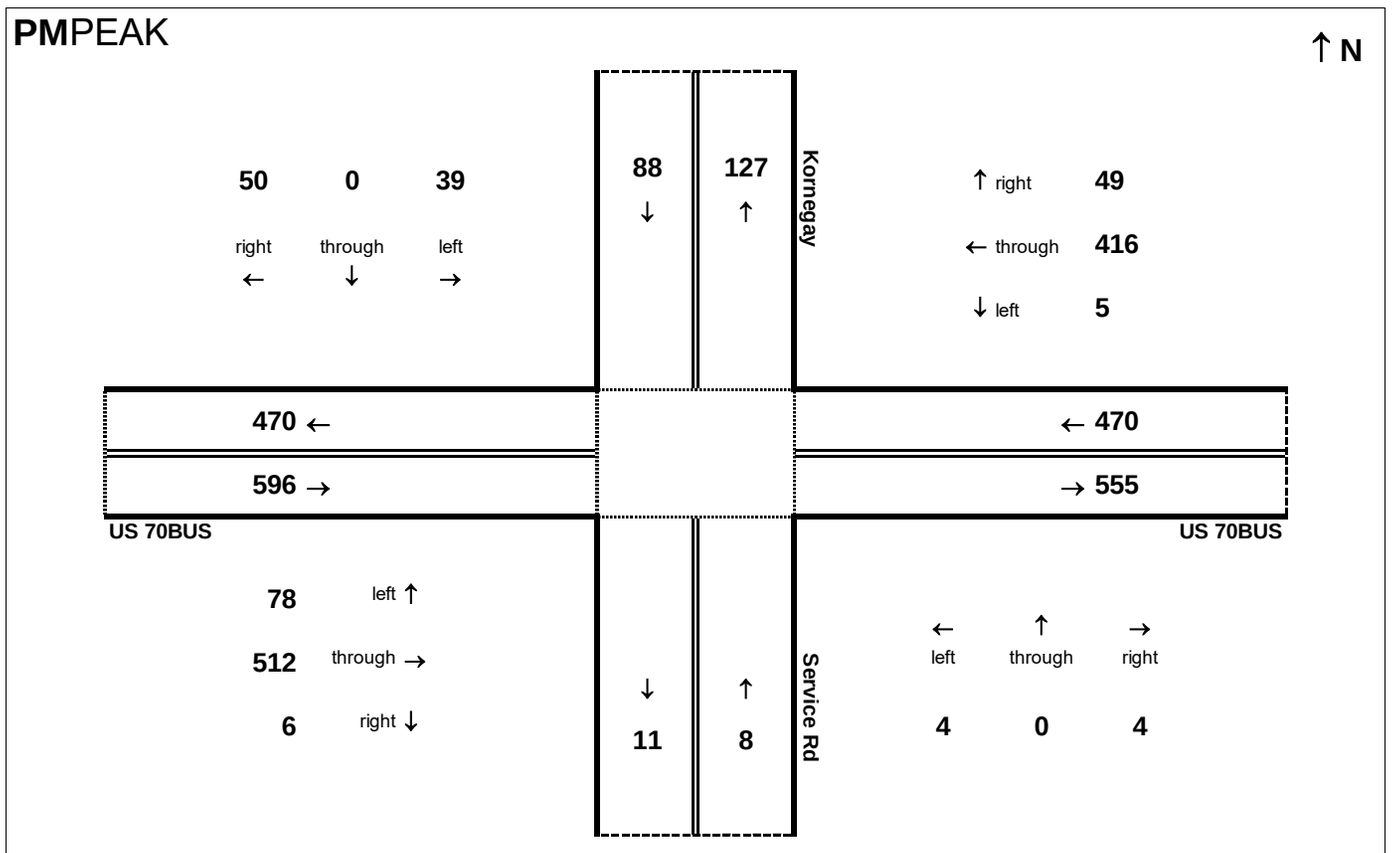


AMPEAK



AM peak hour inflow is 1161 vehicles. AM peak hour outflow is 1160 vehicles.

PMPEAK



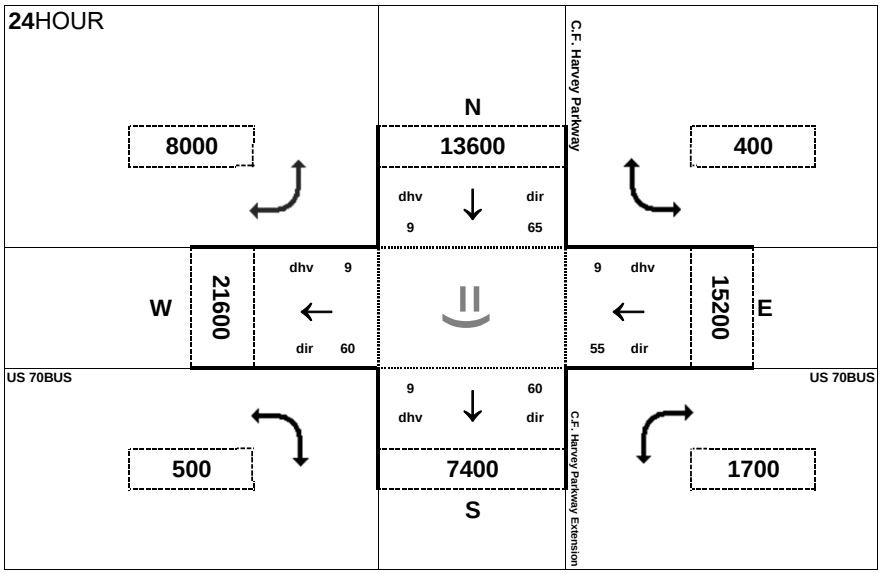
PM peak hour inflow is 1160 vehicles. PM peak hour outflow is 1161 vehicles.

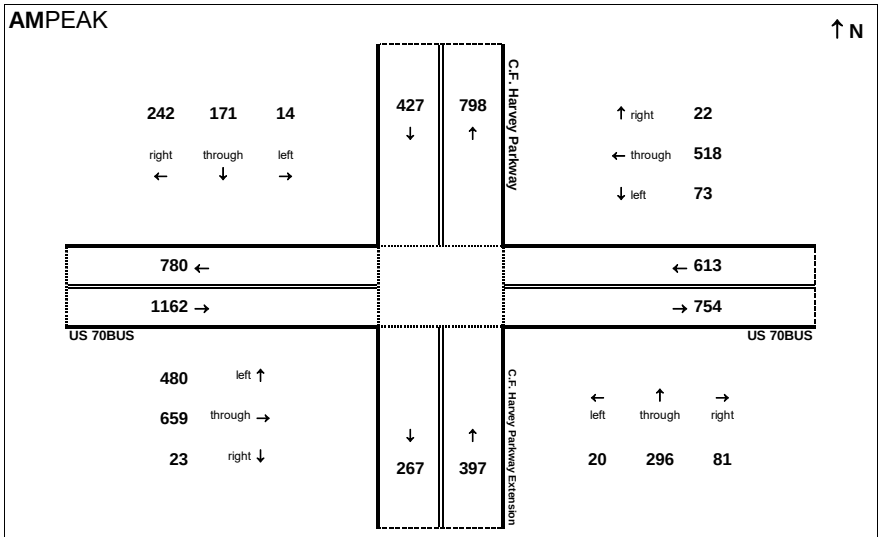
Peak Hour Volume Breakouts Report:
System 2 Intersection of US 70BUS and C. F. Harvey Parkway

Traffic Forecast Release Date:
November-16

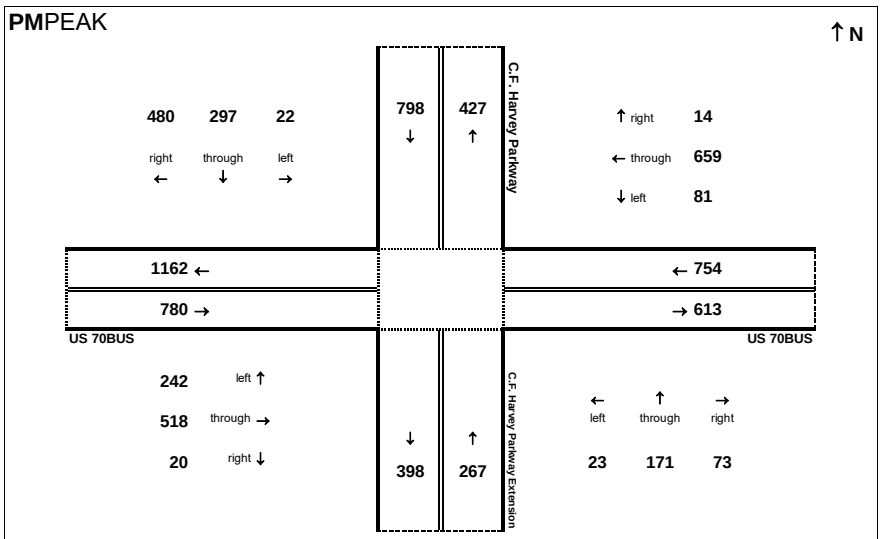
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553





AM peak hour inflow is 2601 vehicles. AM peak hour outflow is 2600 vehicles.



PM peak hour inflow is 2600 vehicles. PM peak hour outflow is 2601 vehicles.

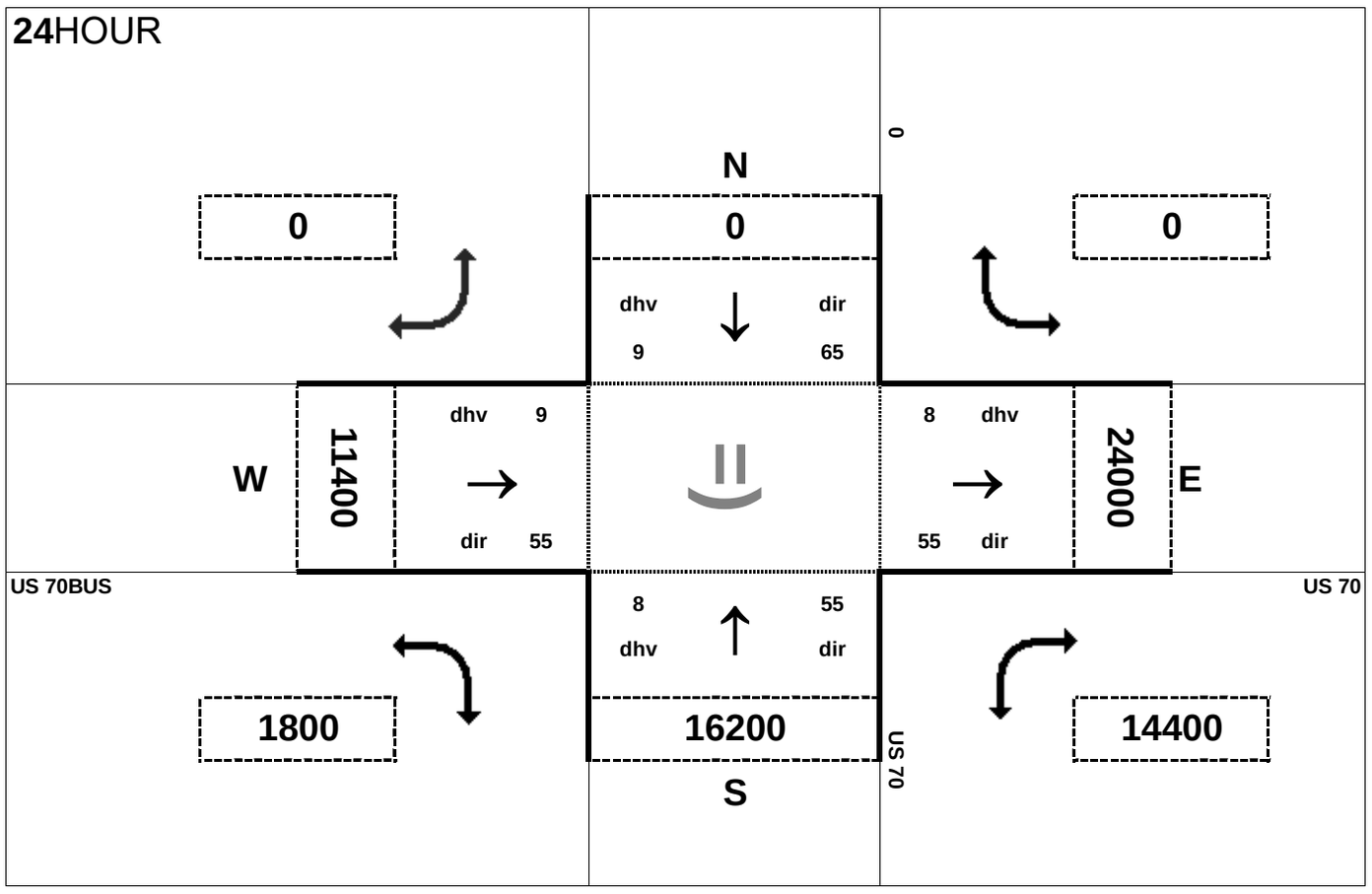
Peak Hour Volume Breakouts Report:
System 4 Intersection of US 70 and US 70BUS (eastern)

Traffic Forecast Release Date:
November-16

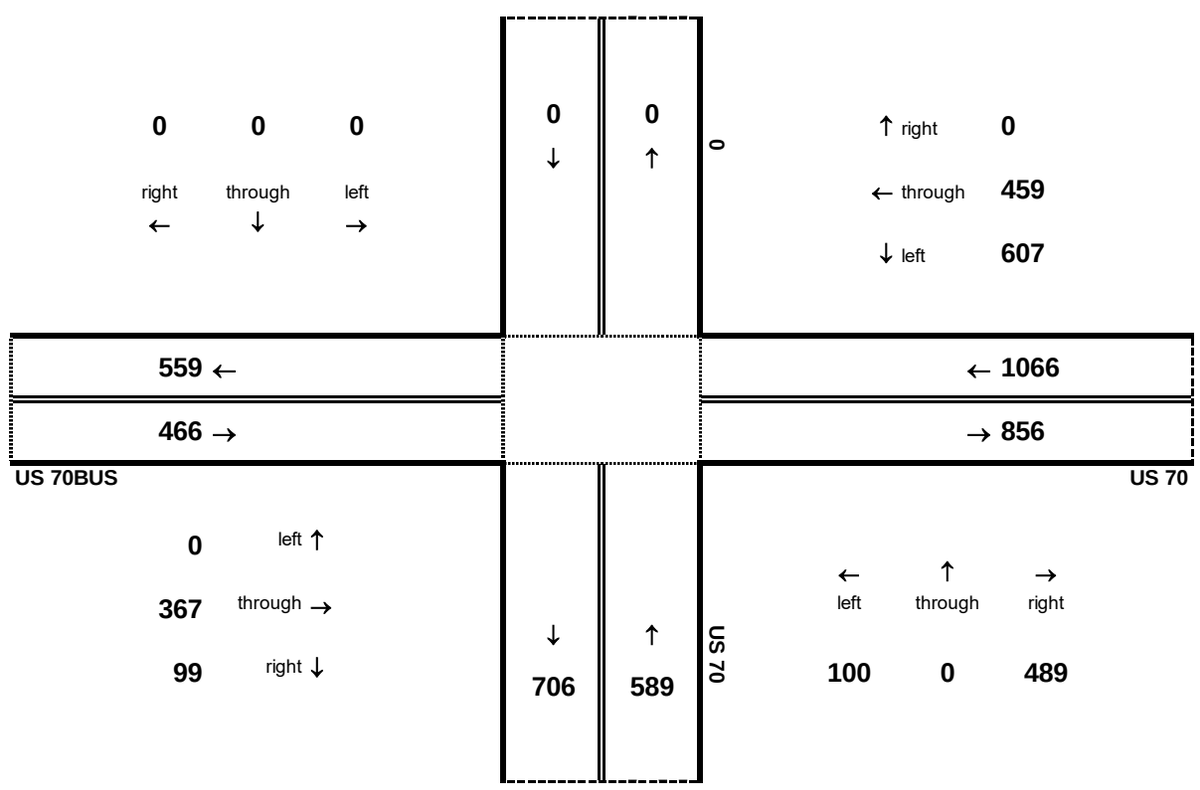
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553

24HOUR

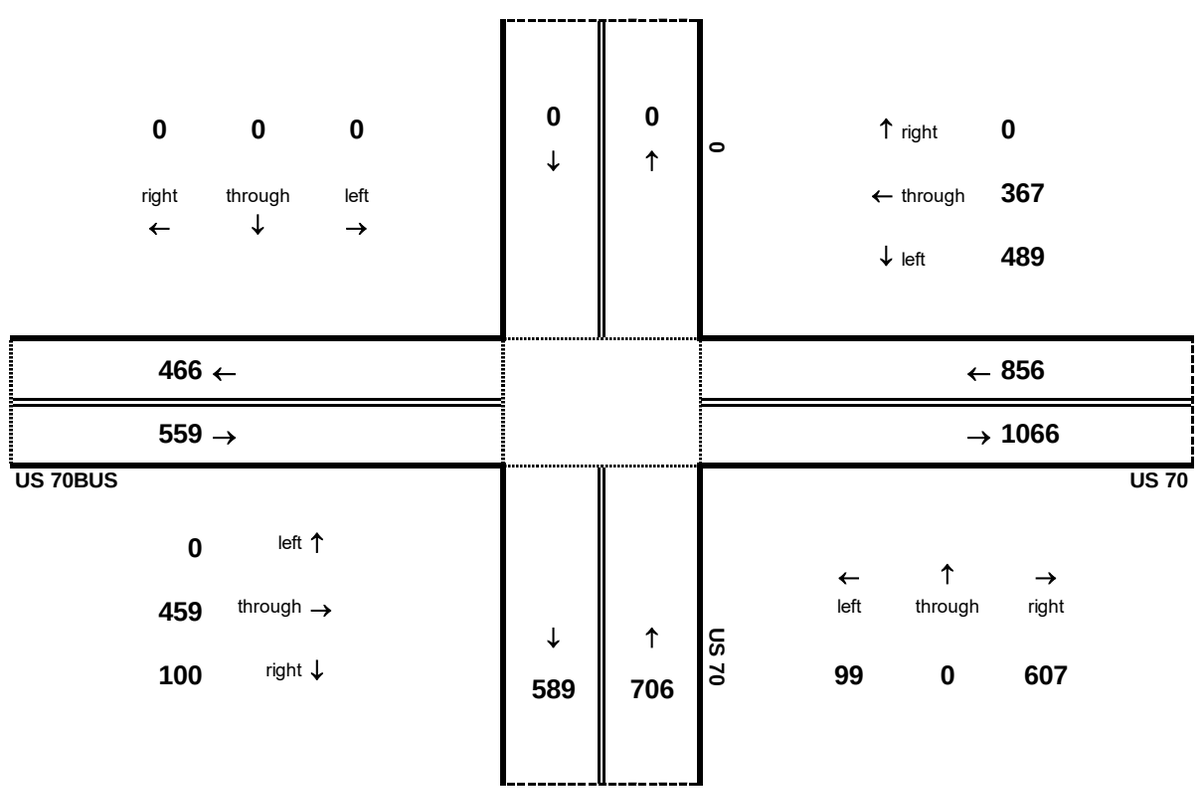


AMPEAK



AM peak hour inflow is 2121 vehicles. AM peak hour outflow is 2121 vehicles.

PMPEAK



PM peak hour inflow is 2121 vehicles. PM peak hour outflow is 2121 vehicles.

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R-2553 Kinson Bypass

2040 Build Alternative 65

Step 1 - Calculating Basic Freeway Segment Volumes

Basic Freeway Segment Volumes - Eastbound							
Segment	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)	36,200	0.09	0.45	3,258	1,792	1,467
5E	US 70 EB - SR 1690 (Willie Measley Rd) to US 70BUS	39,200	0.09	0.45	3,528	1,941	1,588
7E	US 70 EB - US 70BUS to US 70BUS / C. F. Harvey Pkwy	18,200	0.09	0.55	1,638	738	901
9E	US 70 EB - US 70BUS / C. F. Harvey Pkwy To NC 11	25,600	0.09	0.55	2,304	1,037	1,268
13E	US 70 EB - NC 11 to US 258	21,000	0.09	0.55	1,890	851	1,040
17E	US 70 EB - US 258 to NC 58	16,400	0.08	0.55	1,312	591	722
21E	US 70 EB - NC 58 to SR 1002 (Wyse Fork Rd)	16,200	0.08	0.55	1,296	584	713
25E	US 70 EB - SR 1002 (Wyse Fork Rd) to US 70BUS	16,200	0.08	0.55	1,296	584	713
29E	US 70 EB - East of US 70BUS	24,000	0.08	0.55	1,920	864	1,056

Basic Freeway Segment Volumes - Westbound							
Segment	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1W	US 70 WB - East of US 70BUS	24,000	0.08	0.45	1,920	1,056	864
5W	US 70 WB - SR 1002 (Wyse Fork Rd) to US 70BUS	16,200	0.08	0.45	1,296	713	584
9W	US 70 WB - NC 58 to SR 1002 (Wyse Fork Rd)	16,200	0.08	0.45	1,296	713	584
13W	US 70 WB - US 258 to NC 58	16,400	0.08	0.45	1,312	722	591
17W	US 70 WB - NC 11 to US 258	21,000	0.09	0.45	1,890	1,040	851
21W	US 70 WB - US 70BUS / C. F. Harvey Pkwy To NC 11	25,600	0.09	0.45	2,304	1,268	1,037
23W	US 70 WB - US 70BUS to US 70BUS / C. F. Harvey Pkwy	18,200	0.09	0.45	1,638	901	738
25W	US 70 WB - SR 1690 (Willie Measley Rd) to US 70BUS	39,200	0.09	0.55	3,528	1,588	1,941
29W	US 70 WB - West of SR 1690 (Willie Measley Rd)	36,200	0.09	0.55	3,258	1,467	1,792

Basic Freeway Segment Volumes - Northbound							
Segment	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1N	C. F. Harvey Pkwy NB - From US 70 to NC 148	7,400	0.09	0.40	666	400	267
7N	C. F. Harvey Pkwy NB - North of US 70BUS	13,600	0.09	0.35	1,224	796	429

Basic Freeway Segment Volumes - Southbound							
Segment	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1S	C. F. Harvey Pkwy SB - North of US 70BUS	13,600	0.09	0.65	1,224	429	796
7S	C. F. Harvey Pkwy SB - From US 70 to NC 148	7,400	0.09	0.60	666	267	400

Segment Volumes - US 70BUS							
Segment	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
-	US 70BUS EB - East of US 70 (western)	21,000	0.09	0.40	1,890	1,134	756
-	US 70BUS WB - East of US 70 (western)	21,000	0.09	0.60	1,890	756	1,134

R-2553 Kinson Bypass
2040 Build Alternative 65
Step 2 - Compiling Ramp Volumes

US 70 Ramp Volumes								
	EB Exit		WB Entrance		EB Entrance		WB Exit	
Description	AM	PM	AM	PM	AM	PM	AM	PM
US 70 at SR 1690	181	201	201	181	382	280	280	382
US 70 at US70BUS (western int)	1,134	756	756	1,134	-	-	-	-
US 70 at C. F. Harvey Pkwy	-	-	-	-	267	400	400	267
US 70 at NC 11	341	370	370	341	141	159	159	141
US 70at US 258	323	402	402	323	71	75	75	71
US 70 at NC 58	38	47	47	38	36	32	32	36
US 70 at SR 1002 (Wyse Fork Rd)	28	33	33	28	30	31	31	30
US 70 at US 70BUS (eastern int)	100	99	99	100	367	459	459	367

C. F. Harvey Pkwy Northbound Ramp Volumes			
Description	Ramp	AM	PM
US 70BUS at NC 148 (C F Harvey Pkwy)	Northbound Exit to Eastbound	81	73
	Northbound Exit to Westbound	20	23
	Nortbound Entrance from Westbound	22	14
	Northbound Entrance from Eastbound	480	242

C. F. Harvey Pkwy Southbound Ramp Volumes			
Description	Ramp	AM	PM
US 70BUS at NC 148 (C F Harvey Pkwy)	Southbound Exit to Westbound	242	480
	Southbound Entrance from Westbound	73	81
	Southbound Exit to Eastbound	14	22
	Southbound Entrance from Eastbound	23	20

R-2553 Kinson Bypass
2040 Build Alternative 65
Step 3 - Adjusting All Segment Volumes

Eastbound Adjusted Segment Volumes						
Segment	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)	0.9	1,792	1,467	1,991	1,630
2E	US 70 EB - to SR 1690 (Willie Measley Rd)	0.9	181	201	201	223
4E	US 70 EB - from SR 1690 (Willie Measley Rd)	0.9	382	280	424	311
5E	US 70 EB - SR 1690 (Willie Measley Rd) to US 70BUS	0.9	1,941	1,588	2,157	1,764
6E	US 70 EB - to US70BUS (western int)	0.9	1,134	756	1,260	840
7E	US 70 EB - US 70BUS to USBUS / C. F. Harvey Pkwy	0.9	738	901	820	1,001
8E	US 70 EB - from US70BUS / C. F. Harvey Pkwy	0.9	267	400	297	444
9E	US 70 EB - US 70BUS/ C. F. Harvey Pkwy to NC 11	0.9	1,037	1,268	1,152	1,409
10E	US 70 EB - to NC 11	0.9	341	370	379	411
12E	US 70 EB - from NC 11	0.9	141	159	157	177
13E	US 70 EB - NC 11 to US 258	0.9	851	1,040	946	1,156
14E	US 70 EB - to US 258	0.9	323	402	359	447
16E	US 70 EB - from US 258	0.9	71	75	79	83
17E	US 70 EB - US 258 to NC 58	0.9	591	722	657	802
18E	US 70 EB - to NC 58	0.9	38	47	42	52
20E	US 70 EB - from NC 58	0.9	36	32	40	36
21E	US 70 EB - NC 58 to SR 1002 (Wyse Fork Rd)	0.9	584	713	649	792
22E	US 70 EB - to SR 1002 (Wyse Fork Rd)	0.9	28	33	31	37
24E	US 70 EB - from SR 1002 (Wyse Fork Rd)	0.9	30	31	33	34
25E	US 70 EB - SR 1002 (Wyse Fork Rd) to US 70BUS	0.9	584	713	649	792
26E	US 70 EB - to US70BUS (eastern int)	0.9	100	99	111	110
28E	US 70 EB - from US70BUS (eastern int)	0.9	367	459	408	510
29E	US 70 EB - East of US 70BUS	0.9	864	1,056	960	1,173

	AM	PM
Max Volume	2,157	1,764

XXX	Ramp
XXX	Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 65
Step 3 - Adjusting All Segment Volumes

Westbound Adjusted Segment Volumes						
Segment	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1W	US 70 WB - East of US 70BUS	0.9	1,056	864	1,173	960
2W	US 70 WB - to US70BUS (eastern int)	0.9	459	367	510	408
4W	US 70 WB - from US70BUS (eastern int)	0.9	99	100	110	111
5W	US 70 WB - SR 1002 (Wyse Fork Rd) to US 70BUS	0.9	713	584	792	649
6W	US 70 WB - to SR 1002 (Wyse Fork Rd)	0.9	31	30	34	33
8W	US 70 WB - from SR 1002 (Wyse Fork Rd)	0.9	33	28	37	31
9W	US 70 WB - NC 58 to SR 1002 (Wyse Fork Rd)	0.9	713	584	792	649
10W	US 70 WB - to NC 58	0.9	32	36	36	40
12W	US 70 WB - from NC 58	0.9	47	38	52	42
13W	US 70 WB - US 258 to NC 58	0.9	722	591	802	657
14W	US 70 WB - to US 258	0.9	75	71	83	79
16W	US 70 WB - from US 258	0.9	402	323	447	359
17W	US 70 WB - NC 11 to US 258	0.9	1,040	851	1,156	946
18W	US 70 WB - to NC 11	0.9	159	141	177	157
20W	US 70 WB - from NC 11	0.9	370	341	411	379
21W	US 70 WB - US 70BUS / C. F. Harvey Pkwy to NC 11	0.9	1,268	1,037	1,409	1,152
22W	US 70 WB - to US70BUS/ C. F. Harvey Pkwy	0.9	400	267	444	297
23W	US 70 WB - US 70BUS to US 70BUS / C. F. Harvey Pkwy	0.9	901	738	1,001	820
24W	US 70 WB - from US70BUS	0.9	756	1,134	840	1,260
25W	US 70 WB - SR 1690 (Willie Measley Rd) to US 70BUS	0.9	1,588	1,941	1,764	2,157
26W	US 70 WB - to SR 1690 (Willie Measley Rd)	0.9	280	382	311	424
28W	US 70 WB - from SR 1690 (Willie Measley Rd)	0.9	201	181	223	201
29W	US 70 WB - West of SR 1690 (Willie Measley Rd)	0.9	1,467	1,792	1,630	1,991

	AM	PM
Max Volume	1,764	2,157

XXX	Ramp
XXX	Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 65
Step 3 - Adjusting All Segment Volumes

Northbound Adjusted Segment Volumes						
Segment	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1N	C. F. Harvey Pkwy NB - US 70 to US 70BUS / NC 148	0.9	400	267	444	297
2N	C. F. Harvey Pkwy NB - to US 70BUS EB	0.9	81	73	90	81
4N	C. F. Harvey Pkwy NB - to US 70BUS WB	0.9	20	23	22	26
6N	C. F. Harvey Pkwy NB - from US 70BUS	0.9	502	256	558	284
7N	C. F. Harvey Pkwy NB - North of US 70BUS	0.9	796	429	884	477

Southbound Adjusted Segment Volumes						
Segment	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1S	C. F. Harvey Pkwy SB - North of US 70BUS	0.9	429	796	477	884
2S	C. F. Harvey Pkwy SB - to US 70BUS WB	0.9	242	480	269	533
4S	C. F. Harvey Pkwy SB - From US 70BUS WB	0.9	73	81	81	90
	C. F. Harvey Pkwy SB - to US 7BUS EB	0.9	14	22	16	25
6S	C. F. Harvey Pkwy SB - from US 70BUS EB	0.9	23	20	26	22
7S	C. F. Harvey Pkwy SB - US 70 to US 70BUS / NC 148	0.9	267	400	297	444

XXX	Ramp
XXX	Weave
XXX	Freeway Segment

R-2553 Kinson Bypass

2040 Build Alternative 65

Step 4 - Balancing Freeway Segment Volumes

US 70 Eastbound Freeway Volume Balancing					
Segment	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)			1,934	1,676
2E	US 70 EB - to SR 1690 (Willie Measley Rd)	201	223		
3E	US 70 EB - within SR 1690 (Willie Measley Rd) Interchange			1,733	1,453
4E	US 70 EB - from SR 1690 (Willie Measley Rd)	424	311		
5E	US 70 EB - SR 1690 (Willie Measley Rd) to US 70BUS			**2,157**	**1,764**
6E	US 70 EB - to US70BUS (western int)	1,260	840		
7E	US 70 EB - US 70BUS to US70BUS / C F Harvey Pkwy			897	924
8E	US 70 EB - from US70BUS / C F Harvey Pkwy	297	444		
9E	US 70 EB - US70BUS / C F Harvey Pkwy to NC 11			1,194	1,368
10E	US 70 EB - to NC 11	379	411		
11E	US 70 EB - within NC 11 interchange			815	957
12E	US 70 EB - from NC 11	157	177		
13E	US 70 EB - NC 11 to US 258			972	1,134
14E	US 70 EB - to US 258	359	447		
15E	US 70 EB - within US 258 interchange			613	687
16E	US 70 EB - from US 258	79	83		
17E	US 70 EB - US 258 to NC 58			692	770
18E	US 70 EB - to NC 58	42	52		
19E	US 70 EB - within NC 58 interchange			650	718
20E	US 70 EB - from NC 58	40	36		
21E	US 70 EB - NC 58 to SR 1002 (Wyse Fork Rd)			690	754
22E	US 70 EB - to SR 1002 (Wyse Fork Rd)	31	37		
23E	US 70 EB - within SR 1002 (Wyse Fork Rd) interchange			659	717
24E	US 70 EB - from SR 1002 (Wyse Fork Rd)	33	34		
25E	US 70 EB - SR 1002 (Wyse Fork Rd) to US 70BUS			692	751
26E	US 70 EB - to US70BUS (eastern int)	111	110		
27E	US 70 EB - within US 70BUS (eastern int)			581	641
28E	US 70 EB - from US70BUS (eastern int)	408	510		
29E	US 70 EB - East of US 70BUS			989	1,151

	Max volume balance point
XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass

2040 Build Alternative 65

Step 4 - Balancing Freeway Segment Volumes

US 70 Westbound Freeway Volume Balancing					
Segment	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1W	US 70 WB - East of US 70BUS			1,151	989
2W	US 70 WB - to US70BUS (eastern int)	510	408		
3W	US 70 WB - within US 70BUS (eastern int)			641	581
4W	US 70 WB - from US70BUS (eastern int)	110	111		
5W	US 70 WB - SR 1002 (Wyse Fork Rd) to US 70BUS			751	692
6W	US 70 WB - to SR 1002 (Wyse Fork Rd)	34	33		
7W	US 70 WB - within SR 1002 (Wyse Fork Rd) interchange			717	659
8W	US 70 WB - from SR 1002 (Wyse Fork Rd)	37	31		
9W	US 70 WB - NC 58 to SR 1002 (Wyse Fork Rd)			754	690
10W	US 70 WB - to NC 58	36	40		
11W	US 70 WB - within NC 58 interchange			718	650
12W	US 70 WB - from NC 58	52	42		
13W	US 70 WB - US 258 to NC 58			770	692
14W	US 70 WB - to US 258	83	79		
15W	US 70 WB - within US 258 interchange			687	613
16W	US 70 WB - from US 258	447	359		
17W	US 70 WB - NC 11 to US 258			1,134	972
18W	US 70 WB - to NC 11	177	157		
19W	US 70 WB - within NC 11 interchange			957	815
20W	US 70 WB - from NC 11	411	379		
21W	US 70 WB - US 70BUS / C F Harvey Pkwy to NC 11			1,368	1,194
22W	US 70 WB - to US 70BUS / C F Harvey Pwky	444	297		
23W	US 70 WB - US 70BUS to US 70BUS / C F Harvey Pwky			924	897
24W	US 70 WB - from US70BUS (western int)	840	1,260		
25W	**US 70 WB - SR 1690 (Willie Measley Rd) to US 70BUS**			**1,764**	**2,157**
26W	US 70 WB - to SR 1690 (Willie Measley Rd)	311	424		
27W	US 70 WB - within SR 1690 (Willie Measley Rd) Interchange			1,453	1,733
28W	US 70 WB - from SR 1690 (Willie Measley Rd)	223	201		
29W	US 70 WB - West of SR 1690 (Willie Measley Rd)			1,676	1,934

	Max volume balance point
XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass

2040 Build Alternative 65

Step 4 - Balancing Freeway Segment Volumes

C. F. Harvey Pkwy Northbound Freeway Volume Balancing					
Segment	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1N	C. F. Harvey Pkwy NB - US 70 to US 70BUS / NC 148			444	297
2N	C. F. Harvey Pkwy NB - to US 70BUS EB	90	81		
3N	C. F. Harvey Pkwy NB - within US 70BUS interchange			354	216
4N	C. F. Harvey Pkwy NB - to US 70BUS WB	22	26		
5N	C. F. Harvey Pkwy NB - within US 70BUS interchange			332	190
6N	C. F. Harvey Pkwy NB - from US 70BUS	558	284		
7N	C. F. Harvey Pkwy NB - North of US 70BUS			890	474

C. F. Harvey Pkwy Southbound Freeway Volume Balancing					
Segment	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1S	C. F. Harvey Pkwy SB - North of US 70BUS			475	890
2S	C. F. Harvey Pkwy SB - to US 70BUS	269	533		
3S	C. F. Harvey Pkwy SB - within US 70BUS interchange			206	357
4S	C. F. Harvey Pkwy SB - from US 70BUS EB	81	90		
	C. F. Harvey Pkwy SB - between US 70BUS EB ramps			287	447
	C. F. Harvey Pkwy SB - to US 70BUS EB	16	25		
5S	C. F. Harvey Pkwy SB - within US 70BUS interchange			271	422
6S	C. F. Harvey Pkwy SB - from US 70BUS EB	26	22		
7S	C. F. Harvey Pkwy SB - US 70 to US 70BUS / NC 148			297	444

	Volume balance point
XXX	Ramp
XXX	Weave
XXX	Basic Freeway Segment

2040 Build Alternative 65
FREEVAL-E Reports

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R-2553 US 70 Kinston Bypass, Alternative 65
US 70 EB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1E	2E	3E	4E	5E	6E	7E	8E	9E
General Purpose Segment Name	W of Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	Jim Sutton/Willie Measley to US 70 Bus (W)	To US 70 Bus (W)	US 70 Bus (W) to CF Harvey Pkwy	From CF Harvey Pkwy	CF Harvey Pkwy to NC 11
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	1500	9380	2500	18020	2500	5600
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1934	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	750	N/A	920	N/A	2500	N/A	2500	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	2	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	60	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	424	N/A	N/A	N/A	297	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	2	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	60	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	201	N/A	N/A	N/A	1260	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	14.3	14.7	12.8	16.9	15.9	0.9	6.7	0.0*	8.9
V/C	0.42	0.42	0.37	0.46	0.46	0.46	0.20	0.26	0.26
Density Based LOS	B	B	B	B	B	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 65
US 70 EB - AM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10E	11E	12E	13E	14E	15E	16E	17E	18E
General Purpose Segment Name	To NC 11	Within NC 11	From NC 11	NC 11 to US 258	To US 258	Within US 258	From US 258	US 258 to NC 58	To NC 58
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	5760	1500	1500	1500	12310	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	750	N/A	920	N/A	490
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	45	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	157	N/A	N/A	N/A	79	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	7	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	25	N/A	N/A	N/A	45
OFR/Exit Dem. (vph)	379	N/A	N/A	N/A	359	N/A	N/A	N/A	42
OFR Single Unit Truck and Bus (%)	7	N/A	N/A	N/A	7	N/A	N/A	N/A	6
Total Density (pc/mi/ln)	8.2	6.1	7.5	7.2	6.2	4.6	5.3	5.2	6.1
V/C	0.26	0.18	0.21	0.21	0.21	0.13	0.15	0.15	0.15
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 65
US 70 EB - AM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19E	20E	21E	22E	23E	24E	25E	26E	27E
General Purpose Segment Name	Within NC 58	From NC 58	NC 58 to Wyse Fork	To Wyse Fork	Within Wyse Fork Int	From Wyse Fork	Wyse Fork to US 70 BUS (E)	To US 70 BUS (E)	Within US 70 BUS (E) Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1620	15920	1500	1500	1620	12900	1500	1550
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	1620	N/A	490	N/A	1620	N/A	750	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	25	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	40	N/A	N/A	N/A	33	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	6	N/A	N/A	N/A	4	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	25	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	31	N/A	N/A	N/A	111	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	7	N/A
Total Density (pc/mi/ln)	4.9	0.9	5.1	6.0	4.9	0.9	5.2	3.7	4.3
V/C	0.14	0.15	0.15	0.15	0.14	0.15	0.15	0.15	0.13
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 65
US 70 EB - AM Peak

Segment	Seg. 28	Seg. 29
General Purpose Segment Data	28E	29E
General Purpose Segment Name	From US 70 BUS (E)	East of US 70 BUS (E)
General Purpose Segment Type	On-Ramp	BFS
Segment Length (ft)	2500	5280
Terrain	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5
# of Lanes: Mainline	2	2
Free Flow Speed (mph)	70	70
Mainline Dem. (vph)	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	920	N/A
ONR Side	Right	N/A
# Lanes: ONR	2	N/A
ONR Free Flow Speed (mph)	60	N/A
ONR/Entering Dem. (vph)	408	N/A
ONR Single Unit Truck and Bus (%)	7	N/A
OFR Side	N/A	N/A
# Lanes: OFR	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A
Total Density (pc/mi/ln)	7.6	7.4
V/C	0.21	0.21
Density Based LOS	A	A

R-2553 US 70 Kinston Bypass, Alternative 65
US 70 EB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1E	2E	3E	4E	5E	6E	7E	8E	9E
General Purpose Segment Name	W of Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	Jim Sutton/Willie Measley to US 70 Bus (W)	To US 70 Bus (W)	US 70 Bus (W) to CF Harvey Pkwy	From CF Harvey Pkwy	CF Harvey Pkwy to NC 11
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	1500	9380	2500	18020	2500	5600
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1676	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	750	N/A	920	N/A	2500	N/A	2500	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	2	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	60	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	311	N/A	N/A	N/A	444	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	2	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	60	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	223	N/A	N/A	N/A	840	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	12.4	12.4	10.8	13.8	13.0	0.0*	6.9	0.7	10.1
V/C	0.36	0.36	0.31	0.38	0.38	0.38	0.20	0.30	0.30
Density Based LOS	B	B	A	B	B	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 65
US 70 EB - PM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10E	11E	12E	13E	14E	15E	16E	17E	18E
General Purpose Segment Name	To NC 11	Within NC 11	From NC 11	NC 11 to US 258	To US 258	Within US 258	From US 258	US 258 to NC 58	To NC 58
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	5760	1500	1500	1500	12310	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	750	N/A	920	N/A	490
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	45	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	177	N/A	N/A	N/A	83	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	7	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	25	N/A	N/A	N/A	45
OFR/Exit Dem. (vph)	411	N/A	N/A	N/A	447	N/A	N/A	N/A	52
OFR Single Unit Truck and Bus (%)	7	N/A	N/A	N/A	7	N/A	N/A	N/A	6
Total Density (pc/mi/ln)	9.7	7.1	8.8	8.4	7.6	5.1	5.9	5.7	6.7
V/C	0.30	0.21	0.25	0.25	0.25	0.15	0.17	0.17	0.17
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 65
US 70 EB - PM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19E	20E	21E	22E	23E	24E	25E	26E	27E
General Purpose Segment Name	Within NC 58	From NC 58	NC 58 to Wyse Fork	To Wyse Fork	Within Wyse Fork Int	From Wyse Fork	Wyse Fork to US 70 BUS (E)	To US 70 BUS (E)	Within US 70 BUS (E) Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1620	15920	1500	1500	1620	12900	1500	1550
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	1620	N/A	490	N/A	1620	N/A	750	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	25	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	36	N/A	N/A	N/A	34	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	6	N/A	N/A	N/A	4	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	25	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	37	N/A	N/A	N/A	110	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	7	N/A
Total Density (pc/mi/ln)	5.3	1.4	5.6	6.6	5.3	1.4	5.6	4.2	4.8
V/C	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.14
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 65
US 70 EB - PM Peak

Segment	Seg. 28	Seg. 29
General Purpose Segment Data	28E	29E
General Purpose Segment Name	From US 70 BUS (E)	East of US 70 BUS (E)
General Purpose Segment Type	On-Ramp	BFS
Segment Length (ft)	2500	5280
Terrain	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5
# of Lanes: Mainline	2	2
Free Flow Speed (mph)	70	70
Mainline Dem. (vph)	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	920	N/A
ONR Side	Right	N/A
# Lanes: ONR	2	N/A
ONR Free Flow Speed (mph)	60	N/A
ONR/Entering Dem. (vph)	510	N/A
ONR Single Unit Truck and Bus (%)	7	N/A
OFR Side	N/A	N/A
# Lanes: OFR	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A
Total Density (pc/mi/ln)	8.8	8.5
V/C	0.25	0.25
Density Based LOS	A	A

R-2553 US 70 Kinston Bypass, Alternative 65
US 70 WB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1W	2W	3W	4W	5W	6W	7W	8W	9W
General Purpose Segment Name	E of US 70 BUS (E)	To US 70 BUS (E)	Within US 70 BUS (E) Int	From US 70 BUS (E)	US 70 BUS (E) to Wyse Fork	To Wyse Fork	Within Wyse Fork Int	From Wyse Fork	Wyse Fork to NC 58
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	3350	1500	10810	1500	1500	1500	15760
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1151	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	9	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	920	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	110	N/A	N/A	N/A	37	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	7	N/A	N/A	N/A	4	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	510	N/A	N/A	N/A	34	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	8.6	10.2	4.8	5.8	5.6	4.3	5.4	5.9	5.7
V/C	0.25	0.25	0.14	0.16	0.16	0.16	0.16	0.16	0.16
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 65
US 70 WB - AM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10W	11W	12W	13W	14W	15W	16W	17W	18W
General Purpose Segment Name	To NC 58	Within NC 58 Int	From NC 58	NC 58 to US 258	To US 258	Within US 258 Int	From US 258	US 258 to NC 11	To NC 11
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	12350	1500	1500	1620	7710	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	52	N/A	N/A	N/A	447	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	6	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	36	N/A	N/A	N/A	83	N/A	N/A	N/A	177
OFR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	7	N/A	N/A	N/A	7
Total Density (pc/mi/ln)	4.3	5.4	6.0	5.8	6.8	5.2	4.4	8.5	7.7
V/C	0.16	0.16	0.17	0.17	0.17	0.15	0.25	0.25	0.25
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 65
US 70 WB - AM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19W	20W	21W	22W	23W	24W	25W	26W	27W
General Purpose Segment Name	Within NC 11 Int	From NC 11	NC 11 to CF Harvey Pkwy	To CF Harvey Pkwy	CF Harvey Pkwy to US 70 BUS (W)	From US 70 BUS (W)	US 70 Bus (W) to Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	4140	2500	12380	1500	11160	1500	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	920	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	411	N/A	N/A	N/A	840	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	5	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	444	N/A	N/A	N/A	311	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	5	N/A	N/A	N/A	4	N/A
Total Density (pc/mi/ln)	7.2	10.7	10.2	12.1	6.9	16.4	13.1	15.6	10.8
V/C	0.21	0.30	0.30	0.30	0.20	0.38	0.38	0.38	0.32
Density Based LOS	A	B	A	B	A	B	B	B	A

R-2553 US 70 Kinston Bypass, Alternative 65
US 70 WB - AM Peak

Segment	Seg. 28	Seg. 29
General Purpose Segment Data	28W	29W
General Purpose Segment Name	From Jim Sutton/Willie Measley	W of Jim Sutton/Willie Measley
General Purpose Segment Type	On-Ramp	BFS
Segment Length (ft)	1620	5280
Terrain	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5
# of Lanes: Mainline	2	2
Free Flow Speed (mph)	70	70
Mainline Dem. (vph)	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	1620	N/A
ONR Side	Right	N/A
# Lanes: ONR	1	N/A
ONR Free Flow Speed (mph)	25	N/A
ONR/Entering Dem. (vph)	223	N/A
ONR Single Unit Truck and Bus (%)	4	N/A
OFR Side	N/A	N/A
# Lanes: OFR	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A
Total Density (pc/mi/ln)	8.8	12.5
V/C	0.36	0.36
Density Based LOS	A	B

R-2553 US 70 Kinston Bypass, Alternative 65
US 70 WB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1W	2W	3W	4W	5W	6W	7W	8W	9W
General Purpose Segment Name	E of US 70 BUS (E)	To US 70 BUS (E)	Within US 70 BUS (E) Int	From US 70 BUS (E)	US 70 BUS (E) to Wyse Fork	To Wyse Fork	Within Wyse Fork Int	From Wyse Fork	Wyse Fork to NC 58
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	3350	1500	10810	1500	1500	1500	15760
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	989	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	9	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	920	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	111	N/A	N/A	N/A	31	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	7	N/A	N/A	N/A	4	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	408	N/A	N/A	N/A	33	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	7.4	8.7	4.4	5.3	5.2	3.7	4.9	5.3	5.2
V/C	0.22	0.22	0.13	0.15	0.15	0.15	0.14	0.15	0.15
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 65
US 70 WB - PM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10W	11W	12W	13W	14W	15W	16W	17W	18W
General Purpose Segment Name	To NC 58	Within NC 58 Int	From NC 58	NC 58 to US 258	To US 258	Within US 258 Int	From US 258	US 258 to NC 11	To NC 11
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	12350	1500	1500	1620	7710	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	42	N/A	N/A	N/A	359	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	6	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	40	N/A	N/A	N/A	79	N/A	N/A	N/A	157
OFR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	7	N/A	N/A	N/A	7
Total Density (pc/mi/ln)	3.7	4.9	5.4	5.2	6.1	4.6	3.1	7.3	6.2
V/C	0.15	0.14	0.15	0.15	0.15	0.13	0.21	0.21	0.21
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 65
US 70 WB - PM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19W	20W	21W	22W	23W	24W	25W	26W	27W
General Purpose Segment Name	Within NC 11 Int	From NC 11	NC 11 to CF Harvey Pkwy	To CF Harvey Pkwy	CF Harvey Pkwy to US 70 BUS (W)	From US 70 BUS (W)	US 70 Bus (W) to Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	4140	2500	12380	1500	11160	1500	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	920	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	379	N/A	N/A	N/A	1260	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	5	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	297	N/A	N/A	N/A	424	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	5	N/A	N/A	N/A	4	N/A
Total Density (pc/mi/ln)	6.1	9.3	8.9	10.6	6.7	19.3	15.9	19.0	12.9
V/C	0.18	0.26	0.26	0.26	0.20	0.47	0.47	0.47	0.38
Density Based LOS	A	A	A	B	A	B	B	B	B

R-2553 US 70 Kinston Bypass, Alternative 65
US 70 WB - PM Peak

Segment	Seg. 28	Seg. 29
General Purpose Segment Data	28W	29W
General Purpose Segment Name	From Jim Sutton/Willie Measley	W of Jim Sutton/Willie Measley
General Purpose Segment Type	On-Ramp	BFS
Segment Length (ft)	1620	5280
Terrain	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5
# of Lanes: Mainline	2	2
Free Flow Speed (mph)	70	70
Mainline Dem. (vph)	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	1620	N/A
ONR Side	Right	N/A
# Lanes: ONR	1	N/A
ONR Free Flow Speed (mph)	25	N/A
ONR/Entering Dem. (vph)	201	N/A
ONR Single Unit Truck and Bus (%)	4	N/A
OFR Side	N/A	N/A
# Lanes: OFR	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A
Total Density (pc/mi/ln)	10.9	14.3
V/C	0.42	0.42
Density Based LOS	B	B

R-2553 US 70 Kinston Bypass, Alternative 65
CF Harvey Parkwy Ext NB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7
General Purpose Segment Data	1N	2N	3N	4N	5N	6N	7N
General Purpose Segment Name	US 70 to US 70 BUS/NC 148	To US 70 BUS EB	Ramp to US 70 BUS EB to Ramp to US 70 BUS WB	To US 70 BUS WB	Within US 70 BUS Int	From US 70 BUS	North of US 70 BUS
General Purpose Segment Type	BFS	Off-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	6400	1500	1500	1500	1500	1500	5280
Terrain	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70
Mainline Dem. (vph)	444	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	5	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	N/A	N/A	558	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	90	N/A	22	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	5	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	3.3	3.8	2.6	0.6	2.4	6.6	6.5
V/C	0.09	0.09	0.08	0.08	0.07	0.19	0.19
Density Based LOS	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 65
CF Harvey Parkwy Ext NB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7
General Purpose Segment Data	1N	2N	3N	4N	5N	6N	7N
General Purpose Segment Name	US 70 to US 70 BUS/NC 148	To US 70 BUS EB	Ramp to US 70 BUS EB to Ramp to US 70 BUS WB	To US 70 BUS WB	Within US 70 BUS Int	From US 70 BUS	North of US 70 BUS
General Purpose Segment Type	BFS	Off-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	6400	1500	1500	1500	1500	1500	5280
Terrain	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70
Mainline Dem. (vph)	297	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	5	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	N/A	N/A	284	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	81	N/A	26	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	5	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	2.2	2.5	1.6	0.0*	1.4	3.4	3.5
V/C	0.06	0.06	0.05	0.05	0.04	0.10	0.10
Density Based LOS	A	A	A	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 65
CF Harvey Parkwy Ext SB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7
General Purpose Segment Data	1S	2S	3S	4S	5S	6S	7S
General Purpose Segment Name	North of US 70 BUS	To US 70 BUS WB	Ramp to US 70 BUS WB to US 70 BUS Weave	US 70 BUS Weave	US 70 BUS Weave to Ramp from US 70 BUS EB	From US 70 BUS EB	US 70 BUS EB to US 70
General Purpose Segment Type	BFS	Off-Ramp	BFS	Weave	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	700	1500	1500	5610
Terrain	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70
Mainline Dem. (vph)	475	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	N/A	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	25	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	81	N/A	26	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	5	N/A	5	N/A
OFR Side	N/A	Right	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	269	N/A	16	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	5	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	3.5	4.1	1.5	2.2	2.0	2.1	2.2
V/C	0.10	0.10	0.04	0.07	0.06	0.06	0.06
Density Based LOS	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 65
CF Harvey Parkwy Ext SB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7
General Purpose Segment Data	1S	2S	3S	4S	5S	6S	7S
General Purpose Segment Name	North of US 70 BUS	To US 70 BUS WB	Ramp to US 70 BUS WB to US 70 BUS Weave	US 70 BUS Weave	US 70 BUS Weave to Ramp from US 70 BUS EB	From US 70 BUS EB	US 70 BUS EB to US 70
General Purpose Segment Type	BFS	Off-Ramp	BFS	Weave	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	700	1500	1500	5610
Terrain	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70
Mainline Dem. (vph)	890	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	N/A	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	25	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	90	N/A	22	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	5	N/A	5	N/A
OFR Side	N/A	Right	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	533	N/A	25	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	5	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	6.6	7.8	2.7	3.5	3.2	3.3	3.3
V/C	0.19	0.19	0.08	0.11	0.09	0.10	0.10
Density Based LOS	A	A	A	A	A	A	A

2040 Build Alternative 65
Synchro Reports

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	4	4	4	4	30	4	106	4	18	70	6
Future Volume (vph)	11	4	4	4	4	30	4	106	4	18	70	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1693	0	0	1589	0	1770	1853	0	1770	1840	0
Flt Permitted		0.971			0.995		0.950			0.950		
Satd. Flow (perm)	0	1693	0	0	1589	0	1770	1853	0	1770	1840	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		883			854			935			1001	
Travel Time (s)		13.4			12.9			11.6			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	0	0	41	0	4	122	0	20	85	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 18.1%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	4	4	4	4	30	4	106	4	18	70	6
Future Volume (Veh/h)	11	4	4	4	4	30	4	106	4	18	70	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	12	4	4	4	4	33	4	118	4	20	78	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1001	
pX, platoon unblocked												
vC, conflicting volume	282	252	82	252	253	120	85			122		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	282	252	82	252	253	120	85			122		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	98	99	100	99	99	96	100			99		
cM capacity (veh/h)	627	634	967	678	633	921	1512			1465		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	20	41	4	122	20	85
Volume Left	12	4	4	0	20	0
Volume Right	4	33	0	4	0	7
cSH	676	853	1512	1700	1465	1700
Volume to Capacity	0.03	0.05	0.00	0.07	0.01	0.05
Queue Length 95th (ft)	2	4	0	0	1	0
Control Delay (s)	10.5	9.4	7.4	0.0	7.5	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	10.5	9.4	0.2		1.4	
Approach LOS	B	A				

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	4	4	4	4	18	4	70	4	30	106	11
Future Volume (vph)	6	4	4	4	4	18	4	70	4	30	106	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1688	0	0	1609	0	1770	1850	0	1770	1837	0
Flt Permitted		0.977			0.993		0.950			0.950		
Satd. Flow (perm)	0	1688	0	0	1609	0	1770	1850	0	1770	1837	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		883			854			935			1001	
Travel Time (s)		13.4			12.9			11.6			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	0	28	0	4	82	0	33	130	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 18.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	4	4	4	4	18	4	70	4	30	106	11
Future Volume (Veh/h)	6	4	4	4	4	18	4	70	4	30	106	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	4	4	4	4	20	4	78	4	33	118	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1001	
pX, platoon unblocked												
vC, conflicting volume	298	280	124	278	284	80	130			82		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	298	280	124	278	284	80	130			82		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	99	99	100	99	99	98	100			98		
cM capacity (veh/h)	618	606	916	648	603	969	1455			1515		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	15	28	4	82	33	130
Volume Left	7	4	4	0	33	0
Volume Right	4	20	0	4	0	12
cSH	673	837	1455	1700	1515	1700
Volume to Capacity	0.02	0.03	0.00	0.05	0.02	0.08
Queue Length 95th (ft)	2	3	0	0	2	0
Control Delay (s)	10.5	9.4	7.5	0.0	7.4	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	10.5	9.4	0.3		1.5	
Approach LOS	B	A				

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	18.3%	ICU Level of Service	A
Analysis Period (min)	15		

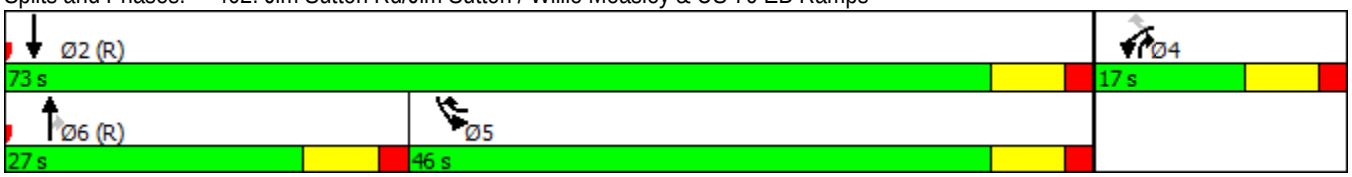
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	34	147	71	71	311	64
Future Volume (vph)	34	147	71	71	311	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		100	325	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1863	1583	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1863	1583	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	999		1001			1313
Travel Time (s)	27.2		12.4			16.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	163	79	79	346	71
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	17.0	46.0	27.0	17.0	46.0	73.0
Total Split (%)	18.9%	51.1%	30.0%	18.9%	51.1%	81.1%
Maximum Green (s)	10.0	39.0	20.0	10.0	39.0	66.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.0	38.0	42.0	54.1	25.9	73.8
Actuated g/C Ratio	0.11	0.42	0.47	0.60	0.29	0.82
v/c Ratio	0.20	0.25	0.09	0.08	0.69	0.05
Control Delay	38.4	15.3	18.3	9.6	31.6	2.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.4	15.3	18.3	9.6	31.6	2.3
LOS	D	B	B	A	C	A
Approach Delay	19.7		14.0			26.6
Approach LOS	B		B			C
Queue Length 50th (ft)	20	55	25	17	132	6
Queue Length 95th (ft)	49	73	65	46	179	15
Internal Link Dist (ft)	919		921			1233
Turn Bay Length (ft)		175		100	325	
Base Capacity (vph)	231	755	868	924	790	1499
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.22	0.09	0.09	0.44	0.05

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 24 (27%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 22.3 Intersection LOS: C
Intersection Capacity Utilization 38.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps



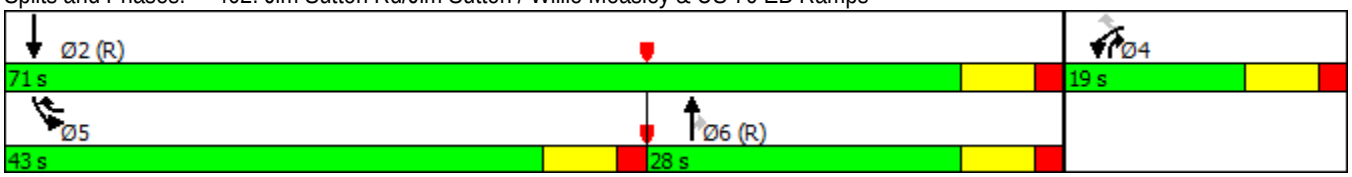
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	45	156	55	43	237	97
Future Volume (vph)	45	156	55	43	237	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		100	325	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1863	1583	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1863	1583	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	999		1001			1313
Travel Time (s)	27.2		12.4			16.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	50	173	61	48	263	108
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	19.0	43.0	28.0	19.0	43.0	71.0
Total Split (%)	21.1%	47.8%	31.1%	21.1%	47.8%	78.9%
Maximum Green (s)	12.0	36.0	21.0	12.0	36.0	64.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.4	33.8	46.2	61.6	21.2	73.4
Actuated g/C Ratio	0.12	0.38	0.51	0.68	0.24	0.82
v/c Ratio	0.25	0.30	0.06	0.04	0.64	0.07
Control Delay	38.9	18.7	15.4	7.2	31.2	2.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	18.7	15.4	7.2	31.2	2.3
LOS	D	B	B	A	C	A
Approach Delay	23.3		11.8			22.8
Approach LOS	C		B			C
Queue Length 50th (ft)	26	65	18	9	117	9
Queue Length 95th (ft)	59	90	48	26	168	18
Internal Link Dist (ft)	919		921			1233
Turn Bay Length (ft)		175		100	325	
Base Capacity (vph)	270	872	957	1147	732	1490
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.20	0.06	0.04	0.36	0.07

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 11 (12%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 21.2 Intersection LOS: C
Intersection Capacity Utilization 34.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps



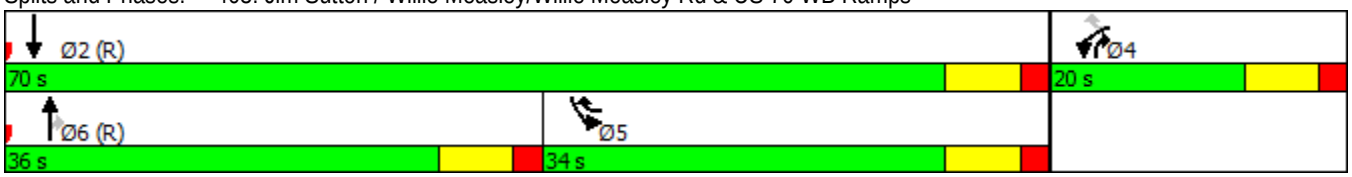
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	43	237	173	45	156	332
Future Volume (vph)	43	237	173	45	156	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	275		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	987		1313			996
Travel Time (s)	15.0		16.3			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	263	192	50	173	369
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	34.0	36.0	20.0	34.0	70.0
Total Split (%)	22.2%	37.8%	40.0%	22.2%	37.8%	77.8%
Maximum Green (s)	13.0	27.0	29.0	13.0	27.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.3	32.3	47.7	60.2	19.8	73.5
Actuated g/C Ratio	0.11	0.36	0.53	0.67	0.22	0.82
v/c Ratio	0.24	0.47	0.20	0.05	0.45	0.25
Control Delay	38.8	23.5	11.4	4.2	33.7	3.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.8	23.5	11.4	4.2	33.7	3.2
LOS	D	C	B	A	C	A
Approach Delay	25.9		9.9			13.0
Approach LOS	C		A			B
Queue Length 50th (ft)	25	108	48	5	86	45
Queue Length 95th (ft)	57	151	99	16	138	83
Internal Link Dist (ft)	907		1233			916
Turn Bay Length (ft)		275		100	200	
Base Capacity (vph)	289	602	968	1026	559	1491
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.44	0.20	0.05	0.31	0.25

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.47
Intersection Signal Delay: 16.0 Intersection LOS: B
Intersection Capacity Utilization 38.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps



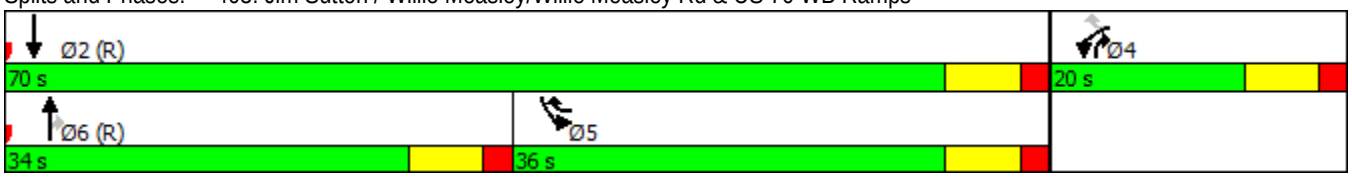
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	71	311	177	34	147	263
Future Volume (vph)	71	311	177	34	147	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	275		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	987		1313			996
Travel Time (s)	15.0		16.3			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	79	346	197	38	163	292
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	36.0	34.0	20.0	36.0	70.0
Total Split (%)	22.2%	40.0%	37.8%	22.2%	40.0%	77.8%
Maximum Green (s)	13.0	29.0	27.0	13.0	29.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	11.6	38.1	41.9	55.7	24.3	72.2
Actuated g/C Ratio	0.13	0.42	0.47	0.62	0.27	0.80
v/c Ratio	0.35	0.53	0.23	0.04	0.35	0.20
Control Delay	39.5	20.8	13.1	6.7	27.8	3.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.5	20.8	13.1	6.7	27.8	3.5
LOS	D	C	B	A	C	A
Approach Delay	24.2		12.1			12.2
Approach LOS	C		B			B
Queue Length 50th (ft)	42	134	35	5	75	37
Queue Length 95th (ft)	81	168	155	18	118	73
Internal Link Dist (ft)	907		1233			916
Turn Bay Length (ft)		275		100	200	
Base Capacity (vph)	289	682	850	946	597	1465
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.51	0.23	0.04	0.27	0.20

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.53
Intersection Signal Delay: 16.8 Intersection LOS: B
Intersection Capacity Utilization 39.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	8	205	42	4	4	169	127	60	8	189	5
Future Volume (vph)	4	8	205	42	4	4	169	127	60	8	189	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1623	0	0	1769	0	1736	1739	0	1770	1855	0
Flt Permitted		0.999			0.959		0.950			0.950		
Satd. Flow (perm)	0	1623	0	0	1769	0	1736	1739	0	1770	1855	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		970			951			996			1084	
Travel Time (s)		14.7			14.4			12.3			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	241	0	0	55	0	188	208	0	9	216	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 49.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	8	205	42	4	4	169	127	60	8	189	5
Future Volume (Veh/h)	4	8	205	42	4	4	169	127	60	8	189	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	9	228	47	4	4	188	141	67	9	210	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								996				
pX, platoon unblocked												
vC, conflicting volume	754	815	213	1011	784	174	216			208		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	754	815	213	1011	784	174	216			208		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	97	72	66	99	100	86			99		
cM capacity (veh/h)	285	266	827	137	277	869	1342			1363		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	241	55	188	208	9	216
Volume Left	4	47	188	0	9	0
Volume Right	228	4	0	67	0	6
cSH	745	152	1342	1700	1363	1700
Volume to Capacity	0.32	0.36	0.14	0.12	0.01	0.13
Queue Length 95th (ft)	35	38	12	0	0	0
Control Delay (s)	12.1	41.7	8.1	0.0	7.7	0.0
Lane LOS	B	E	A		A	
Approach Delay (s)	12.1	41.7	3.9		0.3	
Approach LOS	B	E				

Intersection Summary			
Average Delay	7.4		
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	4	169	60	8	8	205	189	42	4	127	4
Future Volume (vph)	5	4	169	60	8	8	205	189	42	4	127	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1621	0	0	1767	0	1736	1778	0	1770	1855	0
Flt Permitted		0.998			0.962		0.950			0.950		
Satd. Flow (perm)	0	1621	0	0	1767	0	1736	1778	0	1770	1855	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		970			951			996			1084	
Travel Time (s)		14.7			14.4			12.3			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	198	0	0	85	0	228	257	0	4	145	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 46.8%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	4	169	60	8	8	205	189	42	4	127	4
Future Volume (Veh/h)	5	4	169	60	8	8	205	189	42	4	127	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	4	188	67	9	9	228	210	47	4	141	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								996				
pX, platoon unblocked												
vC, conflicting volume	830	864	143	1028	842	234	145			257		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	830	864	143	1028	842	234	145			257		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	98	79	54	96	99	84			100		
cM capacity (veh/h)	244	245	905	145	252	806	1425			1308		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	198	85	228	257	4	145
Volume Left	6	67	228	0	4	0
Volume Right	188	9	0	47	0	4
cSH	796	167	1425	1700	1308	1700
Volume to Capacity	0.25	0.51	0.16	0.15	0.00	0.09
Queue Length 95th (ft)	25	62	14	0	0	0
Control Delay (s)	11.0	46.9	8.0	0.0	7.8	0.0
Lane LOS	B	E	A		A	
Approach Delay (s)	11.0	46.9	3.8		0.2	
Approach LOS	B	E				

Intersection Summary			
Average Delay	8.7		
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	750	505	163	0	193
Future Volume (vph)	0	750	505	163	0	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			300	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	100				100	
Satd. Flow (prot)	0	3471	3471	1553	0	1550
Flt Permitted						
Satd. Flow (perm)	0	3471	3471	1553	0	1550
Link Speed (mph)		55	55		45	
Link Distance (ft)		1000	953		1176	
Travel Time (s)		12.4	11.8		17.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	833	561	181	0	214
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.6%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	750	505	163	0	193
Future Volume (Veh/h)	0	750	505	163	0	193
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	833	561	181	0	214
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	561				978	280
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	561				978	280
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	100				100	70
cM capacity (veh/h)	993				241	705

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	416	416	280	280	181	214
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	181	214
cSH	1700	1700	1700	1700	1700	705
Volume to Capacity	0.24	0.24	0.17	0.17	0.11	0.30
Queue Length 95th (ft)	0	0	0	0	0	32
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.3
Lane LOS						B
Approach Delay (s)	0.0		0.0			12.3
Approach LOS						B

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	32.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	681	572	207	0	150
Future Volume (vph)	0	681	572	207	0	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			300	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	100				100	
Satd. Flow (prot)	0	3471	3471	1553	0	1550
Flt Permitted						
Satd. Flow (perm)	0	3471	3471	1553	0	1550
Link Speed (mph)		55	55		45	
Link Distance (ft)		1000	953		1176	
Travel Time (s)		12.4	11.8		17.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	757	636	230	0	167
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	681	572	207	0	150
Future Volume (Veh/h)	0	681	572	207	0	150
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	757	636	230	0	167
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	636				1014	318
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	636				1014	318
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	100				100	75
cM capacity (veh/h)	930				228	666

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	378	378	318	318	230	167
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	230	167
cSH	1700	1700	1700	1700	1700	666
Volume to Capacity	0.22	0.22	0.19	0.19	0.14	0.25
Queue Length 95th (ft)	0	0	0	0	0	25
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.2
Lane LOS						B
Approach Delay (s)	0.0		0.0			12.2
Approach LOS						B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	31.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	292	25	24	902	599	189
Future Volume (vph)	292	25	24	902	599	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			125
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1671	1495	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1671	1495	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	55	
Link Distance (ft)	1293			1201	1455	
Travel Time (s)	16.0			14.9	18.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	324	28	27	1002	666	210
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	50.0	14.0	14.0	120.0	106.0	50.0
Total Split (%)	29.4%	8.2%	8.2%	70.6%	62.4%	29.4%
Maximum Green (s)	43.0	7.0	7.0	113.0	99.0	43.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	39.0	53.3	9.4	121.0	109.5	154.4
Actuated g/C Ratio	0.23	0.31	0.06	0.71	0.64	0.91
v/c Ratio	0.85	0.06	0.28	0.78	0.57	0.15
Control Delay	82.4	38.7	85.1	22.4	14.2	1.7

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.5	0.0	0.0	0.8	0.0	0.0
Total Delay	82.9	38.7	85.1	23.3	14.2	1.7
LOS	F	D	F	C	B	A
Approach Delay	79.4			24.9	11.2	
Approach LOS	E			C	B	
Queue Length 50th (ft)	346	22	29	689	219	17
Queue Length 95th (ft)	455	46	66	996	523	m52
Internal Link Dist (ft)	1213			1121	1375	
Turn Bay Length (ft)		100	100			125
Base Capacity (vph)	442	468	95	1288	1165	1424
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	13	0	0	93	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.06	0.28	0.84	0.57	0.15

Intersection Summary

Area Type: Other
Cycle Length: 170
Actuated Cycle Length: 170
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 28.1 Intersection LOS: C
Intersection Capacity Utilization 72.0% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 406: NC 11/NC 11/55 & NC 55

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	190	23	24	599	902	292
Future Volume (vph)	190	23	24	599	902	292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			125
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1671	1495	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1671	1495	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	55	
Link Distance (ft)	1293			1201	1455	
Travel Time (s)	16.0			14.9	18.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	211	26	27	666	1002	324
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	20.0	14.0	14.0	80.0	66.0	20.0
Total Split (%)	20.0%	14.0%	14.0%	80.0%	66.0%	20.0%
Maximum Green (s)	13.0	7.0	7.0	73.0	59.0	13.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	15.7	24.1	9.0	74.3	65.9	88.6
Actuated g/C Ratio	0.16	0.24	0.09	0.74	0.66	0.89
v/c Ratio	0.81	0.07	0.18	0.50	0.84	0.24
Control Delay	65.1	27.0	45.0	6.7	16.9	1.6

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.1	27.0	45.0	6.7	16.9	1.6
LOS	E	C	D	A	B	A
Approach Delay	60.9			8.2	13.1	
Approach LOS	E			A	B	
Queue Length 50th (ft)	132	12	16	139	338	17
Queue Length 95th (ft)	#258	32	43	202	#841	m37
Internal Link Dist (ft)	1213			1121	1375	
Turn Bay Length (ft)		100	100			125
Base Capacity (vph)	262	360	154	1358	1193	1347
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.07	0.18	0.49	0.84	0.24

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 18 (18%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 16.6 Intersection LOS: B
Intersection Capacity Utilization 66.3% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 406: NC 11/NC 11/55 & NC 55

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	253	88	1071	125	16	533
Future Volume (vph)	253	88	1071	125	16	533
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		175	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1810	1538	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1810	1538	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	942		1455			1429
Travel Time (s)	25.7		18.0			17.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	5%	5%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	281	98	1190	139	18	592
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	42.0	14.0	114.0	42.0	14.0	128.0
Total Split (%)	24.7%	8.2%	67.1%	24.7%	8.2%	75.3%
Maximum Green (s)	35.0	7.0	107.0	35.0	7.0	121.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	33.5	47.5	112.5	151.0	9.0	126.5
Actuated g/C Ratio	0.20	0.28	0.66	0.89	0.05	0.74
v/c Ratio	0.85	0.23	0.99	0.10	0.20	0.45
Control Delay	87.9	47.8	47.2	1.1	78.1	6.4

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.2	0.0	0.0	0.0
Total Delay	87.9	47.8	47.4	1.1	78.1	6.4
LOS	F	D	D	A	E	A
Approach Delay	77.5		42.6			8.5
Approach LOS	E		D			A
Queue Length 50th (ft)	300	83	~1260	11	21	333
Queue Length 95th (ft)	414	137	#1676	m10	m47	140
Internal Link Dist (ft)	862		1375			1349
Turn Bay Length (ft)		175		175	100	
Base Capacity (vph)	367	421	1197	1359	89	1321
Starvation Cap Reductn	0	0	1	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.23	0.99	0.10	0.20	0.45

Intersection Summary

Area Type: Other
Cycle Length: 170
Actuated Cycle Length: 170
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 39.3 Intersection LOS: D
Intersection Capacity Utilization 78.7% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 407: NC 11/55 & US 70 EB Ramps

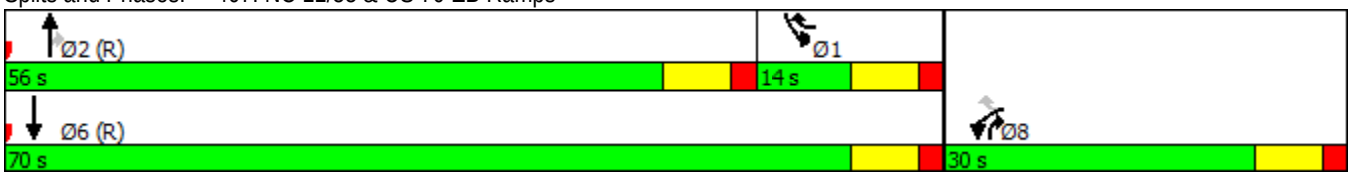
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	312	58	658	128	31	884
Future Volume (vph)	312	58	658	128	31	884
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		175	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1810	1538	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1810	1538	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	942		1455			1429
Travel Time (s)	25.7		18.0			17.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	5%	5%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	347	64	731	142	34	982
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	30.0	14.0	56.0	30.0	14.0	70.0
Total Split (%)	30.0%	14.0%	56.0%	30.0%	14.0%	70.0%
Maximum Green (s)	23.0	7.0	49.0	23.0	7.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	24.1	37.5	54.3	84.4	9.4	65.9
Actuated g/C Ratio	0.24	0.38	0.54	0.84	0.09	0.66
v/c Ratio	0.85	0.11	0.74	0.11	0.22	0.84
Control Delay	57.2	20.0	18.2	1.6	31.8	10.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.2	20.0	18.2	1.6	31.8	10.0
LOS	E	B	B	A	C	A
Approach Delay	51.4		15.5			10.7
Approach LOS	D		B			B
Queue Length 50th (ft)	210	25	321	12	20	95
Queue Length 95th (ft)	#356	54	397	m17	m26	#124
Internal Link Dist (ft)	862		1375			1349
Turn Bay Length (ft)		175		175	100	
Base Capacity (vph)	421	565	991	1296	158	1171
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.11	0.74	0.11	0.22	0.84

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 8 (8%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 19.8 Intersection LOS: B
Intersection Capacity Utilization 72.1% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 407: NC 11/55 & US 70 EB Ramps



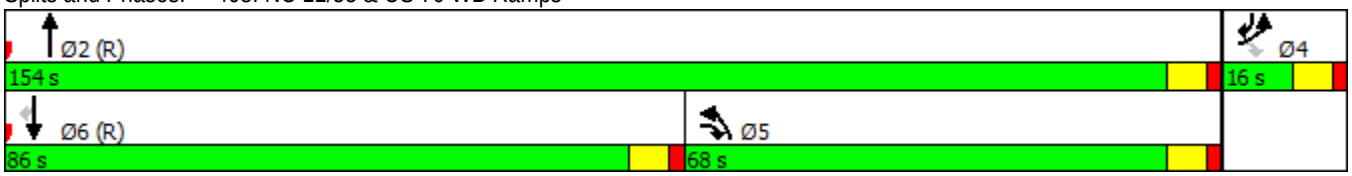
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	31	128	312	847	421	58
Future Volume (vph)	31	128	312	847	421	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	275	450			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1687	1509	1687	1776	1776	1509
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1687	1509	1687	1776	1776	1509
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1169			1429	1067	
Travel Time (s)	31.9			17.7	13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	34	142	347	941	468	64
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	16.0	68.0	68.0	154.0	86.0	16.0
Total Split (%)	9.4%	40.0%	40.0%	90.6%	50.6%	9.4%
Maximum Green (s)	9.0	61.0	61.0	147.0	79.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	11.1	59.2	43.1	148.9	100.8	116.9
Actuated g/C Ratio	0.07	0.35	0.25	0.88	0.59	0.69
v/c Ratio	0.31	0.27	0.81	0.61	0.44	0.06
Control Delay	82.4	39.4	50.3	1.6	22.5	10.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	82.4	39.4	50.3	1.9	22.5	10.3
LOS	F	D	D	A	C	B
Approach Delay	47.7			14.9	21.1	
Approach LOS	D			B	C	
Queue Length 50th (ft)	37	114	341	79	278	22
Queue Length 95th (ft)	76	153	m393	m10	450	49
Internal Link Dist (ft)	1089			1349	987	
Turn Bay Length (ft)		275	450			100
Base Capacity (vph)	118	581	625	1564	1052	1017
Starvation Cap Reductn	0	0	0	165	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.24	0.56	0.67	0.44	0.06

Intersection Summary

Area Type: Other
Cycle Length: 170
Actuated Cycle Length: 170
Offset: 46 (27%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 19.4 Intersection LOS: B
Intersection Capacity Utilization 58.7% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 408: NC 11/55 & US 70 WB Ramps



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	125	253	463	790	88
Future Volume (vph)	16	125	253	463	790	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	275	450			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1687	1509	1687	1776	1776	1509
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1687	1509	1687	1776	1776	1509
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1169			1429	1067	
Travel Time (s)	31.9			17.7	13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	139	281	514	878	98
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	14.0	25.0	25.0	86.0	61.0	14.0
Total Split (%)	14.0%	25.0%	25.0%	86.0%	61.0%	14.0%
Maximum Green (s)	7.0	18.0	18.0	79.0	54.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.0	31.1	19.9	84.8	58.9	70.1
Actuated g/C Ratio	0.09	0.31	0.20	0.85	0.59	0.70
v/c Ratio	0.12	0.30	0.84	0.34	0.84	0.09
Control Delay	43.9	26.8	44.9	1.1	27.4	5.1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.9	26.8	44.9	1.1	27.4	5.1
LOS	D	C	D	A	C	A
Approach Delay	28.8			16.6	25.2	
Approach LOS	C			B	C	
Queue Length 50th (ft)	11	64	185	13	458	17
Queue Length 95th (ft)	33	113	m#297	28	#741	33
Internal Link Dist (ft)	1089			1349	987	
Turn Bay Length (ft)		275	450			100
Base Capacity (vph)	151	476	343	1506	1052	1057
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.29	0.82	0.34	0.83	0.09

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 21.9 Intersection LOS: C
Intersection Capacity Utilization 73.9% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 408: NC 11/55 & US 70 WB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	218	105	390	51	20	79
Future Volume (vph)	218	105	390	51	20	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	125		100	125	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	980		1013			1287
Travel Time (s)	26.7		12.6			16.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	242	117	433	57	22	88
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	30.0	14.0	46.0	30.0	14.0	60.0
Total Split (%)	33.3%	15.6%	51.1%	33.3%	15.6%	66.7%
Maximum Green (s)	23.0	7.0	39.0	23.0	7.0	53.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	20.0	34.4	48.4	74.4	9.4	60.0
Actuated g/C Ratio	0.22	0.38	0.54	0.83	0.10	0.67
v/c Ratio	0.65	0.20	0.45	0.05	0.13	0.07
Control Delay	39.4	18.2	17.1	2.4	43.3	4.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.4	18.2	17.1	2.4	43.3	4.2
LOS	D	B	B	A	D	A
Approach Delay	32.5		15.4			12.0
Approach LOS	C		B			B
Queue Length 50th (ft)	125	44	152	5	13	9
Queue Length 95th (ft)	186	70	277	13	25	18
Internal Link Dist (ft)	900		933			1207
Turn Bay Length (ft)		125		100	125	
Base Capacity (vph)	473	576	966	1297	175	1189
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.20	0.45	0.04	0.13	0.07

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 56 (62%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 21.4 Intersection LOS: C
Intersection Capacity Utilization 40.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 409: US 258 & US 70 EB Ramps

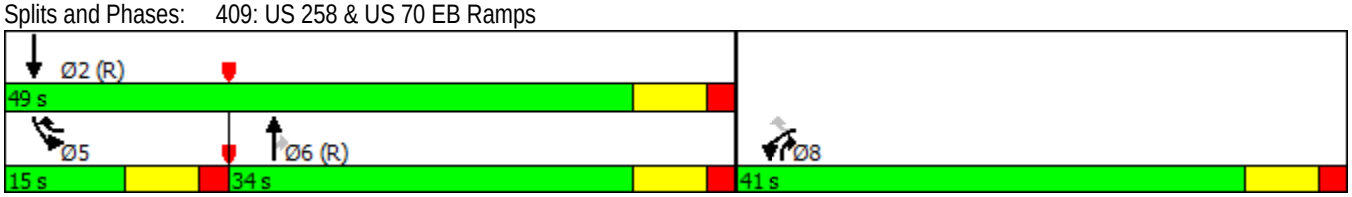
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	321	81	254	43	32	120
Future Volume (vph)	321	81	254	43	32	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	125		100	125	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	980		1013			1287
Travel Time (s)	26.7		12.6			16.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	357	90	282	48	36	133
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	41.0	15.0	34.0	41.0	15.0	49.0
Total Split (%)	45.6%	16.7%	37.8%	45.6%	16.7%	54.4%
Maximum Green (s)	34.0	8.0	27.0	34.0	8.0	42.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	26.4	41.3	41.5	73.9	9.9	53.6
Actuated g/C Ratio	0.29	0.46	0.46	0.82	0.11	0.60
v/c Ratio	0.72	0.13	0.34	0.04	0.19	0.13
Control Delay	36.5	12.7	20.4	2.6	33.8	7.4

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.5	12.7	20.4	2.6	33.8	7.4
LOS	D	B	C	A	C	A
Approach Delay	31.7		17.8			13.0
Approach LOS	C		B			B
Queue Length 50th (ft)	181	29	105	5	16	20
Queue Length 95th (ft)	245	44	204	13	43	77
Internal Link Dist (ft)	900		933			1207
Turn Bay Length (ft)		125		100	125	
Base Capacity (vph)	674	701	818	1340	195	1056
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.13	0.34	0.04	0.18	0.13

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 23.5 — Intersection LOS: C
Intersection Capacity Utilization 49.5% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 409: US 258 & US 70 EB Ramps



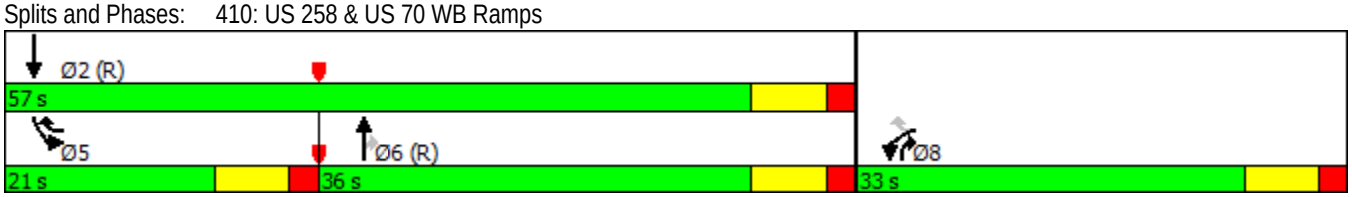
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	43	32	174	321	81	56
Future Volume (vph)	43	32	174	321	81	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		175	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1086		1287			882
Travel Time (s)	16.5		16.0			10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	36	193	357	90	62
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	33.0	21.0	36.0	33.0	21.0	57.0
Total Split (%)	36.7%	23.3%	40.0%	36.7%	23.3%	63.3%
Maximum Green (s)	26.0	14.0	29.0	26.0	14.0	50.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	14.4	31.7	51.1	71.5	12.3	65.6
Actuated g/C Ratio	0.16	0.35	0.57	0.79	0.14	0.73
v/c Ratio	0.18	0.07	0.19	0.30	0.39	0.05
Control Delay	31.4	16.2	7.1	2.3	39.8	4.9

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.4	16.2	7.1	2.3	39.8	4.9
LOS	C	B	A	A	D	A
Approach Delay	24.9		4.0			25.5
Approach LOS	C		A			C
Queue Length 50th (ft)	24	14	10	6	47	8
Queue Length 95th (ft)	49	26	48	16	89	27
Internal Link Dist (ft)	1006		1207			802
Turn Bay Length (ft)		100		175	175	
Base Capacity (vph)	524	594	1008	1363	299	1294
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.06	0.19	0.26	0.30	0.05

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.39
Intersection Signal Delay: 10.4 Intersection LOS: B
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 410: US 258 & US 70 WB Ramps



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	51	20	117	218	105	101
Future Volume (vph)	51	20	117	218	105	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		175	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1086		1287			882
Travel Time (s)	16.5		16.0			10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	22	130	242	117	112
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	27.0	29.0	34.0	27.0	29.0	63.0
Total Split (%)	30.0%	32.2%	37.8%	30.0%	32.2%	70.0%
Maximum Green (s)	20.0	22.0	27.0	20.0	22.0	56.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.8	29.3	53.5	70.3	13.5	69.2
Actuated g/C Ratio	0.12	0.33	0.59	0.78	0.15	0.77
v/c Ratio	0.28	0.04	0.12	0.21	0.46	0.08
Control Delay	39.2	18.5	5.7	1.2	40.1	3.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	18.5	5.7	1.2	40.1	3.0
LOS	D	B	A	A	D	A
Approach Delay	33.4		2.8			21.9
Approach LOS	C		A			C
Queue Length 50th (ft)	30	9	12	8	62	12
Queue Length 95th (ft)	64	22	32	15	108	28
Internal Link Dist (ft)	1006		1207			802
Turn Bay Length (ft)		100		175	175	
Base Capacity (vph)	412	666	1055	1322	449	1366
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.03	0.12	0.18	0.26	0.08

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 12.8 Intersection LOS: B
Intersection Capacity Utilization 27.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 410: US 258 & US 70 WB Ramps

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	4	8	9	5	38	9	300	8	17	159	16
Future Volume (vph)	30	4	8	9	5	38	9	300	8	17	159	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1751	0	0	1665	0	1703	1785	0	1703	1767	0
Flt Permitted		0.965			0.991		0.950			0.950		
Satd. Flow (perm)	0	1751	0	0	1665	0	1703	1785	0	1703	1767	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1178			1128			1123			927	
Travel Time (s)		17.8			17.1			13.9			11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	46	0	0	58	0	10	342	0	19	195	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 30.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	4	8	9	5	38	9	300	8	17	159	16
Future Volume (Veh/h)	30	4	8	9	5	38	9	300	8	17	159	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	4	9	10	6	42	10	333	9	19	177	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											927	
pX, platoon unblocked												
vC, conflicting volume	622	586	186	584	590	338	195			342		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	622	586	186	584	590	338	195			342		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	91	99	99	98	99	94	99			98		
cM capacity (veh/h)	365	413	856	409	410	705	1354			1195		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	46	58	10	342	19	195
Volume Left	33	10	10	0	19	0
Volume Right	9	42	0	9	0	18
cSH	415	588	1354	1700	1195	1700
Volume to Capacity	0.11	0.10	0.01	0.20	0.02	0.11
Queue Length 95th (ft)	9	8	1	0	1	0
Control Delay (s)	14.7	11.8	7.7	0.0	8.1	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	14.7	11.8	0.2		0.7	
Approach LOS	B	B				

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	30.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	5	9	8	4	17	8	159	9	38	300	30
Future Volume (vph)	16	5	9	8	4	17	8	159	9	38	300	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1742	0	0	1690	0	1703	1778	0	1703	1767	0
Flt Permitted		0.974			0.986		0.950			0.950		
Satd. Flow (perm)	0	1742	0	0	1690	0	1703	1778	0	1703	1767	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1178			1128			1123			927	
Travel Time (s)		17.8			17.1			13.9			11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	34	0	0	32	0	9	187	0	42	366	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 34.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	5	9	8	4	17	8	159	9	38	300	30
Future Volume (Veh/h)	16	5	9	8	4	17	8	159	9	38	300	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	18	6	10	9	4	19	9	177	10	42	333	33
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											927	
pX, platoon unblocked	0.95	0.95	0.95	0.95	0.95		0.95					
vC, conflicting volume	650	638	350	630	650	182	366			187		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	602	590	285	581	602	182	302			187		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	95	98	99	98	99	98	99			97		
cM capacity (veh/h)	367	383	714	381	376	861	1170			1364		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	34	32	9	187	42	366
Volume Left	18	9	9	0	42	0
Volume Right	10	19	0	10	0	33
cSH	432	568	1170	1700	1364	1700
Volume to Capacity	0.08	0.06	0.01	0.11	0.03	0.22
Queue Length 95th (ft)	6	4	1	0	2	0
Control Delay (s)	14.0	11.7	8.1	0.0	7.7	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	14.0	11.7	0.4		0.8	
Approach LOS	B	B				

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	18	20	29	333	176	7
Future Volume (vph)	18	20	29	333	176	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	959			927	1201	
Travel Time (s)	14.5			11.5	14.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	22	32	370	196	8
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	22.0	22.0	22.0	68.0	46.0	22.0
Total Split (%)	24.4%	24.4%	24.4%	75.6%	51.1%	24.4%
Maximum Green (s)	15.0	15.0	15.0	61.0	39.0	15.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.3	15.6	9.7	82.1	72.0	80.7
Actuated g/C Ratio	0.10	0.17	0.11	0.91	0.80	0.90
v/c Ratio	0.11	0.08	0.17	0.23	0.14	0.01
Control Delay	38.0	27.2	38.4	1.9	2.8	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	27.2	38.4	1.9	2.8	0.3
LOS	D	C	D	A	A	A
Approach Delay	32.3			4.8	2.7	
Approach LOS	C			A	A	
Queue Length 50th (ft)	11	12	17	0	18	0
Queue Length 95th (ft)	32	27	43	71	28	1
Internal Link Dist (ft)	879			847	1121	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	321	387	321	1634	1433	1432
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.06	0.10	0.23	0.14	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 28 (31%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.23
Intersection Signal Delay: 5.9 Intersection LOS: A
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 412: NC 58 & US 70 EB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	32	22	174	330	10
Future Volume (vph)	15	32	22	174	330	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	959			927	1201	
Travel Time (s)	14.5			11.5	14.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	36	24	193	367	11
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	17.0	18.0	18.0	73.0	55.0	17.0
Total Split (%)	18.9%	20.0%	20.0%	81.1%	61.1%	18.9%
Maximum Green (s)	10.0	11.0	11.0	66.0	48.0	10.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.2	15.3	9.5	82.2	72.3	80.9
Actuated g/C Ratio	0.10	0.17	0.11	0.91	0.80	0.90
v/c Ratio	0.10	0.14	0.13	0.12	0.26	0.01
Control Delay	37.9	29.2	38.0	1.6	2.4	0.2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	29.2	38.0	1.6	2.4	0.2
LOS	D	C	D	A	A	A
Approach Delay	32.0			5.6	2.4	
Approach LOS	C			A	A	
Queue Length 50th (ft)	9	19	13	0	24	0
Queue Length 95th (ft)	29	38	36	36	27	0
Internal Link Dist (ft)	879			847	1121	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	227	318	245	1636	1438	1396
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.11	0.10	0.12	0.26	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 29 (32%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.26
Intersection Signal Delay: 5.9 Intersection LOS: A
Intersection Capacity Utilization 32.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 412: NC 58 & US 70 EB Ramps

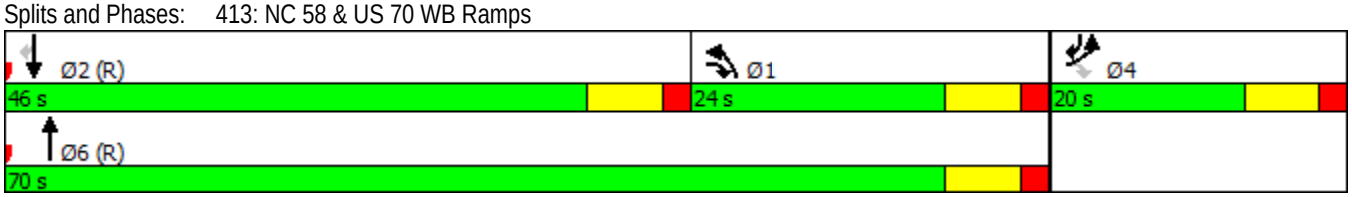
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	22	32	319	161	15
Future Volume (vph)	10	22	32	319	161	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	935			1201	1007	
Travel Time (s)	25.5			14.9	12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	24	36	354	179	17
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	20.0	24.0	24.0	70.0	46.0	20.0
Total Split (%)	22.2%	26.7%	26.7%	77.8%	51.1%	22.2%
Maximum Green (s)	13.0	17.0	17.0	63.0	39.0	13.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.1	15.6	9.9	82.3	72.0	77.7
Actuated g/C Ratio	0.10	0.17	0.11	0.91	0.80	0.86
v/c Ratio	0.06	0.09	0.19	0.22	0.12	0.01
Control Delay	37.6	27.6	38.4	1.3	5.3	2.5

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.6	27.6	38.4	1.3	5.3	2.5
LOS	D	C	D	A	A	A
Approach Delay	30.8			4.8	5.0	
Approach LOS	C			A	A	
Queue Length 50th (ft)	6	13	19	0	18	2
Queue Length 95th (ft)	22	29	47	43	71	6
Internal Link Dist (ft)	855			1121	927	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	283	363	359	1639	1434	1316
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.07	0.10	0.22	0.12	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 16 (18%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.22
Intersection Signal Delay: 6.3 Intersection LOS: A
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 413: NC 58 & US 70 WB Ramps



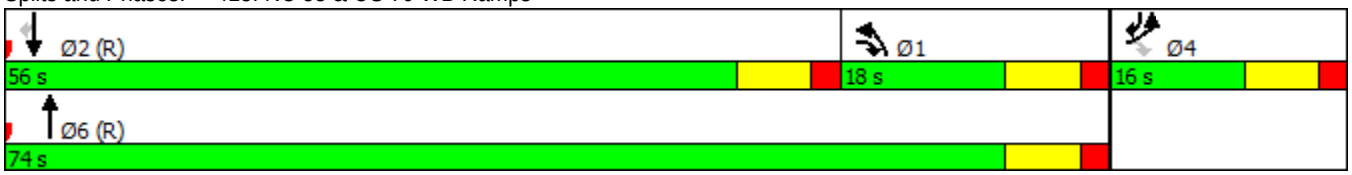
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	29	20	169	311	18
Future Volume (vph)	7	29	20	169	311	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	935			1201	1007	
Travel Time (s)	25.5			14.9	12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	32	22	188	346	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	16.0	18.0	18.0	74.0	56.0	16.0
Total Split (%)	17.8%	20.0%	20.0%	82.2%	62.2%	17.8%
Maximum Green (s)	9.0	11.0	11.0	67.0	49.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.0	15.2	9.6	82.4	72.4	78.0
Actuated g/C Ratio	0.10	0.17	0.11	0.92	0.80	0.87
v/c Ratio	0.05	0.12	0.12	0.11	0.24	0.02
Control Delay	37.4	29.0	38.7	1.3	5.5	2.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	29.0	38.7	1.3	5.5	2.3
LOS	D	C	D	A	A	A
Approach Delay	30.7			5.2	5.3	
Approach LOS	C			A	A	
Queue Length 50th (ft)	4	17	12	0	40	2
Queue Length 95th (ft)	18	36	34	27	134	7
Internal Link Dist (ft)	855			1121	927	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	208	281	245	1640	1442	1301
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.11	0.09	0.11	0.24	0.02

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 16 (18%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.24
Intersection Signal Delay: 6.9 Intersection LOS: A
Intersection Capacity Utilization 30.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 413: NC 58 & US 70 WB Ramps



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	14	14	19	68	44	11
Future Volume (vph)	14	14	19	68	44	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1736	1553	1736	1827	1827	1553
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1736	1827	1827	1553
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	1230			1626	1380	
Travel Time (s)	18.6			20.2	17.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	16	21	76	49	12
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	5	5	2	6	7
Permitted Phases		7				6
Detector Phase	7	5	5	2	6	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	24.0	29.0	29.0	66.0	37.0	24.0
Total Split (%)	26.7%	32.2%	32.2%	73.3%	41.1%	26.7%
Maximum Green (s)	17.0	22.0	22.0	59.0	30.0	17.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.2	15.1	9.3	82.2	72.5	82.1
Actuated g/C Ratio	0.10	0.17	0.10	0.91	0.81	0.91
v/c Ratio	0.09	0.06	0.12	0.05	0.03	0.01
Control Delay	37.8	27.3	37.9	1.6	3.8	1.4

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.8	27.3	37.9	1.6	3.8	1.4
LOS	D	C	D	A	A	A
Approach Delay	32.5			9.4	3.3	
Approach LOS	C			A	A	
Queue Length 50th (ft)	8	8	11	0	3	0
Queue Length 95th (ft)	28	22	33	16	17	3
Internal Link Dist (ft)	1150			1546	1300	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	366	514	462	1669	1471	1482
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.03	0.05	0.05	0.03	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 82 (91%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.12
Intersection Signal Delay: 11.4 Intersection LOS: B
Intersection Capacity Utilization 25.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 414: Wyse Fork Rd & US 70 EB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	12	21	16	42	66	15
Future Volume (vph)	12	21	16	42	66	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1736	1553	1736	1827	1827	1553
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1736	1827	1827	1553
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	1230			1626	1380	
Travel Time (s)	18.6			20.2	17.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	23	18	47	73	17
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	5	5	2	6	7
Permitted Phases		7				6
Detector Phase	7	5	5	2	6	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	24.0	24.0	24.0	66.0	42.0	24.0
Total Split (%)	26.7%	26.7%	26.7%	73.3%	46.7%	26.7%
Maximum Green (s)	17.0	17.0	17.0	59.0	35.0	17.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.1	17.8	9.2	78.5	69.8	78.4
Actuated g/C Ratio	0.10	0.20	0.10	0.87	0.78	0.87
v/c Ratio	0.07	0.08	0.10	0.03	0.05	0.01
Control Delay	37.6	26.1	37.9	2.0	4.5	1.7

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.6	26.1	37.9	2.0	4.5	1.7
LOS	D	C	D	A	A	A
Approach Delay	30.3			11.9	4.0	
Approach LOS	C			B	A	
Queue Length 50th (ft)	7	10	10	4	11	1
Queue Length 95th (ft)	24	28	30	11	24	4
Internal Link Dist (ft)	1150			1546	1300	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	366	474	366	1593	1418	1453
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.05	0.05	0.03	0.05	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 83 (92%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.10
Intersection Signal Delay: 11.6 Intersection LOS: B
Intersection Capacity Utilization 25.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 414: Wyse Fork Rd & US 70 EB Ramps

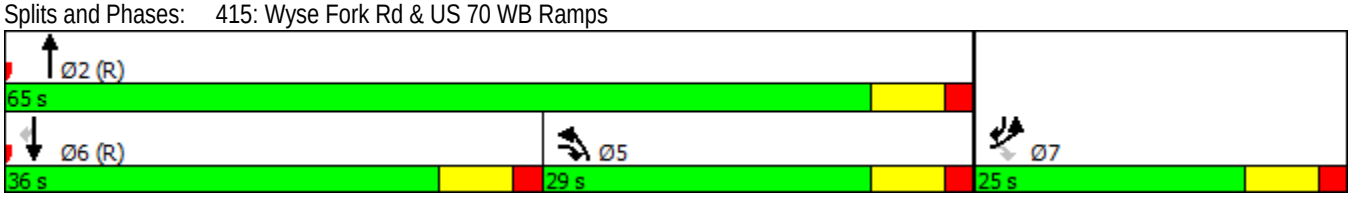
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	16	21	61	39	12
Future Volume (vph)	15	16	21	61	39	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1736	1553	1736	1827	1827	1553
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1736	1827	1827	1553
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1065			1380	1294	
Travel Time (s)	29.0			17.1	16.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	18	23	68	43	13
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	5	5	2	6	7
Permitted Phases		7				6
Detector Phase	7	5	5	2	6	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	25.0	29.0	29.0	65.0	36.0	25.0
Total Split (%)	27.8%	32.2%	32.2%	72.2%	40.0%	27.8%
Maximum Green (s)	18.0	22.0	22.0	58.0	29.0	18.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.2	18.0	9.4	78.4	69.6	78.2
Actuated g/C Ratio	0.10	0.20	0.10	0.87	0.77	0.87
v/c Ratio	0.10	0.06	0.13	0.04	0.03	0.01
Control Delay	37.9	25.3	32.7	1.7	6.2	2.2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	25.3	32.7	1.7	6.2	2.2
LOS	D	C	C	A	A	A
Approach Delay	31.4			9.5	5.3	
Approach LOS	C			A	A	
Queue Length 50th (ft)	9	8	13	5	8	1
Queue Length 95th (ft)	29	24	33	12	22	5
Internal Link Dist (ft)	985			1300	1214	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	385	419	462	1591	1413	1349
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.04	0.05	0.04	0.03	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 16 (18%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.13
Intersection Signal Delay: 12.4 Intersection LOS: B
Intersection Capacity Utilization 25.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 415: Wyse Fork Rd & US 70 WB Ramps



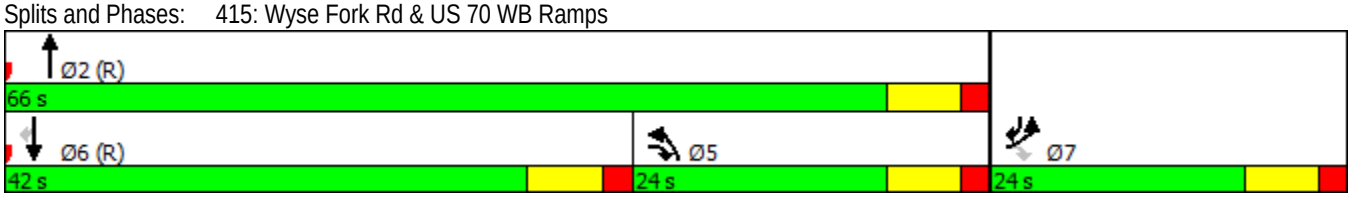
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	11	19	14	40	62	14
Future Volume (vph)	11	19	14	40	62	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1736	1553	1736	1827	1827	1553
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1736	1827	1827	1553
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1065			1380	1294	
Travel Time (s)	29.0			17.1	16.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	21	16	44	69	16
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	5	5	2	6	7
Permitted Phases		7				6
Detector Phase	7	5	5	2	6	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	24.0	24.0	24.0	66.0	42.0	24.0
Total Split (%)	26.7%	26.7%	26.7%	73.3%	46.7%	26.7%
Maximum Green (s)	17.0	17.0	17.0	59.0	35.0	17.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.1	14.9	9.2	82.3	72.7	78.4
Actuated g/C Ratio	0.10	0.17	0.10	0.91	0.81	0.87
v/c Ratio	0.07	0.08	0.09	0.03	0.05	0.01
Control Delay	37.5	28.3	31.0	1.2	5.1	2.1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	28.3	31.0	1.2	5.1	2.1
LOS	D	C	C	A	A	A
Approach Delay	31.7			9.2	4.5	
Approach LOS	C			A	A	
Queue Length 50th (ft)	6	11	8	0	7	1
Queue Length 95th (ft)	23	27	27	8	30	5
Internal Link Dist (ft)	985			1300	1214	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	366	360	366	1671	1476	1353
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.06	0.04	0.03	0.05	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 16 (18%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.09
Intersection Signal Delay: 11.1 Intersection LOS: B
Intersection Capacity Utilization 25.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 415: Wyse Fork Rd & US 70 WB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	416	4	4	512	39	6	4	5	49	4	78
Future Volume (vph)	50	416	4	4	512	39	6	4	5	49	4	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1687	3370	0	1687	3337	0	0	1755	0	0	1649	0
Flt Permitted	0.950			0.950				0.980			0.982	
Satd. Flow (perm)	1687	3370	0	1687	3337	0	0	1755	0	0	1649	0
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		978			995			420			957	
Travel Time (s)		12.1			12.3			6.4			14.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%	1%	1%	1%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	56	466	0	4	612	0	0	17	0	0	145	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		46			46			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 38.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	416	4	4	512	39	6	4	5	49	4	78
Future Volume (Veh/h)	50	416	4	4	512	39	6	4	5	49	4	78
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	56	462	4	4	569	43	7	4	6	54	4	87
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	612			466			958	1196	233	950	1176	306
vC1, stage 1 conf vol							576	576		598	598	
vC2, stage 2 conf vol							382	620		351	578	
vCu, unblocked vol	612			466			958	1196	233	950	1176	306
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.6	
tF (s)	2.3			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			100			98	99	99	83	99	87
cM capacity (veh/h)	930			1057			289	283	772	319	295	684

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	56	308	158	4	379	233	17	145
Volume Left	56	0	0	4	0	0	7	54
Volume Right	0	0	4	0	0	43	6	87
cSH	930	1700	1700	1057	1700	1700	369	468
Volume to Capacity	0.06	0.18	0.09	0.00	0.22	0.14	0.05	0.31
Queue Length 95th (ft)	5	0	0	0	0	0	4	33
Control Delay (s)	9.1	0.0	0.0	8.4	0.0	0.0	15.2	16.1
Lane LOS	A			A			C	C
Approach Delay (s)	1.0			0.1			15.2	16.1
Approach LOS							C	C

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	512	6	5	416	49	4	4	4	39	4	50
Future Volume (vph)	78	512	6	5	416	49	4	4	4	39	4	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1687	3367	0	1687	3320	0	0	1768	0	0	1660	0
Flt Permitted	0.950			0.950				0.984			0.980	
Satd. Flow (perm)	1687	3367	0	1687	3320	0	0	1768	0	0	1660	0
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		978			995			420			957	
Travel Time (s)		12.1			12.3			6.4			14.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%	1%	1%	1%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	576	0	6	516	0	0	12	0	0	103	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		46			46			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 35.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	512	6	5	416	49	4	4	4	39	4	50
Future Volume (Veh/h)	78	512	6	5	416	49	4	4	4	39	4	50
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	87	569	7	6	462	54	4	4	4	43	4	56
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	516			576			1048	1274	288	966	1251	258
vC1, stage 1 conf vol							746	746		501	501	
vC2, stage 2 conf vol							301	528		464	750	
vCu, unblocked vol	516			576			1048	1274	288	966	1251	258
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.6	
tF (s)	2.3			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			99			98	98	99	86	98	92
cM capacity (veh/h)	1012			960			256	256	712	312	266	735

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	87	379	197	6	308	208	12	103
Volume Left	87	0	0	6	0	0	4	43
Volume Right	0	0	7	0	0	54	4	56
cSH	1012	1700	1700	960	1700	1700	326	450
Volume to Capacity	0.09	0.22	0.12	0.01	0.18	0.12	0.04	0.23
Queue Length 95th (ft)	7	0	0	0	0	0	3	22
Control Delay (s)	8.9	0.0	0.0	8.8	0.0	0.0	16.5	15.4
Lane LOS	A			A			C	C
Approach Delay (s)	1.2			0.1			16.5	15.4
Approach LOS							C	C

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	35.5%	ICU Level of Service	A
Analysis Period (min)	15		

2040 Build Alternative 65
SimTraffic Reports

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Summary of All Intervals

Run Number	1	2	3	4	5	AM	Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	8340	8247	8423	8275	8282	8456	8334
Vehs Exited	8317	8231	8438	8278	8257	8434	8323
Starting Vehs	179	162	201	164	144	176	160
Ending Vehs	202	178	186	161	169	198	173
Travel Distance (mi)	4905	4873	4993	4885	4894	5051	4933
Travel Time (hr)	176.7	185.4	185.4	174.0	180.0	185.5	181.2
Total Delay (hr)	63.8	73.1	70.3	61.4	67.0	69.2	67.5
Total Stops	4826	5082	5067	4797	4916	5032	4950
Fuel Used (gal)	197.1	198.4	201.6	196.2	198.0	204.7	199.3

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	AM	Avg
Vehs Entered	8340	8247	8423	8275	8282	8456	8334
Vehs Exited	8317	8231	8438	8278	8257	8434	8323
Starting Vehs	179	162	201	164	144	176	160
Ending Vehs	202	178	186	161	169	198	173
Travel Distance (mi)	4905	4873	4993	4885	4894	5051	4933
Travel Time (hr)	176.7	185.4	185.4	174.0	180.0	185.5	181.2
Total Delay (hr)	63.8	73.1	70.3	61.4	67.0	69.2	67.5
Total Stops	4826	5082	5067	4797	4916	5032	4950
Fuel Used (gal)	197.1	198.4	201.6	196.2	198.0	204.7	199.3

Intersection: 401: Jim Sutton Rd & Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	46	52	4	24
Average Queue (ft)	14	20	0	2
95th Queue (ft)	38	43	3	12
Link Distance (ft)	848	806	905	935
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	65	171	80	78	310	36
Average Queue (ft)	26	76	24	22	164	5
95th Queue (ft)	60	145	61	61	268	23
Link Distance (ft)	951	951	935	935	1248	1248
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		100	325	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	86	267	164	73	188	91
Average Queue (ft)	35	116	51	16	91	30
95th Queue (ft)	74	201	117	50	161	74
Link Distance (ft)	939	939	1248	1248	934	934
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		275		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 404: Willie Measley Rd & Washington St/Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	94	63	62	16
Average Queue (ft)	43	22	21	1
95th Queue (ft)	73	48	49	8
Link Distance (ft)	924	913	934	1055
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 405: US 70 Bus & Innovation Way

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 406: NC 11/NC 11/55 & NC 55

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	458	72	83	592	488	66
Average Queue (ft)	251	14	25	246	186	12
95th Queue (ft)	406	48	62	471	389	45
Link Distance (ft)	1242	1242	1168	1168	1375	1375
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			125
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 407: NC 11/55 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	434	168	963	158	72	254
Average Queue (ft)	251	70	528	20	14	75
95th Queue (ft)	401	141	980	102	48	185
Link Distance (ft)	890	890	1375	1375	1370	1370
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		175	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 408: NC 11/55 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	75	264	449	185	384	67
Average Queue (ft)	32	95	249	47	151	17
95th Queue (ft)	66	197	408	136	295	50
Link Distance (ft)	1122	1122	1370	1370	1031	1031
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		275	450			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 409: US 258 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	303	124	207	45	59	57
Average Queue (ft)	132	53	85	5	16	11
95th Queue (ft)	236	110	172	26	42	39
Link Distance (ft)	917	917	961	961	1212	1212
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		125		100	125	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 410: US 258 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	90	58	133	164	148	42
Average Queue (ft)	29	14	42	59	61	6
95th Queue (ft)	68	41	101	125	118	27
Link Distance (ft)	1028	1028	1212	1212	850	850
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		175	175	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 411: NC 58 & Elijah Loftin Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	46	44	15	24
Average Queue (ft)	18	21	1	2
95th Queue (ft)	37	39	8	13
Link Distance (ft)	1137	1082	1094	863
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 412: NC 58 & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	57	65	79	69	76	19
Average Queue (ft)	17	15	25	13	16	1
95th Queue (ft)	48	45	61	50	52	8
Link Distance (ft)	914	914	863	863	1133	1133
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 413: NC 58 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	52	65	74	70	75	30
Average Queue (ft)	10	18	22	13	17	1
95th Queue (ft)	35	48	56	49	54	13
Link Distance (ft)	879	879	1133	1133	961	961
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 414: Wyse Fork Rd & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	61	49	54	34	37	20
Average Queue (ft)	11	10	15	3	3	1
95th Queue (ft)	39	36	40	17	19	8
Link Distance (ft)	1177	1177	1595	1595	1309	1309
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 415: Wyse Fork Rd & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	47	49	57	40	32	7
Average Queue (ft)	12	15	17	3	4	0
95th Queue (ft)	37	42	45	20	20	5
Link Distance (ft)	1012	1012	1309	1309	1252	1252
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 416: Service Rd/Kornegay St & US 70 Bus

Movement	EB	WB	WB	WB	NB	SB
Directions Served	L	L	T	TR	LTR	LTR
Maximum Queue (ft)	64	15	3	5	47	146
Average Queue (ft)	19	1	0	0	12	51
95th Queue (ft)	50	7	2	4	36	111
Link Distance (ft)	948	962	962	962	356	892
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100	100				
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	2	3	4	5	PM	Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	8308	8262	8280	8375	8157	8362	8291
Vehs Exited	8322	8276	8265	8360	8160	8370	8292
Starting Vehs	185	169	165	154	186	180	156
Ending Vehs	171	155	180	169	183	172	161
Travel Distance (mi)	4875	4890	4833	4913	4794	4916	4870
Travel Time (hr)	177.4	176.2	171.8	177.3	170.2	175.6	174.7
Total Delay (hr)	65.4	63.3	60.7	63.7	59.3	61.9	62.4
Total Stops	4976	4946	4839	4899	4770	4920	4893
Fuel Used (gal)	197.6	199.0	196.4	199.4	194.5	200.5	197.9

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	PM	Avg
Vehs Entered	8308	8262	8280	8375	8157	8362	8291
Vehs Exited	8322	8276	8265	8360	8160	8370	8292
Starting Vehs	185	169	165	154	186	180	156
Ending Vehs	171	155	180	169	183	172	161
Travel Distance (mi)	4875	4890	4833	4913	4794	4916	4870
Travel Time (hr)	177.4	176.2	171.8	177.3	170.2	175.6	174.7
Total Delay (hr)	65.4	63.3	60.7	63.7	59.3	61.9	62.4
Total Stops	4976	4946	4839	4899	4770	4920	4893
Fuel Used (gal)	197.6	199.0	196.4	199.4	194.5	200.5	197.9

Intersection: 401: Jim Sutton Rd & Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	29	51	4	16
Average Queue (ft)	9	15	0	1
95th Queue (ft)	30	38	3	9
Link Distance (ft)	848	806	905	935
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	112	174	56	61	260	44
Average Queue (ft)	42	86	15	12	139	6
95th Queue (ft)	89	152	44	41	223	29
Link Distance (ft)	951	951	935	935	1248	1248
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		100	325	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	115	269	93	43	159	89
Average Queue (ft)	51	137	30	8	80	21
95th Queue (ft)	101	237	74	29	138	61
Link Distance (ft)	939	939	1248	1248	934	934
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		275		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 404: Willie Measley Rd & Washington St/Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	76	81	70	16
Average Queue (ft)	39	30	20	1
95th Queue (ft)	65	58	52	7
Link Distance (ft)	924	913	934	1055
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 405: US 70 Bus & Innovation Way

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 406: NC 11/NC 11/55 & NC 55

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	293	83	72	220	514	113
Average Queue (ft)	138	18	22	94	243	38
95th Queue (ft)	247	56	56	179	458	91
Link Distance (ft)	1242	1242	1168	1168	1375	1375
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			125
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 407: NC 11/55 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	383	115	503	114	76	403
Average Queue (ft)	202	34	237	21	25	165
95th Queue (ft)	324	82	416	69	61	349
Link Distance (ft)	890	890	1375	1375	1370	1370
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		175	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 408: NC 11/55 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	55	174	328	121	500	98
Average Queue (ft)	15	71	162	23	244	23
95th Queue (ft)	43	133	281	83	433	64
Link Distance (ft)	1122	1122	1370	1370	1031	1031
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		275	450			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 409: US 258 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	375	95	210	41	100	58
Average Queue (ft)	188	31	78	4	30	17
95th Queue (ft)	311	71	163	22	76	47
Link Distance (ft)	917	917	961	961	1212	1212
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		125		100	125	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 410: US 258 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	108	55	91	90	167	59
Average Queue (ft)	37	10	26	29	72	11
95th Queue (ft)	84	34	66	75	137	38
Link Distance (ft)	1028	1028	1212	1212	850	850
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		175	175	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 411: NC 58 & Elijah Loftin Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	37	31	28	24
Average Queue (ft)	14	13	2	3
95th Queue (ft)	34	33	14	15
Link Distance (ft)	1137	1082	1094	863
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 412: NC 58 & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	52	84	61	67	85	17
Average Queue (ft)	12	23	16	8	24	2
95th Queue (ft)	37	59	47	38	66	12
Link Distance (ft)	914	914	863	863	1133	1133
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 413: NC 58 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	33	77	71	53	120	22
Average Queue (ft)	6	22	14	6	32	2
95th Queue (ft)	25	56	43	31	87	13
Link Distance (ft)	879	879	1133	1133	961	961
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 414: Wyse Fork Rd & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	33	54	42	23	42	36
Average Queue (ft)	8	15	11	1	6	2
95th Queue (ft)	27	42	36	11	26	14
Link Distance (ft)	1177	1177	1595	1595	1309	1309
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 415: Wyse Fork Rd & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	34	53	36	26	45	16
Average Queue (ft)	8	15	10	2	5	1
95th Queue (ft)	28	43	32	14	25	10
Link Distance (ft)	1012	1012	1309	1309	1252	1252
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 416: Service Rd/Kornegay St & US 70 Bus

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	74	3	19	9	33	124
Average Queue (ft)	23	0	2			43
95th Queue (ft)	54	2	12	7	30	91
Link Distance (ft)	948	948	962	962	356	892
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100		100			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 0

APPENDIX L

2040 Build Alternative 51

Peak Hour Traffic Volume Development and

FREEVAL-E, Synchro & SimTraffic Reports

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2040 Build Alternative 51
Peak Hour Traffic Volume
Development

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Alternative 51

Volume Development

A project-level traffic forecast, titled "Traffic Forecast Technical Memorandum, Kinston Bypass Alternatives Study", was prepared and finalized in November, 2016. This traffic forecast was used to provide peak hour volumes for the analysis of the selected alternatives in this memorandum. The traffic forecast is included in **Attachment A**.

The Intersection Analysis Utility (IAU), provided by NCDOT, was utilized to calculate AM and PM Peak Hour volumes for at-grade intersections (ramp terminals and any intersections within 1,000 feet of ramp terminals), interchange ramps, and freeway segments within interchanges. Peak hour volumes for freeway segments between interchanges were calculated by finding the forecasted daily two-way volumes along the link, then breaking the daily volume down by multiplying it by the Design Hour Volume Percentage (K), and the Peak Hour Directional Split (D). All of these volumes are shown in **BLACK** in **Figures 11A-11F**.

US 70 and CF Harvey Parkway Extension Freeway Analysis

FREEVAL-E does not use a Peak Hour Factor (PHF) to adjust the peak hour volumes to reflect the peak 15-minute period. Additionally, FREEVAL-E requires balanced peak hour mainline volumes, since only the beginning freeway segment and subsequent ramps have volume inputs. To provide peak 15-minute hourly flow rates for the analysis in FREEVAL-E, each of the peak hour volumes calculated for the freeway segments and ramps was divided by 0.90, which is the recommended PHF in the NCDOT Congestion Management Capacity Analysis Guidelines. To balance the peak hour volumes to use with FREEVAL-E, the highest peak 15-minute hourly flow rate was located along the US 70 corridor within the study area. Once this was located, the mainline US 70 volumes were adjusted in each direction to the eastern and western ends of the network by adding and subtracting the relevant ramp volumes.

For Alternative 51, the location used as the "hold point" for balancing purposes on US 70 was the segment between Jim Sutton Road / Willie Measley Road and US 70 Business (west of Kinston). These volume adjustments are shown in **BLUE** in **Figures 11A-11F**. The ensuing pages of this appendix detail the following step-by-step process used to calculate the volumes used:

Step 1 – Freeway segment volumes between interchanges were calculated by multiplying the two-way daily volumes by the K and D factors.

Step 2 – Volumes for interchange ramps, and freeway segments inside interchanges were collected from the IAU breakout sheets.

Step 3 – The volumes collected in Step 2 were divided by the NCDOT default PHF of 0.90 to account for the fact that FREEVAL-E does not factor in the PHF, and the highest calculated freeway volume location was used as the base point with which to balance the US 70 freeway corridor.

Step 4 – The volumes of the subsequent freeway segments were adjusted to allow for a balanced peak hour network in both directions, as well as along CF Harvey Parkway Extension.

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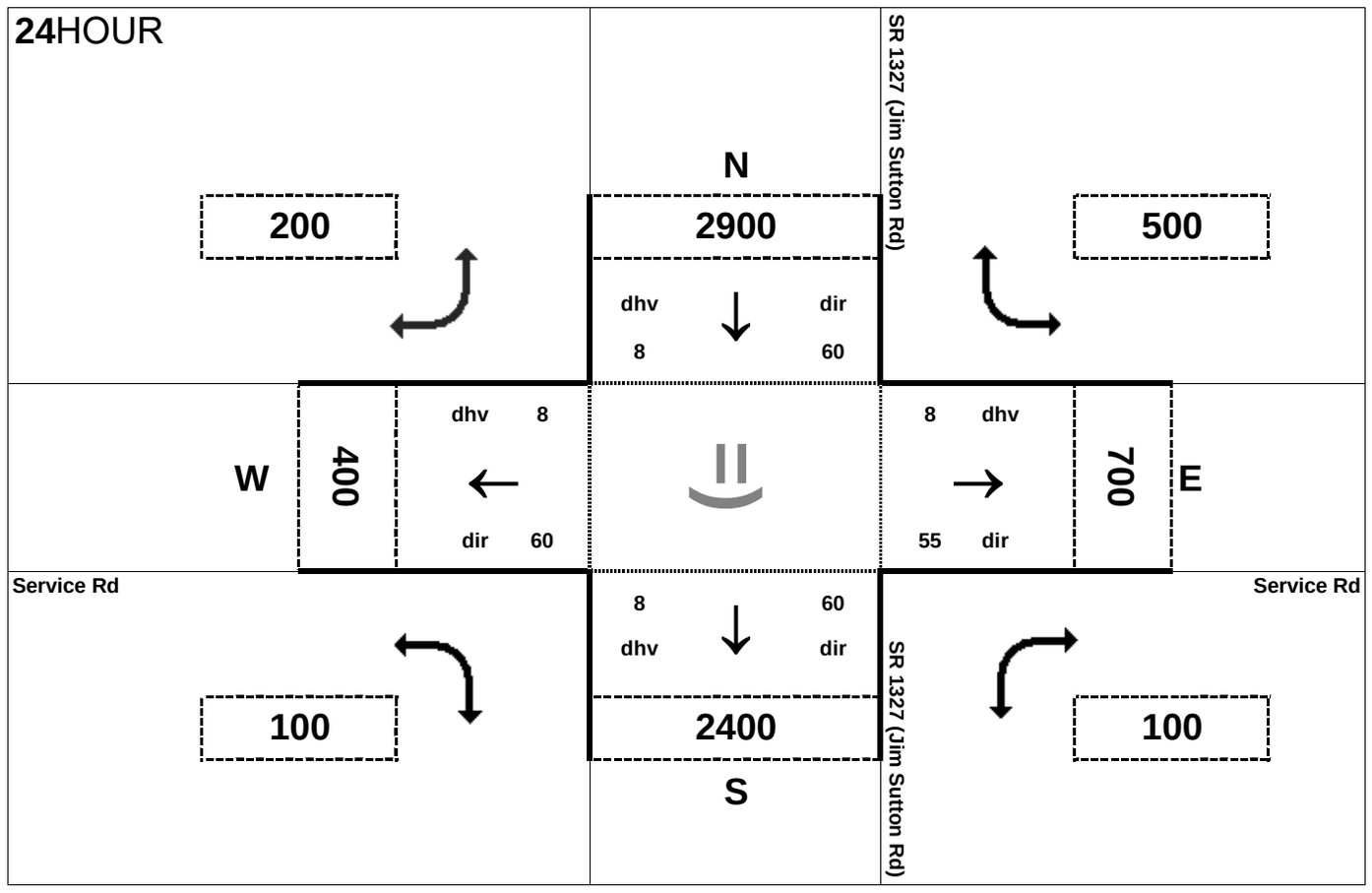
Peak Hour Volume Breakouts Report:
401 Intersection of SR 1327 (Jim Sutton Rd) at Service Rd

Traffic Forecast Release Date:
November-16

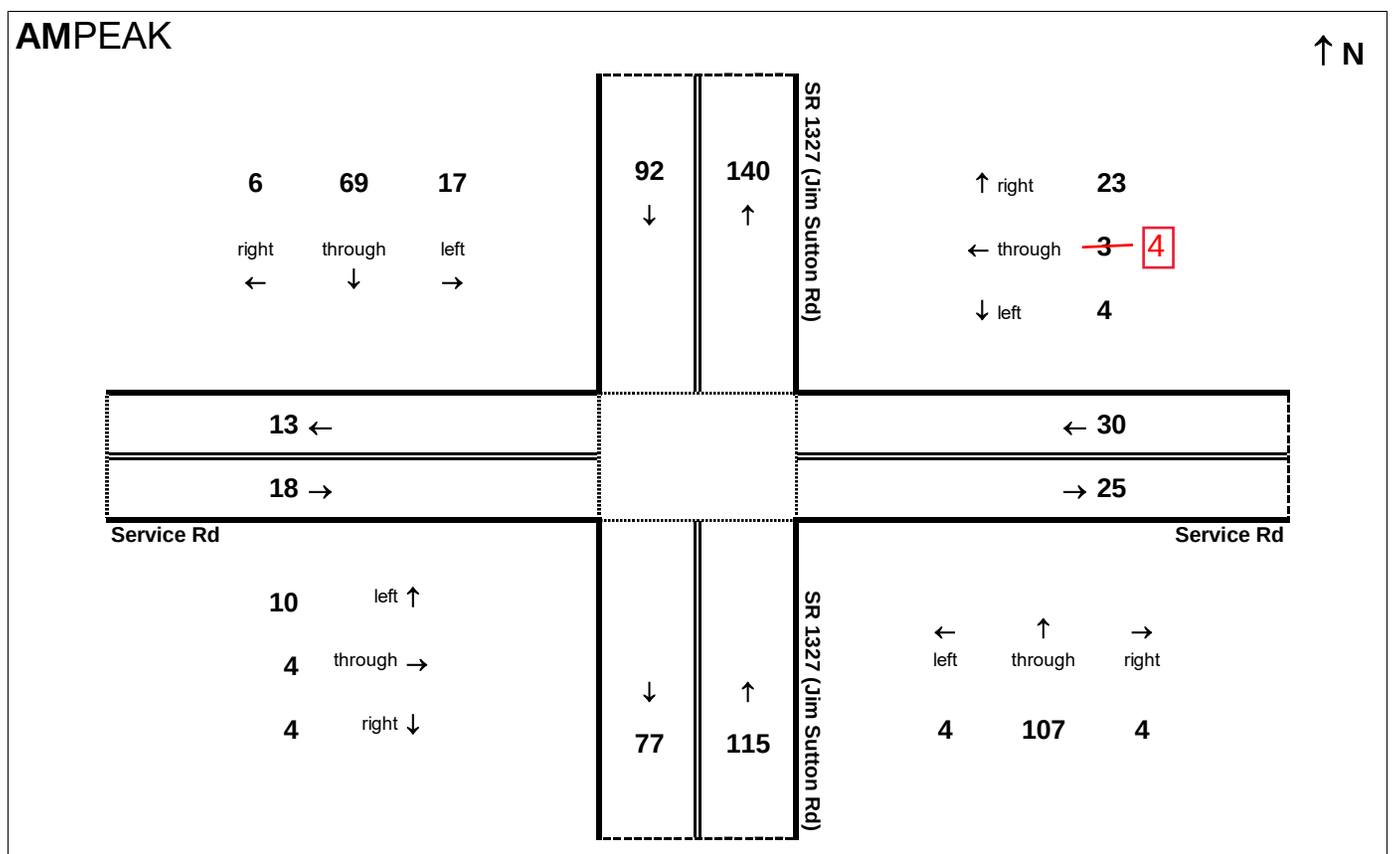
Traffic Data Year:
2040 Build Alt 51

Project:
R-2553

24HOUR

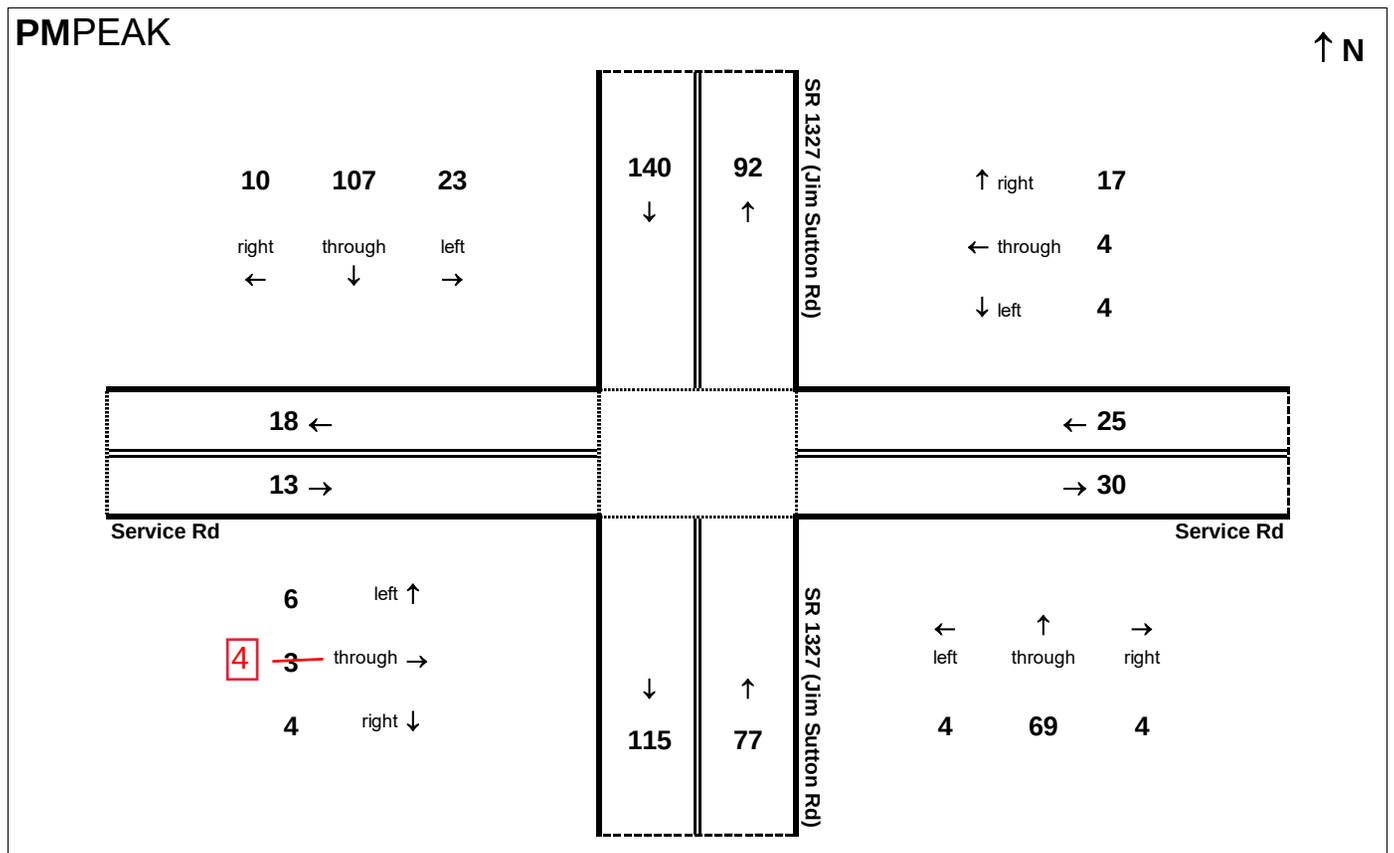


AMPEAK



AM peak hour inflow is 256 vehicles. AM peak hour outflow is 255 vehicles.

PMPEAK



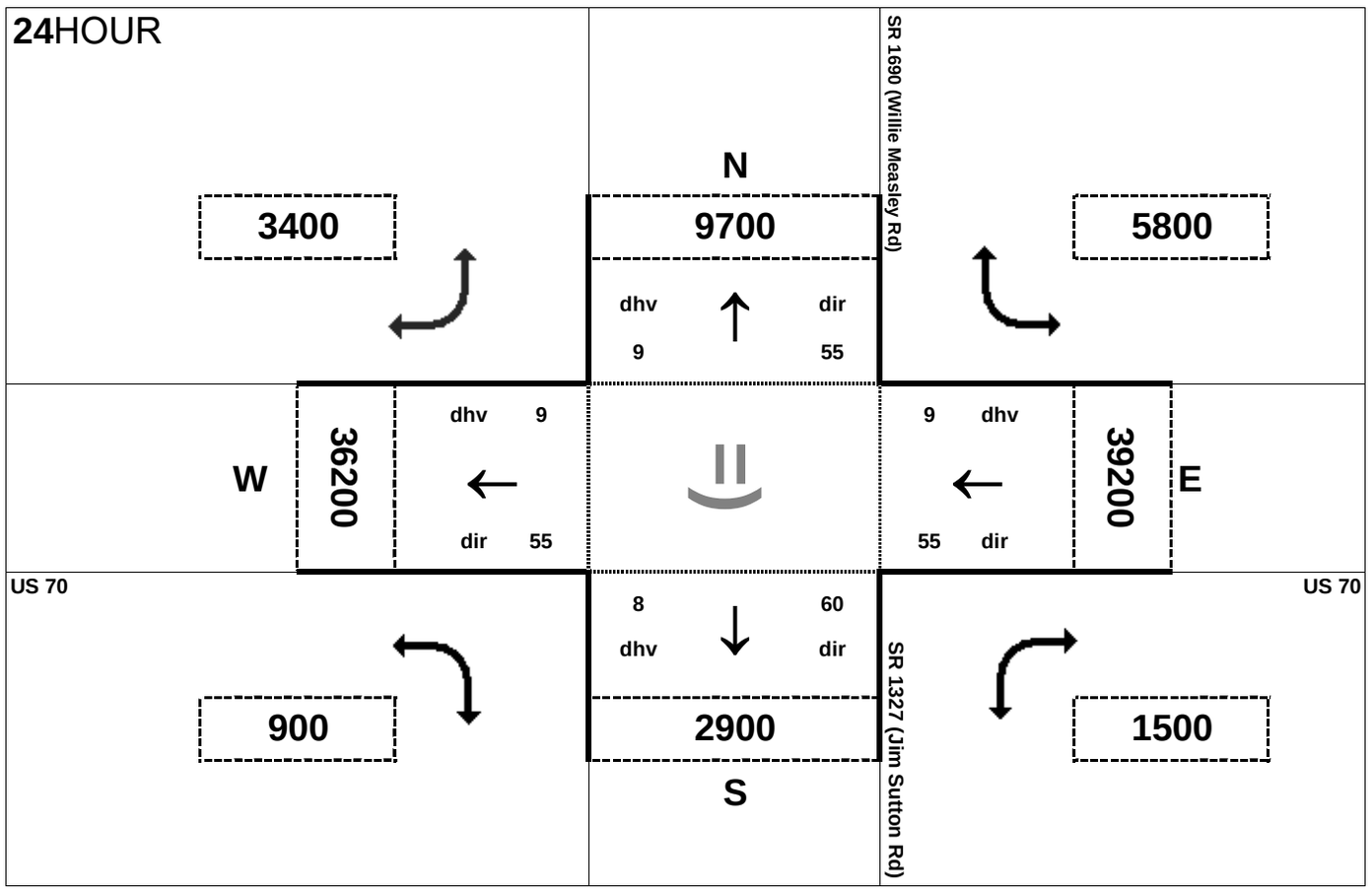
PM peak hour inflow is 255 vehicles. PM peak hour outflow is 256 vehicles.

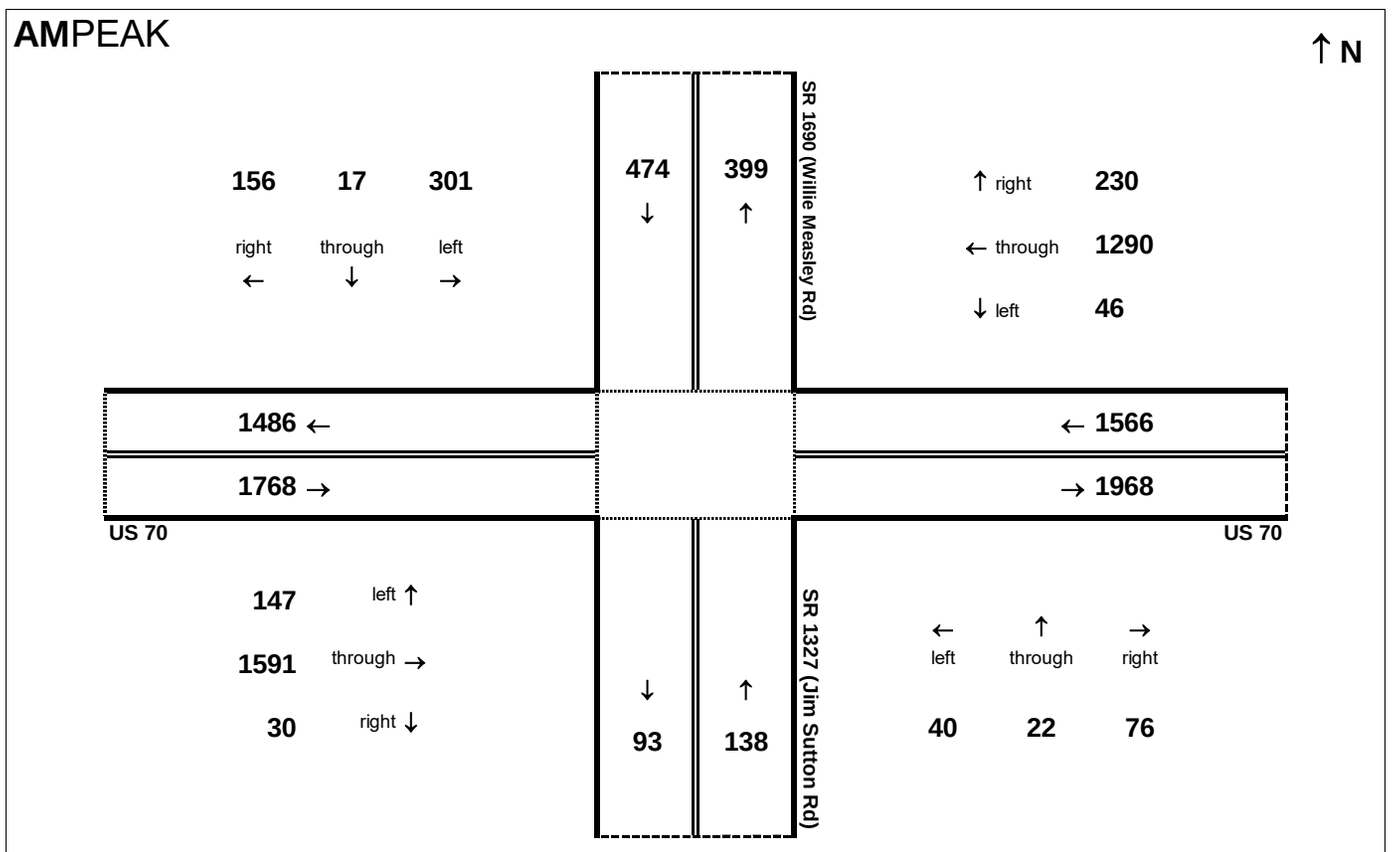
Peak Hour Volume Breakouts Report:
402-3 Intersection of US 70 and Willie Measley Rd / Jim Sutton Rd

Traffic Forecast Release Date:
November-16

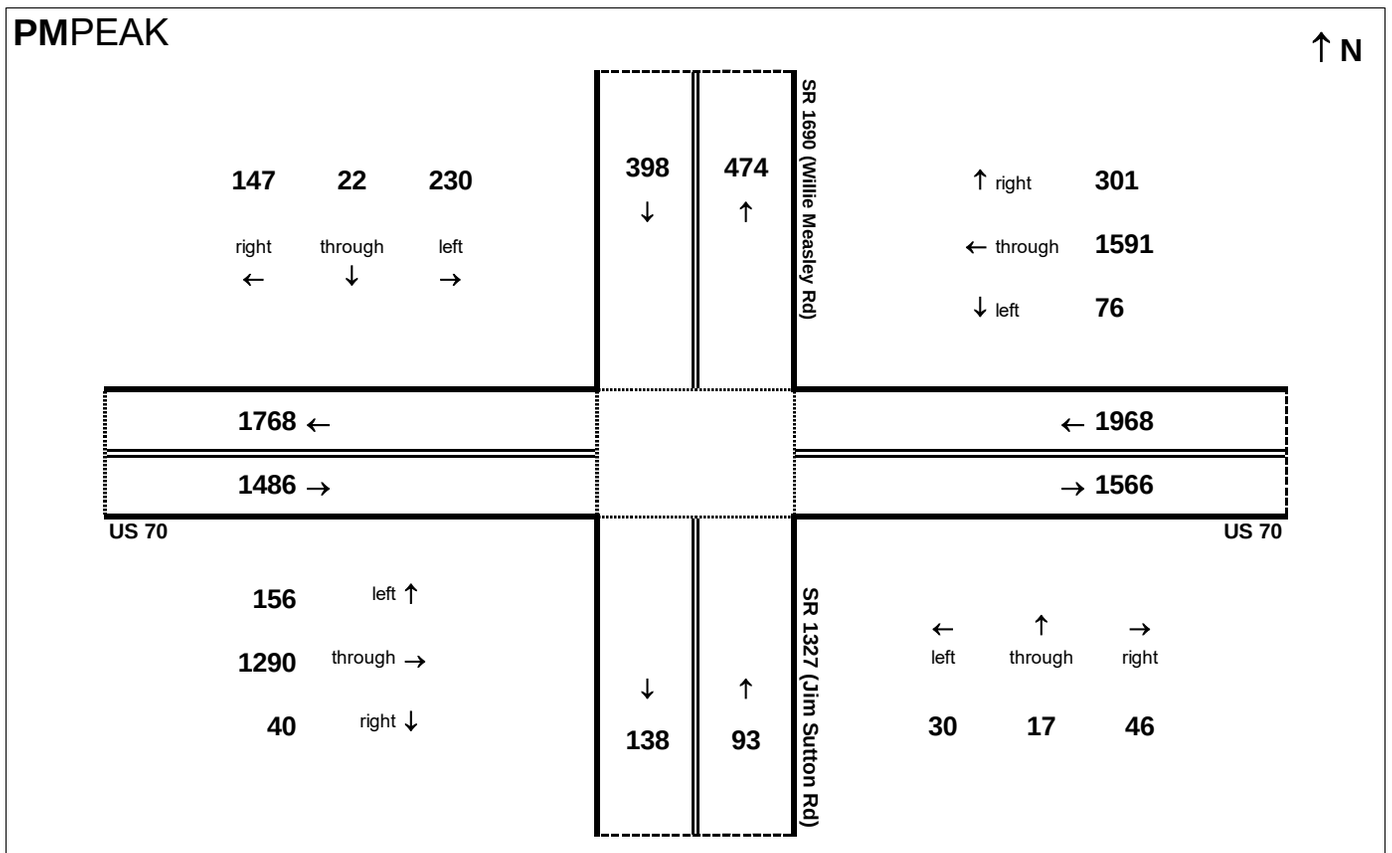
Traffic Data Year:
2040 Build Alt 51

Project:
R-2553





AM peak hour inflow is 3945 vehicles. AM peak hour outflow is 3945 vehicles.



PM peak hour inflow is 3945 vehicles. PM peak hour outflow is 3945 vehicles.

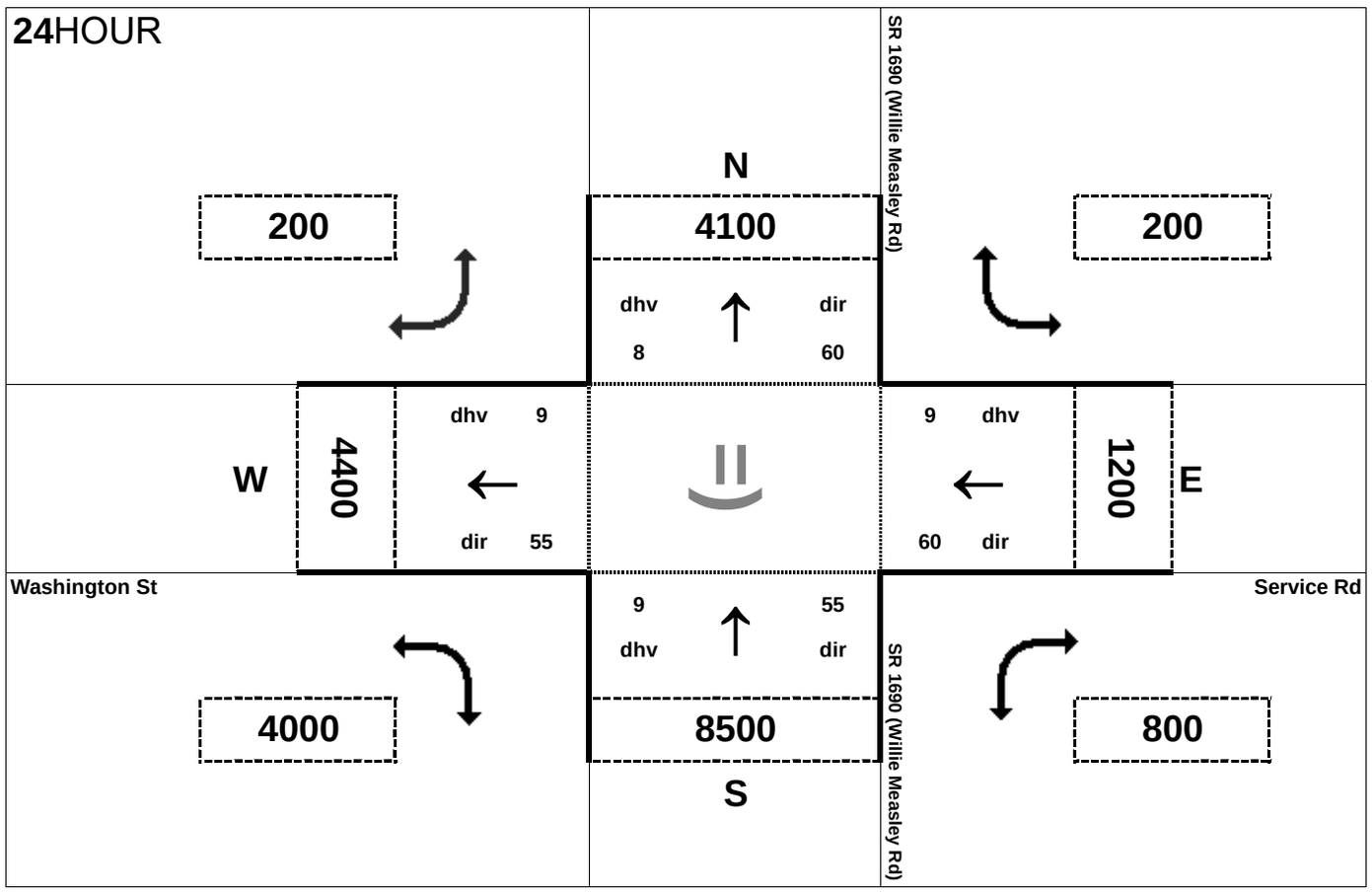
Peak Hour Volume Breakouts Report:
404 Intersection of SR 1690 (Willie Measley Rd) at SR 1603 (Washington St)

Traffic Forecast Release Date:
November-16

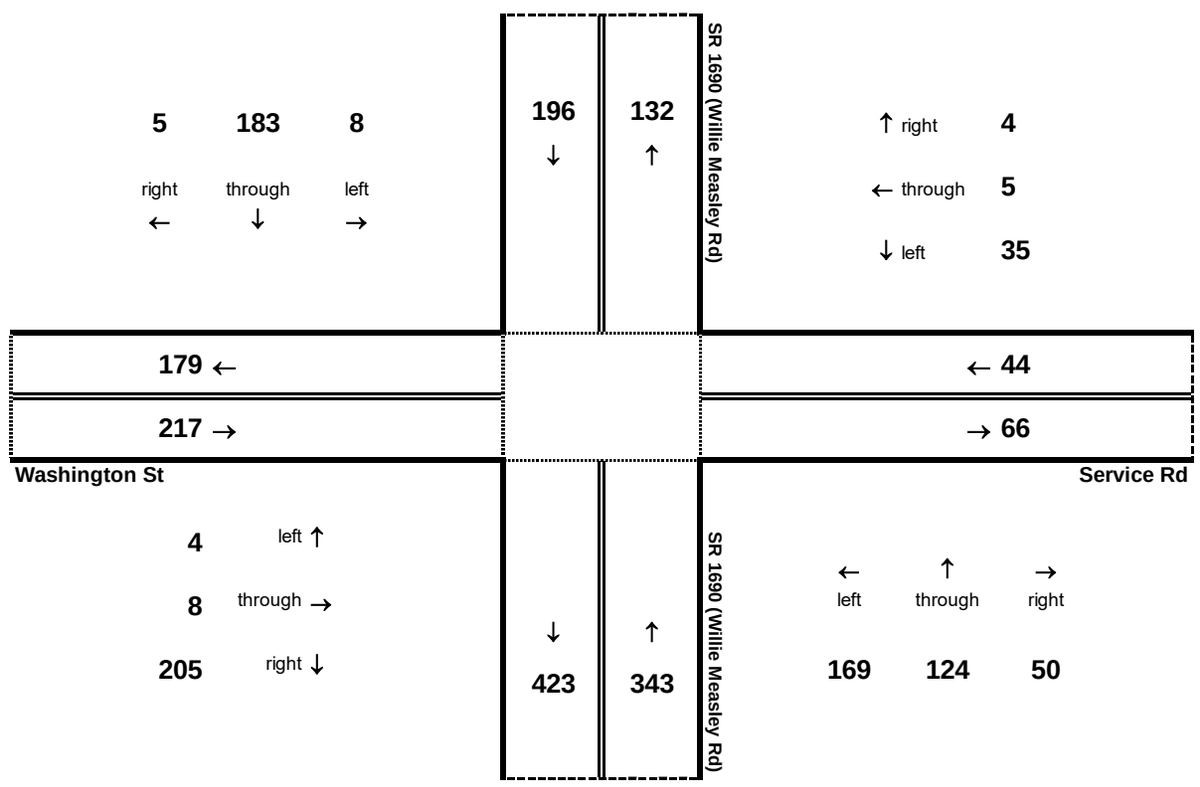
Traffic Data Year:
2040 Build Alt 51

Project:
R-2553

24HOUR

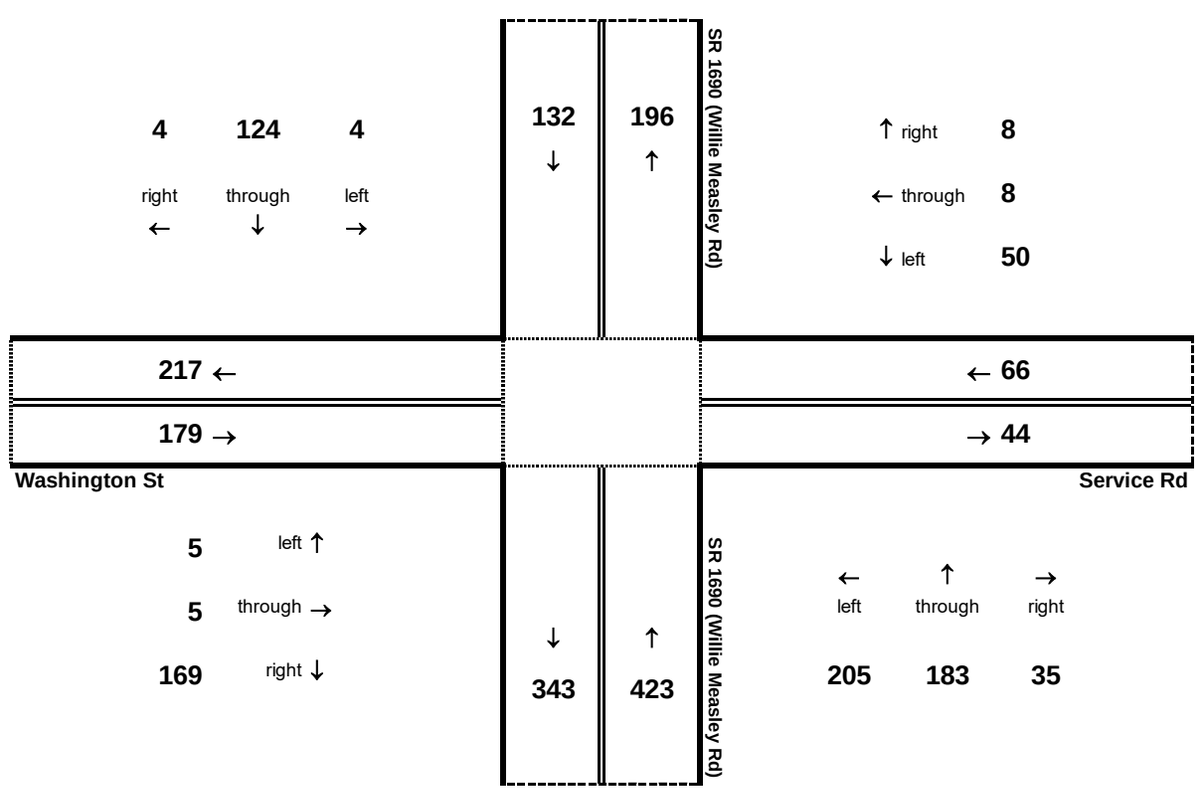


AMPEAK



AM peak hour inflow is 799 vehicles. AM peak hour outflow is 799 vehicles.

PMPEAK



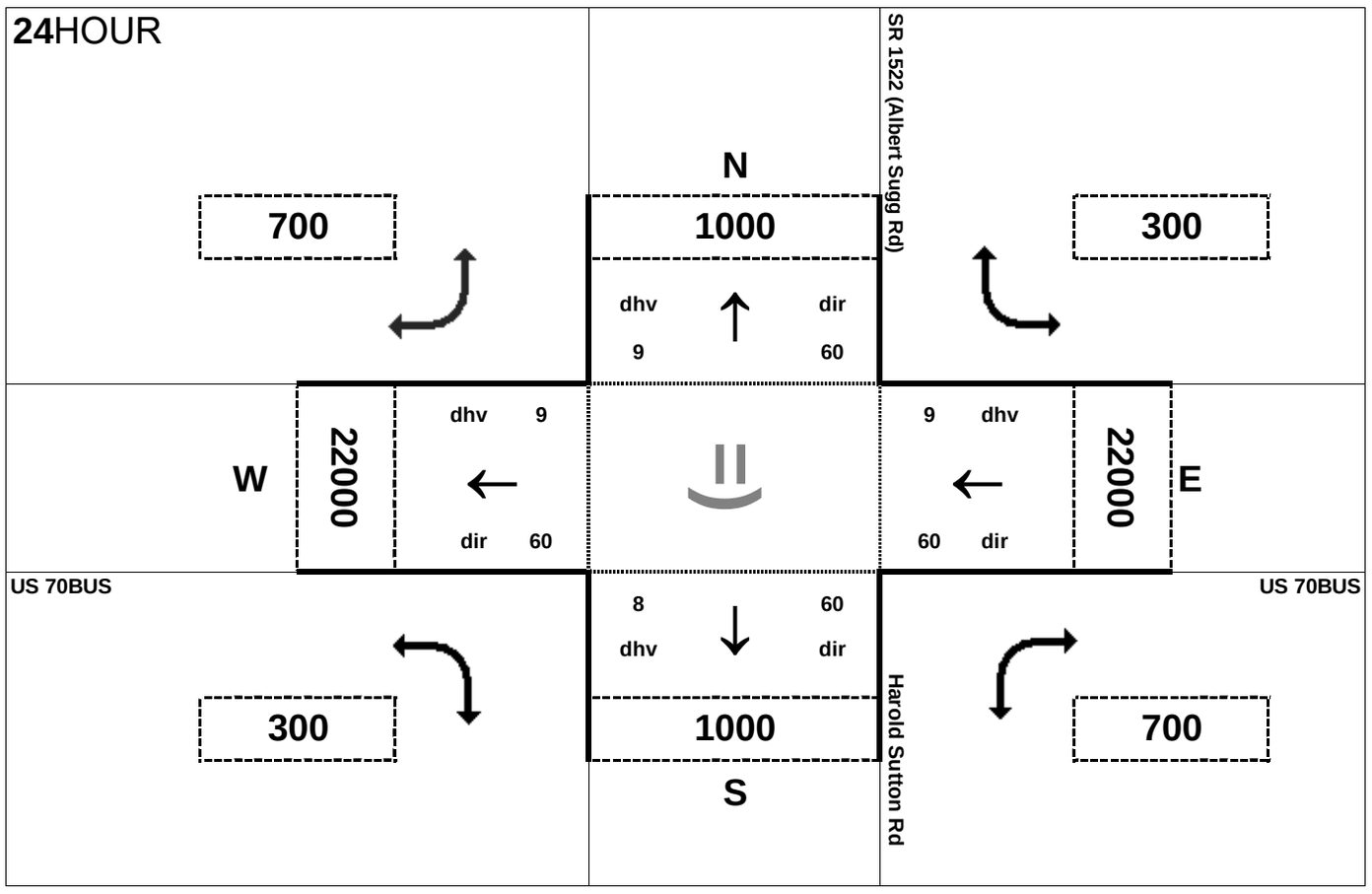
PM peak hour inflow is 799 vehicles. PM peak hour outflow is 799 vehicles.

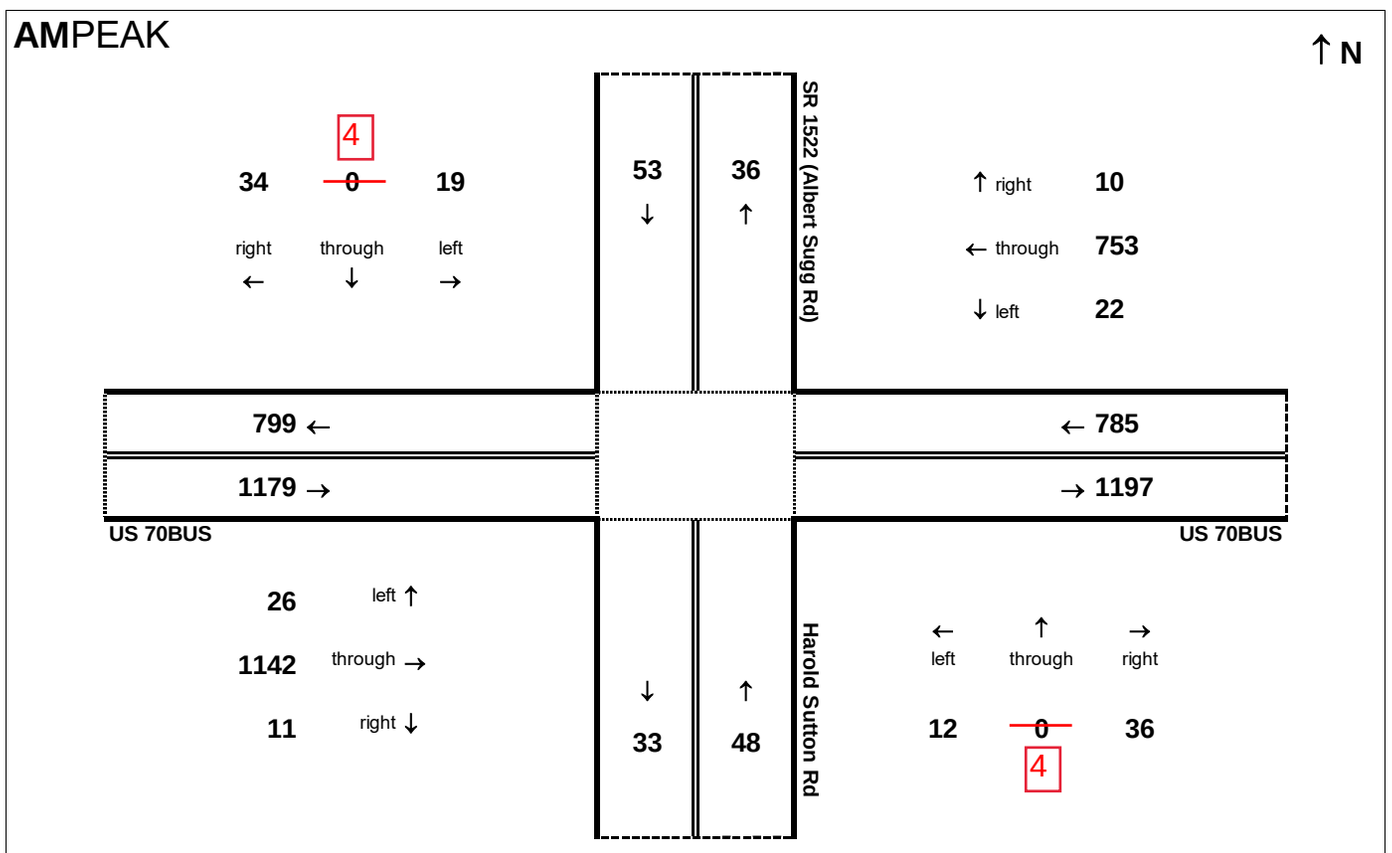
Peak Hour Volume Breakouts Report:
405 Intersection of US 70BUS and Harold Sutton Rd

Traffic Forecast Release Date:
November-16

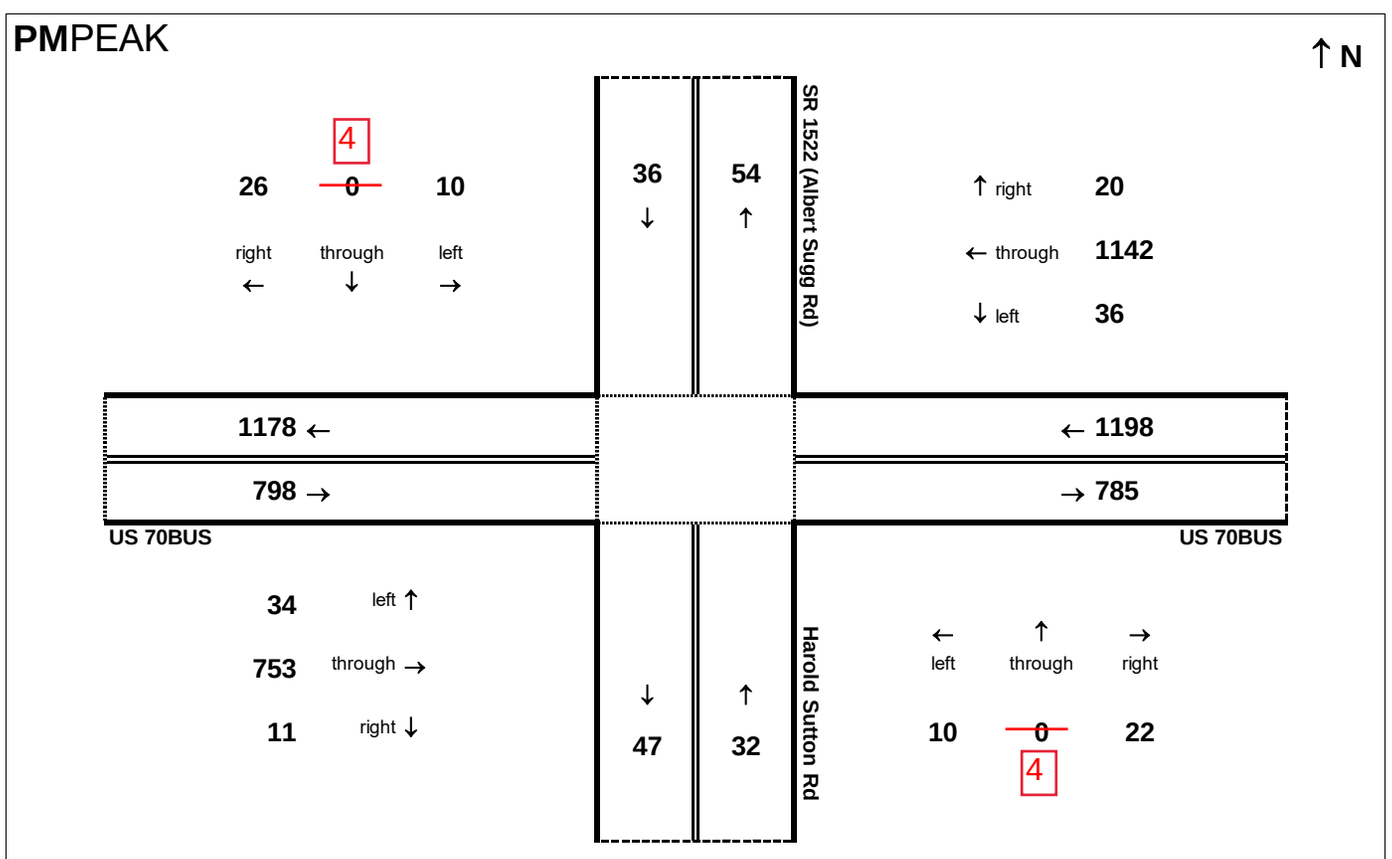
Traffic Data Year:
2040 Build Alt 51

Project:
R-2553





AM peak hour inflow is 2066 vehicles. AM peak hour outflow is 2064 vehicles.



PM peak hour inflow is 2064 vehicles. PM peak hour outflow is 2066 vehicles.

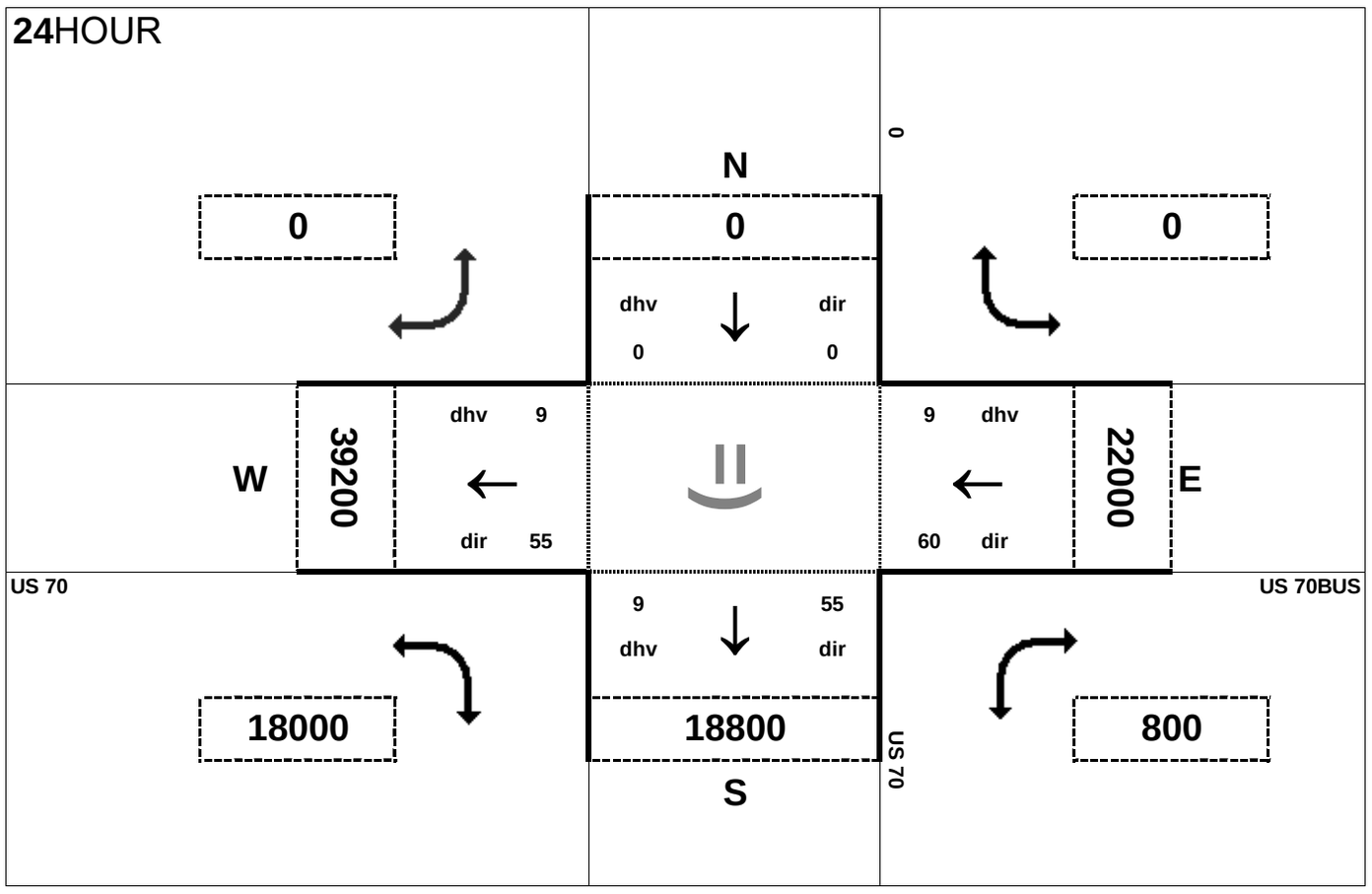
Peak Hour Volume Breakouts Report:
System 1- Intersection of US 70 and US 70BUS (western interchange)

Traffic Forecast Release Date:
November-16

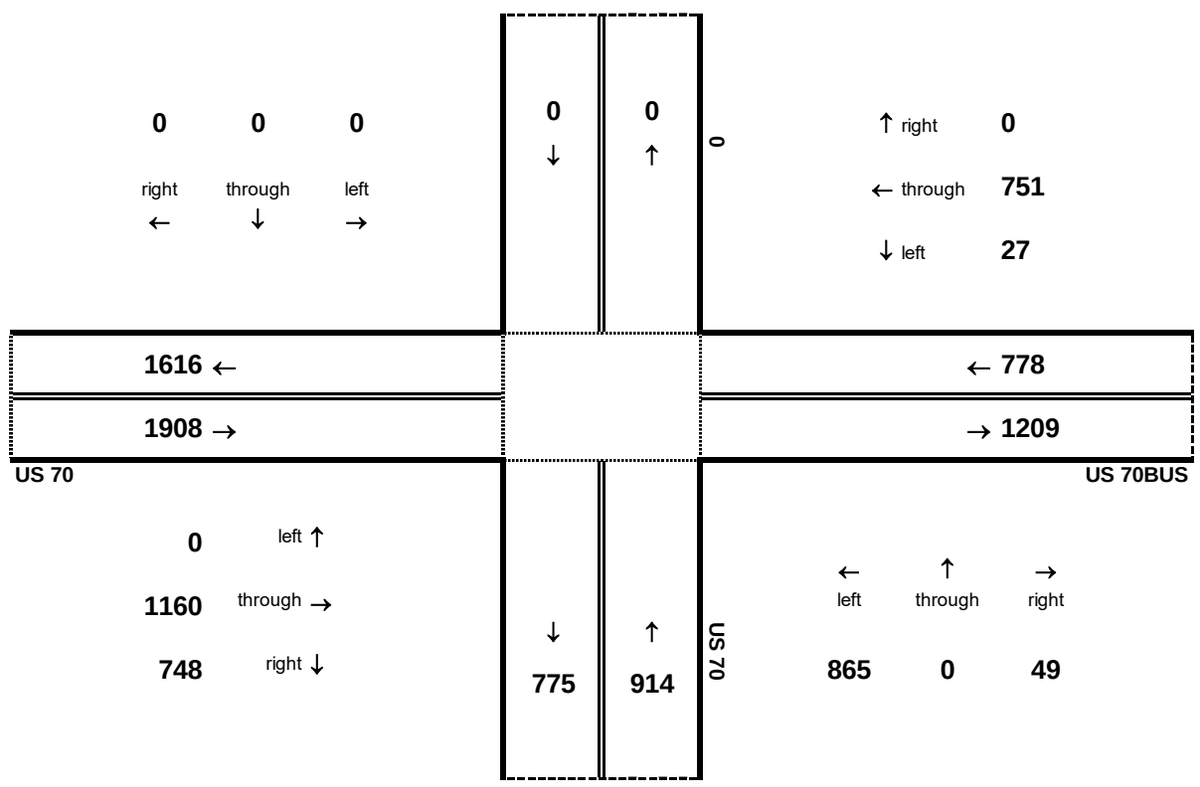
Traffic Data Year:
2040 Build Alt 51

Project:
R-2553

24HOUR

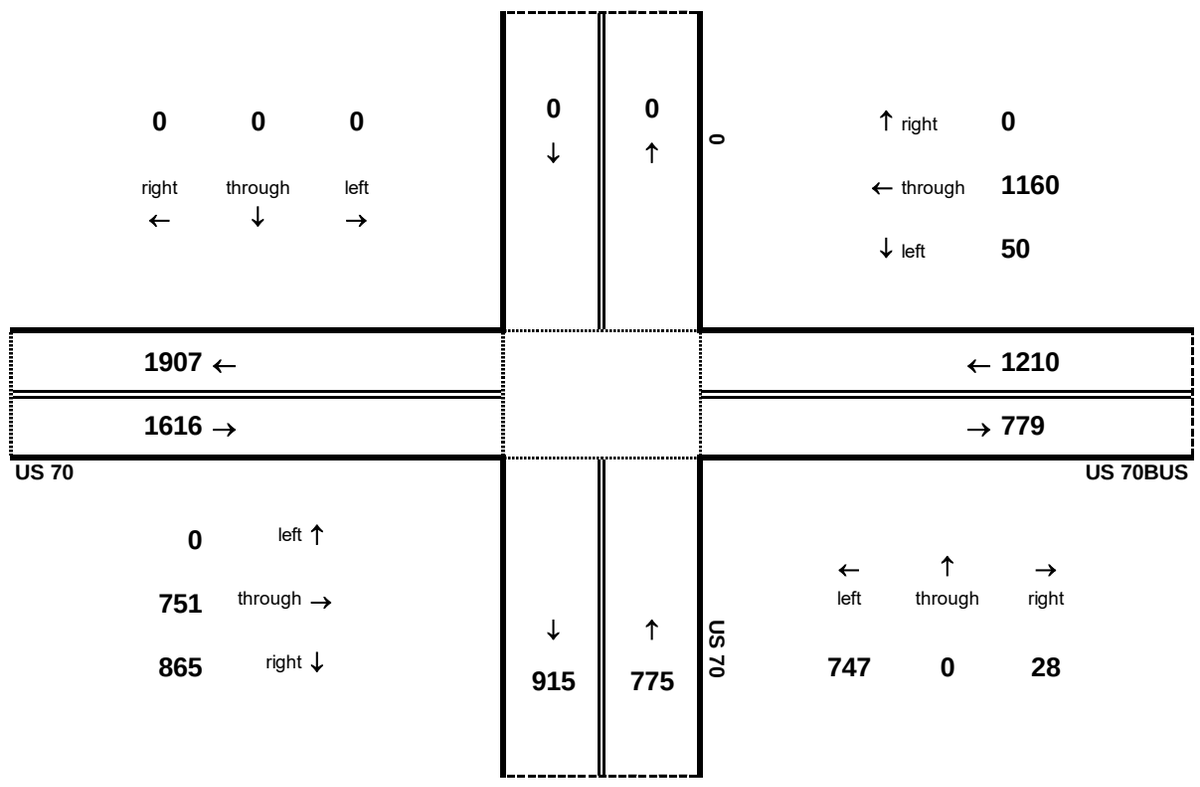


AMPEAK

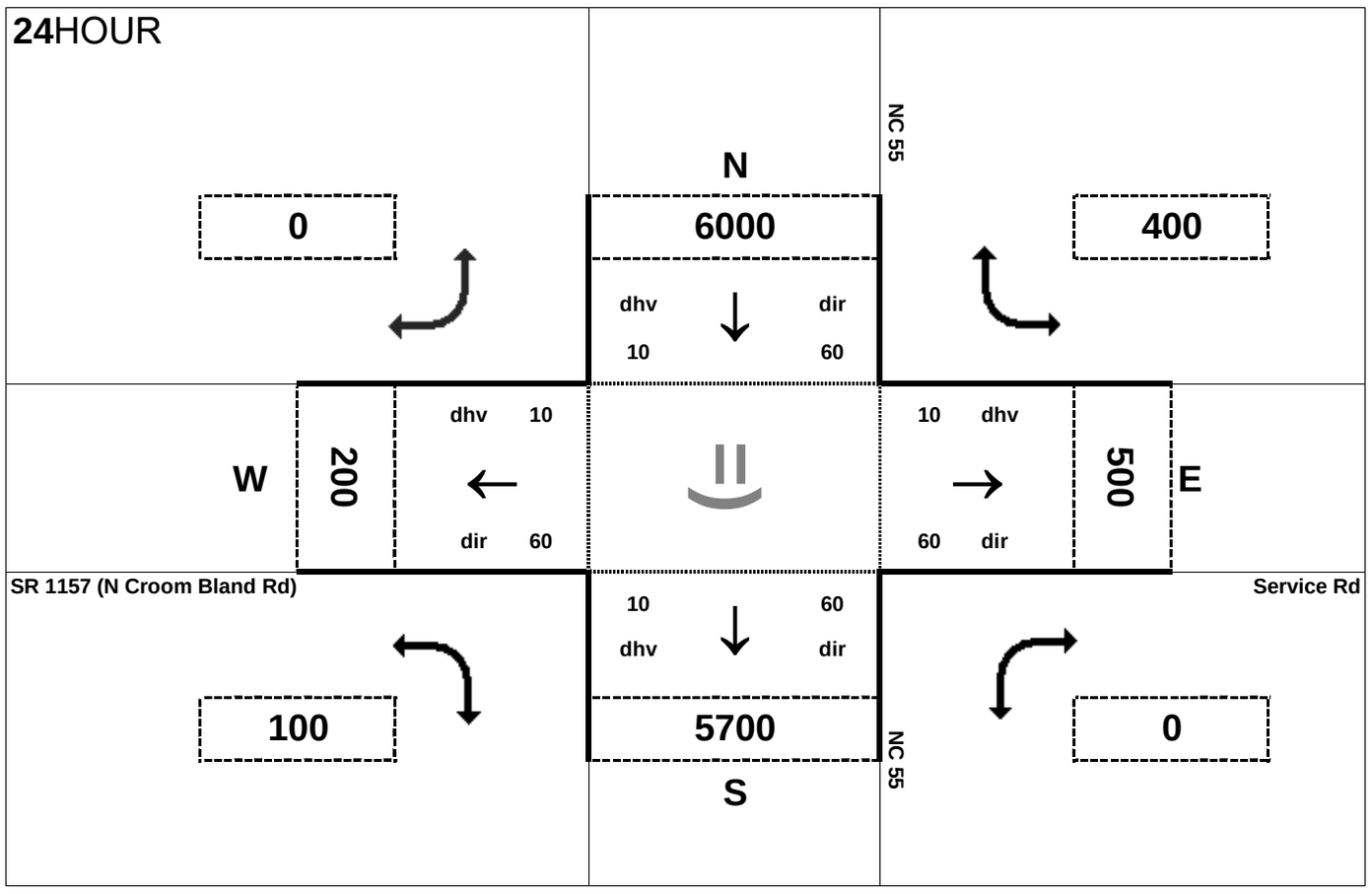


AM peak hour inflow is 3600 vehicles. AM peak hour outflow is 3600 vehicles.

PMPEAK



PM peak hour inflow is 3600 vehicles. PM peak hour outflow is 3600 vehicles.



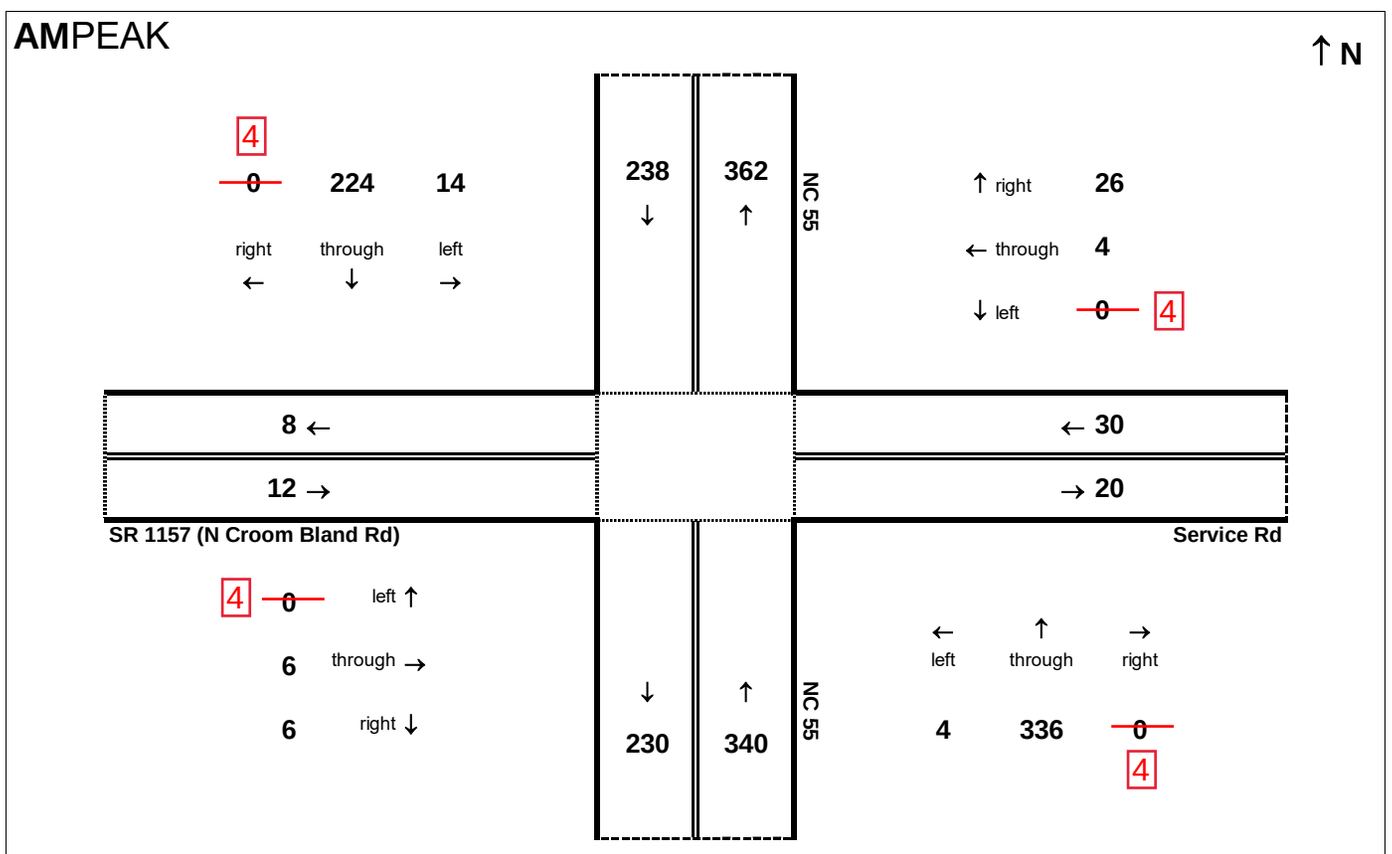
Peak Hour Volume Breakouts Report:
406 Intersection of NC 55 and SR 1157 (N Croom Bland Rd)

Traffic Forecast Release Date:
November-16

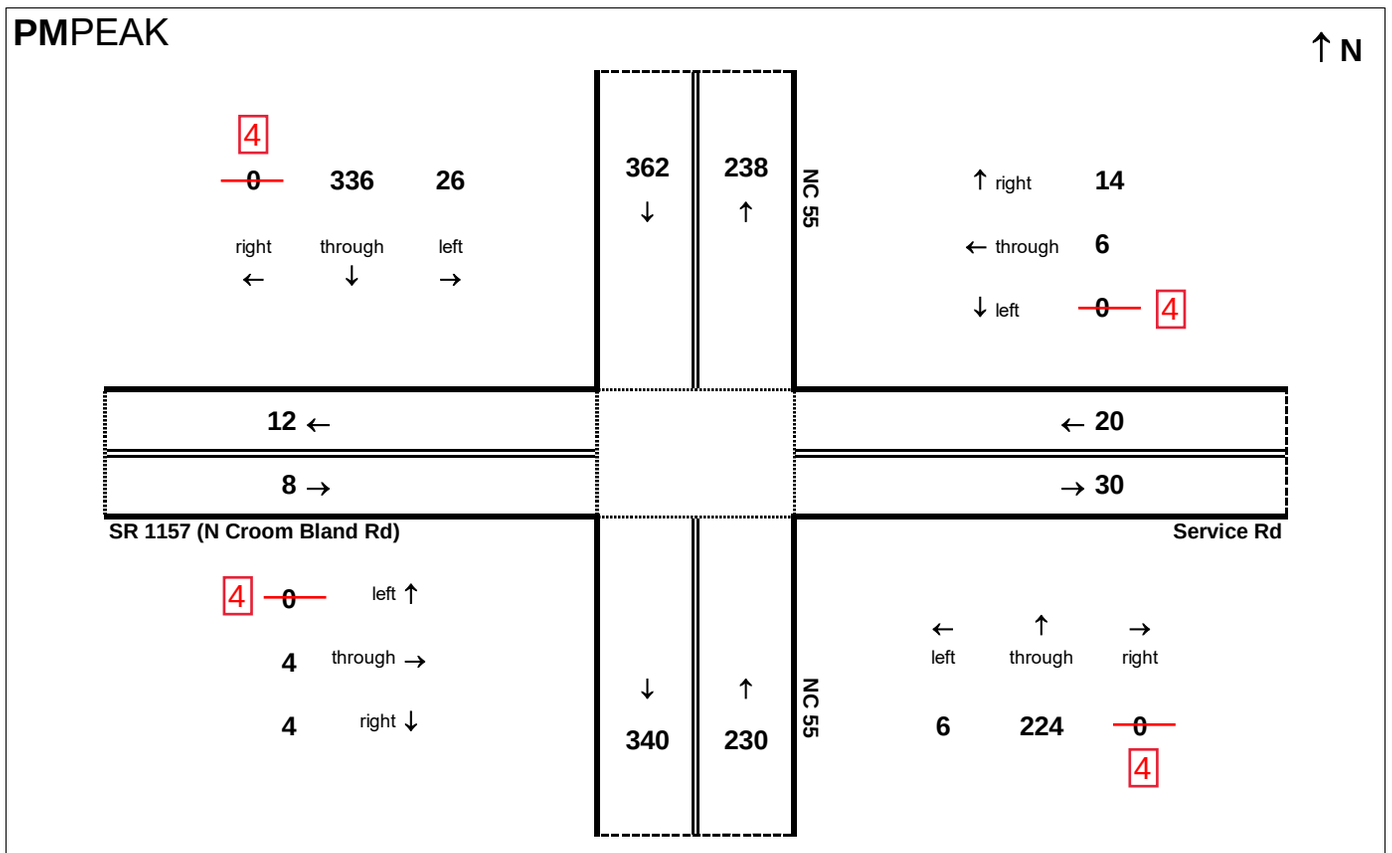
Traffic Data Year:
2040 Build Alt 51

Project:
R-2553

Note: 200 was used as the AADT for the west leg (N Croom Bland Rd) instead of the 100 shown in the traffic forecast in order to balance the intersection volumes.



AM peak hour inflow is 620 vehicles. AM peak hour outflow is 620 vehicles.



PM peak hour inflow is 620 vehicles. PM peak hour outflow is 620 vehicles.

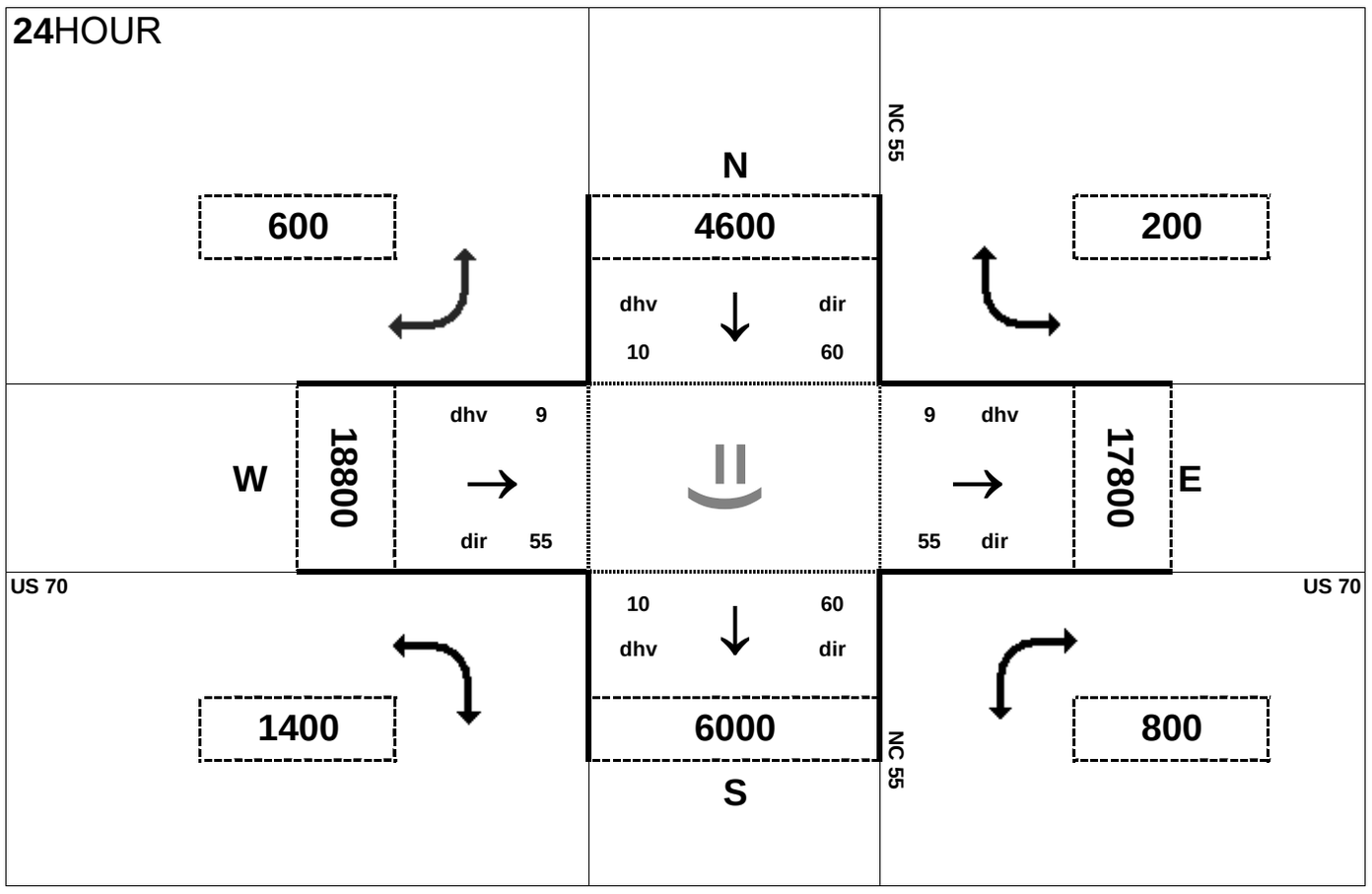
Peak Hour Volume Breakouts Report:
407-8 Intersection of US 70 and NC 55

Traffic Forecast Release Date:
November-16

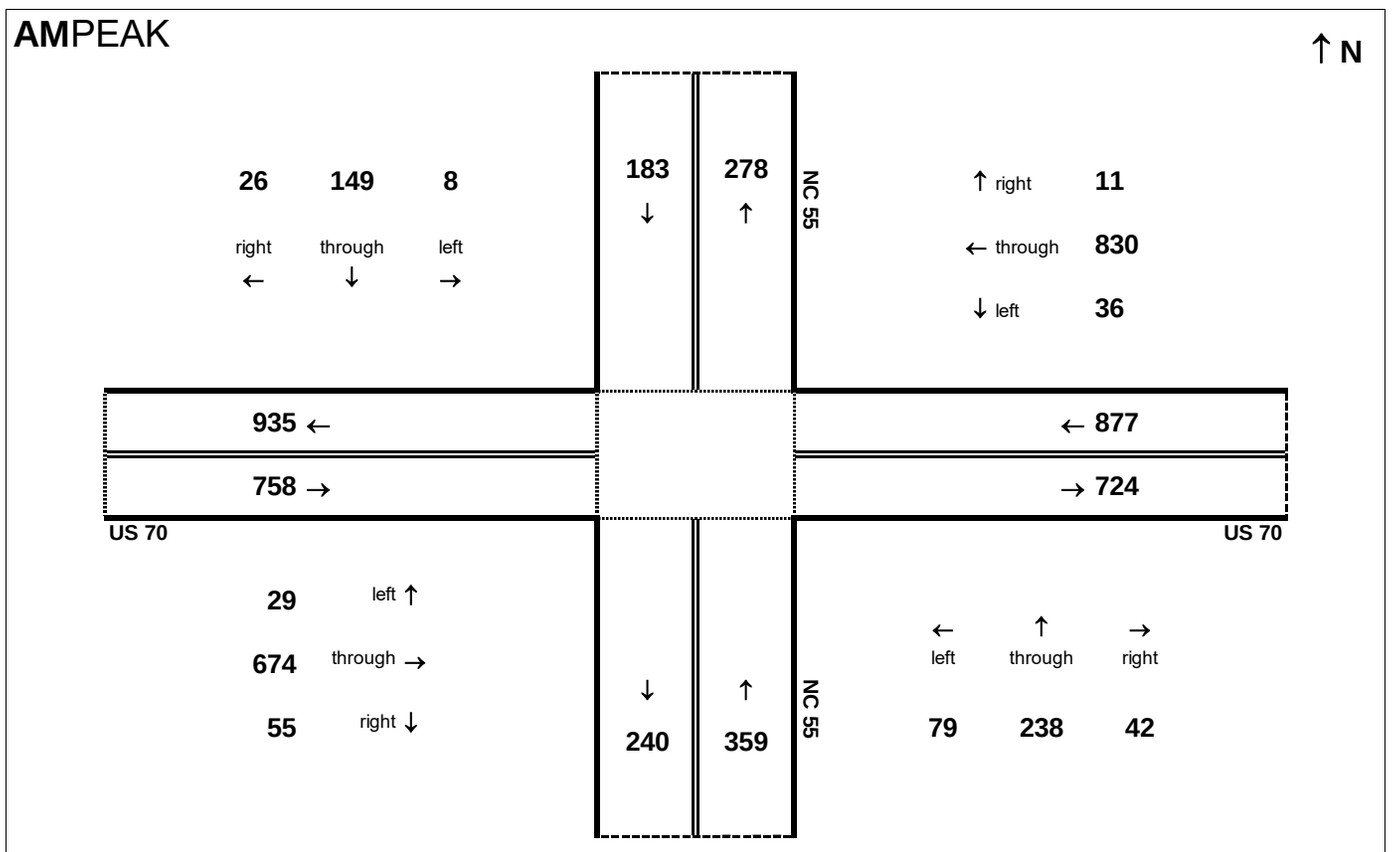
Traffic Data Year:
2040 Build Alt 51

Project:
R-2553

24HOUR

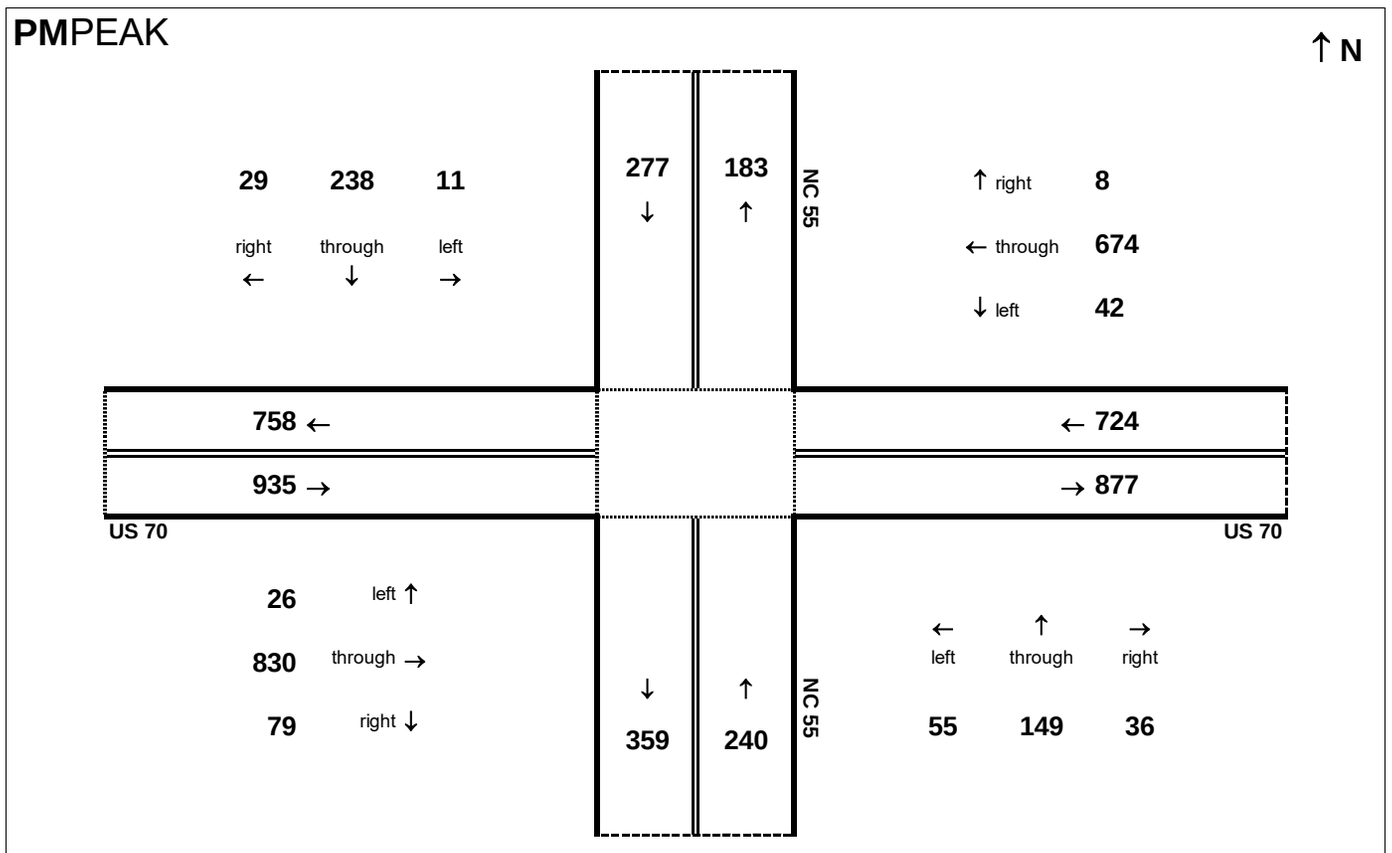


AMPEAK



AM peak hour inflow is 2176 vehicles. AM peak hour outflow is 2177 vehicles.

PMPEAK



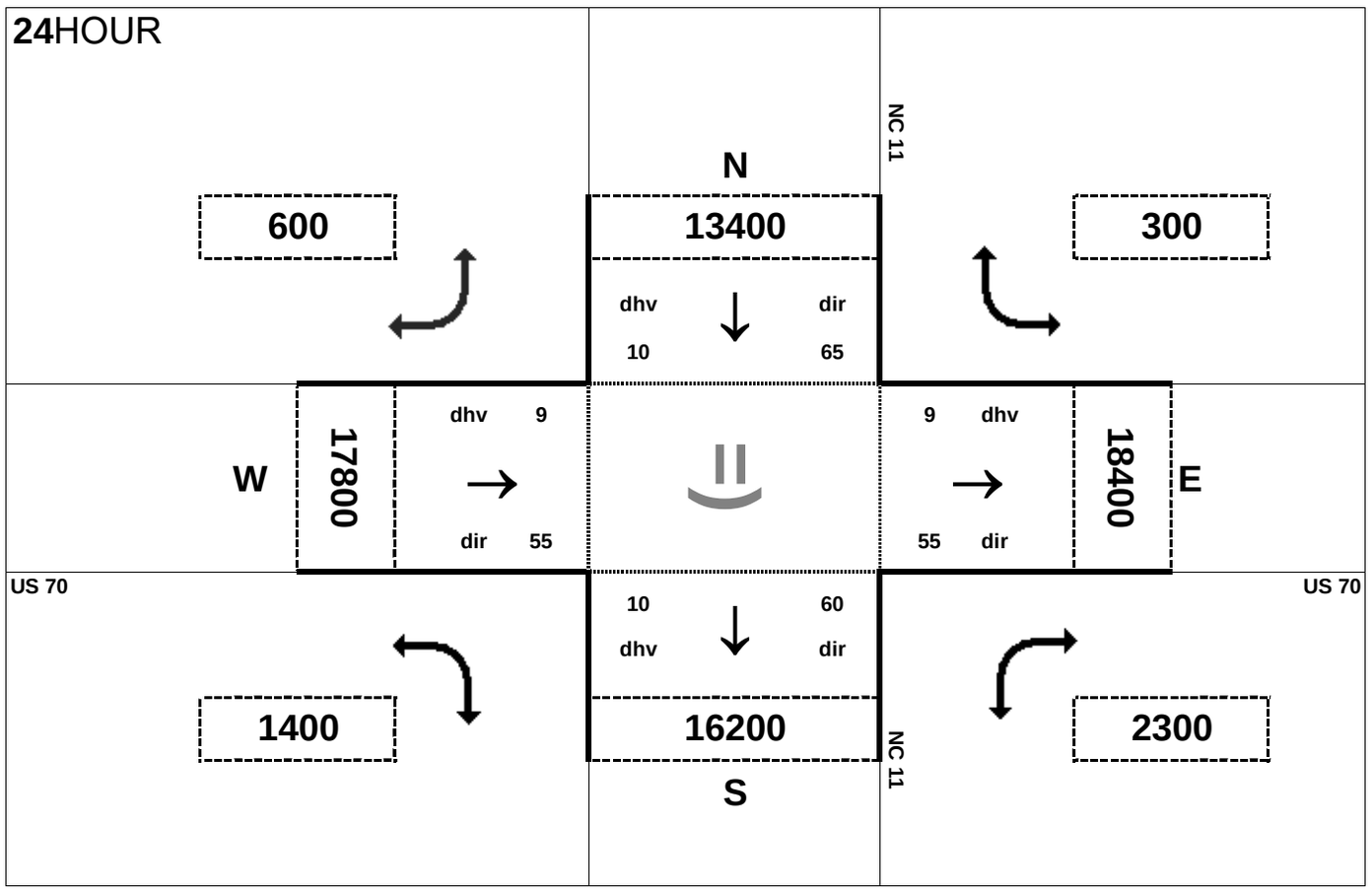
PM peak hour inflow is 2177 vehicles. PM peak hour outflow is 2176 vehicles.

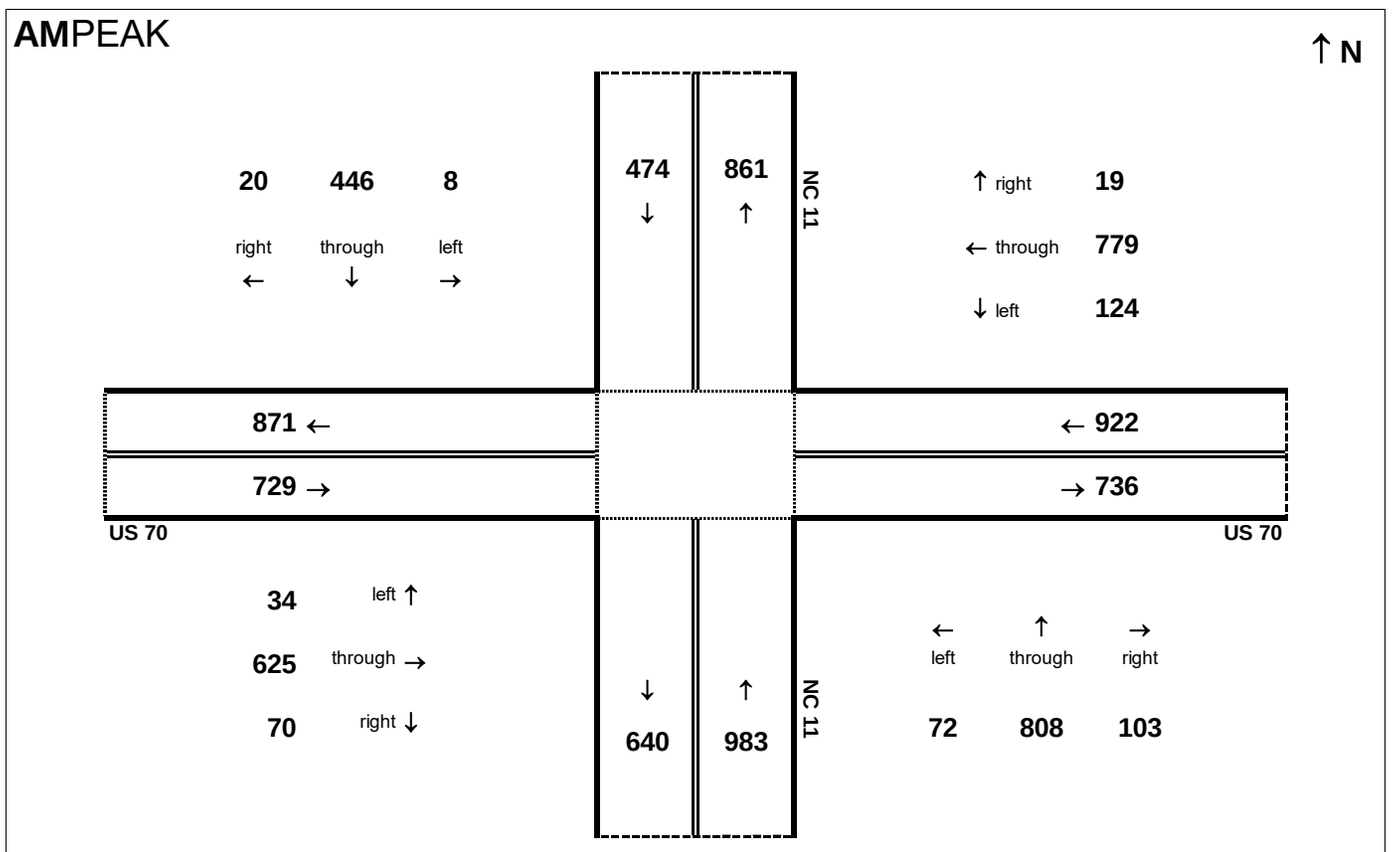
Peak Hour Volume Breakouts Report:
409-10 Intersection of US 70 at NC 11

Traffic Forecast Release Date:
November-16

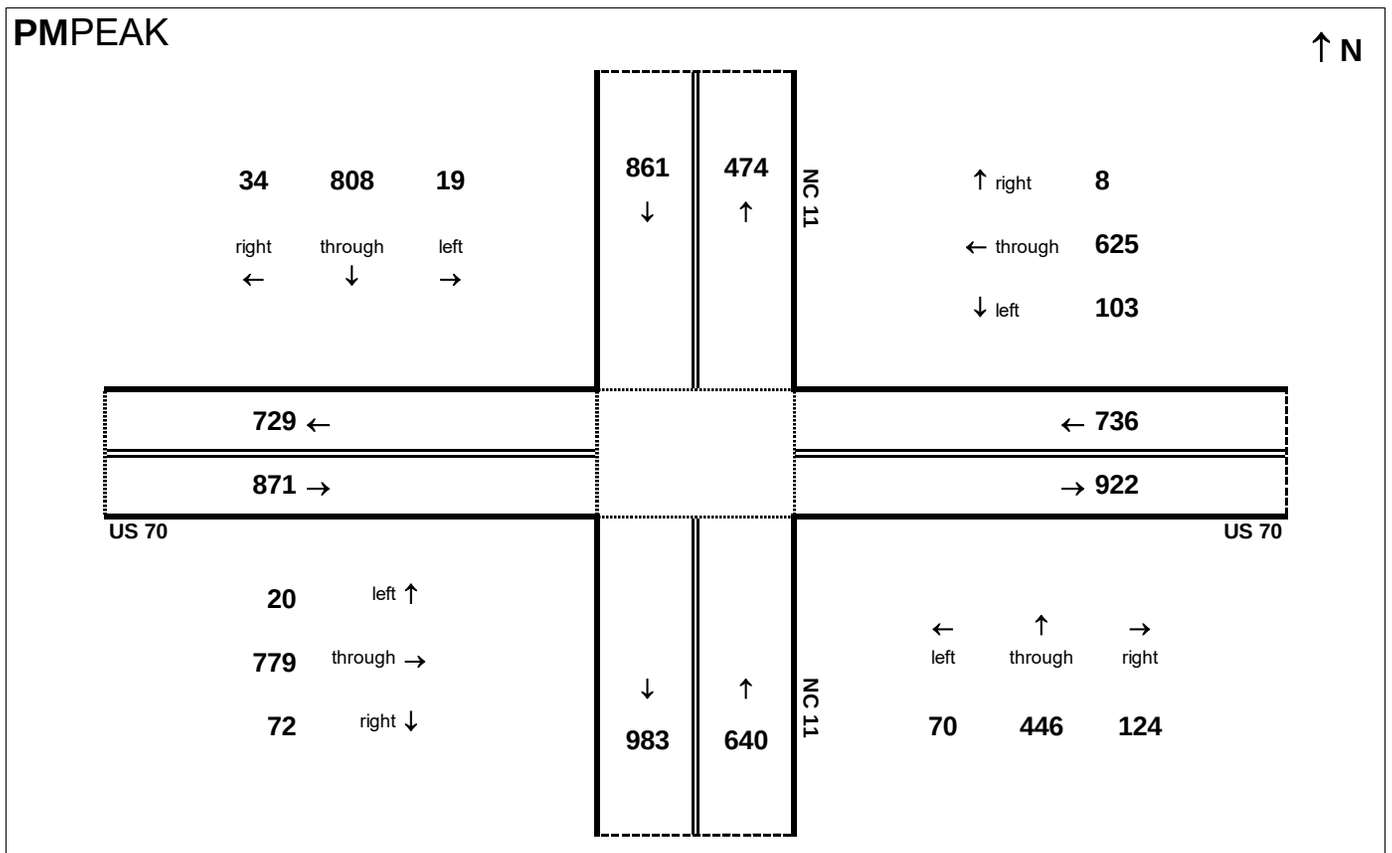
Traffic Data Year:
2040 Build Alt 51

Project:
R-2553





AM peak hour inflow is 3109 vehicles. AM peak hour outflow is 3110 vehicles.



PM peak hour inflow is 3110 vehicles. PM peak hour outflow is 3109 vehicles.

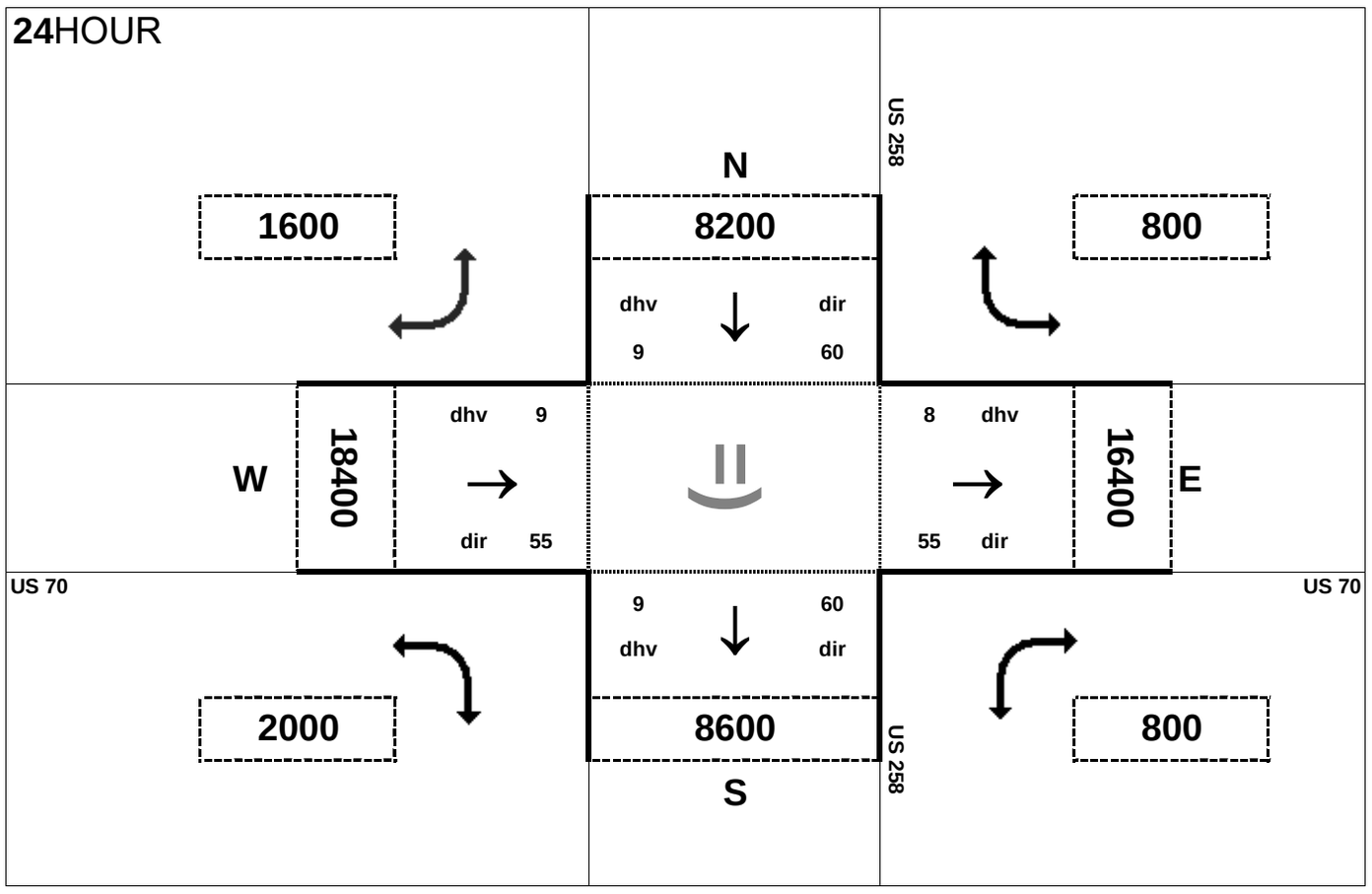
Peak Hour Volume Breakouts Report:
411-12 Intersection of US 70 and US 258

Traffic Forecast Release Date:
November-16

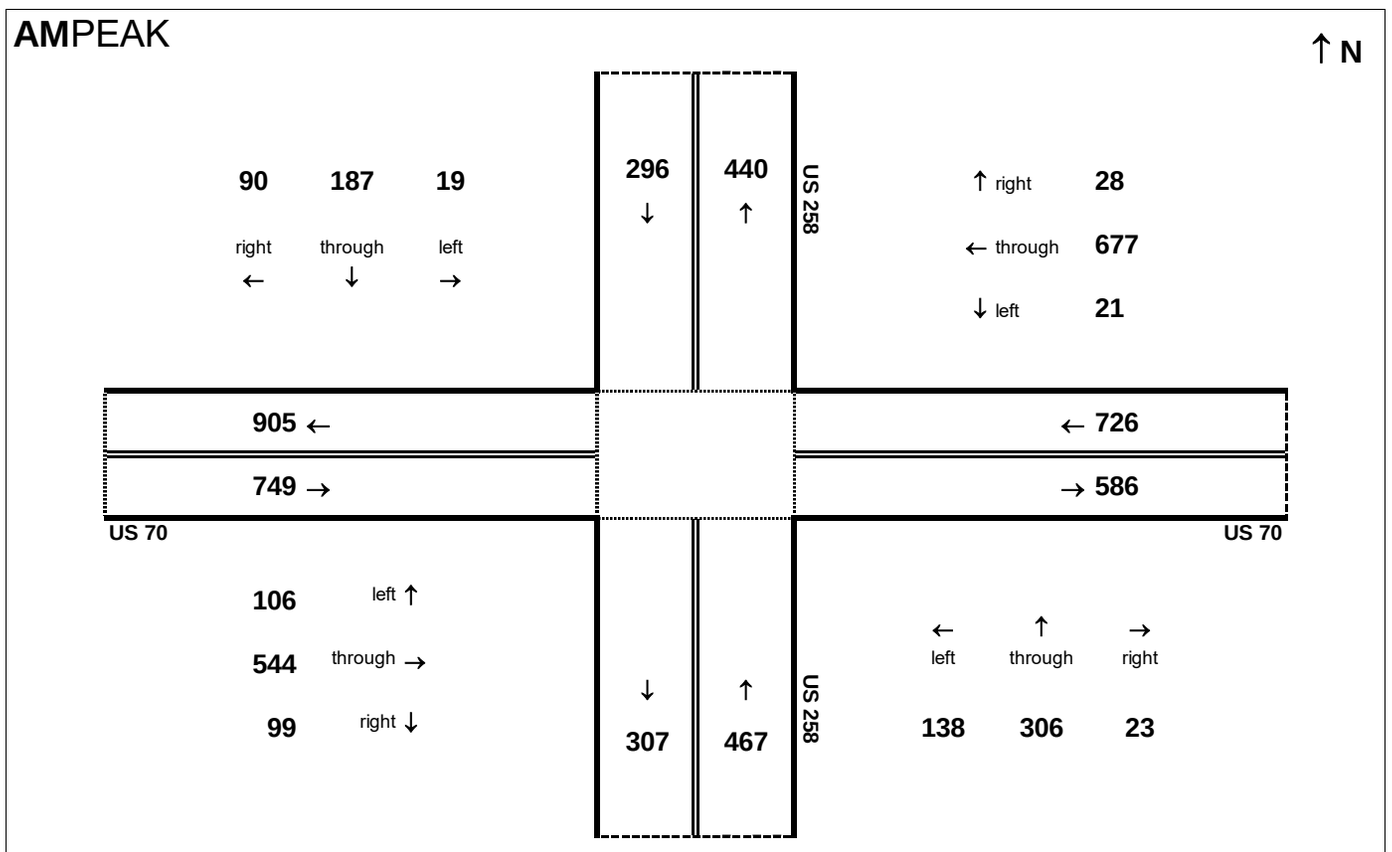
Traffic Data Year:
2040 Build Alt 51

Project:
R-2553

24HOUR

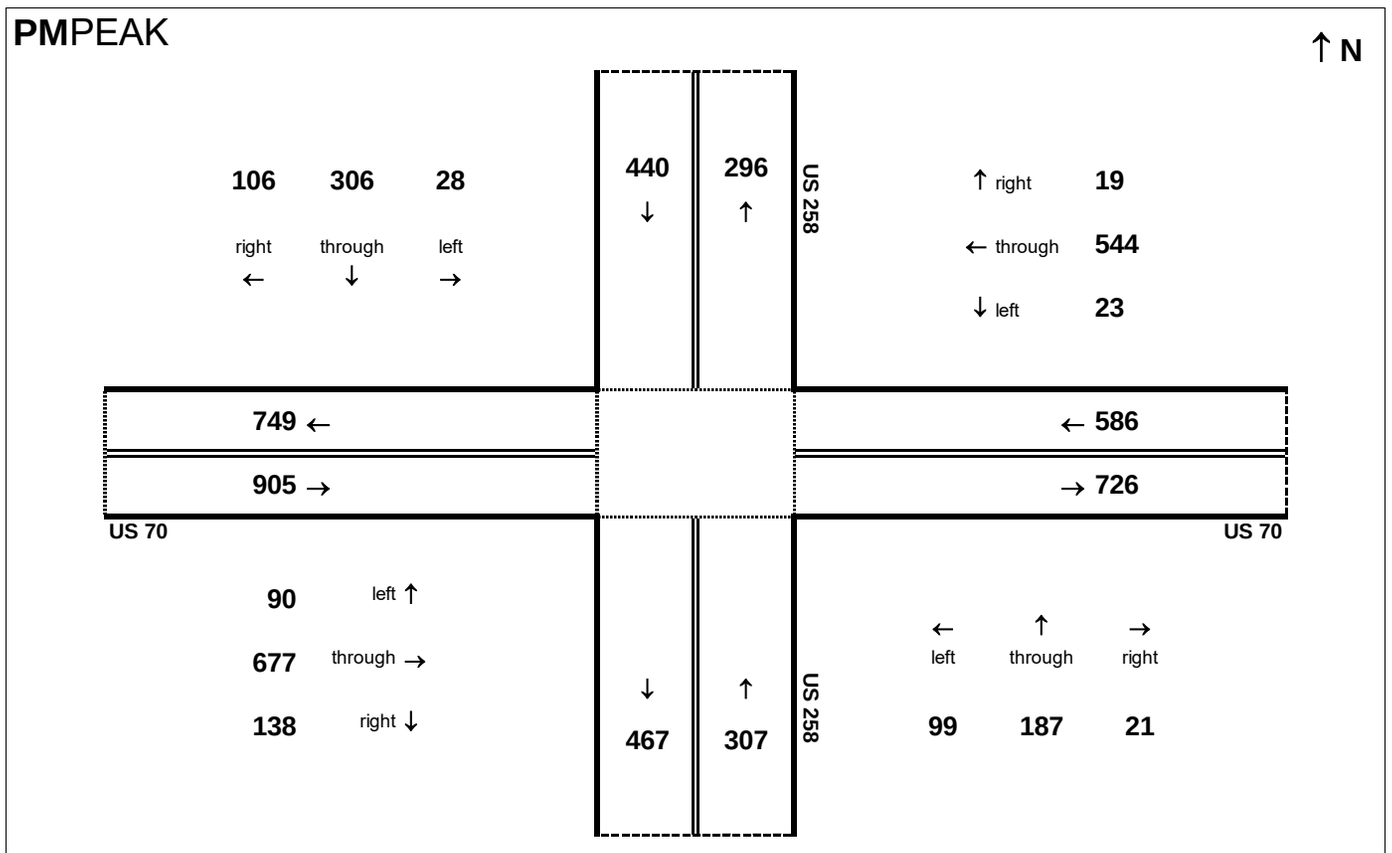


AMPEAK



AM peak hour inflow is 2240 vehicles. AM peak hour outflow is 2240 vehicles.

PMPEAK



PM peak hour inflow is 2240 vehicles. PM peak hour outflow is 2240 vehicles.

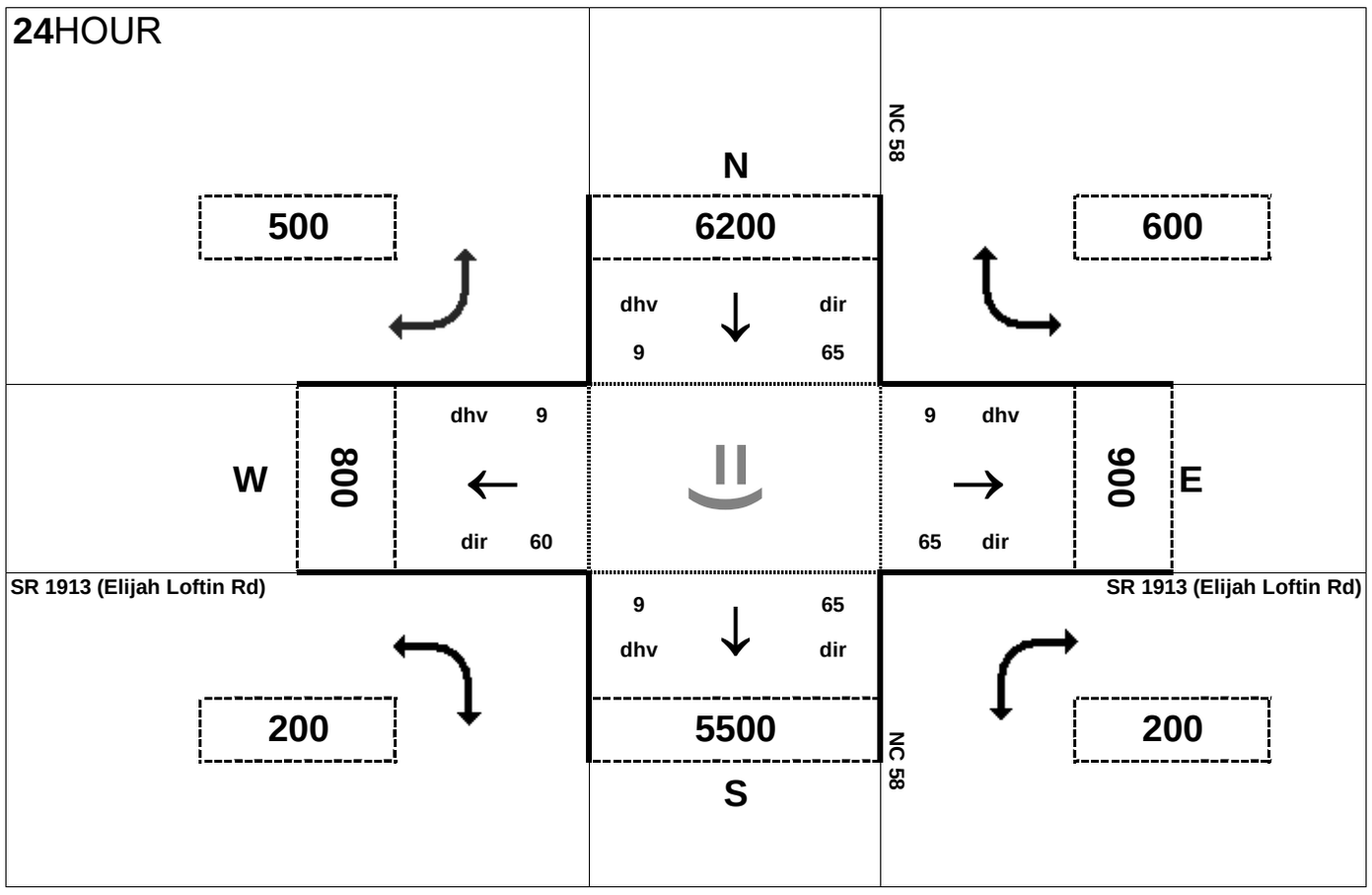
Peak Hour Volume Breakouts Report:
413 Intersection of NC 58 at SR 1913 (Elijah Loftin Rd)

Traffic Forecast Release Date:
November-16

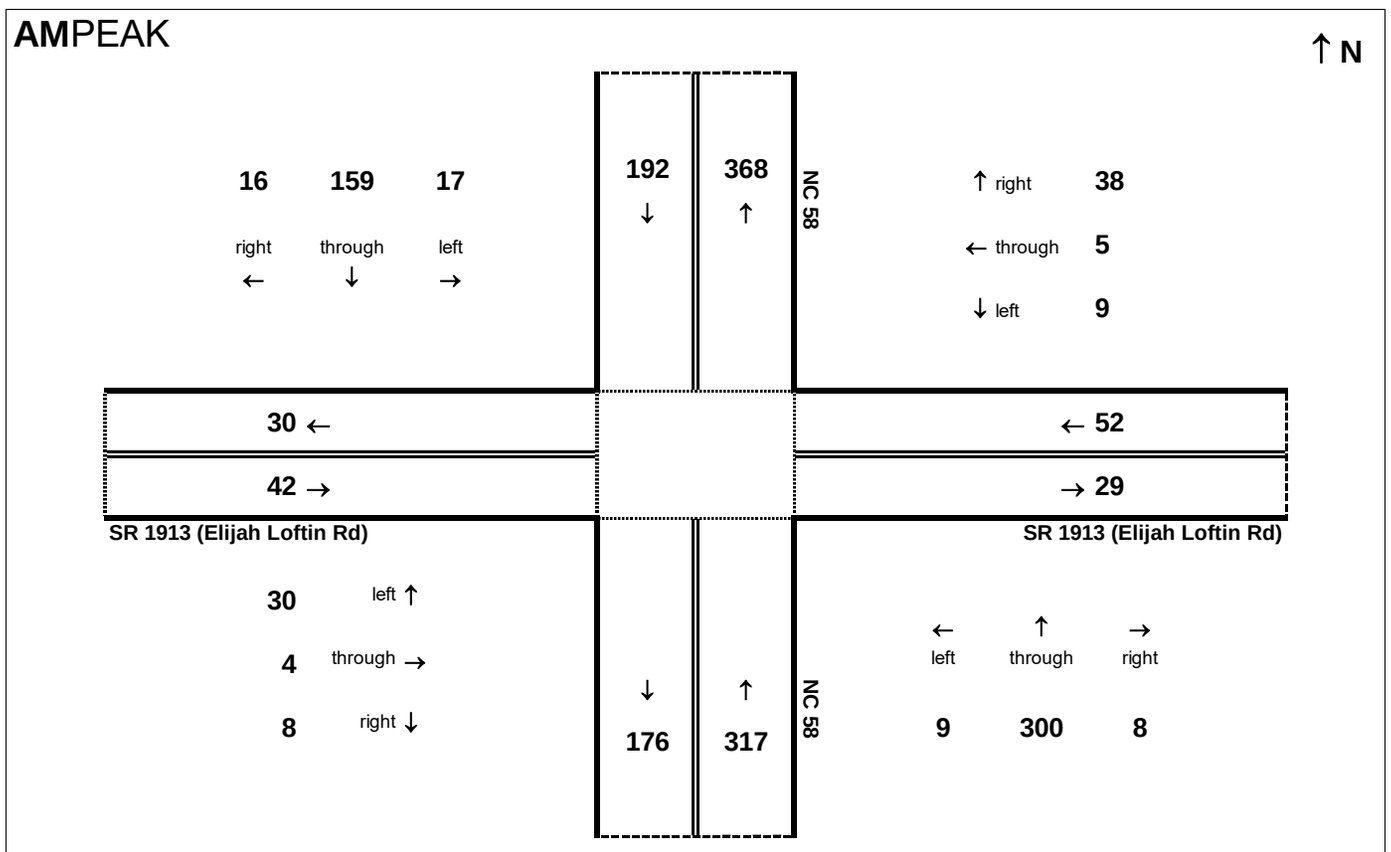
Traffic Data Year:
2040 Build Alt 51

Project:
R-2553

24HOUR

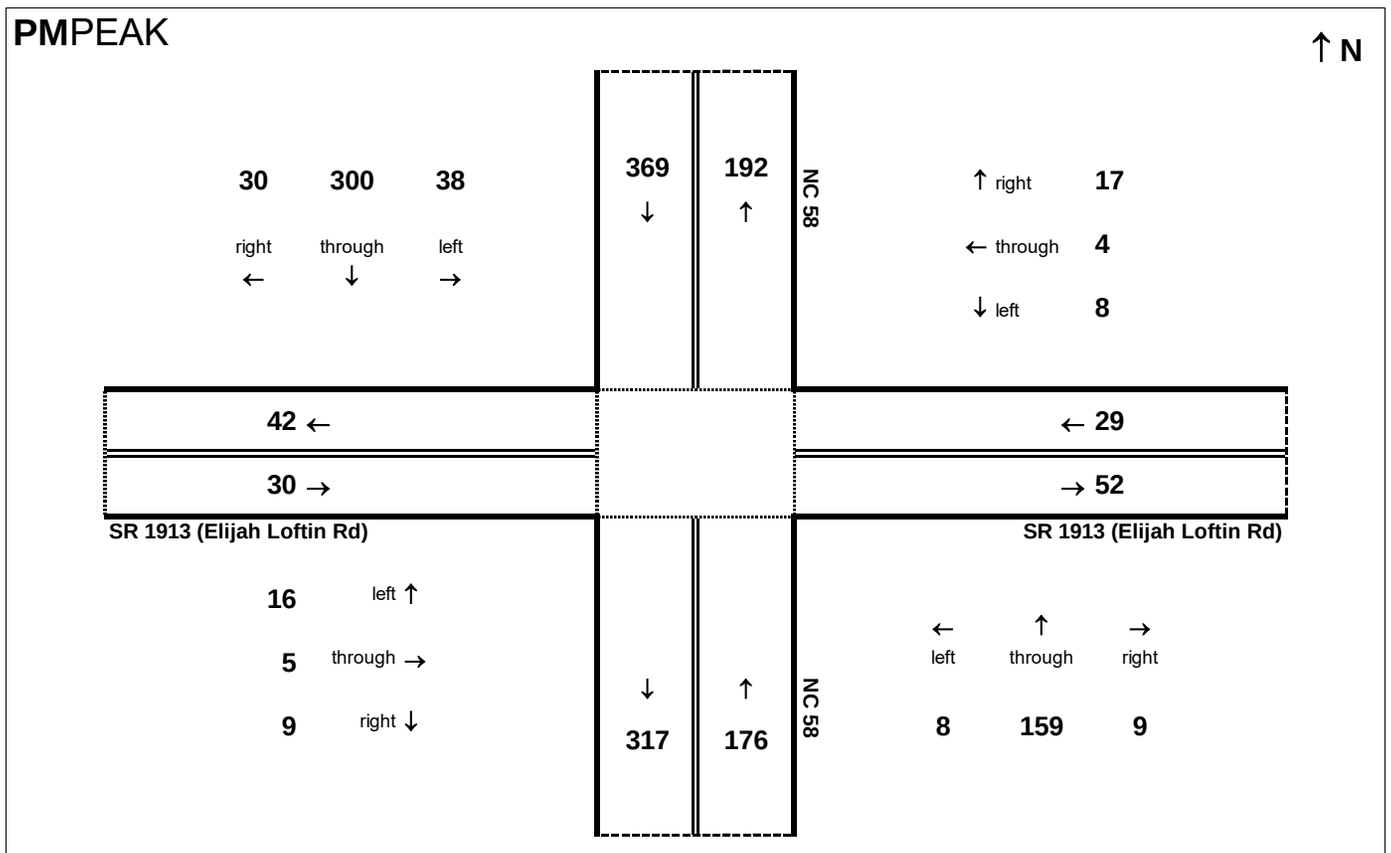


AMPEAK



AM peak hour inflow is 604 vehicles. AM peak hour outflow is 603 vehicles.

PMPEAK



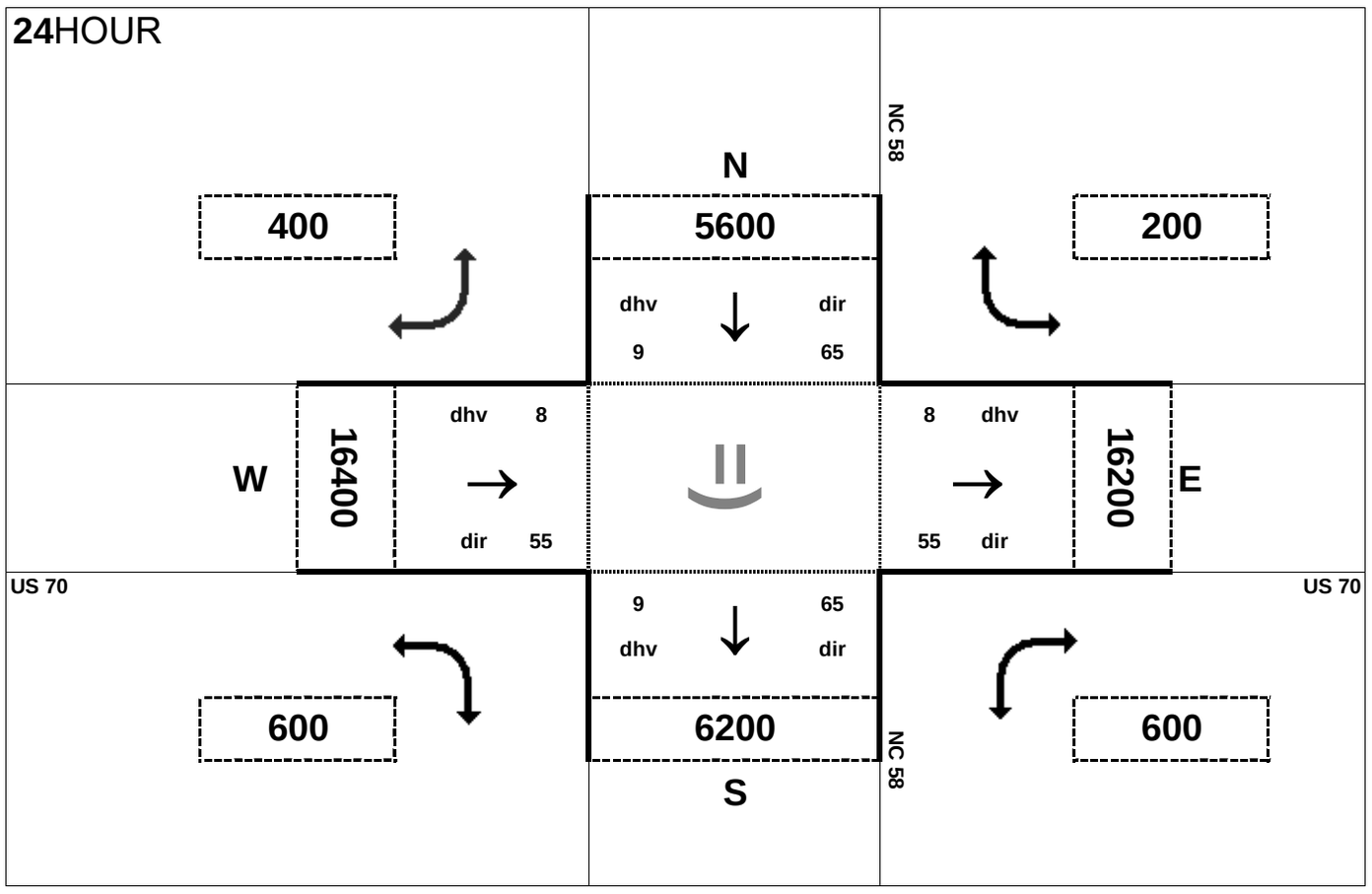
PM peak hour inflow is 603 vehicles. PM peak hour outflow is 604 vehicles.

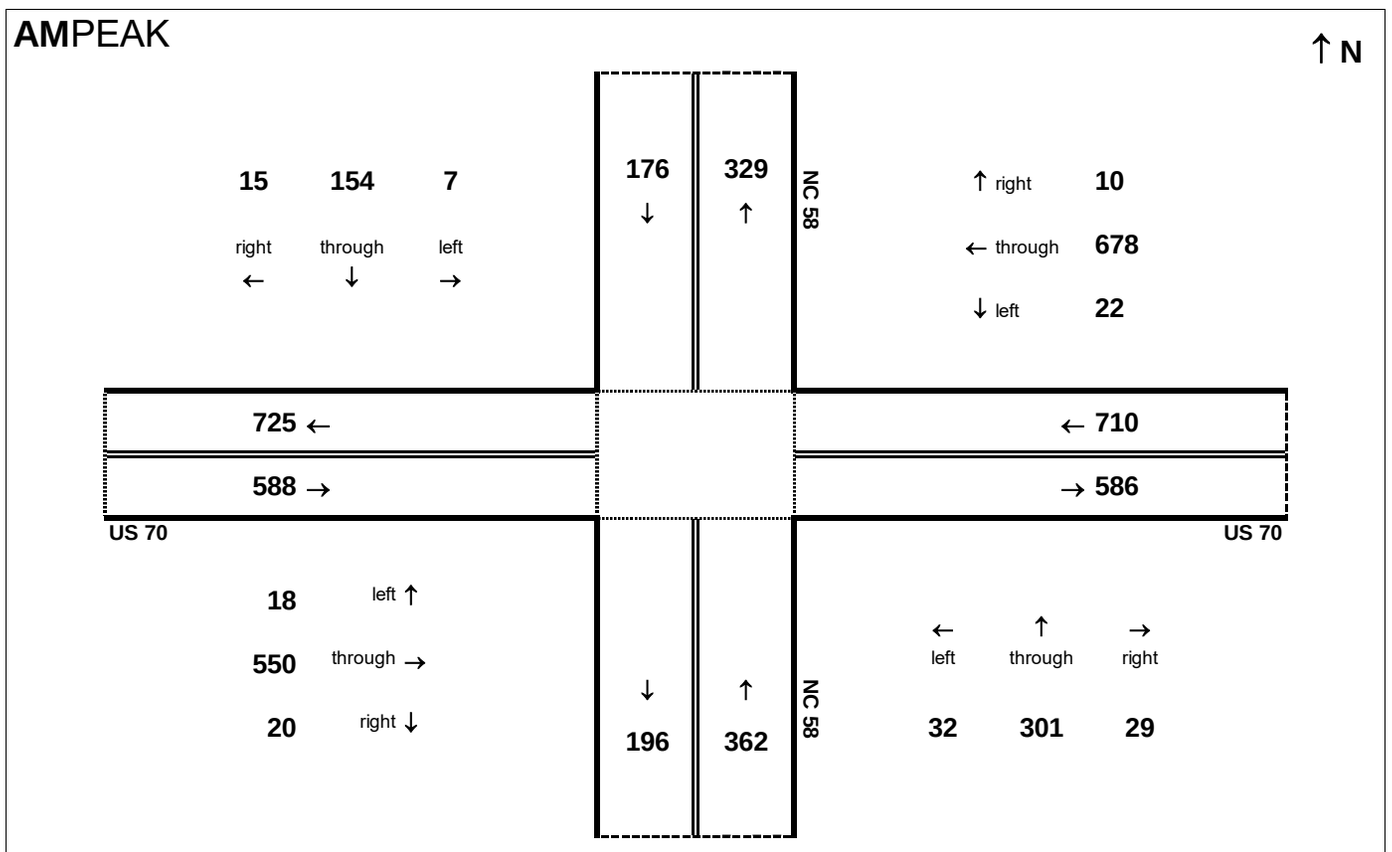
Peak Hour Volume Breakouts Report:
414-15 Intersection of US 70 at NC 58

Traffic Forecast Release Date:
November-16

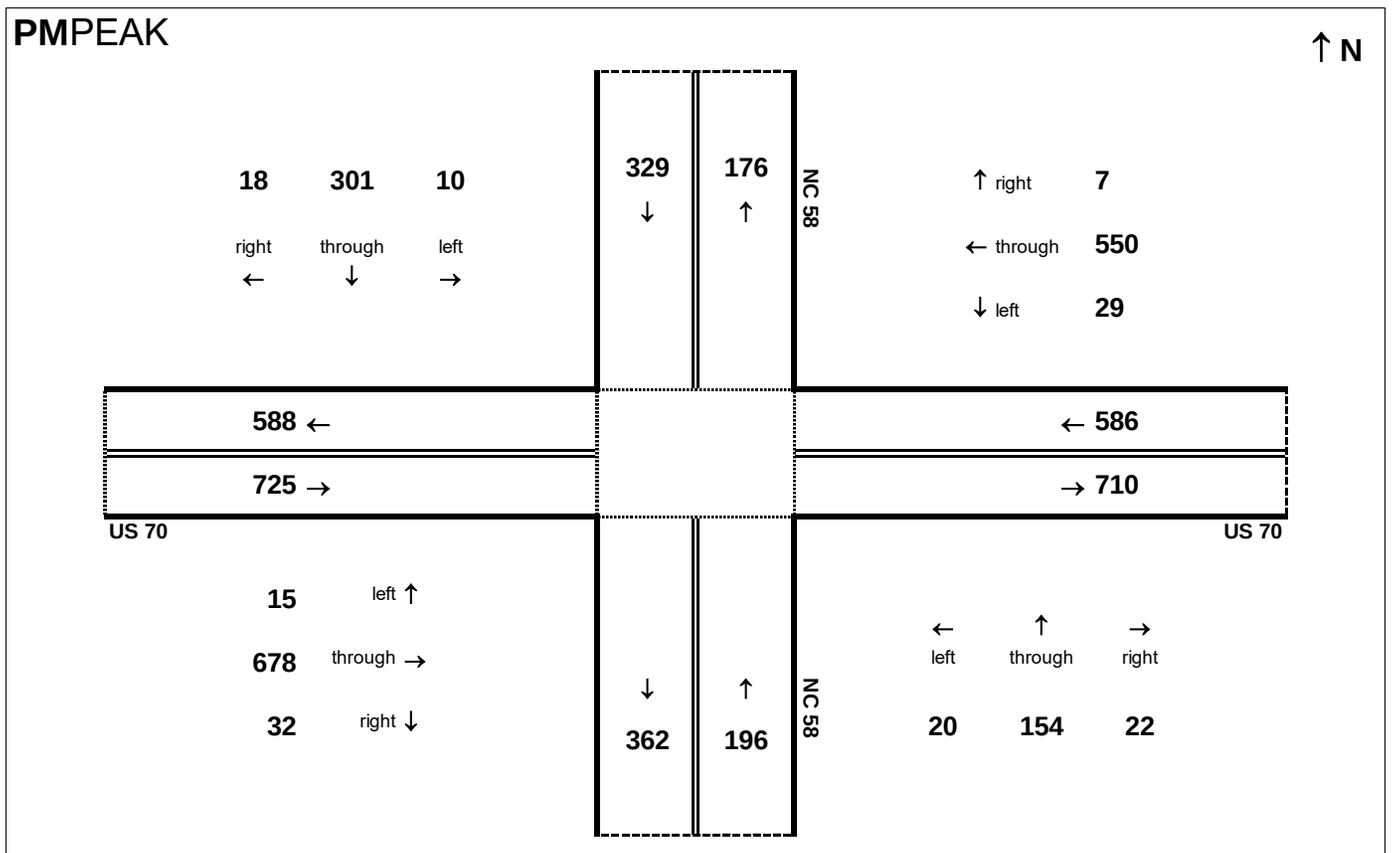
Traffic Data Year:
2040 Build Alt 51

Project:
R-2553





AM peak hour inflow is 1835 vehicles. AM peak hour outflow is 1835 vehicles.



PM peak hour inflow is 1835 vehicles. PM peak hour outflow is 1835 vehicles.

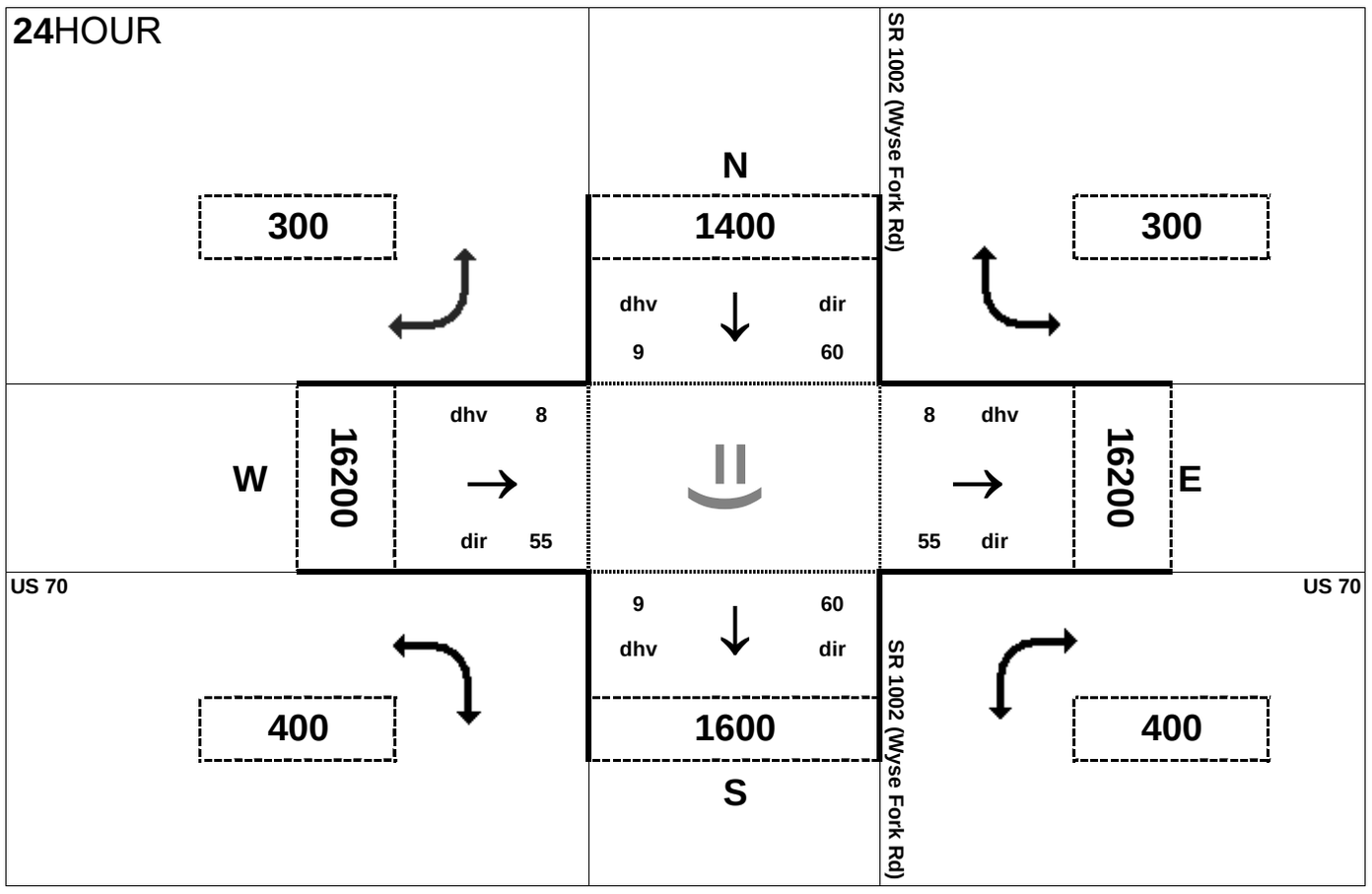
Peak Hour Volume Breakouts Report:
416-17 Intersection of US 70 at SR 1002 (Wyse Fork Rd)

Traffic Forecast Release Date:
November-16

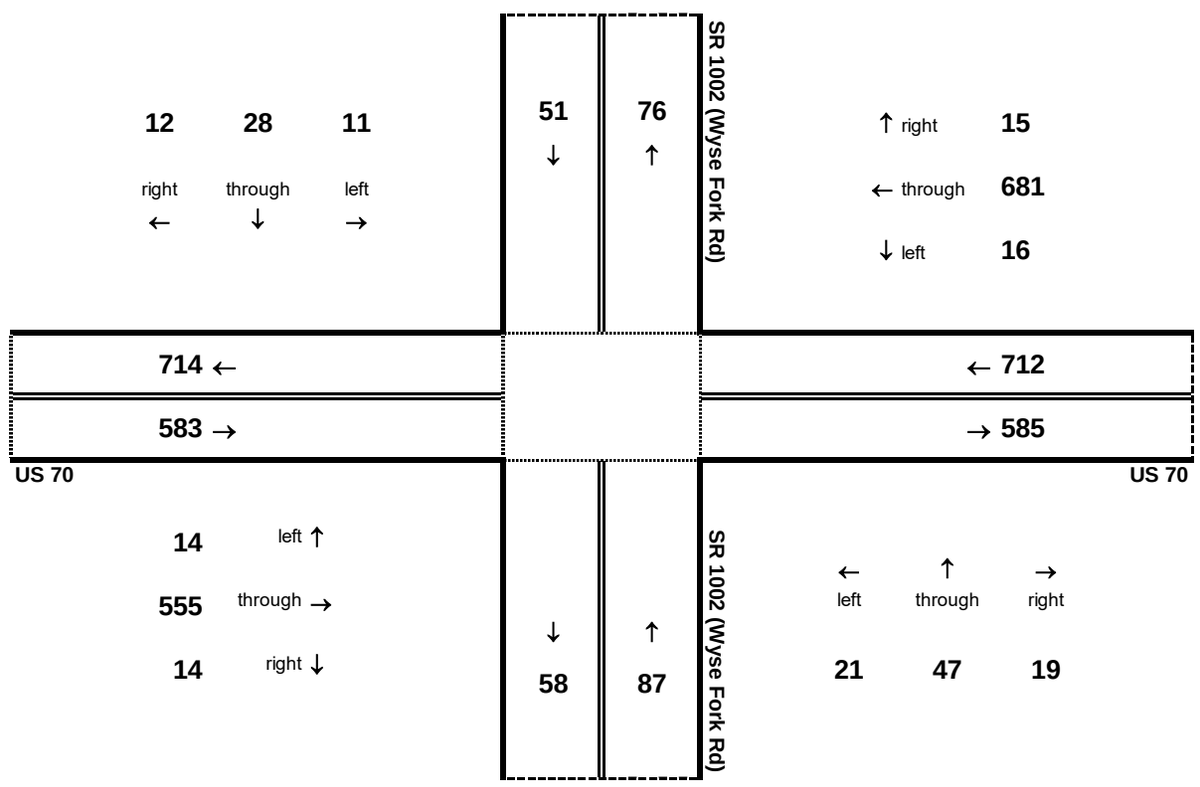
Traffic Data Year:
2040 Build Alt 51

Project:
R-2553

24HOUR

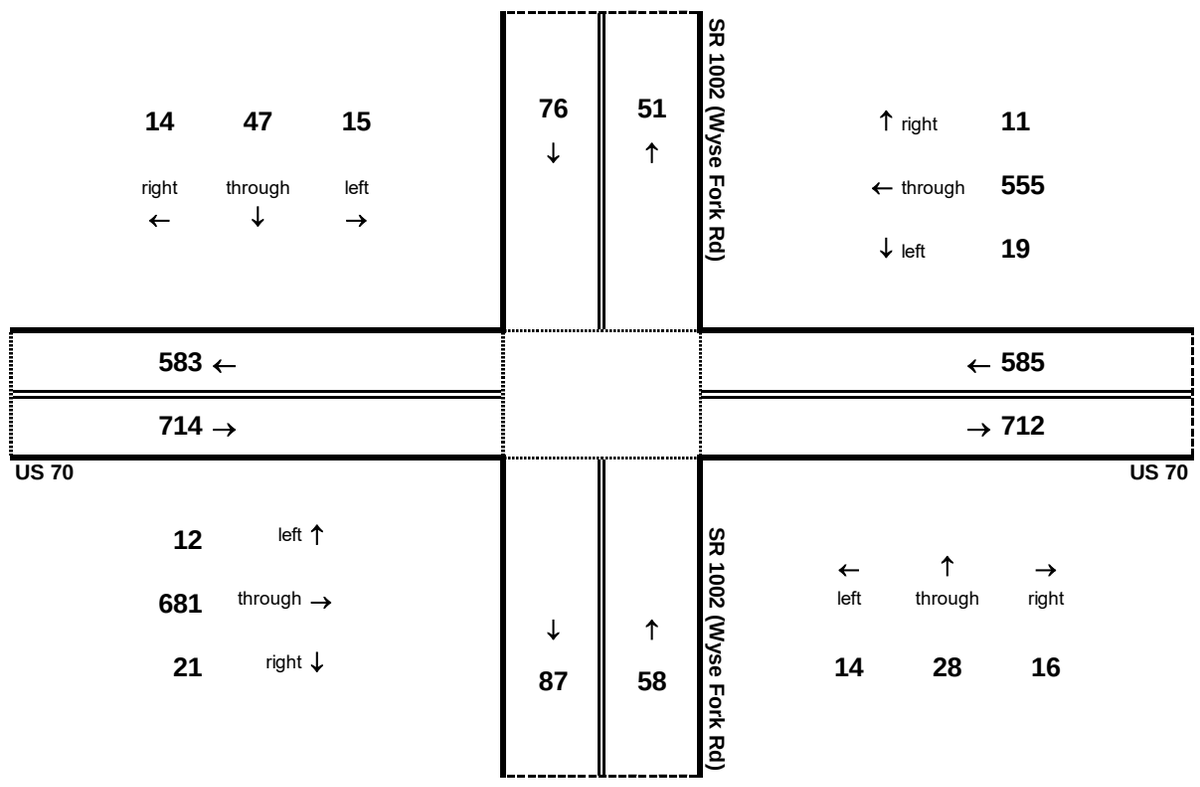


AMPEAK



AM peak hour inflow is 1430 vehicles. AM peak hour outflow is 1432 vehicles.

PMPEAK



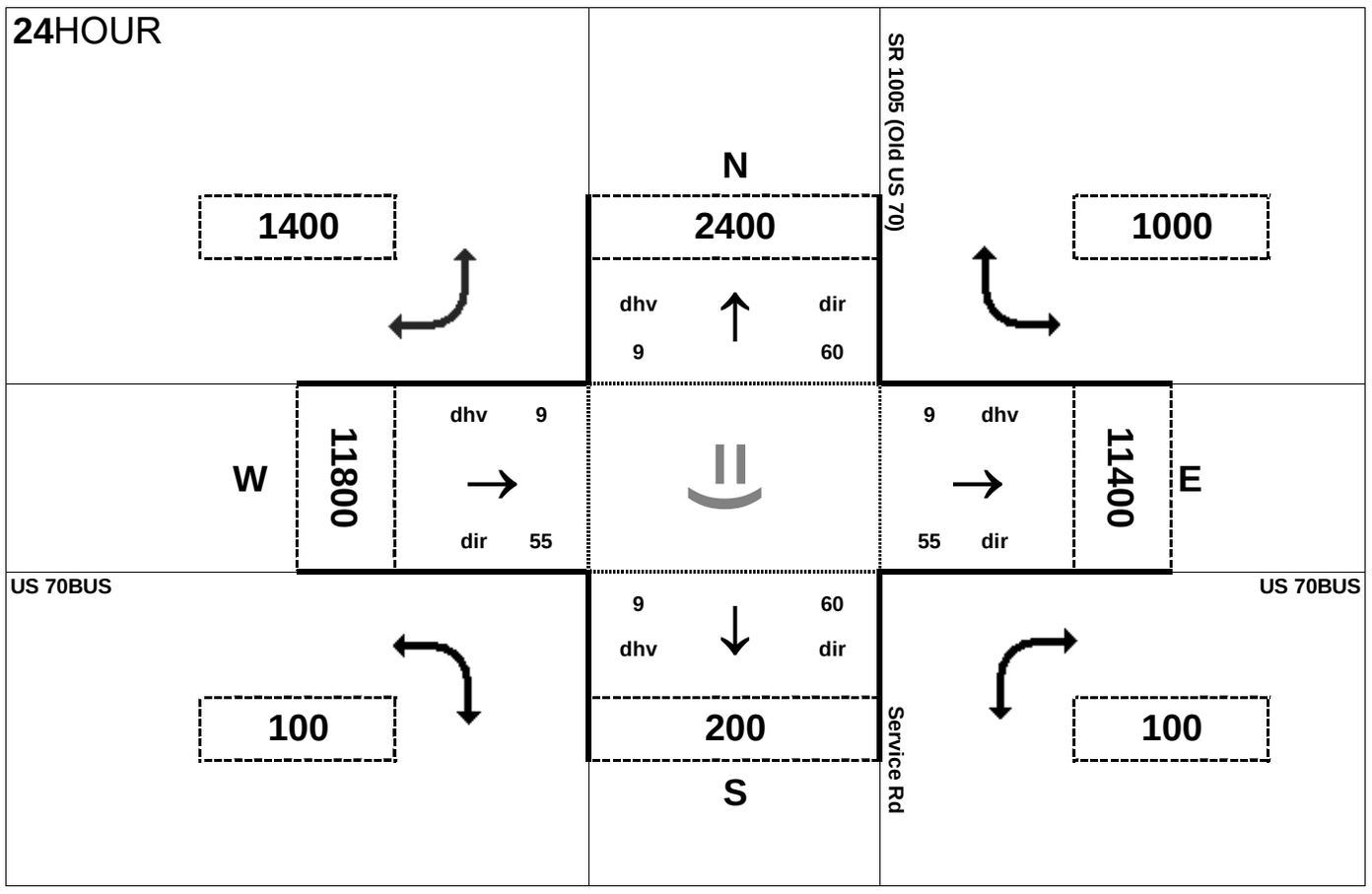
PM peak hour inflow is 1432 vehicles. PM peak hour outflow is 1431 vehicles.

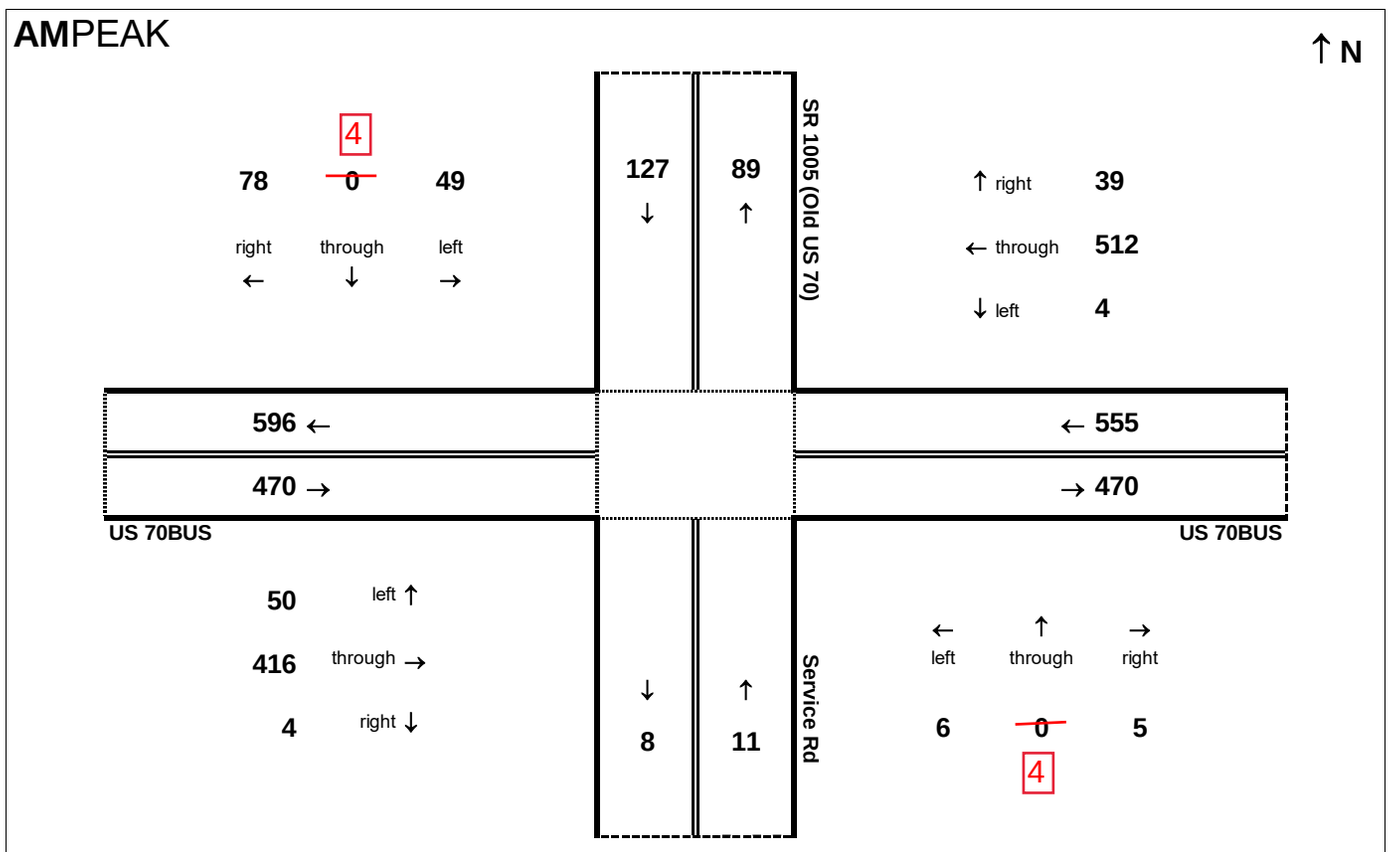
Peak Hour Volume Breakouts Report:
418 Intersection of US 70BUS and SR 1005 (Old US 70)

Traffic Forecast Release Date:
November-16

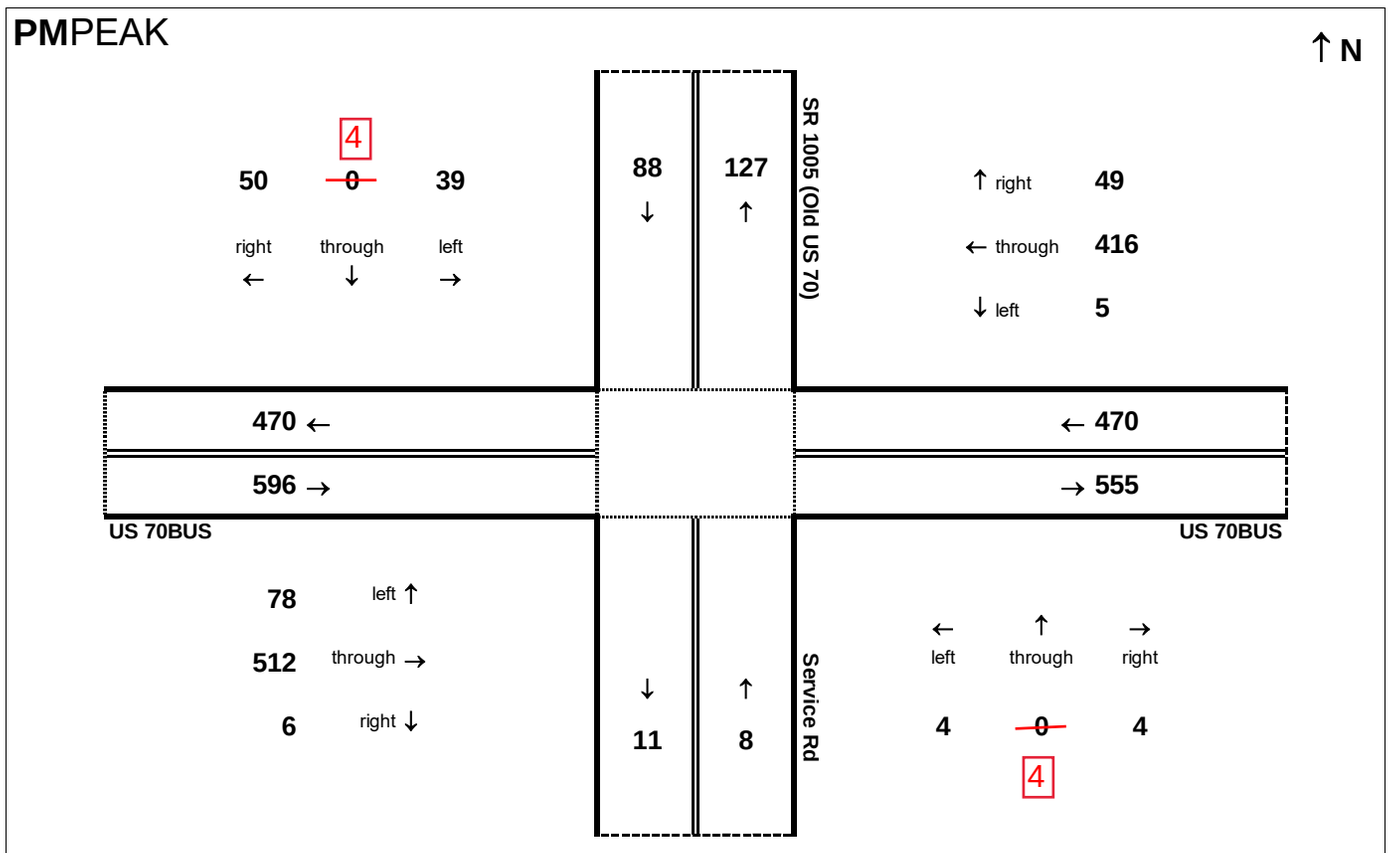
Traffic Data Year:
2040 Build Alt 51

Project:
R-2553





AM peak hour inflow is 1161 vehicles. AM peak hour outflow is 1160 vehicles.



PM peak hour inflow is 1160 vehicles. PM peak hour outflow is 1161 vehicles.

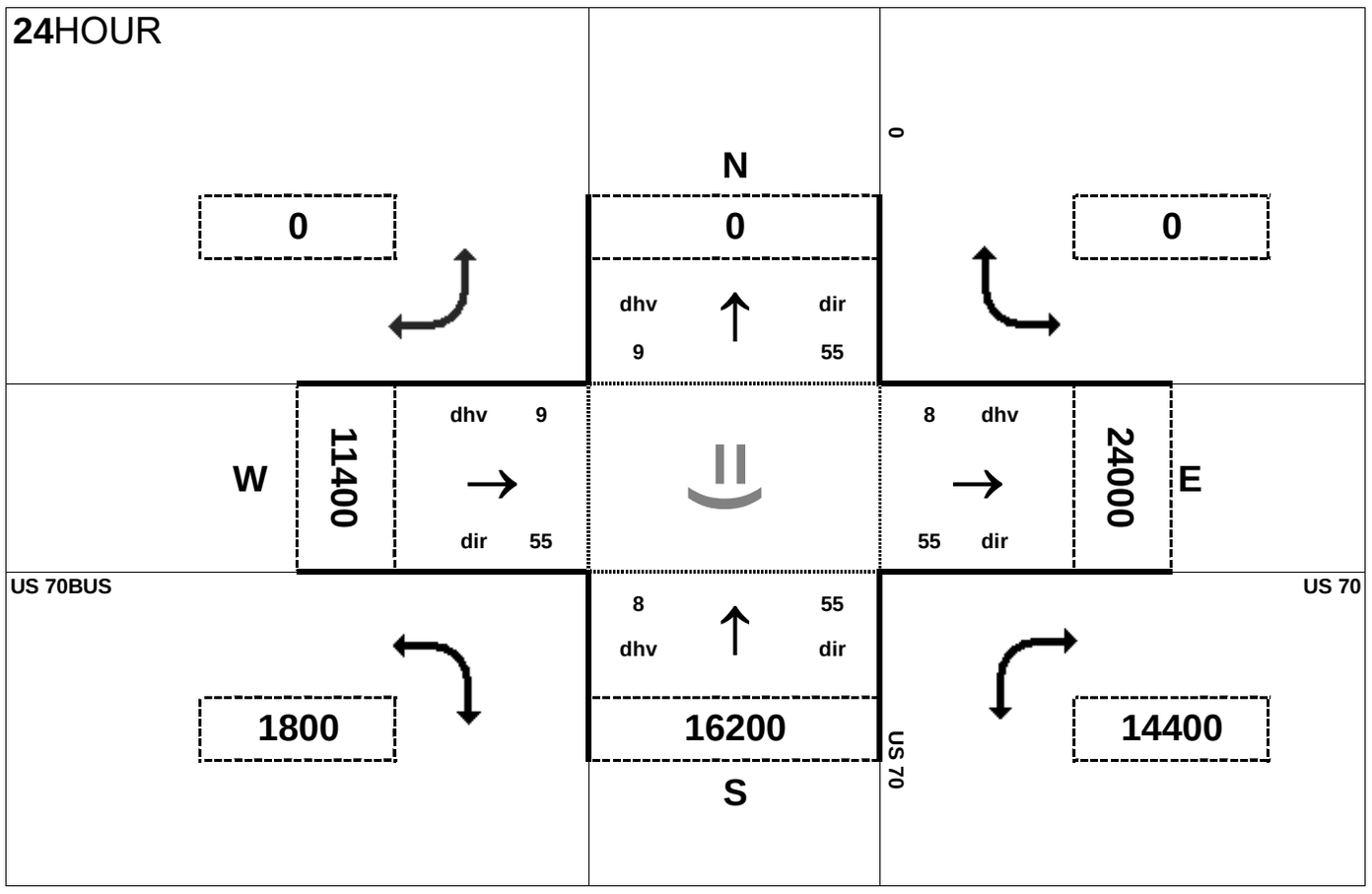
Peak Hour Volume Breakouts Report:
System 2 - Intersection of US 70 and US 70BUS (eastern interchange)

Traffic Forecast Release Date:
November-16

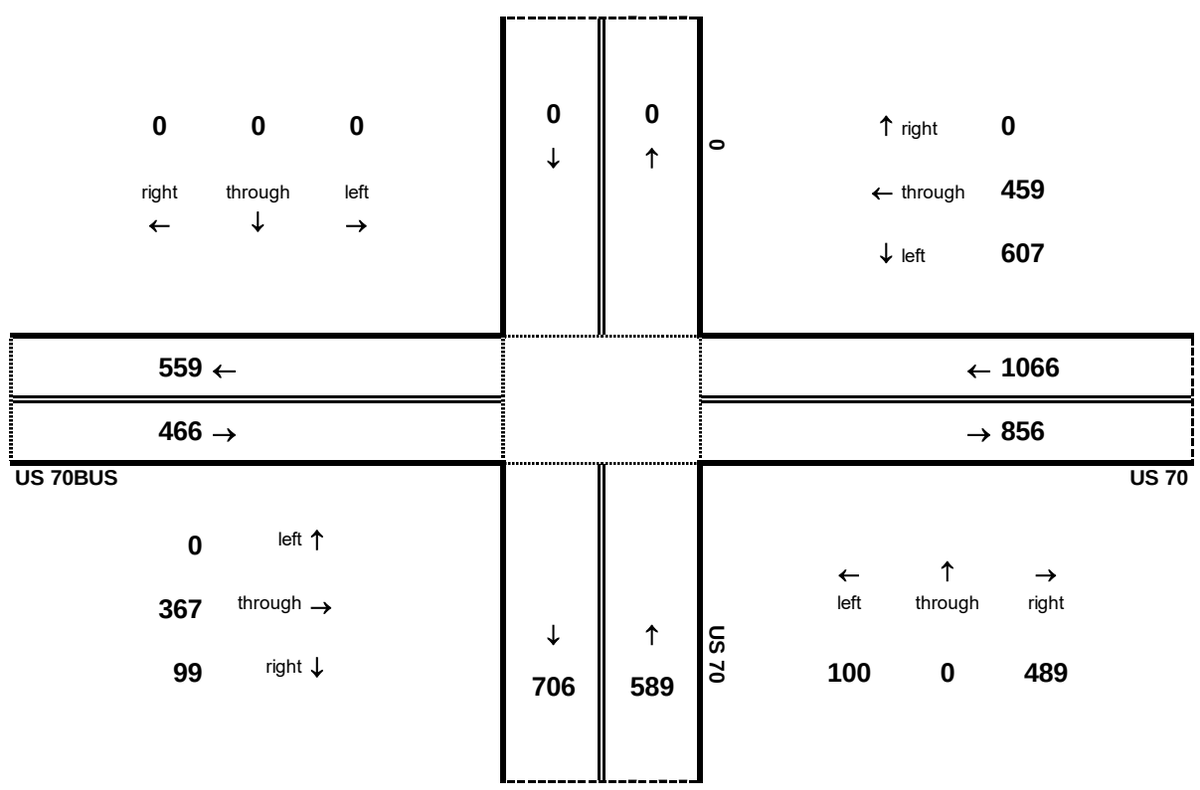
Traffic Data Year:
2040 Build Alt 51

Project:
R-2553

24HOUR

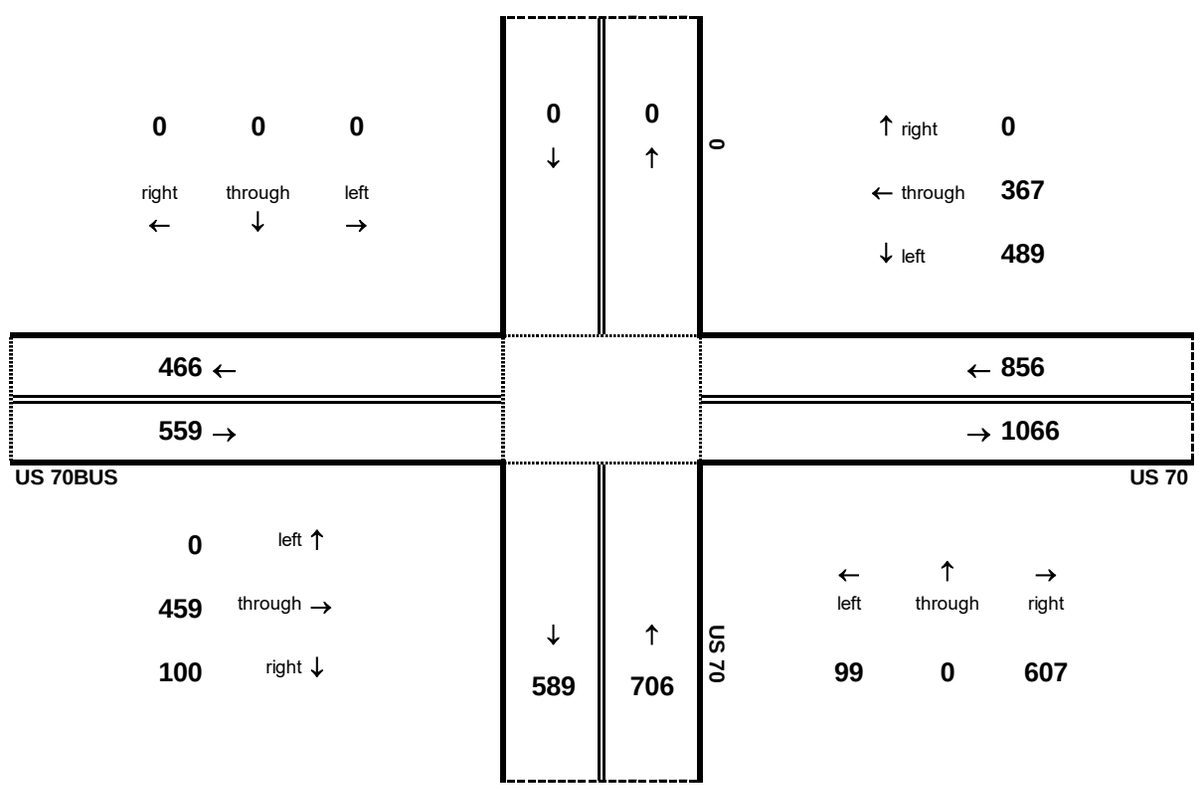


AMPEAK



AM peak hour inflow is 2121 vehicles. AM peak hour outflow is 2121 vehicles.

PMPEAK



PM peak hour inflow is 2121 vehicles. PM peak hour outflow is 2121 vehicles.

R-2553 Kinson Bypass
2040 Build Alternative 51
Step 1 - Calculating Basic Freeway Segment Volumes

Basic Freeway Segment Volumes - Eastbound							
Segment	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)	36,200	0.09	0.45	3,258	1,792	1,467
5E	US 70 EB - SR 1690 (Willie Measley Rd) to US 70BUS	39,200	0.09	0.45	3,528	1,941	1,588
9E	US 70 EB - US 70BUS to NC 55	18,800	0.09	0.55	1,692	762	931
13E	US 70 EB - NC 55 to NC 11	17,800	0.09	0.55	1,602	721	882
17E	US 70 EB - NC 11 to US 258	18,400	0.09	0.55	1,656	746	911
21E	US 70 EB - US 258 to NC 58	16,400	0.08	0.55	1,312	591	722
25E	US 70 EB - NC 58 to SR 1002 (Wyse Fork Rd)	16,200	0.08	0.55	1,296	584	713
29E	US 70 EB - SR 1002 (Wyse Fork Rd) to US 70BUS	16,200	0.08	0.55	1,296	584	713
33E	US 70 EB - East of US 70BUS	24,000	0.08	0.55	1,920	864	1,056

Basic Freeway Segment Volumes - Westbound							
Segment	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1W	US 70 WB - East of US 70BUS	24,000	0.08	0.45	1,920	1,056	864
5W	US 70 WB - SR 1002 (Wyse Fork Rd) to US 70BUS	16,200	0.08	0.45	1,296	713	584
9W	US 70 WB - NC 58 to SR 1002 (Wyse Fork Rd)	16,200	0.08	0.45	1,296	713	584
13W	US 70 WB - US 258 to NC 58	16,400	0.08	0.45	1,312	722	591
17W	US 70 WB - NC 11 to US 258	18,400	0.09	0.45	1,656	911	746
21W	US 70 WB - NC 55 to NC 11	17,800	0.09	0.45	1,602	882	721
25W	US 70 WB - US 70BUS to NC 55	18,800	0.09	0.45	1,692	931	762
29W	US 70 WB - SR 1690 (Willie Measley Rd) to US 70BUS	39,200	0.09	0.55	3,528	1,588	1,941
33W	US 70 WB - West of SR 1690 (Willie Measley Rd)	36,200	0.09	0.55	3,258	1,467	1,792

R-2553 Kinson Bypass

2040 Build Alternative 51

Step 2 - Compiling Ramp Volumes

Ramp Volumes								
	EB Exit		WB Entrance		EB Entrance		WB Exit	
Description	AM	PM	AM	PM	AM	PM	AM	PM
US 70 at SR 1690 (Willie Measley Rd)	177	196	196	177	377	276	276	377
US 70 at US70BUS (western)	1,160	751	751	1,160	27	50	49	28
US 70 at NC 55	84	105	105	84	50	47	47	50
US 70 at NC 11	104	92	92	104	111	143	143	111
US 70at US 258	205	228	228	205	42	49	49	42
US 70 at NC 58	38	47	47	38	36	32	32	36
US 70 at SR 1002 (Wyse Fork Rd)	28	33	33	28	30	31	31	30
US 70 at US 70BUS (eastern)	100	99	99	100	367	459	459	367

R-2553 Kinson Bypass
2040 Build Alternative 51
Step 3 - Adjusting All Segment Volumes

Eastbound Adjusted Segment Volumes						
Segment	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)	0.9	1,792	1,467	1,991	1,630
2E	US 70 EB - to SR 1690 (Willie Measley Rd)	0.9	177	196	197	218
4E	US 70 EB - from SR 1690 (Willie Measley Rd)	0.9	377	276	419	306
5E	US 70 EB - SR 1690 (Willie Measley Rd) to US 70BUS	0.9	1,941	1,588	2,157	1,764
6E	US 70 EB - to US70BUS (western int)	0.9	1,160	751	1,289	834
8E	US 70 EB - from US70BUS (western int)	0.9	27	50	30	56
9E	US 70 EB - US 70BUS to NC 55	0.9	762	931	847	1,034
10E	US 70 EB - to NC 55	0.9	84	105	93	117
12E	US 70 EB - from NC 55	0.9	50	47	56	52
13E	US 70 EB - NC 55 to NC 11	0.9	721	882	801	980
14E	US 70 EB - to NC 11	0.9	104	92	116	102
16E	US 70 EB - from NC 11	0.9	111	143	123	158
17E	US 70 EB - NC 11 to US 258	0.9	746	911	829	1,012
18E	US 70 EB - to US 258	0.9	205	228	228	253
20E	US 70 EB - from US 258	0.9	42	49	47	54
21E	US 70 EB - US 258 to NC 58	0.9	591	722	657	802
22E	US 70 EB - to NC 58	0.9	38	47	42	52
24E	US 70 EB - from NC 58	0.9	36	32	40	36
25E	US 70 EB - NC 58 to SR 1002 (Wyse Fork Rd)	0.9	584	713	649	792
26E	US 70 EB - to SR 1002 (Wyse Ford Rd)	0.9	28	33	31	37
28E	US 70 EB - from SR 1002 (Wyse Ford Rd)	0.9	30	31	33	34
29E	US 70 EB - SR 1002 (Wyse Fork Rd) to US 70BUS	0.9	584	713	649	792
30E	US 70 EB - to US 70BUS (eastern int)	0.9	100	99	111	110
32E	US 70 EB - from US 70BUS (eastern int)	0.9	367	459	408	510
33E	US 70 EB - East of US 70BUS	0.9	864	1,056	960	1,173

	AM	PM
Max Volume	2,157	1,764

XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 51
Step 3 - Adjusting All Segment Volumes

Westbound Adjusted Segment Volumes						
Segment	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1W	US 70 WB - East of US 70BUS	0.9	1,056	864	1,173	960
2W	US 70 WB - to US 70BUS (eastern int)	0.9	459	367	510	408
4W	US 70 WB - from US 70BUS (eastern int)	0.9	99	100	110	111
5W	US 70 WB - SR 1002 (Wyse Fork Rd) to US 70BUS	0.9	713	584	792	649
6W	US 70 WB - to SR 1002 (Wyse Fork Rd)	0.9	31	30	34	33
8W	US 70 WB - from SR 1002 (Wyse Ford Rd)	0.9	33	28	37	31
9W	US 70 EB - NC 58 to SR 1002 (Wyse Fork Rd)	0.9	713	584	792	649
10W	US 70 WB - to NC 58	0.9	32	36	36	40
12W	US 70 WB - from NC 58	0.9	47	38	52	42
13W	US 70 WB - US 258 to NC 58	0.9	722	591	802	657
14W	US 70 WB - to US 258	0.9	49	42	54	47
16W	US 70 WB - from US 258	0.9	228	205	253	228
17W	US 70 WB - NC 11 to US 258	0.9	911	746	1,012	829
18W	US 70 WB - to NC 11	0.9	143	111	159	123
20W	US 70 WB - from NC 11	0.9	92	104	102	116
21W	US 70 WB - NC 55 to NC 11	0.9	882	721	980	801
22W	US 70 WB - to NC 55	0.9	47	50	52	56
24W	US 70 WB - from NC 55	0.9	105	84	117	93
25W	US 70 WB - US 70BUS to NC 55	0.9	931	762	1,034	847
26W	US 70 WB - to US70BUS (western int)	0.9	49	28	54	31
28W	US 70 WB - from US70BUS (western int)	0.9	751	1,160	834	1,289
29W	US 70 WB - SR 1690 (Willie Measley Rd) to US 70BUS	0.9	1,588	1,941	1,764	2,157
30W	US 70 WB - to SR 1690 (Willie Measley Rd)	0.9	276	377	307	419
32W	US 70 WB - from SR 1690 (Willie Measley Rd)	0.9	196	177	218	196
33W	US 70 WB - West of SR 1690 (Willie Measley Rd)	0.9	1,467	1,792	1,630	1,991

	AM	PM
Max Volume	1,764	2,157

XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 51
Step 4 - Balancing Freeway Segment Volumes

US 70 Eastbound Freeway Volume Balancing					
Segment	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)			1,935	1,675
2E	US 70 EB - to SR 1690 (Willie Measley Rd)	197	218		
3E	US 70 EB - within SR 1690 (Willie Measley Rd) Interchange			1,738	1,457
4E	US 70 EB - from SR 1690 (Willie Measley Rd)	419	307		
5E	US 70 EB - SR 1690 (Willie Measley Rd) to US 70BUS			**2,157**	**1,764**
6E	US 70 EB - to US70BUS (western int)	1,289	835		
7E	US 70 EB - within US 70BUS (western int)			868	929
8E	US 70 EB - from US70BUS (western int)	30	56		
9E	US 70 EB - US 70BUS to NC 55			898	985
10E	US 70 EB - to NC 55	94	117		
11E	US 70 EB - within NC 55 interchange			804	868
12E	US 70 EB - from NC 55	56	53		
13E	US 70 EB - NC 55 to NC 11			860	921
14E	US 70 EB - to NC 11	116	103		
15E	US 70 EB - within NC 11 interchange			744	818
16E	US 70 EB - from NC 11	124	159		
17E	US 70 EB - NC 11 to US 258			868	977
18E	US 70 EB - to US 258	228	254		
19E	US 70 EB - within US 258 interchange			640	723
20E	US 70 EB - from US 258	47	55		
21E	US 70 EB - US 258 to NC 58			687	778
22E	US 70 EB - to NC 58	43	53		
23E	US 70 EB - within NC 58 interchange			644	725
24E	US 70 EB - from NC 58	40	36		
25E	US 70 EB - NC 58 to SR 1002 (Wyse Fork Rd)			684	761
26E	US 70 EB - to SR 1002 (Wyse Fork Rd)	32	37		
27E	US 70 EB - within SR 1002 (Wyse Fork Rd) interchange			652	724
28E	US 70 EB - from SR 1002 (Wyse Fork Rd)	34	35		
29E	US 70 EB - SR 1002 (Wyse Fork Rd) to US 70BUS			686	759
30E	US 70 EB - to US 70BUS	112	110		
31E	US 70 EB - within US 70BUS (eastern int)			574	649
32E	US 70 EB - from US 70BUS	408	510		
33E	US 70 EB - East of US 70BUS			982	1,159

	Max volume balance point
XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 51
Step 4 - Balancing Freeway Segment Volumes

US 70 Westbound Freeway Volume Balancing					
Segment	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1W	US 70 WB - East of US 70BUS			1,158	986
2W	US 70 WB - to US 70BUS	510	408		
3W	US 70 WB - within US 70BUS (eastern int)			648	578
4W	US 70 WB - from US 70BUS	110	112		
5W	US 70 WB - SR 1002 (Wyse Fork Rd) to US 70BUS			758	690
6W	US 70 WB - to SR 1002 (Wyse Fork Rd)	35	34		
7W	US 70 WB - within SR 1002 (Wyse Fork Rd) interchange			723	656
8W	US 70 WB - from SR 1002 (Wyse Fork Rd)	37	31		
9W	US 70 WB - NC 58 to SR 1002 (Wyse Fork Rd)			760	687
10W	US 70 WB - to NC 58	36	40		
11W	US 70 WB - within NC 58 interchange			724	647
12W	US 70 WB - from NC 58	53	43		
13W	US 70 WB - US 258 to NC 58			777	690
14W	US 70 WB - to US 258	55	47		
15W	US 70 WB - within US 258 interchange			722	643
16W	US 70 WB - from US 258	254	228		
17W	US 70 WB - NC 11 to US 258			976	871
18W	US 70 WB - to NC 11	159	124		
19W	US 70 WB - within NC 11 interchange			817	747
20W	US 70 WB - from NC 11	103	116		
21W	US 70 WB - NC 55 to NC 11			920	863
22W	US 70 WB - to NC 55	53	56		
23W	US 70 WB - withn NC 55 interchange			867	807
24W	US 70 WB - from NC 55	117	93		
25W	US 70 WB - US 70BUS to NC 55			984	900
26W	US 70 WB - to US70BUS (western int)	55	32		
27W	US 70 WB - within US 70BUS (western int)			929	868
28W	US 70 WB - from US70BUS (western int)	835	1,289		
29W	US 70 WB - SR 1690 (Willie Measley Rd) to US 70BUS			**1,764**	**2,157**
30W	US 70 WB - to SR 1690 (Willie Measley Rd)	307	419		
31W	US 70 WB - within SR 1690 (Willie Measley Rd) Interchange			1,457	1,738
32W	US 70 WB - from SR 1690 (Willie Measley Rd)	218	197		
33W	US 70 WB - West of SR 1690 (Willie Measley Rd)			1,675	1,935

	Max volume balance point
XXX	Ramp
XXX	Basic Freeway Segment

2040 Build Alternative 51
FREEVAL-E Reports

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R-2553 US 70 Kinston Bypass, Alternative 51
US 70 EB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1E	2E	3E	4E	5E	6E	7E	8E	9E
General Purpose Segment Name	W of Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	Jim Sutton/Willie Measley to US 70 Bus (W)	To US 70 Bus (W)	Within US 70 Bus (W)	From US 70 Bus (W)	US 70 Bus (W) to NC 55
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	1500	4340	2500	2300	1620	19410
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1935	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	750	N/A	920	N/A	2500	N/A	1620	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	419	N/A	N/A	N/A	30	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	2	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	60	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	197	N/A	N/A	N/A	1289	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	14.3	14.7	12.9	16.9	15.9	0.9	6.5	2.6	6.7
V/C	0.42	0.42	0.38	0.46	0.46	0.46	0.19	0.20	0.20
Density Based LOS	B	B	B	B	B	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 51
US 70 EB - AM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10E	11E	12E	13E	14E	15E	16E	17E	18E
General Purpose Segment Name	To NC 55	Within NC 55	From NC 55	NC 55 to NC 11	To NC 11	Within NC 11	From NC 11	NC 11 to US 258	To US 258
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	4090	1500	1500	1620	7860	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	56	N/A	N/A	N/A	124	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	8	N/A	N/A	N/A	5	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	94	N/A	N/A	N/A	116	N/A	N/A	N/A	228
OFR Single Unit Truck and Bus (%)	8	N/A	N/A	N/A	5	N/A	N/A	N/A	7
Total Density (pc/mi/ln)	5.6	6.0	6.7	6.4	7.6	5.6	2.4	6.5	5.3
V/C	0.20	0.18	0.19	0.19	0.19	0.16	0.19	0.19	0.19
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 51
US 70 EB - AM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19E	20E	21E	22E	23E	24E	25E	26E	27E
General Purpose Segment Name	Within US 258	From US 258	US 258 to NC 58	To NC 58	Within NC 58	From NC 58	NC 58 to Wyse Fork	To Wyse Fork	Within Wyse Fork Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	12310	1500	1500	1620	15920	1500	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	1620	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	47	N/A	N/A	N/A	40	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	6	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	43	N/A	N/A	N/A	32	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	6	N/A	N/A	N/A	4	N/A
Total Density (pc/mi/ln)	4.8	5.3	5.1	6.0	4.8	0.9	5.1	6.0	4.9
V/C	0.14	0.15	0.15	0.15	0.14	0.15	0.15	0.15	0.14
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 51
US 70 EB - AM Peak

Segment	Seg. 28	Seg. 29	Seg. 30	Seg. 31	Seg. 32	Seg. 33
General Purpose Segment Data	28E	29E	30E	31E	32E	33E
General Purpose Segment Name	From Wyse Fork	Wyse Fork to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E) Int	From US 70 Bus (E)	E of US 70 Bus (E)
General Purpose Segment Type	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1620	12900	1500	1550	2500	5280
Terrain	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	1620	N/A	490	N/A	920	N/A
ONR Side	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	1	N/A	N/A	N/A	2	N/A
ONR Free Flow Speed (mph)	25	N/A	N/A	N/A	60	N/A
ONR/Entering Dem. (vph)	34	N/A	N/A	N/A	408	N/A
ONR Single Unit Truck and Bus (%)	4	N/A	N/A	N/A	7	N/A
OFR Side	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	112	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	7	N/A	N/A	N/A
Total Density (pc/mi/ln)	0.9	5.1	6.0	4.3	7.5	7.3
V/C	0.15	0.15	0.15	0.13	0.21	0.21
Density Based LOS	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 51
US 70 EB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1E	2E	3E	4E	5E	6E	7E	8E	9E
General Purpose Segment Name	W of Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	Jim Sutton/Willie Measley to US 70 Bus (W)	To US 70 Bus (W)	Within US 70 Bus (W)	From US 70 Bus (W)	US 70 Bus (W) to NC 55
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	1500	4340	2500	2300	1620	19410
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1675	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	750	N/A	920	N/A	2500	N/A	1620	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	307	N/A	N/A	N/A	56	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	2	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	60	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	218	N/A	N/A	N/A	835	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	12.4	12.4	10.8	13.8	13.0	0.0*	6.9	3.3	7.3
V/C	0.36	0.36	0.31	0.38	0.38	0.38	0.20	0.21	0.21
Density Based LOS	B	B	A	B	B	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 51
US 70 EB - PM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10E	11E	12E	13E	14E	15E	16E	17E	18E
General Purpose Segment Name	To NC 55	Within NC 55	From NC 55	NC 55 to NC 11	To NC 11	Within NC 11	From NC 11	NC 11 to US 258	To US 258
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	4090	1500	1500	1620	7860	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	53	N/A	N/A	N/A	159	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	8	N/A	N/A	N/A	5	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	117	N/A	N/A	N/A	103	N/A	N/A	N/A	254
OFR Single Unit Truck and Bus (%)	8	N/A	N/A	N/A	5	N/A	N/A	N/A	7
Total Density (pc/mi/ln)	6.3	6.5	7.2	6.9	8.1	6.1	3.2	7.3	6.2
V/C	0.21	0.19	0.20	0.20	0.20	0.18	0.21	0.21	0.21
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 51
US 70 EB - PM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19E	20E	21E	22E	23E	24E	25E	26E	27E
General Purpose Segment Name	Within US 258	From US 258	US 258 to NC 58	To NC 58	Within NC 58	From NC 58	NC 58 to Wyse Fork	To Wyse Fork	Within Wyse Fork Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	12310	1500	1500	1620	15920	1500	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	1620	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	55	N/A	N/A	N/A	36	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	6	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	53	N/A	N/A	N/A	37	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	6	N/A	N/A	N/A	4	N/A
Total Density (pc/mi/ln)	5.4	6.0	5.8	6.8	5.4	1.5	5.7	6.7	5.4
V/C	0.16	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.16
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 51
US 70 EB - PM Peak

Segment	Seg. 28	Seg. 29	Seg. 30	Seg. 31	Seg. 32	Seg. 33
General Purpose Segment Data	28E	29E	30E	31E	32E	33E
General Purpose Segment Name	From Wyse Fork	Wyse Fork to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E) Int	From US 70 Bus (E)	E of US 70 Bus (E)
General Purpose Segment Type	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1620	12900	1500	1550	2500	5280
Terrain	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	1620	N/A	490	N/A	920	N/A
ONR Side	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	1	N/A	N/A	N/A	2	N/A
ONR Free Flow Speed (mph)	25	N/A	N/A	N/A	60	N/A
ONR/Entering Dem. (vph)	35	N/A	N/A	N/A	510	N/A
ONR Single Unit Truck and Bus (%)	4	N/A	N/A	N/A	7	N/A
OFR Side	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	110	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	7	N/A	N/A	N/A
Total Density (pc/mi/ln)	1.5	5.7	6.6	4.8	8.9	8.6
V/C	0.16	0.16	0.16	0.14	0.25	0.25
Density Based LOS	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 51
US 70 WB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1W	2W	3W	4W	5W	6W	7W	8W	9W
General Purpose Segment Name	E of US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E) Int	From US 70 Bus (E)	US 70 Bus (E) to Wyse Fork	To Wyse Fork	Within Wyse Fork Int	From Wyse Fork	Wyse Fork to NC 58
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	3350	1500	10810	1500	1500	1500	15760
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1158	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	9	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	920	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	110	N/A	N/A	N/A	37	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	7	N/A	N/A	N/A	4	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	510	N/A	N/A	N/A	35	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	8.6	10.2	4.9	5.9	5.7	4.3	5.4	5.9	5.7
V/C	0.25	0.25	0.14	0.17	0.17	0.17	0.16	0.17	0.17
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 51
US 70 WB - AM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10W	11W	12W	13W	14W	15W	16W	17W	18W
General Purpose Segment Name	To NC 58	Within NC 58 Int	From NC 58	NC 58 to US 258	To US 258	Within US 258 Int	From US 258	US 258 to NC 11	To NC 11
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	12350	1500	1500	1620	7590	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	53	N/A	N/A	N/A	254	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	6	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	36	N/A	N/A	N/A	55	N/A	N/A	N/A	159
OFR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	7	N/A	N/A	N/A	5
Total Density (pc/mi/ln)	4.4	5.4	6.1	5.8	6.9	5.4	3.2	7.3	6.3
V/C	0.17	0.16	0.17	0.17	0.17	0.16	0.21	0.21	0.21
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 51
US 70 WB - AM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19W	20W	21W	22W	23W	24W	25W	26W	27W
General Purpose Segment Name	Within NC 11 Int	From NC 11	NC 11 to NC 55	To NC 55	Within NC 55 Int	From NC 55	NC 55 to US 70 Bus (W)	To US 70 Bus (W)	Within US 70 Bus (W) Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	3730	1500	1500	1620	17390	1500	2560
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	1620	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	103	N/A	N/A	N/A	117	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	5	N/A	N/A	N/A	8	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	53	N/A	N/A	N/A	55	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	8	N/A	N/A	N/A	5	N/A
Total Density (pc/mi/ln)	6.1	7.2	6.9	8.1	6.5	3.3	7.4	8.7	7.0
V/C	0.18	0.20	0.20	0.20	0.19	0.21	0.21	0.21	0.20
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 51
US 70 WB - AM Peak

Segment	Seg. 28	Seg. 29	Seg. 30	Seg. 31	Seg. 32	Seg. 33
General Purpose Segment Data	28W	29W	30W	31W	32W	33W
General Purpose Segment Name	From US 70 Bus (W)	US 70 Bus (W) to Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	W of Jim Sutton/Willie Measley
General Purpose Segment Type	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1500	7290	1500	1500	1620	5280
Terrain	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	920	N/A	490	N/A	1620	N/A
ONR Side	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	45	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	835	N/A	N/A	N/A	218	N/A
ONR Single Unit Truck and Bus (%)	5	N/A	N/A	N/A	4	N/A
OFR Side	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	307	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	13.7	13.1	15.6	10.8	8.8	12.4
V/C	0.38	0.38	0.38	0.32	0.36	0.36
Density Based LOS	B	B	B	A	A	B

R-2553 US 70 Kinston Bypass, Alternative 51
US 70 WB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1W	2W	3W	4W	5W	6W	7W	8W	9W
General Purpose Segment Name	E of US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E) Int	From US 70 Bus (E)	US 70 Bus (E) to Wyse Fork	To Wyse Fork	Within Wyse Fork Int	From Wyse Fork	Wyse Fork to NC 58
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	3350	1500	10810	1500	1500	1500	15760
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	986	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	9	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	920	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	112	N/A	N/A	N/A	31	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	7	N/A	N/A	N/A	4	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	408	N/A	N/A	N/A	34	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	7.4	8.7	4.3	5.3	5.2	3.7	4.9	5.3	5.1
V/C	0.21	0.21	0.13	0.15	0.15	0.15	0.14	0.15	0.15
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 51
US 70 WB - PM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10W	11W	12W	13W	14W	15W	16W	17W	18W
General Purpose Segment Name	To NC 58	Within NC 58 Int	From NC 58	NC 58 to US 258	To US 258	Within US 258 Int	From US 258	US 258 to NC 11	To NC 11
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	12350	1500	1500	1620	7590	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	43	N/A	N/A	N/A	228	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	6	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	40	N/A	N/A	N/A	47	N/A	N/A	N/A	124
OFR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	7	N/A	N/A	N/A	5
Total Density (pc/mi/ln)	3.7	4.9	5.3	5.2	6.1	4.8	2.3	6.5	5.3
V/C	0.15	0.14	0.15	0.15	0.15	0.14	0.19	0.19	0.19
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 51
US 70 WB - PM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19W	20W	21W	22W	23W	24W	25W	26W	27W
General Purpose Segment Name	Within NC 11 Int	From NC 11	NC 11 to NC 55	To NC 55	Within NC 55 Int	From NC 55	NC 55 to US 70 Bus (W)	To US 70 Bus (W)	Within US 70 Bus (W) Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	3730	1500	1500	1620	17390	1500	2560
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	1620	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	116	N/A	N/A	N/A	93	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	5	N/A	N/A	N/A	8	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	56	N/A	N/A	N/A	32	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	8	N/A	N/A	N/A	6	N/A
Total Density (pc/mi/ln)	5.6	6.7	6.5	7.6	6.0	2.6	6.7	7.9	6.5
V/C	0.16	0.19	0.19	0.19	0.18	0.20	0.20	0.20	0.19
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 51
US 70 WB - PM Peak

Segment	Seg. 28	Seg. 29	Seg. 30	Seg. 31	Seg. 32	Seg. 33
General Purpose Segment Data	28W	29W	30W	31W	32W	33W
General Purpose Segment Name	From US 70 Bus (W)	US 70 Bus (W) to Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	W of Jim Sutton/Willie Measley
General Purpose Segment Type	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1500	7290	1500	1500	1620	5280
Terrain	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	920	N/A	490	N/A	1620	N/A
ONR Side	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	45	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	1289	N/A	N/A	N/A	197	N/A
ONR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	4	N/A
OFR Side	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	419	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	16.6	16.0	19.1	12.9	10.9	14.4
V/C	0.47	0.47	0.47	0.38	0.42	0.42
Density Based LOS	B	B	B	B	B	B

2040 Build Alternative 51
Synchro Reports

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	4	4	4	4	23	4	107	4	17	69	6
Future Volume (vph)	10	4	4	4	4	23	4	107	4	17	69	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1693	0	0	1598	0	1770	1853	0	1770	1839	0
Flt Permitted		0.972			0.994		0.950			0.950		
Satd. Flow (perm)	0	1693	0	0	1598	0	1770	1853	0	1770	1839	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		883			854			935			1001	
Travel Time (s)		13.4			12.9			11.6			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	19	0	0	34	0	4	123	0	19	84	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 17.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	4	4	4	4	23	4	107	4	17	69	6
Future Volume (Veh/h)	10	4	4	4	4	23	4	107	4	17	69	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	4	4	4	4	26	4	119	4	19	77	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1001	
pX, platoon unblocked												
vC, conflicting volume	274	250	80	250	251	121	84			123		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	274	250	80	250	251	121	84			123		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	98	99	100	99	99	97	100			99		
cM capacity (veh/h)	641	636	969	681	635	920	1513			1464		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	19	34	4	123	19	84
Volume Left	11	4	4	0	19	0
Volume Right	4	26	0	4	0	7
cSH	689	841	1513	1700	1464	1700
Volume to Capacity	0.03	0.04	0.00	0.07	0.01	0.05
Queue Length 95th (ft)	2	3	0	0	1	0
Control Delay (s)	10.4	9.5	7.4	0.0	7.5	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	10.4	9.5	0.2		1.4	
Approach LOS	B	A				

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	17.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	4	4	4	4	17	4	69	4	23	107	10
Future Volume (vph)	6	4	4	4	4	17	4	69	4	23	107	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1688	0	0	1611	0	1770	1850	0	1770	1839	0
Flt Permitted		0.977			0.993		0.950			0.950		
Satd. Flow (perm)	0	1688	0	0	1611	0	1770	1850	0	1770	1839	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		883			854			935			1001	
Travel Time (s)		13.4			12.9			11.6			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	0	27	0	4	81	0	26	130	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 17.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	4	4	4	4	17	4	69	4	23	107	10
Future Volume (Veh/h)	6	4	4	4	4	17	4	69	4	23	107	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	4	4	4	4	19	4	77	4	26	119	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1001	
pX, platoon unblocked												
vC, conflicting volume	282	266	124	264	269	79	130			81		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	282	266	124	264	269	79	130			81		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	99	99	100	99	99	98	100			98		
cM capacity (veh/h)	636	621	916	664	618	970	1455			1517		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	15	27	4	81	26	130
Volume Left	7	4	4	0	26	0
Volume Right	4	19	0	4	0	11
cSH	687	842	1455	1700	1517	1700
Volume to Capacity	0.02	0.03	0.00	0.05	0.02	0.08
Queue Length 95th (ft)	2	2	0	0	1	0
Control Delay (s)	10.4	9.4	7.5	0.0	7.4	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	10.4	9.4	0.4		1.2	
Approach LOS	B	A				

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	17.9%	ICU Level of Service	A
Analysis Period (min)	15		

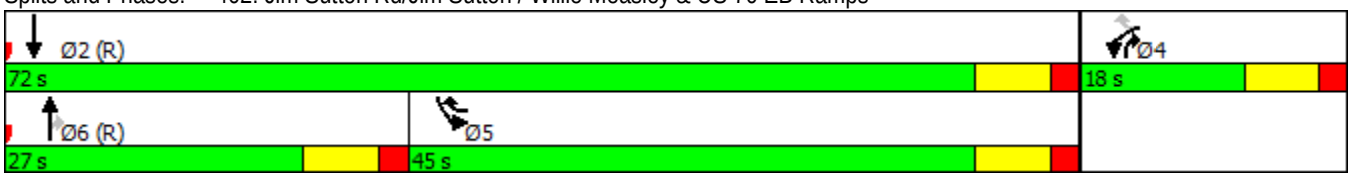
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	30	147	62	76	301	63
Future Volume (vph)	30	147	62	76	301	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	225		100	275	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1863	1583	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1863	1583	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	999		1001			1313
Travel Time (s)	27.2		12.4			16.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	163	69	84	334	70
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	18.0	45.0	27.0	18.0	45.0	72.0
Total Split (%)	20.0%	50.0%	30.0%	20.0%	50.0%	80.0%
Maximum Green (s)	11.0	38.0	20.0	11.0	38.0	65.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.0	37.4	42.6	54.8	25.2	73.8
Actuated g/C Ratio	0.11	0.42	0.47	0.61	0.28	0.82
v/c Ratio	0.17	0.25	0.08	0.09	0.69	0.05
Control Delay	37.8	15.8	17.9	9.2	31.7	2.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.8	15.8	17.9	9.2	31.7	2.3
LOS	D	B	B	A	C	A
Approach Delay	19.5		13.2			26.6
Approach LOS	B		B			C
Queue Length 50th (ft)	17	56	22	18	142	6
Queue Length 95th (ft)	44	74	58	47	191	15
Internal Link Dist (ft)	919		921			1233
Turn Bay Length (ft)		225		100	275	
Base Capacity (vph)	250	740	881	932	771	1497
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.22	0.08	0.09	0.43	0.05

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 18 (20%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 22.0 Intersection LOS: C
Intersection Capacity Utilization 37.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps



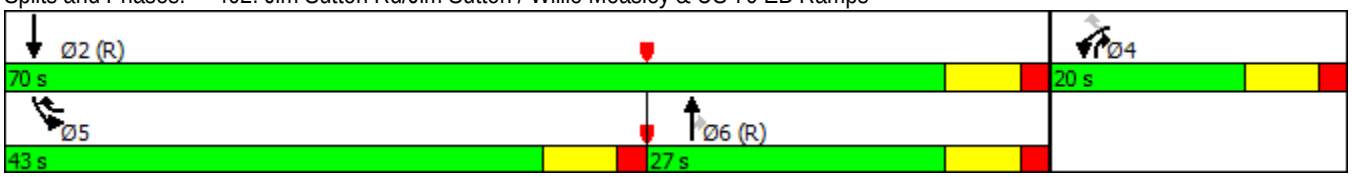
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	40	156	47	46	230	98
Future Volume (vph)	40	156	47	46	230	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	225		100	275	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1863	1583	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1863	1583	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	999		1001			1313
Travel Time (s)	27.2		12.4			16.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	173	52	51	256	109
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	43.0	27.0	20.0	43.0	70.0
Total Split (%)	22.2%	47.8%	30.0%	22.2%	47.8%	77.8%
Maximum Green (s)	13.0	36.0	20.0	13.0	36.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.2	33.2	46.8	62.0	20.8	73.6
Actuated g/C Ratio	0.11	0.37	0.52	0.69	0.23	0.82
v/c Ratio	0.22	0.30	0.05	0.05	0.64	0.07
Control Delay	38.7	19.2	14.9	7.0	30.9	2.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.7	19.2	14.9	7.0	30.9	2.2
LOS	D	B	B	A	C	A
Approach Delay	23.2		11.0			22.3
Approach LOS	C		B			C
Queue Length 50th (ft)	23	66	15	9	117	6
Queue Length 95th (ft)	54	92	41	27	166	17
Internal Link Dist (ft)	919		921			1233
Turn Bay Length (ft)		225		100	275	
Base Capacity (vph)	289	869	969	1175	732	1494
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.20	0.05	0.04	0.35	0.07

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 10 (11%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 20.9 Intersection LOS: C
Intersection Capacity Utilization 33.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps



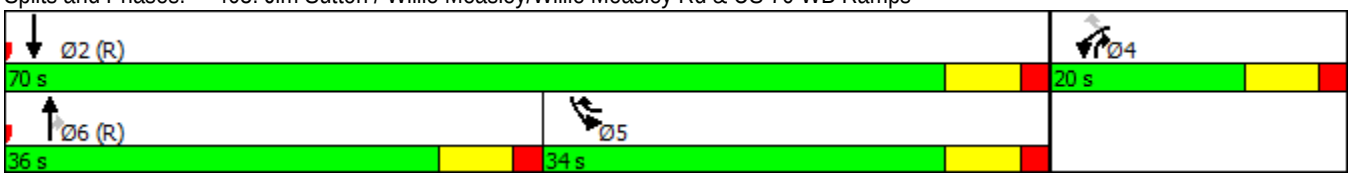
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	46	230	169	40	156	318
Future Volume (vph)	46	230	169	40	156	318
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	300		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	987		1313			996
Travel Time (s)	15.0		16.3			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	51	256	188	44	173	353
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	34.0	36.0	20.0	34.0	70.0
Total Split (%)	22.2%	37.8%	40.0%	22.2%	37.8%	77.8%
Maximum Green (s)	13.0	27.0	29.0	13.0	27.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.4	32.0	48.0	60.6	19.4	73.4
Actuated g/C Ratio	0.12	0.36	0.53	0.67	0.22	0.82
v/c Ratio	0.26	0.46	0.19	0.04	0.46	0.24
Control Delay	38.9	23.5	11.1	4.8	34.3	3.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	23.5	11.1	4.8	34.3	3.2
LOS	D	C	B	A	C	A
Approach Delay	26.1		9.9			13.4
Approach LOS	C		A			B
Queue Length 50th (ft)	27	106	42	8	86	43
Queue Length 95th (ft)	60	147	87	12	139	79
Internal Link Dist (ft)	907		1233			916
Turn Bay Length (ft)		300		100	200	
Base Capacity (vph)	289	600	974	1032	559	1489
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.43	0.19	0.04	0.31	0.24

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 16.3 Intersection LOS: B
Intersection Capacity Utilization 38.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps



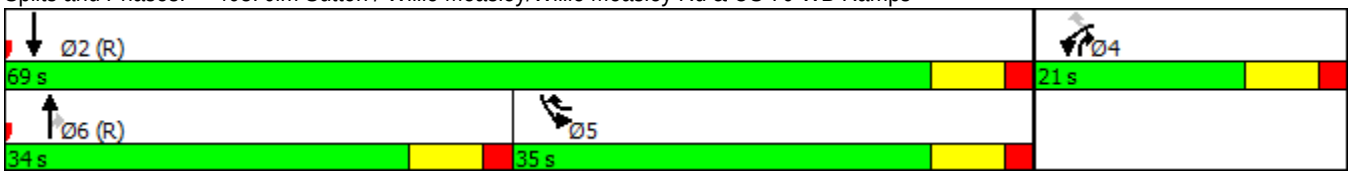
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	76	301	173	30	147	252
Future Volume (vph)	76	301	173	30	147	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	300		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	987		1313			996
Travel Time (s)	15.0		16.3			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	84	334	192	33	163	280
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	21.0	35.0	34.0	21.0	35.0	69.0
Total Split (%)	23.3%	38.9%	37.8%	23.3%	38.9%	76.7%
Maximum Green (s)	14.0	28.0	27.0	14.0	28.0	62.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	11.9	37.6	42.4	56.5	23.5	71.9
Actuated g/C Ratio	0.13	0.42	0.47	0.63	0.26	0.80
v/c Ratio	0.37	0.52	0.22	0.03	0.36	0.19
Control Delay	39.5	20.9	11.7	5.9	28.7	3.6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.5	20.9	11.7	5.9	28.7	3.6
LOS	D	C	B	A	C	A
Approach Delay	24.6		10.8			12.8
Approach LOS	C		B			B
Queue Length 50th (ft)	44	129	29	4	75	36
Queue Length 95th (ft)	85	166	148	14	121	71
Internal Link Dist (ft)	907		1233			916
Turn Bay Length (ft)		300		100	200	
Base Capacity (vph)	308	672	861	950	578	1459
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.50	0.22	0.03	0.28	0.19

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 16.9 Intersection LOS: B
Intersection Capacity Utilization 38.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	8	205	35	5	4	169	124	50	8	183	5
Future Volume (vph)	4	8	205	35	5	4	169	124	50	8	183	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1623	0	0	1772	0	1736	1748	0	1770	1855	0
Flt Permitted		0.999			0.962		0.950			0.950		
Satd. Flow (perm)	0	1623	0	0	1772	0	1736	1748	0	1770	1855	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		970			951			996			1084	
Travel Time (s)		14.7			14.4			12.3			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	241	0	0	49	0	188	194	0	9	209	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 49.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	8	205	35	5	4	169	124	50	8	183	5
Future Volume (Veh/h)	4	8	205	35	5	4	169	124	50	8	183	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	9	228	39	6	4	188	138	56	9	203	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								996				
pX, platoon unblocked												
vC, conflicting volume	745	794	206	996	769	166	209			194		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	745	794	206	996	769	166	209			194		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	97	73	72	98	100	86			99		
cM capacity (veh/h)	287	274	835	141	284	878	1350			1379		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	241	49	188	194	9	209
Volume Left	4	39	188	0	9	0
Volume Right	228	4	0	56	0	6
cSH	753	162	1350	1700	1379	1700
Volume to Capacity	0.32	0.30	0.14	0.11	0.01	0.12
Queue Length 95th (ft)	35	30	12	0	0	0
Control Delay (s)	12.0	36.6	8.1	0.0	7.6	0.0
Lane LOS	B	E	A		A	
Approach Delay (s)	12.0	36.6	4.0		0.3	
Approach LOS	B	E				

Intersection Summary			
Average Delay	7.1		
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	169	50	8	8	205	183	35	4	124	4
Future Volume (vph)	5	5	169	50	8	8	205	183	35	4	124	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1625	0	0	1767	0	1736	1783	0	1770	1855	0
Flt Permitted		0.999			0.964		0.950			0.950		
Satd. Flow (perm)	0	1625	0	0	1767	0	1736	1783	0	1770	1855	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		970			951			996			1084	
Travel Time (s)		14.7			14.4			12.3			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	200	0	0	74	0	228	242	0	4	142	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 46.1%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	169	50	8	8	205	183	35	4	124	4
Future Volume (Veh/h)	5	5	169	50	8	8	205	183	35	4	124	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	6	188	56	9	9	228	203	39	4	138	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								996				
pX, platoon unblocked												
vC, conflicting volume	820	846	140	1016	828	222	142			242		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	820	846	140	1016	828	222	142			242		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	98	79	62	96	99	84			100		
cM capacity (veh/h)	248	251	908	148	257	817	1429			1324		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	200	74	228	242	4	142
Volume Left	6	56	228	0	4	0
Volume Right	188	9	0	39	0	4
cSH	784	174	1429	1700	1324	1700
Volume to Capacity	0.26	0.43	0.16	0.14	0.00	0.08
Queue Length 95th (ft)	25	48	14	0	0	0
Control Delay (s)	11.2	40.2	8.0	0.0	7.7	0.0
Lane LOS	B	E	A		A	
Approach Delay (s)	11.2	40.2	3.9		0.2	
Approach LOS	B	E				

Intersection Summary			
Average Delay	7.9		
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	1142	11	22	753	10	12	4	36	19	4	34
Future Volume (vph)	26	1142	11	22	753	10	12	4	36	19	4	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		0	0		0	0		0
Storage Lanes	1		1	1		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1719	3438	1538	1719	3431	0	0	1667	0	0	1684	0
Flt Permitted	0.950			0.950				0.989			0.984	
Satd. Flow (perm)	1719	3438	1538	1719	3431	0	0	1667	0	0	1684	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1025			996			931			940	
Travel Time (s)		12.7			12.3			11.5			11.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	1269	12	24	848	0	0	57	0	0	63	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		46			46			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 43.4%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	1142	11	22	753	10	12	4	36	19	4	34
Future Volume (Veh/h)	26	1142	11	22	753	10	12	4	36	19	4	34
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	29	1269	12	24	837	11	13	4	40	21	4	38
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	848			1281			1834	2223	634	1625	2230	424
vC1, stage 1 conf vol							1327	1327		890	890	
vC2, stage 2 conf vol							506	896		734	1339	
vCu, unblocked vol	848			1281			1834	2223	634	1625	2230	424
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			95			89	97	91	87	97	93
cM capacity (veh/h)	766			522			119	133	422	160	127	579

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	29	634	634	12	24	558	290	57	63
Volume Left	29	0	0	0	24	0	0	13	21
Volume Right	0	0	0	12	0	0	11	40	38
cSH	766	1700	1700	1700	522	1700	1700	243	276
Volume to Capacity	0.04	0.37	0.37	0.01	0.05	0.33	0.17	0.23	0.23
Queue Length 95th (ft)	3	0	0	0	4	0	0	22	22
Control Delay (s)	9.9	0.0	0.0	0.0	12.2	0.0	0.0	24.3	21.9
Lane LOS	A				B			C	C
Approach Delay (s)	0.2				0.3			24.3	21.9
Approach LOS								C	C

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	753	11	36	1142	20	10	4	22	10	4	26
Future Volume (vph)	34	753	11	36	1142	20	10	4	22	10	4	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		0	0		0	0		0
Storage Lanes	1		1	1		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1719	3438	1538	1719	3428	0	0	1684	0	0	1677	0
Flt Permitted	0.950			0.950				0.986			0.988	
Satd. Flow (perm)	1719	3438	1538	1719	3428	0	0	1684	0	0	1677	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1025			996			931			940	
Travel Time (s)		12.7			12.3			11.5			11.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	837	12	40	1291	0	0	39	0	0	44	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		46			46			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 42.2%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	753	11	36	1142	20	10	4	22	10	4	26
Future Volume (Veh/h)	34	753	11	36	1142	20	10	4	22	10	4	26
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	38	837	12	40	1269	22	11	4	24	11	4	29
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1291			849			1658	2284	418	1880	2285	646
vC1, stage 1 conf vol							913	913		1360	1360	
vC2, stage 2 conf vol							746	1371		520	925	
vCu, unblocked vol	1291			849			1658	2284	418	1880	2285	646
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			95			93	96	96	90	97	93
cM capacity (veh/h)	517			766			151	113	583	112	123	415

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	38	418	418	12	40	846	445	39	44
Volume Left	38	0	0	0	40	0	0	11	11
Volume Right	0	0	0	12	0	0	22	24	29
cSH	517	1700	1700	1700	766	1700	1700	261	219
Volume to Capacity	0.07	0.25	0.25	0.01	0.05	0.50	0.26	0.15	0.20
Queue Length 95th (ft)	6	0	0	0	4	0	0	13	18
Control Delay (s)	12.5	0.0	0.0	0.0	10.0	0.0	0.0	21.2	25.5
Lane LOS	B				A			C	D
Approach Delay (s)	0.5				0.3			21.2	25.5
Approach LOS								C	D

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	42.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	6	6	4	4	26	4	336	4	14	224	4
Future Volume (vph)	4	6	6	4	4	26	4	336	4	14	224	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1762	0	0	1565	0	1671	1756	0	1671	1756	0
Flt Permitted		0.989			0.995		0.950			0.950		
Satd. Flow (perm)	0	1762	0	0	1565	0	1671	1756	0	1671	1756	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		704			668			728			1014	
Travel Time (s)		10.7			10.1			9.0			12.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	1%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	0	0	37	0	4	377	0	16	253	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 27.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	6	6	4	4	26	4	336	4	14	224	4
Future Volume (Veh/h)	4	6	6	4	4	26	4	336	4	14	224	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	7	7	4	4	29	4	373	4	16	249	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1014	
pX, platoon unblocked												
vC, conflicting volume	695	668	251	674	668	375	253			377		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	695	668	251	674	668	375	253			377		
tC, single (s)	7.1	6.5	6.2	7.2	6.6	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	99	98	99	99	99	96	100			99		
cM capacity (veh/h)	335	374	790	347	365	658	1278			1149		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	18	37	4	377	16	253
Volume Left	4	4	4	0	16	0
Volume Right	7	29	0	4	0	4
cSH	455	556	1278	1700	1149	1700
Volume to Capacity	0.04	0.07	0.00	0.22	0.01	0.15
Queue Length 95th (ft)	3	5	0	0	1	0
Control Delay (s)	13.2	11.9	7.8	0.0	8.2	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	13.2	11.9	0.1		0.5	
Approach LOS	B	B				

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	27.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	4	4	6	14	6	224	4	26	336	4
Future Volume (vph)	4	4	4	4	6	14	6	224	4	26	336	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1768	0	0	1607	0	1671	1756	0	1671	1756	0
Flt Permitted		0.984			0.993		0.950			0.950		
Satd. Flow (perm)	0	1768	0	0	1607	0	1671	1756	0	1671	1756	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		704			668			728			1014	
Travel Time (s)		10.7			10.1			9.0			12.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	1%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	12	0	0	27	0	7	253	0	29	377	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 31.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	4	4	4	6	14	6	224	4	26	336	4
Future Volume (Veh/h)	4	4	4	4	6	14	6	224	4	26	336	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	4	4	4	7	16	7	249	4	29	373	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1014	
pX, platoon unblocked	0.99	0.99	0.99	0.99	0.99		0.99					
vC, conflicting volume	716	700	375	702	700	251	377			253		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	706	690	361	692	690	251	363			253		
tC, single (s)	7.1	6.5	6.2	7.2	6.6	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	99	99	99	99	98	98	99			98		
cM capacity (veh/h)	328	354	677	334	346	773	1149			1278		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	12	27	7	253	29	377
Volume Left	4	4	7	0	29	0
Volume Right	4	16	0	4	0	4
cSH	408	510	1149	1700	1278	1700
Volume to Capacity	0.03	0.05	0.01	0.15	0.02	0.22
Queue Length 95th (ft)	2	4	0	0	2	0
Control Delay (s)	14.1	12.4	8.2	0.0	7.9	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	14.1	12.4	0.2		0.6	
Approach LOS	B	B				

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	31.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	317	42	8	185	55	29
Future Volume (vph)	317	42	8	185	55	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	100		0	100
Storage Lanes		1	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	1759	1495	1671	1759	1671	1495
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1759	1495	1671	1759	1671	1495
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	25	
Link Distance (ft)	1014			1457	828	
Travel Time (s)	12.6			18.1	22.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	352	47	9	206	61	32
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	14.0	7.0	7.0	14.0	7.0	7.0
Minimum Split (s)	21.0	14.0	14.0	21.0	14.0	14.0
Total Split (s)	54.0	20.0	16.0	70.0	20.0	16.0
Total Split (%)	60.0%	22.2%	17.8%	77.8%	22.2%	17.8%
Maximum Green (s)	47.0	13.0	9.0	63.0	13.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	None	None	C-Min	None	None
Act Effct Green (s)	64.4	78.6	9.0	72.8	11.0	22.2
Actuated g/C Ratio	0.72	0.87	0.10	0.81	0.12	0.25
v/c Ratio	0.28	0.04	0.05	0.14	0.30	0.09
Control Delay	8.1	2.0	42.8	2.5	39.3	23.8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	2.0	42.8	2.5	39.3	23.8
LOS	A	A	D	A	D	C
Approach Delay	7.3			4.2	34.0	
Approach LOS	A			A	C	
Queue Length 50th (ft)	87	4	5	19	32	14
Queue Length 95th (ft)	152	10	20	38	68	34
Internal Link Dist (ft)	934			1377	748	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	1259	1333	204	1423	278	401
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.04	0.04	0.14	0.22	0.08

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 70 (78%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.30
Intersection Signal Delay: 9.9 Intersection LOS: A
Intersection Capacity Utilization 30.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 407: US 70 EB Ramps & NC 55

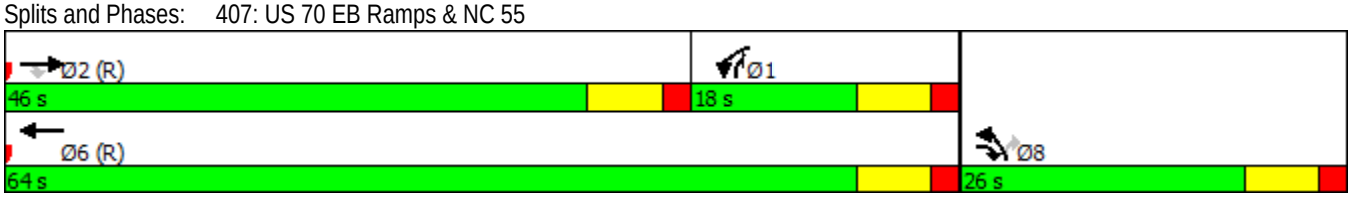
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	204	36	11	280	79	26
Future Volume (vph)	204	36	11	280	79	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	100		0	100
Storage Lanes		1	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	1759	1495	1671	1759	1671	1495
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1759	1495	1671	1759	1671	1495
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	25	
Link Distance (ft)	1014			1457	828	
Travel Time (s)	12.6			18.1	22.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	227	40	12	311	88	29
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	14.0	7.0	7.0	14.0	7.0	7.0
Minimum Split (s)	21.0	14.0	14.0	21.0	14.0	14.0
Total Split (s)	46.0	26.0	18.0	64.0	26.0	18.0
Total Split (%)	51.1%	28.9%	20.0%	71.1%	28.9%	20.0%
Maximum Green (s)	39.0	19.0	11.0	57.0	19.0	11.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			Lag
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	None	None	C-Min	None	None
Act Effct Green (s)	62.8	78.2	9.4	71.5	12.3	21.0
Actuated g/C Ratio	0.70	0.87	0.10	0.79	0.14	0.23
v/c Ratio	0.19	0.03	0.07	0.22	0.39	0.08
Control Delay	8.4	2.1	37.4	3.2	39.7	22.7

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.4	2.1	37.4	3.2	39.7	22.7
LOS	A	A	D	A	D	C
Approach Delay	7.5			4.5	35.5	
Approach LOS	A			A	D	
Queue Length 50th (ft)	54	4	6	35	46	12
Queue Length 95th (ft)	106	10	23	55	88	30
Internal Link Dist (ft)	934			1377	748	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	1227	1299	241	1398	389	354
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.03	0.05	0.22	0.23	0.08

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 70 (78%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.39
Intersection Signal Delay: 10.7 Intersection LOS: B
Intersection Capacity Utilization 28.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 407: US 70 EB Ramps & NC 55



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	267	79	26	157	36	11
Future Volume (vph)	267	79	26	157	36	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	100		0	100
Storage Lanes		1	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	1759	1495	1671	1759	1671	1495
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1759	1495	1671	1759	1671	1495
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	45	
Link Distance (ft)	1457			1041	866	
Travel Time (s)	18.1			12.9	13.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	297	88	29	174	40	12
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	14.0	7.0	7.0	14.0	7.0	7.0
Minimum Split (s)	21.0	14.0	14.0	21.0	14.0	14.0
Total Split (s)	50.0	20.0	20.0	70.0	20.0	20.0
Total Split (%)	55.6%	22.2%	22.2%	77.8%	22.2%	22.2%
Maximum Green (s)	43.0	13.0	13.0	63.0	13.0	13.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	None	None	C-Min	None	None
Act Effct Green (s)	64.7	78.0	9.6	73.7	10.1	21.9
Actuated g/C Ratio	0.72	0.87	0.11	0.82	0.11	0.24
v/c Ratio	0.23	0.07	0.16	0.12	0.22	0.03
Control Delay	2.7	0.3	38.3	2.7	38.8	22.8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.7	0.3	38.3	2.7	38.8	22.8
LOS	A	A	D	A	D	C
Approach Delay	2.1			7.8	35.1	
Approach LOS	A			A	D	
Queue Length 50th (ft)	16	1	15	18	21	5
Queue Length 95th (ft)	28	2	41	38	50	17
Internal Link Dist (ft)	1377			961	786	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	1264	1337	278	1441	278	452
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.07	0.10	0.12	0.14	0.03

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.23
Intersection Signal Delay: 6.6 Intersection LOS: A
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 408: US 70 WB Ramps & NC 55

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	175	55	29	249	42	8
Future Volume (vph)	175	55	29	249	42	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	100		0	100
Storage Lanes		1	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	1759	1495	1671	1759	1671	1495
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1759	1495	1671	1759	1671	1495
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	45	
Link Distance (ft)	1457			1041	866	
Travel Time (s)	18.1			12.9	13.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	194	61	32	277	47	9
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	14.0	7.0	7.0	14.0	7.0	7.0
Minimum Split (s)	21.0	14.0	14.0	21.0	14.0	14.0
Total Split (s)	45.0	23.0	22.0	67.0	23.0	22.0
Total Split (%)	50.0%	25.6%	24.4%	74.4%	25.6%	24.4%
Maximum Green (s)	38.0	16.0	15.0	60.0	16.0	15.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	None	None	C-Min	None	None
Act Effct Green (s)	64.3	77.9	9.7	73.4	10.4	22.3
Actuated g/C Ratio	0.71	0.87	0.11	0.82	0.12	0.25
v/c Ratio	0.15	0.05	0.18	0.19	0.24	0.02
Control Delay	3.2	0.3	38.5	3.0	38.9	22.1

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.2	0.3	38.5	3.0	38.9	22.1
LOS	A	A	D	A	D	C
Approach Delay	2.5			6.7	36.2	
Approach LOS	A			A	D	
Queue Length 50th (ft)	14	1	17	32	25	4
Queue Length 95th (ft)	22	2	43	62	56	14
Internal Link Dist (ft)	1377			961	786	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	1256	1360	315	1435	334	490
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.04	0.10	0.19	0.14	0.02

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.24
Intersection Signal Delay: 7.6 — Intersection LOS: A
Intersection Capacity Utilization 35.8% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 408: US 70 WB Ramps & NC 55

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	34	70	103	880	570	8
Future Volume (vph)	34	70	103	880	570	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	125	250			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1719	1538	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1719	1538	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	1000			1015	1292	
Travel Time (s)	15.2			12.6	16.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	78	114	978	633	9
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	14.0	17.0	17.0	76.0	59.0	14.0
Total Split (%)	15.6%	18.9%	18.9%	84.4%	65.6%	15.6%
Maximum Green (s)	7.0	10.0	10.0	69.0	52.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.7	21.2	12.1	77.9	58.8	74.5
Actuated g/C Ratio	0.11	0.24	0.13	0.87	0.65	0.83
v/c Ratio	0.21	0.22	0.49	0.62	0.54	0.01
Control Delay	39.3	26.0	43.5	5.9	7.9	2.6

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.3	26.0	43.5	5.9	7.9	2.6
LOS	D	C	D	A	A	A
Approach Delay	30.3			9.8	7.9	
Approach LOS	C			A	A	
Queue Length 50th (ft)	20	32	60	199	123	1
Queue Length 95th (ft)	50	67	115	337	131	m2
Internal Link Dist (ft)	920			935	1212	
Turn Bay Length (ft)		125	250			100
Base Capacity (vph)	184	374	245	1580	1212	1272
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.21	0.47	0.62	0.52	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 68 (76%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 10.4 Intersection LOS: B
Intersection Capacity Utilization 60.5% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 409: NC 11 & US 70 EB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	20	72	124	516	911	19
Future Volume (vph)	20	72	124	516	911	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	125	250			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1719	1538	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1719	1538	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	1000			1015	1292	
Travel Time (s)	15.2			12.6	16.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	80	138	573	1012	21
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	14.0	16.0	16.0	86.0	70.0	14.0
Total Split (%)	14.0%	16.0%	16.0%	86.0%	70.0%	14.0%
Maximum Green (s)	7.0	9.0	9.0	79.0	63.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.0	19.9	11.5	88.6	70.1	84.1
Actuated g/C Ratio	0.09	0.20	0.12	0.89	0.70	0.84
v/c Ratio	0.14	0.26	0.70	0.36	0.80	0.02
Control Delay	44.4	33.9	62.7	2.6	11.0	1.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.4	33.9	62.7	2.6	11.0	1.0
LOS	D	C	E	A	B	A
Approach Delay	36.1			14.3	10.8	
Approach LOS	D			B	B	
Queue Length 50th (ft)	13	40	86	76	80	0
Queue Length 95th (ft)	37	80	#179	110	#250	m2
Internal Link Dist (ft)	920			935	1212	
Turn Bay Length (ft)		125	250			100
Base Capacity (vph)	154	306	198	1604	1269	1293
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.26	0.70	0.36	0.80	0.02

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 2 (2%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 13.5 Intersection LOS: B
Intersection Capacity Utilization 73.2% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 409: NC 11 & US 70 EB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	19	124	72	842	454	20
Future Volume (vph)	19	124	72	842	454	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175	125			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1719	1538	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1719	1538	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1062			1292	1088	
Travel Time (s)	29.0			16.0	13.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	138	80	936	504	22
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	14.0	15.0	15.0	76.0	61.0	14.0
Total Split (%)	15.6%	16.7%	16.7%	84.4%	67.8%	15.6%
Maximum Green (s)	7.0	8.0	8.0	69.0	54.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.3	23.0	14.3	78.3	57.0	65.7
Actuated g/C Ratio	0.10	0.26	0.16	0.87	0.63	0.73
v/c Ratio	0.12	0.35	0.29	0.60	0.44	0.02
Control Delay	38.0	27.2	31.1	2.0	12.2	4.1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	27.2	31.1	2.0	12.2	4.1
LOS	D	C	C	A	B	A
Approach Delay	28.6			4.3	11.8	
Approach LOS	C			A	B	
Queue Length 50th (ft)	11	59	41	30	155	3
Queue Length 95th (ft)	33	96	m65	47	276	10
Internal Link Dist (ft)	982			1212	1008	
Turn Bay Length (ft)		175	125			100
Base Capacity (vph)	178	393	273	1580	1226	1122
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.35	0.29	0.59	0.41	0.02

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 72 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 8.9 Intersection LOS: A
Intersection Capacity Utilization 58.5% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 410: NC 11 & US 70 WB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	8	103	70	466	827	34
Future Volume (vph)	8	103	70	466	827	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175	125			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1719	1538	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1719	1538	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1062			1292	1088	
Travel Time (s)	29.0			16.0	13.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	114	78	518	919	38
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	14.0	14.0	14.0	86.0	72.0	14.0
Total Split (%)	14.0%	14.0%	14.0%	86.0%	72.0%	14.0%
Maximum Green (s)	7.0	7.0	7.0	79.0	65.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.0	19.4	11.0	88.6	70.6	79.0
Actuated g/C Ratio	0.09	0.19	0.11	0.89	0.71	0.79
v/c Ratio	0.06	0.38	0.41	0.32	0.72	0.03
Control Delay	42.8	37.2	47.9	1.3	14.4	2.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.8	37.2	47.9	1.3	14.4	2.3
LOS	D	D	D	A	B	A
Approach Delay	37.6			7.4	13.9	
Approach LOS	D			A	B	
Queue Length 50th (ft)	5	57	46	46	410	5
Queue Length 95th (ft)	21	111	96	26	521	9
Internal Link Dist (ft)	982			1212	1008	
Turn Bay Length (ft)		175	125			100
Base Capacity (vph)	154	298	189	1604	1299	1214
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.38	0.41	0.32	0.71	0.03

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 13.4 Intersection LOS: B
Intersection Capacity Utilization 67.7% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 410: NC 11 & US 70 WB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	99	106	444	23	19	208
Future Volume (vph)	99	106	444	23	19	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	998		1042			1257
Travel Time (s)	27.2		12.9			15.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	110	118	493	26	21	231
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	21.0	16.0	53.0	21.0	16.0	69.0
Total Split (%)	23.3%	17.8%	58.9%	23.3%	17.8%	76.7%
Maximum Green (s)	14.0	9.0	46.0	14.0	9.0	62.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	13.2	24.7	55.3	73.4	9.4	70.6
Actuated g/C Ratio	0.15	0.27	0.61	0.82	0.10	0.78
v/c Ratio	0.45	0.29	0.45	0.02	0.12	0.17
Control Delay	40.1	25.1	12.7	2.3	41.1	3.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.1	25.1	12.7	2.3	41.1	3.5
LOS	D	C	B	A	D	A
Approach Delay	32.3		12.2			6.7
Approach LOS	C		B			A
Queue Length 50th (ft)	58	51	147	2	12	29
Queue Length 95th (ft)	103	86	264	7	34	58
Internal Link Dist (ft)	918		962			1177
Turn Bay Length (ft)		150		100	100	
Base Capacity (vph)	305	441	1094	1278	206	1399
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.27	0.45	0.02	0.10	0.17

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 72 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.45
Intersection Signal Delay: 15.4 Intersection LOS: B
Intersection Capacity Utilization 38.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 411: US 258 & US 70 EB Ramps

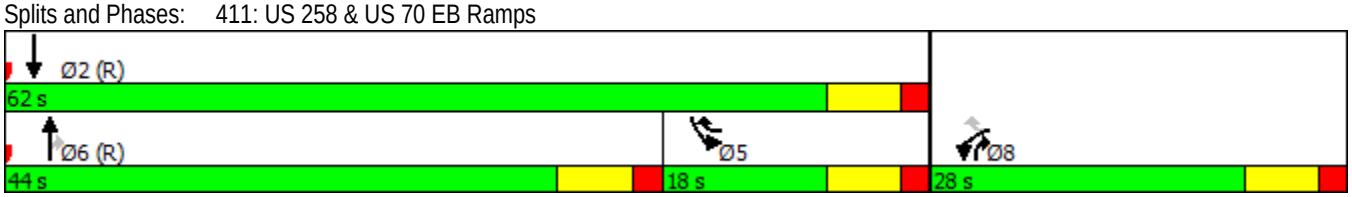
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	138	90	286	21	28	329
Future Volume (vph)	138	90	286	21	28	329
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	998		1042			1257
Travel Time (s)	27.2		12.9			15.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	153	100	318	23	31	366
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	28.0	18.0	44.0	28.0	18.0	62.0
Total Split (%)	31.1%	20.0%	48.9%	31.1%	20.0%	68.9%
Maximum Green (s)	21.0	11.0	37.0	21.0	11.0	55.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	15.4	29.3	50.7	72.2	11.6	64.6
Actuated g/C Ratio	0.17	0.33	0.56	0.80	0.13	0.72
v/c Ratio	0.53	0.20	0.32	0.02	0.14	0.29
Control Delay	40.0	19.8	14.0	3.1	33.8	4.9

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.0	19.8	14.0	3.1	33.8	4.9
LOS	D	B	B	A	C	A
Approach Delay	32.0		13.3			7.1
Approach LOS	C		B			A
Queue Length 50th (ft)	80	39	97	3	16	57
Queue Length 95th (ft)	132	64	187	9	41	87
Internal Link Dist (ft)	918		962			1177
Turn Bay Length (ft)		150		100	100	
Base Capacity (vph)	431	463	1001	1201	248	1274
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.22	0.32	0.02	0.13	0.29

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 72 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.53
Intersection Signal Delay: 15.6 Intersection LOS: B
Intersection Capacity Utilization 39.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 411: US 258 & US 70 EB Ramps



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	21	28	412	138	90	206
Future Volume (vph)	21	28	412	138	90	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		100	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1066		1257			882
Travel Time (s)	16.2		15.6			10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	31	458	153	100	229
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	16.0	21.0	53.0	16.0	21.0	74.0
Total Split (%)	17.8%	23.3%	58.9%	17.8%	23.3%	82.2%
Maximum Green (s)	9.0	14.0	46.0	9.0	14.0	67.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.4	27.2	55.6	71.1	12.7	70.6
Actuated g/C Ratio	0.10	0.30	0.62	0.79	0.14	0.78
v/c Ratio	0.13	0.07	0.42	0.13	0.42	0.16
Control Delay	38.1	21.2	7.3	1.1	39.9	2.8

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.1	21.2	7.3	1.1	39.9	2.8
LOS	D	C	A	A	D	A
Approach Delay	28.4		5.8			14.1
Approach LOS	C		A			B
Queue Length 50th (ft)	12	13	63	4	53	24
Queue Length 95th (ft)	35	30	84	10	96	44
Internal Link Dist (ft)	986		1177			802
Turn Bay Length (ft)		100		100	175	
Base Capacity (vph)	206	513	1100	1201	302	1392
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.06	0.42	0.13	0.33	0.16

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.42
Intersection Signal Delay: 9.7 Intersection LOS: A
Intersection Capacity Utilization 45.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 412: US 258 & US 70 WB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	23	19	277	99	106	334
Future Volume (vph)	23	19	277	99	106	334
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		100	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1066		1257			882
Travel Time (s)	16.2		15.6			10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	21	308	110	118	371
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	18.0	26.0	46.0	18.0	26.0	72.0
Total Split (%)	20.0%	28.9%	51.1%	20.0%	28.9%	80.0%
Maximum Green (s)	11.0	19.0	39.0	11.0	19.0	65.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.5	25.3	54.7	70.2	13.6	74.3
Actuated g/C Ratio	0.11	0.28	0.61	0.78	0.15	0.83
v/c Ratio	0.15	0.05	0.29	0.09	0.46	0.25
Control Delay	38.3	19.9	6.1	1.6	40.1	3.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	19.9	6.1	1.6	40.1	3.0
LOS	D	B	A	A	D	A
Approach Delay	30.1		4.9			11.9
Approach LOS	C		A			B
Queue Length 50th (ft)	14	8	28	3	62	42
Queue Length 95th (ft)	38	22	49	7	109	75
Internal Link Dist (ft)	986		1177			802
Turn Bay Length (ft)		100		100	175	
Base Capacity (vph)	243	548	1079	1219	393	1466
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.04	0.29	0.09	0.30	0.25

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 8 (9%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 9.7 Intersection LOS: A
Intersection Capacity Utilization 38.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 412: US 258 & US 70 WB Ramps

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	4	8	9	5	38	9	300	8	17	159	16
Future Volume (vph)	30	4	8	9	5	38	9	300	8	17	159	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1751	0	0	1665	0	1703	1785	0	1703	1767	0
Flt Permitted		0.965			0.991		0.950			0.950		
Satd. Flow (perm)	0	1751	0	0	1665	0	1703	1785	0	1703	1767	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1178			1128			1123			927	
Travel Time (s)		17.8			17.1			13.9			11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	46	0	0	58	0	10	342	0	19	195	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 30.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	4	8	9	5	38	9	300	8	17	159	16
Future Volume (Veh/h)	30	4	8	9	5	38	9	300	8	17	159	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	4	9	10	6	42	10	333	9	19	177	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											927	
pX, platoon unblocked												
vC, conflicting volume	622	586	186	584	590	338	195			342		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	622	586	186	584	590	338	195			342		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	91	99	99	98	99	94	99			98		
cM capacity (veh/h)	365	413	856	409	410	705	1354			1195		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	46	58	10	342	19	195
Volume Left	33	10	10	0	19	0
Volume Right	9	42	0	9	0	18
cSH	415	588	1354	1700	1195	1700
Volume to Capacity	0.11	0.10	0.01	0.20	0.02	0.11
Queue Length 95th (ft)	9	8	1	0	1	0
Control Delay (s)	14.7	11.8	7.7	0.0	8.1	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	14.7	11.8	0.2		0.7	
Approach LOS	B	B				

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	30.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	5	9	8	4	17	8	159	9	38	300	30
Future Volume (vph)	16	5	9	8	4	17	8	159	9	38	300	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1742	0	0	1690	0	1703	1778	0	1703	1767	0
Flt Permitted		0.974			0.986		0.950			0.950		
Satd. Flow (perm)	0	1742	0	0	1690	0	1703	1778	0	1703	1767	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1178			1128			1123			927	
Travel Time (s)		17.8			17.1			13.9			11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	34	0	0	32	0	9	187	0	42	366	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 34.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	5	9	8	4	17	8	159	9	38	300	30
Future Volume (Veh/h)	16	5	9	8	4	17	8	159	9	38	300	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	18	6	10	9	4	19	9	177	10	42	333	33
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											927	
pX, platoon unblocked	0.95	0.95	0.95	0.95	0.95		0.95					
vC, conflicting volume	650	638	350	630	650	182	366			187		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	601	589	284	580	602	182	301			187		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	95	98	99	98	99	98	99			97		
cM capacity (veh/h)	367	383	714	381	377	861	1170			1364		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	34	32	9	187	42	366
Volume Left	18	9	9	0	42	0
Volume Right	10	19	0	10	0	33
cSH	432	568	1170	1700	1364	1700
Volume to Capacity	0.08	0.06	0.01	0.11	0.03	0.22
Queue Length 95th (ft)	6	4	1	0	2	0
Control Delay (s)	14.0	11.7	8.1	0.0	7.7	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	14.0	11.7	0.4		0.8	
Approach LOS	B	B				

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

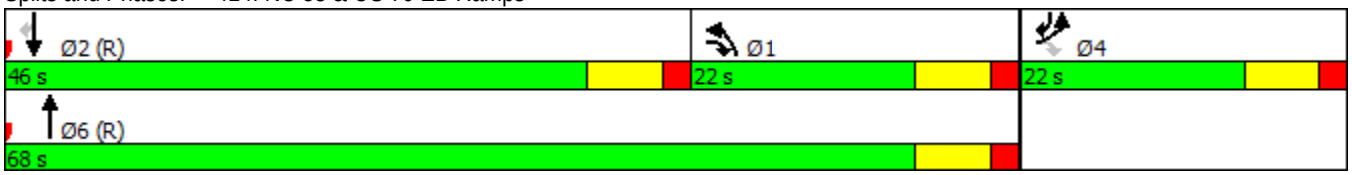
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	18	20	29	333	176	7
Future Volume (vph)	18	20	29	333	176	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	959			927	1201	
Travel Time (s)	14.5			11.5	14.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	22	32	370	196	8
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	22.0	22.0	22.0	68.0	46.0	22.0
Total Split (%)	24.4%	24.4%	24.4%	75.6%	51.1%	24.4%
Maximum Green (s)	15.0	15.0	15.0	61.0	39.0	15.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.3	15.6	9.7	82.1	72.0	77.9
Actuated g/C Ratio	0.10	0.17	0.11	0.91	0.80	0.87
v/c Ratio	0.11	0.08	0.17	0.23	0.14	0.01
Control Delay	38.0	27.2	38.4	1.9	2.8	1.6

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	27.2	38.4	1.9	2.8	1.6
LOS	D	C	D	A	A	A
Approach Delay	32.3			4.8	2.7	
Approach LOS	C			A	A	
Queue Length 50th (ft)	11	12	17	0	16	1
Queue Length 95th (ft)	32	27	43	71	25	2
Internal Link Dist (ft)	879			847	1121	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	321	345	321	1634	1433	1318
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.06	0.10	0.23	0.14	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 54 (60%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.23
Intersection Signal Delay: 5.9 Intersection LOS: A
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 414: NC 58 & US 70 EB Ramps



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	32	22	174	330	10
Future Volume (vph)	15	32	22	174	330	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	959			927	1201	
Travel Time (s)	14.5			11.5	14.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	36	24	193	367	11
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	17.0	18.0	18.0	73.0	55.0	17.0
Total Split (%)	18.9%	20.0%	20.0%	81.1%	61.1%	18.9%
Maximum Green (s)	10.0	11.0	11.0	66.0	48.0	10.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.2	15.5	9.7	82.2	72.1	77.9
Actuated g/C Ratio	0.10	0.17	0.11	0.91	0.80	0.87
v/c Ratio	0.10	0.14	0.13	0.12	0.26	0.01
Control Delay	37.9	28.9	37.6	1.6	2.6	1.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	28.9	37.6	1.6	2.6	1.3
LOS	D	C	D	A	A	A
Approach Delay	31.8			5.6	2.6	
Approach LOS	C			A	A	
Queue Length 50th (ft)	9	19	13	0	26	1
Queue Length 95th (ft)	29	38	36	36	32	2
Internal Link Dist (ft)	879			847	1121	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	227	284	245	1636	1435	1302
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.13	0.10	0.12	0.26	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 52 (58%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.26
Intersection Signal Delay: 6.0 Intersection LOS: A
Intersection Capacity Utilization 32.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 414: NC 58 & US 70 EB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	22	32	319	161	15
Future Volume (vph)	10	22	32	319	161	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	935			1201	1007	
Travel Time (s)	25.5			14.9	12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	24	36	354	179	17
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	20.0	24.0	24.0	70.0	46.0	20.0
Total Split (%)	22.2%	26.7%	26.7%	77.8%	51.1%	22.2%
Maximum Green (s)	13.0	17.0	17.0	63.0	39.0	13.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.1	15.6	9.9	82.3	72.0	80.5
Actuated g/C Ratio	0.10	0.17	0.11	0.91	0.80	0.89
v/c Ratio	0.06	0.09	0.19	0.22	0.12	0.01
Control Delay	37.6	27.6	38.1	1.7	5.3	2.1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.6	27.6	38.1	1.7	5.3	2.1
LOS	D	C	D	A	A	A
Approach Delay	30.8			5.0	5.0	
Approach LOS	C			A	A	
Queue Length 50th (ft)	6	13	19	0	18	1
Queue Length 95th (ft)	22	29	47	60	71	6
Internal Link Dist (ft)	855			1121	927	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	283	417	359	1639	1434	1420
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.06	0.10	0.22	0.12	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 40 (44%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.22
Intersection Signal Delay: 6.5 Intersection LOS: A
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 415: NC 58 & US 70 WB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	29	20	169	311	18
Future Volume (vph)	7	29	20	169	311	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	935			1201	1007	
Travel Time (s)	25.5			14.9	12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	32	22	188	346	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	16.0	18.0	18.0	74.0	56.0	16.0
Total Split (%)	17.8%	20.0%	20.0%	82.2%	62.2%	17.8%
Maximum Green (s)	9.0	11.0	11.0	67.0	49.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.0	15.0	9.4	82.4	72.6	81.0
Actuated g/C Ratio	0.10	0.17	0.10	0.92	0.81	0.90
v/c Ratio	0.05	0.13	0.12	0.11	0.24	0.01
Control Delay	37.4	29.3	38.8	1.4	5.4	1.8

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	29.3	38.8	1.4	5.4	1.8
LOS	D	C	D	A	A	A
Approach Delay	30.9			5.3	5.2	
Approach LOS	C			A	A	
Queue Length 50th (ft)	4	17	12	0	40	1
Queue Length 95th (ft)	18	36	35	29	132	6
Internal Link Dist (ft)	855			1121	927	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	208	315	245	1640	1444	1391
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.10	0.09	0.11	0.24	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 40 (44%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.24
Intersection Signal Delay: 6.9 Intersection LOS: A
Intersection Capacity Utilization 30.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 415: NC 58 & US 70 WB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	14	14	19	68	44	11
Future Volume (vph)	14	14	19	68	44	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1736	1553	1736	1827	1827	1553
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1736	1827	1827	1553
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	1230			1626	1380	
Travel Time (s)	18.6			20.2	17.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	16	21	76	49	12
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	5	5	2	6	7
Permitted Phases		7				6
Detector Phase	7	5	5	2	6	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	24.0	29.0	29.0	66.0	37.0	24.0
Total Split (%)	26.7%	32.2%	32.2%	73.3%	41.1%	26.7%
Maximum Green (s)	17.0	22.0	22.0	59.0	30.0	17.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.2	15.1	9.3	82.2	72.5	82.1
Actuated g/C Ratio	0.10	0.17	0.10	0.91	0.81	0.91
v/c Ratio	0.09	0.06	0.12	0.05	0.03	0.01
Control Delay	37.8	27.3	37.9	1.6	3.8	1.4

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.8	27.3	37.9	1.6	3.8	1.4
LOS	D	C	D	A	A	A
Approach Delay	32.5			9.4	3.3	
Approach LOS	C			A	A	
Queue Length 50th (ft)	8	8	11	0	3	0
Queue Length 95th (ft)	28	22	33	16	17	3
Internal Link Dist (ft)	1150			1546	1300	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	366	514	462	1669	1471	1482
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.03	0.05	0.05	0.03	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 82 (91%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.12
Intersection Signal Delay: 11.4 Intersection LOS: B
Intersection Capacity Utilization 25.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 416: Wyse Fork Rd & US 70 EB Ramps

416: Wyse Fork Rd & US 70 EB Ramps

Alternative 51 PM Peak

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	12	21	16	42	66	15
Future Volume (vph)	12	21	16	42	66	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1736	1553	1736	1827	1827	1553
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1736	1827	1827	1553
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	1230			1626	1380	
Travel Time (s)	18.6			20.2	17.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	23	18	47	73	17
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	5	5	2	6	7
Permitted Phases		7				6
Detector Phase	7	5	5	2	6	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	24.0	24.0	24.0	66.0	42.0	24.0
Total Split (%)	26.7%	26.7%	26.7%	73.3%	46.7%	26.7%
Maximum Green (s)	17.0	17.0	17.0	59.0	35.0	17.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.1	17.8	9.2	78.5	69.8	78.4
Actuated g/C Ratio	0.10	0.20	0.10	0.87	0.78	0.87
v/c Ratio	0.07	0.08	0.10	0.03	0.05	0.01
Control Delay	37.6	26.1	37.9	2.0	4.5	1.7

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.6	26.1	37.9	2.0	4.5	1.7
LOS	D	C	D	A	A	A
Approach Delay	30.3			11.9	4.0	
Approach LOS	C			B	A	
Queue Length 50th (ft)	7	10	10	4	11	1
Queue Length 95th (ft)	24	28	30	11	24	4
Internal Link Dist (ft)	1150			1546	1300	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	366	474	366	1593	1418	1453
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.05	0.05	0.03	0.05	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 82 (91%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.10
Intersection Signal Delay: 11.6 Intersection LOS: B
Intersection Capacity Utilization 25.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 416: Wyse Fork Rd & US 70 EB Ramps

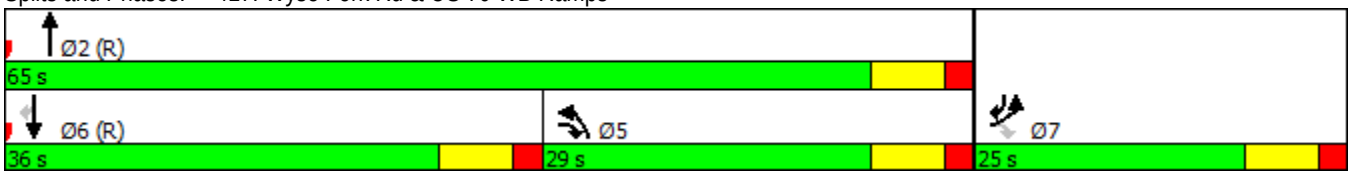
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	16	21	61	39	12
Future Volume (vph)	15	16	21	61	39	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1736	1553	1736	1827	1827	1553
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1736	1827	1827	1553
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1065			1380	1294	
Travel Time (s)	29.0			17.1	16.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	18	23	68	43	13
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	5	5	2	6	7
Permitted Phases		7				6
Detector Phase	7	5	5	2	6	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	25.0	29.0	29.0	65.0	36.0	25.0
Total Split (%)	27.8%	32.2%	32.2%	72.2%	40.0%	27.8%
Maximum Green (s)	18.0	22.0	22.0	58.0	29.0	18.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.2	18.0	9.4	78.4	69.6	78.2
Actuated g/C Ratio	0.10	0.20	0.10	0.87	0.77	0.87
v/c Ratio	0.10	0.06	0.13	0.04	0.03	0.01
Control Delay	37.9	25.3	32.7	1.7	6.2	2.2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	25.3	32.7	1.7	6.2	2.2
LOS	D	C	C	A	A	A
Approach Delay	31.4			9.5	5.3	
Approach LOS	C			A	A	
Queue Length 50th (ft)	9	8	13	5	8	1
Queue Length 95th (ft)	29	24	33	12	22	5
Internal Link Dist (ft)	985			1300	1214	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	385	419	462	1591	1413	1349
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.04	0.05	0.04	0.03	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 16 (18%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.13
Intersection Signal Delay: 12.4 Intersection LOS: B
Intersection Capacity Utilization 25.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 417: Wyse Fork Rd & US 70 WB Ramps



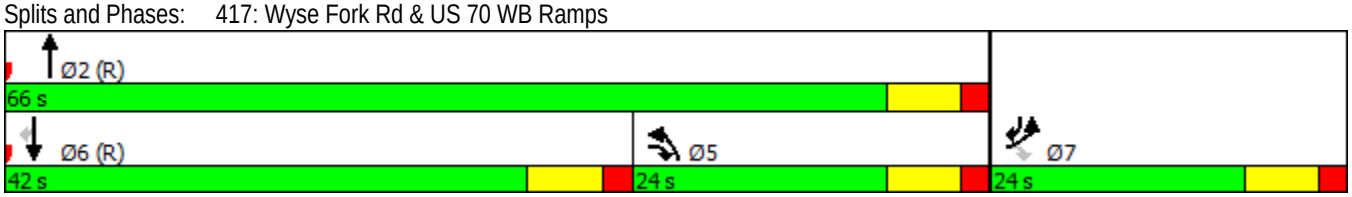
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	11	19	14	40	62	14
Future Volume (vph)	11	19	14	40	62	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1736	1553	1736	1827	1827	1553
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1736	1827	1827	1553
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1065			1380	1294	
Travel Time (s)	29.0			17.1	16.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	21	16	44	69	16
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	5	5	2	6	7
Permitted Phases		7				6
Detector Phase	7	5	5	2	6	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	24.0	24.0	24.0	66.0	42.0	24.0
Total Split (%)	26.7%	26.7%	26.7%	73.3%	46.7%	26.7%
Maximum Green (s)	17.0	17.0	17.0	59.0	35.0	17.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.1	14.9	9.2	82.3	72.7	78.4
Actuated g/C Ratio	0.10	0.17	0.10	0.91	0.81	0.87
v/c Ratio	0.07	0.08	0.09	0.03	0.05	0.01
Control Delay	37.5	28.3	31.1	1.2	5.1	2.1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	28.3	31.1	1.2	5.1	2.1
LOS	D	C	C	A	A	A
Approach Delay	31.7			9.2	4.5	
Approach LOS	C			A	A	
Queue Length 50th (ft)	6	11	8	0	7	1
Queue Length 95th (ft)	23	27	26	8	30	5
Internal Link Dist (ft)	985			1300	1214	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	366	360	366	1671	1476	1353
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.06	0.04	0.03	0.05	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 16 (18%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.09
Intersection Signal Delay: 11.1 Intersection LOS: B
Intersection Capacity Utilization 25.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 417: Wyse Fork Rd & US 70 WB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	416	4	4	512	39	6	4	5	49	4	78
Future Volume (vph)	50	416	4	4	512	39	6	4	5	49	4	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1687	3370	0	1687	3337	0	0	1755	0	0	1649	0
Flt Permitted	0.950			0.950				0.980			0.982	
Satd. Flow (perm)	1687	3370	0	1687	3337	0	0	1755	0	0	1649	0
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		978			995			420			957	
Travel Time (s)		12.1			12.3			6.4			14.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%	1%	1%	1%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	56	466	0	4	612	0	0	17	0	0	145	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		46			46			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 38.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	416	4	4	512	39	6	4	5	49	4	78
Future Volume (Veh/h)	50	416	4	4	512	39	6	4	5	49	4	78
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	56	462	4	4	569	43	7	4	6	54	4	87
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	612			466			958	1196	233	950	1176	306
vC1, stage 1 conf vol							576	576		598	598	
vC2, stage 2 conf vol							382	620		351	578	
vCu, unblocked vol	612			466			958	1196	233	950	1176	306
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.6	
tF (s)	2.3			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			100			98	99	99	83	99	87
cM capacity (veh/h)	930			1057			289	283	772	319	295	684

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	56	308	158	4	379	233	17	145
Volume Left	56	0	0	4	0	0	7	54
Volume Right	0	0	4	0	0	43	6	87
cSH	930	1700	1700	1057	1700	1700	369	468
Volume to Capacity	0.06	0.18	0.09	0.00	0.22	0.14	0.05	0.31
Queue Length 95th (ft)	5	0	0	0	0	0	4	33
Control Delay (s)	9.1	0.0	0.0	8.4	0.0	0.0	15.2	16.1
Lane LOS	A			A			C	C
Approach Delay (s)	1.0			0.1			15.2	16.1
Approach LOS							C	C

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	512	6	5	416	49	4	4	4	39	4	50
Future Volume (vph)	78	512	6	5	416	49	4	4	4	39	4	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1687	3367	0	1687	3320	0	0	1768	0	0	1660	0
Flt Permitted	0.950			0.950				0.984			0.980	
Satd. Flow (perm)	1687	3367	0	1687	3320	0	0	1768	0	0	1660	0
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		978			995			420			957	
Travel Time (s)		12.1			12.3			6.4			14.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%	1%	1%	1%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	576	0	6	516	0	0	12	0	0	103	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		46			46			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 35.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	512	6	5	416	49	4	4	4	39	4	50
Future Volume (Veh/h)	78	512	6	5	416	49	4	4	4	39	4	50
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	87	569	7	6	462	54	4	4	4	43	4	56
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	516			576			1048	1274	288	966	1251	258
vC1, stage 1 conf vol							746	746		501	501	
vC2, stage 2 conf vol							301	528		464	750	
vCu, unblocked vol	516			576			1048	1274	288	966	1251	258
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.6	
tF (s)	2.3			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			99			98	98	99	86	98	92
cM capacity (veh/h)	1012			960			256	256	712	312	266	735

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	87	379	197	6	308	208	12	103
Volume Left	87	0	0	6	0	0	4	43
Volume Right	0	0	7	0	0	54	4	56
cSH	1012	1700	1700	960	1700	1700	326	450
Volume to Capacity	0.09	0.22	0.12	0.01	0.18	0.12	0.04	0.23
Queue Length 95th (ft)	7	0	0	0	0	0	3	22
Control Delay (s)	8.9	0.0	0.0	8.8	0.0	0.0	16.5	15.4
Lane LOS	A			A			C	C
Approach Delay (s)	1.2			0.1			16.5	15.4
Approach LOS							C	C

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	35.5%	ICU Level of Service	A
Analysis Period (min)	15		

2040 Build Alternative 51
SimTraffic Reports

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Summary of All Intervals

Run Number	1	2	3	4	2553 Alternative 51 AM		Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	8592	8442	8538	8706	8684	8719	8610
Vehs Exited	8593	8462	8544	8704	8720	8733	8621
Starting Vehs	142	147	139	132	150	155	135
Ending Vehs	141	127	133	134	114	141	119
Travel Distance (mi)	4633	4554	4578	4652	4683	4712	4635
Travel Time (hr)	140.7	136.4	138.3	141.1	141.0	144.8	140.4
Total Delay (hr)	38.3	36.1	37.7	38.3	37.9	41.3	38.3
Total Stops	3547	3316	3252	3502	3410	3449	3406
Fuel Used (gal)	176.5	173.1	174.2	178.1	177.9	180.0	176.6

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	2553 Alternative 51 AM		Avg
Vehs Entered	8592	8442	8538	8706	8684	8719	8610
Vehs Exited	8593	8462	8544	8704	8720	8733	8621
Starting Vehs	142	147	139	132	150	155	135
Ending Vehs	141	127	133	134	114	141	119
Travel Distance (mi)	4633	4554	4578	4652	4683	4712	4635
Travel Time (hr)	140.7	136.4	138.3	141.1	141.0	144.8	140.4
Total Delay (hr)	38.3	36.1	37.7	38.3	37.9	41.3	38.3
Total Stops	3547	3316	3252	3502	3410	3449	3406
Fuel Used (gal)	176.5	173.1	174.2	178.1	177.9	180.0	176.6

Intersection: 401: Jim Sutton Rd & Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	42	44	4	16
Average Queue (ft)	13	16	0	1
95th Queue (ft)	36	37	3	8
Link Distance (ft)	848	806	905	935
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	74	158	71	70	268	43
Average Queue (ft)	28	71	19	23	163	6
95th Queue (ft)	61	132	53	58	253	26
Link Distance (ft)	951	951	935	935	1248	1248
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		225		100	275	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	98	239	125	62	199	91
Average Queue (ft)	35	111	38	10	89	26
95th Queue (ft)	74	189	91	37	159	70
Link Distance (ft)	939	939	1248	1248	934	934
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		300		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 404: Willie Measley Rd & Washington St/Service Rd

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	81	62	62	15	16	4
Average Queue (ft)	41	22	21	0	1	0
95th Queue (ft)	67	47	49	9	7	3
Link Distance (ft)	924	913	934	934	1055	1055
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			100		100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 405: Harold Sutton Rd/Albert Sugg Rd & US 70 Bus

Movement	EB	WB	NB	SB
Directions Served	L	L	LTR	LTR
Maximum Queue (ft)	18	37	228	227
Average Queue (ft)	6	11	65	85
95th Queue (ft)	20	30	233	218
Link Distance (ft)	990	965	855	873
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	100	100		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 406: NC 55 & N Croom Bland Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	29	48	4	34
Average Queue (ft)	10	18	0	4
95th Queue (ft)	30	39	3	20
Link Distance (ft)	667	621	700	955
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 407: US 70 EB Ramps & NC 55

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	146	28	48	69	88	69
Average Queue (ft)	42	3	8	12	35	22
95th Queue (ft)	105	16	32	43	73	57
Link Distance (ft)	955	955	1371	1371	764	764
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 408: US 70 WB Ramps & NC 55

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	94	51	80	65	83	56
Average Queue (ft)	23	7	21	12	25	8
95th Queue (ft)	71	30	55	41	63	33
Link Distance (ft)	1371	1371	1006	1006	821	821
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 409: NC 11 & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	80	119	154	161	245	19
Average Queue (ft)	26	46	68	45	83	1
95th Queue (ft)	63	97	125	128	176	11
Link Distance (ft)	956	956	977	977	1222	1222
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		125	250			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 410: NC 11 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	64	147	114	183	263	43
Average Queue (ft)	17	70	46	38	87	5
95th Queue (ft)	47	127	92	120	187	25
Link Distance (ft)	1011	1011	1222	1222	1058	1058
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175	125			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 411: US 258 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	143	132	187	35	68	95
Average Queue (ft)	67	63	71	2	17	21
95th Queue (ft)	118	116	148	16	47	62
Link Distance (ft)	940	940	994	994	1185	1185
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 412: US 258 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	63	65	158	69	128	74
Average Queue (ft)	18	15	49	20	59	12
95th Queue (ft)	48	43	116	54	112	45
Link Distance (ft)	1015	1015	1185	1185	846	846
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	175	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 413: NC 58 & Elijah Loftin Rd

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	L	L	TR
Maximum Queue (ft)	58	50	17	16	3
Average Queue (ft)	20	23	1	2	0
95th Queue (ft)	42	44	10	11	3
Link Distance (ft)	1137	1082	1094	863	863
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			100	100	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 414: NC 58 & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	49	60	80	76	90	24
Average Queue (ft)	15	15	25	12	18	1
95th Queue (ft)	41	44	64	47	61	10
Link Distance (ft)	914	914	863	863	1133	1133
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 415: NC 58 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	40	68	80	77	76	23
Average Queue (ft)	9	20	28	7	19	2
95th Queue (ft)	32	53	66	36	56	14
Link Distance (ft)	879	879	1133	1133	961	961
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 416: Wyse Fork Rd & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	51	47	54	35	29	26
Average Queue (ft)	9	8	14	2	2	2
95th Queue (ft)	33	30	40	16	14	12
Link Distance (ft)	1177	1177	1595	1595	1309	1309
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 417: Wyse Fork Rd & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	41	63	58	32	45	20
Average Queue (ft)	11	13	15	2	4	1
95th Queue (ft)	33	41	44	15	24	9
Link Distance (ft)	1012	1012	1309	1309	1252	1252
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 418: Service Rd/Kornegay St & US 70 Bus

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	TR	LTR	LTR
Maximum Queue (ft)	64	15	20	44	167
Average Queue (ft)	20	1	1	12	55
95th Queue (ft)	48	7	9	36	127
Link Distance (ft)	948	962	962	356	892
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100	100			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	2	3	4	2553 Alternative 51 PM		Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	8636	8560	8710	8651	8634	8663	8641
Vehs Exited	8617	8595	8706	8657	8650	8684	8650
Starting Vehs	124	163	131	134	147	157	125
Ending Vehs	143	128	135	128	131	136	118
Travel Distance (mi)	4610	4583	4661	4613	4622	4626	4619
Travel Time (hr)	140.1	140.1	142.9	139.9	140.9	144.2	141.3
Total Delay (hr)	38.9	39.0	40.5	38.3	38.9	42.4	39.7
Total Stops	3448	3433	3457	3377	3524	3478	3454
Fuel Used (gal)	175.9	175.9	178.4	175.8	176.6	178.1	176.8

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	2553 Alternative 51 PM		Avg
Vehs Entered	8636	8560	8710	8651	8634	8663	8641
Vehs Exited	8617	8595	8706	8657	8650	8684	8650
Starting Vehs	124	163	131	134	147	157	125
Ending Vehs	143	128	135	128	131	136	118
Travel Distance (mi)	4610	4583	4661	4613	4622	4626	4619
Travel Time (hr)	140.1	140.1	142.9	139.9	140.9	144.2	141.3
Total Delay (hr)	38.9	39.0	40.5	38.3	38.9	42.4	39.7
Total Stops	3448	3433	3457	3377	3524	3478	3454
Fuel Used (gal)	175.9	175.9	178.4	175.8	176.6	178.1	176.8

Intersection: 401: Jim Sutton Rd & Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	36	40	8	20
Average Queue (ft)	9	13	0	1
95th Queue (ft)	30	34	4	10
Link Distance (ft)	848	806	905	935
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	88	202	55	59	256	44
Average Queue (ft)	35	86	13	11	133	5
95th Queue (ft)	73	161	41	37	220	25
Link Distance (ft)	951	951	935	935	1248	1248
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		225		100	275	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	119	280	113	45	152	99
Average Queue (ft)	51	139	32	5	74	26
95th Queue (ft)	102	229	82	26	138	71
Link Distance (ft)	939	939	1248	1248	934	934
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		300		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 404: Willie Measley Rd & Washington St/Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	72	55	58	4
Average Queue (ft)	37	25	17	0
95th Queue (ft)	61	45	45	3
Link Distance (ft)	924	913	934	1055
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 405: Harold Sutton Rd/Albert Sugg Rd & US 70 Bus

Movement	EB	WB	NB	SB
Directions Served	L	L	LTR	LTR
Maximum Queue (ft)	54	51	130	135
Average Queue (ft)	13	15	39	39
95th Queue (ft)	38	40	119	103
Link Distance (ft)	990	965	855	873
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	100	100		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 406: NC 55 & N Croom Bland Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	33	40	16	28
Average Queue (ft)	8	14	1	4
95th Queue (ft)	27	36	9	18
Link Distance (ft)	667	621	700	955
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 407: US 70 EB Ramps & NC 55

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	123	30	64	103	124	98
Average Queue (ft)	35	3	12	32	48	24
95th Queue (ft)	86	18	41	77	97	65
Link Distance (ft)	955	955	1371	1371	764	764
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 408: US 70 WB Ramps & NC 55

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	75	50	88	76	91	45
Average Queue (ft)	18	7	26	18	29	4
95th Queue (ft)	53	29	63	54	69	22
Link Distance (ft)	1371	1371	1006	1006	821	821
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 409: NC 11 & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	53	114	243	87	366	32
Average Queue (ft)	16	43	89	19	138	2
95th Queue (ft)	43	92	176	63	294	15
Link Distance (ft)	956	956	977	977	1222	1222
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		125	250			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 410: NC 11 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	42	153	123	90	275	52
Average Queue (ft)	9	68	49	13	125	6
95th Queue (ft)	30	124	103	51	230	30
Link Distance (ft)	1011	1011	1222	1222	1058	1058
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175	125			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 411: US 258 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	182	137	175	29	89	121
Average Queue (ft)	87	51	69	4	23	41
95th Queue (ft)	157	108	140	20	60	94
Link Distance (ft)	940	940	994	994	1185	1185
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 412: US 258 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	62	61	126	78	156	86
Average Queue (ft)	18	14	48	16	73	15
95th Queue (ft)	48	40	108	49	131	54
Link Distance (ft)	1015	1015	1185	1185	846	846
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	175	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 413: NC 58 & Elijah Loftin Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	33	40	24	24
Average Queue (ft)	15	17	3	3
95th Queue (ft)	34	38	15	15
Link Distance (ft)	1137	1082	1094	863
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 414: NC 58 & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	52	80	66	45	153	31
Average Queue (ft)	11	23	19	6	32	2
95th Queue (ft)	35	60	49	30	102	13
Link Distance (ft)	914	914	863	863	1133	1133
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 415: NC 58 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	27	72	56	44	109	30
Average Queue (ft)	6	22	14	3	27	3
95th Queue (ft)	23	54	39	19	76	17
Link Distance (ft)	879	879	1133	1133	961	961
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 416: Wyse Fork Rd & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	42	56	56	34	33	20
Average Queue (ft)	9	13	12	2	4	1
95th Queue (ft)	29	39	39	17	21	9
Link Distance (ft)	1177	1177	1595	1595	1309	1309
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 417: Wyse Fork Rd & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	27	45	54	18	32	28
Average Queue (ft)	7	12	10	1	5	2
95th Queue (ft)	26	34	36	10	23	12
Link Distance (ft)	1012	1012	1309	1309	1252	1252
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 418: Service Rd/Kornegay St & US 70 Bus

Movement	EB	WB	WB	WB	NB	SB
Directions Served	L	L	T	TR	LTR	LTR
Maximum Queue (ft)	65	22	4	8	33	100
Average Queue (ft)	23	2	0	0	9	40
95th Queue (ft)	54	11	3	5	31	77
Link Distance (ft)	948	962	962	962	356	892
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100	100				
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 0

APPENDIX M

2040 Build Alternative 52

Peak Hour Traffic Volume Development and

FREEVAL-E, Synchro & SimTraffic Reports

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2040 Build Alternative 52
Peak Hour Traffic Volume
Development

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Alternative 52

Volume Development

A project-level traffic forecast, titled "Traffic Forecast Technical Memorandum, Kinston Bypass Alternatives Study", was prepared and finalized in November, 2016. This traffic forecast was used to provide peak hour volumes for the analysis of the selected alternatives in this memorandum. The traffic forecast is included in **Attachment A**.

The Intersection Analysis Utility (IAU), provided by NCDOT, was utilized to calculate AM and PM Peak Hour volumes for at-grade intersections (ramp terminals and any intersections within 1,000 feet of ramp terminals), interchange ramps, and freeway segments within interchanges. Peak hour volumes for freeway segments between interchanges were calculated by finding the forecasted daily two-way volumes along the link, then breaking the daily volume down by multiplying it by the Design Hour Volume Percentage (K), and the Peak Hour Directional Split (D). All of these volumes are shown in **BLACK** in **Figures 12A-12F**.

US 70 and CF Harvey Parkway Extension Freeway Analysis

FREEVAL-E does not use a Peak Hour Factor (PHF) to adjust the peak hour volumes to reflect the peak 15-minute period. Additionally, FREEVAL-E requires balanced peak hour mainline volumes, since only the beginning freeway segment and subsequent ramps have volume inputs. To provide peak 15-minute hourly flow rates for the analysis in FREEVAL-E, each of the peak hour volumes calculated for the freeway segments and ramps was divided by 0.90, which is the recommended PHF in the NCDOT Congestion Management Capacity Analysis Guidelines. To balance the peak hour volumes to use with FREEVAL-E, the highest peak 15-minute hourly flow rate was located along the US 70 corridor within the study area. Once this was located, the mainline US 70 volumes were adjusted in each direction to the eastern and western ends of the network by adding and subtracting the relevant ramp volumes.

For Alternative 52, the location used as the "hold point" for balancing purposes on US 70 was the segment between Jim Sutton Road / Willie Measley Road and US 70 Business (west of Kinston). These volume adjustments are shown in **BLUE** in **Figures 12A-12F**. The ensuing pages of this appendix detail the following step-by-step process used to calculate the volumes used:

Step 1 – Freeway segment volumes between interchanges were calculated by multiplying the two-way daily volumes by the K and D factors.

Step 2 – Volumes for interchange ramps, and freeway segments inside interchanges were collected from the IAU breakout sheets.

Step 3 – The volumes collected in Step 2 were divided by the NCDOT default PHF of 0.90 to account for the fact that FREEVAL-E does not factor in the PHF, and the highest calculated freeway volume location was used as the base point with which to balance the US 70 freeway corridor.

Step 4 – The volumes of the subsequent freeway segments were adjusted to allow for a balanced peak hour network in both directions, as well as along CF Harvey Parkway Extension.

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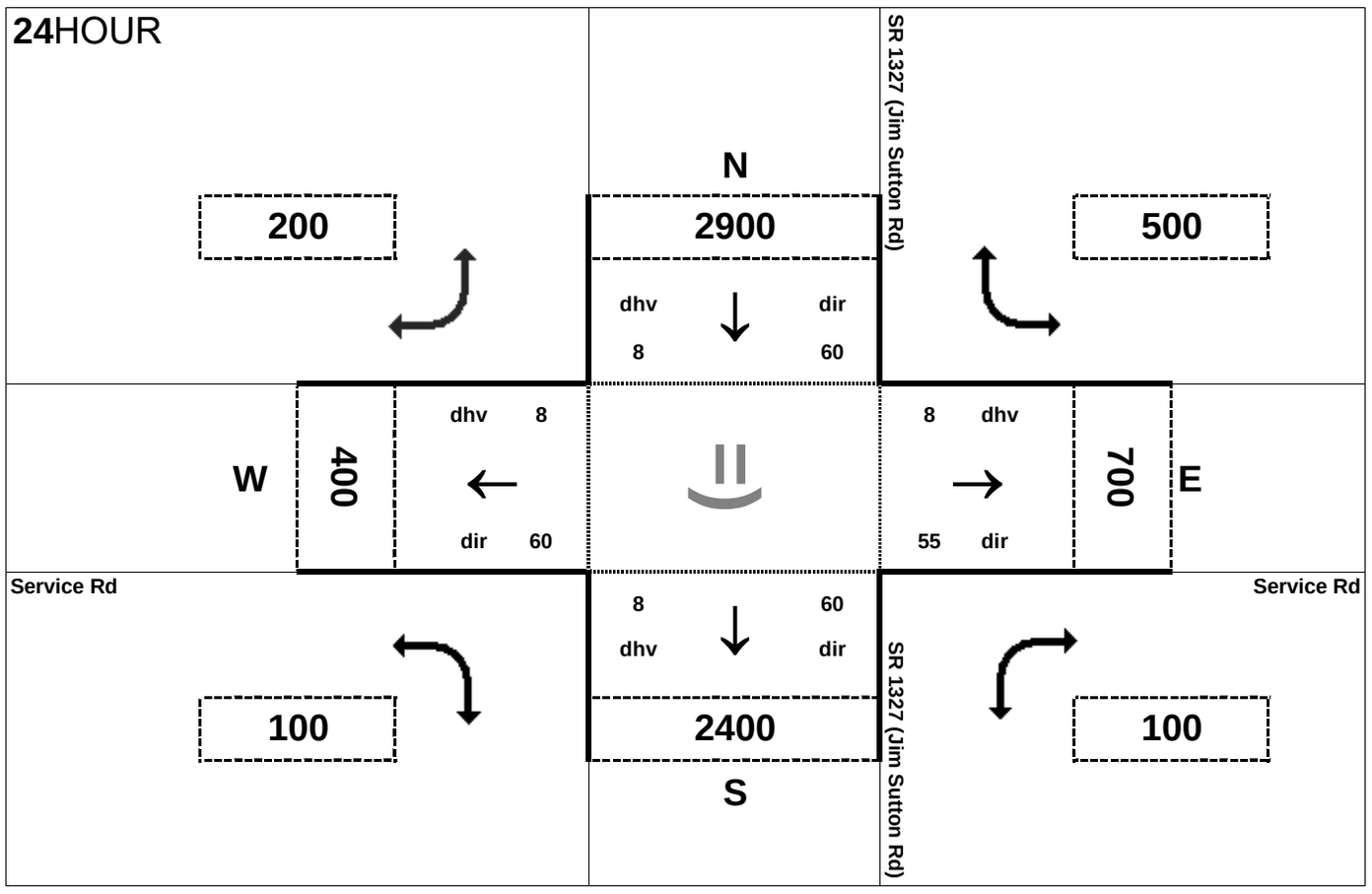
Peak Hour Volume Breakouts Report:
401 Intersection of SR 1327 (Jim Sutton Rd) at Service Rd

Traffic Forecast Release Date:
November-16

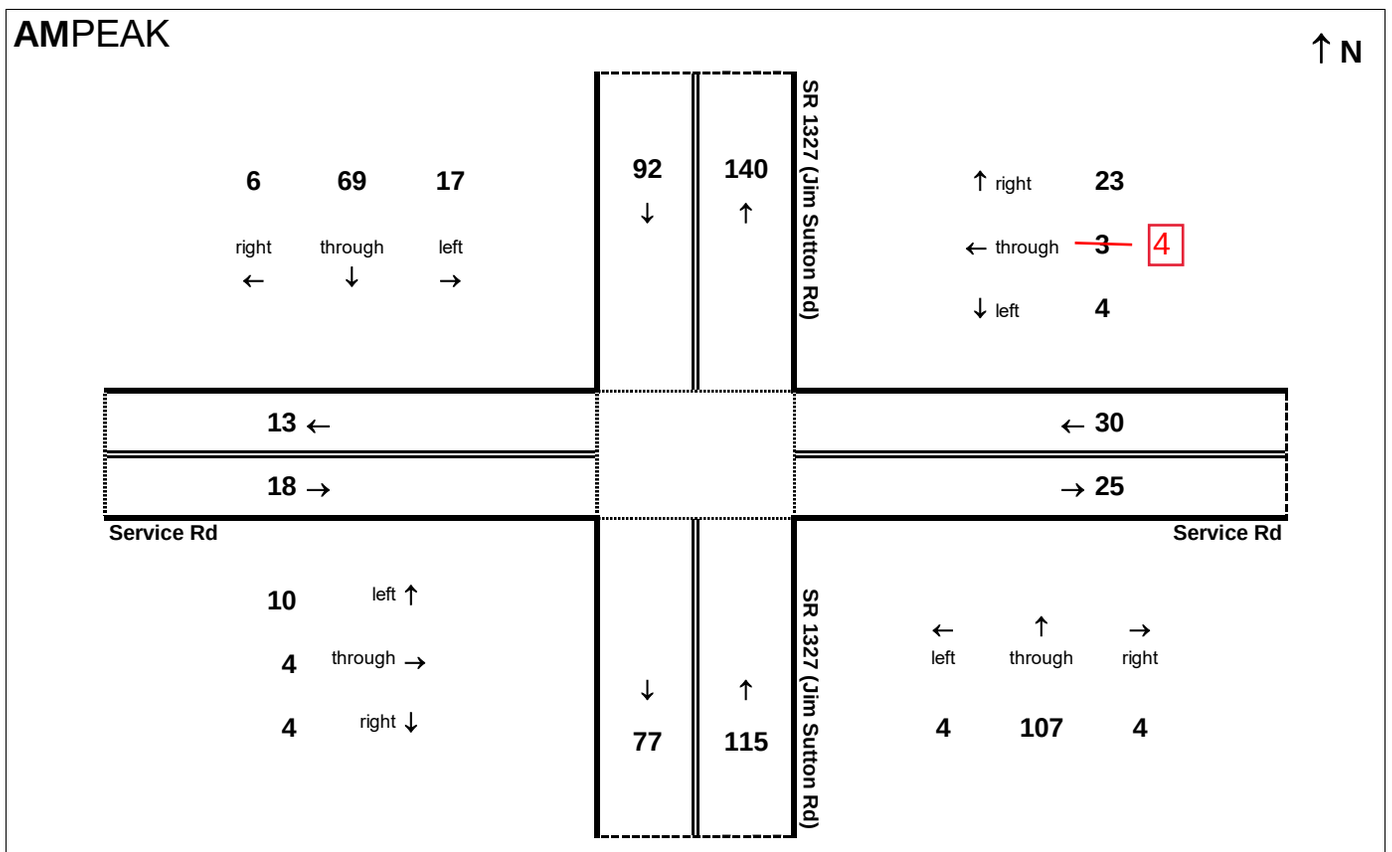
Traffic Data Year:
2040 Build Alt 52

Project:
R-2553

24HOUR

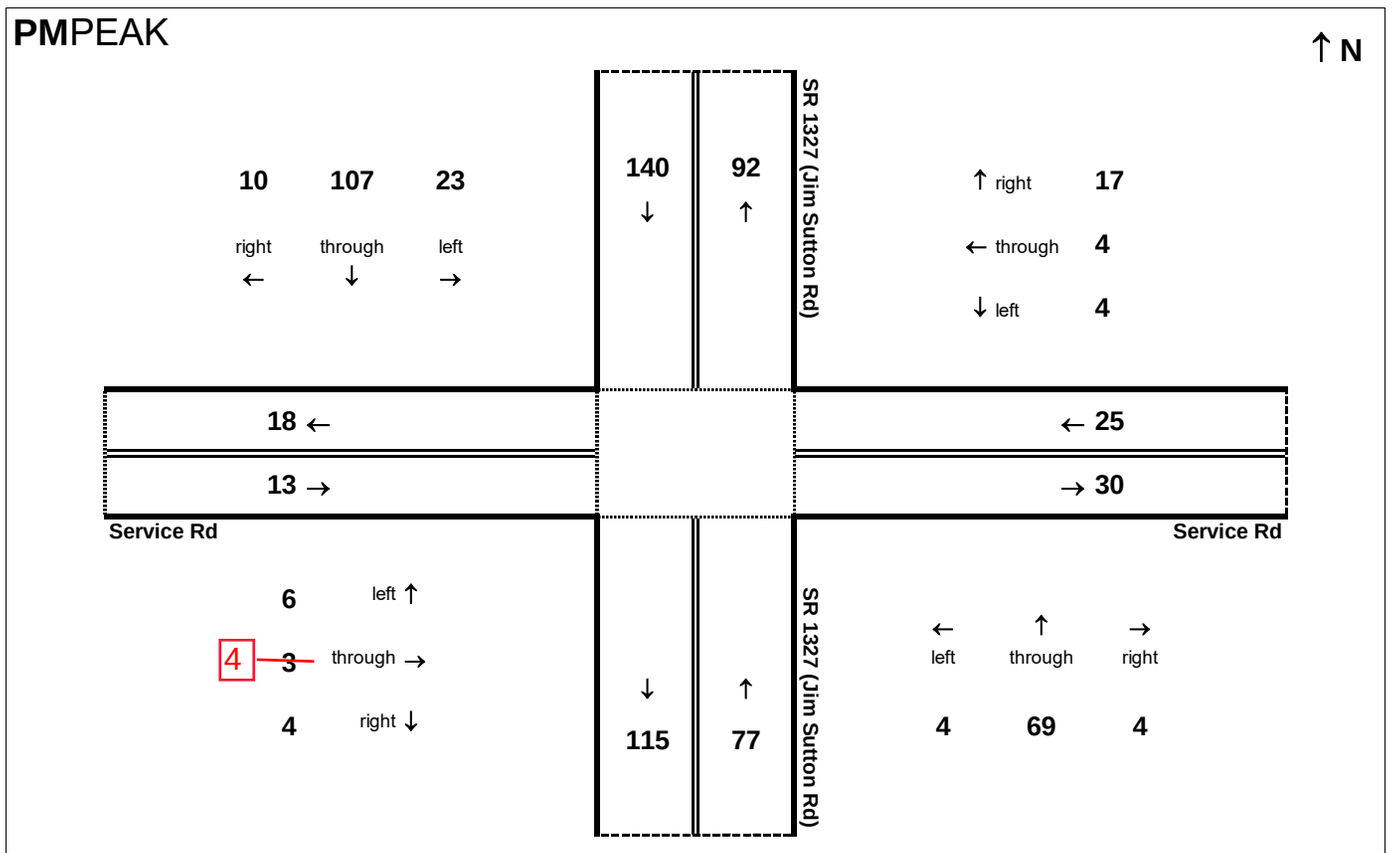


AMPEAK



AM peak hour inflow is 256 vehicles. AM peak hour outflow is 255 vehicles.

PMPEAK



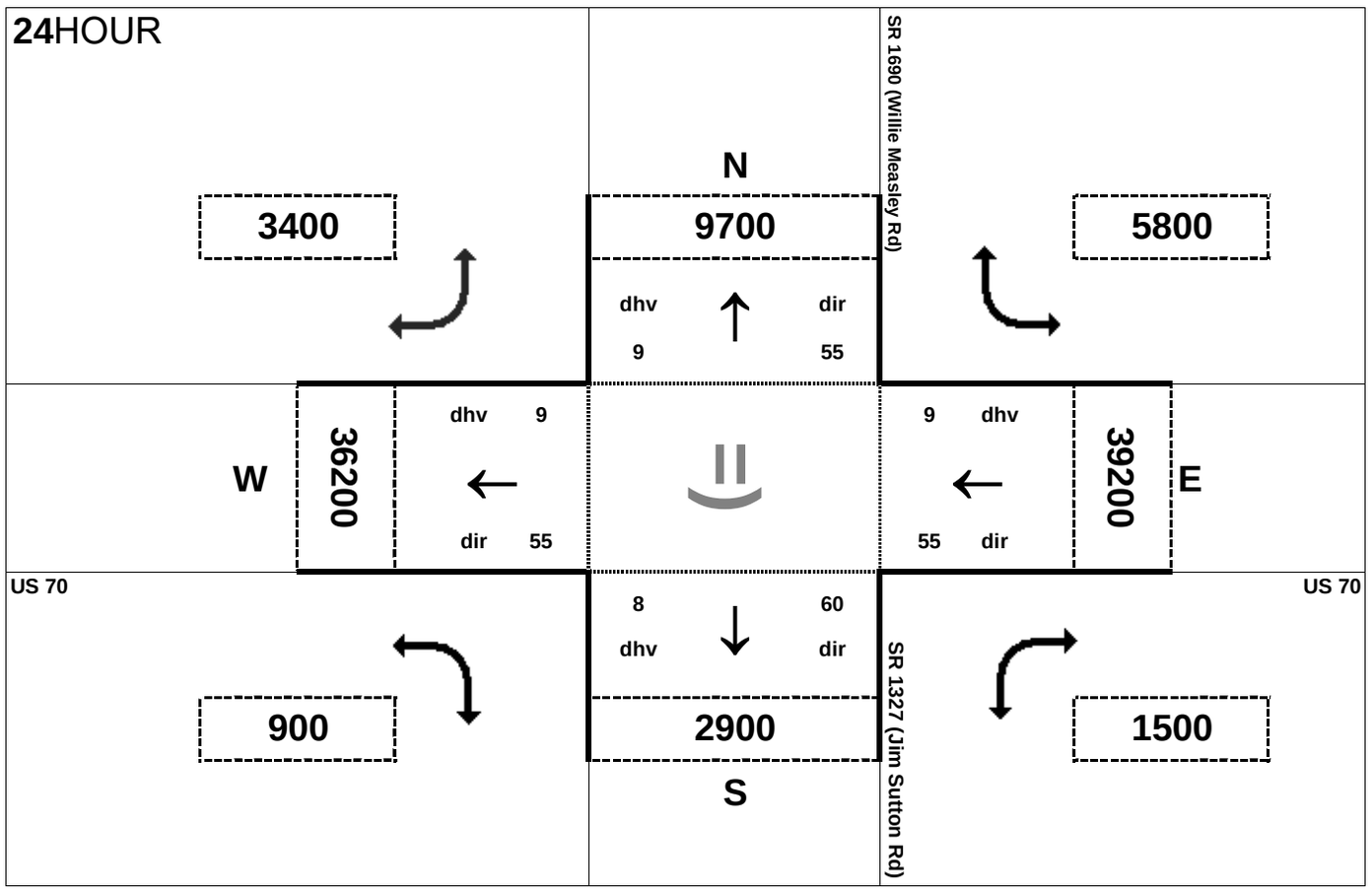
PM peak hour inflow is 255 vehicles. PM peak hour outflow is 256 vehicles.

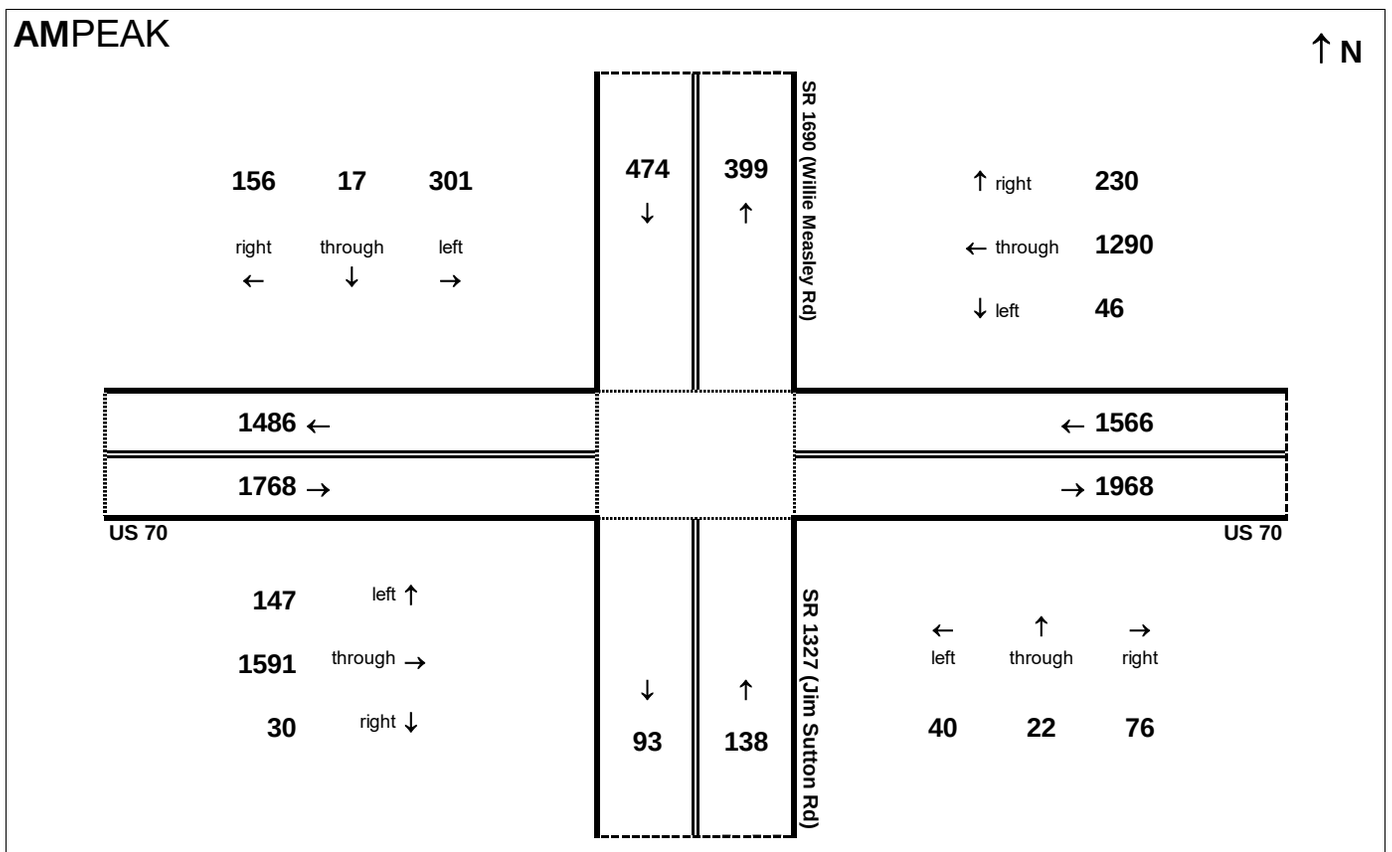
Peak Hour Volume Breakouts Report:
402-3 Intersection of US 70 and Willie Measley Rd / Jim Sutton Rd

Traffic Forecast Release Date:
November-16

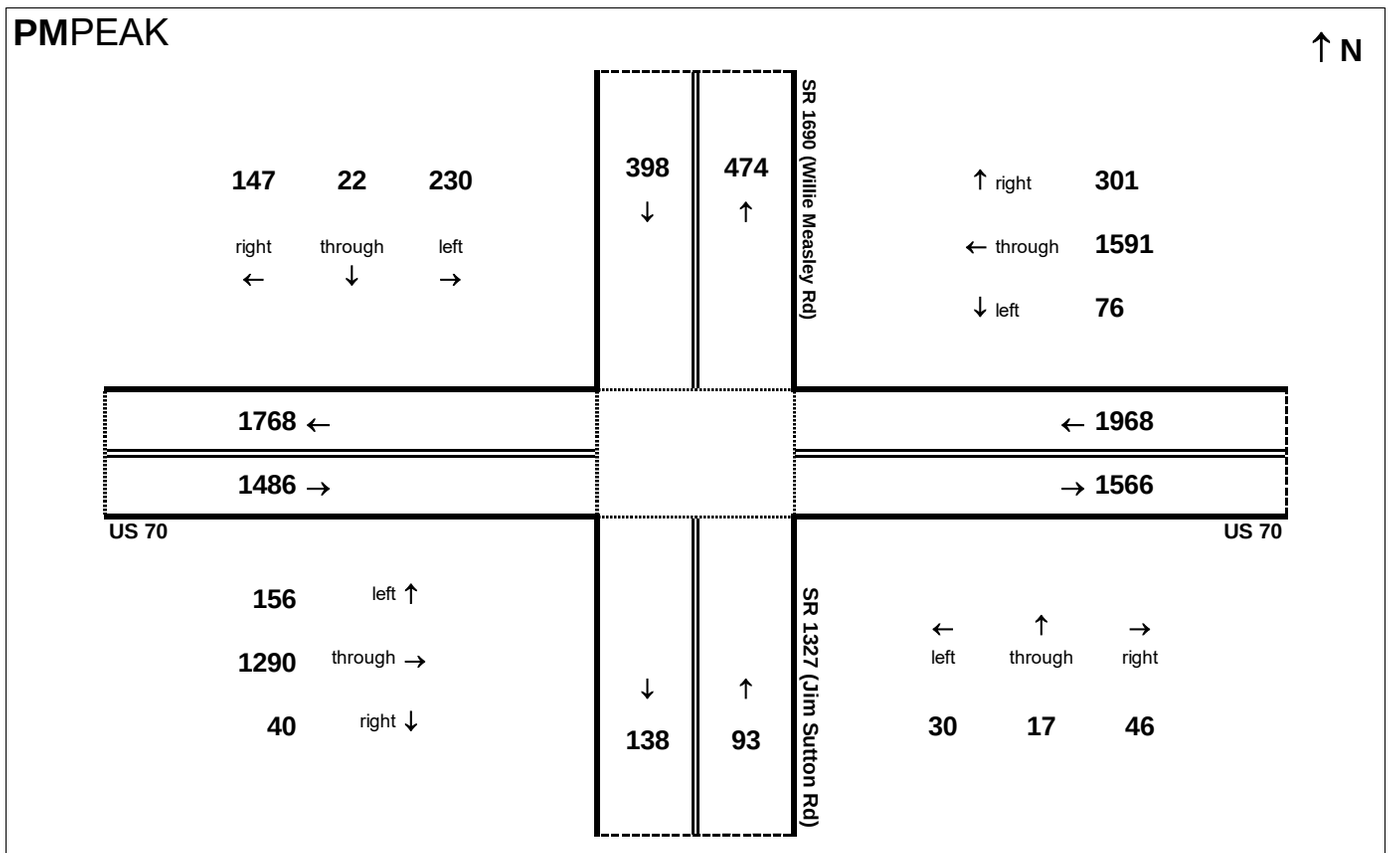
Traffic Data Year:
2040 Build Alt 52

Project:
R-2553





AM peak hour inflow is 3945 vehicles. AM peak hour outflow is 3945 vehicles.



PM peak hour inflow is 3945 vehicles. PM peak hour outflow is 3945 vehicles.

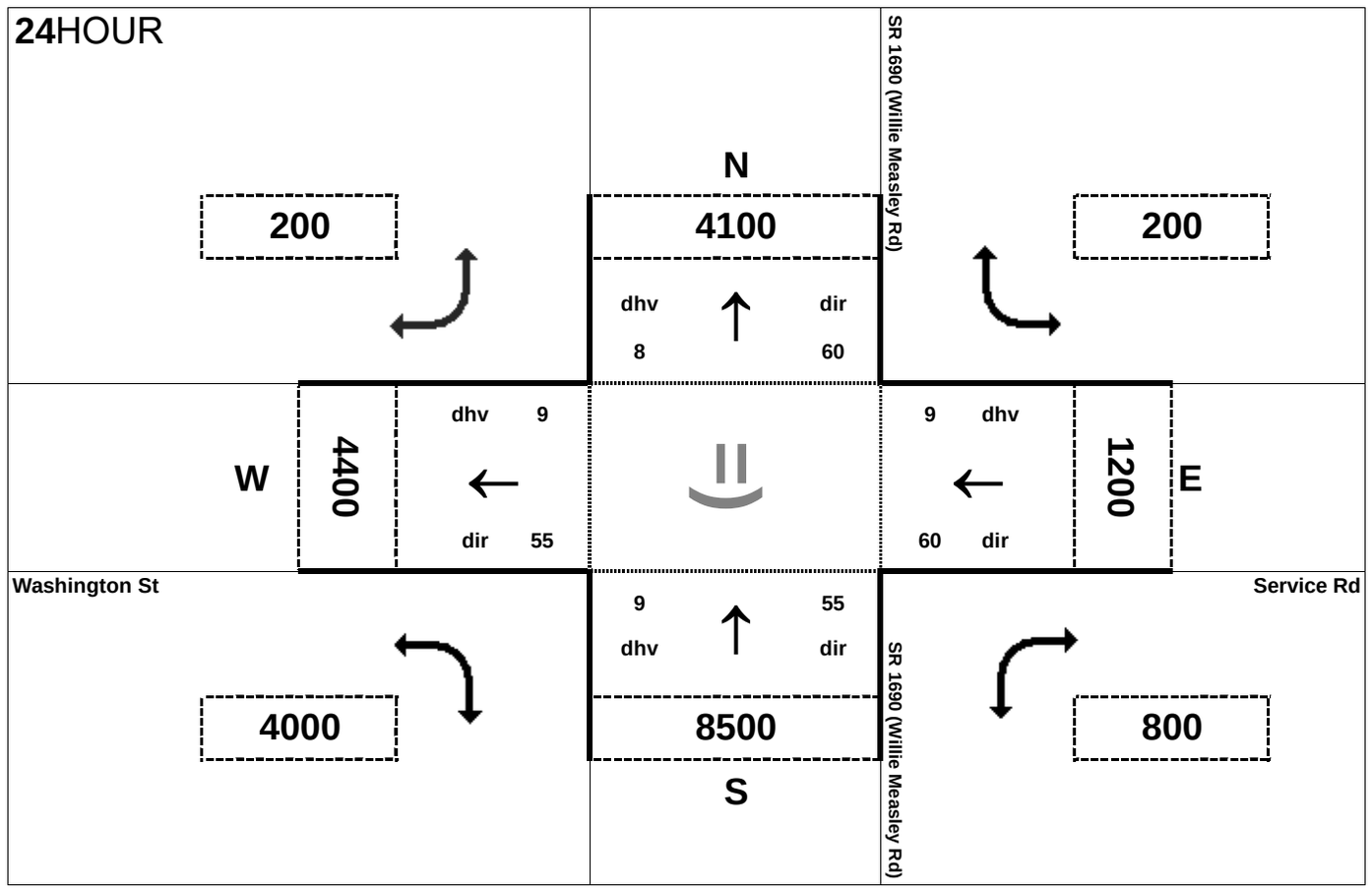
Peak Hour Volume Breakouts Report:
404 Intersection of SR 1690 (Willie Measley Rd) at SR 1603 (Washington St)

Traffic Forecast Release Date:
November-16

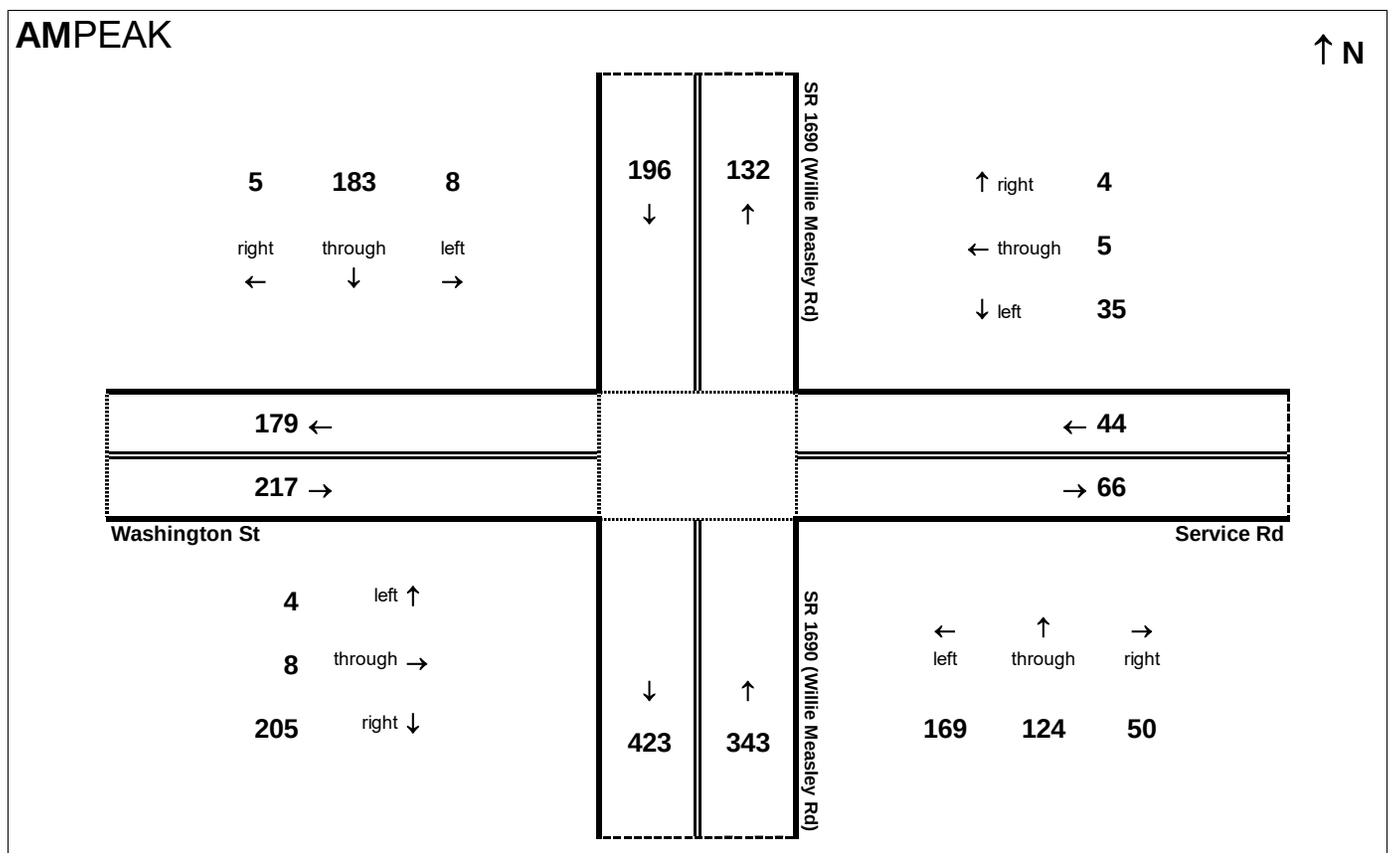
Traffic Data Year:
2040 Build Alt 52

Project:
R-2553

24HOUR

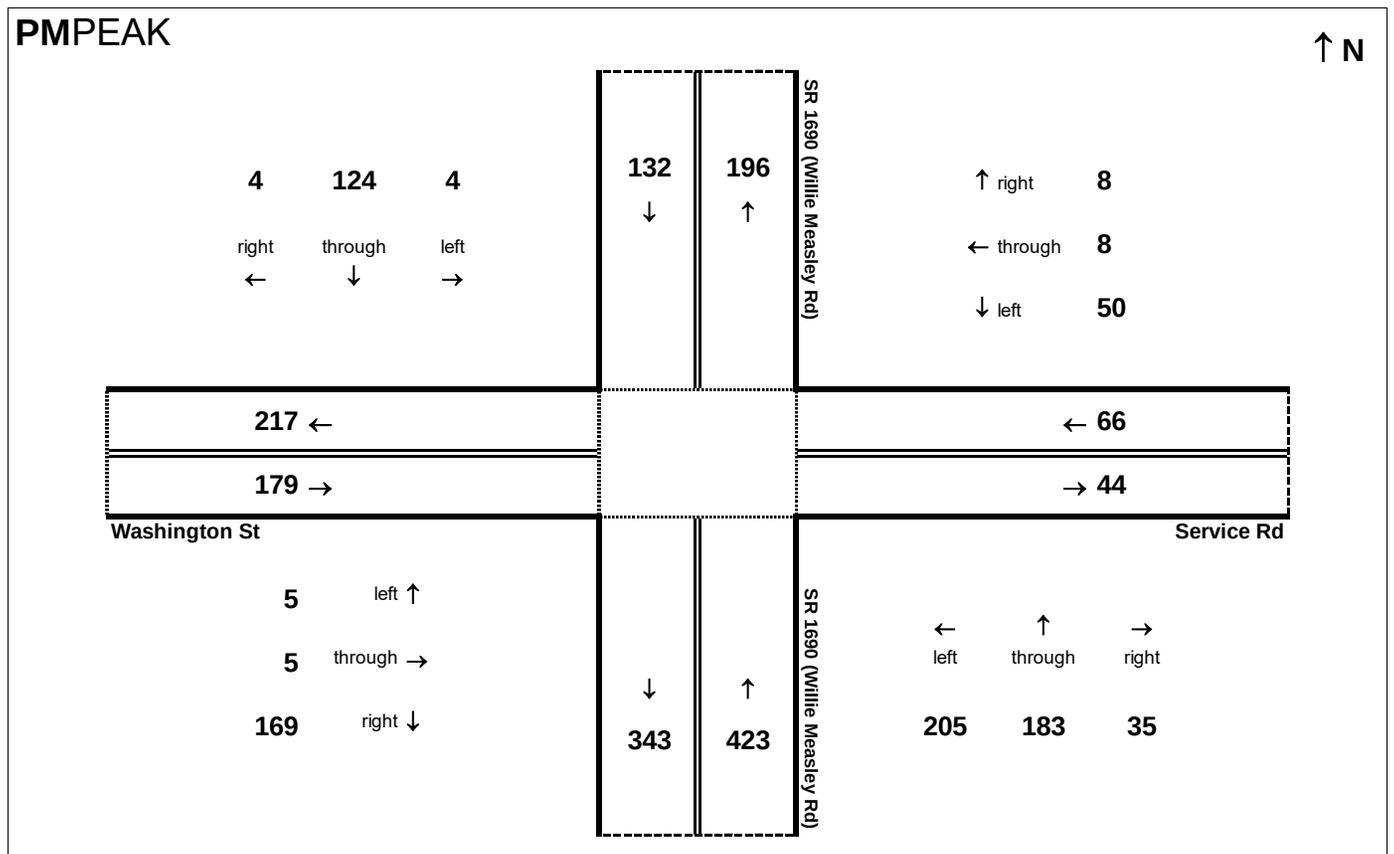


AMPEAK



AM peak hour inflow is 799 vehicles. AM peak hour outflow is 799 vehicles.

PMPEAK



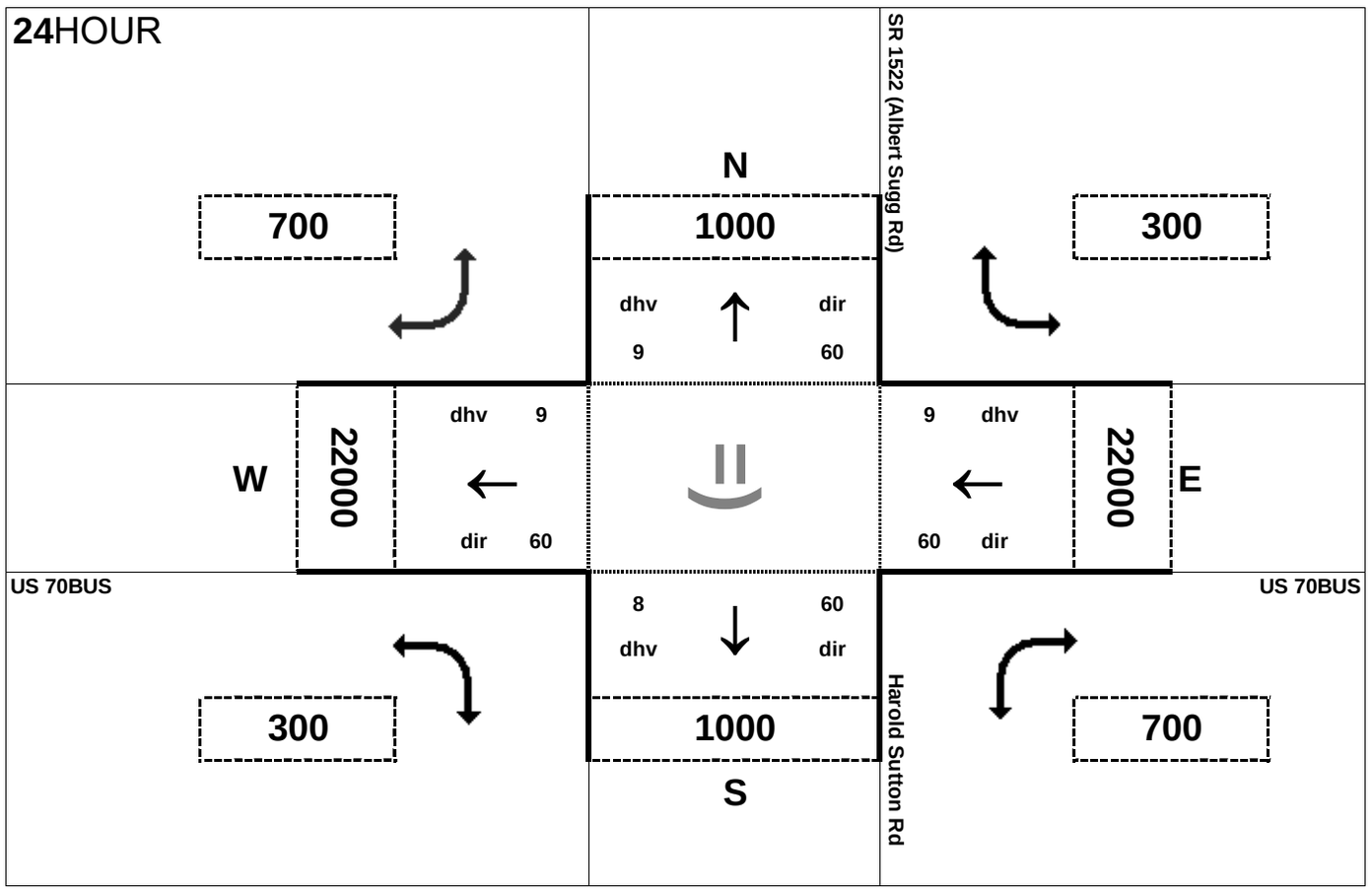
PM peak hour inflow is 799 vehicles. PM peak hour outflow is 799 vehicles.

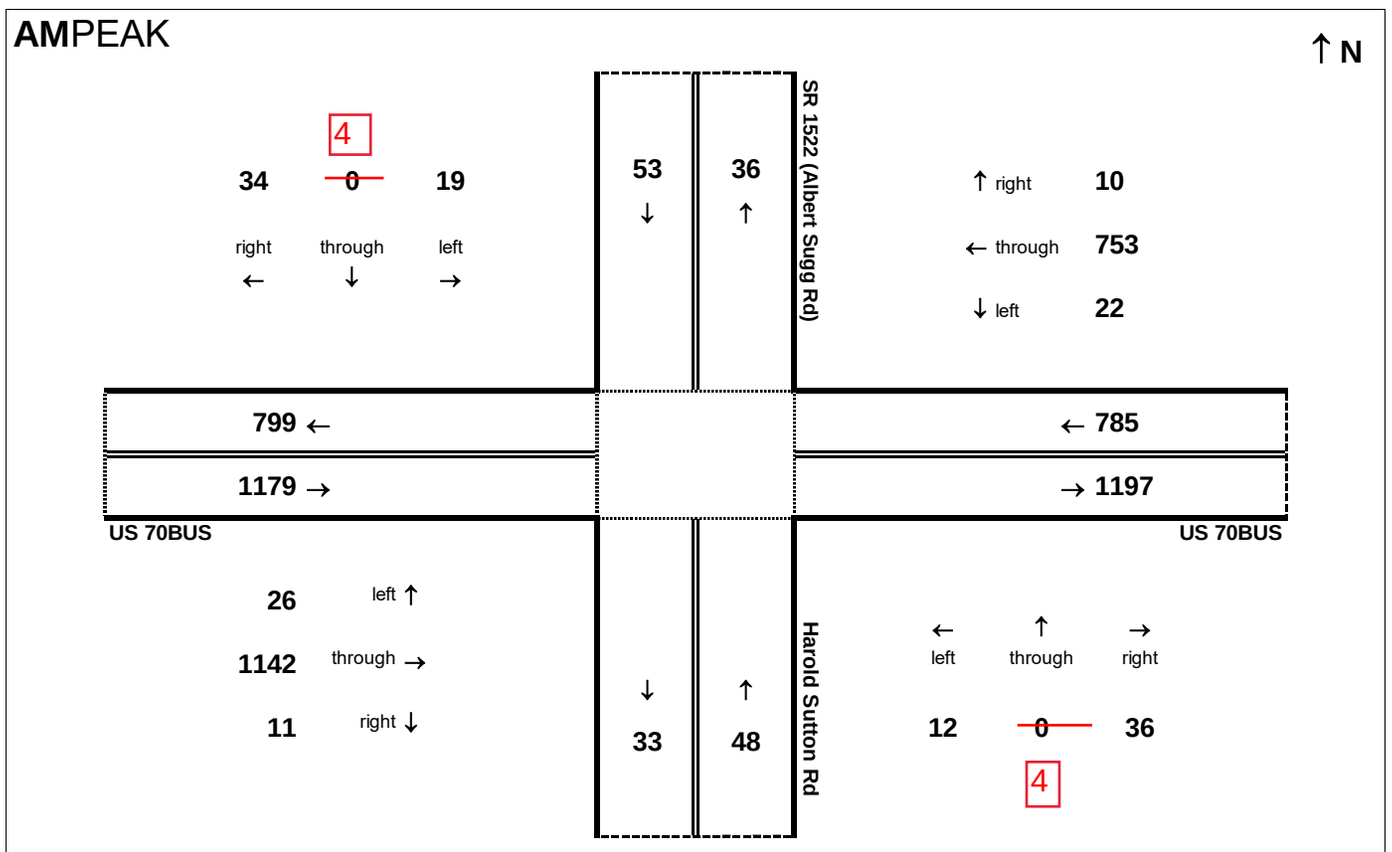
Peak Hour Volume Breakouts Report:
405 Intersection of US 70BUS and Harold Sutton Rd

Traffic Forecast Release Date:
November-16

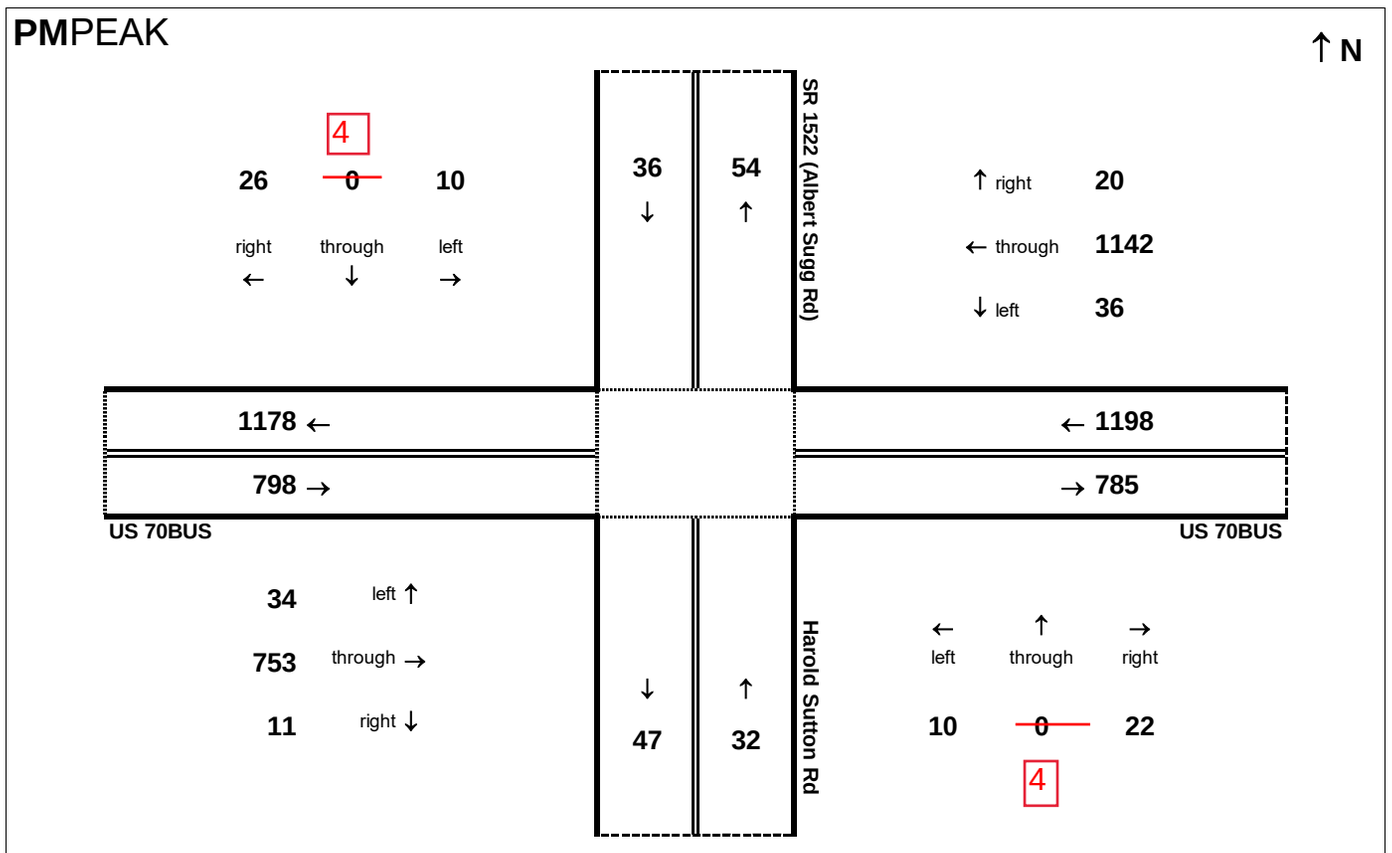
Traffic Data Year:
2040 Build Alt 52

Project:
R-2553





AM peak hour inflow is 2066 vehicles. AM peak hour outflow is 2064 vehicles.



PM peak hour inflow is 2064 vehicles. PM peak hour outflow is 2066 vehicles.

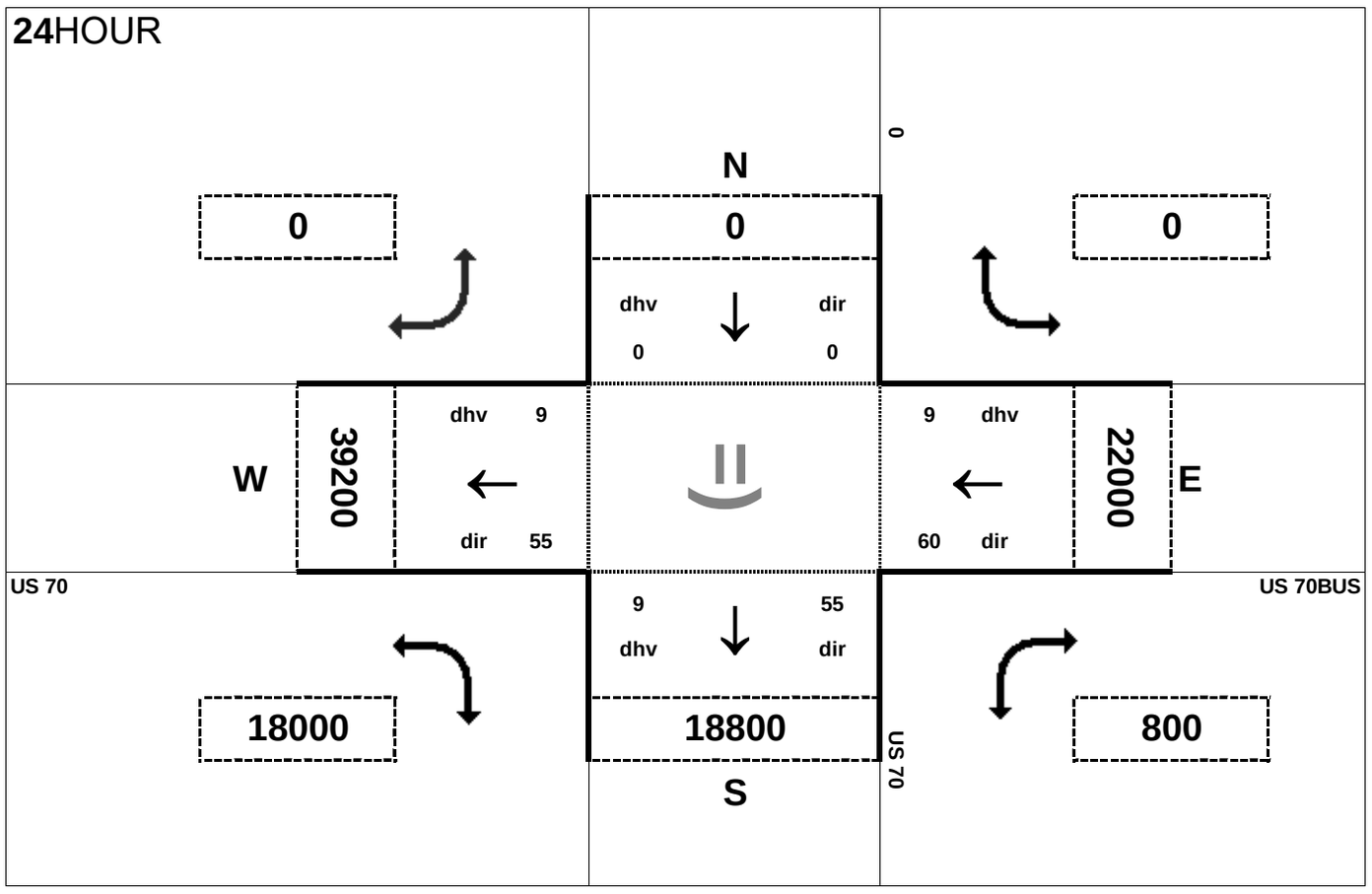
Peak Hour Volume Breakouts Report:
System 1 - Intersection of US 70 and US 70BUS (western interchange)

Traffic Forecast Release Date:
November-16

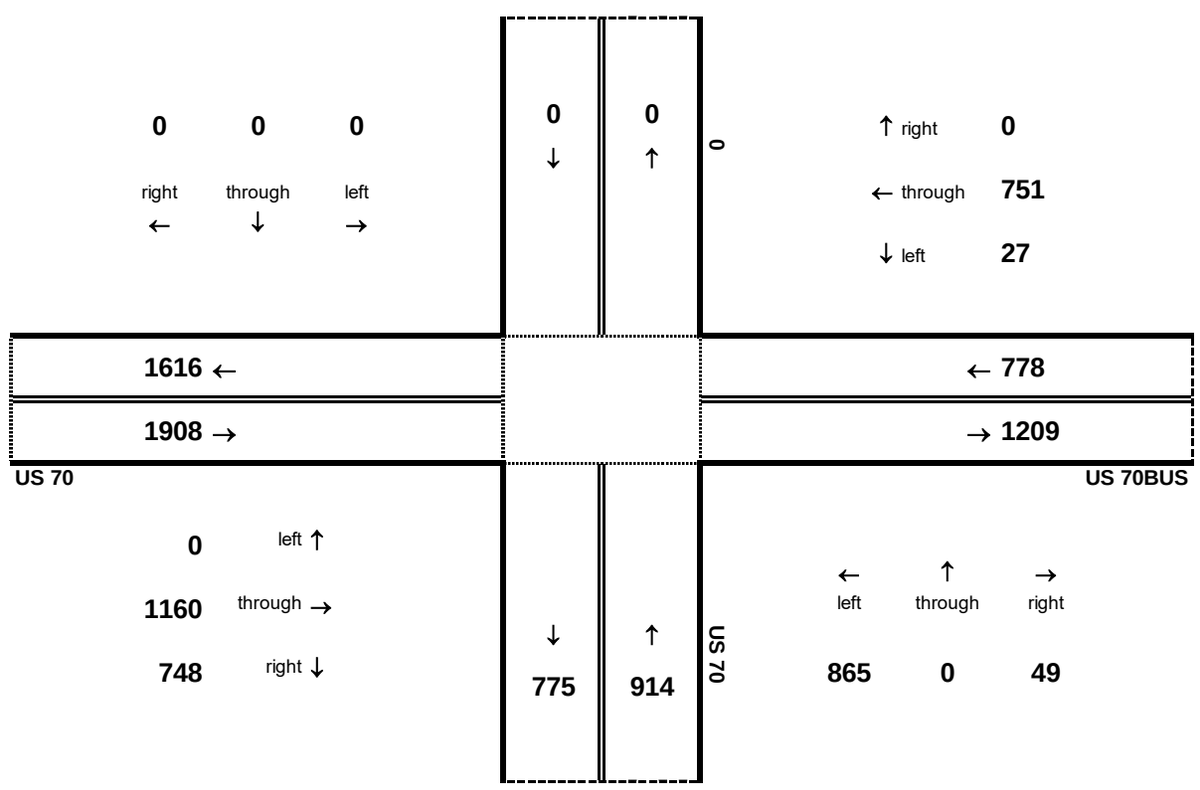
Traffic Data Year:
2040 Build Alt 52

Project:
R-2553

24HOUR

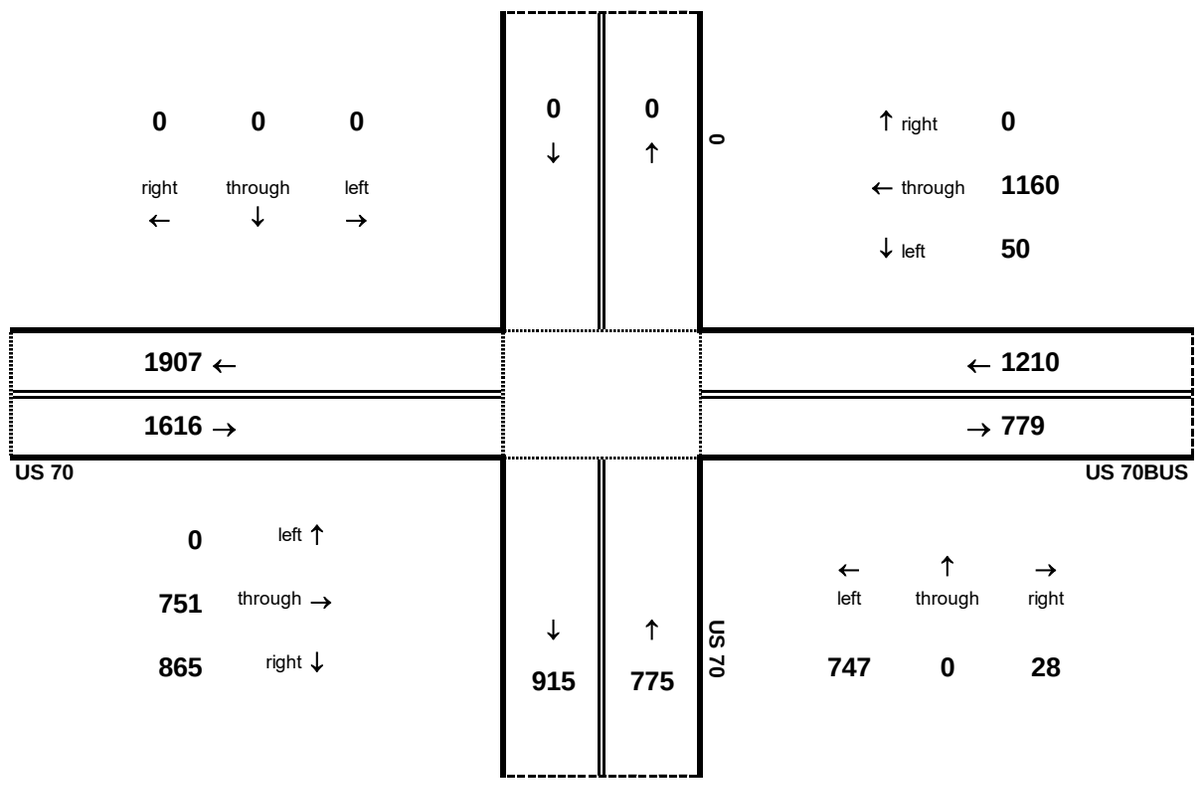


AMPEAK



AM peak hour inflow is 3600 vehicles. AM peak hour outflow is 3600 vehicles.

PMPEAK



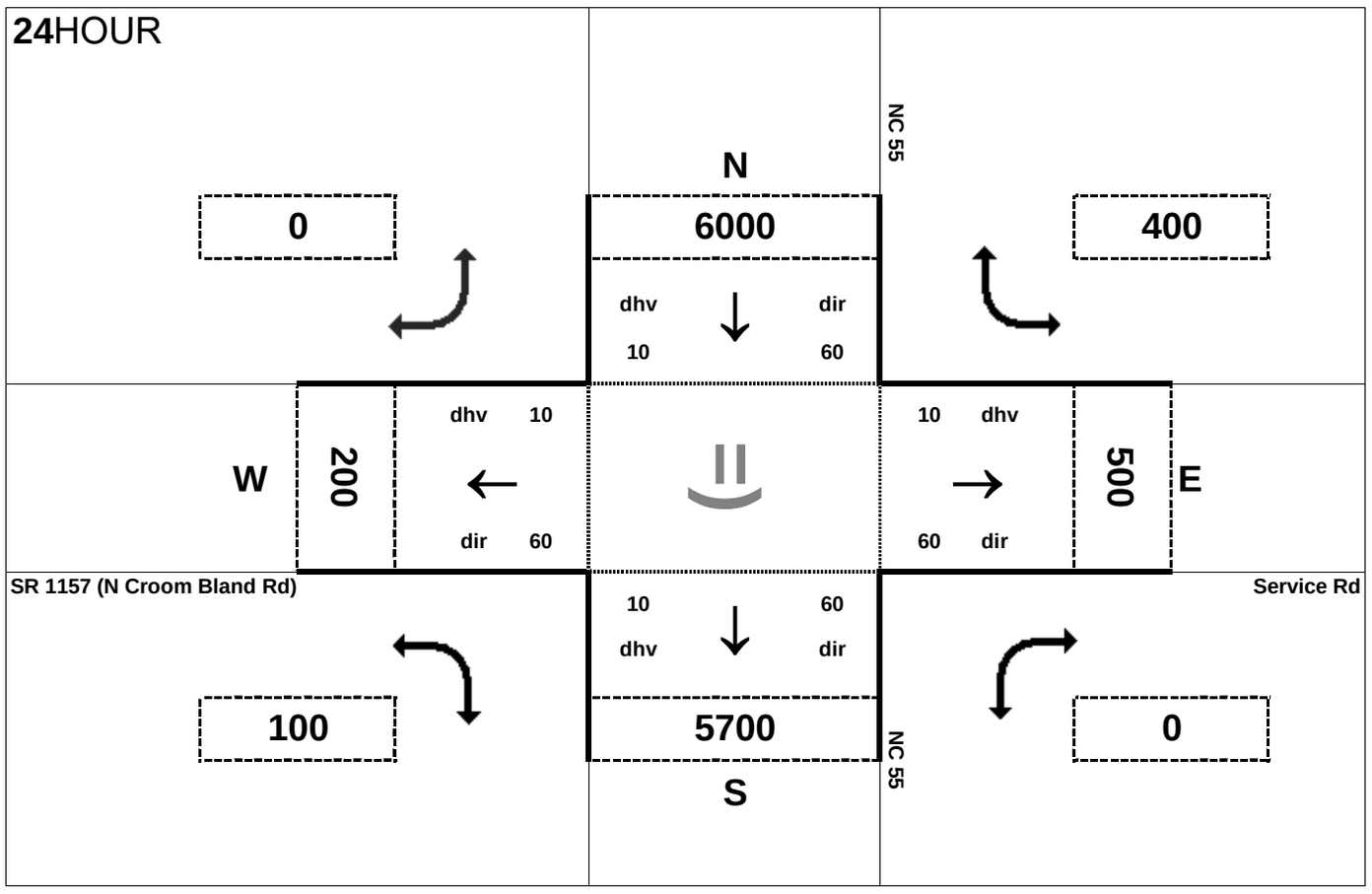
PM peak hour inflow is 3600 vehicles. PM peak hour outflow is 3600 vehicles.

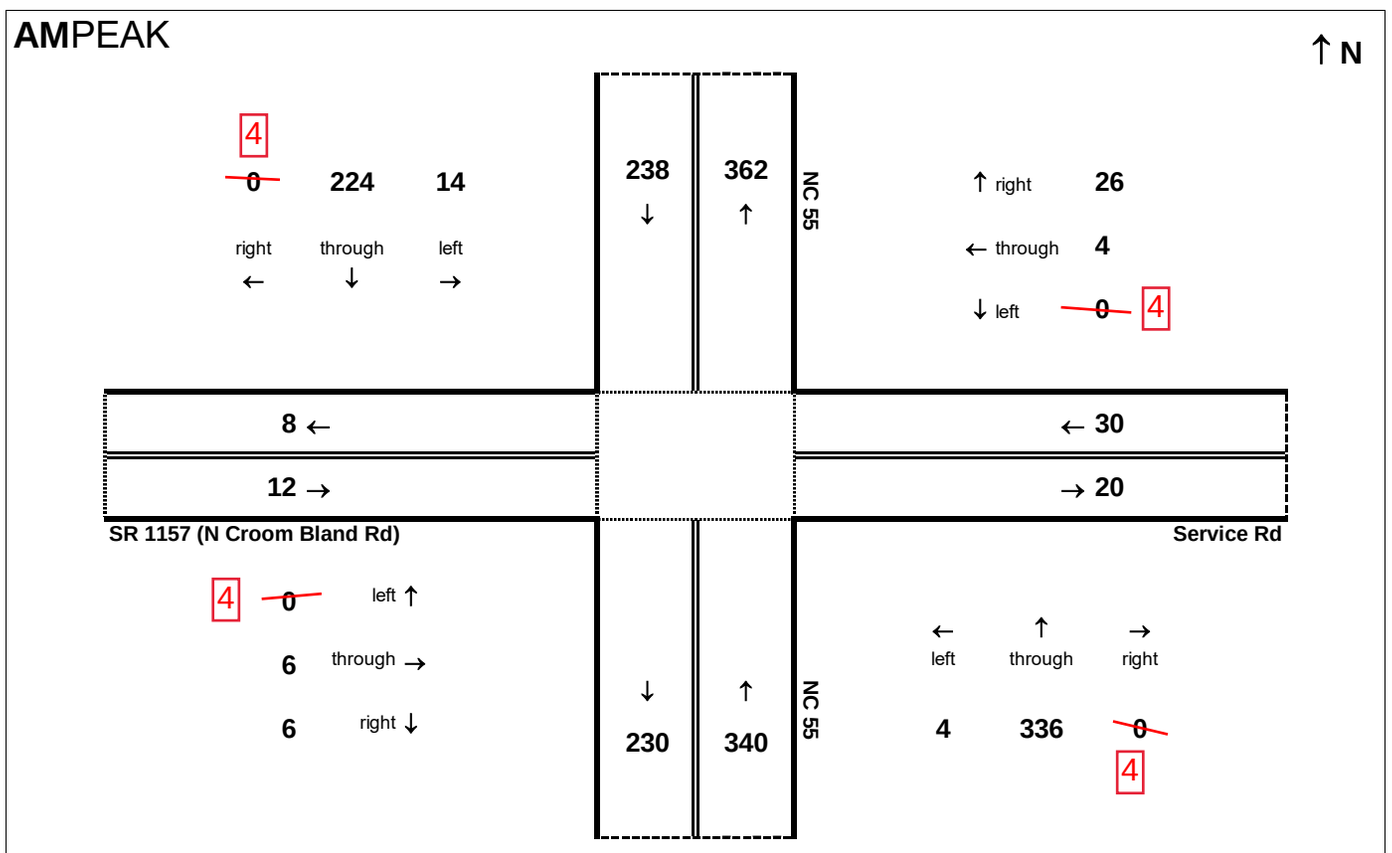
Peak Hour Volume Breakouts Report:
406 Intersection of NC 55 and SR 1157 (N Croom Bland Rd)

Traffic Forecast Release Date:
November-16

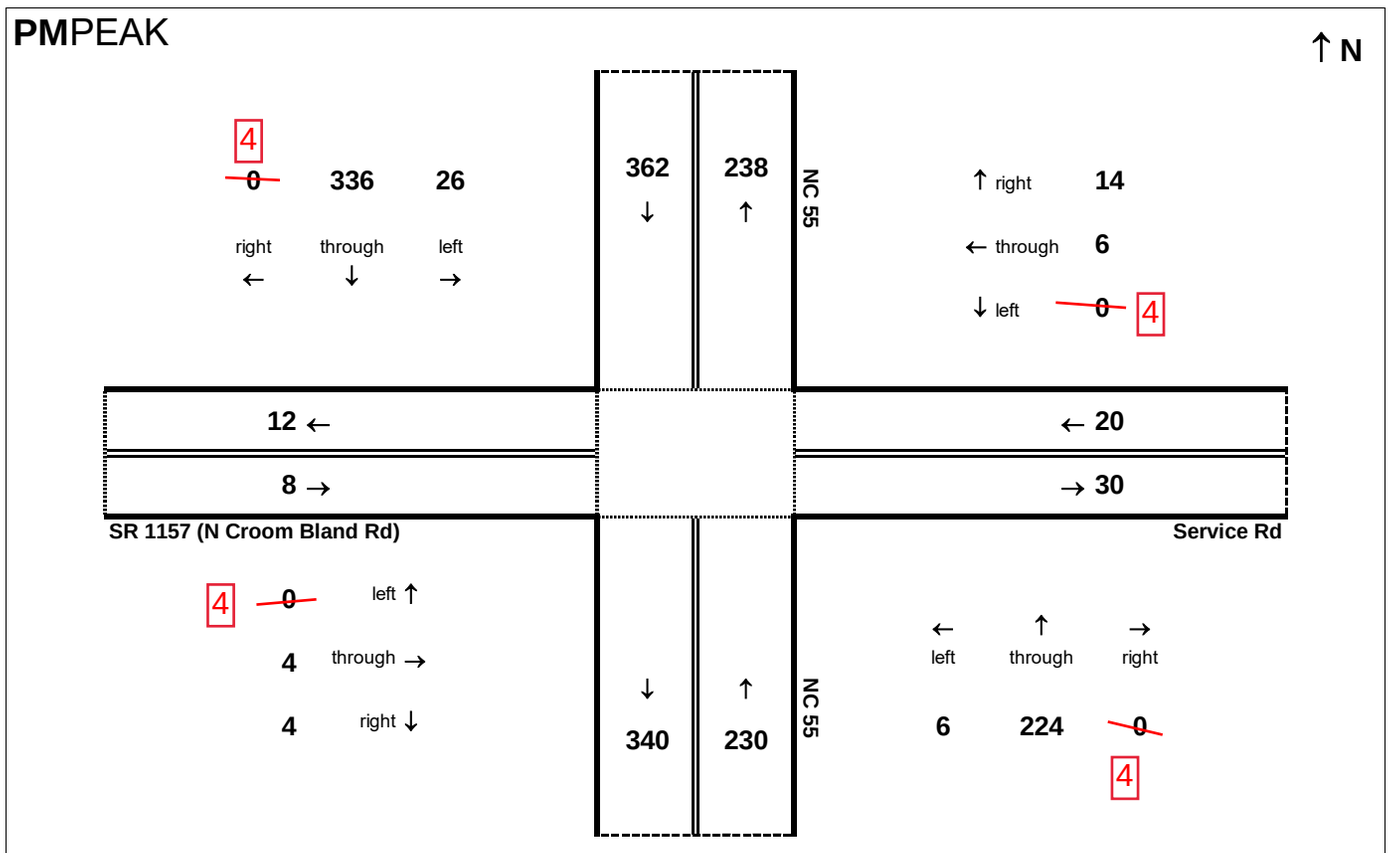
Traffic Data Year:
2040 Build Alt 52

Project:
R-2553





AM peak hour inflow is 620 vehicles. AM peak hour outflow is 620 vehicles.



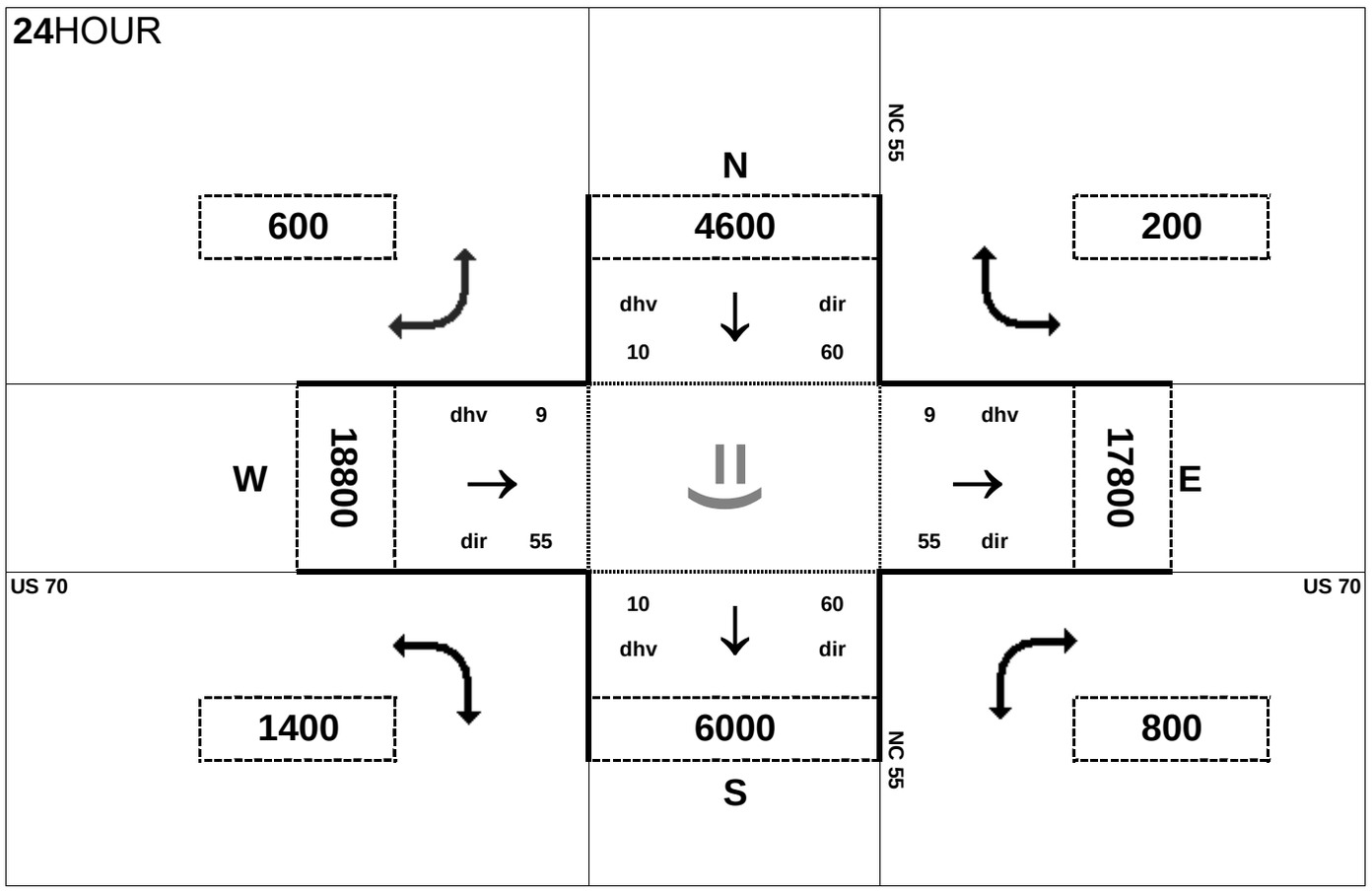
PM peak hour inflow is 620 vehicles. PM peak hour outflow is 620 vehicles.

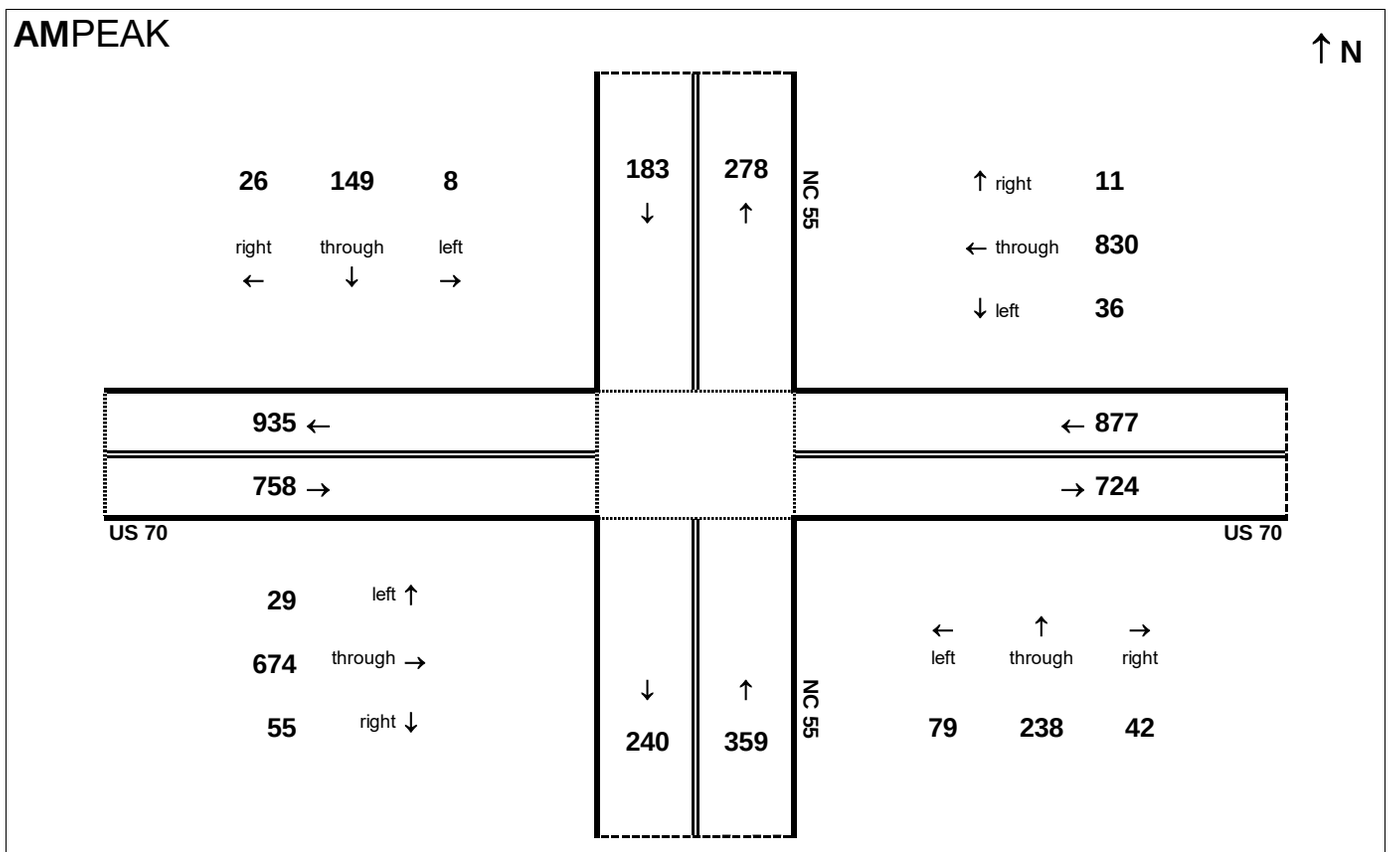
Peak Hour Volume Breakouts Report:
407-8 Intersection of US 70 and NC 55

Traffic Forecast Release Date:
November-16

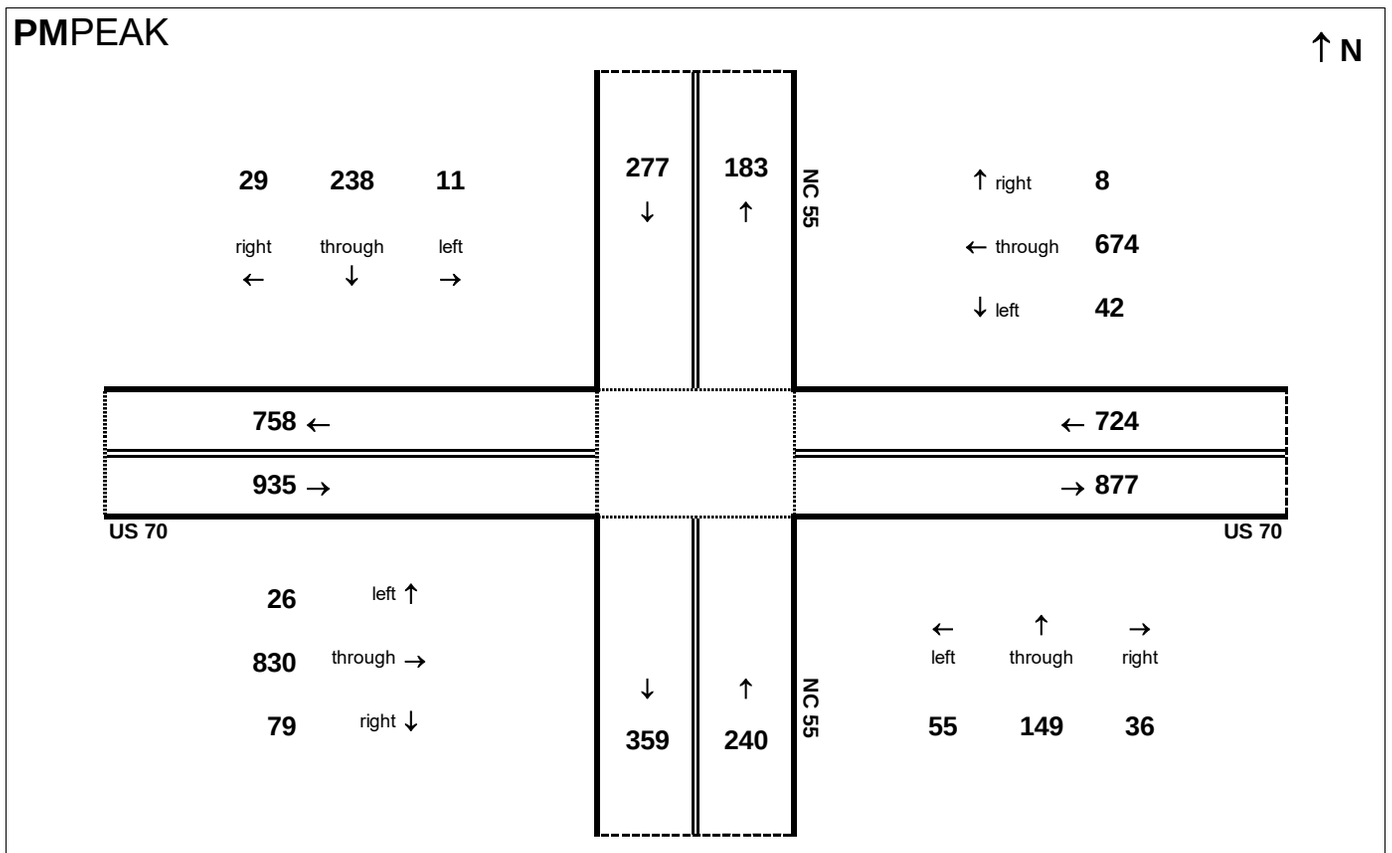
Traffic Data Year:
2040 Build Alt 52

Project:
R-2553





AM peak hour inflow is 2176 vehicles. AM peak hour outflow is 2177 vehicles.



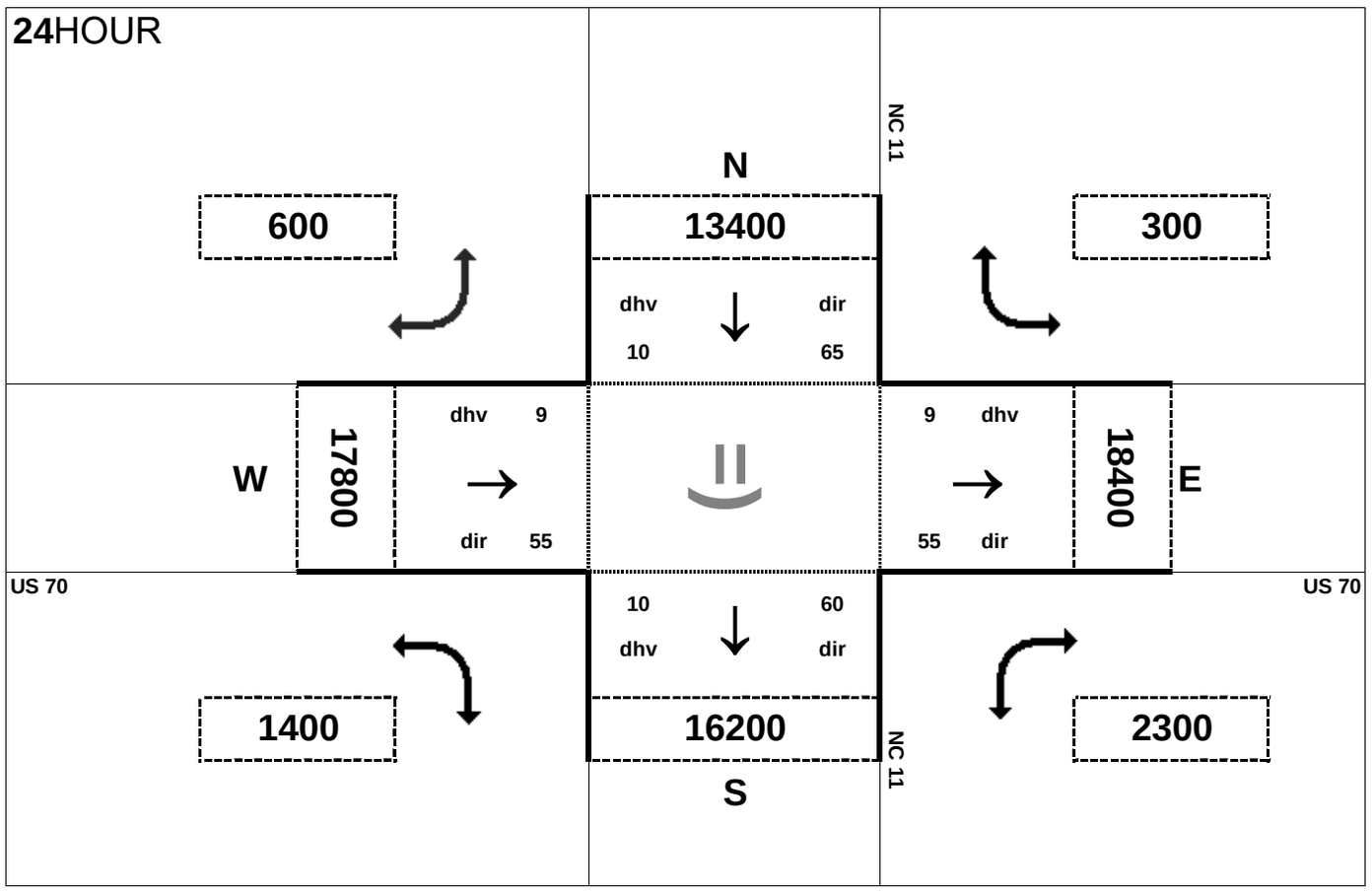
PM peak hour inflow is 2177 vehicles. PM peak hour outflow is 2176 vehicles.

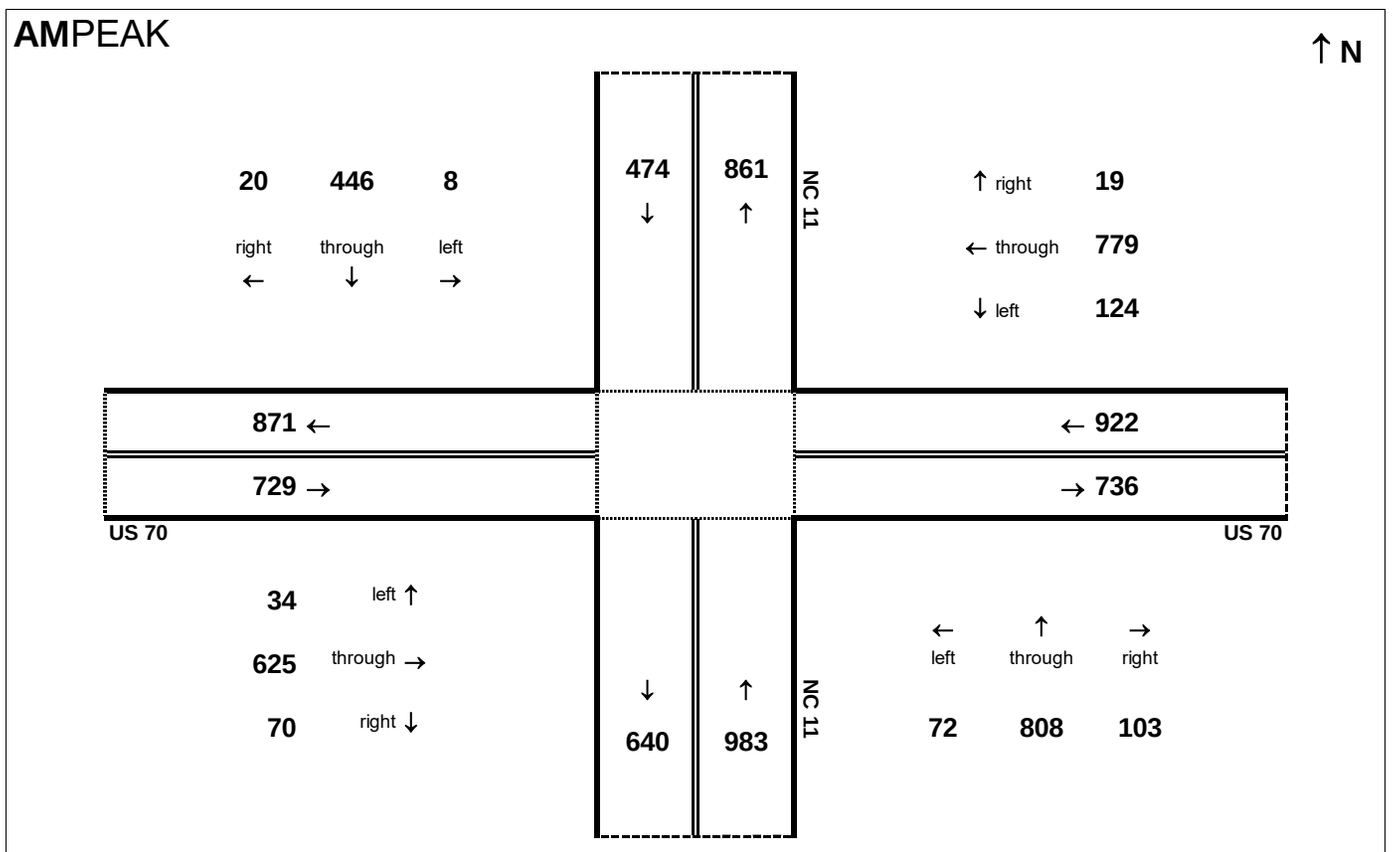
Peak Hour Volume Breakouts Report:
409-10 Intersection of US 70 at NC 11

Traffic Forecast Release Date:
November-16

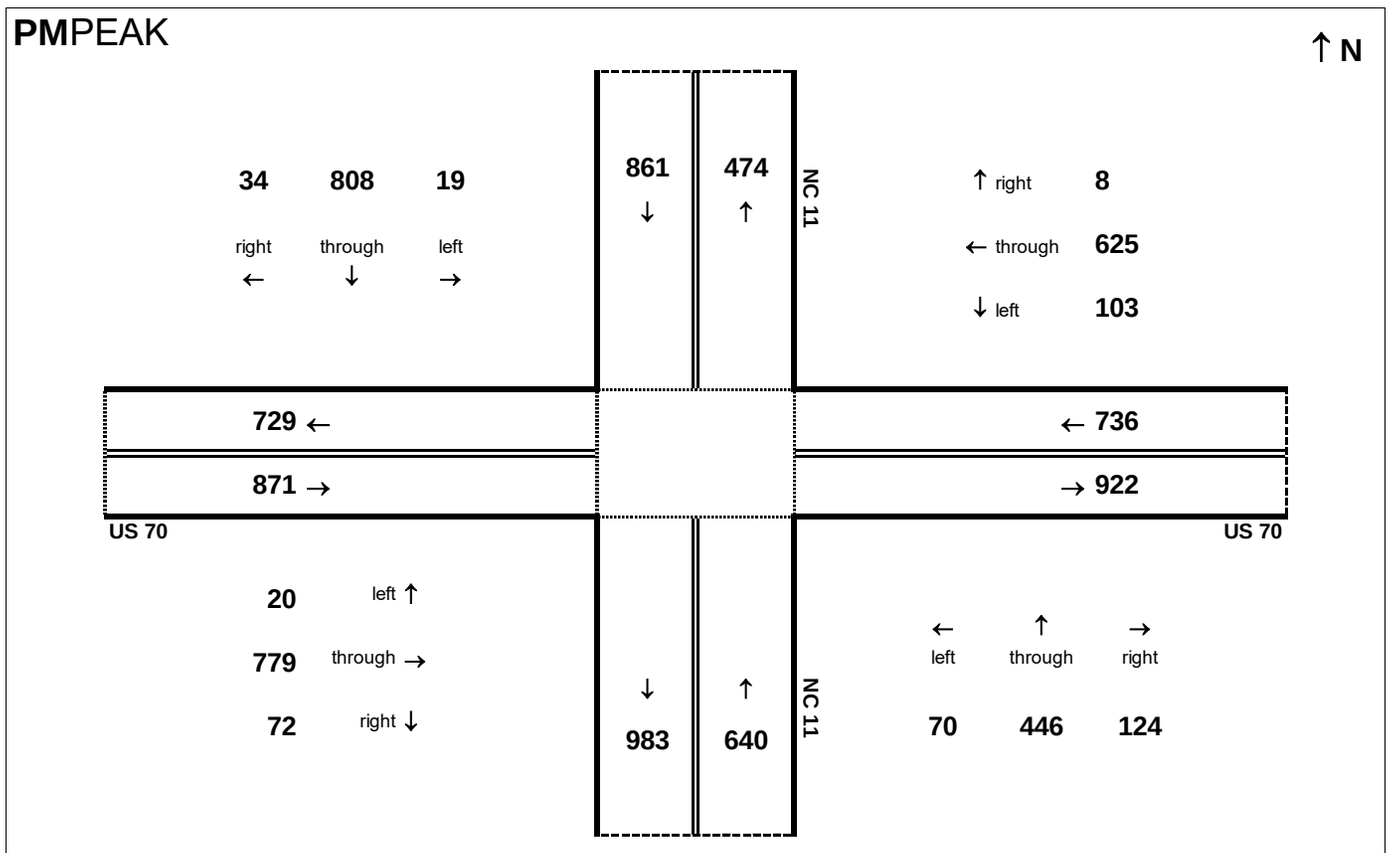
Traffic Data Year:
2040 Build Alt 52

Project:
R-2553





AM peak hour inflow is 3109 vehicles. AM peak hour outflow is 3110 vehicles.



PM peak hour inflow is 3110 vehicles. PM peak hour outflow is 3109 vehicles.

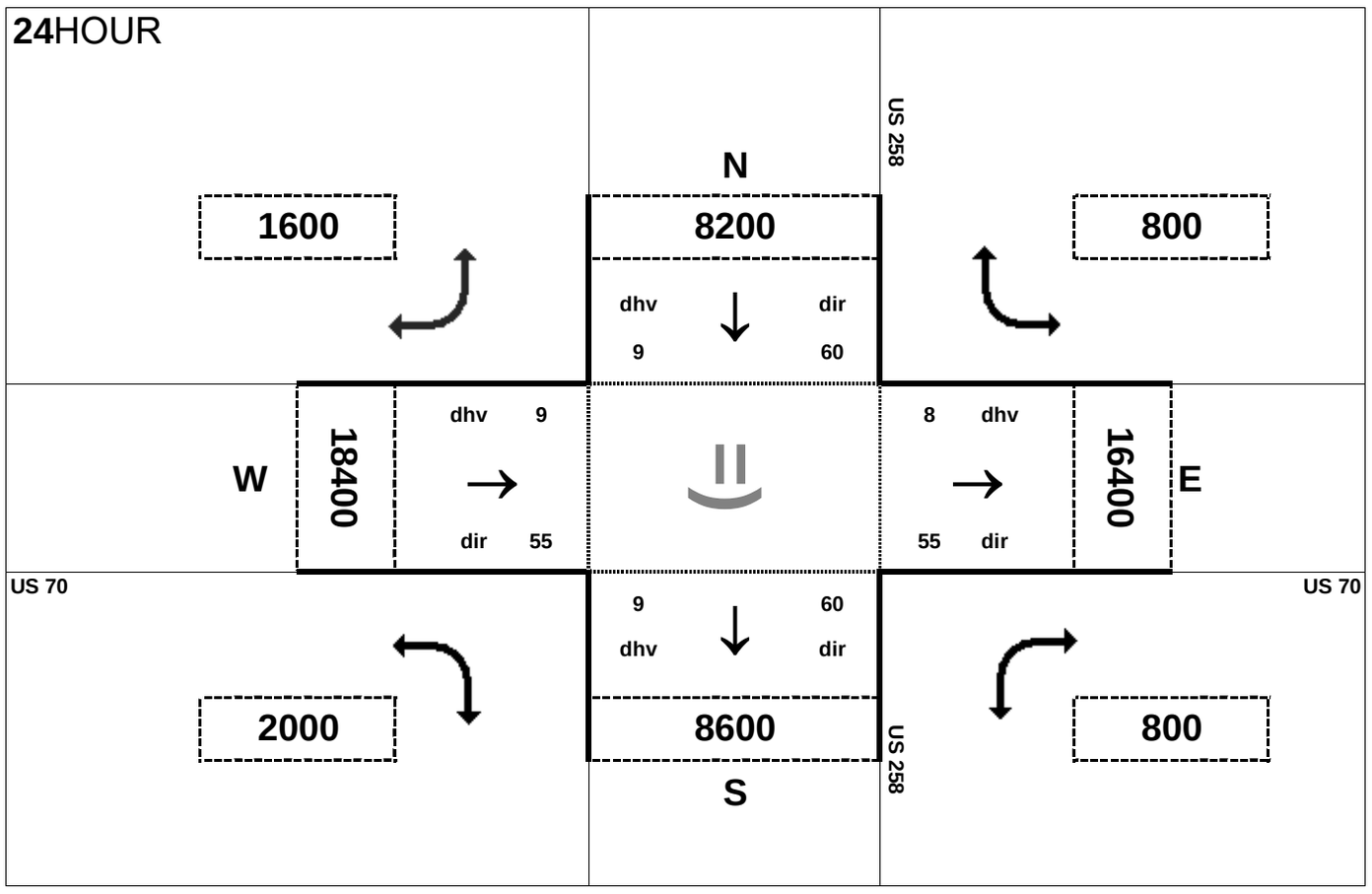
Peak Hour Volume Breakouts Report:
411-412 Intersection of US 70 and US 258

Traffic Forecast Release Date:
November-16

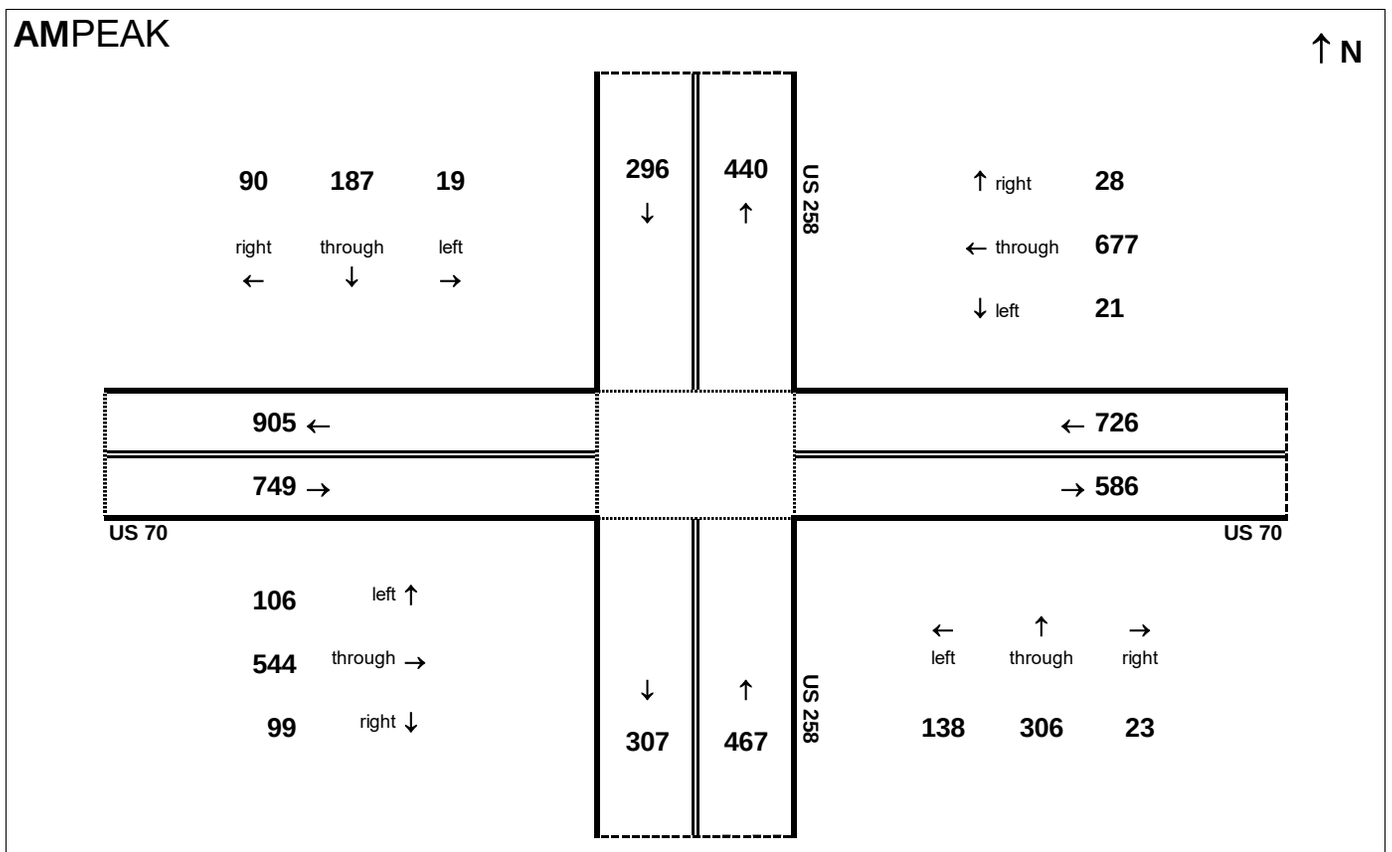
Traffic Data Year:
2040 Build Alt 52

Project:
R-2553

24HOUR

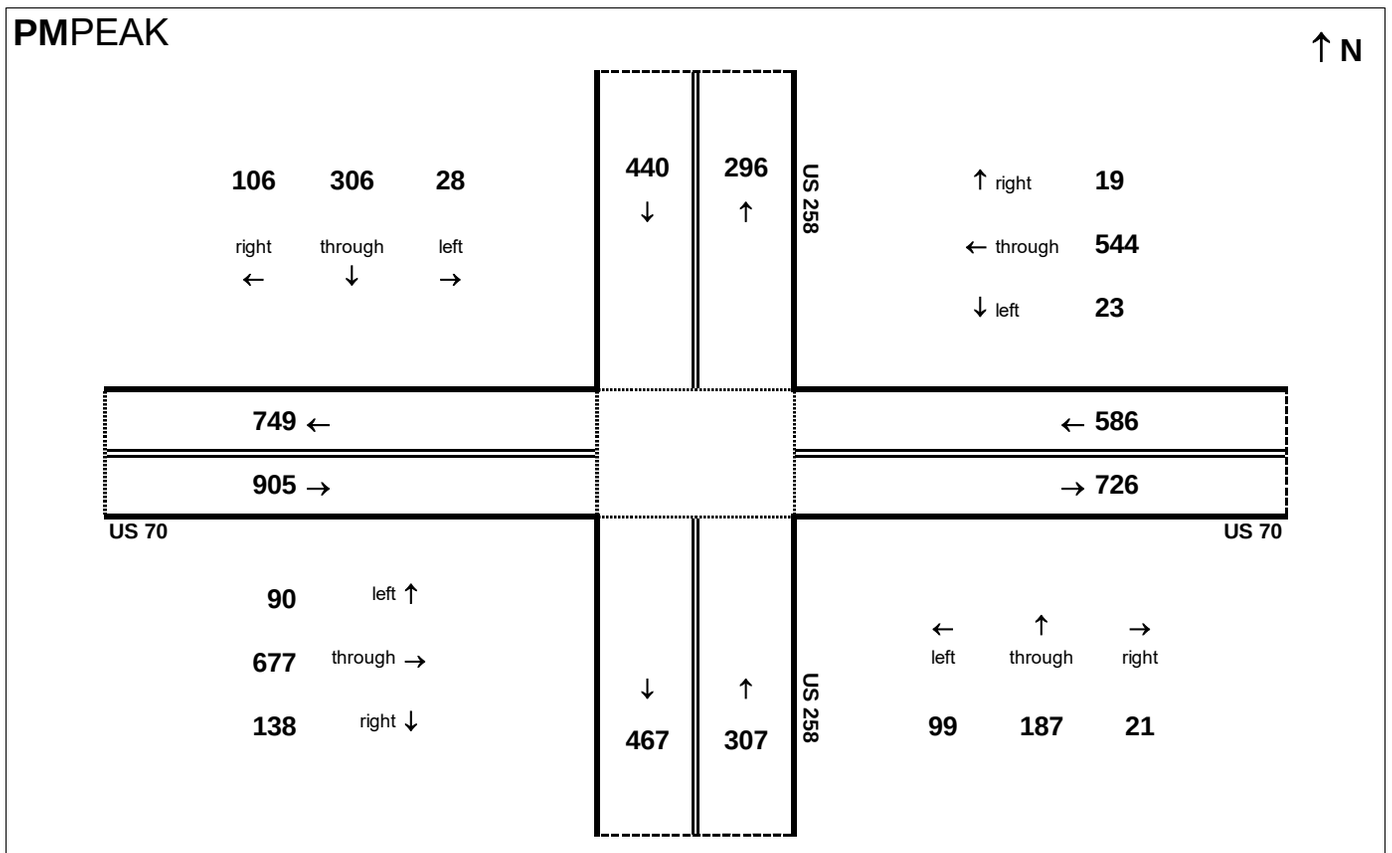


AMPEAK



AM peak hour inflow is 2240 vehicles. AM peak hour outflow is 2240 vehicles.

PMPEAK



PM peak hour inflow is 2240 vehicles. PM peak hour outflow is 2240 vehicles.

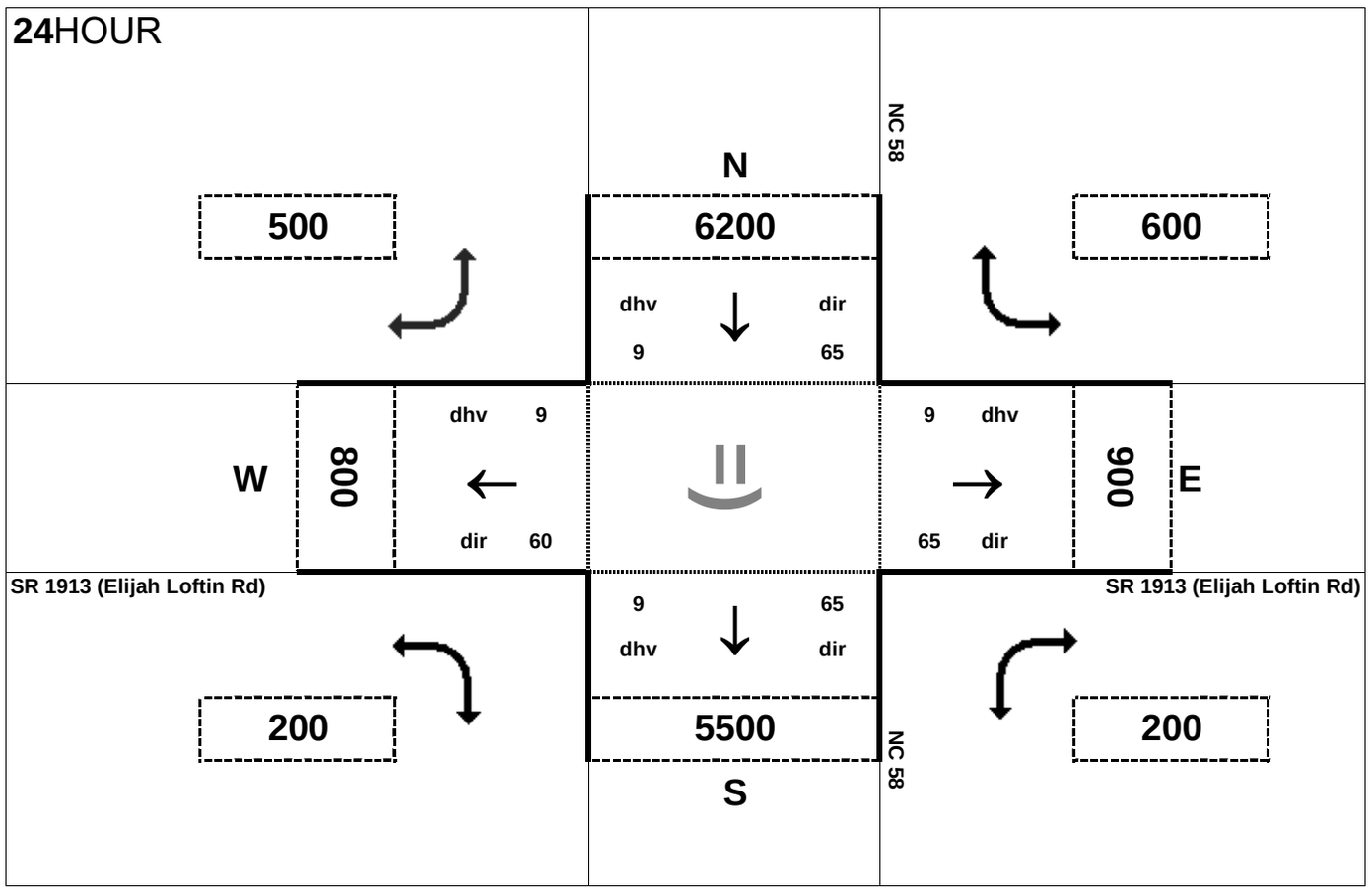
Peak Hour Volume Breakouts Report:
413 Intersection of NC 58 at SR 1913 (Elijah Loftin Rd)

Traffic Forecast Release Date:
November-16

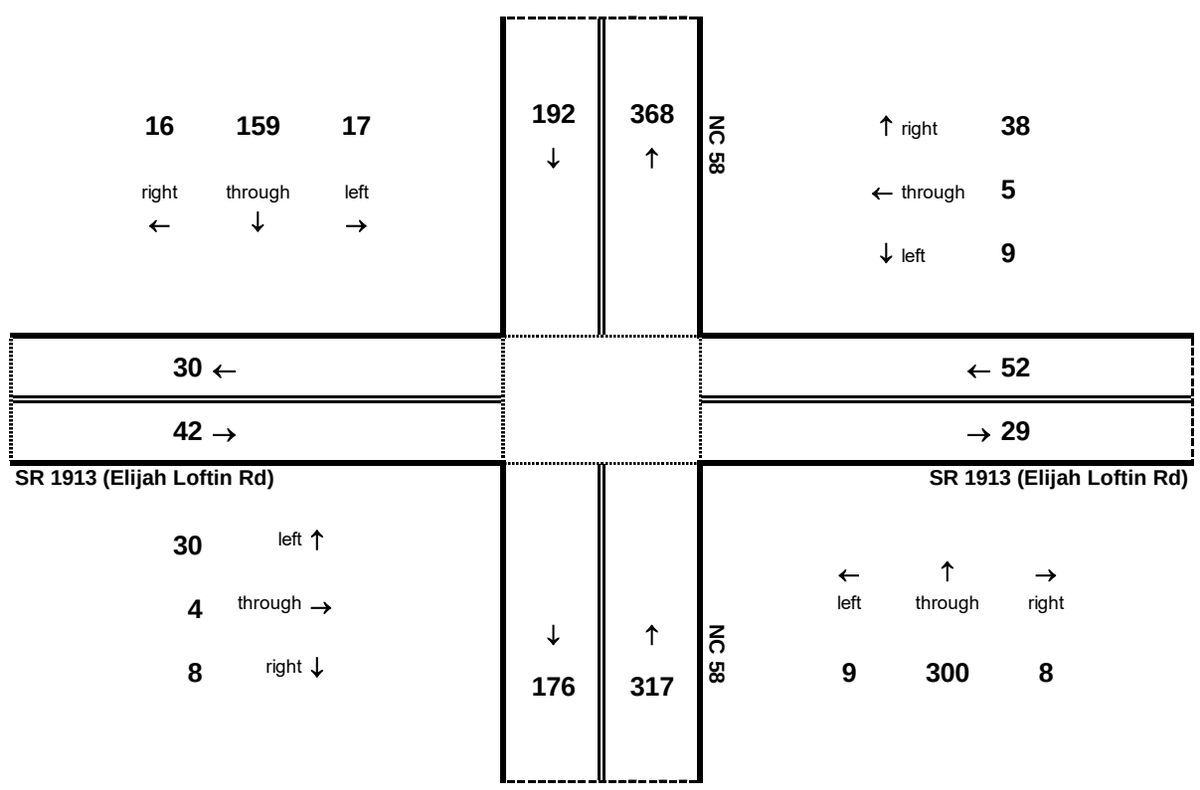
Traffic Data Year:
2040 Build Alt 52

Project:
R-2553

24HOUR

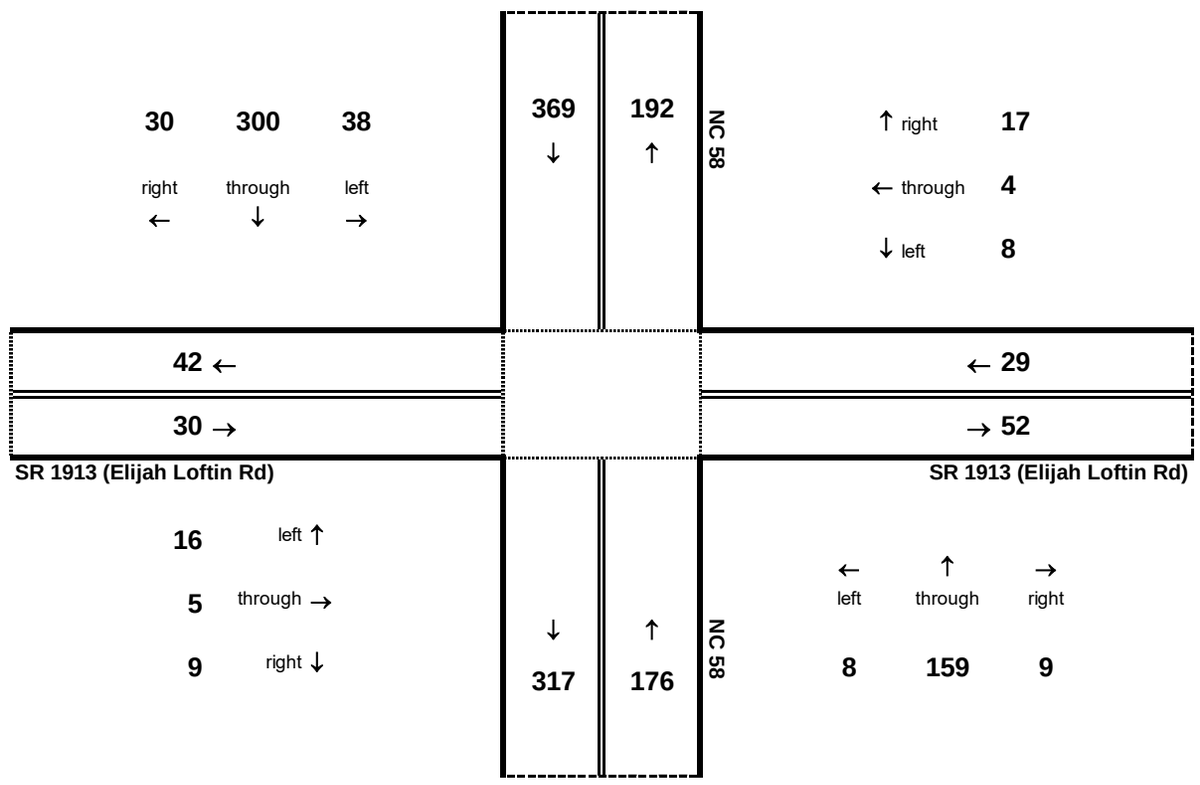


AMPEAK



AM peak hour inflow is 604 vehicles. AM peak hour outflow is 603 vehicles.

PMPEAK



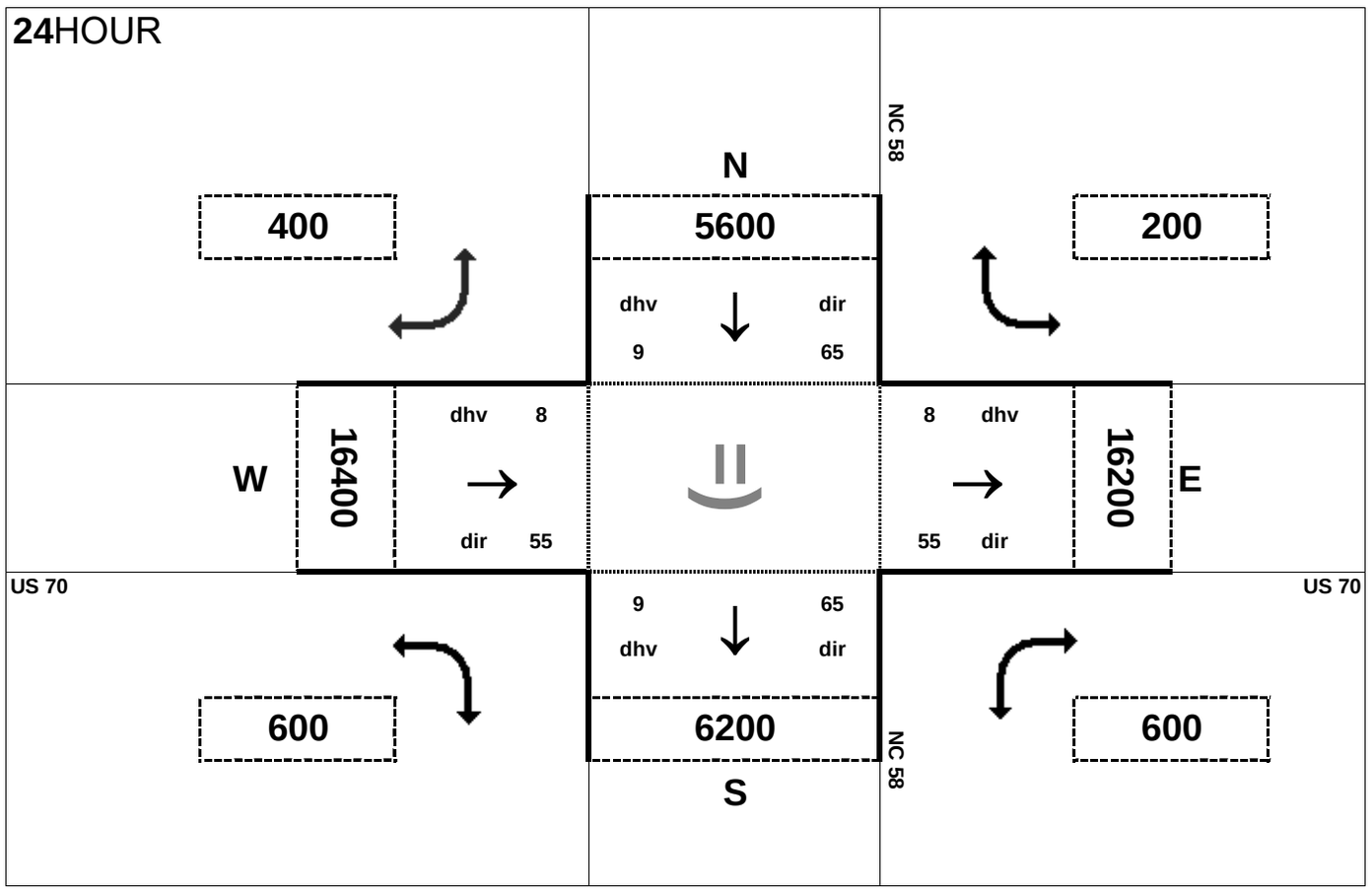
PM peak hour inflow is 603 vehicles. PM peak hour outflow is 604 vehicles.

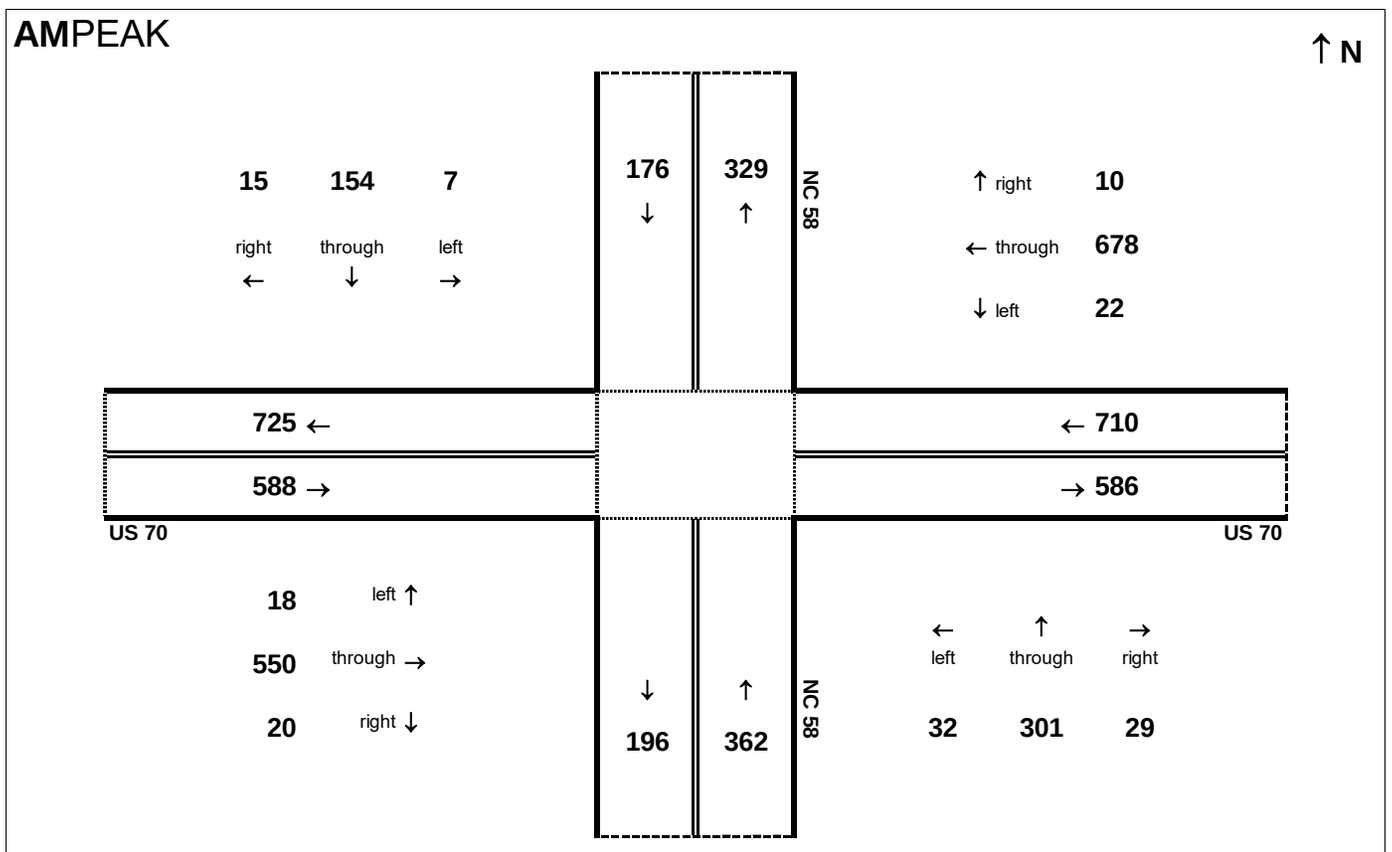
Peak Hour Volume Breakouts Report:
414-15 Intersection of US 70 at NC 58

Traffic Forecast Release Date:
November-16

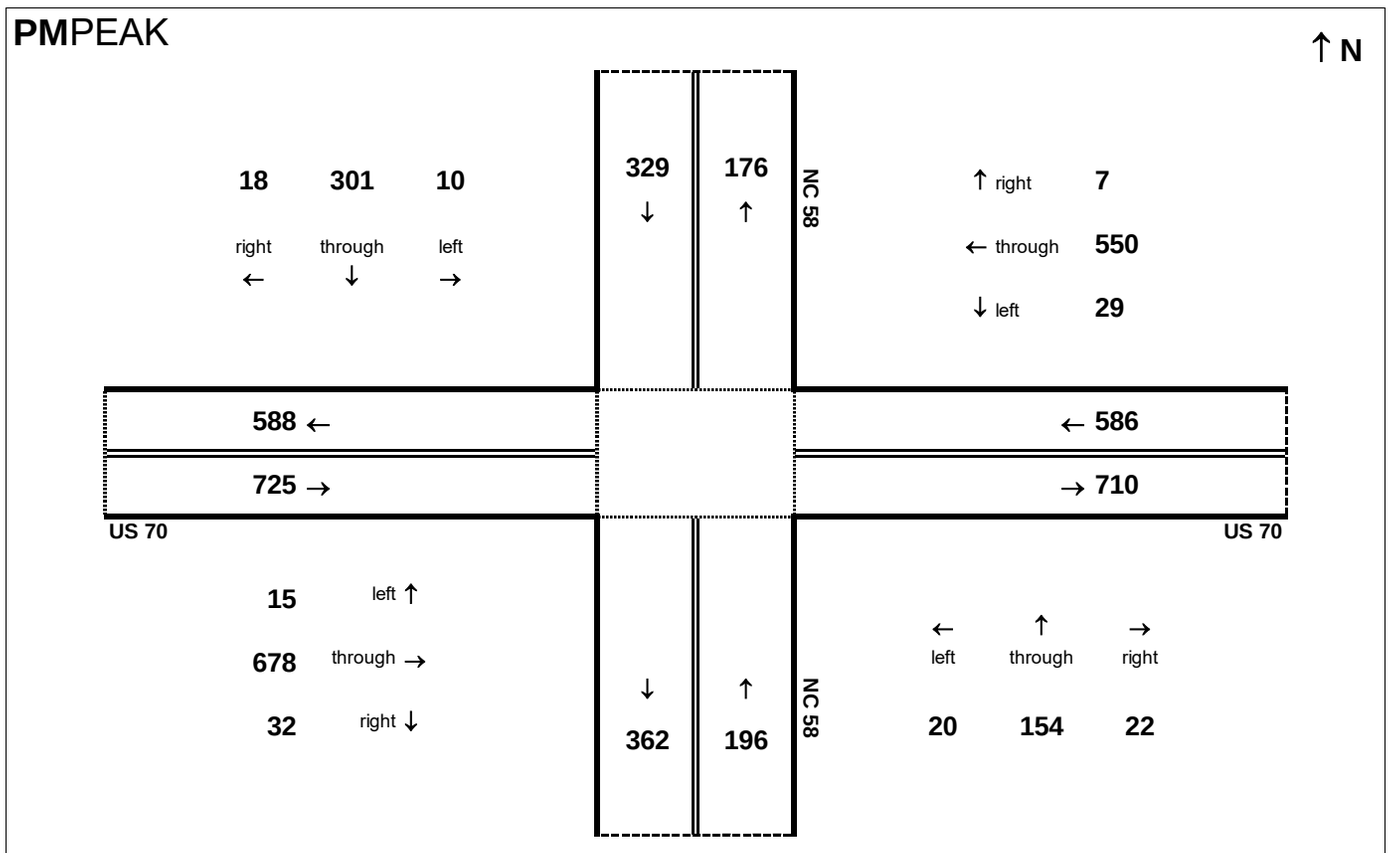
Traffic Data Year:
2040 Build Alt 52

Project:
R-2553





AM peak hour inflow is 1835 vehicles. AM peak hour outflow is 1835 vehicles.



PM peak hour inflow is 1835 vehicles. PM peak hour outflow is 1835 vehicles.

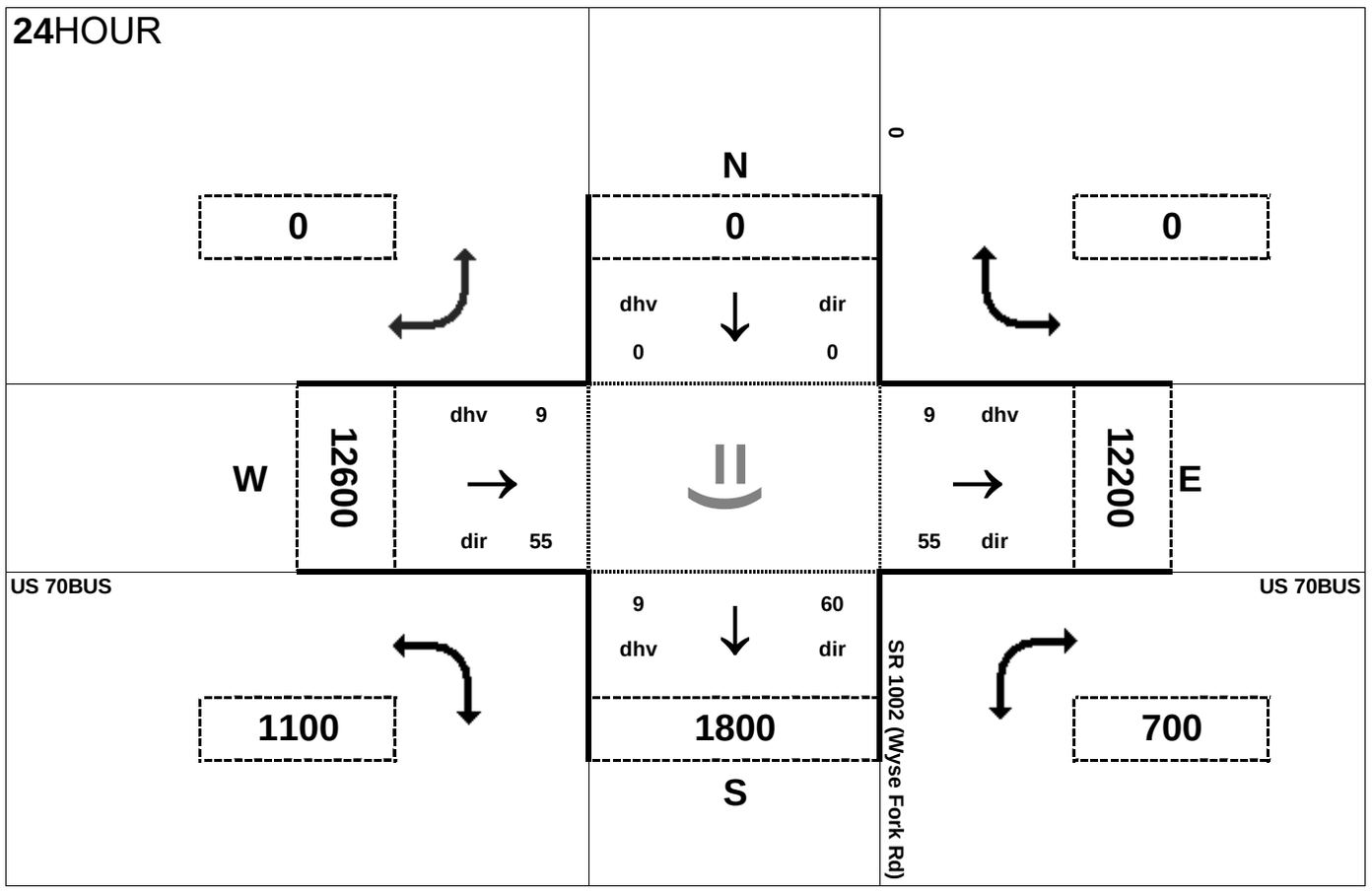
Peak Hour Volume Breakouts Report:
416 Intersection of US 70BUS at SR 1002 (Wyse Fork Rd)

Traffic Forecast Release Date:
November-16

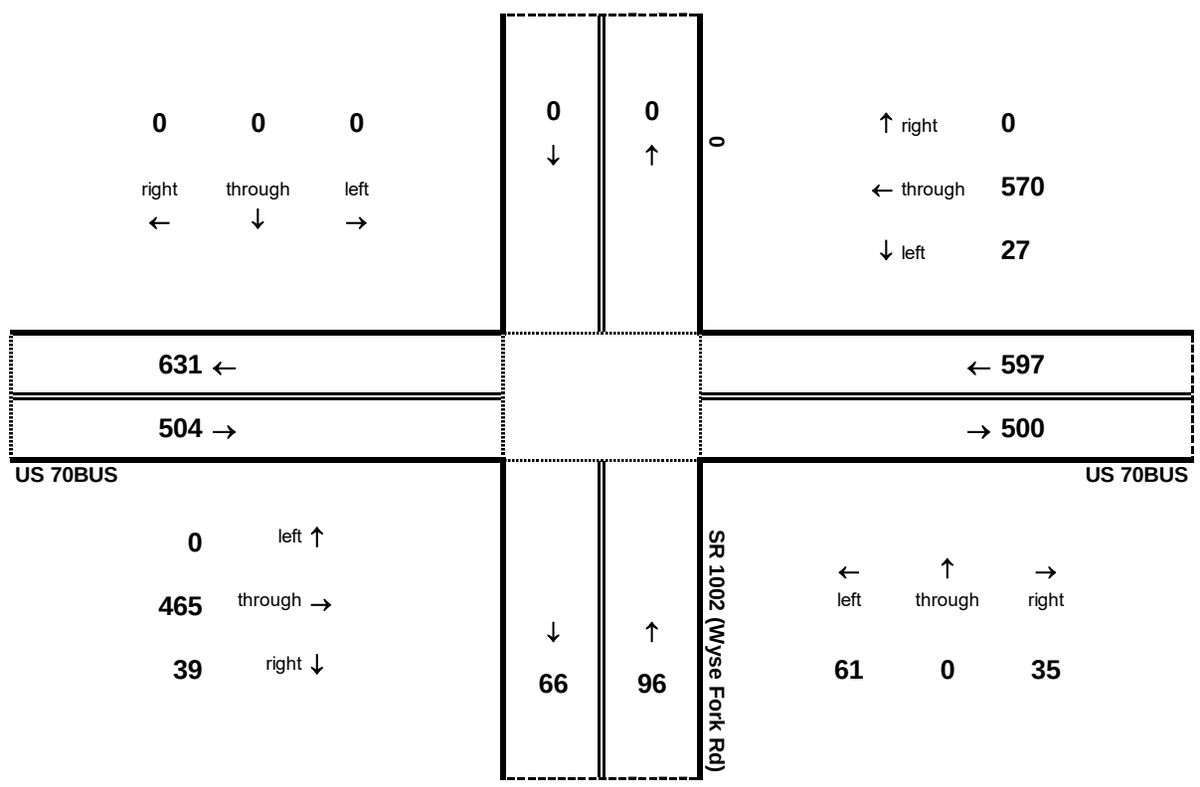
Traffic Data Year:
2040 Build Alt 52

Project:
R-2553

24HOUR

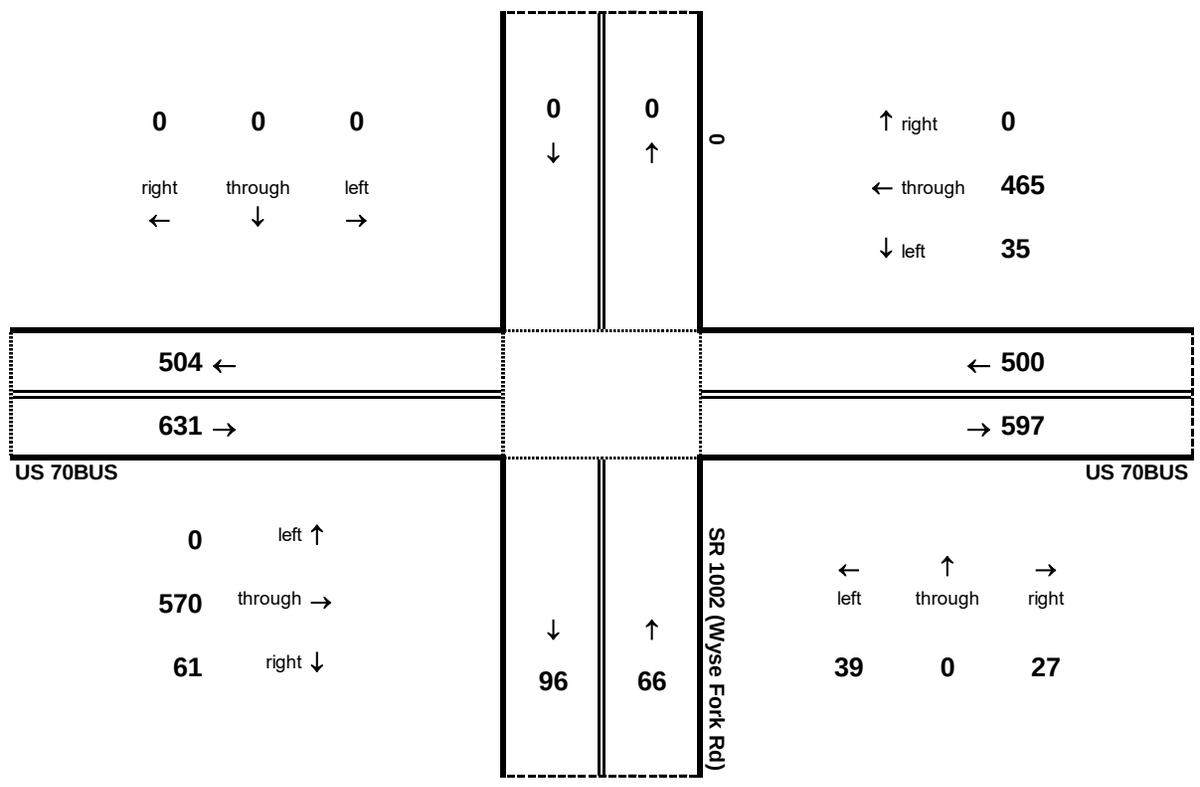


AMPEAK

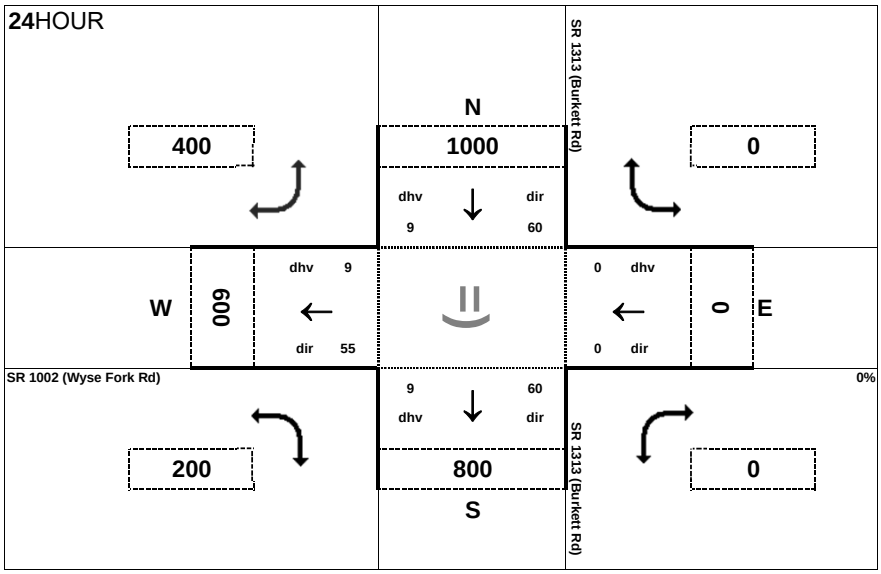


AM peak hour inflow is 1197 vehicles. AM peak hour outflow is 1197 vehicles.

PMPEAK



PM peak hour inflow is 1197 vehicles. PM peak hour outflow is 1197 vehicles.

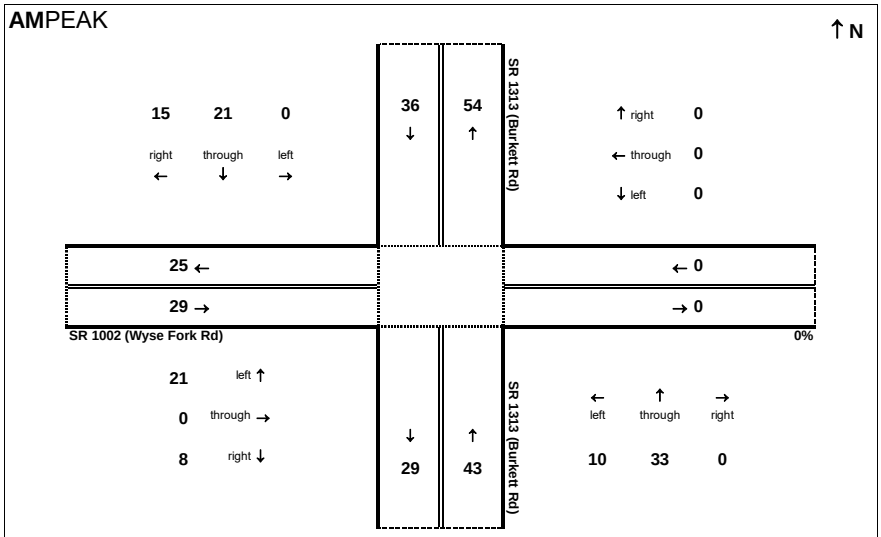


Peak Hour Volume Breakouts Report:
417 Intersection of SR 1002 (Wyse Fork Rd) at SR 1313 (Burkett Rd)

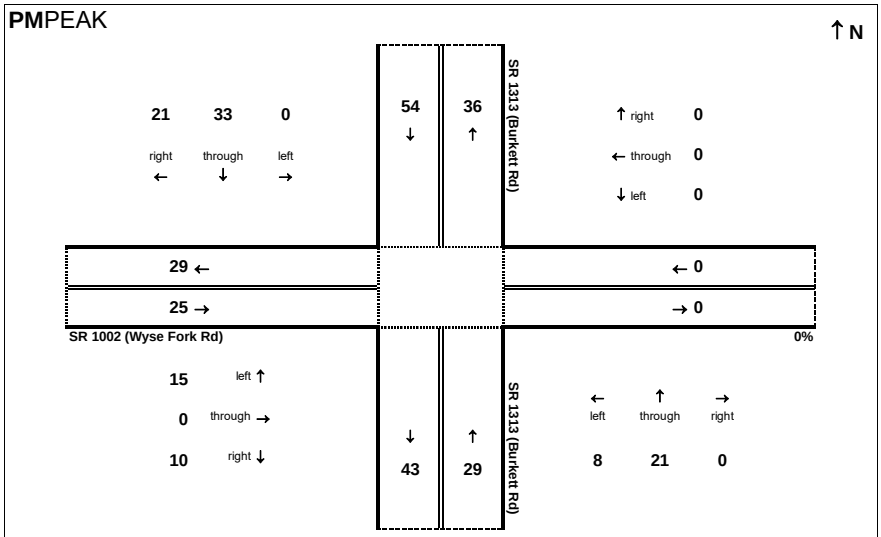
Traffic Forecast Release Date:
November-16

Traffic Data Year:
2040 Build Alt 52

Project:
R-2553



AM peak hour inflow is 108 vehicles. AM peak hour outflow is 108 vehicles.



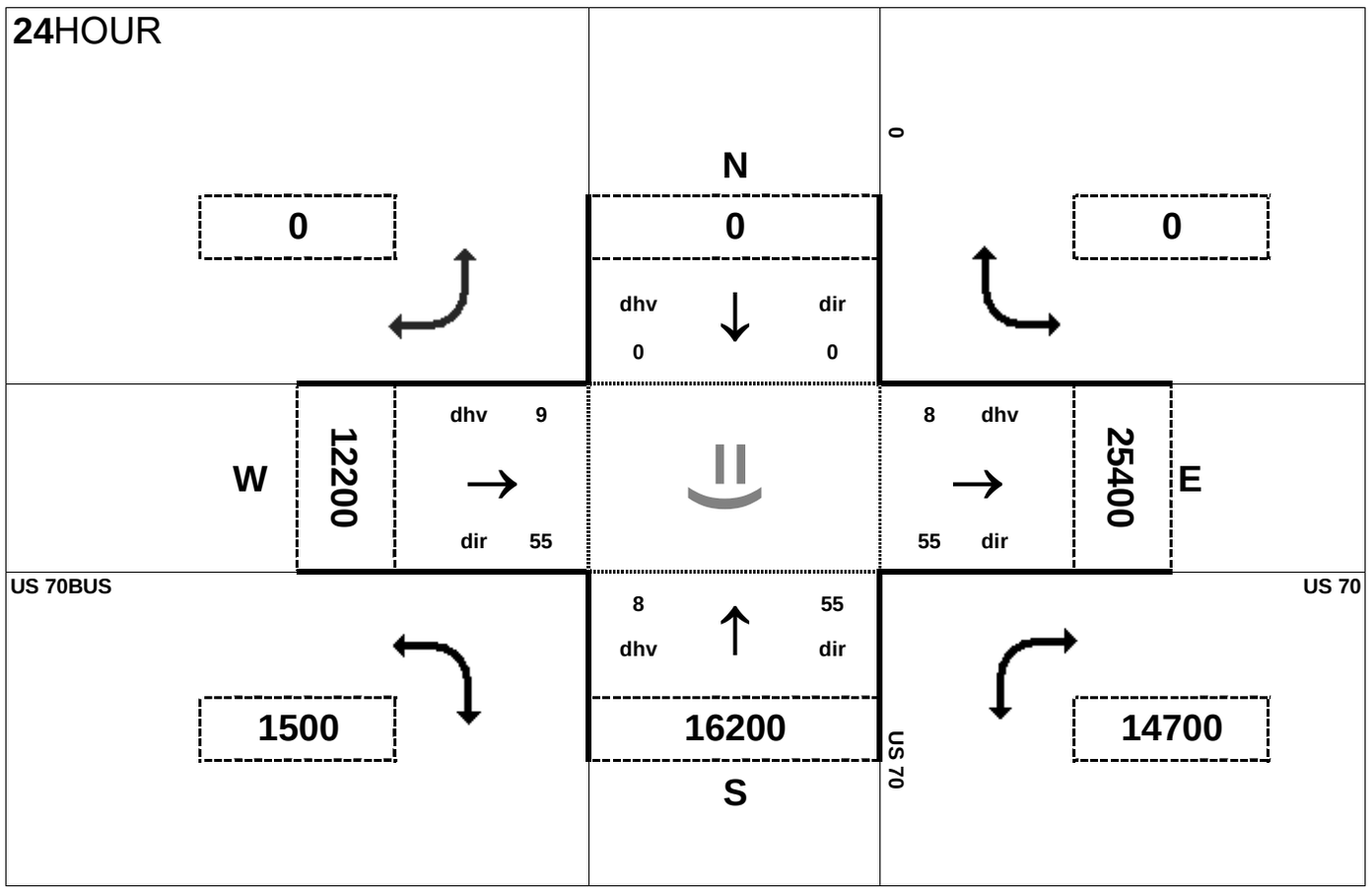
PM peak hour inflow is 108 vehicles. PM peak hour outflow is 108 vehicles.

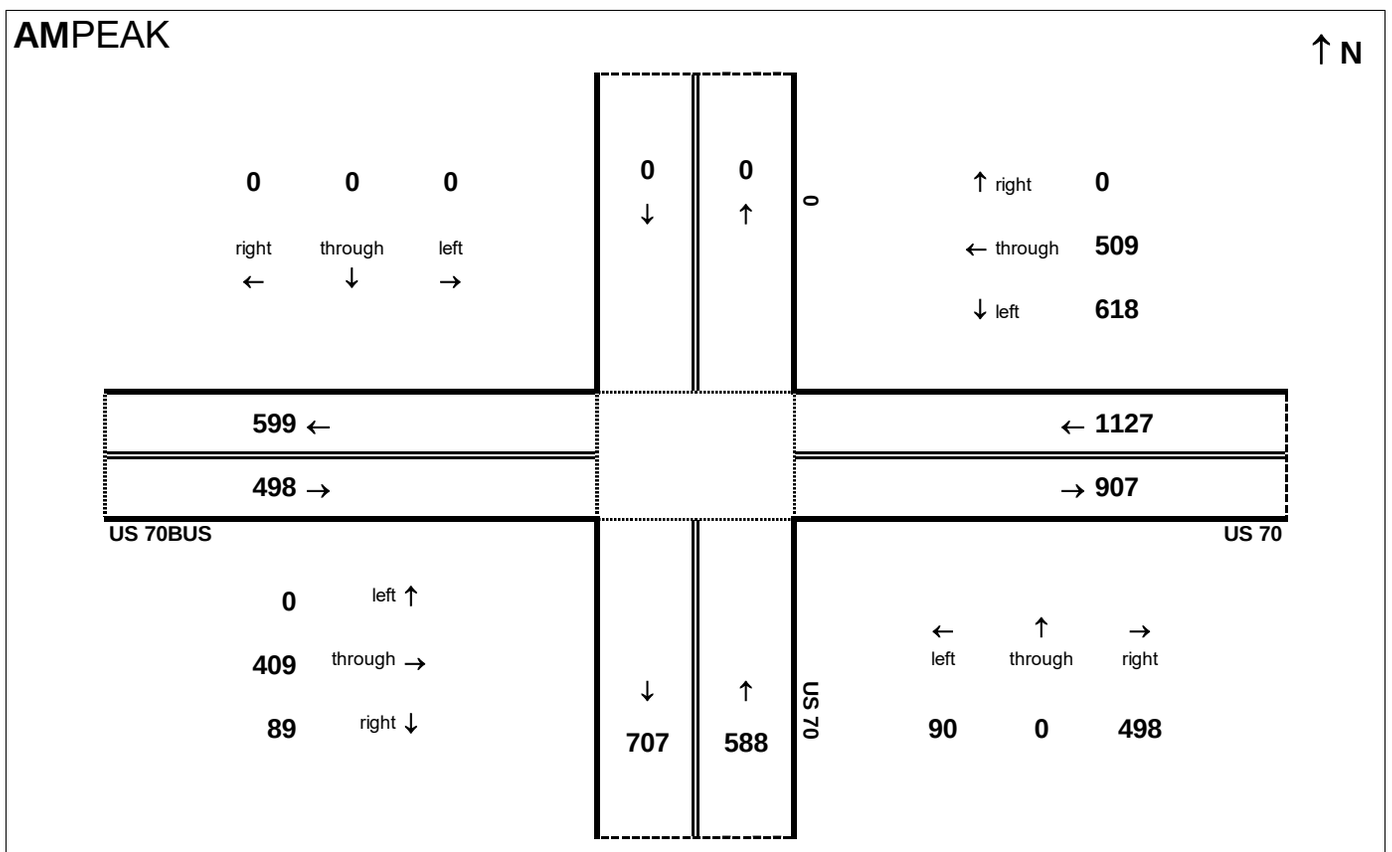
Peak Hour Volume Breakouts Report:
System 2 - Intersection of US 70 at US 70BUS (eastern interchange)

Traffic Forecast Release Date:
November-16

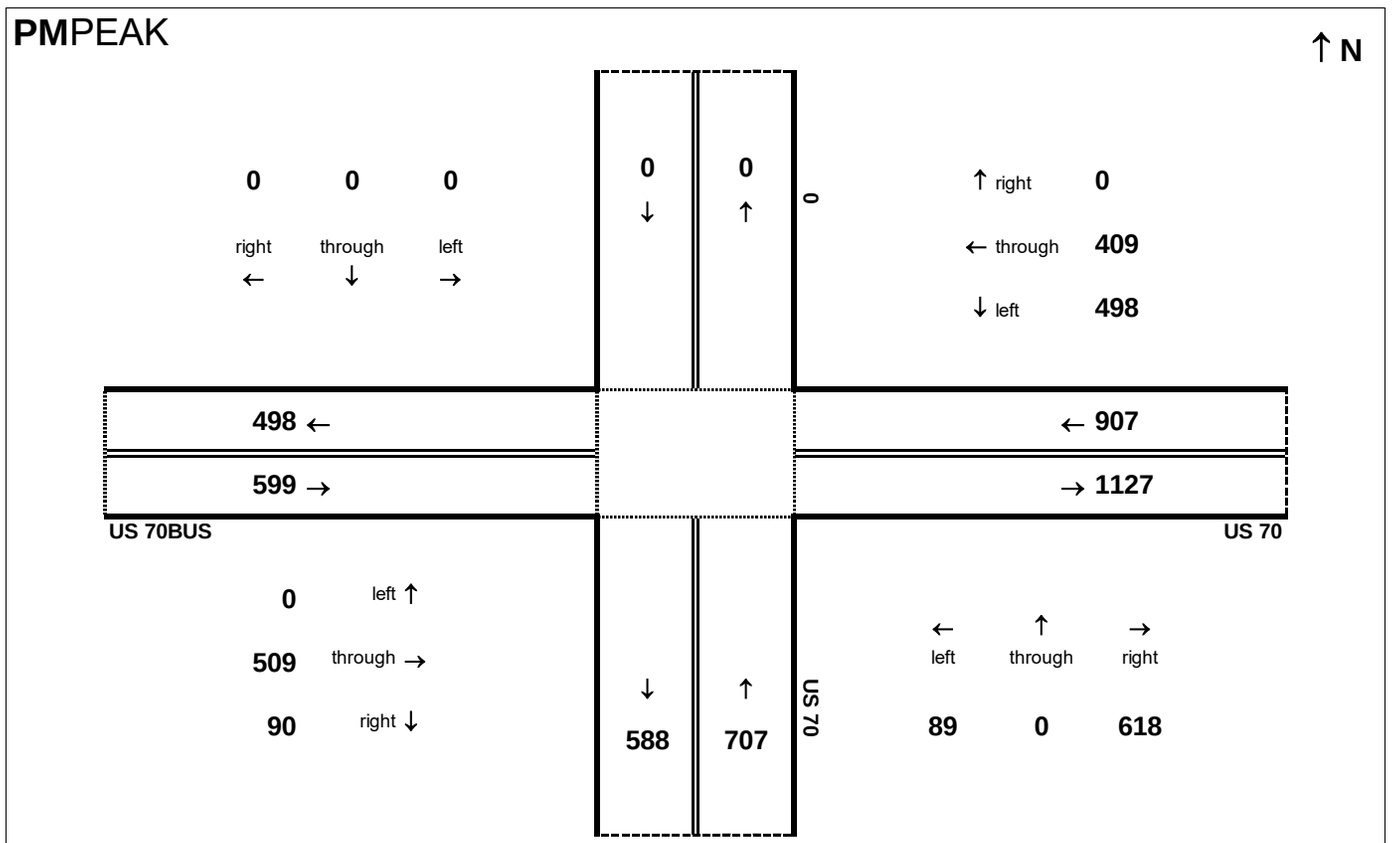
Traffic Data Year:
2040 Build Alt 52

Project:
R-2553





AM peak hour inflow is 2213 vehicles. AM peak hour outflow is 2213 vehicles.



PM peak hour inflow is 2213 vehicles. PM peak hour outflow is 2213 vehicles.

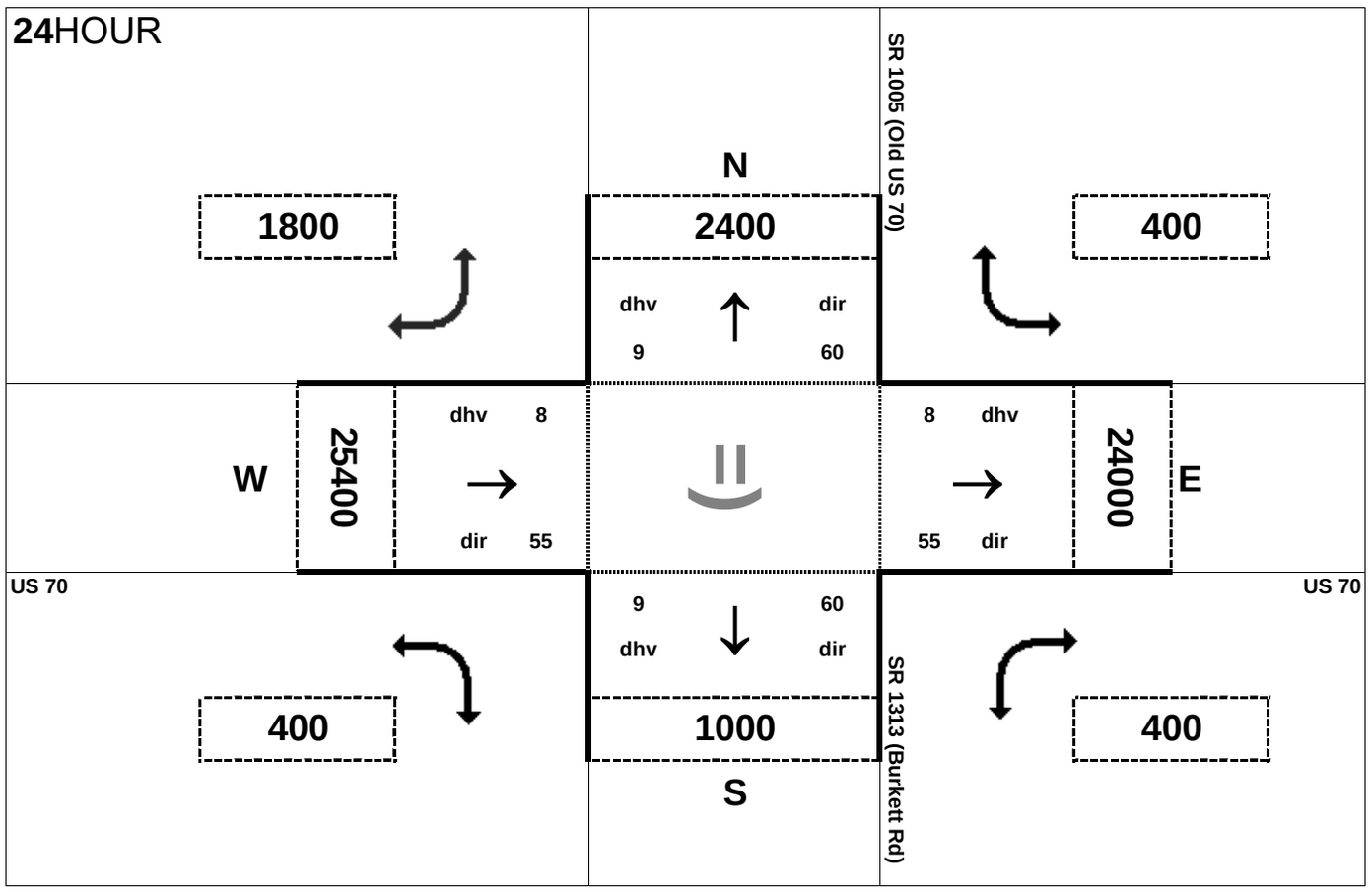
Peak Hour Volume Breakouts Report:
418-19 Intersection of US 70 and SR 1005 (Old US 70) / SR 1313 (Burkett Rd)

Traffic Forecast Release Date:
November-16

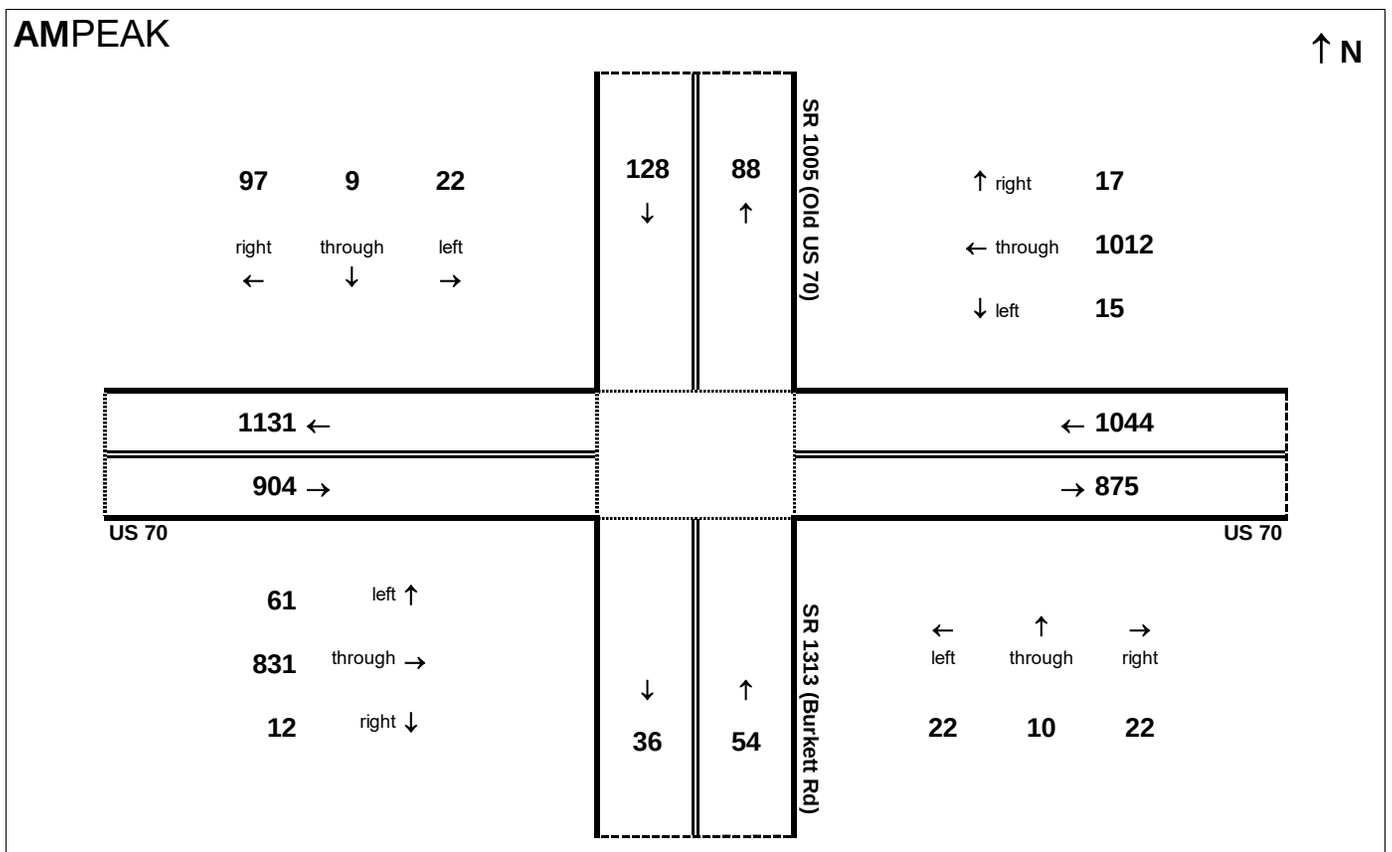
Traffic Data Year:
2040 Build Alt 52

Project:
R-2553

24HOUR

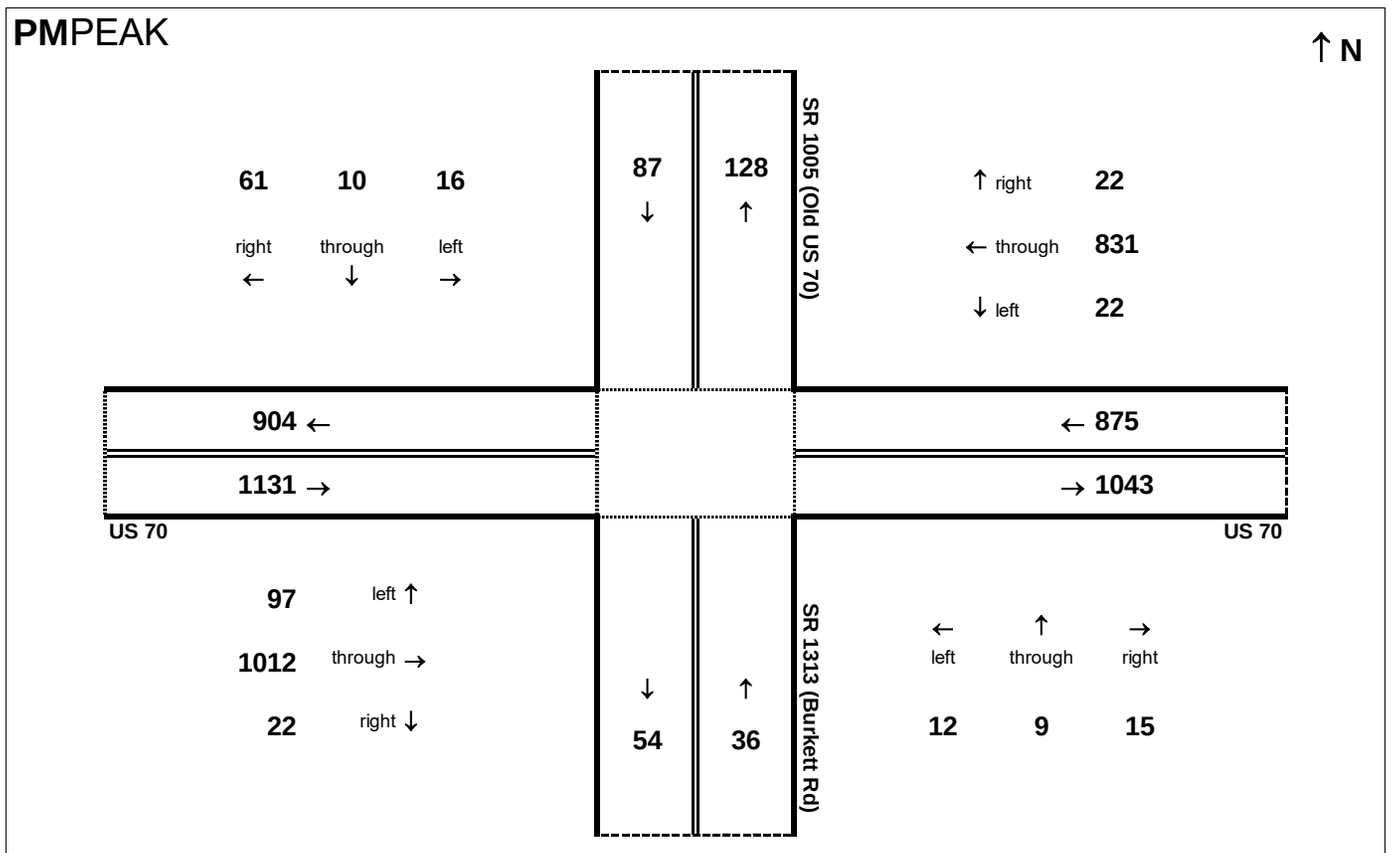


AMPEAK



AM peak hour inflow is 2129 vehicles. AM peak hour outflow is 2128 vehicles.

PMPEAK



PM peak hour inflow is 2128 vehicles. PM peak hour outflow is 2129 vehicles.

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R-2553 Kinson Bypass

2040 Build Alternative 52

Step 1 - Calculating Basic Freeway Segment Volumes

Basic Freeway Segment Volumes - Eastbound							
Segment	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)	36,200	0.09	0.45	3,258	1,792	1,467
5E	US 70 EB - SR 1690 (Willie Measley Rd) to US 70BUS	39,200	0.09	0.45	3,528	1,941	1,588
9E	US 70 EB - US 70BUS to NC 55	18,800	0.09	0.55	1,692	762	931
13E	US 70 EB - NC 55 to NC 11	17,800	0.09	0.55	1,602	721	882
17E	US 70 EB - NC 11 to US 258	18,400	0.09	0.55	1,656	746	911
21E	US 70 EB - US 258 to NC 58	16,400	0.08	0.55	1,312	591	722
25E	US 70 EB - NC 58 to US 70BUS	16,200	0.08	0.55	1,296	584	713
29E	US 70 EB - US 70BUS to Kornegay St	25,400	0.08	0.55	2,032	915	1,118
33E	US 70 EB - East of Kornegay St	24,000	0.08	0.55	1,920	864	1,056

Basic Freeway Segment Volumes - Westbound							
Segment	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1W	US 70 WB - East of Kornegay St	24,000	0.08	0.45	1,920	1,056	864
5W	US 70 WB - US 70BUS to Kornegay St	25,400	0.08	0.45	2,032	1,118	915
9W	US 70 WB - NC 58 to US 70BUS	16,200	0.08	0.45	1,296	713	584
13W	US 70 WB - US 258 to NC 58	16,400	0.08	0.45	1,312	722	591
17W	US 70 WB - NC 11 to US 258	18,400	0.09	0.45	1,656	911	746
21W	US 70 WB - NC 55 to NC 11	17,800	0.09	0.45	1,602	882	721
25W	US 70 WB - US 70BUS to NC 55	18,800	0.09	0.45	1,692	931	762
29W	US 70 WB - SR 1690 (Willie Measley Rd) to US 70BUS	39,200	0.09	0.55	3,528	1,588	1,941
33W	US 70 WB - West of SR 1690 (Willie Measley Rd)	36,200	0.09	0.55	3,258	1,467	1,792

R-2553 Kinson Bypass

2040 Build Alternative 52

Step 2 - Compiling Ramp Volumes

Ramp Volumes								
	EB Exit		WB Entrance		EB Entrance		WB Exit	
Description	AM	PM	AM	PM	AM	PM	AM	PM
US 70 at SR 1690 (Willie Measley Rd)	177	196	196	177	377	276	276	377
US 70 at US70BUS (western)	1,160	751	751	1,160	27	50	49	28
US 70 at NC 55	84	105	105	84	50	47	47	50
US 70 at NC 11	104	92	92	104	111	143	143	111
US 70at US 258	205	228	228	205	42	49	49	42
US 70 at NC 58	38	47	47	38	36	32	32	36
US 70 at US 70BUS (eastern)	90	89	89	90	409	509	509	409
US 70 at Kornegay St	73	119	119	73	44	31	32	44

R-2553 Kinson Bypass
2040 Build Alternative 52
Step 3 - Adjusting All Segment Volumes

Eastbound Adjusted Segment Volumes						
Segment	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)	0.9	1,792	1,467	1,991	1,630
2E	US 70 EB - to SR 1690 (Willie Measley Rd)	0.9	177	196	197	218
4E	US 70 EB - from SR 1690 (Willie Measley Rd)	0.9	377	276	419	306
5E	US 70 EB - SR 1690 (Willie Measley Rd) to US 70BUS	0.9	1,941	1,588	2,157	1,764
6E	US 70 EB - to US70BUS (western int)	0.9	1,160	751	1,289	834
8E	US 70 EB - from US70BUS (western int)	0.9	27	50	30	56
9E	US 70 EB - US 70BUS to NC 55	0.9	762	931	847	1,034
10E	US 70 EB - to NC 55	0.9	84	105	93	117
12E	US 70 EB - from NC 55	0.9	50	47	56	52
13E	US 70 EB - NC 55 to NC 11	0.9	721	882	801	980
14E	US 70 EB - to NC 11	0.9	104	92	116	102
16E	US 70 EB - from NC 11	0.9	111	143	123	158
17E	US 70 EB - NC 11 to US 258	0.9	746	911	829	1,012
18E	US 70 EB - to US 258	0.9	205	228	228	253
20E	US 70 EB - from US 258	0.9	42	49	47	54
21E	US 70 EB - US 258 to NC 58	0.9	591	722	657	802
22E	US 70 EB - to NC 58	0.9	38	47	42	52
24E	US 70 EB - from NC 58	0.9	36	32	40	36
25E	US 70 EB - NC 58 to US 70BUS	0.9	584	713	649	792
26E	US 70 EB - to US70BUS (eastern int)	0.9	90	89	100	99
28E	US 70 EB - from US70BUS (eastern int)	0.9	409	509	454	566
29E	US 70 EB - US 70BUS to Kornegay St	0.9	915	1,118	1,017	1,242
30E	US 70 EB - to Kornegay St	0.9	73	119	81	132
32E	US 70 EB - from Kornegay St	0.9	44	31	49	35
33E	US 70 EB - East of Kornegay St	0.9	864	1,056	960	1,173

	AM	PM
Max Volume	2,157	1,764

XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 52
Step 3 - Adjusting All Segment Volumes

Westbound Adjusted Segment Volumes						
Segment	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1W	US 70 WB - East of Kornegay St	0.9	1,056	864	1,173	960
2W	US 70 WB - to Kornegay St	0.9	32	44	36	49
4W	US 70 WB - to Kornegay St	0.9	119	73	132	81
5W	US 70 WB - US 70BUS to Kornegay St	0.9	1,118	915	1,242	1,017
6W	US 70 WB - to US70BUS (eastern int)	0.9	509	409	566	454
8W	US 70 WB - from US70BUS (eastern int)	0.9	89	90	99	100
9W	US 70 WB - NC 58 to US 70BUS	0.9	713	584	792	649
10W	US 70 WB - to NC 58	0.9	32	36	36	40
12W	US 70 WB - from NC 58	0.9	47	38	52	42
13W	US 70 WB - US 258 to NC 58	0.9	722	591	802	657
14W	US 70 WB - to US 258	0.9	49	42	54	47
16W	US 70 WB - from US 258	0.9	228	205	253	228
17W	US 70 WB - NC 11 to US 258	0.9	911	746	1,012	829
18W	US 70 WB - to NC 11	0.9	143	111	159	123
20W	US 70 WB - from NC 11	0.9	92	104	102	116
21W	US 70 WB - NC 55 to NC 11	0.9	882	721	980	801
22W	US 70 WB - to NC 55	0.9	47	50	52	56
24W	US 70 WB - from NC 55	0.9	105	84	117	93
25W	US 70 WB - US 70BUS to NC 55	0.9	931	762	1,034	847
26W	US 70 WB - to US70BUS (western int)	0.9	49	28	54	31
28W	US 70 WB - from US70BUS (western int)	0.9	751	1,160	834	1,289
29W	US 70 WB - SR 1690 (Willie Measley Rd) to US 70BUS	0.9	1,588	1,941	1,764	2,157
30W	US 70 WB - to SR 1690 (Willie Measley Rd)	0.9	276	377	307	419
32W	US 70 WB - from SR 1690 (Willie Measley Rd)	0.9	196	177	218	196
33W	US 70 WB - West of SR 1690 (Willie Measley Rd)	0.9	1,467	1,792	1,630	1,991

	AM	PM
Max Volume	1,764	2,157

XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 52
Step 4 - Balancing Freeway Segment Volumes

US 70 Eastbound Freeway Volume Balancing					
Segment	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)			1,935	1,675
2E	US 70 EB - to SR 1690 (Willie Measley Rd)	197	218		
3E	US 70 EB - within SR 1690 (Willie Measley Rd) Interchange			1,738	1,457
4E	US 70 EB - from SR 1690 (Willie Measley Rd)	419	307		
5E	US 70 EB - SR 1690 (Willie Measley Rd) to US 70BUS			**2,157**	**1,764**
6E	US 70 EB - to US70BUS (western int)	1,289	835		
7E	US 70 EB - within US 70BUS (western int)			868	929
8E	US 70 EB - from US70BUS (western int)	30	56		
9E	US 70 EB - US 70BUS to NC 55			898	985
10E	US 70 EB - to NC 55	94	117		
11E	US 70 EB - within NC 55 interchange			804	868
12E	US 70 EB - from NC 55	56	53		
13E	US 70 EB - NC 55 to NC 11			860	921
14E	US 70 EB - to NC 11	116	103		
15E	US 70 EB - within NC 11 interchange			744	818
16E	US 70 EB - from NC 11	124	159		
17E	US 70 EB - NC 11 to US 258			868	977
18E	US 70 EB - to US 258	228	254		
19E	US 70 EB - within US 258 interchange			640	723
20E	US 70 EB - from US 258	47	55		
21E	US 70 EB - US 258 to NC 58			687	778
22E	US 70 EB - to NC 58	43	53		
23E	US 70 EB - within NC 58 interchange			644	725
24E	US 70 EB - from NC 58	40	36		
25E	US 70 EB - NC 58 to US 70BUS			684	761
26E	US 70 EB - to US70BUS (eastern int)	100	99		
27E	US 70 EB - within US 70BUS (eastern int)			584	662
28E	US 70 EB - from US70BUS (eastern int)	455	566		
29E	US 70 EB - US 70BUS to Kornegay St			1,039	1,228
30E	US 70 EB - to Kornegay St	82	133		
31E	US 70 EB - within Kornegay St interchange			957	1,095
32E	US 70 EB - from Kornegay St	49	35		
33E	US 70 EB - East of Kornegay St			1,006	1,130

	Max volume balance point
XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 52
Step 4 - Balancing Freeway Segment Volumes

US 70 Westbound Freeway Volume Balancing					
Segment	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1W	US 70 WB - East of Kornegay St			1,130	1,010
2W	US 70 WB - to Kornegay St	36	49		
3W	US 70 WB - within Kornegay St interchange			1,094	961
4W	US 70 WB - to Kornegay St	133	81		
5W	US 70 WB - US 70BUS to Kornegay St			1,227	1,042
6W	US 70 WB - to US70BUS (eastern int)	566	455		
7W	US 70 WB - within US 70BUS (eastern int)			661	587
8W	US 70 WB - from US70BUS (eastern int)	99	100		
9W	US 70 WB - NC 58 to US 70BUS			760	687
10W	US 70 WB - to NC 58	36	40		
11W	US 70 WB - within NC 58 interchange			724	647
12W	US 70 WB - from NC 58	53	43		
13W	US 70 WB - US 258 to NC 58			777	690
14W	US 70 WB - to US 258	55	47		
15W	US 70 WB - within US 258 interchange			722	643
16W	US 70 WB - from US 258	254	228		
17W	US 70 WB - NC 11 to US 258			976	871
18W	US 70 WB - to NC 11	159	124		
19W	US 70 WB - within NC 11 interchange			817	747
20W	US 70 WB - from NC 11	103	116		
21W	US 70 WB - NC 55 to NC 11			920	863
22W	US 70 WB - to NC 55	53	56		
23W	US 70 WB - withn NC 55 interchange			867	807
24W	US 70 WB - from NC 55	117	93		
25W	US 70 WB - US 70BUS to NC 55			984	900
26W	US 70 WB - to US70BUS (western int)	55	32		
27W	US 70 WB - within US 70BUS (western int)			929	868
28W	US 70 WB - from US70BUS (western int)	835	1,289		
29W	US 70 WB - SR 1690 (Willie Measley Rd) to US 70BUS			**1,764**	**2,157**
30W	US 70 WB - to SR 1690 (Willie Measley Rd)	307	419		
31W	US 70 WB - within SR 1690 (Willie Measley Rd) Interchange			1,457	1,738
32W	US 70 WB - from SR 1690 (Willie Measley Rd)	218	197		
33W	US 70 WB - West of SR 1690 (Willie Measley Rd)			1,675	1,935

	Max volume balance point
XXX	Ramp
XXX	Basic Freeway Segment

2040 Build Alternative 52
FREEVAL-E Reports

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R-2553 US 70 Kinston Bypass, Alternative 52
US 70 EB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1E	2E	3E	4E	5E	6E	7E	8E	9E
General Purpose Segment Name	W of Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	Jim Sutton/Willie Measley to US 70 Bus (W)	To US 70 Bus (W)	Within US 70 Bus (W)	From US 70 Bus (W)	US 70 Bus (W) to NC 55
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	1500	4340	2500	2300	1620	19410
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1935	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	750	N/A	920	N/A	2500	N/A	1620	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	419	N/A	N/A	N/A	30	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	2	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	60	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	197	N/A	N/A	N/A	1289	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	14.3	14.7	12.9	16.9	15.9	0.9	6.5	2.6	6.7
V/C	0.42	0.42	0.38	0.46	0.46	0.46	0.19	0.20	0.20
Density Based LOS	B	B	B	B	B	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 52
US 70 EB - AM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10E	11E	12E	13E	14E	15E	16E	17E	18E
General Purpose Segment Name	To NC 55	Within NC 55	From NC 55	NC 55 to NC 11	To NC 11	Within NC 11	From NC 11	NC 11 to US 258	To US 258
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	4090	1500	1500	1620	7860	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	56	N/A	N/A	N/A	124	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	8	N/A	N/A	N/A	5	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	94	N/A	N/A	N/A	116	N/A	N/A	N/A	228
OFR Single Unit Truck and Bus (%)	8	N/A	N/A	N/A	5	N/A	N/A	N/A	7
Total Density (pc/mi/ln)	5.6	6.0	6.7	6.4	7.6	5.6	2.4	6.5	5.3
V/C	0.20	0.18	0.19	0.19	0.19	0.16	0.19	0.19	0.19
Density Based LOS	A	A	A	A	A	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 52
US 70 EB - AM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19E	20E	21E	22E	23E	24E	25E	26E	27E
General Purpose Segment Name	Within US 258	From US 258	US 258 to NC 58	To NC 58	Within NC 58	From NC 58	NC 58 to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E)
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	12310	1500	1500	1620	16340	1500	3030
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	1620	N/A	750	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	47	N/A	N/A	N/A	40	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	6	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	25	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	43	N/A	N/A	N/A	100	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	6	N/A	N/A	N/A	6	N/A
Total Density (pc/mi/ln)	4.8	5.3	5.1	6.0	4.8	0.9	5.1	3.7	4.4
V/C	0.14	0.15	0.15	0.15	0.14	0.15	0.15	0.15	0.13
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 52
US 70 EB - AM Peak

Segment	Seg. 28	Seg. 29	Seg. 30	Seg. 31	Seg. 32	Seg. 33
General Purpose Segment Data	28E	29E	30E	31E	32E	33E
General Purpose Segment Name	From US 70 Bus (E)	US 70 Bus (E) to Burkett/Kornegay	To Burkett/Kornegay	Within Burkett/Kornegay	From Burkett Kornegay	E of Burkett/Kornegay
General Purpose Segment Type	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	2500	6280	1500	3000	1500	5280
Terrain	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	2500	N/A	490	N/A	920	N/A
ONR Side	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	2	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	60	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	455	N/A	N/A	N/A	49	N/A
ONR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	4	N/A
OFR Side	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	82	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	0.0*	7.7	9.2	7.1	7.9	7.5
V/C	0.23	0.23	0.23	0.21	0.22	0.22
Density Based LOS	A	A	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 52
US 70 EB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1E	2E	3E	4E	5E	6E	7E	8E	9E
General Purpose Segment Name	W of Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	Jim Sutton/Willie Measley to US 70 Bus (W)	To US 70 Bus (W)	Within US 70 Bus (W)	From US 70 Bus (W)	US 70 Bus (W) to NC 55
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	1500	4340	2500	2300	1620	19410
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1675	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	750	N/A	920	N/A	2500	N/A	1620	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	307	N/A	N/A	N/A	56	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	5	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	2	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	60	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	218	N/A	N/A	N/A	835	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	5	N/A	N/A	N/A
Total Density (pc/mi/ln)	12.4	12.4	10.8	13.8	13.0	0.0*	6.9	3.3	7.3
V/C	0.36	0.36	0.31	0.38	0.38	0.38	0.20	0.21	0.21
Density Based LOS	B	B	A	B	B	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 52
US 70 EB - PM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10E	11E	12E	13E	14E	15E	16E	17E	18E
General Purpose Segment Name	To NC 55	Within NC 55	From NC 55	NC 55 to NC 11	To NC 11	Within NC 11	From NC 11	NC 11 to US 258	To US 258
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	4090	1500	1500	1620	7860	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	53	N/A	N/A	N/A	159	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	8	N/A	N/A	N/A	5	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	117	N/A	N/A	N/A	103	N/A	N/A	N/A	254
OFR Single Unit Truck and Bus (%)	8	N/A	N/A	N/A	5	N/A	N/A	N/A	7
Total Density (pc/mi/ln)	6.3	6.5	7.2	6.9	8.1	6.1	3.2	7.3	6.2
V/C	0.21	0.19	0.20	0.20	0.20	0.18	0.21	0.21	0.21
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 52
US 70 EB - PM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19E	20E	21E	22E	23E	24E	25E	26E	27E
General Purpose Segment Name	Within US 258	From US 258	US 258 to NC 58	To NC 58	Within NC 58	From NC 58	NC 58 to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E)
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	12310	1500	1500	1620	16340	1500	3030
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	1620	N/A	750	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	55	N/A	N/A	N/A	36	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	6	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	25	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	53	N/A	N/A	N/A	99	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	6	N/A	N/A	N/A	6	N/A
Total Density (pc/mi/ln)	5.4	6.0	5.8	6.8	5.4	1.5	5.7	4.3	4.9
V/C	0.16	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.14
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 52
US 70 EB - PM Peak

Segment	Seg. 28	Seg. 29	Seg. 30	Seg. 31	Seg. 32	Seg. 33
General Purpose Segment Data	28E	29E	30E	31E	32E	33E
General Purpose Segment Name	From US 70 Bus (E)	US 70 Bus (E) to Burkett/Kornegay	To Burkett/Kornegay	Within Burkett/Kornegay	From Burkett Kornegay	E of Burkett/Kornegay
General Purpose Segment Type	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	2500	6280	1500	3000	1500	5280
Terrain	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	2500	N/A	490	N/A	920	N/A
ONR Side	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	2	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	60	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	566	N/A	N/A	N/A	35	N/A
ONR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	4	N/A
OFR Side	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	133	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	0.0*	9.1	10.8	8.1	8.9	8.4
V/C	0.27	0.27	0.27	0.24	0.24	0.24
Density Based LOS	A	A	B	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 52
US 70 WB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1W	2W	3W	4W	5W	6W	7W	8W	9W
General Purpose Segment Name	E of Burkett/Kornegay	To Burkett/Kornegay	Within Burkett/Kornegay Int	From Burkett/Kornegay	Burkett/Kornegay to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E) Int	From US 70 Bus (E)	US 70 Bus (E) to NC 58
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	3000	1500	10800	1500	1940	1500	14370
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1130	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	9	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	920	N/A	490	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	133	N/A	N/A	N/A	99	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	6	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	36	N/A	N/A	N/A	566	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	6	N/A	N/A	N/A
Total Density (pc/mi/ln)	8.4	10.0	8.2	9.6	9.1	10.8	5.0	5.9	5.7
V/C	0.25	0.25	0.24	0.27	0.27	0.27	0.15	0.17	0.17
Density Based LOS	A	A	A	A	A	B	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 52
US 70 WB - AM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10W	11W	12W	13W	14W	15W	16W	17W	18W
General Purpose Segment Name	To NC 58	Within NC 58 Int	From NC 58	NC 58 to US 258	To US 258	Within US 258 Int	From US 258	US 258 to NC 11	To NC 11
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	12350	1500	1500	1620	7590	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	53	N/A	N/A	N/A	254	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	6	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	36	N/A	N/A	N/A	55	N/A	N/A	N/A	159
OFR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	7	N/A	N/A	N/A	5
Total Density (pc/mi/ln)	4.4	5.4	6.1	5.8	6.9	5.4	3.2	7.3	6.3
V/C	0.17	0.16	0.17	0.17	0.17	0.16	0.21	0.21	0.21
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 52
US 70 WB - AM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19W	20W	21W	22W	23W	24W	25W	26W	27W
General Purpose Segment Name	Within NC 11 Int	From NC 11	NC 11 to NC 55	To NC 55	Within NC 55 Int	From NC 55	NC 55 to US 70 Bus (W)	To US 70 Bus (W)	Within US 70 Bus (W) Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	3730	1500	1500	1620	17390	1500	2560
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	1620	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	103	N/A	N/A	N/A	117	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	5	N/A	N/A	N/A	8	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	53	N/A	N/A	N/A	55	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	8	N/A	N/A	N/A	5	N/A
Total Density (pc/mi/ln)	6.1	7.2	6.9	8.1	6.5	3.3	7.4	8.7	7.0
V/C	0.18	0.20	0.20	0.20	0.19	0.21	0.21	0.21	0.20
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 52
US 70 WB - AM Peak

Segment	Seg. 28	Seg. 29	Seg. 30	Seg. 31	Seg. 32	Seg. 33
General Purpose Segment Data	28W	29W	30W	31W	32W	33W
General Purpose Segment Name	From US 70 Bus (W)	US 70 Bus (W) to Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	W of Jim Sutton/Willie Measley
General Purpose Segment Type	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1500	7290	1500	1500	1620	5280
Terrain	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	920	N/A	490	N/A	1620	N/A
ONR Side	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	45	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	835	N/A	N/A	N/A	218	N/A
ONR Single Unit Truck and Bus (%)	5	N/A	N/A	N/A	4	N/A
OFR Side	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	307	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	13.7	13.1	15.6	10.8	8.8	12.4
V/C	0.38	0.38	0.38	0.32	0.36	0.36
Density Based LOS	B	B	B	A	A	B

R-2553 US 70 Kinston Bypass, Alternative 52
US 70 WB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1W	2W	3W	4W	5W	6W	7W	8W	9W
General Purpose Segment Name	E of Burkett/Kornegay	To Burkett/Kornegay	Within Burkett/Kornegay Int	From Burkett/Kornegay	Burkett/Kornegay to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E) Int	From US 70 Bus (E)	US 70 Bus (E) to NC 58
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	3000	1500	10800	1500	1940	1500	14370
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1010	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	9	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	920	N/A	490	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	81	N/A	N/A	N/A	100	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	6	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	49	N/A	N/A	N/A	455	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	6	N/A	N/A	N/A
Total Density (pc/mi/ln)	7.5	8.9	7.2	8.2	7.8	9.2	4.4	5.3	5.2
V/C	0.22	0.22	0.21	0.23	0.23	0.23	0.13	0.15	0.15
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 52
US 70 WB - PM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10W	11W	12W	13W	14W	15W	16W	17W	18W
General Purpose Segment Name	To NC 58	Within NC 58 Int	From NC 58	NC 58 to US 258	To US 258	Within US 258 Int	From US 258	US 258 to NC 11	To NC 11
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	12350	1500	1500	1620	7590	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	43	N/A	N/A	N/A	228	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	6	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	40	N/A	N/A	N/A	47	N/A	N/A	N/A	124
OFR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	7	N/A	N/A	N/A	5
Total Density (pc/mi/ln)	3.7	4.9	5.4	5.2	6.1	4.8	2.4	6.5	5.4
V/C	0.15	0.14	0.15	0.15	0.15	0.14	0.19	0.19	0.19
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 52
US 70 WB - PM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19W	20W	21W	22W	23W	24W	25W	26W	27W
General Purpose Segment Name	Within NC 11 Int	From NC 11	NC 11 to NC 55	To NC 55	Within NC 55 Int	From NC 55	NC 55 to US 70 Bus (W)	To US 70 Bus (W)	Within US 70 Bus (W) Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	3730	1500	1500	1620	17390	1500	2560
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	1620	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	116	N/A	N/A	N/A	93	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	5	N/A	N/A	N/A	8	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	56	N/A	N/A	N/A	32	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	8	N/A	N/A	N/A	5	N/A
Total Density (pc/mi/ln)	5.6	6.7	6.5	7.6	6.0	2.6	6.7	8.0	6.5
V/C	0.16	0.19	0.19	0.19	0.18	0.20	0.20	0.20	0.19
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 52
US 70 WB - PM Peak

Segment	Seg. 28	Seg. 29	Seg. 30	Seg. 31	Seg. 32	Seg. 33
General Purpose Segment Data	28W	29W	30W	31W	32W	33W
General Purpose Segment Name	From US 70 Bus (W)	US 70 Bus (W) to Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	W of Jim Sutton/Willie Measley
General Purpose Segment Type	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1500	7290	1500	1500	1620	5280
Terrain	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	920	N/A	490	N/A	1620	N/A
ONR Side	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	45	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	1289	N/A	N/A	N/A	197	N/A
ONR Single Unit Truck and Bus (%)	5	N/A	N/A	N/A	4	N/A
OFR Side	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	419	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	16.6	15.9	19.0	12.9	10.9	14.3
V/C	0.46	0.46	0.46	0.38	0.42	0.42
Density Based LOS	B	B	B	B	B	B

2040 Build Alternative 52
Synchro Reports

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	4	4	4	4	23	4	107	4	17	69	6
Future Volume (vph)	10	4	4	4	4	23	4	107	4	17	69	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1693	0	0	1598	0	1770	1853	0	1770	1839	0
Flt Permitted		0.972			0.994		0.950			0.950		
Satd. Flow (perm)	0	1693	0	0	1598	0	1770	1853	0	1770	1839	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		883			854			935			1001	
Travel Time (s)		13.4			12.9			11.6			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	19	0	0	34	0	4	123	0	19	84	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 17.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	4	4	4	4	23	4	107	4	17	69	6
Future Volume (Veh/h)	10	4	4	4	4	23	4	107	4	17	69	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	4	4	4	4	26	4	119	4	19	77	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1001	
pX, platoon unblocked												
vC, conflicting volume	274	250	80	250	251	121	84			123		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	274	250	80	250	251	121	84			123		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	98	99	100	99	99	97	100			99		
cM capacity (veh/h)	641	636	969	681	635	920	1513			1464		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	19	34	4	123	19	84
Volume Left	11	4	4	0	19	0
Volume Right	4	26	0	4	0	7
cSH	689	841	1513	1700	1464	1700
Volume to Capacity	0.03	0.04	0.00	0.07	0.01	0.05
Queue Length 95th (ft)	2	3	0	0	1	0
Control Delay (s)	10.4	9.5	7.4	0.0	7.5	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	10.4	9.5	0.2		1.4	
Approach LOS	B	A				

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	17.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	4	4	4	4	17	4	69	4	23	107	10
Future Volume (vph)	6	4	4	4	4	17	4	69	4	23	107	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1688	0	0	1611	0	1770	1850	0	1770	1839	0
Flt Permitted		0.977			0.993		0.950			0.950		
Satd. Flow (perm)	0	1688	0	0	1611	0	1770	1850	0	1770	1839	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		883			854			935			1001	
Travel Time (s)		13.4			12.9			11.6			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	0	27	0	4	81	0	26	130	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 17.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	4	4	4	4	17	4	69	4	23	107	10
Future Volume (Veh/h)	6	4	4	4	4	17	4	69	4	23	107	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	4	4	4	4	19	4	77	4	26	119	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1001	
pX, platoon unblocked												
vC, conflicting volume	282	266	124	264	269	79	130			81		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	282	266	124	264	269	79	130			81		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	99	99	100	99	99	98	100			98		
cM capacity (veh/h)	636	621	916	664	618	970	1455			1517		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	15	27	4	81	26	130
Volume Left	7	4	4	0	26	0
Volume Right	4	19	0	4	0	11
cSH	687	842	1455	1700	1517	1700
Volume to Capacity	0.02	0.03	0.00	0.05	0.02	0.08
Queue Length 95th (ft)	2	2	0	0	1	0
Control Delay (s)	10.4	9.4	7.5	0.0	7.4	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	10.4	9.4	0.4		1.2	
Approach LOS	B	A				

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	17.9%	ICU Level of Service	A
Analysis Period (min)	15		

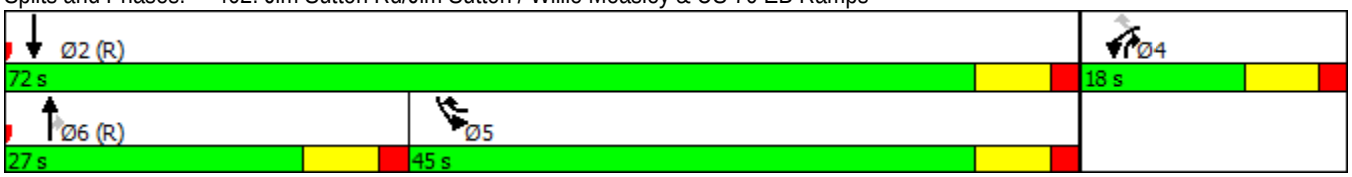
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	30	147	62	76	301	63
Future Volume (vph)	30	147	62	76	301	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	225		100	275	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1863	1583	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1863	1583	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	999		1001			1313
Travel Time (s)	27.2		12.4			16.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	163	69	84	334	70
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	18.0	45.0	27.0	18.0	45.0	72.0
Total Split (%)	20.0%	50.0%	30.0%	20.0%	50.0%	80.0%
Maximum Green (s)	11.0	38.0	20.0	11.0	38.0	65.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.0	37.4	42.6	54.8	25.2	73.8
Actuated g/C Ratio	0.11	0.42	0.47	0.61	0.28	0.82
v/c Ratio	0.17	0.25	0.08	0.09	0.69	0.05
Control Delay	37.8	15.8	17.9	9.2	31.7	2.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.8	15.8	17.9	9.2	31.7	2.3
LOS	D	B	B	A	C	A
Approach Delay	19.5		13.2			26.6
Approach LOS	B		B			C
Queue Length 50th (ft)	17	56	22	18	142	6
Queue Length 95th (ft)	44	74	58	47	191	15
Internal Link Dist (ft)	919		921			1233
Turn Bay Length (ft)		225		100	275	
Base Capacity (vph)	250	740	881	932	771	1497
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.22	0.08	0.09	0.43	0.05

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 18 (20%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 22.0 Intersection LOS: C
Intersection Capacity Utilization 37.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps



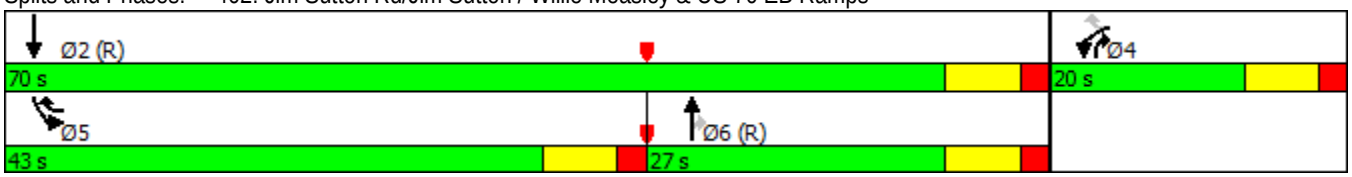
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	40	156	47	46	230	98
Future Volume (vph)	40	156	47	46	230	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	225		100	275	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1863	1583	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1863	1583	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	999		1001			1313
Travel Time (s)	27.2		12.4			16.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	173	52	51	256	109
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	43.0	27.0	20.0	43.0	70.0
Total Split (%)	22.2%	47.8%	30.0%	22.2%	47.8%	77.8%
Maximum Green (s)	13.0	36.0	20.0	13.0	36.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.2	33.2	46.8	62.0	20.8	73.6
Actuated g/C Ratio	0.11	0.37	0.52	0.69	0.23	0.82
v/c Ratio	0.22	0.30	0.05	0.05	0.64	0.07
Control Delay	38.7	19.2	14.9	7.0	30.9	2.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.7	19.2	14.9	7.0	30.9	2.2
LOS	D	B	B	A	C	A
Approach Delay	23.2		11.0			22.3
Approach LOS	C		B			C
Queue Length 50th (ft)	23	66	15	9	117	6
Queue Length 95th (ft)	54	92	41	27	166	17
Internal Link Dist (ft)	919		921			1233
Turn Bay Length (ft)		225		100	275	
Base Capacity (vph)	289	869	969	1175	732	1494
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.20	0.05	0.04	0.35	0.07

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 10 (11%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 20.9 Intersection LOS: C
Intersection Capacity Utilization 33.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps

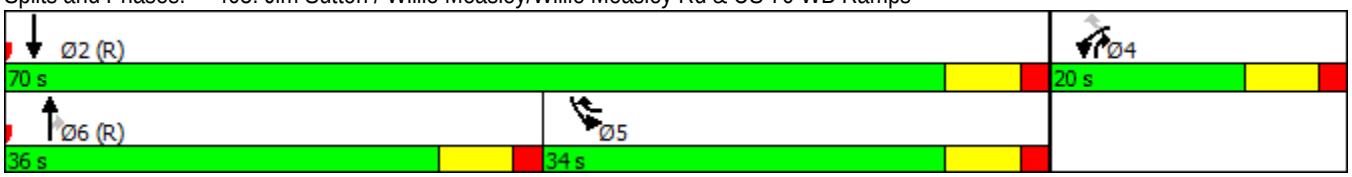


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	46	230	169	40	156	318
Future Volume (vph)	46	230	169	40	156	318
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	300		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	987		1313			996
Travel Time (s)	15.0		16.3			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	51	256	188	44	173	353
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	34.0	36.0	20.0	34.0	70.0
Total Split (%)	22.2%	37.8%	40.0%	22.2%	37.8%	77.8%
Maximum Green (s)	13.0	27.0	29.0	13.0	27.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.4	32.0	48.0	60.6	19.4	73.4
Actuated g/C Ratio	0.12	0.36	0.53	0.67	0.22	0.82
v/c Ratio	0.26	0.46	0.19	0.04	0.46	0.24
Control Delay	38.9	23.5	11.1	4.8	34.3	3.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	23.5	11.1	4.8	34.3	3.2
LOS	D	C	B	A	C	A
Approach Delay	26.1		9.9			13.4
Approach LOS	C		A			B
Queue Length 50th (ft)	27	106	42	8	86	43
Queue Length 95th (ft)	60	147	87	12	139	79
Internal Link Dist (ft)	907		1233			916
Turn Bay Length (ft)		300		100	200	
Base Capacity (vph)	289	600	974	1032	559	1489
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.43	0.19	0.04	0.31	0.24

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 64 (71%), Referenced to phase 2:SBT and 6:NBT, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.46	
Intersection Signal Delay: 16.3	Intersection LOS: B
Intersection Capacity Utilization 38.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps



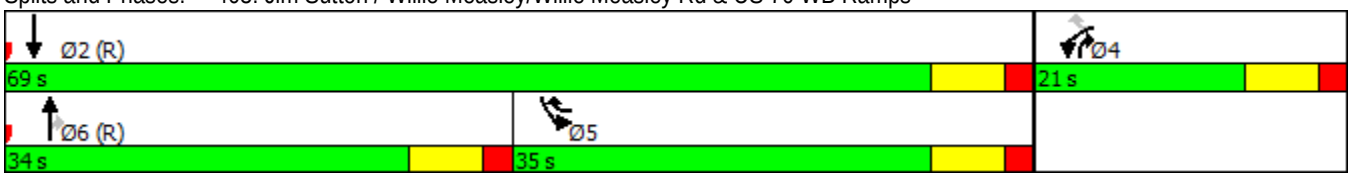
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	76	301	173	30	147	252
Future Volume (vph)	76	301	173	30	147	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	300		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	987		1313			996
Travel Time (s)	15.0		16.3			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	84	334	192	33	163	280
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	21.0	35.0	34.0	21.0	35.0	69.0
Total Split (%)	23.3%	38.9%	37.8%	23.3%	38.9%	76.7%
Maximum Green (s)	14.0	28.0	27.0	14.0	28.0	62.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	11.9	37.6	42.4	56.5	23.5	71.9
Actuated g/C Ratio	0.13	0.42	0.47	0.63	0.26	0.80
v/c Ratio	0.37	0.52	0.22	0.03	0.36	0.19
Control Delay	39.5	20.9	11.7	5.9	28.7	3.6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.5	20.9	11.7	5.9	28.7	3.6
LOS	D	C	B	A	C	A
Approach Delay	24.6		10.8			12.8
Approach LOS	C		B			B
Queue Length 50th (ft)	44	129	29	4	75	36
Queue Length 95th (ft)	85	166	148	14	121	71
Internal Link Dist (ft)	907		1233			916
Turn Bay Length (ft)		300		100	200	
Base Capacity (vph)	308	672	861	950	578	1459
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.50	0.22	0.03	0.28	0.19

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 16.9 Intersection LOS: B
Intersection Capacity Utilization 38.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	8	205	35	5	4	169	124	50	8	183	5
Future Volume (vph)	4	8	205	35	5	4	169	124	50	8	183	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1623	0	0	1772	0	1736	1748	0	1770	1855	0
Flt Permitted		0.999			0.962		0.950			0.950		
Satd. Flow (perm)	0	1623	0	0	1772	0	1736	1748	0	1770	1855	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		970			951			996			1084	
Travel Time (s)		14.7			14.4			12.3			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	241	0	0	49	0	188	194	0	9	209	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 49.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	8	205	35	5	4	169	124	50	8	183	5
Future Volume (Veh/h)	4	8	205	35	5	4	169	124	50	8	183	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	9	228	39	6	4	188	138	56	9	203	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								996				
pX, platoon unblocked												
vC, conflicting volume	745	794	206	996	769	166	209			194		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	745	794	206	996	769	166	209			194		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	97	73	72	98	100	86			99		
cM capacity (veh/h)	287	274	835	141	284	878	1350			1379		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	241	49	188	194	9	209
Volume Left	4	39	188	0	9	0
Volume Right	228	4	0	56	0	6
cSH	753	162	1350	1700	1379	1700
Volume to Capacity	0.32	0.30	0.14	0.11	0.01	0.12
Queue Length 95th (ft)	35	30	12	0	0	0
Control Delay (s)	12.0	36.6	8.1	0.0	7.6	0.0
Lane LOS	B	E	A		A	
Approach Delay (s)	12.0	36.6	4.0		0.3	
Approach LOS	B	E				

Intersection Summary			
Average Delay	7.1		
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	169	50	8	8	205	183	35	4	124	4
Future Volume (vph)	5	5	169	50	8	8	205	183	35	4	124	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1625	0	0	1767	0	1736	1783	0	1770	1855	0
Flt Permitted		0.999			0.964		0.950			0.950		
Satd. Flow (perm)	0	1625	0	0	1767	0	1736	1783	0	1770	1855	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		970			951			996			1084	
Travel Time (s)		14.7			14.4			12.3			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	200	0	0	74	0	228	242	0	4	142	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 46.1%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	169	50	8	8	205	183	35	4	124	4
Future Volume (Veh/h)	5	5	169	50	8	8	205	183	35	4	124	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	6	188	56	9	9	228	203	39	4	138	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								996				
pX, platoon unblocked												
vC, conflicting volume	820	846	140	1016	828	222	142			242		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	820	846	140	1016	828	222	142			242		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	98	79	62	96	99	84			100		
cM capacity (veh/h)	248	251	908	148	257	817	1429			1324		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	200	74	228	242	4	142
Volume Left	6	56	228	0	4	0
Volume Right	188	9	0	39	0	4
cSH	784	174	1429	1700	1324	1700
Volume to Capacity	0.26	0.43	0.16	0.14	0.00	0.08
Queue Length 95th (ft)	25	48	14	0	0	0
Control Delay (s)	11.2	40.2	8.0	0.0	7.7	0.0
Lane LOS	B	E	A		A	
Approach Delay (s)	11.2	40.2	3.9		0.2	
Approach LOS	B	E				

Intersection Summary			
Average Delay	7.9		
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	1142	11	22	753	10	12	4	36	19	4	34
Future Volume (vph)	26	1142	11	22	753	10	12	4	36	19	4	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		0	0		0	0		0
Storage Lanes	1		1	1		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1719	3438	1538	1719	3431	0	0	1667	0	0	1684	0
Flt Permitted	0.950			0.950				0.989			0.984	
Satd. Flow (perm)	1719	3438	1538	1719	3431	0	0	1667	0	0	1684	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1025			996			931			940	
Travel Time (s)		12.7			12.3			11.5			11.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	1269	12	24	848	0	0	57	0	0	63	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		46			46			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 43.4%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	1142	11	22	753	10	12	4	36	19	4	34
Future Volume (Veh/h)	26	1142	11	22	753	10	12	4	36	19	4	34
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	29	1269	12	24	837	11	13	4	40	21	4	38
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	848			1281			1834	2223	634	1625	2230	424
vC1, stage 1 conf vol							1327	1327		890	890	
vC2, stage 2 conf vol							506	896		734	1339	
vCu, unblocked vol	848			1281			1834	2223	634	1625	2230	424
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			95			89	97	91	87	97	93
cM capacity (veh/h)	766			522			119	133	422	160	127	579

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	29	634	634	12	24	558	290	57	63
Volume Left	29	0	0	0	24	0	0	13	21
Volume Right	0	0	0	12	0	0	11	40	38
cSH	766	1700	1700	1700	522	1700	1700	243	276
Volume to Capacity	0.04	0.37	0.37	0.01	0.05	0.33	0.17	0.23	0.23
Queue Length 95th (ft)	3	0	0	0	4	0	0	22	22
Control Delay (s)	9.9	0.0	0.0	0.0	12.2	0.0	0.0	24.3	21.9
Lane LOS	A				B			C	C
Approach Delay (s)	0.2				0.3			24.3	21.9
Approach LOS								C	C

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	753	11	36	1142	20	10	4	22	10	4	26
Future Volume (vph)	34	753	11	36	1142	20	10	4	22	10	4	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		0	0		0	0		0
Storage Lanes	1		1	1		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1719	3438	1538	1719	3428	0	0	1684	0	0	1677	0
Flt Permitted	0.950			0.950				0.986			0.988	
Satd. Flow (perm)	1719	3438	1538	1719	3428	0	0	1684	0	0	1677	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1025			996			931			940	
Travel Time (s)		12.7			12.3			11.5			11.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	837	12	40	1291	0	0	39	0	0	44	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		46			46			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 42.2%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	753	11	36	1142	20	10	4	22	10	4	26
Future Volume (Veh/h)	34	753	11	36	1142	20	10	4	22	10	4	26
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	38	837	12	40	1269	22	11	4	24	11	4	29
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1291			849			1658	2284	418	1880	2285	646
vC1, stage 1 conf vol							913	913		1360	1360	
vC2, stage 2 conf vol							746	1371		520	925	
vCu, unblocked vol	1291			849			1658	2284	418	1880	2285	646
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			95			93	96	96	90	97	93
cM capacity (veh/h)	517			766			151	113	583	112	123	415

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	38	418	418	12	40	846	445	39	44
Volume Left	38	0	0	0	40	0	0	11	11
Volume Right	0	0	0	12	0	0	22	24	29
cSH	517	1700	1700	1700	766	1700	1700	261	219
Volume to Capacity	0.07	0.25	0.25	0.01	0.05	0.50	0.26	0.15	0.20
Queue Length 95th (ft)	6	0	0	0	4	0	0	13	18
Control Delay (s)	12.5	0.0	0.0	0.0	10.0	0.0	0.0	21.2	25.5
Lane LOS	B				A			C	D
Approach Delay (s)	0.5				0.3			21.2	25.5
Approach LOS								C	D

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	42.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	6	6	4	4	26	4	336	4	14	224	4
Future Volume (vph)	4	6	6	4	4	26	4	336	4	14	224	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1762	0	0	1565	0	1671	1756	0	1671	1756	0
Flt Permitted		0.989			0.995		0.950			0.950		
Satd. Flow (perm)	0	1762	0	0	1565	0	1671	1756	0	1671	1756	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		704			668			728			1014	
Travel Time (s)		10.7			10.1			9.0			12.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	1%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	0	0	37	0	4	377	0	16	253	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 27.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	6	6	4	4	26	4	336	4	14	224	4
Future Volume (Veh/h)	4	6	6	4	4	26	4	336	4	14	224	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	7	7	4	4	29	4	373	4	16	249	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1014	
pX, platoon unblocked												
vC, conflicting volume	695	668	251	674	668	375	253			377		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	695	668	251	674	668	375	253			377		
tC, single (s)	7.1	6.5	6.2	7.2	6.6	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	99	98	99	99	99	96	100			99		
cM capacity (veh/h)	335	374	790	347	365	658	1278			1149		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	18	37	4	377	16	253
Volume Left	4	4	4	0	16	0
Volume Right	7	29	0	4	0	4
cSH	455	556	1278	1700	1149	1700
Volume to Capacity	0.04	0.07	0.00	0.22	0.01	0.15
Queue Length 95th (ft)	3	5	0	0	1	0
Control Delay (s)	13.2	11.9	7.8	0.0	8.2	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	13.2	11.9	0.1		0.5	
Approach LOS	B	B				

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	27.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	4	4	6	14	6	224	4	26	336	4
Future Volume (vph)	4	4	4	4	6	14	6	224	4	26	336	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1768	0	0	1607	0	1671	1756	0	1671	1756	0
Flt Permitted		0.984			0.993		0.950			0.950		
Satd. Flow (perm)	0	1768	0	0	1607	0	1671	1756	0	1671	1756	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		704			668			728			1014	
Travel Time (s)		10.7			10.1			9.0			12.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	1%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	12	0	0	27	0	7	253	0	29	377	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 31.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	4	4	4	6	14	6	224	4	26	336	4
Future Volume (Veh/h)	4	4	4	4	6	14	6	224	4	26	336	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	4	4	4	7	16	7	249	4	29	373	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1014	
pX, platoon unblocked	0.99	0.99	0.99	0.99	0.99		0.99					
vC, conflicting volume	716	700	375	702	700	251	377			253		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	706	690	361	692	690	251	363			253		
tC, single (s)	7.1	6.5	6.2	7.2	6.6	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	99	99	99	99	98	98	99			98		
cM capacity (veh/h)	328	354	677	334	346	773	1149			1278		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	12	27	7	253	29	377
Volume Left	4	4	7	0	29	0
Volume Right	4	16	0	4	0	4
cSH	408	510	1149	1700	1278	1700
Volume to Capacity	0.03	0.05	0.01	0.15	0.02	0.22
Queue Length 95th (ft)	2	4	0	0	2	0
Control Delay (s)	14.1	12.4	8.2	0.0	7.9	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	14.1	12.4	0.2		0.6	
Approach LOS	B	B				

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	31.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	317	42	8	185	55	29
Future Volume (vph)	317	42	8	185	55	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	100		0	100
Storage Lanes		1	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	1759	1495	1671	1759	1671	1495
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1759	1495	1671	1759	1671	1495
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	25	
Link Distance (ft)	1014			1457	828	
Travel Time (s)	12.6			18.1	22.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	352	47	9	206	61	32
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	14.0	7.0	7.0	14.0	7.0	7.0
Minimum Split (s)	21.0	14.0	14.0	21.0	14.0	14.0
Total Split (s)	54.0	20.0	16.0	70.0	20.0	16.0
Total Split (%)	60.0%	22.2%	17.8%	77.8%	22.2%	17.8%
Maximum Green (s)	47.0	13.0	9.0	63.0	13.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	None	None	C-Min	None	None
Act Effct Green (s)	64.4	78.6	9.0	72.8	11.0	22.2
Actuated g/C Ratio	0.72	0.87	0.10	0.81	0.12	0.25
v/c Ratio	0.28	0.04	0.05	0.14	0.30	0.09
Control Delay	8.1	2.0	42.8	2.5	39.3	23.8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	2.0	42.8	2.5	39.3	23.8
LOS	A	A	D	A	D	C
Approach Delay	7.3			4.2	34.0	
Approach LOS	A			A	C	
Queue Length 50th (ft)	87	4	5	19	32	14
Queue Length 95th (ft)	152	10	20	38	68	34
Internal Link Dist (ft)	934			1377	748	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	1259	1333	204	1423	278	401
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.04	0.04	0.14	0.22	0.08

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 70 (78%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.30
Intersection Signal Delay: 9.9 Intersection LOS: A
Intersection Capacity Utilization 30.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 407: US 70 EB Ramps & NC 55

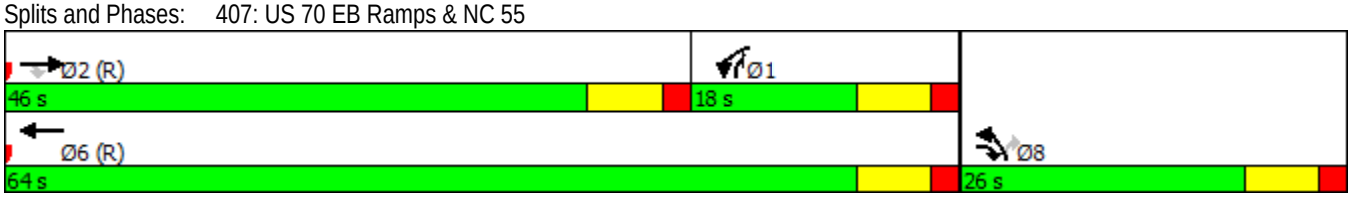
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	204	36	11	280	79	26
Future Volume (vph)	204	36	11	280	79	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	100		0	100
Storage Lanes		1	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	1759	1495	1671	1759	1671	1495
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1759	1495	1671	1759	1671	1495
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	25	
Link Distance (ft)	1014			1457	828	
Travel Time (s)	12.6			18.1	22.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	227	40	12	311	88	29
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	14.0	7.0	7.0	14.0	7.0	7.0
Minimum Split (s)	21.0	14.0	14.0	21.0	14.0	14.0
Total Split (s)	46.0	26.0	18.0	64.0	26.0	18.0
Total Split (%)	51.1%	28.9%	20.0%	71.1%	28.9%	20.0%
Maximum Green (s)	39.0	19.0	11.0	57.0	19.0	11.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			Lag
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	None	None	C-Min	None	None
Act Effct Green (s)	62.8	78.2	9.4	71.5	12.3	21.0
Actuated g/C Ratio	0.70	0.87	0.10	0.79	0.14	0.23
v/c Ratio	0.19	0.03	0.07	0.22	0.39	0.08
Control Delay	8.4	2.1	37.4	3.2	39.7	22.7

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.4	2.1	37.4	3.2	39.7	22.7
LOS	A	A	D	A	D	C
Approach Delay	7.5			4.5	35.5	
Approach LOS	A			A	D	
Queue Length 50th (ft)	54	4	6	35	46	12
Queue Length 95th (ft)	106	10	23	55	88	30
Internal Link Dist (ft)	934			1377	748	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	1227	1299	241	1398	389	354
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.03	0.05	0.22	0.23	0.08

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 70 (78%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.39
Intersection Signal Delay: 10.7 — Intersection LOS: B
Intersection Capacity Utilization 28.9% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 407: US 70 EB Ramps & NC 55



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	267	79	26	157	36	11
Future Volume (vph)	267	79	26	157	36	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	100		0	100
Storage Lanes		1	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	1759	1495	1671	1759	1671	1495
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1759	1495	1671	1759	1671	1495
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	45	
Link Distance (ft)	1457			1041	866	
Travel Time (s)	18.1			12.9	13.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	297	88	29	174	40	12
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	14.0	7.0	7.0	14.0	7.0	7.0
Minimum Split (s)	21.0	14.0	14.0	21.0	14.0	14.0
Total Split (s)	50.0	20.0	20.0	70.0	20.0	20.0
Total Split (%)	55.6%	22.2%	22.2%	77.8%	22.2%	22.2%
Maximum Green (s)	43.0	13.0	13.0	63.0	13.0	13.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	None	None	C-Min	None	None
Act Effct Green (s)	64.7	78.0	9.6	73.7	10.1	21.9
Actuated g/C Ratio	0.72	0.87	0.11	0.82	0.11	0.24
v/c Ratio	0.23	0.07	0.16	0.12	0.22	0.03
Control Delay	2.7	0.3	38.3	2.7	38.8	22.8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.7	0.3	38.3	2.7	38.8	22.8
LOS	A	A	D	A	D	C
Approach Delay	2.1			7.8	35.1	
Approach LOS	A			A	D	
Queue Length 50th (ft)	16	1	15	18	21	5
Queue Length 95th (ft)	28	2	41	38	50	17
Internal Link Dist (ft)	1377			961	786	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	1264	1337	278	1441	278	452
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.07	0.10	0.12	0.14	0.03

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.23
Intersection Signal Delay: 6.6 Intersection LOS: A
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 408: US 70 WB Ramps & NC 55

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	175	55	29	249	42	8
Future Volume (vph)	175	55	29	249	42	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	100		0	100
Storage Lanes		1	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	1759	1495	1671	1759	1671	1495
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1759	1495	1671	1759	1671	1495
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	45	
Link Distance (ft)	1457			1041	866	
Travel Time (s)	18.1			12.9	13.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	194	61	32	277	47	9
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	14.0	7.0	7.0	14.0	7.0	7.0
Minimum Split (s)	21.0	14.0	14.0	21.0	14.0	14.0
Total Split (s)	45.0	23.0	22.0	67.0	23.0	22.0
Total Split (%)	50.0%	25.6%	24.4%	74.4%	25.6%	24.4%
Maximum Green (s)	38.0	16.0	15.0	60.0	16.0	15.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	None	None	C-Min	None	None
Act Effct Green (s)	64.3	77.9	9.7	73.4	10.4	22.3
Actuated g/C Ratio	0.71	0.87	0.11	0.82	0.12	0.25
v/c Ratio	0.15	0.05	0.18	0.19	0.24	0.02
Control Delay	3.2	0.3	38.5	3.0	38.9	22.1

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.2	0.3	38.5	3.0	38.9	22.1
LOS	A	A	D	A	D	C
Approach Delay	2.5			6.7	36.2	
Approach LOS	A			A	D	
Queue Length 50th (ft)	14	1	17	32	25	4
Queue Length 95th (ft)	22	2	43	62	56	14
Internal Link Dist (ft)	1377			961	786	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	1256	1360	315	1435	334	490
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.04	0.10	0.19	0.14	0.02

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.24
Intersection Signal Delay: 7.6 Intersection LOS: A
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 408: US 70 WB Ramps & NC 55

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	34	70	103	880	570	8
Future Volume (vph)	34	70	103	880	570	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	125	250			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1719	1538	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1719	1538	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	1000			1015	1292	
Travel Time (s)	15.2			12.6	16.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	78	114	978	633	9
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	14.0	17.0	17.0	76.0	59.0	14.0
Total Split (%)	15.6%	18.9%	18.9%	84.4%	65.6%	15.6%
Maximum Green (s)	7.0	10.0	10.0	69.0	52.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.7	21.2	12.1	77.9	58.8	74.5
Actuated g/C Ratio	0.11	0.24	0.13	0.87	0.65	0.83
v/c Ratio	0.21	0.22	0.49	0.62	0.54	0.01
Control Delay	39.3	26.0	43.5	5.9	7.9	2.6

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.3	26.0	43.5	5.9	7.9	2.6
LOS	D	C	D	A	A	A
Approach Delay	30.3			9.8	7.9	
Approach LOS	C			A	A	
Queue Length 50th (ft)	20	32	60	199	123	1
Queue Length 95th (ft)	50	67	115	337	131	m2
Internal Link Dist (ft)	920			935	1212	
Turn Bay Length (ft)		125	250			100
Base Capacity (vph)	184	374	245	1580	1212	1272
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.21	0.47	0.62	0.52	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 68 (76%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 10.4 Intersection LOS: B
Intersection Capacity Utilization 60.5% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 409: NC 11 & US 70 EB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	20	72	124	516	911	19
Future Volume (vph)	20	72	124	516	911	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	125	250			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1719	1538	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1719	1538	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	1000			1015	1292	
Travel Time (s)	15.2			12.6	16.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	80	138	573	1012	21
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	14.0	16.0	16.0	86.0	70.0	14.0
Total Split (%)	14.0%	16.0%	16.0%	86.0%	70.0%	14.0%
Maximum Green (s)	7.0	9.0	9.0	79.0	63.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.0	19.9	11.5	88.6	70.1	84.1
Actuated g/C Ratio	0.09	0.20	0.12	0.89	0.70	0.84
v/c Ratio	0.14	0.26	0.70	0.36	0.80	0.02
Control Delay	44.4	33.9	62.7	2.6	11.0	1.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.4	33.9	62.7	2.6	11.0	1.0
LOS	D	C	E	A	B	A
Approach Delay	36.1			14.3	10.8	
Approach LOS	D			B	B	
Queue Length 50th (ft)	13	40	86	76	80	0
Queue Length 95th (ft)	37	80	#179	110	#250	m2
Internal Link Dist (ft)	920			935	1212	
Turn Bay Length (ft)		125	250			100
Base Capacity (vph)	154	306	198	1604	1269	1293
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.26	0.70	0.36	0.80	0.02

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 2 (2%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 13.5 Intersection LOS: B
Intersection Capacity Utilization 73.2% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 409: NC 11 & US 70 EB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	19	124	72	842	454	20
Future Volume (vph)	19	124	72	842	454	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175	125			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1719	1538	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1719	1538	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1062			1292	1088	
Travel Time (s)	29.0			16.0	13.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	138	80	936	504	22
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	14.0	15.0	15.0	76.0	61.0	14.0
Total Split (%)	15.6%	16.7%	16.7%	84.4%	67.8%	15.6%
Maximum Green (s)	7.0	8.0	8.0	69.0	54.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.3	23.0	14.3	78.3	57.0	65.7
Actuated g/C Ratio	0.10	0.26	0.16	0.87	0.63	0.73
v/c Ratio	0.12	0.35	0.29	0.60	0.44	0.02
Control Delay	38.0	27.2	31.1	2.0	12.2	4.1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	27.2	31.1	2.0	12.2	4.1
LOS	D	C	C	A	B	A
Approach Delay	28.6			4.3	11.8	
Approach LOS	C			A	B	
Queue Length 50th (ft)	11	59	41	30	155	3
Queue Length 95th (ft)	33	96	m65	47	276	10
Internal Link Dist (ft)	982			1212	1008	
Turn Bay Length (ft)		175	125			100
Base Capacity (vph)	178	393	273	1580	1226	1122
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.35	0.29	0.59	0.41	0.02

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 72 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 8.9 Intersection LOS: A
Intersection Capacity Utilization 58.5% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 410: NC 11 & US 70 WB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	8	103	70	466	827	34
Future Volume (vph)	8	103	70	466	827	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175	125			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1719	1538	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1719	1538	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1062			1292	1088	
Travel Time (s)	29.0			16.0	13.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	114	78	518	919	38
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	14.0	14.0	14.0	86.0	72.0	14.0
Total Split (%)	14.0%	14.0%	14.0%	86.0%	72.0%	14.0%
Maximum Green (s)	7.0	7.0	7.0	79.0	65.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.0	19.4	11.0	88.6	70.6	79.0
Actuated g/C Ratio	0.09	0.19	0.11	0.89	0.71	0.79
v/c Ratio	0.06	0.38	0.41	0.32	0.72	0.03
Control Delay	42.8	37.2	47.9	1.3	14.4	2.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.8	37.2	47.9	1.3	14.4	2.3
LOS	D	D	D	A	B	A
Approach Delay	37.6			7.4	13.9	
Approach LOS	D			A	B	
Queue Length 50th (ft)	5	57	46	46	410	5
Queue Length 95th (ft)	21	111	96	26	521	9
Internal Link Dist (ft)	982			1212	1008	
Turn Bay Length (ft)		175	125			100
Base Capacity (vph)	154	298	189	1604	1299	1214
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.38	0.41	0.32	0.71	0.03

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 13.4 Intersection LOS: B
Intersection Capacity Utilization 67.7% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 410: NC 11 & US 70 WB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	99	106	444	23	19	208
Future Volume (vph)	99	106	444	23	19	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	998		1042			1257
Travel Time (s)	27.2		12.9			15.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	110	118	493	26	21	231
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	21.0	16.0	53.0	21.0	16.0	69.0
Total Split (%)	23.3%	17.8%	58.9%	23.3%	17.8%	76.7%
Maximum Green (s)	14.0	9.0	46.0	14.0	9.0	62.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	13.2	24.7	55.3	73.4	9.4	70.6
Actuated g/C Ratio	0.15	0.27	0.61	0.82	0.10	0.78
v/c Ratio	0.45	0.29	0.45	0.02	0.12	0.17
Control Delay	40.1	25.1	12.7	2.3	41.1	3.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.1	25.1	12.7	2.3	41.1	3.5
LOS	D	C	B	A	D	A
Approach Delay	32.3		12.2			6.7
Approach LOS	C		B			A
Queue Length 50th (ft)	58	51	147	2	12	29
Queue Length 95th (ft)	103	86	264	7	34	58
Internal Link Dist (ft)	918		962			1177
Turn Bay Length (ft)		150		100	100	
Base Capacity (vph)	305	441	1094	1278	206	1399
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.27	0.45	0.02	0.10	0.17

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 72 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.45
Intersection Signal Delay: 15.4 Intersection LOS: B
Intersection Capacity Utilization 38.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 411: US 258 & US 70 EB Ramps

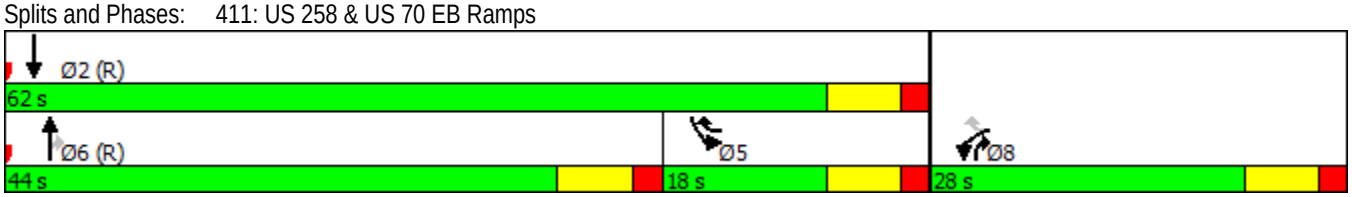
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	138	90	286	21	28	329
Future Volume (vph)	138	90	286	21	28	329
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	998		1042			1257
Travel Time (s)	27.2		12.9			15.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	153	100	318	23	31	366
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	28.0	18.0	44.0	28.0	18.0	62.0
Total Split (%)	31.1%	20.0%	48.9%	31.1%	20.0%	68.9%
Maximum Green (s)	21.0	11.0	37.0	21.0	11.0	55.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	15.4	29.3	50.7	72.2	11.6	64.6
Actuated g/C Ratio	0.17	0.33	0.56	0.80	0.13	0.72
v/c Ratio	0.53	0.20	0.32	0.02	0.14	0.29
Control Delay	40.0	19.8	14.0	3.1	33.8	4.9

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.0	19.8	14.0	3.1	33.8	4.9
LOS	D	B	B	A	C	A
Approach Delay	32.0		13.3			7.1
Approach LOS	C		B			A
Queue Length 50th (ft)	80	39	97	3	16	57
Queue Length 95th (ft)	132	64	187	9	41	87
Internal Link Dist (ft)	918		962			1177
Turn Bay Length (ft)		150		100	100	
Base Capacity (vph)	431	463	1001	1201	248	1274
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.22	0.32	0.02	0.13	0.29

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 72 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.53
Intersection Signal Delay: 15.6 Intersection LOS: B
Intersection Capacity Utilization 39.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 411: US 258 & US 70 EB Ramps



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	21	28	412	138	90	206
Future Volume (vph)	21	28	412	138	90	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		100	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1066		1257			882
Travel Time (s)	16.2		15.6			10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	31	458	153	100	229
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	16.0	21.0	53.0	16.0	21.0	74.0
Total Split (%)	17.8%	23.3%	58.9%	17.8%	23.3%	82.2%
Maximum Green (s)	9.0	14.0	46.0	9.0	14.0	67.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.4	27.2	55.6	71.1	12.7	70.6
Actuated g/C Ratio	0.10	0.30	0.62	0.79	0.14	0.78
v/c Ratio	0.13	0.07	0.42	0.13	0.42	0.16
Control Delay	38.1	21.2	7.3	1.1	39.9	2.8

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.1	21.2	7.3	1.1	39.9	2.8
LOS	D	C	A	A	D	A
Approach Delay	28.4		5.8			14.1
Approach LOS	C		A			B
Queue Length 50th (ft)	12	13	63	4	53	24
Queue Length 95th (ft)	35	30	84	10	96	44
Internal Link Dist (ft)	986		1177			802
Turn Bay Length (ft)		100		100	175	
Base Capacity (vph)	206	513	1100	1201	302	1392
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.06	0.42	0.13	0.33	0.16

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.42
Intersection Signal Delay: 9.7 Intersection LOS: A
Intersection Capacity Utilization 45.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 412: US 258 & US 70 WB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	23	19	277	99	106	334
Future Volume (vph)	23	19	277	99	106	334
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		100	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1066		1257			882
Travel Time (s)	16.2		15.6			10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	21	308	110	118	371
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	5	6	8	5	2
Permitted Phases		8		6		
Detector Phase	8	5	6	8	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	18.0	26.0	46.0	18.0	26.0	72.0
Total Split (%)	20.0%	28.9%	51.1%	20.0%	28.9%	80.0%
Maximum Green (s)	11.0	19.0	39.0	11.0	19.0	65.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.5	25.3	54.7	70.2	13.6	74.3
Actuated g/C Ratio	0.11	0.28	0.61	0.78	0.15	0.83
v/c Ratio	0.15	0.05	0.29	0.09	0.46	0.25
Control Delay	38.3	19.9	6.1	1.6	40.1	3.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	19.9	6.1	1.6	40.1	3.0
LOS	D	B	A	A	D	A
Approach Delay	30.1		4.9			11.9
Approach LOS	C		A			B
Queue Length 50th (ft)	14	8	28	3	62	42
Queue Length 95th (ft)	38	22	49	7	109	75
Internal Link Dist (ft)	986		1177			802
Turn Bay Length (ft)		100		100	175	
Base Capacity (vph)	243	548	1079	1219	393	1466
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.04	0.29	0.09	0.30	0.25

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 8 (9%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 9.7 Intersection LOS: A
Intersection Capacity Utilization 38.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 412: US 258 & US 70 WB Ramps

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	4	8	9	5	38	9	300	8	17	159	16
Future Volume (vph)	30	4	8	9	5	38	9	300	8	17	159	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1751	0	0	1665	0	1703	1785	0	1703	1767	0
Flt Permitted		0.965			0.991		0.950			0.950		
Satd. Flow (perm)	0	1751	0	0	1665	0	1703	1785	0	1703	1767	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1178			1128			1123			927	
Travel Time (s)		17.8			17.1			13.9			11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	46	0	0	58	0	10	342	0	19	195	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 30.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	4	8	9	5	38	9	300	8	17	159	16
Future Volume (Veh/h)	30	4	8	9	5	38	9	300	8	17	159	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	4	9	10	6	42	10	333	9	19	177	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											927	
pX, platoon unblocked												
vC, conflicting volume	622	586	186	584	590	338	195			342		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	622	586	186	584	590	338	195			342		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	91	99	99	98	99	94	99			98		
cM capacity (veh/h)	365	413	856	409	410	705	1354			1195		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	46	58	10	342	19	195
Volume Left	33	10	10	0	19	0
Volume Right	9	42	0	9	0	18
cSH	415	588	1354	1700	1195	1700
Volume to Capacity	0.11	0.10	0.01	0.20	0.02	0.11
Queue Length 95th (ft)	9	8	1	0	1	0
Control Delay (s)	14.7	11.8	7.7	0.0	8.1	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	14.7	11.8	0.2		0.7	
Approach LOS	B	B				

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	30.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	5	9	8	4	17	8	159	9	38	300	30
Future Volume (vph)	16	5	9	8	4	17	8	159	9	38	300	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1742	0	0	1690	0	1703	1778	0	1703	1767	0
Flt Permitted		0.974			0.986		0.950			0.950		
Satd. Flow (perm)	0	1742	0	0	1690	0	1703	1778	0	1703	1767	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1178			1128			1123			927	
Travel Time (s)		17.8			17.1			13.9			11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	34	0	0	32	0	9	187	0	42	366	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 34.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	5	9	8	4	17	8	159	9	38	300	30
Future Volume (Veh/h)	16	5	9	8	4	17	8	159	9	38	300	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	18	6	10	9	4	19	9	177	10	42	333	33
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											927	
pX, platoon unblocked	0.95	0.95	0.95	0.95	0.95		0.95					
vC, conflicting volume	650	638	350	630	650	182	366			187		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	601	589	284	580	602	182	301			187		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	95	98	99	98	99	98	99			97		
cM capacity (veh/h)	367	383	714	381	377	861	1170			1364		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	34	32	9	187	42	366
Volume Left	18	9	9	0	42	0
Volume Right	10	19	0	10	0	33
cSH	432	568	1170	1700	1364	1700
Volume to Capacity	0.08	0.06	0.01	0.11	0.03	0.22
Queue Length 95th (ft)	6	4	1	0	2	0
Control Delay (s)	14.0	11.7	8.1	0.0	7.7	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	14.0	11.7	0.4		0.8	
Approach LOS	B	B				

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	18	20	29	333	176	7
Future Volume (vph)	18	20	29	333	176	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	959			927	1201	
Travel Time (s)	14.5			11.5	14.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	22	32	370	196	8
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	22.0	22.0	22.0	68.0	46.0	22.0
Total Split (%)	24.4%	24.4%	24.4%	75.6%	51.1%	24.4%
Maximum Green (s)	15.0	15.0	15.0	61.0	39.0	15.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.3	15.6	9.7	82.1	72.0	80.7
Actuated g/C Ratio	0.10	0.17	0.11	0.91	0.80	0.90
v/c Ratio	0.11	0.08	0.17	0.23	0.14	0.01
Control Delay	38.0	27.2	38.4	1.9	2.8	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	27.2	38.4	1.9	2.8	0.3
LOS	D	C	D	A	A	A
Approach Delay	32.3			4.8	2.7	
Approach LOS	C			A	A	
Queue Length 50th (ft)	11	12	17	0	18	0
Queue Length 95th (ft)	32	27	43	71	28	1
Internal Link Dist (ft)	879			847	1121	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	321	387	321	1634	1433	1432
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.06	0.10	0.23	0.14	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 28 (31%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.23
Intersection Signal Delay: 5.9 Intersection LOS: A
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 414: NC 58 & US 70 EB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	32	22	174	330	10
Future Volume (vph)	15	32	22	174	330	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	959			927	1201	
Travel Time (s)	14.5			11.5	14.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	36	24	193	367	11
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	17.0	18.0	18.0	73.0	55.0	17.0
Total Split (%)	18.9%	20.0%	20.0%	81.1%	61.1%	18.9%
Maximum Green (s)	10.0	11.0	11.0	66.0	48.0	10.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.2	15.5	9.7	82.2	72.1	77.9
Actuated g/C Ratio	0.10	0.17	0.11	0.91	0.80	0.87
v/c Ratio	0.10	0.14	0.13	0.12	0.26	0.01
Control Delay	37.9	28.9	37.6	1.6	2.6	1.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	28.9	37.6	1.6	2.6	1.3
LOS	D	C	D	A	A	A
Approach Delay	31.8			5.6	2.6	
Approach LOS	C			A	A	
Queue Length 50th (ft)	9	19	13	0	26	1
Queue Length 95th (ft)	29	38	36	36	32	2
Internal Link Dist (ft)	879			847	1121	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	227	284	245	1636	1435	1302
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.13	0.10	0.12	0.26	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 52 (58%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.26
Intersection Signal Delay: 6.0 Intersection LOS: A
Intersection Capacity Utilization 32.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 414: NC 58 & US 70 EB Ramps

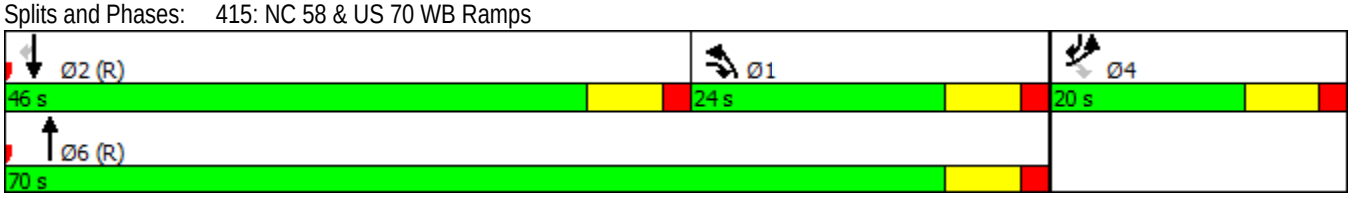
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	22	32	319	161	15
Future Volume (vph)	10	22	32	319	161	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	935			1201	1007	
Travel Time (s)	25.5			14.9	12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	24	36	354	179	17
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	20.0	24.0	24.0	70.0	46.0	20.0
Total Split (%)	22.2%	26.7%	26.7%	77.8%	51.1%	22.2%
Maximum Green (s)	13.0	17.0	17.0	63.0	39.0	13.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.1	15.6	9.9	82.3	72.0	77.7
Actuated g/C Ratio	0.10	0.17	0.11	0.91	0.80	0.86
v/c Ratio	0.06	0.09	0.19	0.22	0.12	0.01
Control Delay	37.6	27.6	38.4	1.3	5.3	2.5

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.6	27.6	38.4	1.3	5.3	2.5
LOS	D	C	D	A	A	A
Approach Delay	30.8			4.8	5.0	
Approach LOS	C			A	A	
Queue Length 50th (ft)	6	13	19	0	18	2
Queue Length 95th (ft)	22	29	47	43	71	6
Internal Link Dist (ft)	855			1121	927	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	283	363	359	1639	1434	1316
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.07	0.10	0.22	0.12	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 16 (18%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.22
Intersection Signal Delay: 6.3 — Intersection LOS: A
Intersection Capacity Utilization 35.8% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 415: NC 58 & US 70 WB Ramps



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	29	20	169	311	18
Future Volume (vph)	7	29	20	169	311	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1703	1524	1703	1792	1792	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1703	1524	1703	1792	1792	1524
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	935			1201	1007	
Travel Time (s)	25.5			14.9	12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	32	22	188	346	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	1	1	6	2	4
Permitted Phases		4				2
Detector Phase	4	1	1	6	2	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	16.0	18.0	18.0	74.0	56.0	16.0
Total Split (%)	17.8%	20.0%	20.0%	82.2%	62.2%	17.8%
Maximum Green (s)	9.0	11.0	11.0	67.0	49.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.0	15.0	9.4	82.4	72.6	81.0
Actuated g/C Ratio	0.10	0.17	0.10	0.92	0.81	0.90
v/c Ratio	0.05	0.13	0.12	0.11	0.24	0.01
Control Delay	37.4	29.3	38.8	1.4	5.4	1.8

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	29.3	38.8	1.4	5.4	1.8
LOS	D	C	D	A	A	A
Approach Delay	30.9			5.3	5.2	
Approach LOS	C			A	A	
Queue Length 50th (ft)	4	17	12	0	40	1
Queue Length 95th (ft)	18	36	35	29	132	6
Internal Link Dist (ft)	855			1121	927	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	208	315	245	1640	1444	1391
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.10	0.09	0.11	0.24	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 40 (44%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.24
Intersection Signal Delay: 6.9 Intersection LOS: A
Intersection Capacity Utilization 30.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 415: NC 58 & US 70 WB Ramps

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	465	39	27	570	61	35
Future Volume (vph)	465	39	27	570	61	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	100		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)			100		100	
Satd. Flow (prot)	3406	1524	1703	3406	1684	0
Flt Permitted			0.950		0.969	
Satd. Flow (perm)	3406	1524	1703	3406	1684	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1005			1017	897	
Travel Time (s)	12.5			12.6	11.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	517	43	30	633	107	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	46			46	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	465	39	27	570	61	35
Future Volume (Veh/h)	465	39	27	570	61	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	517	43	30	633	68	39
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	1			1		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			560		894	258
vC1, stage 1 conf vol					517	
vC2, stage 2 conf vol					376	
vCu, unblocked vol			560		894	258
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)			2.3		3.5	3.3
p0 queue free %			97		83	95
cM capacity (veh/h)			980		393	734

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	258	258	43	30	316	316	107
Volume Left	0	0	0	30	0	0	68
Volume Right	0	0	43	0	0	0	39
cSH	1700	1700	1700	980	1700	1700	473
Volume to Capacity	0.15	0.15	0.03	0.03	0.19	0.19	0.23
Queue Length 95th (ft)	0	0	0	2	0	0	22
Control Delay (s)	0.0	0.0	0.0	8.8	0.0	0.0	14.8
Lane LOS				A			B
Approach Delay (s)	0.0			0.4			14.8
Approach LOS							B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	31.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	570	61	35	465	39	27
Future Volume (vph)	570	61	35	465	39	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	100		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)			100		100	
Satd. Flow (prot)	3406	1524	1703	3406	1676	0
Flt Permitted			0.950		0.971	
Satd. Flow (perm)	3406	1524	1703	3406	1676	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1005			1017	897	
Travel Time (s)	12.5			12.6	11.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	633	68	39	517	73	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	46			46	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	570	61	35	465	39	27
Future Volume (Veh/h)	570	61	35	465	39	27
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	633	68	39	517	43	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	1			1		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			701		970	316
vC1, stage 1 conf vol					633	
vC2, stage 2 conf vol					336	
vCu, unblocked vol			701		970	316
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)			2.3		3.5	3.3
p0 queue free %			95		88	96
cM capacity (veh/h)			866		359	673

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	316	316	68	39	258	258	73
Volume Left	0	0	0	39	0	0	43
Volume Right	0	0	68	0	0	0	30
cSH	1700	1700	1700	866	1700	1700	444
Volume to Capacity	0.19	0.19	0.04	0.05	0.15	0.15	0.16
Queue Length 95th (ft)	0	0	0	4	0	0	15
Control Delay (s)	0.0	0.0	0.0	9.4	0.0	0.0	14.7
Lane LOS				A			B
Approach Delay (s)	0.0			0.7			14.7
Approach LOS							B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	32.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	33	21	15	21	8
Future Volume (vph)	10	33	21	15	21	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1824	1774	0	1696	0
Flt Permitted		0.989			0.965	
Satd. Flow (perm)	0	1824	1774	0	1696	0
Link Speed (mph)		45	45		45	
Link Distance (ft)		873	821		789	
Travel Time (s)		13.2	12.4		12.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	1%	1%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	48	40	0	32	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	33	21	15	21	8
Future Volume (Veh/h)	10	33	21	15	21	8
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	37	23	17	23	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	40				90	32
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	40				90	32
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	99
cM capacity (veh/h)	1563				899	1037

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	48	40	32
Volume Left	11	0	23
Volume Right	0	17	9
cSH	1563	1700	934
Volume to Capacity	0.01	0.02	0.03
Queue Length 95th (ft)	1	0	3
Control Delay (s)	1.7	0.0	9.0
Lane LOS	A		A
Approach Delay (s)	1.7	0.0	9.0
Approach LOS			A

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	19.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	21	33	21	15	10
Future Volume (vph)	8	21	33	21	15	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1819	1783	0	1680	0
Flt Permitted		0.986			0.971	
Satd. Flow (perm)	0	1819	1783	0	1680	0
Link Speed (mph)		45	45		45	
Link Distance (ft)		873	821		789	
Travel Time (s)		13.2	12.4		12.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	1%	1%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	32	60	0	28	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	21	33	21	15	10
Future Volume (Veh/h)	8	21	33	21	15	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	23	37	23	17	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	60				90	48
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	60				90	48
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	99
cM capacity (veh/h)	1537				901	1015

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	32	60	28
Volume Left	9	0	17
Volume Right	0	23	11
cSH	1537	1700	942
Volume to Capacity	0.01	0.04	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	2.1	0.0	8.9
Lane LOS	A		A
Approach Delay (s)	2.1	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		

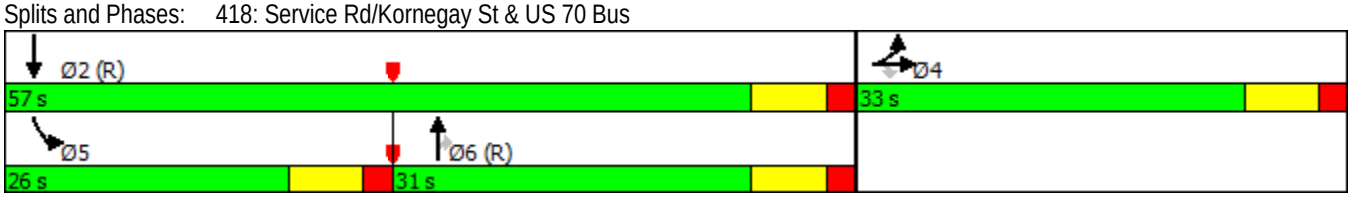
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	4	12	0	0	0	0	32	22	22	24	0
Future Volume (vph)	61	4	12	0	0	0	0	32	22	22	24	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	0		100	100		0
Storage Lanes	0		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1745	1553	0	0	0	0	1881	1599	1736	1827	0
Flt Permitted		0.955								0.950		
Satd. Flow (perm)	0	1745	1553	0	0	0	0	1881	1599	1736	1827	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		937			1062			1018			808	
Travel Time (s)		11.6			13.2			15.4			12.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	0%	0%	0%	1%	1%	1%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	72	13	0	0	0	0	36	24	24	27	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						6		5	2	
Permitted Phases			4						6			
Detector Phase	4	4	4					6	6	5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0					12.0	12.0	7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0					19.0	19.0	14.0	19.0	
Total Split (s)	33.0	33.0	33.0					31.0	31.0	26.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%					34.4%	34.4%	28.9%	63.3%	
Maximum Green (s)	26.0	26.0	26.0					24.0	24.0	19.0	50.0	
Yellow Time (s)	5.0	5.0	5.0					5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-2.0	-2.0					-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					C-Min	C-Min	None	C-Min	
Act Effct Green (s)		11.4	11.4					66.4	66.4	9.4	72.4	
Actuated g/C Ratio		0.13	0.13					0.74	0.74	0.10	0.80	
v/c Ratio		0.33	0.07					0.03	0.02	0.13	0.02	
Control Delay		39.2	34.0					7.1	7.3	37.3	3.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay		39.2	34.0					7.1	7.3	37.3	3.8	
LOS		D	C					A	A	D	A	
Approach Delay		38.4						7.2			19.6	
Approach LOS		D						A			B	
Queue Length 50th (ft)		38	7					4	3	13	2	
Queue Length 95th (ft)		76	23					22	17	42	18	
Internal Link Dist (ft)		857			982			938			728	
Turn Bay Length (ft)			100						100	100		
Base Capacity (vph)		542	483					1387	1179	405	1470	
Starvation Cap Reductn		0	0					0	0	0	0	
Spillback Cap Reductn		0	0					0	0	0	0	
Storage Cap Reductn		0	0					0	0	0	0	
Reduced v/c Ratio		0.13	0.03					0.03	0.02	0.06	0.02	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.33
Intersection Signal Delay: 24.0 Intersection LOS: C
Intersection Capacity Utilization 34.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 418: Service Rd/Kornegay St & US 70 Bus



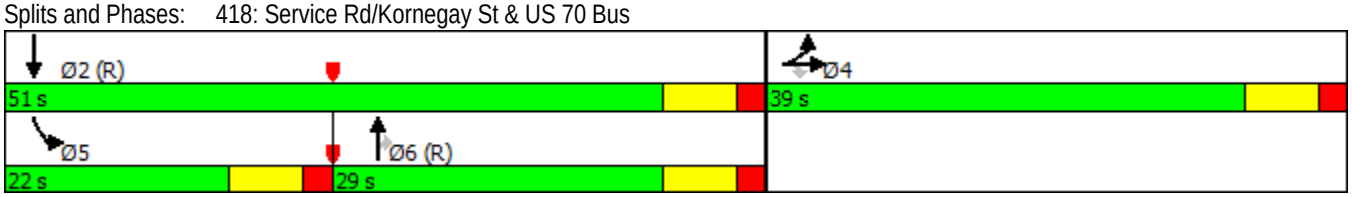
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	4	22	0	0	0	0	21	15	16	32	0
Future Volume (vph)	97	4	22	0	0	0	0	21	15	16	32	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	0		100	100		0
Storage Lanes	0		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1743	1553	0	0	0	0	1881	1599	1736	1827	0
Flt Permitted		0.954								0.950		
Satd. Flow (perm)	0	1743	1553	0	0	0	0	1881	1599	1736	1827	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		937			1062			1018			808	
Travel Time (s)		11.6			13.2			15.4			12.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	0%	0%	0%	1%	1%	1%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	112	24	0	0	0	0	23	17	18	36	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						6		5	2	
Permitted Phases			4						6			
Detector Phase	4	4	4					6	6	5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0					12.0	12.0	7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0					19.0	19.0	14.0	19.0	
Total Split (s)	39.0	39.0	39.0					29.0	29.0	22.0	51.0	
Total Split (%)	43.3%	43.3%	43.3%					32.2%	32.2%	24.4%	56.7%	
Maximum Green (s)	32.0	32.0	32.0					22.0	22.0	15.0	44.0	
Yellow Time (s)	5.0	5.0	5.0					5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-2.0	-2.0					-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					C-Min	C-Min	None	C-Min	
Act Effct Green (s)		13.2	13.2					64.8	64.8	9.2	70.6	
Actuated g/C Ratio		0.15	0.15					0.72	0.72	0.10	0.78	
v/c Ratio		0.44	0.11					0.02	0.01	0.10	0.03	
Control Delay		39.7	32.6					8.2	8.4	31.3	5.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay		39.7	32.6					8.2	8.4	31.3	5.7	
LOS		D	C					A	A	C	A	
Approach Delay		38.4						8.3			14.3	
Approach LOS		D						A			B	
Queue Length 50th (ft)		59	12					3	2	10	11	
Queue Length 95th (ft)		104	33					17	14	35	28	
Internal Link Dist (ft)		857			982			938			728	
Turn Bay Length (ft)			100						100	100		
Base Capacity (vph)		658	586					1353	1150	327	1433	
Starvation Cap Reductn		0	0					0	0	0	0	
Spillback Cap Reductn		0	0					0	0	0	0	
Storage Cap Reductn		0	0					0	0	0	0	
Reduced v/c Ratio		0.17	0.04					0.02	0.01	0.06	0.03	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.44
Intersection Signal Delay: 27.5 Intersection LOS: C
Intersection Capacity Utilization 34.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 418: Service Rd/Kornegay St & US 70 Bus



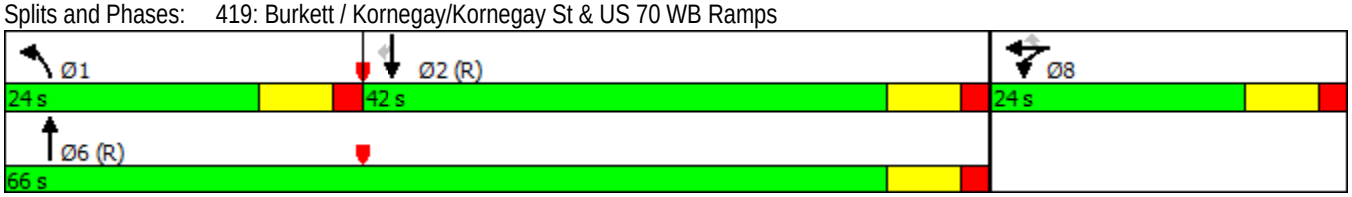
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	15	4	17	22	71	0	0	31	97
Future Volume (vph)	0	0	0	15	4	17	22	71	0	0	31	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		100	100		0	0		100
Storage Lanes	0		0	0		1	1		0	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	0	0	0	1756	1553	1736	1827	0	0	1827	1553
Flt Permitted					0.961		0.950					
Satd. Flow (perm)	0	0	0	0	1756	1553	1736	1827	0	0	1827	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1012			920			808			961	
Travel Time (s)		15.3			13.9			12.2			14.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	21	19	24	79	0	0	34	108
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Split	NA	Perm	Prot	NA			NA	Perm
Protected Phases				8	8		1	6			2	
Permitted Phases						8						2
Detector Phase				8	8	8	1	6			2	2
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0	7.0	12.0			12.0	12.0
Minimum Split (s)				14.0	14.0	14.0	14.0	19.0			19.0	19.0
Total Split (s)				24.0	24.0	24.0	24.0	66.0			42.0	42.0
Total Split (%)				26.7%	26.7%	26.7%	26.7%	73.3%			46.7%	46.7%
Maximum Green (s)				17.0	17.0	17.0	17.0	59.0			35.0	35.0
Yellow Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
All-Red Time (s)				2.0	2.0	2.0	2.0	2.0			2.0	2.0
Lost Time Adjust (s)					-2.0	-2.0	-2.0	-2.0			-2.0	-2.0
Total Lost Time (s)					5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Min			C-Min	C-Min
Act Effct Green (s)					9.4	9.4	9.4	78.2			72.2	72.2
Actuated g/C Ratio					0.10	0.10	0.10	0.87			0.80	0.80
v/c Ratio					0.12	0.12	0.13	0.05			0.02	0.09
Control Delay					37.9	38.1	21.0	0.8			5.7	5.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay					0.0	0.0	0.0	0.0			0.0	0.0
Total Delay					37.9	38.1	21.0	0.8			5.7	5.4
LOS					D	D	C	A			A	A
Approach Delay					38.0			5.5			5.4	
Approach LOS					D			A			A	
Queue Length 50th (ft)					11	10	6	3			3	11
Queue Length 95th (ft)					33	31	16	5			19	47
Internal Link Dist (ft)		932			840			728			881	
Turn Bay Length (ft)						100	100					100
Base Capacity (vph)					370	327	366	1588			1465	1246
Starvation Cap Reductn					0	0	0	0			0	0
Spillback Cap Reductn					0	0	0	0			0	0
Storage Cap Reductn					0	0	0	0			0	0
Reduced v/c Ratio					0.06	0.06	0.07	0.05			0.02	0.09

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.13
Intersection Signal Delay: 10.0 Intersection LOS: B
Intersection Capacity Utilization 34.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 419: Burkett / Kornegay/Kornegay St & US 70 WB Ramps



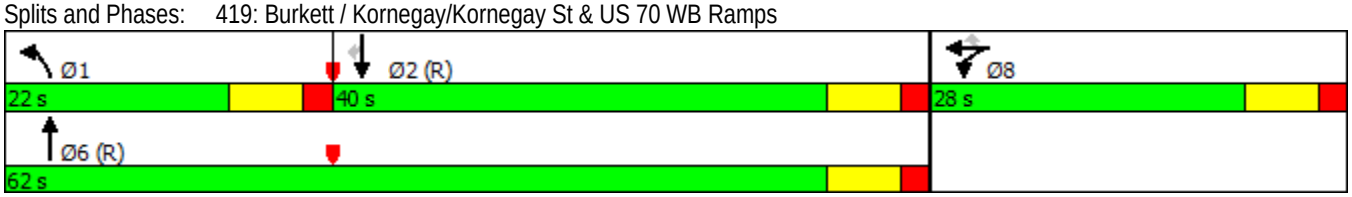
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	22	4	22	12	106	0	0	26	61
Future Volume (vph)	0	0	0	22	4	22	12	106	0	0	26	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		100	100		0	0		100
Storage Lanes	0		0	0		1	1		0	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	0	0	0	1752	1553	1736	1827	0	0	1827	1553
Flt Permitted					0.959		0.950					
Satd. Flow (perm)	0	0	0	0	1752	1553	1736	1827	0	0	1827	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1012			920			808			961	
Travel Time (s)		15.3			13.9			12.2			14.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	28	24	13	118	0	0	29	68
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Split	NA	Perm	Prot	NA			NA	Perm
Protected Phases				8	8		1	6			2	
Permitted Phases						8						2
Detector Phase				8	8	8	1	6			2	2
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0	7.0	12.0			12.0	12.0
Minimum Split (s)				14.0	14.0	14.0	14.0	19.0			19.0	19.0
Total Split (s)				28.0	28.0	28.0	22.0	62.0			40.0	40.0
Total Split (%)				31.1%	31.1%	31.1%	24.4%	68.9%			44.4%	44.4%
Maximum Green (s)				21.0	21.0	21.0	15.0	55.0			33.0	33.0
Yellow Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
All-Red Time (s)				2.0	2.0	2.0	2.0	2.0			2.0	2.0
Lost Time Adjust (s)					-2.0	-2.0	-2.0	-2.0			-2.0	-2.0
Total Lost Time (s)					5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Min			C-Min	C-Min
Act Effct Green (s)					9.6	9.6	9.1	78.0			75.1	75.1
Actuated g/C Ratio					0.11	0.11	0.10	0.87			0.83	0.83
v/c Ratio					0.15	0.15	0.07	0.07			0.02	0.05
Control Delay					38.2	38.3	13.7	0.8			4.4	4.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay					0.0	0.0	0.0	0.0			0.0	0.0
Total Delay					38.2	38.3	13.7	0.8			4.4	4.2
LOS					D	D	B	A			A	A
Approach Delay					38.2			2.1			4.3	
Approach LOS					D			A			A	
Queue Length 50th (ft)					15	13	2	2			3	6
Queue Length 95th (ft)					40	36	7	4			17	32
Internal Link Dist (ft)		932			840			728			881	
Turn Bay Length (ft)						100	100					100
Base Capacity (vph)					447	396	327	1584			1525	1296
Starvation Cap Reductn					0	0	0	0			0	0
Spillback Cap Reductn					0	0	0	0			0	0
Storage Cap Reductn					0	0	0	0			0	0
Reduced v/c Ratio					0.06	0.06	0.04	0.07			0.02	0.05

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.15
Intersection Signal Delay: 9.5 Intersection LOS: A
Intersection Capacity Utilization 34.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 419: Burkett / Kornegay/Kornegay St & US 70 WB Ramps



2040 Build Alternative 52
SimTraffic Reports

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Summary of All Intervals

Run Number	1	2	3	4	2553 Alt5rnative 51 AM		Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	8592	8442	8538	8706	8684	8719	8610
Vehs Exited	8593	8462	8544	8704	8720	8733	8621
Starting Vehs	142	147	139	132	150	155	135
Ending Vehs	141	127	133	134	114	141	119
Travel Distance (mi)	4633	4554	4578	4652	4683	4712	4635
Travel Time (hr)	140.7	136.4	138.3	141.1	141.0	144.8	140.4
Total Delay (hr)	38.3	36.1	37.7	38.3	37.9	41.3	38.3
Total Stops	3547	3316	3252	3502	3410	3449	3406
Fuel Used (gal)	176.5	173.1	174.2	178.1	177.9	180.0	176.6

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	2553 Alt5rnative 51 AM		Avg
Vehs Entered	8592	8442	8538	8706	8684	8719	8610
Vehs Exited	8593	8462	8544	8704	8720	8733	8621
Starting Vehs	142	147	139	132	150	155	135
Ending Vehs	141	127	133	134	114	141	119
Travel Distance (mi)	4633	4554	4578	4652	4683	4712	4635
Travel Time (hr)	140.7	136.4	138.3	141.1	141.0	144.8	140.4
Total Delay (hr)	38.3	36.1	37.7	38.3	37.9	41.3	38.3
Total Stops	3547	3316	3252	3502	3410	3449	3406
Fuel Used (gal)	176.5	173.1	174.2	178.1	177.9	180.0	176.6

Intersection: 401: Jim Sutton Rd & Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	42	44	4	16
Average Queue (ft)	13	16	0	1
95th Queue (ft)	36	37	3	8
Link Distance (ft)	848	806	905	935
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	74	158	71	70	268	43
Average Queue (ft)	28	71	19	23	163	6
95th Queue (ft)	61	132	53	58	253	26
Link Distance (ft)	951	951	935	935	1248	1248
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		225		100	275	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	98	239	125	62	199	91
Average Queue (ft)	35	111	38	10	89	26
95th Queue (ft)	74	189	91	37	159	70
Link Distance (ft)	939	939	1248	1248	934	934
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		300		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 404: Willie Measley Rd & Washington St/Service Rd

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	81	62	62	15	16	4
Average Queue (ft)	41	22	21	0	1	0
95th Queue (ft)	67	47	49	9	7	3
Link Distance (ft)	924	913	934	934	1055	1055
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			100		100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 405: Harold Sutton Rd/Albert Sugg Rd & US 70 Bus

Movement	EB	WB	NB	SB
Directions Served	L	L	LTR	LTR
Maximum Queue (ft)	18	37	228	227
Average Queue (ft)	6	11	65	85
95th Queue (ft)	20	30	233	218
Link Distance (ft)	990	965	855	873
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	100	100		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 406: NC 55 & N Croom Bland Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	29	48	4	34
Average Queue (ft)	10	18	0	4
95th Queue (ft)	30	39	3	20
Link Distance (ft)	667	621	700	955
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 407: US 70 EB Ramps & NC 55

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	146	28	48	69	88	69
Average Queue (ft)	42	3	8	12	35	22
95th Queue (ft)	105	16	32	43	73	57
Link Distance (ft)	955	955	1371	1371	764	764
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 408: US 70 WB Ramps & NC 55

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	94	51	80	65	83	56
Average Queue (ft)	23	7	21	12	25	8
95th Queue (ft)	71	30	55	41	63	33
Link Distance (ft)	1371	1371	1006	1006	821	821
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 409: NC 11 & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	80	119	154	161	245	19
Average Queue (ft)	26	46	68	45	83	1
95th Queue (ft)	63	97	125	128	176	11
Link Distance (ft)	956	956	977	977	1222	1222
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		125	250			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 410: NC 11 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	64	147	114	183	263	43
Average Queue (ft)	17	70	46	38	87	5
95th Queue (ft)	47	127	92	120	187	25
Link Distance (ft)	1011	1011	1222	1222	1058	1058
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175	125			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 411: US 258 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	143	132	187	35	68	95
Average Queue (ft)	67	63	71	2	17	21
95th Queue (ft)	118	116	148	16	47	62
Link Distance (ft)	940	940	994	994	1185	1185
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 412: US 258 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	63	65	158	69	128	74
Average Queue (ft)	18	15	49	20	59	12
95th Queue (ft)	48	43	116	54	112	45
Link Distance (ft)	1015	1015	1185	1185	846	846
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	175	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 413: NC 58 & Elijah Loftin Rd

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	L	L	TR
Maximum Queue (ft)	58	50	17	16	3
Average Queue (ft)	20	23	1	2	0
95th Queue (ft)	42	44	10	11	3
Link Distance (ft)	1137	1082	1094	863	863
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			100	100	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 414: NC 58 & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	49	60	80	76	90	24
Average Queue (ft)	15	15	25	12	18	1
95th Queue (ft)	41	44	64	47	61	10
Link Distance (ft)	914	914	863	863	1133	1133
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 415: NC 58 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	40	68	80	77	76	23
Average Queue (ft)	9	20	28	7	19	2
95th Queue (ft)	32	53	66	36	56	14
Link Distance (ft)	879	879	1133	1133	961	961
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 416: Wyse Fork Rd & US 70 Bus

Movement	EB	WB	NB
Directions Served	R	L	LR
Maximum Queue (ft)	8	35	99
Average Queue (ft)	0	10	35
95th Queue (ft)	6	31	75
Link Distance (ft)	972	994	820
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	100	100	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 417: Burkett Rd & Wyse Fork Conn.

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	14	44
Average Queue (ft)	1	16
95th Queue (ft)	8	37
Link Distance (ft)	852	757
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 418: Burkett Rd/Burkett / Kornegay & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	LT	R	T	R	L	T
Maximum Queue (ft)	117	37	32	36	63	33
Average Queue (ft)	46	7	4	4	19	3
95th Queue (ft)	93	26	19	19	51	17
Link Distance (ft)	902	902	979	979	772	772
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 419: Burkett / Kornegay/Kornegay St & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	L	T	T	R
Maximum Queue (ft)	55	59	62	45	37	72
Average Queue (ft)	14	16	20	2	3	13
95th Queue (ft)	42	45	51	19	19	45
Link Distance (ft)	885	885	772	772	921	921
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	2	3	4	2553 Alternative 51 PM		Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	8636	8560	8710	8651	8634	8663	8641
Vehs Exited	8617	8595	8706	8657	8650	8684	8650
Starting Vehs	124	163	131	134	147	157	125
Ending Vehs	143	128	135	128	131	136	118
Travel Distance (mi)	4610	4583	4661	4613	4622	4626	4619
Travel Time (hr)	140.1	140.1	142.9	139.9	140.9	144.2	141.3
Total Delay (hr)	38.9	39.0	40.5	38.3	38.9	42.4	39.7
Total Stops	3448	3433	3457	3377	3524	3478	3454
Fuel Used (gal)	175.9	175.9	178.4	175.8	176.6	178.1	176.8

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	2553 Alternative 51 PM		Avg
Vehs Entered	8636	8560	8710	8651	8634	8663	8641
Vehs Exited	8617	8595	8706	8657	8650	8684	8650
Starting Vehs	124	163	131	134	147	157	125
Ending Vehs	143	128	135	128	131	136	118
Travel Distance (mi)	4610	4583	4661	4613	4622	4626	4619
Travel Time (hr)	140.1	140.1	142.9	139.9	140.9	144.2	141.3
Total Delay (hr)	38.9	39.0	40.5	38.3	38.9	42.4	39.7
Total Stops	3448	3433	3457	3377	3524	3478	3454
Fuel Used (gal)	175.9	175.9	178.4	175.8	176.6	178.1	176.8

Intersection: 401: Jim Sutton Rd & Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	36	40	8	20
Average Queue (ft)	9	13	0	1
95th Queue (ft)	30	34	4	10
Link Distance (ft)	848	806	905	935
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	88	202	55	59	256	44
Average Queue (ft)	35	86	13	11	133	5
95th Queue (ft)	73	161	41	37	220	25
Link Distance (ft)	951	951	935	935	1248	1248
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		225		100	275	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	119	280	113	45	152	99
Average Queue (ft)	51	139	32	5	74	26
95th Queue (ft)	102	229	82	26	138	71
Link Distance (ft)	939	939	1248	1248	934	934
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		300		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 404: Willie Measley Rd & Washington St/Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	72	55	58	4
Average Queue (ft)	37	25	17	0
95th Queue (ft)	61	45	45	3
Link Distance (ft)	924	913	934	1055
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 405: Harold Sutton Rd/Albert Sugg Rd & US 70 Bus

Movement	EB	WB	NB	SB
Directions Served	L	L	LTR	LTR
Maximum Queue (ft)	54	51	130	135
Average Queue (ft)	13	15	39	39
95th Queue (ft)	38	40	119	103
Link Distance (ft)	990	965	855	873
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	100	100		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 406: NC 55 & N Croom Bland Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	33	40	16	28
Average Queue (ft)	8	14	1	4
95th Queue (ft)	27	36	9	18
Link Distance (ft)	667	621	700	955
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 407: US 70 EB Ramps & NC 55

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	123	30	64	103	124	98
Average Queue (ft)	35	3	12	32	48	24
95th Queue (ft)	86	18	41	77	97	65
Link Distance (ft)	955	955	1371	1371	764	764
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 408: US 70 WB Ramps & NC 55

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	75	50	88	76	91	45
Average Queue (ft)	18	7	26	18	29	4
95th Queue (ft)	53	29	63	54	69	22
Link Distance (ft)	1371	1371	1006	1006	821	821
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 409: NC 11 & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	53	114	243	87	366	32
Average Queue (ft)	16	43	89	19	138	2
95th Queue (ft)	43	92	176	63	294	15
Link Distance (ft)	956	956	977	977	1222	1222
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		125	250			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 410: NC 11 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	42	153	123	90	275	52
Average Queue (ft)	9	68	49	13	125	6
95th Queue (ft)	30	124	103	51	230	30
Link Distance (ft)	1011	1011	1222	1222	1058	1058
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175	125			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 411: US 258 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	182	137	175	29	89	121
Average Queue (ft)	87	51	69	4	23	41
95th Queue (ft)	157	108	140	20	60	94
Link Distance (ft)	940	940	994	994	1185	1185
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 412: US 258 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	62	61	126	78	156	86
Average Queue (ft)	18	14	48	16	73	15
95th Queue (ft)	48	40	108	49	131	54
Link Distance (ft)	1015	1015	1185	1185	846	846
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	175	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 413: NC 58 & Elijah Loftin Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	33	40	24	24
Average Queue (ft)	15	17	3	3
95th Queue (ft)	34	38	15	15
Link Distance (ft)	1137	1082	1094	863
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 414: NC 58 & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	52	80	66	45	153	31
Average Queue (ft)	11	23	19	6	32	2
95th Queue (ft)	35	60	49	30	102	13
Link Distance (ft)	914	914	863	863	1133	1133
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 415: NC 58 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	27	72	56	44	109	30
Average Queue (ft)	6	22	14	3	27	3
95th Queue (ft)	23	54	39	19	76	17
Link Distance (ft)	879	879	1133	1133	961	961
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 416: Wyse Fork Rd & US 70 Bus

Movement	EB	WB	NB
Directions Served	R	L	LR
Maximum Queue (ft)	4	66	110
Average Queue (ft)	0	16	30
95th Queue (ft)	3	43	72
Link Distance (ft)	972	994	820
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	100	100	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 417: Burkett Rd & Wyse Fork Conn.

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	18	47
Average Queue (ft)	1	14
95th Queue (ft)	8	38
Link Distance (ft)	852	757
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 418: Burkett Rd/Burkett / Kornegay & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	LT	R	T	R	L	T
Maximum Queue (ft)	130	69	27	18	60	27
Average Queue (ft)	59	17	3	3	15	3
95th Queue (ft)	109	50	17	13	45	18
Link Distance (ft)	902	902	979	979	772	772
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 419: Burkett / Kornegay/Kornegay St & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	L	T	T	R
Maximum Queue (ft)	73	73	48	37	24	48
Average Queue (ft)	23	21	12	4	3	7
95th Queue (ft)	58	55	37	20	15	28
Link Distance (ft)	885	885	772	772	921	921
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 0

APPENDIX N

2040 Build Alternative 35

Peak Hour Traffic Volume Development and

FREEVAL-E, Synchro & SimTraffic Reports

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2040 Build Alternative 35
Peak Hour Traffic Volume
Development

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Alternative 35

Volume Development

A project-level traffic forecast, titled "Traffic Forecast Technical Memorandum, Kinston Bypass Alternatives Study", was prepared and finalized in November, 2016. This traffic forecast was used to provide peak hour volumes for the analysis of the selected alternatives in this memorandum. The traffic forecast is included in **Attachment A**.

The Intersection Analysis Utility (IAU), provided by NCDOT, was utilized to calculate AM and PM Peak Hour volumes for at-grade intersections (ramp terminals and any intersections within 1,000 feet of ramp terminals), interchange ramps, and freeway segments within interchanges. Peak hour volumes for freeway segments between interchanges were calculated by finding the forecasted daily two-way volumes along the link, then breaking the daily volume down by multiplying it by the Design Hour Volume Percentage (K), and the Peak Hour Directional Split (D). All of these volumes are shown in **BLACK** in **Figures 13A – 13F**.

US 70 and CF Harvey Parkway Extension Freeway Analysis

FREEVAL-E does not use a Peak Hour Factor (PHF) to adjust the peak hour volumes to reflect the peak 15-minute period. Additionally, FREEVAL-E requires balanced peak hour mainline volumes, since only the beginning freeway segment and subsequent ramps have volume inputs. To provide peak 15-minute hourly flow rates for the analysis in FREEVAL-E, each of the peak hour volumes calculated for the freeway segments and ramps was divided by 0.90, which is the recommended PHF in the NCDOT Congestion Management Capacity Analysis Guidelines. To balance the peak hour volumes to use with FREEVAL-E, the highest peak 15-minute hourly flow rate was located along the US 70 corridor within the study area. Once this was located, the mainline US 70 volumes were adjusted in each direction to the eastern and western ends of the network by adding and subtracting the relevant ramp volumes.

For Alternative 35, the location used as the "hold point" for balancing purposes on US 70 was the segment between Jim Sutton Road / Willie Measley Road and US 70 Business (west of Kinston). These volume adjustments are shown in **BLUE** in **Figures 13A – 13F**. The ensuing pages of this appendix detail the following step-by-step process used to calculate the volumes used:

Step 1 – Freeway segment volumes between interchanges were calculated by multiplying the two-way daily volumes by the K and D factors.

Step 2 – Volumes for interchange ramps, and freeway segments inside interchanges were collected from the IAU breakout sheets.

Step 3 – The volumes collected in Step 2 were divided by the NCDOT default PHF of 0.90 to account for the fact that FREEVAL-E does not factor in the PHF, and the highest calculated freeway volume location was used as the base point with which to balance the US 70 freeway corridor.

Step 4 – The volumes of the subsequent freeway segments were adjusted to allow for a balanced peak hour network in both directions, as well as along CF Harvey Parkway Extension.

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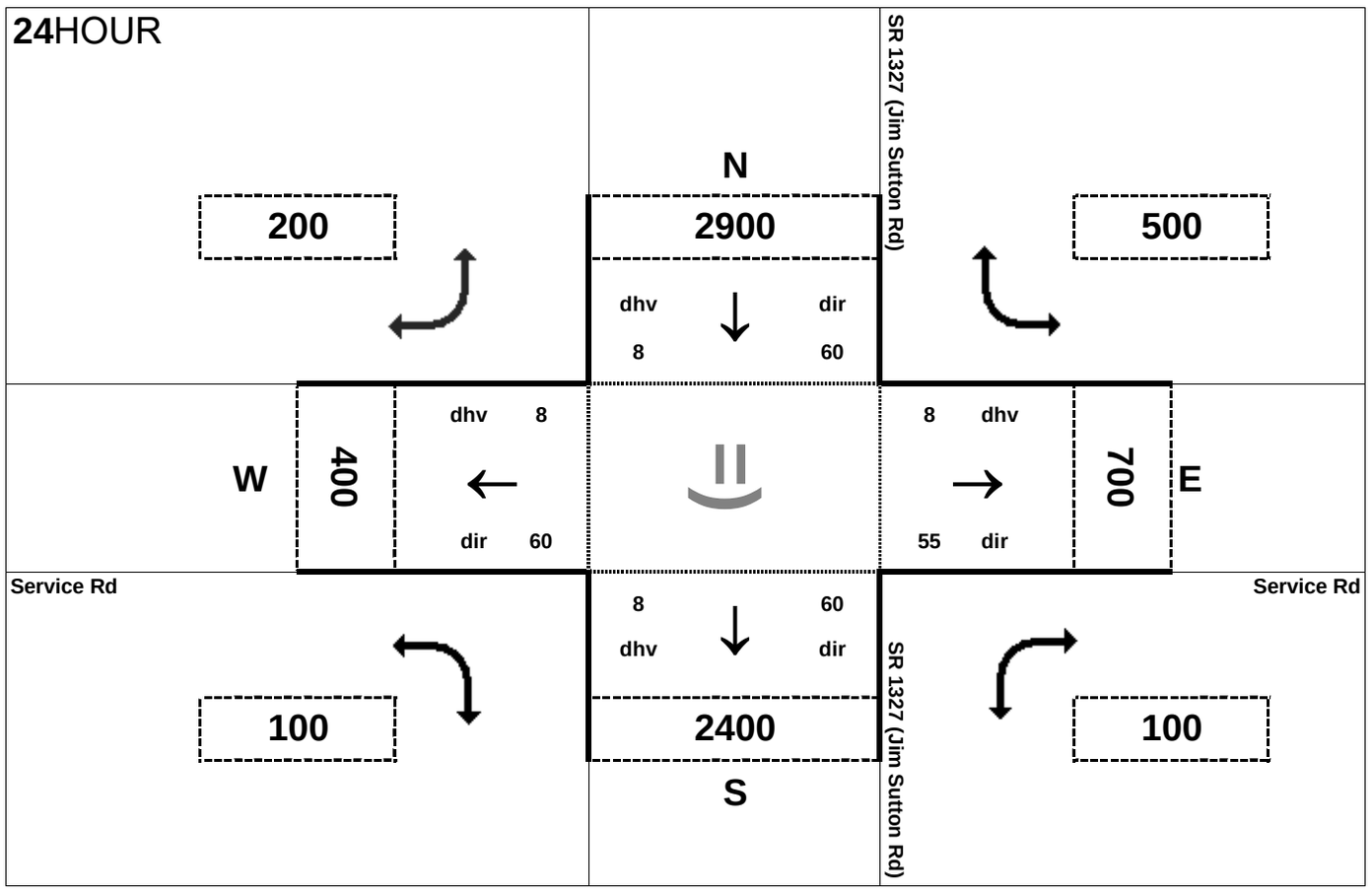
Peak Hour Volume Breakouts Report:
401 Intersection of SR 1327 (Jim Sutton Rd) at Service Rd

Traffic Forecast Release Date:
November-16

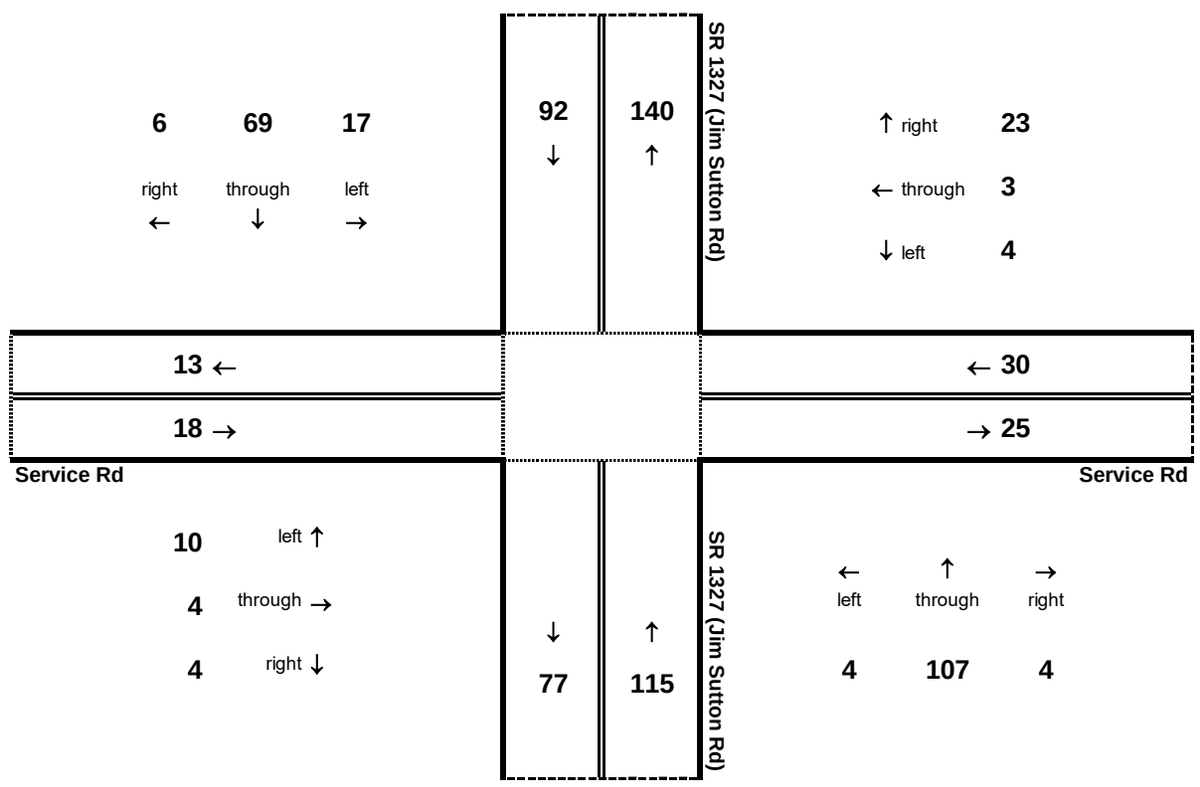
Traffic Data Year:
2040 Build Alt 35

Project:
R-2553

24HOUR

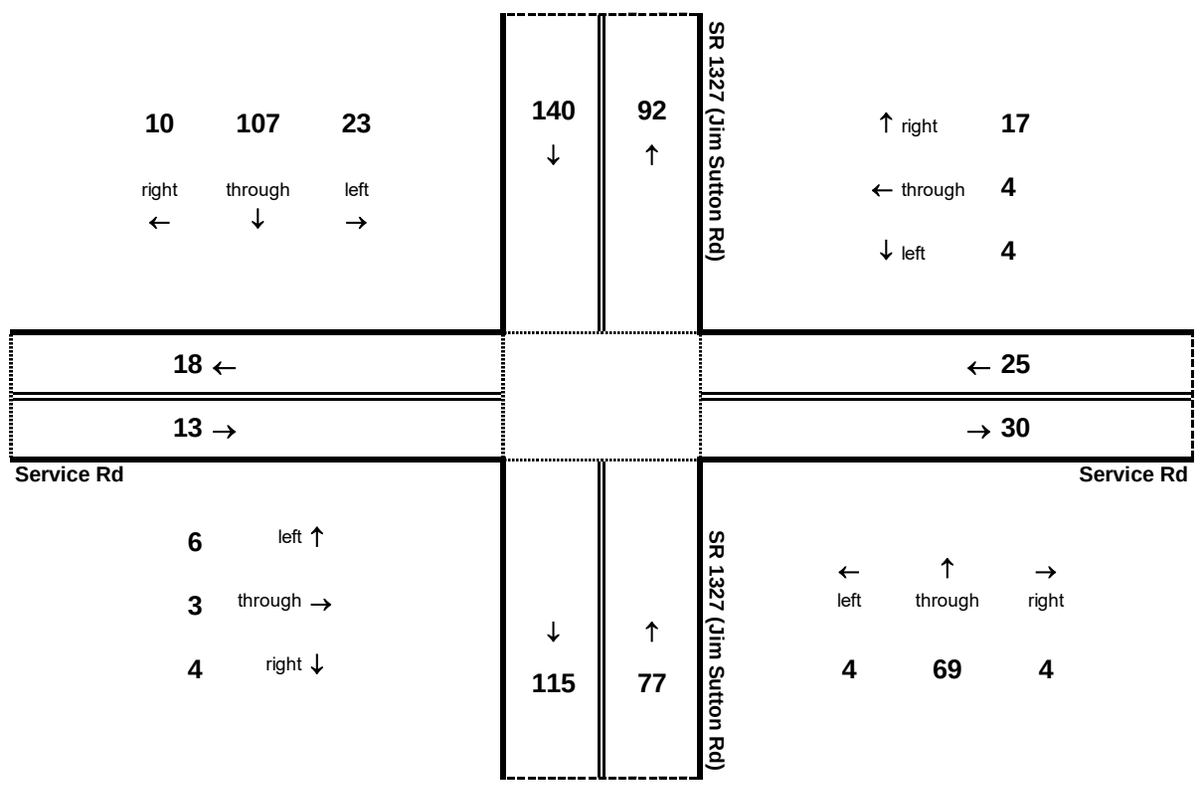


AMPEAK



AM peak hour inflow is 256 vehicles. AM peak hour outflow is 255 vehicles.

PMPEAK



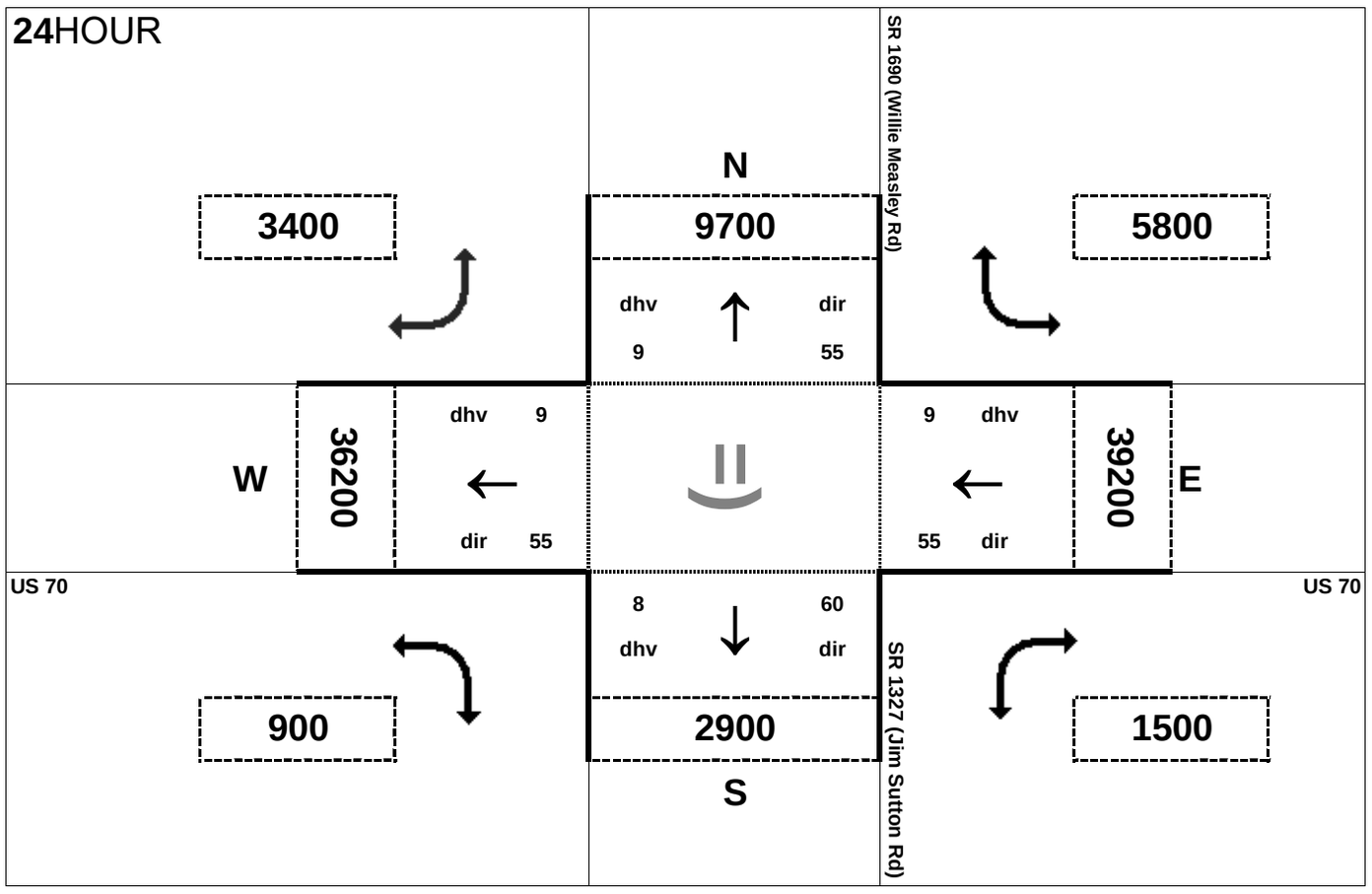
PM peak hour inflow is 255 vehicles. PM peak hour outflow is 256 vehicles.

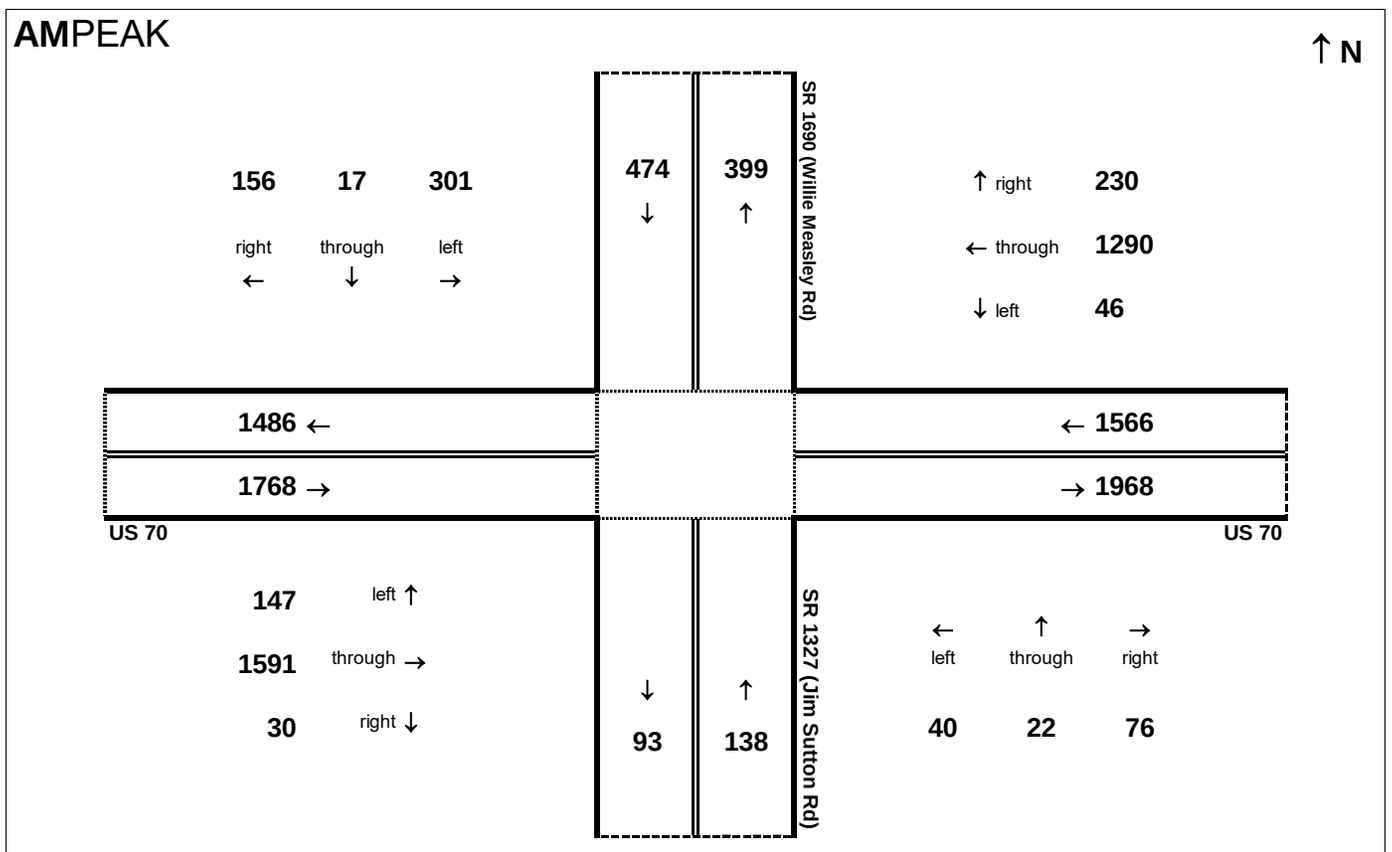
Peak Hour Volume Breakouts Report:
402-3 Intersection of US 70 and Willie Measley Rd / Jim Sutton Rd

Traffic Forecast Release Date:
November-16

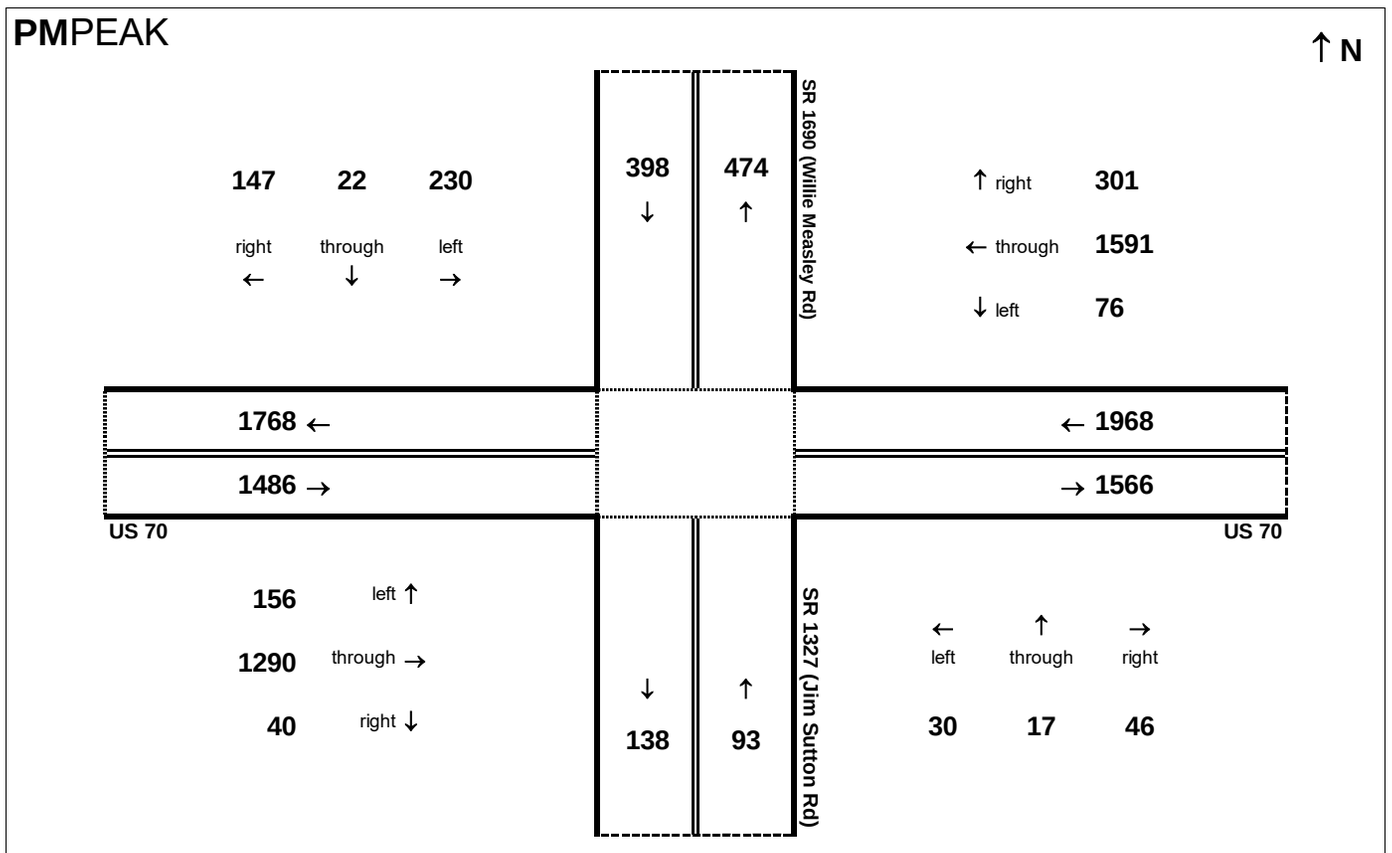
Traffic Data Year:
2040 Build Alt 35

Project:
R-2553





AM peak hour inflow is 3945 vehicles. AM peak hour outflow is 3945 vehicles.



PM peak hour inflow is 3945 vehicles. PM peak hour outflow is 3945 vehicles.

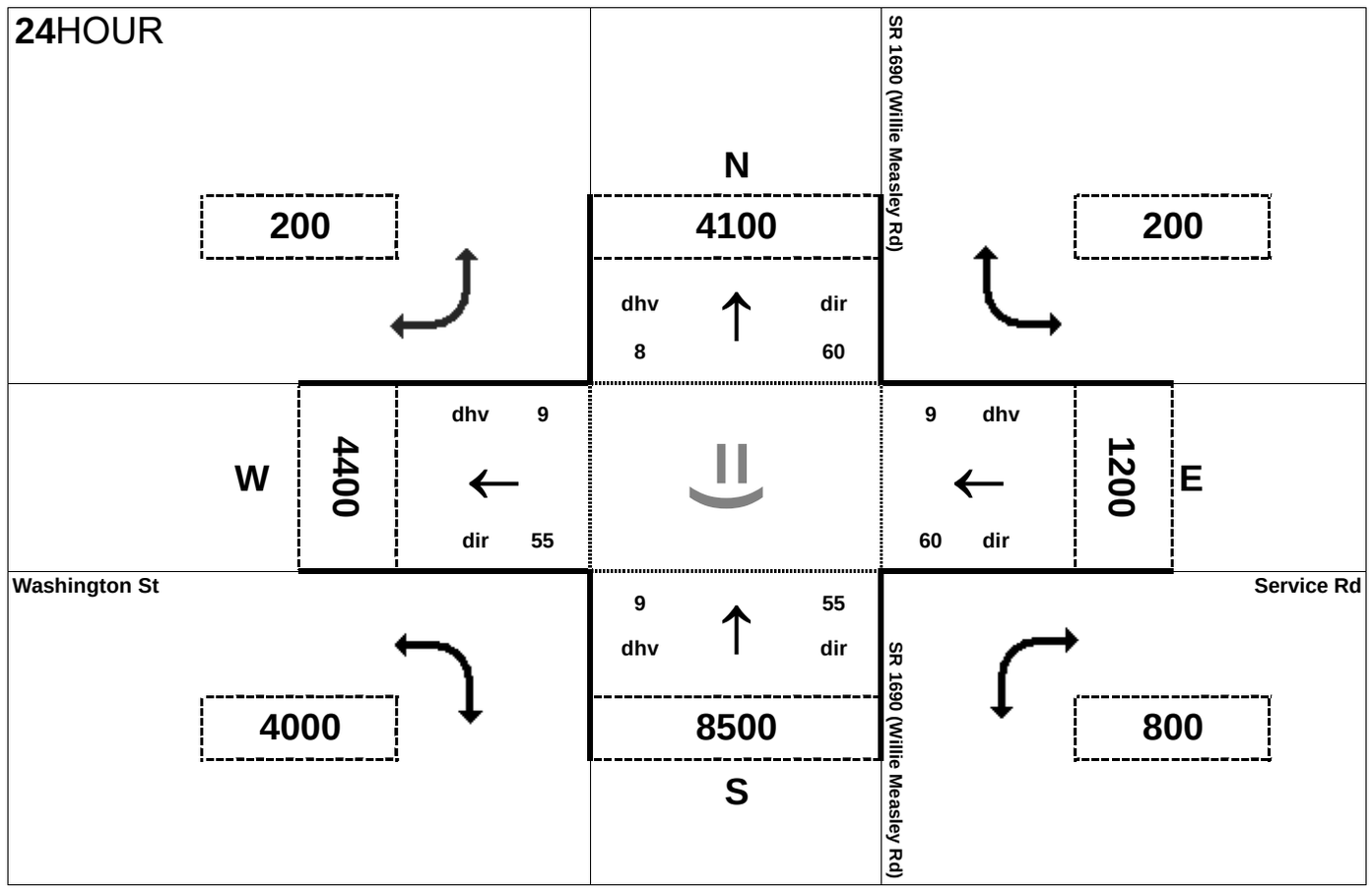
Peak Hour Volume Breakouts Report:
404 Intersection of SR 1690 (Willie Measley Rd) at SR 1603 (Washington St)

Traffic Forecast Release Date:
November-16

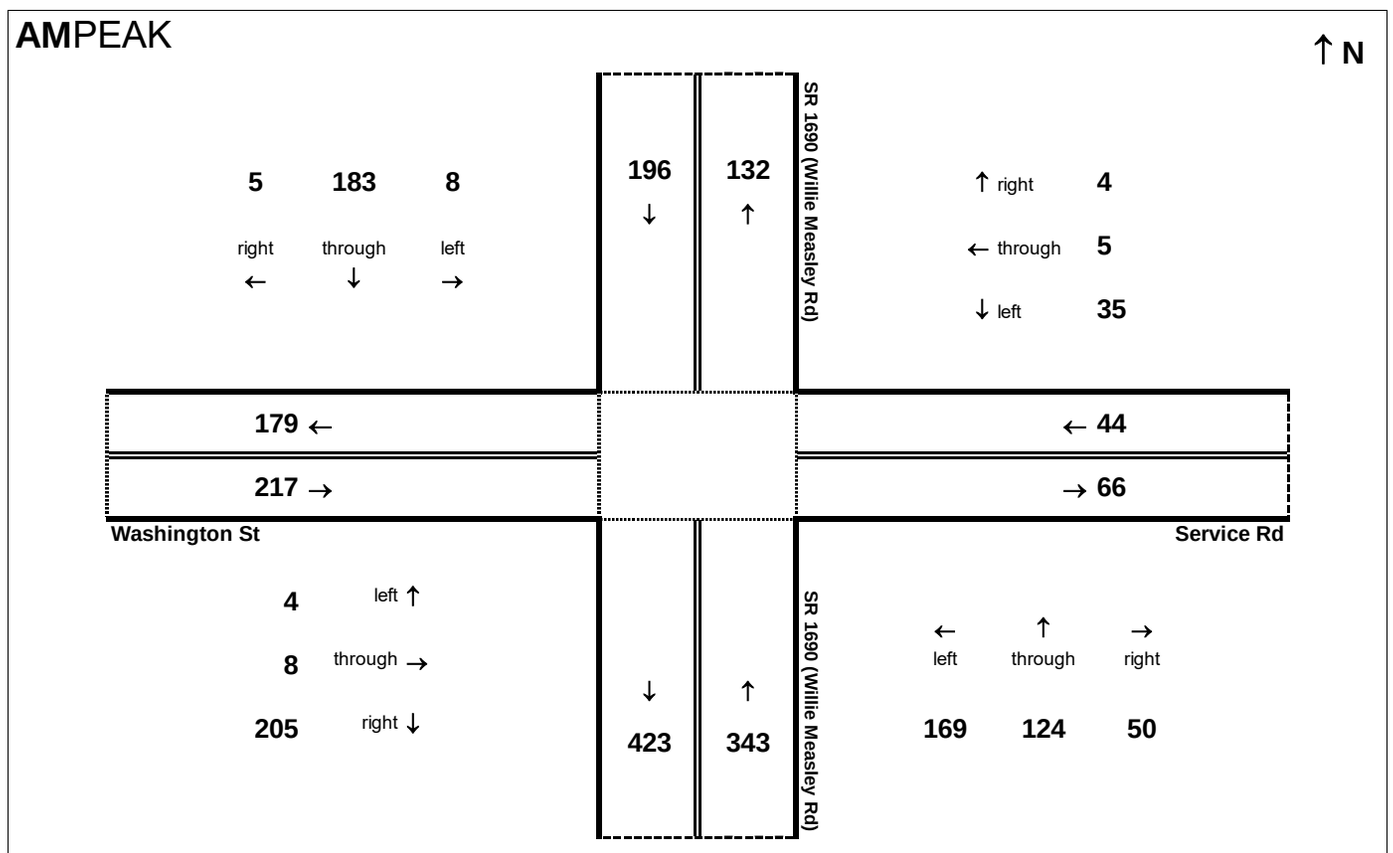
Traffic Data Year:
2040 Build Alt 35

Project:
R-2553

24HOUR

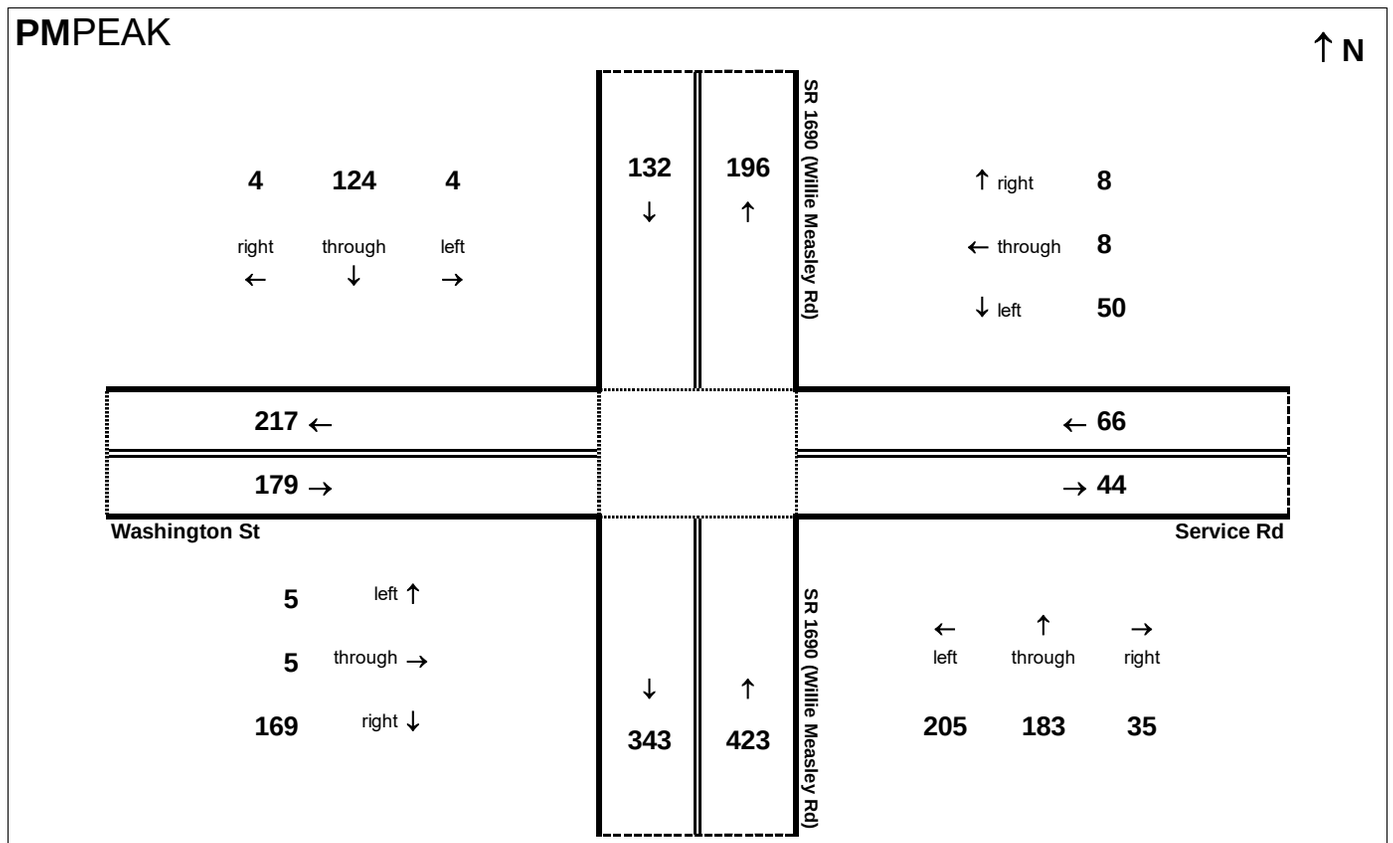


AMPEAK



AM peak hour inflow is 799 vehicles. AM peak hour outflow is 799 vehicles.

PMPEAK



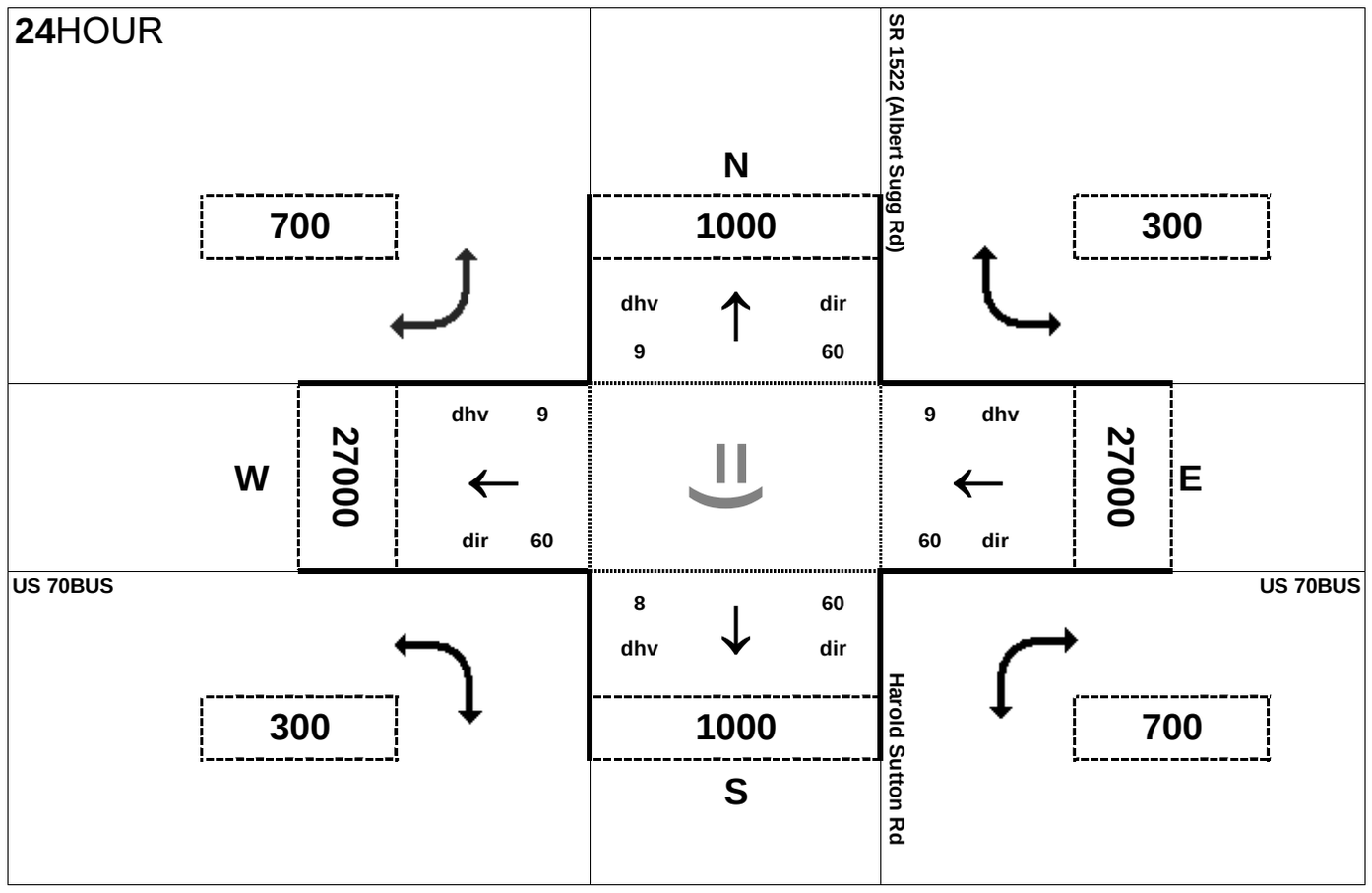
PM peak hour inflow is 799 vehicles. PM peak hour outflow is 799 vehicles.

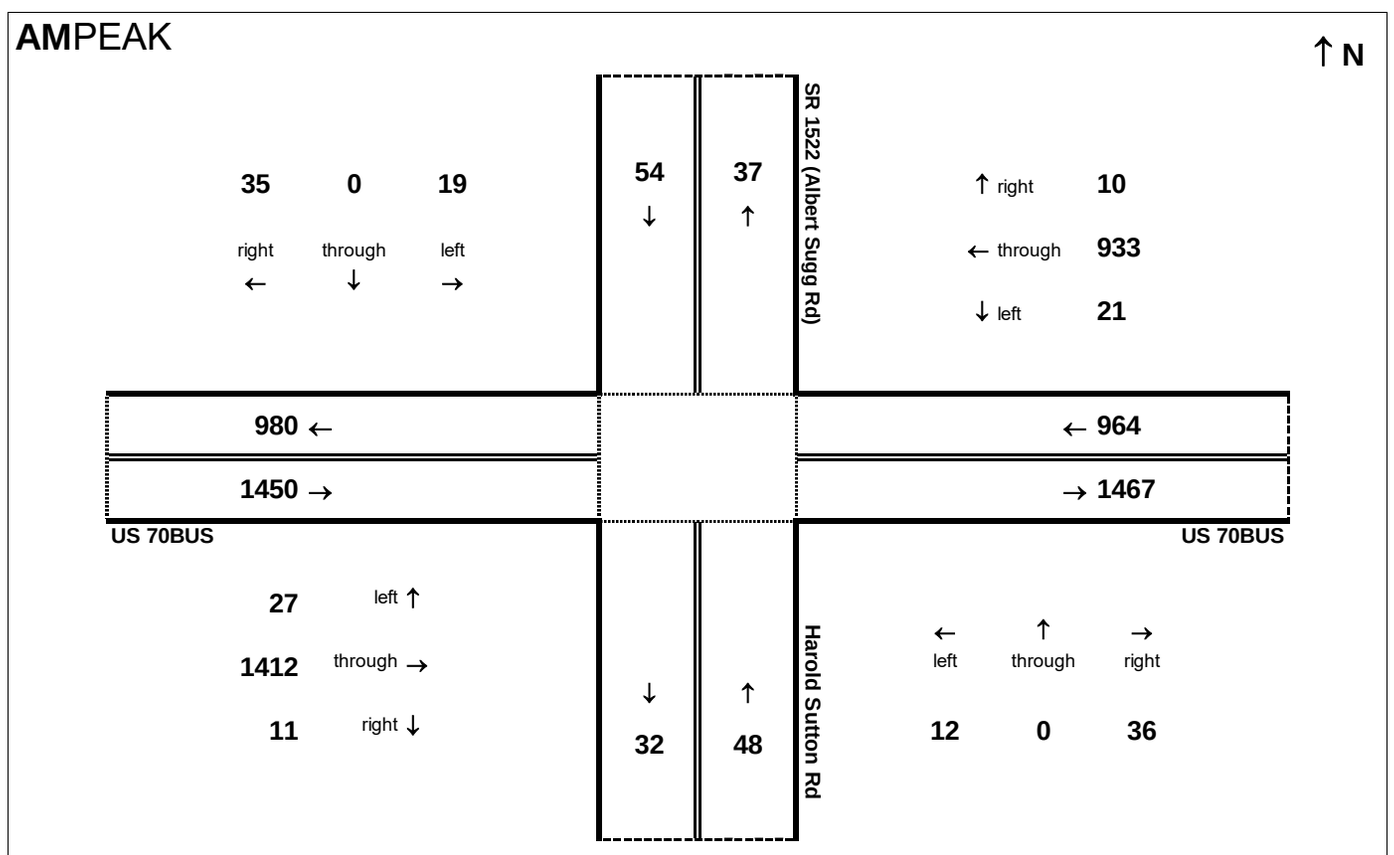
Peak Hour Volume Breakouts Report:
405 Intersection of US 70BUS and Harold Sutton Rd

Traffic Forecast Release Date:
November-16

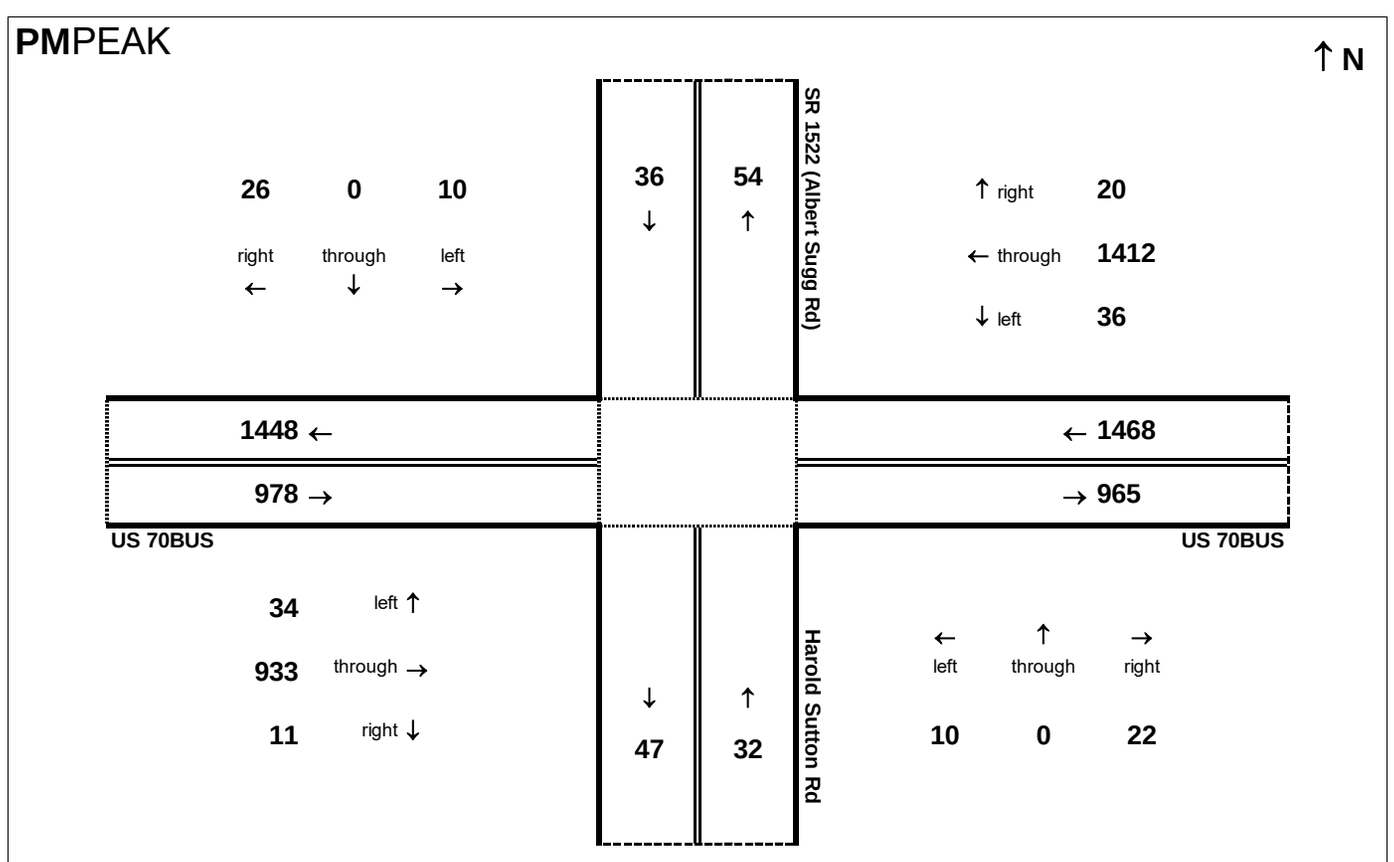
Traffic Data Year:
2040 Build Alt 35

Project:
R-2553





AM peak hour inflow is 2516 vehicles. AM peak hour outflow is 2514 vehicles.



PM peak hour inflow is 2514 vehicles. PM peak hour outflow is 2516 vehicles.

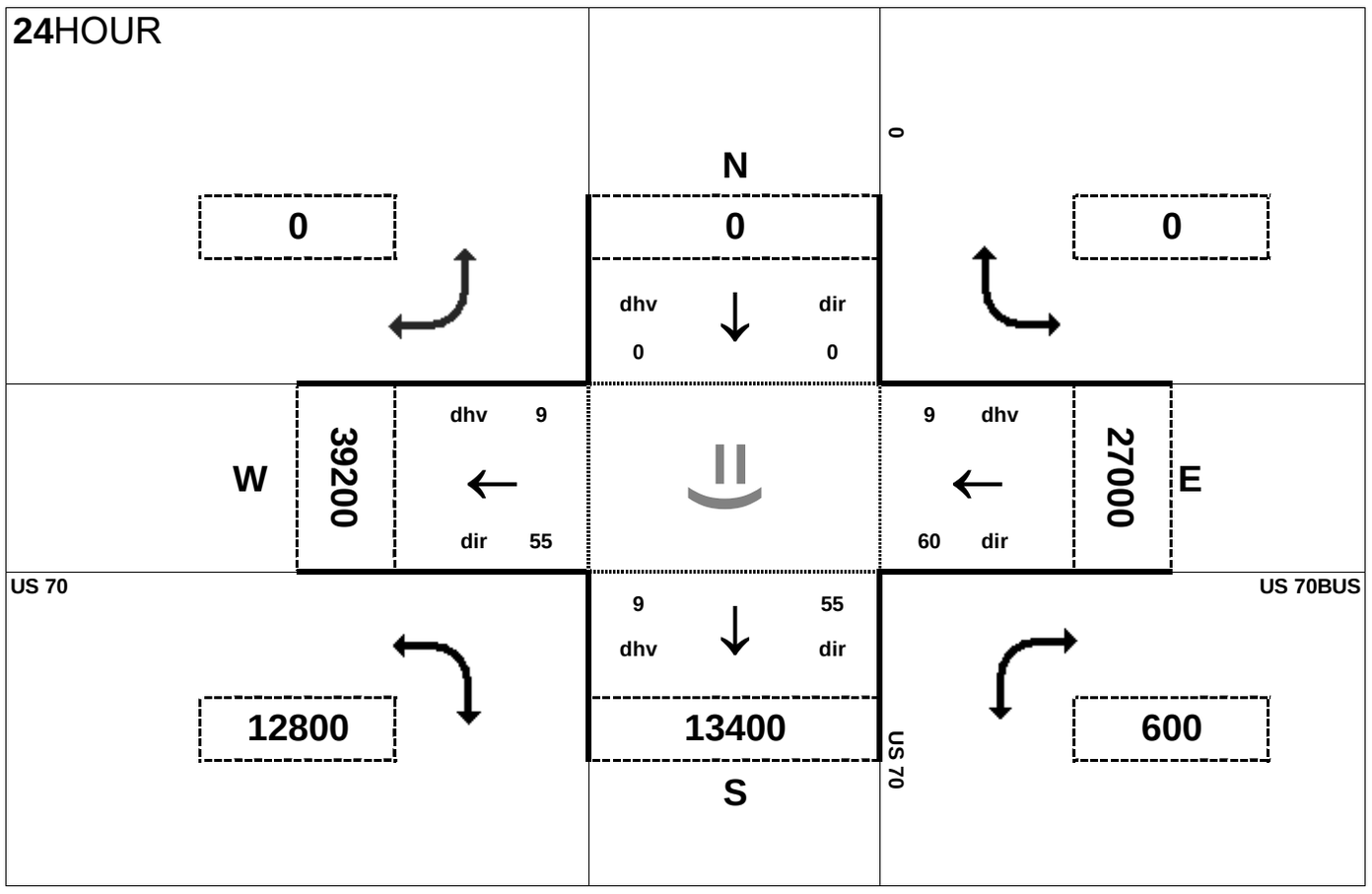
Peak Hour Volume Breakouts Report:
System 1 - Intersection of US 70 and western US 70BUS

Traffic Forecast Release Date:
November-16

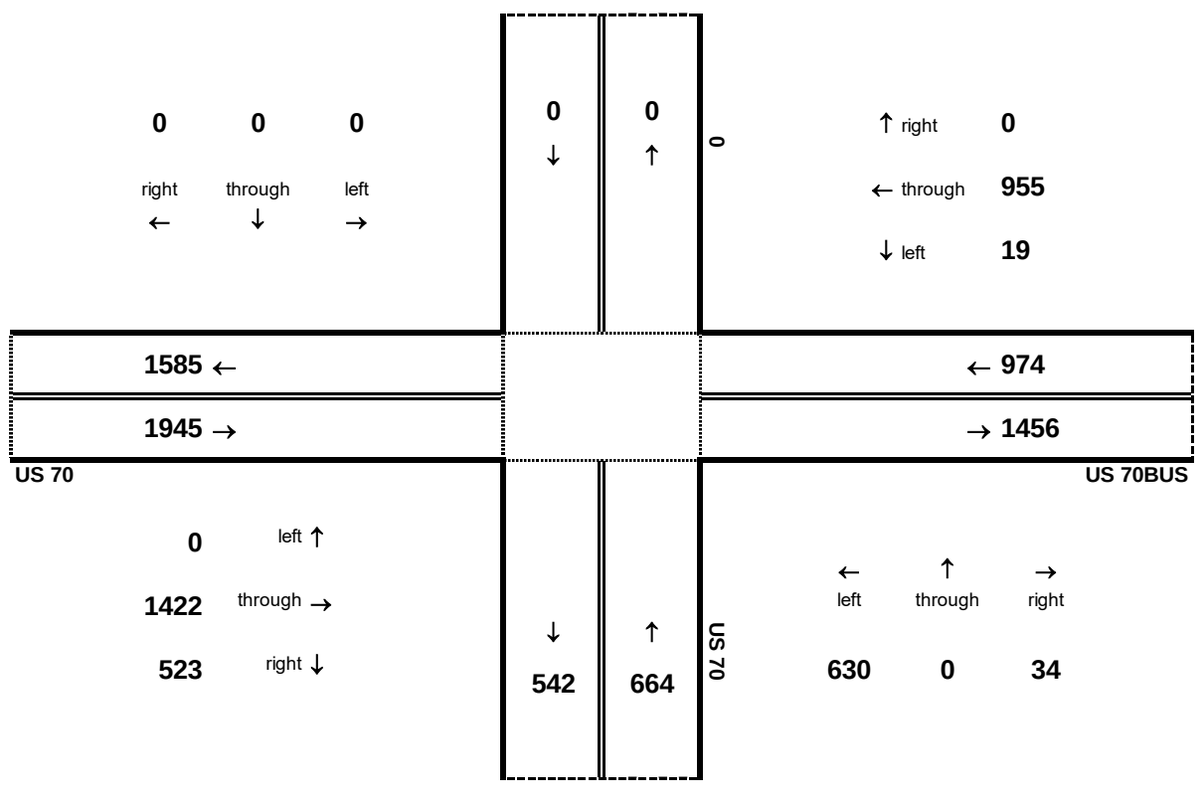
Traffic Data Year:
2040 Build Alt 35

Project:
R-2553

24HOUR

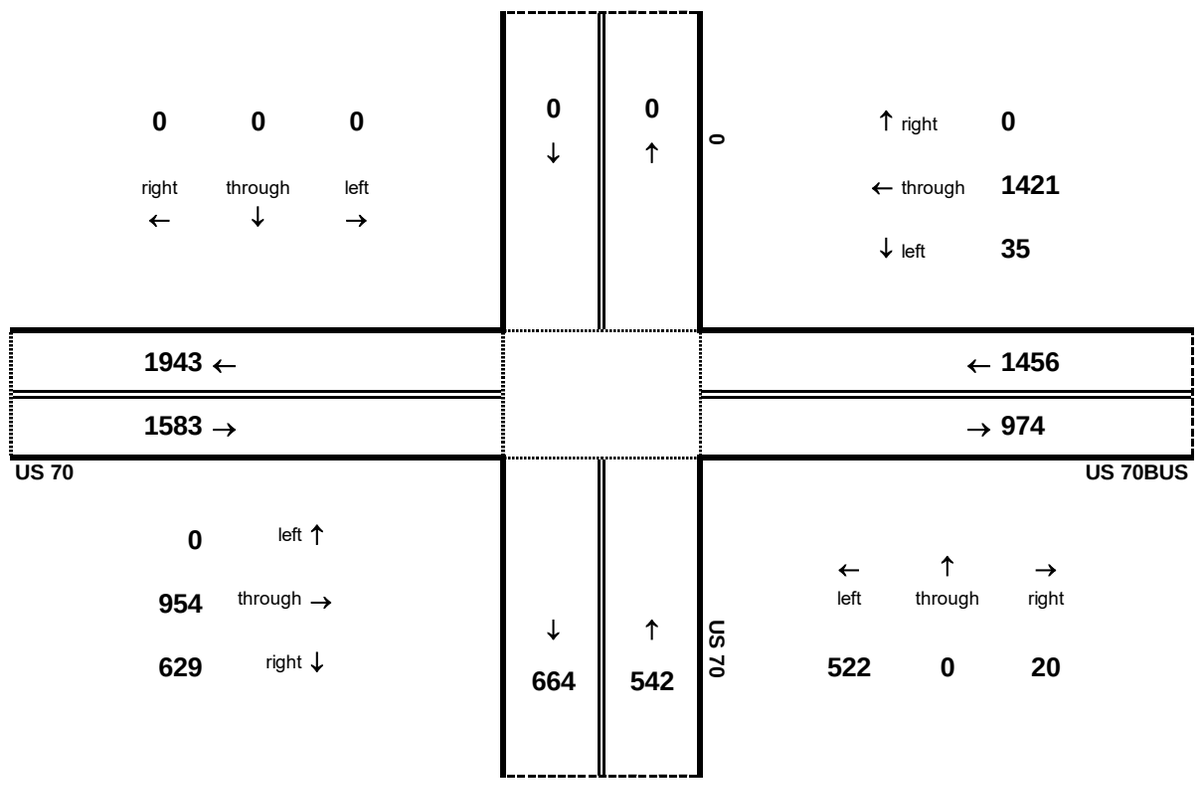


AMPEAK



AM peak hour inflow is 3581 vehicles. AM peak hour outflow is 3582 vehicles.

PMPEAK



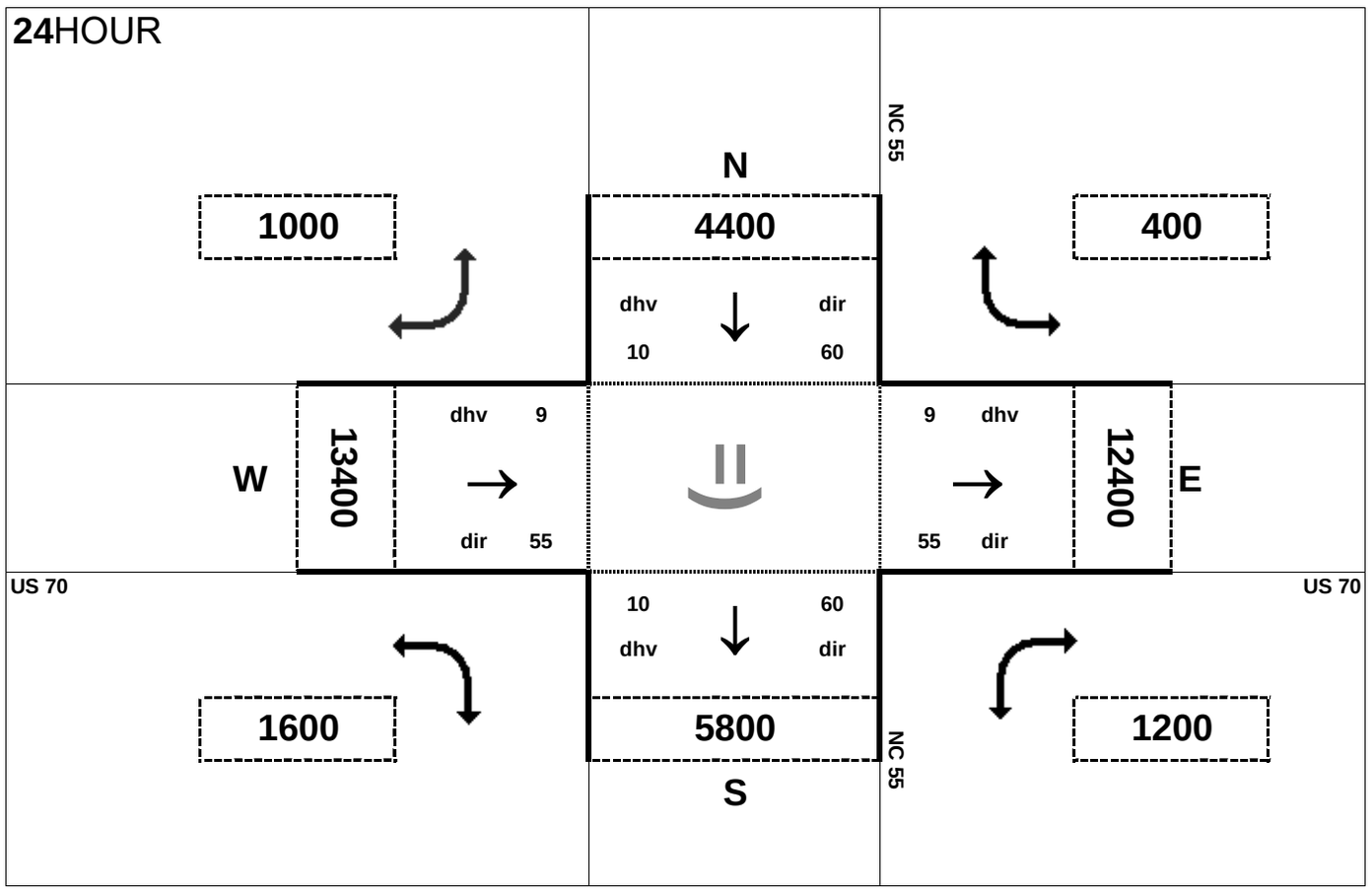
PM peak hour inflow is 3582 vehicles. PM peak hour outflow is 3582 vehicles.

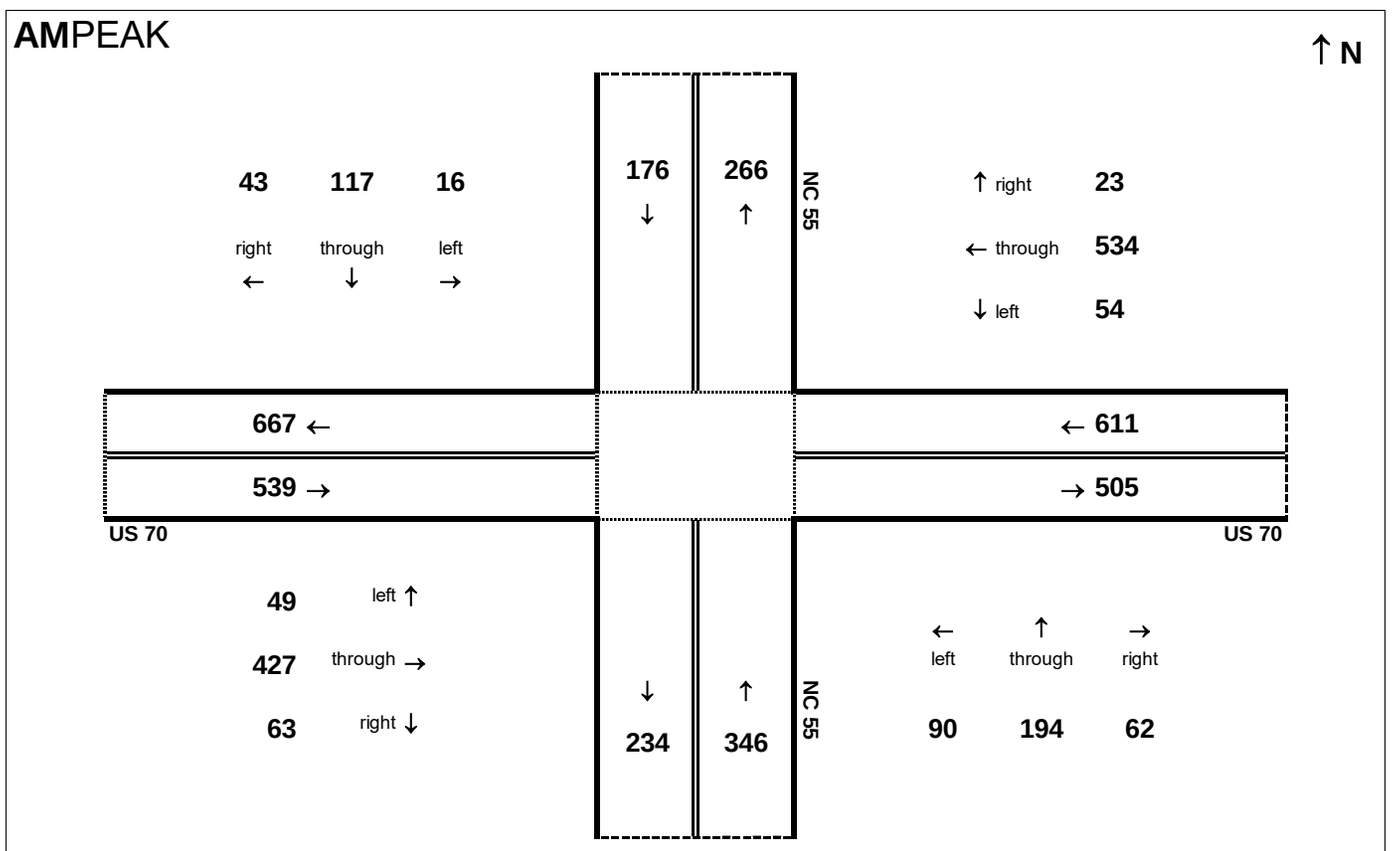
Peak Hour Volume Breakouts Report:
406-7 Intersection of US 70 and NC 55

Traffic Forecast Release Date:
November-16

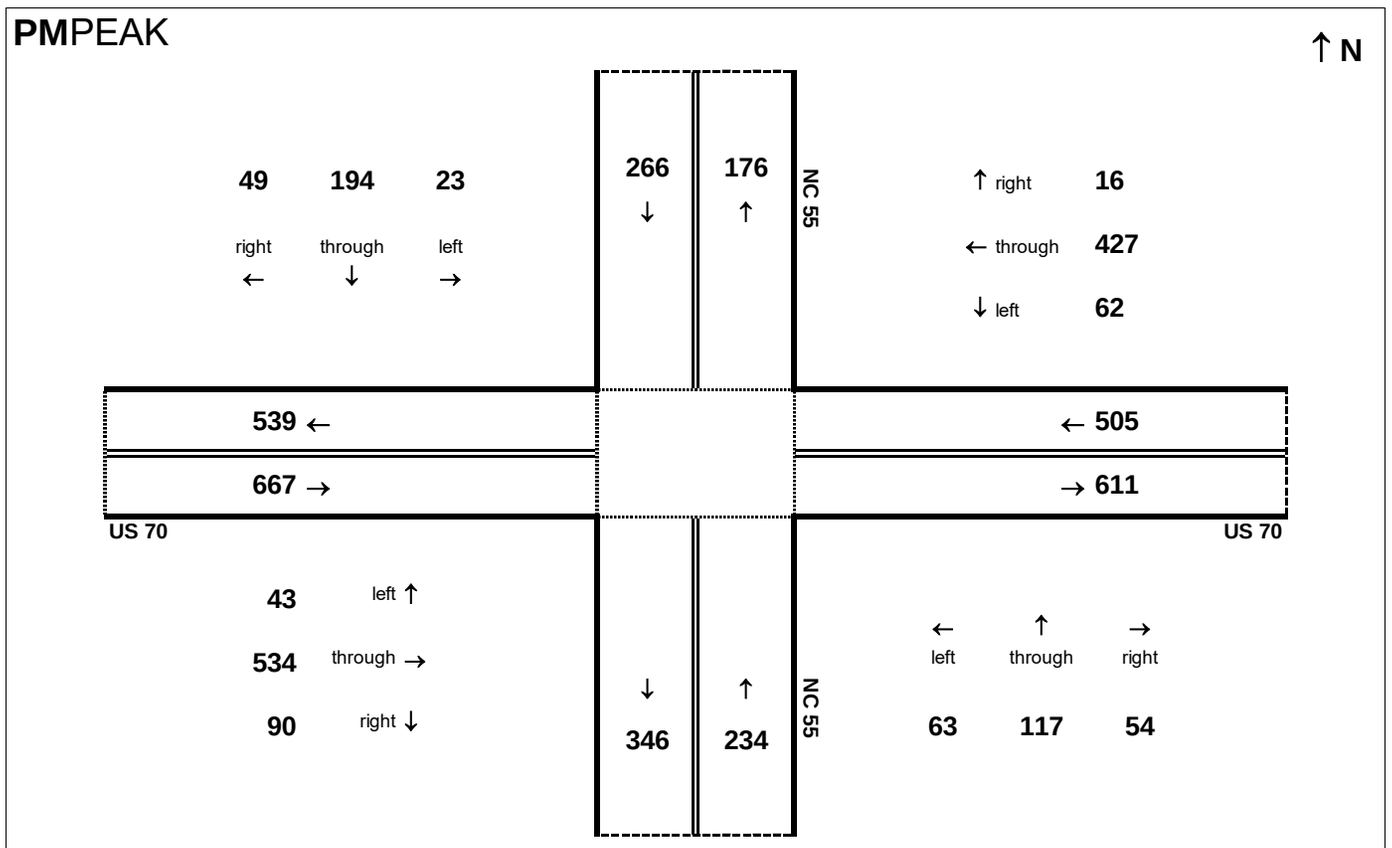
Traffic Data Year:
2040 Build Alt 35

Project:
R-2553





AM peak hour inflow is 1671 vehicles. AM peak hour outflow is 1671 vehicles.



PM peak hour inflow is 1671 vehicles. PM peak hour outflow is 1671 vehicles.

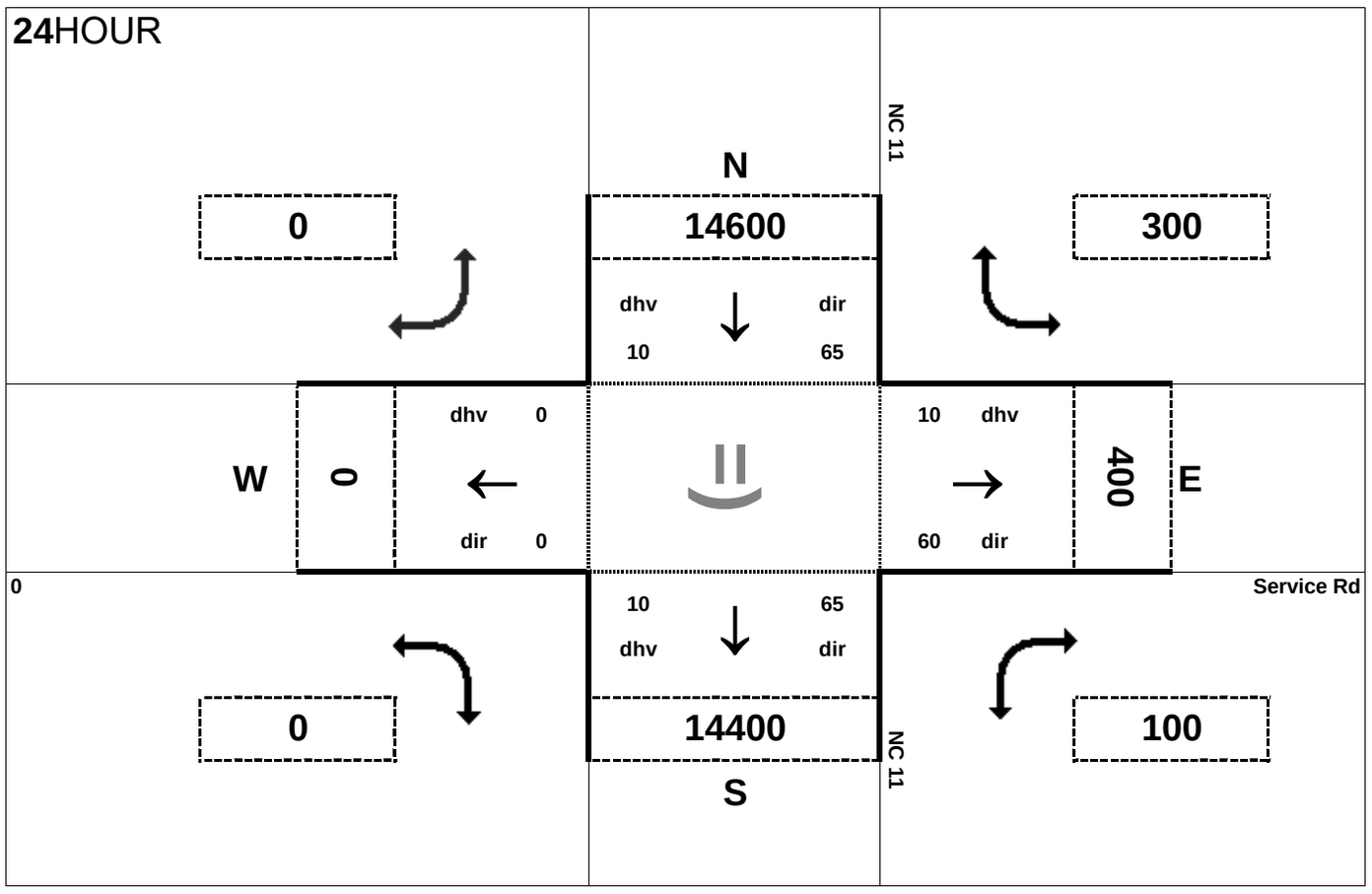
Peak Hour Volume Breakouts Report:
408 Intersection of NC 11 and Service Rd

Traffic Forecast Release Date:
November-16

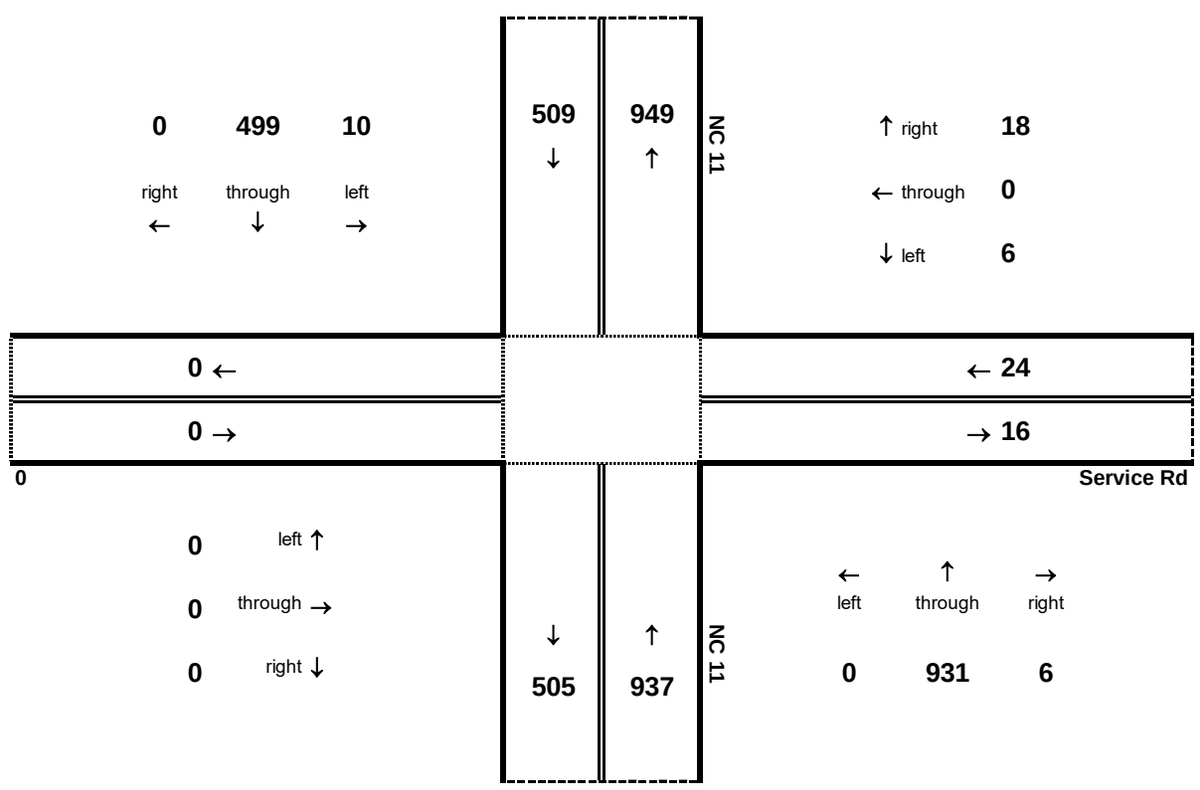
Traffic Data Year:
2040 Build Alt 35

Project:
R-2553

24HOUR

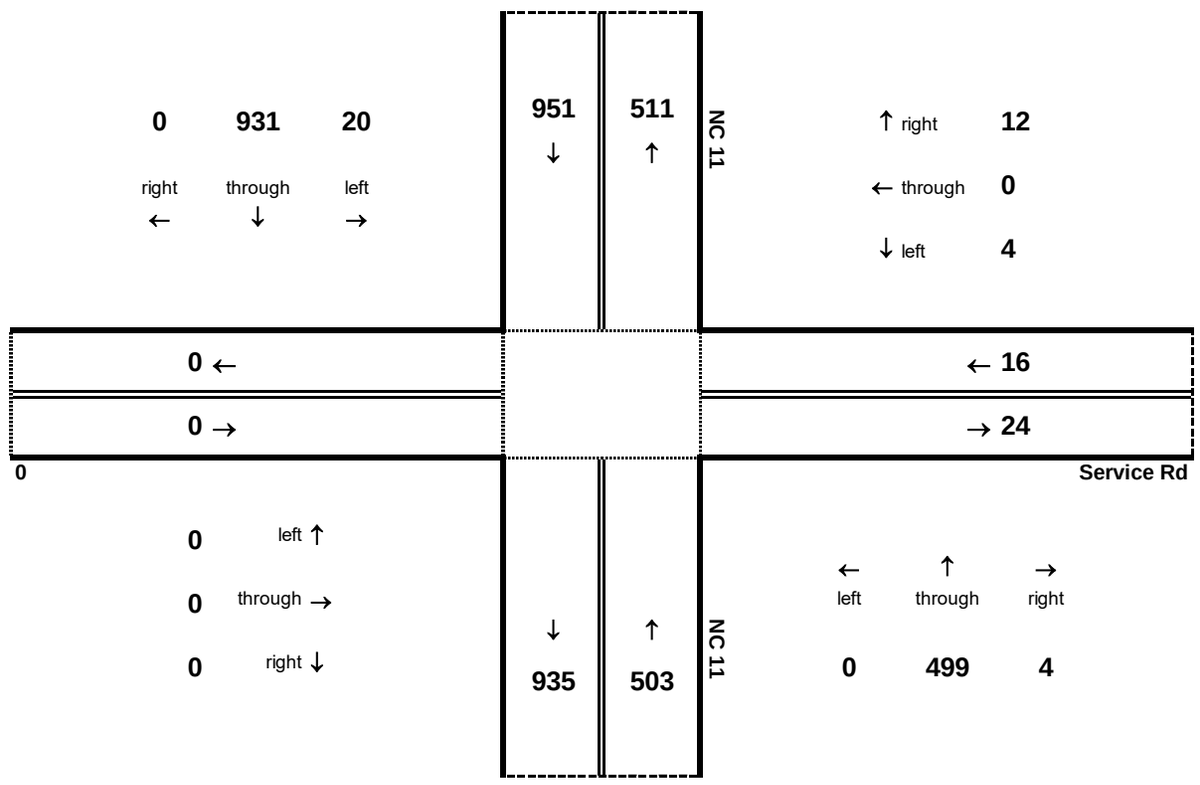


AMPEAK



AM peak hour inflow is 1470 vehicles. AM peak hour outflow is 1470 vehicles.

PMPEAK



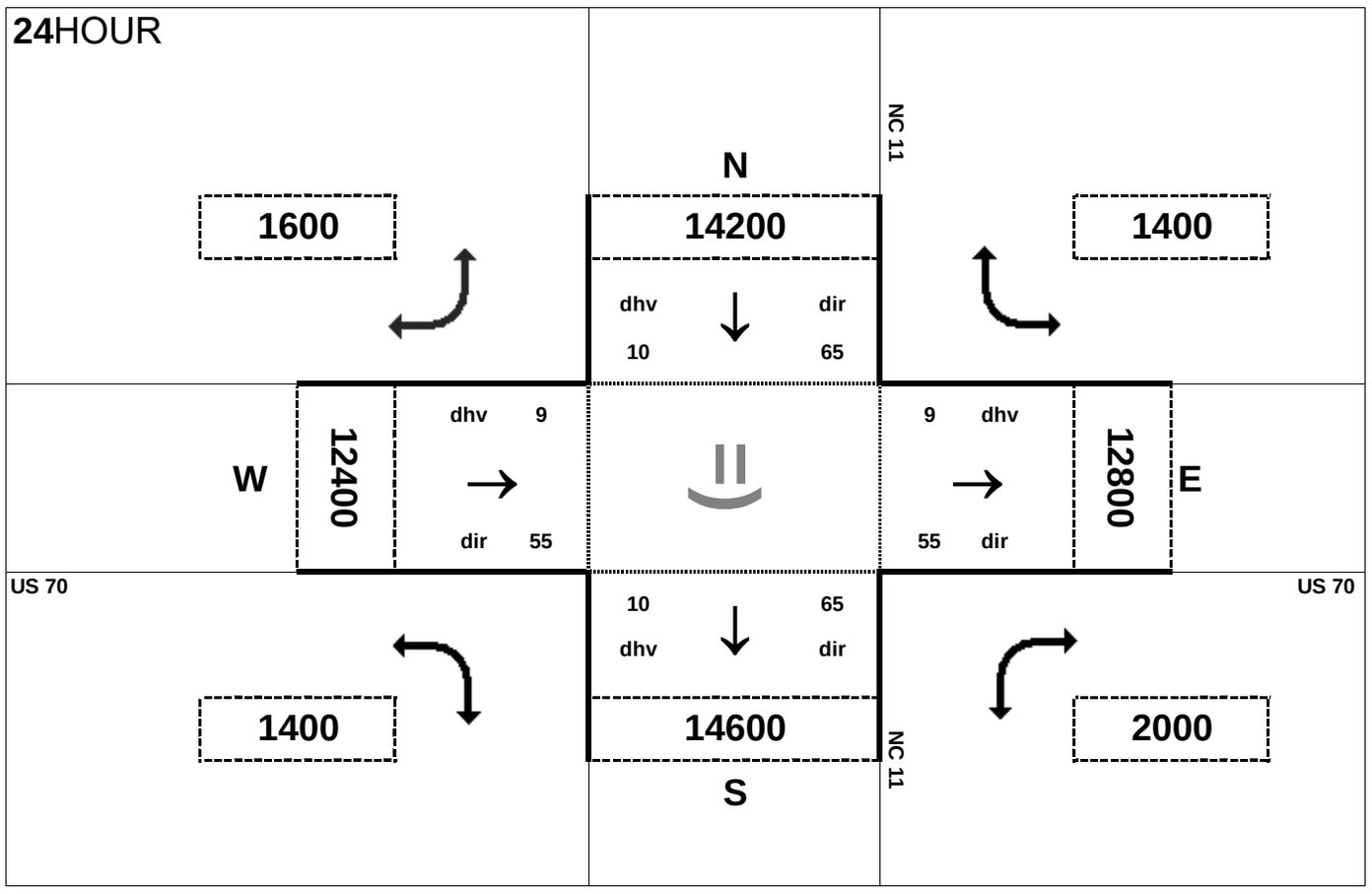
PM peak hour inflow is 1470 vehicles. PM peak hour outflow is 1470 vehicles.

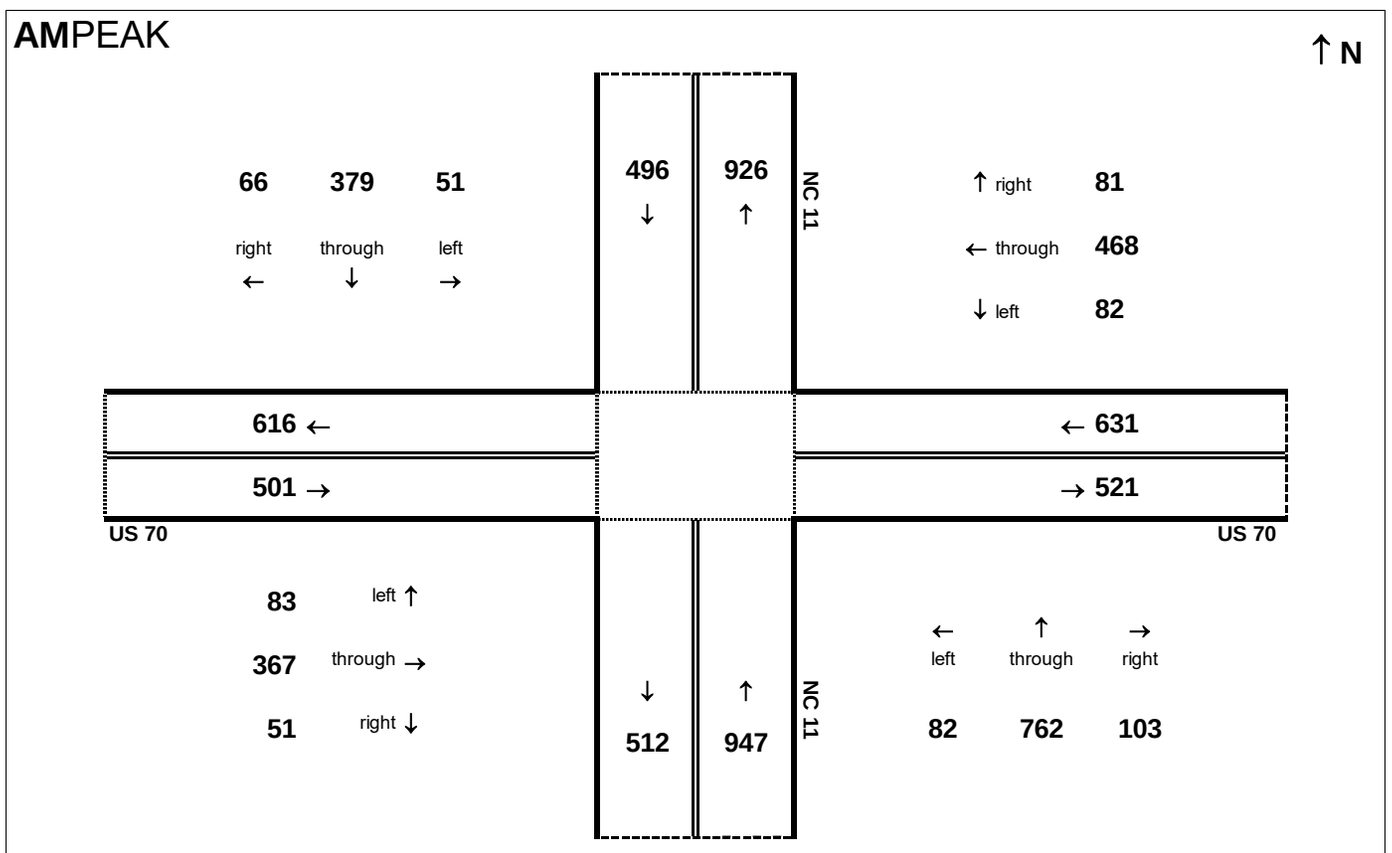
Peak Hour Volume Breakouts Report:
409-10 Intersection of US 70 and NC 11

Traffic Forecast Release Date:
November-16

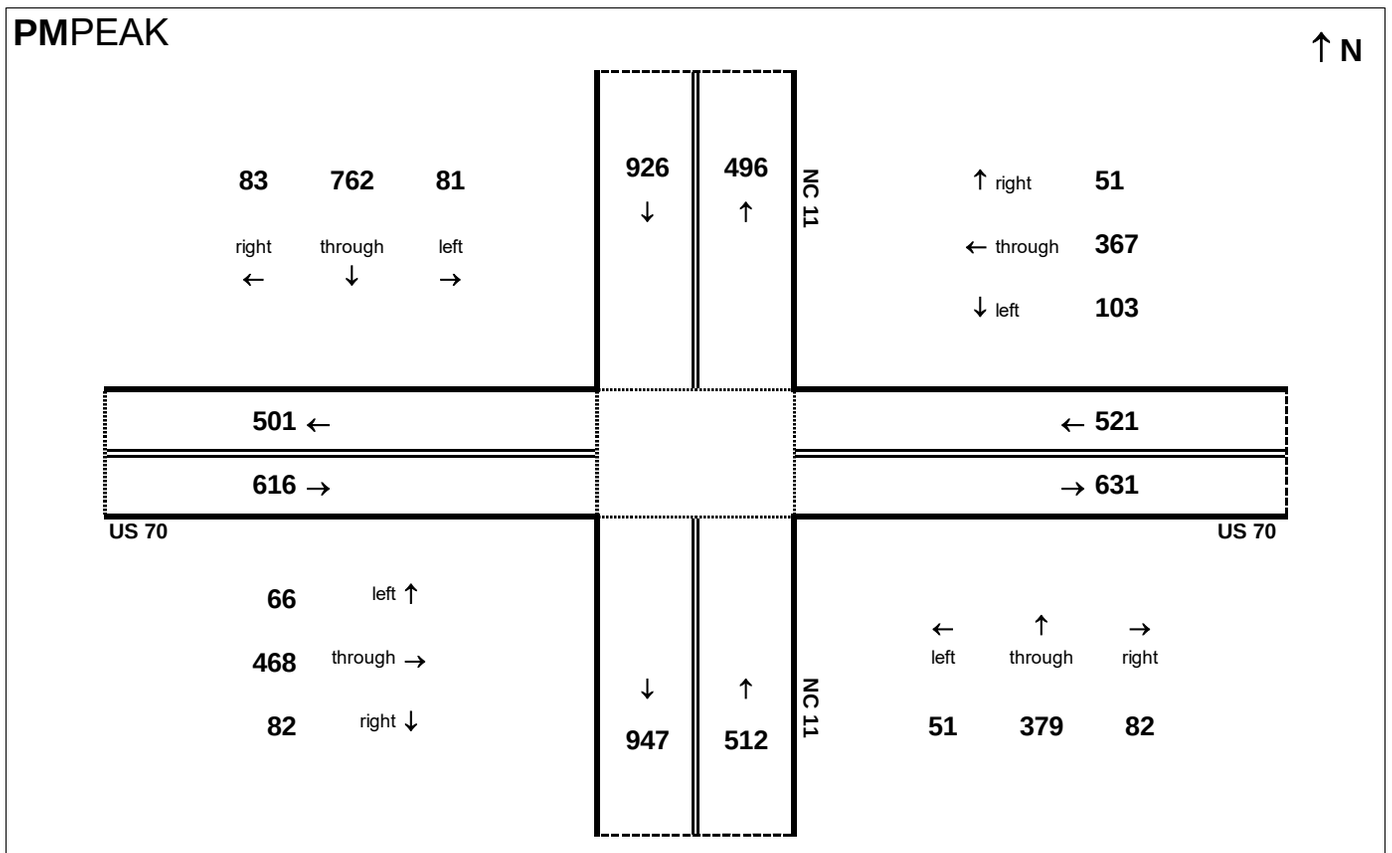
Traffic Data Year:
2040 Build Alt 35

Project:
R-2553





AM peak hour inflow is 2574 vehicles. AM peak hour outflow is 2575 vehicles.



PM peak hour inflow is 2575 vehicles. PM peak hour outflow is 2574 vehicles.

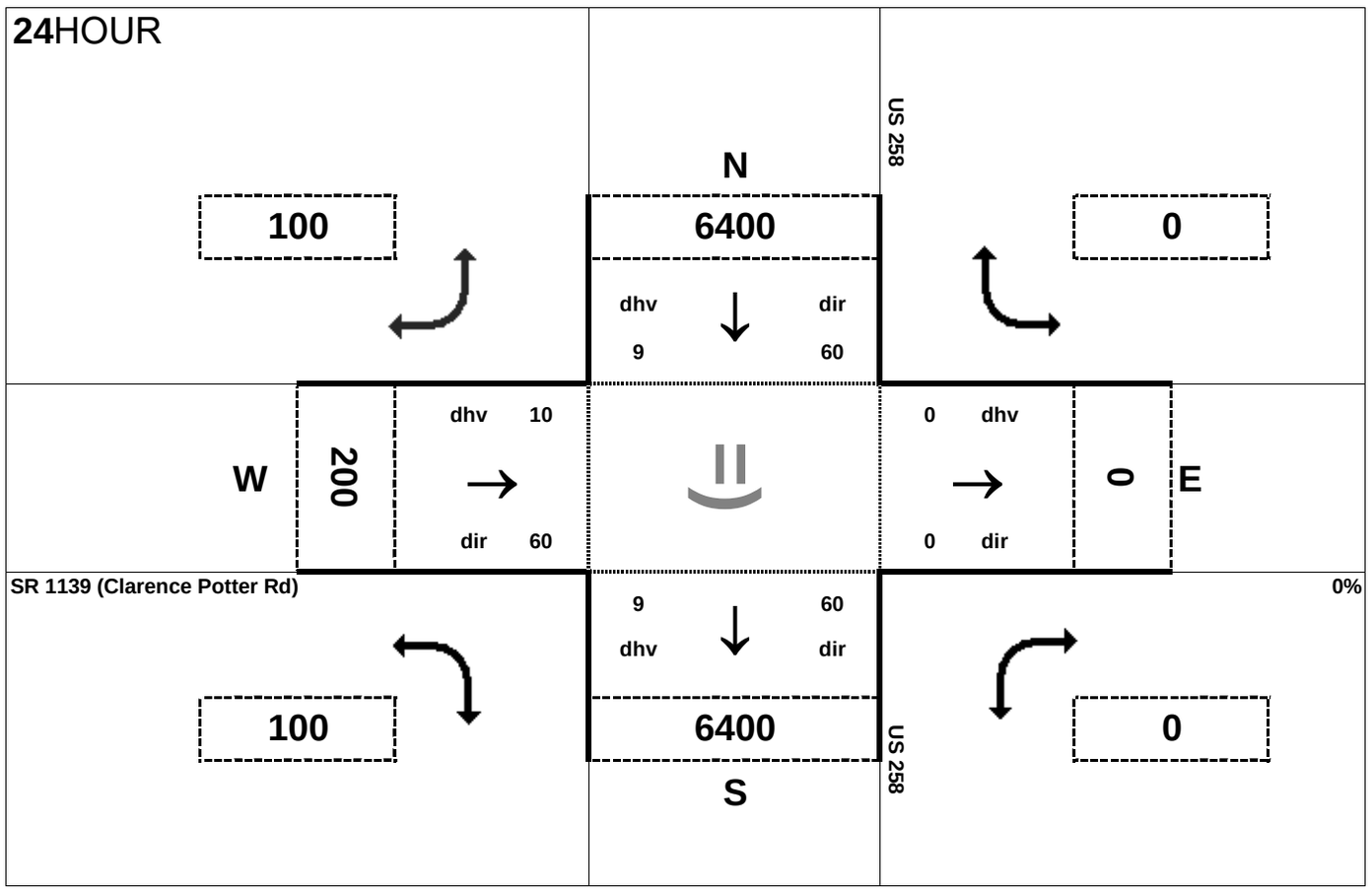
Peak Hour Volume Breakouts Report:
411 Intersection of US 258 and SR 1139 (Clarence Potter Rd)

Traffic Forecast Release Date:
November-16

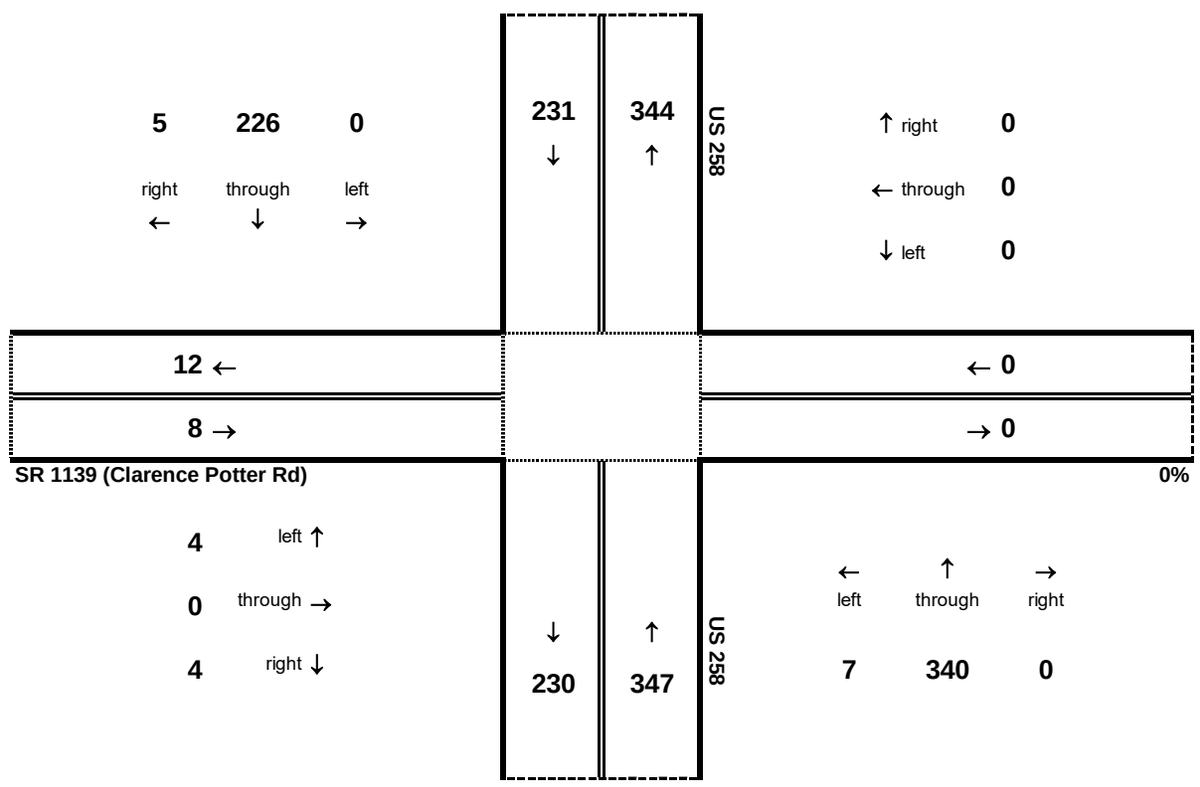
Traffic Data Year:
2040 Build Alt 35

Project:
R-2553

24HOUR

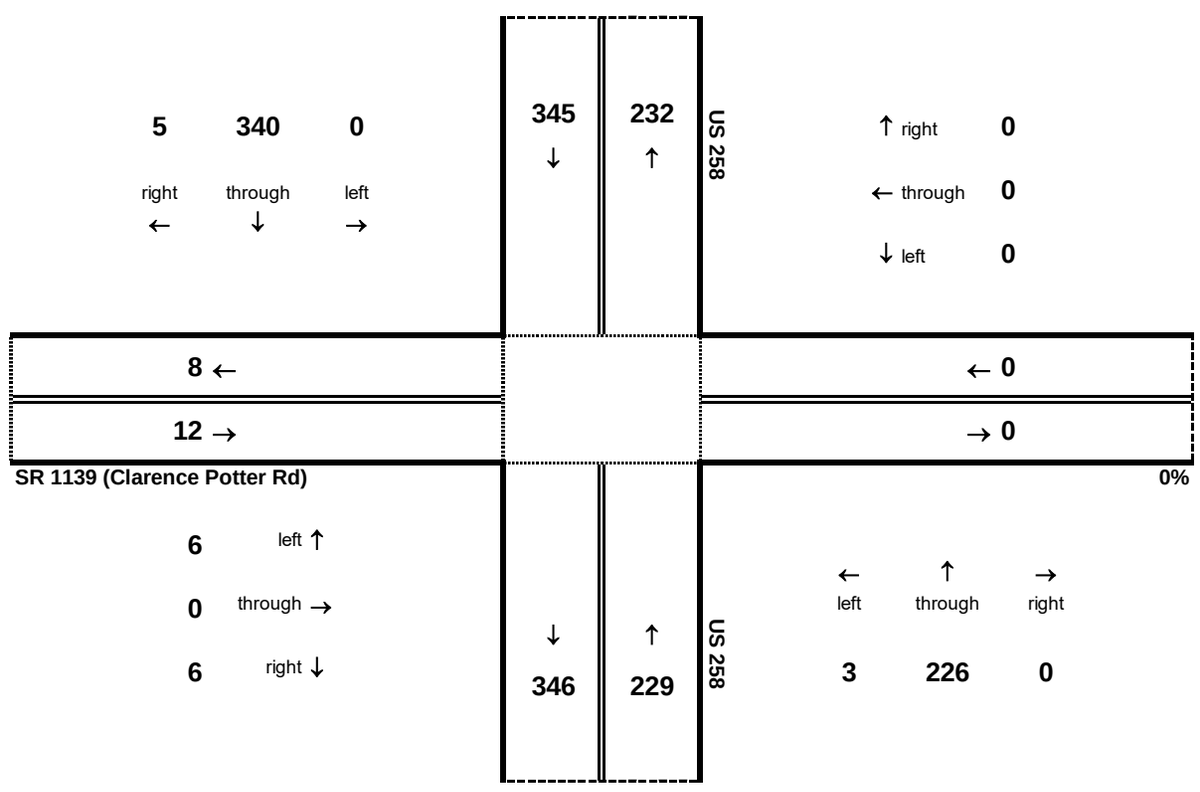


AMPEAK



AM peak hour inflow is 586 vehicles. AM peak hour outflow is 586 vehicles.

PMPEAK



PM peak hour inflow is 586 vehicles. PM peak hour outflow is 586 vehicles.

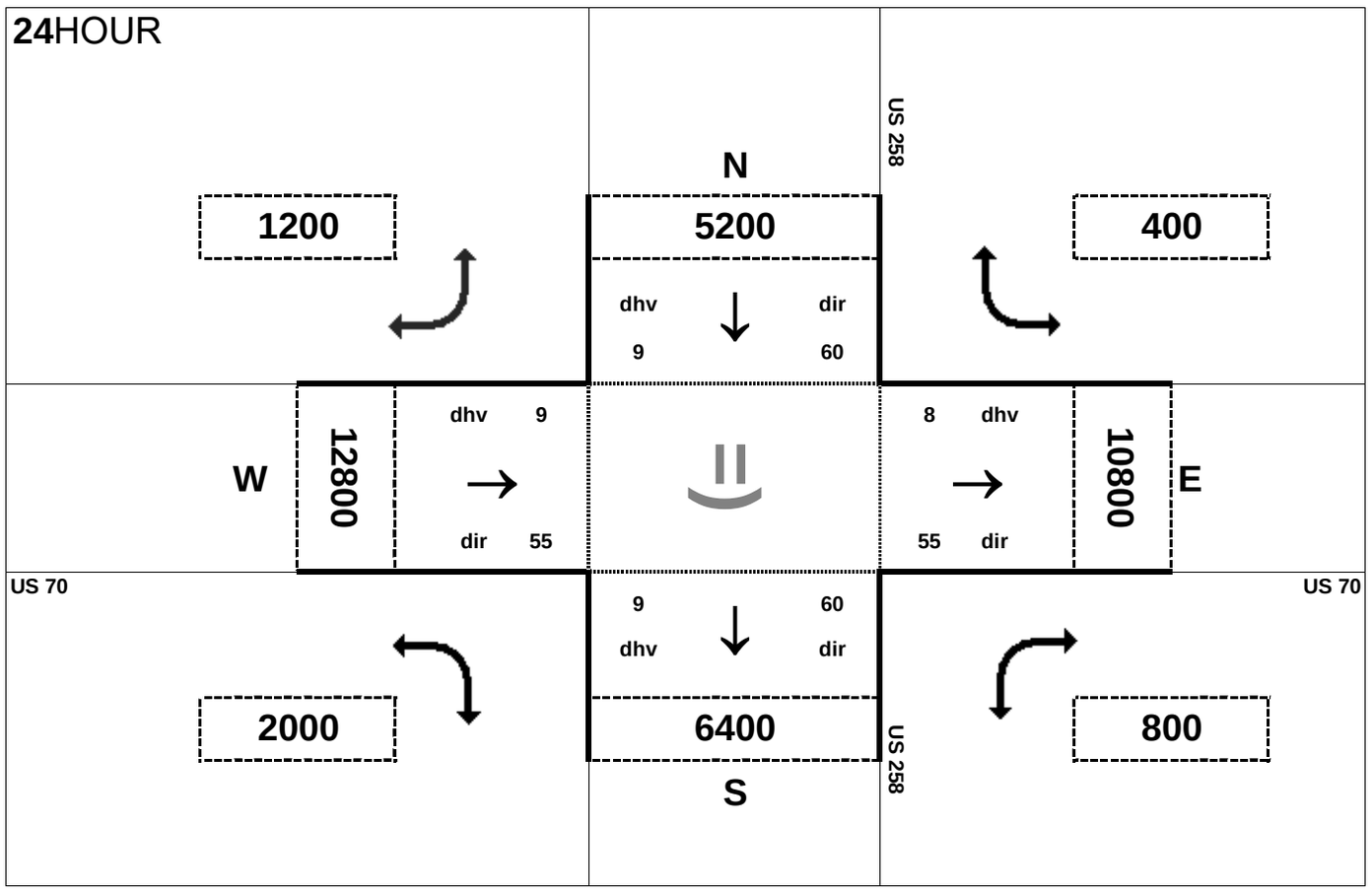
Peak Hour Volume Breakouts Report:
412-13 Intersection of US 70 and US 258

Traffic Forecast Release Date:
November-16

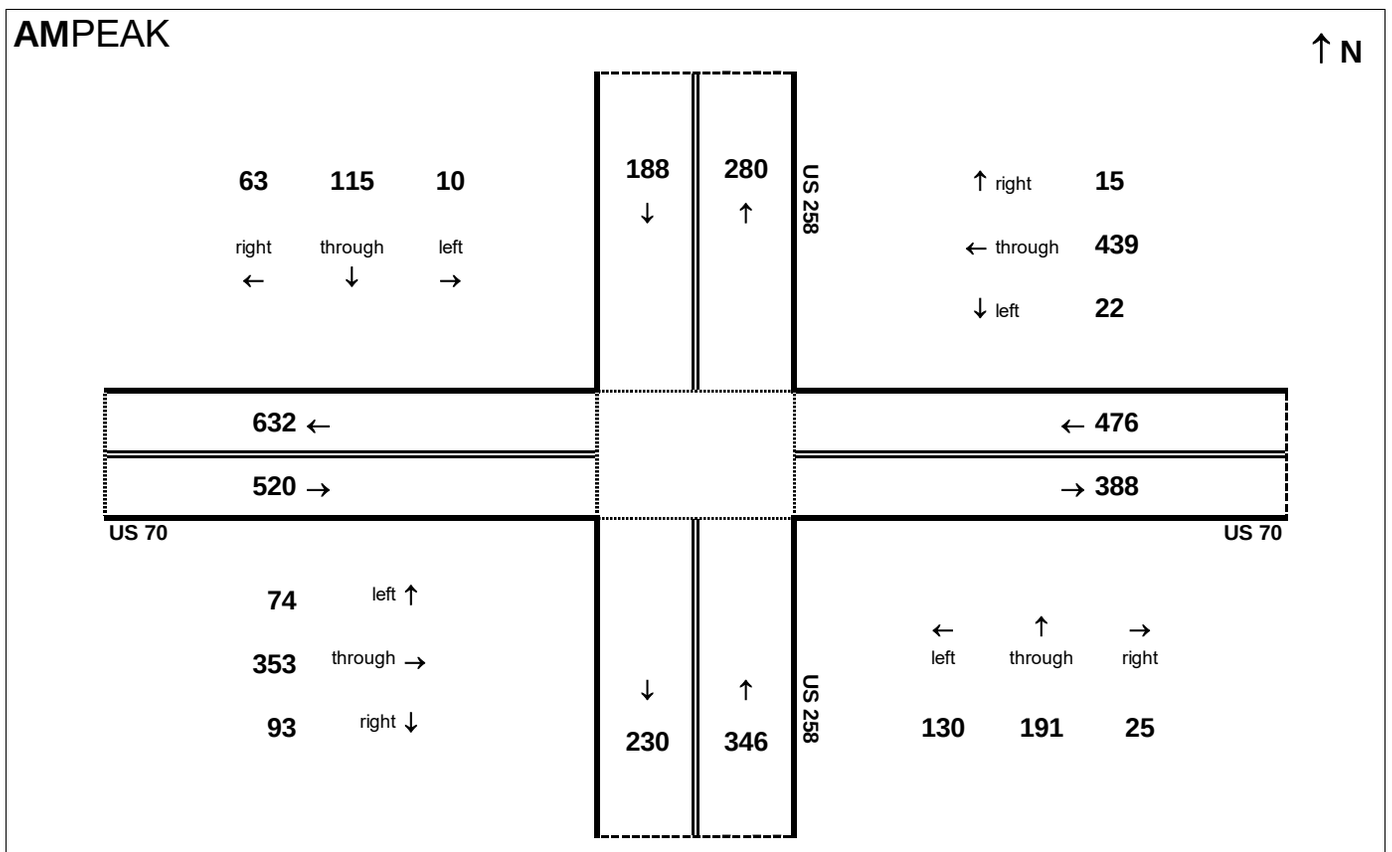
Traffic Data Year:
2040 Build Alt 35

Project:
R-2553

24HOUR

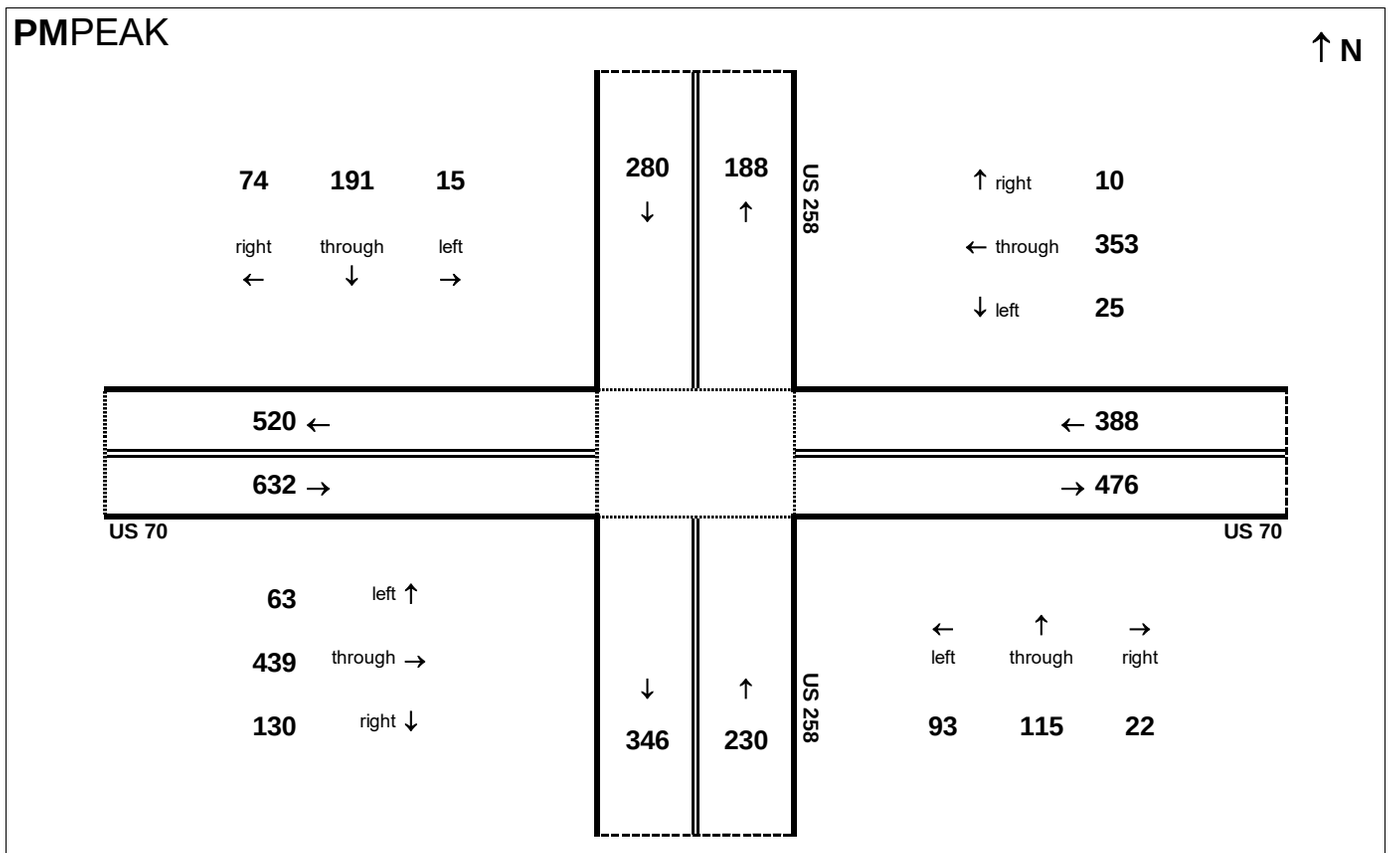


AMPEAK



AM peak hour inflow is 1530 vehicles. AM peak hour outflow is 1530 vehicles.

PMPEAK



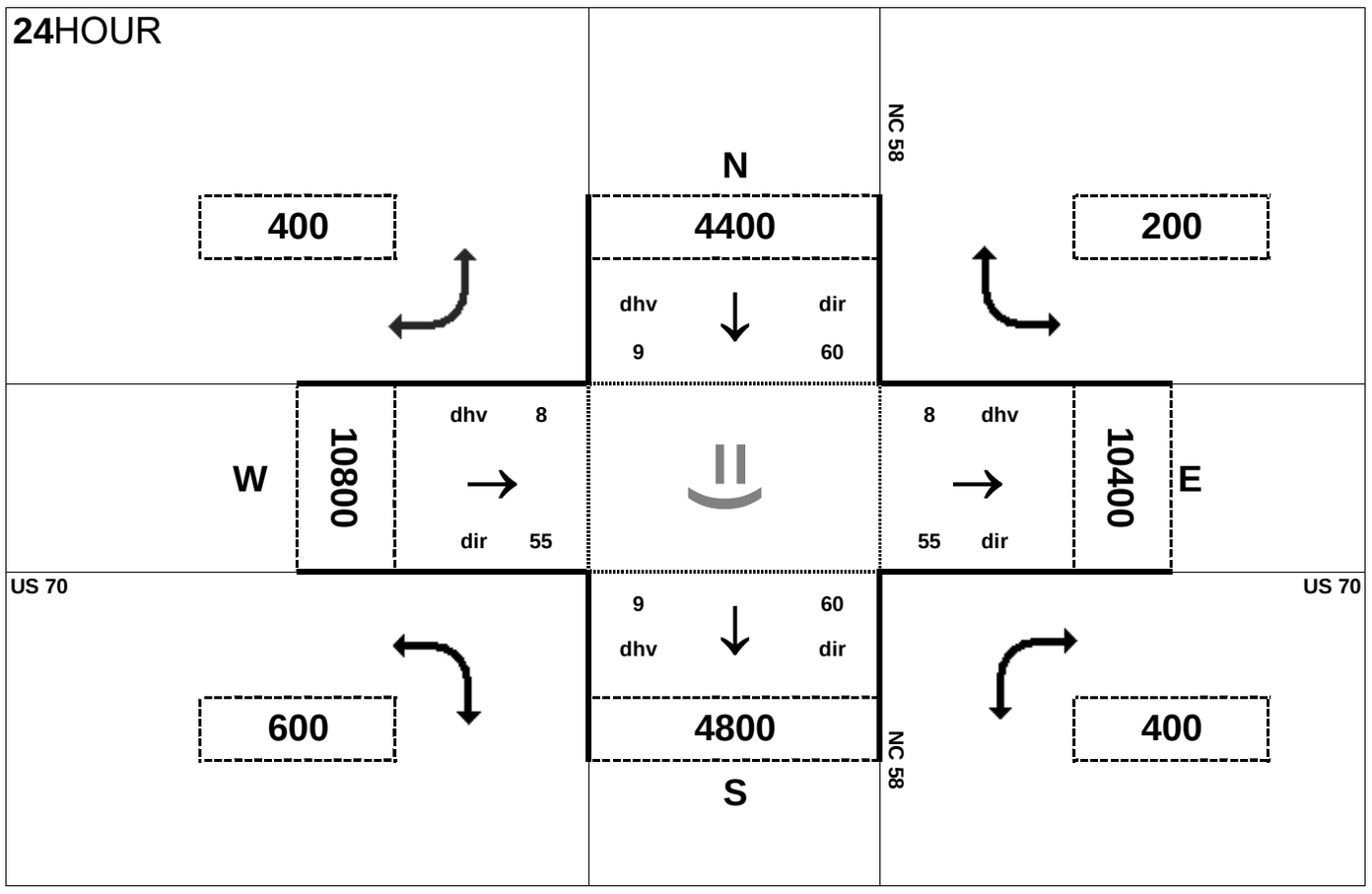
PM peak hour inflow is 1530 vehicles. PM peak hour outflow is 1530 vehicles.

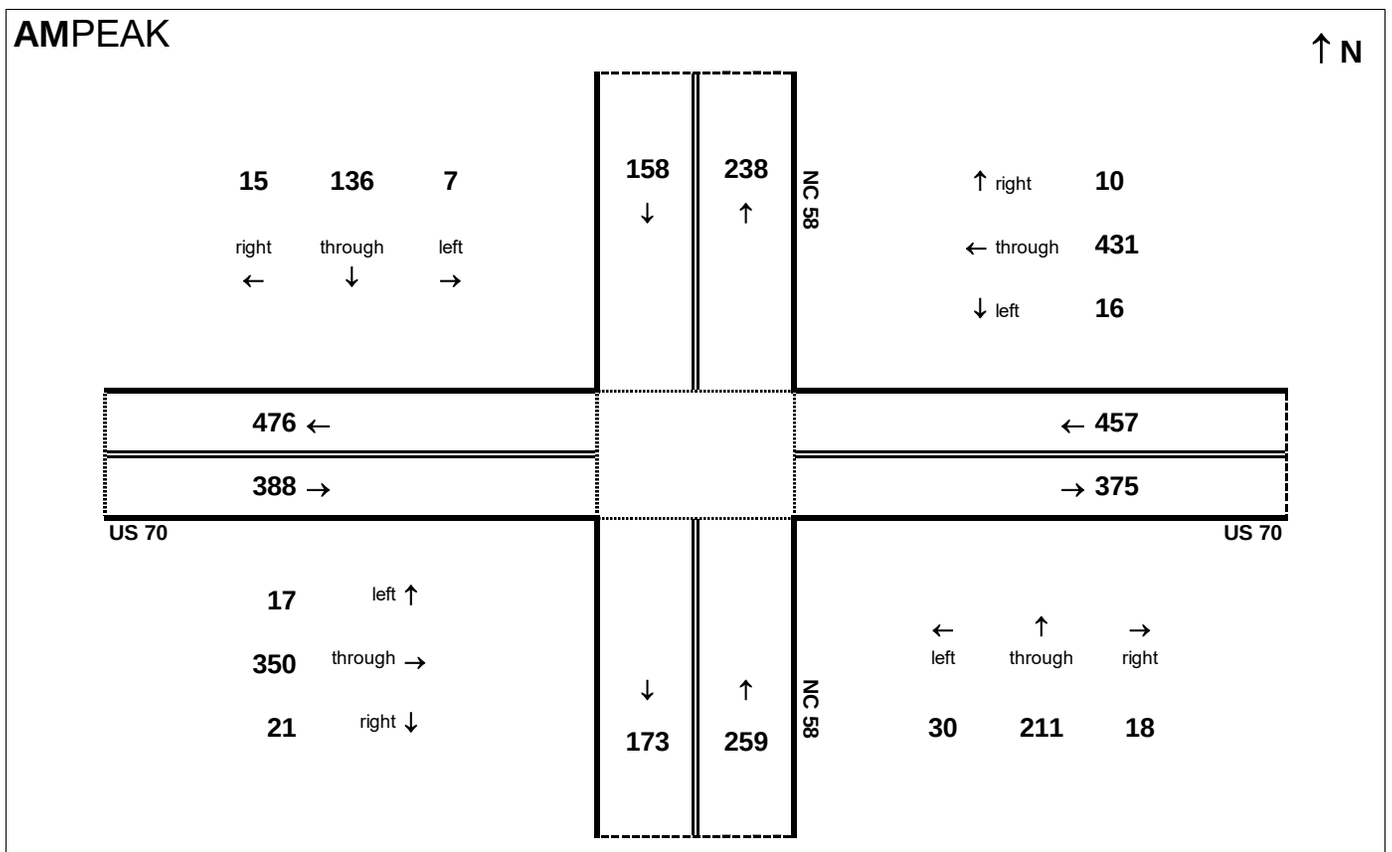
Peak Hour Volume Breakouts Report:
414-15 Intersection of US 70 and NC 58

Traffic Forecast Release Date:
November-16

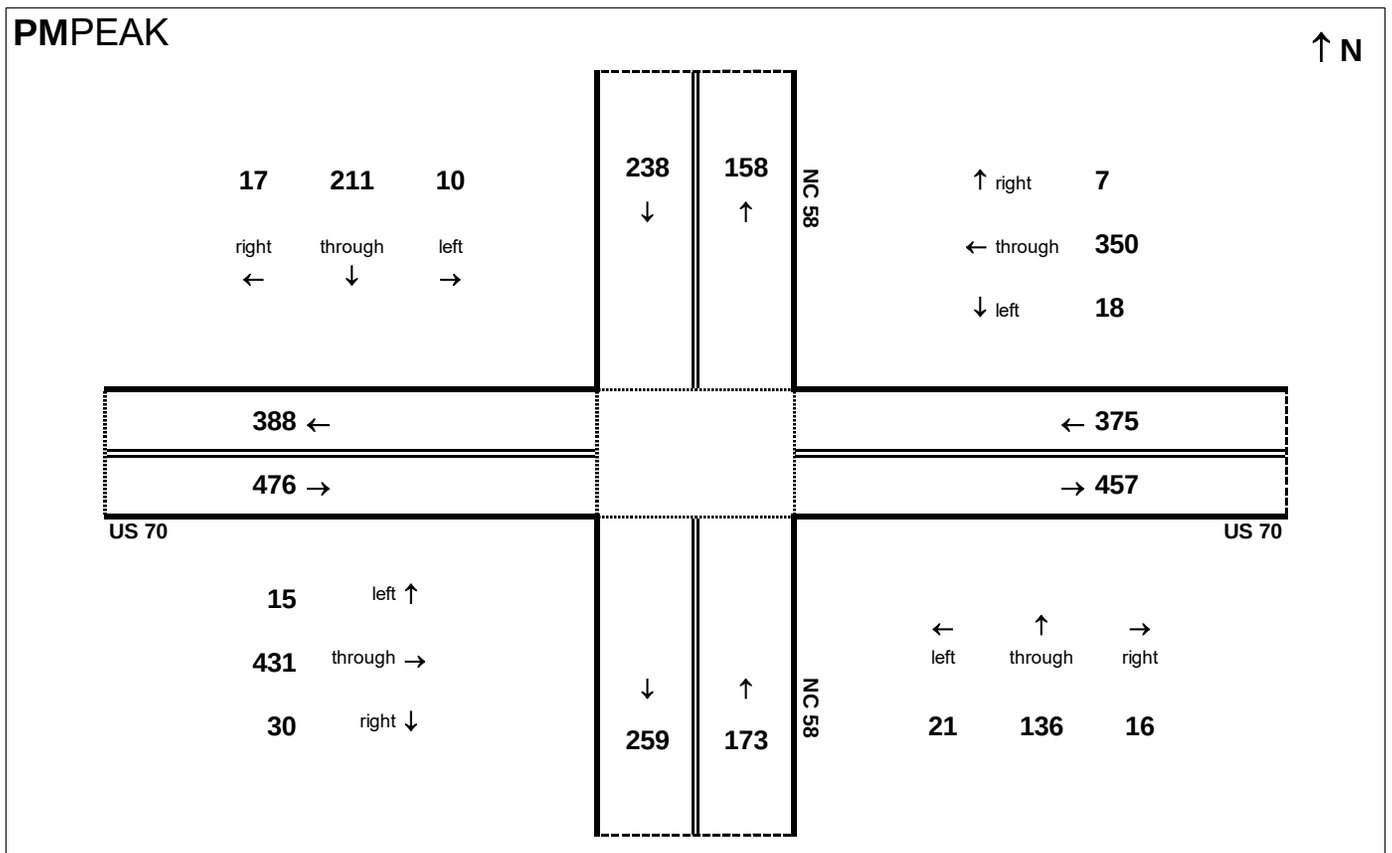
Traffic Data Year:
2040 Build Alt 35

Project:
R-2553





AM peak hour inflow is 1262 vehicles. AM peak hour outflow is 1262 vehicles.



PM peak hour inflow is 1262 vehicles. PM peak hour outflow is 1262 vehicles.

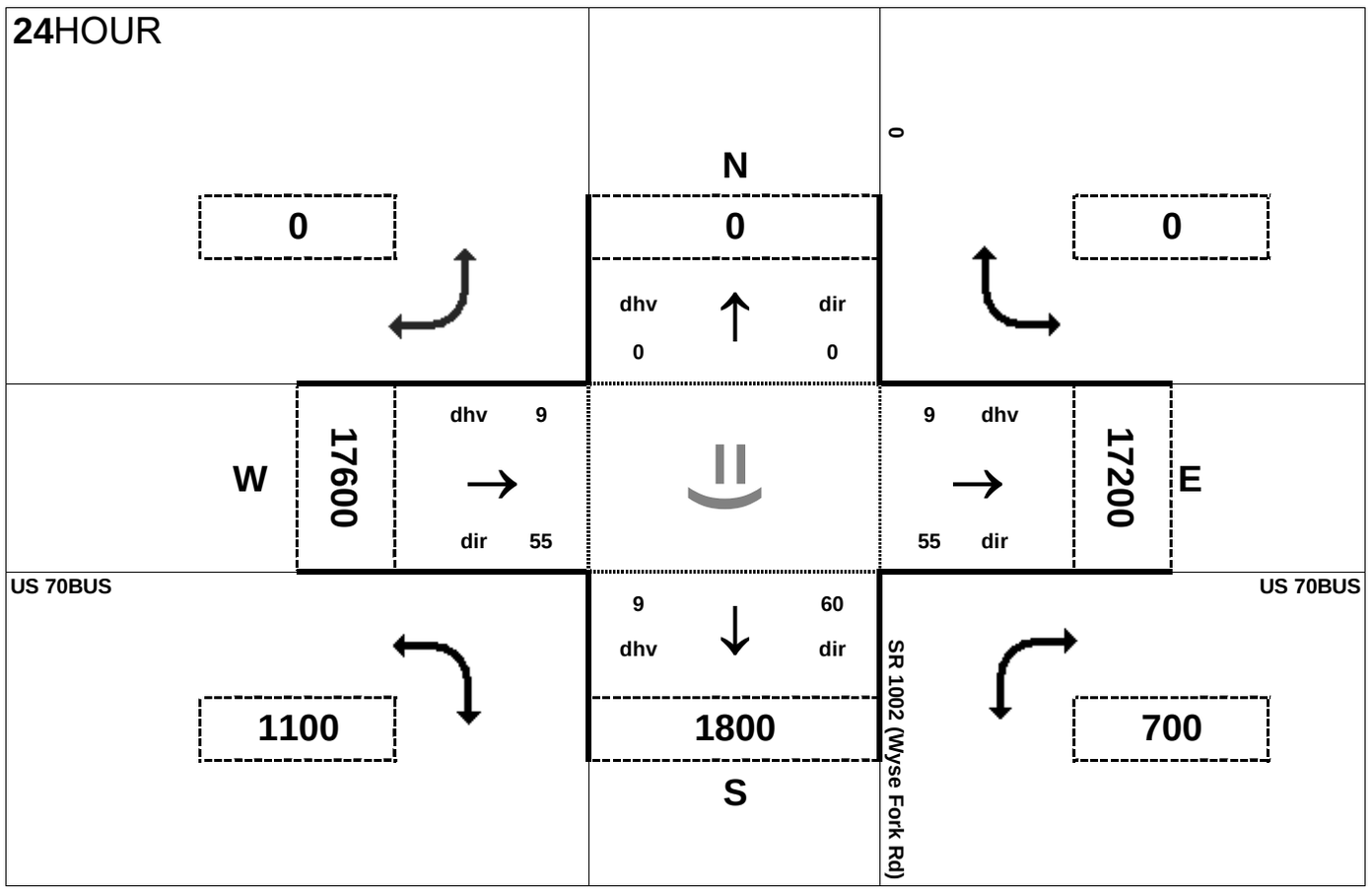
Peak Hour Volume Breakouts Report:
416 Intersection of US 70BUS and SR 1002 (Wyse Fork Rd)

Traffic Forecast Release Date:
November-16

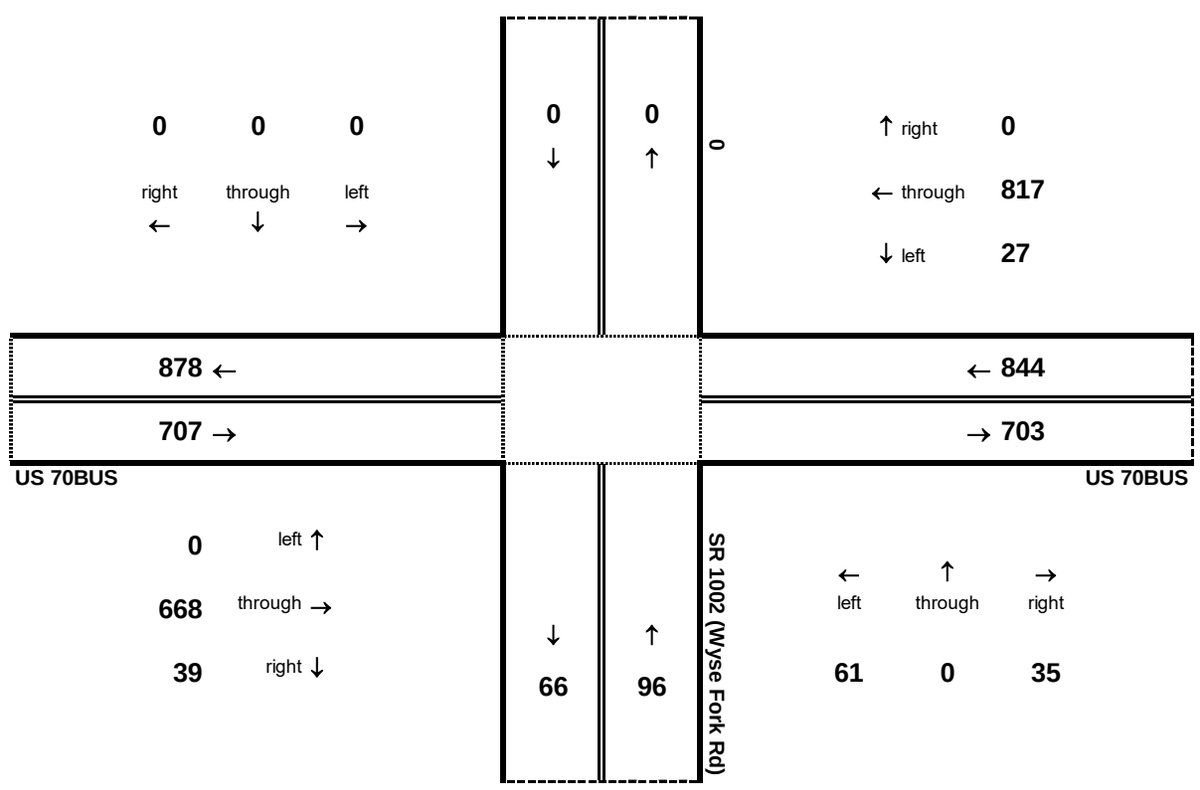
Traffic Data Year:
2040 Build Alt 35

Project:
R-2553

24HOUR

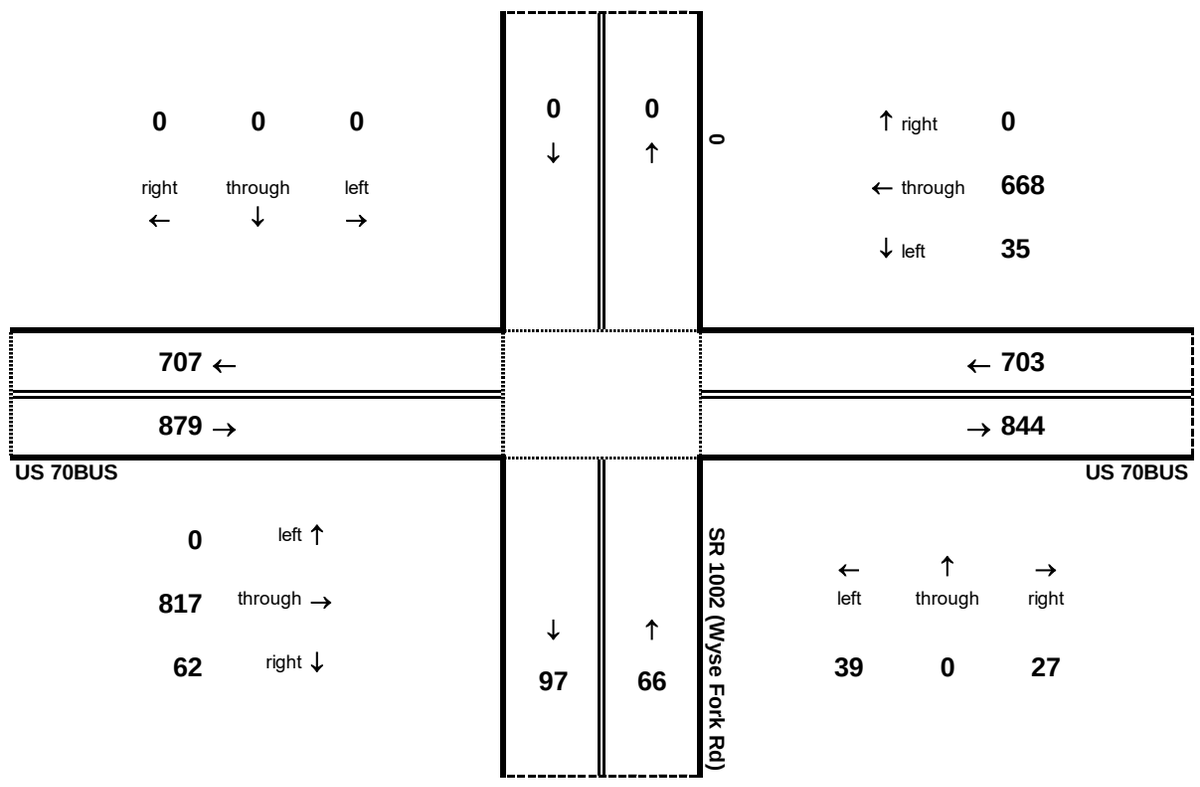


AMPEAK



AM peak hour inflow is 1646 vehicles. AM peak hour outflow is 1647 vehicles.

PMPEAK



PM peak hour inflow is 1647 vehicles. PM peak hour outflow is 1647 vehicles.

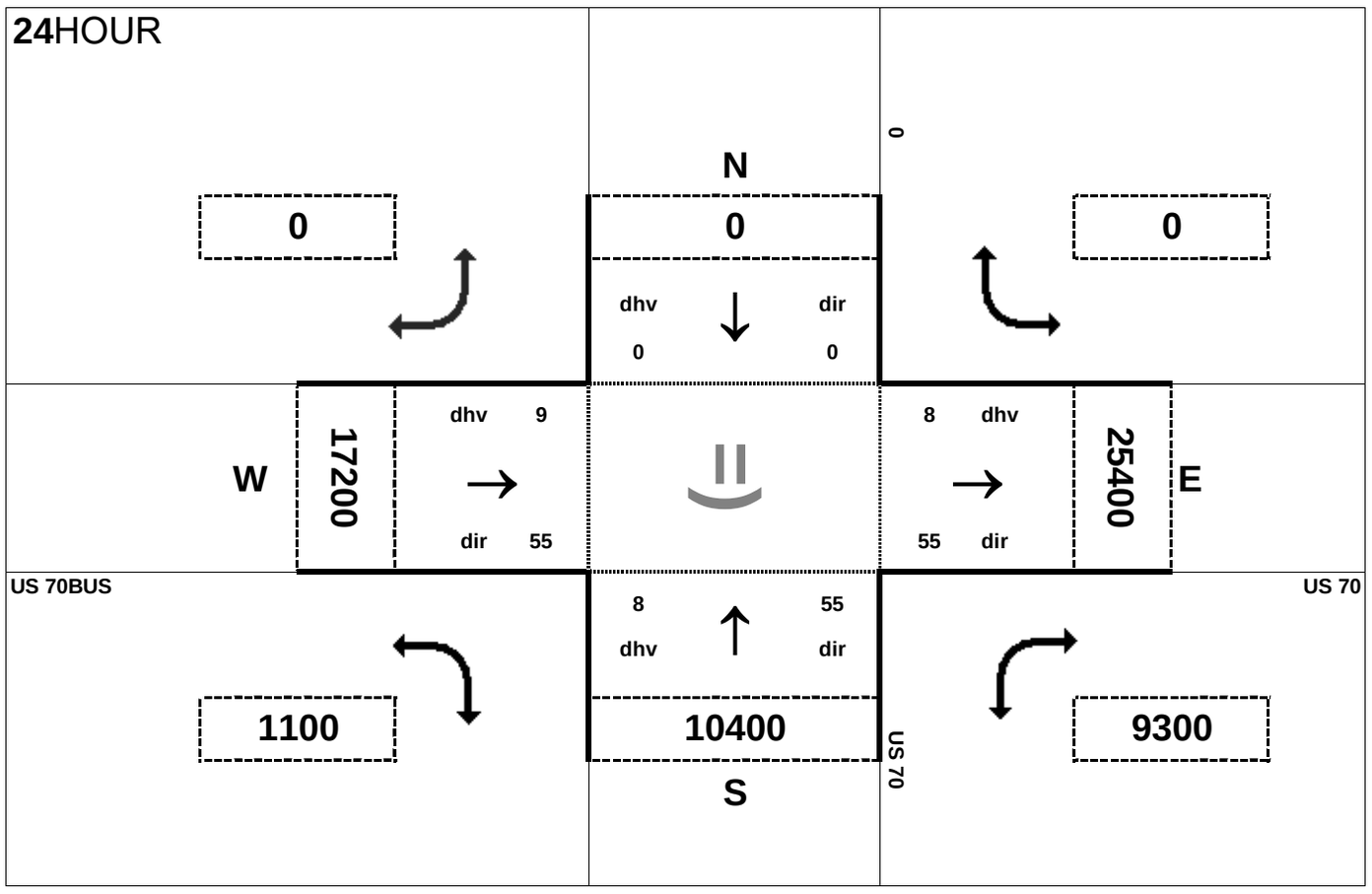
Peak Hour Volume Breakouts Report:
System 2 - Intersection of US 70 and eastern US 70BUS

Traffic Forecast Release Date:
November-16

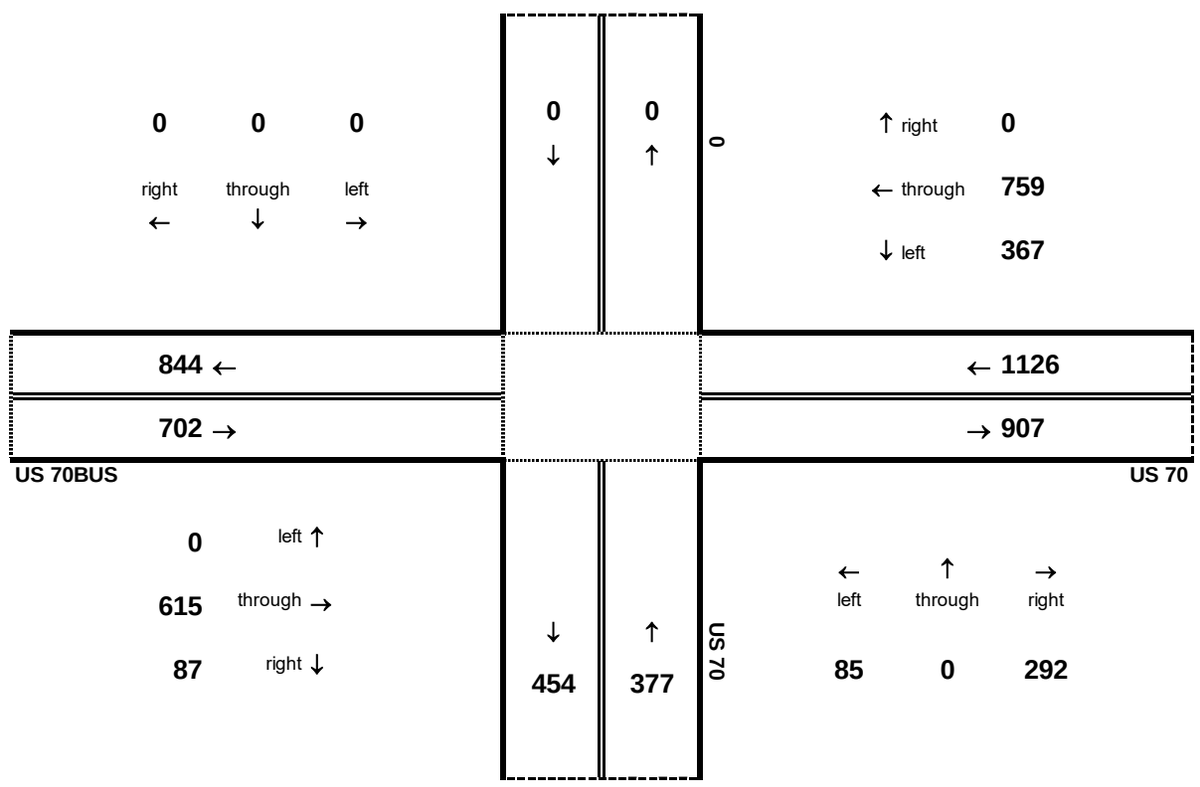
Traffic Data Year:
2040 Build Alt 35

Project:
R-2553

24HOUR

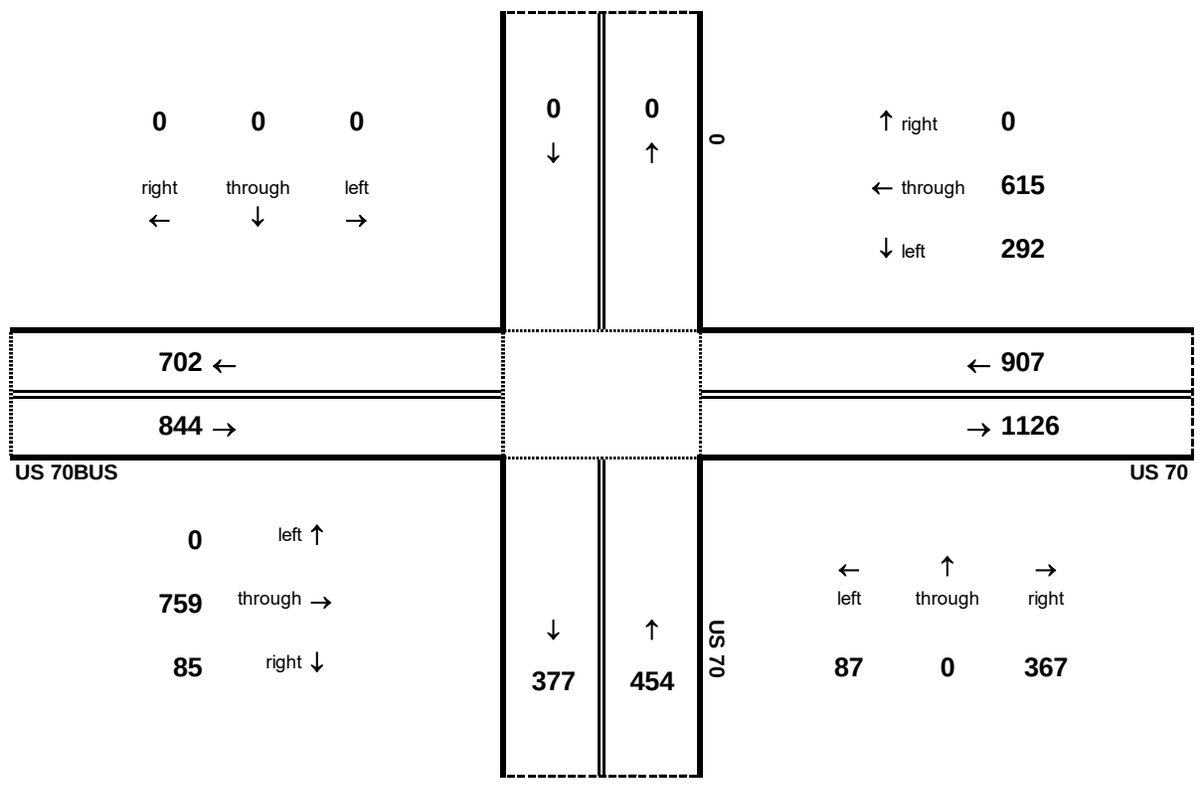


AMPEAK



AM peak hour inflow is 2205 vehicles. AM peak hour outflow is 2206 vehicles.

PMPEAK



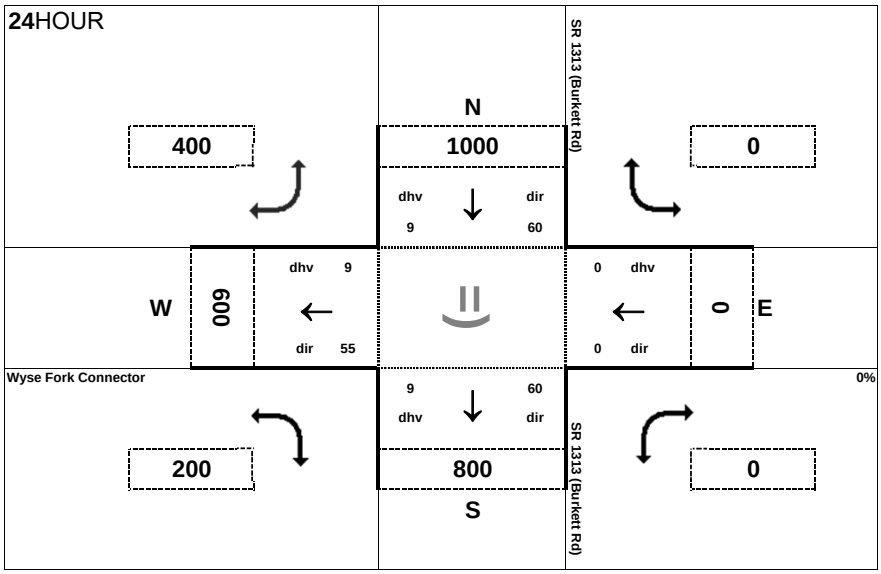
PM peak hour inflow is 2206 vehicles. PM peak hour outflow is 2205 vehicles.

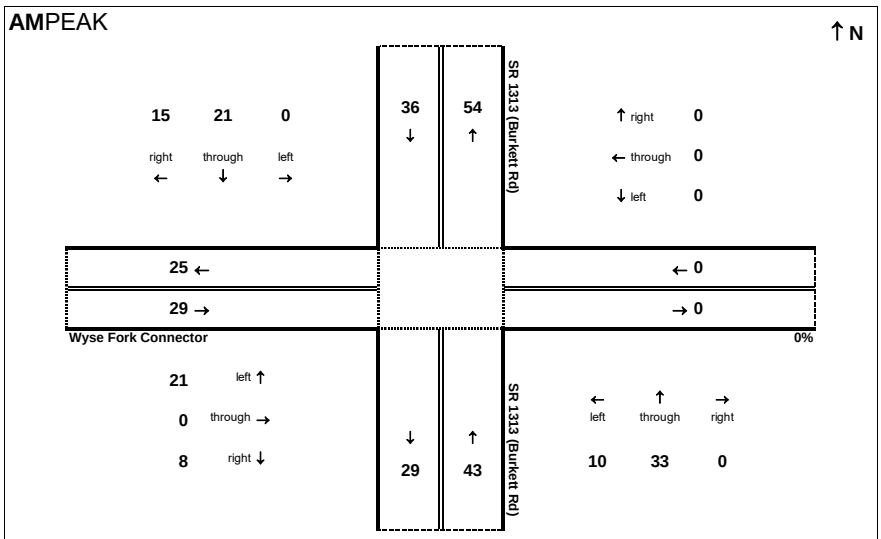
Peak Hour Volume Breakouts Report:
417 Intersection of SR 1313 (Burkett Rd) and Wyse Fork Connector

Traffic Forecast Release Date:
November-16

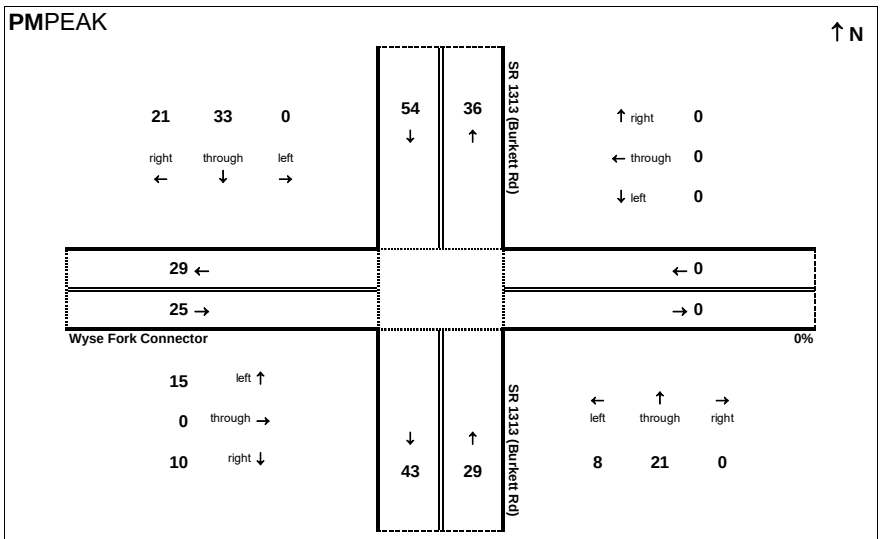
Traffic Data Year:
2040 Build Alt 35

Project:
R-2553





AM peak hour inflow is 108 vehicles. AM peak hour outflow is 108 vehicles.



PM peak hour inflow is 108 vehicles. PM peak hour outflow is 108 vehicles.

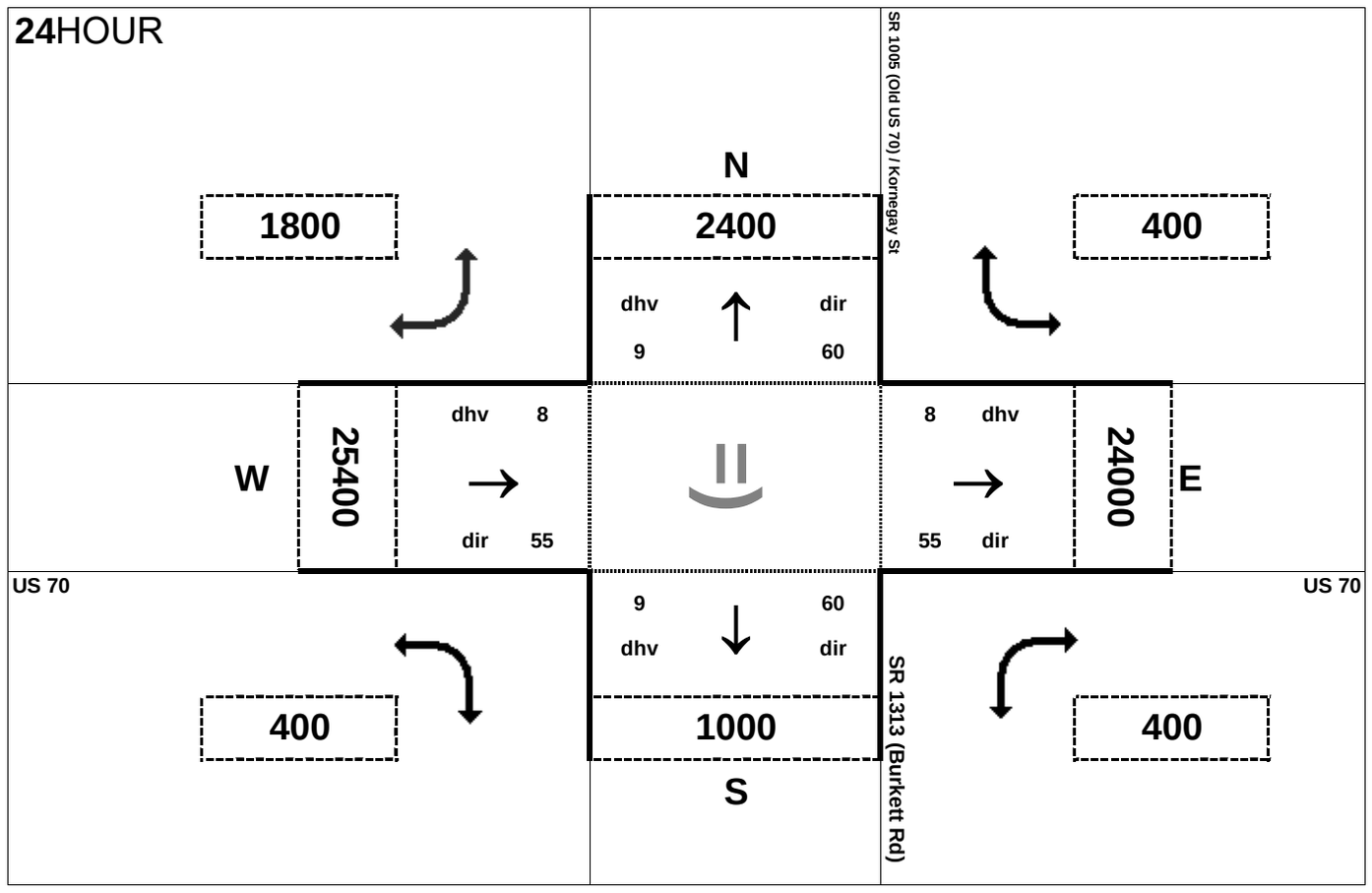
Peak Hour Volume Breakouts Report:
418-19 Intersection of US 70 and SR 1313 (Burkett Rd)/ SR 1005 (Old US 70)

Traffic Forecast Release Date:
November-16

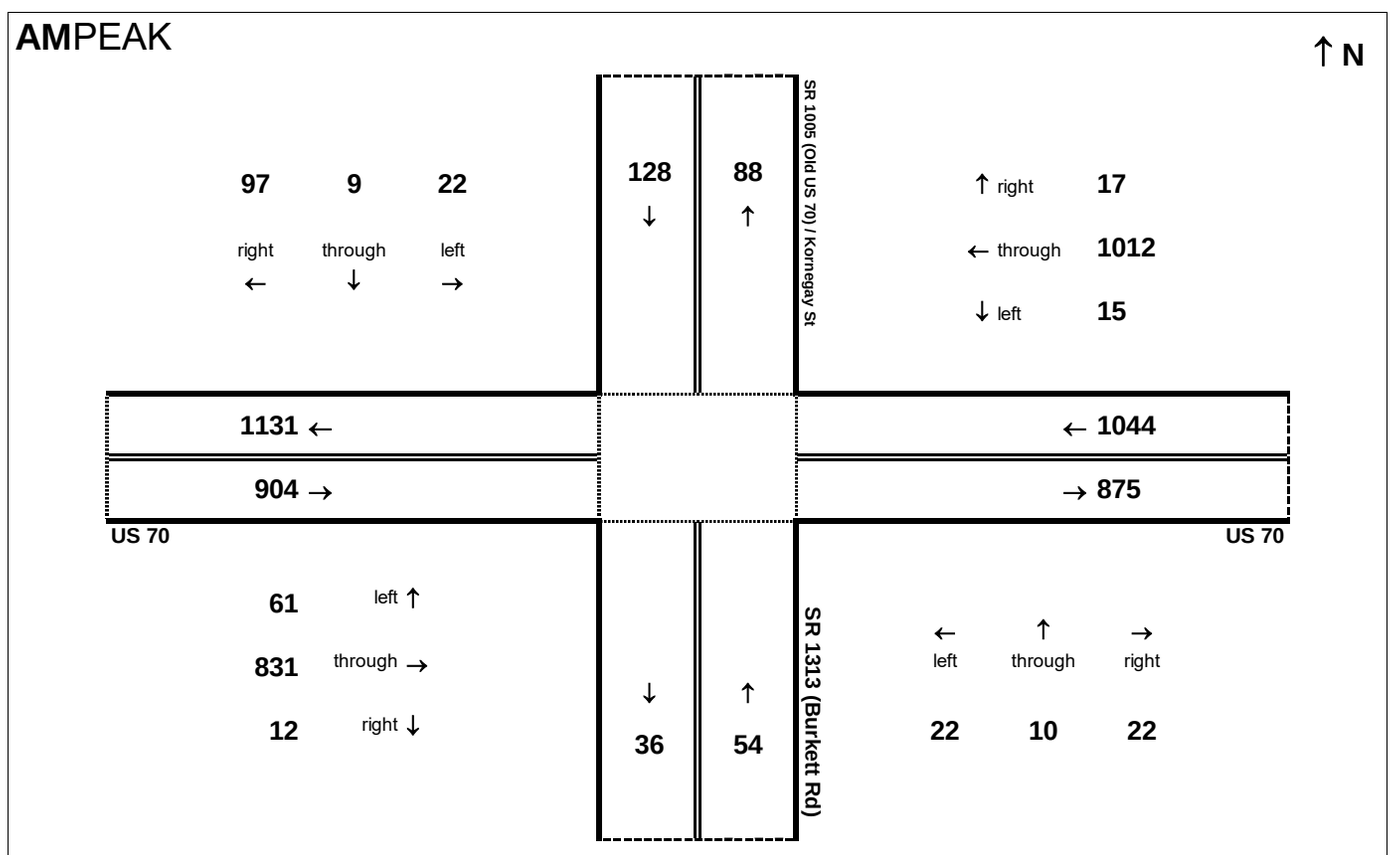
Traffic Data Year:
2040 Build Alt 35

Project:
R-2553

24HOUR

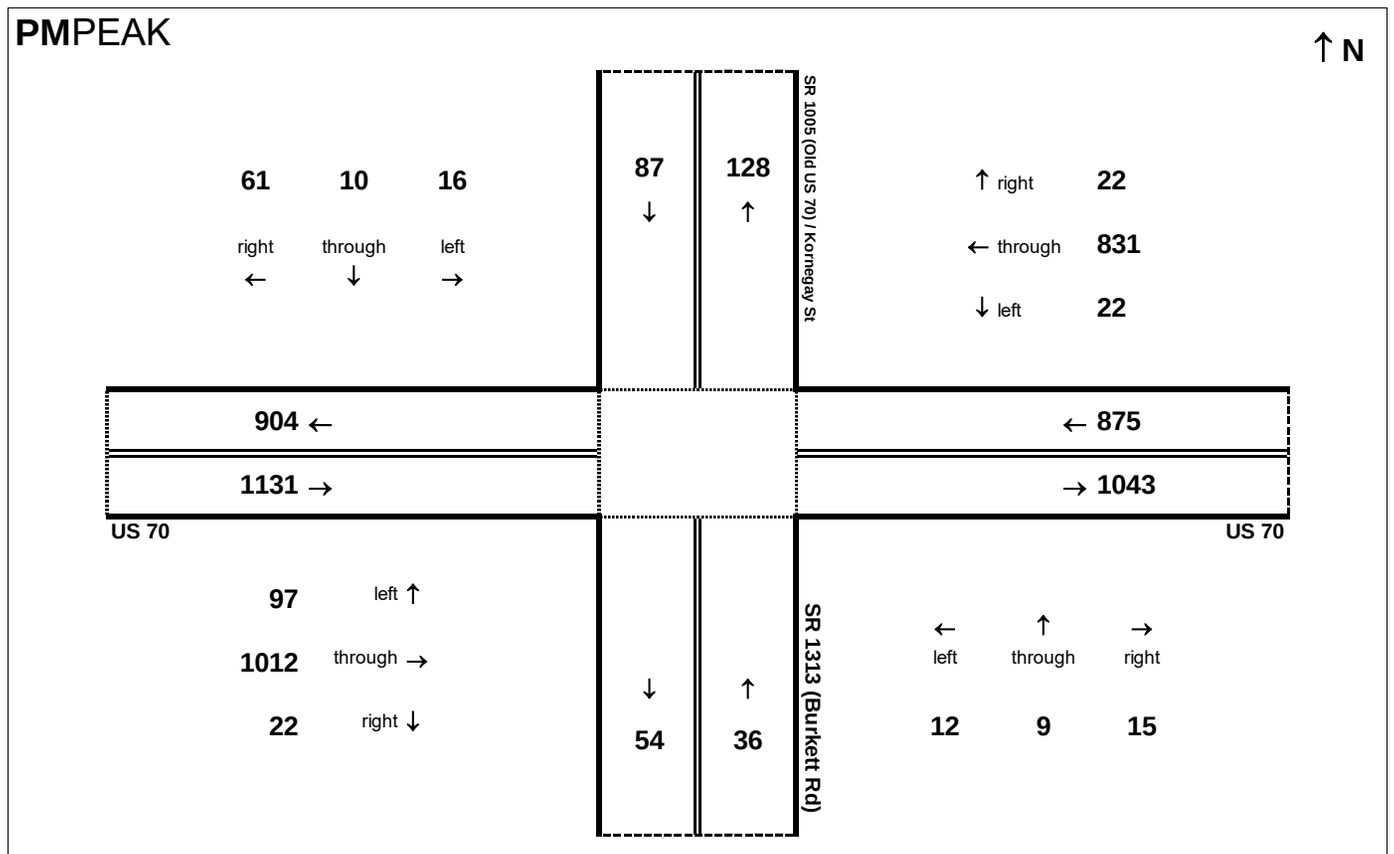


AMPEAK



AM peak hour inflow is 2129 vehicles. AM peak hour outflow is 2128 vehicles.

PMPEAK



PM peak hour inflow is 2128 vehicles. PM peak hour outflow is 2129 vehicles.

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R-2553 Kinson Bypass

2040 Build Alternative 35

Step 1 - Calculating Basic Freeway Segment Volumes

Basic Freeway Segment Volumes - Eastbound							
Segment	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)	36,200	0.09	0.45	3,258	1,792	1,466
5E	US 70 EB - SR 1690 (Willie Measley Rd) to US 70BUS	39,200	0.09	0.45	3,528	1,940	1,588
9E	US 70 EB - US 70BUS to NC 55	13,400	0.09	0.55	1,206	543	663
13E	US 70 EB - NC 55 to NC 11	12,400	0.09	0.55	1,116	502	614
17E	US 70 EB - NC 11 to US 258	12,800	0.09	0.55	1,152	518	634
21E	US 70 EB - US 258 to NC 58	10,800	0.08	0.55	864	389	475
25E	US 70 EB - NC 58 to US 70BUS	10,400	0.08	0.55	832	374	458
29E	US 70 EB - US 70BUS to Kornegay St	25,400	0.08	0.55	2,032	914	1,118
33E	US 70 EB - East of Kornegay St	24,000	0.08	0.55	1,920	864	1,056

Basic Freeway Segment Volumes - Westbound							
Segment	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1W	US 70 WB - East of Kornegay St	24,000	0.08	0.45	1,920	1,056	864
5W	US 70 WB - US 70BUS to Kornegay St	25,400	0.08	0.45	2,032	1,118	914
9W	US 70 WB - NC 58 to US 70BUS	10,400	0.08	0.45	832	458	374
13W	US 70 WB - US 258 to NC 58	10,800	0.08	0.45	864	475	389
17W	US 70 WB - NC 11 to US 258	12,800	0.09	0.45	1,152	634	518
21W	US 70 WB - NC 55 to NC 11	12,400	0.09	0.45	1,116	614	502
25W	US 70 WB - US 70BUS to NC 55	13,400	0.09	0.45	1,206	663	543
29W	US 70 WB - SR 1690 (Willie Measley Rd) to US 70BUS	39,200	0.09	0.55	3,528	1,588	1,940
33W	US 70 WB - West of SR 1690 (Willie Measley Rd)	36,200	0.09	0.55	3,258	1,466	1,792

R-2553 Kinson Bypass
2040 Build Alternative 35
Step 2 - Compiling Ramp Volumes

Ramp Volumes								
Description	EB Exit		WB Entrance		EB Entrance		WB Exit	
	AM	PM	AM	PM	AM	PM	AM	PM
US 70 at SR 1690 (Willie Measley Rd)	177	196	196	177	377	276	276	377
US 70 at US70BUS (western)	1,422	954	955	1,421	19	35	34	20
US 70 at NC 55	112	133	133	112	78	77	77	78
US 70 at NC 11	134	148	148	134	154	163	163	154
US 70at US 258	167	193	193	167	35	37	37	35
US 70 at NC 58	38	45	45	38	25	26	26	25
US 70 at US 70BUS (eastern)	85	87	87	85	615	759	759	615
US 70 at Kornegay St	73	119	119	73	44	31	32	44

R-2553 Kinson Bypass
2040 Build Alternative 35
Step 3 - Adjusting All Segment Volumes

Eastbound Adjusted Segment Volumes						
Segment	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)	0.9	1,792	1,466	1,991	1,629
2E	US 70 EB - to SR 1690 (Willie Measley Rd)	0.9	177	196	197	218
4E	US 70 EB - from SR 1690 (Willie Measley Rd)	0.9	377	276	419	306
5E	US 70 EB - SR 1690 (Willie Measley Rd) to US 70BUS	0.9	1,940	1,588	2,156	1,764
6E	US 70 EB - to US70BUS (western int)	0.9	1,422	954	1,580	1,060
8E	US 70 EB - from US70BUS (western int)	0.9	19	35	21	39
9E	US 70 EB - US 70BUS to NC 55	0.9	543	663	603	737
10E	US 70 EB - to NC 55	0.9	112	133	124	148
12E	US 70 EB - from NC 55	0.9	78	77	87	85
13E	US 70 EB - NC 55 to NC 11	0.9	502	614	558	682
14E	US 70 EB - to NC 11	0.9	134	148	149	164
16E	US 70 EB - from NC 11	0.9	154	163	171	181
17E	US 70 EB - NC 11 to US 258	0.9	518	634	576	704
18E	US 70 EB - to US 258	0.9	167	193	186	214
20E	US 70 EB - from US 258	0.9	35	37	39	41
21E	US 70 EB - US 258 to NC 58	0.9	389	475	432	528
22E	US 70 EB - to NC 58	0.9	38	45	42	50
24E	US 70 EB - from NC 58	0.9	25	26	28	29
25E	US 70 EB - NC 58 to US 70BUS	0.9	374	458	416	508
26E	US 70 EB - to US70BUS (eastern int)	0.9	85	87	94	97
28E	US 70 EB - from US70BUS (eastern int)	0.9	615	759	683	843
29E	US 70 EB - US 70BUS to Kornegay St	0.9	914	1,118	1,016	1,242
30E	US 70 EB - to Kornegay St	0.9	73	119	81	132
32E	US 70 EB - to Kornegay St	0.9	44	31	49	35
33E	US 70 EB - East of Kornegay St	0.9	864	1,056	960	1,173

	AM	PM
Max Volume	2,156	1,764

XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 35
Step 3 - Adjusting All Segment Volumes

Westbound Adjusted Segment Volumes						
Segment	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1W	US 70 WB - East of Kornegay St	0.9	1,056	864	1,173	960
2W	US 70 WB - to Kornegay St	0.9	32	44	36	49
4W	US 70 WB - to Kornegay St	0.9	119	73	132	81
5W	US 70 WB - US 70BUS to Kornegay St	0.9	1,118	914	1,242	1,016
6W	US 70 WB - to US70BUS (eastern int)	0.9	759	615	843	683
8W	US 70 WB - from US70BUS (eastern int)	0.9	87	85	97	94
9W	US 70 WB - NC 58 to US 70BUS	0.9	458	374	508	416
10W	US 70 WB - to NC 58	0.9	26	25	29	28
12W	US 70 WB - from NC 58	0.9	45	38	50	43
13W	US 70 WB - US 258 to NC 58	0.9	475	389	528	432
14W	US 70 WB - to US 258	0.9	37	35	41	39
16W	US 70 WB - from US 258	0.9	193	167	214	186
17W	US 70 WB - NC 11 to US 258	0.9	634	518	704	576
18W	US 70 WB - to NC 11	0.9	163	154	181	171
20W	US 70 WB - from NC 11	0.9	148	134	164	149
21W	US 70 WB - NC 55 to NC 11	0.9	614	502	682	558
22W	US 70 WB - to NC 55	0.9	77	78	86	87
24W	US 70 WB - from NC 55	0.9	133	112	148	125
25W	US 70 WB - US 70BUS to NC 55	0.9	663	543	737	603
26W	US 70 WB - to US70BUS (western int)	0.9	34	20	38	22
28W	US 70 WB - from US70BUS (western int)	0.9	955	1,421	1,061	1,579
29W	US 70 WB - SR 1690 (Willie Measley Rd) to US 70BUS	0.9	1,588	1,940	1,764	2,156
30W	US 70 WB - to SR 1690 (Willie Measley Rd)	0.9	276	377	307	419
32W	US 70 WB - from SR 1690 (Willie Measley Rd)	0.9	196	177	218	196
33W	US 70 WB - West of SR 1690 (Willie Measley Rd)	0.9	1,466	1,792	1,629	1,991

	AM	PM
Max Volume	1,764	2,156

XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 35
Step 4 - Balancing Freeway Segment Volumes

US 70 Eastbound Freeway Volume Balancing					
Segment	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)			1,934	1,675
2E	US 70 EB - to SR 1690 (Willie Measley Rd)	197	218		
3E	US 70 EB - within SR 1690 (Willie Measley Rd) Interchange			1,737	1,457
4E	US 70 EB - from SR 1690 (Willie Measley Rd)	419	307		
5E	US 70 EB - SR 1690 (Willie Measley Rd) to US 70BUS			**2,156**	**1,764**
6E	US 70 EB - to US70BUS (western int)	1,580	1,060		
7E	US 70 EB - within US 70BUS (western int)			576	704
8E	US 70 EB - from US70BUS (western int)	22	39		
9E	US 70 EB - US 70BUS to NC 55			598	743
10E	US 70 EB - to NC 55	125	148		
11E	US 70 EB - within NC 55 interchange			473	595
12E	US 70 EB - from NC 55	87	86		
13E	US 70 EB - NC 55 to NC 11			560	681
14E	US 70 EB - to NC 11	149	165		
15E	US 70 EB - within NC 11 interchange			411	516
16E	US 70 EB - from NC 11	172	182		
17E	US 70 EB - NC 11 to US 258			583	698
18E	US 70 EB - to US 258	186	215		
19E	US 70 EB - within US 258 interchange			397	483
20E	US 70 EB - from US 258	39	41		
21E	US 70 EB - US 258 to NC 58			436	524
22E	US 70 EB - to NC 58	43	50		
23E	US 70 EB - within NC 58 interchange			393	474
24E	US 70 EB - from NC 58	28	29		
25E	US 70 EB - NC 58 to US 70BUS			421	503
26E	US 70 EB - to US70BUS (eastern int)	95	97		
27E	US 70 EB - within US 70BUS (eastern int)			326	406
28E	US 70 EB - from US70BUS (eastern int)	684	844		
29E	US 70 EB - US 70BUS to Kornegay St			1,010	1,250
30E	US 70 EB - to Kornegay St	82	133		
31E	US 70 EB - within Kornegay St interchange			928	1,117
32E	US 70 EB - from Kornegay St	49	35		
33E	US 70 EB - East of Kornegay St			977	1,152

	Max volume balance point
XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 35
Step 4 - Balancing Freeway Segment Volumes

US 70 Westbound Freeway Volume Balancing					
Segment	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1W	US 70 WB - East of Kornegay St			1,151	980
2W	US 70 WB - to Kornegay St	36	49		
3W	US 70 WB - within Kornegay St interchange			1,115	931
4W	US 70 WB - to Kornegay St	133	81		
5W	US 70 WB - US 70BUS to Kornegay St			1,248	1,012
6W	US 70 WB - to US70BUS (eastern int)	844	684		
7W	US 70 WB - within US 70BUS (eastern int)			404	328
8W	US 70 WB - from US70BUS (eastern int)	97	95		
9W	US 70 WB - NC 58 to US 70BUS			501	423
10W	US 70 WB - to NC 58	29	28		
11W	US 70 WB - within NC 58 interchange			472	395
12W	US 70 WB - from NC 58	50	43		
13W	US 70 WB - US 258 to NC 58			522	438
14W	US 70 WB - to US 258	42	39		
15W	US 70 WB - within US 258 interchange			480	399
16W	US 70 WB - from US 258	215	186		
17W	US 70 WB - NC 11 to US 258			695	585
18W	US 70 WB - to NC 11	182	172		
19W	US 70 WB - within NC 11 interchange			513	413
20W	US 70 WB - from NC 11	165	149		
21W	US 70 WB - NC 55 to NC 11			678	562
22W	US 70 WB - to NC 55	86	87		
23W	US 70 WB - withn NC 55 interchange			592	475
24W	US 70 WB - from NC 55	148	125		
25W	US 70 WB - US 70BUS to NC 55			740	600
26W	US 70 WB - to US70BUS (western int)	38	23		
27W	US 70 WB - within US 70BUS (western int)			702	577
28W	US 70 WB - from US70BUS (western int)	1,062	1,579		
29W	**US 70 WB - SR 1690 (Willie Measley Rd) to US 70BUS**			**1,764**	**2,156**
30W	US 70 WB - to SR 1690 (Willie Measley Rd)	307	419		
31W	US 70 WB - within SR 1690 (Willie Measley Rd) Interchange			1,457	1,737
32W	US 70 WB - from SR 1690 (Willie Measley Rd)	218	197		
33W	US 70 WB - West of SR 1690 (Willie Measley Rd)			1,675	1,934

	Max volume balance point
XXX	Ramp
XXX	Basic Freeway Segment

2040 Build Alternative 35
FREEVAL-E Reports

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R-2553 US 70 Kinston Bypass, Alternative 35
US 70 EB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1E	2E	3E	4E	5E	6E	7E	8E	9E
General Purpose Segment Name	W of Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	Jim Sutton/Willie Measley to US 70 Bus (W)	To US 70 Bus (W)	Within US 70 Bus (W)	From US 70 Bus (W)	US 70 Bus (W) to NC 55
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	1500	4340	2500	2300	1620	20650
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1934	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	750	N/A	920	N/A	2500	N/A	1620	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	419	N/A	N/A	N/A	21	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	6	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	2	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	60	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	197	N/A	N/A	N/A	1580	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	6	N/A	N/A	N/A
Total Density (pc/mi/ln)	14.3	14.7	12.9	16.9	15.9	0.9	4.3	0.2	4.4
V/C	0.42	0.42	0.38	0.46	0.46	0.46	0.13	0.13	0.13
Density Based LOS	B	B	B	B	B	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 35
US 70 EB - AM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10E	11E	12E	13E	14E	15E	16E	17E	18E
General Purpose Segment Name	To NC 55	Within NC 55	From NC 55	NC 55 to NC 11	To NC 11	Within NC 11	From NC 11	NC 11 to US 258	To US 258
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	6240	1500	1500	1620	10130	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	87	N/A	N/A	N/A	172	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	8	N/A	N/A	N/A	5	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	125	N/A	N/A	N/A	149	N/A	N/A	N/A	186
OFR Single Unit Truck and Bus (%)	8	N/A	N/A	N/A	5	N/A	N/A	N/A	7
Total Density (pc/mi/ln)	2.9	3.5	4.2	4.2	4.9	3.1	0.0	4.3	2.7
V/C	0.13	0.10	0.12	0.12	0.12	0.09	0.13	0.13	0.13
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 35
US 70 EB - AM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19E	20E	21E	22E	23E	24E	25E	26E	27E
General Purpose Segment Name	Within US 258	From US 258	US 258 to NC 58	To NC 58	Within NC 58	From NC 58	NC 58 to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E)
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	19660	1500	1500	1500	16330	1500	3030
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	750	N/A	920	N/A	750	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	39	N/A	N/A	N/A	28	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	6	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	25	N/A	N/A	N/A	25	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	43	N/A	N/A	N/A	95	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	6	N/A	N/A	N/A	7	N/A
Total Density (pc/mi/ln)	3.0	3.2	3.2	1.4	2.9	3.1	3.1	1.3	2.4
V/C	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.07
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 35
US 70 EB - AM Peak

Segment	Seg. 28	Seg. 29	Seg. 30	Seg. 31	Seg. 32	Seg. 33
General Purpose Segment Data	28E	29E	30E	31E	32E	33E
General Purpose Segment Name	From US 70 Bus (E)	US 70 Bus (E) to Burkett/Kornegay	To Burkett/Kornegay	Within Burkett/Kornegay	From Burkett Kornegay	E of Burkett/Kornegay
General Purpose Segment Type	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	2500	6280	1500	3000	1500	5280
Terrain	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	2500	N/A	490	N/A	920	N/A
ONR Side	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	2	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	60	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	683	N/A	N/A	N/A	49	N/A
ONR Single Unit Truck and Bus (%)	7	N/A	N/A	N/A	4	N/A
OFR Side	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	82	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	0.0*	7.5	8.8	6.9	7.6	7.2
V/C	0.22	0.22	0.22	0.20	0.21	0.21
Density Based LOS	A	A	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 35
US 70 EB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1E	2E	3E	4E	5E	6E	7E	8E	9E
General Purpose Segment Name	W of Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	Jim Sutton/Willie Measley to US 70 Bus (W)	To US 70 Bus (W)	Within US 70 Bus (W)	From US 70 Bus (W)	US 70 Bus (W) to NC 55
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	1500	4340	2500	2300	1620	20650
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1675	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	750	N/A	920	N/A	2500	N/A	1620	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	307	N/A	N/A	N/A	39	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	6	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	2	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	60	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	218	N/A	N/A	N/A	1060	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	6	N/A	N/A	N/A
Total Density (pc/mi/ln)	12.4	12.4	10.8	13.8	13.0	0.0*	5.2	1.3	5.5
V/C	0.36	0.36	0.31	0.38	0.38	0.38	0.15	0.16	0.16
Density Based LOS	B	B	A	B	B	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 35
US 70 EB - PM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10E	11E	12E	13E	14E	15E	16E	17E	18E
General Purpose Segment Name	To NC 55	Within NC 55	From NC 55	NC 55 to NC 11	To NC 11	Within NC 11	From NC 11	NC 11 to US 258	To US 258
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	6240	1500	1500	1620	10130	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	86	N/A	N/A	N/A	182	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	8	N/A	N/A	N/A	5	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	148	N/A	N/A	N/A	165	N/A	N/A	N/A	215
OFR Single Unit Truck and Bus (%)	8	N/A	N/A	N/A	5	N/A	N/A	N/A	7
Total Density (pc/mi/ln)	4.1	4.4	5.2	5.1	5.9	3.9	0.9	5.2	3.7
V/C	0.16	0.13	0.15	0.15	0.15	0.11	0.15	0.15	0.15
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 35
US 70 EB - PM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19E	20E	21E	22E	23E	24E	25E	26E	27E
General Purpose Segment Name	Within US 258	From US 258	US 258 to NC 58	To NC 58	Within NC 58	From NC 58	NC 58 to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E)
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	19660	1500	1500	1500	16330	1500	3030
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	750	N/A	920	N/A	750	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	41	N/A	N/A	N/A	29	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	6	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	25	N/A	N/A	N/A	25	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	50	N/A	N/A	N/A	97	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	6	N/A	N/A	N/A	7	N/A
Total Density (pc/mi/ln)	3.6	3.9	3.9	2.2	3.5	3.8	3.7	2.0	3.0
V/C	0.10	0.11	0.11	0.11	0.10	0.11	0.11	0.11	0.09
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 35
US 70 EB - PM Peak

Segment	Seg. 28	Seg. 29	Seg. 30	Seg. 31	Seg. 32	Seg. 33
General Purpose Segment Data	28E	29E	30E	31E	32E	33E
General Purpose Segment Name	From US 70 Bus (E)	US 70 Bus (E) to Burkett/Kornegay	To Burkett/Kornegay	Within Burkett/Kornegay	From Burkett Kornegay	E of Burkett/Kornegay
General Purpose Segment Type	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	2500	6280	1500	3000	1500	5280
Terrain	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	2500	N/A	490	N/A	920	N/A
ONR Side	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	2	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	60	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	843	N/A	N/A	N/A	35	N/A
ONR Single Unit Truck and Bus (%)	7	N/A	N/A	N/A	4	N/A
OFR Side	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	133	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	0.0*	9.3	11.0	8.3	9.0	8.5
V/C	0.27	0.27	0.27	0.24	0.25	0.25
Density Based LOS	A	A	B	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 35
US 70 WB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1W	2W	3W	4W	5W	6W	7W	8W	9W
General Purpose Segment Name	E of Burkett/Kornegay	To Burkett/Kornegay	Within Burkett/Kornegay Int	From Burkett/Kornegay	Burkett/Kornegay to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E) Int	From US 70 Bus (E)	US 70 Bus (E) to NC 58
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	3000	1500	10800	1500	1940	1500	13970
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1151	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	9	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	920	N/A	490	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	133	N/A	N/A	N/A	97	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	7	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	36	N/A	N/A	N/A	844	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	7	N/A	N/A	N/A
Total Density (pc/mi/ln)	8.6	10.2	8.3	9.8	9.3	11.0	3.1	3.8	3.8
V/C	0.25	0.25	0.24	0.27	0.27	0.27	0.09	0.11	0.11
Density Based LOS	A	A	A	A	A	B	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 35
US 70 WB - AM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10W	11W	12W	13W	14W	15W	16W	17W	18W
General Purpose Segment Name	To NC 58	Within NC 58 Int	From NC 58	NC 58 to US 258	To US 258	Within US 258 Int	From US 258	US 258 to NC 11	To NC 11
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1620	19460	1500	1500	1620	10110	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	490	N/A	1620	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	25	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	50	N/A	N/A	N/A	214	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	6	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	45	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	29	N/A	N/A	N/A	42	N/A	N/A	N/A	182
OFR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	7	N/A	N/A	N/A	5
Total Density (pc/mi/ln)	4.4	3.6	0.0*	3.9	4.6	3.6	0.9	5.2	3.8
V/C	0.11	0.10	0.11	0.11	0.11	0.11	0.15	0.15	0.15
Density Based LOS	A	A	A	A	A	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 35
US 70 WB - AM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19W	20W	21W	22W	23W	24W	25W	26W	27W
General Purpose Segment Name	Within NC 11 Int	From NC 11	NC 11 to NC 55	To NC 55	Within NC 55 Int	From NC 55	NC 55 to US 70 Bus (W)	To US 70 Bus (W)	Within US 70 Bus (W) Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	5770	1500	1500	1620	18490	1500	2560
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	1620	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	165	N/A	N/A	N/A	148	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	5	N/A	N/A	N/A	8	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	86	N/A	N/A	N/A	38	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	8	N/A	N/A	N/A	6	N/A
Total Density (pc/mi/ln)	3.9	5.2	5.1	6.0	4.4	1.3	5.5	6.5	5.3
V/C	0.11	0.15	0.15	0.15	0.13	0.16	0.16	0.16	0.15
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 35
US 70 WB - AM Peak

Segment	Seg. 28	Seg. 29	Seg. 30	Seg. 31	Seg. 32	Seg. 33
General Purpose Segment Data	28W	29W	30W	31W	32W	33W
General Purpose Segment Name	From US 70 Bus (W)	US 70 Bus (W) to Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	W of Jim Sutton/Willie Measley
General Purpose Segment Type	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1500	7290	1500	1500	1620	5280
Terrain	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	920	N/A	490	N/A	1620	N/A
ONR Side	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	45	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	1062	N/A	N/A	N/A	218	N/A
ONR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	4	N/A
OFR Side	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	307	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	13.5	13.1	15.6	10.8	8.8	12.4
V/C	0.38	0.38	0.38	0.32	0.36	0.36
Density Based LOS	B	B	B	A	A	B

R-2553 US 70 Kinston Bypass, Alternative 35
US 70 WB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1W	2W	3W	4W	5W	6W	7W	8W	9W
General Purpose Segment Name	E of Burkett/Kornegay	To Burkett/Kornegay	Within Burkett/Kornegay Int	From Burkett/Kornegay	Burkett/Kornegay to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E) Int	From US 70 Bus (E)	US 70 Bus (E) to NC 58
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	3000	1500	10800	1500	1940	1500	13970
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	980	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	9	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	920	N/A	490	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	81	N/A	N/A	N/A	95	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	7	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	49	N/A	N/A	N/A	684	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	7	N/A	N/A	N/A
Total Density (pc/mi/ln)	7.3	8.6	7.0	7.9	7.5	8.9	2.5	3.2	3.2
V/C	0.21	0.21	0.20	0.22	0.22	0.22	0.07	0.09	0.09
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 35
US 70 WB - PM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10W	11W	12W	13W	14W	15W	16W	17W	18W
General Purpose Segment Name	To NC 58	Within NC 58 Int	From NC 58	NC 58 to US 258	To US 258	Within US 258 Int	From US 258	US 258 to NC 11	To NC 11
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1620	19460	1500	1500	1620	10110	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	490	N/A	1620	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	25	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	43	N/A	N/A	N/A	186	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	6	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	45	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	28	N/A	N/A	N/A	39	N/A	N/A	N/A	172
OFR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	7	N/A	N/A	N/A	5
Total Density (pc/mi/ln)	3.7	3.0	0.0*	3.3	3.8	3.0	0.0	4.4	2.8
V/C	0.09	0.09	0.10	0.10	0.10	0.09	0.13	0.13	0.13
Density Based LOS	A	A	A	A	A	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 35
US 70 WB - PM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19W	20W	21W	22W	23W	24W	25W	26W	27W
General Purpose Segment Name	Within NC 11 Int	From NC 11	NC 11 to NC 55	To NC 55	Within NC 55 Int	From NC 55	NC 55 to US 70 Bus (W)	To US 70 Bus (W)	Within US 70 Bus (W) Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	5770	1500	1500	1620	18490	1500	2560
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	1620	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	149	N/A	N/A	N/A	125	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	5	N/A	N/A	N/A	8	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	87	N/A	N/A	N/A	23	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	8	N/A	N/A	N/A	6	N/A
Total Density (pc/mi/ln)	3.1	4.3	4.2	4.9	3.6	0.2	4.5	5.3	4.3
V/C	0.09	0.12	0.12	0.12	0.10	0.13	0.13	0.13	0.13
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 35
US 70 WB - PM Peak

Segment	Seg. 28	Seg. 29	Seg. 30	Seg. 31	Seg. 32	Seg. 33
General Purpose Segment Data	28W	29W	30W	31W	32W	33W
General Purpose Segment Name	From US 70 Bus (W)	US 70 Bus (W) to Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	W of Jim Sutton/Willie Measley
General Purpose Segment Type	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1500	7290	1500	1500	1620	5280
Terrain	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	920	N/A	490	N/A	1620	N/A
ONR Side	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	45	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	1579	N/A	N/A	N/A	197	N/A
ONR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	4	N/A
OFR Side	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	419	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	16.4	16.0	19.0	12.9	10.9	14.3
V/C	0.47	0.47	0.47	0.38	0.42	0.42
Density Based LOS	B	B	B	B	B	B

2040 Build Alternative 35
Synchro Reports

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	4	4	4	4	23	4	107	4	17	69	6
Future Volume (vph)	10	4	4	4	4	23	4	107	4	17	69	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1693	0	0	1598	0	1770	1853	0	1770	1839	0
Flt Permitted		0.972			0.994		0.950			0.950		
Satd. Flow (perm)	0	1693	0	0	1598	0	1770	1853	0	1770	1839	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		883			854			935			1001	
Travel Time (s)		13.4			12.9			11.6			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	19	0	0	34	0	4	123	0	19	84	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 17.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	4	4	4	4	23	4	107	4	17	69	6
Future Volume (Veh/h)	10	4	4	4	4	23	4	107	4	17	69	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	4	4	4	4	26	4	119	4	19	77	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1001	
pX, platoon unblocked												
vC, conflicting volume	274	250	80	250	251	121	84			123		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	274	250	80	250	251	121	84			123		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	98	99	100	99	99	97	100			99		
cM capacity (veh/h)	641	636	969	681	635	920	1513			1464		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	19	34	4	123	19	84
Volume Left	11	4	4	0	19	0
Volume Right	4	26	0	4	0	7
cSH	689	841	1513	1700	1464	1700
Volume to Capacity	0.03	0.04	0.00	0.07	0.01	0.05
Queue Length 95th (ft)	2	3	0	0	1	0
Control Delay (s)	10.4	9.5	7.4	0.0	7.5	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	10.4	9.5	0.2		1.4	
Approach LOS	B	A				

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	17.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	4	4	4	4	17	4	69	4	23	107	10
Future Volume (Veh/h)	6	4	4	4	4	17	4	69	4	23	107	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	4	4	4	4	19	4	77	4	26	119	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1001	
pX, platoon unblocked												
vC, conflicting volume	282	266	124	264	269	79	130			81		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	282	266	124	264	269	79	130			81		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	99	99	100	99	99	98	100			98		
cM capacity (veh/h)	636	621	916	664	618	970	1455			1517		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	15	27	4	81	26	130
Volume Left	7	4	4	0	26	0
Volume Right	4	19	0	4	0	11
cSH	687	842	1455	1700	1517	1700
Volume to Capacity	0.02	0.03	0.00	0.05	0.02	0.08
Queue Length 95th (ft)	2	2	0	0	1	0
Control Delay (s)	10.4	9.4	7.5	0.0	7.4	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	10.4	9.4	0.4		1.2	
Approach LOS	B	A				

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	17.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	4	4	4	4	17	4	69	4	23	107	10
Future Volume (vph)	6	4	4	4	4	17	4	69	4	23	107	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1688	0	0	1611	0	1770	1850	0	1770	1839	0
Flt Permitted		0.977			0.993		0.950			0.950		
Satd. Flow (perm)	0	1688	0	0	1611	0	1770	1850	0	1770	1839	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		883			854			935			1001	
Travel Time (s)		13.4			12.9			11.6			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	0	27	0	4	81	0	26	130	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 17.9%	ICU Level of Service A
Analysis Period (min) 15	

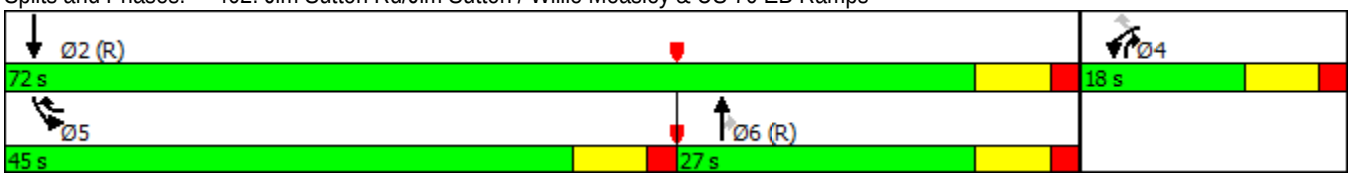
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	30	147	62	76	301	63
Future Volume (vph)	30	147	62	76	301	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		100	350	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1863	1583	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1863	1583	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	999		1001			1313
Travel Time (s)	27.2		12.4			16.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	163	69	84	334	70
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	18.0	45.0	27.0	18.0	45.0	72.0
Total Split (%)	20.0%	50.0%	30.0%	20.0%	50.0%	80.0%
Maximum Green (s)	11.0	38.0	20.0	11.0	38.0	65.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.7	37.1	42.9	57.6	25.2	74.1
Actuated g/C Ratio	0.11	0.41	0.48	0.64	0.28	0.82
v/c Ratio	0.18	0.25	0.08	0.08	0.69	0.05
Control Delay	38.4	16.0	17.6	9.2	31.8	2.1

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.4	16.0	17.6	9.2	31.8	2.1
LOS	D	B	B	A	C	A
Approach Delay	19.8		13.0			26.6
Approach LOS	B		B			C
Queue Length 50th (ft)	18	57	22	18	134	7
Queue Length 95th (ft)	44	76	57	47	175	11
Internal Link Dist (ft)	919		921			1233
Turn Bay Length (ft)		175		100	350	
Base Capacity (vph)	250	896	887	1070	771	1503
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.18	0.08	0.08	0.43	0.05

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 8 (9%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 22.1 Intersection LOS: C
Intersection Capacity Utilization 37.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps



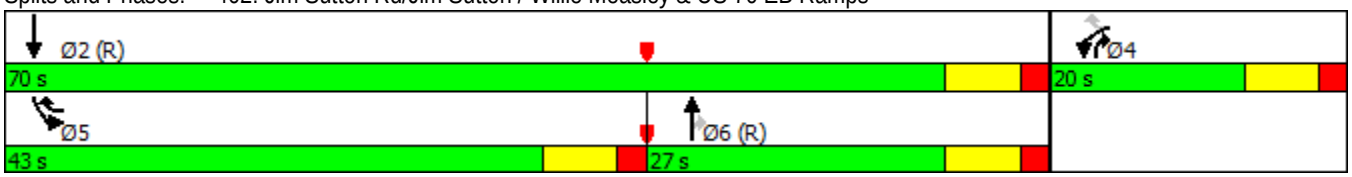
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	40	156	47	46	230	98
Future Volume (vph)	40	156	47	46	230	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	175		100	350	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1863	1583	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1863	1583	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	999		1001			1313
Travel Time (s)	27.2		12.4			16.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	173	52	51	256	109
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	43.0	27.0	20.0	43.0	70.0
Total Split (%)	22.2%	47.8%	30.0%	22.2%	47.8%	77.8%
Maximum Green (s)	13.0	36.0	20.0	13.0	36.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.2	33.2	46.8	62.0	20.8	73.6
Actuated g/C Ratio	0.11	0.37	0.52	0.69	0.23	0.82
v/c Ratio	0.22	0.30	0.05	0.05	0.64	0.07
Control Delay	38.7	19.2	14.9	7.0	30.9	2.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.7	19.2	14.9	7.0	30.9	2.2
LOS	D	B	B	A	C	A
Approach Delay	23.2		11.0			22.3
Approach LOS	C		B			C
Queue Length 50th (ft)	23	66	15	9	117	6
Queue Length 95th (ft)	54	92	41	27	166	17
Internal Link Dist (ft)	919		921			1233
Turn Bay Length (ft)		175		100	350	
Base Capacity (vph)	289	869	969	1175	732	1494
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.20	0.05	0.04	0.35	0.07

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 2 (2%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 20.9 Intersection LOS: C
Intersection Capacity Utilization 33.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps



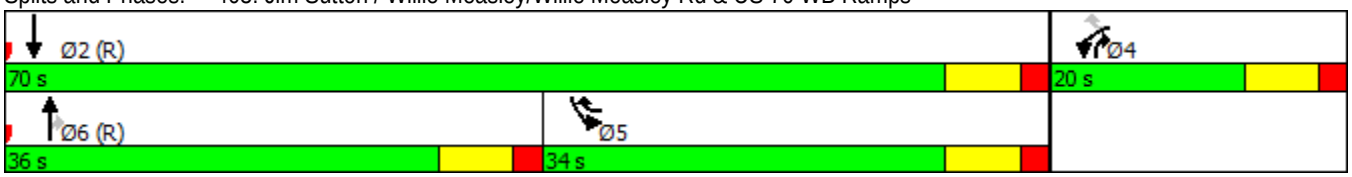
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	46	230	169	40	156	318
Future Volume (vph)	46	230	169	40	156	318
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	300		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	987		1313			996
Travel Time (s)	15.0		16.3			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	51	256	188	44	173	353
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	34.0	36.0	20.0	34.0	70.0
Total Split (%)	22.2%	37.8%	40.0%	22.2%	37.8%	77.8%
Maximum Green (s)	13.0	27.0	29.0	13.0	27.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.4	32.0	48.0	60.6	19.4	73.4
Actuated g/C Ratio	0.12	0.36	0.53	0.67	0.22	0.82
v/c Ratio	0.26	0.46	0.19	0.04	0.46	0.24
Control Delay	38.9	23.5	11.2	5.6	34.3	3.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	23.5	11.2	5.6	34.3	3.2
LOS	D	C	B	A	C	A
Approach Delay	26.1		10.2			13.4
Approach LOS	C		B			B
Queue Length 50th (ft)	27	106	36	7	86	43
Queue Length 95th (ft)	60	147	75	22	139	79
Internal Link Dist (ft)	907		1233			916
Turn Bay Length (ft)		300		100	200	
Base Capacity (vph)	289	600	974	1032	559	1489
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.43	0.19	0.04	0.31	0.24

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 16.4 Intersection LOS: B
Intersection Capacity Utilization 38.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps



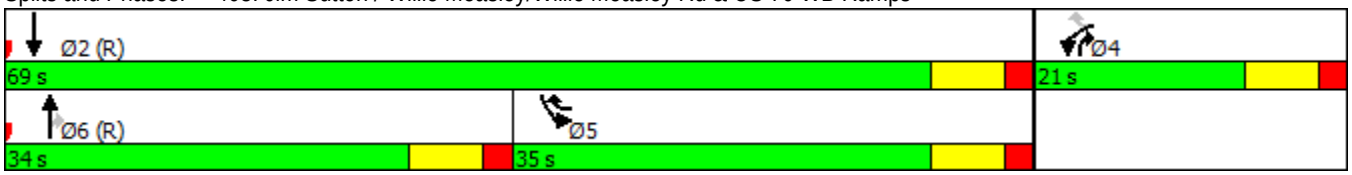
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	76	301	173	30	147	252
Future Volume (vph)	76	301	173	30	147	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	300		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	987		1313			996
Travel Time (s)	15.0		16.3			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	84	334	192	33	163	280
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	21.0	35.0	34.0	21.0	35.0	69.0
Total Split (%)	23.3%	38.9%	37.8%	23.3%	38.9%	76.7%
Maximum Green (s)	14.0	28.0	27.0	14.0	28.0	62.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	11.9	37.6	42.4	56.5	23.5	71.9
Actuated g/C Ratio	0.13	0.42	0.47	0.63	0.26	0.80
v/c Ratio	0.37	0.52	0.22	0.03	0.36	0.19
Control Delay	39.5	20.9	11.7	5.9	28.7	3.6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.5	20.9	11.7	5.9	28.7	3.6
LOS	D	C	B	A	C	A
Approach Delay	24.6		10.8			12.8
Approach LOS	C		B			B
Queue Length 50th (ft)	44	129	29	4	75	36
Queue Length 95th (ft)	85	166	148	14	121	71
Internal Link Dist (ft)	907		1233			916
Turn Bay Length (ft)		300		100	200	
Base Capacity (vph)	308	672	861	950	578	1459
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.50	0.22	0.03	0.28	0.19

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 56 (62%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 16.9 Intersection LOS: B
Intersection Capacity Utilization 38.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	8	205	35	5	4	169	124	50	8	183	5
Future Volume (vph)	4	8	205	35	5	4	169	124	50	8	183	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1623	0	0	1772	0	1736	1748	0	1770	1855	0
Flt Permitted		0.999			0.962		0.950			0.950		
Satd. Flow (perm)	0	1623	0	0	1772	0	1736	1748	0	1770	1855	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		970			951			996			1084	
Travel Time (s)		14.7			14.4			12.3			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	241	0	0	49	0	188	194	0	9	209	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 49.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	8	205	35	5	4	169	124	50	8	183	5
Future Volume (Veh/h)	4	8	205	35	5	4	169	124	50	8	183	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	9	228	39	6	4	188	138	56	9	203	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								996				
pX, platoon unblocked												
vC, conflicting volume	745	794	206	996	769	166	209			194		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	745	794	206	996	769	166	209			194		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	97	73	72	98	100	86			99		
cM capacity (veh/h)	287	274	835	141	284	878	1350			1379		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	241	49	188	194	9	209
Volume Left	4	39	188	0	9	0
Volume Right	228	4	0	56	0	6
cSH	753	162	1350	1700	1379	1700
Volume to Capacity	0.32	0.30	0.14	0.11	0.01	0.12
Queue Length 95th (ft)	35	30	12	0	0	0
Control Delay (s)	12.0	36.6	8.1	0.0	7.6	0.0
Lane LOS	B	E	A		A	
Approach Delay (s)	12.0	36.6	4.0		0.3	
Approach LOS	B	E				

Intersection Summary			
Average Delay	7.1		
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	169	50	8	8	205	183	35	4	124	4
Future Volume (vph)	5	5	169	50	8	8	205	183	35	4	124	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1625	0	0	1767	0	1736	1783	0	1770	1855	0
Flt Permitted		0.999			0.964		0.950			0.950		
Satd. Flow (perm)	0	1625	0	0	1767	0	1736	1783	0	1770	1855	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		970			951			996			1084	
Travel Time (s)		14.7			14.4			12.3			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	200	0	0	74	0	228	242	0	4	142	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 46.1%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	169	50	8	8	205	183	35	4	124	4
Future Volume (Veh/h)	5	5	169	50	8	8	205	183	35	4	124	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	6	188	56	9	9	228	203	39	4	138	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								996				
pX, platoon unblocked												
vC, conflicting volume	820	846	140	1016	828	222	142			242		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	820	846	140	1016	828	222	142			242		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	98	79	62	96	99	84			100		
cM capacity (veh/h)	248	251	908	148	257	817	1429			1324		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	200	74	228	242	4	142
Volume Left	6	56	228	0	4	0
Volume Right	188	9	0	39	0	4
cSH	784	174	1429	1700	1324	1700
Volume to Capacity	0.26	0.43	0.16	0.14	0.00	0.08
Queue Length 95th (ft)	25	48	14	0	0	0
Control Delay (s)	11.2	40.2	8.0	0.0	7.7	0.0
Lane LOS	B	E	A		A	
Approach Delay (s)	11.2	40.2	3.9		0.2	
Approach LOS	B	E				

Intersection Summary			
Average Delay	7.9		
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	1412	11	21	933	10	12	4	36	19	4	35
Future Volume (vph)	27	1412	11	21	933	10	12	4	36	19	4	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		0	0		0	0		0
Storage Lanes	1		1	1		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1703	3406	1524	1703	3399	0	0	1667	0	0	1683	0
Flt Permitted	0.950			0.950				0.989			0.984	
Satd. Flow (perm)	1703	3406	1524	1703	3399	0	0	1667	0	0	1683	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1025			996			931			940	
Travel Time (s)		12.7			12.3			11.5			11.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	1569	12	23	1048	0	0	57	0	0	64	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		46			46			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 51.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	1412	11	21	933	10	12	4	36	19	4	35
Future Volume (Veh/h)	27	1412	11	21	933	10	12	4	36	19	4	35
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	30	1569	12	23	1037	11	13	4	40	21	4	39
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1048			1581			2234	2723	784	1975	2730	524
vC1, stage 1 conf vol							1629	1629		1088	1088	
vC2, stage 2 conf vol							606	1094		886	1641	
vCu, unblocked vol	1048			1581			2234	2723	784	1975	2730	524
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.3			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			94			83	96	88	82	95	92
cM capacity (veh/h)	636			394			78	93	336	114	86	498

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	30	784	784	12	23	691	357	57	64
Volume Left	30	0	0	0	23	0	0	13	21
Volume Right	0	0	0	12	0	0	11	40	39
cSH	636	1700	1700	1700	394	1700	1700	173	207
Volume to Capacity	0.05	0.46	0.46	0.01	0.06	0.41	0.21	0.33	0.31
Queue Length 95th (ft)	4	0	0	0	5	0	0	34	31
Control Delay (s)	10.9	0.0	0.0	0.0	14.7	0.0	0.0	35.8	29.9
Lane LOS	B				B			E	D
Approach Delay (s)	0.2				0.3			35.8	29.9
Approach LOS								E	D

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	933	11	36	1412	20	10	4	22	10	4	26
Future Volume (vph)	34	933	11	36	1412	20	10	4	22	10	4	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		0	0		0	0		0
Storage Lanes	1		1	1		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1703	3406	1524	1703	3399	0	0	1684	0	0	1677	0
Flt Permitted	0.950			0.950				0.986			0.988	
Satd. Flow (perm)	1703	3406	1524	1703	3399	0	0	1684	0	0	1677	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1025			996			931			940	
Travel Time (s)		12.7			12.3			11.5			11.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	1037	12	40	1591	0	0	39	0	0	44	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		46			46			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 49.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	933	11	36	1412	20	10	4	22	10	4	26
Future Volume (Veh/h)	34	933	11	36	1412	20	10	4	22	10	4	26
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	38	1037	12	40	1569	22	11	4	24	11	4	29
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1591			1049			2008	2784	518	2280	2785	796
vC1, stage 1 conf vol							1113	1113		1660	1660	
vC2, stage 2 conf vol							896	1671		620	1125	
vCu, unblocked vol	1591			1049			2008	2784	518	2280	2785	796
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.3			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			94			90	95	95	85	95	91
cM capacity (veh/h)	390			636			107	73	502	73	85	330

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	38	518	518	12	40	1046	545	39	44
Volume Left	38	0	0	0	40	0	0	11	11
Volume Right	0	0	0	12	0	0	22	24	29
cSH	390	1700	1700	1700	636	1700	1700	189	154
Volume to Capacity	0.10	0.30	0.30	0.01	0.06	0.62	0.32	0.21	0.29
Queue Length 95th (ft)	8	0	0	0	5	0	0	19	28
Control Delay (s)	15.2	0.0	0.0	0.0	11.0	0.0	0.0	28.9	37.5
Lane LOS	C				B			D	E
Approach Delay (s)	0.5				0.3			28.9	37.5
Approach LOS								D	E

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	284	62	16	171	63	49
Future Volume (vph)	284	62	16	171	63	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	100		0	125
Storage Lanes		1	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	1759	1495	1671	1759	1671	1495
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1759	1495	1671	1759	1671	1495
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	25	
Link Distance (ft)	993			1295	976	
Travel Time (s)	12.3			16.1	26.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	316	69	18	190	70	54
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	14.0	7.0	7.0	14.0	7.0	7.0
Minimum Split (s)	21.0	14.0	14.0	21.0	14.0	14.0
Total Split (s)	50.0	22.0	18.0	68.0	22.0	18.0
Total Split (%)	55.6%	24.4%	20.0%	75.6%	24.4%	20.0%
Maximum Green (s)	43.0	15.0	11.0	61.0	15.0	11.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	None	None	C-Min	None	None
Act Effct Green (s)	61.0	74.6	9.2	72.4	11.4	22.8
Actuated g/C Ratio	0.68	0.83	0.10	0.80	0.13	0.25
v/c Ratio	0.27	0.06	0.11	0.13	0.33	0.14
Control Delay	9.1	2.3	46.1	2.3	39.4	23.9

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.1	2.3	46.1	2.3	39.4	23.9
LOS	A	A	D	A	D	C
Approach Delay	7.9			6.1	32.7	
Approach LOS	A			A	C	
Queue Length 50th (ft)	78	7	10	16	37	23
Queue Length 95th (ft)	143	15	29	32	74	48
Internal Link Dist (ft)	913			1215	896	
Turn Bay Length (ft)		100	100			125
Base Capacity (vph)	1191	1305	241	1415	315	441
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.05	0.07	0.13	0.22	0.12

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 76 (84%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.33
Intersection Signal Delay: 11.7 Intersection LOS: B
Intersection Capacity Utilization 29.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 406: US 70 EB Ramps & NC 55

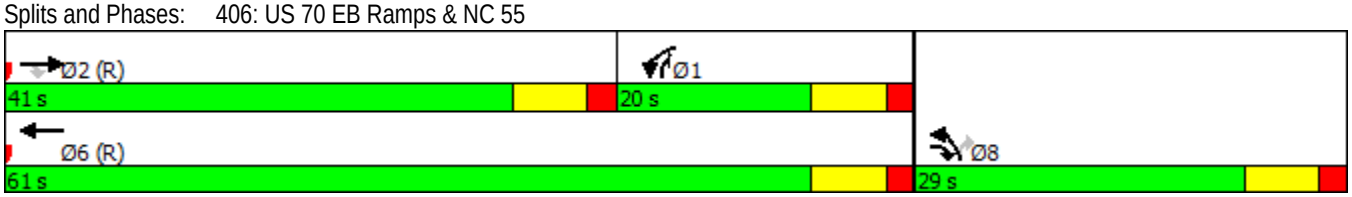
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	180	54	23	256	90	43
Future Volume (vph)	180	54	23	256	90	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	100		0	125
Storage Lanes		1	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	1759	1495	1671	1759	1671	1495
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1759	1495	1671	1759	1671	1495
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	25	
Link Distance (ft)	993			1295	976	
Travel Time (s)	12.3			16.1	26.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	200	60	26	284	100	48
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	14.0	7.0	7.0	14.0	7.0	7.0
Minimum Split (s)	21.0	14.0	14.0	21.0	14.0	14.0
Total Split (s)	41.0	29.0	20.0	61.0	29.0	20.0
Total Split (%)	45.6%	32.2%	22.2%	67.8%	32.2%	22.2%
Maximum Green (s)	34.0	22.0	13.0	54.0	22.0	13.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			Lag
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	None	None	C-Min	None	None
Act Effct Green (s)	58.8	73.9	9.9	71.0	12.8	25.0
Actuated g/C Ratio	0.65	0.82	0.11	0.79	0.14	0.28
v/c Ratio	0.17	0.05	0.14	0.20	0.42	0.12
Control Delay	9.8	2.6	33.8	3.1	39.8	21.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.8	2.6	33.8	3.1	39.8	21.3
LOS	A	A	C	A	D	C
Approach Delay	8.1			5.7	33.8	
Approach LOS	A			A	C	
Queue Length 50th (ft)	49	6	14	30	53	20
Queue Length 95th (ft)	99	15	39	58	96	41
Internal Link Dist (ft)	913			1215	896	
Turn Bay Length (ft)		100	100			125
Base Capacity (vph)	1149	1227	278	1387	445	428
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.05	0.09	0.20	0.22	0.11

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.42
Intersection Signal Delay: 12.4 Intersection LOS: B
Intersection Capacity Utilization 33.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 406: US 70 EB Ramps & NC 55



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	243	90	43	133	54	23
Future Volume (vph)	243	90	43	133	54	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	125		0	100
Storage Lanes		1	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	1759	1495	1671	1759	1671	1495
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1759	1495	1671	1759	1671	1495
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	45	
Link Distance (ft)	1295			1005	948	
Travel Time (s)	16.1			12.5	14.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	270	100	48	148	60	26
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	14.0	7.0	7.0	14.0	7.0	7.0
Minimum Split (s)	21.0	14.0	14.0	21.0	14.0	14.0
Total Split (s)	48.0	22.0	20.0	68.0	22.0	20.0
Total Split (%)	53.3%	24.4%	22.2%	75.6%	24.4%	22.2%
Maximum Green (s)	41.0	15.0	13.0	61.0	15.0	13.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	None	None	C-Min	None	None
Act Effct Green (s)	60.3	73.4	10.4	72.9	10.9	23.5
Actuated g/C Ratio	0.67	0.82	0.12	0.81	0.12	0.26
v/c Ratio	0.23	0.08	0.25	0.10	0.30	0.07
Control Delay	5.1	0.5	38.9	3.0	39.3	21.7

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.1	0.5	38.9	3.0	39.3	21.7
LOS	A	A	D	A	D	C
Approach Delay	3.8			11.8	33.9	
Approach LOS	A			B	C	
Queue Length 50th (ft)	28	2	25	16	32	11
Queue Length 95th (ft)	49	3	57	36	67	27
Internal Link Dist (ft)	1215			925	868	
Turn Bay Length (ft)		100	125			100
Base Capacity (vph)	1178	1293	278	1424	315	467
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.08	0.17	0.10	0.19	0.06

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.30
Intersection Signal Delay: 10.2 Intersection LOS: B
Intersection Capacity Utilization 37.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 407: US 70 WB Ramps & NC 55

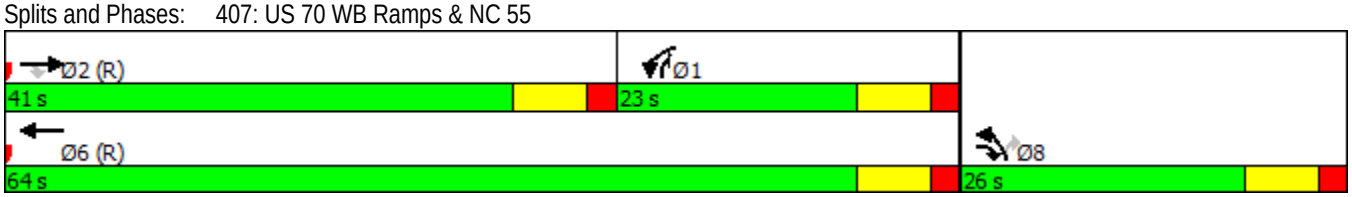
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	160	63	49	217	62	16
Future Volume (vph)	160	63	49	217	62	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	125		0	100
Storage Lanes		1	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	1759	1495	1671	1759	1671	1495
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1759	1495	1671	1759	1671	1495
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	45	
Link Distance (ft)	1295			1005	948	
Travel Time (s)	16.1			12.5	14.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	178	70	54	241	69	18
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	14.0	7.0	7.0	14.0	7.0	7.0
Minimum Split (s)	21.0	14.0	14.0	21.0	14.0	14.0
Total Split (s)	41.0	26.0	23.0	64.0	26.0	23.0
Total Split (%)	45.6%	28.9%	25.6%	71.1%	28.9%	25.6%
Maximum Green (s)	34.0	19.0	16.0	57.0	19.0	16.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			Lag
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	None	None	C-Min	None	None
Act Effct Green (s)	59.6	73.2	10.6	72.4	11.4	24.2
Actuated g/C Ratio	0.66	0.81	0.12	0.80	0.13	0.27
v/c Ratio	0.15	0.06	0.27	0.17	0.33	0.04
Control Delay	5.3	0.7	39.2	3.3	39.4	20.6

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.3	0.7	39.2	3.3	39.4	20.6
LOS	A	A	D	A	D	C
Approach Delay	4.0			9.9	35.5	
Approach LOS	A			A	D	
Queue Length 50th (ft)	50	1	29	29	36	7
Queue Length 95th (ft)	100	5	62	59	74	21
Internal Link Dist (ft)	1215			925	868	
Turn Bay Length (ft)		100	125			100
Base Capacity (vph)	1164	1215	334	1415	389	430
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.06	0.16	0.17	0.18	0.04

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.33
Intersection Signal Delay: 11.1 Intersection LOS: B
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 407: US 70 WB Ramps & NC 55



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	6	18	931	6	10	499
Future Volume (vph)	6	18	931	6	10	499
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		175	100	
Storage Lanes	1	0		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1607	0	1810	1538	1719	1810
Flt Permitted	0.987				0.950	
Satd. Flow (perm)	1607	0	1810	1538	1719	1810
Link Speed (mph)	45		55			55
Link Distance (ft)	982		987			989
Travel Time (s)	14.9		12.2			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	0	1034	7	11	554
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 59.0%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	18	931	6	10	499
Future Volume (Veh/h)	6	18	931	6	10	499
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	20	1034	7	11	554
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						989
pX, platoon unblocked	0.84					
vC, conflicting volume	1610	1034			1041	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1630	1034			1041	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	93			98	
cM capacity (veh/h)	91	278			657	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	27	1034	7	11	554
Volume Left	7	0	0	11	0
Volume Right	20	0	7	0	0
cSH	182	1700	1700	657	1700
Volume to Capacity	0.15	0.61	0.00	0.02	0.33
Queue Length 95th (ft)	13	0	0	1	0
Control Delay (s)	28.3	0.0	0.0	10.6	0.0
Lane LOS	D			B	
Approach Delay (s)	28.3	0.0		0.2	
Approach LOS	D				

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	12	499	4	20	931
Future Volume (vph)	4	12	499	4	20	931
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		175	100	
Storage Lanes	1	0		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1604	0	1810	1538	1719	1810
Flt Permitted	0.988				0.950	
Satd. Flow (perm)	1604	0	1810	1538	1719	1810
Link Speed (mph)	45		55			55
Link Distance (ft)	982		987			989
Travel Time (s)	14.9		12.2			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	0	554	4	22	1034
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 59.0%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	12	499	4	20	931
Future Volume (Veh/h)	4	12	499	4	20	931
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	13	554	4	22	1034
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						989
pX, platoon unblocked	0.53					
vC, conflicting volume	1632	554			558	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1747	554			558	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	98			98	
cM capacity (veh/h)	49	526			998	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	17	554	4	22	1034
Volume Left	4	0	0	22	0
Volume Right	13	0	4	0	0
cSH	159	1700	1700	998	1700
Volume to Capacity	0.11	0.33	0.00	0.02	0.61
Queue Length 95th (ft)	9	0	0	2	0
Control Delay (s)	30.3	0.0	0.0	8.7	0.0
Lane LOS	D			A	
Approach Delay (s)	30.3	0.0		0.2	
Approach LOS	D				

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	83	51	103	844	461	51
Future Volume (vph)	83	51	103	844	461	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	175			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1719	1538	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1719	1538	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	963			989	1297	
Travel Time (s)	14.6			12.3	16.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	92	57	114	938	512	57
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	1	1	6	2	7
Permitted Phases		7				2
Detector Phase	7	1	1	6	2	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	15.0	17.0	17.0	75.0	58.0	15.0
Total Split (%)	16.7%	18.9%	18.9%	83.3%	64.4%	16.7%
Maximum Green (s)	8.0	10.0	10.0	68.0	51.0	8.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	11.1	25.4	12.1	72.7	58.4	71.7
Actuated g/C Ratio	0.12	0.28	0.13	0.81	0.65	0.80
v/c Ratio	0.44	0.13	0.49	0.64	0.44	0.05
Control Delay	43.4	22.2	43.5	7.3	6.3	0.6

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.4	22.2	43.5	7.3	6.3	0.6
LOS	D	C	D	A	A	A
Approach Delay	35.3			11.2	5.8	
Approach LOS	D			B	A	
Queue Length 50th (ft)	49	22	60	219	75	1
Queue Length 95th (ft)	99	53	115	294	63	2
Internal Link Dist (ft)	883			909	1217	
Turn Bay Length (ft)		150	175			100
Base Capacity (vph)	215	445	245	1488	1214	1224
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.13	0.47	0.63	0.42	0.05

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 6 (7%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 11.5 Intersection LOS: B
Intersection Capacity Utilization 58.6% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 409: NC 11 & US 70 EB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	66	82	82	430	865	81
Future Volume (vph)	66	82	82	430	865	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	175			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1719	1538	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1719	1538	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	963			989	1297	
Travel Time (s)	14.6			12.3	16.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	73	91	91	478	961	90
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	1	1	6	2	7
Permitted Phases		7				2
Detector Phase	7	1	1	6	2	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	14.0	14.0	14.0	76.0	62.0	14.0
Total Split (%)	15.6%	15.6%	15.6%	84.4%	68.9%	15.6%
Maximum Green (s)	7.0	7.0	7.0	69.0	55.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.1	20.6	9.3	74.7	63.2	74.5
Actuated g/C Ratio	0.10	0.23	0.10	0.83	0.70	0.83
v/c Ratio	0.42	0.26	0.52	0.32	0.76	0.07
Control Delay	46.0	29.0	49.4	3.1	8.6	0.5

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.0	29.0	49.4	3.1	8.6	0.5
LOS	D	C	D	A	A	A
Approach Delay	36.6			10.5	7.9	
Approach LOS	D			B	A	
Queue Length 50th (ft)	40	41	50	59	70	1
Queue Length 95th (ft)	83	82	99	88	#178	m3
Internal Link Dist (ft)	883			909	1217	
Turn Bay Length (ft)		150	175			100
Base Capacity (vph)	174	352	176	1504	1279	1273
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.26	0.52	0.32	0.75	0.07

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 12 (13%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 11.4 Intersection LOS: B
Intersection Capacity Utilization 69.7% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 409: NC 11 & US 70 EB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	81	82	82	845	430	66
Future Volume (vph)	81	82	82	845	430	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	150			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1719	1538	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1719	1538	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	988			1297	1009	
Travel Time (s)	26.9			16.1	12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	90	91	91	939	478	73
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	1	1	6	2	7
Permitted Phases		7				2
Detector Phase	7	1	1	6	2	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	15.0	15.0	15.0	75.0	60.0	15.0
Total Split (%)	16.7%	16.7%	16.7%	83.3%	66.7%	16.7%
Maximum Green (s)	8.0	8.0	8.0	68.0	53.0	8.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	11.0	27.3	14.1	72.8	56.5	69.7
Actuated g/C Ratio	0.12	0.30	0.16	0.81	0.63	0.77
v/c Ratio	0.43	0.20	0.34	0.64	0.42	0.06
Control Delay	43.3	20.7	31.9	4.1	14.2	4.7

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.3	20.7	31.9	4.1	14.2	4.7
LOS	D	C	C	A	B	A
Approach Delay	31.9			6.5	13.0	
Approach LOS	C			A	B	
Queue Length 50th (ft)	48	37	49	94	150	9
Queue Length 95th (ft)	97	61	m69	100	289	31
Internal Link Dist (ft)	908			1217	929	
Turn Bay Length (ft)		150	150			100
Base Capacity (vph)	214	470	273	1488	1247	1190
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.19	0.33	0.63	0.38	0.06

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 11.2 Intersection LOS: B
Intersection Capacity Utilization 58.6% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 410: NC 11 & US 70 WB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	51	103	51	445	843	83
Future Volume (vph)	51	103	51	445	843	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	150			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1719	1538	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1719	1538	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	988			1297	1009	
Travel Time (s)	26.9			16.1	12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	114	57	494	937	92
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	1	1	6	2	7
Permitted Phases		7				2
Detector Phase	7	1	1	6	2	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	14.0	14.0	14.0	76.0	62.0	14.0
Total Split (%)	15.6%	15.6%	15.6%	84.4%	68.9%	15.6%
Maximum Green (s)	7.0	7.0	7.0	69.0	55.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.0	20.9	9.7	74.8	62.9	74.1
Actuated g/C Ratio	0.10	0.23	0.11	0.83	0.70	0.82
v/c Ratio	0.33	0.32	0.31	0.33	0.74	0.07
Control Delay	43.5	30.0	42.4	2.5	16.6	2.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.5	30.0	42.4	2.5	16.6	2.3
LOS	D	C	D	A	B	A
Approach Delay	34.5			6.7	15.3	
Approach LOS	C			A	B	
Queue Length 50th (ft)	31	51	31	48	382	10
Queue Length 95th (ft)	68	99	70	63	565	18
Internal Link Dist (ft)	908			1217	929	
Turn Bay Length (ft)		150	150			100
Base Capacity (vph)	171	357	184	1504	1279	1266
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.32	0.31	0.33	0.73	0.07

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 14.5 Intersection LOS: B
Intersection Capacity Utilization 59.1% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 410: NC 11 & US 70 WB Ramps

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	4	4	4	4	7	340	4	4	226	5
Future Volume (vph)	4	4	4	4	4	4	7	340	4	4	226	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1700	0	0	1700	0	1687	1772	0	1687	1769	0
Flt Permitted		0.984			0.984		0.950			0.950		
Satd. Flow (perm)	0	1700	0	0	1700	0	1687	1772	0	1687	1769	0
Link Speed (mph)		55			45			55			55	
Link Distance (ft)		910			918			950			792	
Travel Time (s)		11.3			13.9			11.8			9.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	12	0	0	12	0	8	382	0	4	257	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 28.1%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	4	4	4	4	4	7	340	4	4	226	5
Future Volume (Veh/h)	4	4	4	4	4	4	7	340	4	4	226	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	4	4	4	4	4	8	378	4	4	251	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											792	
pX, platoon unblocked												
vC, conflicting volume	662	660	254	661	661	380	257			382		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	662	660	254	661	661	380	257			382		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	99	99	99	99	99	99	99			100		
cM capacity (veh/h)	363	376	777	364	375	660	1279			1150		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	12	12	8	382	4	257
Volume Left	4	4	8	0	4	0
Volume Right	4	4	0	4	0	6
cSH	448	433	1279	1700	1150	1700
Volume to Capacity	0.03	0.03	0.01	0.22	0.00	0.15
Queue Length 95th (ft)	2	2	0	0	0	0
Control Delay (s)	13.3	13.5	7.8	0.0	8.1	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	13.3	13.5	0.2		0.1	
Approach LOS	B	B				

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	28.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	4	6	4	4	4	4	226	4	4	340	5
Future Volume (vph)	6	4	6	4	4	4	4	226	4	4	340	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1681	0	0	1700	0	1687	1772	0	1687	1772	0
Flt Permitted		0.981			0.984		0.950			0.950		
Satd. Flow (perm)	0	1681	0	0	1700	0	1687	1772	0	1687	1772	0
Link Speed (mph)		55			45			55			55	
Link Distance (ft)		910			918			950			792	
Travel Time (s)		11.3			13.9			11.8			9.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	0	0	12	0	4	255	0	4	384	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 28.2%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	4	6	4	4	4	4	226	4	4	340	5
Future Volume (Veh/h)	6	4	6	4	4	4	4	226	4	4	340	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	4	7	4	4	4	4	251	4	4	378	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											792	
pX, platoon unblocked	0.98	0.98	0.98	0.98	0.98		0.98					
vC, conflicting volume	654	652	381	656	653	253	384			255		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	635	633	356	637	634	253	359			255		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	98	99	99	99	99	99	100			100		
cM capacity (veh/h)	372	382	667	369	381	778	1147			1281		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	18	12	4	255	4	384
Volume Left	7	4	4	0	4	0
Volume Right	7	4	0	4	0	6
cSH	452	453	1147	1700	1281	1700
Volume to Capacity	0.04	0.03	0.00	0.15	0.00	0.23
Queue Length 95th (ft)	3	2	0	0	0	0
Control Delay (s)	13.3	13.2	8.2	0.0	7.8	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	13.3	13.2	0.1		0.1	
Approach LOS	B	B				

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	28.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	93	74	321	25	10	137
Future Volume (vph)	93	74	321	25	10	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	1075		792			1364
Travel Time (s)	29.3		9.8			16.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	103	82	357	28	11	152
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	3	5	6	3	5	2
Permitted Phases		3		6		
Detector Phase	3	5	6	3	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	23.0	18.0	49.0	23.0	18.0	67.0
Total Split (%)	25.6%	20.0%	54.4%	25.6%	20.0%	74.4%
Maximum Green (s)	16.0	11.0	42.0	16.0	11.0	60.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	12.9	24.1	59.7	74.7	9.1	70.9
Actuated g/C Ratio	0.14	0.27	0.66	0.83	0.10	0.79
v/c Ratio	0.43	0.20	0.30	0.02	0.06	0.11
Control Delay	40.0	23.9	10.2	2.2	44.1	3.1

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.0	23.9	10.2	2.2	44.1	3.1
LOS	D	C	B	A	D	A
Approach Delay	32.9		9.6			5.9
Approach LOS	C		A			A
Queue Length 50th (ft)	54	34	96	3	6	17
Queue Length 95th (ft)	98	64	171	7	23	36
Internal Link Dist (ft)	995		712			1284
Turn Bay Length (ft)		150		100	100	
Base Capacity (vph)	337	470	1177	1308	243	1400
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.17	0.30	0.02	0.05	0.11

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 72 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.43
Intersection Signal Delay: 14.7 — Intersection LOS: B
Intersection Capacity Utilization 31.1% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 412: US 258 & US 70 EB Ramps

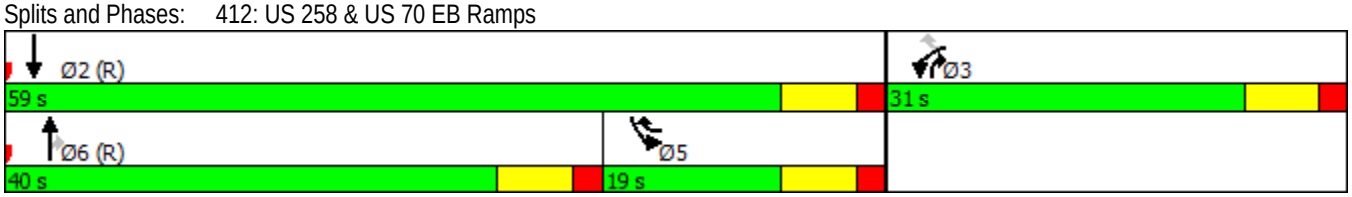
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	130	63	208	22	15	216
Future Volume (vph)	130	63	208	22	15	216
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	1075		792			1364
Travel Time (s)	29.3		9.8			16.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	144	70	231	24	17	240
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	3	5	6	3	5	2
Permitted Phases		3		6		
Detector Phase	3	5	6	3	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	31.0	19.0	40.0	31.0	19.0	59.0
Total Split (%)	34.4%	21.1%	44.4%	34.4%	21.1%	65.6%
Maximum Green (s)	24.0	12.0	33.0	24.0	12.0	52.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	15.0	27.8	52.2	73.2	10.6	65.0
Actuated g/C Ratio	0.17	0.31	0.58	0.81	0.12	0.72
v/c Ratio	0.51	0.15	0.22	0.02	0.09	0.19
Control Delay	39.9	19.6	12.1	2.8	34.8	4.4

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.9	19.6	12.1	2.8	34.8	4.4
LOS	D	B	B	A	C	A
Approach Delay	33.3		11.2			6.4
Approach LOS	C		B			A
Queue Length 50th (ft)	76	27	64	2	9	32
Queue Length 95th (ft)	125	50	127	8	28	55
Internal Link Dist (ft)	995		712			1284
Turn Bay Length (ft)		150		100	100	
Base Capacity (vph)	487	453	1029	1227	262	1282
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.15	0.22	0.02	0.06	0.19

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 62 (69%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.51
Intersection Signal Delay: 16.0 Intersection LOS: B
Intersection Capacity Utilization 28.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 412: US 258 & US 70 EB Ramps



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	22	15	265	130	63	125
Future Volume (vph)	22	15	265	130	63	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		100	125	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1027		1364			882
Travel Time (s)	15.6		16.9			10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	17	294	144	70	139
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	3	5	6	3	5	2
Permitted Phases		3		6		
Detector Phase	3	5	6	3	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	21.0	49.0	20.0	21.0	70.0
Total Split (%)	22.2%	23.3%	54.4%	22.2%	23.3%	77.8%
Maximum Green (s)	13.0	14.0	42.0	13.0	14.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.5	25.8	57.0	72.4	11.4	70.5
Actuated g/C Ratio	0.11	0.29	0.63	0.80	0.13	0.78
v/c Ratio	0.14	0.04	0.26	0.12	0.33	0.10
Control Delay	38.1	21.9	6.2	0.7	39.4	2.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.1	21.9	6.2	0.7	39.4	2.5
LOS	D	C	A	A	D	A
Approach Delay	31.4		4.4			14.9
Approach LOS	C		A			B
Queue Length 50th (ft)	13	7	36	3	37	14
Queue Length 95th (ft)	36	21	57	6	74	28
Internal Link Dist (ft)	947		1284			802
Turn Bay Length (ft)		100		100	125	
Base Capacity (vph)	281	511	1124	1287	299	1392
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.03	0.26	0.11	0.23	0.10

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.33
Intersection Signal Delay: 9.2 — Intersection LOS: A
Intersection Capacity Utilization 38.1% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 413: US 258 & US 70 WB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	25	10	178	93	74	206
Future Volume (vph)	25	10	178	93	74	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		100	125	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1027		1364			882
Travel Time (s)	15.6		16.9			10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	11	198	103	82	229
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	3	5	6	3	5	2
Permitted Phases		3		6		
Detector Phase	3	5	6	3	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	22.0	26.0	42.0	22.0	26.0	68.0
Total Split (%)	24.4%	28.9%	46.7%	24.4%	28.9%	75.6%
Maximum Green (s)	15.0	19.0	35.0	15.0	19.0	61.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.6	23.7	60.1	71.9	11.9	74.2
Actuated g/C Ratio	0.11	0.26	0.67	0.80	0.13	0.82
v/c Ratio	0.16	0.03	0.17	0.09	0.37	0.16
Control Delay	38.3	20.8	4.4	1.9	39.6	2.6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	20.8	4.4	1.9	39.6	2.6
LOS	D	C	A	A	D	A
Approach Delay	33.4		3.6			12.4
Approach LOS	C		A			B
Queue Length 50th (ft)	15	5	32	5	43	24
Queue Length 95th (ft)	40	15	26	6	83	45
Internal Link Dist (ft)	947		1284			802
Turn Bay Length (ft)		100		100	125	
Base Capacity (vph)	318	549	1186	1303	393	1464
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.02	0.17	0.08	0.21	0.16

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.37
Intersection Signal Delay: 9.6 Intersection LOS: A
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 413: US 258 & US 70 WB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	21	17	241	18	7	152
Future Volume (vph)	21	17	241	18	7	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1703	1524	1792	1524	1703	1792
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1703	1524	1792	1524	1703	1792
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	1072		998			1272
Travel Time (s)	29.2		12.4			15.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	19	268	20	8	169
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	18.0	52.0	20.0	18.0	70.0
Total Split (%)	22.2%	20.0%	57.8%	22.2%	20.0%	77.8%
Maximum Green (s)	13.0	11.0	45.0	13.0	11.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.4	17.8	72.6	82.4	9.0	78.2
Actuated g/C Ratio	0.10	0.20	0.81	0.92	0.10	0.87
v/c Ratio	0.13	0.06	0.19	0.01	0.05	0.11
Control Delay	38.1	25.8	5.1	1.7	40.3	1.9

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.1	25.8	5.1	1.7	40.3	1.9
LOS	D	C	A	A	D	A
Approach Delay	32.5		4.9			3.6
Approach LOS	C		A			A
Queue Length 50th (ft)	12	8	29	0	4	15
Queue Length 95th (ft)	35	25	100	6	18	29
Internal Link Dist (ft)	992		918			1192
Turn Bay Length (ft)		100		100	100	
Base Capacity (vph)	283	369	1445	1429	245	1557
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.05	0.19	0.01	0.03	0.11

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 72 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.19
Intersection Signal Delay: 6.7 — Intersection LOS: A
Intersection Capacity Utilization 26.9% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 414: NC 58 & US 70 EB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	30	15	157	16	10	229
Future Volume (vph)	30	15	157	16	10	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1703	1524	1792	1524	1703	1792
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1703	1524	1792	1524	1703	1792
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	1072		998			1272
Travel Time (s)	29.2		12.4			15.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	17	174	18	11	254
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	24.0	20.0	46.0	24.0	20.0	66.0
Total Split (%)	26.7%	22.2%	51.1%	26.7%	22.2%	73.3%
Maximum Green (s)	17.0	13.0	39.0	17.0	13.0	59.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.8	18.2	72.2	82.3	9.1	77.8
Actuated g/C Ratio	0.11	0.20	0.80	0.91	0.10	0.86
v/c Ratio	0.18	0.06	0.12	0.01	0.06	0.16
Control Delay	38.4	24.9	5.2	1.7	39.3	2.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.4	24.9	5.2	1.7	39.3	2.2
LOS	D	C	A	A	D	A
Approach Delay	33.8		4.9			3.7
Approach LOS	C		A			A
Queue Length 50th (ft)	18	7	18	0	6	25
Queue Length 95th (ft)	44	23	69	5	22	47
Internal Link Dist (ft)	992		918			1192
Turn Bay Length (ft)		100		100	100	
Base Capacity (vph)	359	409	1437	1449	283	1549
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.04	0.12	0.01	0.04	0.16

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 72 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.18
Intersection Signal Delay: 7.1 — Intersection LOS: A
Intersection Capacity Utilization 26.2% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 414: NC 58 & US 70 EB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	16	10	228	30	15	143
Future Volume (vph)	16	10	228	30	15	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1703	1524	1792	1524	1703	1792
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1703	1524	1792	1524	1703	1792
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	956		1272			924
Travel Time (s)	14.5		15.8			11.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	11	253	33	17	159
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	20.0	50.0	20.0	20.0	70.0
Total Split (%)	22.2%	22.2%	55.6%	22.2%	22.2%	77.8%
Maximum Green (s)	13.0	13.0	43.0	13.0	13.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.2	17.8	72.6	82.2	9.2	78.4
Actuated g/C Ratio	0.10	0.20	0.81	0.91	0.10	0.87
v/c Ratio	0.10	0.04	0.18	0.02	0.10	0.10
Control Delay	37.9	24.7	1.6	0.1	37.9	2.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	24.7	1.6	0.1	37.9	2.0
LOS	D	C	A	A	D	A
Approach Delay	32.9		1.5			5.5
Approach LOS	C		A			A
Queue Length 50th (ft)	10	5	9	0	9	16
Queue Length 95th (ft)	30	17	17	1	29	30
Internal Link Dist (ft)	876		1192			844
Turn Bay Length (ft)		100		100	100	
Base Capacity (vph)	283	400	1444	1428	283	1560
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.03	0.18	0.02	0.06	0.10

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.18
Intersection Signal Delay: 4.8 — Intersection LOS: A
Intersection Capacity Utilization 26.6% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 415: NC 58 & US 70 WB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	18	7	151	21	17	221
Future Volume (vph)	18	7	151	21	17	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1703	1524	1792	1524	1703	1792
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1703	1524	1792	1524	1703	1792
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	956		1272			924
Travel Time (s)	14.5		15.8			11.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	8	168	23	19	246
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	24.0	20.0	46.0	24.0	20.0	66.0
Total Split (%)	26.7%	22.2%	51.1%	26.7%	22.2%	73.3%
Maximum Green (s)	17.0	13.0	39.0	17.0	13.0	59.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.3	18.0	72.4	82.1	9.3	78.3
Actuated g/C Ratio	0.10	0.20	0.80	0.91	0.10	0.87
v/c Ratio	0.11	0.03	0.12	0.02	0.11	0.16
Control Delay	38.0	24.4	1.8	0.2	38.0	2.1

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	24.4	1.8	0.2	38.0	2.1
LOS	D	C	A	A	D	A
Approach Delay	34.1		1.6			4.7
Approach LOS	C		A			A
Queue Length 50th (ft)	11	3	8	0	10	26
Queue Length 95th (ft)	32	14	15	1	31	46
Internal Link Dist (ft)	876		1192			844
Turn Bay Length (ft)		100		100	100	
Base Capacity (vph)	359	401	1442	1453	283	1559
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.02	0.12	0.02	0.07	0.16

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.16
Intersection Signal Delay: 5.2 Intersection LOS: A
Intersection Capacity Utilization 28.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 415: NC 58 & US 70 WB Ramps

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	668	39	27	817	61	35
Future Volume (vph)	668	39	27	817	61	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	100		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)			100		100	
Satd. Flow (prot)	3374	1509	1687	3374	1684	0
Flt Permitted			0.950		0.969	
Satd. Flow (perm)	3374	1509	1687	3374	1684	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1005			1017	897	
Travel Time (s)	12.5			12.6	11.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	742	43	30	908	107	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	46			46	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	668	39	27	817	61	35
Future Volume (Veh/h)	668	39	27	817	61	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	742	43	30	908	68	39
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	1			1		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			785		1256	371
vC1, stage 1 conf vol					742	
vC2, stage 2 conf vol					514	
vCu, unblocked vol			785		1256	371
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)			2.3		3.5	3.3
p0 queue free %			96		76	94
cM capacity (veh/h)			798		286	621

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	371	371	43	30	454	454	107
Volume Left	0	0	0	30	0	0	68
Volume Right	0	0	43	0	0	0	39
cSH	1700	1700	1700	798	1700	1700	356
Volume to Capacity	0.22	0.22	0.03	0.04	0.27	0.27	0.30
Queue Length 95th (ft)	0	0	0	3	0	0	31
Control Delay (s)	0.0	0.0	0.0	9.7	0.0	0.0	19.4
Lane LOS				A			C
Approach Delay (s)	0.0			0.3			19.4
Approach LOS							C

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	817	62	35	668	39	27
Future Volume (vph)	817	62	35	668	39	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	100		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)			100		100	
Satd. Flow (prot)	3374	1509	1687	3374	1676	0
Flt Permitted			0.950		0.971	
Satd. Flow (perm)	3374	1509	1687	3374	1676	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1005			1017	897	
Travel Time (s)	12.5			12.6	11.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	908	69	39	742	73	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	46			46	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.6%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	817	62	35	668	39	27
Future Volume (Veh/h)	817	62	35	668	39	27
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	908	69	39	742	43	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	1			1		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			977		1357	454
vC1, stage 1 conf vol					908	
vC2, stage 2 conf vol					449	
vCu, unblocked vol			977		1357	454
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)			2.3		3.5	3.3
p0 queue free %			94		83	95
cM capacity (veh/h)			672		252	548

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	454	454	69	39	371	371	73
Volume Left	0	0	0	39	0	0	43
Volume Right	0	0	69	0	0	0	30
cSH	1700	1700	1700	672	1700	1700	324
Volume to Capacity	0.27	0.27	0.04	0.06	0.22	0.22	0.23
Queue Length 95th (ft)	0	0	0	5	0	0	21
Control Delay (s)	0.0	0.0	0.0	10.7	0.0	0.0	19.3
Lane LOS				B			C
Approach Delay (s)	0.0			0.5			19.3
Approach LOS							C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	39.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	33	21	15	21	8
Future Volume (vph)	10	33	21	15	21	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1824	1774	0	1696	0
Flt Permitted		0.989			0.965	
Satd. Flow (perm)	0	1824	1774	0	1696	0
Link Speed (mph)		45	45		45	
Link Distance (ft)		873	821		789	
Travel Time (s)		13.2	12.4		12.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	1%	1%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	48	40	0	32	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 19.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	33	21	15	21	8
Future Volume (Veh/h)	10	33	21	15	21	8
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	37	23	17	23	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	40				90	32
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	40				90	32
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	99
cM capacity (veh/h)	1563				899	1037

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	48	40	32
Volume Left	11	0	23
Volume Right	0	17	9
cSH	1563	1700	934
Volume to Capacity	0.01	0.02	0.03
Queue Length 95th (ft)	1	0	3
Control Delay (s)	1.7	0.0	9.0
Lane LOS	A		A
Approach Delay (s)	1.7	0.0	9.0
Approach LOS			A

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	19.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	21	33	21	15	10
Future Volume (vph)	8	21	33	21	15	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1819	1783	0	1680	0
Flt Permitted		0.986			0.971	
Satd. Flow (perm)	0	1819	1783	0	1680	0
Link Speed (mph)		45	45		45	
Link Distance (ft)		873	821		789	
Travel Time (s)		13.2	12.4		12.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	1%	1%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	32	60	0	28	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	21	33	21	15	10
Future Volume (Veh/h)	8	21	33	21	15	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	23	37	23	17	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	60				90	48
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	60				90	48
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	99
cM capacity (veh/h)	1537				901	1015

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	32	60	28
Volume Left	9	0	17
Volume Right	0	23	11
cSH	1537	1700	942
Volume to Capacity	0.01	0.04	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	2.1	0.0	8.9
Lane LOS	A		A
Approach Delay (s)	2.1	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		

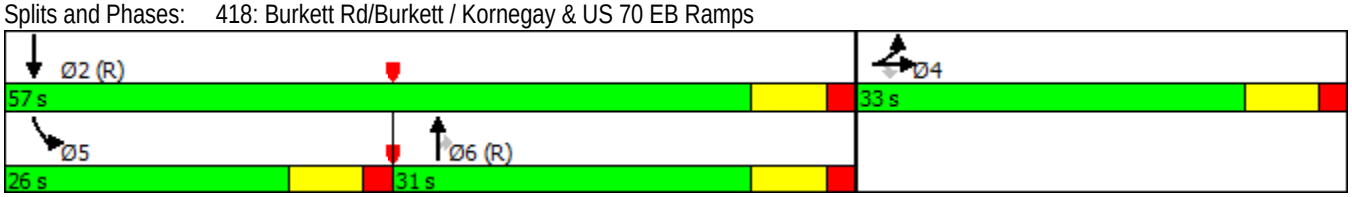
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	4	12	0	0	0	0	32	22	22	24	0
Future Volume (vph)	61	4	12	0	0	0	0	32	22	22	24	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	0		100	100		0
Storage Lanes	0		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1745	1553	0	0	0	0	1881	1599	1736	1827	0
Flt Permitted		0.955								0.950		
Satd. Flow (perm)	0	1745	1553	0	0	0	0	1881	1599	1736	1827	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		937			1062			1018			808	
Travel Time (s)		14.2			16.1			15.4			12.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	0%	0%	0%	1%	1%	1%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	72	13	0	0	0	0	36	24	24	27	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						6		5	2	
Permitted Phases			4						6			
Detector Phase	4	4	4					6	6	5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0					12.0	12.0	7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0					19.0	19.0	14.0	19.0	
Total Split (s)	33.0	33.0	33.0					31.0	31.0	26.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%					34.4%	34.4%	28.9%	63.3%	
Maximum Green (s)	26.0	26.0	26.0					24.0	24.0	19.0	50.0	
Yellow Time (s)	5.0	5.0	5.0					5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-2.0	-2.0					-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					C-Min	C-Min	None	C-Min	
Act Effct Green (s)		11.4	11.4					66.4	66.4	9.4	72.4	
Actuated g/C Ratio		0.13	0.13					0.74	0.74	0.10	0.80	
v/c Ratio		0.33	0.07					0.03	0.02	0.13	0.02	
Control Delay		39.2	34.0					7.1	7.3	37.3	3.4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay		39.2	34.0					7.1	7.3	37.3	3.4	
LOS		D	C					A	A	D	A	
Approach Delay		38.4						7.2			19.3	
Approach LOS		D						A			B	
Queue Length 50th (ft)		38	7					4	3	10	2	
Queue Length 95th (ft)		76	23					22	17	42	18	
Internal Link Dist (ft)		857			982			938			728	
Turn Bay Length (ft)			100						100	100		
Base Capacity (vph)		542	483					1387	1179	405	1470	
Starvation Cap Reductn		0	0					0	0	0	0	
Spillback Cap Reductn		0	0					0	0	0	0	
Storage Cap Reductn		0	0					0	0	0	0	
Reduced v/c Ratio		0.13	0.03					0.03	0.02	0.06	0.02	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.33
Intersection Signal Delay: 23.9 Intersection LOS: C
Intersection Capacity Utilization 34.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 418: Burkett Rd/Burkett / Kornegay & US 70 EB Ramps



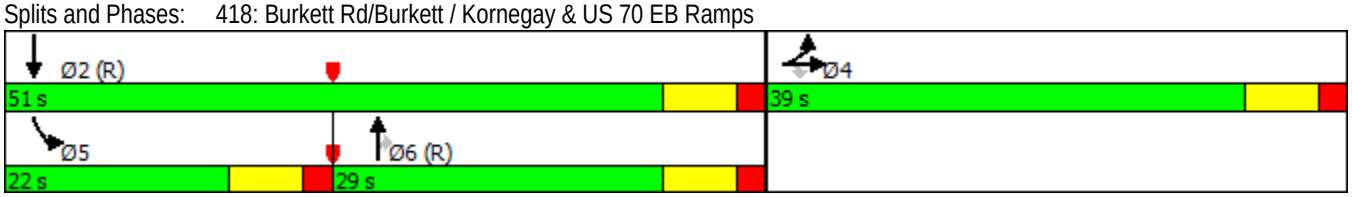
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	4	22	0	0	0	0	21	15	16	32	0
Future Volume (vph)	97	4	22	0	0	0	0	21	15	16	32	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	0		100	100		0
Storage Lanes	0		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1743	1553	0	0	0	0	1881	1599	1736	1827	0
Flt Permitted		0.954								0.950		
Satd. Flow (perm)	0	1743	1553	0	0	0	0	1881	1599	1736	1827	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		937			1062			1018			808	
Travel Time (s)		14.2			16.1			15.4			12.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	0%	0%	0%	1%	1%	1%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	112	24	0	0	0	0	23	17	18	36	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						6		5	2	
Permitted Phases			4						6			
Detector Phase	4	4	4					6	6	5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0					12.0	12.0	7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0					19.0	19.0	14.0	19.0	
Total Split (s)	39.0	39.0	39.0					29.0	29.0	22.0	51.0	
Total Split (%)	43.3%	43.3%	43.3%					32.2%	32.2%	24.4%	56.7%	
Maximum Green (s)	32.0	32.0	32.0					22.0	22.0	15.0	44.0	
Yellow Time (s)	5.0	5.0	5.0					5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-2.0	-2.0					-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					C-Min	C-Min	None	C-Min	
Act Effct Green (s)		13.2	13.2					64.8	64.8	9.2	70.6	
Actuated g/C Ratio		0.15	0.15					0.72	0.72	0.10	0.78	
v/c Ratio		0.44	0.11					0.02	0.01	0.10	0.03	
Control Delay		39.7	32.6					8.2	8.4	31.3	5.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay		39.7	32.6					8.2	8.4	31.3	5.7	
LOS		D	C					A	A	C	A	
Approach Delay		38.4						8.3			14.3	
Approach LOS		D						A			B	
Queue Length 50th (ft)		59	12					3	2	10	11	
Queue Length 95th (ft)		104	33					17	14	35	28	
Internal Link Dist (ft)		857			982			938			728	
Turn Bay Length (ft)			100						100	100		
Base Capacity (vph)		658	586					1353	1150	327	1433	
Starvation Cap Reductn		0	0					0	0	0	0	
Spillback Cap Reductn		0	0					0	0	0	0	
Storage Cap Reductn		0	0					0	0	0	0	
Reduced v/c Ratio		0.17	0.04					0.02	0.01	0.06	0.03	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.44
Intersection Signal Delay: 27.5 Intersection LOS: C
Intersection Capacity Utilization 34.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 418: Burkett Rd/Burkett / Kornegay & US 70 EB Ramps



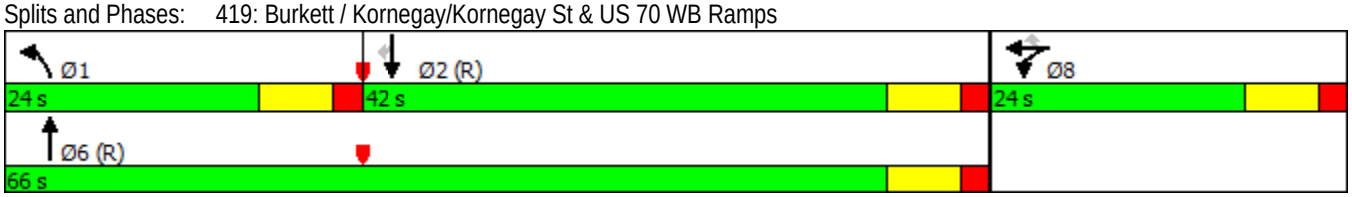
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	15	4	17	22	71	0	0	31	97
Future Volume (vph)	0	0	0	15	4	17	22	71	0	0	31	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		100	100		0	0		100
Storage Lanes	0		0	0		1	1		0	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	0	0	0	1756	1553	1736	1827	0	0	1827	1553
Flt Permitted					0.961		0.950					
Satd. Flow (perm)	0	0	0	0	1756	1553	1736	1827	0	0	1827	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1012			920			808			961	
Travel Time (s)		15.3			13.9			12.2			14.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	21	19	24	79	0	0	34	108
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Split	NA	Perm	Prot	NA			NA	Perm
Protected Phases				8	8		1	6			2	
Permitted Phases						8						2
Detector Phase				8	8	8	1	6			2	2
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0	7.0	12.0			12.0	12.0
Minimum Split (s)				14.0	14.0	14.0	14.0	19.0			19.0	19.0
Total Split (s)				24.0	24.0	24.0	24.0	66.0			42.0	42.0
Total Split (%)				26.7%	26.7%	26.7%	26.7%	73.3%			46.7%	46.7%
Maximum Green (s)				17.0	17.0	17.0	17.0	59.0			35.0	35.0
Yellow Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
All-Red Time (s)				2.0	2.0	2.0	2.0	2.0			2.0	2.0
Lost Time Adjust (s)					-2.0	-2.0	-2.0	-2.0			-2.0	-2.0
Total Lost Time (s)					5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Min			C-Min	C-Min
Act Effct Green (s)					9.4	9.4	9.4	78.2			72.2	72.2
Actuated g/C Ratio					0.10	0.10	0.10	0.87			0.80	0.80
v/c Ratio					0.12	0.12	0.13	0.05			0.02	0.09
Control Delay					37.9	38.1	21.4	1.7			5.7	5.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay					0.0	0.0	0.0	0.0			0.0	0.0
Total Delay					37.9	38.1	21.4	1.7			5.7	5.4
LOS					D	D	C	A			A	A
Approach Delay					38.0			6.3			5.4	
Approach LOS					D			A			A	
Queue Length 50th (ft)					11	10	6	2			3	11
Queue Length 95th (ft)					33	31	15	5			19	47
Internal Link Dist (ft)		932			840			728			881	
Turn Bay Length (ft)						100	100					100
Base Capacity (vph)					370	327	366	1588			1465	1246
Starvation Cap Reductn					0	0	0	0			0	0
Spillback Cap Reductn					0	0	0	0			0	0
Storage Cap Reductn					0	0	0	0			0	0
Reduced v/c Ratio					0.06	0.06	0.07	0.05			0.02	0.09

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.13
Intersection Signal Delay: 10.3 Intersection LOS: B
Intersection Capacity Utilization 34.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 419: Burkett / Kornegay/Kornegay St & US 70 WB Ramps



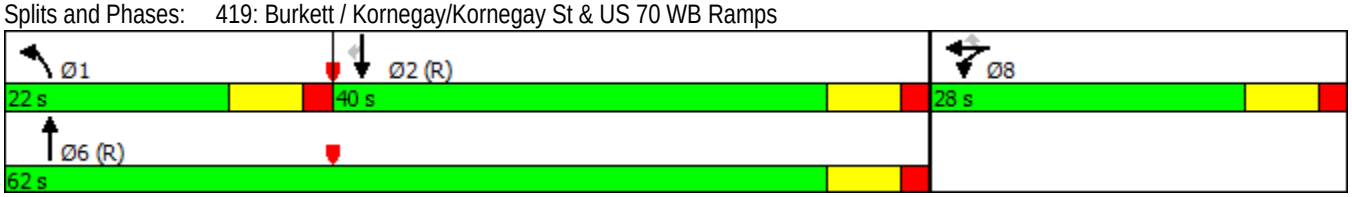
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	22	4	22	12	106	0	0	26	61
Future Volume (vph)	0	0	0	22	4	22	12	106	0	0	26	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		100	100		0	0		100
Storage Lanes	0		0	0		1	1		0	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	0	0	0	1752	1553	1736	1827	0	0	1827	1553
Flt Permitted					0.959		0.950					
Satd. Flow (perm)	0	0	0	0	1752	1553	1736	1827	0	0	1827	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1012			920			808			961	
Travel Time (s)		15.3			13.9			12.2			14.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	28	24	13	118	0	0	29	68
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Split	NA	Perm	Prot	NA			NA	Perm
Protected Phases				8	8		1	6			2	
Permitted Phases						8						2
Detector Phase				8	8	8	1	6			2	2
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0	7.0	12.0			12.0	12.0
Minimum Split (s)				14.0	14.0	14.0	14.0	19.0			19.0	19.0
Total Split (s)				28.0	28.0	28.0	22.0	62.0			40.0	40.0
Total Split (%)				31.1%	31.1%	31.1%	24.4%	68.9%			44.4%	44.4%
Maximum Green (s)				21.0	21.0	21.0	15.0	55.0			33.0	33.0
Yellow Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
All-Red Time (s)				2.0	2.0	2.0	2.0	2.0			2.0	2.0
Lost Time Adjust (s)					-2.0	-2.0	-2.0	-2.0			-2.0	-2.0
Total Lost Time (s)					5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Min			C-Min	C-Min
Act Effct Green (s)					9.6	9.6	9.1	78.0			75.1	75.1
Actuated g/C Ratio					0.11	0.11	0.10	0.87			0.83	0.83
v/c Ratio					0.15	0.15	0.07	0.07			0.02	0.05
Control Delay					38.2	38.3	13.7	0.8			4.4	4.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay					0.0	0.0	0.0	0.0			0.0	0.0
Total Delay					38.2	38.3	13.7	0.8			4.4	4.2
LOS					D	D	B	A			A	A
Approach Delay					38.2			2.1			4.3	
Approach LOS					D			A			A	
Queue Length 50th (ft)					15	13	2	2			3	6
Queue Length 95th (ft)					40	36	7	4			17	32
Internal Link Dist (ft)		932			840			728			881	
Turn Bay Length (ft)						100	100					100
Base Capacity (vph)					447	396	327	1584			1525	1296
Starvation Cap Reductn					0	0	0	0			0	0
Spillback Cap Reductn					0	0	0	0			0	0
Storage Cap Reductn					0	0	0	0			0	0
Reduced v/c Ratio					0.06	0.06	0.04	0.07			0.02	0.05

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.15
Intersection Signal Delay: 9.5 Intersection LOS: A
Intersection Capacity Utilization 34.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 419: Burkett / Kornegay/Kornegay St & US 70 WB Ramps



2040 Build Alternative 35
SimTraffic Reports

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Summary of All Intervals

Run Number	1	2	3	4	2553 Alt	5rnative 35 AM	Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	9412	9277	9405	9441	9496	9267	9382
Vehs Exited	9333	9279	9383	9442	9495	9290	9372
Starting Vehs	124	155	165	170	134	165	146
Ending Vehs	203	153	187	169	135	142	151
Travel Distance (mi)	4895	4860	4938	4944	4964	4887	4915
Travel Time (hr)	174.7	155.6	159.8	158.8	160.1	153.0	160.3
Total Delay (hr)	68.7	50.1	52.4	51.3	52.9	47.0	53.7
Total Stops	3529	3509	3638	3502	3382	3632	3535
Fuel Used (gal)	191.6	186.1	190.0	190.7	190.3	187.2	189.3

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	2553 Alt	5rnative 35 AM	Avg
Vehs Entered	9412	9277	9405	9441	9496	9267	9382
Vehs Exited	9333	9279	9383	9442	9495	9290	9372
Starting Vehs	124	155	165	170	134	165	146
Ending Vehs	203	153	187	169	135	142	151
Travel Distance (mi)	4895	4860	4938	4944	4964	4887	4915
Travel Time (hr)	174.7	155.6	159.8	158.8	160.1	153.0	160.3
Total Delay (hr)	68.7	50.1	52.4	51.3	52.9	47.0	53.7
Total Stops	3529	3509	3638	3502	3382	3632	3535
Fuel Used (gal)	191.6	186.1	190.0	190.7	190.3	187.2	189.3

Intersection: 401: Jim Sutton Rd & Service Rd

Movement	EB	WB	SB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	38	34	20
Average Queue (ft)	15	16	2
95th Queue (ft)	38	36	11
Link Distance (ft)	848	806	935
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			100
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	74	171	72	78	328	28
Average Queue (ft)	27	84	17	20	175	3
95th Queue (ft)	61	151	52	56	272	15
Link Distance (ft)	951	951	935	935	1248	1248
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		100	350	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	104	240	101	45	191	108
Average Queue (ft)	37	113	33	7	91	30
95th Queue (ft)	78	195	80	29	159	81
Link Distance (ft)	939	939	1248	1248	934	934
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		300		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 404: Willie Measley Rd & Washington St/Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	91	59	64	24
Average Queue (ft)	43	22	19	2
95th Queue (ft)	72	44	49	12
Link Distance (ft)	924	913	934	1055
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 405: Harold Sutton Rd/Albert Sugg Rd & US 70 Bus

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	T	L	T	TR	LTR	LTR
Maximum Queue (ft)	42	2	2	46	21	7	252	354
Average Queue (ft)	9	0	0	12	1	0	96	181
95th Queue (ft)	27	2	1	37	14	6	232	459
Link Distance (ft)		990	990		965	965	855	873
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100			100				
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 406: US 70 EB Ramps & NC 55

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	128	35	48	54	137	104
Average Queue (ft)	41	4	13	12	54	37
95th Queue (ft)	93	20	39	39	112	83
Link Distance (ft)	962	962	1227	1227	926	926
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			125
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 407: US 70 WB Ramps & NC 55

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	93	53	97	61	112	57
Average Queue (ft)	24	12	33	13	39	12
95th Queue (ft)	68	39	75	42	87	38
Link Distance (ft)	1227	1227	966	966	904	904
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	125			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 408: NC 11 & Service Rd

Movement	WB	NB	NB	SB
Directions Served	LR	T	R	L
Maximum Queue (ft)	64	165	161	48
Average Queue (ft)	20	5	5	7
95th Queue (ft)	48	127	124	30
Link Distance (ft)	936	954	954	930
Upstream Blk Time (%)		0	0	
Queuing Penalty (veh)		0	0	
Storage Bay Dist (ft)			175	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 409: NC 11 & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	158	96	153	223	223	43
Average Queue (ft)	63	32	69	81	77	6
95th Queue (ft)	121	76	126	171	165	27
Link Distance (ft)	914	914	930	930	1228	1228
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150	175			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 410: NC 11 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	136	120	139	163	258	51
Average Queue (ft)	64	50	52	61	110	12
95th Queue (ft)	115	100	106	129	209	38
Link Distance (ft)	941	941	1228	1228	974	974
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150	150			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 411: US 258 & Clarence Potter Rd/Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	31	32	18	16
Average Queue (ft)	8	8	1	1
95th Queue (ft)	28	28	10	9
Link Distance (ft)	875	870	922	728
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 412: US 258 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	169	133	120	28	44	65
Average Queue (ft)	68	55	47	2	7	14
95th Queue (ft)	127	105	105	13	28	46
Link Distance (ft)	1029	1029	728	728	1295	1295
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 413: US 258 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	63	49	116	83	119	60
Average Queue (ft)	17	8	32	18	44	6
95th Queue (ft)	49	31	86	58	95	30
Link Distance (ft)	980	980	1295	1295	848	848
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	125	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 414: NC 58 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	62	59	75	28	34	58
Average Queue (ft)	20	20	20	2	5	8
95th Queue (ft)	52	51	59	14	22	34
Link Distance (ft)	1025	1025	964	964	1203	1203
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 415: NC 58 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	59	40	74	37	60	48
Average Queue (ft)	12	7	18	2	14	6
95th Queue (ft)	39	29	56	17	44	28
Link Distance (ft)	909	909	1203	1203	890	890
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 416: Wyse Fork Rd & US 70 Bus

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	63	268
Average Queue (ft)	13	105
95th Queue (ft)	41	256
Link Distance (ft)	994	820
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	100	100
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 417: Burkett Rd & Wyse Fork Conn.

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	8	50
Average Queue (ft)	0	16
95th Queue (ft)	5	38
Link Distance (ft)	852	757
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 418: Burkett Rd/Burkett / Kornegay & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	LT	R	T	R	L	T
Maximum Queue (ft)	121	44	39	21	64	29
Average Queue (ft)	49	10	5	3	20	3
95th Queue (ft)	97	31	23	14	52	18
Link Distance (ft)	902	902	979	979	772	772
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 419: Burkett / Kornegay/Kornegay St & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	L	T	T	R
Maximum Queue (ft)	63	67	62	23	31	50
Average Queue (ft)	17	16	17	1	3	9
95th Queue (ft)	48	47	49	14	17	32
Link Distance (ft)	885	885	772	772	921	921
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	2	3	4	2553 Alternative 35 PM		Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	9409	9473	9383	9412	9453	9409	9422
Vehs Exited	9367	9453	9371	9407	9448	9417	9412
Starting Vehs	132	159	130	153	135	132	130
Ending Vehs	174	179	142	158	140	124	137
Travel Distance (mi)	4885	4952	4901	4944	4959	4935	4929
Travel Time (hr)	155.9	174.9	147.1	149.2	148.9	149.3	154.2
Total Delay (hr)	49.9	67.2	40.5	41.7	41.4	42.2	47.2
Total Stops	3486	3616	3451	3566	3511	3528	3523
Fuel Used (gal)	188.8	196.4	187.4	189.2	190.0	189.0	190.1

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	2553 Alternative 35 PM		Avg
Vehs Entered	9409	9473	9383	9412	9453	9409	9422
Vehs Exited	9367	9453	9371	9407	9448	9417	9412
Starting Vehs	132	159	130	153	135	132	130
Ending Vehs	174	179	142	158	140	124	137
Travel Distance (mi)	4885	4952	4901	4944	4959	4935	4929
Travel Time (hr)	155.9	174.9	147.1	149.2	148.9	149.3	154.2
Total Delay (hr)	49.9	67.2	40.5	41.7	41.4	42.2	47.2
Total Stops	3486	3616	3451	3566	3511	3528	3523
Fuel Used (gal)	188.8	196.4	187.4	189.2	190.0	189.0	190.1

Intersection: 401: Jim Sutton Rd & Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	29	41	8	12
Average Queue (ft)	11	14	0	1
95th Queue (ft)	31	37	5	7
Link Distance (ft)	848	806	905	935
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	92	164	73	58	259	52
Average Queue (ft)	34	77	14	11	137	6
95th Queue (ft)	76	143	47	37	226	29
Link Distance (ft)	951	951	935	935	1248	1248
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175		100	350	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	150	284	113	39	165	73
Average Queue (ft)	60	132	34	5	76	25
95th Queue (ft)	118	236	81	23	139	61
Link Distance (ft)	939	939	1248	1248	934	934
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		300		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 404: Willie Measley Rd & Washington St/Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	70	61	69	12
Average Queue (ft)	36	25	19	1
95th Queue (ft)	57	47	49	7
Link Distance (ft)	924	913	934	1055
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 405: Harold Sutton Rd/Albert Sugg Rd & US 70 Bus

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	T	L	TR	LTR	LTR
Maximum Queue (ft)	54	2	54	8	196	308
Average Queue (ft)	15	0	16	0	69	150
95th Queue (ft)	40	1	40	5	207	466
Link Distance (ft)		990		965	855	873
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100		100			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 406: US 70 EB Ramps & NC 55

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	106	39	57	117	146	86
Average Queue (ft)	39	6	17	27	57	29
95th Queue (ft)	89	26	48	79	109	65
Link Distance (ft)	962	962	1227	1227	926	926
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			125
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 407: US 70 WB Ramps & NC 55

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	112	54	110	87	92	63
Average Queue (ft)	32	10	36	20	40	11
95th Queue (ft)	82	37	81	62	82	38
Link Distance (ft)	1227	1227	966	966	904	904
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	125			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 408: NC 11 & Service Rd

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	41	32
Average Queue (ft)	11	7
95th Queue (ft)	35	27
Link Distance (ft)	936	930
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 409: NC 11 & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	107	130	142	112	334	57
Average Queue (ft)	50	51	56	38	115	11
95th Queue (ft)	99	103	114	91	264	39
Link Distance (ft)	914	914	930	930	1228	1228
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150	175			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 410: NC 11 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	129	139	109	141	357	83
Average Queue (ft)	45	63	40	33	175	17
95th Queue (ft)	98	116	88	94	303	54
Link Distance (ft)	941	941	1228	1228	974	974
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150	150			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 411: US 258 & Clarence Potter Rd/Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	33	28	12	13
Average Queue (ft)	10	8	1	1
95th Queue (ft)	30	26	8	9
Link Distance (ft)	875	870	922	728
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 412: US 258 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	185	98	137	58	56	91
Average Queue (ft)	91	40	52	5	12	25
95th Queue (ft)	157	84	109	26	40	64
Link Distance (ft)	1029	1029	728	728	1295	1295
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 413: US 258 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	67	37	98	59	116	54
Average Queue (ft)	19	4	27	14	53	10
95th Queue (ft)	49	19	75	42	100	39
Link Distance (ft)	980	980	1295	1295	848	848
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	125	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 414: NC 58 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	80	68	69	20	47	71
Average Queue (ft)	29	18	16	1	10	14
95th Queue (ft)	66	52	50	10	34	46
Link Distance (ft)	1025	1025	964	964	1203	1203
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 415: NC 58 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	60	17	74	27	57	51
Average Queue (ft)	14	4	12	2	12	8
95th Queue (ft)	42	14	45	13	39	31
Link Distance (ft)	909	909	1203	1203	890	890
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 416: Wyse Fork Rd & US 70 Bus

Movement	EB	WB	NB
Directions Served	R	L	LR
Maximum Queue (ft)	7	53	137
Average Queue (ft)	0	14	41
95th Queue (ft)	4	39	102
Link Distance (ft)	972	994	820
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	100	100	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 417: Burkett Rd & Wyse Fork Conn.

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	4	45
Average Queue (ft)	0	14
95th Queue (ft)	3	36
Link Distance (ft)	852	757
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 418: Burkett Rd/Burkett / Kornegay & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	LT	R	T	R	L	T
Maximum Queue (ft)	163	67	24	21	64	39
Average Queue (ft)	69	18	3	2	15	6
95th Queue (ft)	129	48	16	12	46	27
Link Distance (ft)	902	902	979	979	772	772
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 419: Burkett / Kornegay/Kornegay St & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	L	T	T	R
Maximum Queue (ft)	83	56	48	46	31	54
Average Queue (ft)	21	18	10	4	3	7
95th Queue (ft)	57	47	33	27	16	30
Link Distance (ft)	885	885	772	772	921	921
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 0

APPENDIX O

2040 Build Alternative 36

Peak Hour Traffic Volume Development and

FREEVAL-E, Synchro & SimTraffic Reports

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2040 Build Alternative 36
Peak Hour Traffic Volume
Development

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Alternative 36

Volume Development

A project-level traffic forecast, titled "Traffic Forecast Technical Memorandum, Kinston Bypass Alternatives Study", was prepared and finalized in November, 2016. This traffic forecast was used to provide peak hour volumes for the analysis of the selected alternatives in this memorandum. The traffic forecast is included in **Attachment A**.

The Intersection Analysis Utility (IAU), provided by NCDOT, was utilized to calculate AM and PM Peak Hour volumes for at-grade intersections (ramp terminals and any intersections within 1,000 feet of ramp terminals), interchange ramps, and freeway segments within interchanges. Peak hour volumes for freeway segments between interchanges were calculated by finding the forecasted daily two-way volumes along the link, then breaking the daily volume down by multiplying it by the Design Hour Volume Percentage (K), and the Peak Hour Directional Split (D). All of these volumes are shown in **BLACK** in **Figures 14A-14F.**

US 70 and CF Harvey Parkway Extension Freeway Analysis

FREEVAL-E does not use a Peak Hour Factor (PHF) to adjust the peak hour volumes to reflect the peak 15-minute period. Additionally, FREEVAL-E requires balanced peak hour mainline volumes, since only the beginning freeway segment and subsequent ramps have volume inputs. To provide peak 15-minute hourly flow rates for the analysis in FREEVAL-E, each of the peak hour volumes calculated for the freeway segments and ramps was divided by 0.90, which is the recommended PHF in the NCDOT Congestion Management Capacity Analysis Guidelines. To balance the peak hour volumes to use with FREEVAL-E, the highest peak 15-minute hourly flow rate was located along the US 70 corridor within the study area. Once this was located, the mainline US 70 volumes were adjusted in each direction to the eastern and western ends of the network by adding and subtracting the relevant ramp volumes.

For Alternative 36, the location used as the "hold point" for balancing purposes on US 70 was the segment between Jim Sutton Road / Willie Measley Road and US 70 Business (west of Kinston). These volume adjustments are shown in **BLUE** in **Figures 14A-14F**. The ensuing pages of this appendix detail the following step-by-step process used to calculate the volumes used:

Step 1 – Freeway segment volumes between interchanges were calculated by multiplying the two-way daily volumes by the K and D factors.

Step 2 – Volumes for interchange ramps, and freeway segments inside interchanges were collected from the IAU breakout sheets.

Step 3 – The volumes collected in Step 2 were divided by the NCDOT default PHF of 0.90 to account for the fact that FREEVAL-E does not factor in the PHF, and the highest calculated freeway volume location was used as the base point with which to balance the US 70 freeway corridor.

Step 4 – The volumes of the subsequent freeway segments were adjusted to allow for a balanced peak hour network in both directions, as well as along CF Harvey Parkway Extension.

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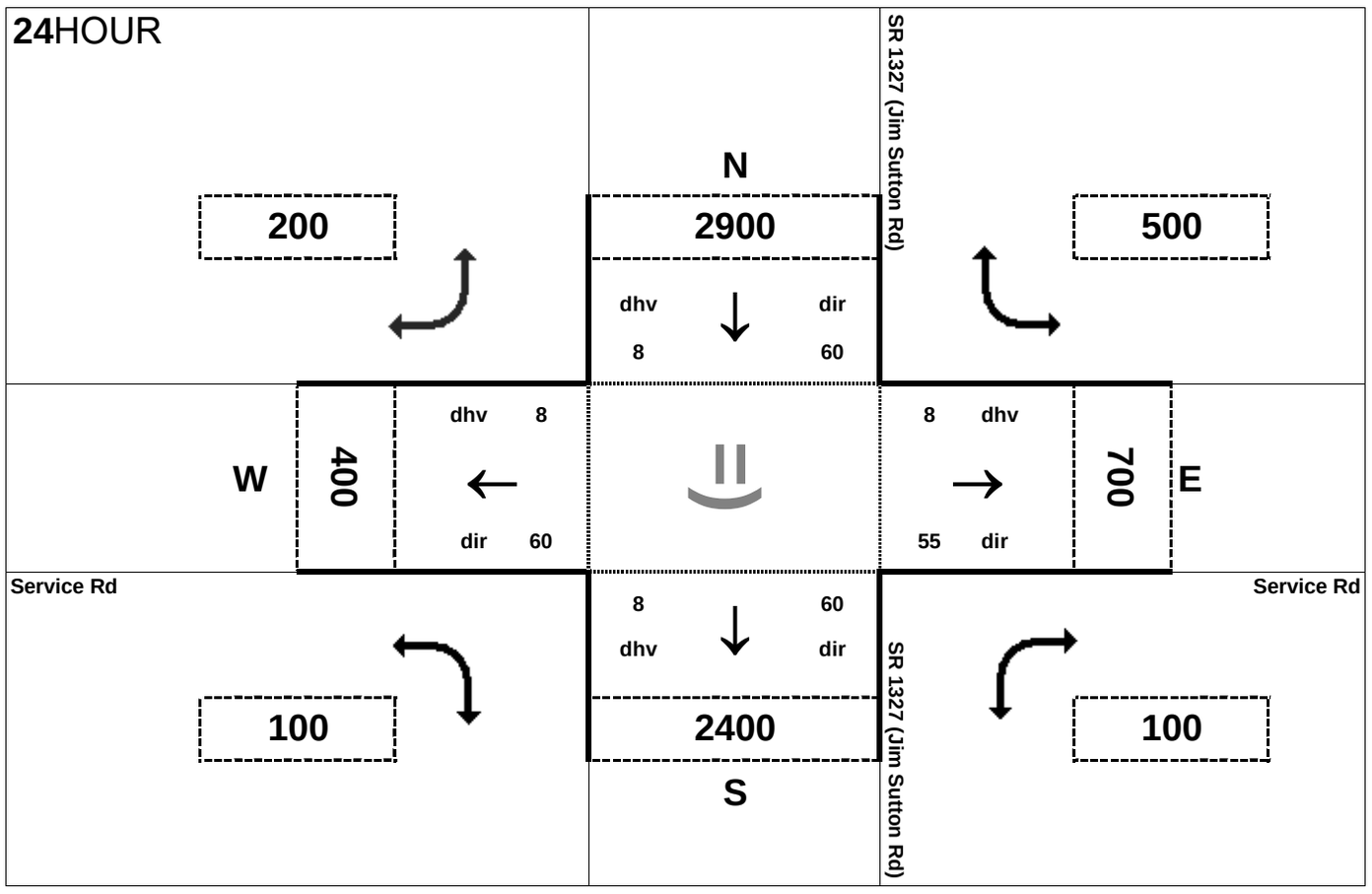
Peak Hour Volume Breakouts Report:
401 Intersection of SR 1327 (Jim Sutton Rd) at Service Rd

Traffic Forecast Release Date:
November-16

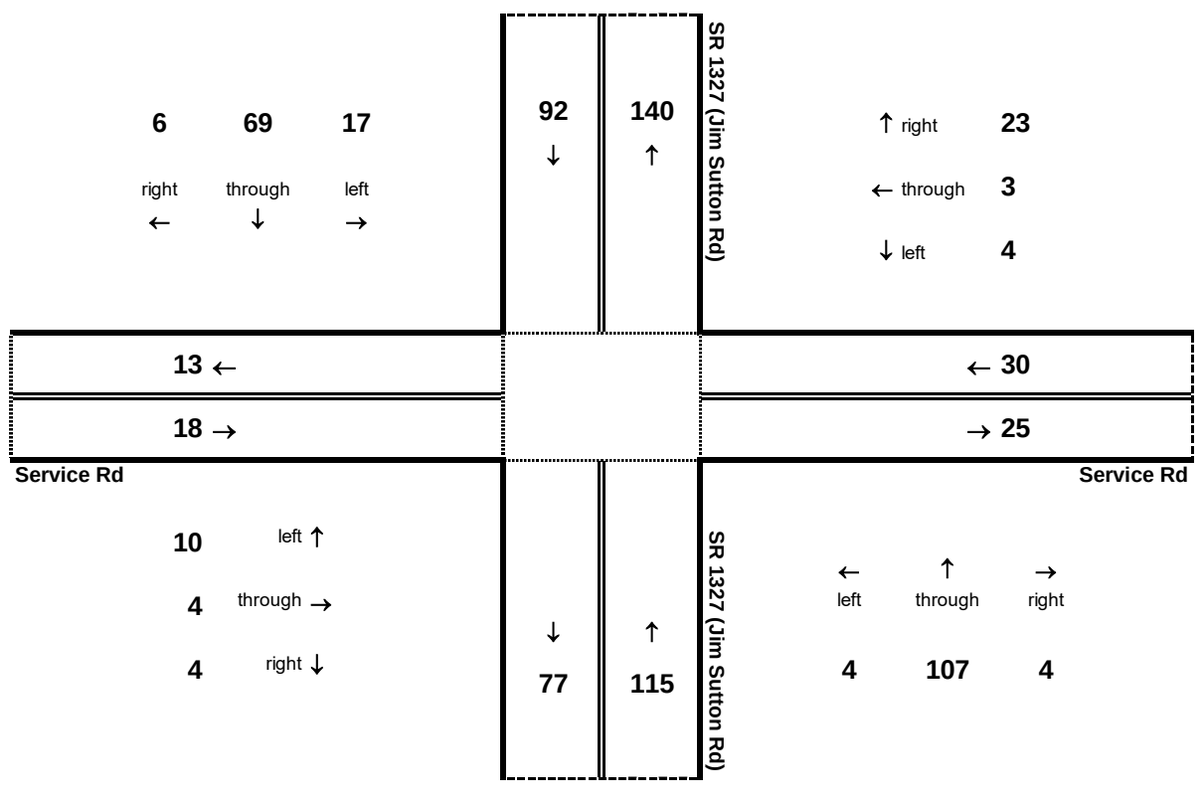
Traffic Data Year:
2040 Build Alt 36

Project:
R-2553

24HOUR

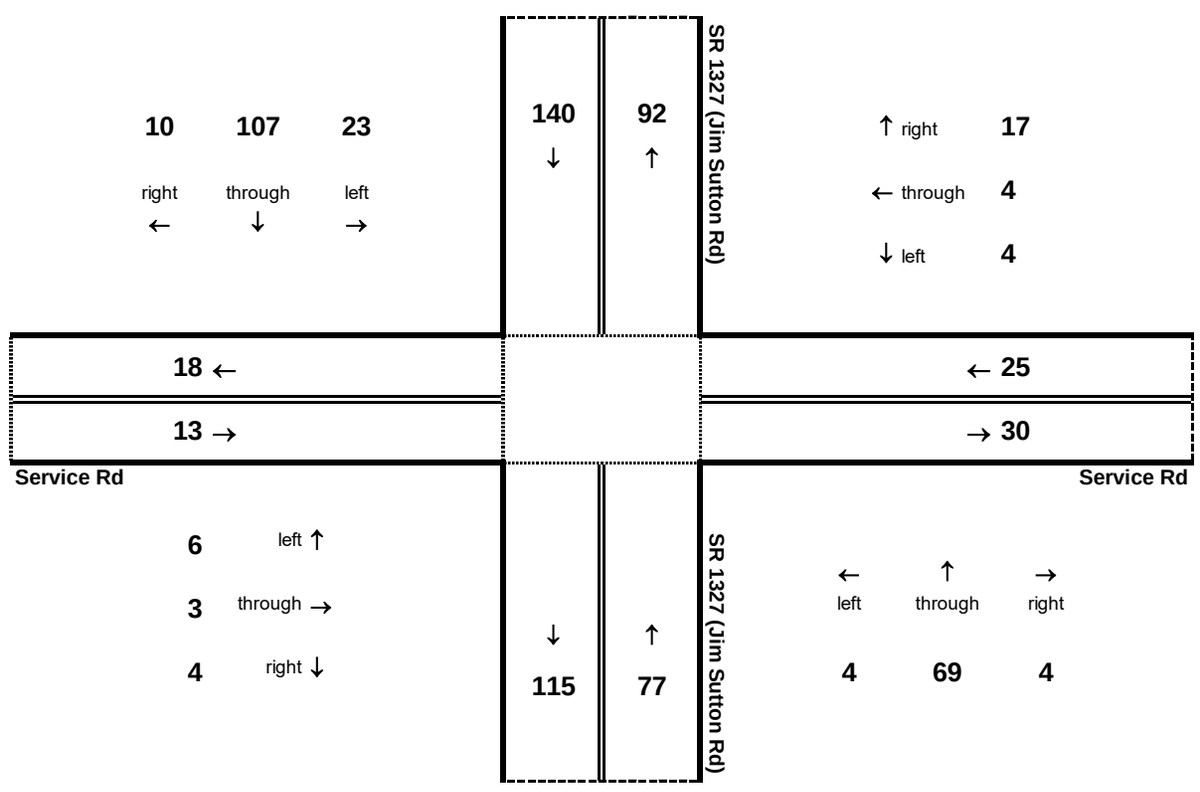


AMPEAK



AM peak hour inflow is 256 vehicles. AM peak hour outflow is 255 vehicles.

PMPEAK



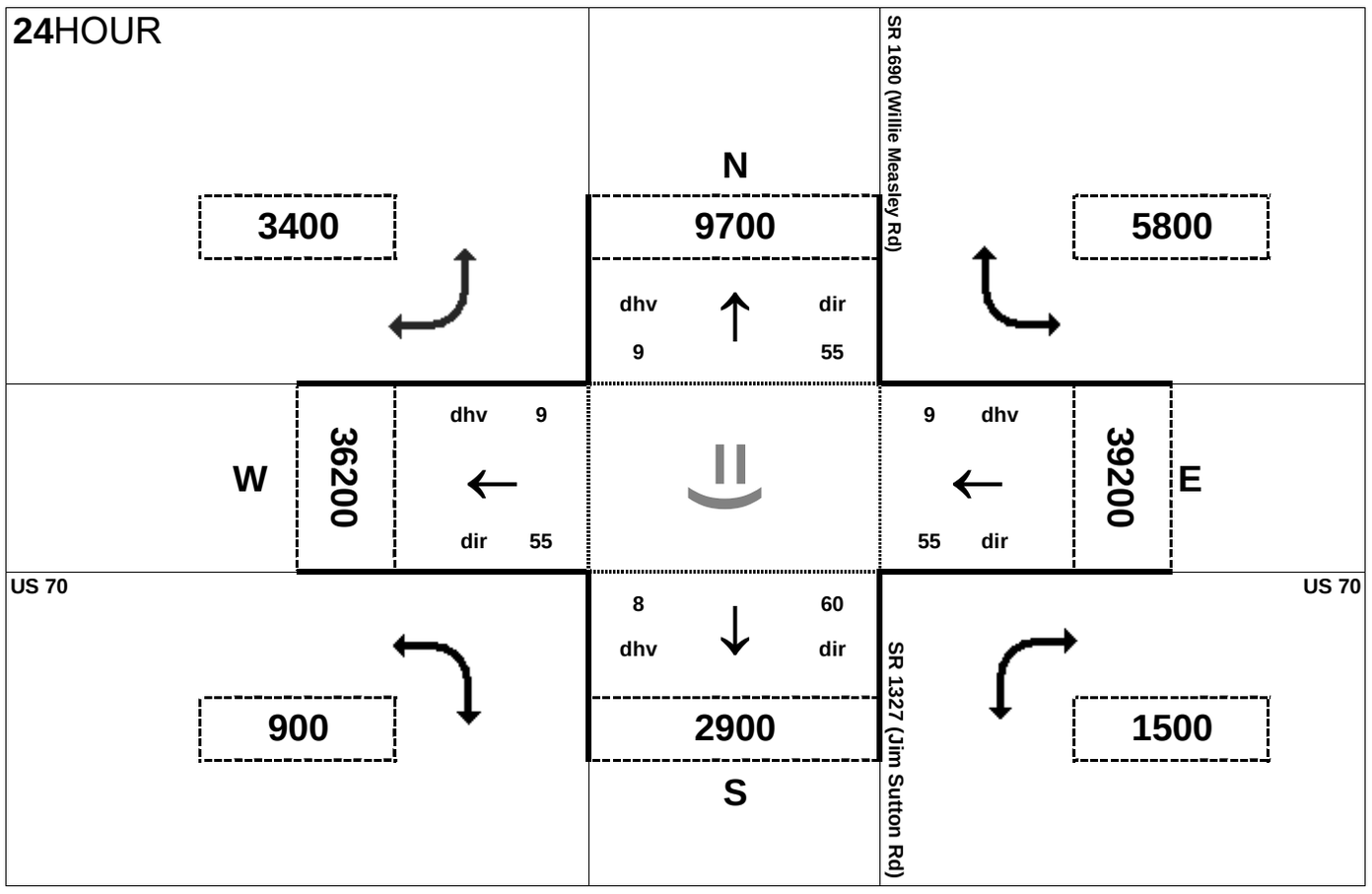
PM peak hour inflow is 255 vehicles. PM peak hour outflow is 256 vehicles.

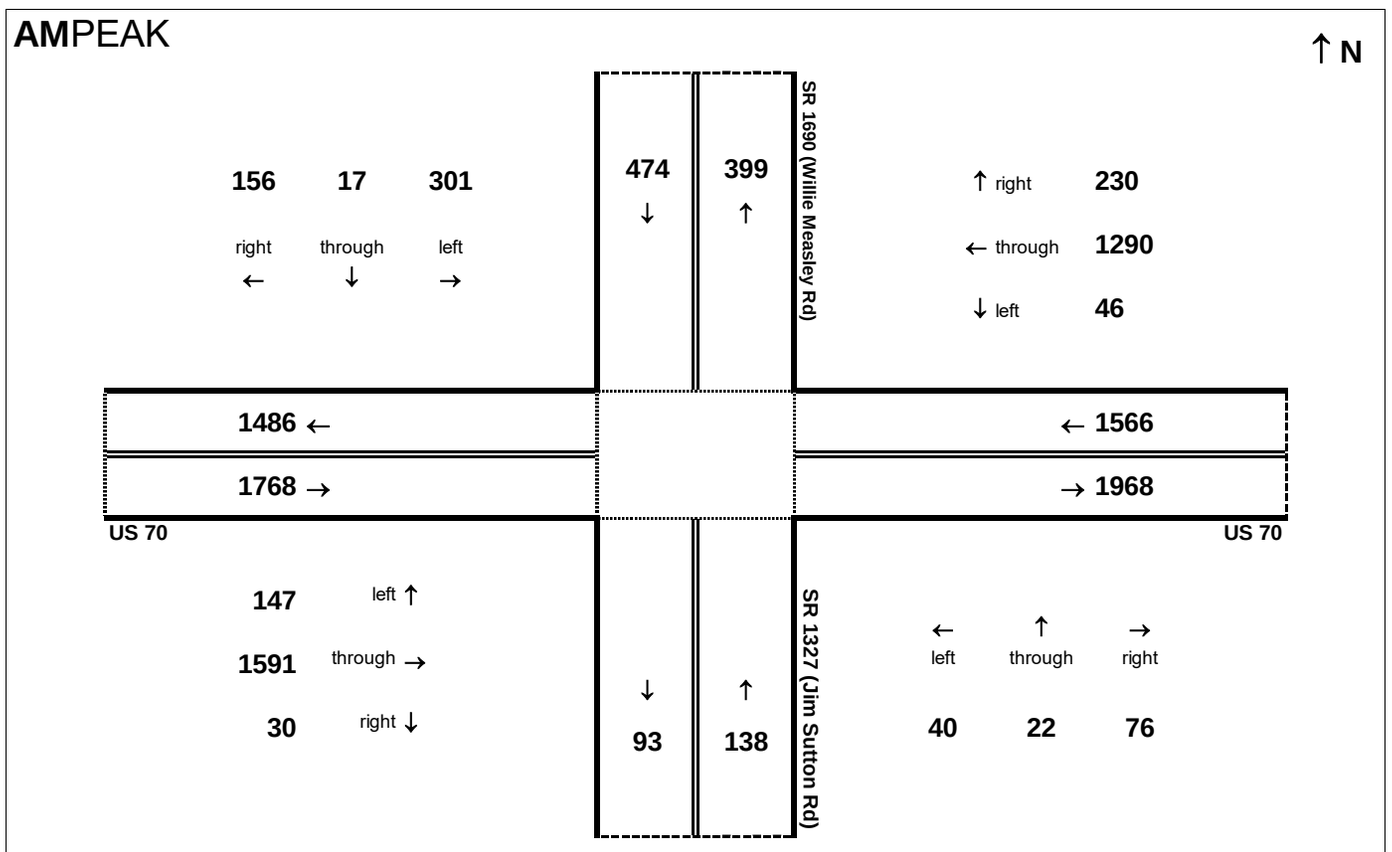
Peak Hour Volume Breakouts Report:
402-3 Intersection of US 70 and Willie Measley Rd / Jim Sutton Rd

Traffic Forecast Release Date:
November-16

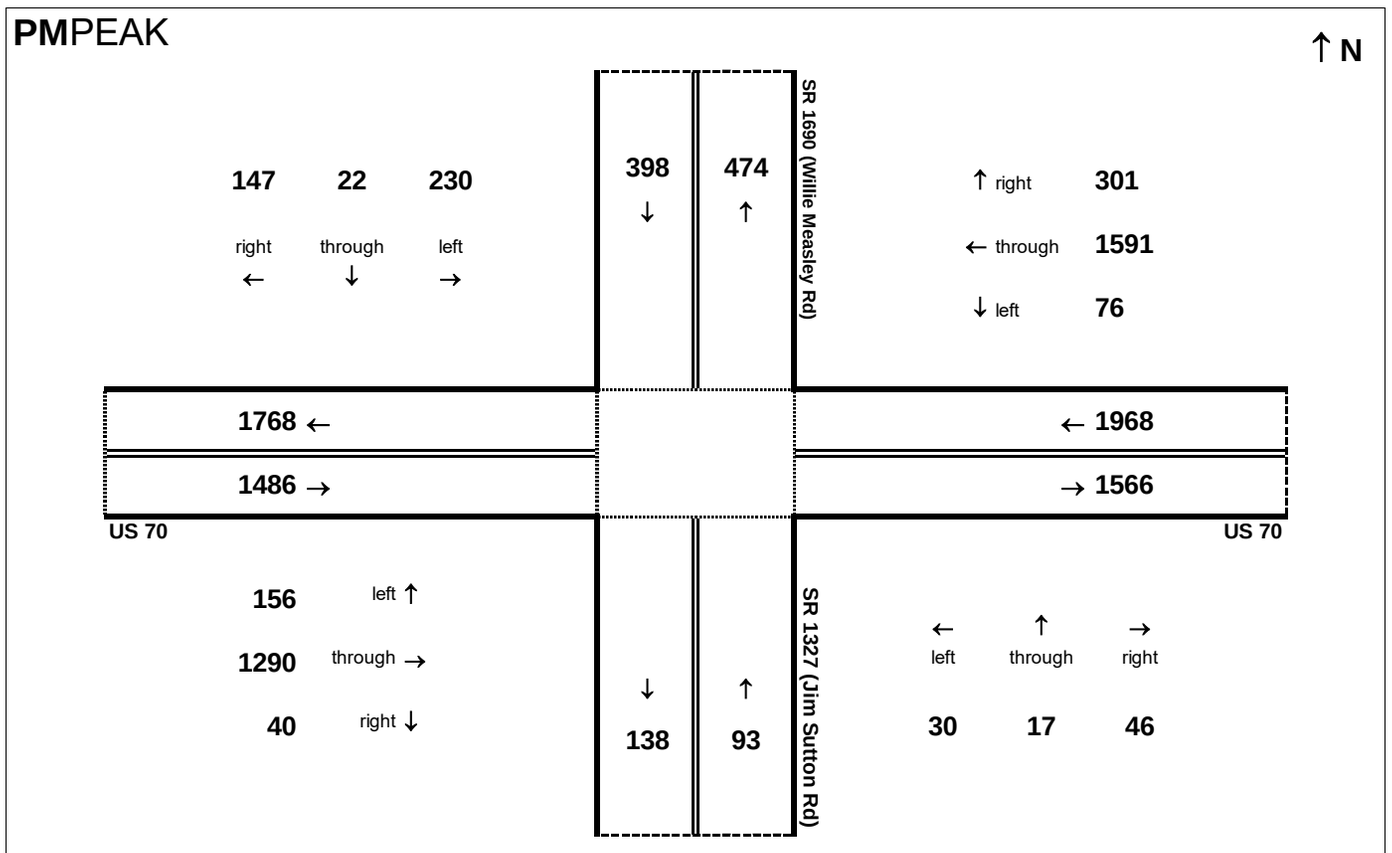
Traffic Data Year:
2040 Build Alt 36

Project:
R-2553





AM peak hour inflow is 3945 vehicles. AM peak hour outflow is 3945 vehicles.



PM peak hour inflow is 3945 vehicles. PM peak hour outflow is 3945 vehicles.

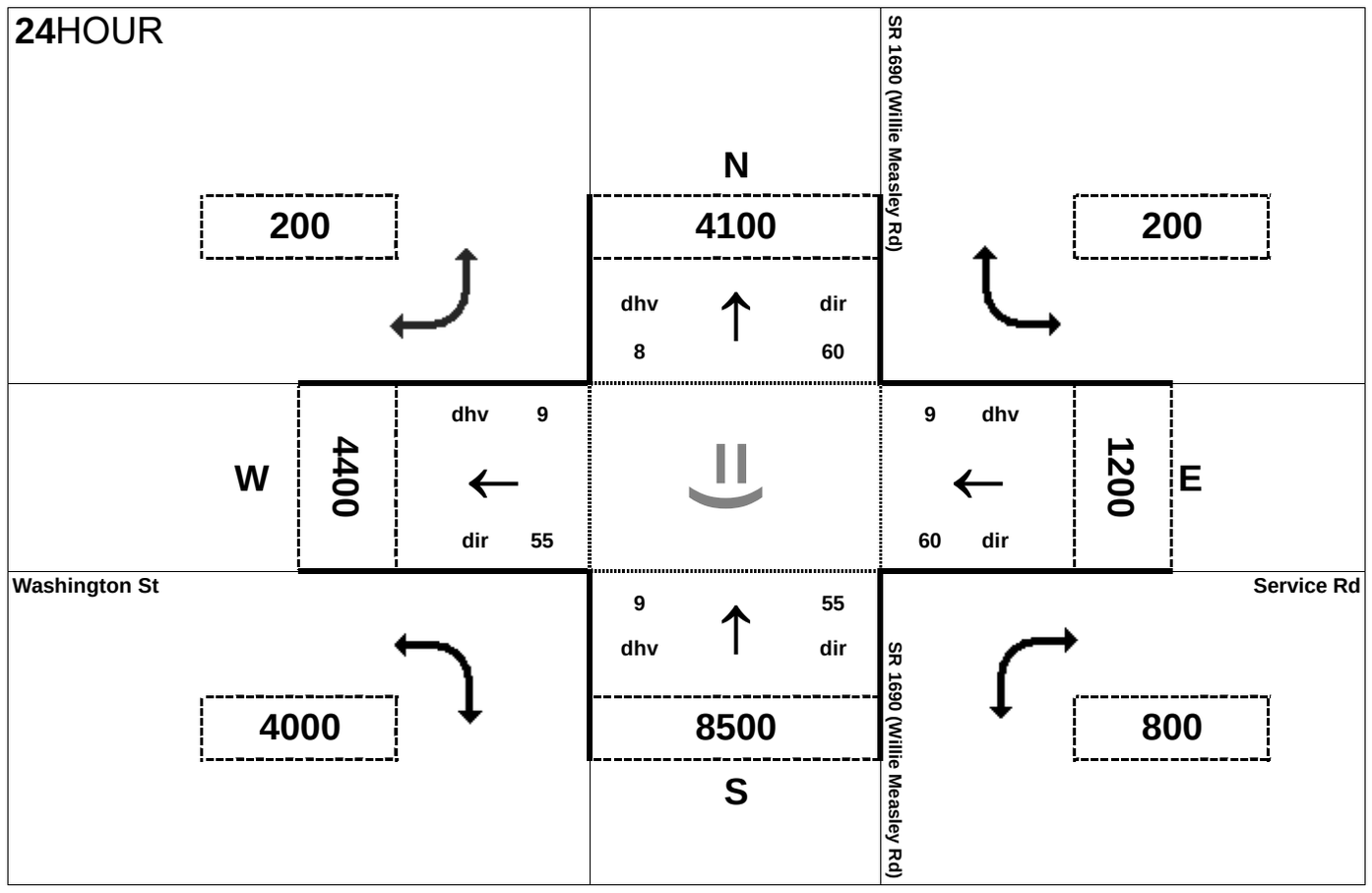
Peak Hour Volume Breakouts Report:
404 Intersection of SR 1690 (Willie Measley Rd) at SR 1603 (Washington St)

Traffic Forecast Release Date:
November-16

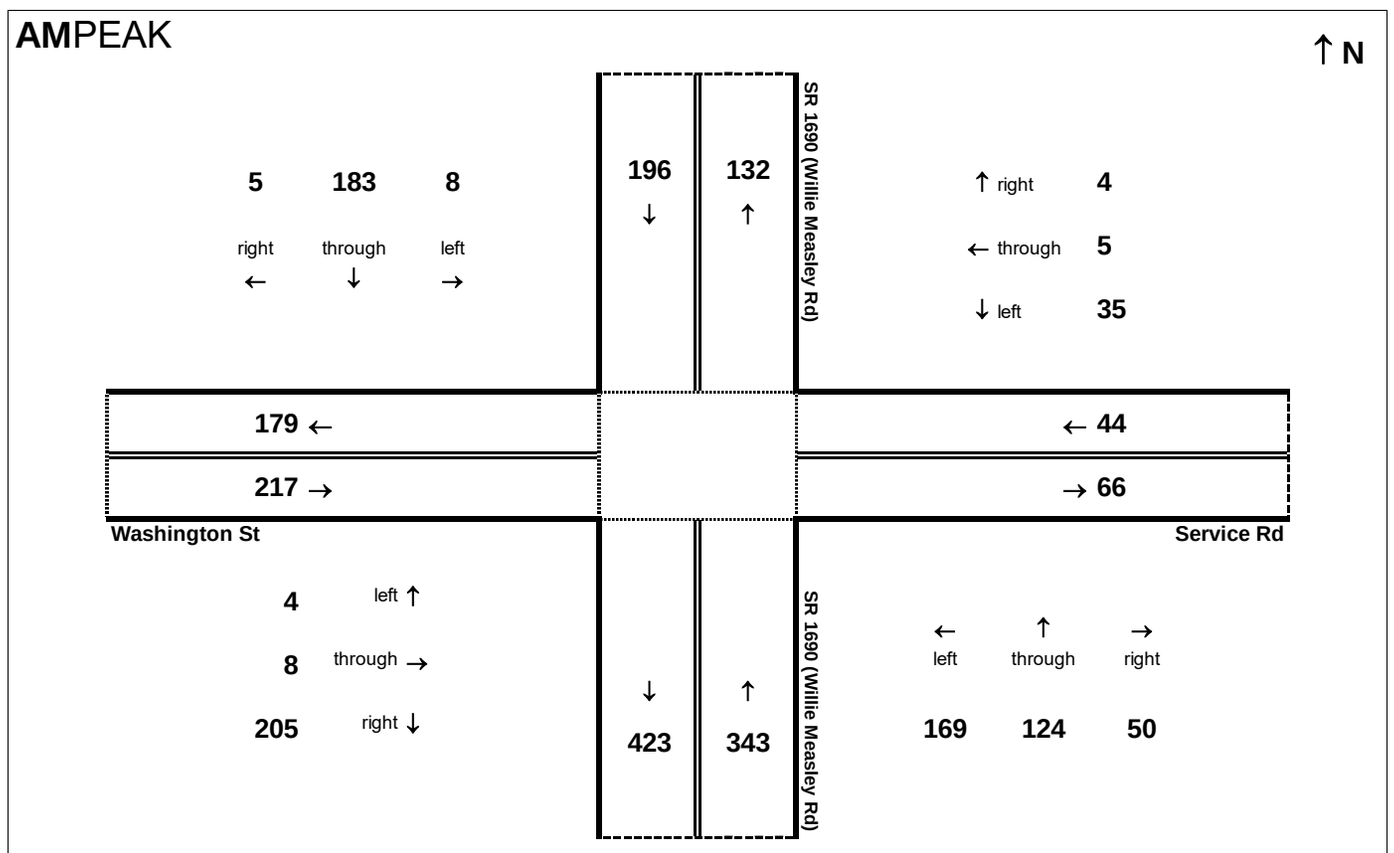
Traffic Data Year:
2040 Build Alt 36

Project:
R-2553

24HOUR

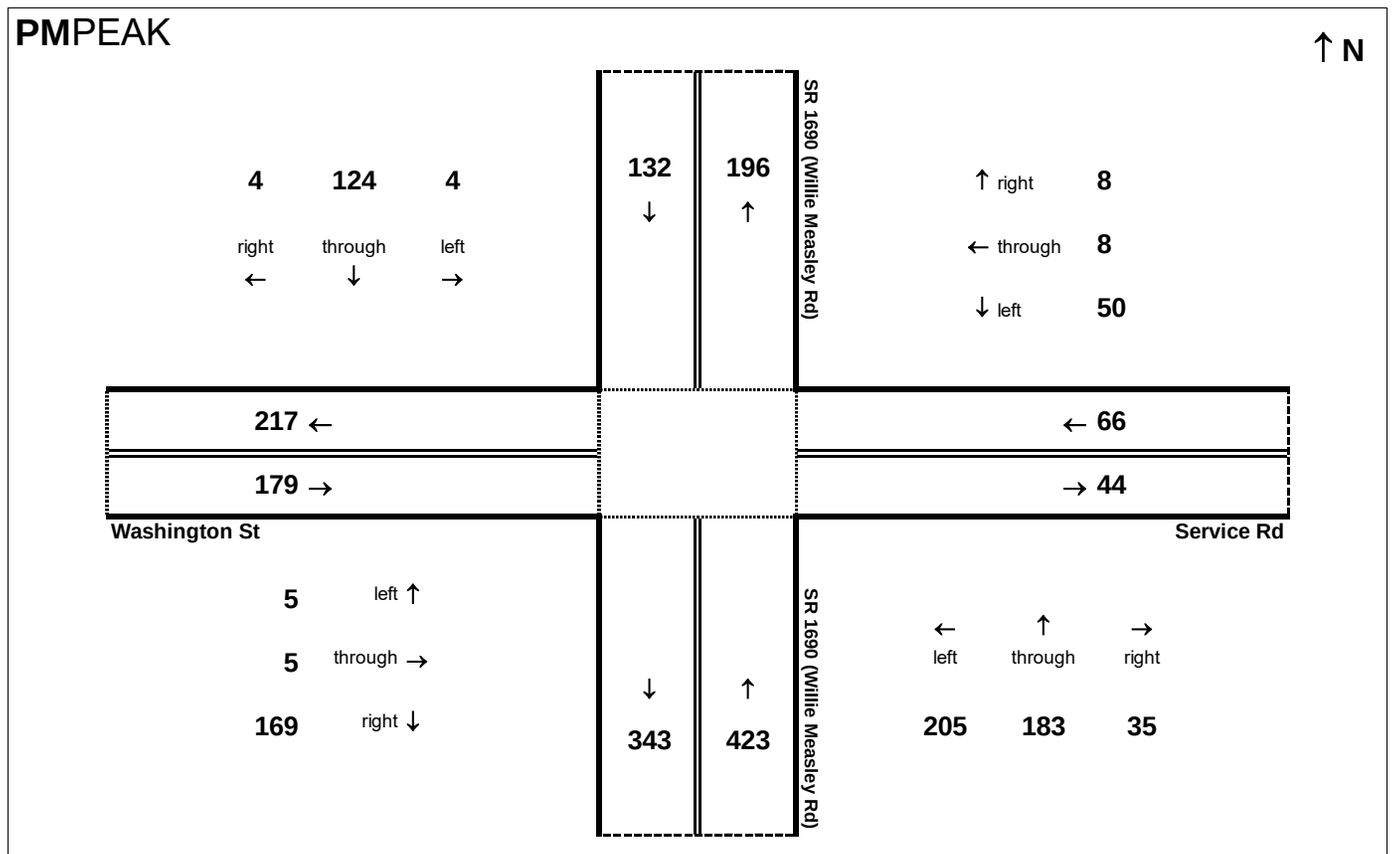


AMPEAK



AM peak hour inflow is 799 vehicles. AM peak hour outflow is 799 vehicles.

PMPEAK



PM peak hour inflow is 799 vehicles. PM peak hour outflow is 799 vehicles.

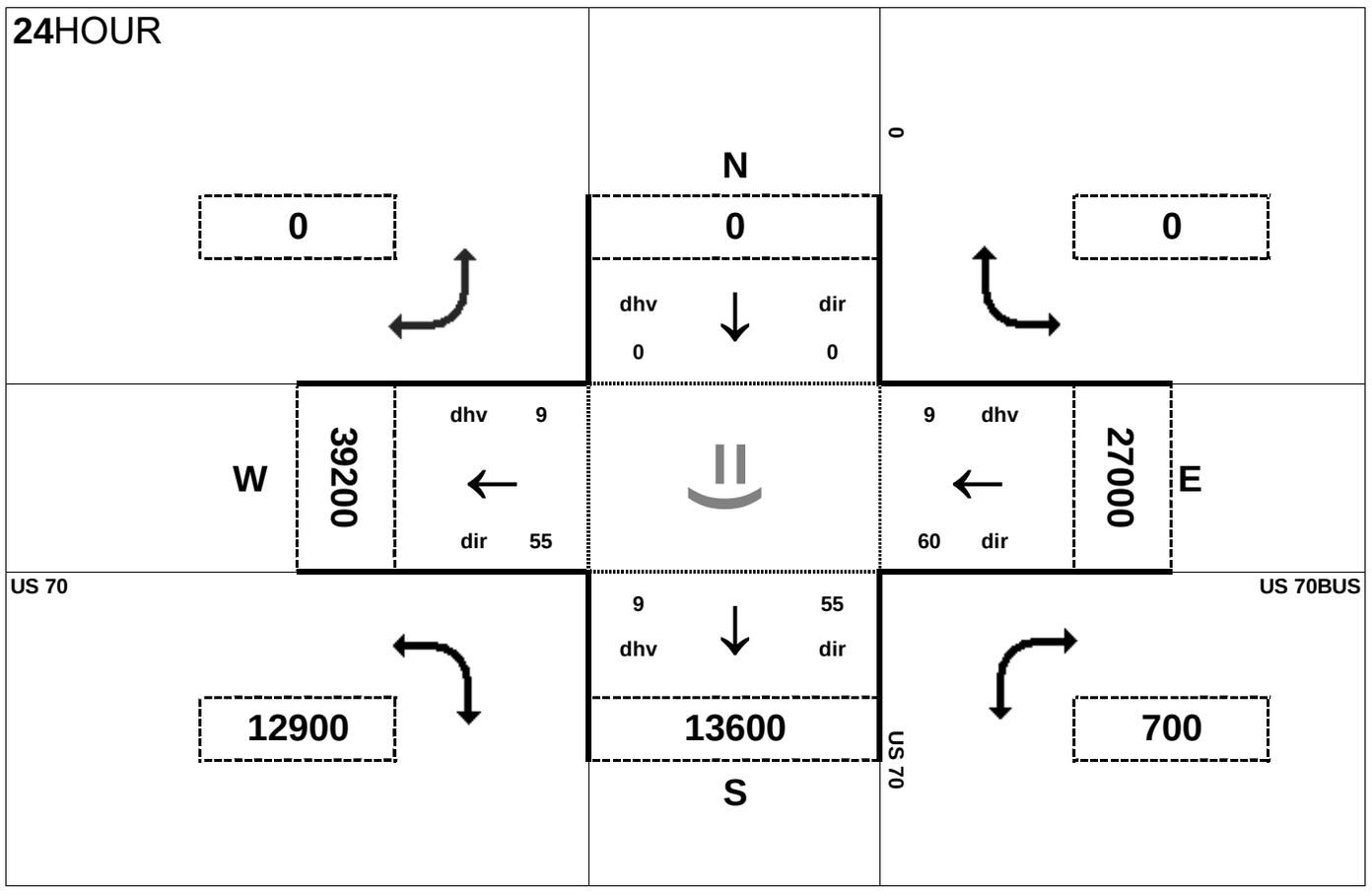
Peak Hour Volume Breakouts Report:
System 1 - Intersection of US 70 and western US 70BUS

Traffic Forecast Release Date:
November-16

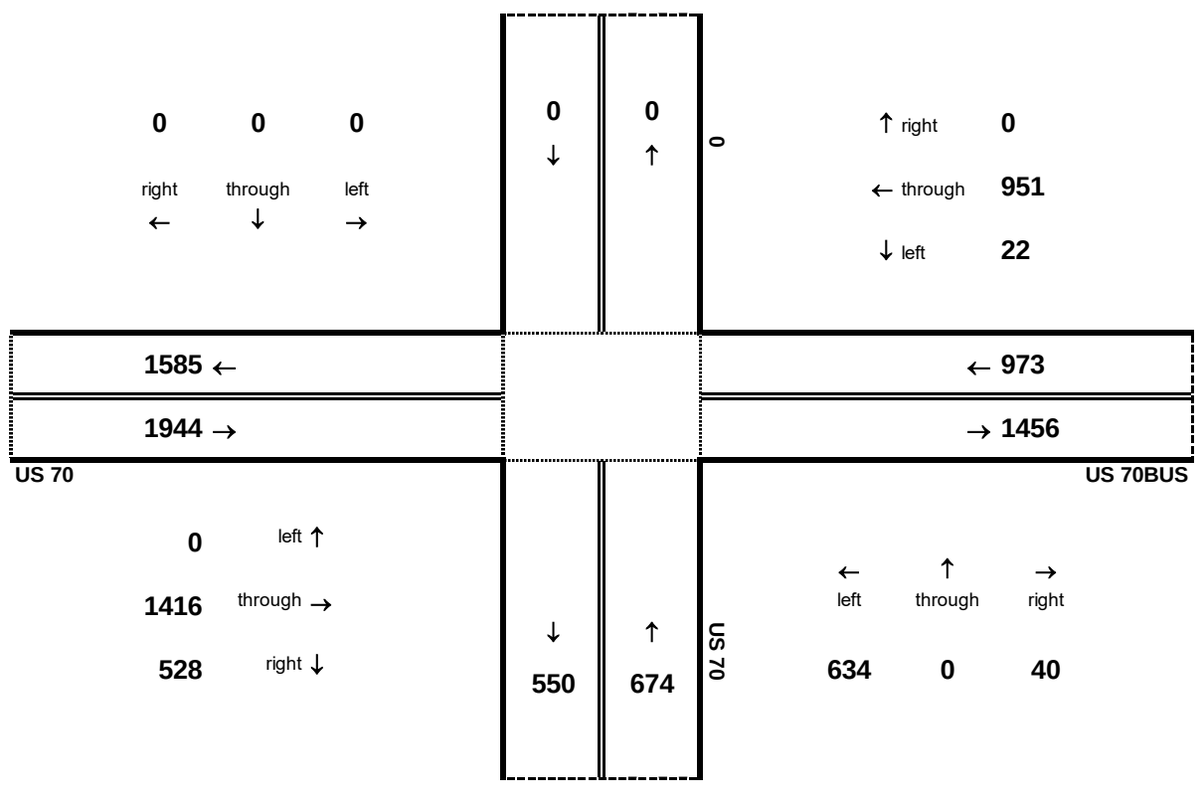
Traffic Data Year:
2040 Build Alt 36

Project:
R-2553

24HOUR

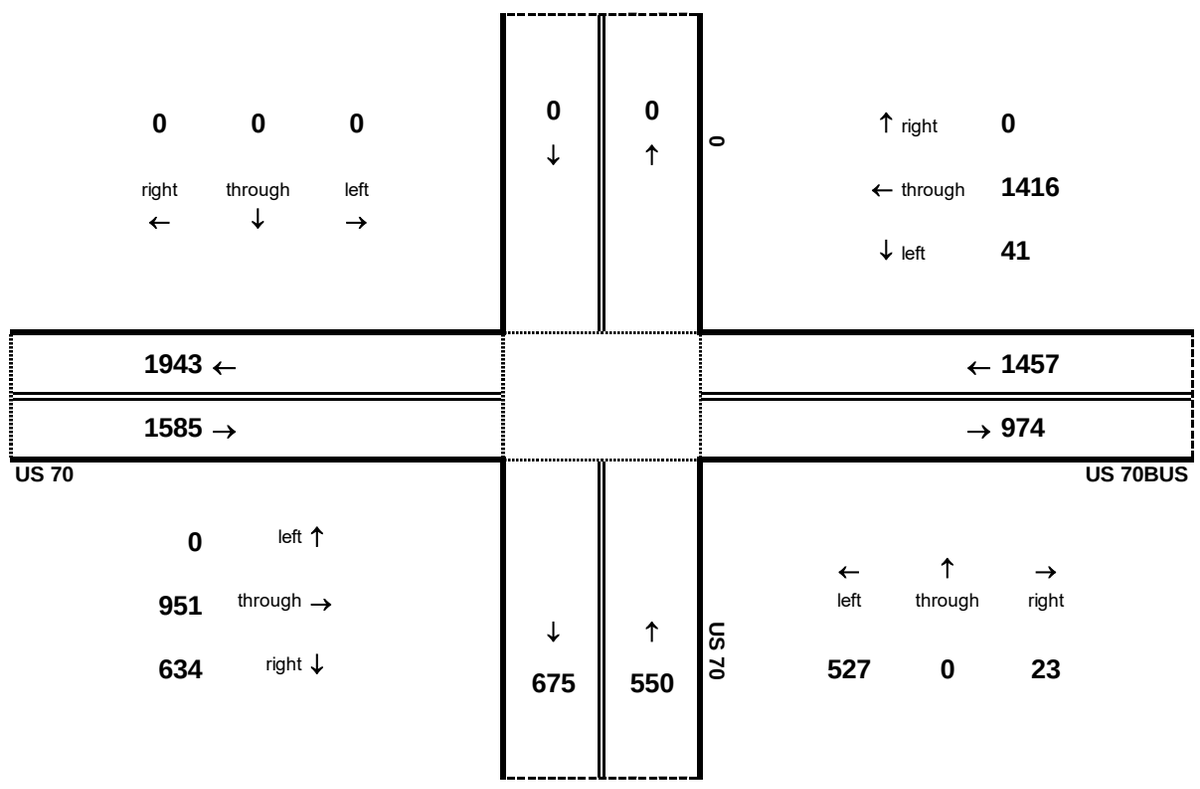


AMPEAK



AM peak hour inflow is 3591 vehicles. AM peak hour outflow is 3591 vehicles.

PMPEAK



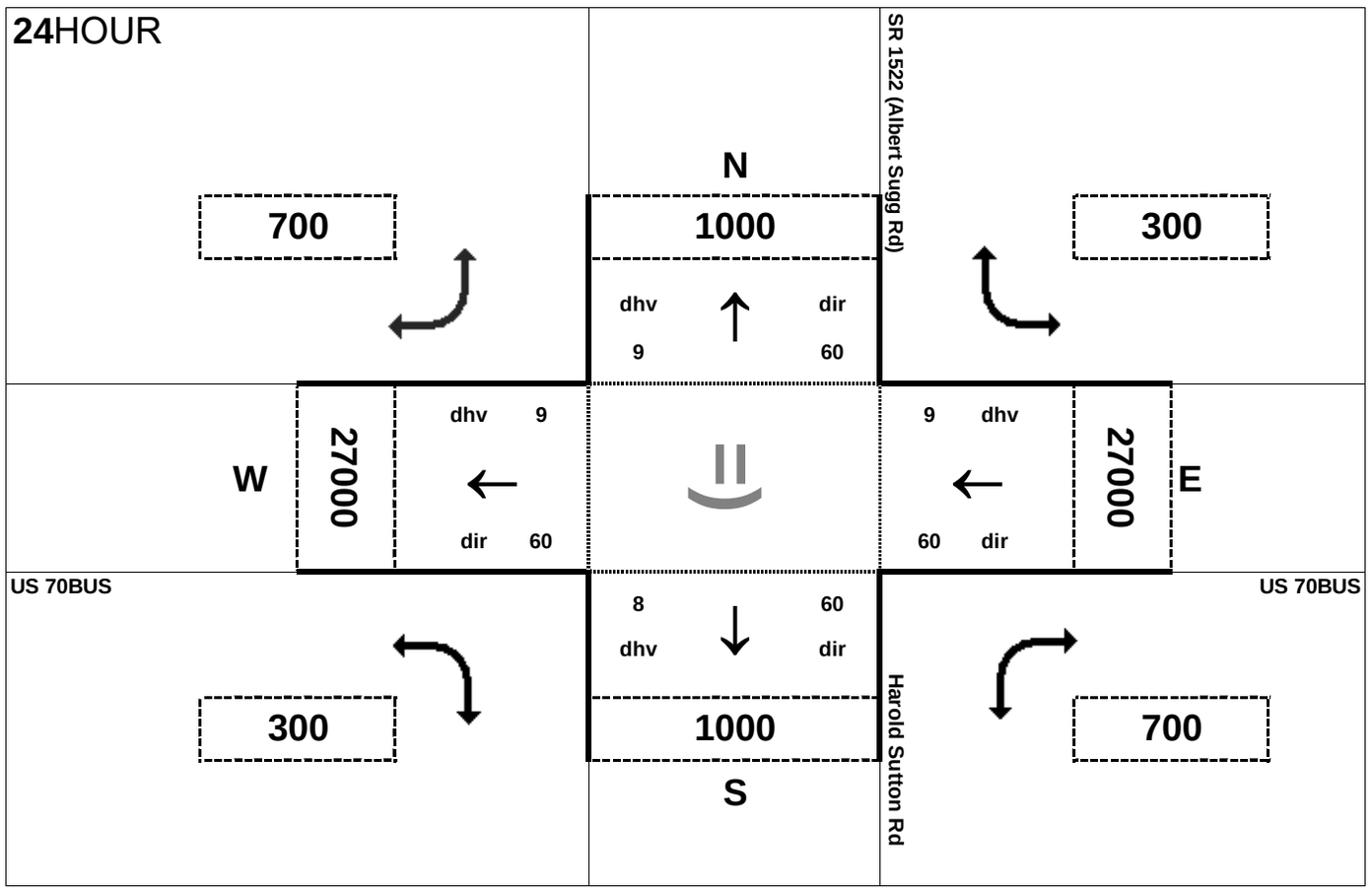
PM peak hour inflow is 3590 vehicles. PM peak hour outflow is 3591 vehicles.

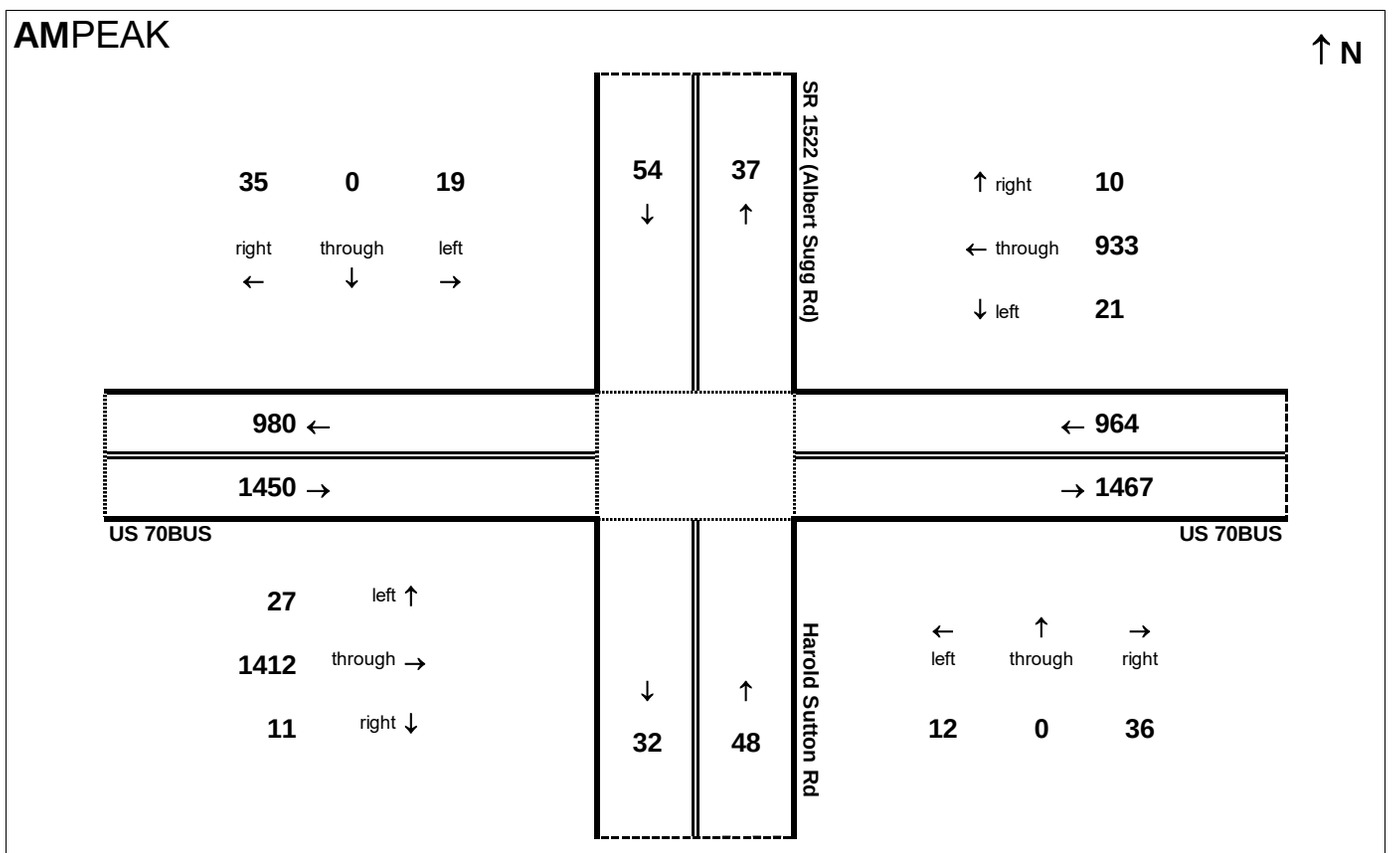
Peak Hour Volume Breakouts Report:
405 Intersection of US 70BUS and Harold Sutton Rd

Traffic Forecast Release Date:
November-16

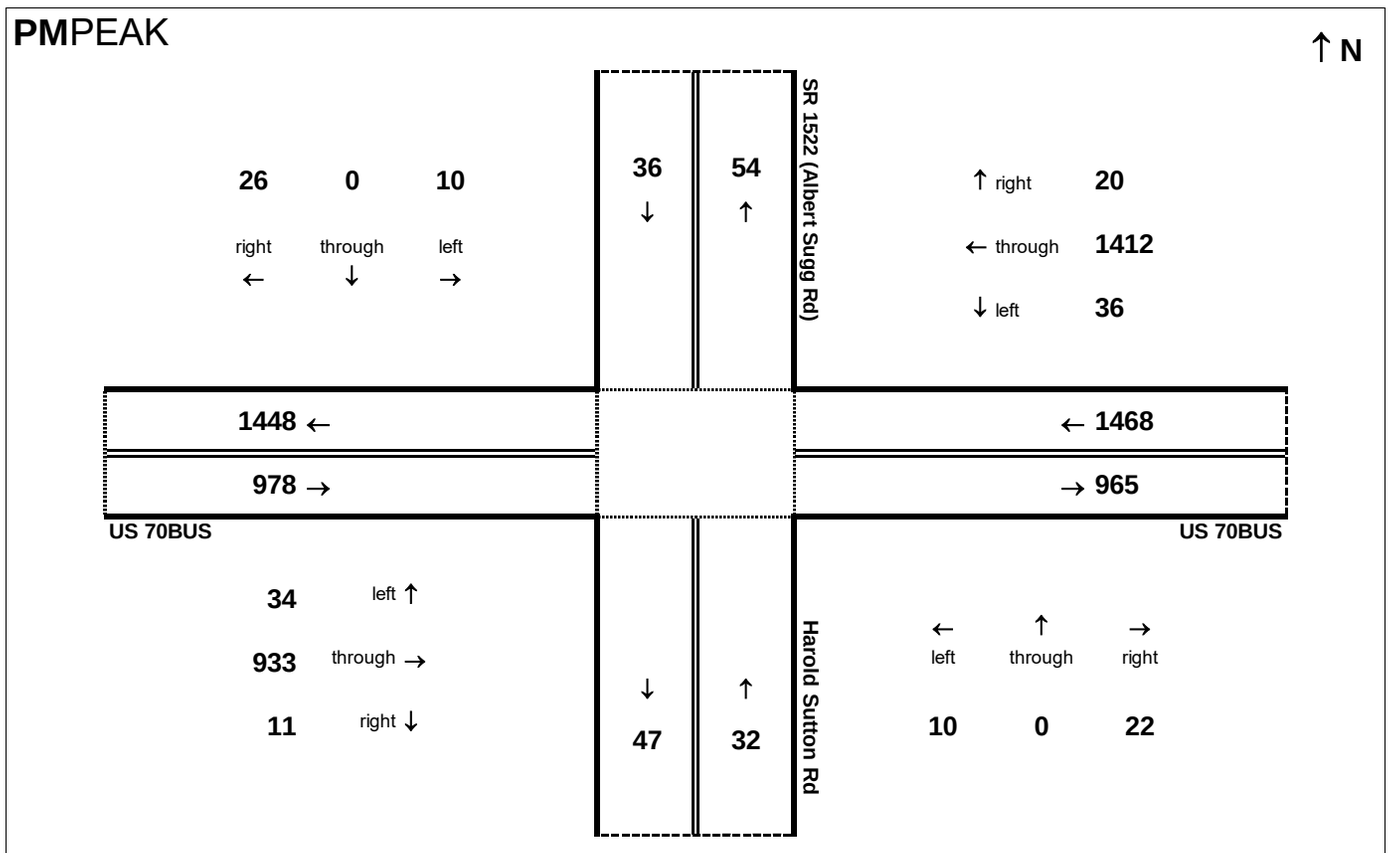
Traffic Data Year:
2040 Build Alt 36

Project:
R-2553





AM peak hour inflow is 2516 vehicles. AM peak hour outflow is 2514 vehicles.



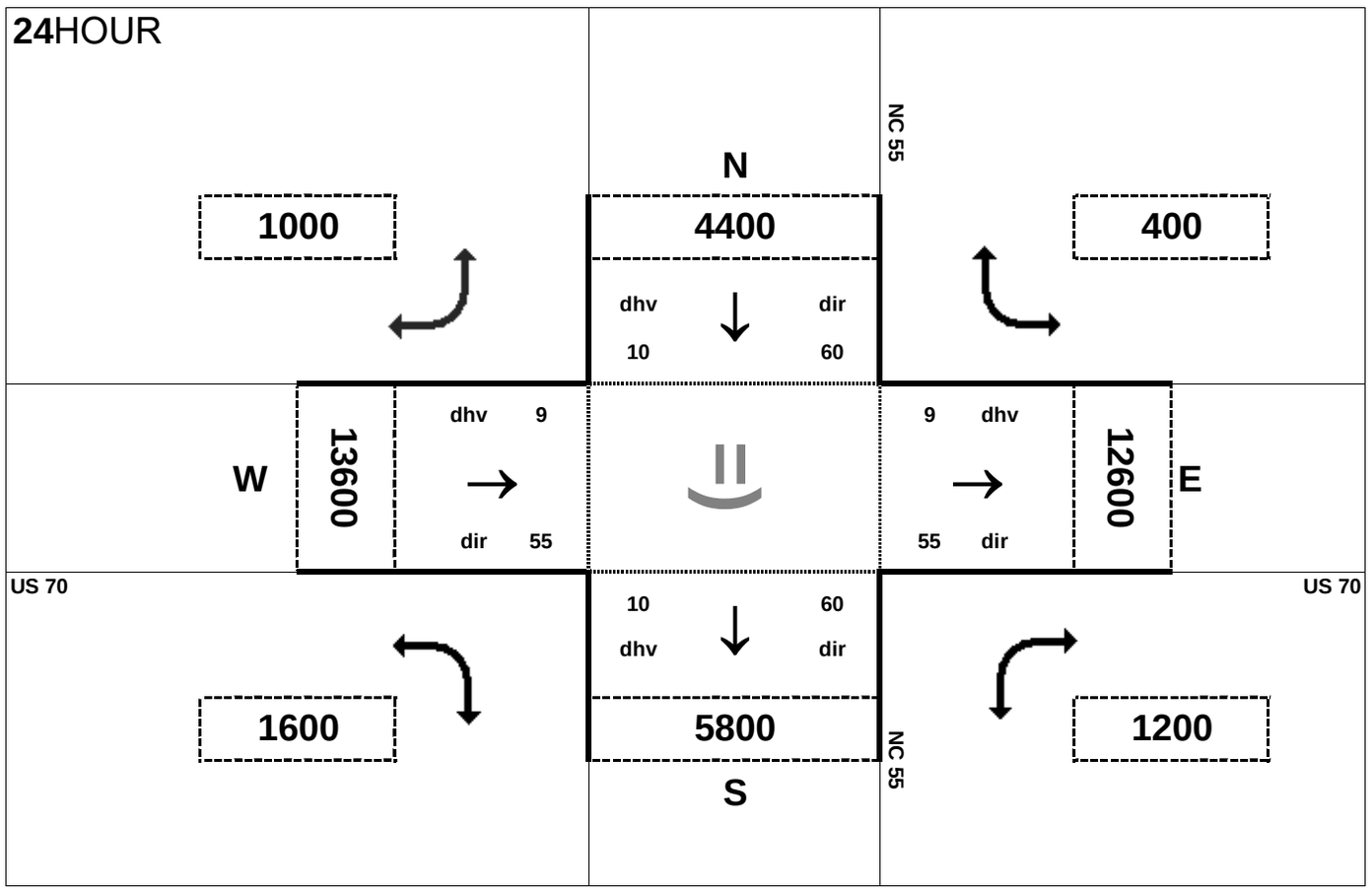
PM peak hour inflow is 2514 vehicles. PM peak hour outflow is 2516 vehicles.

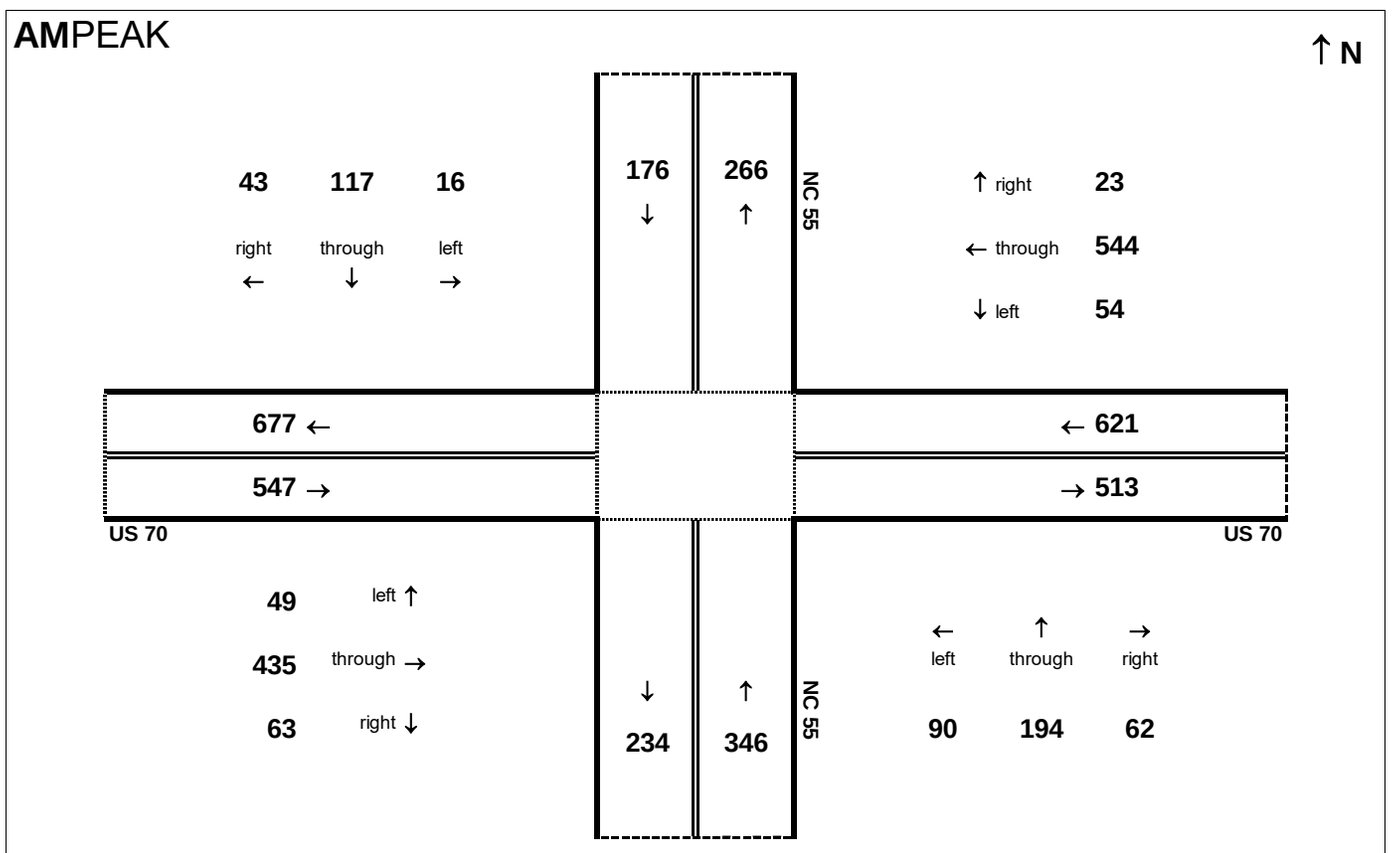
Peak Hour Volume Breakouts Report:
406-7 Intersection of US 70 and NC 55

Traffic Forecast Release Date:
November-16

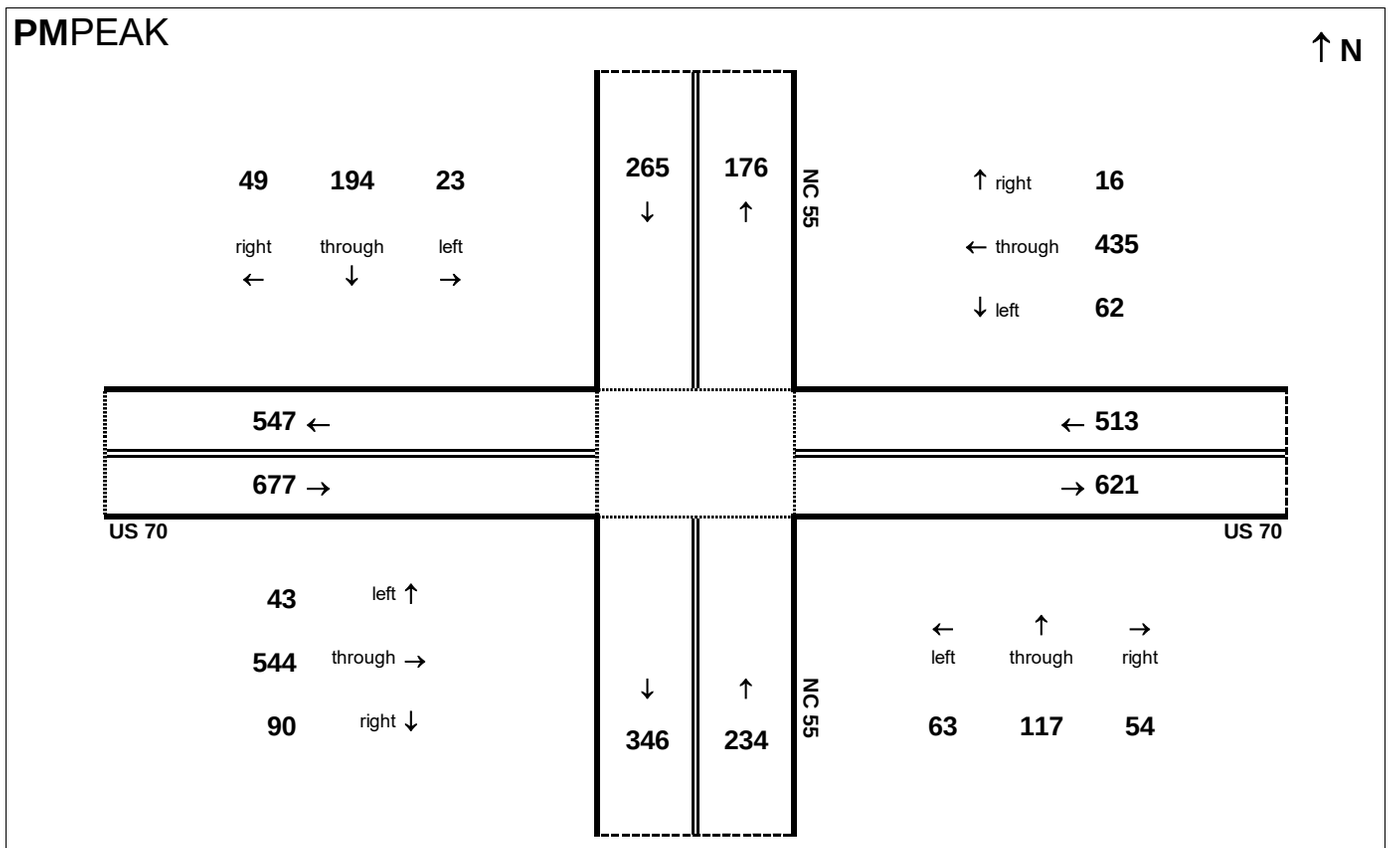
Traffic Data Year:
2040 Build Alt 36

Project:
R-2553





AM peak hour inflow is 1689 vehicles. AM peak hour outflow is 1688 vehicles.



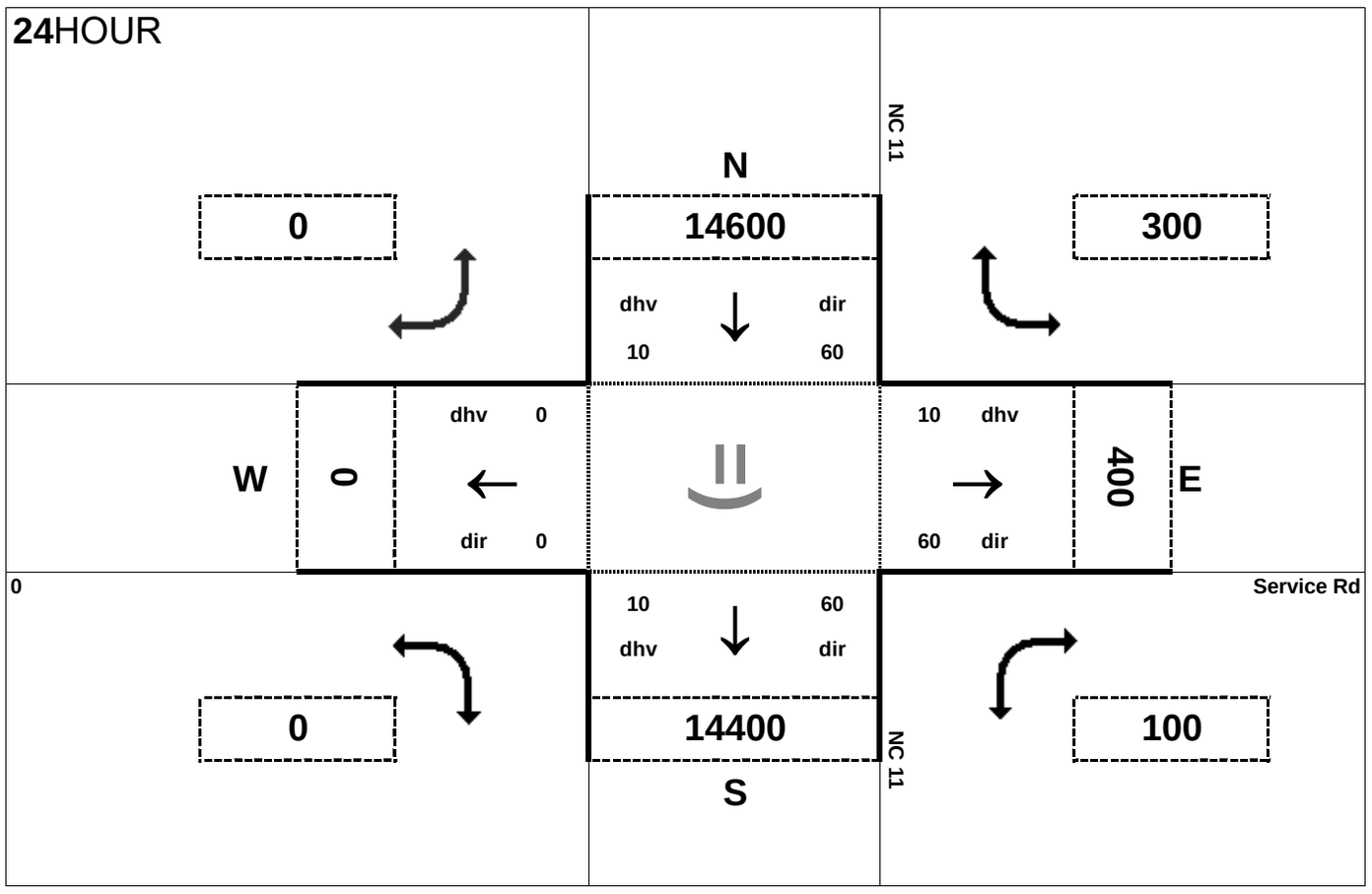
PM peak hour inflow is 1688 vehicles. PM peak hour outflow is 1689 vehicles.

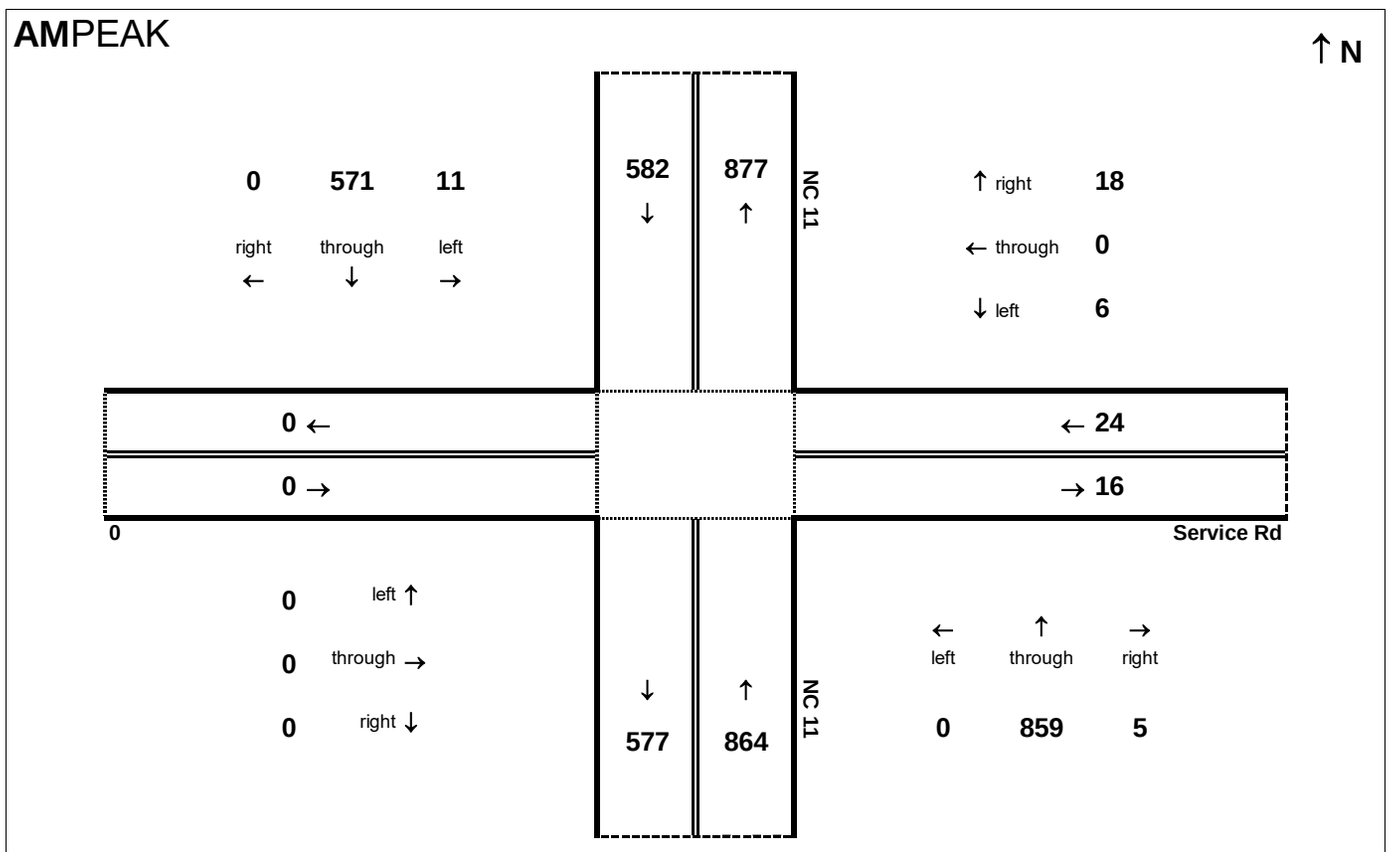
Peak Hour Volume Breakouts Report:
408 Intersection of NC 11 and Service Rd

Traffic Forecast Release Date:
November-16

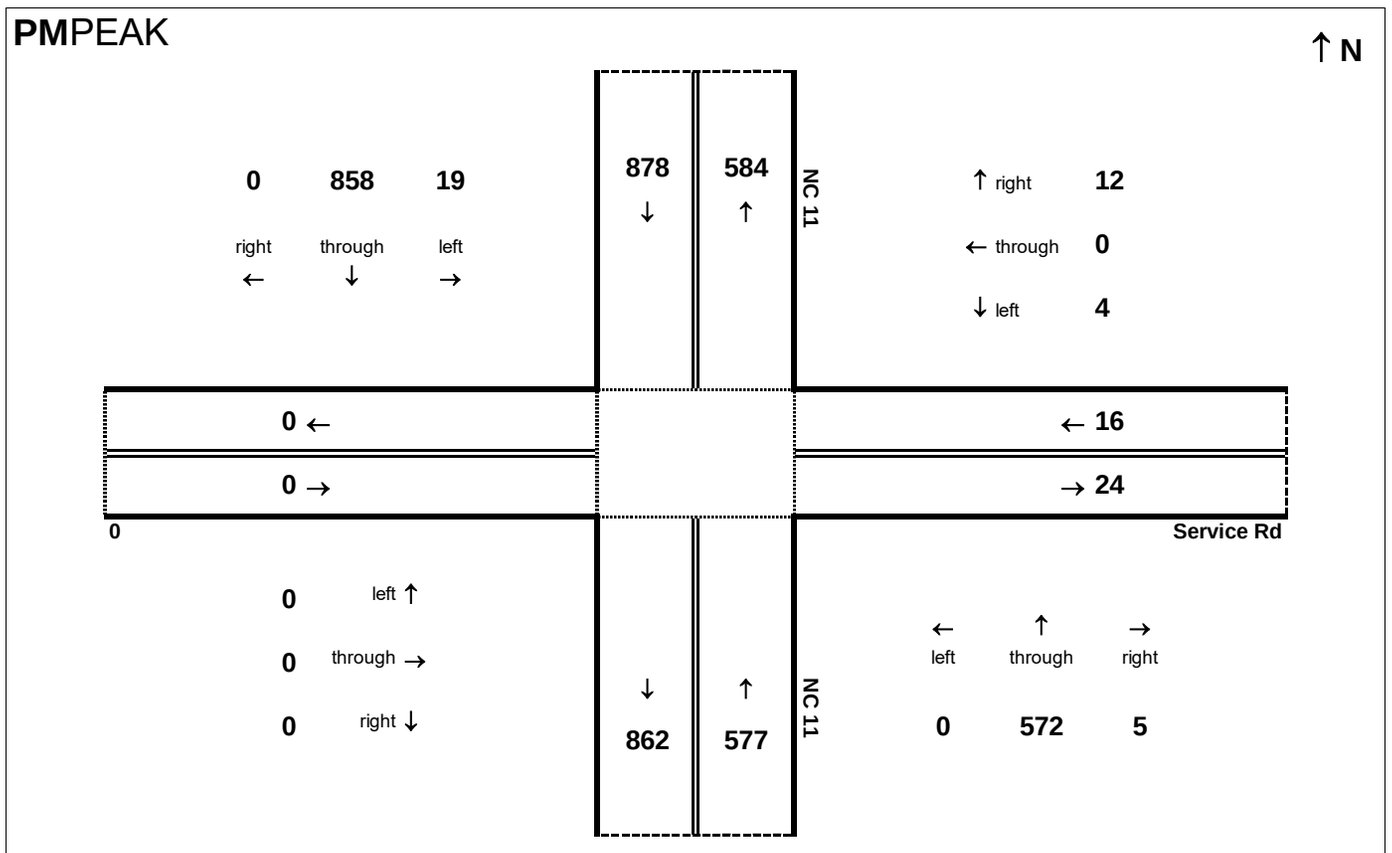
Traffic Data Year:
2040 Build Alt 36

Project:
R-2553





AM peak hour inflow is 1470 vehicles. AM peak hour outflow is 1470 vehicles.



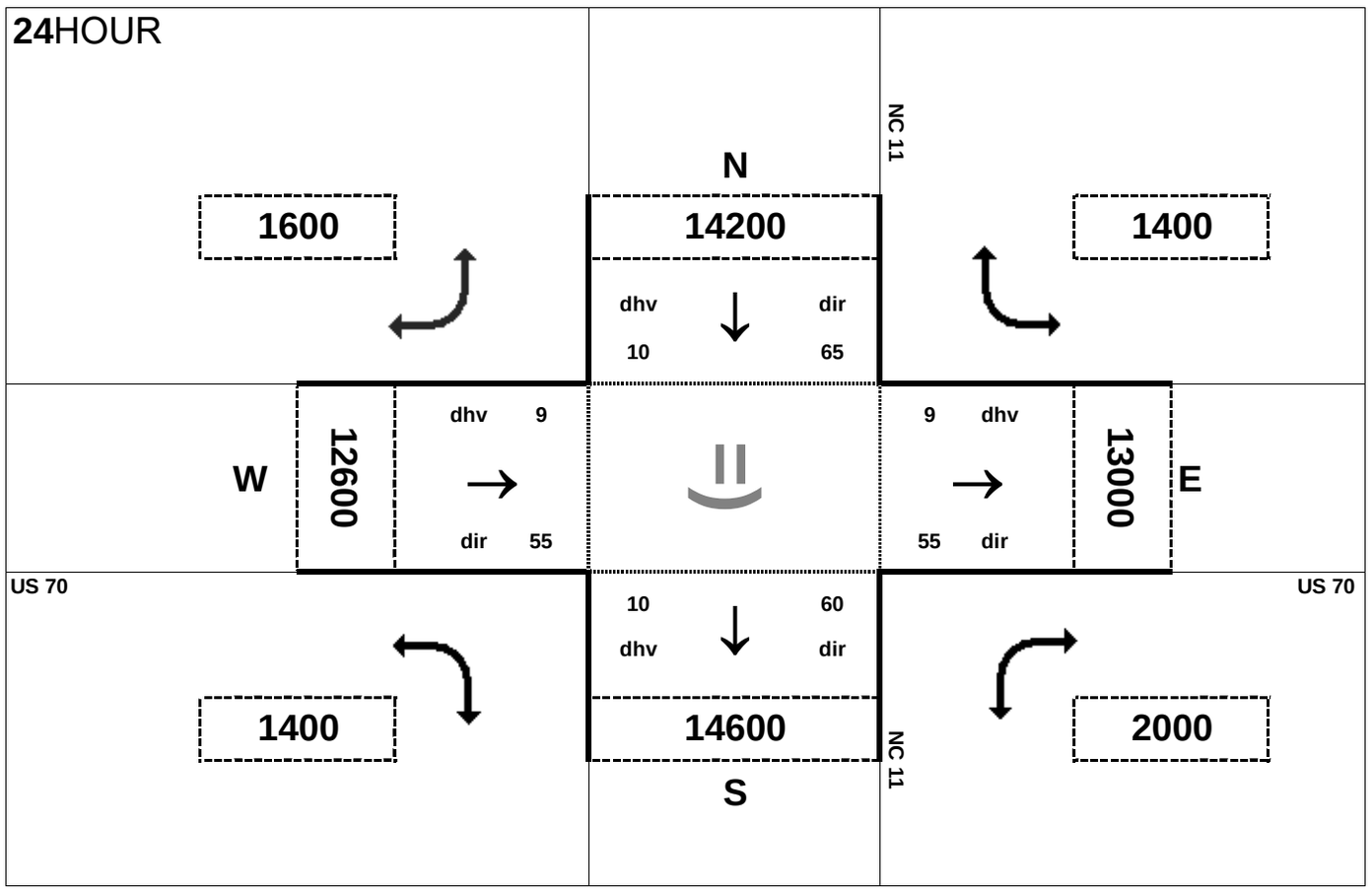
PM peak hour inflow is 1470 vehicles. PM peak hour outflow is 1471 vehicles.

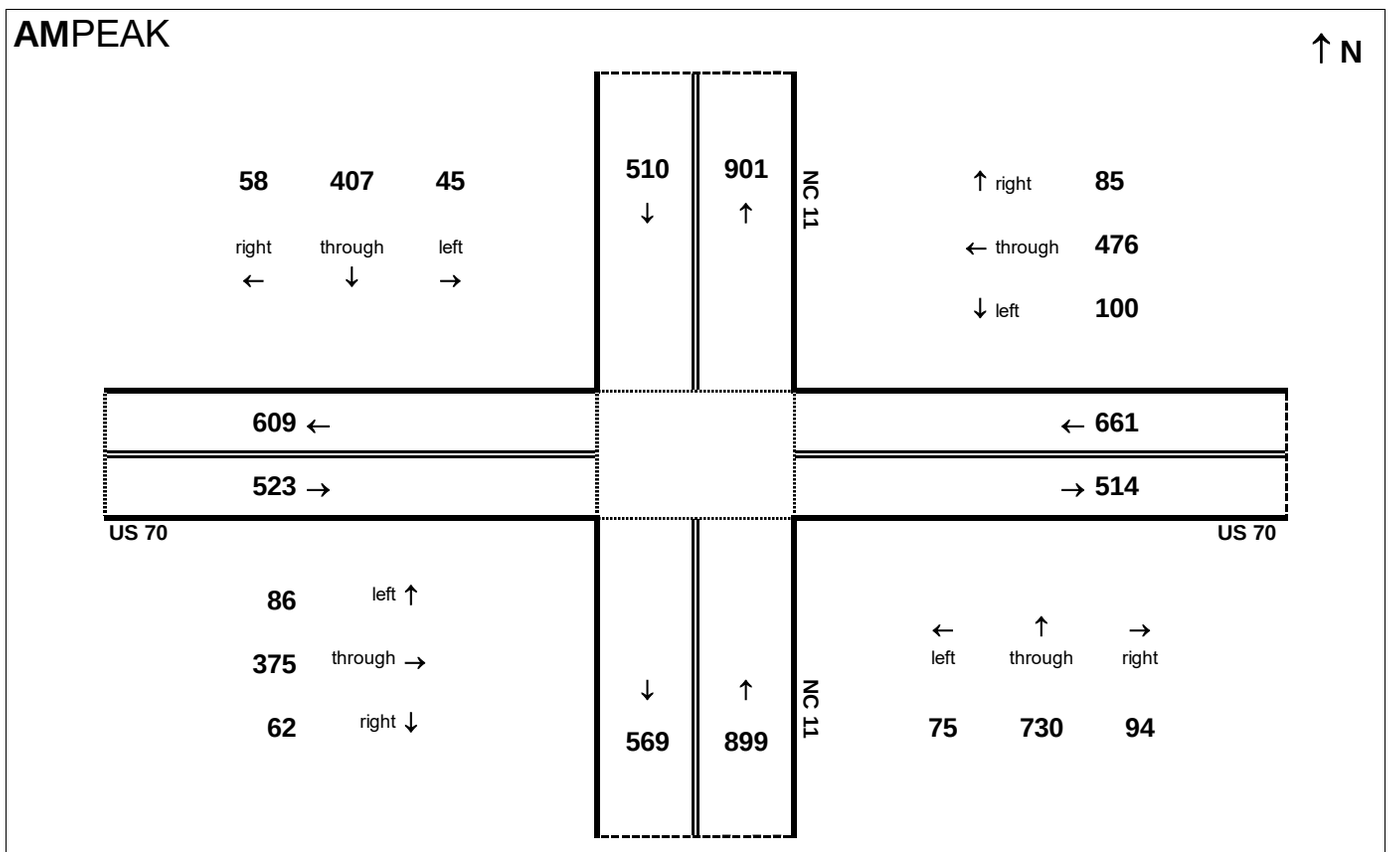
Peak Hour Volume Breakouts Report:
409-10 Intersection of US 70 and NC 11

Traffic Forecast Release Date:
November-16

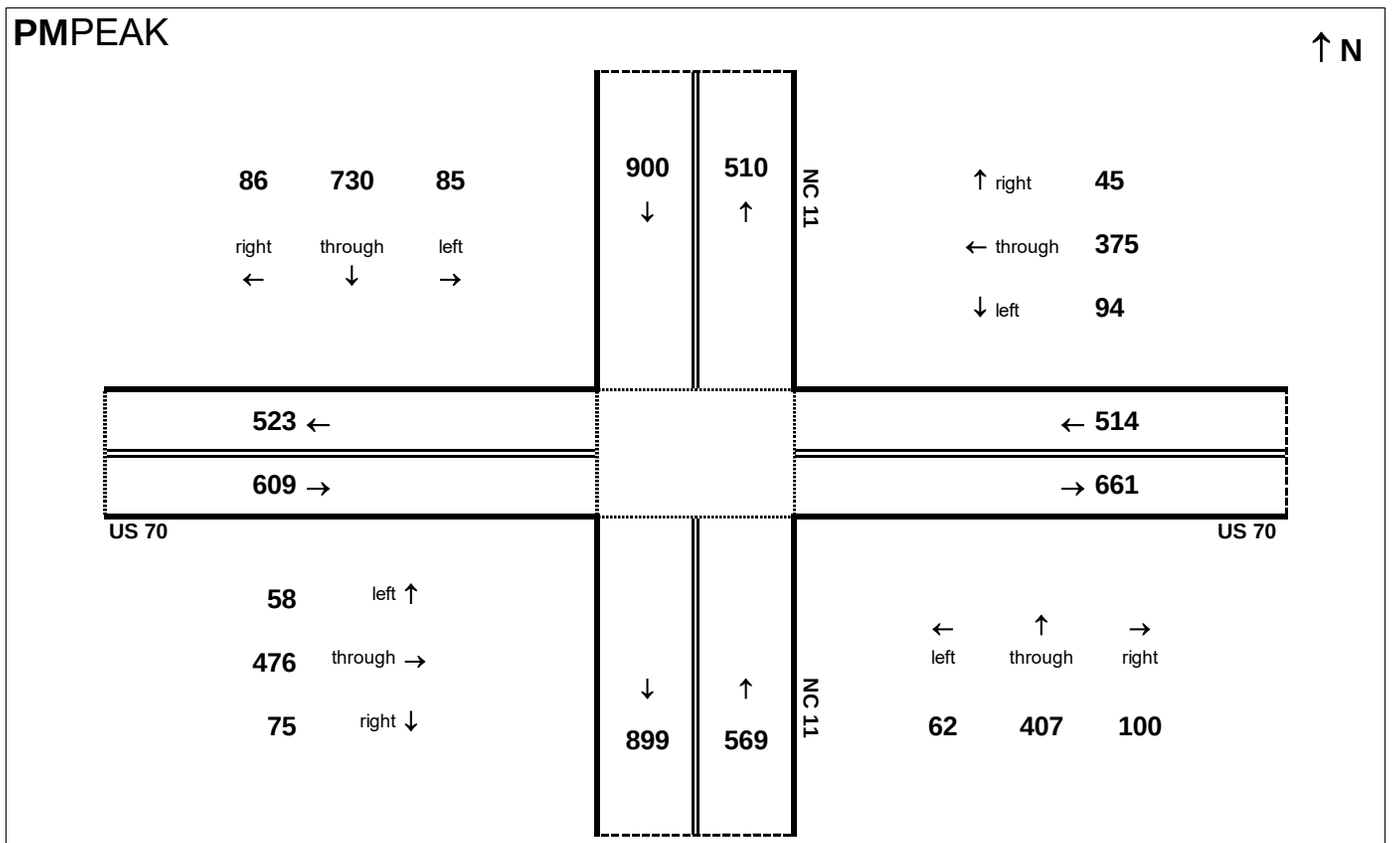
Traffic Data Year:
2040 Build Alt 36

Project:
R-2553





AM peak hour inflow is 2592 vehicles. AM peak hour outflow is 2592 vehicles.



PM peak hour inflow is 2592 vehicles. PM peak hour outflow is 2592 vehicles.

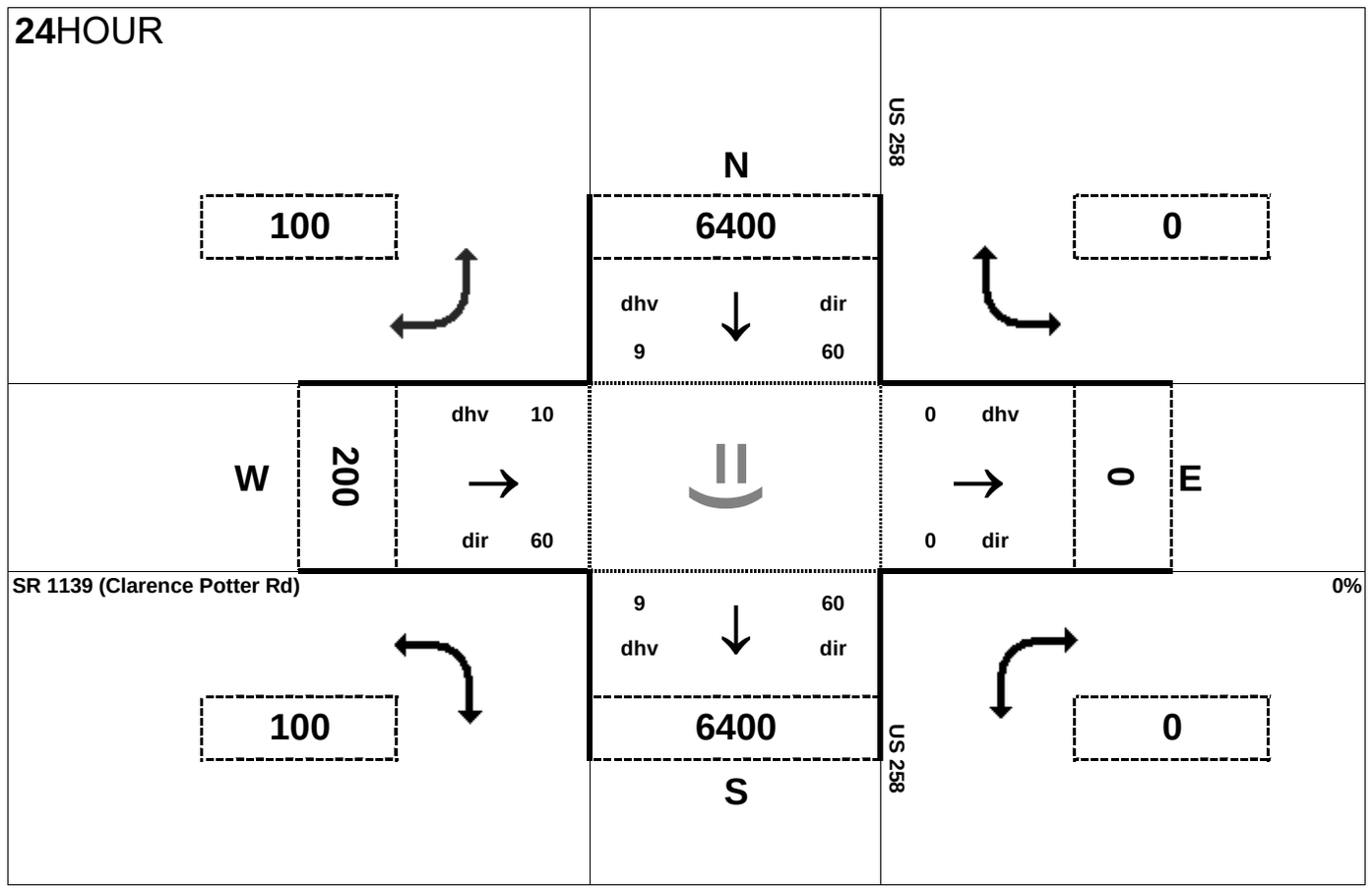
Peak Hour Volume Breakouts Report:
411 Intersection of US 258 and SR 1139 (Clarence Potter Rd)

Traffic Forecast Release Date:
November-16

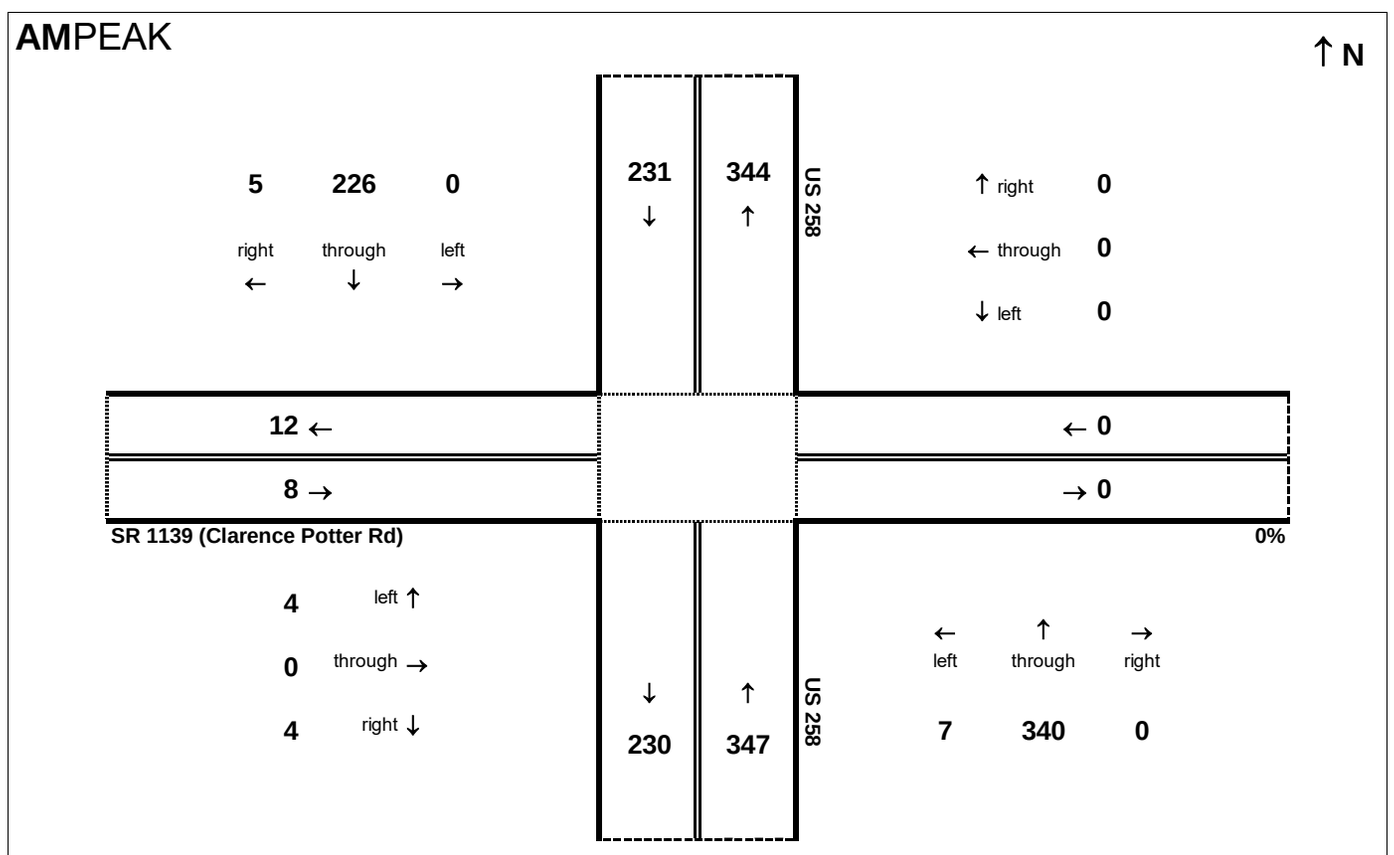
Traffic Data Year:
2040 Build Alt 36

Project:
R-2553

24HOUR

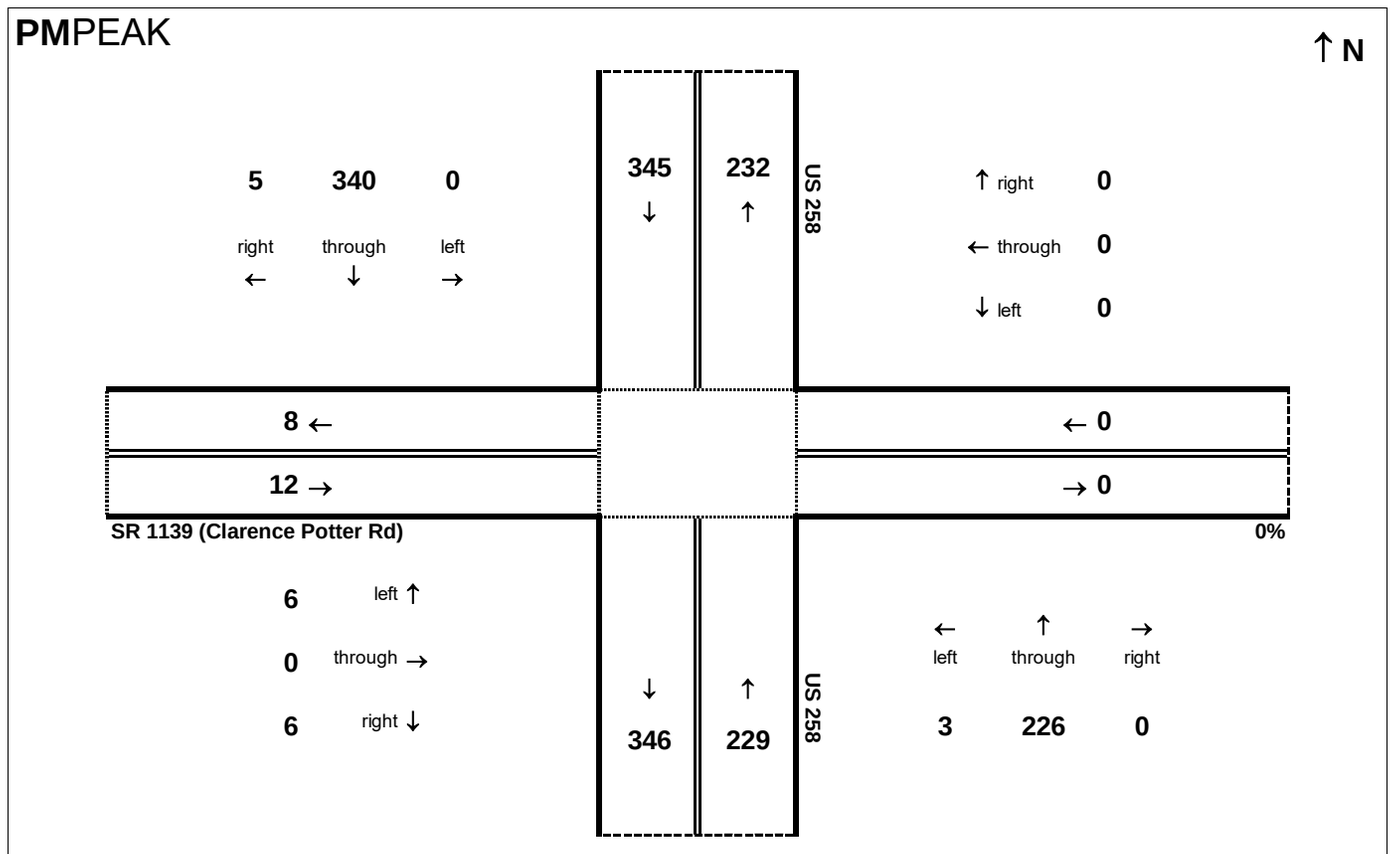


AMPEAK



AM peak hour inflow is 586 vehicles. AM peak hour outflow is 586 vehicles.

PMPEAK



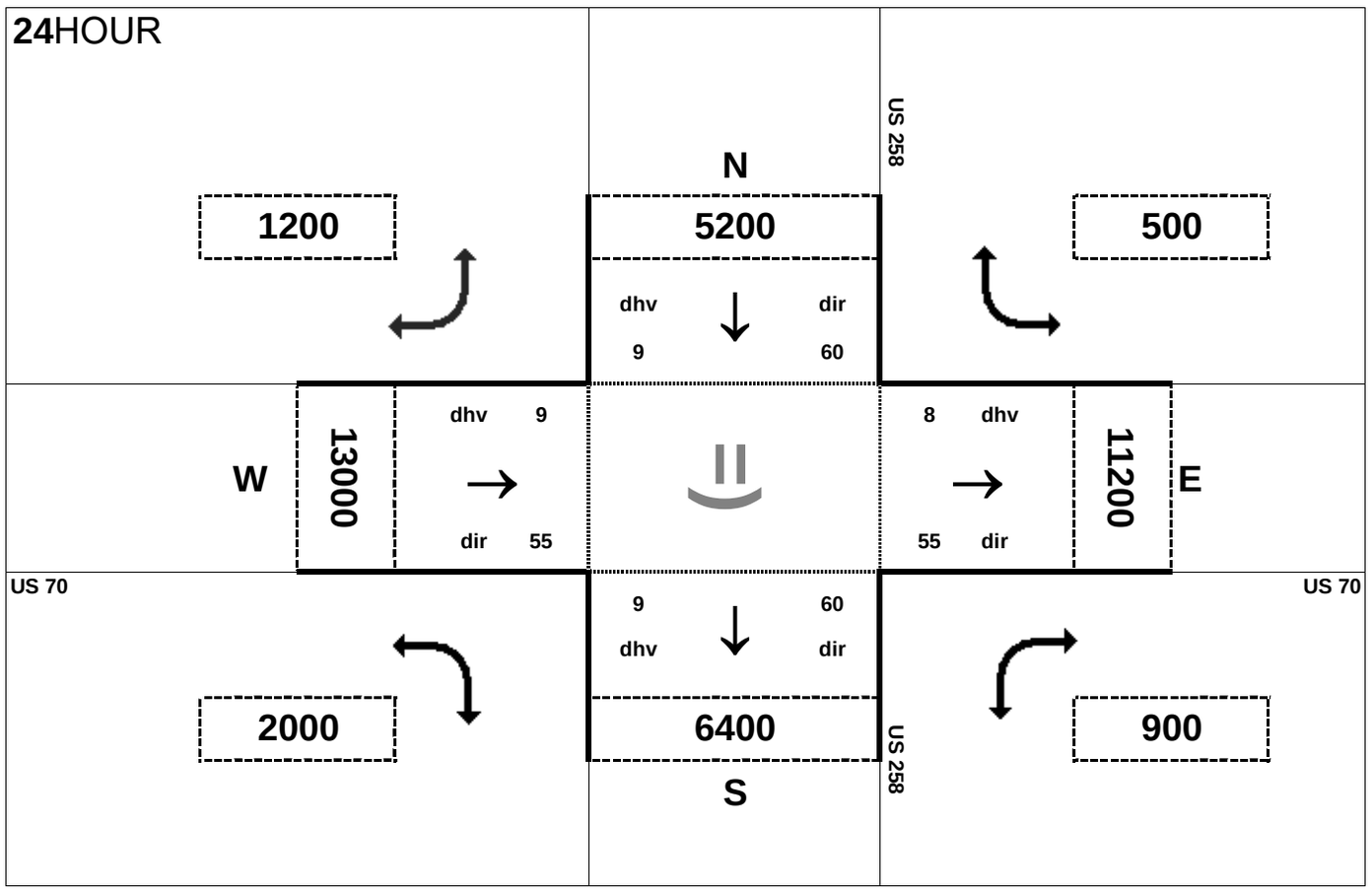
PM peak hour inflow is 586 vehicles. PM peak hour outflow is 586 vehicles.

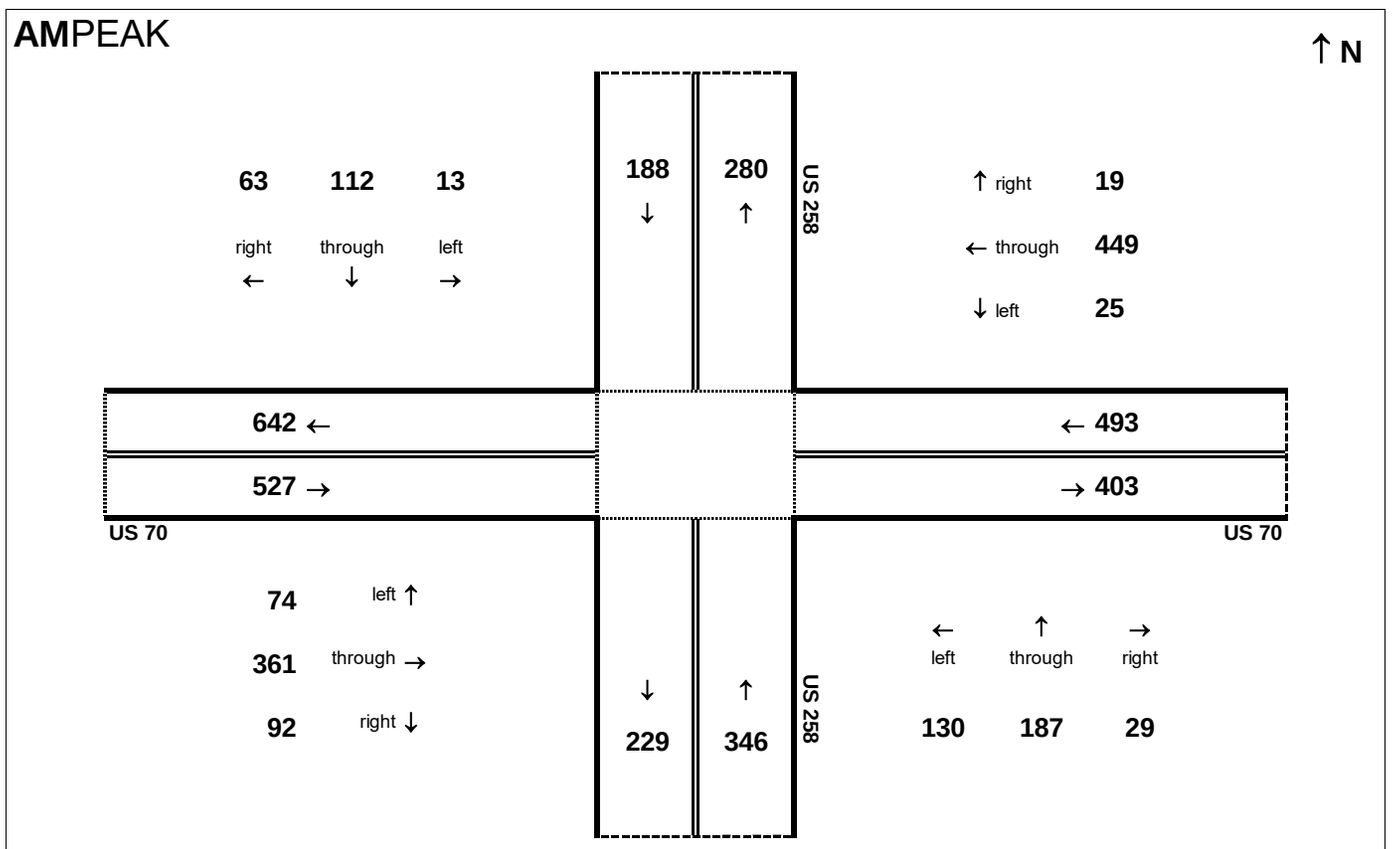
Peak Hour Volume Breakouts Report:
412-13 Intersection of US 70 and US 258

Traffic Forecast Release Date:
November-16

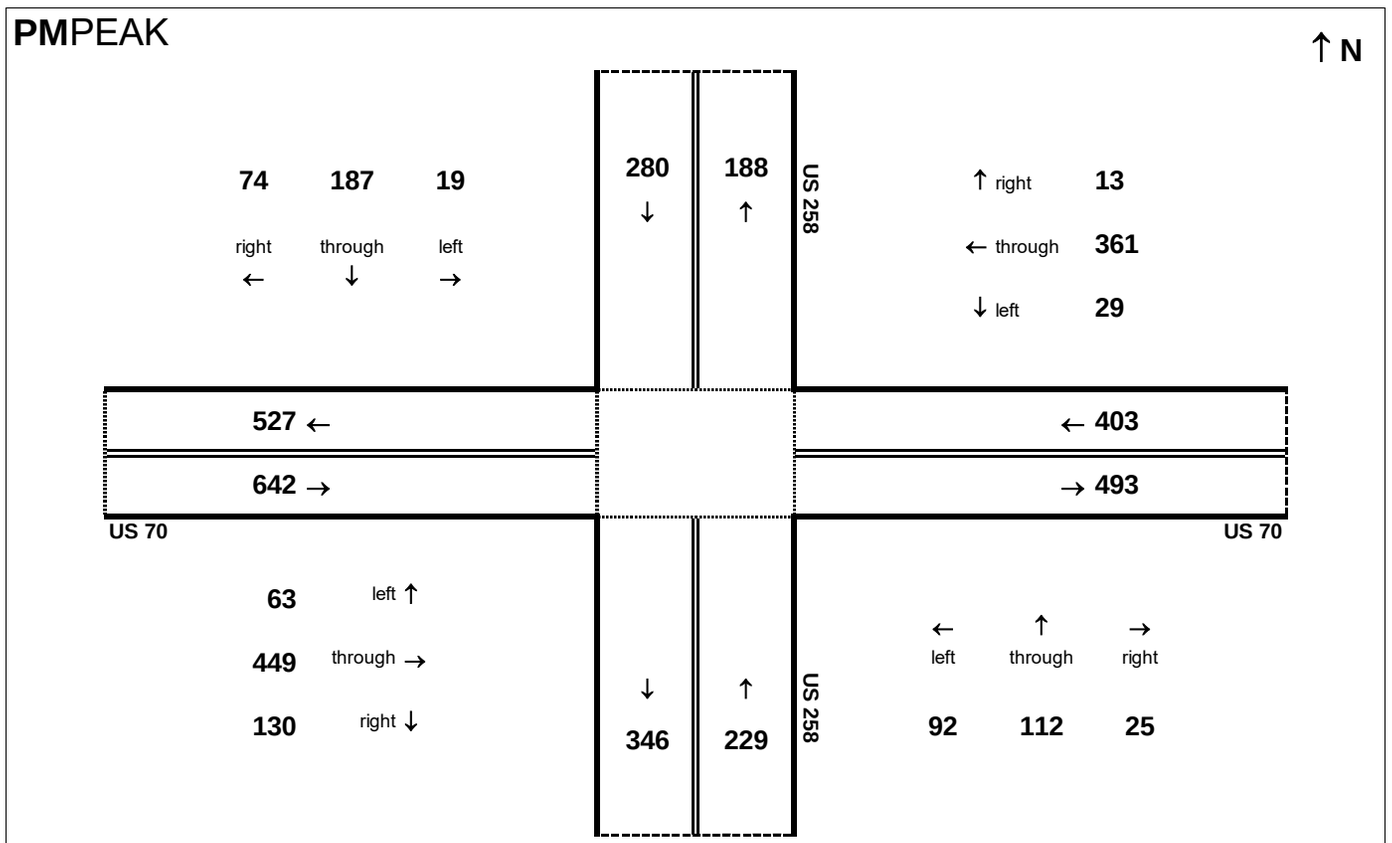
Traffic Data Year:
2040 Build Alt 36

Project:
R-2553





AM peak hour inflow is 1555 vehicles. AM peak hour outflow is 1554 vehicles.



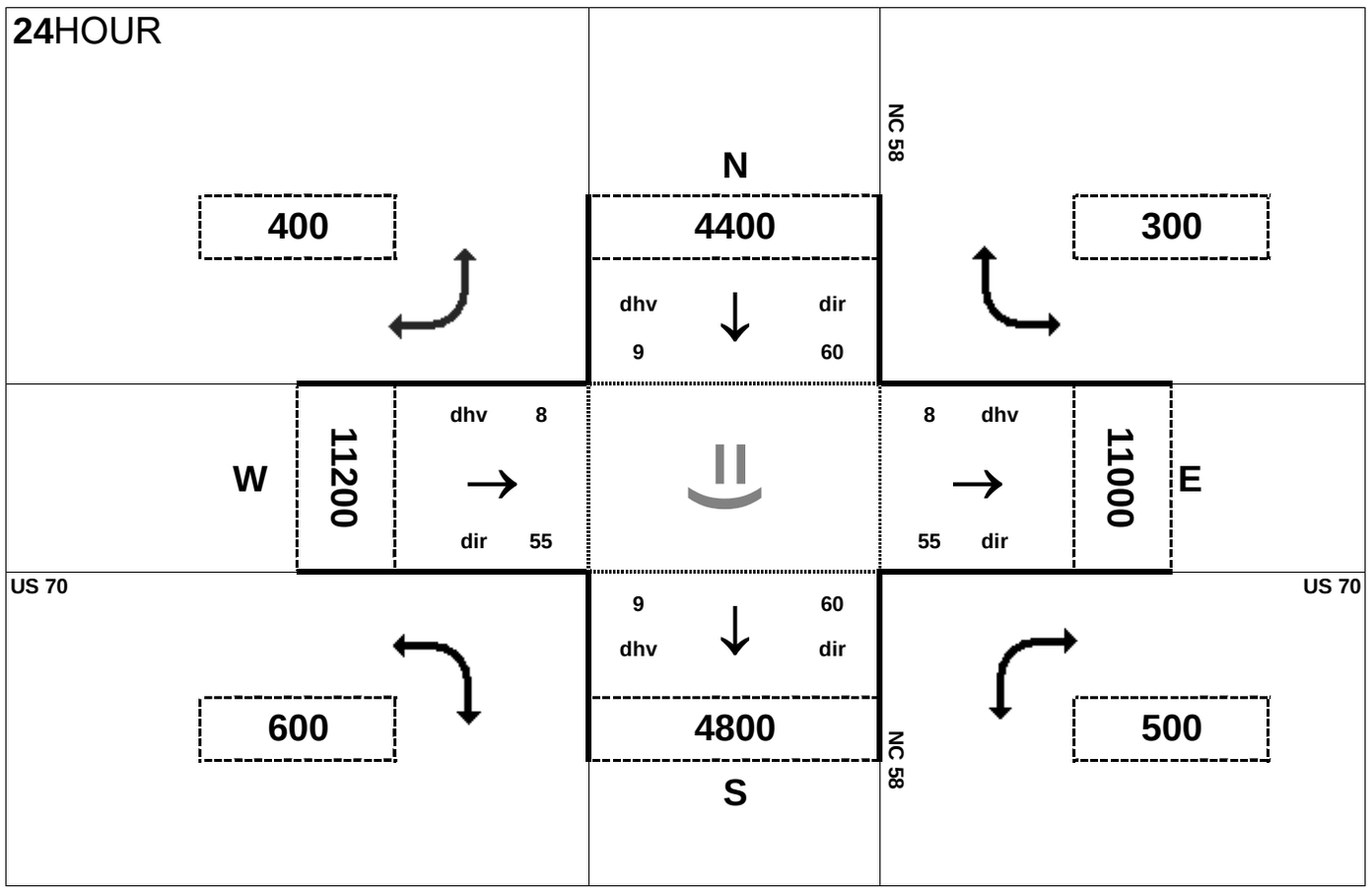
PM peak hour inflow is 1554 vehicles. PM peak hour outflow is 1555 vehicles.

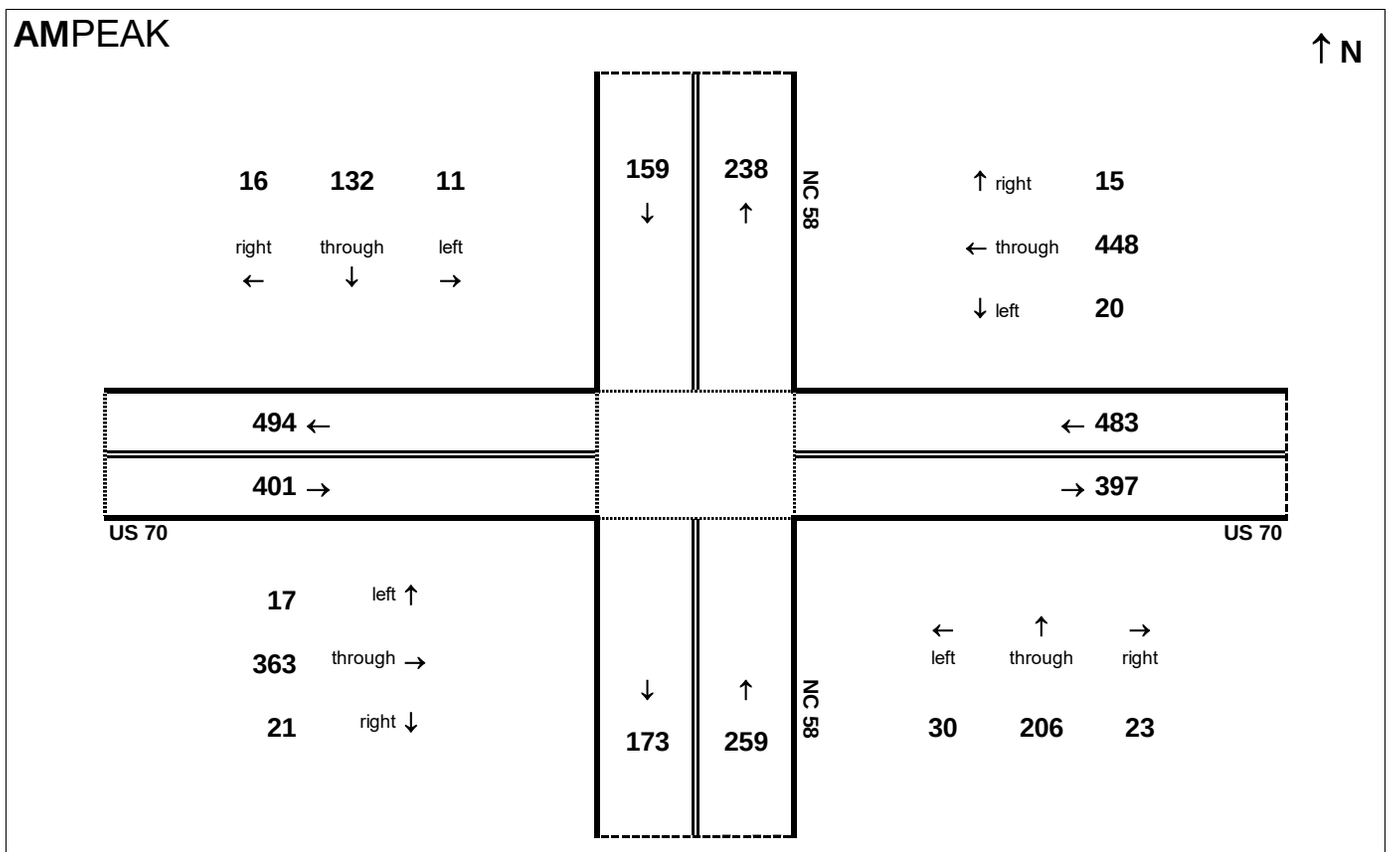
Peak Hour Volume Breakouts Report:
414-15 Intersection of US 70 and NC 58

Traffic Forecast Release Date:
November-16

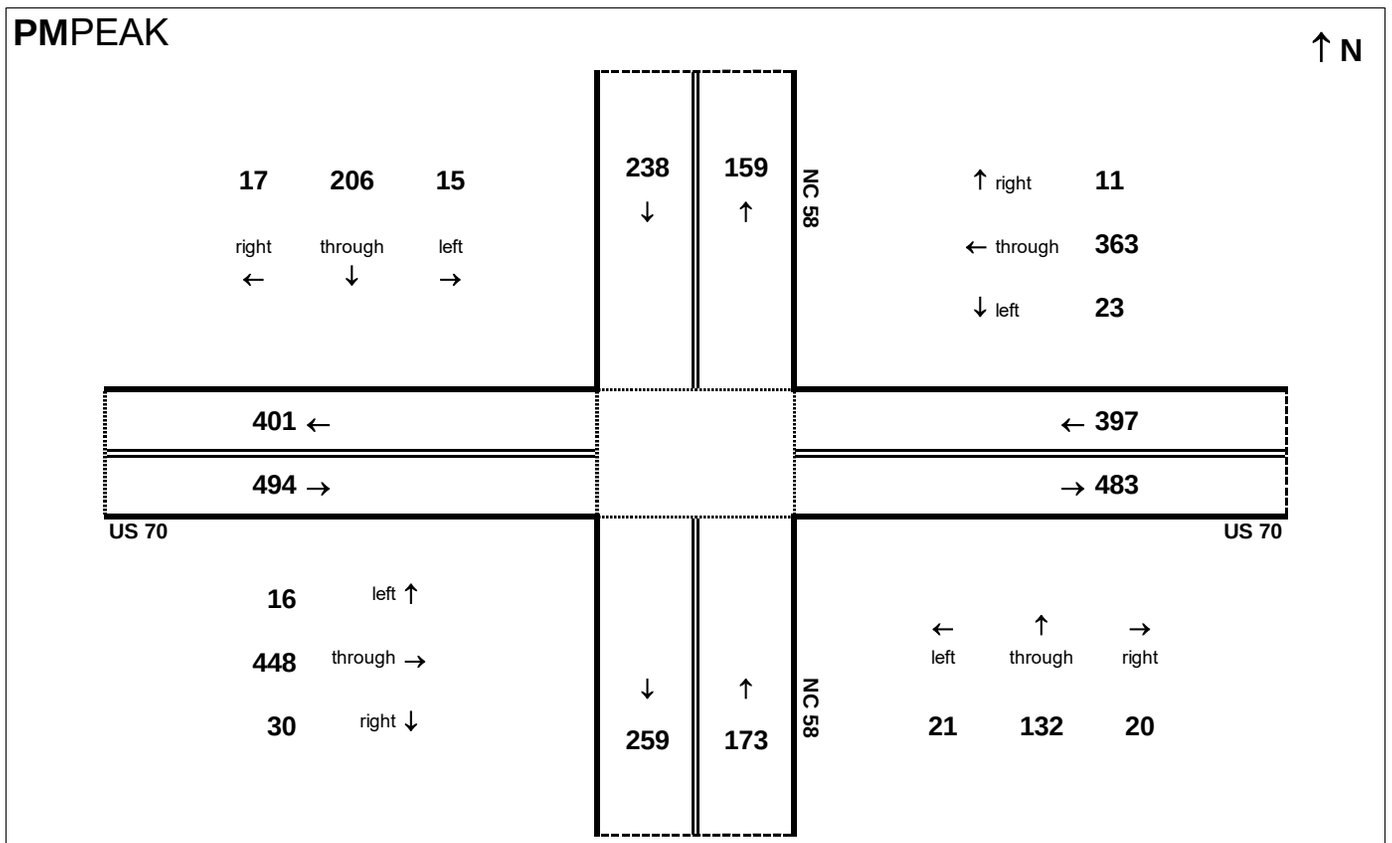
Traffic Data Year:
2040 Build Alt 36

Project:
R-2553





AM peak hour inflow is 1302 vehicles. AM peak hour outflow is 1302 vehicles.



PM peak hour inflow is 1302 vehicles. PM peak hour outflow is 1302 vehicles.

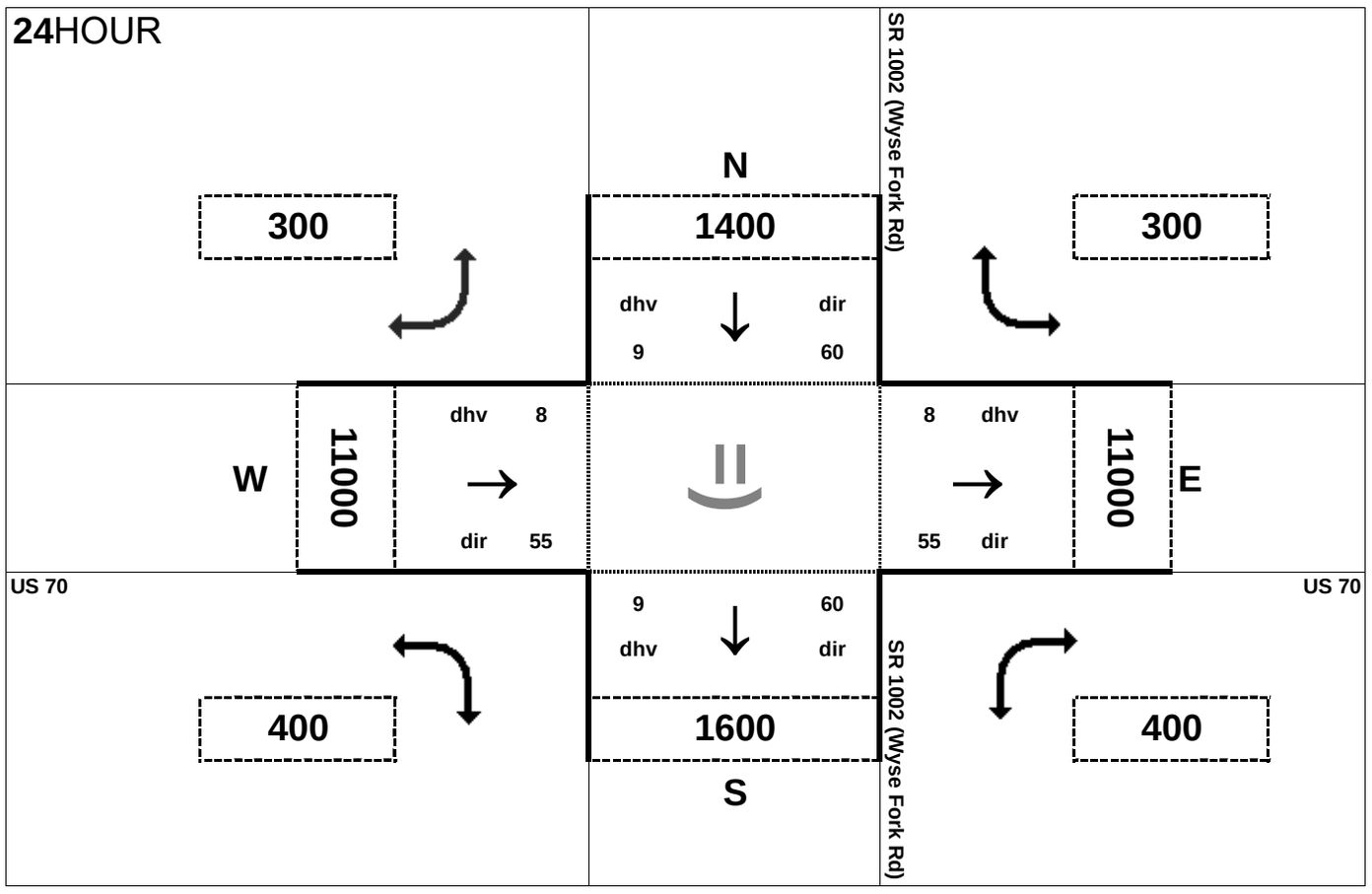
Peak Hour Volume Breakouts Report:
416-17 Intersection of US 70 and SR 1002 (Wyse Fork Rd)

Traffic Forecast Release Date:
November-16

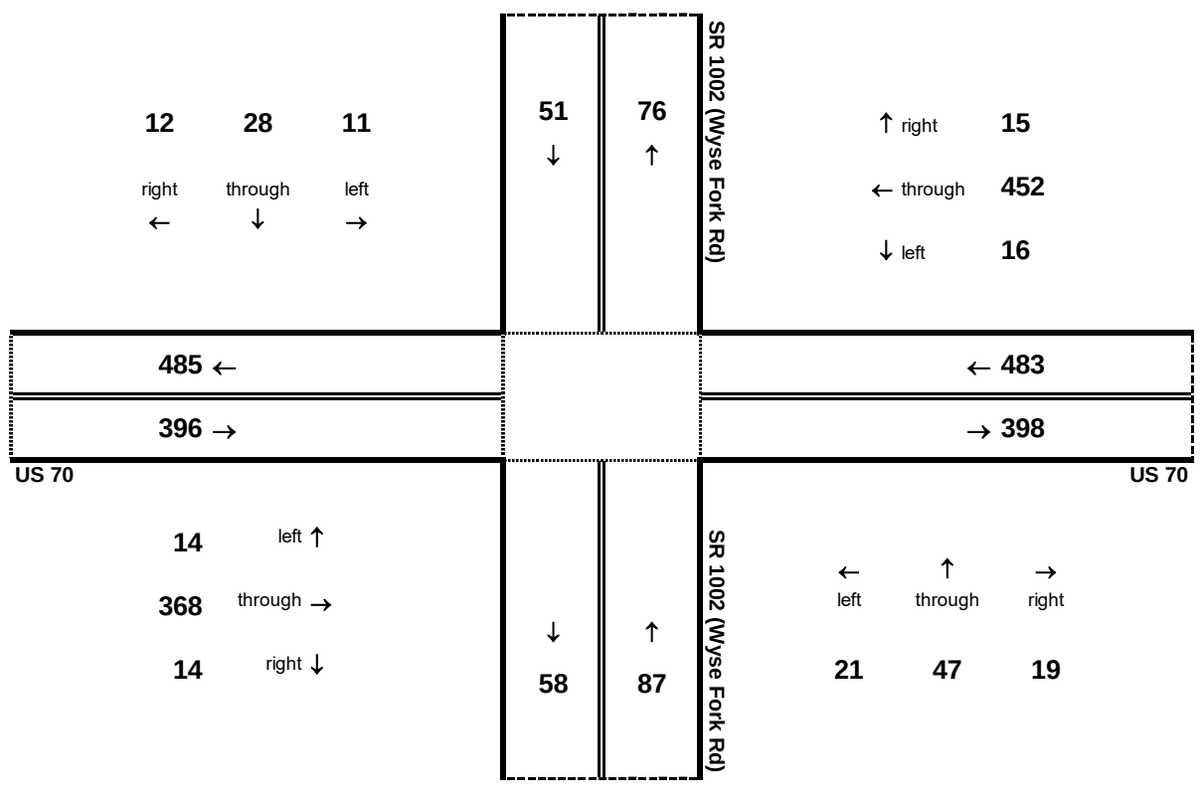
Traffic Data Year:
2040 Build Alt 36

Project:
R-2553

24HOUR

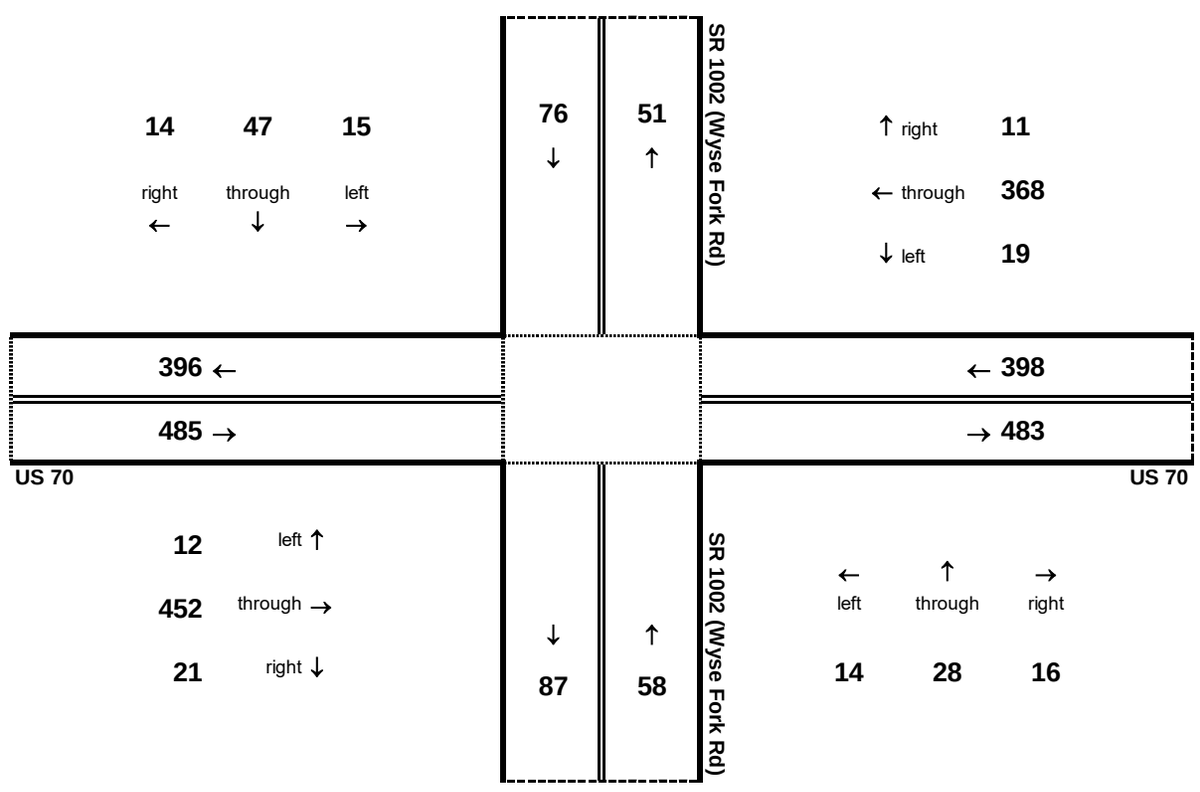


AMPEAK



AM peak hour inflow is 1014 vehicles. AM peak hour outflow is 1016 vehicles.

PMPEAK



PM peak hour inflow is 1016 vehicles. PM peak hour outflow is 1014 vehicles.

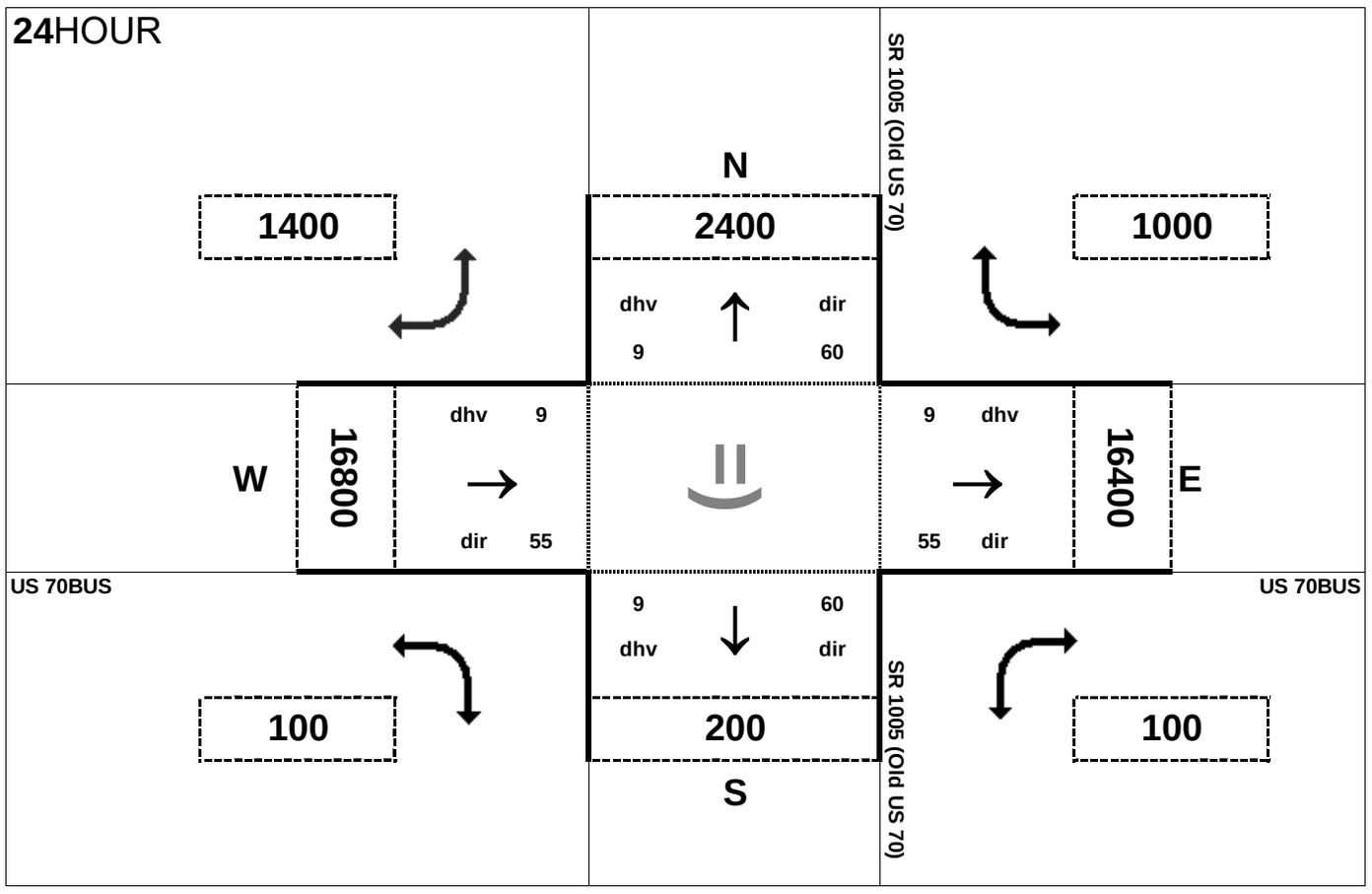
Peak Hour Volume Breakouts Report:
418 Intersection of US 70BUS and SR 1005 (Old US 70)

Traffic Forecast Release Date:
November-16

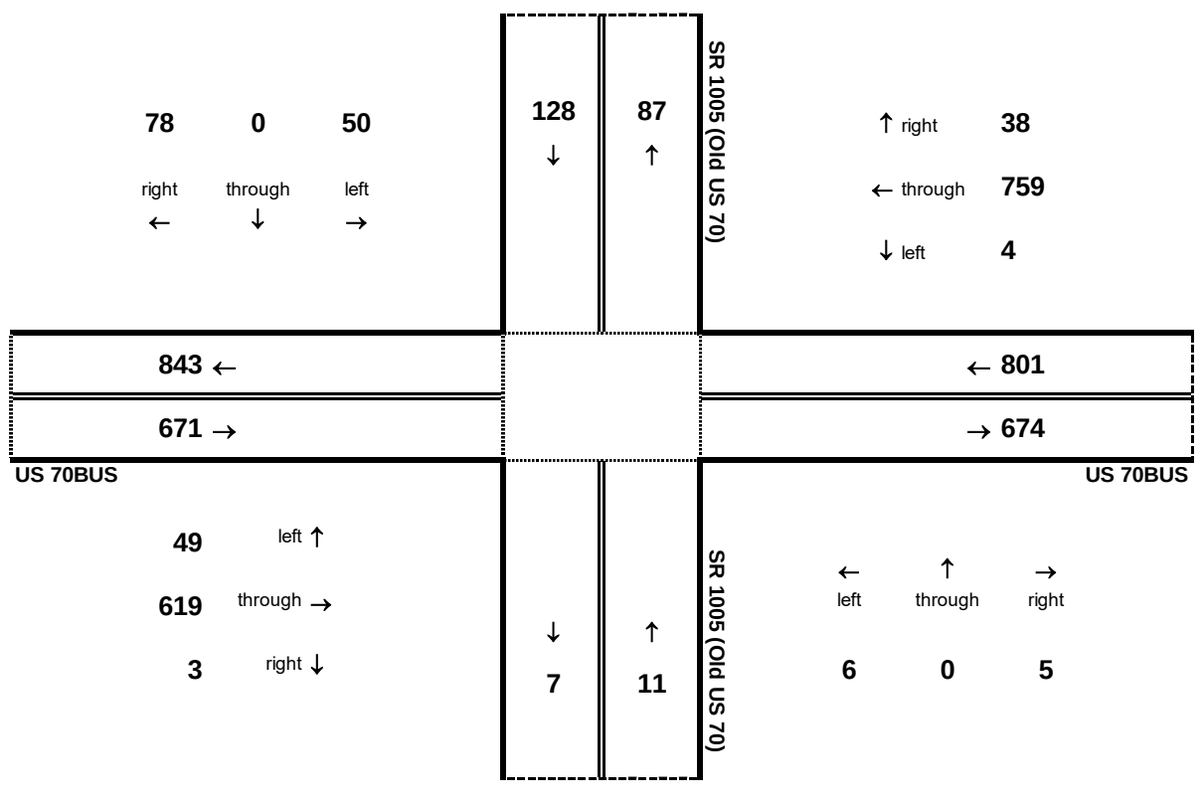
Traffic Data Year:
2040 Build Alt 36

Project:
R-2553

24HOUR

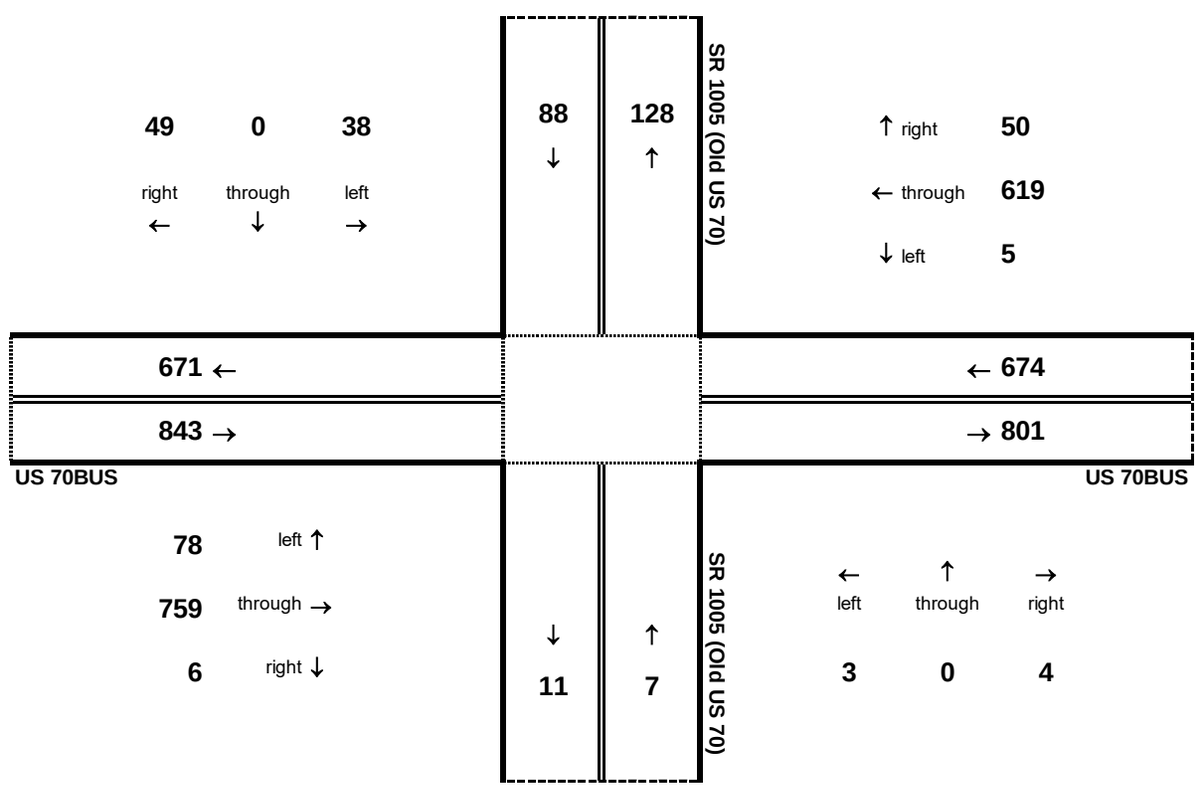


AMPEAK



AM peak hour inflow is 1611 vehicles. AM peak hour outflow is 1611 vehicles.

PMPEAK



PM peak hour inflow is 1611 vehicles. PM peak hour outflow is 1611 vehicles.

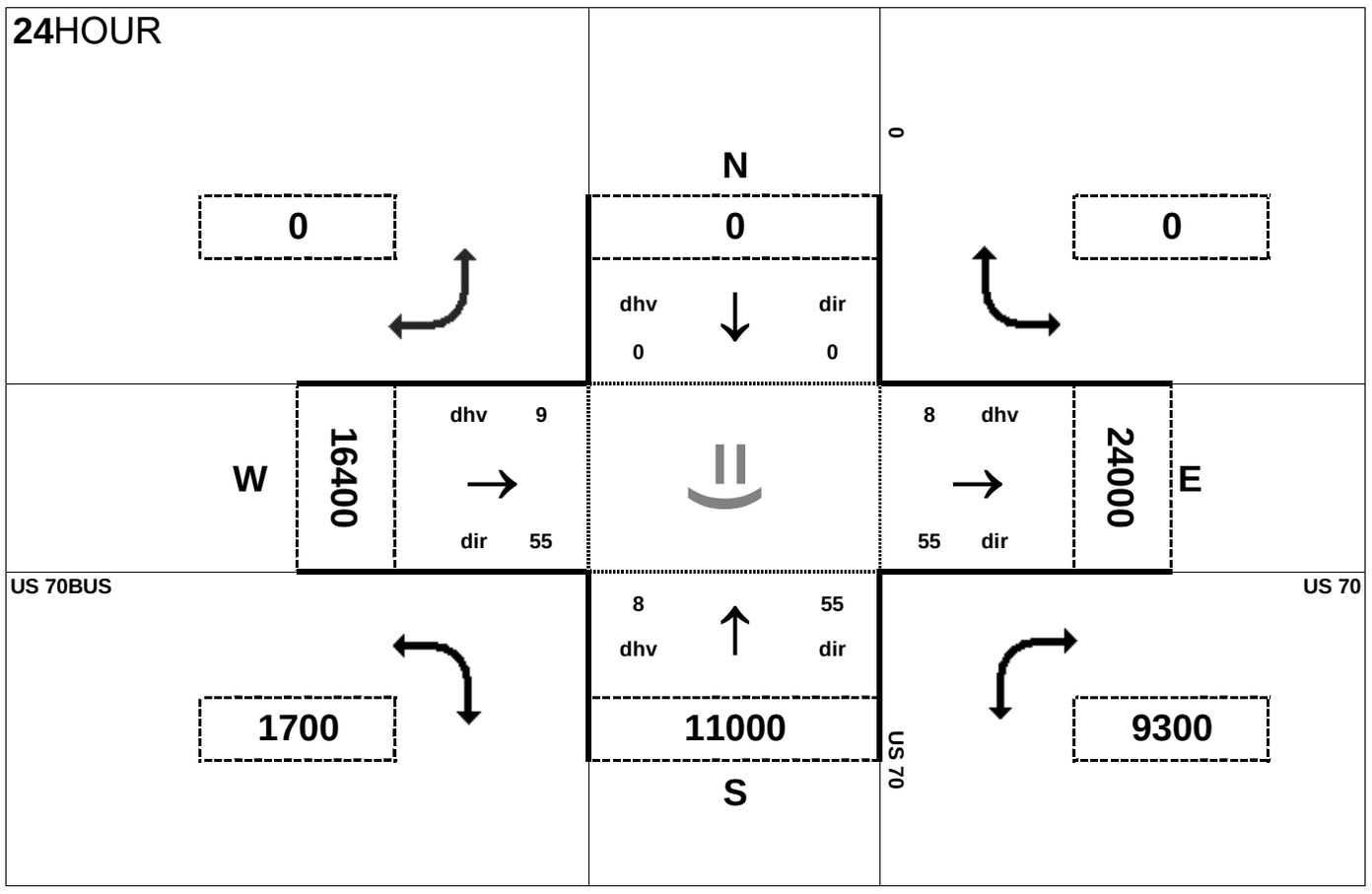
Peak Hour Volume Breakouts Report:
System 2 - Intersection of US 70 and eastern US 70BUS

Traffic Forecast Release Date:
November-16

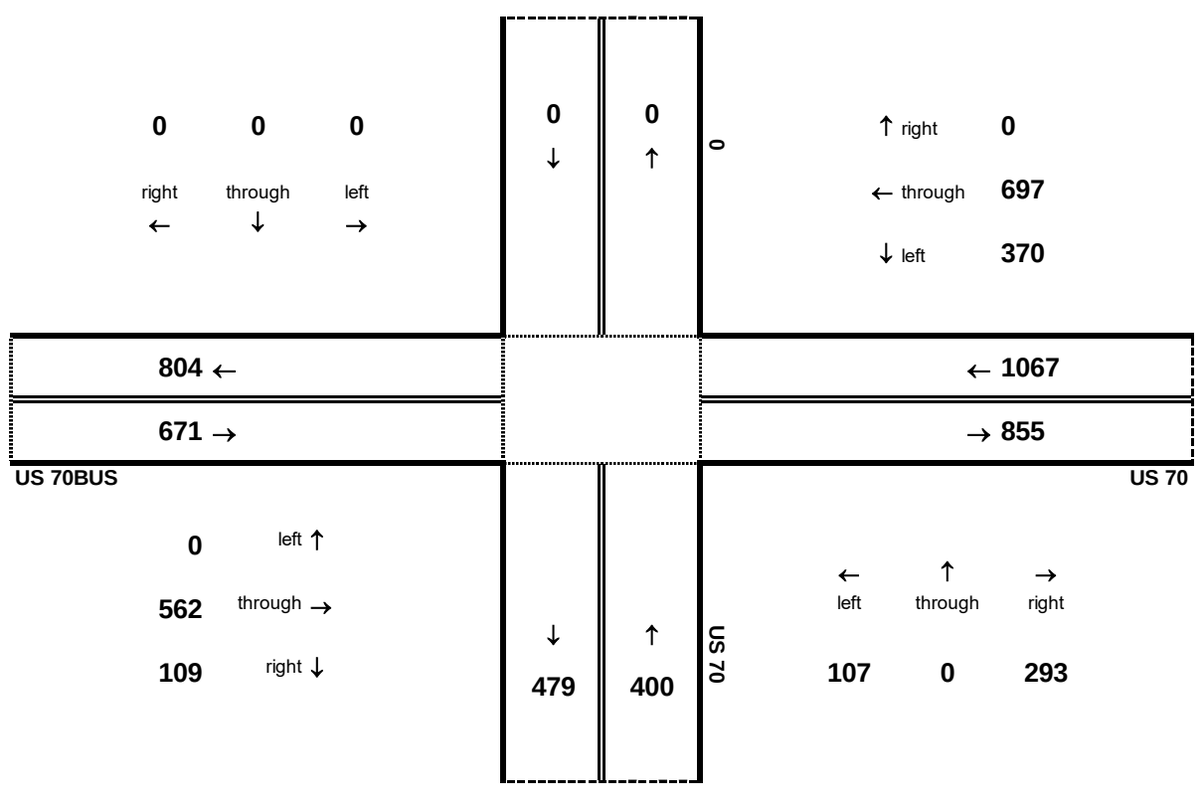
Traffic Data Year:
2040 Build Alt 36

Project:
R-2553

24HOUR

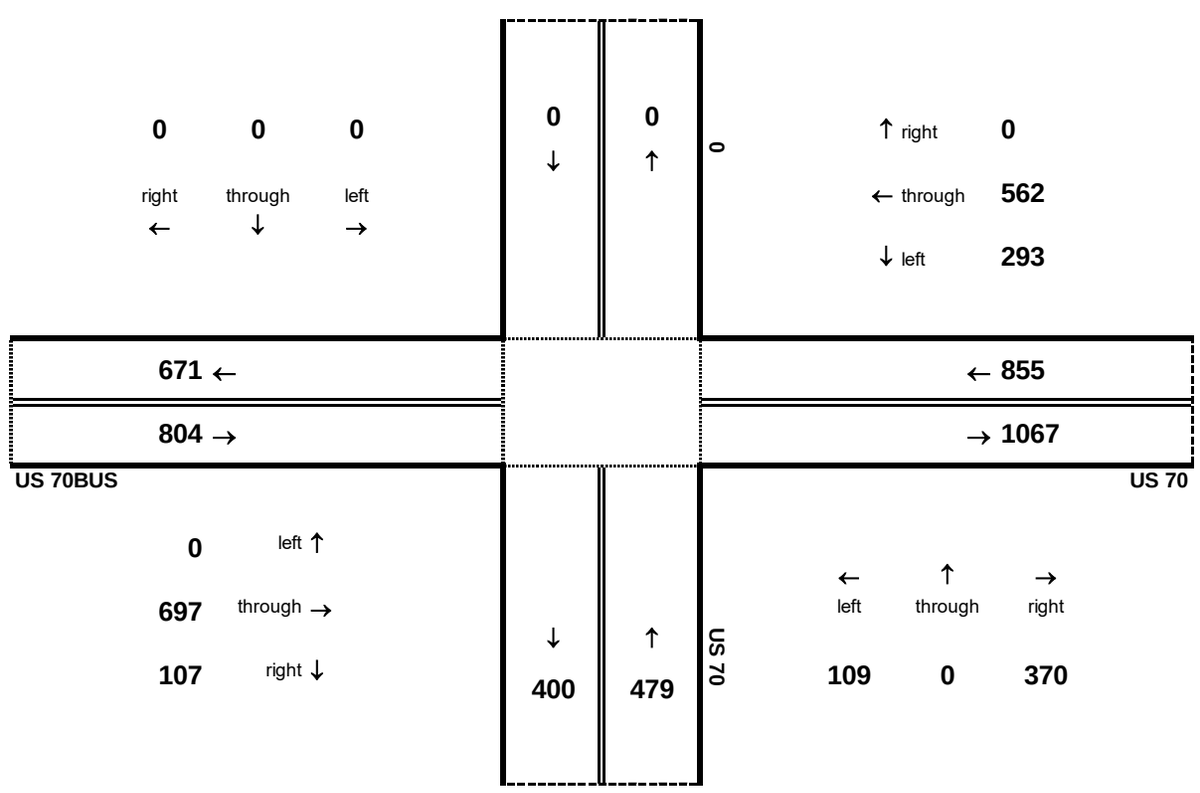


AMPEAK



AM peak hour inflow is 2138 vehicles. AM peak hour outflow is 2138 vehicles.

PMPEAK



PM peak hour inflow is 2138 vehicles. PM peak hour outflow is 2138 vehicles.

R-2553 Kinson Bypass

2040 Build Alternative 36

Step 1 - Calculating Basic Freeway Segment Volumes

Basic Freeway Segment Volumes - Eastbound							
Segment	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)	36,200	0.09	0.45	3,258	1,792	1,466
5E	US 70 EB - SR 1690 (Willie Measley Rd) to US 70BUS	39,200	0.09	0.45	3,528	1,940	1,588
9E	US 70 EB - US 70BUS to NC 55	13,600	0.09	0.55	1,224	551	673
13E	US 70 EB - NC 55 to NC 11	12,600	0.09	0.55	1,134	510	624
17E	US 70 EB - NC 11 to US 258	13,000	0.09	0.55	1,170	527	644
21E	US 70 EB - US 258 to NC 58	11,200	0.08	0.55	896	403	493
25E	US 70 EB - NC 58 to SR 1002 (Wyse Fork Rd)	11,000	0.08	0.55	880	396	484
29E	US 70 EB - SR 1002 (Wyse Fork Rd) to US 70BUS	11,000	0.08	0.55	880	396	484
33E	US 70 EB - East of US 70BUS	24,000	0.08	0.55	1,920	864	1,056

Basic Freeway Segment Volumes - Westbound							
Segment	**Description**	**AADT**	**K**	**D (PM)**	**Total**	**AM**	**PM**
1W	US 70 WB - East of US 70BUS	24,000	0.08	0.45	1,920	1,056	864
5W	US 70 WB - SR 1002 (Wyse Fork Rd) to US 70BUS	11,000	0.08	0.45	880	484	396
9W	US 70 WB - NC 58 to SR 1002 (Wyse Fork Rd)	11,000	0.08	0.45	880	484	396
13W	US 70 WB - US 258 to NC 58	11,200	0.08	0.45	896	493	403
17W	US 70 WB - NC 11 to US 258	13,000	0.09	0.45	1,170	644	527
21W	US 70 WB - NC 55 to NC 11	12,600	0.09	0.45	1,134	624	510
25W	US 70 WB - US 70BUS to NC 55	13,600	0.09	0.45	1,224	673	551
29W	US 70 WB - SR 1690 (Willie Measley Rd) to US 70BUS	39,200	0.09	0.55	3,528	1,588	1,940
33W	US 70 WB - West of SR 1690 (Willie Measley Rd)	36,200	0.09	0.55	3,258	1,466	1,792

R-2553 Kinson Bypass
2040 Build Alternative 36
Step 2 - Compiling Ramp Volumes

Ramp Volumes								
Description	EB Exit		WB Entrance		EB Entrance		WB Exit	
	AM	PM	AM	PM	AM	PM	AM	PM
US 70 at SR 1690 (Willie Measley Rd)	177	196	196	177	377	276	276	377
US 70 at US70BUS (western)	1,416	951	951	1,416	22	41	40	23
US 70 at NC 55	112	133	133	112	78	77	77	78
US 70 at NC 11	148	133	133	148	139	185	185	139
US 70at US 258	166	193	193	166	42	44	44	42
US 70 at NC 58	38	46	46	38	34	35	35	34
US 70 at (Wyse Fork Rd)	28	33	33	28	30	31	31	30
US 70 at US 70BUS (eastern int)	107	109	109	107	562	697	697	562

R-2553 Kinson Bypass
2040 Build Alternative 36
Step 3 - Adjusting All Segment Volumes

Eastbound Adjusted Segment Volumes						
Segment	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)	0.9	1,792	1,466	1,991	1,629
2E	US 70 EB - to SR 1690 (Willie Measley Rd)	0.9	177	196	197	218
4E	US 70 EB - from SR 1690 (Willie Measley Rd)	0.9	377	276	419	306
5E	US 70 EB - SR 1690 (Willie Measley Rd) to US 70BUS	0.9	1,940	1,588	2,156	1,764
6E	US 70 EB - to US70BUS (western int)	0.9	1,416	951	1,573	1,057
8E	US 70 EB - from US70BUS (western int)	0.9	22	41	24	46
9E	US 70 EB - US 70BUS to NC 55	0.9	551	673	612	748
10E	US 70 EB - to NC 55	0.9	112	133	124	148
12E	US 70 EB - from NC 55	0.9	78	77	87	85
13E	US 70 EB - NC 55 to NC 11	0.9	510	624	567	693
14E	US 70 EB - to NC 11	0.9	148	133	164	148
16E	US 70 EB - from NC 11	0.9	139	185	154	205
17E	US 70 EB - NC 11 to US 258	0.9	527	644	585	715
18E	US 70 EB - to US 258	0.9	166	193	184	214
20E	US 70 EB - from US 258	0.9	42	44	47	49
21E	US 70 EB - US 258 to NC 58	0.9	403	493	448	548
22E	US 70 EB - to NC 58	0.9	38	46	42	51
24E	US 70 EB - from NC 58	0.9	34	35	38	39
25E	US 70 EB - NC 58 to SR 1002 (Wyse Fork Rd)	0.9	396	484	440	538
26E	US 70 EB - to SR 1002 (Wyse Fork Rd)	0.9	28	33	31	37
28E	US 70 EB - from SR 1002 (Wyse Fork Rd)	0.9	30	31	33	34
29E	US 70 EB - SR 1002 (Wyse Fork Rd) to US 70BUS	0.9	396	484	440	538
30E	US 70 EB - to US70BUS (eastern int)	0.9	107	109	119	121
33E	US 70 EB - East of US 70BUS	0.9	864	1,056	960	1,173
32E	US 70 EB - from US70BUS (eastern int)	0.9	562	697	624	774

	AM	PM
Max Volume	2,156	1,764

XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 36
Step 3 - Adjusting All Segment Volumes

Westbound Adjusted Segment Volumes						
Segment	Description	PHF	Forecast Volumes		Adjusted Volumes	
			AM	PM	AM	PM
1W	US 70 WB - East of US 70BUS	0.9	1,056	864	1,173	960
2W	US 70 WB - to US70BUS (eastern int)	0.9	697	562	774	624
4W	US 70 WB - from US70BUS (eastern int)	0.9	109	107	121	119
5W	US 70 WB - SR 1002 (Wyse Fork Rd) to US 70BUS	0.9	484	396	538	440
6W	US 70 WB - to SR 1002 (Wyse Fork Rd)	0.9	31	30	34	33
8W	US 70 WB - from SR 1002 (Wyse Fork Rd)	0.9	33	28	37	31
9W	US 70 WB - NC 58 to SR 1002 (Wyse Fork Rd)	0.9	484	396	538	440
10W	US 70 WB - to NC 58	0.9	35	34	39	38
12W	US 70 WB - from NC 58	0.9	46	38	51	43
13W	US 70 WB - US 258 to NC 58	0.9	493	403	548	448
14W	US 70 WB - to US 258	0.9	44	42	49	47
16W	US 70 WB - from US 258	0.9	193	166	214	184
17W	US 70 WB - NC 11 to US 258	0.9	644	527	715	585
18W	US 70 WB - to NC 11	0.9	185	139	206	154
20W	US 70 WB - from NC 11	0.9	133	148	148	165
21W	US 70 WB - NC 55 to NC 11	0.9	624	510	693	567
22W	US 70 WB - to NC 55	0.9	77	78	86	87
24W	US 70 WB - from NC 55	0.9	133	112	148	125
25W	US 70 WB - US 70BUS to NC 55	0.9	673	551	748	612
26W	US 70 WB - to US70BUS (western int)	0.9	40	23	44	26
28W	US 70 WB - from US70BUS (western int)	0.9	951	1,416	1,057	1,573
29W	US 70 WB - SR 1690 (Willie Measley Rd) to US 70BUS	0.9	1,588	1,940	1,764	2,156
30W	US 70 WB - to SR 1690 (Willie Measley Rd)	0.9	276	377	307	419
32W	US 70 WB - from SR 1690 (Willie Measley Rd)	0.9	196	177	218	196
33W	US 70 WB - West of SR 1690 (Willie Measley Rd)	0.9	1,466	1,792	1,629	1,991

	AM	PM
Max Volume	1,764	2,156

XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 36
Step 4 - Balancing Freeway Segment Volumes

US 70 Eastbound Freeway Volume Balancing					
Segment	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1E	US 70 EB - West of SR 1690 (Willie Measley Rd)			1,934	1,675
2E	US 70 EB - to SR 1690 (Willie Measley Rd)	197	218		
3E	US 70 EB - within SR 1690 (Willie Measley Rd) Interchange			1,737	1,457
4E	US 70 EB - from SR 1690 (Willie Measley Rd)	419	307		
5E	US 70 EB - SR 1690 (Willie Measley Rd) to US 70BUS			2,156	1,764
6E	US 70 EB - to US70BUS (western int)	1,574	1,057		
7E	US 70 EB - within US 07BUS western Interchange			582	707
8E	US 70 EB - from US70BUS (western int)	25	46		
9E	US 70 EB - US 70BUS to NC 55			607	753
10E	US 70 EB - to NC 55	125	148		
11E	US 70 EB - within NC 55 Interchange			482	605
12E	US 70 EB - from NC 55	87	86		
13E	US 70 EB - NC 55 to NC 11			569	691
14E	US 70 EB - to NC 11	165	148		
15E	US 70 EB - within NC 11 Interchange			404	543
16E	US 70 EB - from NC 11	155	206		
17E	US 70 EB - NC 11 to US 258			559	749
18E	US 70 EB - to US 258	185	215		
19E	US 70 EB - within US 258 Interchange			374	534
20E	US 70 EB - from US 258	47	49		
21E	US 70 EB - US 258 to NC 58			421	583
22E	US 70 EB - to NC 58	43	52		
23E	US 70 EB - within NC 58 Interchange			378	531
24E	US 70 EB - from NC 58	38	39		
25E	US 70 EB - NC 58 to SR 1002 (Wyse Fork Rd)			416	570
26E	US 70 EB - to SR 1002 (Wyse Fork Rd)	32	37		
27E	US 70 EB - within SR 1002 Interchange			384	533
28E	US 70 EB - from SR 1002 (Wyse Fork Rd)	34	35		
29E	US 70 EB - SR 1002 (Wyse Fork Rd) to US 70BUS			418	568
30E	US 70 EB - to US70BUS (eastern int)	119	122		
31E	US 70 EB - within US 70BUS eastern Interchange			299	446
32E	US 70 EB - from US70BUS (eastern int)	625	775		
33E	US 70 EB - East of US 70BUS			924	1,221

	Max volume balance point
XXX	Ramp
XXX	Basic Freeway Segment

R-2553 Kinson Bypass
2040 Build Alternative 36
Step 4 - Balancing Freeway Segment Volumes

US 70 Westbound Freeway Volume Balancing					
Segment	Description	Adjusted Ramp Volumes		Balanced Freeway Volumes	
		AM	PM	AM	PM
1W	US 70 WB - East of US 70BUS			1,220	926
2W	US 70 WB - to US70BUS (eastern int)	775	625		
3W	US 70 WB - within US 70BUS eastern Interchange			445	301
4W	US 70 WB - from US70BUS (eastern int)	122	119		
5W	US 70 WB - SR 1002 (Wyse Fork Rd) to US 70BUS			567	420
6W	US 70 WB - to SR 1002 (Wyse Fork Rd)	35	34		
7W	US 70 WB - within SR 1002 Interchange			532	386
8W	US 70 WB - from SR 1002 (Wyse Fork Rd)	37	31		
9W	US 70 WB - NC 58 to SR 1002 (Wyse Fork Rd)			569	417
10W	US 70 WB - to NC 58	39	38		
11W	US 70 WB - within NC 58 Interchange			530	379
12W	US 70 WB - from NC 58	52	43		
13W	US 70 WB - US 258 to NC 58			582	422
14W	US 70 WB - to US 258	49	47		
15W	US 70 WB - within US 258 Interchange			533	375
16W	US 70 WB - from US 258	215	185		
17W	US 70 WB - NC 11 to US 258			748	560
18W	US 70 WB - to NC 11	206	155		
19W	US 70 WB - within NC 11 Interchange			542	405
20W	US 70 WB - from NC 11	148	165		
21W	US 70 WB - NC 55 to NC 11			690	570
22W	US 70 WB - to NC 55	86	87		
23W	US 70 WB - within NC 55 Interchange			604	483
24W	US 70 WB - from NC 55	148	125		
25W	US 70 WB - US 70BUS to NC 55			752	608
26W	US 70 WB - to US70BUS (western int)	45	26		
27W	US 70 WB - within US 70BUS western Interchange			707	582
28W	US 70 WB - from US70BUS (western int)	1,057	1,574		
29W	US 70 WB - SR 1690 (Willie Measley Rd) to US 70BUS			1,764	2,156
30W	US 70 WB - to SR 1690 (Willie Measley Rd)	307	419		
31W	US 70 WB - within SR 1690 (Willie Measley Rd) Interchange			1,457	1,737
32W	US 70 WB - from SR 1690 (Willie Measley Rd)	218	197		
33W	US 70 WB - West of SR 1690 (Willie Measley Rd)			1,675	1,934

	Max volume balance point
XXX	Ramp
XXX	Basic Freeway Segment

2040 Build Alternative 36
FREEVAL-E Reports

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R-2553 US 70 Kinston Bypass, Alternative 36
US 70 EB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1E	2E	3E	4E	5E	6E	7E	8E	9E
General Purpose Segment Name	W of Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	Jim Sutton/Willie Measley to US 70 Bus (W)	To US 70 Bus (W)	Within US 70 Bus (W)	From US 70 Bus (W)	US 70 Bus (W) to NC 55
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	1500	4340	2500	2300	1620	20650
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1934	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	750	N/A	920	N/A	2500	N/A	1620	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	419	N/A	N/A	N/A	25	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	6	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	2	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	60	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	197	N/A	N/A	N/A	1574	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	6	N/A	N/A	N/A
Total Density (pc/mi/ln)	14.3	14.7	12.9	16.9	15.9	0.9	4.3	0.2	4.5
V/C	0.42	0.42	0.38	0.46	0.46	0.46	0.13	0.13	0.13
Density Based LOS	B	B	B	B	B	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 36
US 70 EB - AM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10E	11E	12E	13E	14E	15E	16E	17E	18E
General Purpose Segment Name	To NC 55	Within NC 55	From NC 55	NC 55 to NC 11	To NC 11	Within NC 11	From NC 11	NC 11 to US 258	To US 258
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	6240	1500	1500	1620	10130	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	87	N/A	N/A	N/A	155	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	8	N/A	N/A	N/A	5	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	125	N/A	N/A	N/A	165	N/A	N/A	N/A	185
OFR Single Unit Truck and Bus (%)	8	N/A	N/A	N/A	5	N/A	N/A	N/A	7
Total Density (pc/mi/ln)	2.9	3.6	4.3	4.2	4.9	3.0	0.0*	4.2	2.5
V/C	0.13	0.10	0.12	0.12	0.12	0.09	0.12	0.12	0.12
Density Based LOS	A	A	A	A	A	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 36
US 70 EB - AM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19E	20E	21E	22E	23E	24E	25E	26E	27E
General Purpose Segment Name	Within US 258	From US 258	US 258 to NC 58	To NC 58	Within NC 58	From NC 58	NC 58 to Wyse Fork	To Wyse Fork	Within Wyse Fork Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	19660	1500	1500	1500	14920	1500	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	750	N/A	920	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	47	N/A	N/A	N/A	38	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	6	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	25	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	43	N/A	N/A	N/A	32	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	6	N/A	N/A	N/A	4	N/A
Total Density (pc/mi/ln)	2.8	3.1	3.1	1.3	2.8	3.1	3.1	3.6	2.9
V/C	0.08	0.09	0.09	0.09	0.08	0.09	0.09	0.09	0.08
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 36
US 70 EB - AM Peak

Segment	Seg. 28	Seg. 29	Seg. 30	Seg. 31	Seg. 32	Seg. 33
General Purpose Segment Data	28E	29E	30E	31E	32E	33E
General Purpose Segment Name	From Wyse Fork	Wyse fork to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E) Int	From US 70 Bus (E)	E of US 70 Bus (E)
General Purpose Segment Type	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1620	12900	1500	1550	2500	5280
Terrain	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	1620	N/A	490	N/A	920	N/A
ONR Side	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	1	N/A	N/A	N/A	2	N/A
ONR Free Flow Speed (mph)	25	N/A	N/A	N/A	60	N/A
ONR/Entering Dem. (vph)	34	N/A	N/A	N/A	625	N/A
ONR Single Unit Truck and Bus (%)	4	N/A	N/A	N/A	8	N/A
OFR Side	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	119	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	8	N/A	N/A	N/A
Total Density (pc/mi/ln)	0.0*	3.1	3.6	2.2	6.9	6.9
V/C	0.09	0.09	0.09	0.07	0.20	0.20
Density Based LOS	A	A	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 36
US 70 EB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1E	2E	3E	4E	5E	6E	7E	8E	9E
General Purpose Segment Name	W of Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	Jim Sutton/Willie Measley to US 70 Bus (W)	To US 70 Bus (W)	Within US 70 Bus (W)	From US 70 Bus (W)	US 70 Bus (W) to NC 55
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	1500	1500	4340	2500	2300	1620	20650
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1675	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	7	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	750	N/A	920	N/A	2500	N/A	1620	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	307	N/A	N/A	N/A	46	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	4	N/A	N/A	N/A	6	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	2	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	25	N/A	N/A	N/A	60	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	218	N/A	N/A	N/A	1057	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	4	N/A	N/A	N/A	6	N/A	N/A	N/A
Total Density (pc/mi/ln)	12.4	12.4	10.8	13.8	13.0	0.0*	5.3	1.4	5.6
V/C	0.36	0.36	0.31	0.38	0.38	0.38	0.15	0.16	0.16
Density Based LOS	B	B	A	B	B	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 36
US 70 EB - PM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10E	11E	12E	13E	14E	15E	16E	17E	18E
General Purpose Segment Name	To NC 55	Within NC 55	From NC 55	NC 55 to NC 11	To NC 11	Within NC 11	From NC 11	NC 11 to US 258	To US 258
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1500	6240	1500	1500	1620	10130	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	750	N/A	920	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	86	N/A	N/A	N/A	206	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	8	N/A	N/A	N/A	5	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	25	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	148	N/A	N/A	N/A	148	N/A	N/A	N/A	215
OFR Single Unit Truck and Bus (%)	8	N/A	N/A	N/A	5	N/A	N/A	N/A	7
Total Density (pc/mi/ln)	4.2	4.5	5.3	5.1	6.0	4.0	1.3	5.6	4.2
V/C	0.16	0.13	0.15	0.15	0.15	0.12	0.16	0.16	0.16
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 36
US 70 EB - PM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19E	20E	21E	22E	23E	24E	25E	26E	27E
General Purpose Segment Name	Within US 258	From US 258	US 258 to NC 58	To NC 58	Within NC 58	From NC 58	NC 58 to Wyse Fork	To Wyse Fork	Within Wyse Fork Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	19660	1500	1500	1500	14920	1500	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	750	N/A	920	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	45	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	49	N/A	N/A	N/A	39	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	7	N/A	N/A	N/A	6	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	25	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	52	N/A	N/A	N/A	37	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	6	N/A	N/A	N/A	4	N/A
Total Density (pc/mi/ln)	4.0	4.4	4.3	2.7	3.9	4.3	4.2	4.9	4.0
V/C	0.12	0.13	0.13	0.13	0.12	0.12	0.12	0.12	0.12
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 36
US 70 EB - PM Peak

Segment	Seg. 28	Seg. 29	Seg. 30	Seg. 31	Seg. 32	Seg. 33
General Purpose Segment Data	28E	29E	30E	31E	32E	33E
General Purpose Segment Name	From Wyse Fork	Wyse fork to US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E) Int	From US 70 Bus (E)	E of US 70 Bus (E)
General Purpose Segment Type	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1620	12900	1500	1550	2500	5280
Terrain	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	1620	N/A	490	N/A	920	N/A
ONR Side	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	1	N/A	N/A	N/A	2	N/A
ONR Free Flow Speed (mph)	25	N/A	N/A	N/A	60	N/A
ONR/Entering Dem. (vph)	35	N/A	N/A	N/A	775	N/A
ONR Single Unit Truck and Bus (%)	4	N/A	N/A	N/A	8	N/A
OFR Side	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	122	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	8	N/A	N/A	N/A
Total Density (pc/mi/ln)	0.0*	4.2	4.9	3.3	9.2	9.1
V/C	0.12	0.12	0.12	0.10	0.26	0.26
Density Based LOS	A	A	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 36
US 70 WB - AM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1W	2W	3W	4W	5W	6W	7W	8W	9W
General Purpose Segment Name	E of US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E) Int	From US 70 Bus (E)	US 70 Bus (E) to Wyse Fork	To Wyse Fork	Within Wyse Fork Int	From Wyse Fork	Wyse Fork to NC 58
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	3350	1500	10810	1500	1500	1500	14400
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	1220	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	9	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	920	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	122	N/A	N/A	N/A	37	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	8	N/A	N/A	N/A	4	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	775	N/A	N/A	N/A	35	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	8	N/A	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	9.1	10.8	3.3	4.3	4.3	2.6	4.0	4.4	4.3
V/C	0.27	0.27	0.10	0.12	0.12	0.12	0.12	0.12	0.12
Density Based LOS	A	B	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 36
US 70 WB - AM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10W	11W	12W	13W	14W	15W	16W	17W	18W
General Purpose Segment Name	To NC 58	Within NC 58 Int	From NC 58	NC 58 to US 258	To US 258	Within US 258 Int	From US 258	US 258 to NC 11	To NC 11
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1620	19460	1500	1500	1620	10110	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	490	N/A	1620	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	25	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	52	N/A	N/A	N/A	215	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	6	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	45	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	39	N/A	N/A	N/A	49	N/A	N/A	N/A	206
OFR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	7	N/A	N/A	N/A	5
Total Density (pc/mi/ln)	5.0	4.0	0.1	4.4	5.1	4.0	1.3	5.6	4.2
V/C	0.12	0.12	0.13	0.13	0.13	0.12	0.16	0.16	0.16
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 36
US 70 WB - AM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19W	20W	21W	22W	23W	24W	25W	26W	27W
General Purpose Segment Name	Within NC 11 Int	From NC 11	NC 11 to NC 55	To NC 55	Within NC 55 Int	From NC 55	NC 55 to US 70 Bus (W)	To US 70 Bus (W)	Within US 70 Bus (W) Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	5770	1500	1500	1620	18490	1500	2560
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	1620	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	148	N/A	N/A	N/A	148	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	5	N/A	N/A	N/A	8	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	86	N/A	N/A	N/A	45	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	8	N/A	N/A	N/A	6	N/A
Total Density (pc/mi/ln)	4.1	5.3	5.2	6.1	4.5	1.4	5.6	6.6	5.3
V/C	0.12	0.15	0.15	0.15	0.13	0.16	0.16	0.16	0.15
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 36
US 70 WB - AM Peak

Segment	Seg. 28	Seg. 29	Seg. 30	Seg. 31	Seg. 32	Seg. 33
General Purpose Segment Data	28W	29W	30W	31W	32W	33W
General Purpose Segment Name	From US 70 Bus (W)	US 70 Bus (W) to Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	W of Jim Sutton/Willie Measley
General Purpose Segment Type	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1500	7290	1500	1500	1620	5280
Terrain	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	920	N/A	490	N/A	1620	N/A
ONR Side	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	45	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	1057	N/A	N/A	N/A	218	N/A
ONR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	4	N/A
OFR Side	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	307	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	13.5	13.1	15.6	10.8	8.8	12.4
V/C	0.38	0.38	0.38	0.32	0.36	0.36
Density Based LOS	B	B	B	A	A	B

R-2553 US 70 Kinston Bypass, Alternative 36
US 70 WB - PM Peak

Segment	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Seg. 7	Seg. 8	Seg. 9
General Purpose Segment Data	1W	2W	3W	4W	5W	6W	7W	8W	9W
General Purpose Segment Name	E of US 70 Bus (E)	To US 70 Bus (E)	Within US 70 Bus (E) Int	From US 70 Bus (E)	US 70 Bus (E) to Wyse Fork	To Wyse Fork	Within Wyse Fork Int	From Wyse Fork	Wyse Fork to NC 58
General Purpose Segment Type	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	5280	1500	3350	1500	10810	1500	1500	1500	14400
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	926	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	9	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	490	N/A	920	N/A	750	N/A	920	N/A
ONR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
ONR/Entering Dem. (vph)	N/A	N/A	N/A	119	N/A	N/A	N/A	31	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	N/A	8	N/A	N/A	N/A	4	N/A
OFR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	625	N/A	N/A	N/A	34	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	8	N/A	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	6.9	8.2	2.3	3.1	3.2	1.3	2.9	3.1	3.1
V/C	0.20	0.20	0.07	0.09	0.09	0.09	0.08	0.09	0.09
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 36
US 70 WB - PM Peak

Segment	Seg. 10	Seg. 11	Seg. 12	Seg. 13	Seg. 14	Seg. 15	Seg. 16	Seg. 17	Seg. 18
General Purpose Segment Data	10W	11W	12W	13W	14W	15W	16W	17W	18W
General Purpose Segment Name	To NC 58	Within NC 58 Int	From NC 58	NC 58 to US 258	To US 258	Within US 258 Int	From US 258	US 258 to NC 11	To NC 11
General Purpose Segment Type	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp
Segment Length (ft)	1500	1500	1620	19460	1500	1500	1620	10110	1500
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	490	N/A	1620	N/A	490	N/A	1620	N/A	750
ONR Side	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A
# Lanes: ONR	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A
ONR Free Flow Speed (mph)	N/A	N/A	25	N/A	N/A	N/A	25	N/A	N/A
ONR/Entering Dem. (vph)	N/A	N/A	43	N/A	N/A	N/A	185	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	N/A	6	N/A	N/A	N/A	7	N/A	N/A
OFR Side	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right
# Lanes: OFR	1	N/A	N/A	N/A	1	N/A	N/A	N/A	1
OFR Free Flow Speed (mph)	45	N/A	N/A	N/A	45	N/A	N/A	N/A	25
OFR/Exit Dem. (vph)	38	N/A	N/A	N/A	47	N/A	N/A	N/A	155
OFR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	7	N/A	N/A	N/A	5
Total Density (pc/mi/ln)	3.6	2.9	0.0*	3.2	3.7	2.8	0.0*	4.2	2.5
V/C	0.09	0.08	0.09	0.09	0.09	0.08	0.12	0.12	0.12
Density Based LOS	A	A	A	A	A	A	A	A	A

*** Denotes ramps that technically have negative density based on calculations in the HCM.**

R-2553 US 70 Kinston Bypass, Alternative 36
US 70 WB - PM Peak

Segment	Seg. 19	Seg. 20	Seg. 21	Seg. 22	Seg. 23	Seg. 24	Seg. 25	Seg. 26	Seg. 27
General Purpose Segment Data	19W	20W	21W	22W	23W	24W	25W	26W	27W
General Purpose Segment Name	Within NC 11 Int	From NC 11	NC 11 to NC 55	To NC 55	Within NC 55 Int	From NC 55	NC 55 to US 70 Bus (W)	To US 70 Bus (W)	Within US 70 Bus (W) Int
General Purpose Segment Type	BFS	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS	Off-Ramp	BFS
Segment Length (ft)	1500	1500	5770	1500	1500	1620	18490	1500	2560
Terrain	Level	Level	Level	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	N/A	920	N/A	490	N/A	1620	N/A	490	N/A
ONR Side	N/A	Right	N/A	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: ONR	N/A	1	N/A	N/A	N/A	1	N/A	N/A	N/A
ONR Free Flow Speed (mph)	N/A	45	N/A	N/A	N/A	25	N/A	N/A	N/A
ONR/Entering Dem. (vph)	N/A	165	N/A	N/A	N/A	125	N/A	N/A	N/A
ONR Single Unit Truck and Bus (%)	N/A	5	N/A	N/A	N/A	8	N/A	N/A	N/A
OFR Side	N/A	N/A	N/A	Right	N/A	N/A	N/A	Right	N/A
# Lanes: OFR	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A
OFR Free Flow Speed (mph)	N/A	N/A	N/A	45	N/A	N/A	N/A	45	N/A
OFR/Exit Dem. (vph)	N/A	N/A	N/A	87	N/A	N/A	N/A	26	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	N/A	8	N/A	N/A	N/A	6	N/A
Total Density (pc/mi/ln)	3.1	4.3	4.3	5.0	3.6	0.2	4.5	5.3	4.4
V/C	0.09	0.12	0.12	0.12	0.11	0.13	0.13	0.13	0.13
Density Based LOS	A	A	A	A	A	A	A	A	A

R-2553 US 70 Kinston Bypass, Alternative 36
US 70 WB - PM Peak

Segment	Seg. 28	Seg. 29	Seg. 30	Seg. 31	Seg. 32	Seg. 33
General Purpose Segment Data	28W	29W	30W	31W	32W	33W
General Purpose Segment Name	From US 70 Bus (W)	US 70 Bus (W) to Jim Sutton/Willie Measley	To Jim Sutton/Willie Measley	Within Jim Sutton/Willie Measley Int	From Jim Sutton/Willie Measley	W of Jim Sutton/Willie Measley
General Purpose Segment Type	On-Ramp	BFS	Off-Ramp	BFS	On-Ramp	BFS
Segment Length (ft)	1500	7290	1500	1500	1620	5280
Terrain	Level	Level	Level	Level	Level	Level
Truck-PC Equivalent (ET)	1.5	1.5	1.5	1.5	1.5	1.5
# of Lanes: Mainline	2	2	2	2	2	2
Free Flow Speed (mph)	70	70	70	70	70	70
Mainline Dem. (vph)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Mainline Single Unit Truck and Bus (%)	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S	N/A_S
Acc/Dec Lane Length (ft)	920	N/A	490	N/A	1620	N/A
ONR Side	Right	N/A	N/A	N/A	Right	N/A
# Lanes: ONR	1	N/A	N/A	N/A	1	N/A
ONR Free Flow Speed (mph)	45	N/A	N/A	N/A	25	N/A
ONR/Entering Dem. (vph)	1574	N/A	N/A	N/A	197	N/A
ONR Single Unit Truck and Bus (%)	6	N/A	N/A	N/A	4	N/A
OFR Side	N/A	N/A	Right	N/A	N/A	N/A
# Lanes: OFR	N/A	N/A	1	N/A	N/A	N/A
OFR Free Flow Speed (mph)	N/A	N/A	45	N/A	N/A	N/A
OFR/Exit Dem. (vph)	N/A	N/A	419	N/A	N/A	N/A
OFR Single Unit Truck and Bus (%)	N/A	N/A	4	N/A	N/A	N/A
Total Density (pc/mi/ln)	16.4	15.9	19.0	12.9	10.9	14.3
V/C	0.46	0.46	0.46	0.38	0.42	0.42
Density Based LOS	B	B	B	B	B	B

2040 Build Alternative 36
Synchro Reports

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	4	4	4	4	23	4	107	4	17	69	6
Future Volume (vph)	10	4	4	4	4	23	4	107	4	17	69	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1693	0	0	1598	0	1770	1853	0	1770	1839	0
Flt Permitted		0.972			0.994		0.950			0.950		
Satd. Flow (perm)	0	1693	0	0	1598	0	1770	1853	0	1770	1839	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		883			854			935			1001	
Travel Time (s)		13.4			12.9			11.6			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	19	0	0	34	0	4	123	0	19	84	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 17.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	4	4	4	4	23	4	107	4	17	69	6
Future Volume (Veh/h)	10	4	4	4	4	23	4	107	4	17	69	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	4	4	4	4	26	4	119	4	19	77	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1001	
pX, platoon unblocked												
vC, conflicting volume	274	250	80	250	251	121	84			123		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	274	250	80	250	251	121	84			123		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	98	99	100	99	99	97	100			99		
cM capacity (veh/h)	641	636	969	681	635	920	1513			1464		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	19	34	4	123	19	84
Volume Left	11	4	4	0	19	0
Volume Right	4	26	0	4	0	7
cSH	689	841	1513	1700	1464	1700
Volume to Capacity	0.03	0.04	0.00	0.07	0.01	0.05
Queue Length 95th (ft)	2	3	0	0	1	0
Control Delay (s)	10.4	9.5	7.4	0.0	7.5	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	10.4	9.5	0.2		1.4	
Approach LOS	B	A				

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	17.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	4	4	4	4	17	4	69	4	23	107	10
Future Volume (vph)	6	4	4	4	4	17	4	69	4	23	107	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1688	0	0	1611	0	1770	1850	0	1770	1839	0
Flt Permitted		0.977			0.993		0.950			0.950		
Satd. Flow (perm)	0	1688	0	0	1611	0	1770	1850	0	1770	1839	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		883			854			935			1001	
Travel Time (s)		13.4			12.9			11.6			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	0	27	0	4	81	0	26	130	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 17.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	4	4	4	4	17	4	69	4	23	107	10
Future Volume (Veh/h)	6	4	4	4	4	17	4	69	4	23	107	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	4	4	4	4	19	4	77	4	26	119	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1001	
pX, platoon unblocked												
vC, conflicting volume	282	266	124	264	269	79	130			81		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	282	266	124	264	269	79	130			81		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	99	99	100	99	99	98	100			98		
cM capacity (veh/h)	636	621	916	664	618	970	1455			1517		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	15	27	4	81	26	130
Volume Left	7	4	4	0	26	0
Volume Right	4	19	0	4	0	11
cSH	687	842	1455	1700	1517	1700
Volume to Capacity	0.02	0.03	0.00	0.05	0.02	0.08
Queue Length 95th (ft)	2	2	0	0	1	0
Control Delay (s)	10.4	9.4	7.5	0.0	7.4	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	10.4	9.4	0.4		1.2	
Approach LOS	B	A				

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	17.9%	ICU Level of Service	A	
Analysis Period (min)	15			

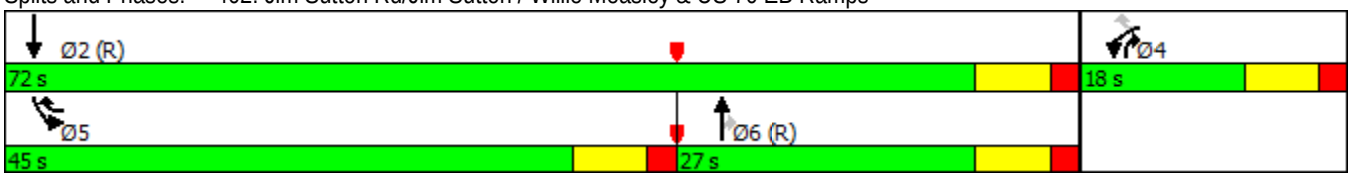
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	30	147	62	76	301	63
Future Volume (vph)	30	147	62	76	301	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200		100	375	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1863	1583	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1863	1583	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	999		1001			1313
Travel Time (s)	27.2		12.4			16.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	163	69	84	334	70
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	18.0	45.0	27.0	18.0	45.0	72.0
Total Split (%)	20.0%	50.0%	30.0%	20.0%	50.0%	80.0%
Maximum Green (s)	11.0	38.0	20.0	11.0	38.0	65.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.7	37.1	42.9	57.6	25.2	74.1
Actuated g/C Ratio	0.11	0.41	0.48	0.64	0.28	0.82
v/c Ratio	0.18	0.25	0.08	0.08	0.69	0.05
Control Delay	38.4	16.0	17.6	9.2	31.8	2.1

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.4	16.0	17.6	9.2	31.8	2.1
LOS	D	B	B	A	C	A
Approach Delay	19.8		13.0			26.6
Approach LOS	B		B			C
Queue Length 50th (ft)	18	57	22	18	134	7
Queue Length 95th (ft)	44	76	57	47	175	11
Internal Link Dist (ft)	919		921			1233
Turn Bay Length (ft)		200		100	375	
Base Capacity (vph)	250	896	887	1070	771	1503
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.18	0.08	0.08	0.43	0.05

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 8 (9%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 22.1 Intersection LOS: C
Intersection Capacity Utilization 37.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps



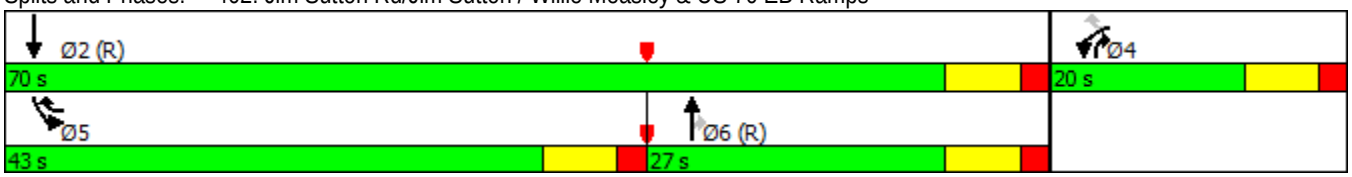
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	40	156	47	46	230	98
Future Volume (vph)	40	156	47	46	230	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200		100	375	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1863	1583	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1863	1583	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	999		1001			1313
Travel Time (s)	27.2		12.4			16.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	173	52	51	256	109
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	43.0	27.0	20.0	43.0	70.0
Total Split (%)	22.2%	47.8%	30.0%	22.2%	47.8%	77.8%
Maximum Green (s)	13.0	36.0	20.0	13.0	36.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.2	33.2	46.8	62.0	20.8	73.6
Actuated g/C Ratio	0.11	0.37	0.52	0.69	0.23	0.82
v/c Ratio	0.22	0.30	0.05	0.05	0.64	0.07
Control Delay	38.7	19.2	14.9	7.0	30.9	2.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.7	19.2	14.9	7.0	30.9	2.2
LOS	D	B	B	A	C	A
Approach Delay	23.2		11.0			22.3
Approach LOS	C		B			C
Queue Length 50th (ft)	23	66	15	9	117	6
Queue Length 95th (ft)	54	92	41	27	166	17
Internal Link Dist (ft)	919		921			1233
Turn Bay Length (ft)		200		100	375	
Base Capacity (vph)	289	869	969	1175	732	1494
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.20	0.05	0.04	0.35	0.07

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 2 (2%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 20.9 Intersection LOS: C
Intersection Capacity Utilization 33.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps



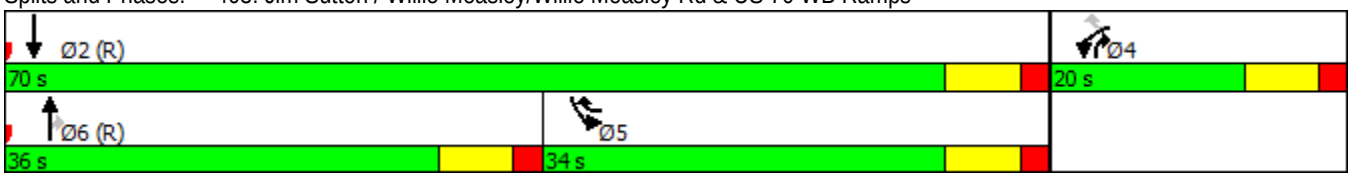
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	46	230	169	40	156	318
Future Volume (vph)	46	230	169	40	156	318
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	987		1313			996
Travel Time (s)	15.0		16.3			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	51	256	188	44	173	353
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	34.0	36.0	20.0	34.0	70.0
Total Split (%)	22.2%	37.8%	40.0%	22.2%	37.8%	77.8%
Maximum Green (s)	13.0	27.0	29.0	13.0	27.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	10.4	32.0	48.0	60.6	19.4	73.4
Actuated g/C Ratio	0.12	0.36	0.53	0.67	0.22	0.82
v/c Ratio	0.26	0.46	0.19	0.04	0.46	0.24
Control Delay	38.9	23.5	11.2	5.6	34.3	3.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	23.5	11.2	5.6	34.3	3.2
LOS	D	C	B	A	C	A
Approach Delay	26.1		10.2			13.4
Approach LOS	C		B			B
Queue Length 50th (ft)	27	106	36	7	86	43
Queue Length 95th (ft)	60	147	75	22	139	79
Internal Link Dist (ft)	907		1233			916
Turn Bay Length (ft)		250		100	200	
Base Capacity (vph)	289	600	974	1032	559	1489
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.43	0.19	0.04	0.31	0.24

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 16.4 Intersection LOS: B
Intersection Capacity Utilization 38.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps



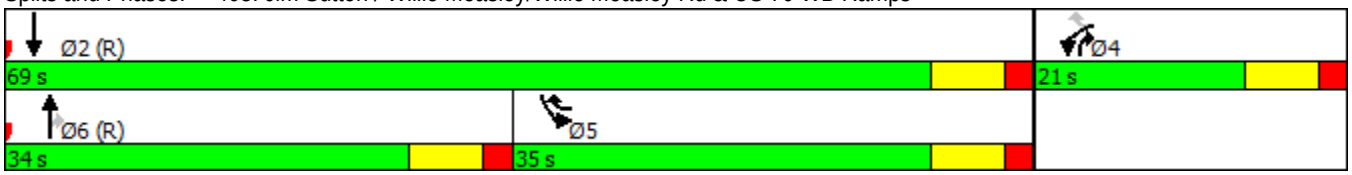
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	76	301	173	30	147	252
Future Volume (vph)	76	301	173	30	147	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1736	1553	1827	1553	1736	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1553	1827	1553	1736	1827
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	987		1313			996
Travel Time (s)	15.0		16.3			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	84	334	192	33	163	280
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	21.0	35.0	34.0	21.0	35.0	69.0
Total Split (%)	23.3%	38.9%	37.8%	23.3%	38.9%	76.7%
Maximum Green (s)	14.0	28.0	27.0	14.0	28.0	62.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	11.9	37.6	42.4	56.5	23.5	71.9
Actuated g/C Ratio	0.13	0.42	0.47	0.63	0.26	0.80
v/c Ratio	0.37	0.52	0.22	0.03	0.36	0.19
Control Delay	39.5	20.9	11.7	5.9	28.7	3.6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.5	20.9	11.7	5.9	28.7	3.6
LOS	D	C	B	A	C	A
Approach Delay	24.6		10.8			12.8
Approach LOS	C		B			B
Queue Length 50th (ft)	44	129	29	4	75	36
Queue Length 95th (ft)	85	166	148	14	121	71
Internal Link Dist (ft)	907		1233			916
Turn Bay Length (ft)		250		100	200	
Base Capacity (vph)	308	672	861	950	578	1459
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.50	0.22	0.03	0.28	0.19

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 56 (62%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 16.9 Intersection LOS: B
Intersection Capacity Utilization 38.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	8	205	35	5	4	169	124	50	8	183	5
Future Volume (vph)	4	8	205	35	5	4	169	124	50	8	183	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1623	0	0	1772	0	1736	1748	0	1770	1855	0
Flt Permitted		0.999			0.962		0.950			0.950		
Satd. Flow (perm)	0	1623	0	0	1772	0	1736	1748	0	1770	1855	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		970			951			996			1084	
Travel Time (s)		14.7			14.4			12.3			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	241	0	0	49	0	188	194	0	9	209	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 49.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	8	205	35	5	4	169	124	50	8	183	5
Future Volume (Veh/h)	4	8	205	35	5	4	169	124	50	8	183	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	9	228	39	6	4	188	138	56	9	203	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								996				
pX, platoon unblocked												
vC, conflicting volume	745	794	206	996	769	166	209			194		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	745	794	206	996	769	166	209			194		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	97	73	72	98	100	86			99		
cM capacity (veh/h)	287	274	835	141	284	878	1350			1379		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	241	49	188	194	9	209
Volume Left	4	39	188	0	9	0
Volume Right	228	4	0	56	0	6
cSH	753	162	1350	1700	1379	1700
Volume to Capacity	0.32	0.30	0.14	0.11	0.01	0.12
Queue Length 95th (ft)	35	30	12	0	0	0
Control Delay (s)	12.0	36.6	8.1	0.0	7.6	0.0
Lane LOS	B	E	A		A	
Approach Delay (s)	12.0	36.6	4.0		0.3	
Approach LOS	B	E				

Intersection Summary			
Average Delay	7.1		
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	169	50	8	8	205	183	35	4	124	4
Future Volume (vph)	5	5	169	50	8	8	205	183	35	4	124	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1625	0	0	1767	0	1736	1783	0	1770	1855	0
Flt Permitted		0.999			0.964		0.950			0.950		
Satd. Flow (perm)	0	1625	0	0	1767	0	1736	1783	0	1770	1855	0
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		970			951			996			1084	
Travel Time (s)		14.7			14.4			12.3			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	200	0	0	74	0	228	242	0	4	142	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 46.1%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	169	50	8	8	205	183	35	4	124	4
Future Volume (Veh/h)	5	5	169	50	8	8	205	183	35	4	124	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	6	188	56	9	9	228	203	39	4	138	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								996				
pX, platoon unblocked												
vC, conflicting volume	820	846	140	1016	828	222	142			242		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	820	846	140	1016	828	222	142			242		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	98	79	62	96	99	84			100		
cM capacity (veh/h)	248	251	908	148	257	817	1429			1324		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	200	74	228	242	4	142
Volume Left	6	56	228	0	4	0
Volume Right	188	9	0	39	0	4
cSH	784	174	1429	1700	1324	1700
Volume to Capacity	0.26	0.43	0.16	0.14	0.00	0.08
Queue Length 95th (ft)	25	48	14	0	0	0
Control Delay (s)	11.2	40.2	8.0	0.0	7.7	0.0
Lane LOS	B	E	A		A	
Approach Delay (s)	11.2	40.2	3.9		0.2	
Approach LOS	B	E				

Intersection Summary			
Average Delay	7.9		
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	1412	11	21	933	10	12	4	36	19	4	35
Future Volume (vph)	27	1412	11	21	933	10	12	4	36	19	4	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		0	0		0	0		0
Storage Lanes	1		1	1		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1703	3406	1524	1703	3399	0	0	1667	0	0	1683	0
Flt Permitted	0.950			0.950				0.989			0.984	
Satd. Flow (perm)	1703	3406	1524	1703	3399	0	0	1667	0	0	1683	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1025			996			931			940	
Travel Time (s)		12.7			12.3			11.5			11.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	1569	12	23	1048	0	0	57	0	0	64	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		46			46			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 51.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	1412	11	21	933	10	12	4	36	19	4	35
Future Volume (Veh/h)	27	1412	11	21	933	10	12	4	36	19	4	35
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	30	1569	12	23	1037	11	13	4	40	21	4	39
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1048			1581			2234	2723	784	1975	2730	524
vC1, stage 1 conf vol							1629	1629		1088	1088	
vC2, stage 2 conf vol							606	1094		886	1641	
vCu, unblocked vol	1048			1581			2234	2723	784	1975	2730	524
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.3			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			94			83	96	88	82	95	92
cM capacity (veh/h)	636			394			78	93	336	114	86	498

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	30	784	784	12	23	691	357	57	64
Volume Left	30	0	0	0	23	0	0	13	21
Volume Right	0	0	0	12	0	0	11	40	39
cSH	636	1700	1700	1700	394	1700	1700	173	207
Volume to Capacity	0.05	0.46	0.46	0.01	0.06	0.41	0.21	0.33	0.31
Queue Length 95th (ft)	4	0	0	0	5	0	0	34	31
Control Delay (s)	10.9	0.0	0.0	0.0	14.7	0.0	0.0	35.8	29.9
Lane LOS	B				B			E	D
Approach Delay (s)	0.2				0.3			35.8	29.9
Approach LOS								E	D

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	933	11	36	1412	20	10	4	22	10	4	26
Future Volume (vph)	34	933	11	36	1412	20	10	4	22	10	4	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		0	0		0	0		0
Storage Lanes	1		1	1		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1703	3406	1524	1703	3399	0	0	1684	0	0	1677	0
Flt Permitted	0.950			0.950				0.986			0.988	
Satd. Flow (perm)	1703	3406	1524	1703	3399	0	0	1684	0	0	1677	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1025			996			931			940	
Travel Time (s)		12.7			12.3			11.5			11.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	1037	12	40	1591	0	0	39	0	0	44	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		46			46			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 49.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	933	11	36	1412	20	10	4	22	10	4	26
Future Volume (Veh/h)	34	933	11	36	1412	20	10	4	22	10	4	26
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	38	1037	12	40	1569	22	11	4	24	11	4	29
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1591			1049			2008	2784	518	2280	2785	796
vC1, stage 1 conf vol							1113	1113		1660	1660	
vC2, stage 2 conf vol							896	1671		620	1125	
vCu, unblocked vol	1591			1049			2008	2784	518	2280	2785	796
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.3			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			94			90	95	95	85	95	91
cM capacity (veh/h)	390			636			107	73	502	73	85	330

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	38	518	518	12	40	1046	545	39	44
Volume Left	38	0	0	0	40	0	0	11	11
Volume Right	0	0	0	12	0	0	22	24	29
cSH	390	1700	1700	1700	636	1700	1700	189	154
Volume to Capacity	0.10	0.30	0.30	0.01	0.06	0.62	0.32	0.21	0.29
Queue Length 95th (ft)	8	0	0	0	5	0	0	19	28
Control Delay (s)	15.2	0.0	0.0	0.0	11.0	0.0	0.0	28.9	37.5
Lane LOS	C				B			D	E
Approach Delay (s)	0.5				0.3			28.9	37.5
Approach LOS								D	E

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	284	62	16	171	63	49
Future Volume (vph)	284	62	16	171	63	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	100		0	100
Storage Lanes		1	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	1759	1495	1671	1759	1671	1495
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1759	1495	1671	1759	1671	1495
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	25	
Link Distance (ft)	993			1295	976	
Travel Time (s)	12.3			16.1	26.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	316	69	18	190	70	54
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	14.0	7.0	7.0	14.0	7.0	7.0
Minimum Split (s)	21.0	14.0	14.0	21.0	14.0	14.0
Total Split (s)	50.0	22.0	18.0	68.0	22.0	18.0
Total Split (%)	55.6%	24.4%	20.0%	75.6%	24.4%	20.0%
Maximum Green (s)	43.0	15.0	11.0	61.0	15.0	11.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	None	None	C-Min	None	None
Act Effct Green (s)	61.0	74.6	9.2	72.4	11.4	22.8
Actuated g/C Ratio	0.68	0.83	0.10	0.80	0.13	0.25
v/c Ratio	0.27	0.06	0.11	0.13	0.33	0.14
Control Delay	9.1	2.3	46.1	2.3	39.4	23.9

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.1	2.3	46.1	2.3	39.4	23.9
LOS	A	A	D	A	D	C
Approach Delay	7.9			6.1	32.7	
Approach LOS	A			A	C	
Queue Length 50th (ft)	78	7	10	16	37	23
Queue Length 95th (ft)	143	15	29	32	74	48
Internal Link Dist (ft)	913			1215	896	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	1191	1305	241	1415	315	441
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.05	0.07	0.13	0.22	0.12

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 76 (84%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.33
Intersection Signal Delay: 11.7 Intersection LOS: B
Intersection Capacity Utilization 29.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 406: US 70 EB Ramps & NC 55

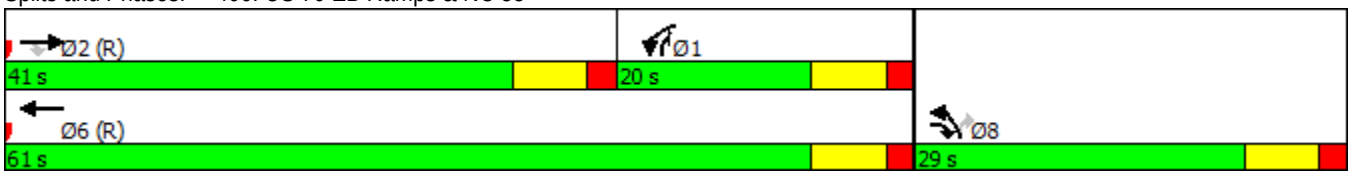
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	180	54	23	256	90	43
Future Volume (vph)	180	54	23	256	90	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	100		0	100
Storage Lanes		1	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	1759	1495	1671	1759	1671	1495
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1759	1495	1671	1759	1671	1495
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	25	
Link Distance (ft)	993			1295	976	
Travel Time (s)	12.3			16.1	26.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	200	60	26	284	100	48
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	14.0	7.0	7.0	14.0	7.0	7.0
Minimum Split (s)	21.0	14.0	14.0	21.0	14.0	14.0
Total Split (s)	41.0	29.0	20.0	61.0	29.0	20.0
Total Split (%)	45.6%	32.2%	22.2%	67.8%	32.2%	22.2%
Maximum Green (s)	34.0	22.0	13.0	54.0	22.0	13.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			Lag
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	None	None	C-Min	None	None
Act Effct Green (s)	58.8	73.9	9.9	71.0	12.8	25.0
Actuated g/C Ratio	0.65	0.82	0.11	0.79	0.14	0.28
v/c Ratio	0.17	0.05	0.14	0.20	0.42	0.12
Control Delay	9.8	2.6	33.8	3.1	39.8	21.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.8	2.6	33.8	3.1	39.8	21.3
LOS	A	A	C	A	D	C
Approach Delay	8.1			5.7	33.8	
Approach LOS	A			A	C	
Queue Length 50th (ft)	49	6	14	30	53	20
Queue Length 95th (ft)	99	15	39	58	96	41
Internal Link Dist (ft)	913			1215	896	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	1149	1227	278	1387	445	428
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.05	0.09	0.20	0.22	0.11

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.42
Intersection Signal Delay: 12.4 Intersection LOS: B
Intersection Capacity Utilization 33.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 406: US 70 EB Ramps & NC 55



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	243	90	43	133	54	23
Future Volume (vph)	243	90	43	133	54	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	125		0	100
Storage Lanes		1	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	1759	1495	1671	1759	1671	1495
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1759	1495	1671	1759	1671	1495
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	45	
Link Distance (ft)	1295			1005	948	
Travel Time (s)	16.1			12.5	14.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	270	100	48	148	60	26
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	14.0	7.0	7.0	14.0	7.0	7.0
Minimum Split (s)	21.0	14.0	14.0	21.0	14.0	14.0
Total Split (s)	48.0	22.0	20.0	68.0	22.0	20.0
Total Split (%)	53.3%	24.4%	22.2%	75.6%	24.4%	22.2%
Maximum Green (s)	41.0	15.0	13.0	61.0	15.0	13.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	None	None	C-Min	None	None
Act Effct Green (s)	60.3	73.4	10.4	72.9	10.9	23.5
Actuated g/C Ratio	0.67	0.82	0.12	0.81	0.12	0.26
v/c Ratio	0.23	0.08	0.25	0.10	0.30	0.07
Control Delay	5.1	0.5	38.9	3.0	39.3	21.7

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.1	0.5	38.9	3.0	39.3	21.7
LOS	A	A	D	A	D	C
Approach Delay	3.8			11.8	33.9	
Approach LOS	A			B	C	
Queue Length 50th (ft)	28	2	25	16	32	11
Queue Length 95th (ft)	49	3	57	36	67	27
Internal Link Dist (ft)	1215			925	868	
Turn Bay Length (ft)		100	125			100
Base Capacity (vph)	1178	1293	278	1424	315	467
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.08	0.17	0.10	0.19	0.06

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.30
Intersection Signal Delay: 10.2 Intersection LOS: B
Intersection Capacity Utilization 37.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 407: US 70 WB Ramps & NC 55

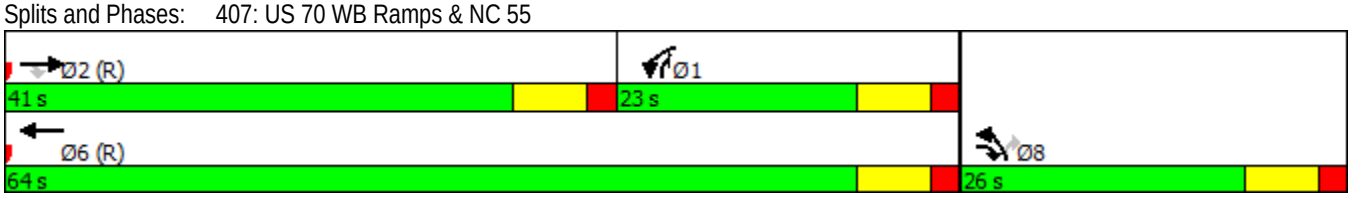
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	160	63	49	217	62	16
Future Volume (vph)	160	63	49	217	62	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		100	125		0	100
Storage Lanes		1	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	1759	1495	1671	1759	1671	1495
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1759	1495	1671	1759	1671	1495
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	45	
Link Distance (ft)	1295			1005	948	
Travel Time (s)	16.1			12.5	14.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	178	70	54	241	69	18
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	14.0	7.0	7.0	14.0	7.0	7.0
Minimum Split (s)	21.0	14.0	14.0	21.0	14.0	14.0
Total Split (s)	41.0	26.0	23.0	64.0	26.0	23.0
Total Split (%)	45.6%	28.9%	25.6%	71.1%	28.9%	25.6%
Maximum Green (s)	34.0	19.0	16.0	57.0	19.0	16.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			Lag
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	None	None	C-Min	None	None
Act Effct Green (s)	59.6	73.2	10.6	72.4	11.4	24.2
Actuated g/C Ratio	0.66	0.81	0.12	0.80	0.13	0.27
v/c Ratio	0.15	0.06	0.27	0.17	0.33	0.04
Control Delay	5.3	0.7	39.2	3.3	39.4	20.6

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.3	0.7	39.2	3.3	39.4	20.6
LOS	A	A	D	A	D	C
Approach Delay	4.0			9.9	35.5	
Approach LOS	A			A	D	
Queue Length 50th (ft)	50	1	29	29	36	7
Queue Length 95th (ft)	100	5	62	59	74	21
Internal Link Dist (ft)	1215			925	868	
Turn Bay Length (ft)		100	125			100
Base Capacity (vph)	1164	1215	334	1415	389	430
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.06	0.16	0.17	0.18	0.04

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.33
Intersection Signal Delay: 11.1 Intersection LOS: B
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 407: US 70 WB Ramps & NC 55



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	6	18	859	5	11	571
Future Volume (vph)	6	18	859	5	11	571
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		100	100	
Storage Lanes	1	0		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1607	0	1810	1538	1719	1810
Flt Permitted	0.987				0.950	
Satd. Flow (perm)	1607	0	1810	1538	1719	1810
Link Speed (mph)	45		55			55
Link Distance (ft)	982		987			989
Travel Time (s)	14.9		12.2			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	0	954	6	12	634
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.2%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	18	859	5	11	571
Future Volume (Veh/h)	6	18	859	5	11	571
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	20	954	6	12	634
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						989
pX, platoon unblocked	0.81					
vC, conflicting volume	1612	954			960	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1638	954			960	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	94			98	
cM capacity (veh/h)	87	310			705	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	27	954	6	12	634
Volume Left	7	0	0	12	0
Volume Right	20	0	6	0	0
cSH	186	1700	1700	705	1700
Volume to Capacity	0.15	0.56	0.00	0.02	0.37
Queue Length 95th (ft)	12	0	0	1	0
Control Delay (s)	27.7	0.0	0.0	10.2	0.0
Lane LOS	D			B	
Approach Delay (s)	27.7	0.0		0.2	
Approach LOS	D				

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	12	572	5	19	858
Future Volume (vph)	4	12	572	5	19	858
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		100	100	
Storage Lanes	1	0		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1604	0	1810	1538	1719	1810
Flt Permitted	0.988				0.950	
Satd. Flow (perm)	1604	0	1810	1538	1719	1810
Link Speed (mph)	45		55			55
Link Distance (ft)	982		987			989
Travel Time (s)	14.9		12.2			12.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	0	636	6	21	953
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.2%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	12	572	5	19	858
Future Volume (Veh/h)	4	12	572	5	19	858
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	13	636	6	21	953
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						989
pX, platoon unblocked	0.60					
vC, conflicting volume	1631	636			642	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1717	636			642	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	97			98	
cM capacity (veh/h)	57	472			928	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	17	636	6	21	953
Volume Left	4	0	0	21	0
Volume Right	13	0	6	0	0
cSH	175	1700	1700	928	1700
Volume to Capacity	0.10	0.37	0.00	0.02	0.56
Queue Length 95th (ft)	8	0	0	2	0
Control Delay (s)	27.8	0.0	0.0	9.0	0.0
Lane LOS	D			A	
Approach Delay (s)	27.8	0.0		0.2	
Approach LOS	D				

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	86	62	94	805	507	45
Future Volume (vph)	86	62	94	805	507	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0	175			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1719	1538	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1719	1538	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	963			989	1297	
Travel Time (s)	14.6			12.3	16.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	96	69	104	894	563	50
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	1	1	6	2	7
Permitted Phases		7				2
Detector Phase	7	1	1	6	2	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	16.0	19.0	19.0	74.0	55.0	16.0
Total Split (%)	17.8%	21.1%	21.1%	82.2%	61.1%	17.8%
Maximum Green (s)	9.0	12.0	12.0	67.0	48.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	11.4	26.4	12.8	72.4	57.4	71.0
Actuated g/C Ratio	0.13	0.29	0.14	0.80	0.64	0.79
v/c Ratio	0.44	0.15	0.43	0.61	0.49	0.04
Control Delay	42.9	21.0	39.9	7.1	7.7	2.6

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.9	21.0	39.9	7.1	7.7	2.6
LOS	D	C	D	A	A	A
Approach Delay	33.7			10.5	7.3	
Approach LOS	C			B	A	
Queue Length 50th (ft)	51	27	55	200	86	6
Queue Length 95th (ft)	100	54	99	287	96	12
Internal Link Dist (ft)	883			909	1217	
Turn Bay Length (ft)	150		175			100
Base Capacity (vph)	227	449	280	1473	1180	1197
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.15	0.37	0.61	0.48	0.04

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 86 (96%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 11.5 Intersection LOS: B
Intersection Capacity Utilization 56.5% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 409: NC 11 & US 70 EB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	58	75	100	469	824	85
Future Volume (vph)	58	75	100	469	824	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0	175			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1719	1538	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1719	1538	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	963			989	1297	
Travel Time (s)	14.6			12.3	16.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	83	111	521	916	94
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	1	1	6	2	7
Permitted Phases		7				2
Detector Phase	7	1	1	6	2	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	14.0	16.0	16.0	86.0	70.0	14.0
Total Split (%)	14.0%	16.0%	16.0%	86.0%	70.0%	14.0%
Maximum Green (s)	7.0	9.0	9.0	79.0	63.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.6	23.1	11.4	84.2	66.9	78.6
Actuated g/C Ratio	0.10	0.23	0.11	0.84	0.67	0.79
v/c Ratio	0.39	0.23	0.57	0.34	0.76	0.08
Control Delay	50.2	31.4	54.1	3.1	8.7	1.8

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.2	31.4	54.1	3.1	8.7	1.8
LOS	D	C	D	A	A	A
Approach Delay	39.5			12.0	8.1	
Approach LOS	D			B	A	
Queue Length 50th (ft)	38	39	66	77	88	8
Queue Length 95th (ft)	82	83	#133	96	147	m9
Internal Link Dist (ft)	883			909	1217	
Turn Bay Length (ft)	150		175			100
Base Capacity (vph)	164	361	201	1535	1233	1209
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.23	0.55	0.34	0.74	0.08

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 8 (8%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 12.1 Intersection LOS: B
Intersection Capacity Utilization 67.5% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 409: NC 11 & US 70 EB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	85	100	75	816	452	58
Future Volume (vph)	85	100	75	816	452	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	150			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1719	1538	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1719	1538	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	988			1297	1009	
Travel Time (s)	26.9			16.1	12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	94	111	83	907	502	64
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	1	1	6	2	7
Permitted Phases		7				2
Detector Phase	7	1	1	6	2	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	15.0	15.0	15.0	75.0	60.0	15.0
Total Split (%)	16.7%	16.7%	16.7%	83.3%	66.7%	16.7%
Maximum Green (s)	8.0	8.0	8.0	68.0	53.0	8.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	11.9	27.3	13.3	71.9	52.7	66.7
Actuated g/C Ratio	0.13	0.30	0.15	0.80	0.59	0.74
v/c Ratio	0.42	0.24	0.33	0.63	0.47	0.06
Control Delay	41.2	21.7	31.5	5.6	15.1	4.2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.2	21.7	31.5	5.6	15.1	4.2
LOS	D	C	C	A	B	A
Approach Delay	30.6			7.8	13.9	
Approach LOS	C			A	B	
Queue Length 50th (ft)	50	45	44	148	162	8
Queue Length 95th (ft)	96	71	m62	197	313	25
Internal Link Dist (ft)	908			1217	929	
Turn Bay Length (ft)		150	150			100
Base Capacity (vph)	230	470	257	1488	1170	1140
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.24	0.32	0.61	0.43	0.06

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 80 (89%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 12.4 Intersection LOS: B
Intersection Capacity Utilization 57.1% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 410: NC 11 & US 70 WB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	45	94	62	465	815	86
Future Volume (vph)	45	94	62	465	815	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	150			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1719	1538	1719	1810	1810	1538
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1719	1538	1719	1810	1810	1538
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	988			1297	1009	
Travel Time (s)	26.9			16.1	12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	50	104	69	517	906	96
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	1	1	6	2	7
Permitted Phases		7				2
Detector Phase	7	1	1	6	2	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	14.0	14.0	14.0	86.0	72.0	14.0
Total Split (%)	14.0%	14.0%	14.0%	86.0%	72.0%	14.0%
Maximum Green (s)	7.0	7.0	7.0	79.0	65.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.3	21.9	10.4	84.5	68.1	79.6
Actuated g/C Ratio	0.09	0.22	0.10	0.84	0.68	0.80
v/c Ratio	0.31	0.31	0.39	0.34	0.74	0.08
Control Delay	48.2	34.1	48.1	2.6	15.8	2.4

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	34.1	48.1	2.6	15.8	2.4
LOS	D	C	D	A	B	A
Approach Delay	38.7			8.0	14.5	
Approach LOS	D			A	B	
Queue Length 50th (ft)	30	51	41	62	407	12
Queue Length 95th (ft)	68	104	88	81	507	18
Internal Link Dist (ft)	908			1217	929	
Turn Bay Length (ft)		150	150			100
Base Capacity (vph)	159	336	179	1535	1262	1223
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.31	0.39	0.34	0.72	0.08

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 14.5 Intersection LOS: B
Intersection Capacity Utilization 65.7% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 410: NC 11 & US 70 WB Ramps

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	4	4	4	4	7	340	4	4	226	5
Future Volume (vph)	4	4	4	4	4	4	7	340	4	4	226	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1700	0	0	1700	0	1687	1772	0	1687	1769	0
Flt Permitted		0.984			0.984		0.950			0.950		
Satd. Flow (perm)	0	1700	0	0	1700	0	1687	1772	0	1687	1769	0
Link Speed (mph)		55			45			55			55	
Link Distance (ft)		910			918			950			792	
Travel Time (s)		11.3			13.9			11.8			9.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	12	0	0	12	0	8	382	0	4	257	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 28.1%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	4	4	4	4	4	7	340	4	4	226	5
Future Volume (Veh/h)	4	4	4	4	4	4	7	340	4	4	226	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	4	4	4	4	4	8	378	4	4	251	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											792	
pX, platoon unblocked												
vC, conflicting volume	662	660	254	661	661	380	257			382		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	662	660	254	661	661	380	257			382		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	99	99	99	99	99	99	99			100		
cM capacity (veh/h)	363	376	777	364	375	660	1279			1150		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	12	12	8	382	4	257
Volume Left	4	4	8	0	4	0
Volume Right	4	4	0	4	0	6
cSH	448	433	1279	1700	1150	1700
Volume to Capacity	0.03	0.03	0.01	0.22	0.00	0.15
Queue Length 95th (ft)	2	2	0	0	0	0
Control Delay (s)	13.3	13.5	7.8	0.0	8.1	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	13.3	13.5	0.2		0.1	
Approach LOS	B	B				

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	28.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	4	6	4	4	4	7	226	4	4	340	5
Future Volume (vph)	6	4	6	4	4	4	7	226	4	4	340	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1681	0	0	1700	0	1687	1772	0	1687	1772	0
Flt Permitted		0.981			0.984		0.950			0.950		
Satd. Flow (perm)	0	1681	0	0	1700	0	1687	1772	0	1687	1772	0
Link Speed (mph)		55			45			55			55	
Link Distance (ft)		910			918			950			792	
Travel Time (s)		11.3			13.9			11.8			9.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	0	0	12	0	8	255	0	4	384	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 28.2%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	4	6	4	4	4	7	226	4	4	340	5
Future Volume (Veh/h)	6	4	6	4	4	4	7	226	4	4	340	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	4	7	4	4	4	8	251	4	4	378	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											792	
pX, platoon unblocked	0.98	0.98	0.98	0.98	0.98		0.98					
vC, conflicting volume	662	660	381	664	661	253	384			255		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	643	641	356	645	642	253	359			255		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	98	99	99	99	99	99	99			100		
cM capacity (veh/h)	366	377	667	363	376	778	1147			1281		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	18	12	8	255	4	384
Volume Left	7	4	8	0	4	0
Volume Right	7	4	0	4	0	6
cSH	447	448	1147	1700	1281	1700
Volume to Capacity	0.04	0.03	0.01	0.15	0.00	0.23
Queue Length 95th (ft)	3	2	1	0	0	0
Control Delay (s)	13.4	13.3	8.2	0.0	7.8	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	13.4	13.3	0.2		0.1	
Approach LOS	B	B				

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	28.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	92	74	317	29	13	137
Future Volume (vph)	92	74	317	29	13	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	1075		792			1364
Travel Time (s)	29.3		9.8			16.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	102	82	352	32	14	152
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	3	5	6	3	5	2
Permitted Phases		3		6		
Detector Phase	3	5	6	3	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	23.0	18.0	49.0	23.0	18.0	67.0
Total Split (%)	25.6%	20.0%	54.4%	25.6%	20.0%	74.4%
Maximum Green (s)	16.0	11.0	42.0	16.0	11.0	60.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	12.8	24.2	59.6	74.7	9.1	71.0
Actuated g/C Ratio	0.14	0.27	0.66	0.83	0.10	0.79
v/c Ratio	0.42	0.20	0.30	0.03	0.08	0.11
Control Delay	39.9	23.9	10.2	2.2	44.1	3.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.9	23.9	10.2	2.2	44.1	3.0
LOS	D	C	B	A	D	A
Approach Delay	32.8		9.6			6.5
Approach LOS	C		A			A
Queue Length 50th (ft)	54	35	94	3	8	16
Queue Length 95th (ft)	97	64	169	8	27	35
Internal Link Dist (ft)	995		712			1284
Turn Bay Length (ft)		150		100	100	
Base Capacity (vph)	337	469	1176	1308	243	1400
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.17	0.30	0.02	0.06	0.11

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 72 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.42
Intersection Signal Delay: 14.7 Intersection LOS: B
Intersection Capacity Utilization 30.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 412: US 258 & US 70 EB Ramps

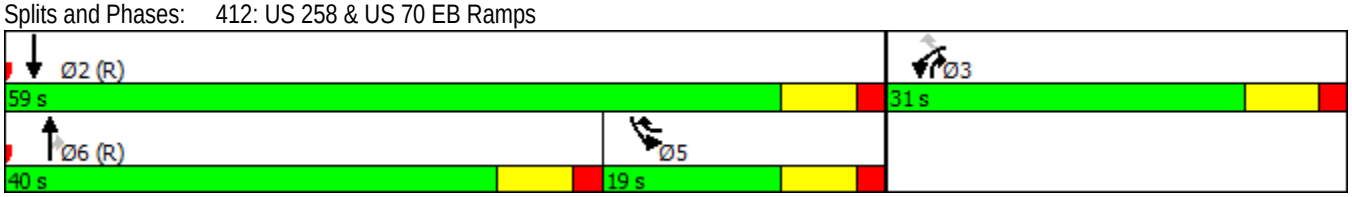
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	130	63	204	25	19	216
Future Volume (vph)	130	63	204	25	19	216
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	1075		792			1364
Travel Time (s)	29.3		9.8			16.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	144	70	227	28	21	240
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	3	5	6	3	5	2
Permitted Phases		3		6		
Detector Phase	3	5	6	3	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	31.0	19.0	40.0	31.0	19.0	59.0
Total Split (%)	34.4%	21.1%	44.4%	34.4%	21.1%	65.6%
Maximum Green (s)	24.0	12.0	33.0	24.0	12.0	52.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	15.0	27.8	52.2	73.2	10.6	65.0
Actuated g/C Ratio	0.17	0.31	0.58	0.81	0.12	0.72
v/c Ratio	0.51	0.15	0.22	0.02	0.11	0.19
Control Delay	39.9	19.6	12.0	2.8	35.3	4.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.9	19.6	12.0	2.8	35.3	4.3
LOS	D	B	B	A	D	A
Approach Delay	33.3		11.0			6.8
Approach LOS	C		B			A
Queue Length 50th (ft)	76	27	62	3	11	32
Queue Length 95th (ft)	125	50	125	9	33	54
Internal Link Dist (ft)	995		712			1284
Turn Bay Length (ft)		150		100	100	
Base Capacity (vph)	487	453	1029	1227	262	1282
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.15	0.22	0.02	0.08	0.19

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 62 (69%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.51
Intersection Signal Delay: 16.0 Intersection LOS: B
Intersection Capacity Utilization 31.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 412: US 258 & US 70 EB Ramps



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	25	19	261	130	63	125
Future Volume (vph)	25	19	261	130	63	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		100	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1027		1364			882
Travel Time (s)	15.6		16.9			10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	21	290	144	70	139
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	3	5	6	3	5	2
Permitted Phases		3		6		
Detector Phase	3	5	6	3	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	21.0	49.0	20.0	21.0	70.0
Total Split (%)	22.2%	23.3%	54.4%	22.2%	23.3%	77.8%
Maximum Green (s)	13.0	14.0	42.0	13.0	14.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.6	25.9	56.9	72.4	11.4	70.4
Actuated g/C Ratio	0.11	0.29	0.63	0.80	0.13	0.78
v/c Ratio	0.16	0.05	0.26	0.12	0.33	0.10
Control Delay	38.3	21.9	6.2	0.7	39.4	2.6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	21.9	6.2	0.7	39.4	2.6
LOS	D	C	A	A	D	A
Approach Delay	31.3		4.4			14.9
Approach LOS	C		A			B
Queue Length 50th (ft)	15	9	36	3	37	14
Queue Length 95th (ft)	40	24	57	6	74	29
Internal Link Dist (ft)	947		1284			802
Turn Bay Length (ft)		100		100	150	
Base Capacity (vph)	281	513	1121	1285	299	1389
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.04	0.26	0.11	0.23	0.10

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.33
Intersection Signal Delay: 9.5 Intersection LOS: A
Intersection Capacity Utilization 37.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 413: US 258 & US 70 WB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	29	13	175	92	74	206
Future Volume (vph)	29	13	175	92	74	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		100	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1687	1509	1776	1509	1687	1776
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	1509	1776	1509	1687	1776
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	1027		1364			882
Travel Time (s)	15.6		16.9			10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	14	194	102	82	229
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	3	5	6	3	5	2
Permitted Phases		3		6		
Detector Phase	3	5	6	3	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	22.0	26.0	42.0	22.0	26.0	68.0
Total Split (%)	24.4%	28.9%	46.7%	24.4%	28.9%	75.6%
Maximum Green (s)	15.0	19.0	35.0	15.0	19.0	61.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.7	23.9	59.9	71.9	11.9	74.1
Actuated g/C Ratio	0.11	0.27	0.67	0.80	0.13	0.82
v/c Ratio	0.18	0.04	0.16	0.08	0.37	0.16
Control Delay	38.4	20.8	4.5	2.0	39.6	2.7

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.4	20.8	4.5	2.0	39.6	2.7
LOS	D	C	A	A	D	A
Approach Delay	33.1		3.7			12.4
Approach LOS	C		A			B
Queue Length 50th (ft)	17	6	33	6	43	24
Queue Length 95th (ft)	43	18	25	5	83	47
Internal Link Dist (ft)	947		1284			802
Turn Bay Length (ft)		100		100	150	
Base Capacity (vph)	318	552	1183	1300	393	1461
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.03	0.16	0.08	0.21	0.16

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.37
Intersection Signal Delay: 9.9 Intersection LOS: A
Intersection Capacity Utilization 35.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 413: US 258 & US 70 WB Ramps

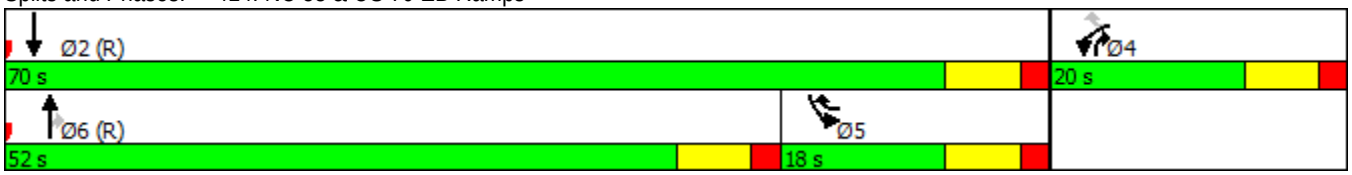
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	21	17	236	23	11	152
Future Volume (vph)	21	17	236	23	11	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1703	1524	1792	1524	1703	1792
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1703	1524	1792	1524	1703	1792
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	1072		998			1272
Travel Time (s)	29.2		12.4			15.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	19	262	26	12	169
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	20.0	18.0	52.0	20.0	18.0	70.0
Total Split (%)	22.2%	20.0%	57.8%	22.2%	20.0%	77.8%
Maximum Green (s)	13.0	11.0	45.0	13.0	11.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.4	18.0	69.6	78.4	9.2	78.2
Actuated g/C Ratio	0.10	0.20	0.77	0.87	0.10	0.87
v/c Ratio	0.13	0.06	0.19	0.02	0.07	0.11
Control Delay	38.1	25.5	6.2	2.0	38.9	1.8

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.1	25.5	6.2	2.0	38.9	1.8
LOS	D	C	A	A	D	A
Approach Delay	32.4		5.8			4.2
Approach LOS	C		A			A
Queue Length 50th (ft)	12	8	58	2	7	15
Queue Length 95th (ft)	35	25	101	7	23	28
Internal Link Dist (ft)	992		918			1192
Turn Bay Length (ft)		100		100	100	
Base Capacity (vph)	283	318	1386	1326	245	1557
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.06	0.19	0.02	0.05	0.11

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 72 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.19
Intersection Signal Delay: 7.4 — Intersection LOS: A
Intersection Capacity Utilization 26.6% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 414: NC 58 & US 70 EB Ramps



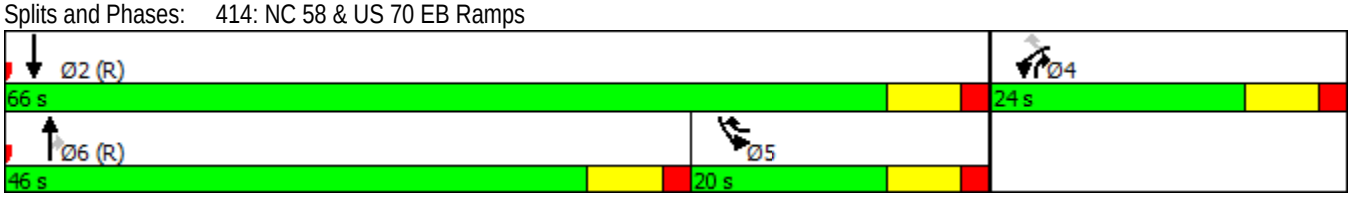
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	30	16	153	20	15	229
Future Volume (vph)	30	16	153	20	15	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1703	1524	1792	1524	1703	1792
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1703	1524	1792	1524	1703	1792
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		55			55
Link Distance (ft)	1072		998			1272
Travel Time (s)	29.2		12.4			15.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	18	170	22	17	254
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	24.0	20.0	46.0	24.0	20.0	66.0
Total Split (%)	26.7%	22.2%	51.1%	26.7%	22.2%	73.3%
Maximum Green (s)	17.0	13.0	39.0	17.0	13.0	59.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.8	18.4	69.2	78.4	9.2	77.8
Actuated g/C Ratio	0.11	0.20	0.77	0.87	0.10	0.86
v/c Ratio	0.18	0.06	0.12	0.02	0.10	0.16
Control Delay	38.4	24.8	6.2	2.1	38.5	2.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.4	24.8	6.2	2.1	38.5	2.0
LOS	D	C	A	A	D	A
Approach Delay	33.6		5.7			4.3
Approach LOS	C		A			A
Queue Length 50th (ft)	18	8	35	2	9	24
Queue Length 95th (ft)	44	23	69	7	29	40
Internal Link Dist (ft)	992		918			1192
Turn Bay Length (ft)		100		100	100	
Base Capacity (vph)	359	351	1378	1327	283	1549
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.05	0.12	0.02	0.06	0.16

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 74 (82%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.18
Intersection Signal Delay: 7.7 Intersection LOS: A
Intersection Capacity Utilization 26.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 414: NC 58 & US 70 EB Ramps



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	20	15	223	30	16	143
Future Volume (vph)	20	15	223	30	16	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1703	1524	1792	1524	1703	1792
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1703	1524	1792	1524	1703	1792
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	956		1272			924
Travel Time (s)	14.5		15.8			11.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	17	248	33	18	159
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	22.0	19.0	49.0	22.0	19.0	68.0
Total Split (%)	24.4%	21.1%	54.4%	24.4%	21.1%	75.6%
Maximum Green (s)	15.0	12.0	42.0	15.0	12.0	61.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.4	18.0	69.6	78.4	9.2	78.2
Actuated g/C Ratio	0.10	0.20	0.77	0.87	0.10	0.87
v/c Ratio	0.12	0.06	0.18	0.02	0.10	0.10
Control Delay	38.1	25.1	1.9	0.2	37.9	2.1

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.1	25.1	1.9	0.2	37.9	2.1
LOS	D	C	A	A	D	A
Approach Delay	32.4		1.7			5.7
Approach LOS	C		A			A
Queue Length 50th (ft)	12	7	11	0	10	16
Queue Length 95th (ft)	34	23	17	1	30	31
Internal Link Dist (ft)	876		1192			844
Turn Bay Length (ft)		100		100	100	
Base Capacity (vph)	321	385	1385	1401	264	1557
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.04	0.18	0.02	0.07	0.10

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.18
Intersection Signal Delay: 5.5 — Intersection LOS: A
Intersection Capacity Utilization 27.5% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 415: NC 58 & US 70 WB Ramps

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	23	11	148	21	17	221
Future Volume (vph)	23	11	148	21	17	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100		100	100	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1703	1524	1792	1524	1703	1792
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1703	1524	1792	1524	1703	1792
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		55			55
Link Distance (ft)	956		1272			924
Travel Time (s)	14.5		15.8			11.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	12	164	23	19	246
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	4	5	6	4	5	2
Permitted Phases		4		6		
Detector Phase	4	5	6	4	5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	14.0	14.0	21.0	14.0	14.0	21.0
Total Split (s)	24.0	20.0	46.0	24.0	20.0	66.0
Total Split (%)	26.7%	22.2%	51.1%	26.7%	22.2%	73.3%
Maximum Green (s)	17.0	13.0	39.0	17.0	13.0	59.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	9.5	18.2	69.4	78.3	9.3	78.1
Actuated g/C Ratio	0.11	0.20	0.77	0.87	0.10	0.87
v/c Ratio	0.14	0.04	0.12	0.02	0.11	0.16
Control Delay	38.2	24.3	2.4	0.2	38.0	2.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.2	24.3	2.4	0.2	38.0	2.2
LOS	D	C	A	A	D	A
Approach Delay	33.8		2.1			4.8
Approach LOS	C		A			A
Queue Length 50th (ft)	14	5	10	0	10	26
Queue Length 95th (ft)	38	18	16	1	31	48
Internal Link Dist (ft)	876		1192			844
Turn Bay Length (ft)		100		100	100	
Base Capacity (vph)	359	405	1382	1419	283	1554
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.03	0.12	0.02	0.07	0.16

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.16
Intersection Signal Delay: 6.0 Intersection LOS: A
Intersection Capacity Utilization 28.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 415: NC 58 & US 70 WB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	14	14	19	68	44	11
Future Volume (vph)	14	14	19	68	44	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1736	1553	1736	1827	1827	1553
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1736	1827	1827	1553
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	1114			969	1411	
Travel Time (s)	16.9			12.0	17.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	16	21	76	49	12
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	1	1	6	2	7
Permitted Phases		7				2
Detector Phase	7	1	1	6	2	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	24.0	29.0	29.0	66.0	37.0	24.0
Total Split (%)	26.7%	32.2%	32.2%	73.3%	41.1%	26.7%
Maximum Green (s)	17.0	22.0	22.0	59.0	30.0	17.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.2	15.1	9.3	82.2	72.5	82.1
Actuated g/C Ratio	0.10	0.17	0.10	0.91	0.81	0.91
v/c Ratio	0.09	0.06	0.12	0.05	0.03	0.01
Control Delay	37.8	27.3	37.9	1.6	3.8	1.4

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.8	27.3	37.9	1.6	3.8	1.4
LOS	D	C	D	A	A	A
Approach Delay	32.5			9.4	3.3	
Approach LOS	C			A	A	
Queue Length 50th (ft)	8	8	11	0	3	0
Queue Length 95th (ft)	28	22	33	16	17	3
Internal Link Dist (ft)	1034			889	1331	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	366	514	462	1669	1471	1482
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.03	0.05	0.05	0.03	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 82 (91%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.12
Intersection Signal Delay: 11.4 Intersection LOS: B
Intersection Capacity Utilization 25.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 416: Wyse Fork Rd & US 70 EB Ramps

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	12	21	16	42	66	15
Future Volume (vph)	12	21	16	42	66	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1736	1553	1736	1827	1827	1553
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1736	1827	1827	1553
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			55	55	
Link Distance (ft)	1114			969	1411	
Travel Time (s)	16.9			12.0	17.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	23	18	47	73	17
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	1	1	6	2	7
Permitted Phases		7				2
Detector Phase	7	1	1	6	2	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	24.0	24.0	24.0	66.0	42.0	24.0
Total Split (%)	26.7%	26.7%	26.7%	73.3%	46.7%	26.7%
Maximum Green (s)	17.0	17.0	17.0	59.0	35.0	17.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.1	17.8	9.2	78.5	69.8	78.4
Actuated g/C Ratio	0.10	0.20	0.10	0.87	0.78	0.87
v/c Ratio	0.07	0.08	0.10	0.03	0.05	0.01
Control Delay	37.6	26.1	37.9	2.0	4.5	1.7

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.6	26.1	37.9	2.0	4.5	1.7
LOS	D	C	D	A	A	A
Approach Delay	30.3			11.9	4.0	
Approach LOS	C			B	A	
Queue Length 50th (ft)	7	10	10	4	11	1
Queue Length 95th (ft)	24	28	30	11	24	4
Internal Link Dist (ft)	1034			889	1331	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	366	474	366	1593	1418	1453
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.05	0.05	0.03	0.05	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 64 (71%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.10
Intersection Signal Delay: 11.6 Intersection LOS: B
Intersection Capacity Utilization 25.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 416: Wyse Fork Rd & US 70 EB Ramps

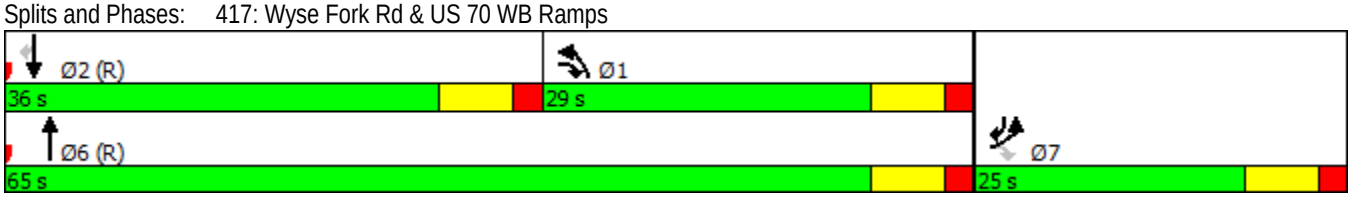
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	16	21	61	39	12
Future Volume (vph)	15	16	21	61	39	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1736	1553	1736	1827	1827	1553
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1736	1827	1827	1553
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1072			1411	959	
Travel Time (s)	29.2			17.5	11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	18	23	68	43	13
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	1	1	6	2	7
Permitted Phases		7				2
Detector Phase	7	1	1	6	2	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	25.0	29.0	29.0	65.0	36.0	25.0
Total Split (%)	27.8%	32.2%	32.2%	72.2%	40.0%	27.8%
Maximum Green (s)	18.0	22.0	22.0	58.0	29.0	18.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.2	18.0	9.4	78.4	69.6	78.2
Actuated g/C Ratio	0.10	0.20	0.10	0.87	0.77	0.87
v/c Ratio	0.10	0.06	0.13	0.04	0.03	0.01
Control Delay	37.9	25.3	32.7	1.7	6.2	2.2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	25.3	32.7	1.7	6.2	2.2
LOS	D	C	C	A	A	A
Approach Delay	31.4			9.5	5.3	
Approach LOS	C			A	A	
Queue Length 50th (ft)	9	8	12	5	8	1
Queue Length 95th (ft)	29	24	33	12	22	5
Internal Link Dist (ft)	992			1331	879	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	385	419	462	1591	1413	1349
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.04	0.05	0.04	0.03	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 16 (18%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.13
Intersection Signal Delay: 12.4 — Intersection LOS: B
Intersection Capacity Utilization 25.8% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 417: Wyse Fork Rd & US 70 WB Ramps



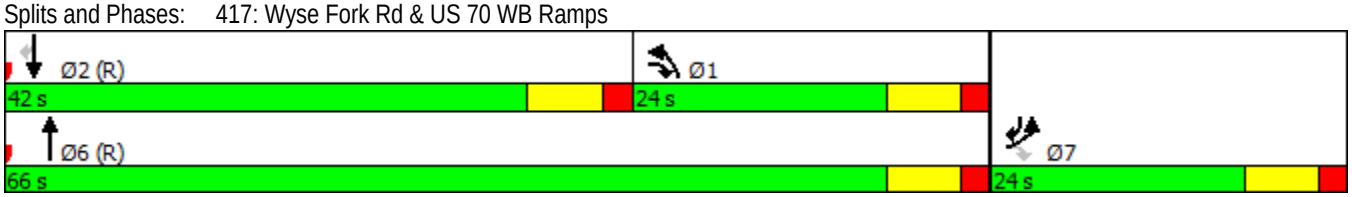
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	11	19	14	40	62	14
Future Volume (vph)	11	19	14	40	62	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Satd. Flow (prot)	1736	1553	1736	1827	1827	1553
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1736	1553	1736	1827	1827	1553
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	1072			1411	959	
Travel Time (s)	29.2			17.5	11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	21	16	44	69	16
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	7	1	1	6	2	7
Permitted Phases		7				2
Detector Phase	7	1	1	6	2	7
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	24.0	24.0	24.0	66.0	42.0	24.0
Total Split (%)	26.7%	26.7%	26.7%	73.3%	46.7%	26.7%
Maximum Green (s)	17.0	17.0	17.0	59.0	35.0	17.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.1	14.9	9.2	82.3	72.7	78.4
Actuated g/C Ratio	0.10	0.17	0.10	0.91	0.81	0.87
v/c Ratio	0.07	0.08	0.09	0.03	0.05	0.01
Control Delay	37.5	28.3	31.1	1.2	5.1	2.1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	28.3	31.1	1.2	5.1	2.1
LOS	D	C	C	A	A	A
Approach Delay	31.7			9.2	4.5	
Approach LOS	C			A	A	
Queue Length 50th (ft)	6	11	8	0	7	1
Queue Length 95th (ft)	23	27	27	8	30	5
Internal Link Dist (ft)	992			1331	879	
Turn Bay Length (ft)		100	100			100
Base Capacity (vph)	366	360	366	1671	1476	1353
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.06	0.04	0.03	0.05	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 88 (98%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.09
Intersection Signal Delay: 11.1 Intersection LOS: B
Intersection Capacity Utilization 25.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 417: Wyse Fork Rd & US 70 WB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	619	4	4	759	38	6	4	5	50	4	78
Future Volume (vph)	49	619	4	4	759	38	6	4	5	50	4	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	0		100	0		0	0		0
Storage Lanes	1		0	0		1	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1687	3371	0	0	3343	1495	0	1755	0	0	1650	0
Flt Permitted	0.950							0.980			0.981	
Satd. Flow (perm)	1687	3371	0	0	3343	1495	0	1755	0	0	1650	0
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		978			995			420			957	
Travel Time (s)		12.1			12.3			6.4			14.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	2%	2%	8%	8%	1%	1%	1%	4%	2%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	692	0	0	847	42	0	17	0	0	147	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		46			46			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 57.2%	ICU Level of Service B
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	619	4	4	759	38	6	4	5	50	4	78
Future Volume (Veh/h)	49	619	4	4	759	38	6	4	5	50	4	78
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	54	688	4	4	843	42	7	4	6	56	4	87
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	885			692			1316	1691	346	1311	1651	422
vC1, stage 1 conf vol							798	798		851	851	
vC2, stage 2 conf vol							518	893		460	800	
vCu, unblocked vol	885			692			1316	1691	346	1311	1651	422
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.6	6.5	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.5	
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			100			96	98	99	75	98	85
cM capacity (veh/h)	730			899			199	191	653	220	209	575

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	54	459	233	285	562	42	17	147
Volume Left	54	0	0	4	0	0	7	56
Volume Right	0	0	4	0	0	42	6	87
cSH	730	1700	1700	899	1700	1700	261	346
Volume to Capacity	0.07	0.27	0.14	0.00	0.33	0.02	0.07	0.42
Queue Length 95th (ft)	6	0	0	0	0	0	5	51
Control Delay (s)	10.3	0.0	0.0	0.2	0.0	0.0	19.8	22.9
Lane LOS	B			A			C	C
Approach Delay (s)	0.7			0.1			19.8	22.9
Approach LOS							C	C

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	759	6	5	619	50	4	4	4	38	4	49
Future Volume (vph)	78	759	6	5	619	50	4	4	4	38	4	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	0		100	0		0	0		0
Storage Lanes	1		0	0		1	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1736	3468	0	0	3610	1615	0	1768	0	0	1658	0
Flt Permitted	0.950							0.984			0.979	
Satd. Flow (perm)	1736	3468	0	0	3610	1615	0	1768	0	0	1658	0
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		978			995			420			957	
Travel Time (s)		12.1			12.3			6.4			14.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	0%	0%	0%	1%	1%	1%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	850	0	0	694	56	0	12	0	0	100	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		46			46			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 56.1%	ICU Level of Service B
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	759	6	5	619	50	4	4	4	38	4	49
Future Volume (Veh/h)	78	759	6	5	619	50	4	4	4	38	4	49
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	87	843	7	6	688	56	4	4	4	42	4	54
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	744			850			1432	1776	425	1302	1724	344
vC1, stage 1 conf vol							1020	1020		700	700	
vC2, stage 2 conf vol							412	756		602	1024	
vCu, unblocked vol	744			850			1432	1776	425	1302	1724	344
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			99			98	98	99	81	98	92
cM capacity (veh/h)	846			797			169	171	580	225	184	646

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	87	562	288	235	459	56	12	100
Volume Left	87	0	0	6	0	0	4	42
Volume Right	0	0	7	0	0	56	4	54
cSH	846	1700	1700	797	1700	1700	223	342
Volume to Capacity	0.10	0.33	0.17	0.01	0.27	0.03	0.05	0.29
Queue Length 95th (ft)	9	0	0	1	0	0	4	30
Control Delay (s)	9.7	0.0	0.0	0.3	0.0	0.0	22.1	19.8
Lane LOS	A			A			C	C
Approach Delay (s)	0.9			0.1			22.1	19.8
Approach LOS							C	C

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

2040 Build Alternative 36
SimTraffic Reports

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Summary of All Intervals

Run Number	1	2	3	4	2553 Alternative 36 AM		Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	9372	9270	9146	9043	9264	9107	9193
Vehs Exited	9352	9248	9144	8990	9236	9053	9171
Starting Vehs	144	141	163	145	136	146	134
Ending Vehs	164	163	165	198	164	200	157
Travel Distance (mi)	4939	4867	4849	4777	4851	4779	4844
Travel Time (hr)	151.9	153.2	169.1	179.0	147.2	164.9	160.9
Total Delay (hr)	44.5	47.0	63.4	75.0	41.6	60.6	55.3
Total Stops	3991	3909	3880	3945	3903	3927	3918
Fuel Used (gal)	191.1	190.2	193.4	193.2	187.6	189.5	190.8

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	2553 Alternative 36 AM		Avg
Vehs Entered	9372	9270	9146	9043	9264	9107	9193
Vehs Exited	9352	9248	9144	8990	9236	9053	9171
Starting Vehs	144	141	163	145	136	146	134
Ending Vehs	164	163	165	198	164	200	157
Travel Distance (mi)	4939	4867	4849	4777	4851	4779	4844
Travel Time (hr)	151.9	153.2	169.1	179.0	147.2	164.9	160.9
Total Delay (hr)	44.5	47.0	63.4	75.0	41.6	60.6	55.3
Total Stops	3991	3909	3880	3945	3903	3927	3918
Fuel Used (gal)	191.1	190.2	193.4	193.2	187.6	189.5	190.8

Intersection: 401: Jim Sutton Rd & Service Rd

Movement	EB	WB	SB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	35	43	25
Average Queue (ft)	12	15	1
95th Queue (ft)	33	36	10
Link Distance (ft)	848	806	935
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			100
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	76	171	69	64	363	40
Average Queue (ft)	27	77	22	19	171	3
95th Queue (ft)	64	141	57	50	291	20
Link Distance (ft)	951	951	935	935	1248	1248
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		200		100	375	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	101	208	105	46	180	96
Average Queue (ft)	36	104	35	8	86	27
95th Queue (ft)	82	178	83	32	149	71
Link Distance (ft)	939	939	1248	1248	934	934
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		250		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 404: Willie Measley Rd & Washington St/Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	81	52	77	12
Average Queue (ft)	41	19	20	1
95th Queue (ft)	69	41	53	6
Link Distance (ft)	924	913	934	1055
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 405: Harold Sutton Rd/Albert Sugg Rd & US 70 Bus

Movement	EB	EB	WB	NB	SB
Directions Served	L	T	L	LTR	LTR
Maximum Queue (ft)	44	3	56	497	410
Average Queue (ft)	10	0	12	247	192
95th Queue (ft)	29	2	38	682	484
Link Distance (ft)		990		855	873
Upstream Blk Time (%)				5	
Queuing Penalty (veh)				0	
Storage Bay Dist (ft)	100		100		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 406: US 70 EB Ramps & NC 55

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	148	36	57	61	113	98
Average Queue (ft)	43	5	14	13	52	37
95th Queue (ft)	103	25	41	44	100	81
Link Distance (ft)	962	962	1227	1227	926	926
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 407: US 70 WB Ramps & NC 55

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	110	64	105	59	102	68
Average Queue (ft)	26	11	35	11	39	17
95th Queue (ft)	76	40	77	39	84	50
Link Distance (ft)	1227	1227	966	966	904	904
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	125			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 408: NC 11 & Service Rd

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	46	43
Average Queue (ft)	18	6
95th Queue (ft)	45	28
Link Distance (ft)	936	930
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 409: NC 11 & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	112	127	149	187	254	53
Average Queue (ft)	57	41	60	74	89	8
95th Queue (ft)	104	93	114	152	181	32
Link Distance (ft)	914	914	930	930	1228	1228
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150	175			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 410: NC 11 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	136	120	139	207	273	57
Average Queue (ft)	65	55	49	75	106	13
95th Queue (ft)	118	107	102	161	207	41
Link Distance (ft)	941	941	1228	1228	974	974
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150	150			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 411: US 258 & Clarence Potter Rd/Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	28	26	16	16
Average Queue (ft)	7	8	1	1
95th Queue (ft)	25	26	9	8
Link Distance (ft)	875	870	922	728
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 412: US 258 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	156	136	159	32	64	70
Average Queue (ft)	69	55	51	3	12	14
95th Queue (ft)	128	107	113	17	40	47
Link Distance (ft)	1029	1029	728	728	1295	1295
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 413: US 258 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	63	59	111	78	130	55
Average Queue (ft)	15	11	30	17	48	6
95th Queue (ft)	46	38	79	51	98	31
Link Distance (ft)	980	980	1295	1295	848	848
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	150	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 414: NC 58 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	56	71	91	16	48	48
Average Queue (ft)	19	20	25	1	10	8
95th Queue (ft)	48	56	66	10	34	32
Link Distance (ft)	1025	1025	964	964	1203	1203
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 415: NC 58 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	47	70	65	28	48	49
Average Queue (ft)	11	11	17	3	12	6
95th Queue (ft)	35	44	52	18	37	28
Link Distance (ft)	909	909	1203	1203	890	890
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 416: Wyse Fork Rd & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	54	59	59	39	42	20
Average Queue (ft)	12	12	16	3	3	1
95th Queue (ft)	37	39	45	20	19	11
Link Distance (ft)	1067	1067	935	935	1343	1343
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 417: Wyse Fork Rd & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	49	65	70	36	38	20
Average Queue (ft)	15	15	18	4	4	1
95th Queue (ft)	44	46	50	21	24	10
Link Distance (ft)	1026	1026	1343	1343	926	926
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 418: Service Rd/Kornegay St & US 70 Bus

Movement	EB	WB	WB	WB	NB	SB
Directions Served	L	LT	T	R	LTR	LTR
Maximum Queue (ft)	71	66	4	6	47	460
Average Queue (ft)	20	3	0	0	14	155
95th Queue (ft)	48	29	3	5	38	397
Link Distance (ft)	948	962	962	962	356	877
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100			100		
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	2	3	4	2553 Alternative 36 PM 5		Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	9245	9110	9208	9308	9278	9080	9202
Vehs Exited	9267	9109	9207	9293	9265	9127	9211
Starting Vehs	158	134	165	154	145	180	149
Ending Vehs	136	135	166	169	158	133	138
Travel Distance (mi)	4883	4826	4869	4871	4871	4774	4849
Travel Time (hr)	151.5	145.3	150.5	161.4	157.6	143.5	151.6
Total Delay (hr)	45.2	40.1	44.8	54.7	51.1	39.5	45.9
Total Stops	3980	3879	3997	4071	4059	3906	3976
Fuel Used (gal)	192.7	188.4	191.9	195.4	193.6	186.9	191.5

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	2553 Alternative 36 PM 5		Avg
Vehs Entered	9245	9110	9208	9308	9278	9080	9202
Vehs Exited	9267	9109	9207	9293	9265	9127	9211
Starting Vehs	158	134	165	154	145	180	149
Ending Vehs	136	135	166	169	158	133	138
Travel Distance (mi)	4883	4826	4869	4871	4871	4774	4849
Travel Time (hr)	151.5	145.3	150.5	161.4	157.6	143.5	151.6
Total Delay (hr)	45.2	40.1	44.8	54.7	51.1	39.5	45.9
Total Stops	3980	3879	3997	4071	4059	3906	3976
Fuel Used (gal)	192.7	188.4	191.9	195.4	193.6	186.9	191.5

Intersection: 401: Jim Sutton Rd & Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	28	44	8	22
Average Queue (ft)	7	14	0	1
95th Queue (ft)	26	36	4	10
Link Distance (ft)	848	806	905	935
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 402: Jim Sutton Rd/Jim Sutton / Willie Measley & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	93	182	61	65	272	36
Average Queue (ft)	32	81	14	14	136	4
95th Queue (ft)	73	149	44	44	233	22
Link Distance (ft)	951	951	935	935	1248	1248
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		200		100	375	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 403: Jim Sutton / Willie Measley/Willie Measley Rd & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	162	238	130	46	187	87
Average Queue (ft)	59	123	38	5	80	28
95th Queue (ft)	117	209	96	25	152	70
Link Distance (ft)	939	939	1248	1248	934	934
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		250		100	200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 404: Willie Measley Rd & Washington St/Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	67	75	57	8
Average Queue (ft)	35	25	20	0
95th Queue (ft)	56	52	50	4
Link Distance (ft)	924	913	934	1055
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 405: Harold Sutton Rd/Albert Sugg Rd & US 70 Bus

Movement	EB	EB	WB	NB	SB
Directions Served	L	R	L	LTR	LTR
Maximum Queue (ft)	54	7	50	254	234
Average Queue (ft)	14	0	15	102	92
95th Queue (ft)	39	4	37	271	270
Link Distance (ft)				855	873
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100	100	100		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 406: US 70 EB Ramps & NC 55

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	120	61	68	91	155	83
Average Queue (ft)	42	9	18	24	68	34
95th Queue (ft)	93	36	50	70	127	71
Link Distance (ft)	962	962	1227	1227	926	926
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 407: US 70 WB Ramps & NC 55

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	101	53	114	82	131	41
Average Queue (ft)	32	10	37	20	45	11
95th Queue (ft)	80	34	88	57	96	33
Link Distance (ft)	1227	1227	966	966	904	904
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	125			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 408: NC 11 & Service Rd

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	46	28
Average Queue (ft)	13	5
95th Queue (ft)	37	21
Link Distance (ft)	936	930
Upstream Blk Time (%)		
Queuing Penalty (veh)		100
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 409: NC 11 & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	120	105	157	104	341	70
Average Queue (ft)	42	44	67	33	118	11
95th Queue (ft)	92	91	129	83	254	41
Link Distance (ft)	914	914	930	930	1228	1228
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150	175			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 410: NC 11 & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	102	143	103	129	355	59
Average Queue (ft)	41	61	44	36	163	16
95th Queue (ft)	84	118	89	94	298	45
Link Distance (ft)	941	941	1228	1228	974	974
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150	150			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 411: US 258 & Clarence Potter Rd/Service Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	32	31	24	4
Average Queue (ft)	10	9	1	0
95th Queue (ft)	31	28	10	3
Link Distance (ft)	875	870	922	728
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 412: US 258 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	185	145	137	40	49	100
Average Queue (ft)	84	43	48	3	12	26
95th Queue (ft)	151	98	107	20	40	69
Link Distance (ft)	1029	1029	728	728	1295	1295
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 413: US 258 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	83	51	102	68	130	70
Average Queue (ft)	21	9	28	14	56	12
95th Queue (ft)	59	33	76	45	108	43
Link Distance (ft)	980	980	1295	1295	848	848
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	150	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 414: NC 58 & US 70 EB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	68	77	73	24	52	66
Average Queue (ft)	25	18	19	1	10	13
95th Queue (ft)	59	55	54	11	35	45
Link Distance (ft)	1025	1025	964	964	1203	1203
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 415: NC 58 & US 70 WB Ramps

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	57	54	75	33	60	56
Average Queue (ft)	15	8	13	3	15	10
95th Queue (ft)	42	30	44	18	44	37
Link Distance (ft)	909	909	1203	1203	890	890
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100		100	100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 416: Wyse Fork Rd & US 70 EB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	28	66	54	16	44	12
Average Queue (ft)	6	16	12	1	4	1
95th Queue (ft)	23	47	39	7	22	9
Link Distance (ft)	1067	1067	935	935	1343	1343
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 417: Wyse Fork Rd & US 70 WB Ramps

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	53	70	46	26	44	8
Average Queue (ft)	12	14	10	2	5	1
95th Queue (ft)	40	46	35	14	24	8
Link Distance (ft)	1026	1026	1343	1343	926	926
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		100	100			100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 418: Service Rd/Kornegay St & US 70 Bus

Movement	EB	WB	WB	NB	SB
Directions Served	L	LT	R	LTR	LTR
Maximum Queue (ft)	73	51	12	44	258
Average Queue (ft)	25	3	0	9	90
95th Queue (ft)	55	28	5	35	229
Link Distance (ft)	948	962	962	356	877
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100		100		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 0

APPENDIX P

2040 Representative Build Alternative 1 – Shallow Southern Bypass

Peak Hour Traffic Volume Development and

Synchro & SimTraffic Reports

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2040 Representative
Build Alternative 1 SB
Peak Hour Traffic Volume
Development

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Representative Build Alternative 1 – Shallow Southern Bypass

Volume Development

A project-level traffic forecast, titled "Traffic Forecast Technical Memorandum, Kinston Bypass Alternatives Study", was prepared and finalized in November, 2016. This traffic forecast was used to provide peak hour volumes for the analysis of the selected alternatives in this memorandum. The traffic forecast is included in **Attachment A**.

The Intersection Analysis Utility (IAU), provided by NCDOT, was utilized to calculate AM and PM Peak Hour volumes for at-grade intersections (ramp terminals and any intersections within 1,000 feet of ramp terminals), interchange ramps, and freeway segments within interchanges. Peak hour volumes for freeway segments between interchanges were calculated by finding the forecasted daily two-way volumes along the link, then breaking the daily volume down by multiplying it by the Design Hour Volume Percentage (K), and the Peak Hour Directional Split (D). All of these volumes are shown in **BLACK** in **Figures 15A-15C**.

The intersection of US 70 Bus and Mt Vernon Park Drive (Intersection 409) had a volume of 1100 vehicles per day on the northern leg. However, this led to an imbalance in the intersection and an error in the IAU. The volume was increase to 1400 vehicles per day on this leg, which is consistent with the volume in other build scenarios and allows for a balanced intersection.

The intersection of SR 1552 (Hillcrest Road) is displayed in the traffic forecast as being a T intersection on US 70 Bus, separate from the US 70/US 70 Bus system interchange, when it is actually a fourth leg of that interchange. As such, volumes between those respective IAUs interact with each other, and so have been redistributed by weighted proportions. The calculations and final volumes for Intersection 430 and 1430 may be found in the ensuing pages of this appendix.

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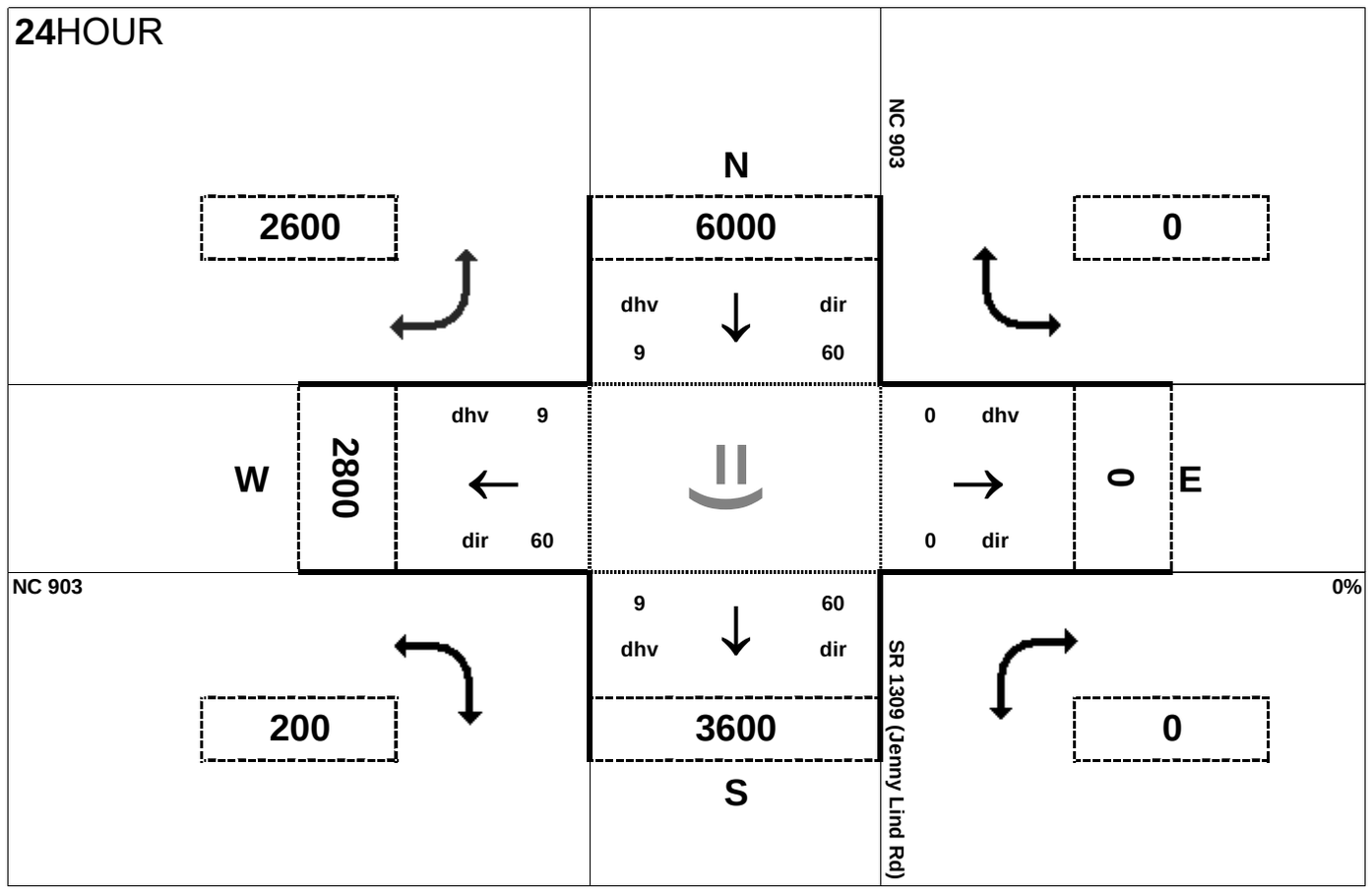
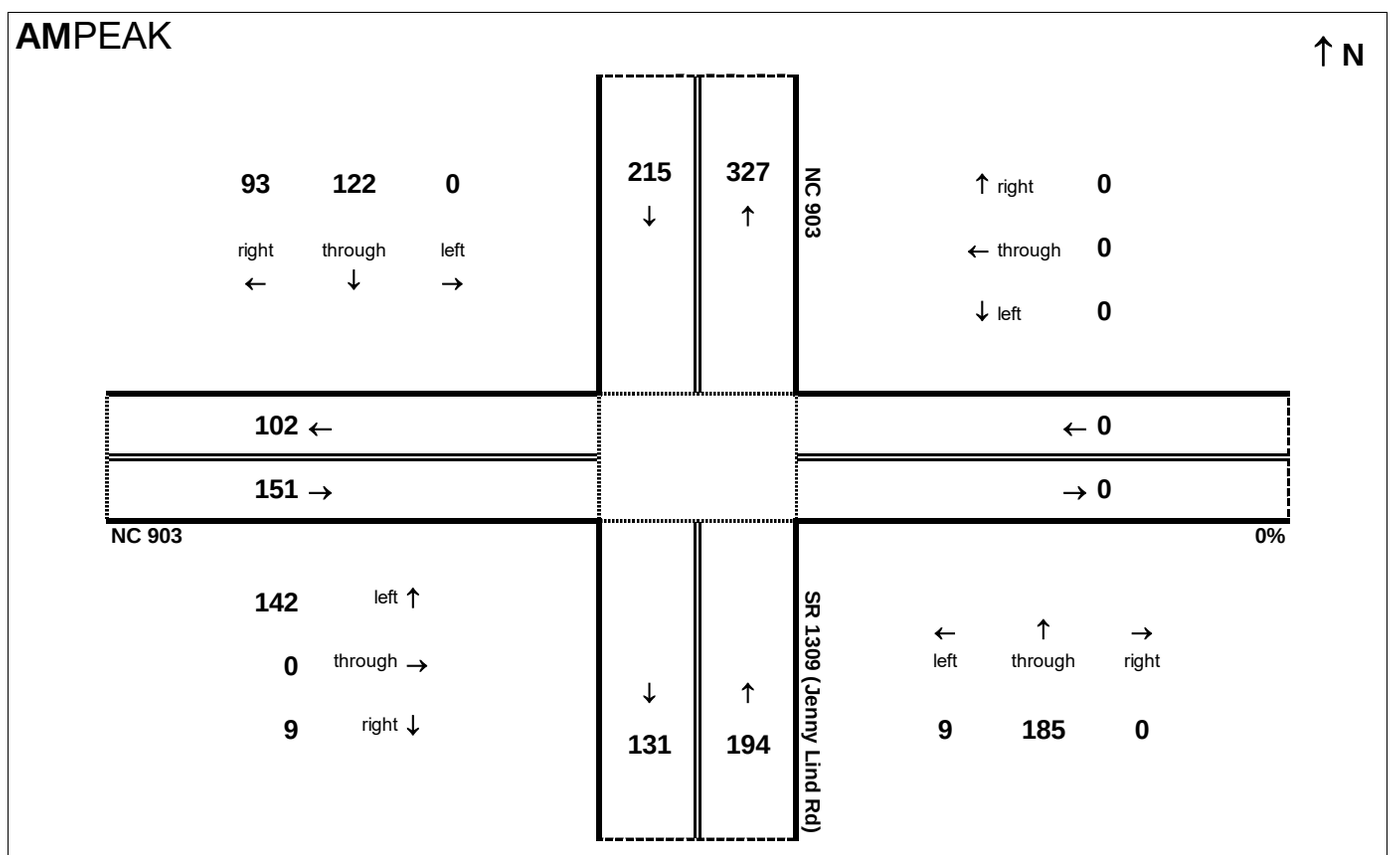
Peak Hour Volume Breakouts Report:
401 Intersection of NC 903 and SR 1309 (Jenny Lind Rd)

Traffic Forecast Release Date:
November-16

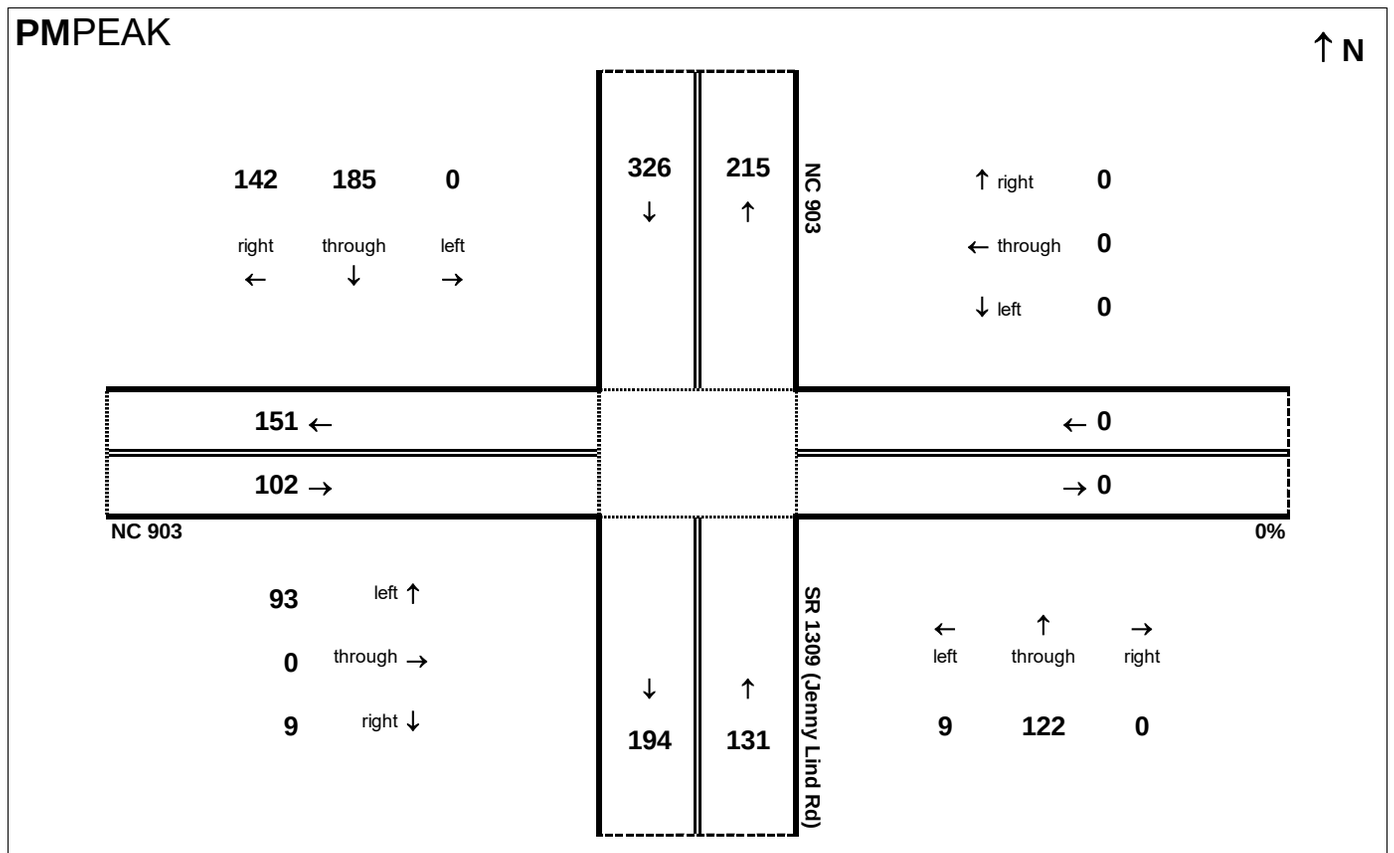
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553





AM peak hour inflow is 558 vehicles. AM peak hour outflow is 557 vehicles.



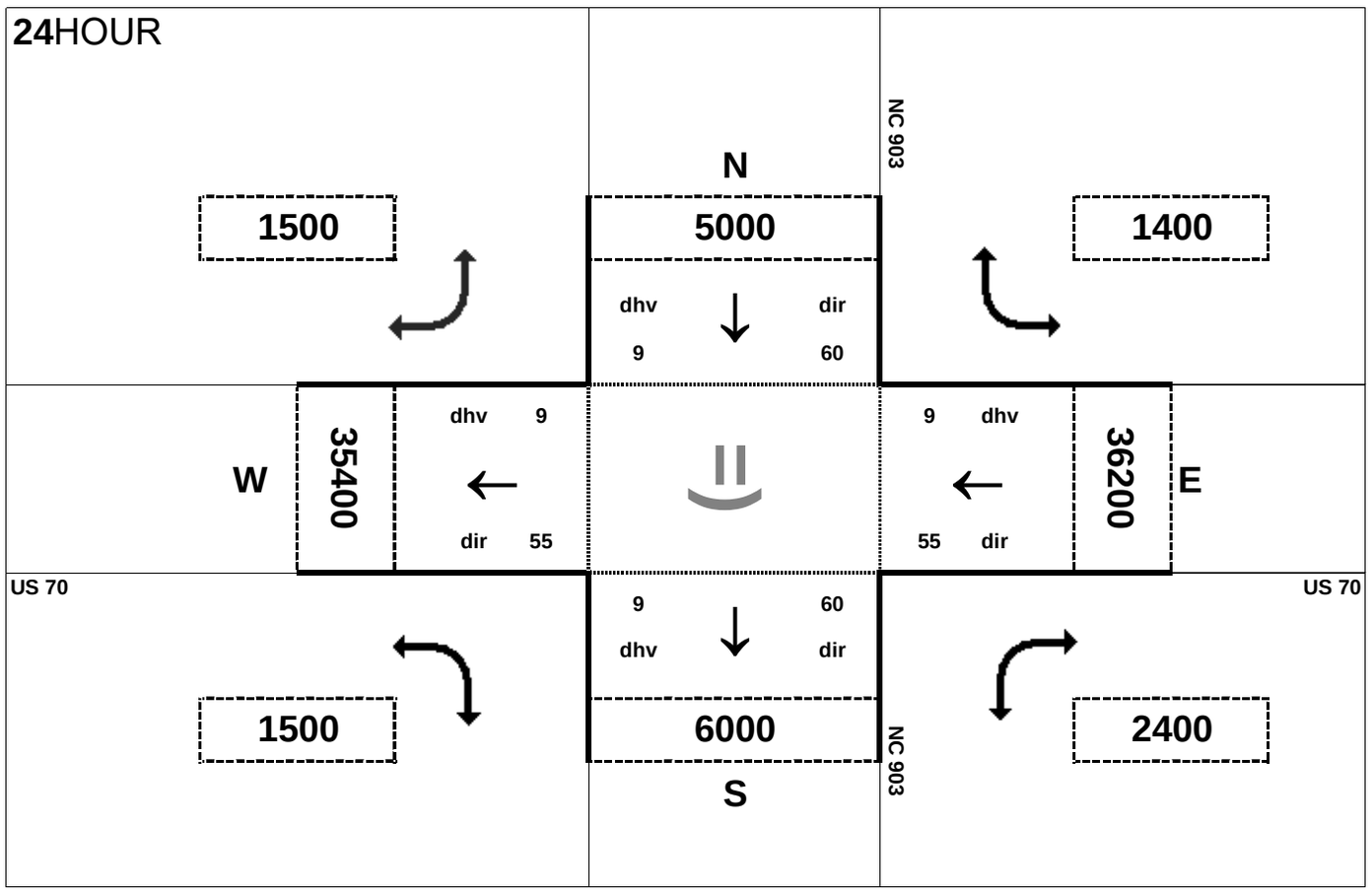
PM peak hour inflow is 557 vehicles. PM peak hour outflow is 558 vehicles.

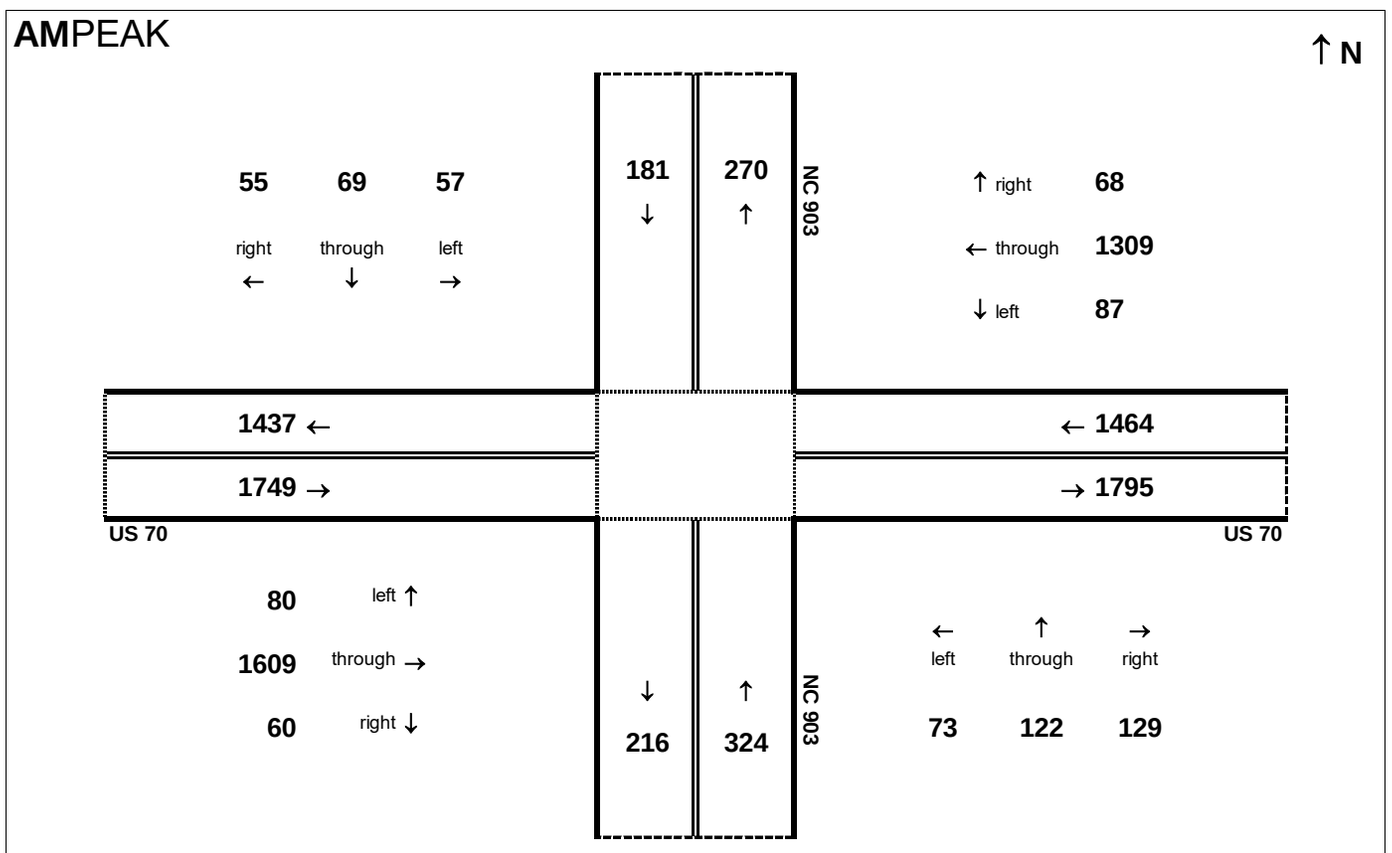
Peak Hour Volume Breakouts Report:
402-3 Intersection US 70 and NC 903

Traffic Forecast Release Date:
November-16

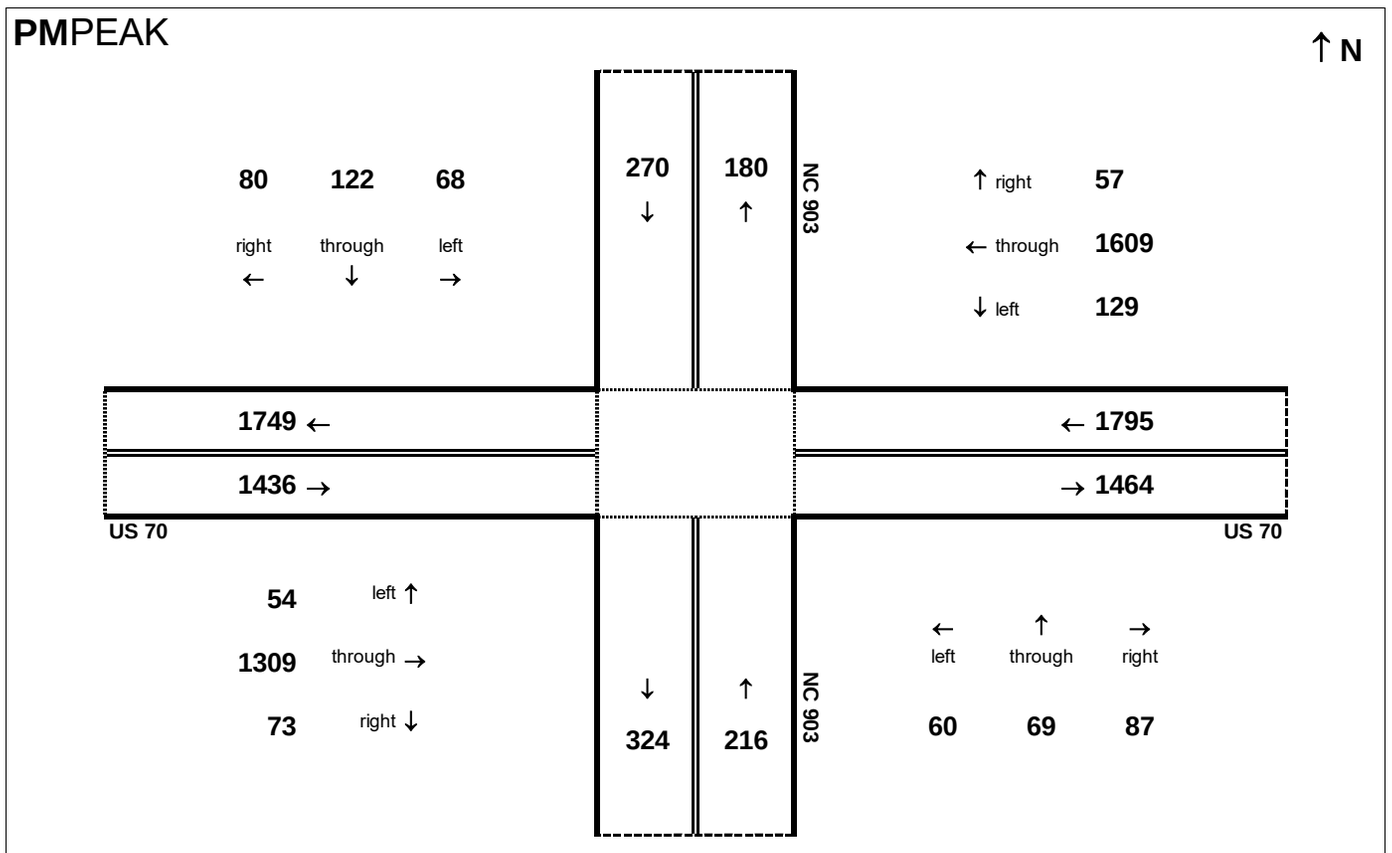
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553





AM peak hour inflow is 3718 vehicles. AM peak hour outflow is 3716 vehicles.



PM peak hour inflow is 3717 vehicles. PM peak hour outflow is 3718 vehicles.

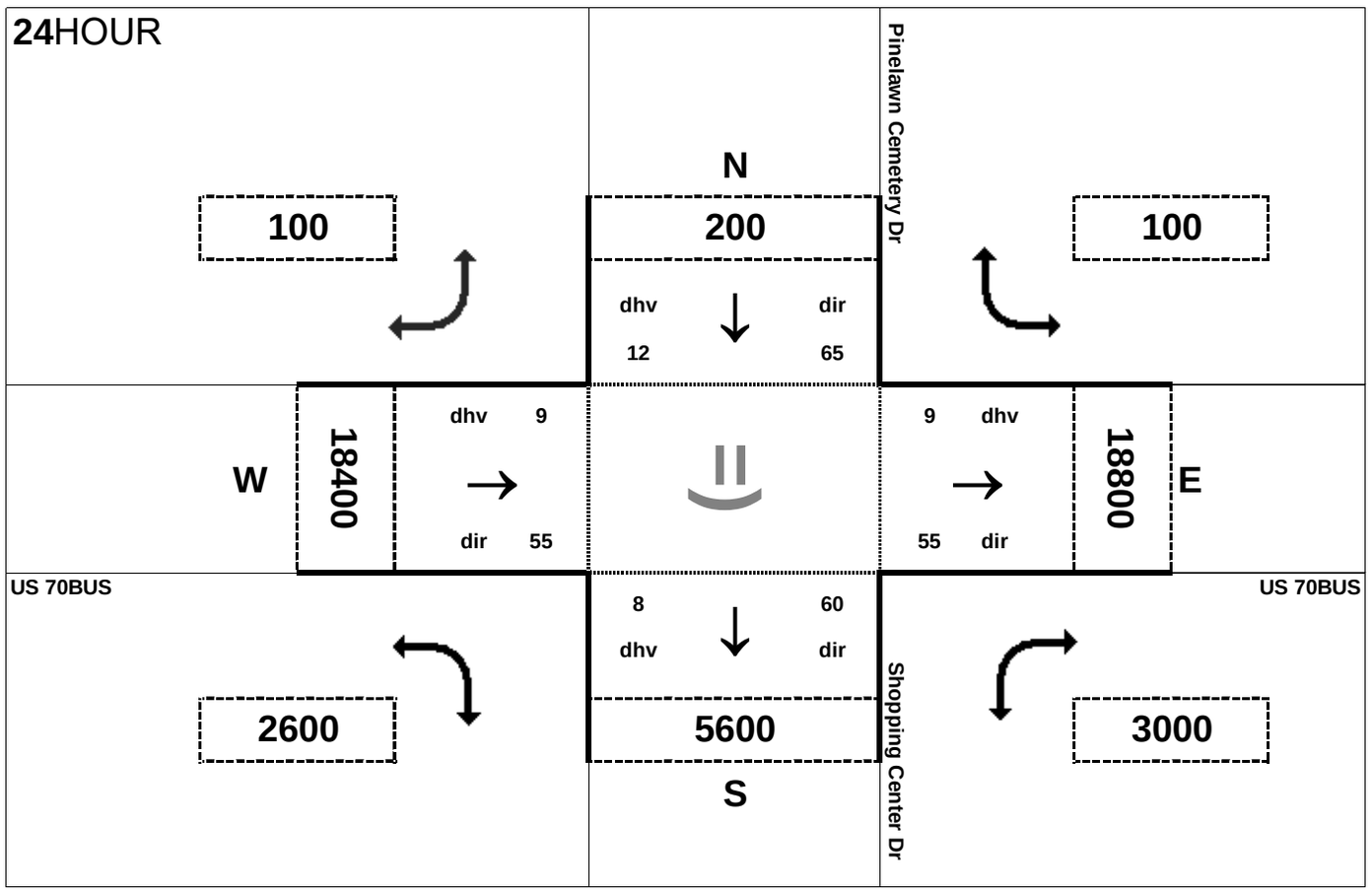
Peak Hour Volume Breakouts Report:
404 Intersection of US 70BUS and Pinelawn Cemetery Dr / Shopping Center Dr

Traffic Forecast Release Date:
November-16

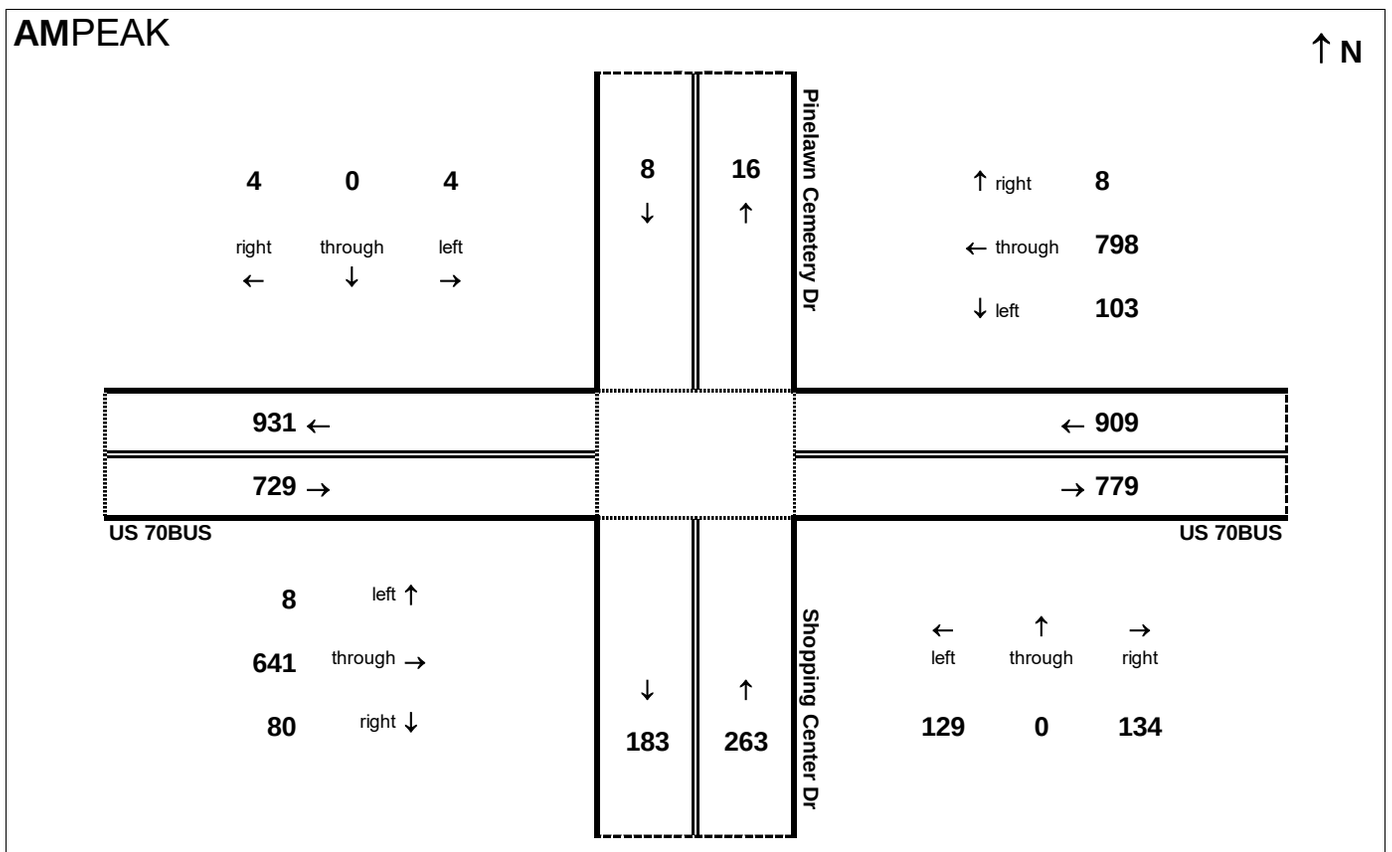
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553

24HOUR

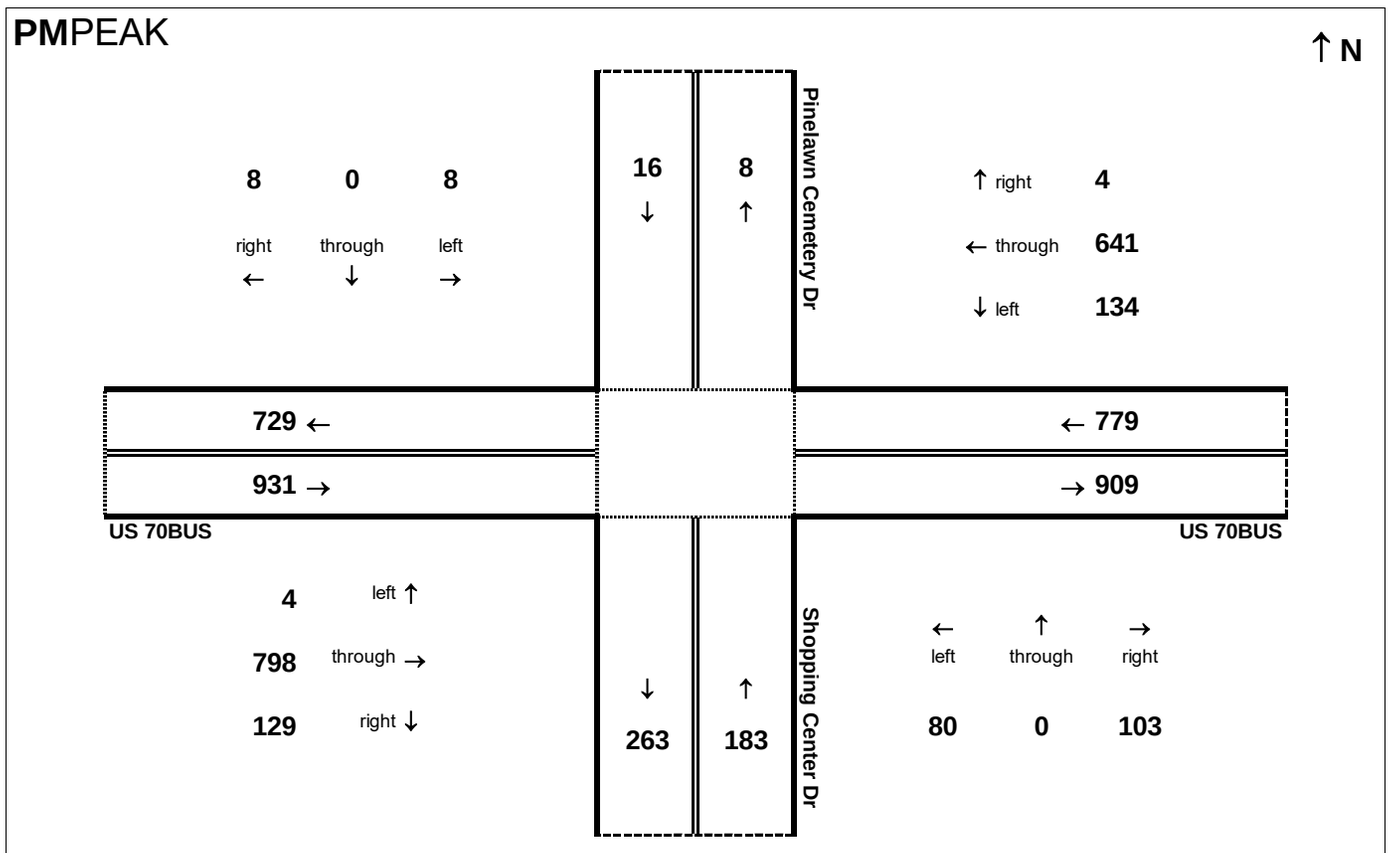


AMPEAK



AM peak hour inflow is 1910 vehicles. AM peak hour outflow is 1910 vehicles.

PMPEAK



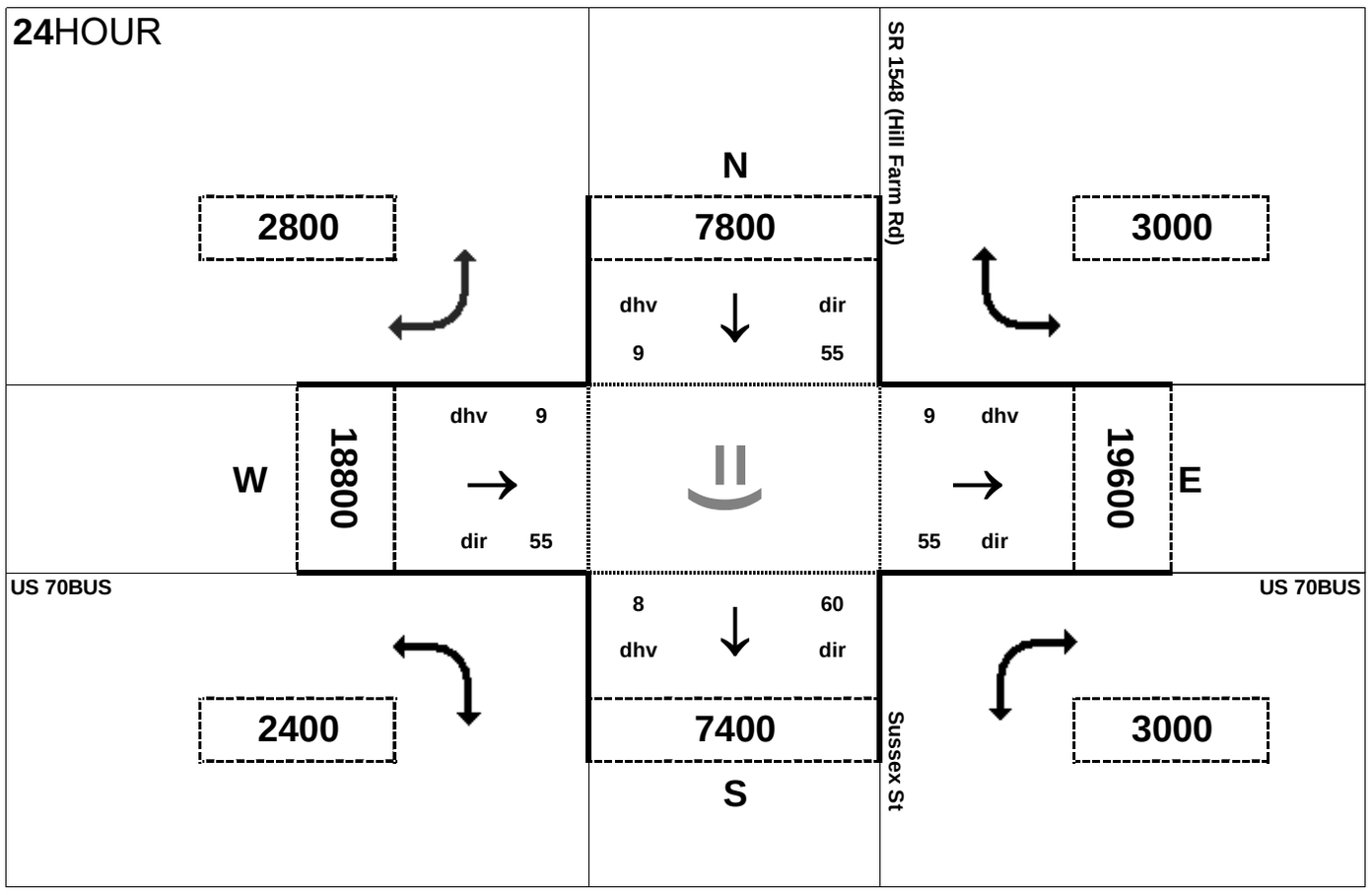
PM peak hour inflow is 1910 vehicles. PM peak hour outflow is 1910 vehicles.

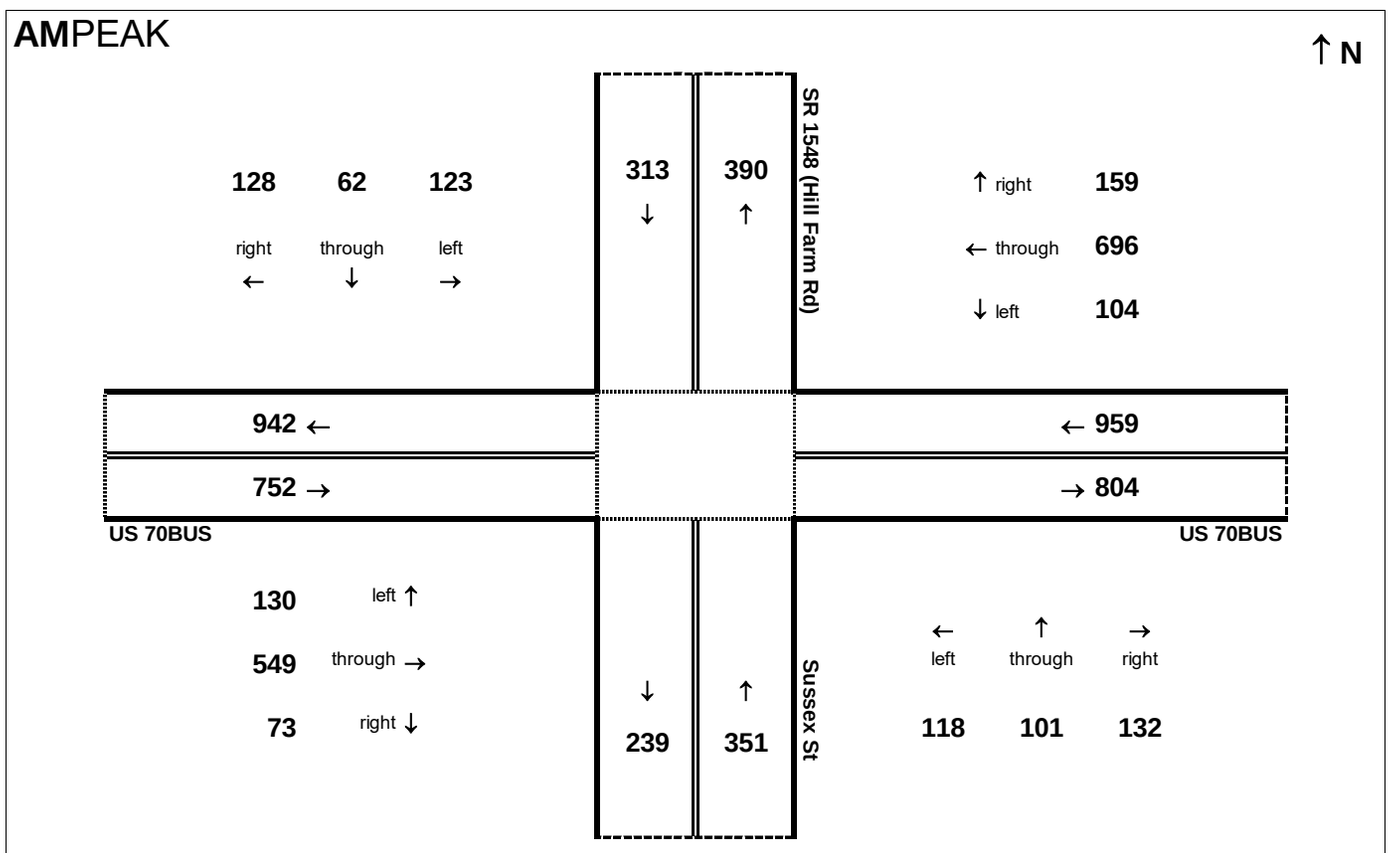
Peak Hour Volume Breakouts Report:
405 Intersection of US 70BUS and SR 1548 (Hill Farm Rd)

Traffic Forecast Release Date:
November-16

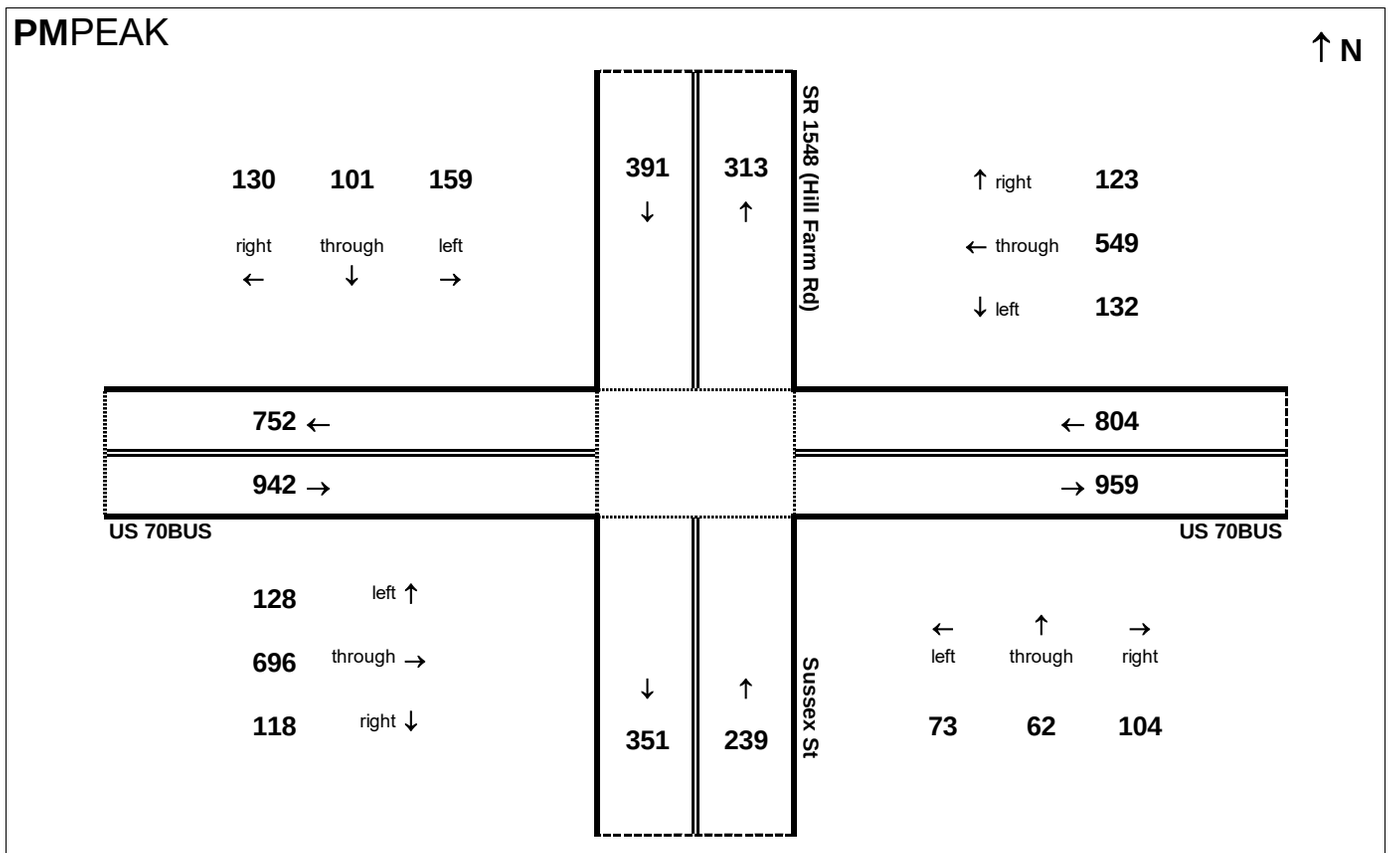
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553





AM peak hour inflow is 2375 vehicles. AM peak hour outflow is 2376 vehicles.



PM peak hour inflow is 2376 vehicles. PM peak hour outflow is 2375 vehicles.

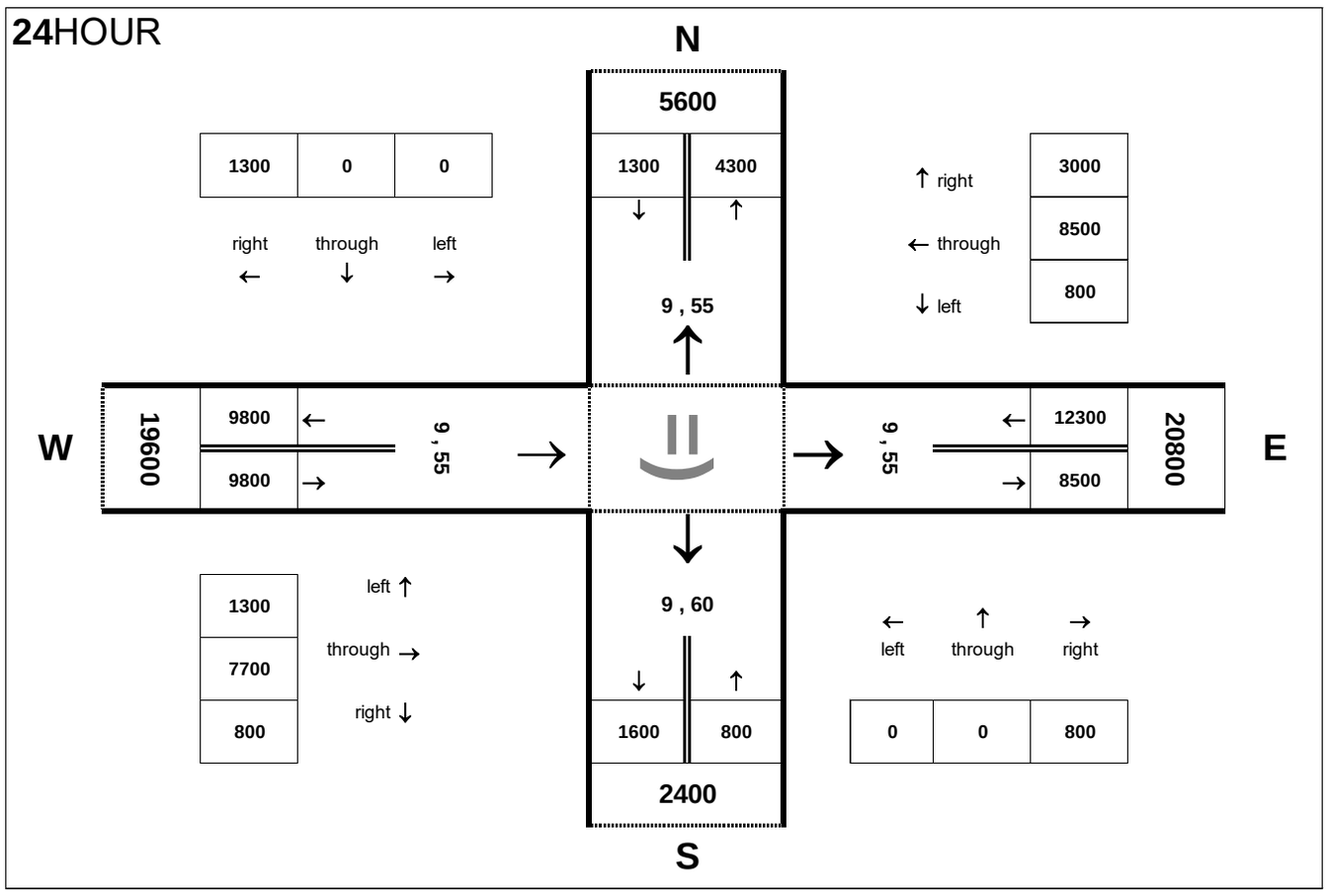
Peak Hour Volume Breakouts Report:
406 Intersection of US 70BUS and Walmart Dr / Sheffield Dr

Traffic Forecast Release Date:
November-16

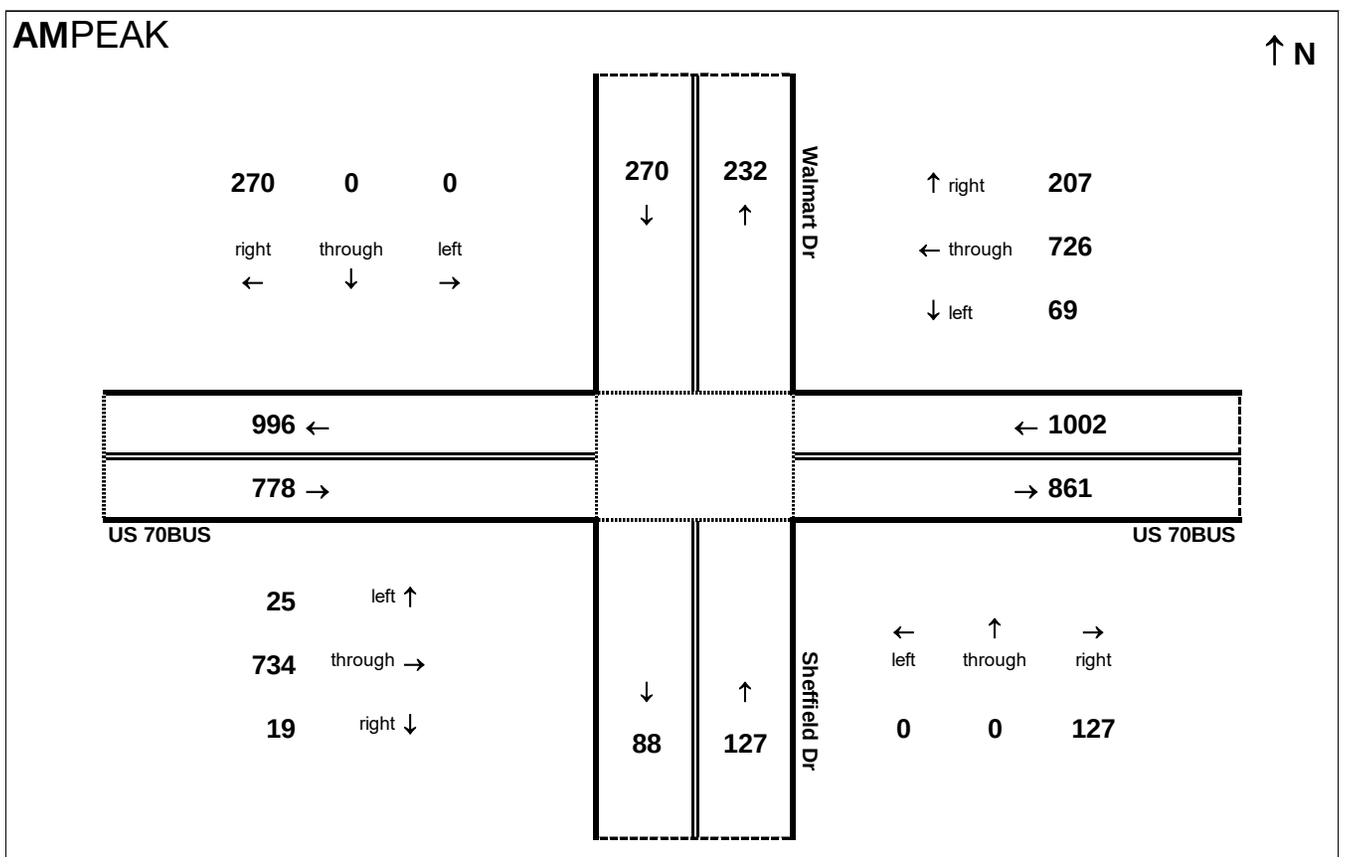
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553

24HOUR

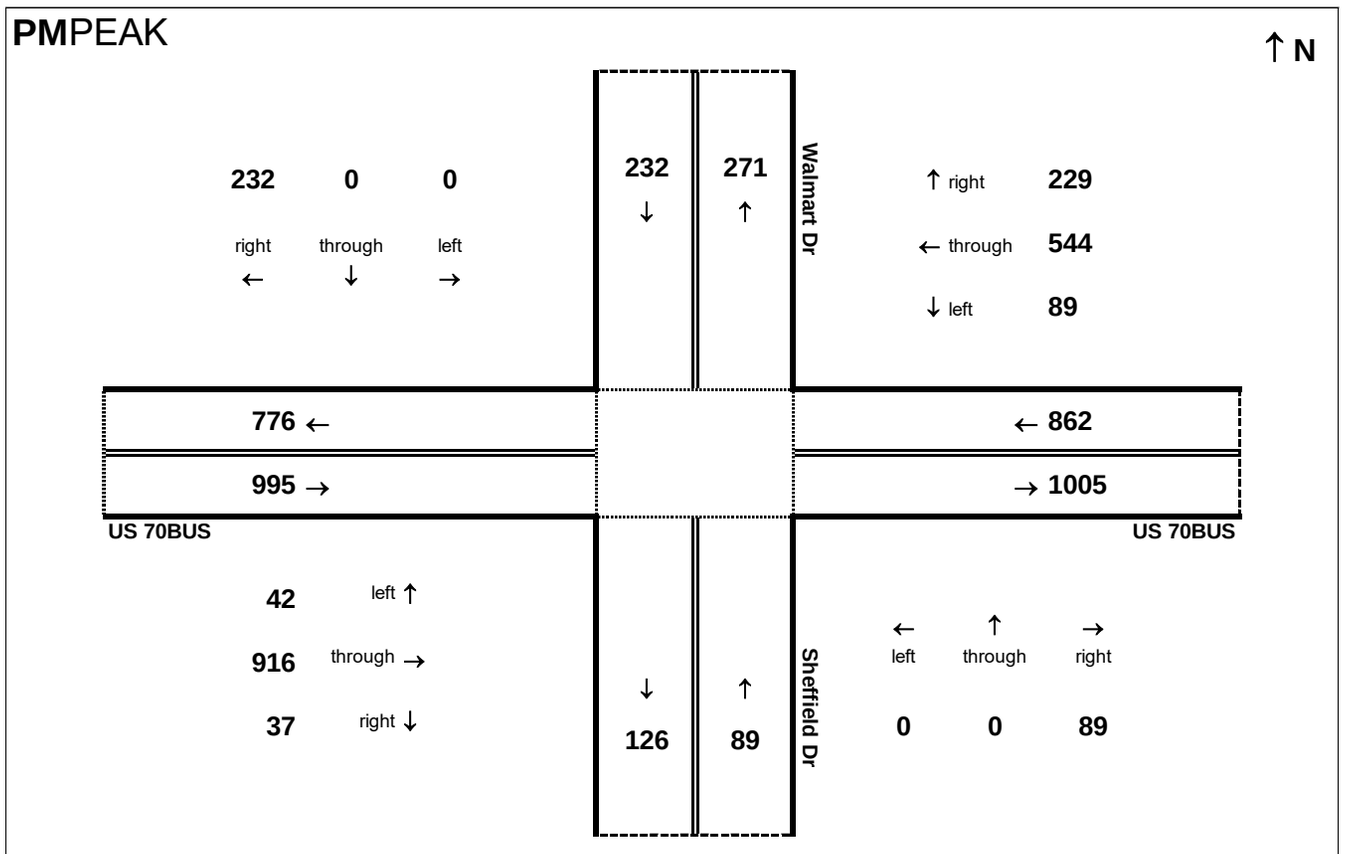


AMPEAK



AM peak hour inflow is 2178 vehicles. AM peak hour outflow is 2178 vehicles.

PMPEAK



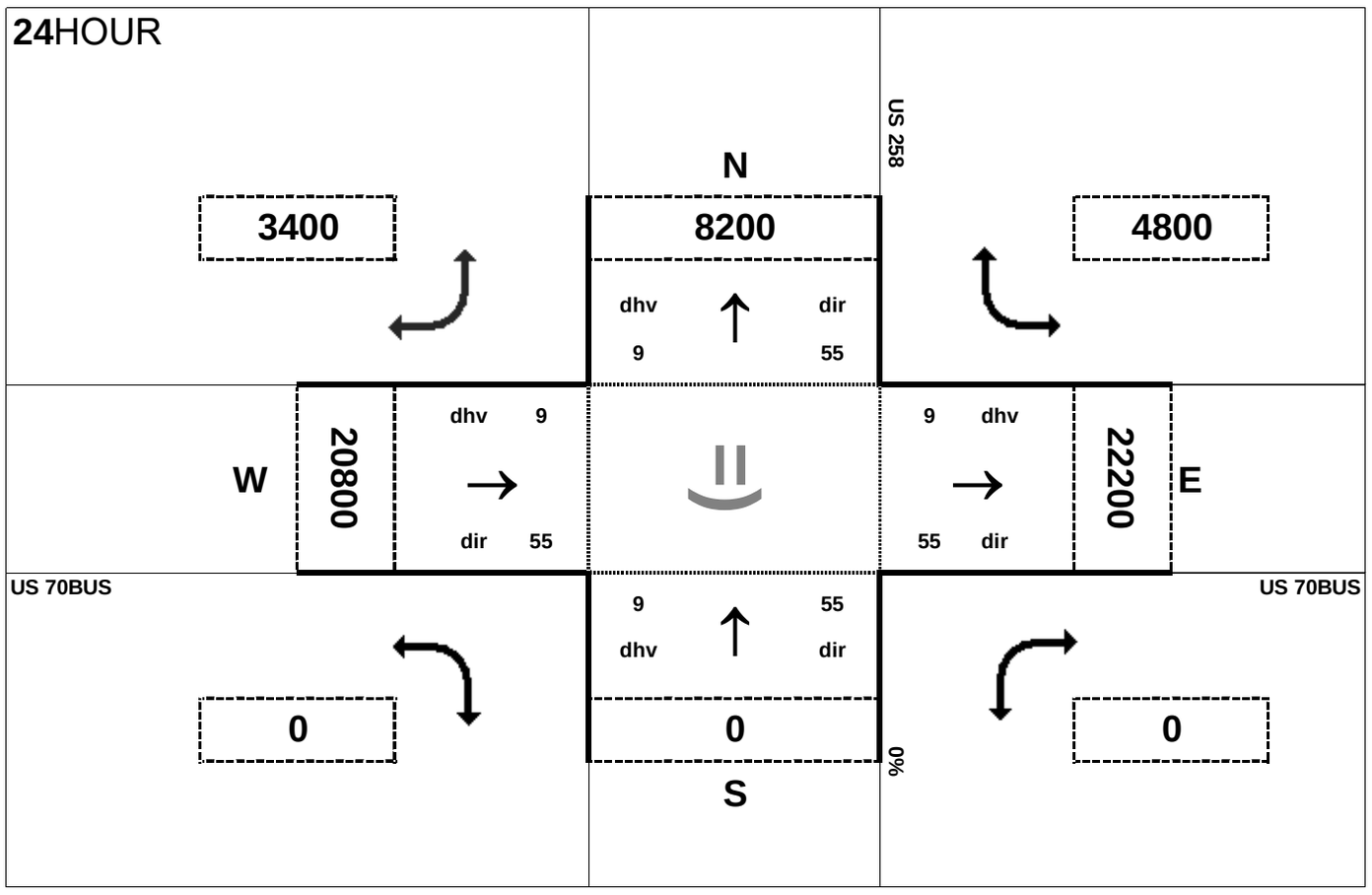
PM peak hour inflow is 2178 vehicles. PM peak hour outflow is 2179 vehicles.

Peak Hour Volume Breakouts Report:
407 Intersection of US 70BUS and US 258

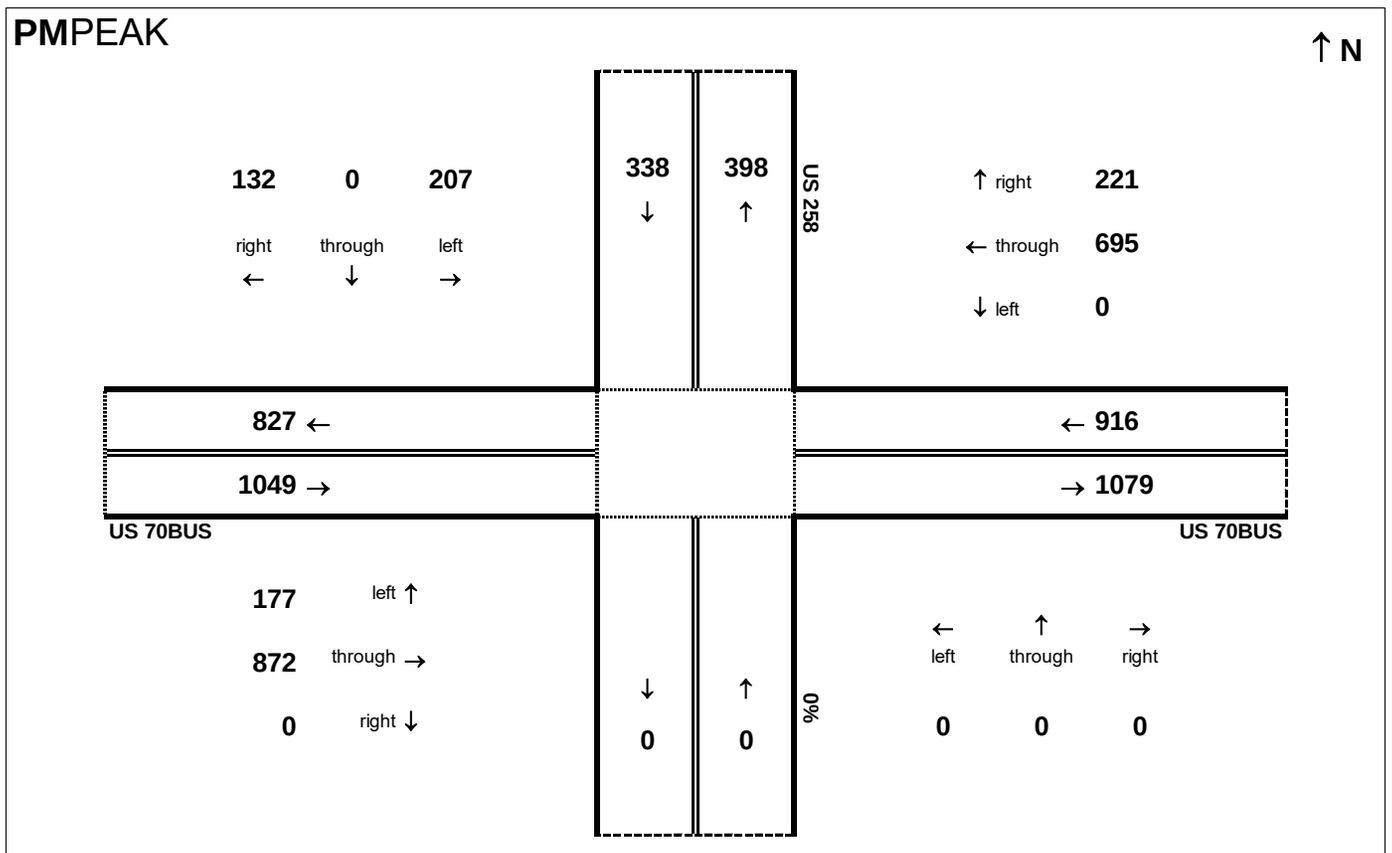
Traffic Forecast Release Date:
November-16

Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553



AM peak hour inflow is 2304 vehicles. AM peak hour outflow is 2303 vehicles.



PM peak hour inflow is 2303 vehicles. PM peak hour outflow is 2304 vehicles.

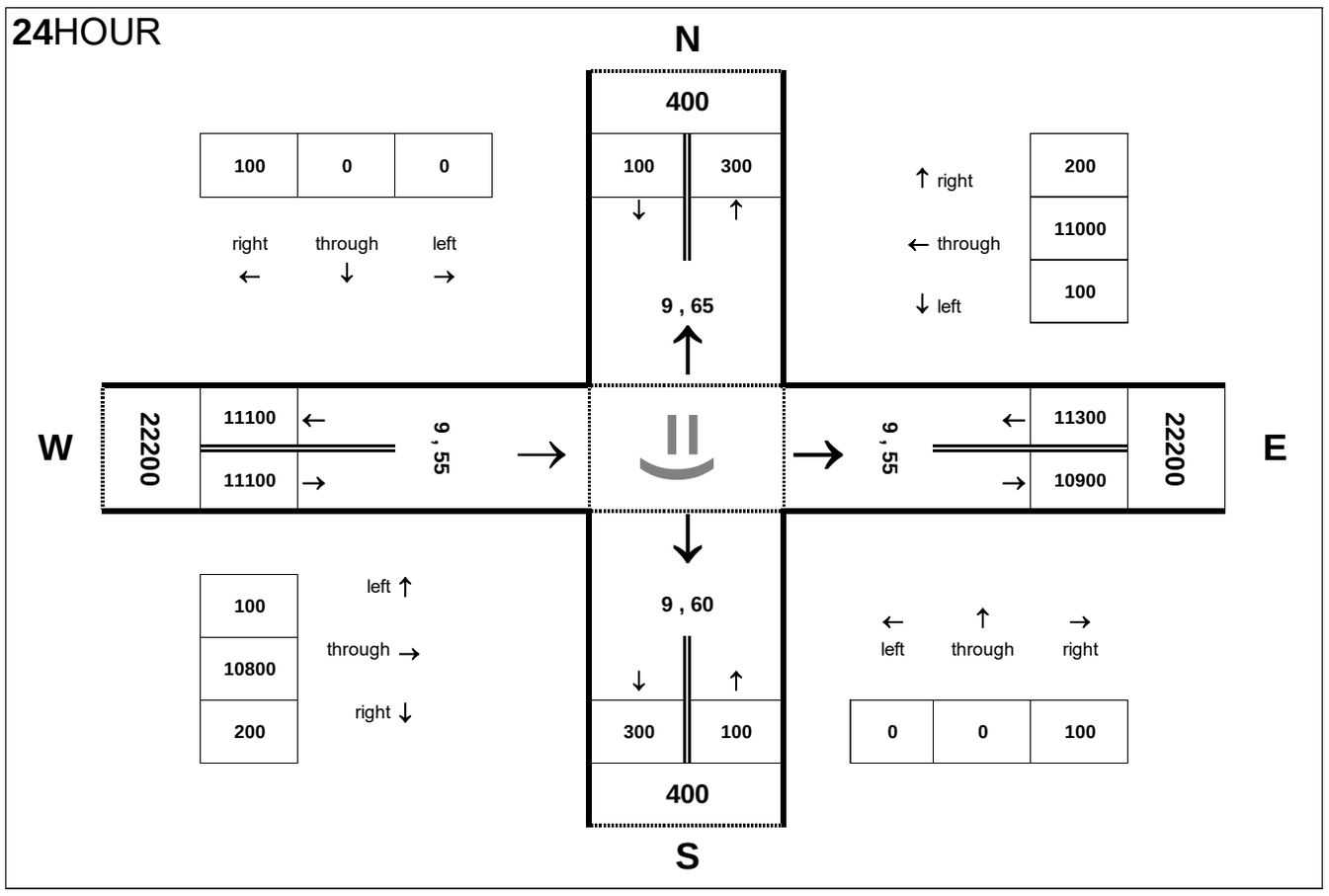
Peak Hour Volume Breakouts Report:
408 Intersection of US 70BUS and Ruby Tuesday Driveway

Traffic Forecast Release Date:
November-16

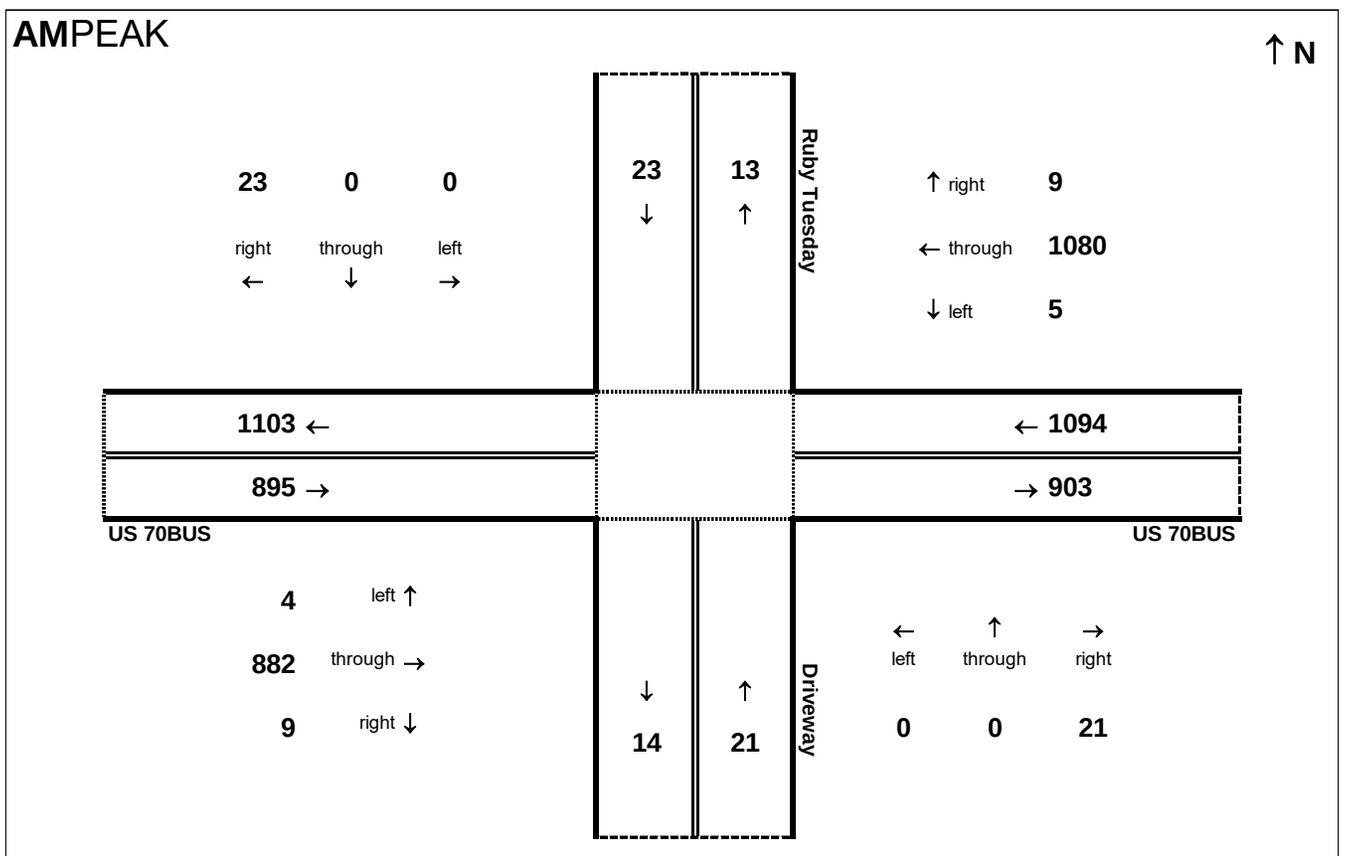
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553

24HOUR

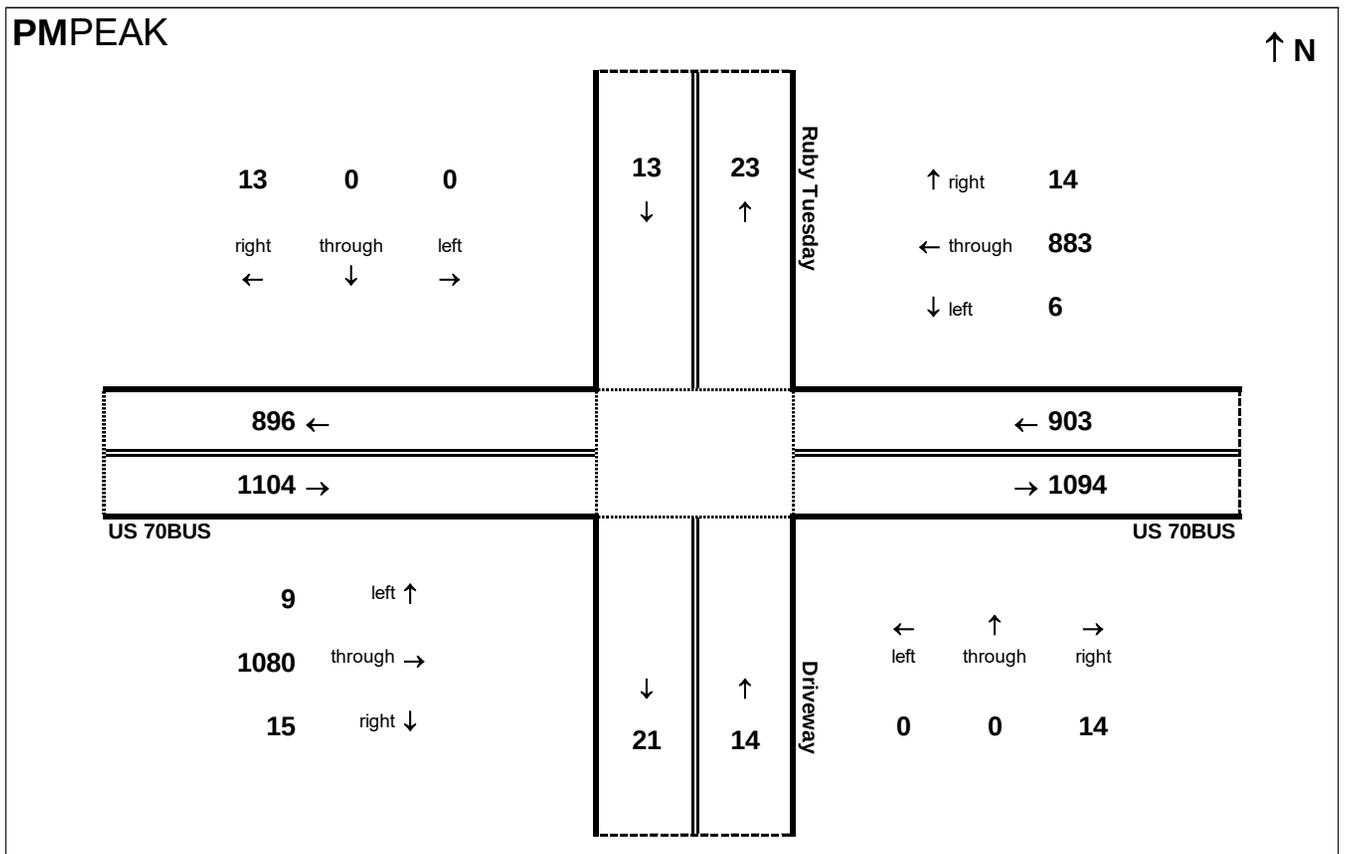


AMPEAK



AM peak hour inflow is 2033 vehicles. AM peak hour outflow is 2034 vehicles.

PMPEAK



PM peak hour inflow is 2034 vehicles. PM peak hour outflow is 2034 vehicles.

Peak Hour Volume Breakouts Report:
409 Intersection of US 70BUS and Mt Vernon Park Dr

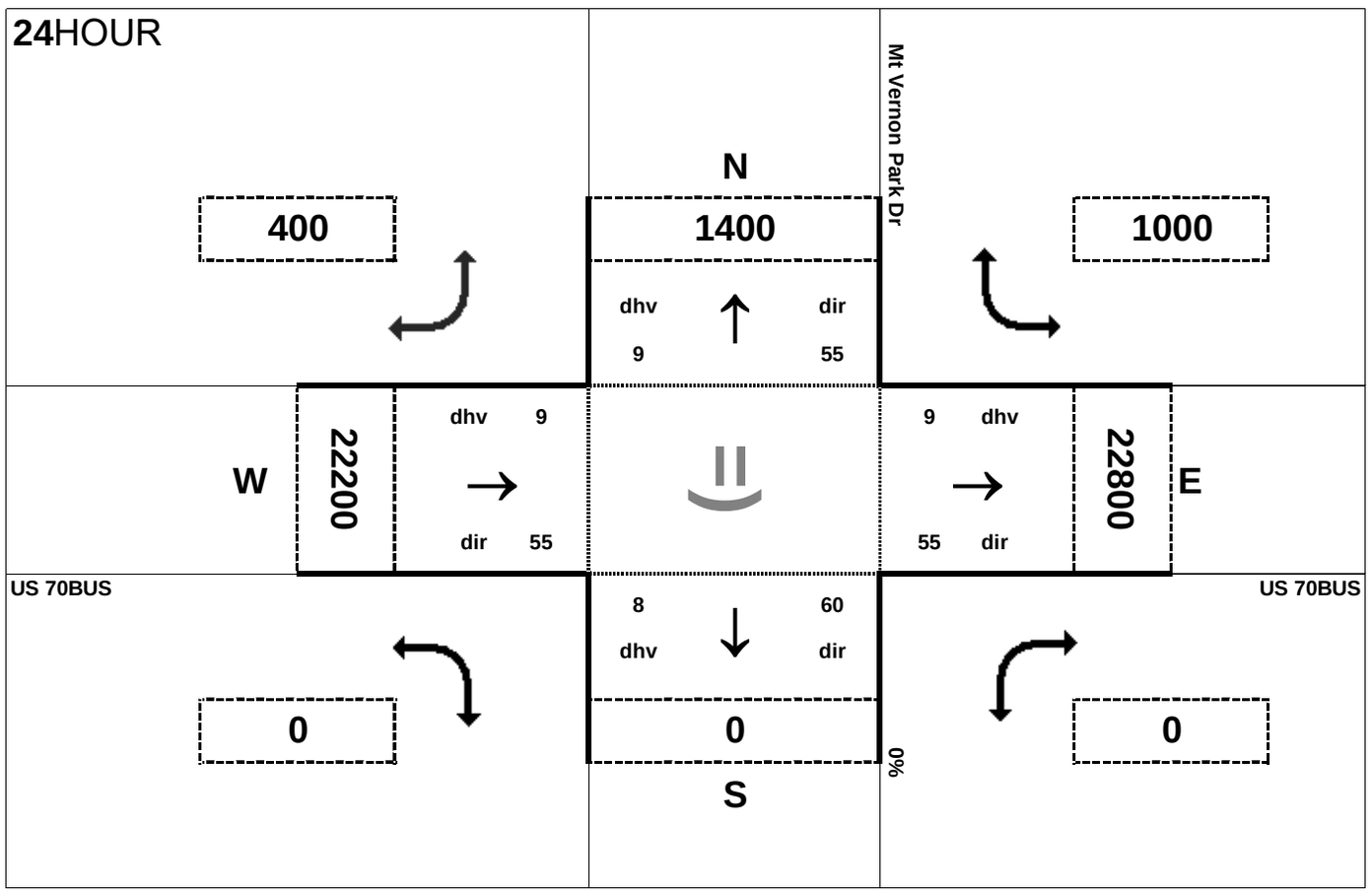
Traffic Forecast Release Date:
November-16

Traffic Data Year:
2040 Build Alt 1 SB

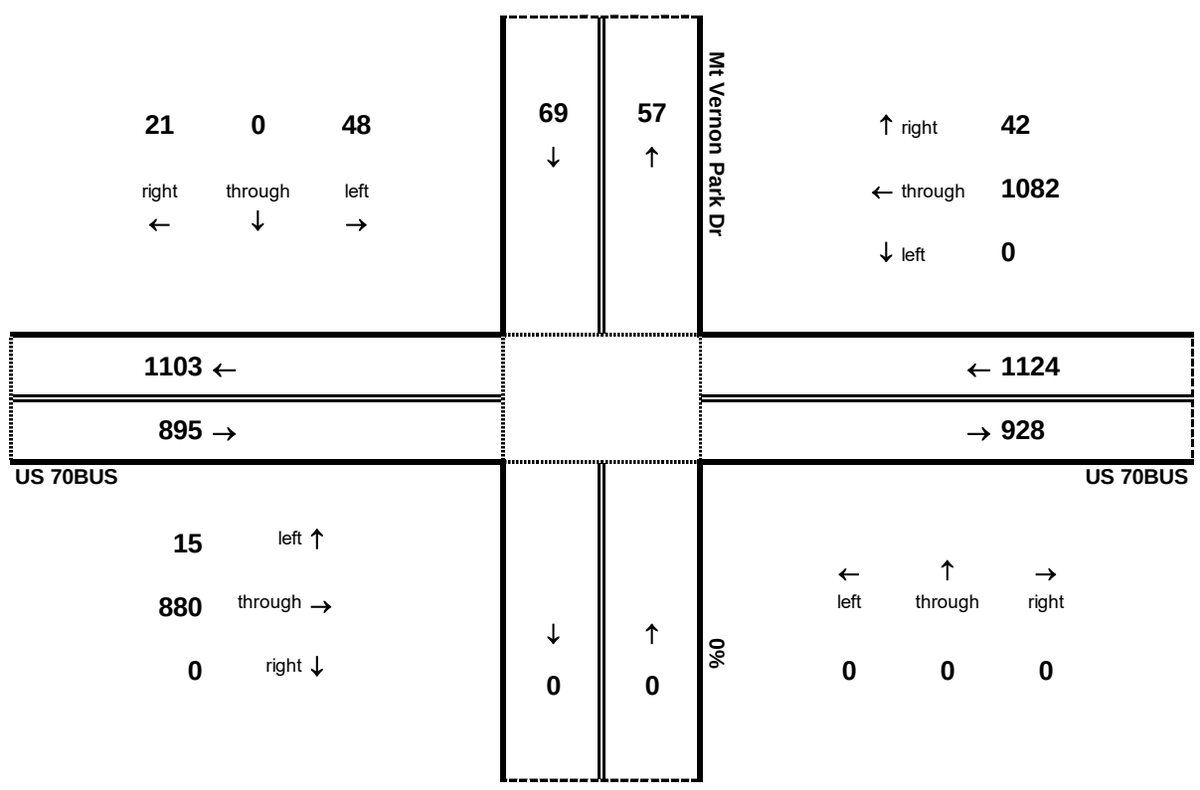
Project:
R-2553

Please note that the volume on the north leg of this intersection was increased to 1400 vpd to allow for a balanced intersection. This volume is also consistent with the volume on this leg in other build scenarios.

24HOUR

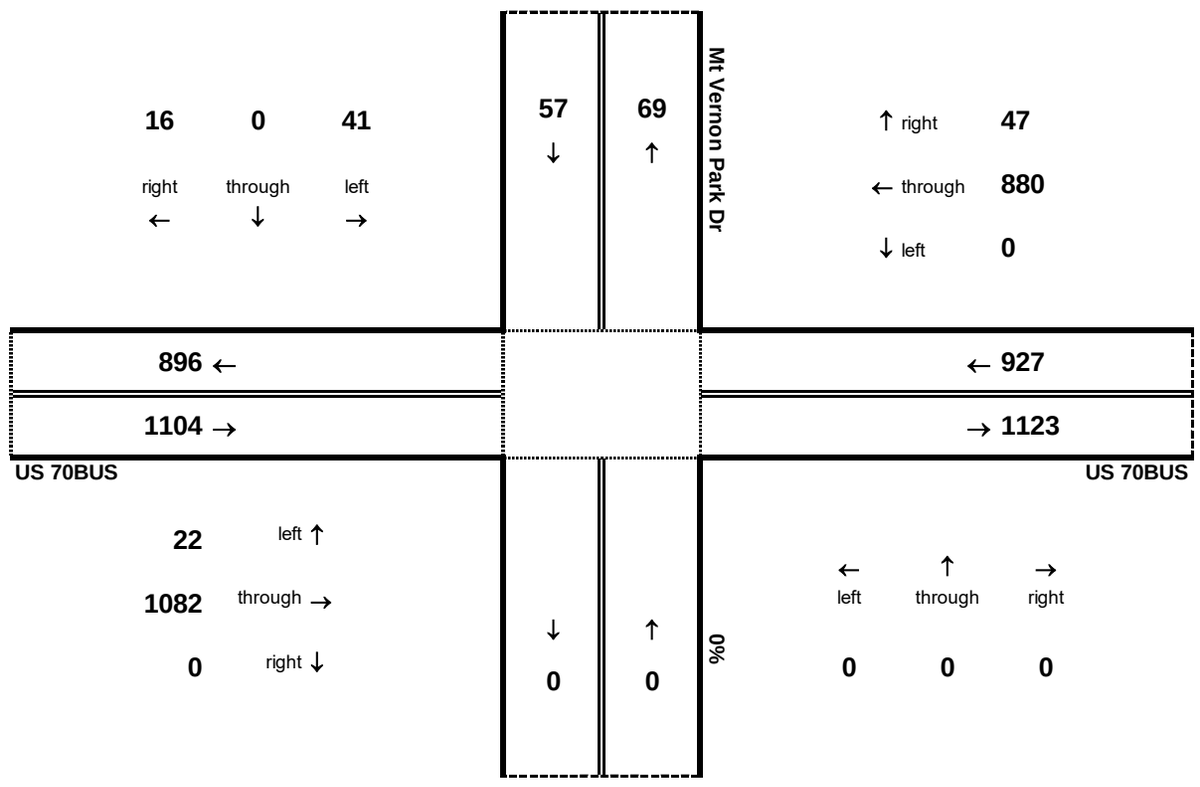


AMPEAK



AM peak hour inflow is 2088 vehicles. AM peak hour outflow is 2088 vehicles.

PMPEAK



PM peak hour inflow is 2088 vehicles. PM peak hour outflow is 2088 vehicles.

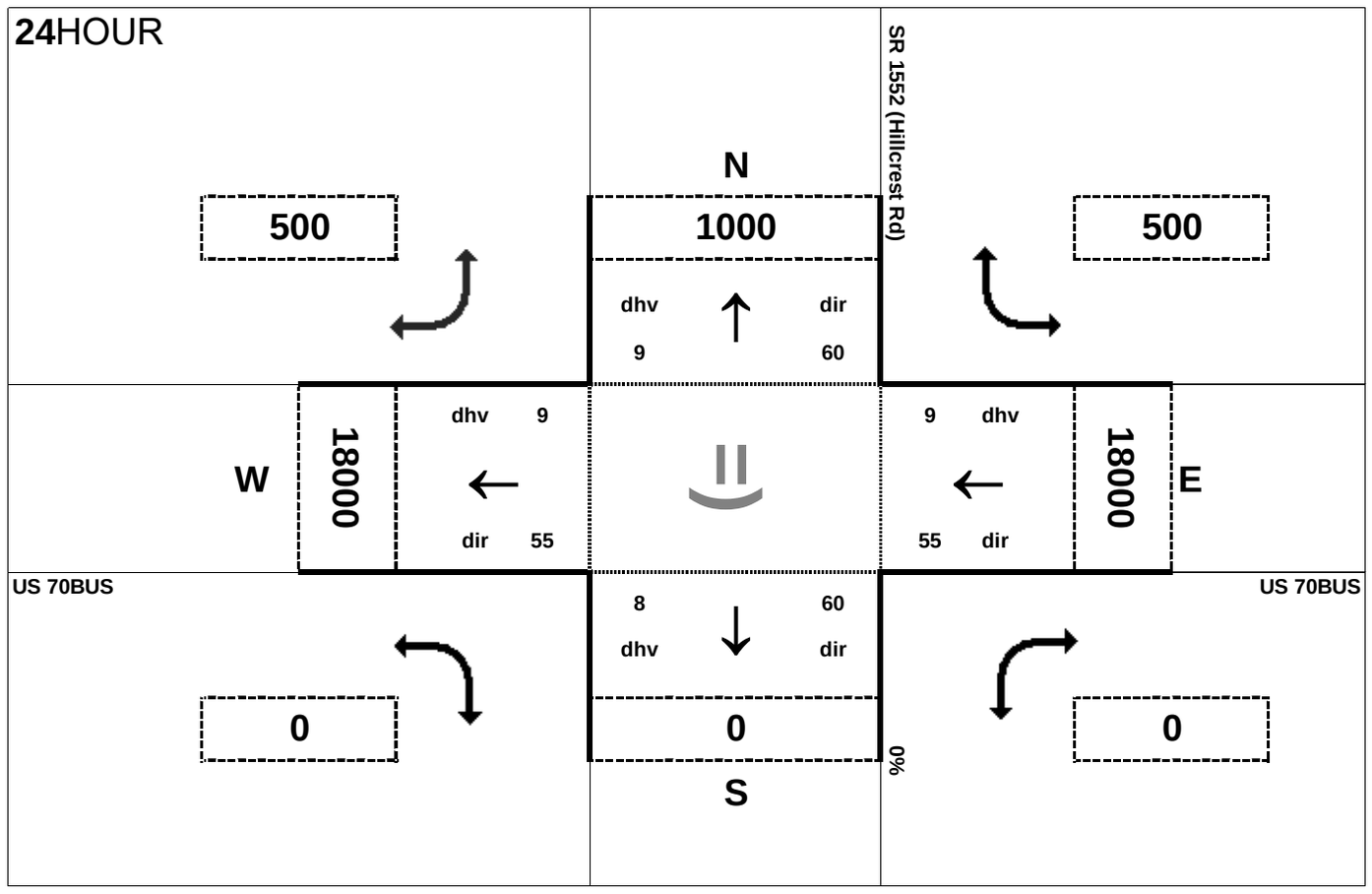
Peak Hour Volume Breakouts Report:
410 Intersection of Old US 70BUS and SR 1552 (Hillcrest Rd)

Traffic Forecast Release Date:
November-16

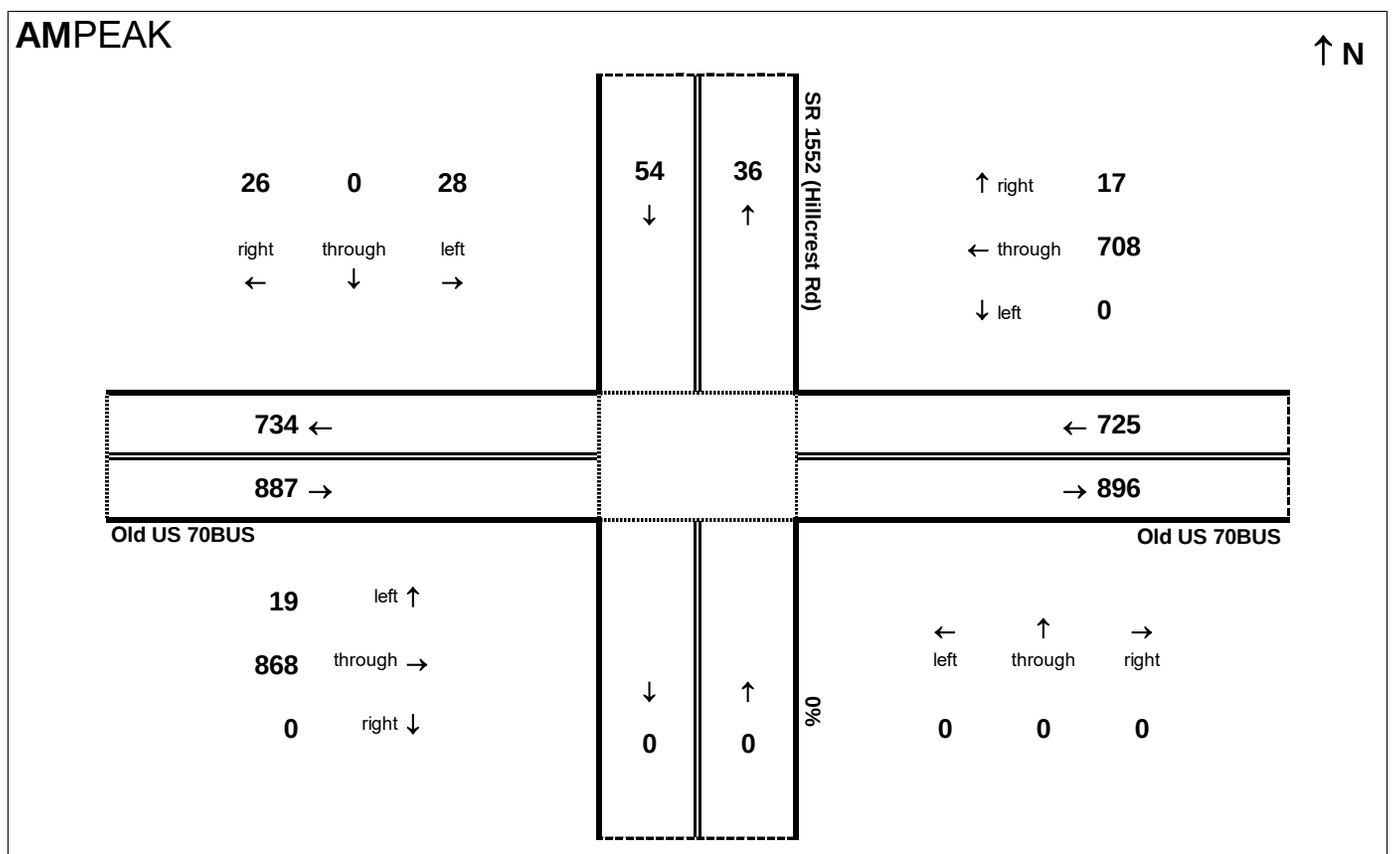
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553

24HOUR

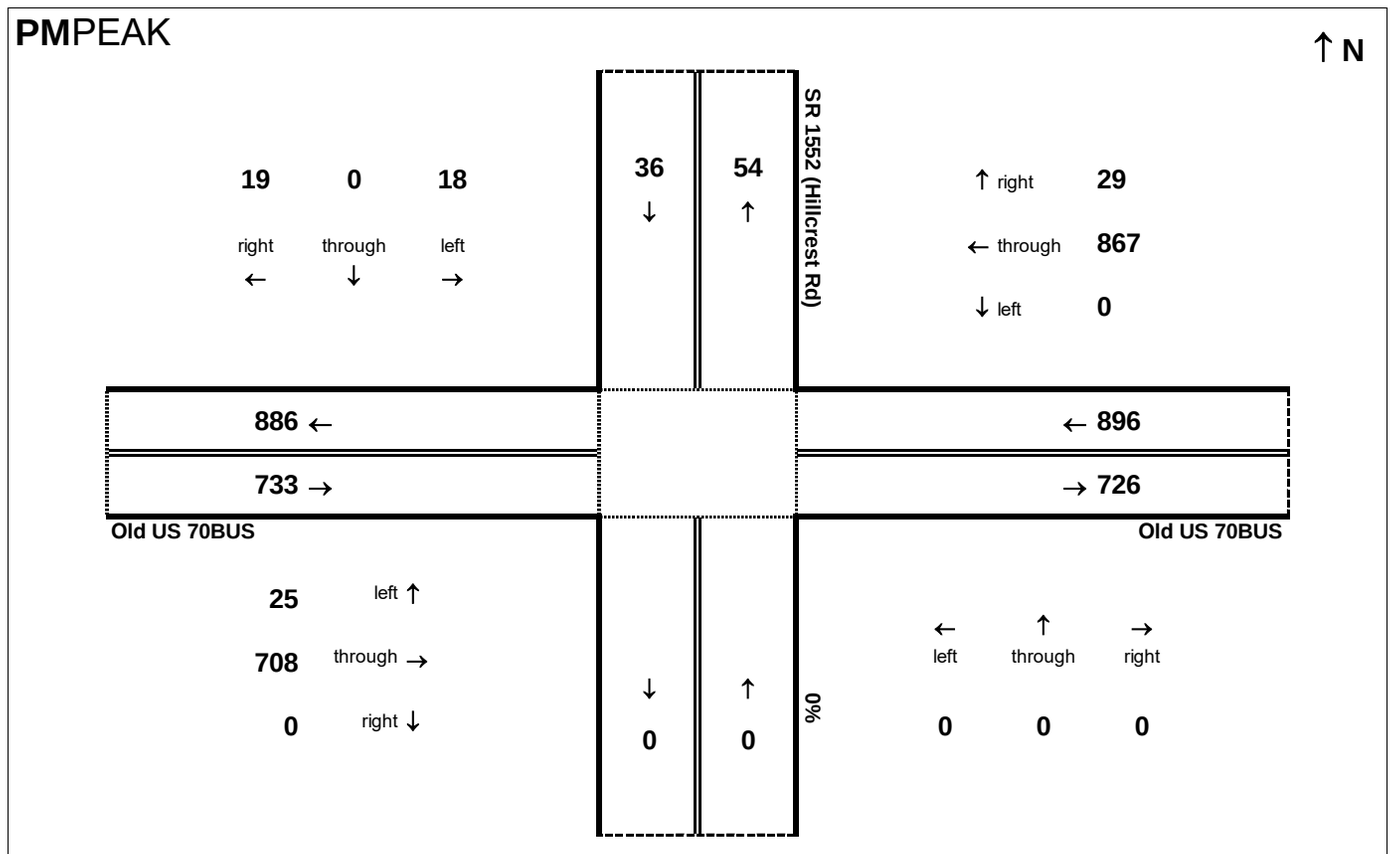


AMPEAK



AM peak hour inflow is 1666 vehicles. AM peak hour outflow is 1665 vehicles.

PMPEAK



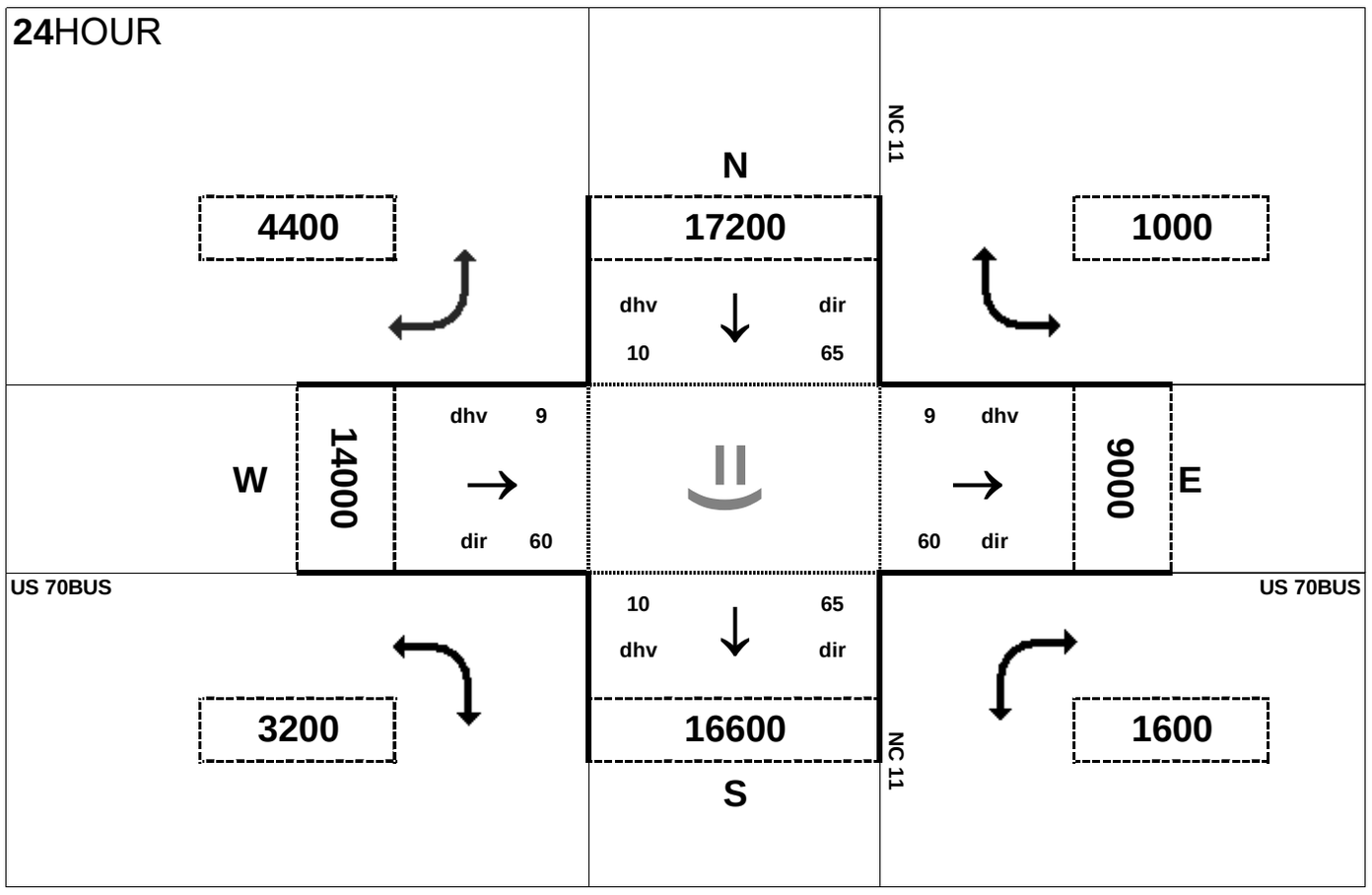
PM peak hour inflow is 1665 vehicles. PM peak hour outflow is 1665 vehicles.

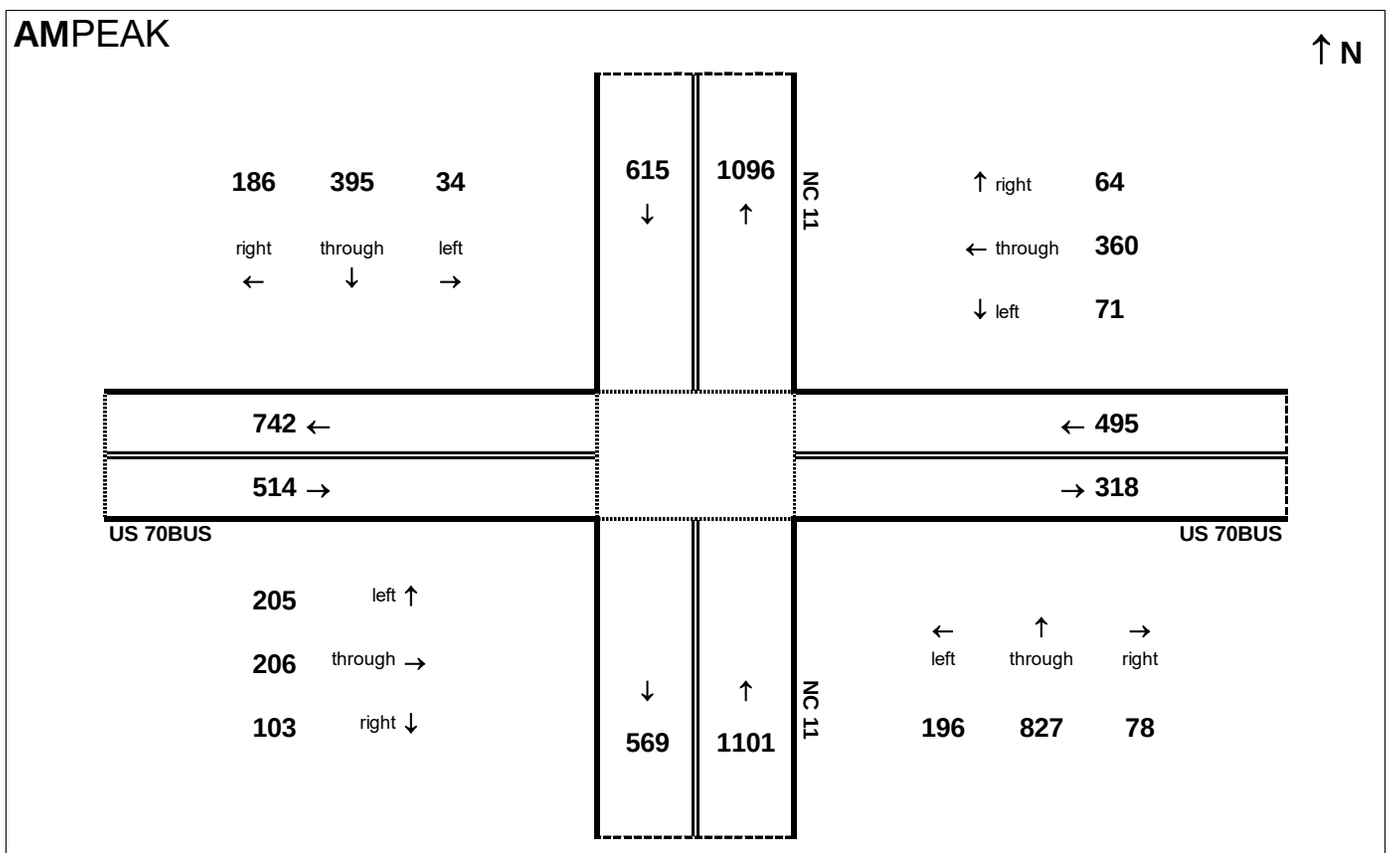
Peak Hour Volume Breakouts Report:
411 Intersection of US 70BUS and NC 11

Traffic Forecast Release Date:
November-16

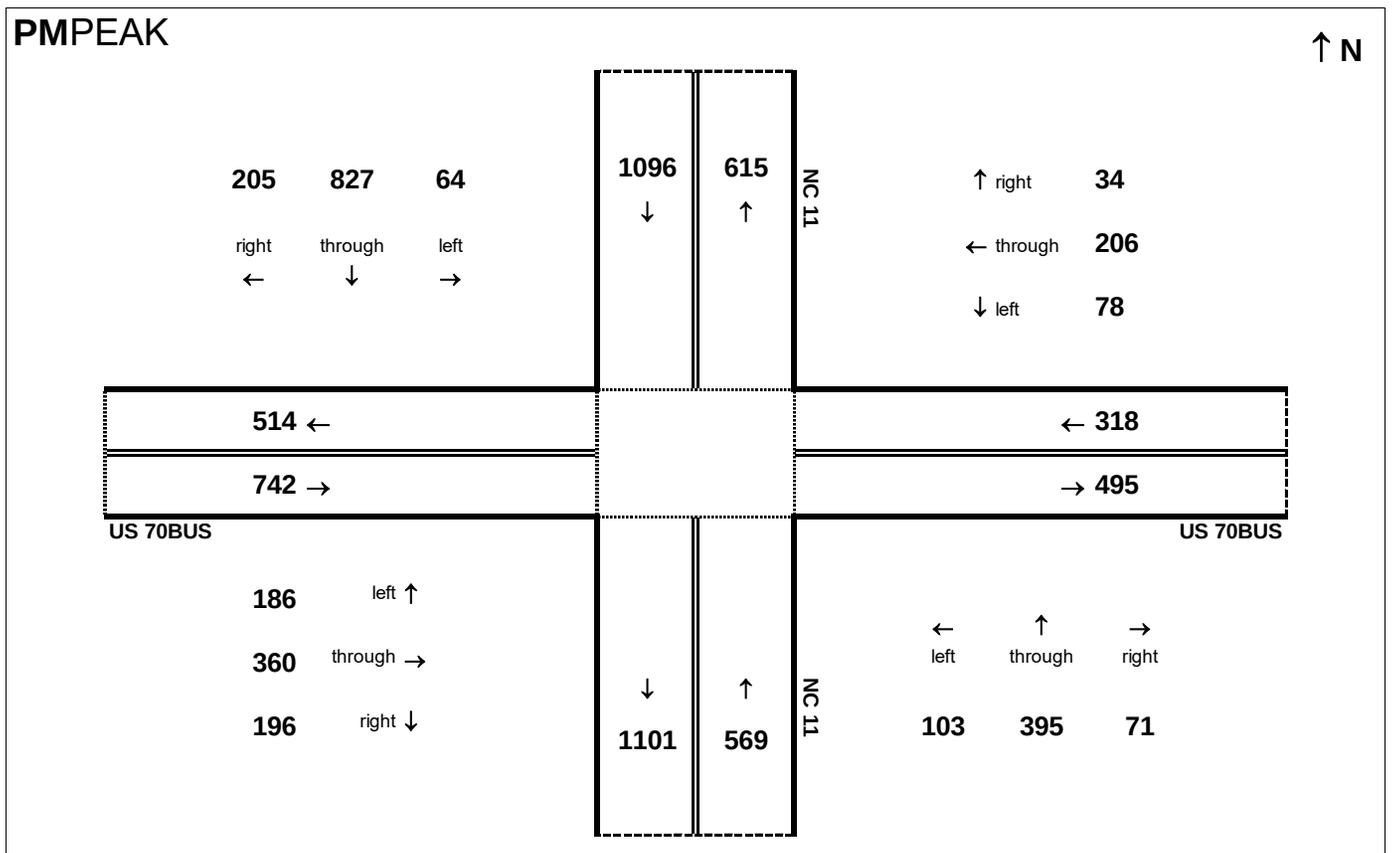
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553





AM peak hour inflow is 2725 vehicles. AM peak hour outflow is 2725 vehicles.



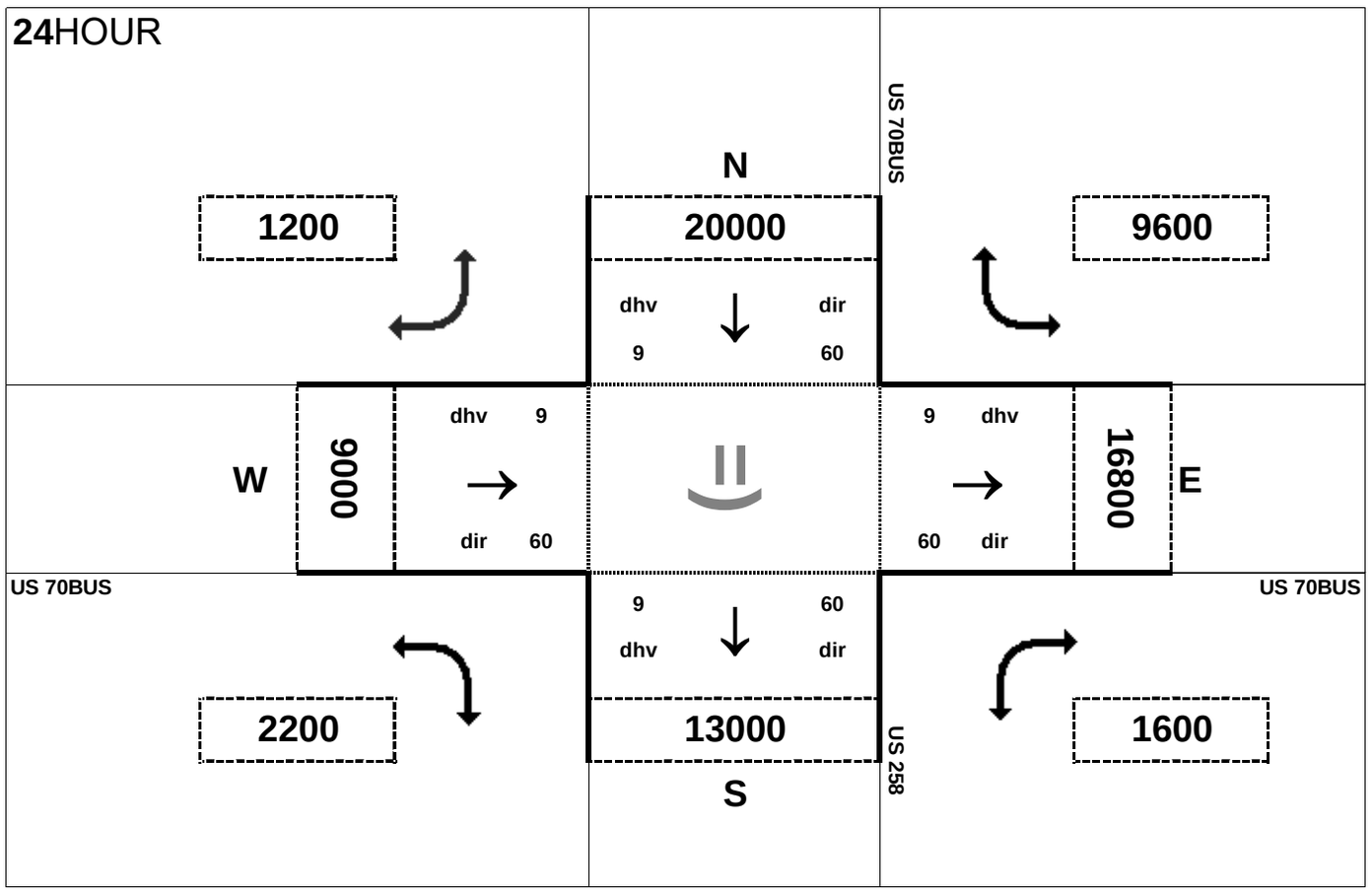
PM peak hour inflow is 2725 vehicles. PM peak hour outflow is 2725 vehicles.

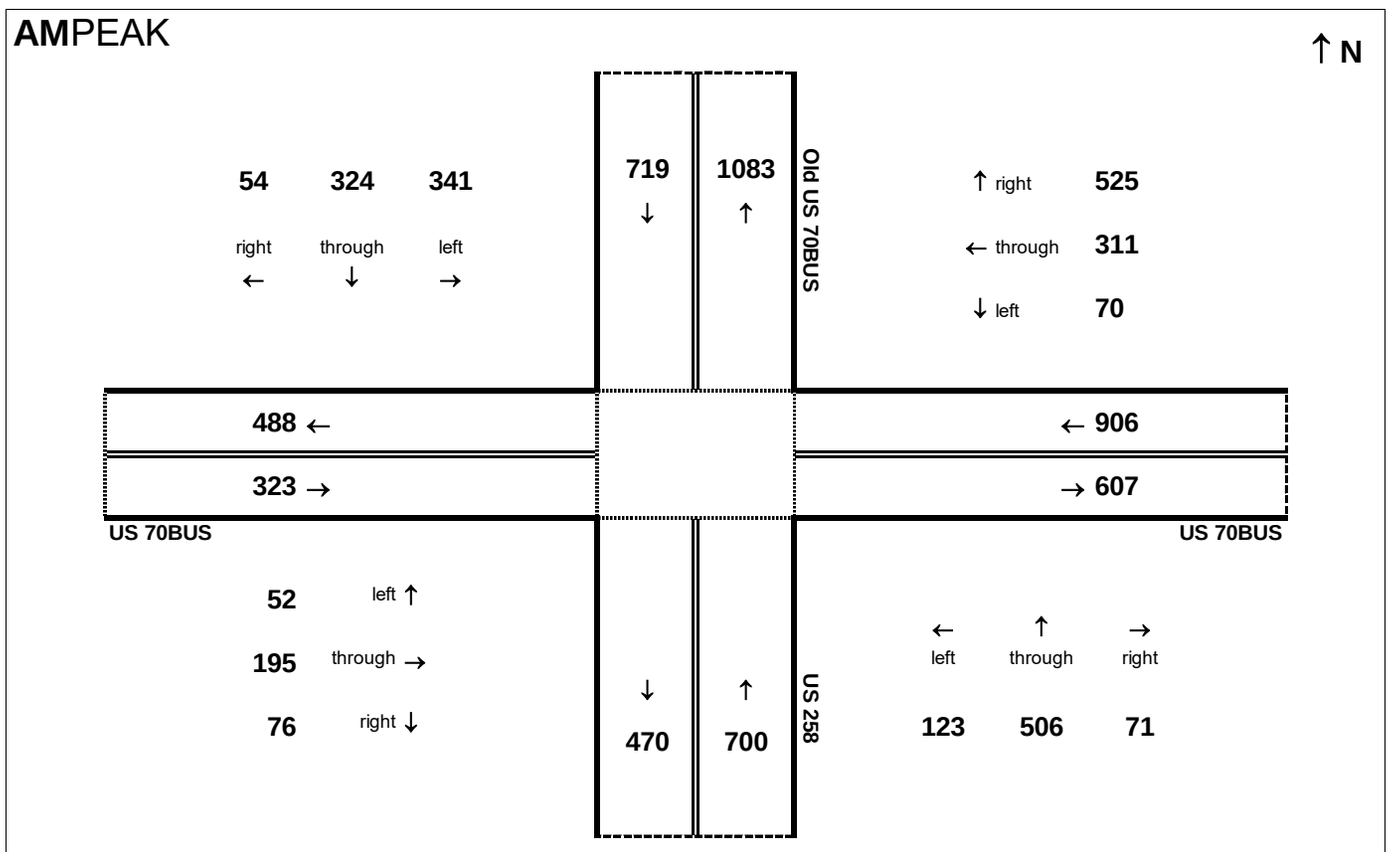
Peak Hour Volume Breakouts Report:
412 Intersection of US 70BUS and US 258 / Old US 70BUS

Traffic Forecast Release Date:
November-16

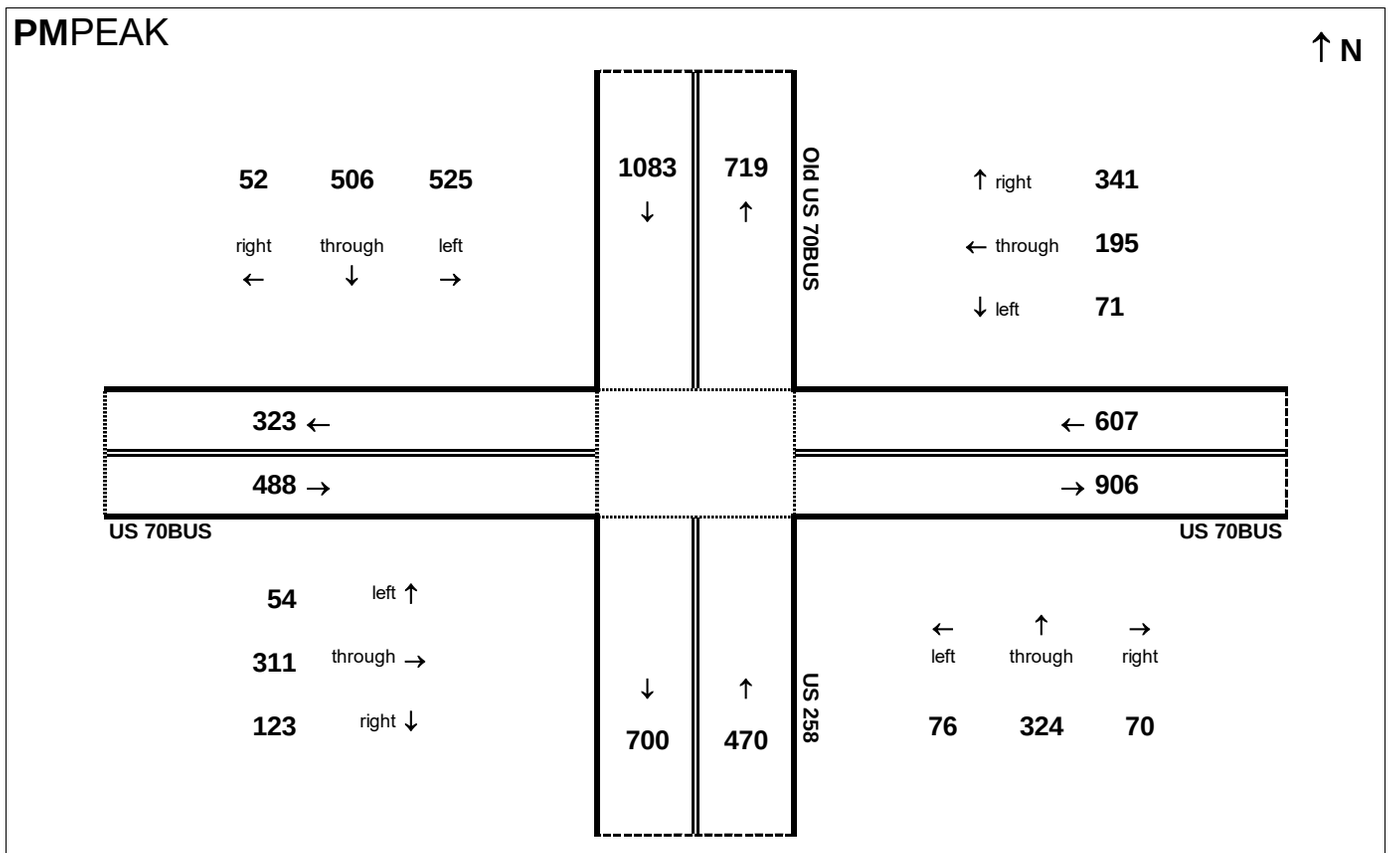
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553





AM peak hour inflow is 2646 vehicles. AM peak hour outflow is 2645 vehicles.



PM peak hour inflow is 2645 vehicles. PM peak hour outflow is 2646 vehicles.

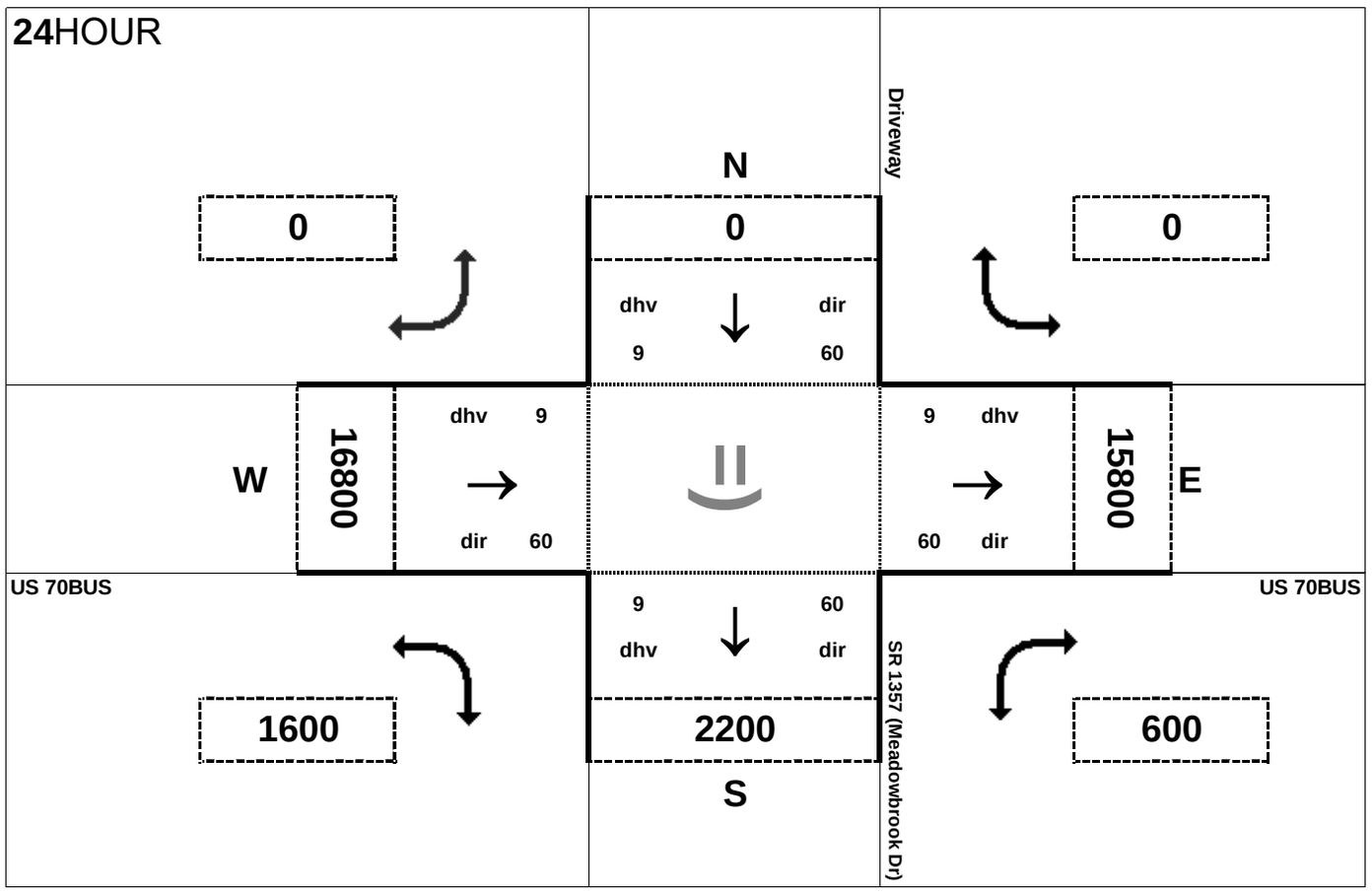
Peak Hour Volume Breakouts Report:
413 Intersection of US 70BUS and SR 1357 (Meadowbrook Dr)

Traffic Forecast Release Date:
November-16

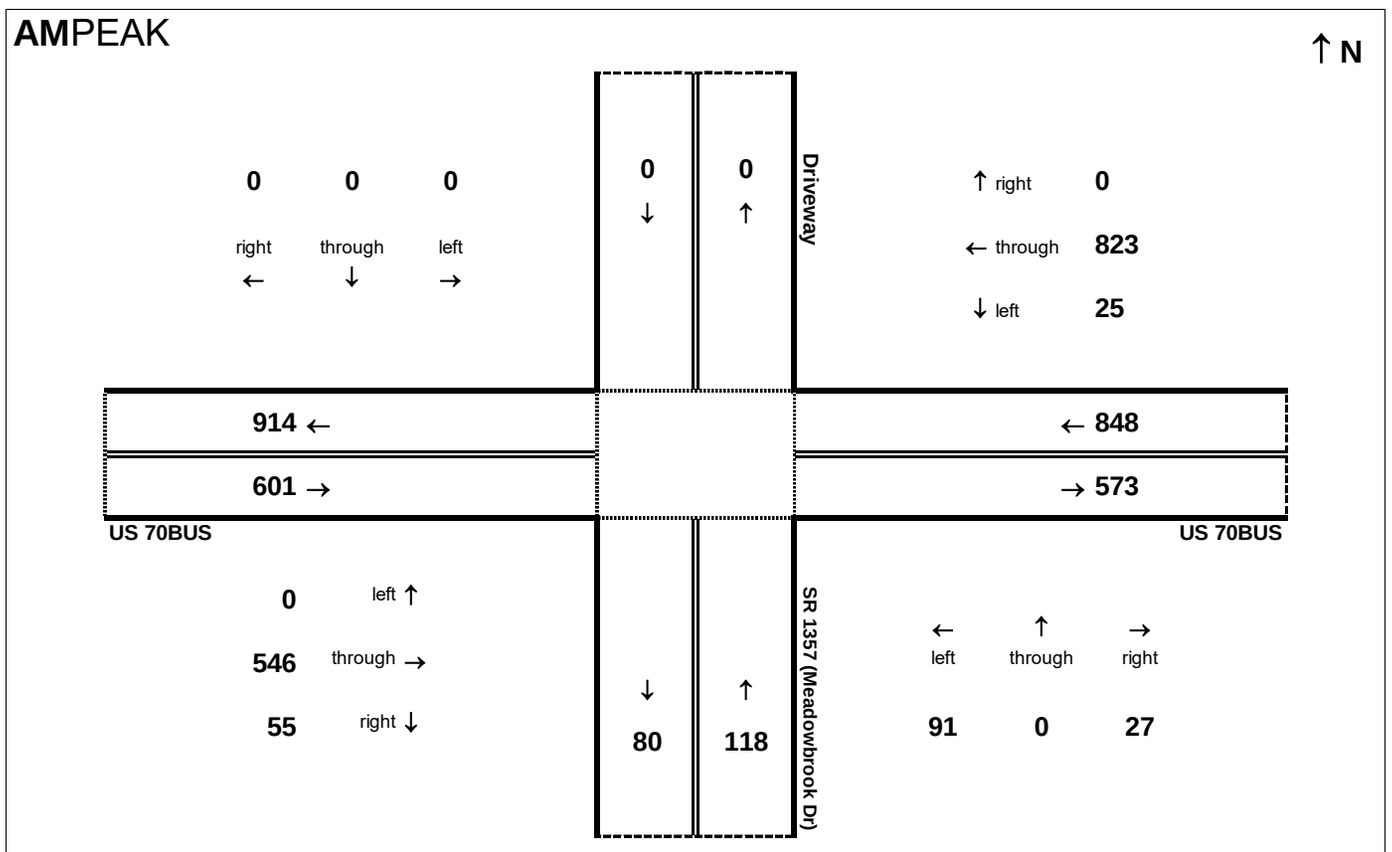
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553

24HOUR

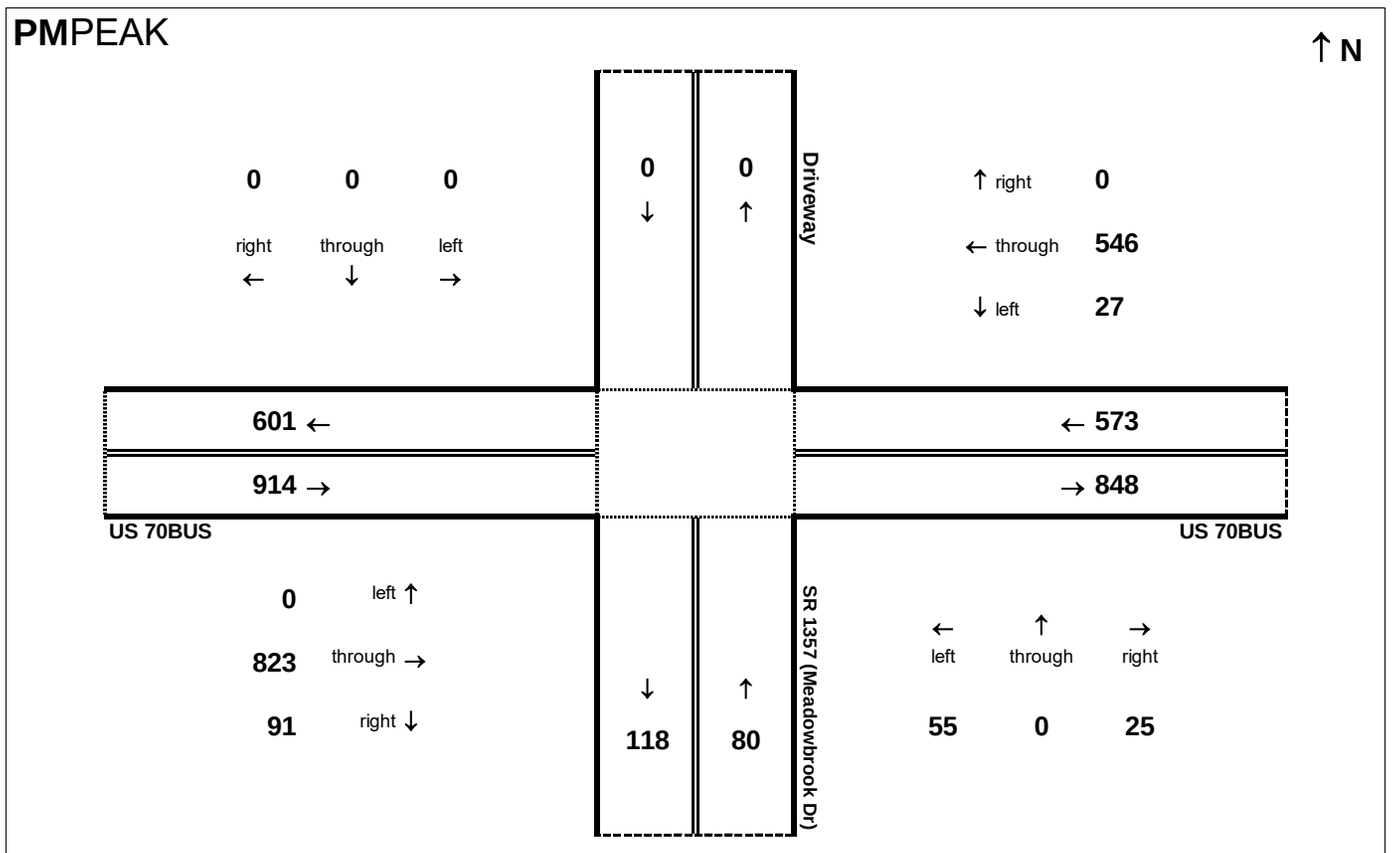


AMPEAK



AM peak hour inflow is 1566 vehicles. AM peak hour outflow is 1566 vehicles.

PMPEAK



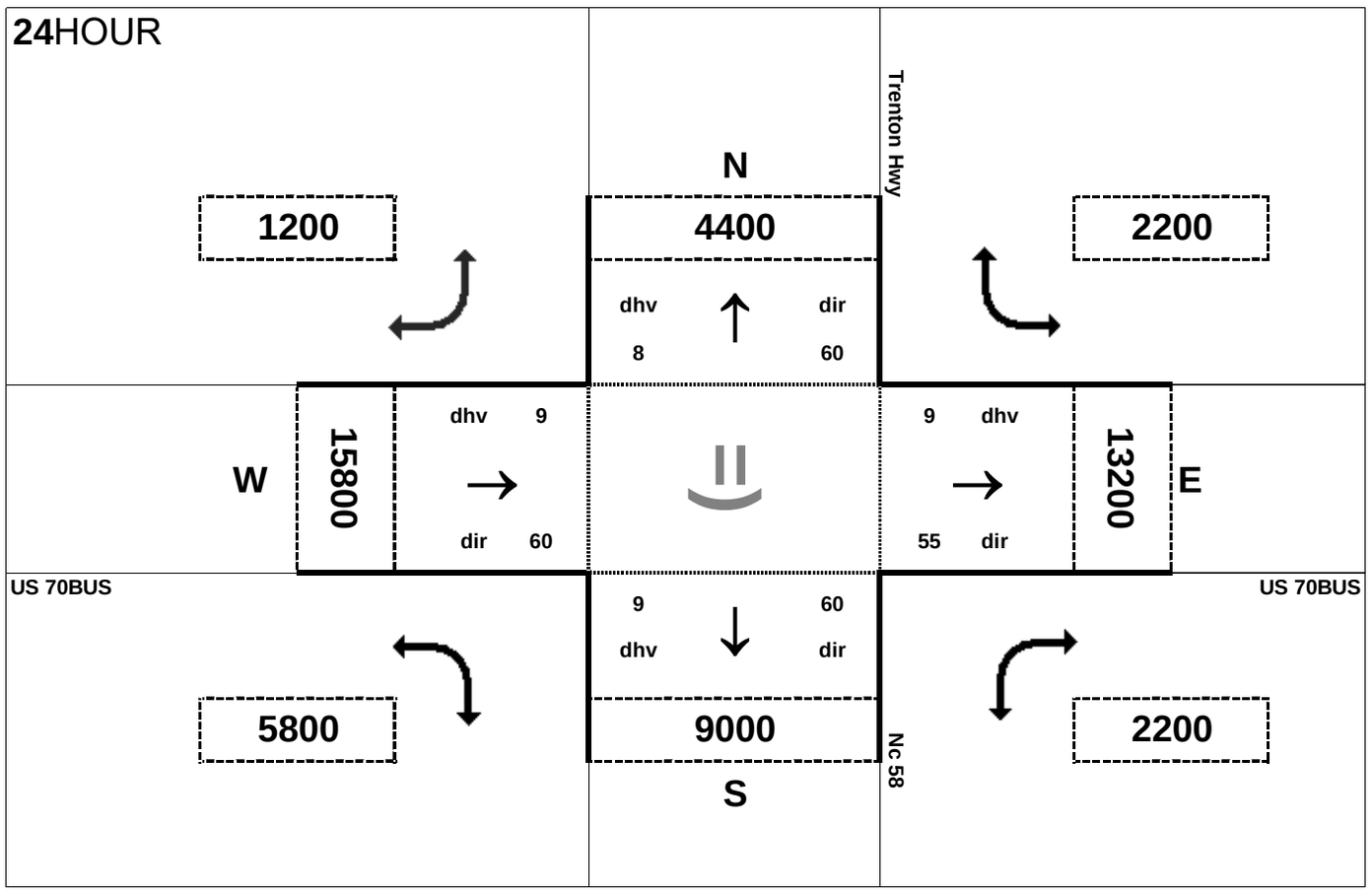
PM peak hour inflow is 1567 vehicles. PM peak hour outflow is 1566 vehicles.

Peak Hour Volume Breakouts Report:
414 Intersection of US 70BUS and Nc 58 / Trenton Hwy

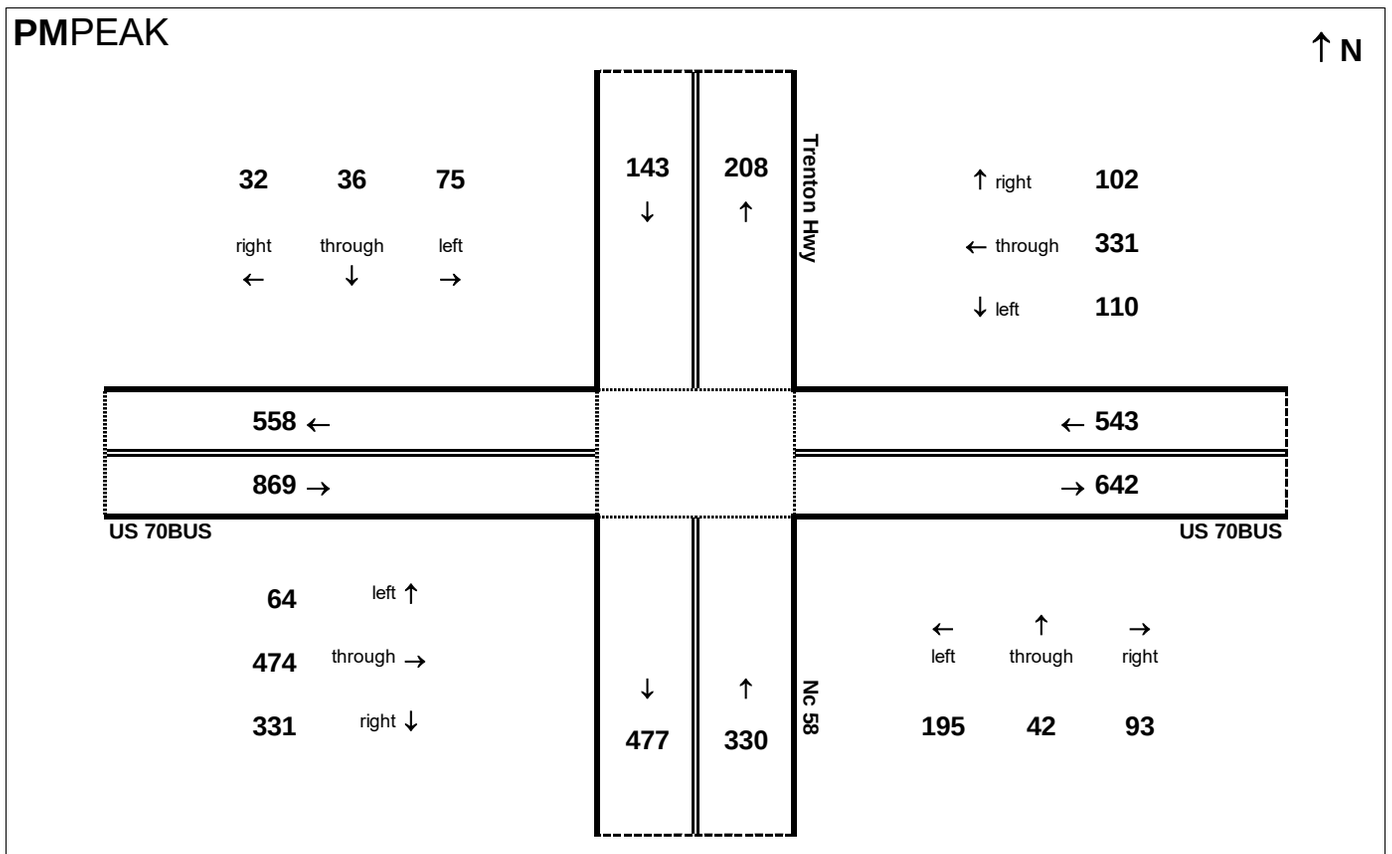
Traffic Forecast Release Date:
November-16

Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553



AM peak hour inflow is 1887 vehicles. AM peak hour outflow is 1886 vehicles.



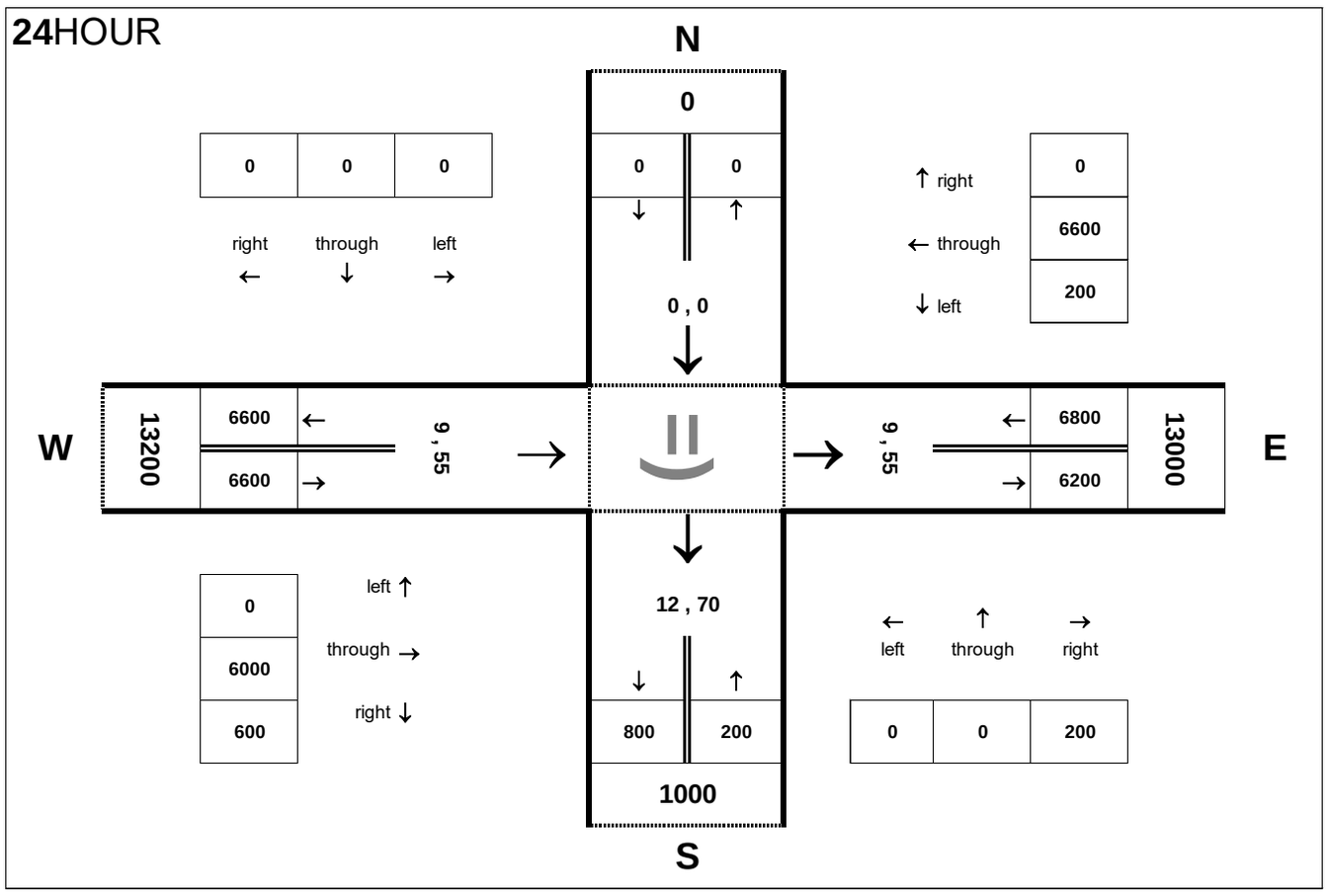
PM peak hour inflow is 1886 vehicles. PM peak hour outflow is 1887 vehicles.

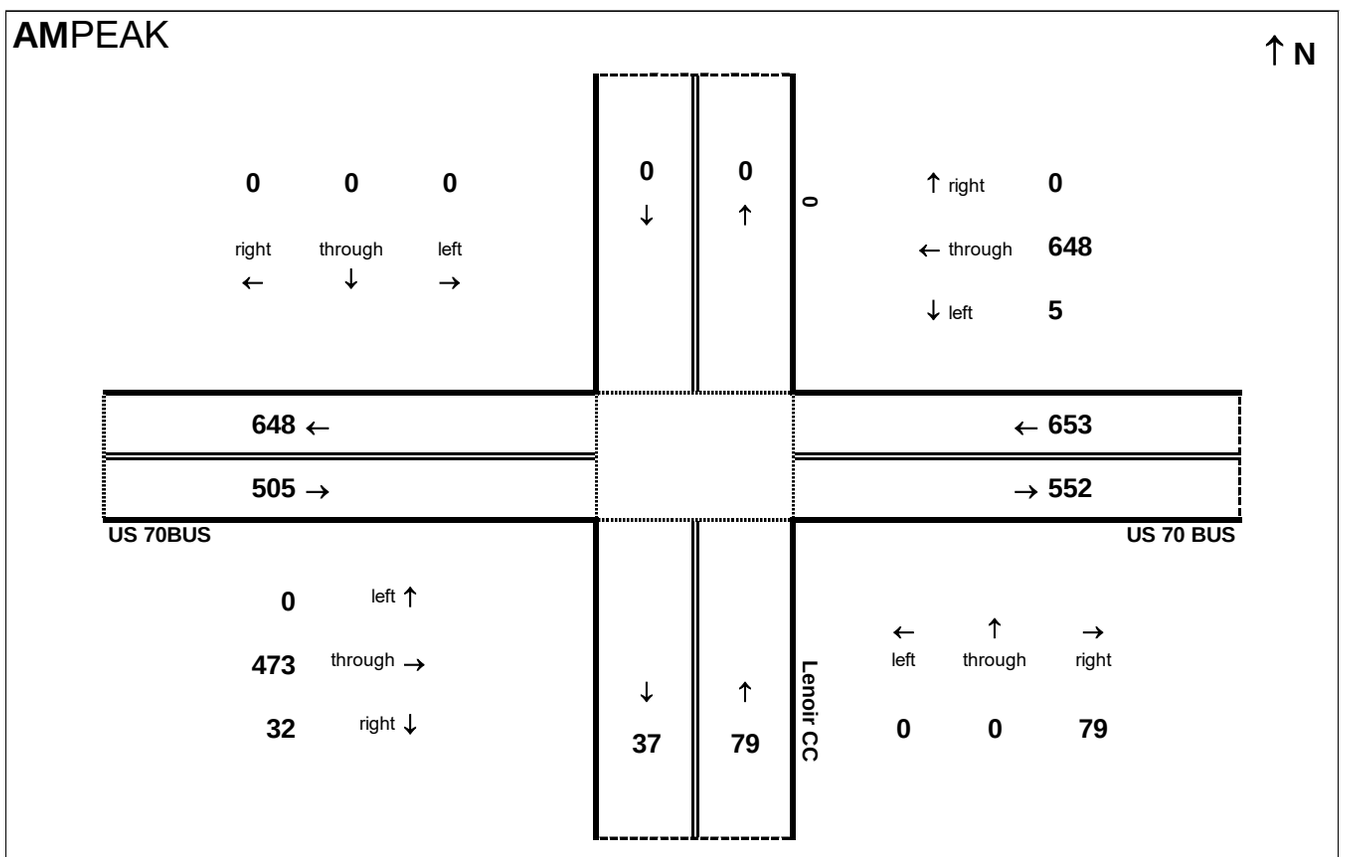
Peak Hour Volume Breakouts Report:
415 Intersection of US 70BUS and Lenoir CC

Traffic Forecast Release Date:
November-16

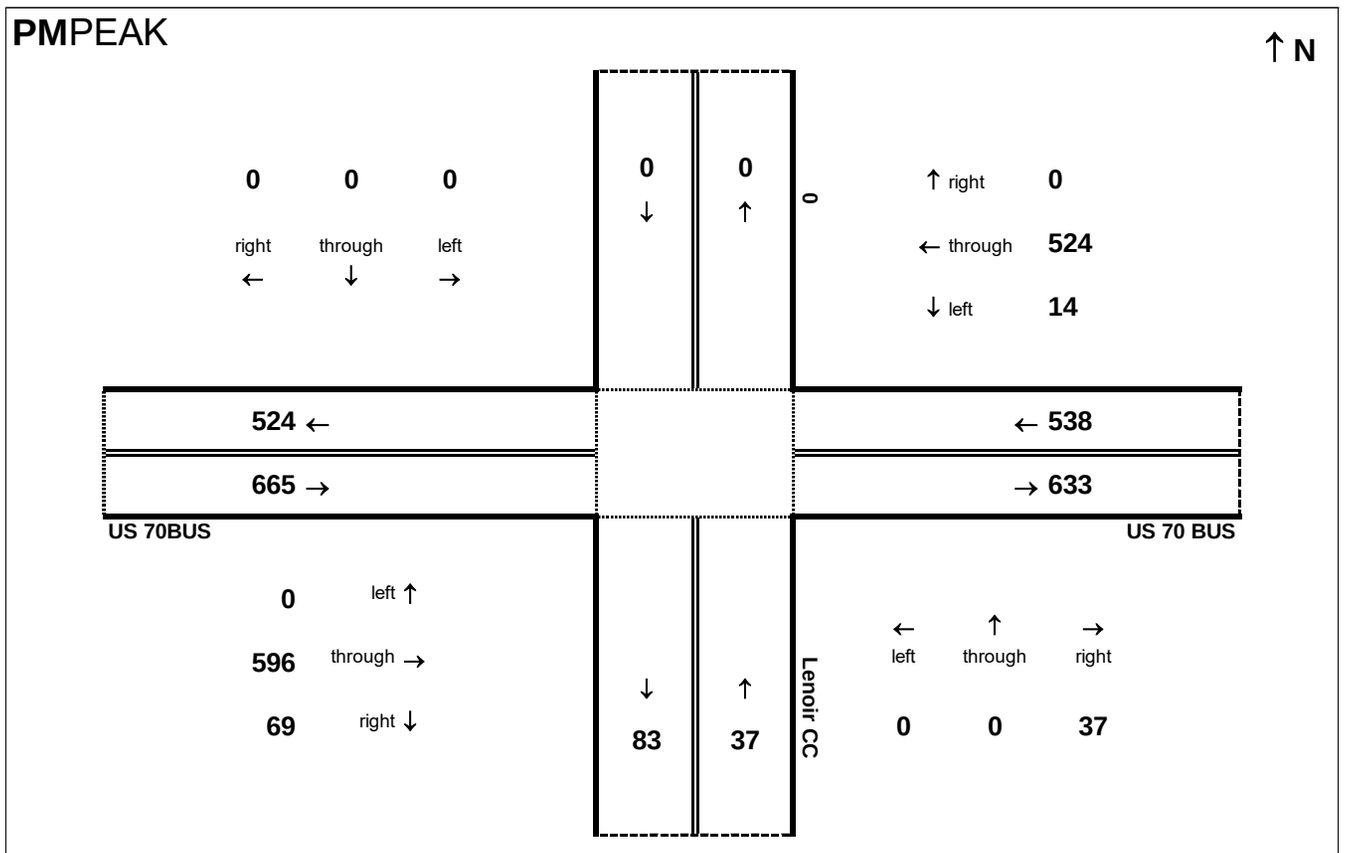
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553





AM peak hour inflow is 1239 vehicles. AM peak hour outflow is 1239 vehicles.



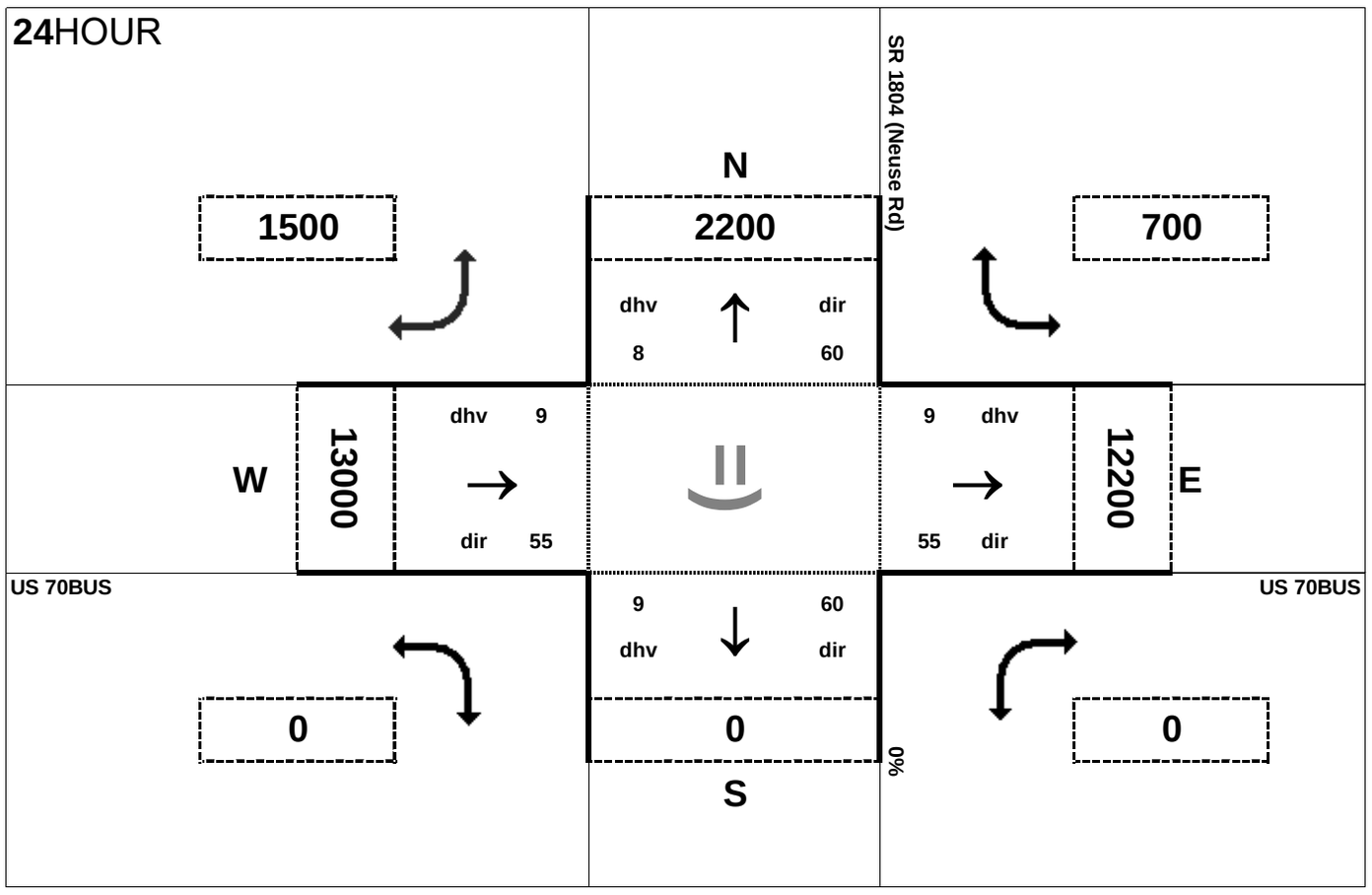
PM peak hour inflow is 1239 vehicles. PM peak hour outflow is 1239 vehicles.

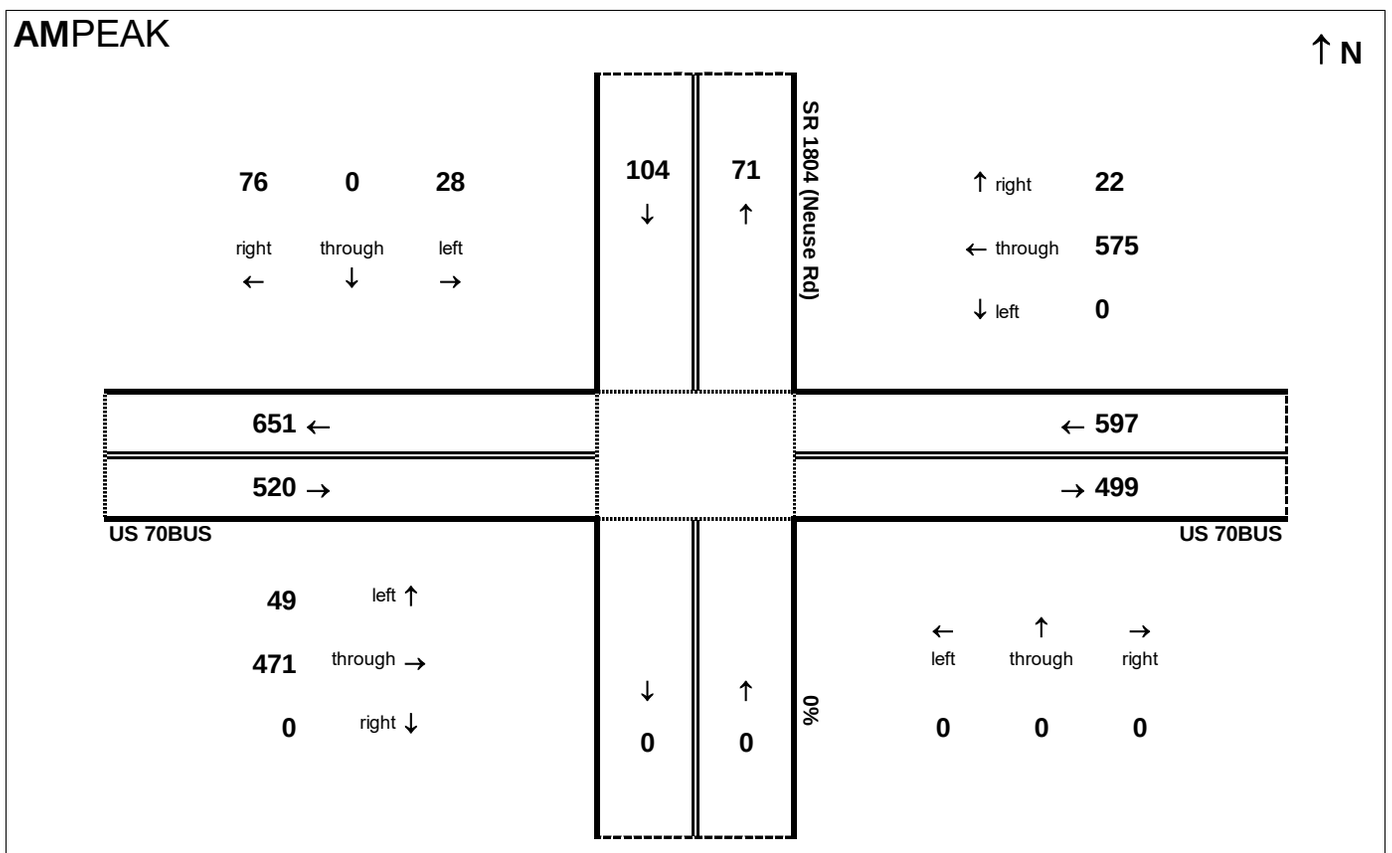
Peak Hour Volume Breakouts Report:
416 Intersection of US 70BUS and SR 1804 (Neuse Rd)

Traffic Forecast Release Date:
November-16

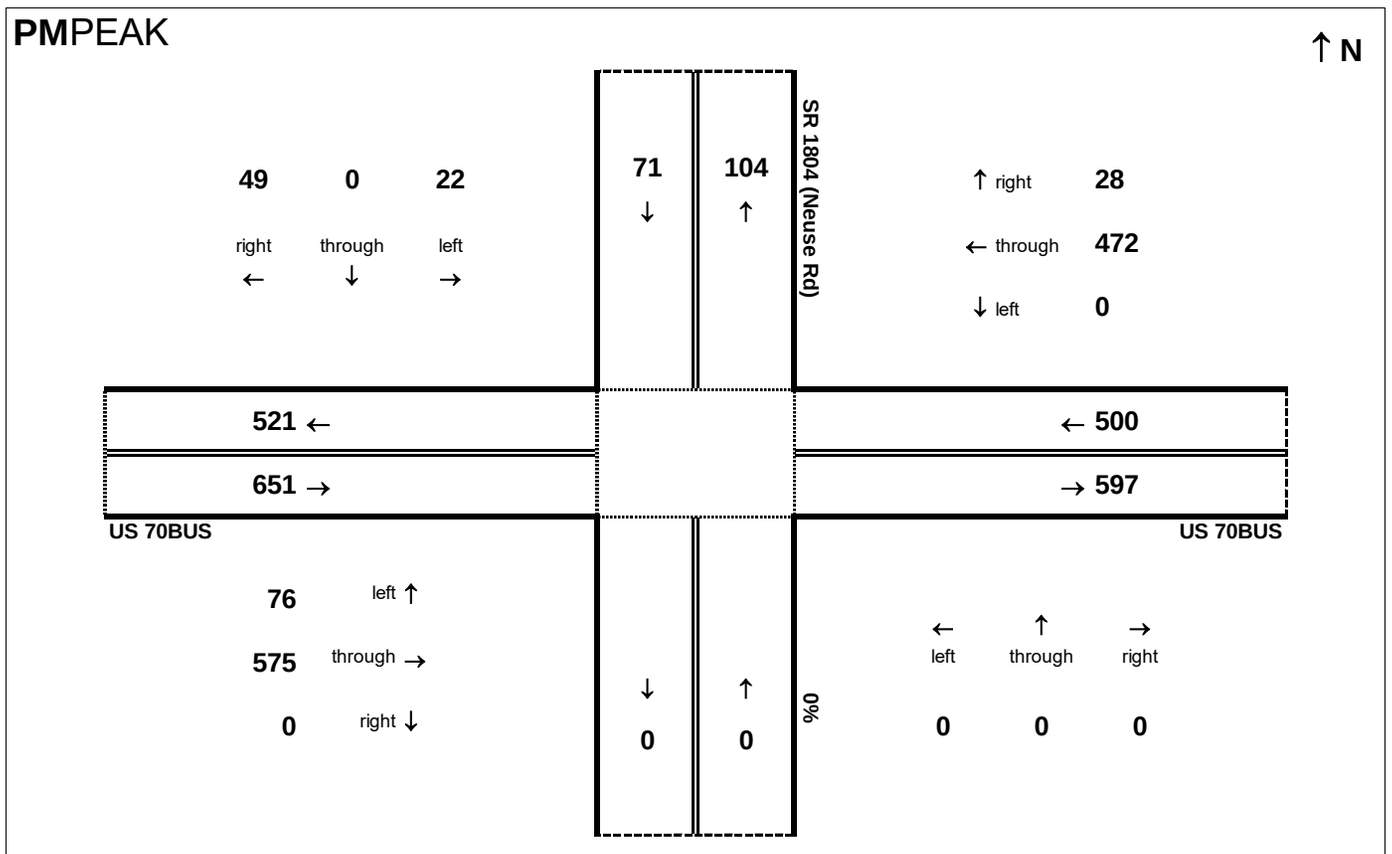
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553





AM peak hour inflow is 1221 vehicles. AM peak hour outflow is 1222 vehicles.



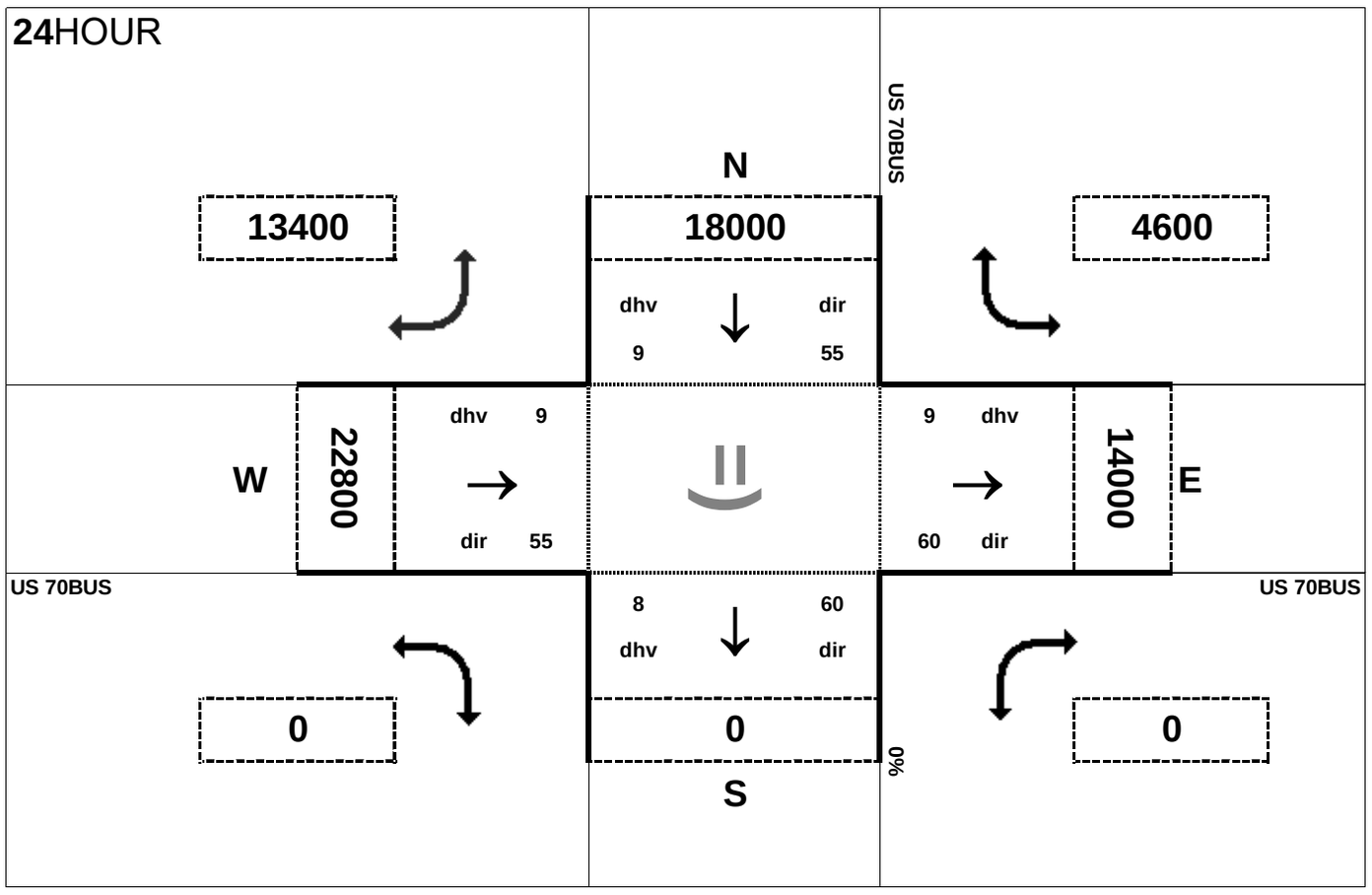
PM peak hour inflow is 1222 vehicles. PM peak hour outflow is 1222 vehicles.

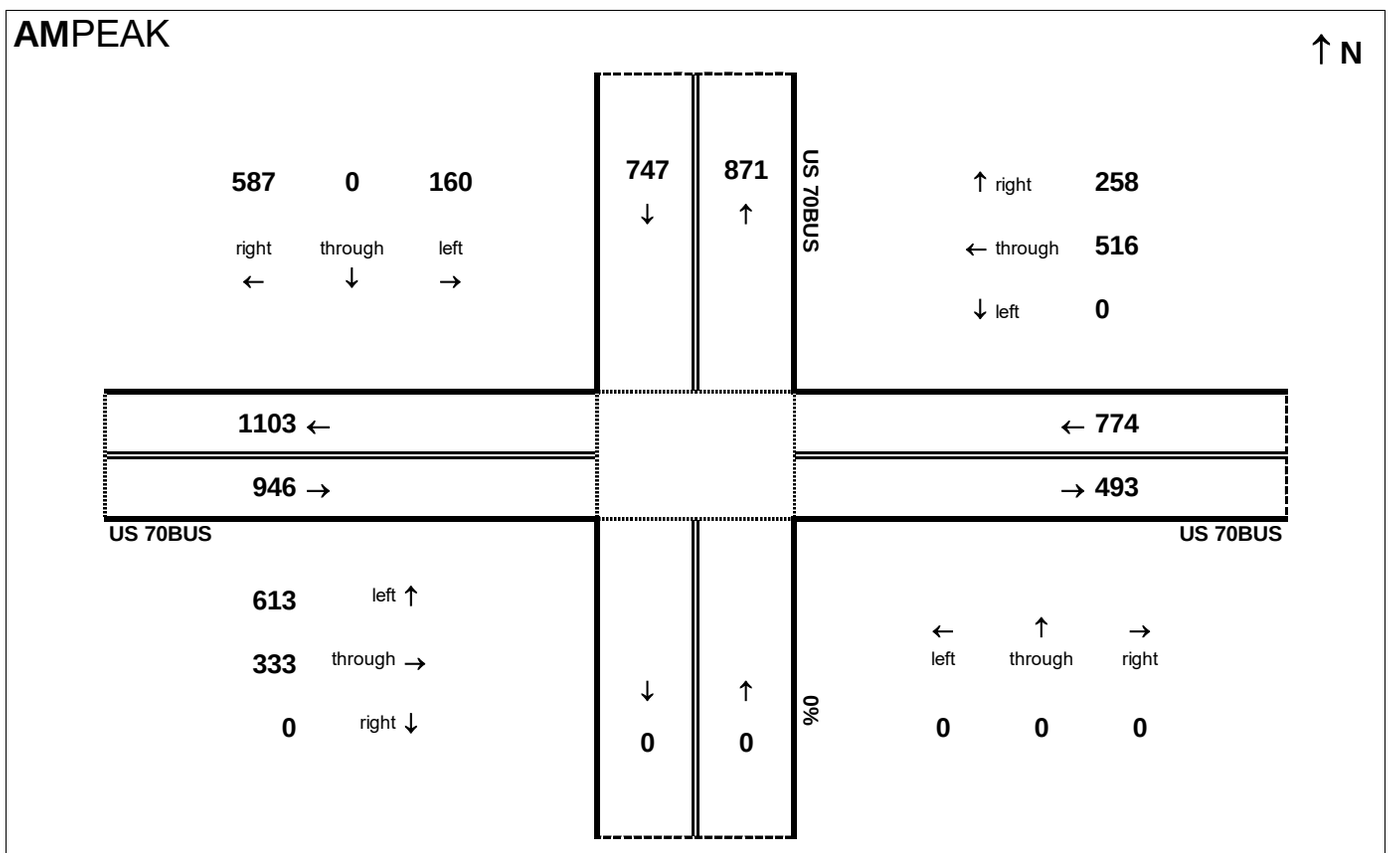
Peak Hour Volume Breakouts Report:
S1 Intersection of US 70BUS and US 70BUS

Traffic Forecast Release Date:
November-16

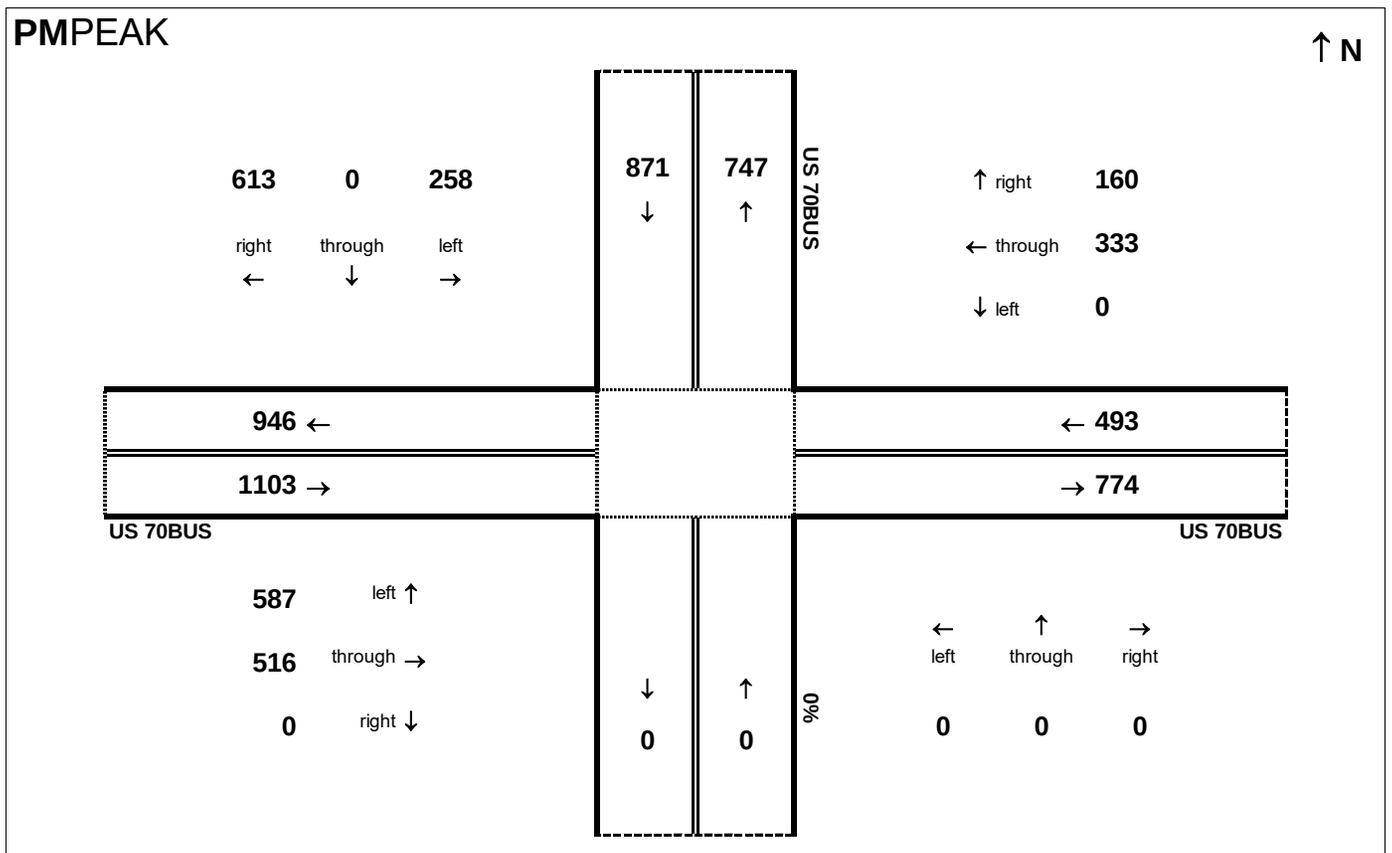
Traffic Data Year:
2040 Build Alt 1 SB

Project:
R-2553





AM peak hour inflow is 2465 vehicles. AM peak hour outflow is 2466 vehicles.

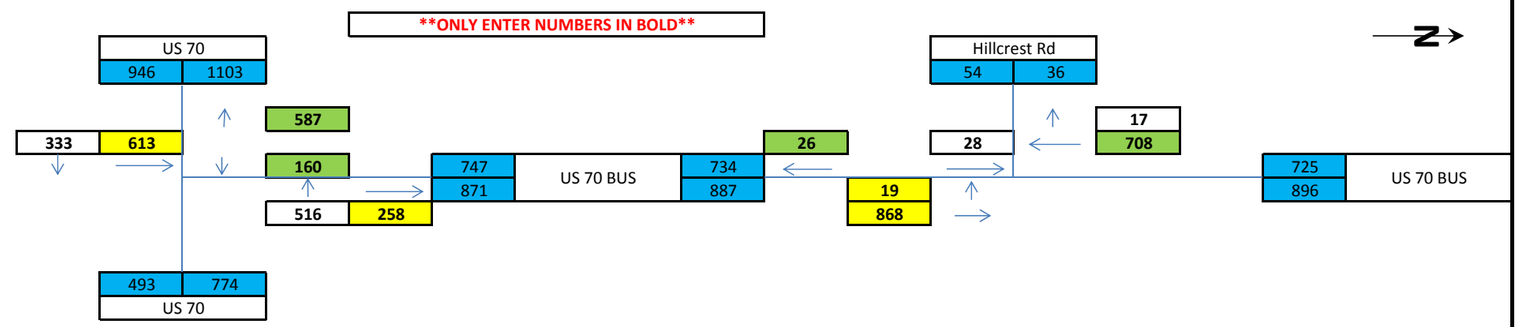


PM peak hour inflow is 2466 vehicles. PM peak hour outflow is 2465 vehicles.

R-2553 - Kinston Bypass
Traffic Volume Redistributions from IAU

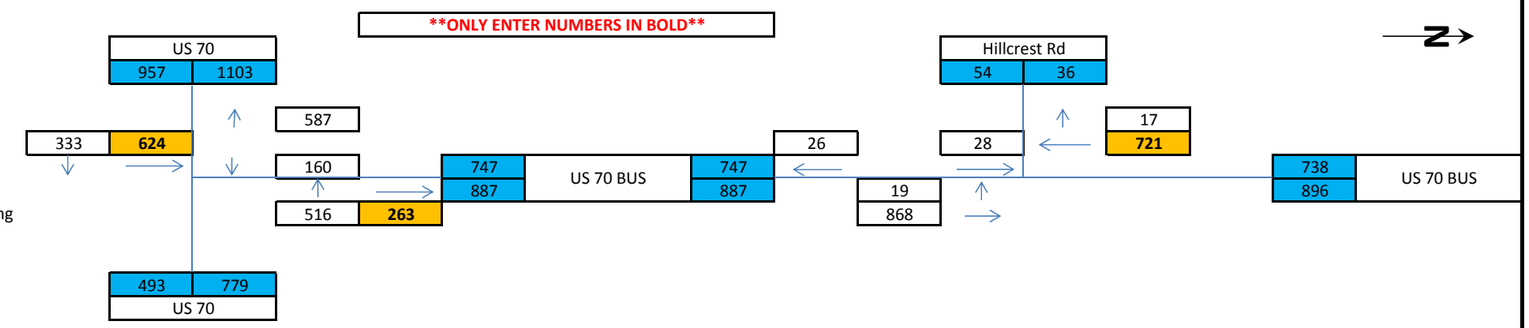
2040 REPRESENTATIVE BUILD 1SB AM PEAK

Blue	Input/Output Volumes
No Color	Unchanging Volumes
Green	SB US 70 BUS Redistriubtions
Yellow	NB US 70 BUS Redistributions



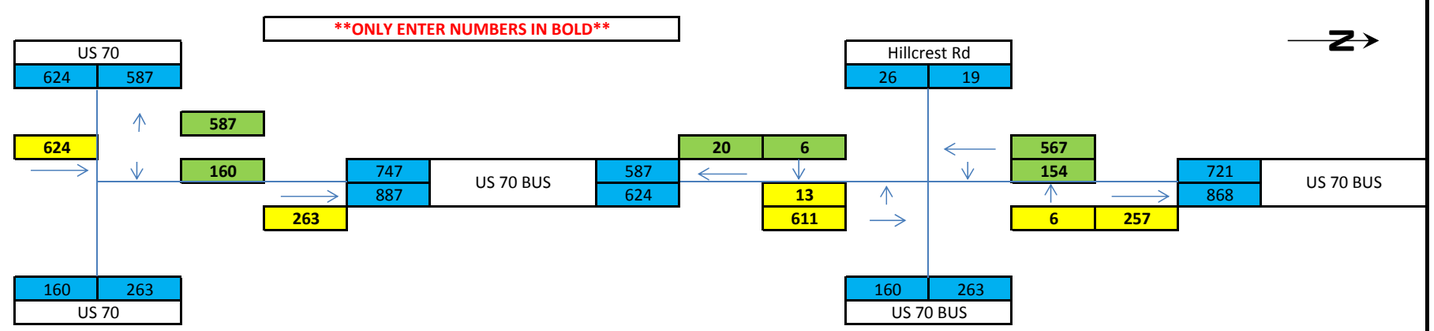
BALANCED VOLUMES

Blue	Input/Output Volumes
Orange	Adjusted Volumes for Balancing



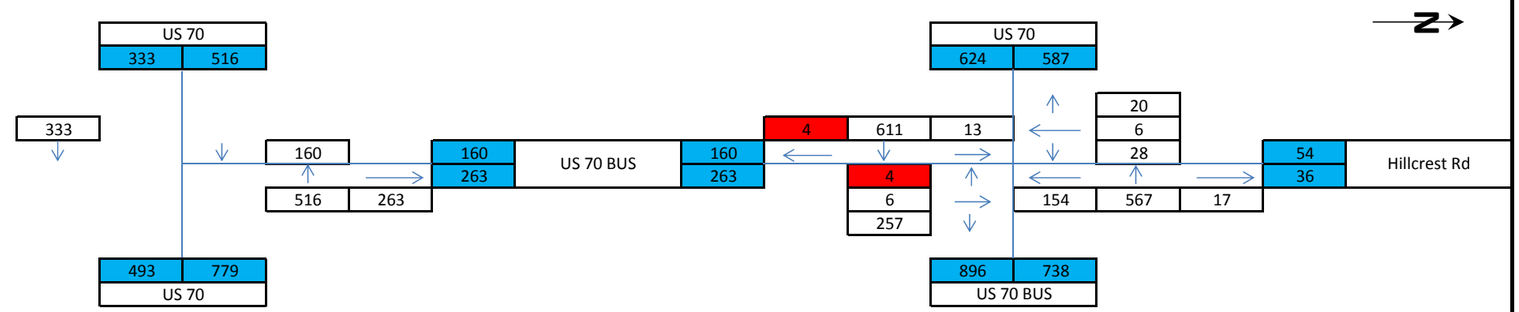
REDISTRIBUTIONS

Green	SB US 70 BUS Redistriubtions
Yellow	NB US 70 BUS Redistributions



FINAL VOLUMES

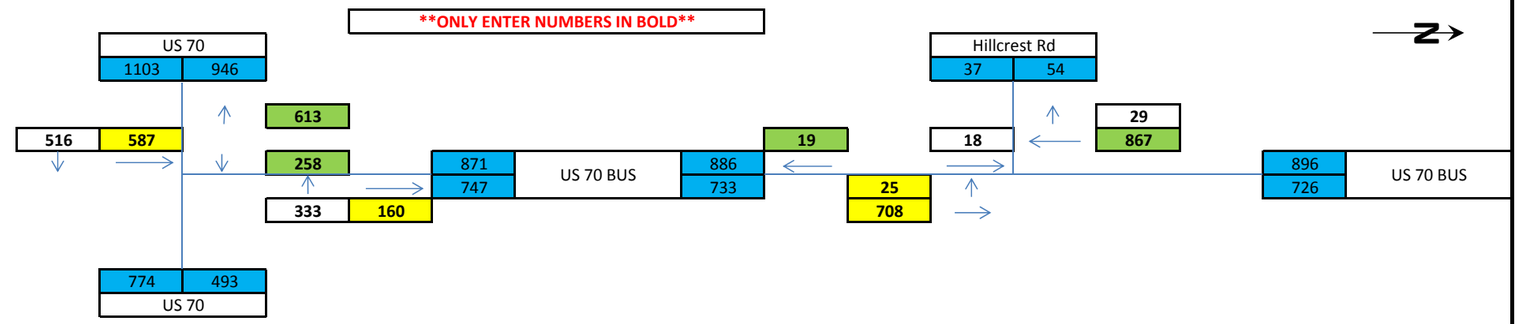
Blue	Input/Output Volumes
Red	Token 4 Vehicles



R-2553 - Kinston Bypass
Traffic Volume Redistributions from IAU

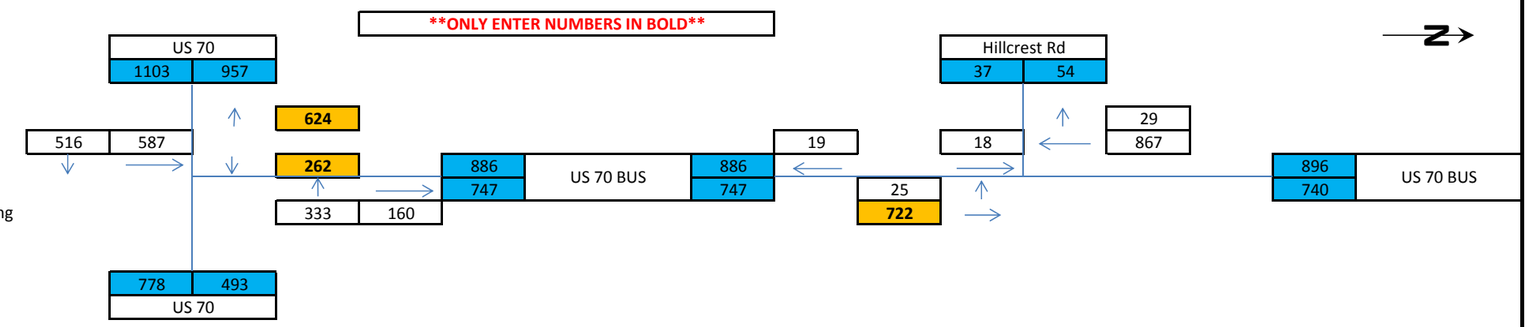
2040 REPRESENTATIVE BUILD 1SB PM PEAK

Blue	Input/Output Volumes
No Color	Unchanging Volumes
Green	SB US 70 BUS Redistriubtions
Yellow	NB US 70 BUS Redistributions



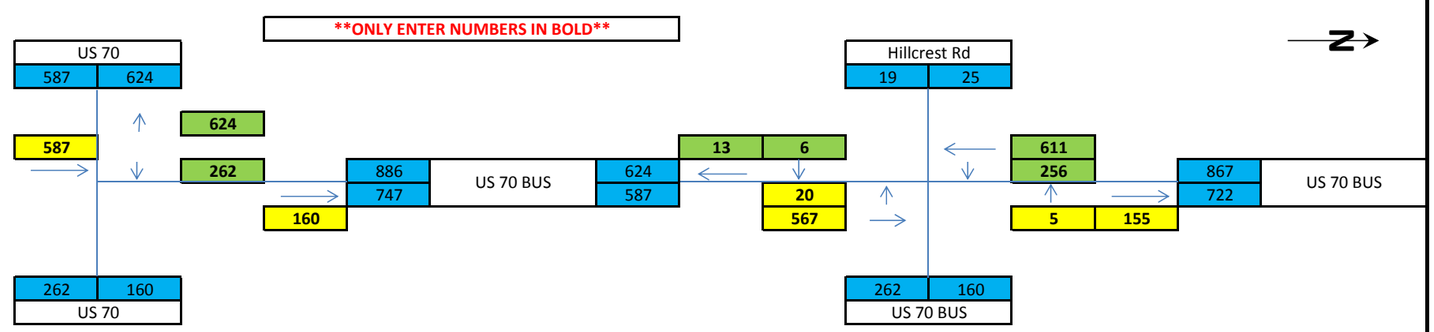
BALANCED VOLUMES

Blue	Input/Output Volumes
Orange	Adjusted Volumes for Balancing



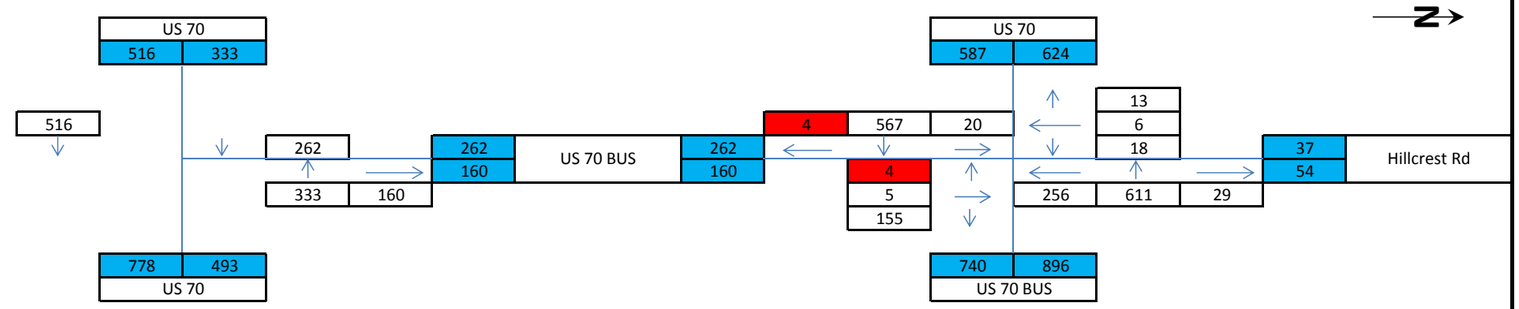
REDISTRIBUTIONS

Green	SB US 70 BUS Redistriubtions
Yellow	NB US 70 BUS Redistributions



FINAL VOLUMES

Blue	Input/Output Volumes
Red	Token 4 Vehicles



2040 Representative
Build Alternative 1 SB
Synchro Reports

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	142	9	9	185	122	93
Future Volume (vph)	142	9	9	185	122	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1698	0	0	1823	1705	0
Flt Permitted	0.955			0.998		
Satd. Flow (perm)	1698	0	0	1823	1705	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1310			602	499	
Travel Time (s)	16.2			7.5	6.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	4%	4%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	168	0	0	216	239	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	18			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 32.1%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	142	9	9	185	122	93
Future Volume (Veh/h)	142	9	9	185	122	93
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	158	10	10	206	136	103
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	414	188	239			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	414	188	239			
tC, single (s)	6.5	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.2			
p0 queue free %	73	99	99			
cM capacity (veh/h)	583	844	1316			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	168	216	239
Volume Left	158	10	0
Volume Right	10	0	103
cSH	594	1316	1700
Volume to Capacity	0.28	0.01	0.14
Queue Length 95th (ft)	29	1	0
Control Delay (s)	13.4	0.4	0.0
Lane LOS	B	A	
Approach Delay (s)	13.4	0.4	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	32.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	93	9	9	122	185	142
Future Volume (vph)	93	9	9	122	185	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1693	0	0	1821	1703	0
Flt Permitted	0.956			0.997		
Satd. Flow (perm)	1693	0	0	1821	1703	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1310			602	499	
Travel Time (s)	16.2			7.5	6.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	4%	4%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	113	0	0	146	364	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	18			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 30.8%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	93	9	9	122	185	142
Future Volume (Veh/h)	93	9	9	122	185	142
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	103	10	10	136	206	158
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	441	285	364			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	441	285	364			
tC, single (s)	6.5	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.2			
p0 queue free %	82	99	99			
cM capacity (veh/h)	561	745	1184			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	113	146	364
Volume Left	103	10	0
Volume Right	10	0	158
cSH	574	1184	1700
Volume to Capacity	0.20	0.01	0.21
Queue Length 95th (ft)	18	1	0
Control Delay (s)	12.8	0.6	0.0
Lane LOS	B	A	
Approach Delay (s)	12.8	0.6	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	30.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	4	60	0	0	0	0	195	129	57	156	0
Future Volume (vph)	80	4	60	0	0	0	0	195	129	57	156	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	0		150	225		0
Storage Lanes	0		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1726	1538	0	0	0	0	1810	1538	1719	1810	0
Flt Permitted		0.954								0.950		
Satd. Flow (perm)	0	1726	1538	0	0	0	0	1810	1538	1719	1810	0
Link Speed (mph)		45			30			55			55	
Link Distance (ft)		1311			824			499			723	
Travel Time (s)		19.9			18.7			6.2			9.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	93	67	0	0	0	0	217	143	63	173	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 28.2%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	4	60	0	0	0	0	195	129	57	156	0
Future Volume (Veh/h)	80	4	60	0	0	0	0	195	129	57	156	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	89	4	67	0	0	0	0	217	143	63	173	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			4									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	516	659	173	518	516	217	173			360		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	516	659	173	518	516	217	173			360		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	80	99	92	100	100	100	100			95		
cM capacity (veh/h)	446	360	863	407	434	815	1386			1182		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	160	217	143	63	173
Volume Left	89	0	0	63	0
Volume Right	67	0	143	0	0
cSH	761	1700	1700	1182	1700
Volume to Capacity	0.21	0.13	0.08	0.05	0.10
Queue Length 95th (ft)	20	0	0	4	0
Control Delay (s)	12.9	0.0	0.0	8.2	0.0
Lane LOS	B			A	
Approach Delay (s)	12.9	0.0		2.2	
Approach LOS	B				

Intersection Summary				
Average Delay	3.4			
Intersection Capacity Utilization	28.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	4	73	0	0	0	0	129	87	68	251	0
Future Volume (vph)	54	4	73	0	0	0	0	129	87	68	251	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	0		150	225		0
Storage Lanes	0		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1728	1538	0	0	0	0	1810	1538	1719	1810	0
Flt Permitted		0.955								0.950		
Satd. Flow (perm)	0	1728	1538	0	0	0	0	1810	1538	1719	1810	0
Link Speed (mph)		45			30			55			55	
Link Distance (ft)		1311			824			499			723	
Travel Time (s)		19.9			18.7			6.2			9.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	64	81	0	0	0	0	143	97	76	279	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 30.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	4	73	0	0	0	0	129	87	68	251	0
Future Volume (Veh/h)	54	4	73	0	0	0	0	129	87	68	251	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	60	4	81	0	0	0	0	143	97	76	279	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			4									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	574	671	279	576	574	143	279			240		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	574	671	279	576	574	143	279			240		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	85	99	89	100	100	100	100			94		
cM capacity (veh/h)	406	352	753	358	400	897	1267			1309		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	145	143	97	76	279
Volume Left	60	0	0	76	0
Volume Right	81	0	97	0	0
cSH	913	1700	1700	1309	1700
Volume to Capacity	0.16	0.08	0.06	0.06	0.16
Queue Length 95th (ft)	14	0	0	5	0
Control Delay (s)	12.7	0.0	0.0	7.9	0.0
Lane LOS	B			A	
Approach Delay (s)	12.7	0.0		1.7	
Approach LOS	B				

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	30.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	87	4	68	73	202	0	0	126	55
Future Volume (vph)	0	0	0	87	4	68	73	202	0	0	126	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		100	250		0	0		150
Storage Lanes	0		0	0		1	1		0	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	0	0	0	1726	1538	1719	1810	0	0	1827	1553
Flt Permitted					0.954		0.950					
Satd. Flow (perm)	0	0	0	0	1726	1538	1719	1810	0	0	1827	1553
Link Speed (mph)		30			45			55			55	
Link Distance (ft)		1007			1367			723			825	
Travel Time (s)		22.9			20.7			9.0			10.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	101	76	81	224	0	0	140	61
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 28.2%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	87	4	68	73	202	0	0	126	55
Future Volume (Veh/h)	0	0	0	87	4	68	73	202	0	0	126	55
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	97	4	76	81	224	0	0	140	61
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						4						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	528	526	140	526	587	224	201			224		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	528	526	140	526	587	224	201			224		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	78	99	91	94			100		
cM capacity (veh/h)	391	426	900	437	393	808	1353			1333		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	177	81	224	140	61
Volume Left	97	81	0	0	0
Volume Right	76	0	0	0	61
cSH	762	1353	1700	1700	1700
Volume to Capacity	0.23	0.06	0.13	0.08	0.04
Queue Length 95th (ft)	22	5	0	0	0
Control Delay (s)	13.3	7.8	0.0	0.0	0.0
Lane LOS	B	A			
Approach Delay (s)	13.3	2.1		0.0	
Approach LOS	B				

Intersection Summary				
Average Delay	4.4			
Intersection Capacity Utilization	28.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	129	4	57	60	123	0	0	190	80
Future Volume (vph)	0	0	0	129	4	57	60	123	0	0	190	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		100	250		0	0		150
Storage Lanes	0		0	0		1	1		0	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	0	0	0	1726	1538	1719	1810	0	0	1827	1553
Flt Permitted					0.954		0.950					
Satd. Flow (perm)	0	0	0	0	1726	1538	1719	1810	0	0	1827	1553
Link Speed (mph)		30			45			55			55	
Link Distance (ft)		1007			1367			723			825	
Travel Time (s)		22.9			20.7			9.0			10.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	147	63	67	137	0	0	211	89
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 30.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	129	4	57	60	123	0	0	190	80
Future Volume (Veh/h)	0	0	0	129	4	57	60	123	0	0	190	80
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	143	4	63	67	137	0	0	211	89
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						4						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	484	482	211	482	571	137	300			137		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	484	482	211	482	571	137	300			137		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	70	99	93	95			100		
cM capacity (veh/h)	432	454	822	470	404	904	1244			1435		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	210	67	137	211	89
Volume Left	143	67	0	0	0
Volume Right	63	0	0	0	89
cSH	668	1244	1700	1700	1700
Volume to Capacity	0.31	0.05	0.08	0.12	0.05
Queue Length 95th (ft)	34	4	0	0	0
Control Delay (s)	14.1	8.1	0.0	0.0	0.0
Lane LOS	B	A			
Approach Delay (s)	14.1	2.6		0.0	
Approach LOS	B				

Intersection Summary				
Average Delay	4.9			
Intersection Capacity Utilization	30.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	641	80	103	798	8	129	4	134	4	4	4
Future Volume (vph)	8	641	80	103	798	8	129	4	134	4	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	400		0	0		100	0		0
Storage Lanes	1		1	1		0	0		1	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1719	3438	1538	1719	3431	0	0	1760	1568	0	1768	0
Flt Permitted	0.950			0.950				0.954			0.984	
Satd. Flow (perm)	1719	3438	1538	1719	3431	0	0	1760	1568	0	1768	0
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1082			910			306			327	
Travel Time (s)		16.4			13.8			8.3			8.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	1%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	712	89	114	896	0	0	147	149	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		50			50			0			18	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 49.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	641	80	103	798	8	129	4	134	4	4	4
Future Volume (Veh/h)	8	641	80	103	798	8	129	4	134	4	4	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	712	89	114	887	9	143	4	149	4	4	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									4			
Median type		Raised			Raised							
Median storage veh)		2			2							
Upstream signal (ft)					910							
pX, platoon unblocked	0.85						0.85	0.85		0.85	0.85	0.85
vC, conflicting volume	896			801			1408	1854	356	1496	1938	448
vC1, stage 1 conf vol							730	730		1120	1120	
vC2, stage 2 conf vol							678	1124		376	819	
vCu, unblocked vol	517			801			1121	1648	356	1225	1747	0
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.5	6.5	6.9
tC, 2 stage (s)							6.6	5.6		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			86			54	98	77	98	98	100
cM capacity (veh/h)	868			799			313	236	638	216	204	922

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	9	356	356	89	114	591	305	296	12
Volume Left	9	0	0	0	114	0	0	143	4
Volume Right	0	0	0	89	0	0	9	149	4
cSH	868	1700	1700	1700	799	1700	1700	625	282
Volume to Capacity	0.01	0.21	0.21	0.05	0.14	0.35	0.18	0.47	0.04
Queue Length 95th (ft)	1	0	0	0	12	0	0	63	3
Control Delay (s)	9.2	0.0	0.0	0.0	10.3	0.0	0.0	19.4	18.3
Lane LOS	A				B			C	C
Approach Delay (s)	0.1				1.2			19.4	18.3
Approach LOS								C	C

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	798	129	134	641	4	80	4	103	8	4	8
Future Volume (vph)	4	798	129	134	641	4	80	4	103	8	4	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	400		0	0		100	0		0
Storage Lanes	1		1	1		0	0		1	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1719	3438	1538	1719	3435	0	0	1760	1568	0	1742	0
Flt Permitted	0.950			0.950				0.954			0.980	
Satd. Flow (perm)	1719	3438	1538	1719	3435	0	0	1760	1568	0	1742	0
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1082			910			306			327	
Travel Time (s)		16.4			13.8			8.3			8.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	1%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	887	143	149	716	0	0	93	114	0	22	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		50			50			0			18	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 49.1%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	798	129	134	641	4	80	4	103	8	4	8
Future Volume (Veh/h)	4	798	129	134	641	4	80	4	103	8	4	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	887	143	149	712	4	89	4	114	9	4	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									4			
Median type		Raised			Raised							
Median storage veh)		2			2							
Upstream signal (ft)					910							
pX, platoon unblocked	0.90						0.90	0.90		0.90	0.90	0.90
vC, conflicting volume	716			1030			1560	1909	444	1466	2050	358
vC1, stage 1 conf vol							895	895		1012	1012	
vC2, stage 2 conf vol							665	1014		454	1038	
vCu, unblocked vol	468			1030			1403	1790	444	1299	1947	71
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.5	6.5	6.9
tC, 2 stage (s)							6.6	5.6		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			77			63	98	80	95	97	99
cM capacity (veh/h)	964			652			241	215	559	193	139	884

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	4	444	444	143	149	475	241	207	22
Volume Left	4	0	0	0	149	0	0	89	9
Volume Right	0	0	0	143	0	0	4	114	9
cSH	964	1700	1700	1700	652	1700	1700	535	257
Volume to Capacity	0.00	0.26	0.26	0.08	0.23	0.28	0.14	0.39	0.09
Queue Length 95th (ft)	0	0	0	0	22	0	0	45	7
Control Delay (s)	8.7	0.0	0.0	0.0	12.1	0.0	0.0	20.3	20.3
Lane LOS	A				B			C	C
Approach Delay (s)	0.0				2.1			20.3	20.3
Approach LOS								C	C

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	49.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	549	73	104	696	159	118	101	132	123	62	128
Future Volume (vph)	130	549	73	104	696	159	118	101	132	123	62	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		250	225		450	0		125	325		100
Storage Lanes	1		1	1		1	0		1	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1719	3438	1538	1736	3471	1553	0	1779	1553	1649	1706	1553
Flt Permitted	0.950			0.950				0.974		0.950	0.983	
Satd. Flow (perm)	1719	3438	1538	1736	3471	1553	0	1779	1553	1649	1706	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			45	
Link Distance (ft)		910			969			438			630	
Travel Time (s)		13.8			14.7			11.9			9.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)										26%		
Lane Group Flow (vph)	144	610	81	116	773	177	0	243	147	101	105	142
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		50			50			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6		8	8		4	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	19.0	19.0	14.0	19.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	23.0	49.0	49.0	20.0	46.0	46.0	31.0	31.0	31.0	20.0	20.0	23.0
Total Split (%)	19.2%	40.8%	40.8%	16.7%	38.3%	38.3%	25.8%	25.8%	25.8%	16.7%	16.7%	19.2%
Maximum Green (s)	16.0	42.0	42.0	13.0	39.0	39.0	24.0	24.0	24.0	13.0	13.0	16.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	15.9	50.0	50.0	13.7	47.8	47.8		22.5	22.5	13.7	13.7	29.7
Actuated g/C Ratio	0.13	0.42	0.42	0.11	0.40	0.40		0.19	0.19	0.11	0.11	0.25
v/c Ratio	0.63	0.43	0.13	0.59	0.56	0.29		0.73	0.51	0.53	0.54	0.37
Control Delay	61.7	27.4	24.9	62.5	31.5	28.5		58.8	49.4	60.4	60.3	22.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	61.7	27.4	24.9	62.5	31.5	28.5		58.8	49.4	60.4	60.3	22.2
LOS	E	C	C	E	C	C		E	D	E	E	C
Approach Delay		33.1			34.4			55.2			44.8	
Approach LOS		C			C			E			D	
Queue Length 50th (ft)	106	183	40	85	252	96		177	102	77	81	53
Queue Length 95th (ft)	174	245	78	149	335	164		262	165	140	143	82
Internal Link Dist (ft)		830			889			358			550	
Turn Bay Length (ft)	300		250	225		450			125	325		100
Base Capacity (vph)	257	1442	645	218	1392	623		385	336	210	217	410
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Reduced v/c Ratio	0.56	0.42	0.13	0.53	0.56	0.28		0.63	0.44	0.48	0.48	0.35

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 38.4 Intersection LOS: D
Intersection Capacity Utilization 57.5% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 405: Sussex St/Hill Farm Rd & US 70 Bus

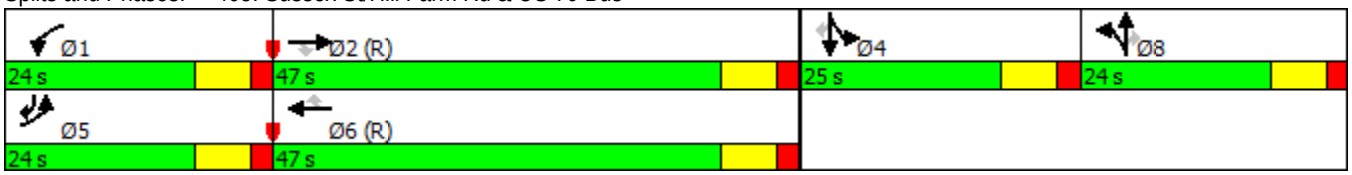
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	696	118	132	549	123	73	62	104	159	101	130
Future Volume (vph)	128	696	118	132	549	123	73	62	104	159	101	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		250	225		450	0		125	325		100
Storage Lanes	1		1	1		1	0		1	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1719	3438	1538	1736	3471	1553	0	1779	1553	1649	1715	1553
Flt Permitted	0.950			0.950				0.974		0.950	0.988	
Satd. Flow (perm)	1719	3438	1538	1736	3471	1553	0	1779	1553	1649	1715	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			45	
Link Distance (ft)		910			969			438			630	
Travel Time (s)		13.8			14.7			11.9			9.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)										20%		
Lane Group Flow (vph)	142	773	131	147	610	137	0	150	116	142	147	144
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		50			50			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6		8	8		4	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	19.0	19.0	14.0	19.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	24.0	47.0	47.0	24.0	47.0	47.0	24.0	24.0	24.0	25.0	25.0	24.0
Total Split (%)	20.0%	39.2%	39.2%	20.0%	39.2%	39.2%	20.0%	20.0%	20.0%	20.8%	20.8%	20.0%
Maximum Green (s)	17.0	40.0	40.0	17.0	40.0	40.0	17.0	17.0	17.0	18.0	18.0	17.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	16.3	50.1	50.1	16.5	50.3	50.3		16.5	16.5	16.9	16.9	33.2
Actuated g/C Ratio	0.14	0.42	0.42	0.14	0.42	0.42		0.14	0.14	0.14	0.14	0.28
v/c Ratio	0.61	0.54	0.20	0.62	0.42	0.21		0.61	0.54	0.61	0.61	0.34
Control Delay	59.7	29.8	26.1	59.8	27.5	26.0		59.4	57.5	59.7	59.2	20.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	59.7	29.8	26.1	59.8	27.5	26.0		59.4	57.5	59.7	59.2	20.9
LOS	E	C	C	E	C	C		E	E	E	E	C
Approach Delay		33.4			32.6			58.6			46.6	
Approach LOS		C			C			E			D	
Queue Length 50th (ft)	104	241	66	108	178	69		110	84	109	113	57
Queue Length 95th (ft)	170	331	122	175	251	127		178	145	177	182	85
Internal Link Dist (ft)		830			889			358			550	
Turn Bay Length (ft)	300		250	225		450			125	325		100
Base Capacity (vph)	273	1441	645	276	1459	653		283	247	274	285	465
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Reduced v/c Ratio	0.52	0.54	0.20	0.53	0.42	0.21		0.53	0.47	0.52	0.52	0.31

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 37.8 Intersection LOS: D
Intersection Capacity Utilization 53.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 405: Sussex St/Hill Farm Rd & US 70 Bus



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	734	19	69	726	207	0	0	127	0	0	270
Future Volume (vph)	25	734	19	69	726	207	0	0	127	0	0	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		150	250		0	0		0	0		0
Storage Lanes	1		1	1		1	0		1	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1736	4968	0	1736	3471	1553	0	0	1580	0	0	1580
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	1736	4968	0	1736	3471	1553	0	0	1580	0	0	1580
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		969			1040			433			297	
Travel Time (s)		14.7			15.8			8.4			8.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	837	0	77	807	230	0	0	141	0	0	300
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		50			50			12			18	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 43.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	734	19	69	726	207	0	0	127	0	0	270
Future Volume (Veh/h)	25	734	19	69	726	207	0	0	127	0	0	270
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	28	816	21	77	807	230	0	0	141	0	0	300
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		2			2							
Upstream signal (ft)		969			1040							
pX, platoon unblocked	0.91			0.97			0.92	0.92	0.97	0.92	0.92	0.91
vC, conflicting volume	1037			837			1740	2074	282	1289	1854	404
vC1, stage 1 conf vol							882	882		961	961	
vC2, stage 2 conf vol							858	1191		328	893	
vCu, unblocked vol	837			719			1432	1793	147	943	1555	138
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)							6.6	5.6		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			91			100	100	83	100	100	62
cM capacity (veh/h)	708			838			166	199	841	278	233	797

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	28	326	326	184	77	404	404	230	141	300
Volume Left	28	0	0	0	77	0	0	0	0	0
Volume Right	0	0	0	21	0	0	0	230	141	300
cSH	708	1700	1700	1700	838	1700	1700	1700	841	797
Volume to Capacity	0.04	0.19	0.19	0.11	0.09	0.24	0.24	0.14	0.17	0.38
Queue Length 95th (ft)	3	0	0	0	8	0	0	0	15	44
Control Delay (s)	10.3	0.0	0.0	0.0	9.7	0.0	0.0	0.0	10.1	12.2
Lane LOS	B				A				B	B
Approach Delay (s)	0.3				0.7				10.1	12.2
Approach LOS									B	B

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	43.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	916	37	89	544	229	0	0	89	0	0	232
Future Volume (vph)	42	916	37	89	544	229	0	0	89	0	0	232
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		150	250		0	0		0	0		0
Storage Lanes	1		1	1		1	0		1	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1736	4958	0	1736	3471	1553	0	0	1580	0	0	1580
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	1736	4958	0	1736	3471	1553	0	0	1580	0	0	1580
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		969			1040			433			297	
Travel Time (s)		14.7			15.8			8.4			8.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	1059	0	99	604	254	0	0	99	0	0	258
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		50			50			12			18	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 36.1%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	916	37	89	544	229	0	0	89	0	0	232
Future Volume (Veh/h)	42	916	37	89	544	229	0	0	89	0	0	232
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	47	1018	41	99	604	254	0	0	99	0	0	258
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		2			2							
Upstream signal (ft)		969			1040							
pX, platoon unblocked	0.99			0.91			0.92	0.92	0.91	0.92	0.92	0.99
vC, conflicting volume	858			1059			1890	2188	360	1235	1955	302
vC1, stage 1 conf vol							1132	1132		802	802	
vC2, stage 2 conf vol							758	1056		433	1153	
vCu, unblocked vol	843			734			1616	1941	0	901	1686	283
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)							6.6	5.6		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			87			100	100	90	100	100	63
cM capacity (veh/h)	771			780			136	179	985	285	192	703

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	47	407	407	245	99	302	302	254	99	258
Volume Left	47	0	0	0	99	0	0	0	0	0
Volume Right	0	0	0	41	0	0	0	254	99	258
cSH	771	1700	1700	1700	780	1700	1700	1700	985	703
Volume to Capacity	0.06	0.24	0.24	0.14	0.13	0.18	0.18	0.15	0.10	0.37
Queue Length 95th (ft)	5	0	0	0	11	0	0	0	8	42
Control Delay (s)	10.0	0.0	0.0	0.0	10.3	0.0	0.0	0.0	9.1	13.1
Lane LOS	A				B				A	B
Approach Delay (s)	0.4				1.1				9.1	13.1
Approach LOS									A	B

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	36.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	132	695	4	872	207	221	177
Future Volume (vph)	132	695	4	872	207	221	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	450		300		0	250	0
Storage Lanes	2		1		1	1	1
Taper Length (ft)	100		100			100	
Satd. Flow (prot)	3367	4988	1736	3471	1553	3367	1553
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	3367	4988	1736	3471	1553	3367	1553
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		45		45		45	
Link Distance (ft)		1040		666		2390	
Travel Time (s)		15.8		10.1		36.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)							
Lane Group Flow (vph)	147	772	4	969	230	246	197
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		32		32		24	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		16		16		16	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	Free
Protected Phases	5	2	1	6	4	4	
Permitted Phases					6		Free
Detector Phase	5	2	1	6	4	4	
Switch Phase							
Minimum Initial (s)	7.0	12.0	7.0	12.0	7.0	7.0	
Minimum Split (s)	14.0	19.0	14.0	19.0	14.0	14.0	
Total Split (s)	17.0	56.0	14.0	53.0	20.0	20.0	
Total Split (%)	18.9%	62.2%	15.6%	58.9%	22.2%	22.2%	
Maximum Green (s)	10.0	49.0	7.0	46.0	13.0	13.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Min	None	C-Min	None	None	
Act Effct Green (s)	11.3	63.4	9.0	49.9	68.7	13.8	90.0
Actuated g/C Ratio	0.13	0.70	0.10	0.55	0.76	0.15	1.00
v/c Ratio	0.35	0.22	0.02	0.50	0.19	0.48	0.13
Control Delay	37.8	5.8	46.8	9.2	1.3	37.5	0.2

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.8	5.8	46.8	9.2	1.3	37.5	0.2
LOS	D	A	D	A	A	D	A
Approach Delay		10.9		7.8		20.9	
Approach LOS		B		A		C	
Queue Length 50th (ft)	40	41	2	171	12	66	0
Queue Length 95th (ft)	66	105	m7	73	4	98	0
Internal Link Dist (ft)		960		586		2310	
Turn Bay Length (ft)	450		300			250	
Base Capacity (vph)	464	3535	173	1957	1213	578	1553
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.22	0.02	0.50	0.19	0.43	0.13

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.50
Intersection Signal Delay: 11.2 Intersection LOS: B
Intersection Capacity Utilization 48.7% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 407: US 70 Bus & US 258

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	177	872	4	695	221	207	132
Future Volume (vph)	177	872	4	695	221	207	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	450		300		0	250	0
Storage Lanes	2		1		1	1	1
Taper Length (ft)	100		100			100	
Satd. Flow (prot)	3367	4988	1736	3471	1553	3367	1553
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	3367	4988	1736	3471	1553	3367	1553
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		45		45		45	
Link Distance (ft)		1040		666		2390	
Travel Time (s)		15.8		10.1		36.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)							
Lane Group Flow (vph)	197	969	4	772	246	230	147
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		32		32		24	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		16		16		16	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	Free
Protected Phases	5	2	1	6	4	4	
Permitted Phases					6		Free
Detector Phase	5	2	1	6	4	4	
Switch Phase							
Minimum Initial (s)	7.0	12.0	7.0	12.0	7.0	7.0	
Minimum Split (s)	14.0	19.0	14.0	19.0	14.0	14.0	
Total Split (s)	20.0	53.0	15.0	48.0	22.0	22.0	
Total Split (%)	22.2%	58.9%	16.7%	53.3%	24.4%	24.4%	
Maximum Green (s)	13.0	46.0	8.0	41.0	15.0	15.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Min	None	C-Min	None	None	
Act Effct Green (s)	12.6	63.8	9.0	49.0	67.4	13.4	90.0
Actuated g/C Ratio	0.14	0.71	0.10	0.54	0.75	0.15	1.00
v/c Ratio	0.42	0.27	0.02	0.41	0.21	0.46	0.09
Control Delay	37.7	5.9	35.8	10.4	2.0	37.6	0.1

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.7	5.9	35.8	10.4	2.0	37.6	0.1
LOS	D	A	D	B	A	D	A
Approach Delay		11.3		8.5		23.0	
Approach LOS		B		A		C	
Queue Length 50th (ft)	53	53	2	63	7	62	0
Queue Length 95th (ft)	83	133	m8	118	32	93	0
Internal Link Dist (ft)		960		586		2310	
Turn Bay Length (ft)	450		300			250	
Base Capacity (vph)	565	3536	192	1892	1226	635	1553
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.27	0.02	0.41	0.20	0.36	0.09

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 11.9 Intersection LOS: B
Intersection Capacity Utilization 43.5% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 407: US 70 Bus & US 258

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	882	9	5	1080	9	0	0	21	0	0	23
Future Volume (vph)	4	882	9	5	1080	9	0	0	21	0	0	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	150		0	0		0	0		0
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1736	3471	1553	1736	4983	0	0	0	1611	0	0	1611
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	1736	3471	1553	1736	4983	0	0	0	1611	0	0	1611
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		666			581			197			240	
Travel Time (s)		10.1			8.8			5.4			6.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	980	10	6	1210	0	0	0	23	0	0	26
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		32			32			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 34.4%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	882	9	5	1080	9	0	0	21	0	0	23
Future Volume (Veh/h)	4	882	9	5	1080	9	0	0	21	0	0	23
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	980	10	6	1200	10	0	0	23	0	0	26
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)		666			581							
pX, platoon unblocked	0.90			0.92			0.94	0.94	0.92	0.94	0.94	0.90
vC, conflicting volume	1210			990			1426	2210	490	1738	2215	405
vC1, stage 1 conf vol							988	988		1217	1217	
vC2, stage 2 conf vol							438	1222		521	998	
vCu, unblocked vol	839			814			776	1611	271	1109	1617	0
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			100	100	97	100	100	97
cM capacity (veh/h)	700			732			279	200	669	232	199	974

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	4	490	490	10	6	480	480	250	23	26
Volume Left	4	0	0	0	6	0	0	0	0	0
Volume Right	0	0	0	10	0	0	0	10	23	26
cSH	700	1700	1700	1700	732	1700	1700	1700	669	974
Volume to Capacity	0.01	0.29	0.29	0.01	0.01	0.28	0.28	0.15	0.03	0.03
Queue Length 95th (ft)	0	0	0	0	1	0	0	0	3	2
Control Delay (s)	10.2	0.0	0.0	0.0	10.0	0.0	0.0	0.0	10.6	8.8
Lane LOS	B				A				B	A
Approach Delay (s)	0.0				0.0				10.6	8.8
Approach LOS									B	A

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	34.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	1080	15	6	883	14	0	0	14	0	0	13
Future Volume (vph)	9	1080	15	6	883	14	0	0	14	0	0	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	150		0	0		0	0		0
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1736	3471	1553	1736	4978	0	0	0	1611	0	0	1611
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	1736	3471	1553	1736	4978	0	0	0	1611	0	0	1611
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		666			581			197			240	
Travel Time (s)		10.1			8.8			5.4			6.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	1200	17	7	997	0	0	0	16	0	0	14
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		32			32			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 39.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	1080	15	6	883	14	0	0	14	0	0	13
Future Volume (Veh/h)	9	1080	15	6	883	14	0	0	14	0	0	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	10	1200	17	7	981	16	0	0	16	0	0	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)		666			581							
pX, platoon unblocked	0.93			0.89			0.93	0.93	0.89	0.93	0.93	0.93
vC, conflicting volume	997			1217			1575	2231	600	1639	2240	335
vC1, stage 1 conf vol							1220	1220		1003	1003	
vC2, stage 2 conf vol							355	1011		636	1237	
vCu, unblocked vol	727			1000			1000	1708	308	1069	1717	14
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			100	100	97	100	100	99
cM capacity (veh/h)	797			603			205	183	613	259	180	986

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	10	600	600	17	7	392	392	212	16	14
Volume Left	10	0	0	0	7	0	0	0	0	0
Volume Right	0	0	0	17	0	0	0	16	16	14
cSH	797	1700	1700	1700	603	1700	1700	1700	613	986
Volume to Capacity	0.01	0.35	0.35	0.01	0.01	0.23	0.23	0.12	0.03	0.01
Queue Length 95th (ft)	1	0	0	0	1	0	0	0	2	1
Control Delay (s)	9.6	0.0	0.0	0.0	11.0	0.0	0.0	0.0	11.0	8.7
Lane LOS	A				B				B	A
Approach Delay (s)	0.1				0.1				11.0	8.7
Approach LOS									B	A

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	15	880	4	1082	42	48	21
Future Volume (vph)	15	880	4	1082	42	48	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		75		0	0	0
Storage Lanes	1		1		0	1	0
Taper Length (ft)	100		100			100	
Satd. Flow (prot)	1736	3471	1736	4958	0	1709	0
Flt Permitted	0.950		0.950			0.966	
Satd. Flow (perm)	1736	3471	1736	4958	0	1709	0
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		45		45		25	
Link Distance (ft)		581		901		412	
Travel Time (s)		8.8		13.7		11.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	3%	3%
Shared Lane Traffic (%)							
Lane Group Flow (vph)	17	978	4	1249	0	76	0
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		32		32		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		16		16		16	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Turn Type	Prot	NA	Prot	NA		Prot	
Protected Phases	5	2	1	6		4	
Permitted Phases							
Detector Phase	5	2	1	6		4	
Switch Phase							
Minimum Initial (s)	7.0	12.0	7.0	12.0		7.0	
Minimum Split (s)	14.0	19.0	14.0	19.0		14.0	
Total Split (s)	16.0	56.0	16.0	56.0		18.0	
Total Split (%)	17.8%	62.2%	17.8%	62.2%		20.0%	
Maximum Green (s)	9.0	49.0	9.0	49.0		11.0	
Yellow Time (s)	5.0	5.0	5.0	5.0		5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0		-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0		5.0	
Lead/Lag	Lead	Lag	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0	
Recall Mode	None	C-Min	None	C-Min		None	
Act Effct Green (s)	9.2	69.4	9.0	66.4		11.6	
Actuated g/C Ratio	0.10	0.77	0.10	0.74		0.13	
v/c Ratio	0.10	0.37	0.02	0.34		0.35	
Control Delay	39.7	4.7	37.0	6.9		39.5	

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Queue Delay	0.0	0.0	0.0	0.0		0.0	
Total Delay	39.7	4.7	37.0	6.9		39.5	
LOS	D	A	D	A		D	
Approach Delay		5.3		7.0		39.5	
Approach LOS		A		A		D	
Queue Length 50th (ft)	10	53	2	64		40	
Queue Length 95th (ft)	m25	167	12	177		79	
Internal Link Dist (ft)		501		821		332	
Turn Bay Length (ft)	175		75				
Base Capacity (vph)	212	2678	212	3670		253	
Starvation Cap Reductn	0	0	0	0		0	
Spillback Cap Reductn	0	0	0	0		0	
Storage Cap Reductn	0	0	0	0		0	
Reduced v/c Ratio	0.08	0.37	0.02	0.34		0.30	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.37
Intersection Signal Delay: 7.3 — Intersection LOS: A
Intersection Capacity Utilization 38.5% — ICU Level of Service A
Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 409: US 70 Bus & Mt Vernon Park Dr

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	22	1082	4	880	47	41	16
Future Volume (vph)	22	1082	4	880	47	41	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		75		0	0	0
Storage Lanes	1		1		0	1	0
Taper Length (ft)	100		100			100	
Satd. Flow (prot)	1736	3471	1736	4948	0	1712	0
Flt Permitted	0.950		0.950			0.965	
Satd. Flow (perm)	1736	3471	1736	4948	0	1712	0
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		45		45		25	
Link Distance (ft)		581		901		412	
Travel Time (s)		8.8		13.7		11.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	3%	3%
Shared Lane Traffic (%)							
Lane Group Flow (vph)	24	1202	4	1030	0	64	0
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		32		32		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		16		16		16	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Turn Type	Prot	NA	Prot	NA		Prot	
Protected Phases	5	2	1	6		4	
Permitted Phases							
Detector Phase	5	2	1	6		4	
Switch Phase							
Minimum Initial (s)	7.0	12.0	7.0	12.0		7.0	
Minimum Split (s)	14.0	19.0	14.0	19.0		14.0	
Total Split (s)	16.0	60.0	14.0	58.0		16.0	
Total Split (%)	17.8%	66.7%	15.6%	64.4%		17.8%	
Maximum Green (s)	9.0	53.0	7.0	51.0		9.0	
Yellow Time (s)	5.0	5.0	5.0	5.0		5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0		-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0		5.0	
Lead/Lag	Lead	Lag	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0	
Recall Mode	None	C-Min	None	C-Min		None	
Act Effct Green (s)	9.4	70.0	9.0	66.7		11.0	
Actuated g/C Ratio	0.10	0.78	0.10	0.74		0.12	
v/c Ratio	0.13	0.45	0.02	0.28		0.31	
Control Delay	42.9	4.8	37.0	6.3		39.2	

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Queue Delay	0.0	0.0	0.0	0.0		0.0	
Total Delay	42.9	4.8	37.0	6.3		39.2	
LOS	D	A	D	A		D	
Approach Delay		5.6		6.5		39.2	
Approach LOS		A		A		D	
Queue Length 50th (ft)	12	63	2	48		34	
Queue Length 95th (ft)	m42	116	12	140		70	
Internal Link Dist (ft)		501		821		332	
Turn Bay Length (ft)	175		75				
Base Capacity (vph)	212	2722	173	3698		225	
Starvation Cap Reductn	0	0	0	0		0	
Spillback Cap Reductn	0	0	0	0		0	
Storage Cap Reductn	0	0	0	0		0	
Reduced v/c Ratio	0.11	0.44	0.02	0.28		0.28	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.45
Intersection Signal Delay: 6.9 Intersection LOS: A
Intersection Capacity Utilization 44.1% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 409: US 70 Bus & Mt Vernon Park Dr

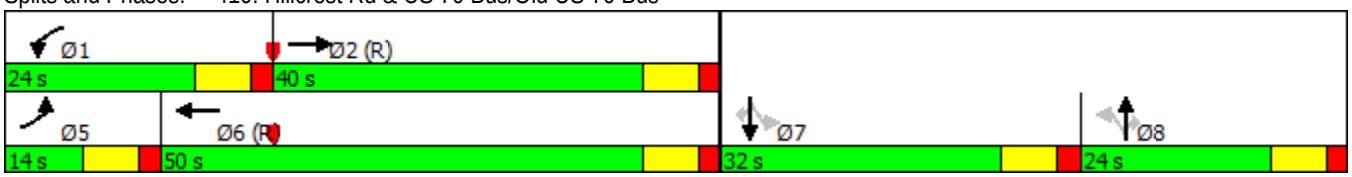
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	611	4	154	567	17	4	6	257	28	6	20
Future Volume (vph)	13	611	4	154	567	17	4	6	257	28	6	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	300		0	0		225	75		0
Storage Lanes	1		0	1		0	0		2	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1752	3501	0	1752	3491	0	0	1811	2760	0	1773	1568
Flt Permitted	0.950			0.950				0.922			0.208	
Satd. Flow (perm)	1752	3501	0	1752	3491	0	0	1701	2760	0	384	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		848			988			656			424	
Travel Time (s)		12.8			15.0			12.8			11.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	683	0	171	649	0	0	11	286	0	38	22
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		76			56			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			7	
Permitted Phases							8		8	7		7
Detector Phase	5	2		1	6		8	8	8	7	7	7
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	14.0	40.0		24.0	50.0		24.0	24.0	24.0	32.0	32.0	32.0
Total Split (%)	11.7%	33.3%		20.0%	41.7%		20.0%	20.0%	20.0%	26.7%	26.7%	26.7%
Maximum Green (s)	7.0	33.0		17.0	43.0		17.0	17.0	17.0	25.0	25.0	25.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0			-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	None
Act Effct Green (s)	9.0	48.3		17.2	64.9			18.4	18.4		18.9	18.9
Actuated g/C Ratio	0.08	0.40		0.14	0.54			0.15	0.15		0.16	0.16
v/c Ratio	0.11	0.49		0.68	0.34			0.04	0.68		0.63	0.09
Control Delay	53.8	31.7		62.8	20.3			42.8	56.4		87.1	40.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	53.8	31.7		62.8	20.3			42.8	56.4		87.1	40.0
LOS	D	C		E	C			D	E		F	D
Approach Delay		32.1			29.2			55.9			69.8	
Approach LOS		C			C			E			E	
Queue Length 50th (ft)	10	223		125	140			7	118		28	15
Queue Length 95th (ft)	32	312		202	257			25	172		66	36
Internal Link Dist (ft)		768			908			576			344	
Turn Bay Length (ft)	75			300					225			
Base Capacity (vph)	131	1411		277	1890			277	450		86	352
Starvation Cap Reductn	0	0		0	0			0	0		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.11	0.48		0.62	0.34			0.04	0.64		0.44	0.06

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 35.8 Intersection LOS: D
Intersection Capacity Utilization 46.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 410: Hillcrest Rd & US 70 Bus/Old US 70 Bus



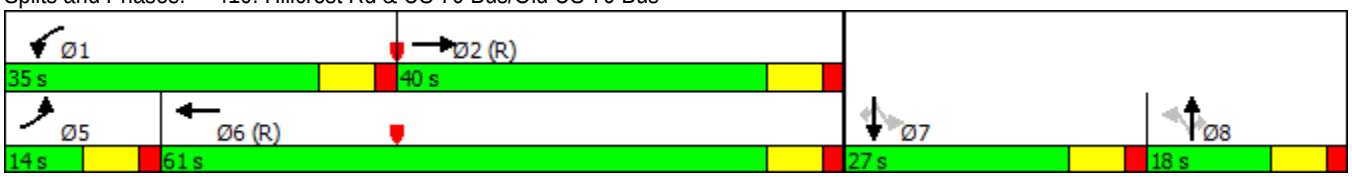
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	567	4	256	611	29	4	5	155	18	6	13
Future Volume (vph)	20	567	4	256	611	29	4	5	155	18	6	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	300		0	0		225	75		0
Storage Lanes	1		0	1		0	0		2	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1752	3501	0	1752	3480	0	0	1808	2760	0	1778	1568
Flt Permitted	0.950			0.950				0.900			0.295	
Satd. Flow (perm)	1752	3501	0	1752	3480	0	0	1660	2760	0	544	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		848			988			656			424	
Travel Time (s)		12.8			15.0			12.8			11.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	634	0	284	711	0	0	10	172	0	27	14
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		76			56			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			7	
Permitted Phases							8		8	7		7
Detector Phase	5	2		1	6		8	8	8	7	7	7
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	14.0	40.0		35.0	61.0		18.0	18.0	18.0	27.0	27.0	27.0
Total Split (%)	11.7%	33.3%		29.2%	50.8%		15.0%	15.0%	15.0%	22.5%	22.5%	22.5%
Maximum Green (s)	7.0	33.0		28.0	54.0		11.0	11.0	11.0	20.0	20.0	20.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0			-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	None
Act Effct Green (s)	9.2	51.7		25.7	73.8			13.6	13.6		15.0	15.0
Actuated g/C Ratio	0.08	0.43		0.21	0.62			0.11	0.11		0.12	0.12
v/c Ratio	0.17	0.42		0.76	0.33			0.05	0.55		0.40	0.07
Control Delay	55.0	28.8		57.3	15.6			47.8	57.3		63.5	43.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	55.0	28.8		57.3	15.6			47.8	57.3		63.5	43.8
LOS	D	C		E	B			D	E		E	D
Approach Delay		29.6			27.5			56.8			56.8	
Approach LOS		C			C			E			E	
Queue Length 50th (ft)	16	197		206	171			7	71		20	10
Queue Length 95th (ft)	44	287		295	240			24	114		49	28
Internal Link Dist (ft)		768			908			576			344	
Turn Bay Length (ft)	75			300					225			
Base Capacity (vph)	133	1508		438	2145			193	322		99	287
Starvation Cap Reductn	0	0		0	0			0	0		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.17	0.42		0.65	0.33			0.05	0.53		0.27	0.05

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 31.7 Intersection LOS: C
Intersection Capacity Utilization 50.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 410: Hillcrest Rd & US 70 Bus/Old US 70 Bus



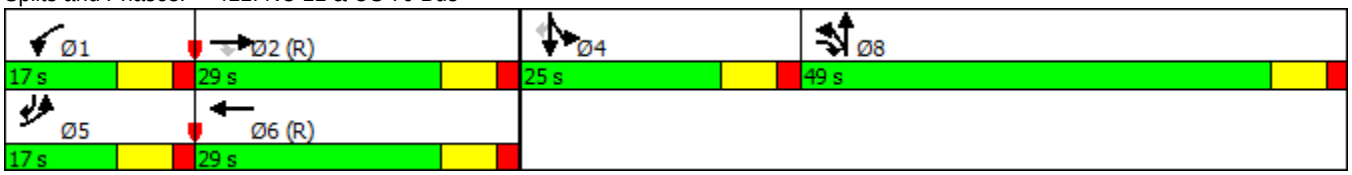
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	206	103	71	360	64	196	827	78	34	395	186
Future Volume (vph)	205	206	103	71	360	64	196	827	78	34	395	186
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	325		475	275		600	275		0	400		400
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	3335	3438	1538	1719	3438	1538	3367	3426	0	3367	3471	1553
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3438	1538	1719	3438	1538	3367	3426	0	3367	3471	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1036			1050			1060			982	
Travel Time (s)		15.7			15.9			16.1			14.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	228	229	114	79	400	71	218	1006	0	38	439	207
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		45			45			28			28	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	pm+ov	Prot	NA	Free	Split	NA		Split	NA	pm+ov
Protected Phases	5	2	8	1	6		8	8		4	4	5
Permitted Phases			2			Free						4
Detector Phase	5	2	8	1	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	17.0	29.0	49.0	17.0	29.0		49.0	49.0		25.0	25.0	17.0
Total Split (%)	14.2%	24.2%	40.8%	14.2%	24.2%		40.8%	40.8%		20.8%	20.8%	14.2%
Maximum Green (s)	10.0	22.0	42.0	10.0	22.0		42.0	42.0		18.0	18.0	10.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min	None	None	C-Min		None	None		None	None	None
Act Effct Green (s)	12.3	29.0	72.4	11.2	25.1	120.0	42.4	42.4		20.2	20.2	32.5
Actuated g/C Ratio	0.10	0.24	0.60	0.09	0.21	1.00	0.35	0.35		0.17	0.17	0.27
v/c Ratio	0.67	0.28	0.12	0.49	0.56	0.05	0.18	0.83		0.07	0.75	0.49
Control Delay	62.2	40.6	6.6	62.4	46.6	0.1	26.9	42.4		42.0	56.4	24.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	62.2	40.6	6.6	62.4	46.6	0.1	26.9	42.4		42.0	56.4	24.3
LOS	E	D	A	E	D	A	C	D		D	E	C
Approach Delay		42.4			42.9			39.6			45.9	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)	89	83	22	59	153	0	57	361		12	168	81
Queue Length 95th (ft)	132	119	36	110	202	0	87	451		29	231	126
Internal Link Dist (ft)		956			970			980			902	
Turn Bay Length (ft)	325		475	275		600	275			400		400
Base Capacity (vph)	344	853	932	171	743	1538	1237	1259		580	598	421
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.66	0.27	0.12	0.46	0.54	0.05	0.18	0.80		0.07	0.73	0.49

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 42.2 Intersection LOS: D
Intersection Capacity Utilization 63.7% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 411: NC 11 & US 70 Bus



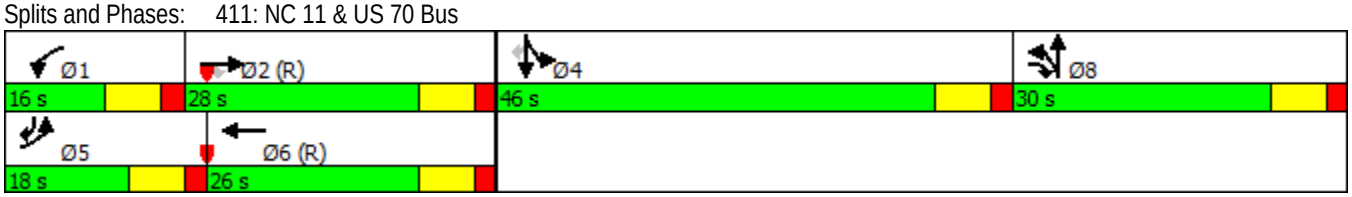
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	186	360	196	78	206	34	103	395	71	64	827	205
Future Volume (vph)	186	360	196	78	206	34	103	395	71	64	827	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	325		475	275		600	275		0	400		400
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	3335	3438	1538	1719	3438	1538	3367	3391	0	3367	3471	1553
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3438	1538	1719	3438	1538	3367	3391	0	3367	3471	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1036			1050			1060			982	
Travel Time (s)		15.7			15.9			16.1			14.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	207	400	218	87	229	38	114	518	0	71	919	228
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		45			45			28			28	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	pm+ov	Prot	NA	Free	Split	NA		Split	NA	pm+ov
Protected Phases	5	2	8	1	6		8	8		4	4	5
Permitted Phases			2			Free						4
Detector Phase	5	2	8	1	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	18.0	28.0	30.0	16.0	26.0		30.0	30.0		46.0	46.0	18.0
Total Split (%)	15.0%	23.3%	25.0%	13.3%	21.7%		25.0%	25.0%		38.3%	38.3%	15.0%
Maximum Green (s)	11.0	21.0	23.0	9.0	19.0		23.0	23.0		39.0	39.0	11.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min	None	None	C-Min		None	None		None	None	None
Act Effct Green (s)	12.7	26.5	50.7	10.7	24.5	120.0	24.2	24.2		38.5	38.5	51.3
Actuated g/C Ratio	0.11	0.22	0.42	0.09	0.20	1.00	0.20	0.20		0.32	0.32	0.43
v/c Ratio	0.58	0.53	0.34	0.57	0.33	0.02	0.17	0.76		0.07	0.82	0.34
Control Delay	58.2	45.4	15.8	67.3	43.8	0.0	39.8	53.0		27.4	44.5	12.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	58.2	45.4	15.8	67.3	43.8	0.0	39.8	53.0		27.4	44.5	12.9
LOS	E	D	B	E	D	A	D	D		C	D	B
Approach Delay		40.8			44.8			50.6			37.6	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)	79	153	79	65	85	0	36	194		19	335	58
Queue Length 95th (ft)	120	204	124	121	123	0	63	262		36	414	84
Internal Link Dist (ft)		956			970			980			902	
Turn Bay Length (ft)	325		475	275		600	275			400		400
Base Capacity (vph)	364	771	665	159	713	1538	712	717		1150	1185	668
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.57	0.52	0.33	0.55	0.32	0.02	0.16	0.72		0.06	0.78	0.34

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 42.0 Intersection LOS: D
Intersection Capacity Utilization 61.2% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 411: NC 11 & US 70 Bus



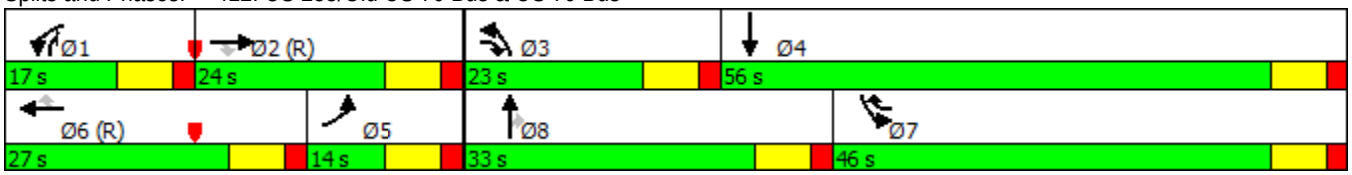
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	195	76	70	311	525	123	506	71	341	324	54
Future Volume (vph)	52	195	76	70	311	525	123	506	71	341	324	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		250	225		0	400		275	275		0
Storage Lanes	1		1	1		1	2		1	2		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1719	4940	1538	1736	3471	1553	1719	3438	1538	3367	3398	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1736	3471	1553	1719	3438	1538	3367	3398	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		728			2078			588			1049	
Travel Time (s)		11.0			31.5			8.9			15.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	5%	5%	5%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	217	84	78	346	583	137	562	79	379	420	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			18			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	
Permitted Phases			2			6			8			
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0	
Total Split (s)	14.0	24.0	23.0	17.0	27.0	46.0	23.0	33.0	17.0	46.0	56.0	
Total Split (%)	11.7%	20.0%	19.2%	14.2%	22.5%	38.3%	19.2%	27.5%	14.2%	38.3%	46.7%	
Maximum Green (s)	7.0	17.0	16.0	10.0	20.0	39.0	16.0	26.0	10.0	39.0	49.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None	None	None	None	
Act Effct Green (s)	10.0	28.0	48.7	11.3	32.1	72.0	15.7	25.8	37.1	34.9	45.0	
Actuated g/C Ratio	0.08	0.23	0.41	0.09	0.27	0.60	0.13	0.22	0.31	0.29	0.38	
v/c Ratio	0.41	0.19	0.13	0.48	0.37	0.63	0.61	0.76	0.17	0.39	0.33	
Control Delay	61.4	40.9	26.4	43.2	29.5	11.0	60.8	51.4	16.4	34.1	26.5	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	61.4	40.9	26.4	43.2	29.5	11.0	60.8	51.4	16.4	34.1	26.5	
LOS	E	D	C	D	C	B	E	D	B	C	C	
Approach Delay		40.8			19.8			49.5			30.1	
Approach LOS		D			B			D			C	
Queue Length 50th (ft)	43	54	45	61	143	423	101	212	26	111	109	
Queue Length 95th (ft)	89	81	83	86	153	85	166	275	49	153	149	
Internal Link Dist (ft)		648			1998			508			969	
Turn Bay Length (ft)	225		250	225			400		275	275		
Base Capacity (vph)	142	1151	653	175	944	919	257	802	485	1150	1446	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.41	0.19	0.13	0.45	0.37	0.63	0.53	0.70	0.16	0.33	0.29	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 36 (30%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 33.0 Intersection LOS: C
Intersection Capacity Utilization 64.8% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 412: US 258/Old US 70 Bus & US 70 Bus



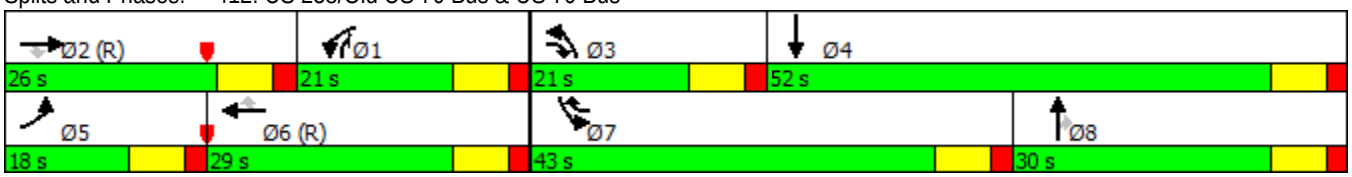
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	311	123	71	195	341	76	324	70	525	506	52
Future Volume (vph)	54	311	123	71	195	341	76	324	70	525	506	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		250	225		0	400		275	275		0
Storage Lanes	1		1	1		1	2		1	2		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1719	4940	1538	1736	3471	1553	1719	3438	1538	3367	3423	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1736	3471	1553	1719	3438	1538	3367	3423	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		728			2078			588			1049	
Travel Time (s)		11.0			31.5			8.9			15.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	5%	5%	5%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	346	137	79	217	379	84	360	78	583	620	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			18			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	
Permitted Phases			2			6			8			
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0	
Total Split (s)	18.0	26.0	21.0	21.0	29.0	43.0	21.0	30.0	21.0	43.0	52.0	
Total Split (%)	15.0%	21.7%	17.5%	17.5%	24.2%	35.8%	17.5%	25.0%	17.5%	35.8%	43.3%	
Maximum Green (s)	11.0	19.0	14.0	14.0	22.0	36.0	14.0	23.0	14.0	36.0	45.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None	None	None	None	
Act Effct Green (s)	11.7	37.1	50.3	14.1	42.3	76.3	13.2	19.8	33.9	29.0	35.6	
Actuated g/C Ratio	0.10	0.31	0.42	0.12	0.35	0.64	0.11	0.16	0.28	0.24	0.30	
v/c Ratio	0.36	0.23	0.21	0.39	0.18	0.38	0.44	0.64	0.18	0.72	0.61	
Control Delay	55.9	33.5	14.3	32.1	13.3	7.6	56.7	51.8	16.8	46.5	38.5	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	55.9	33.5	14.3	32.1	13.3	7.6	56.7	51.8	16.8	46.5	38.5	
LOS	E	C	B	C	B	A	E	D	B	D	D	
Approach Delay		31.1			12.3			47.3			42.4	
Approach LOS		C			B			D			D	
Queue Length 50th (ft)	44	71	41	62	33	116	62	138	24	214	216	
Queue Length 95th (ft)	86	117	82	62	65	363	110	182	43	258	256	
Internal Link Dist (ft)		648			1998			508			969	
Turn Bay Length (ft)	225		250	225			400		275	275		
Base Capacity (vph)	192	1527	684	234	1222	1103	233	716	460	1066	1340	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.31	0.23	0.20	0.34	0.18	0.34	0.36	0.50	0.17	0.55	0.46	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 8 (7%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 34.3 Intersection LOS: C
Intersection Capacity Utilization 56.4% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 412: US 258/Old US 70 Bus & US 70 Bus



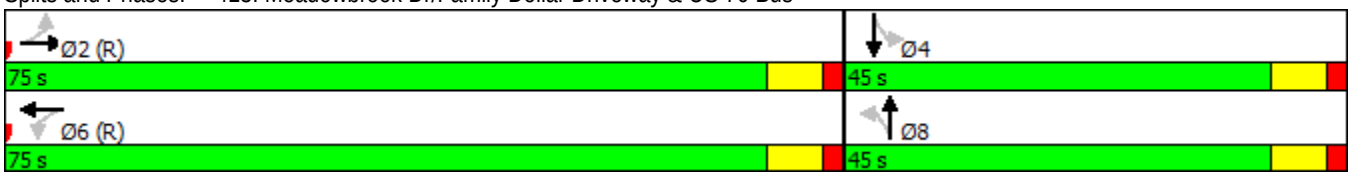
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	546	55	25	823	4	91	4	27	4	4	4
Future Volume (vph)	4	546	55	25	823	4	91	4	27	4	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	225		0	75		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1736	4918	0	1736	4983	0	1752	1601	0	0	1750	0
Flt Permitted	0.296			0.386			0.750				0.922	
Satd. Flow (perm)	541	4918	0	705	4983	0	1383	1601	0	0	1640	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		2078			2483			1026			272	
Travel Time (s)		31.5			37.6			20.0			7.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	668	0	28	918	0	101	34	0	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	19.0	19.0		19.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	75.0	75.0		75.0	75.0		45.0	45.0		45.0	45.0	
Total Split (%)	62.5%	62.5%		62.5%	62.5%		37.5%	37.5%		37.5%	37.5%	
Maximum Green (s)	68.0	68.0		68.0	68.0		38.0	38.0		38.0	38.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0			-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min		C-Min	C-Min		None	None		None	None	
Act Effct Green (s)	93.9	93.9		93.9	93.9		16.1	16.1			16.1	
Actuated g/C Ratio	0.78	0.78		0.78	0.78		0.13	0.13			0.13	
v/c Ratio	0.01	0.17		0.05	0.24		0.55	0.16			0.05	
Control Delay	2.2	2.6		1.9	2.6		58.5	45.4			42.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	2.2	2.6		1.9	2.6		58.5	45.4			42.9	
LOS	A	A		A	A		E	D			D	
Approach Delay		2.6			2.6			55.2			42.9	
Approach LOS		A			A			E			D	
Queue Length 50th (ft)	0	20		1	26		74	24			8	
Queue Length 95th (ft)	m1	77		m4	24		126	52			25	
Internal Link Dist (ft)		1998			2403			946			192	
Turn Bay Length (ft)	225			225			75					
Base Capacity (vph)	423	3847		551	3898		461	533			546	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.01	0.17		0.05	0.24		0.22	0.06			0.02	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 18 (15%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.55
Intersection Signal Delay: 6.9 Intersection LOS: A
Intersection Capacity Utilization 40.8% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 413: Meadowbrook Dr/Family Dollar Driveway & US 70 Bus



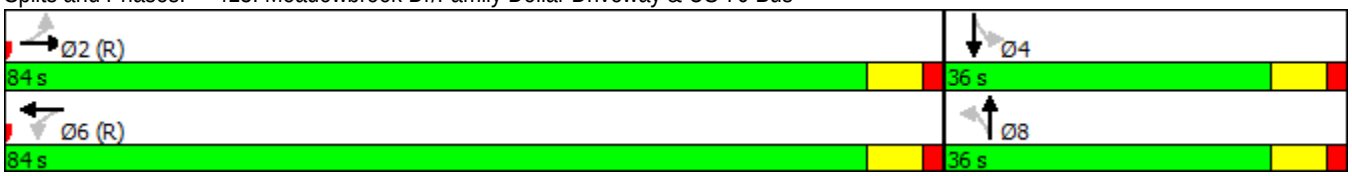
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	823	91	27	546	4	55	4	25	4	4	4
Future Volume (vph)	4	823	91	27	546	4	55	4	25	4	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	225		0	75		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1736	4913	0	1736	4983	0	1752	1603	0	0	1750	0
Flt Permitted	0.410			0.269			0.750				0.902	
Satd. Flow (perm)	749	4913	0	491	4983	0	1383	1603	0	0	1605	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		2078			2483			1026			272	
Travel Time (s)		31.5			37.6			20.0			7.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	1015	0	30	611	0	61	32	0	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	19.0	19.0		19.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	84.0	84.0		84.0	84.0		36.0	36.0		36.0	36.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	77.0	77.0		77.0	77.0		29.0	29.0		29.0	29.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0			-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min		C-Min	C-Min		None	None		None	None	
Act Effct Green (s)	101.0	101.0		101.0	101.0		12.8	12.8			12.8	
Actuated g/C Ratio	0.84	0.84		0.84	0.84		0.11	0.11			0.11	
v/c Ratio	0.01	0.25		0.07	0.15		0.41	0.19			0.07	
Control Delay	4.0	2.4		0.4	0.1		57.6	49.9			47.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	4.0	2.4		0.4	0.1		57.6	49.9			47.1	
LOS	A	A		A	A		E	D			D	
Approach Delay		2.4			0.1			55.0			47.1	
Approach LOS		A			A			D			D	
Queue Length 50th (ft)	0	16		0	1		45	23			9	
Queue Length 95th (ft)	m3	105		m0	1		87	53			27	
Internal Link Dist (ft)		1998			2403			946			192	
Turn Bay Length (ft)	225			225			75					
Base Capacity (vph)	630	4134		413	4193		357	414			414	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.01	0.25		0.07	0.15		0.17	0.08			0.03	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 116 (97%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.41
Intersection Signal Delay: 4.7 Intersection LOS: A
Intersection Capacity Utilization 38.4% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 413: Meadowbrook Dr/Family Dollar Driveway & US 70 Bus



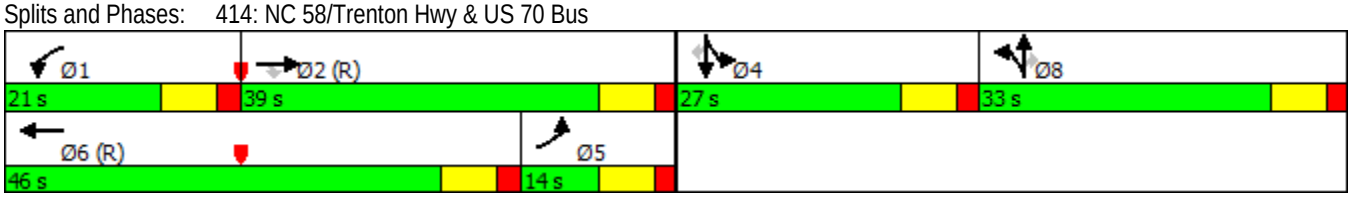
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	331	195	93	474	75	331	36	110	102	42	64
Future Volume (vph)	32	331	195	93	474	75	331	36	110	102	42	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	225		0	275		100	0		100
Storage Lanes	1		1	2		0	1		1	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1736	3471	1553	1719	4841	0	1665	1684	1568	0	1782	1568
Flt Permitted	0.950			0.950			0.950	0.961			0.966	
Satd. Flow (perm)	1736	3471	1553	1719	4841	0	1665	1684	1568	0	1782	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			25	
Link Distance (ft)		2483			1780			813			641	
Travel Time (s)		37.6			27.0			12.3			17.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)							45%					
Lane Group Flow (vph)	36	368	217	103	610	0	202	206	122	0	160	71
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			36			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	19.0	19.0	14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	14.0	39.0	39.0	21.0	46.0		33.0	33.0	33.0	27.0	27.0	27.0
Total Split (%)	11.7%	32.5%	32.5%	17.5%	38.3%		27.5%	27.5%	27.5%	22.5%	22.5%	22.5%
Maximum Green (s)	7.0	32.0	32.0	14.0	39.0		26.0	26.0	26.0	20.0	20.0	20.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0		5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None	None	None	None	None
Act Effct Green (s)	14.8	46.6	46.6	13.8	51.2		21.9	21.9	21.9		17.8	17.8
Actuated g/C Ratio	0.12	0.39	0.39	0.12	0.43		0.18	0.18	0.18		0.15	0.15
v/c Ratio	0.17	0.27	0.36	0.52	0.30		0.67	0.67	0.43		0.61	0.31
Control Delay	36.0	18.5	21.1	59.2	27.6		56.0	56.2	47.0		57.2	47.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	36.0	18.5	21.1	59.2	27.6		56.0	56.2	47.0		57.2	47.8
LOS	D	B	C	E	C		E	E	D		E	D
Approach Delay		20.4			32.1			54.0			54.3	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	19	88	101	76	125		154	157	85		117	50
Queue Length 95th (ft)	43	131	163	133	193		227	231	137		182	91
Internal Link Dist (ft)		2403			1700			733			561	
Turn Bay Length (ft)	100			225			275		100			100
Base Capacity (vph)	214	1351	604	230	2209		388	392	365		328	289
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	0
Reduced v/c Ratio	0.17	0.27	0.36	0.45	0.28		0.52	0.53	0.33		0.49	0.25

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 88 (73%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 36.6 Intersection LOS: D
Intersection Capacity Utilization 45.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 414: NC 58/Trenton Hwy & US 70 Bus



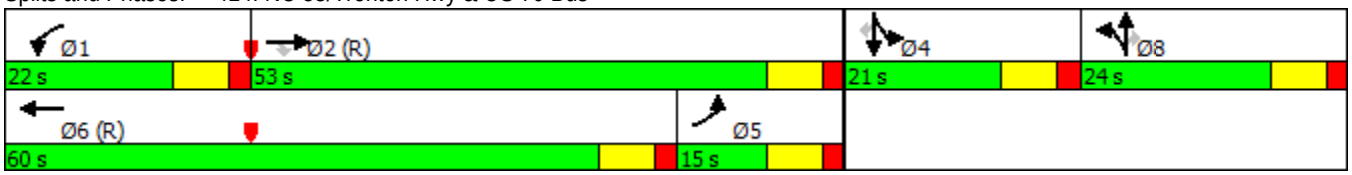
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	474	331	110	331	102	195	42	93	75	36	32
Future Volume (vph)	64	474	331	110	331	102	195	42	93	75	36	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	225		0	275		100	0		100
Storage Lanes	1		1	2		0	1		1	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1736	3471	1553	1719	4767	0	1665	1698	1568	0	1784	1568
Flt Permitted	0.950			0.950			0.950	0.969			0.967	
Satd. Flow (perm)	1736	3471	1553	1719	4767	0	1665	1698	1568	0	1784	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			25	
Link Distance (ft)		2483			1780			813			641	
Travel Time (s)		37.6			27.0			12.3			17.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)							40%					
Lane Group Flow (vph)	71	527	368	122	481	0	130	134	103	0	123	36
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			36			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	19.0	19.0	14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	15.0	53.0	53.0	22.0	60.0		24.0	24.0	24.0	21.0	21.0	21.0
Total Split (%)	12.5%	44.2%	44.2%	18.3%	50.0%		20.0%	20.0%	20.0%	17.5%	17.5%	17.5%
Maximum Green (s)	8.0	46.0	46.0	15.0	53.0		17.0	17.0	17.0	14.0	14.0	14.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0		5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None	None	None	None	None
Act Effct Green (s)	28.9	54.4	54.4	14.9	43.3		16.0	16.0	16.0		14.6	14.6
Actuated g/C Ratio	0.24	0.45	0.45	0.12	0.36		0.13	0.13	0.13		0.12	0.12
v/c Ratio	0.17	0.33	0.52	0.57	0.28		0.59	0.59	0.49		0.57	0.19
Control Delay	20.3	13.3	16.6	59.9	32.9		59.3	59.4	55.7		60.0	48.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	20.3	13.3	16.6	59.9	32.9		59.3	59.4	55.7		60.0	48.9
LOS	C	B	B	E	C		E	E	E		E	D
Approach Delay		15.1			38.4			58.3			57.5	
Approach LOS		B			D			E			E	
Queue Length 50th (ft)	28	84	113	90	105		100	103	75		90	25
Queue Length 95th (ft)	50	124	189	152	159		167	170	130		154	58
Internal Link Dist (ft)		2403			1700			733			561	
Turn Bay Length (ft)	100			225			275		100			100
Base Capacity (vph)	421	1589	711	246	2411		263	268	248		242	213
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	0
Reduced v/c Ratio	0.17	0.33	0.52	0.50	0.20		0.49	0.50	0.42		0.51	0.17

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 88 (73%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 32.6 — Intersection LOS: C
Intersection Capacity Utilization 45.1% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 414: NC 58/Trenton Hwy & US 70 Bus



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	473	32	5	648	0	79
Future Volume (vph)	473	32	5	648	0	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		150	150		0	0
Storage Lanes		1	1		0	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	3438	1538	1719	3438	0	1627
Flt Permitted			0.950			
Satd. Flow (perm)	3438	1538	1719	3438	0	1627
Link Speed (mph)	45			45	25	
Link Distance (ft)	1780			1040	439	
Travel Time (s)	27.0			15.8	12.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	526	36	6	720	0	88
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	45			45	6	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 24.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	473	32	5	648	0	79
Future Volume (Veh/h)	473	32	5	648	0	79
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	526	36	6	720	0	88
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	1			1		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			562		898	263
vC1, stage 1 conf vol					526	
vC2, stage 2 conf vol					372	
vCu, unblocked vol			562		898	263
tC, single (s)			4.2		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	88
cM capacity (veh/h)			985		403	739

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	263	263	36	6	360	360	88
Volume Left	0	0	0	6	0	0	0
Volume Right	0	0	36	0	0	0	88
cSH	1700	1700	1700	985	1700	1700	739
Volume to Capacity	0.15	0.15	0.02	0.01	0.21	0.21	0.12
Queue Length 95th (ft)	0	0	0	0	0	0	10
Control Delay (s)	0.0	0.0	0.0	8.7	0.0	0.0	10.5
Lane LOS				A			B
Approach Delay (s)	0.0			0.1			10.5
Approach LOS							B

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	24.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	596	69	14	524	0	37
Future Volume (vph)	596	69	14	524	0	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		150	150		0	0
Storage Lanes		1	1		0	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	3438	1538	1719	3438	0	1627
Flt Permitted			0.950			
Satd. Flow (perm)	3438	1538	1719	3438	0	1627
Link Speed (mph)	45			45	25	
Link Distance (ft)	1780			1040	439	
Travel Time (s)	27.0			15.8	12.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	662	77	16	582	0	41
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	45			45	6	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.5%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	596	69	14	524	0	37
Future Volume (Veh/h)	596	69	14	524	0	37
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	662	77	16	582	0	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	1			1		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			739		985	331
vC1, stage 1 conf vol					662	
vC2, stage 2 conf vol					323	
vCu, unblocked vol			739		985	331
tC, single (s)			4.2		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		100	94
cM capacity (veh/h)			844		362	668

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	331	331	77	16	291	291	41
Volume Left	0	0	0	16	0	0	0
Volume Right	0	0	77	0	0	0	41
cSH	1700	1700	1700	844	1700	1700	668
Volume to Capacity	0.19	0.19	0.05	0.02	0.17	0.17	0.06
Queue Length 95th (ft)	0	0	0	1	0	0	5
Control Delay (s)	0.0	0.0	0.0	9.4	0.0	0.0	10.7
Lane LOS				A			B
Approach Delay (s)	0.0			0.3			10.7
Approach LOS							B

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	26.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	49	471	4	575	22	28	76
Future Volume (vph)	49	471	4	575	22	28	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		175		150	0	0
Storage Lanes	1		1		1	1	0
Taper Length (ft)	100		100			100	
Satd. Flow (prot)	1719	3438	1719	3438	1538	1625	0
Flt Permitted	0.950		0.950			0.987	
Satd. Flow (perm)	1719	3438	1719	3438	1538	1625	0
Link Speed (mph)		55		55		45	
Link Distance (ft)		1063		973		1036	
Travel Time (s)		13.2		12.1		15.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	4%	4%
Shared Lane Traffic (%)							
Lane Group Flow (vph)	54	523	4	639	24	115	0
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		42		42		18	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		16		16		16	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Sign Control		Free		Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 35.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	49	471	4	575	22	28	76
Future Volume (Veh/h)	49	471	4	575	22	28	76
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	54	523	0	639	24	31	84
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		Raised		Raised			
Median storage veh)		1		1			
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	663		0			1008	320
vC1, stage 1 conf vol						639	
vC2, stage 2 conf vol						370	
vCu, unblocked vol	663		0			1008	320
tC, single (s)	4.2		0.0			6.9	7.0
tC, 2 stage (s)						5.9	
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	94		0			91	87
cM capacity (veh/h)	902		0			346	670

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	54	262	262	320	320	24	0	115
Volume Left	54	0	0	0	0	0	0	31
Volume Right	0	0	0	0	0	24	0	84
cSH	902	1700	1700	1700	1700	1700	1700	535
Volume to Capacity	0.06	0.15	0.15	0.19	0.19	0.01	0.00	0.21
Queue Length 95th (ft)	5	0	0	0	0	0	0	20
Control Delay (s)	9.2	0.0	0.0	0.0	0.0	0.0	0.0	13.6
Lane LOS	A							B
Approach Delay (s)	0.9			0.0				13.6
Approach LOS								B

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	35.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	76	575	4	472	28	22	49
Future Volume (vph)	76	575	4	472	28	22	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		175		150	0	0
Storage Lanes	1		1		1	1	0
Taper Length (ft)	100		100			100	
Satd. Flow (prot)	1719	3438	1719	3438	1538	1632	0
Flt Permitted	0.950		0.950			0.985	
Satd. Flow (perm)	1719	3438	1719	3438	1538	1632	0
Link Speed (mph)		55		55		45	
Link Distance (ft)		1063		973		1036	
Travel Time (s)		13.2		12.1		15.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	4%	4%
Shared Lane Traffic (%)							
Lane Group Flow (vph)	84	639	4	524	31	78	0
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		42		42		18	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		16		16		16	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Sign Control		Free		Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 33.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	76	575	4	472	28	22	49
Future Volume (Veh/h)	76	575	4	472	28	22	49
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	84	639	0	524	31	24	54
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		Raised		Raised			
Median storage veh)		1		1			
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	555		0			1012	262
vC1, stage 1 conf vol						524	
vC2, stage 2 conf vol						488	
vCu, unblocked vol	555		0			1012	262
tC, single (s)	4.2		0.0			6.9	7.0
tC, 2 stage (s)						5.9	
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	92		0			93	93
cM capacity (veh/h)	991		0			344	731

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	84	320	320	262	262	31	0	78
Volume Left	84	0	0	0	0	0	0	24
Volume Right	0	0	0	0	0	31	0	54
cSH	991	1700	1700	1700	1700	1700	1700	543
Volume to Capacity	0.08	0.19	0.19	0.15	0.15	0.02	0.00	0.14
Queue Length 95th (ft)	7	0	0	0	0	0	0	12
Control Delay (s)	9.0	0.0	0.0	0.0	0.0	0.0	0.0	12.7
Lane LOS	A							B
Approach Delay (s)	1.0			0.0				12.7
Approach LOS								B

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	33.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	516	263	160	0
Future Volume (vph)	0	0	516	263	160	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			275	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	100				100	
Satd. Flow (prot)	0	0	3438	1538	1752	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	3438	1538	1752	0
Link Speed (mph)		45	45		35	
Link Distance (ft)		676	1073		656	
Travel Time (s)		10.2	16.3		12.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	3%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	573	292	178	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	R NA	Left	Right	L NA	Right
Median Width(ft)		64	48		12	
Link Offset(ft)		0	8		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 29.8%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	516	263	160	0
Future Volume (Veh/h)	0	0	516	263	160	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	573	292	178	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		Raised	Raised			
Median storage veh)		2	1			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	573				573	286
vC1, stage 1 conf vol					573	
vC2, stage 2 conf vol					0	
vCu, unblocked vol	573				573	286
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				65	100
cM capacity (veh/h)	976				511	707

Direction, Lane #	WB 1	WB 2	WB 3	SB 1
Volume Total	286	286	292	178
Volume Left	0	0	0	178
Volume Right	0	0	292	0
cSH	1700	1700	1700	511
Volume to Capacity	0.17	0.17	0.17	0.35
Queue Length 95th (ft)	0	0	0	39
Control Delay (s)	0.0	0.0	0.0	15.8
Lane LOS				C
Approach Delay (s)	0.0			15.8
Approach LOS				C

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	29.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	333	160	262	0
Future Volume (vph)	0	0	333	160	262	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			275	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	100				100	
Satd. Flow (prot)	0	0	3438	1538	1752	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	3438	1538	1752	0
Link Speed (mph)		45	45		35	
Link Distance (ft)		676	1073		656	
Travel Time (s)		10.2	16.3		12.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	3%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	370	178	291	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	R NA	Left	Right	L NA	Right
Median Width(ft)		64	48		12	
Link Offset(ft)		0	8		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 30.4%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	333	160	262	0
Future Volume (Veh/h)	0	0	333	160	262	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	370	178	291	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		Raised	Raised			
Median storage veh)		2	1			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	370				370	185
vC1, stage 1 conf vol					370	
vC2, stage 2 conf vol					0	
vCu, unblocked vol	370				370	185
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				55	100
cM capacity (veh/h)	1164				649	823

Direction, Lane #	WB 1	WB 2	WB 3	SB 1
Volume Total	185	185	178	291
Volume Left	0	0	0	291
Volume Right	0	0	178	0
cSH	1700	1700	1700	649
Volume to Capacity	0.11	0.11	0.10	0.45
Queue Length 95th (ft)	0	0	0	58
Control Delay (s)	0.0	0.0	0.0	15.0
Lane LOS				B
Approach Delay (s)	0.0			15.0
Approach LOS				B

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	30.4%	ICU Level of Service	A
Analysis Period (min)	15		

2040 Representative
Build Alternative 1 SB
SimTraffic Reports

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Summary of All Intervals

Run Number	1	2	3	4	5		Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	13890	13857	13843	13969	13971	14120	13939
Vehs Exited	13847	13857	13877	13987	13956	14082	13932
Starting Vehs	306	366	386	363	338	346	339
Ending Vehs	349	366	352	345	353	384	349
Travel Distance (mi)	8266	8195	8280	8277	8203	8319	8256
Travel Time (hr)	372.6	370.0	412.4	365.7	376.5	363.8	376.8
Total Delay (hr)	165.5	164.2	204.5	157.8	170.8	155.2	169.7
Total Stops	10599	10915	10578	10876	10754	10933	10774
Fuel Used (gal)	341.3	340.3	350.6	342.4	341.4	342.2	343.1

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5		Avg
Vehs Entered	13890	13857	13843	13969	13971	14120	13939
Vehs Exited	13847	13857	13877	13987	13956	14082	13932
Starting Vehs	306	366	386	363	338	346	339
Ending Vehs	349	366	352	345	353	384	349
Travel Distance (mi)	8266	8195	8280	8277	8203	8319	8256
Travel Time (hr)	372.6	370.0	412.4	365.7	376.5	363.8	376.8
Total Delay (hr)	165.5	164.2	204.5	157.8	170.8	155.2	169.7
Total Stops	10599	10915	10578	10876	10754	10933	10774
Fuel Used (gal)	341.3	340.3	350.6	342.4	341.4	342.2	343.1

Intersection: 401: Jenny Lind Rd & NC 903

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	84	34
Average Queue (ft)	39	3
95th Queue (ft)	66	17
Link Distance (ft)	1281	577
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 402: NC 903 & US 70 EB Ramps

Movement	EB	EB	SB
Directions Served	LT	R	L
Maximum Queue (ft)	68	9	34
Average Queue (ft)	31	0	10
95th Queue (ft)	55	7	30
Link Distance (ft)	1276		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		100	225
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 403: NC 903 & US 70 WB Ramps

Movement	WB	WB	NB
Directions Served	LT	R	L
Maximum Queue (ft)	69	12	44
Average Queue (ft)	33	0	7
95th Queue (ft)	57	10	28
Link Distance (ft)	1330		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		100	250
Storage Blk Time (%)	0		
Queuing Penalty (veh)	0		

Intersection: 404: Shopping Center Dr/Pinelawn Cemetery Dr & US 70 Bus

Movement	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	R	L	T	TR	LT	R	LTR
Maximum Queue (ft)	35	28	132	10	15	265	200	41
Average Queue (ft)	4	2	45	0	1	202	127	12
95th Queue (ft)	19	14	95	6	11	307	266	36
Link Distance (ft)				816	816	225		259
Upstream Blk Time (%)						53		
Queuing Penalty (veh)						0		
Storage Bay Dist (ft)	150	150	400				100	
Storage Blk Time (%)						79	1	
Queuing Penalty (veh)						106	1	

Intersection: 405: Sussex St/Hill Farm Rd & US 70 Bus

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	T	L	T	T	R	LT	R	L	LT	R
Maximum Queue (ft)	199	245	244	185	284	288	175	361	225	181	230	198
Average Queue (ft)	90	143	131	76	171	188	87	166	106	45	117	64
95th Queue (ft)	160	226	209	142	267	285	158	282	194	136	196	137
Link Distance (ft)		816	816		887	887		364			548	
Upstream Blk Time (%)								1				
Queuing Penalty (veh)								0				
Storage Bay Dist (ft)	300			225			450		125	325		100
Storage Blk Time (%)			0	0	3			21	5		17	1
Queuing Penalty (veh)			0	0	3			28	11		32	2

Intersection: 406: Sheffield Dr/Walmart Dr & US 70 Bus

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	R	R	R
Maximum Queue (ft)	50	5	84	14	56	193
Average Queue (ft)	10	0	27	1	3	71
95th Queue (ft)	35	3	60	7	24	138
Link Distance (ft)				960	356	219
Upstream Blk Time (%)						0
Queuing Penalty (veh)						0
Storage Bay Dist (ft)	225	150	250			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 407: US 70 Bus & US 258

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	SB	SB
Directions Served	L	L	T	T	T	U	T	T	R	L	L
Maximum Queue (ft)	94	113	140	177	84	36	218	249	90	132	163
Average Queue (ft)	37	57	43	61	10	5	99	108	33	58	86
95th Queue (ft)	79	97	105	132	44	22	180	196	73	112	134
Link Distance (ft)			960	960	960		598	598	598		2328
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	450	450				300				250	
Storage Blk Time (%)							0				
Queuing Penalty (veh)							0				

Intersection: 408: Driveway/Ruby Tuesday & US 70 Bus

Movement	EB	WB	NB	SB
Directions Served	L	L	R	R
Maximum Queue (ft)	19	25	42	45
Average Queue (ft)	1	3	12	16
95th Queue (ft)	8	15	33	40
Link Distance (ft)			128	166
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	300	150		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 409: US 70 Bus & Mt Vernon Park Dr

Movement	EB	EB	EB	WB	WB	WB	WB	SB
Directions Served	L	T	T	U	T	T	TR	LR
Maximum Queue (ft)	47	126	142	34	204	168	117	123
Average Queue (ft)	13	33	51	4	66	48	41	54
95th Queue (ft)	39	90	106	21	145	115	97	101
Link Distance (ft)		525	525		861	861	861	340
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	175			75				
Storage Blk Time (%)		0			5			
Queuing Penalty (veh)		0			0			

Intersection: 410: Hillcrest Rd & Old US 70 Bus

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	R	LT	R
Maximum Queue (ft)	107	279	237	259	195	170	37	154	148	85	78
Average Queue (ft)	11	147	107	113	101	70	6	80	76	35	26
95th Queue (ft)	56	243	207	198	173	143	24	128	129	73	63
Link Distance (ft)		785	785		949	949	449				348
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	75			300				225	225	75	
Storage Blk Time (%)	0	27		0						2	1
Queuing Penalty (veh)	0	4		1						0	0

Intersection: 411: NC 11 & US 70 Bus

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	L	L	T	TR
Maximum Queue (ft)	191	218	158	132	63	152	242	225	129	263	386	364
Average Queue (ft)	86	134	83	52	28	57	166	129	24	78	231	212
95th Queue (ft)	185	205	144	108	59	120	227	206	81	168	333	319
Link Distance (ft)			975	975			989	989			983	983
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	325	325			475	275			275	275		
Storage Blk Time (%)							0				3	
Queuing Penalty (veh)							0				7	

Intersection: 411: NC 11 & US 70 Bus

Movement	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	R
Maximum Queue (ft)	30	72	284	255	158
Average Queue (ft)	2	25	181	145	76
95th Queue (ft)	14	59	253	221	137
Link Distance (ft)			914	914	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	400	400			400
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 412: US 258/Old US 70 Bus & US 70 Bus

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	T	L	T	T	R	L	T	T	R
Maximum Queue (ft)	115	105	91	86	128	148	178	535	173	286	343	118
Average Queue (ft)	37	49	39	23	45	65	84	58	86	150	190	20
95th Queue (ft)	84	88	76	61	104	130	145	314	155	247	287	73
Link Distance (ft)		627	627	627		1931	1931	1931			481	
Upstream Blk Time (%)											0	
Queuing Penalty (veh)											0	
Storage Bay Dist (ft)	225				225				400	400		275
Storage Blk Time (%)										0	1	
Queuing Penalty (veh)										0	6	

Intersection: 412: US 258/Old US 70 Bus & US 70 Bus

Movement	SB	SB	SB	SB
Directions Served	L	L	T	TR
Maximum Queue (ft)	210	269	177	160
Average Queue (ft)	91	133	56	59
95th Queue (ft)	193	228	135	135
Link Distance (ft)			951	951
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	275	275		
Storage Blk Time (%)		0	0	
Queuing Penalty (veh)		0	0	

Intersection: 413: Meadowbrook Dr/Family Dollar Driveway & US 70 Bus

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	T	TR	L	T	T	TR	L	TR	LTR
Maximum Queue (ft)	17	62	89	108	46	93	117	134	130	109	41
Average Queue (ft)	1	16	24	29	12	19	40	45	56	29	9
95th Queue (ft)	9	47	64	76	36	60	92	108	103	75	31
Link Distance (ft)		1931	1931	1931		2404	2404	2404		961	211
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	225				225				75		
Storage Blk Time (%)									8	1	
Queuing Penalty (veh)									2	1	

Intersection: 414: NC 58/Trenton Hwy & US 70 Bus

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	L	T	T	TR	L	LT	R	LT	R
Maximum Queue (ft)	64	181	192	161	194	211	207	274	314	200	224	176
Average Queue (ft)	24	71	85	72	63	81	97	131	185	40	110	55
95th Queue (ft)	57	145	157	134	132	152	170	234	274	171	194	119
Link Distance (ft)		2404	2404			1703	1703		758		573	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	100			225	225			275		100		100
Storage Blk Time (%)		4		0	0	0		0	38		18	3
Queuing Penalty (veh)		1		0	0	0		0	105		11	4

Intersection: 415: Lenoir CC Driveway & US 70 Bus

Movement	WB	NB
Directions Served	L	R
Maximum Queue (ft)	22	62
Average Queue (ft)	2	27
95th Queue (ft)	14	50
Link Distance (ft)		364
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	150	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 416: US 70 Bus & Neuse Rd

Movement	EB	WB	WB	SB
Directions Served	L	U	R	LR
Maximum Queue (ft)	56	19	4	132
Average Queue (ft)	21	2	0	37
95th Queue (ft)	48	11	4	103
Link Distance (ft)				917
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	350	175	150	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1410: US 70 Bus & Hillcrest Rd

Movement	SB
Directions Served	L
Maximum Queue (ft)	211
Average Queue (ft)	95
95th Queue (ft)	179
Link Distance (ft)	449
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 326

Summary of All Intervals

Run Number	1	2	3	4	5		Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	13632	13760	13886	13856	13704	13681	13753
Vehs Exited	13563	13771	13870	13844	13714	13712	13753
Starting Vehs	301	349	379	335	341	371	342
Ending Vehs	370	338	395	347	331	340	340
Travel Distance (mi)	8038	8355	8272	8371	8120	8201	8226
Travel Time (hr)	359.1	374.0	367.7	365.3	360.6	359.3	364.3
Total Delay (hr)	157.2	164.6	160.2	155.0	156.8	153.3	157.9
Total Stops	10421	10656	10719	10821	10661	10583	10642
Fuel Used (gal)	330.6	342.6	340.5	342.7	334.0	335.0	337.6

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5		Avg
Vehs Entered	13632	13760	13886	13856	13704	13681	13753
Vehs Exited	13563	13771	13870	13844	13714	13712	13753
Starting Vehs	301	349	379	335	341	371	342
Ending Vehs	370	338	395	347	331	340	340
Travel Distance (mi)	8038	8355	8272	8371	8120	8201	8226
Travel Time (hr)	359.1	374.0	367.7	365.3	360.6	359.3	364.3
Total Delay (hr)	157.2	164.6	160.2	155.0	156.8	153.3	157.9
Total Stops	10421	10656	10719	10821	10661	10583	10642
Fuel Used (gal)	330.6	342.6	340.5	342.7	334.0	335.0	337.6

Intersection: 401: Jenny Lind Rd & NC 903

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	80	31	4
Average Queue (ft)	34	2	0
95th Queue (ft)	62	15	3
Link Distance (ft)	1281	577	432
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 402: NC 903 & US 70 EB Ramps

Movement	EB	EB	NB	SB
Directions Served	LT	R	R	L
Maximum Queue (ft)	64	46	4	46
Average Queue (ft)	26	2	0	10
95th Queue (ft)	50	17	3	33
Link Distance (ft)	1276			
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		100	150	225
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Intersection: 403: NC 903 & US 70 WB Ramps

Movement	WB	WB	NB	SB
Directions Served	LT	R	L	R
Maximum Queue (ft)	74	21	37	4
Average Queue (ft)	38	2	8	0
95th Queue (ft)	63	17	28	3
Link Distance (ft)	1330			
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		100	250	150
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Intersection: 404: Shopping Center Dr/Pinelawn Cemetery Dr & US 70 Bus

Movement	EB	EB	EB	WB	NB	NB	SB
Directions Served	L	T	R	L	LT	R	LTR
Maximum Queue (ft)	26	3	24	147	254	200	70
Average Queue (ft)	2	0	2	59	170	96	20
95th Queue (ft)	14	3	11	114	298	236	58
Link Distance (ft)		1045			225		259
Upstream Blk Time (%)					39		
Queuing Penalty (veh)					0		
Storage Bay Dist (ft)	150		150	400		100	
Storage Blk Time (%)					68	1	
Queuing Penalty (veh)					70	1	

Intersection: 405: Sussex St/Hill Farm Rd & US 70 Bus

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	T	L	T	T	R	LT	R	L	LT	R
Maximum Queue (ft)	222	317	309	201	228	243	157	263	218	213	290	199
Average Queue (ft)	90	187	172	96	140	150	70	109	81	74	151	71
95th Queue (ft)	165	289	272	173	214	229	142	199	159	173	239	162
Link Distance (ft)		816	816		887	887		364			548	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300			225			450		125	325		100
Storage Blk Time (%)	0	0	1	0	0			8	2		26	2
Queuing Penalty (veh)	0	0	1	1	0			8	3		55	5

Intersection: 406: Sheffield Dr/Walmart Dr & US 70 Bus

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	T	R	R	R
Maximum Queue (ft)	74	4	11	97	131	146	25	27	128
Average Queue (ft)	17	0	0	35	4	10	2	1	54
95th Queue (ft)	50	3	5	75	101	161	13	12	96
Link Distance (ft)		887			960	960	960	356	219
Upstream Blk Time (%)									0
Queuing Penalty (veh)									0
Storage Bay Dist (ft)	225		150	250					
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 407: US 70 Bus & US 258

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	SB	SB
Directions Served	L	L	T	T	T	U	T	T	R	L	L
Maximum Queue (ft)	138	137	184	207	145	35	193	201	112	132	155
Average Queue (ft)	52	71	64	71	14	5	82	85	35	50	78
95th Queue (ft)	105	116	133	153	69	22	150	159	84	101	125
Link Distance (ft)			960	960	960		598	598	598		2328
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	450	450				300				250	
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 408: Driveway/Ruby Tuesday & US 70 Bus

Movement	EB	WB	NB	SB
Directions Served	L	L	R	R
Maximum Queue (ft)	24	24	30	30
Average Queue (ft)	3	2	9	9
95th Queue (ft)	15	14	28	30
Link Distance (ft)			128	166
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	300	150		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 409: US 70 Bus & Mt Vernon Park Dr

Movement	EB	EB	EB	WB	WB	WB	WB	SB
Directions Served	L	T	T	U	T	T	TR	LR
Maximum Queue (ft)	60	128	138	33	128	117	129	102
Average Queue (ft)	19	34	46	4	49	40	40	43
95th Queue (ft)	52	98	110	20	106	93	99	85
Link Distance (ft)		525	525		861	861	861	340
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	175			75				
Storage Blk Time (%)		0			3			
Queuing Penalty (veh)		0			0			

Intersection: 410: Hillcrest Rd & Old US 70 Bus

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	R	LT	R
Maximum Queue (ft)	152	267	233	312	285	182	34	114	117	75	56
Average Queue (ft)	20	147	102	169	91	75	5	47	41	22	17
95th Queue (ft)	70	237	208	264	189	146	20	90	87	57	47
Link Distance (ft)		785	785		949	949	449				348
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	75			300				225	225	75	
Storage Blk Time (%)	0	27		1	0					1	0
Queuing Penalty (veh)	1	5		2	0					0	0

Intersection: 411: NC 11 & US 70 Bus

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	L	L	T	TR
Maximum Queue (ft)	184	213	246	213	191	159	188	151	126	144	265	239
Average Queue (ft)	56	113	148	116	72	63	117	66	15	54	153	135
95th Queue (ft)	151	189	231	202	141	123	172	135	57	110	234	220
Link Distance (ft)			975	975			989	989			983	983
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	325	325			475	275			275	275		
Storage Blk Time (%)											0	
Queuing Penalty (veh)											0	

Intersection: 411: NC 11 & US 70 Bus

Movement	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	R
Maximum Queue (ft)	34	140	416	385	163
Average Queue (ft)	4	44	257	221	73
95th Queue (ft)	21	100	357	322	136
Link Distance (ft)			914	914	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	400	400			400
Storage Blk Time (%)			0	0	
Queuing Penalty (veh)			0	0	

Intersection: 412: US 258/Old US 70 Bus & US 70 Bus

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	T	L	T	T	R	L	T	T	R
Maximum Queue (ft)	123	149	138	105	121	104	119	362	168	218	260	86
Average Queue (ft)	37	70	64	40	36	33	50	17	68	98	134	23
95th Queue (ft)	89	123	119	91	90	80	104	155	141	180	216	66
Link Distance (ft)		627	627	627		1931	1931	1931			481	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	225				225				400	400		275
Storage Blk Time (%)											0	
Queuing Penalty (veh)											0	

Intersection: 412: US 258/Old US 70 Bus & US 70 Bus

Movement	SB	SB	SB	SB
Directions Served	L	L	T	TR
Maximum Queue (ft)	274	313	236	259
Average Queue (ft)	148	190	96	108
95th Queue (ft)	235	271	186	206
Link Distance (ft)			951	951
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	275	275		
Storage Blk Time (%)	0	1		
Queuing Penalty (veh)	0	2		

Intersection: 413: Meadowbrook Dr/Family Dollar Driveway & US 70 Bus

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	T	TR	L	T	T	TR	L	TR	LTR
Maximum Queue (ft)	21	93	110	120	64	56	87	107	94	71	39
Average Queue (ft)	2	26	36	38	14	9	21	26	37	21	11
95th Queue (ft)	11	69	90	97	45	34	63	74	77	54	35
Link Distance (ft)		1931	1931	1931		2404	2404	2404		961	211
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	225				225				75		
Storage Blk Time (%)									2	0	
Queuing Penalty (veh)									1	0	

Intersection: 414: NC 58/Trenton Hwy & US 70 Bus

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	L	T	T	TR	L	LT	R	LT	R
Maximum Queue (ft)	128	205	217	173	118	134	177	231	276	199	209	123
Average Queue (ft)	48	101	110	82	45	61	78	70	136	15	89	33
95th Queue (ft)	97	183	197	152	99	111	146	174	229	103	170	91
Link Distance (ft)		2404	2404			1703	1703		758		573	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	100			225	225			275		100		100
Storage Blk Time (%)	1	10						0	23		12	0
Queuing Penalty (veh)	3	7						0	44		4	0

Intersection: 415: Lenoir CC Driveway & US 70 Bus

Movement	WB	NB
Directions Served	L	R
Maximum Queue (ft)	30	43
Average Queue (ft)	5	18
95th Queue (ft)	22	37
Link Distance (ft)		364
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	150	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 416: US 70 Bus & Neuse Rd

Movement	EB	EB	WB	WB	SB
Directions Served	L	T	U	R	LR
Maximum Queue (ft)	81	8	20	14	102
Average Queue (ft)	27	1	2	0	19
95th Queue (ft)	60	9	12	6	70
Link Distance (ft)		1047			917
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	350		175	150	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 1410: US 70 Bus & Hillcrest Rd

Movement	SB
Directions Served	L
Maximum Queue (ft)	280
Average Queue (ft)	151
95th Queue (ft)	251
Link Distance (ft)	449
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 215

APPENDIX Q

2040 Representative Build Alternative 65

Peak Hour Traffic Volume Development and

Synchro & SimTraffic Reports

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2040 Representative
Build Alternative 65
Peak Hour Traffic
Volume Development

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Representative Build Alternative 65

Volume Development

A project-level traffic forecast, titled "Traffic Forecast Technical Memorandum, Kinston Bypass Alternatives Study", was prepared and finalized in November, 2016. This traffic forecast was used to provide peak hour volumes for the analysis of the selected alternatives in this memorandum. The traffic forecast is included in **Attachment A**.

The Intersection Analysis Utility (IAU), provided by NCDOT, was utilized to calculate AM and PM Peak Hour volumes for at-grade intersections (ramp terminals and any intersections within 1,000 feet of ramp terminals), interchange ramps, and freeway segments within interchanges. Peak hour volumes for freeway segments between interchanges were calculated by finding the forecasted daily two-way volumes along the link, then breaking the daily volume down by multiplying it by the Design Hour Volume Percentage (K), and the Peak Hour Directional Split (D). All of these volumes are shown in **BLACK** in **Figures 16A-16E**.

The intersection of SR 1552 (Hillcrest Road) is displayed in the traffic forecast as being a T intersection on US 70 Bus, separate from the US 70/US 70 Bus system interchange, when it is actually a fourth leg of that interchange. As such, volumes between those respective IAUs interact with each other, and so have been redistributed by weighted proportions. The calculations and final volumes for Intersection 430 and 1430 may be found in the ensuing pages of this appendix.

The intersection of US 70 Bus and SR 1904 (Whaley Rd) was missing K and D values in the forecast for SR 1904. The K and D values for this leg of Intersection 421 were assumed the same as in the 2040 No-Build Scenario.

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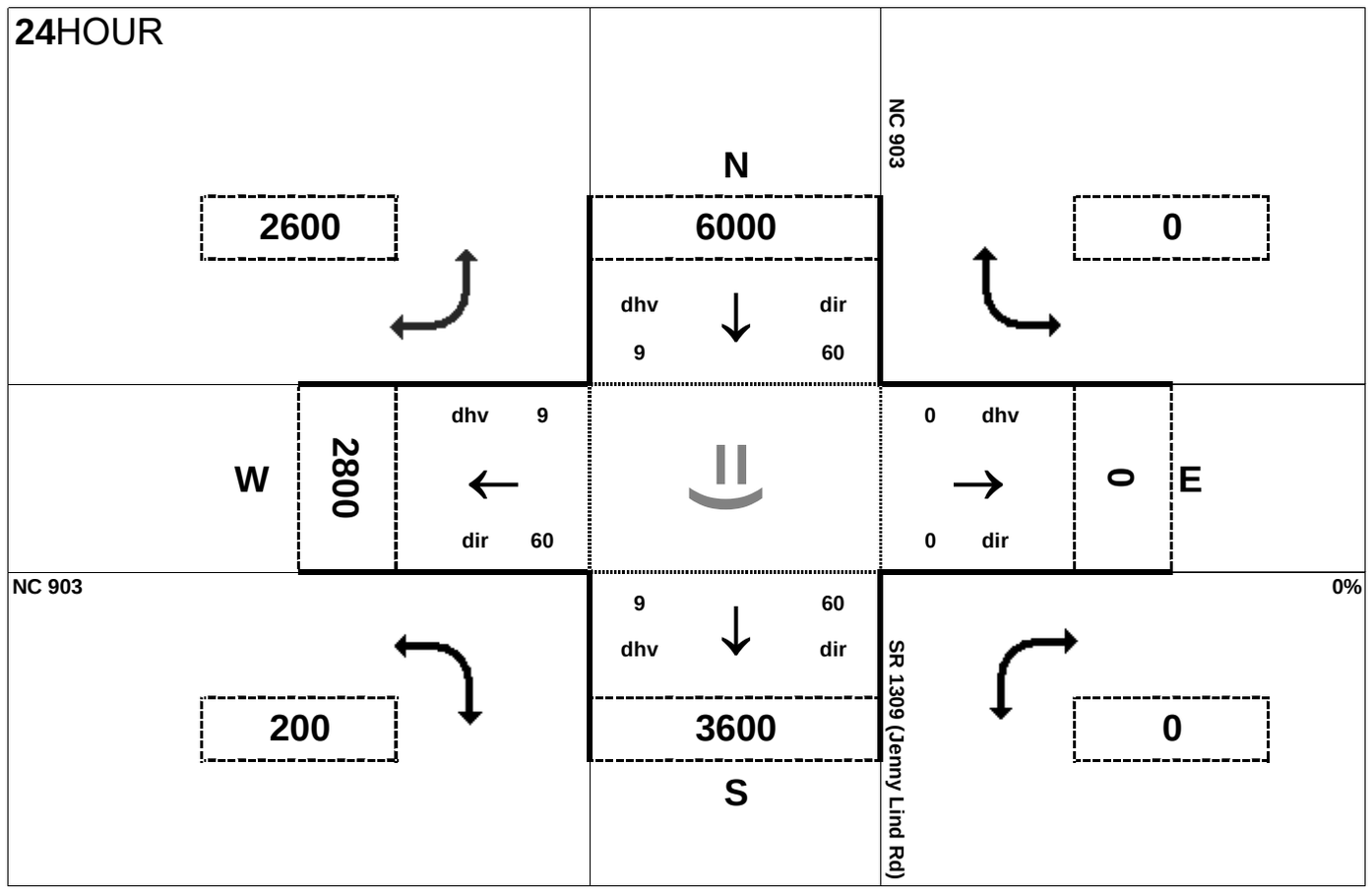
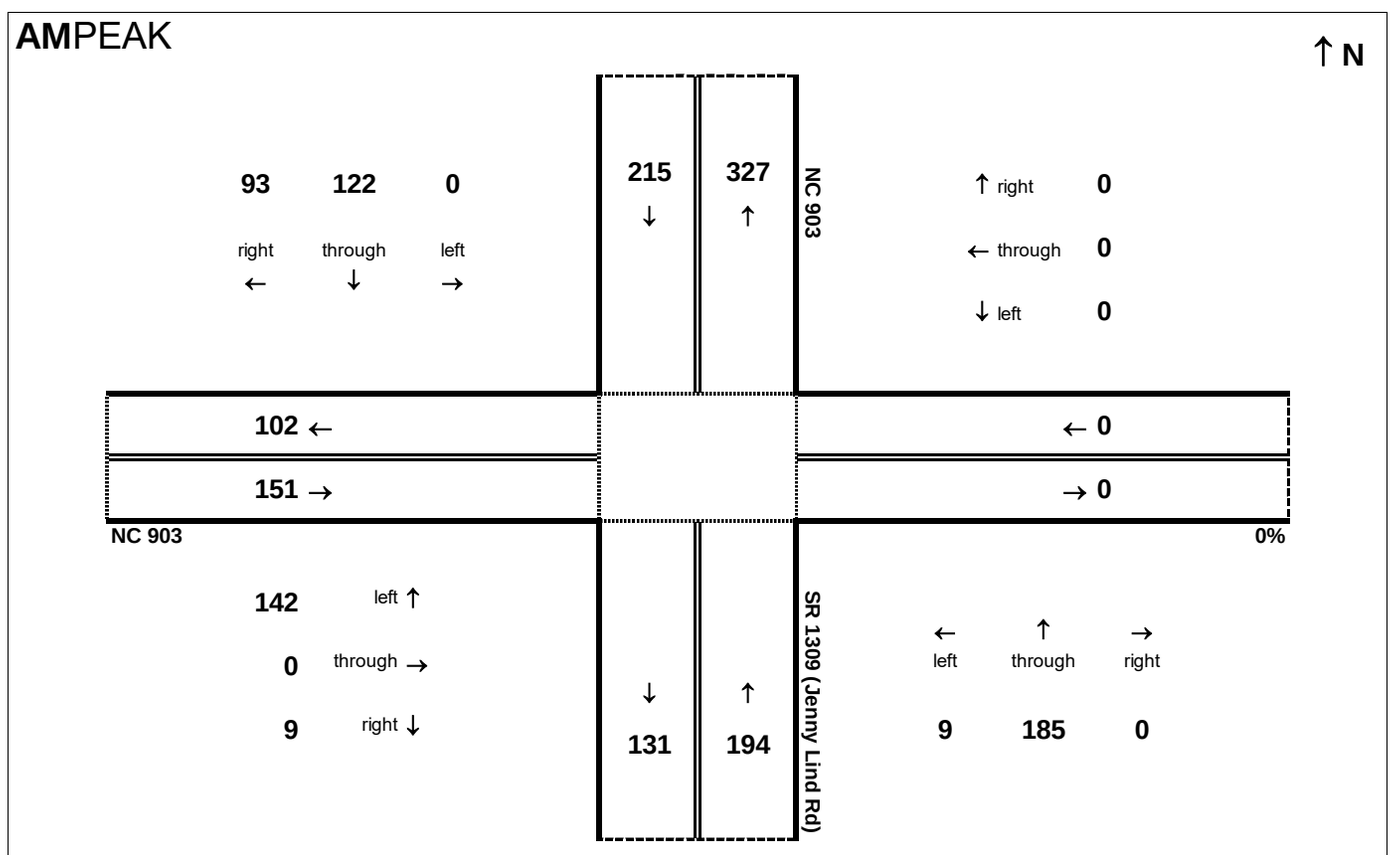
Peak Hour Volume Breakouts Report:
401 Intersection of NC 903 and SR 1309 (Jenny Lind Rd)

Traffic Forecast Release Date:
November-16

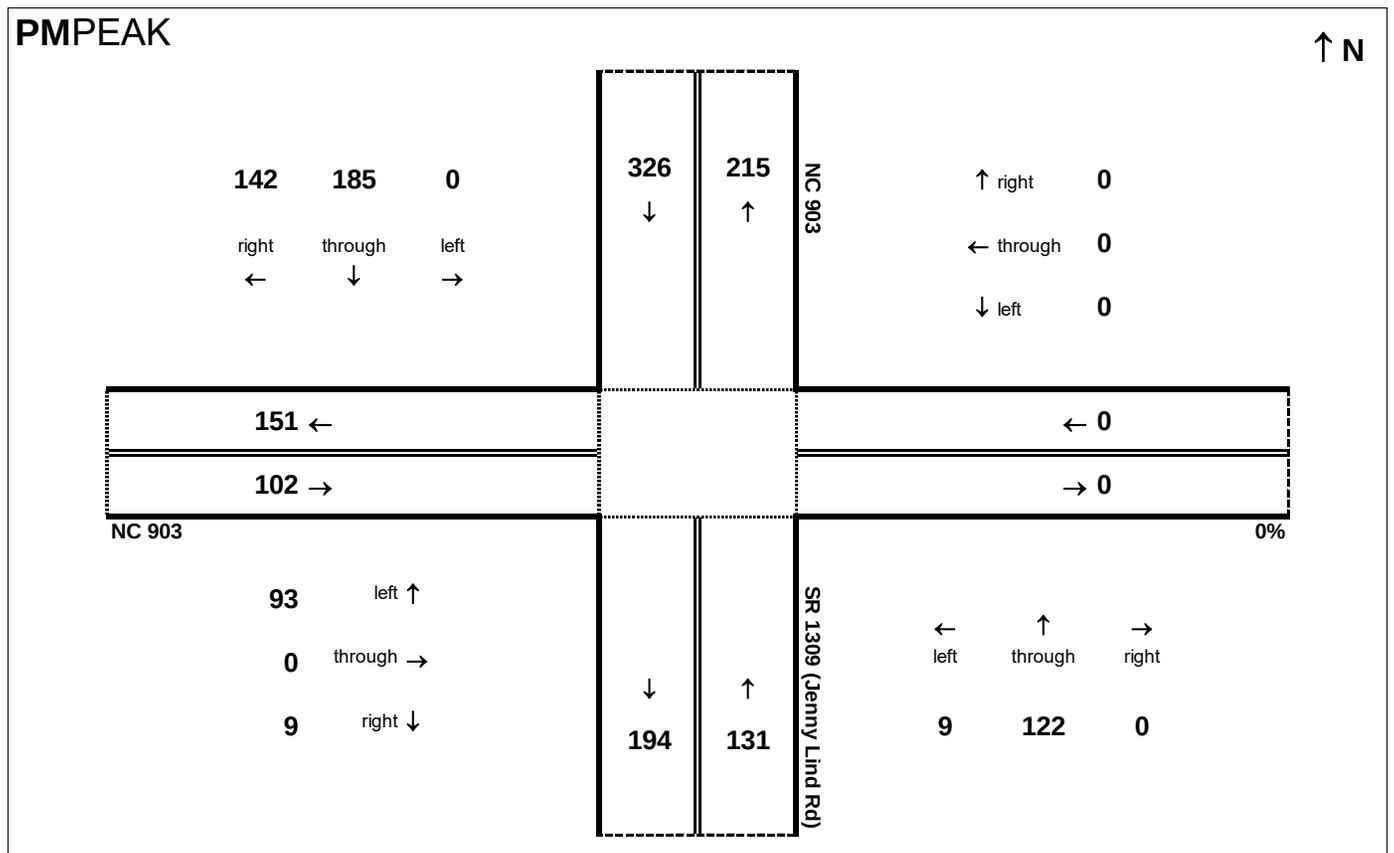
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553





AM peak hour inflow is 558 vehicles. AM peak hour outflow is 557 vehicles.



PM peak hour inflow is 557 vehicles. PM peak hour outflow is 558 vehicles.

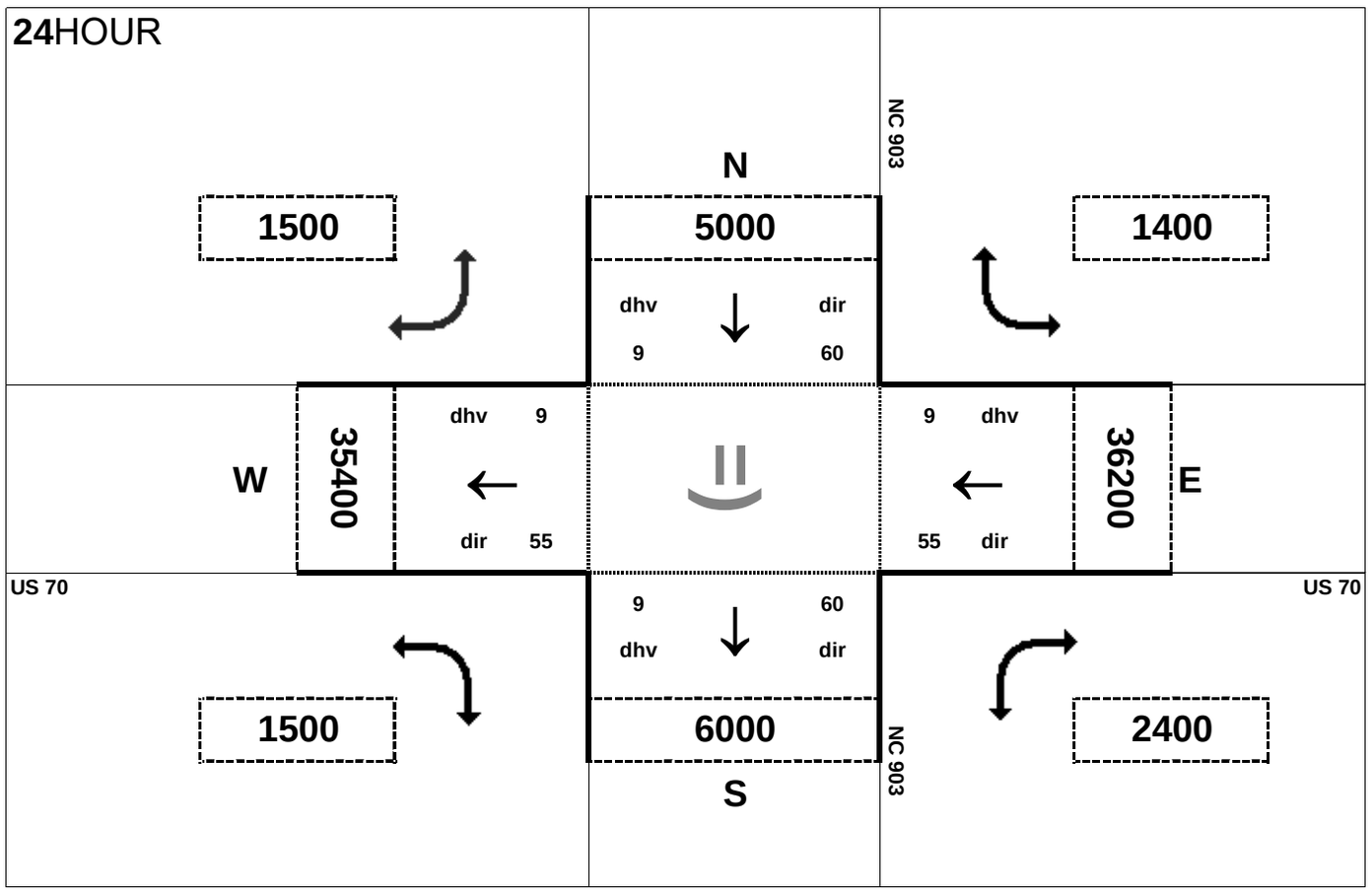
Peak Hour Volume Breakouts Report:
402-3 Intersection US 70 and NC 903

Traffic Forecast Release Date:
November-16

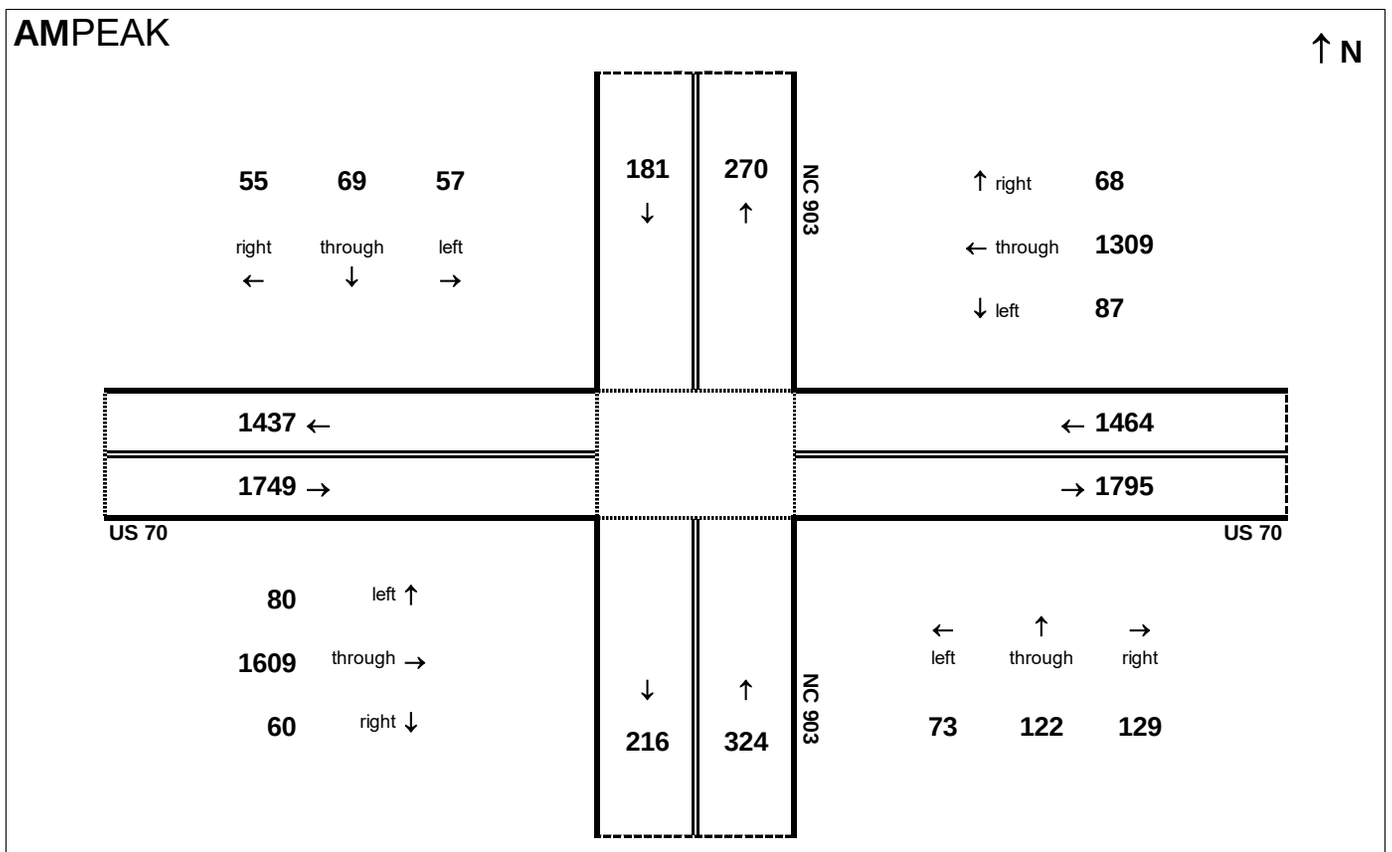
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553

24HOUR

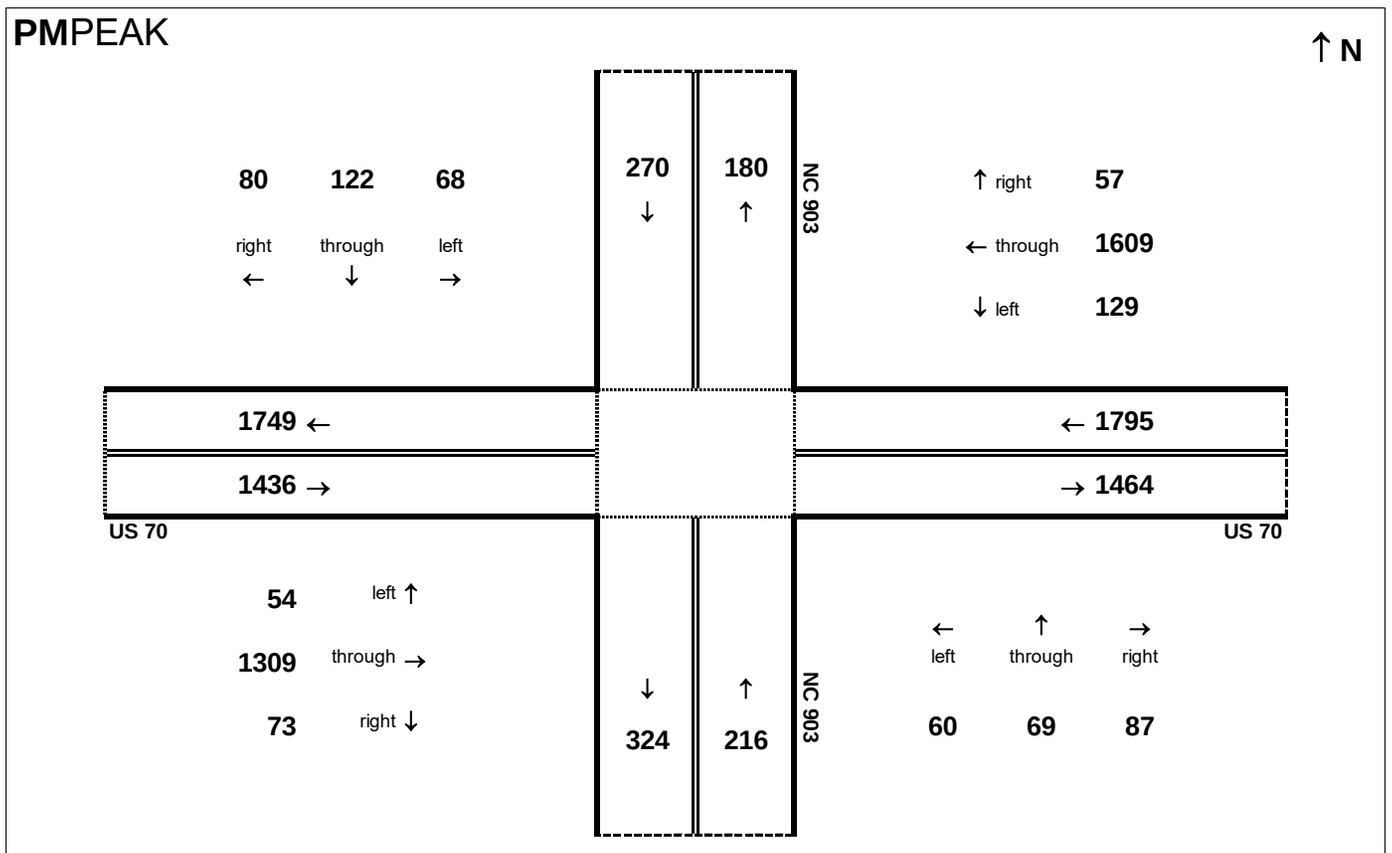


AMPEAK



AM peak hour inflow is 3718 vehicles. AM peak hour outflow is 3716 vehicles.

PMPEAK



PM peak hour inflow is 3717 vehicles. PM peak hour outflow is 3718 vehicles.

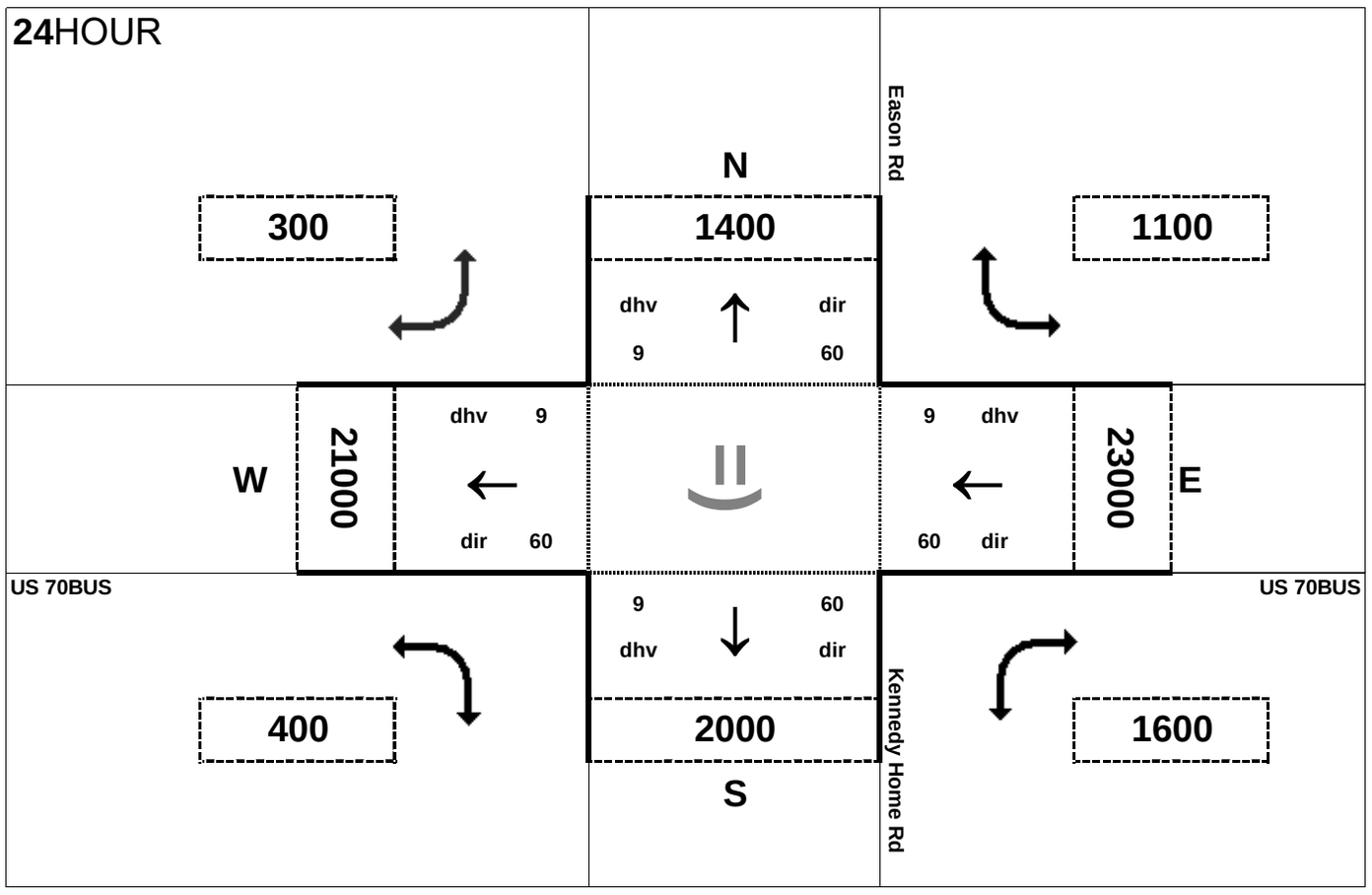
Peak Hour Volume Breakouts Report:
404 Intersection of US 70BUS and Eason Rd / Kennedy Home Rd

Traffic Forecast Release Date:
November-16

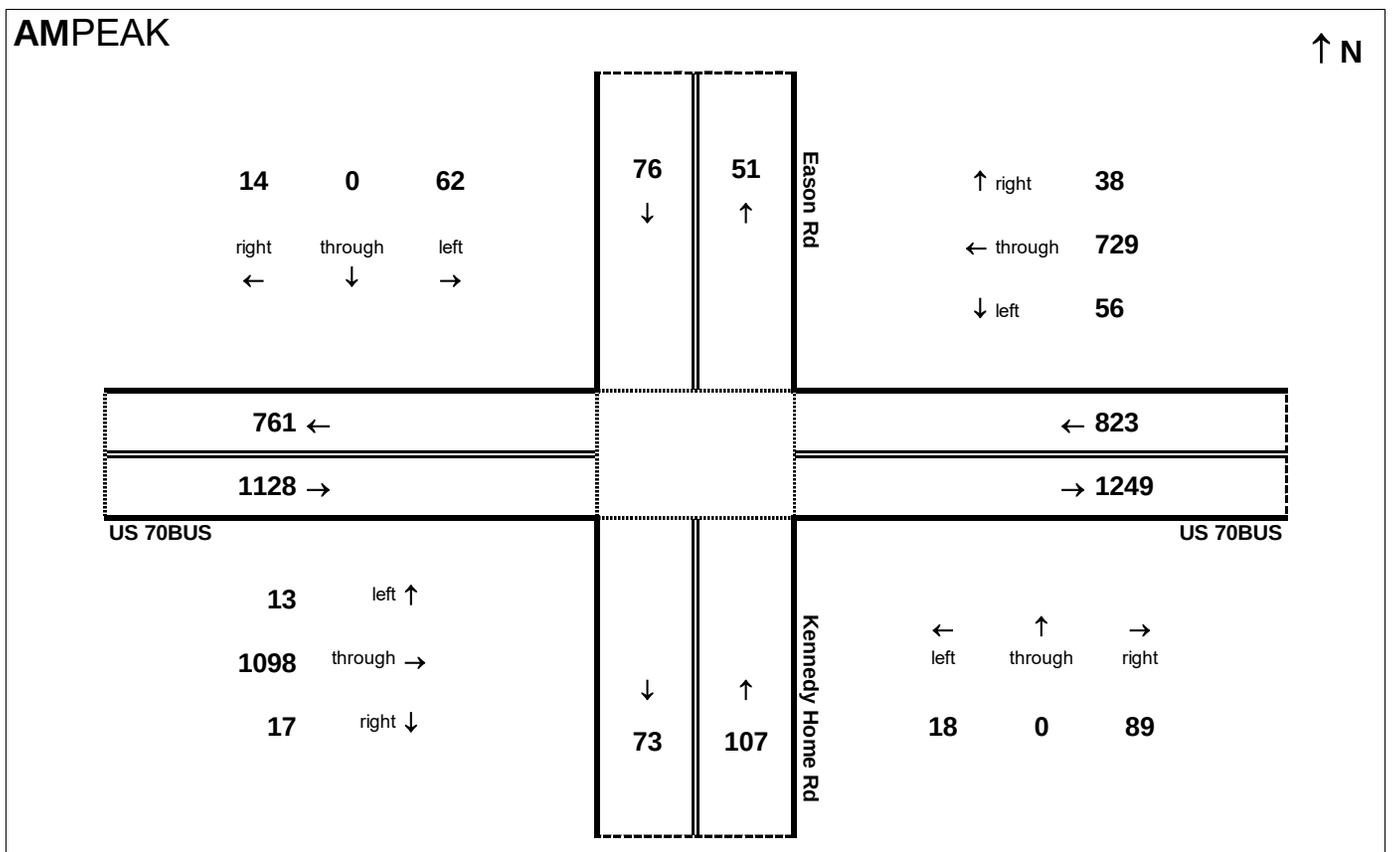
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553

24HOUR

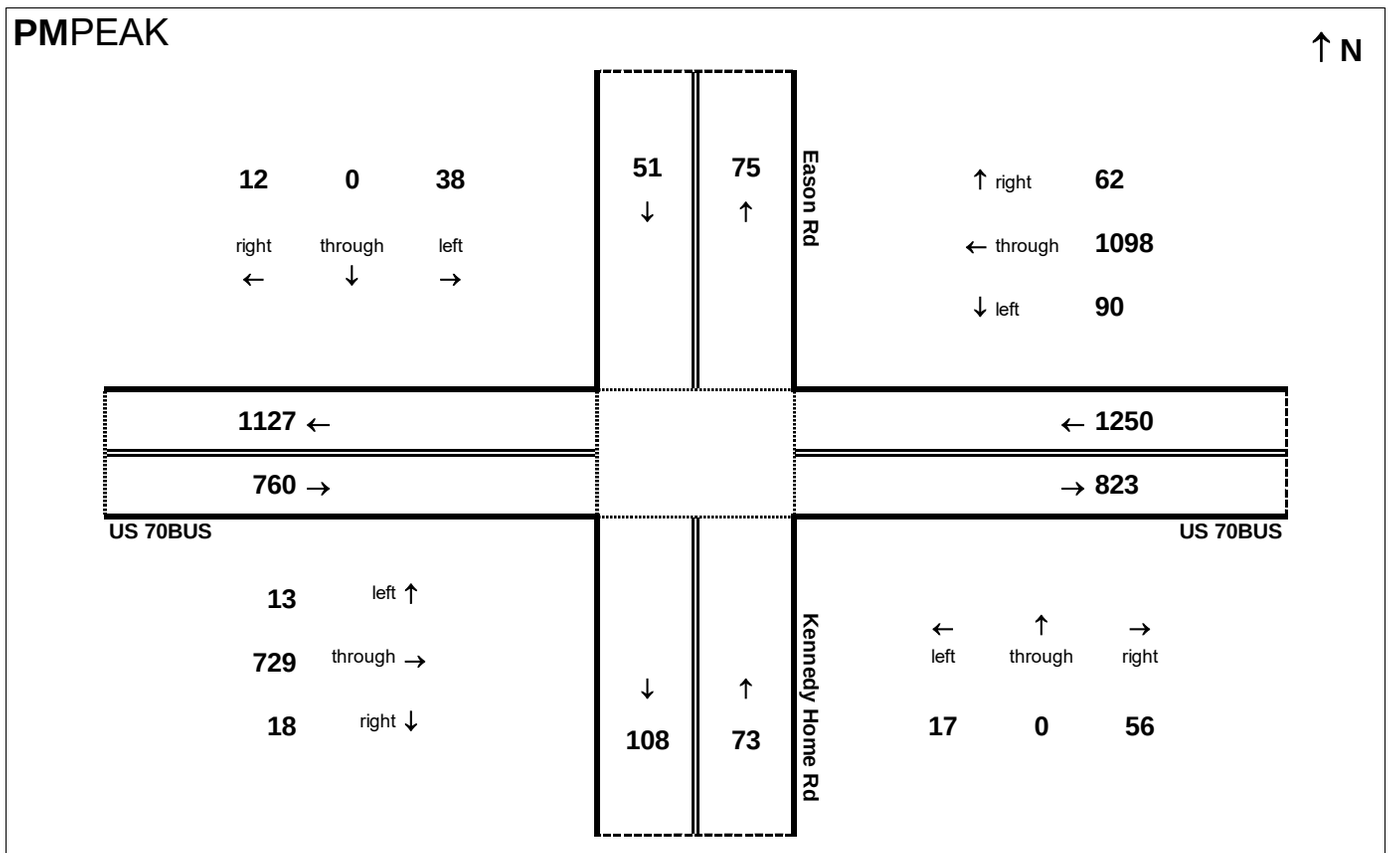


AMPEAK



AM peak hour inflow is 2133 vehicles. AM peak hour outflow is 2133 vehicles.

PMPEAK



PM peak hour inflow is 2133 vehicles. PM peak hour outflow is 2132 vehicles.

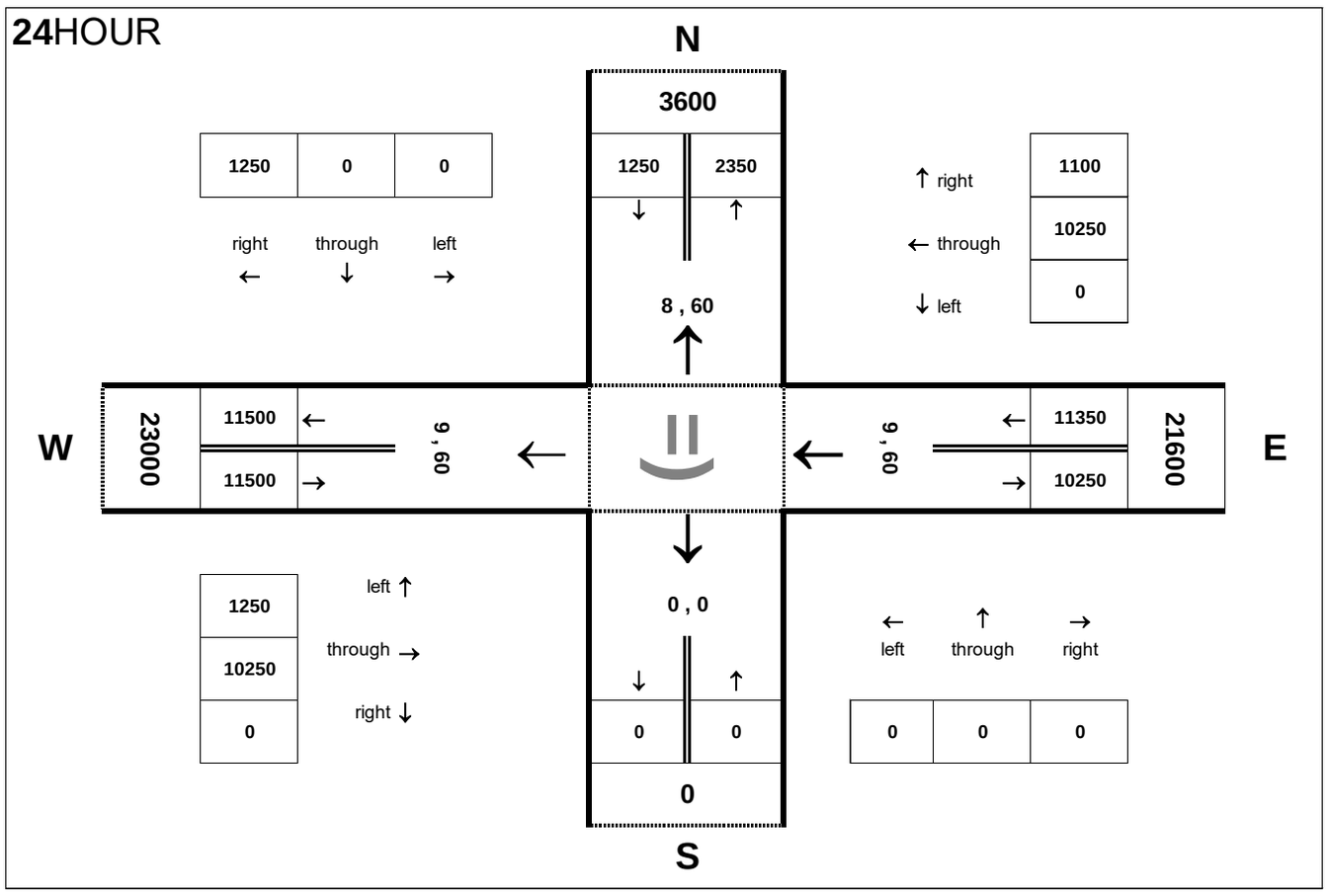
Peak Hour Volume Breakouts Report:
405 Intersection of US 70BUS and SR 1546 (Banks School Rd)

Traffic Forecast Release Date:
November-16

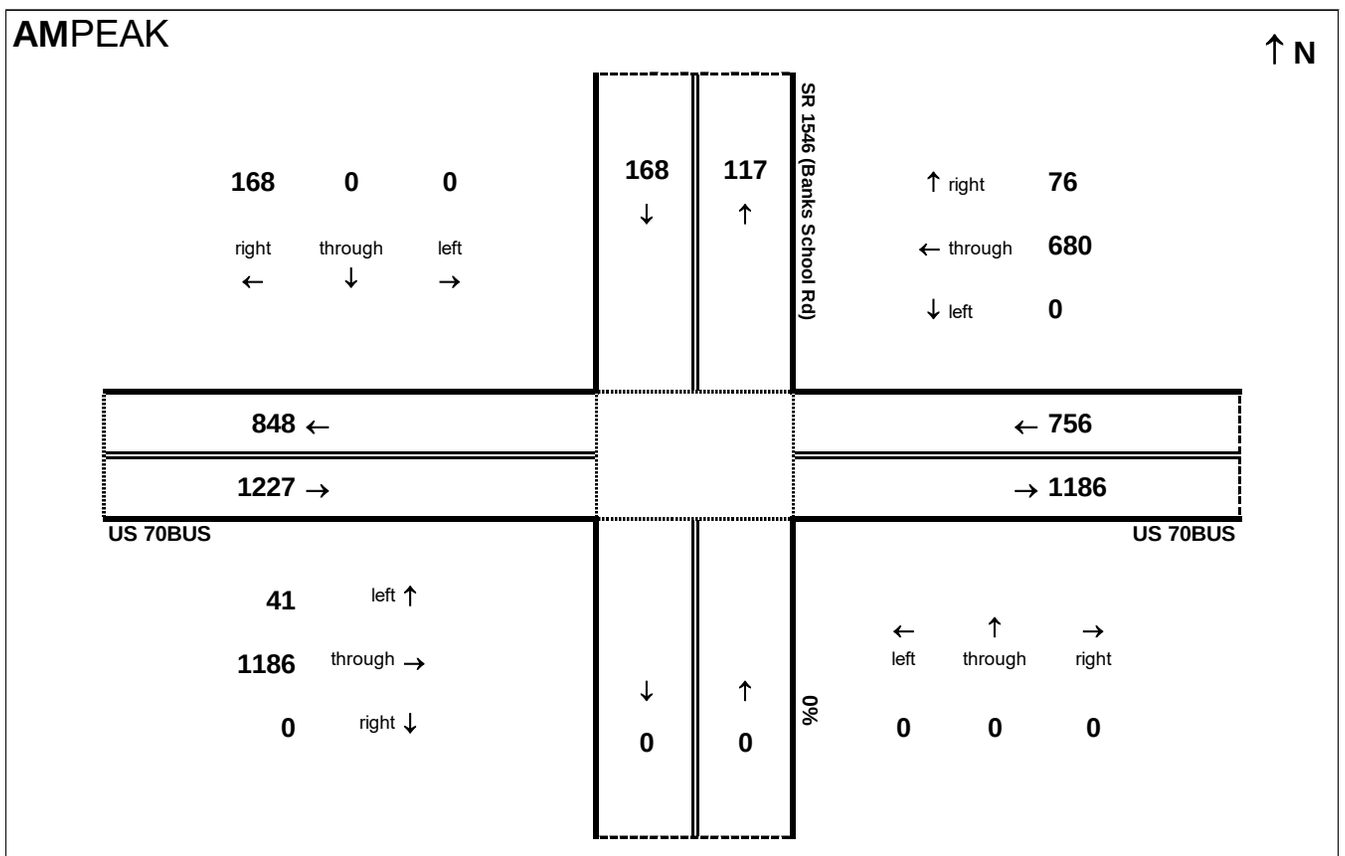
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553

24HOUR

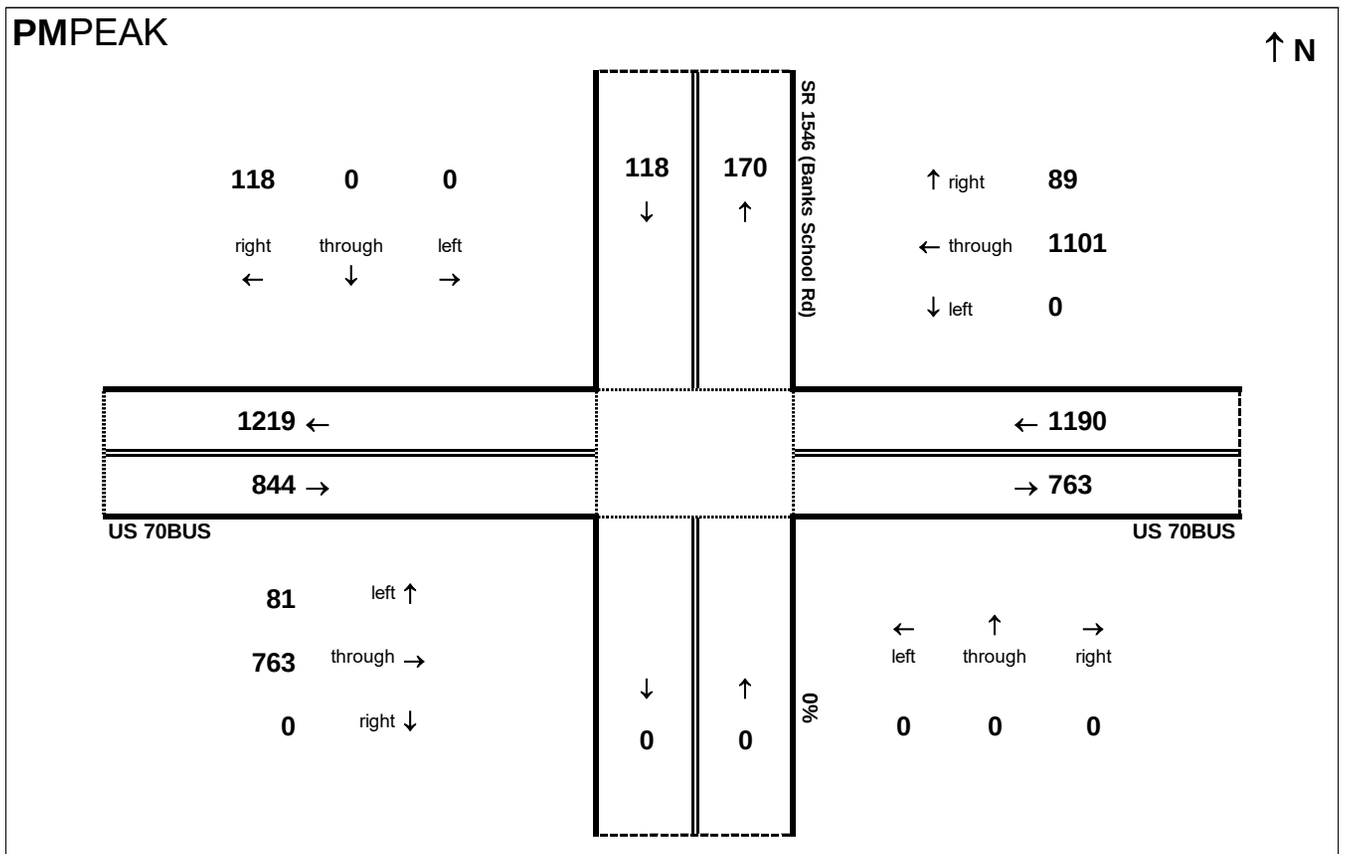


AMPEAK



AM peak hour inflow is 2151 vehicles. AM peak hour outflow is 2152 vehicles.

PMPEAK



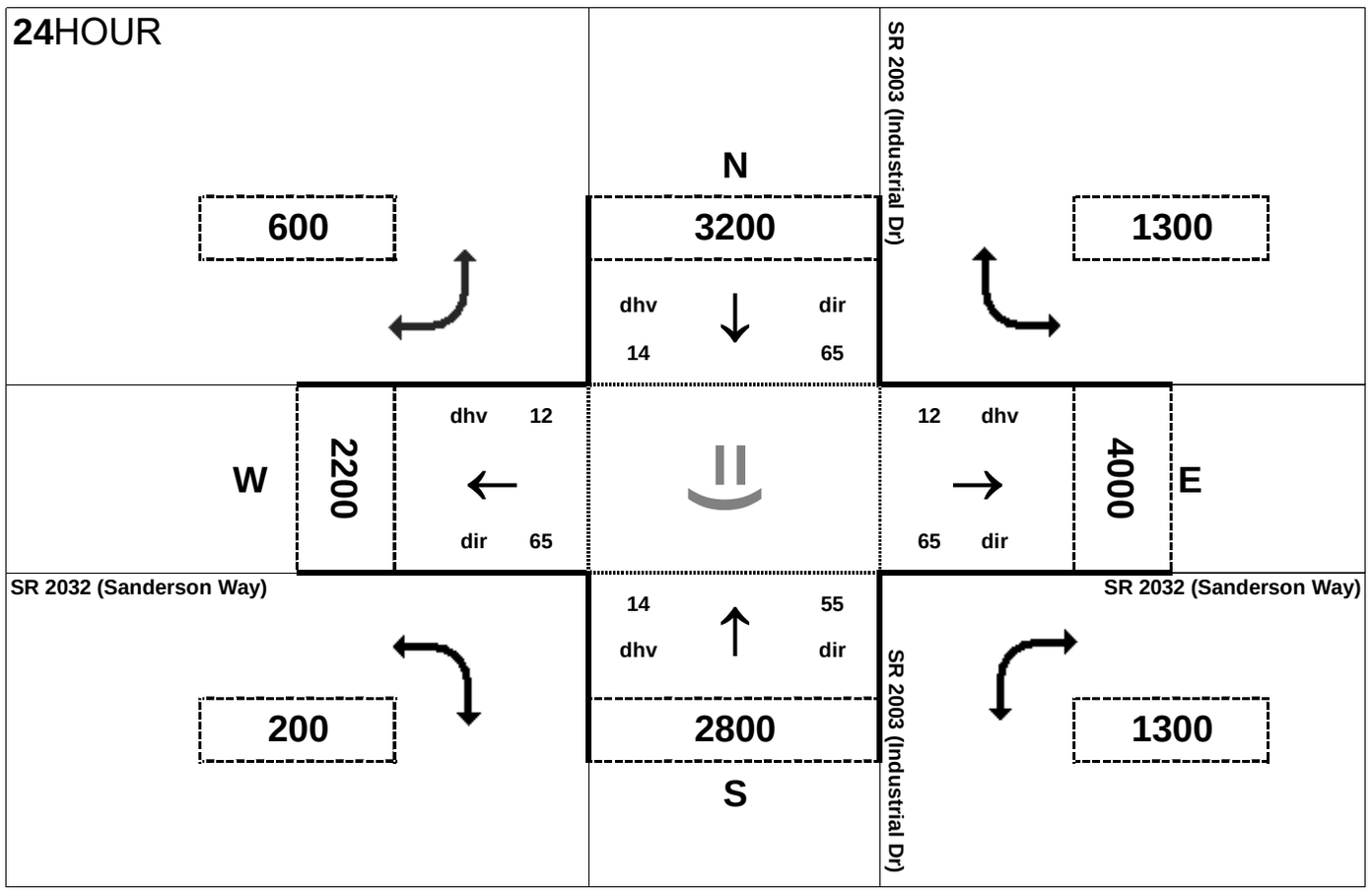
PM peak hour inflow is 2152 vehicles. PM peak hour outflow is 2151 vehicles.

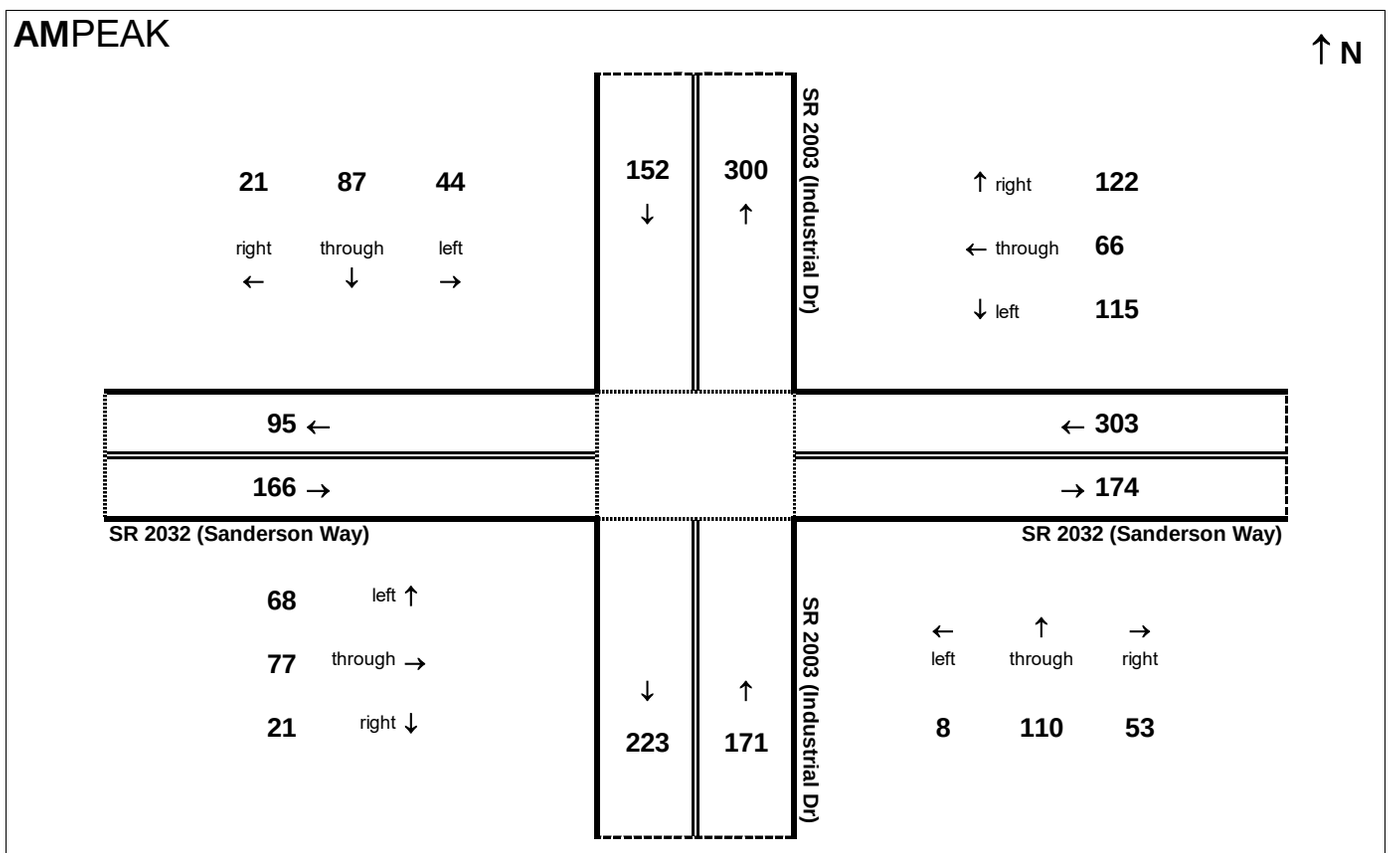
Peak Hour Volume Breakouts Report:
406 Intersection of SR 2032 (Sanderson Way) at SR 2003 (Industrial Dr)

Traffic Forecast Release Date:
November-16

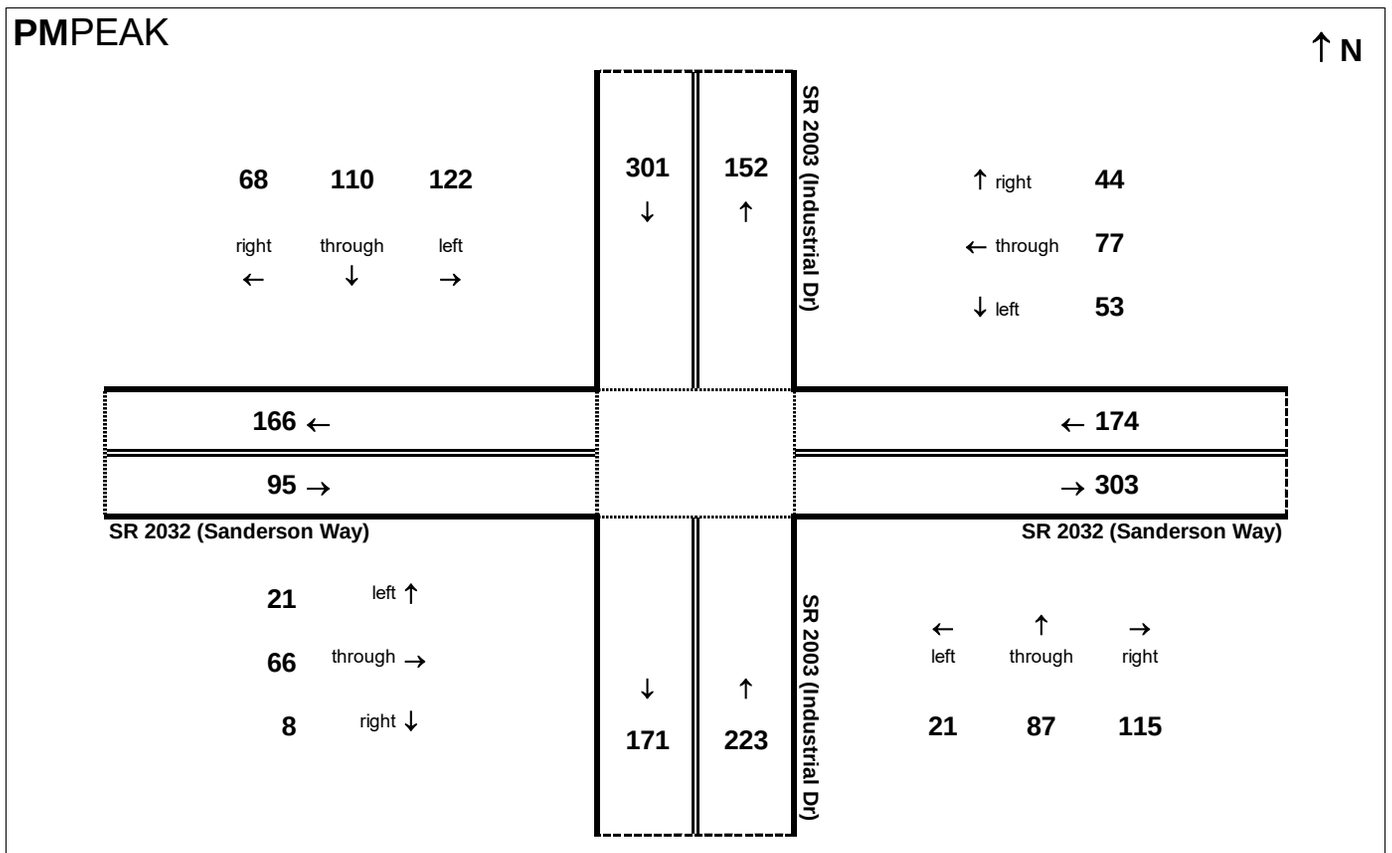
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553





AM peak hour inflow is 792 vehicles. AM peak hour outflow is 792 vehicles.



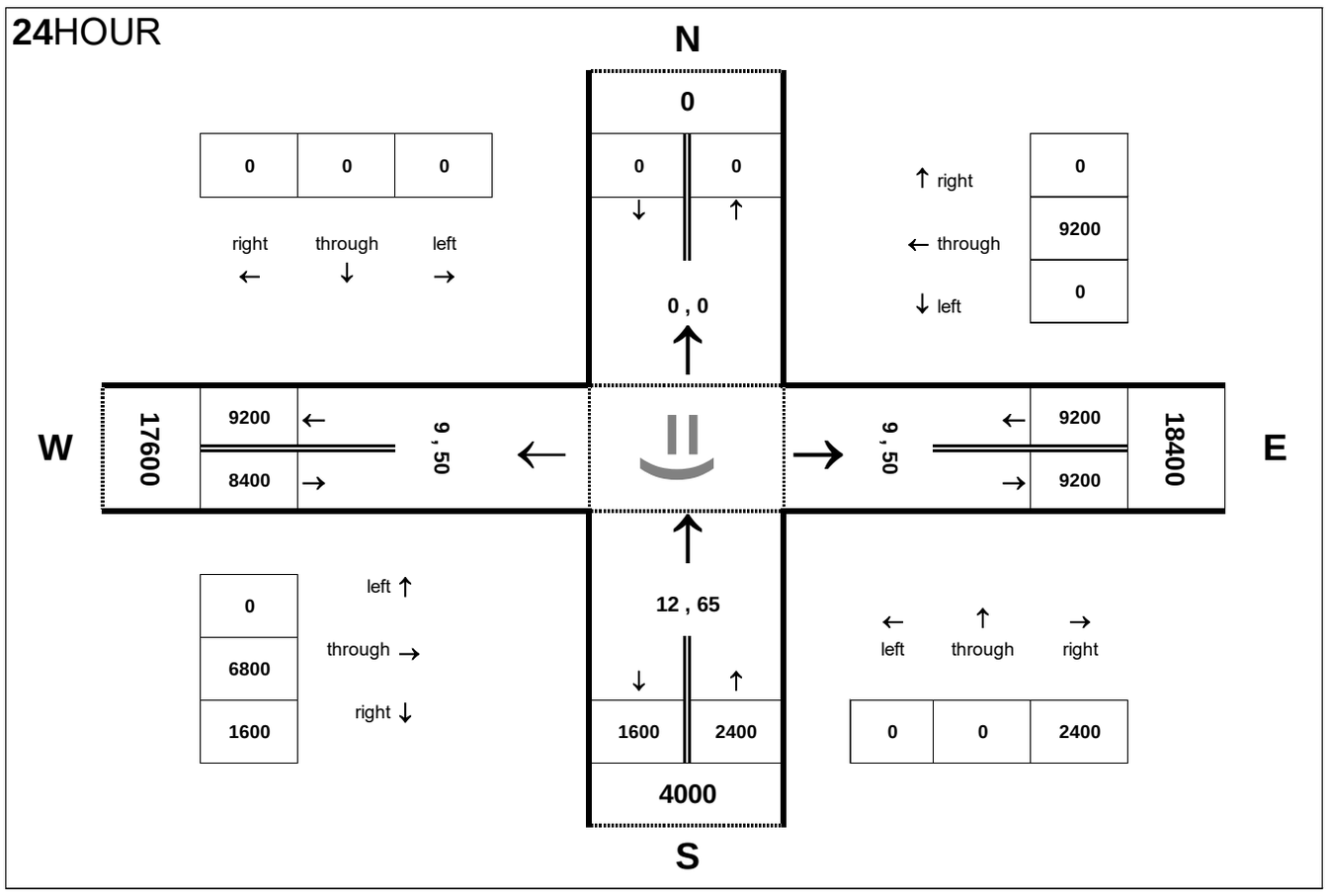
PM peak hour inflow is 792 vehicles. PM peak hour outflow is 792 vehicles.

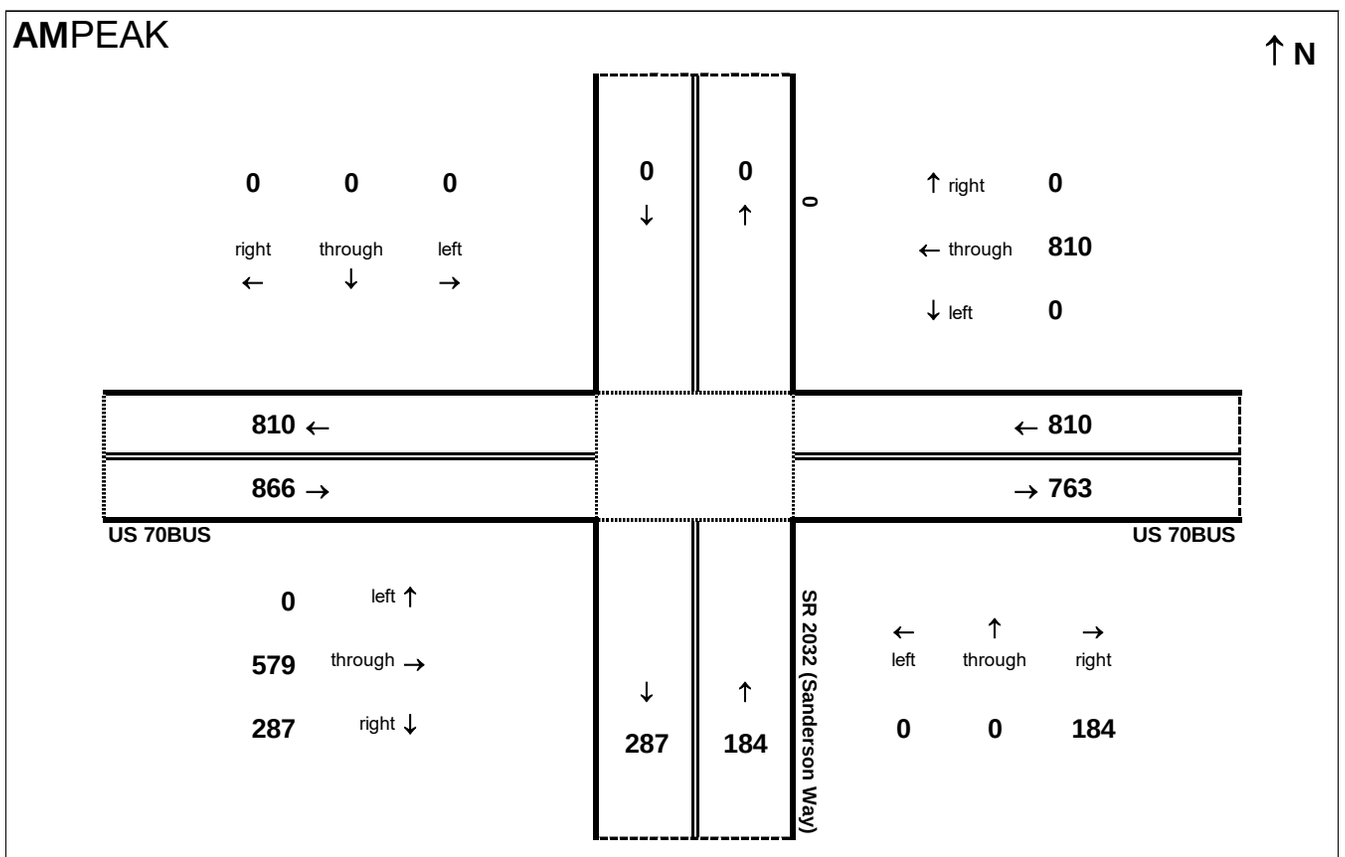
Peak Hour Volume Breakouts Report:
407 Intersection of US 70BUS and SR 2032 (Sanderson Way)

Traffic Forecast Release Date:
November-16

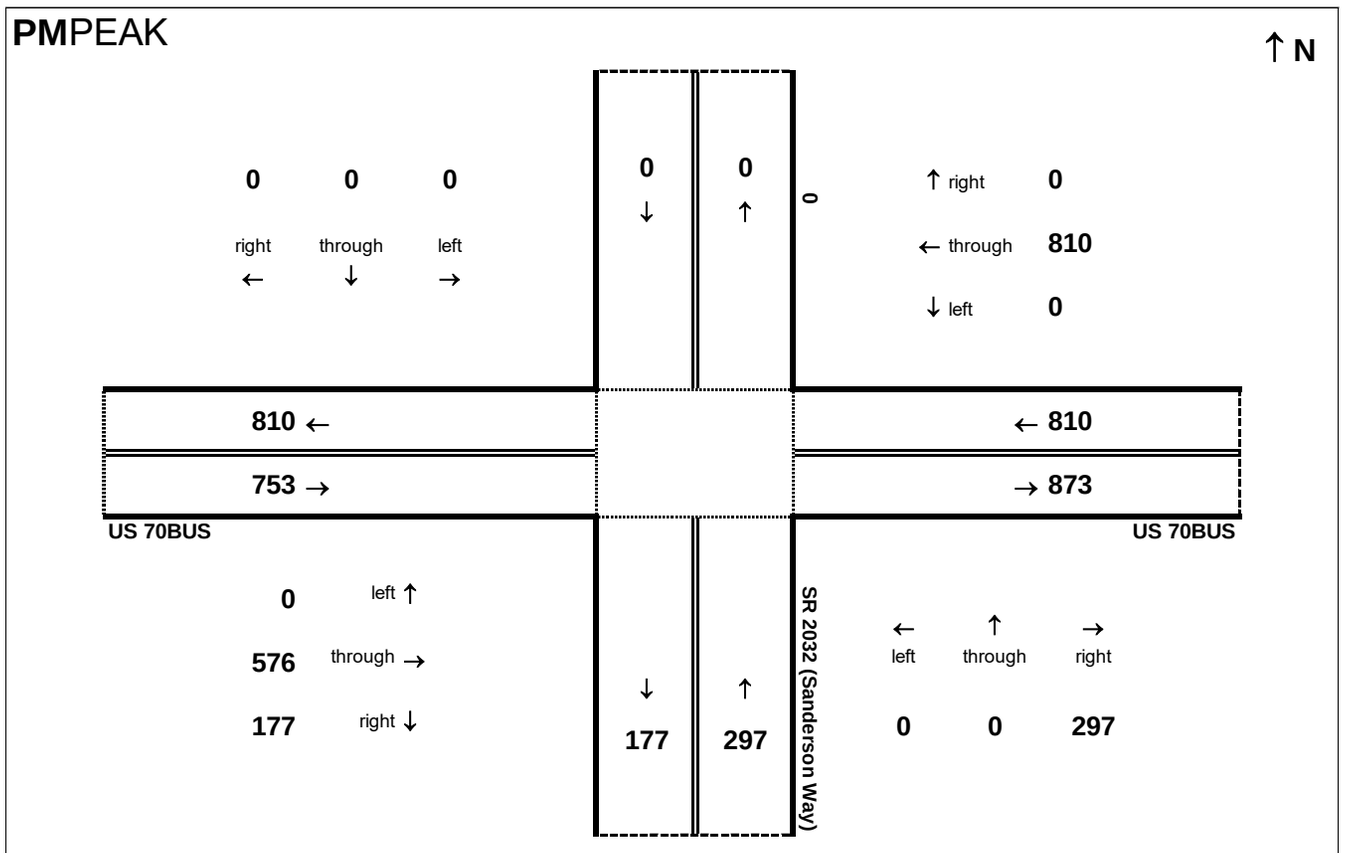
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553





AM peak hour inflow is 1860 vehicles. AM peak hour outflow is 1860 vehicles.



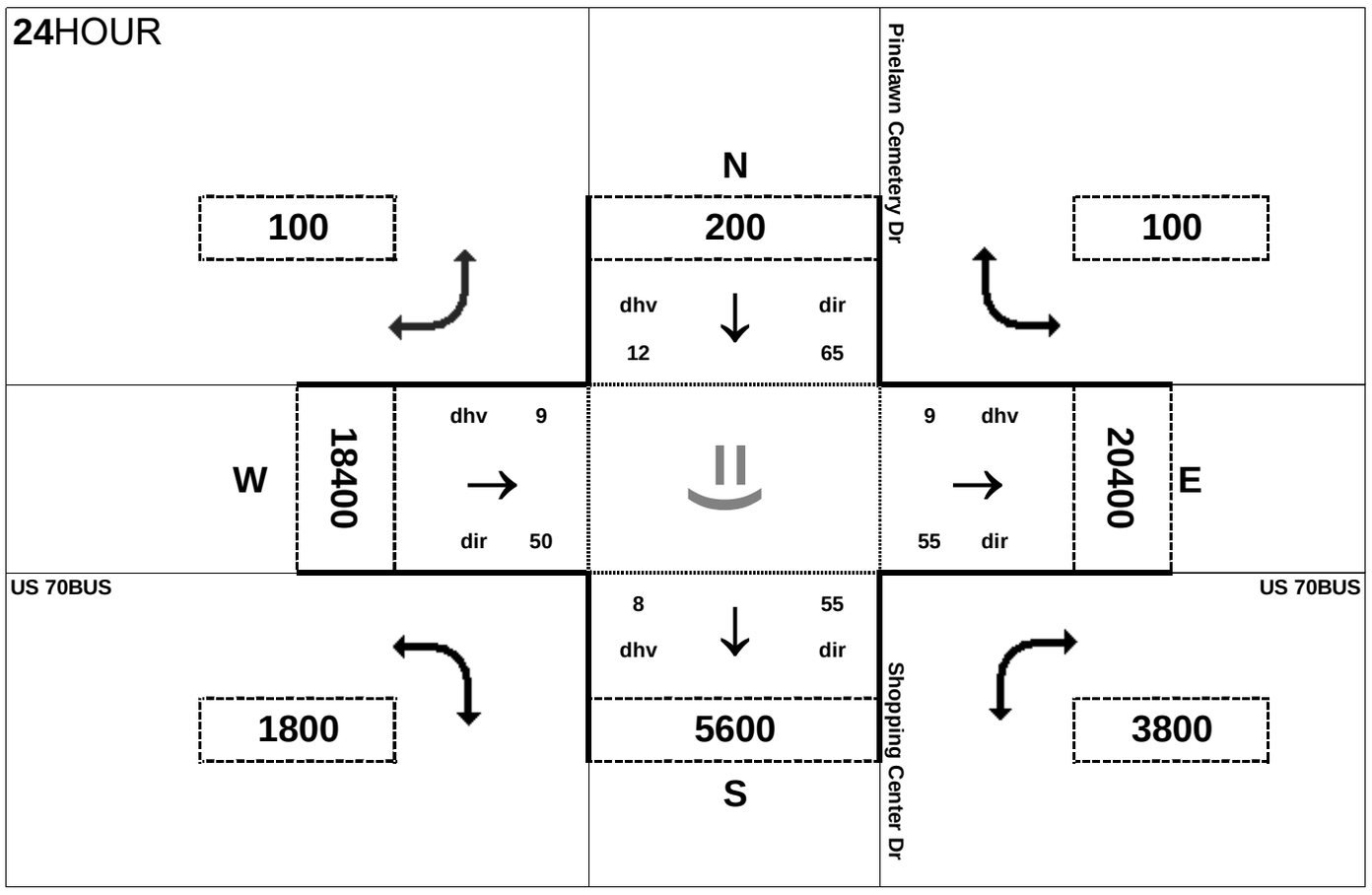
PM peak hour inflow is 1860 vehicles. PM peak hour outflow is 1860 vehicles.

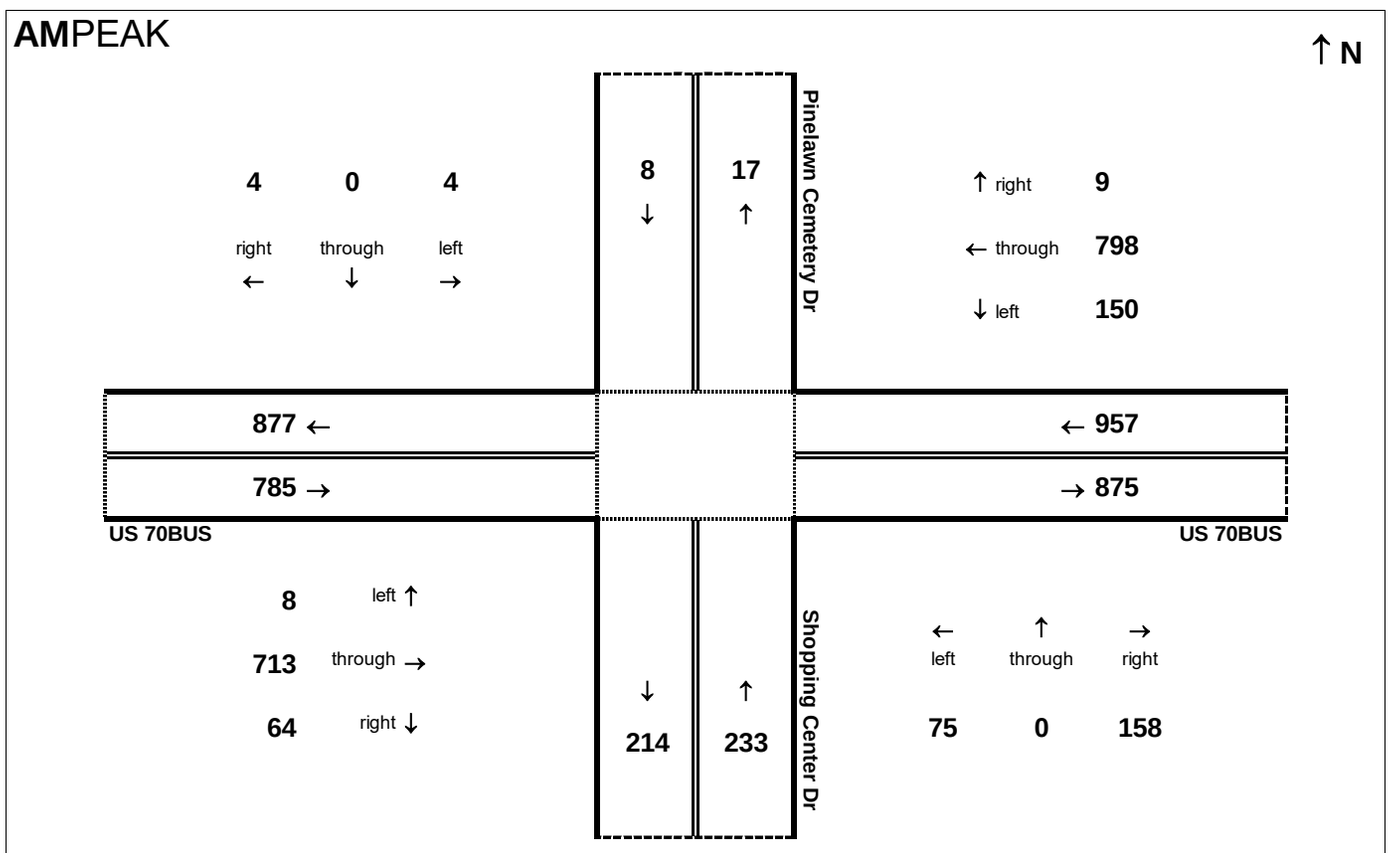
Peak Hour Volume Breakouts Report:
408 Intersection of US 70BUS and Pinelawn Cemetery Dr / Shopping Center Dr

Traffic Forecast Release Date:
November-16

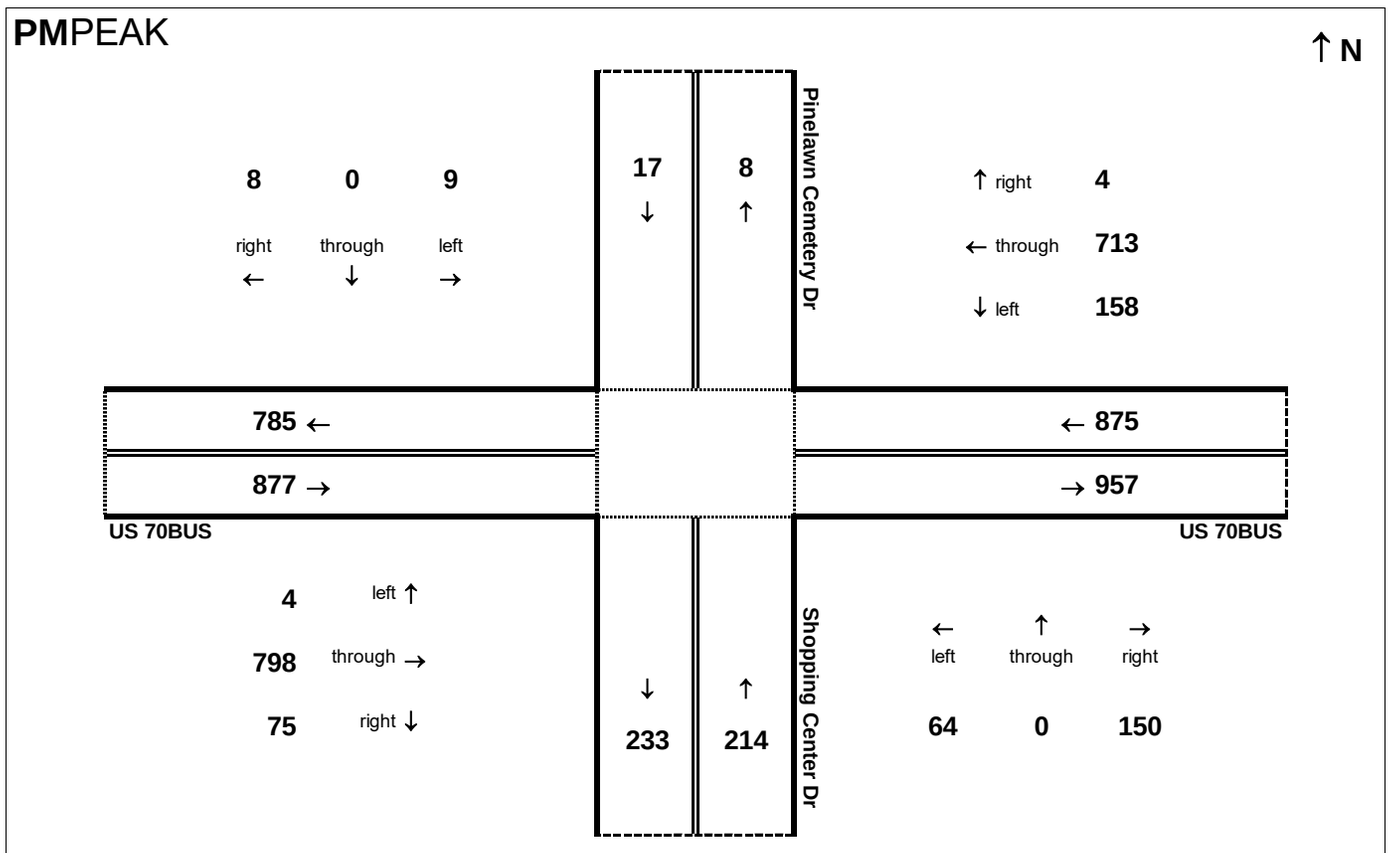
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553





AM peak hour inflow is 1981 vehicles. AM peak hour outflow is 1983 vehicles.



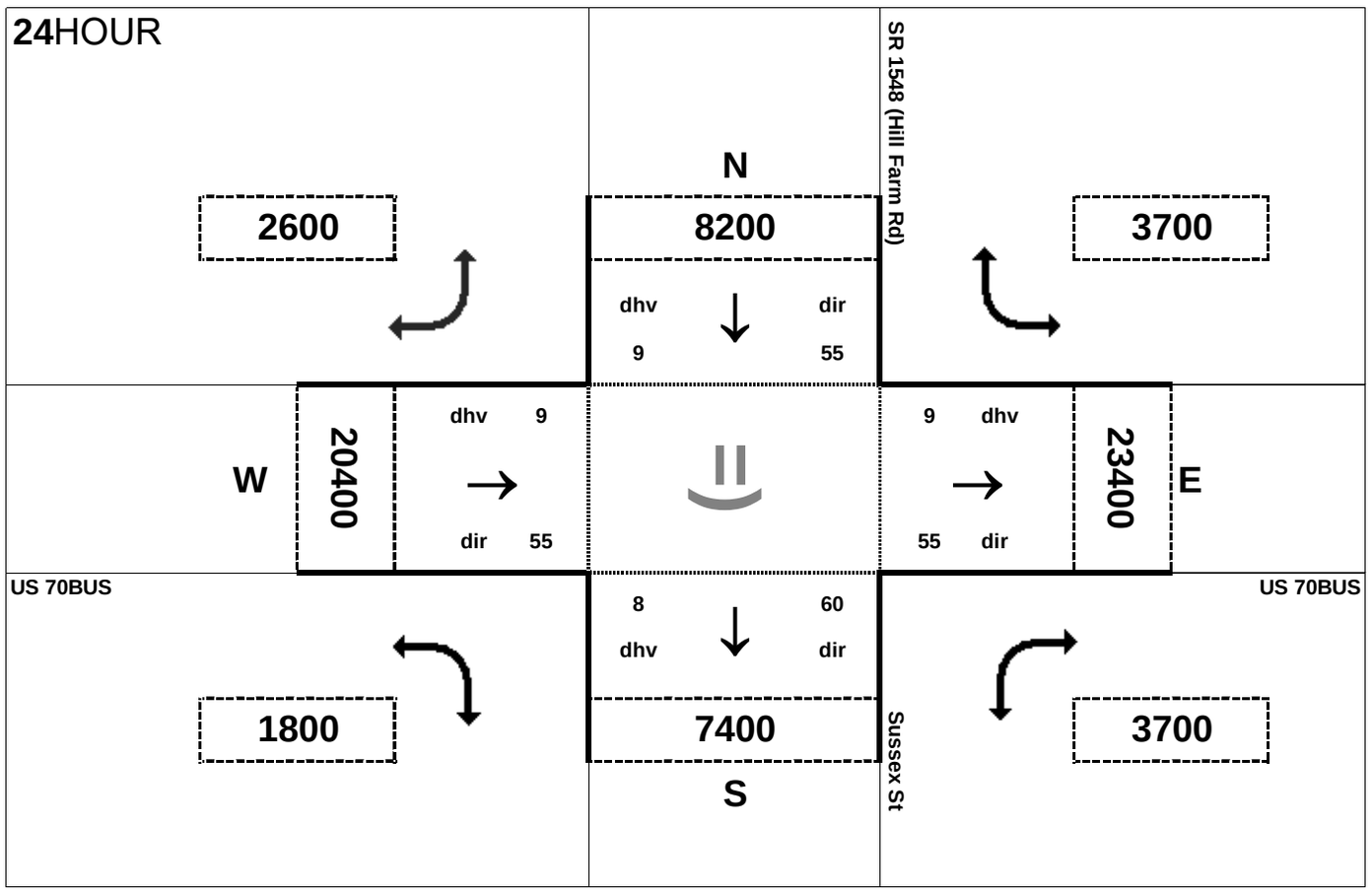
PM peak hour inflow is 1983 vehicles. PM peak hour outflow is 1981 vehicles.

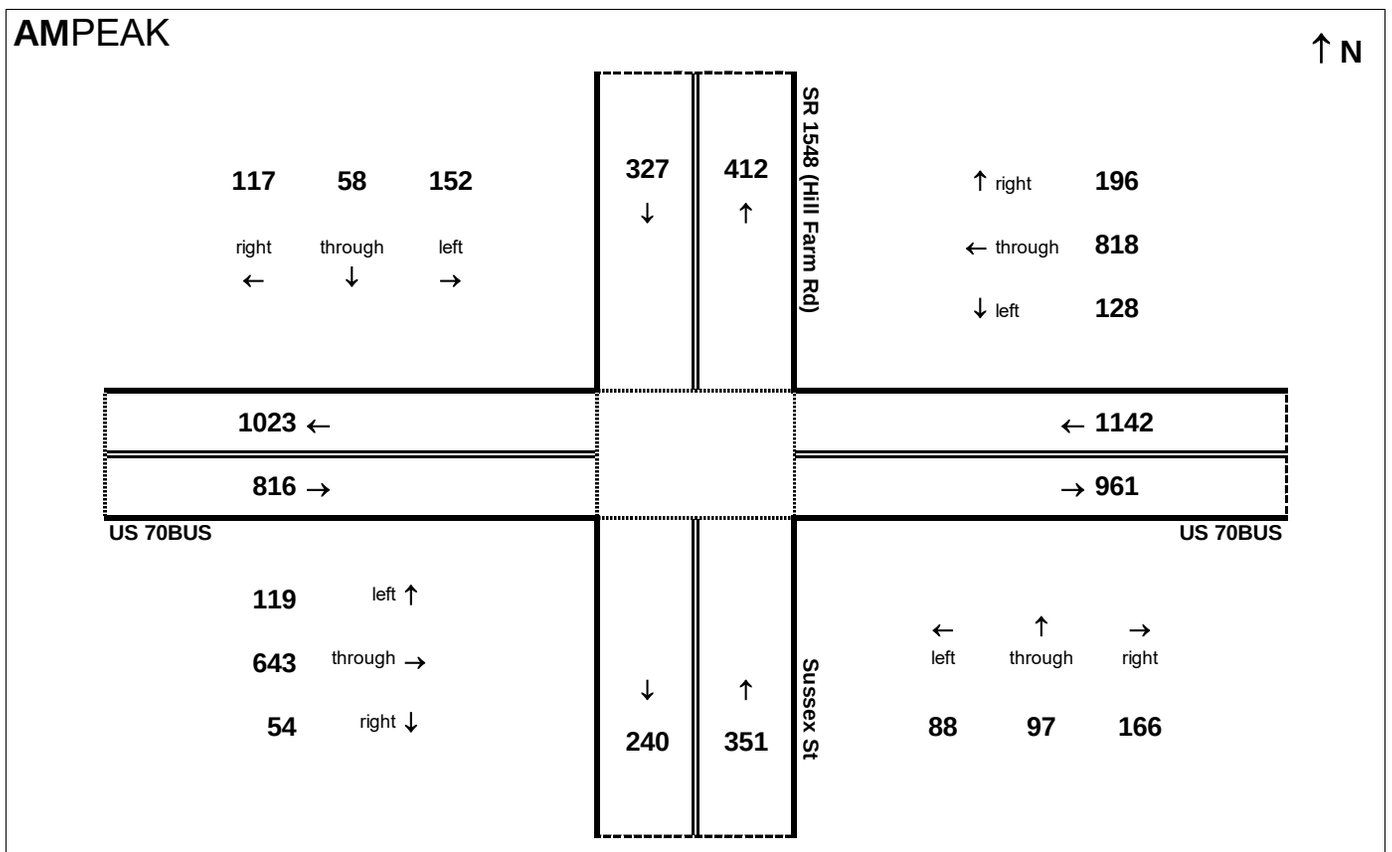
Peak Hour Volume Breakouts Report:
409 Intersection of US 70BUS and SR 1548 (Hill Farm Rd)

Traffic Forecast Release Date:
November-16

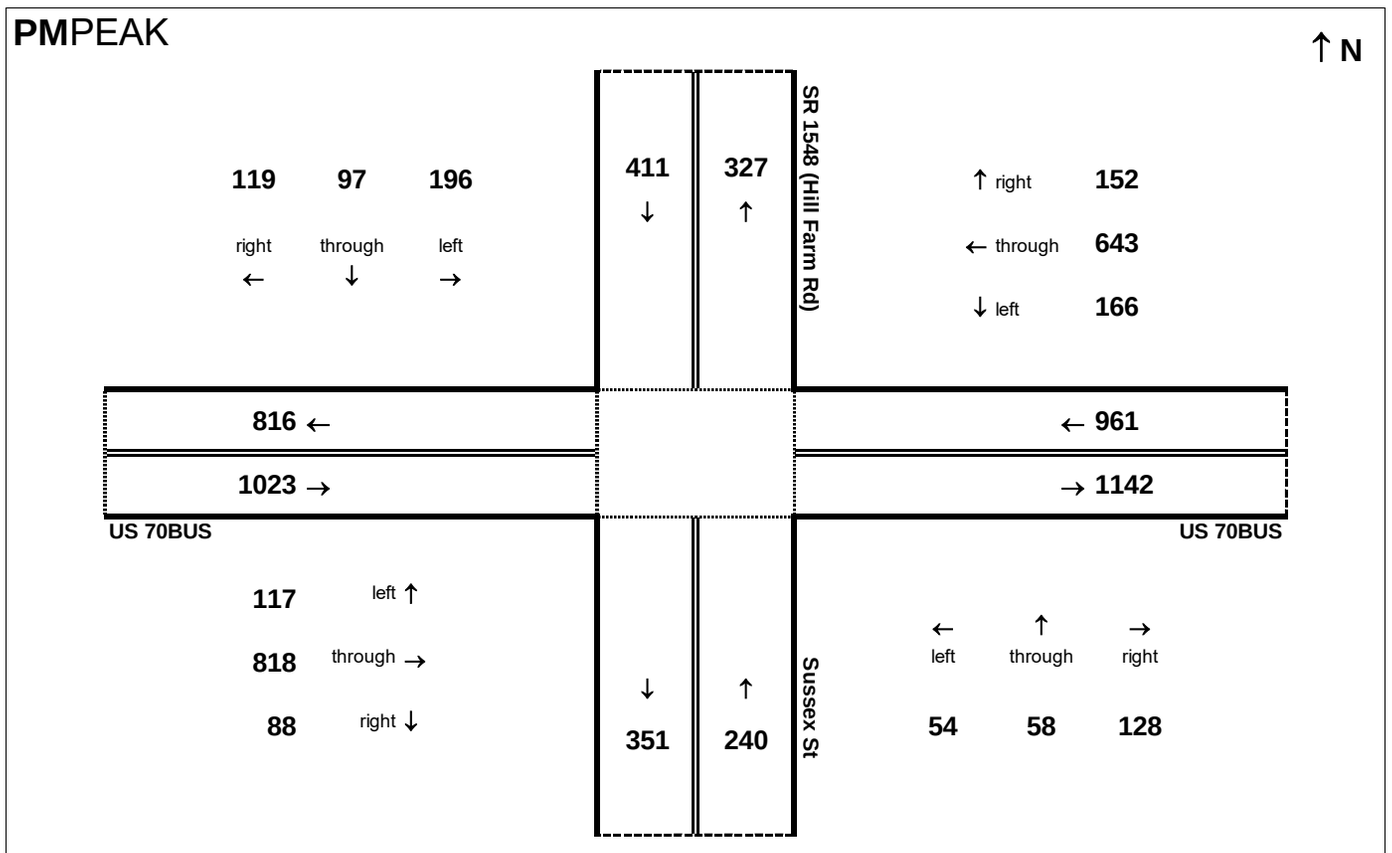
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553





AM peak hour inflow is 2636 vehicles. AM peak hour outflow is 2636 vehicles.



PM peak hour inflow is 2636 vehicles. PM peak hour outflow is 2636 vehicles.

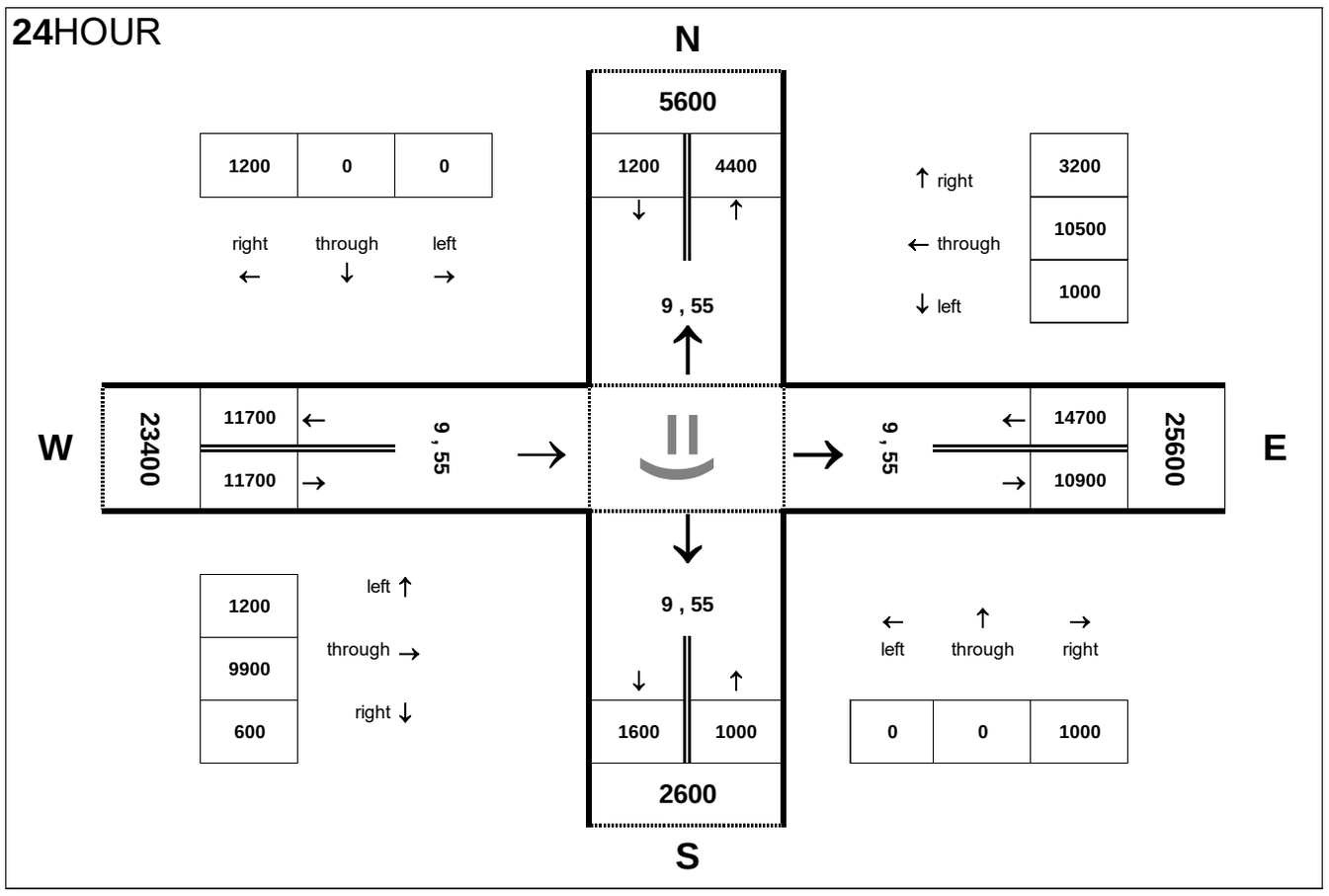
Peak Hour Volume Breakouts Report:
410 Intersection of US 70BUS and Walmart Dr / Sheffield Dr

Traffic Forecast Release Date:
November-16

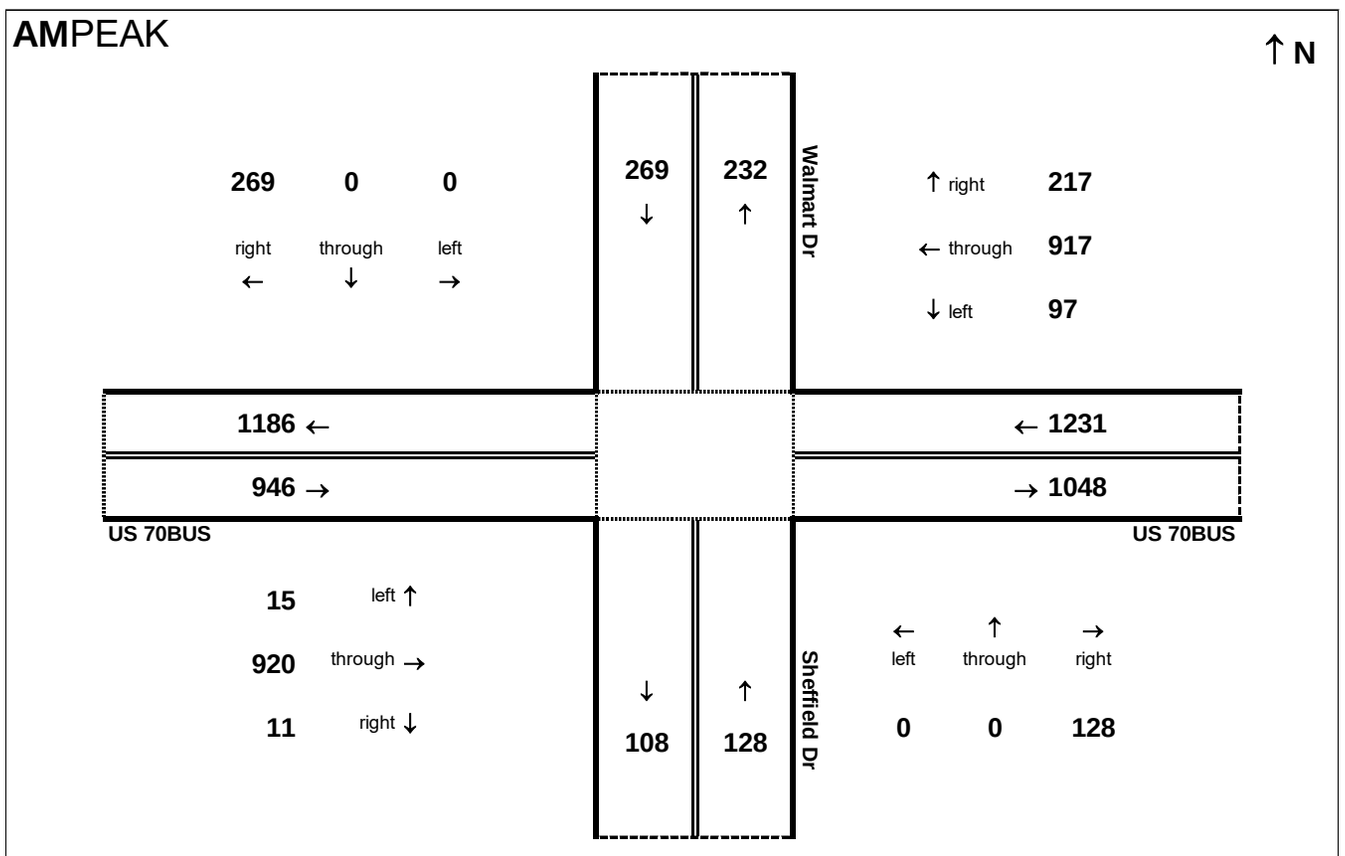
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553

24HOUR

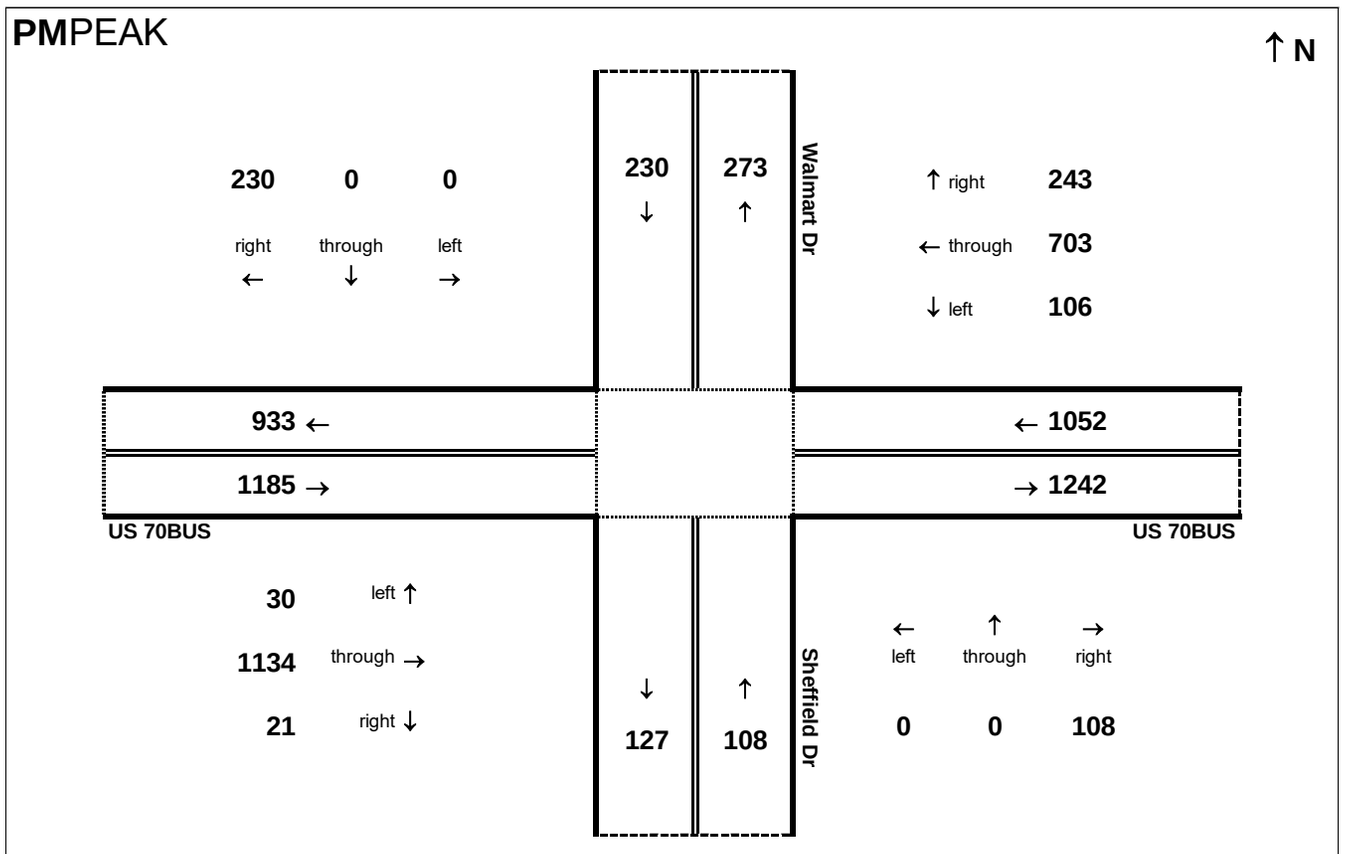


AMPEAK



AM peak hour inflow is 2574 vehicles. AM peak hour outflow is 2574 vehicles.

PMPEAK



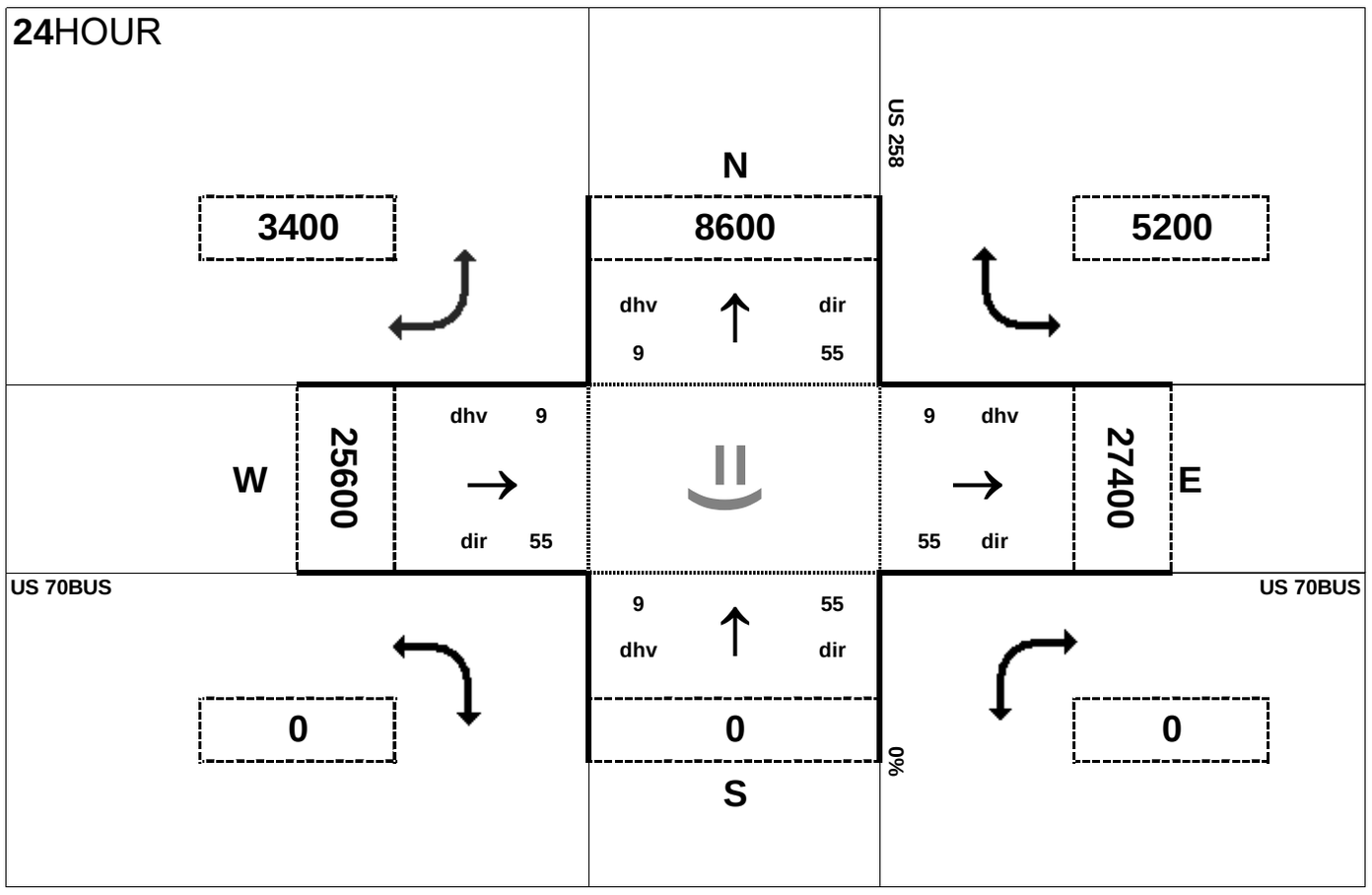
PM peak hour inflow is 2574 vehicles. PM peak hour outflow is 2575 vehicles.

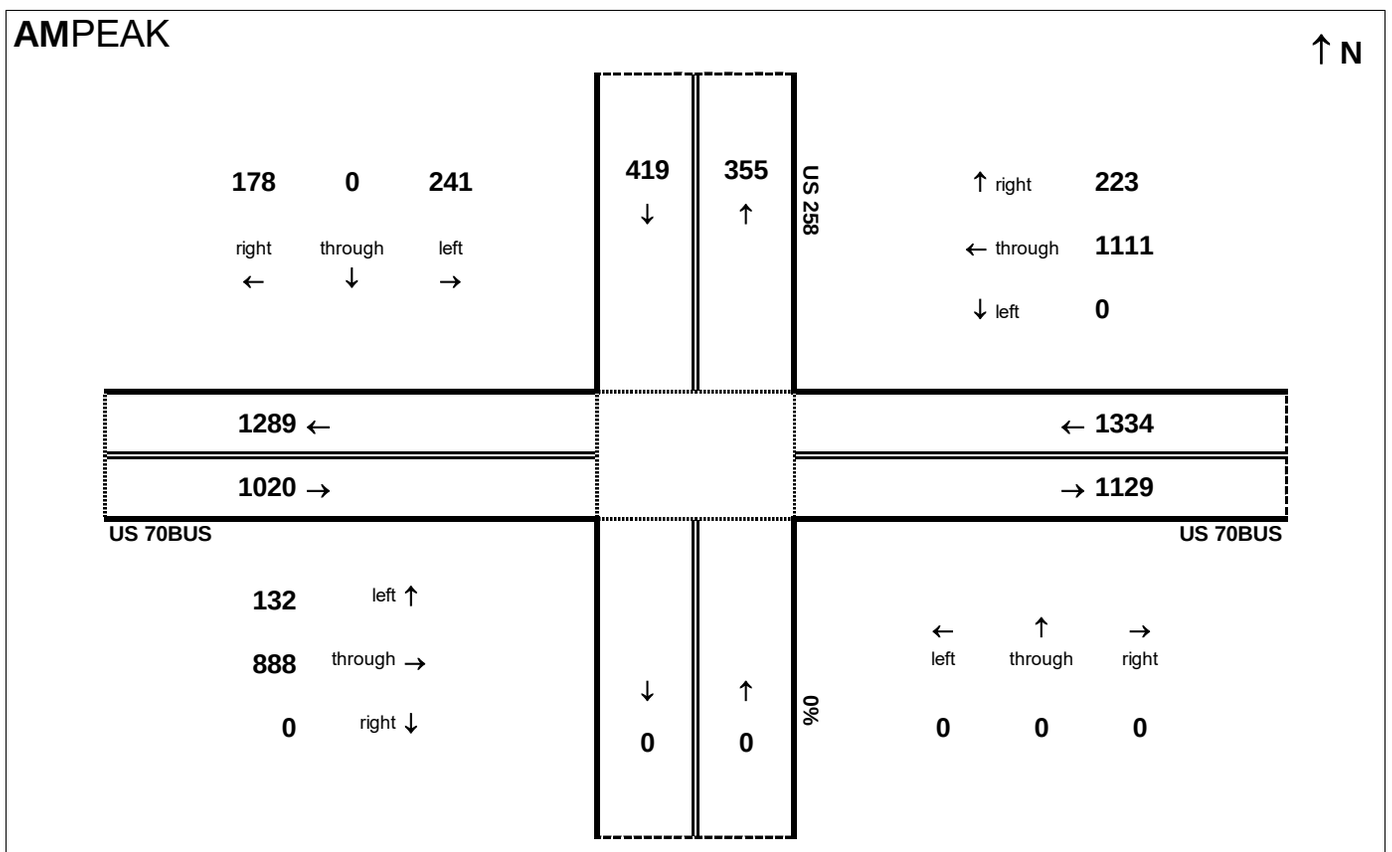
Peak Hour Volume Breakouts Report:
411 Intersection of US 70BUS and US 258

Traffic Forecast Release Date:
November-16

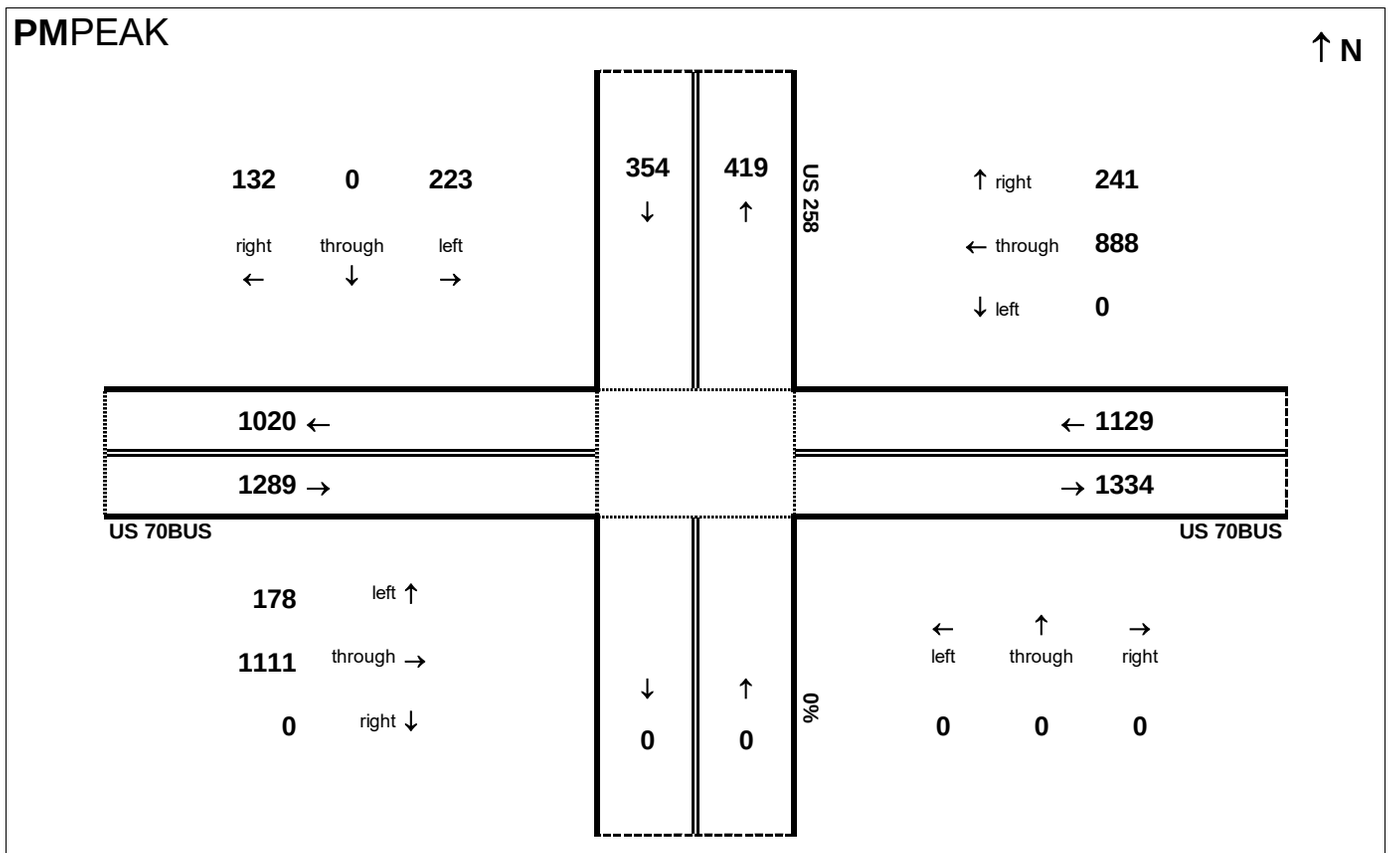
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553





AM peak hour inflow is 2773 vehicles. AM peak hour outflow is 2772 vehicles.



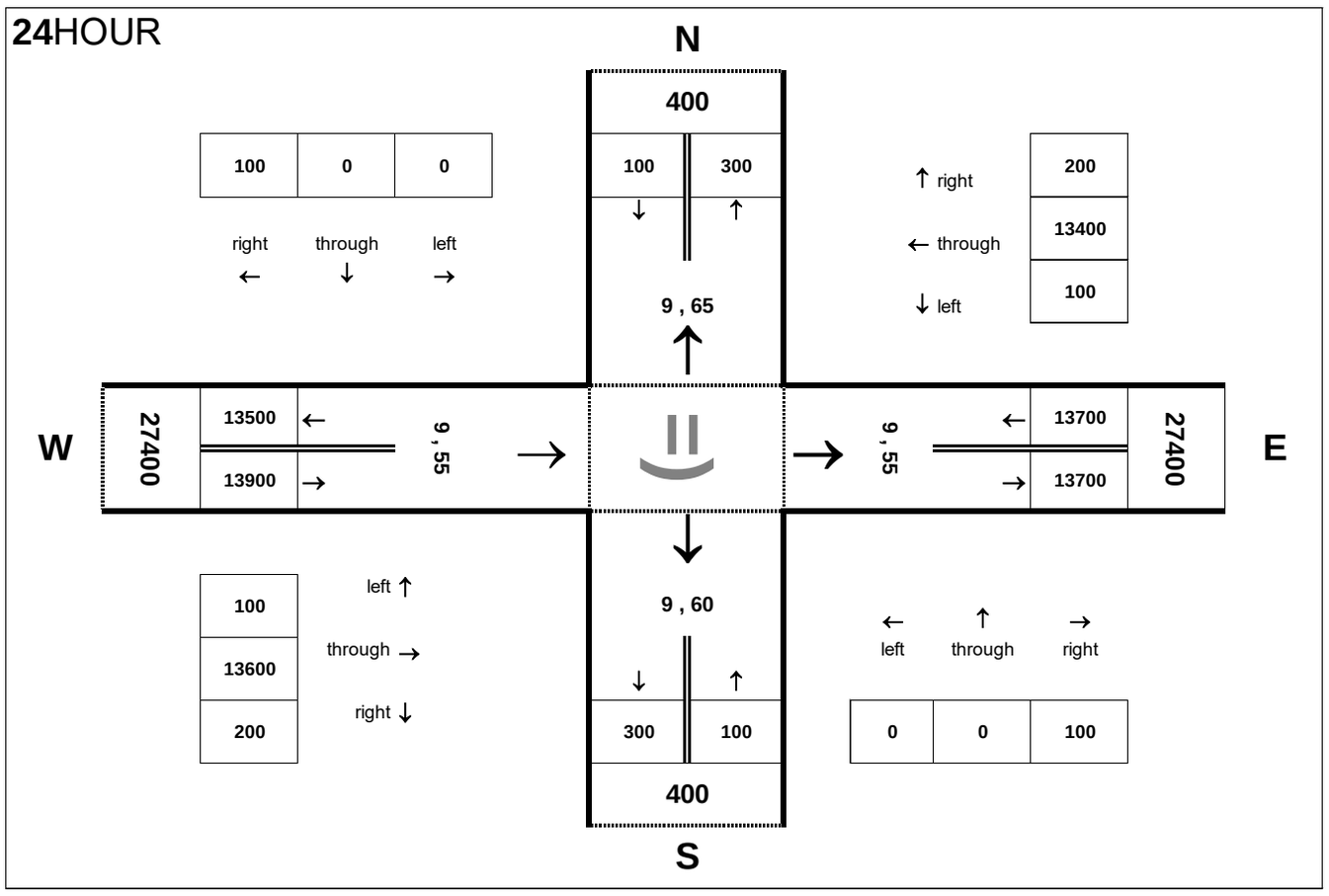
PM peak hour inflow is 2772 vehicles. PM peak hour outflow is 2773 vehicles.

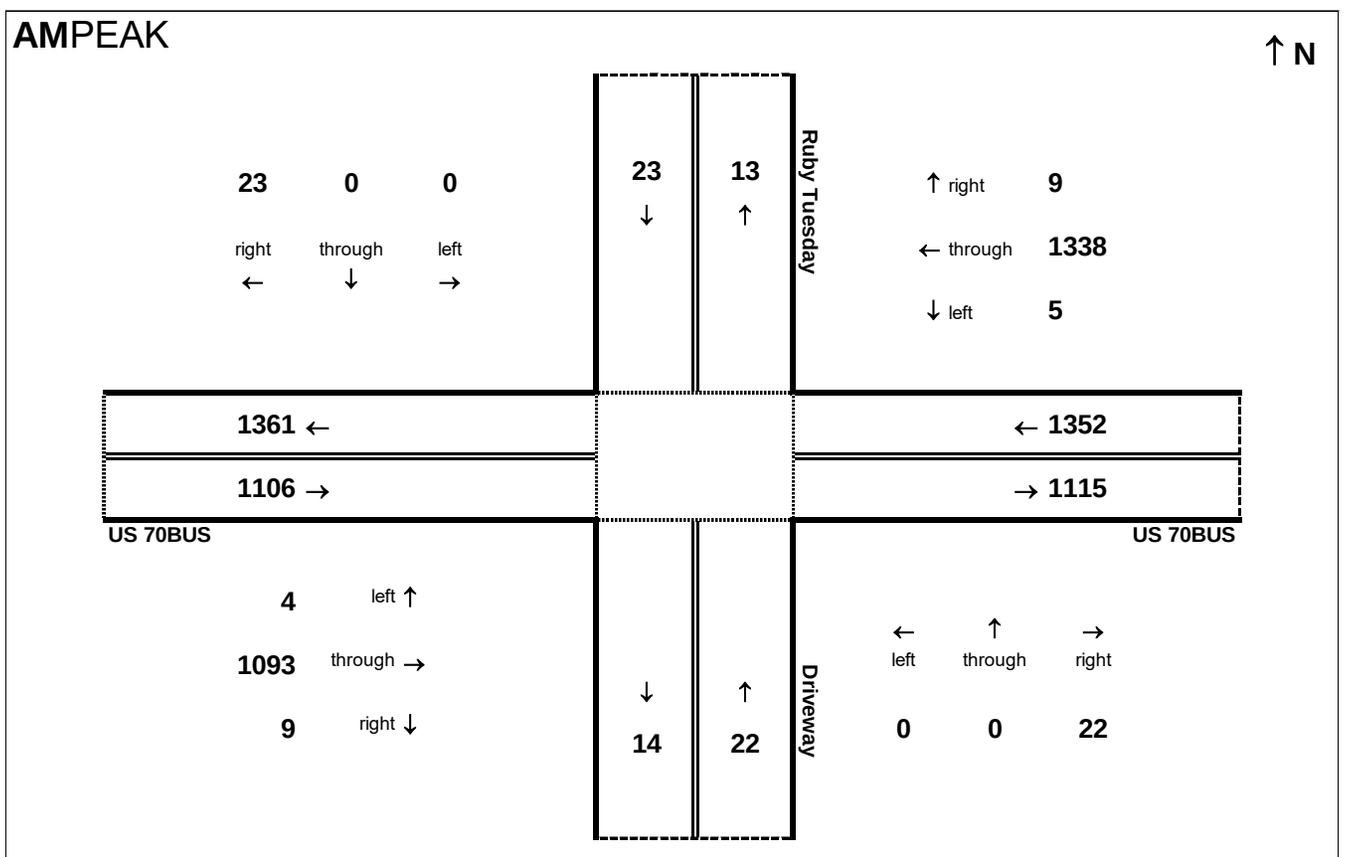
Peak Hour Volume Breakouts Report:
412 Intersection of US 70BUS and Ruby Tuesday Driveway

Traffic Forecast Release Date:
November-16

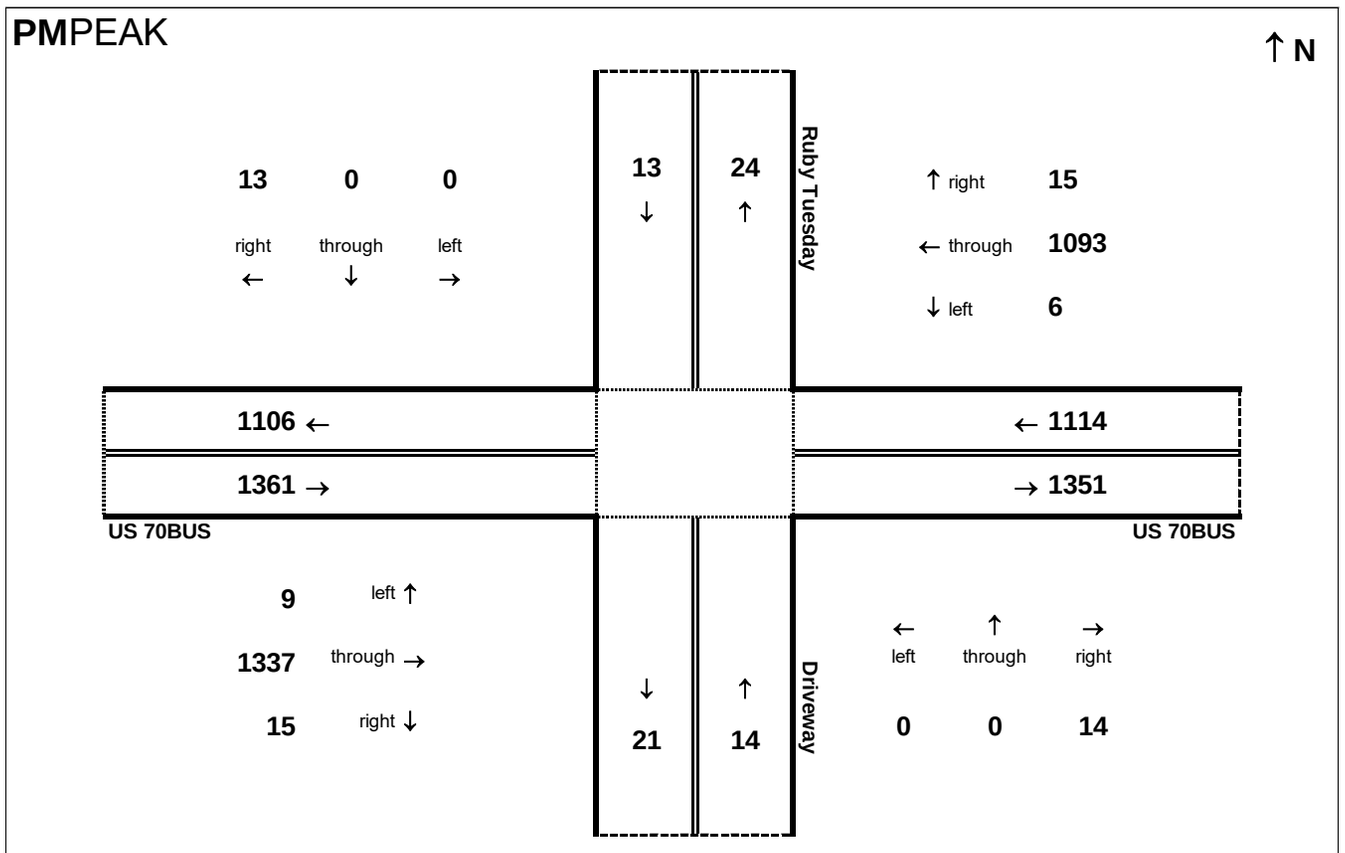
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553





AM peak hour inflow is 2502 vehicles. AM peak hour outflow is 2502 vehicles.



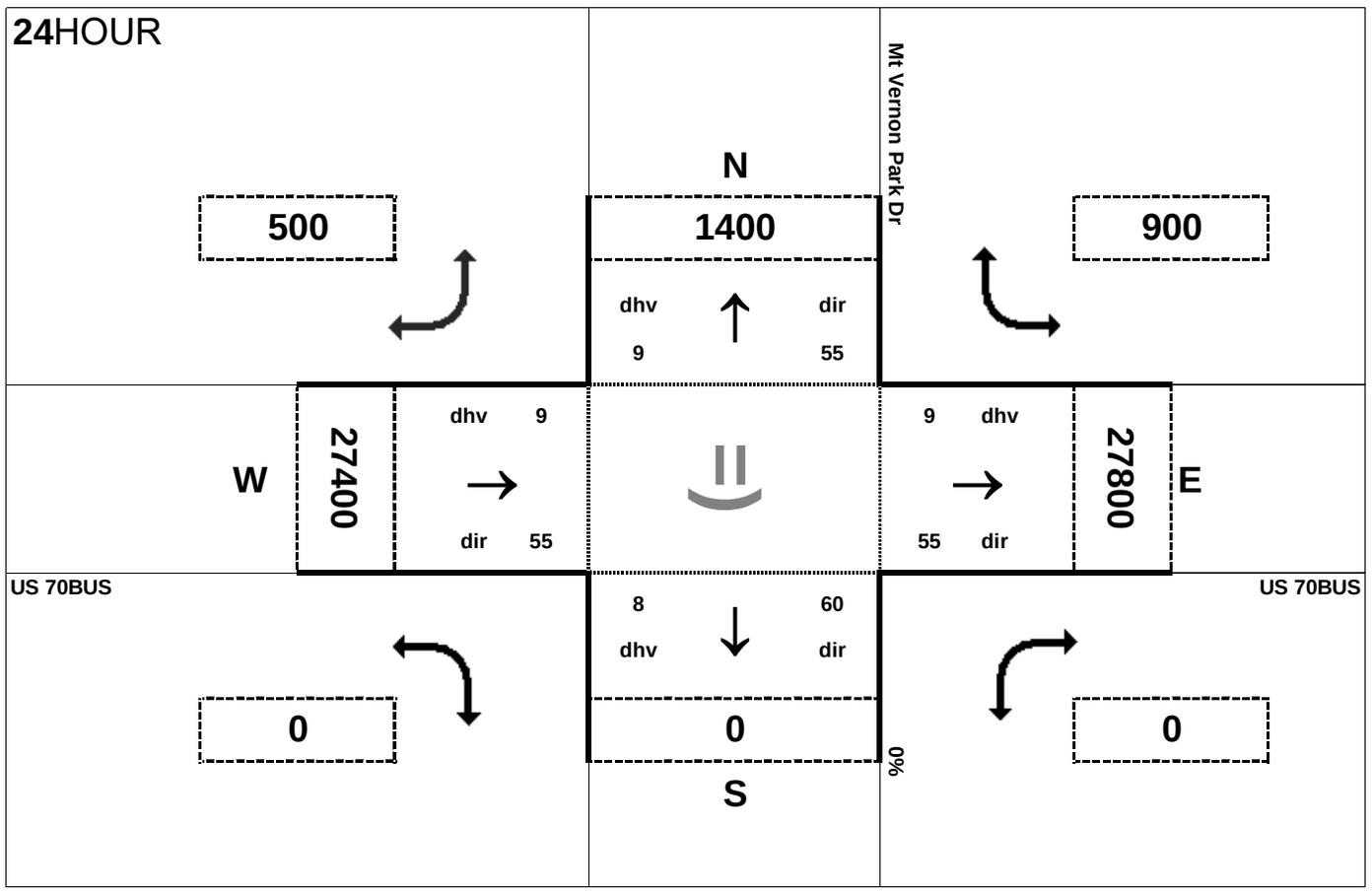
PM peak hour inflow is 2502 vehicles. PM peak hour outflow is 2503 vehicles.

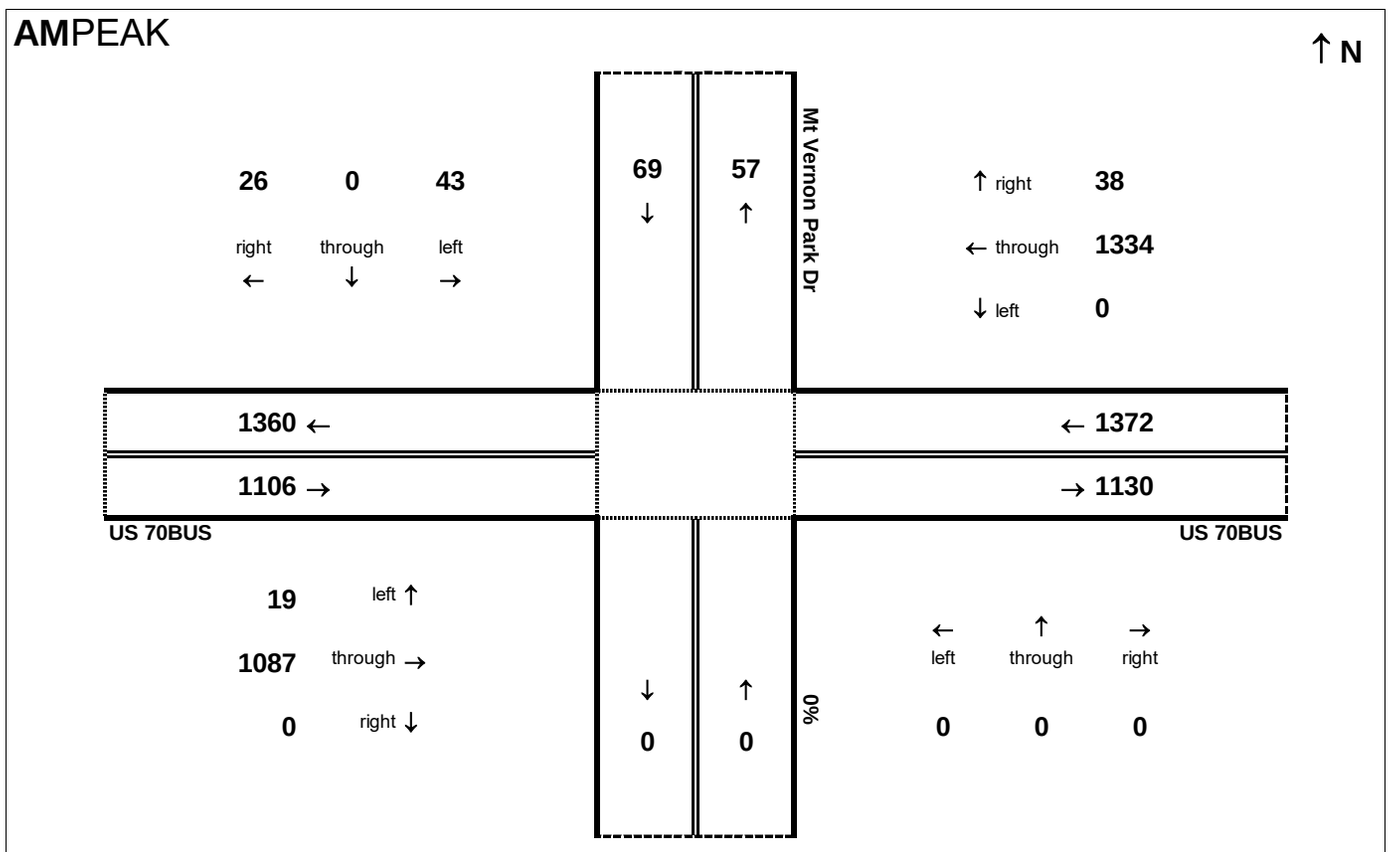
Peak Hour Volume Breakouts Report:
413 Intersection of US 70BUS and Mt Vernon Park Dr

Traffic Forecast Release Date:
November-16

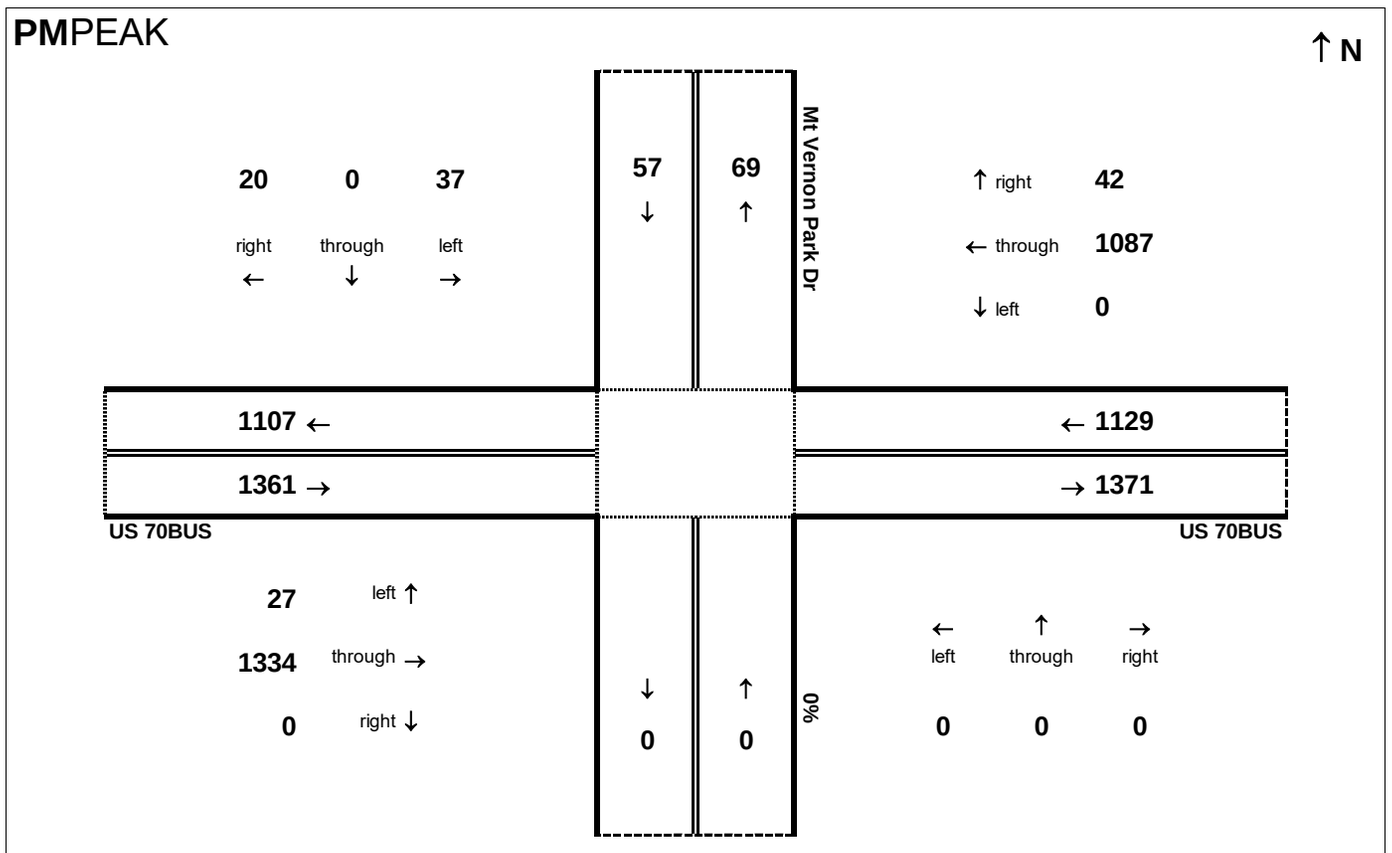
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553





AM peak hour inflow is 2547 vehicles. AM peak hour outflow is 2547 vehicles.



PM peak hour inflow is 2547 vehicles. PM peak hour outflow is 2547 vehicles.

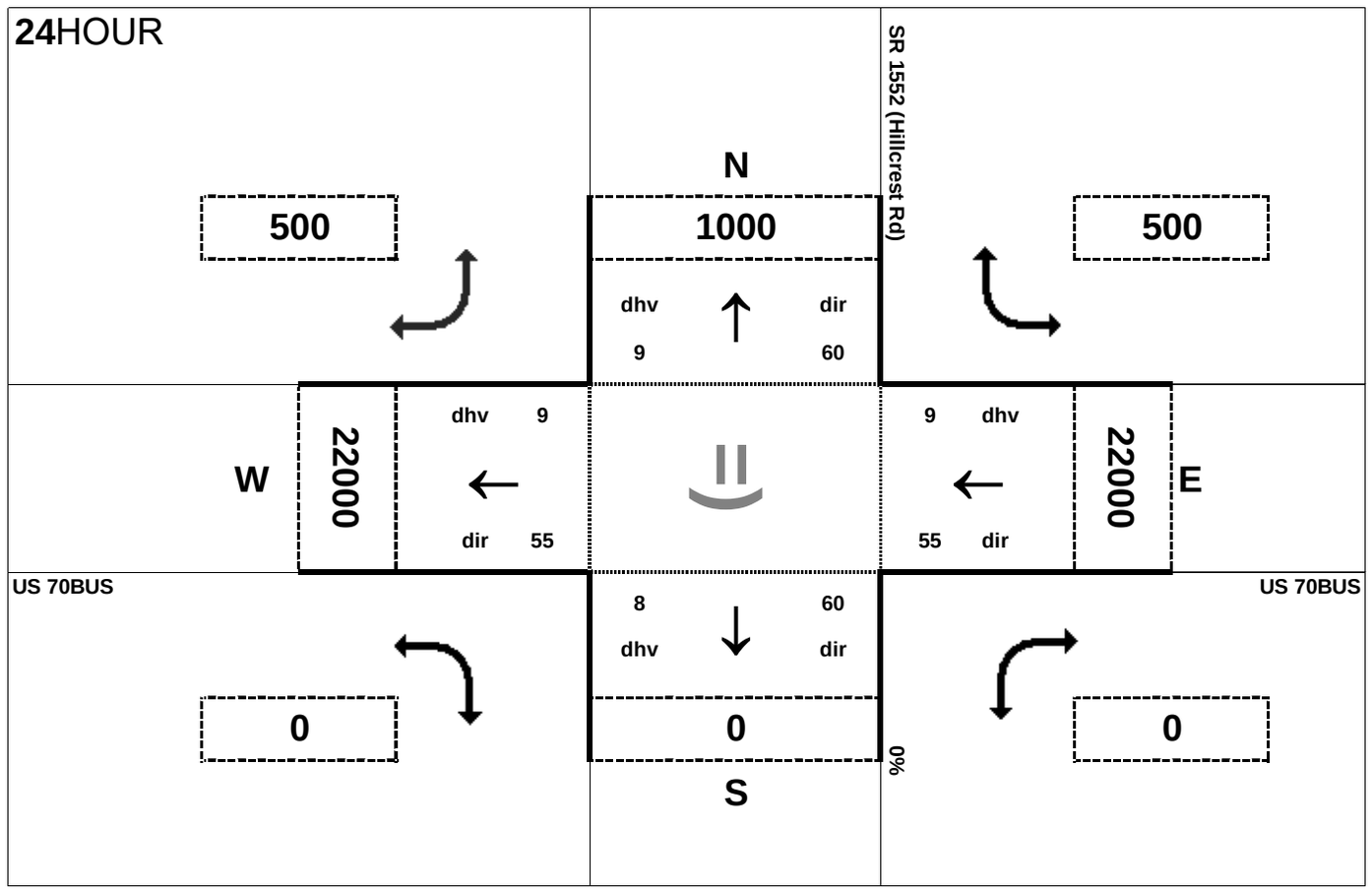
Peak Hour Volume Breakouts Report:
414 Intersection of Old US 70BUS and SR 1552 (Hillcrest Rd)

Traffic Forecast Release Date:
November-16

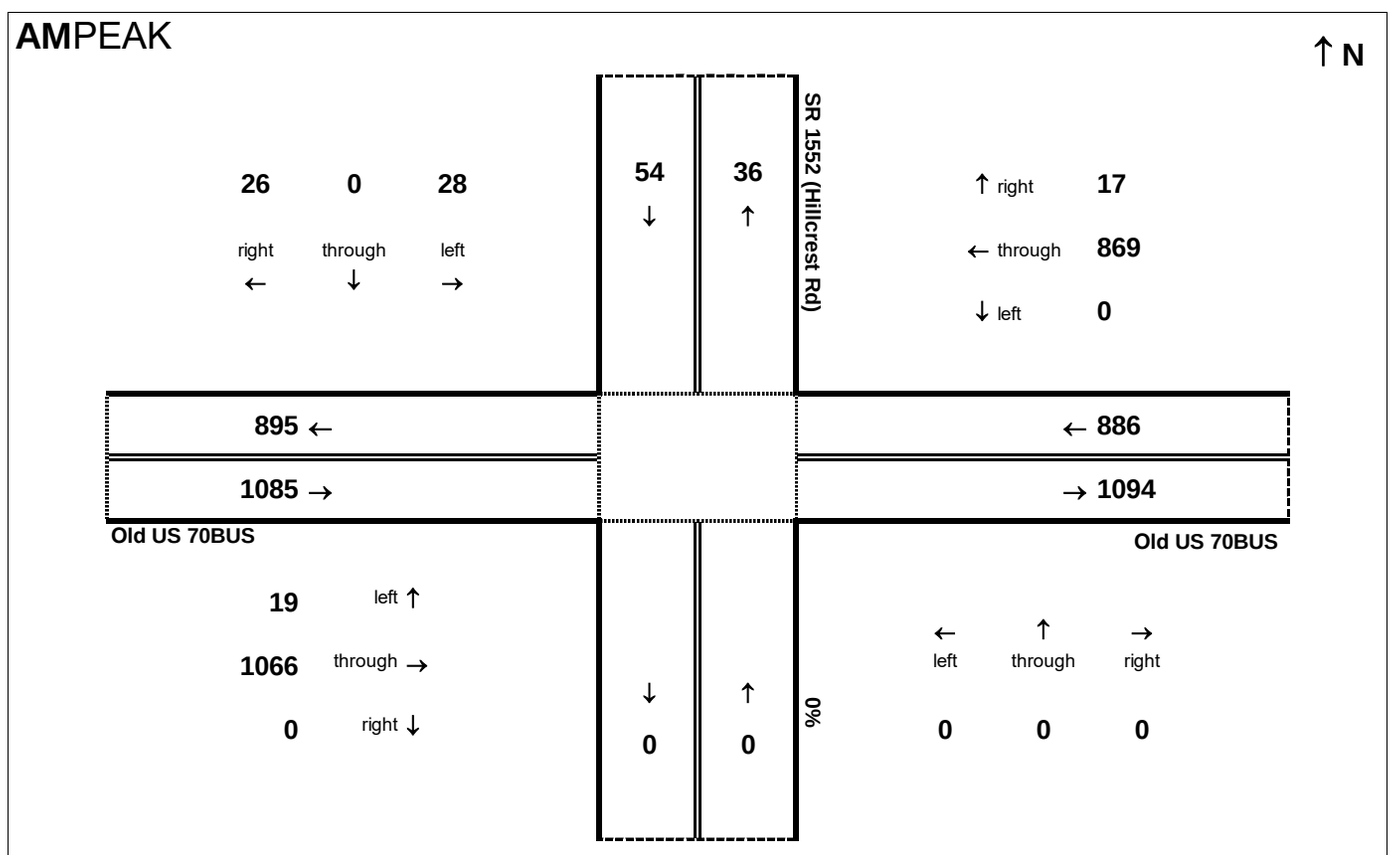
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553

24HOUR

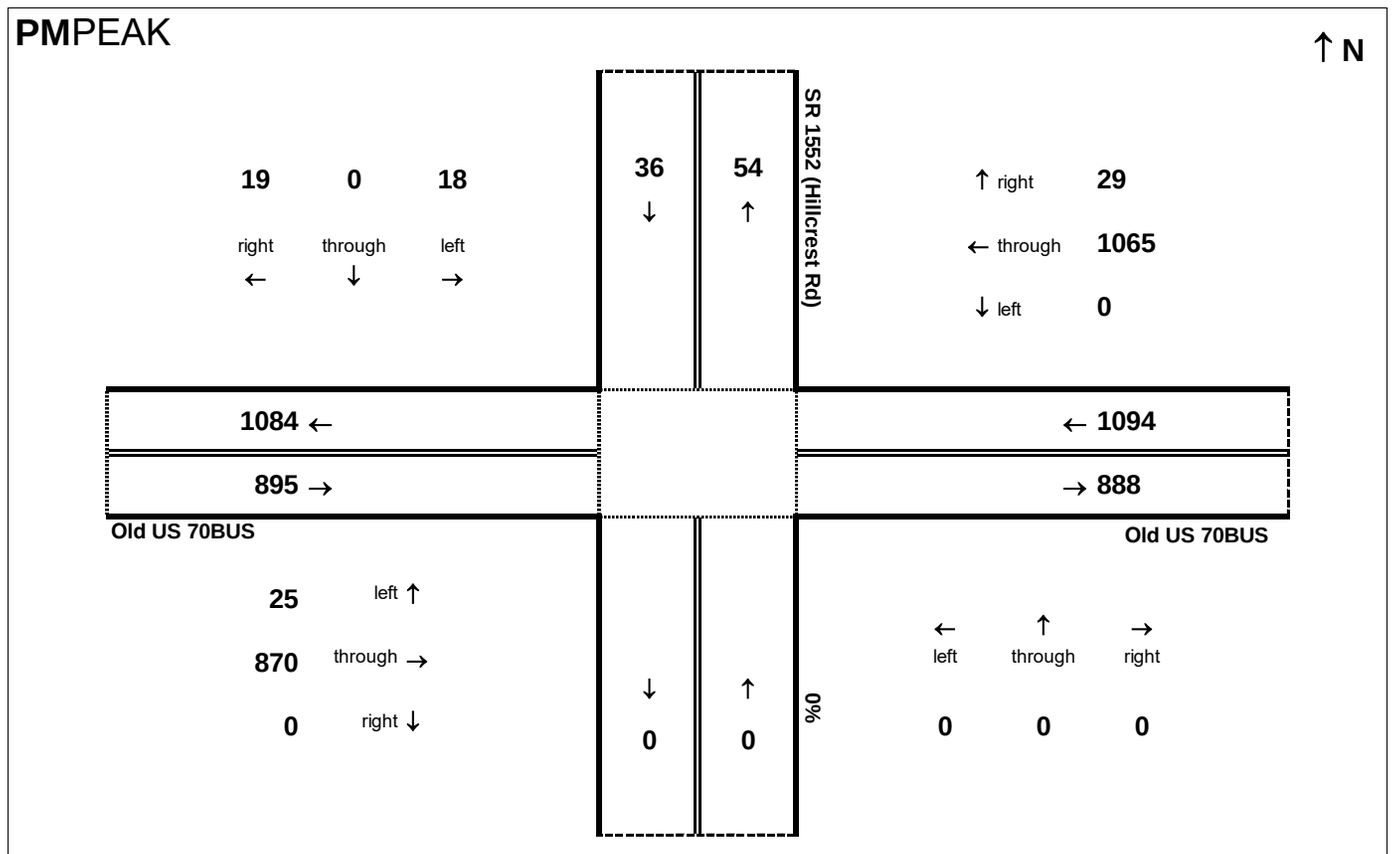


AMPEAK



AM peak hour inflow is 2025 vehicles. AM peak hour outflow is 2025 vehicles.

PMPEAK



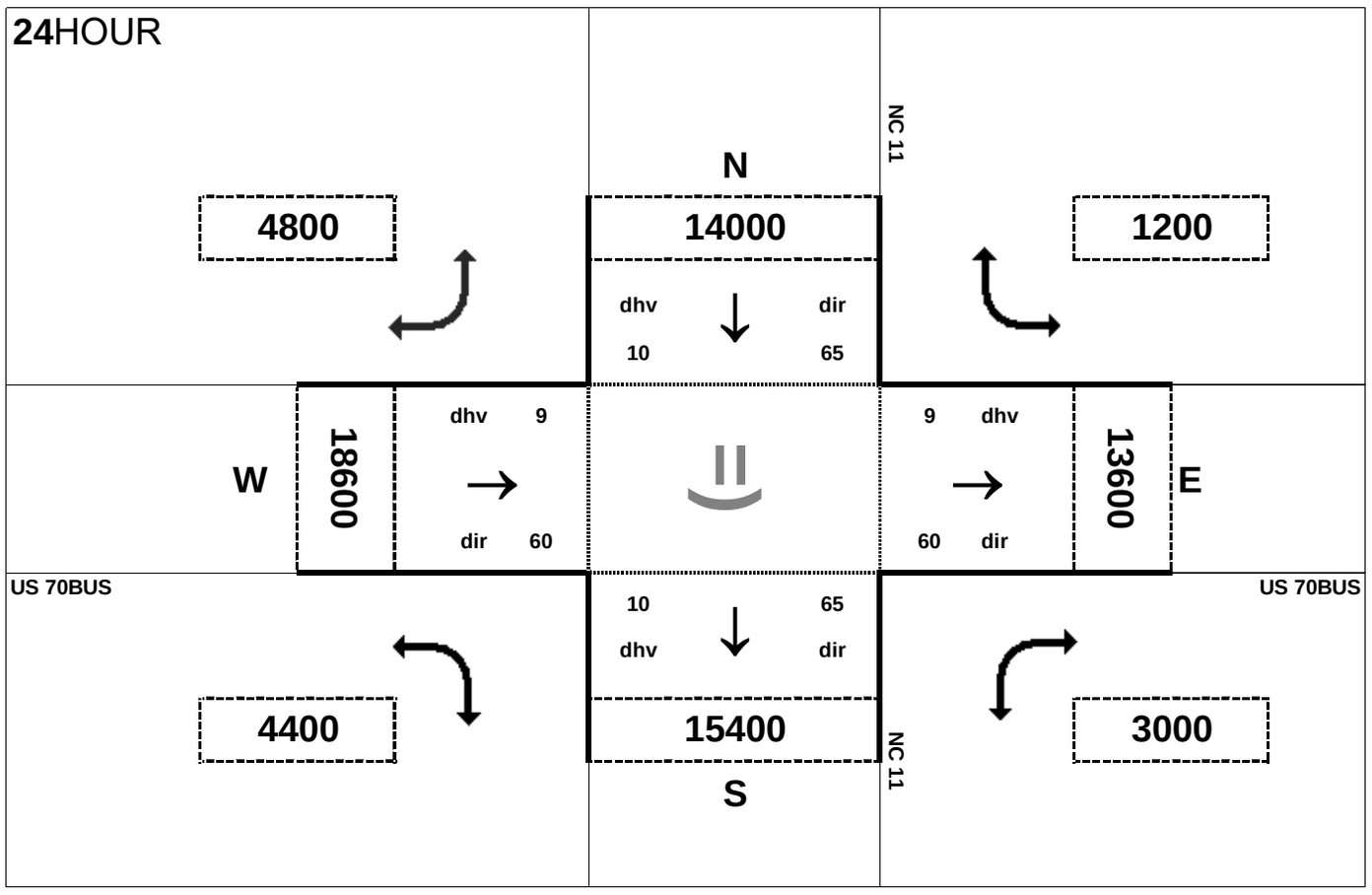
PM peak hour inflow is 2025 vehicles. PM peak hour outflow is 2025 vehicles.

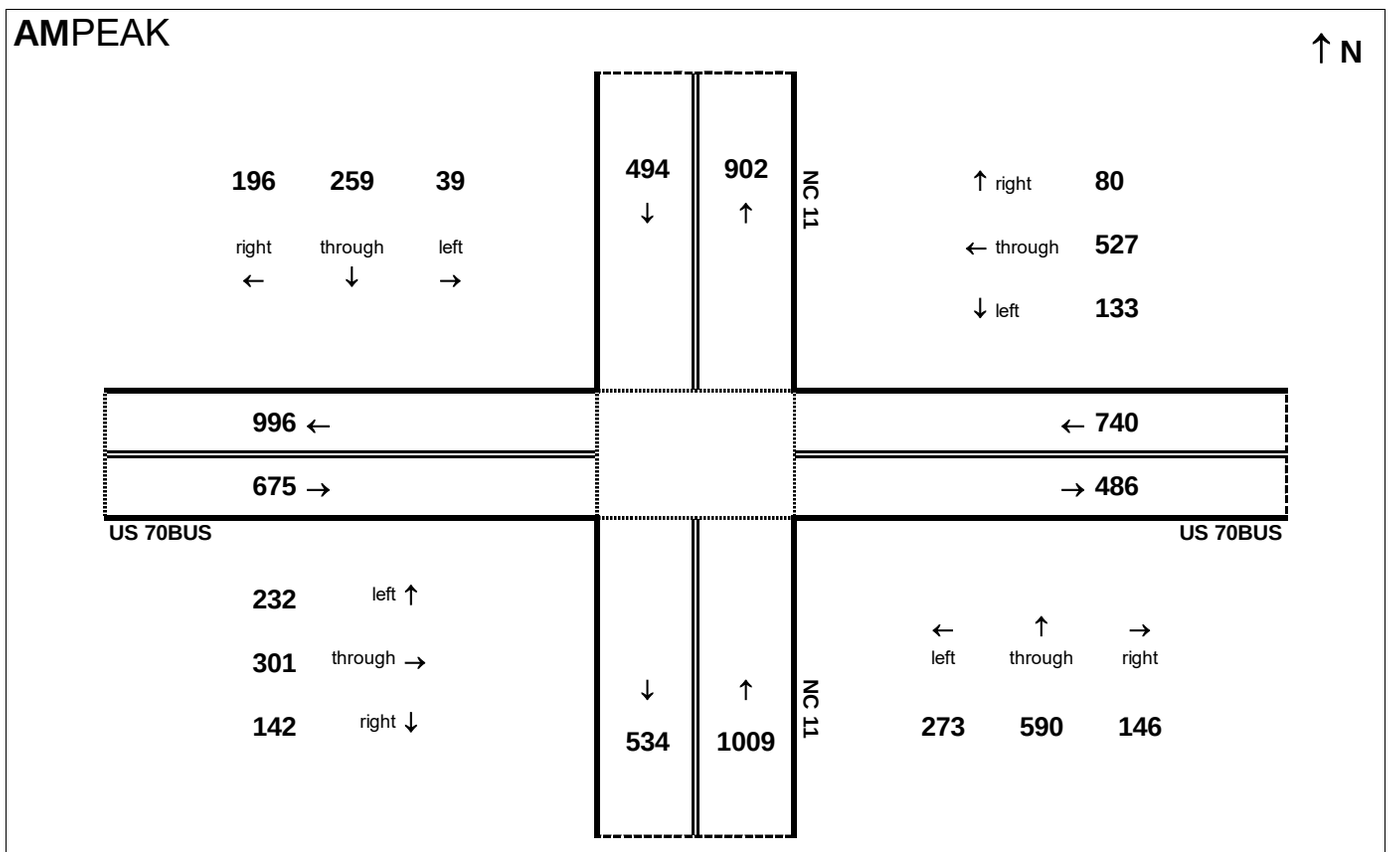
Peak Hour Volume Breakouts Report:
415 Intersection of US 70BUS and NC 11

Traffic Forecast Release Date:
November-16

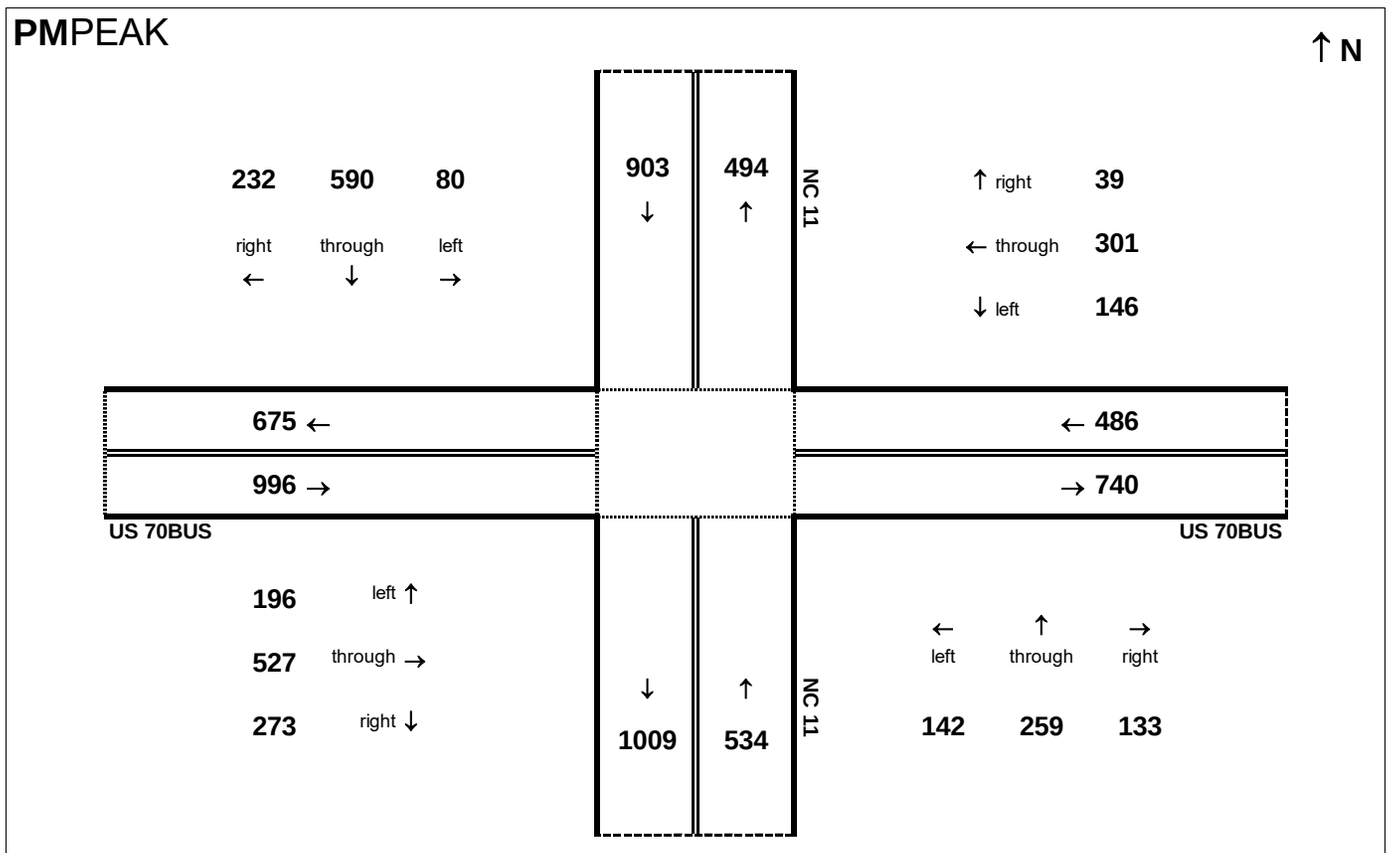
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553





AM peak hour inflow is 2918 vehicles. AM peak hour outflow is 2920 vehicles.



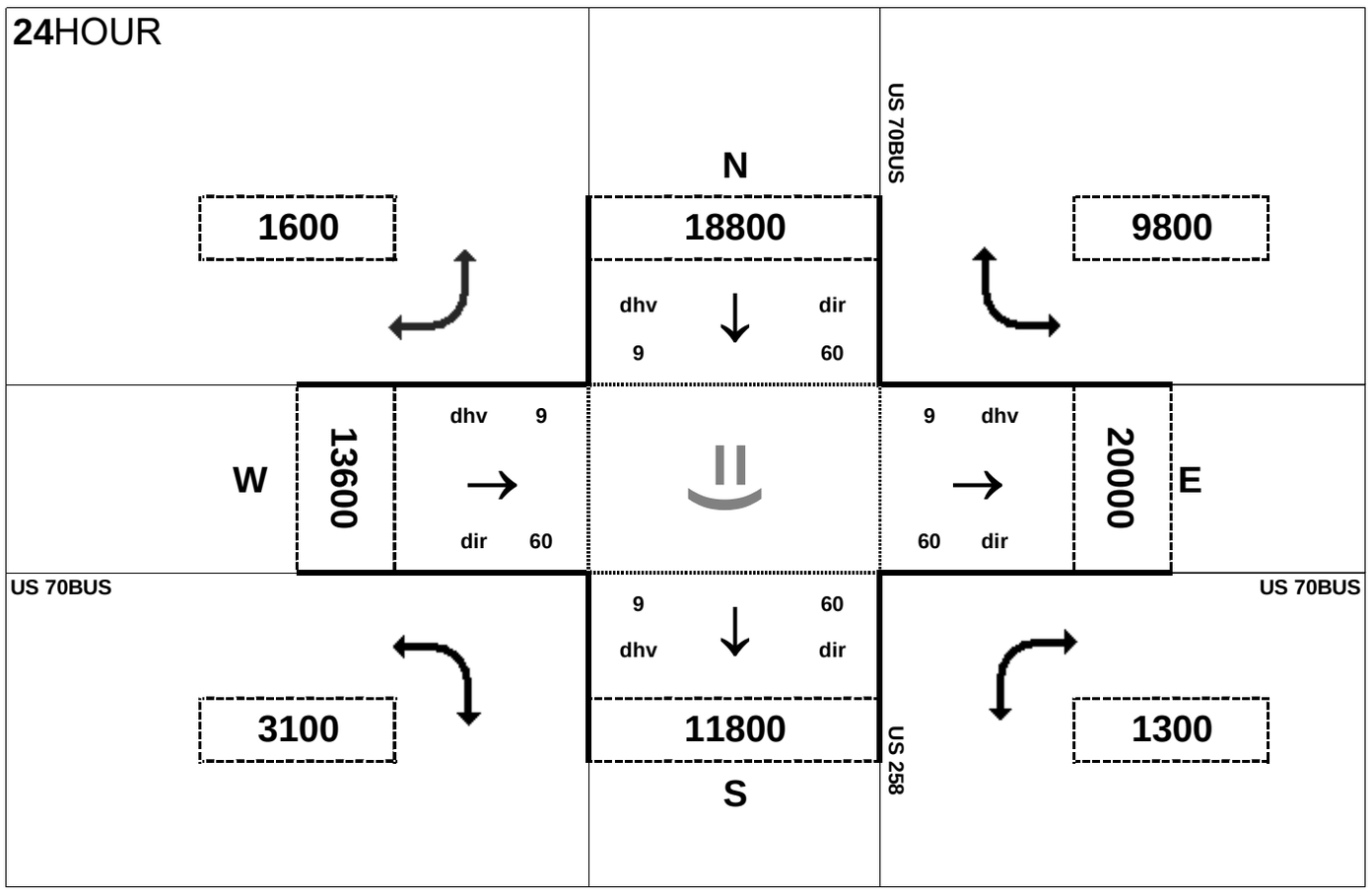
PM peak hour inflow is 2920 vehicles. PM peak hour outflow is 2918 vehicles.

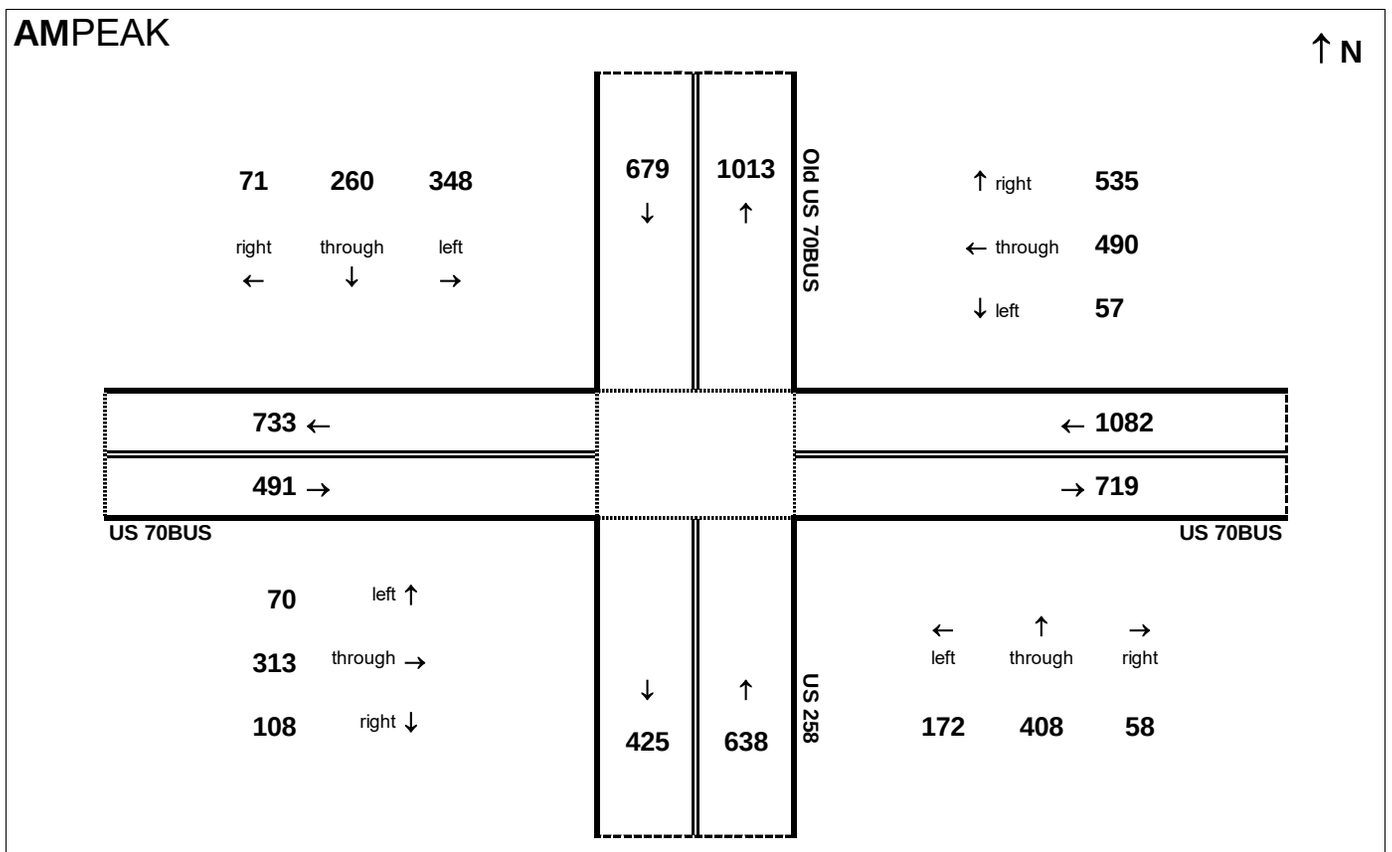
Peak Hour Volume Breakouts Report:
416 Intersection of US 70BUS and US 258 / Old US 70BUS

Traffic Forecast Release Date:
November-16

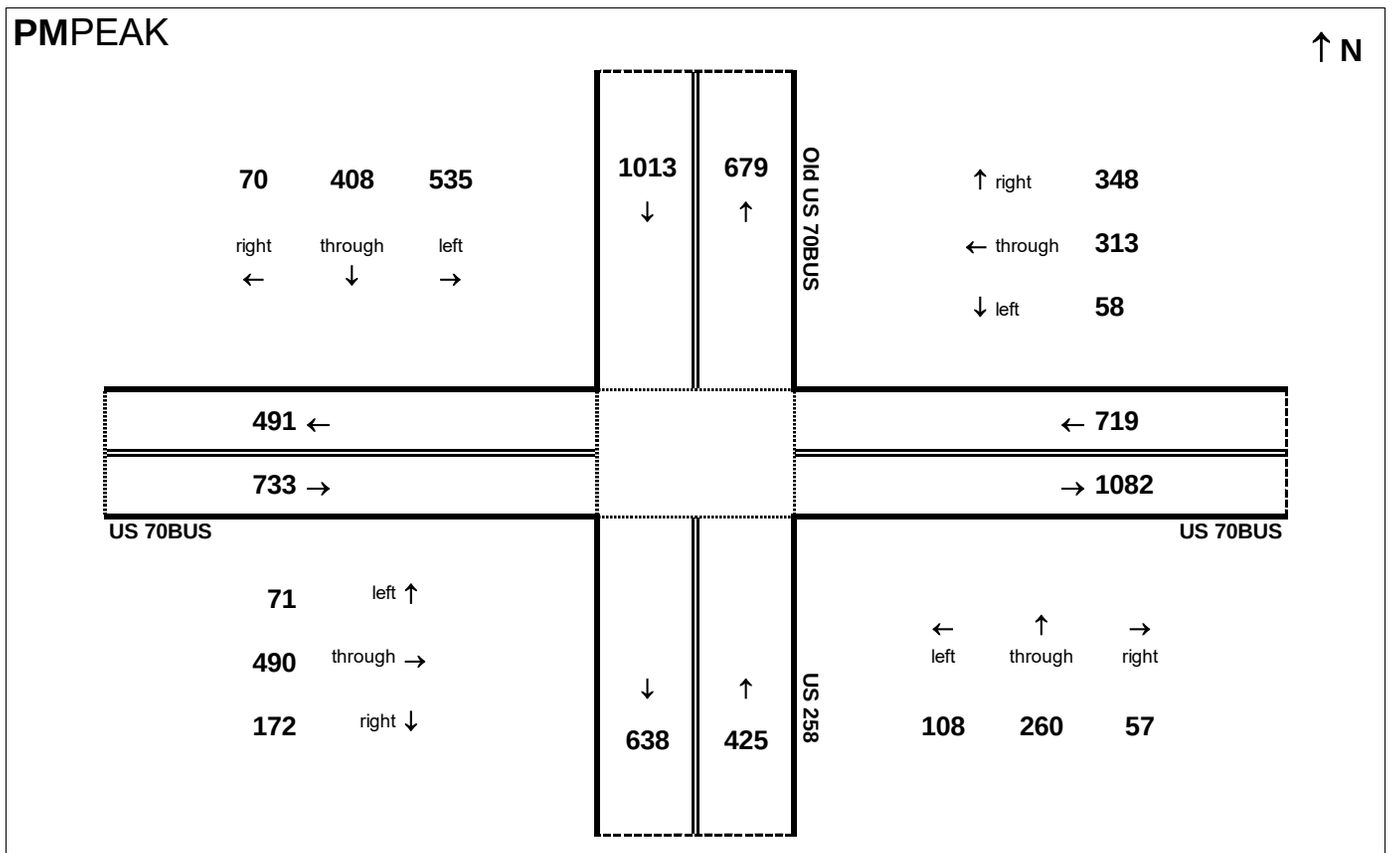
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553





AM peak hour inflow is 2889 vehicles. AM peak hour outflow is 2889 vehicles.



PM peak hour inflow is 2889 vehicles. PM peak hour outflow is 2889 vehicles.

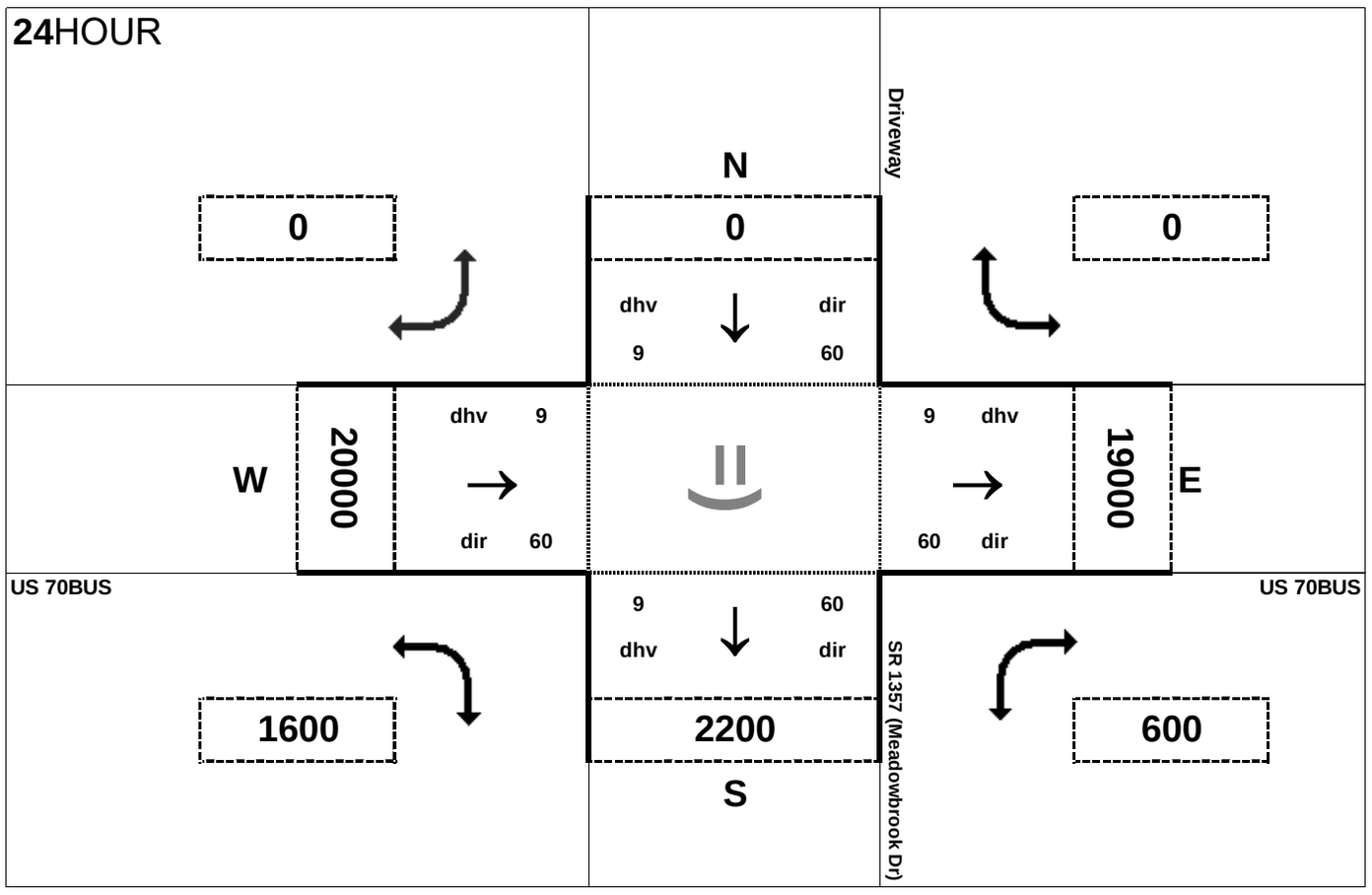
Peak Hour Volume Breakouts Report:
417 Intersection of US 70BUS and SR 1357 (Meadowbrook Dr)

Traffic Forecast Release Date:
November-16

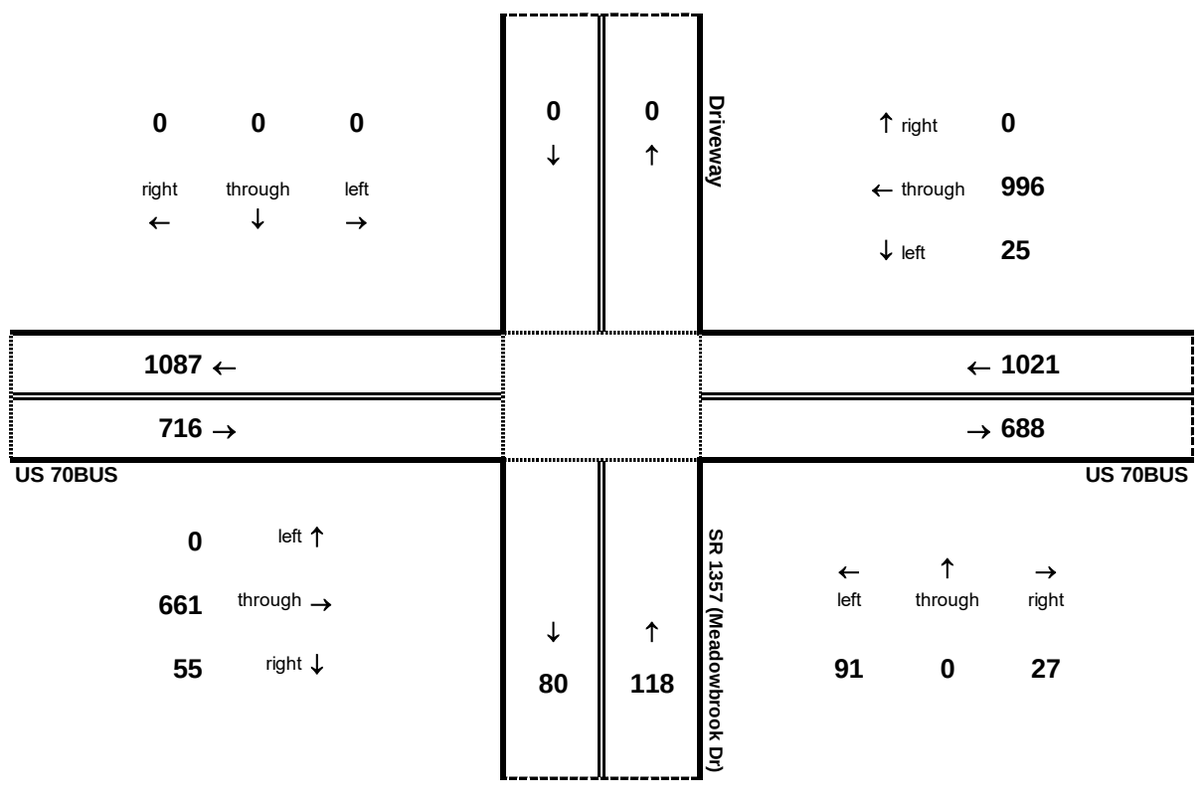
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553

24HOUR

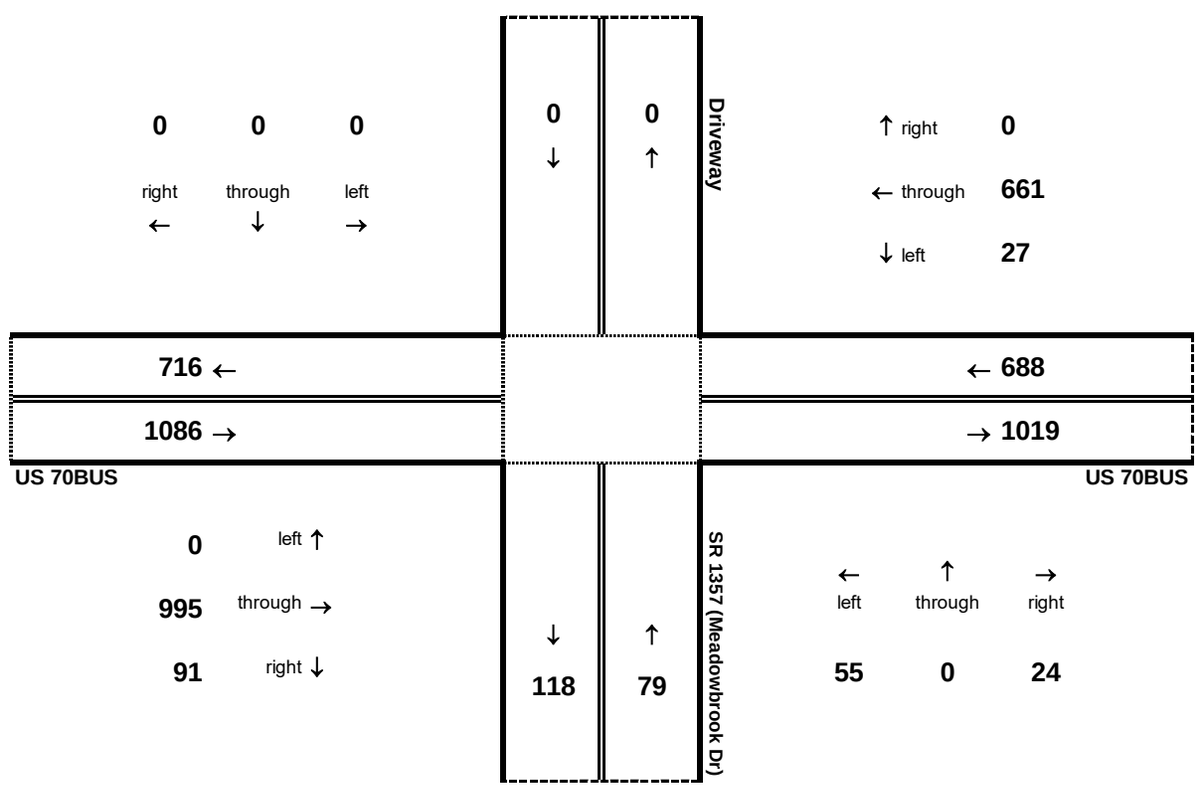


AMPEAK



AM peak hour inflow is 1853 vehicles. AM peak hour outflow is 1854 vehicles.

PMPEAK



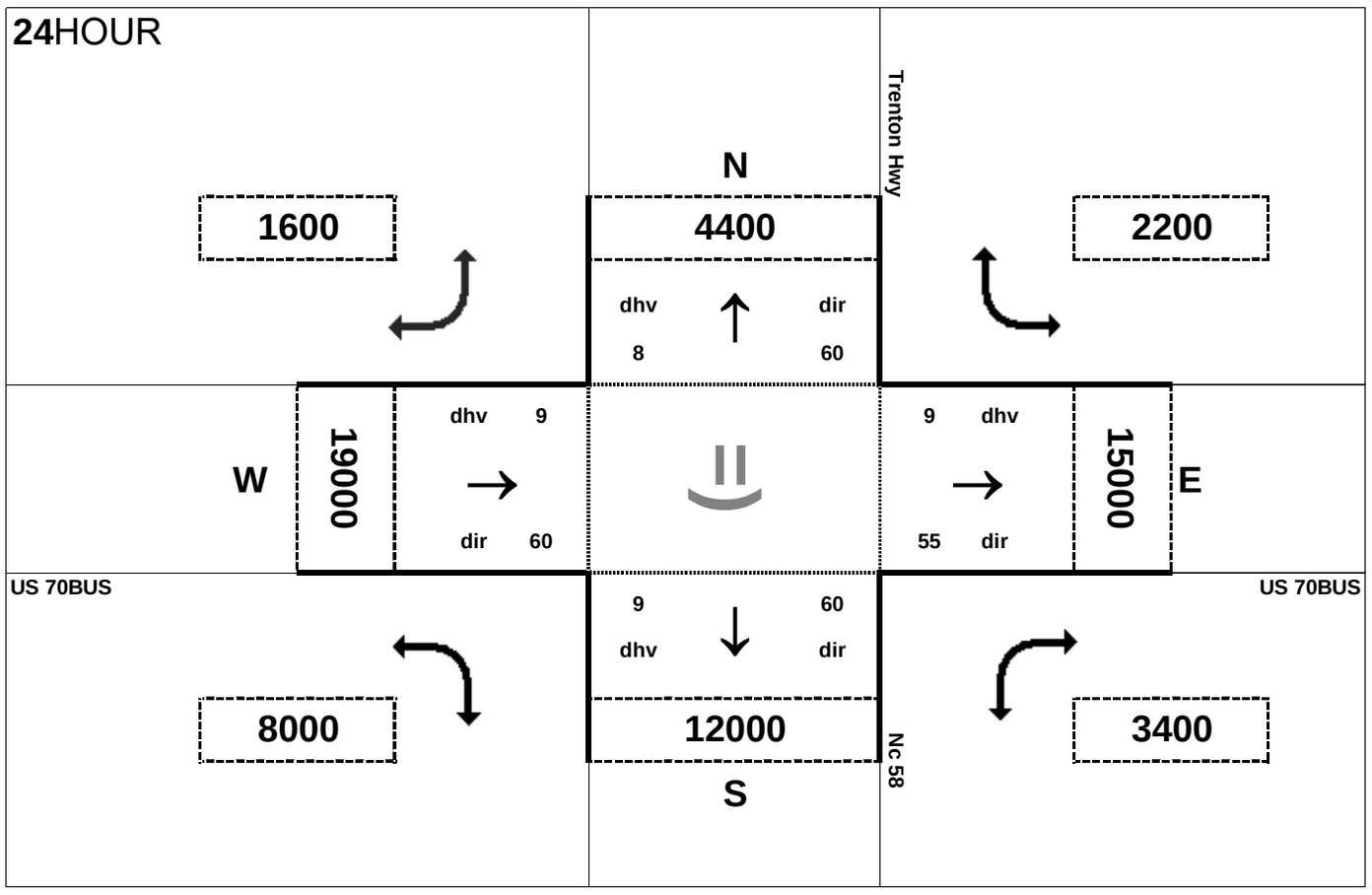
PM peak hour inflow is 1855 vehicles. PM peak hour outflow is 1854 vehicles.

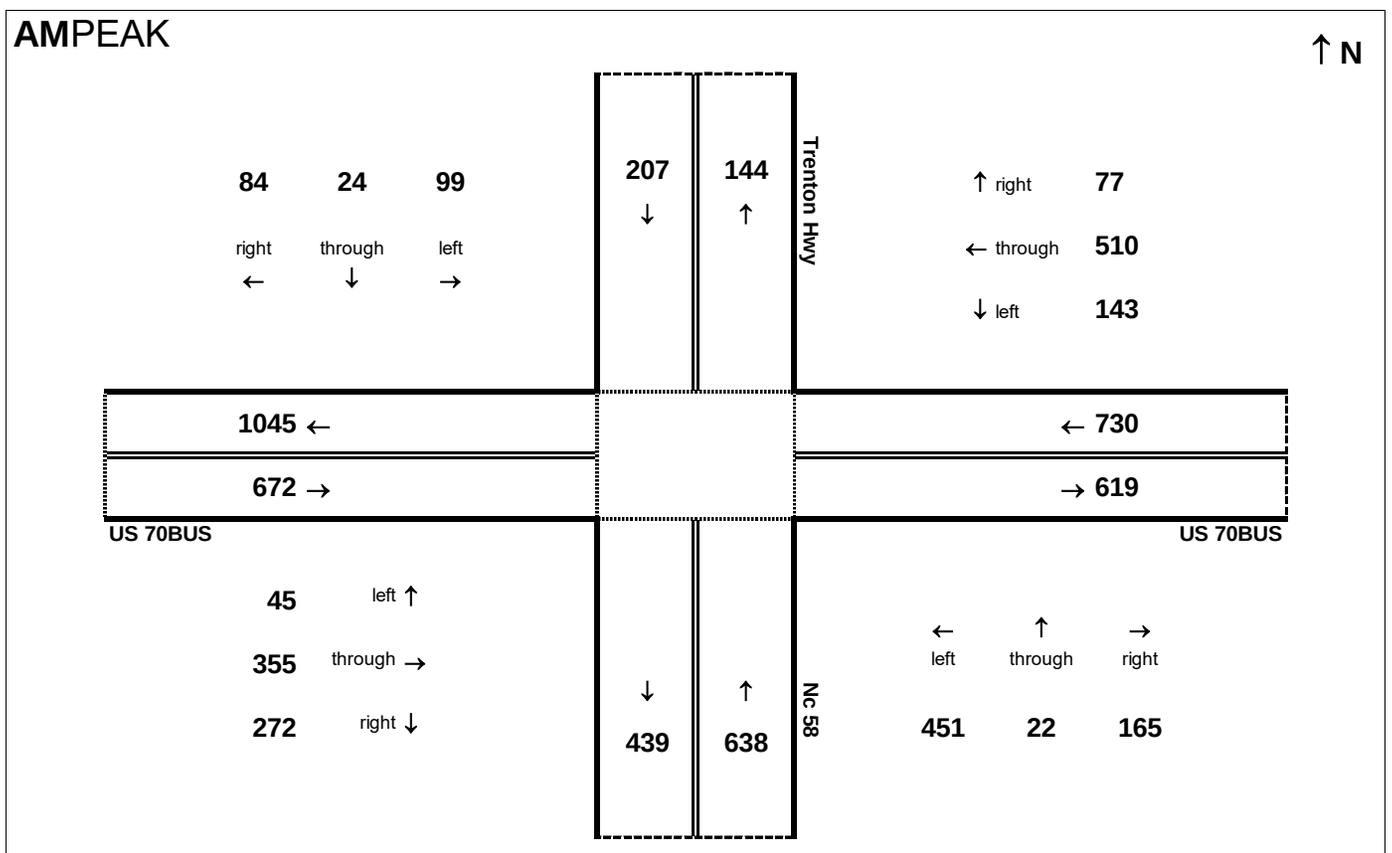
Peak Hour Volume Breakouts Report:
418 Intersection of US 70BUS and Nc 58 / Trenton Hwy

Traffic Forecast Release Date:
November-16

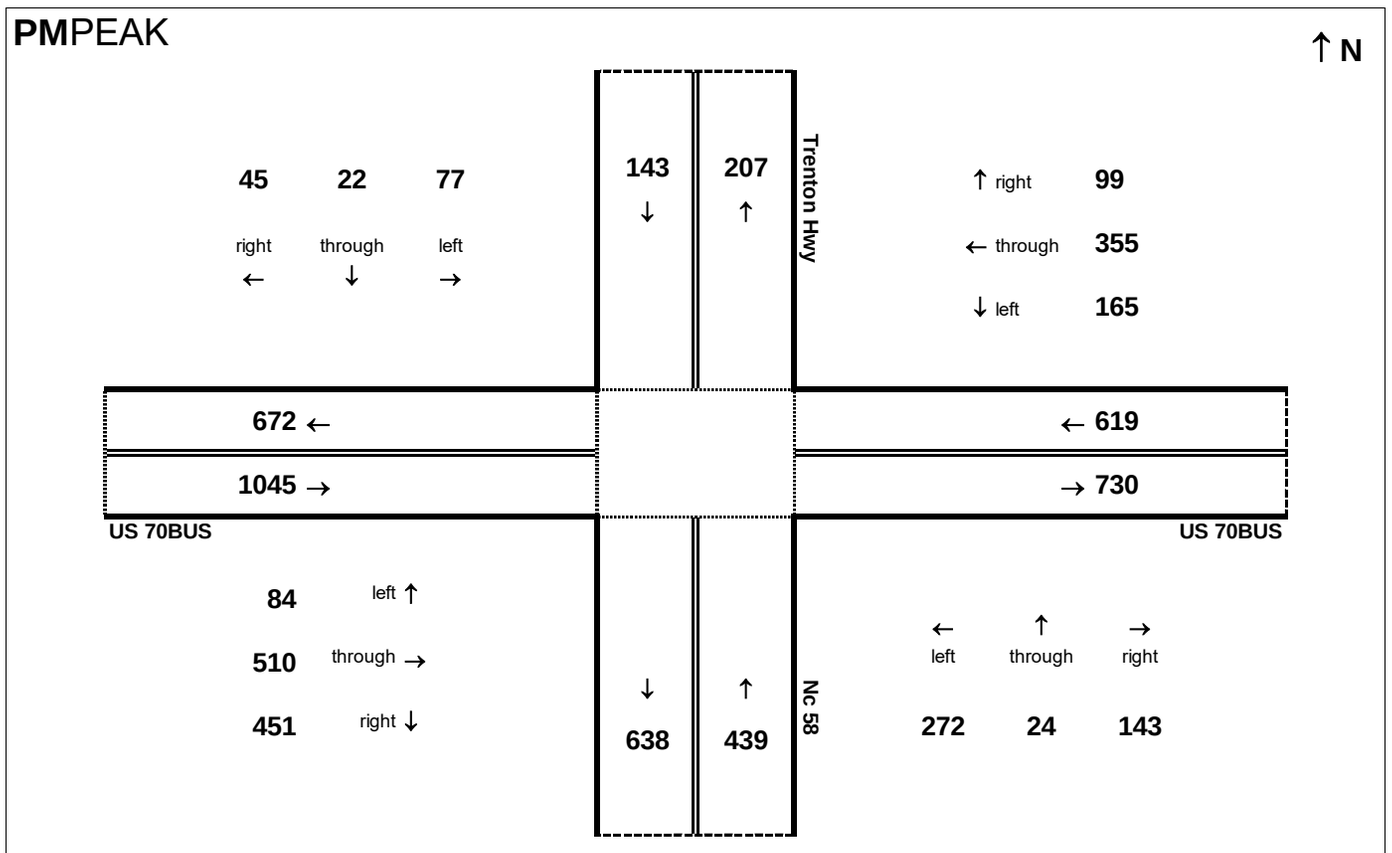
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553





AM peak hour inflow is 2247 vehicles. AM peak hour outflow is 2245 vehicles.



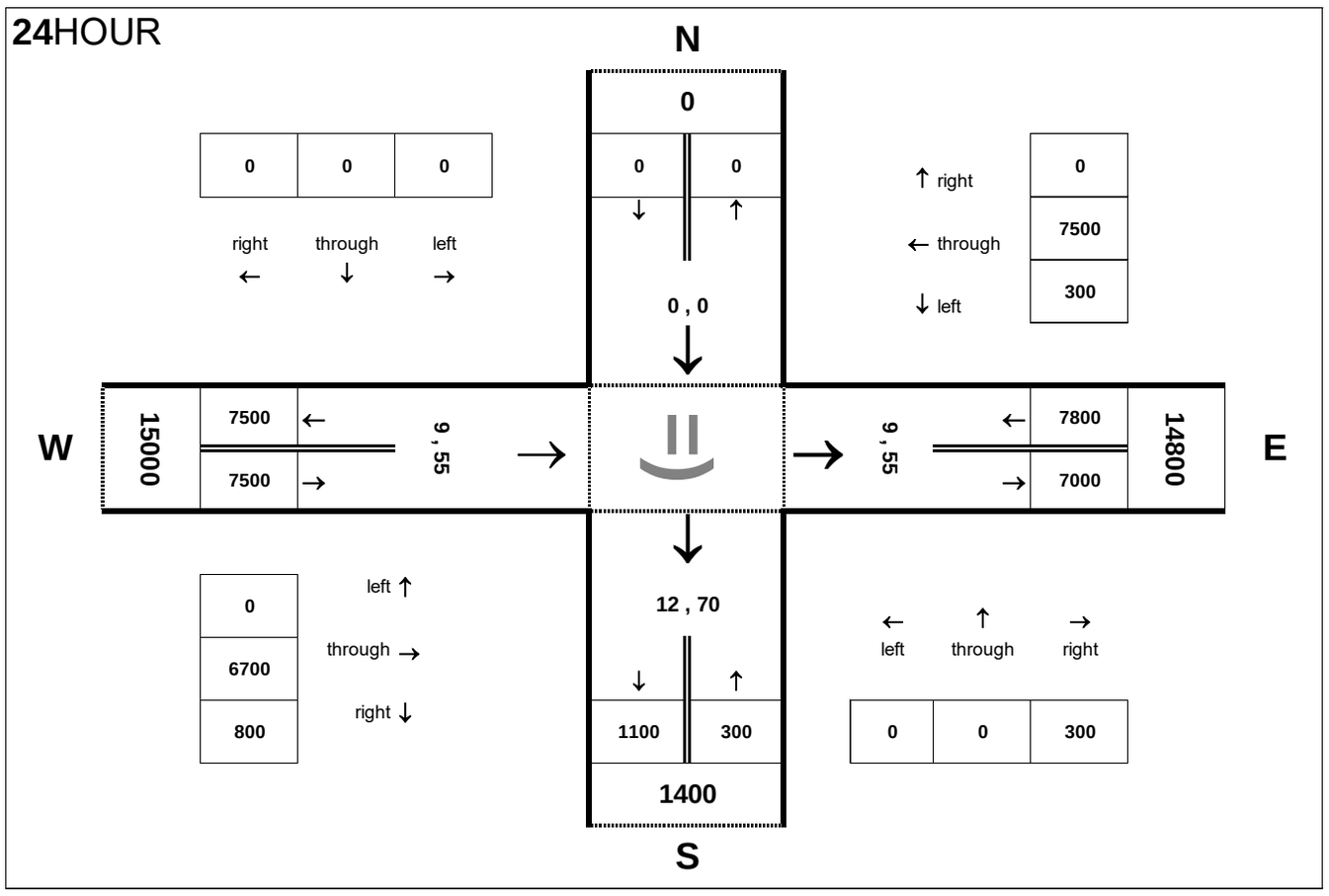
PM peak hour inflow is 2245 vehicles. PM peak hour outflow is 2247 vehicles.

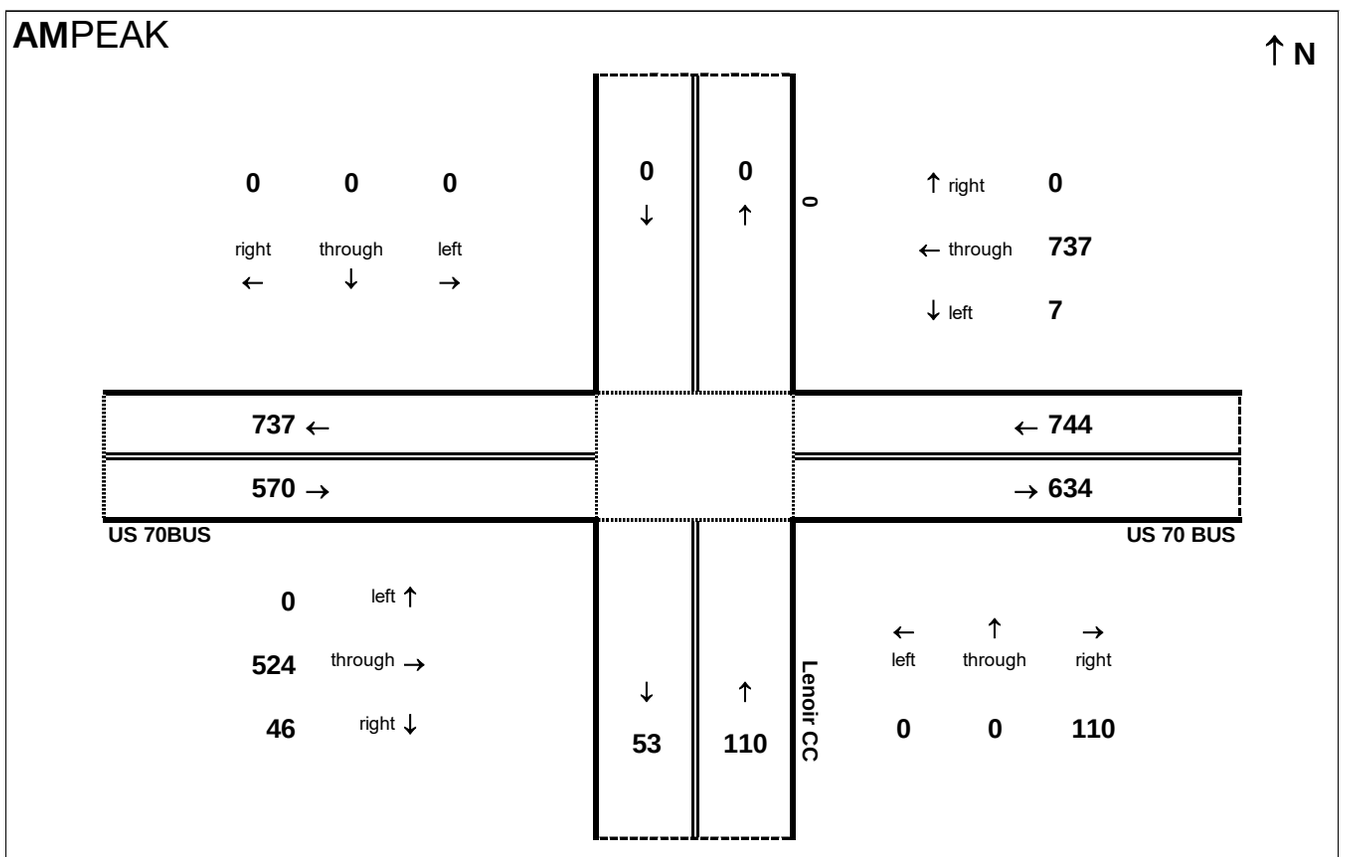
Peak Hour Volume Breakouts Report:
419 Intersection of US 70BUS and Lenoir CC

Traffic Forecast Release Date:
November-16

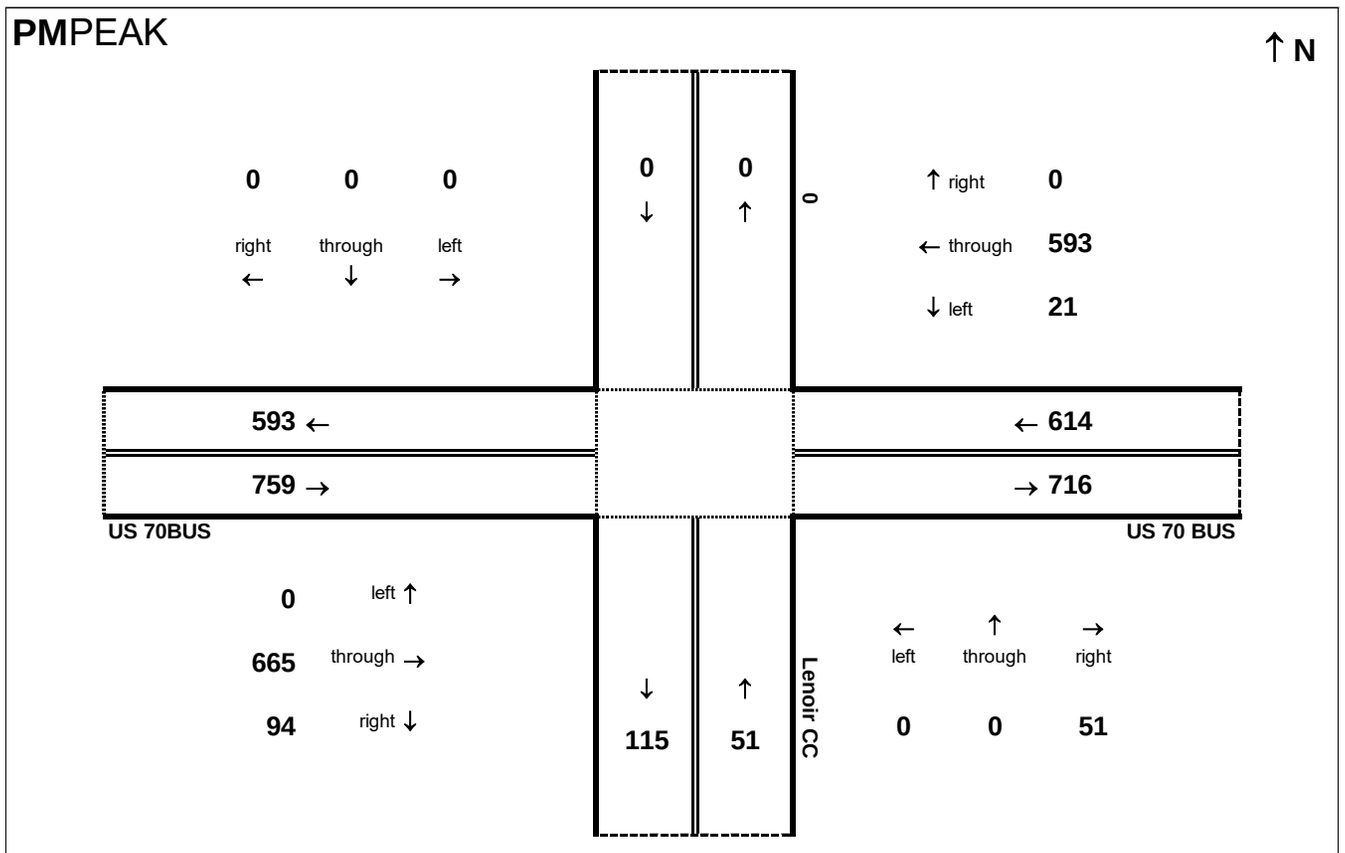
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553





AM peak hour inflow is 1425 vehicles. AM peak hour outflow is 1424 vehicles.



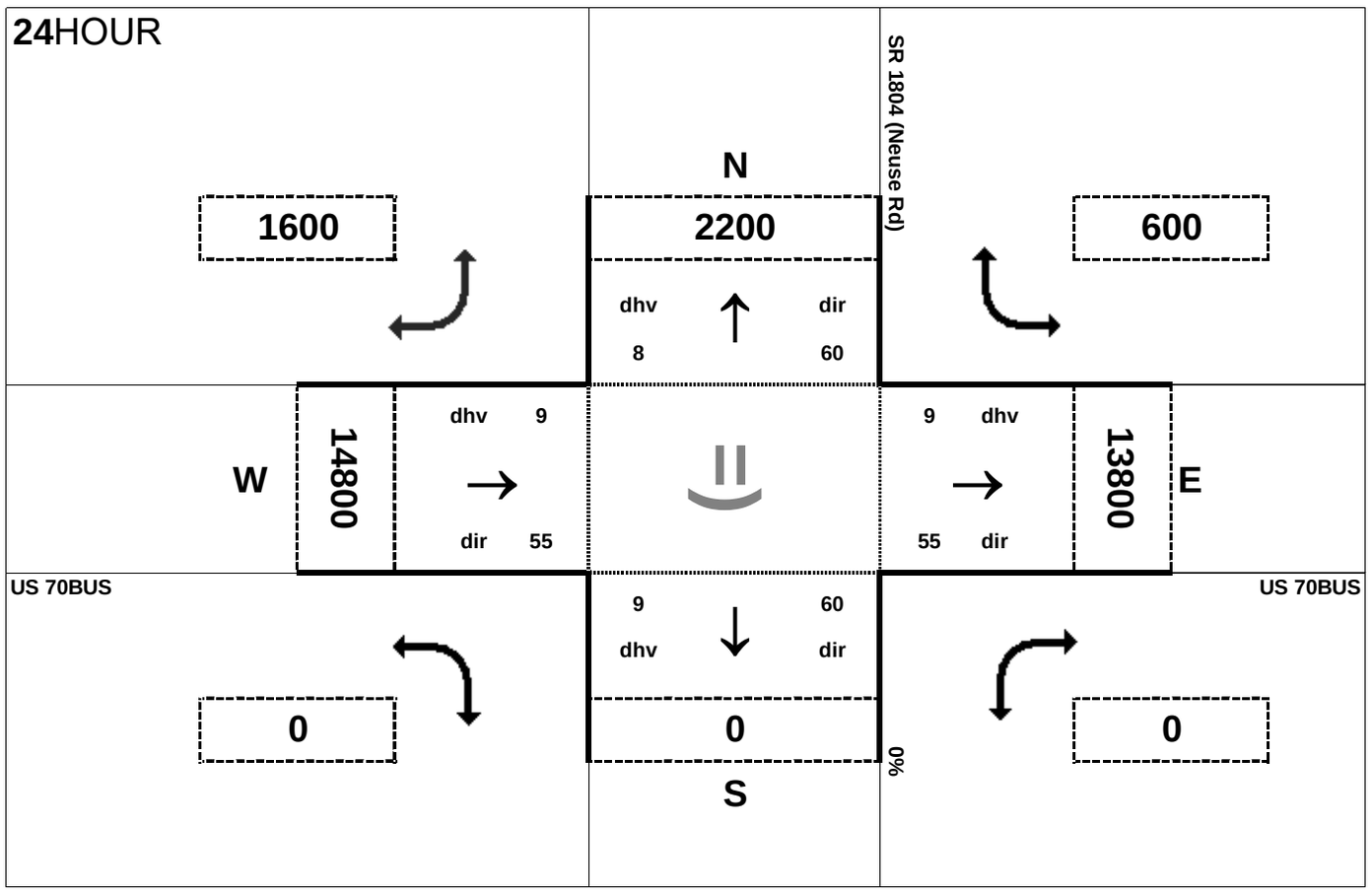
PM peak hour inflow is 1425 vehicles. PM peak hour outflow is 1425 vehicles.

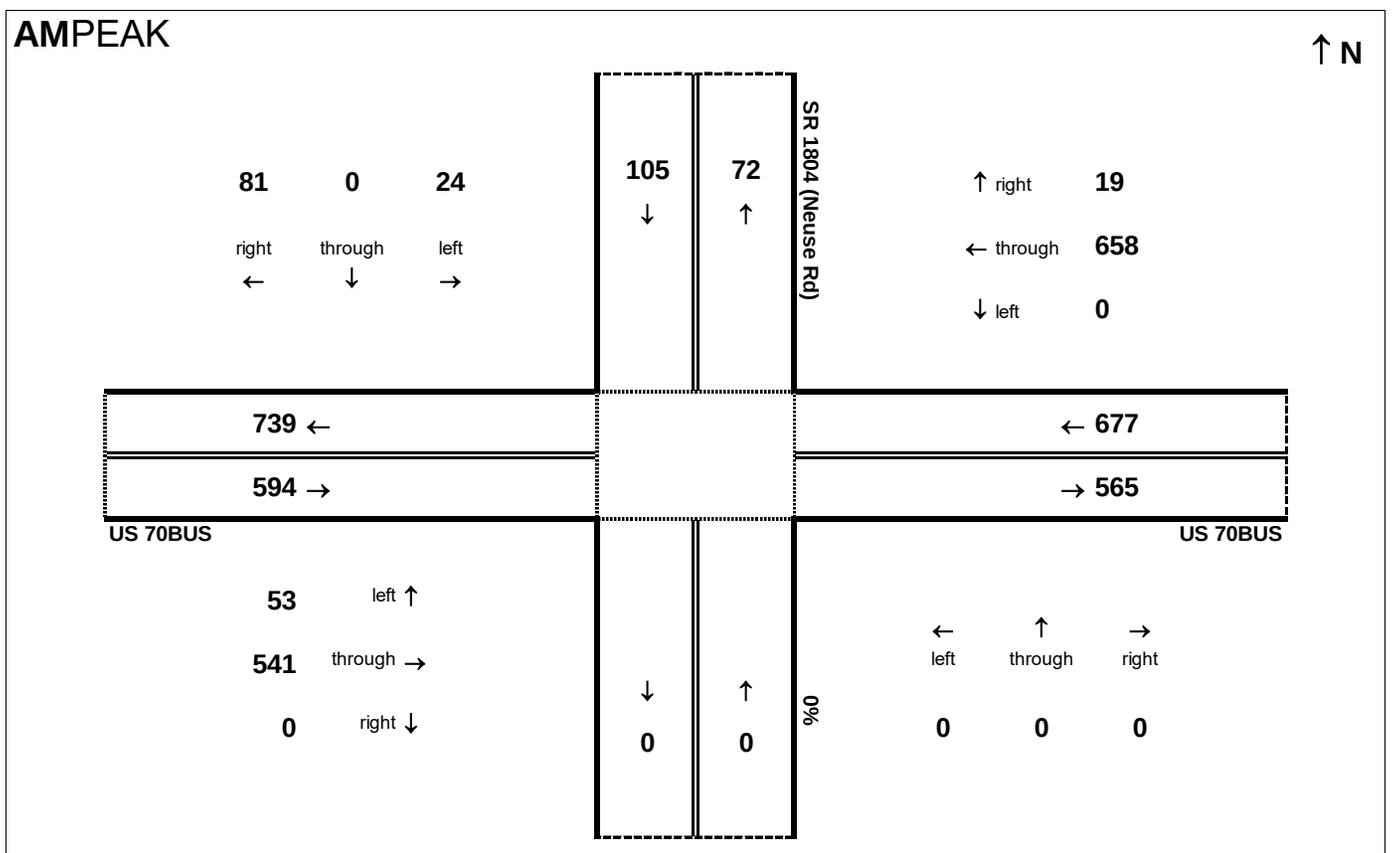
Peak Hour Volume Breakouts Report:
420 Intersection of US 70BUS and SR 1804 (Neuse Rd)

Traffic Forecast Release Date:
November-16

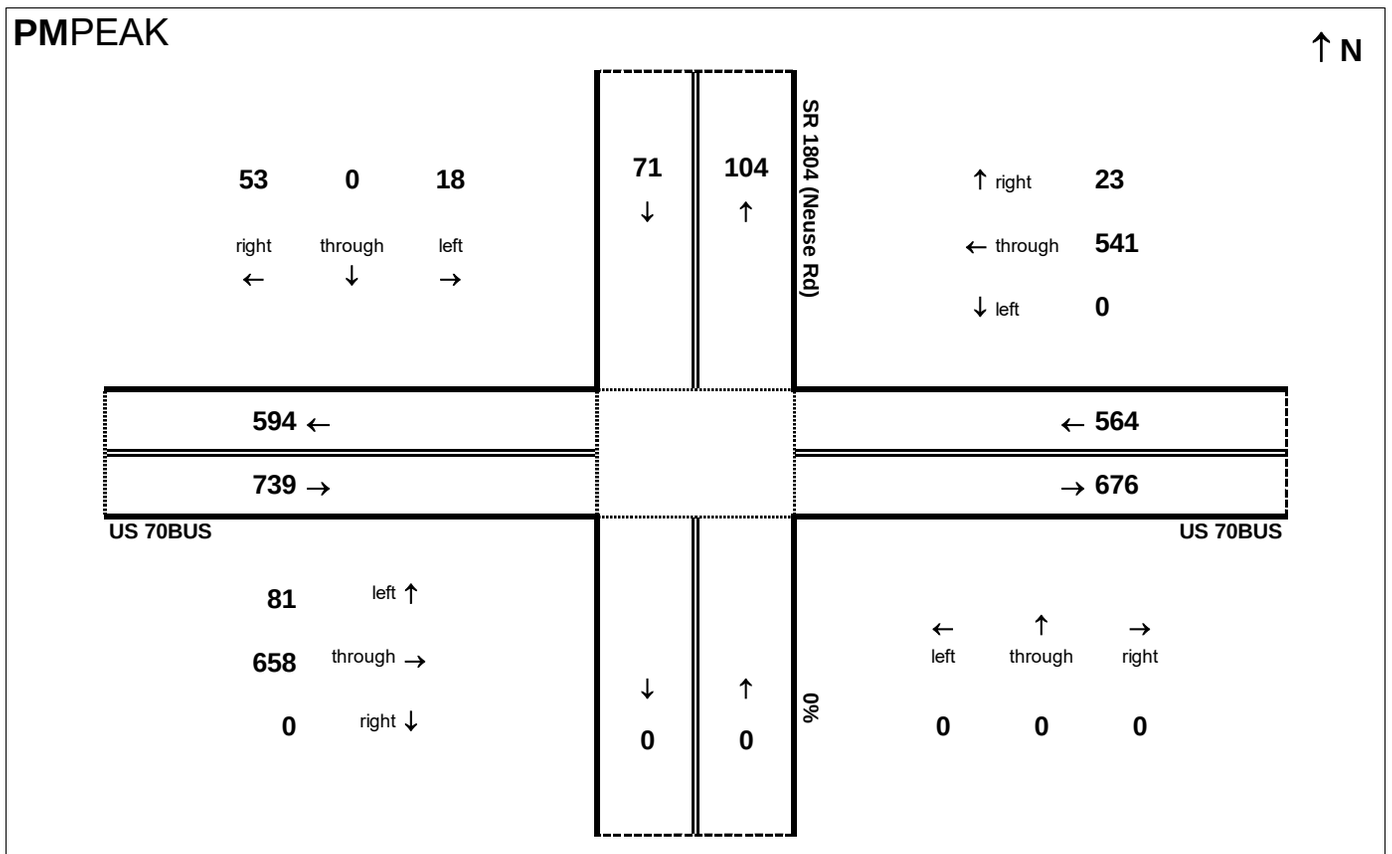
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553





AM peak hour inflow is 1375 vehicles. AM peak hour outflow is 1375 vehicles.



PM peak hour inflow is 1375 vehicles. PM peak hour outflow is 1376 vehicles.

Peak Hour Volume Breakouts Report:
421 Intersection of US 70BUS and SR 1904 (Whaley Rd)

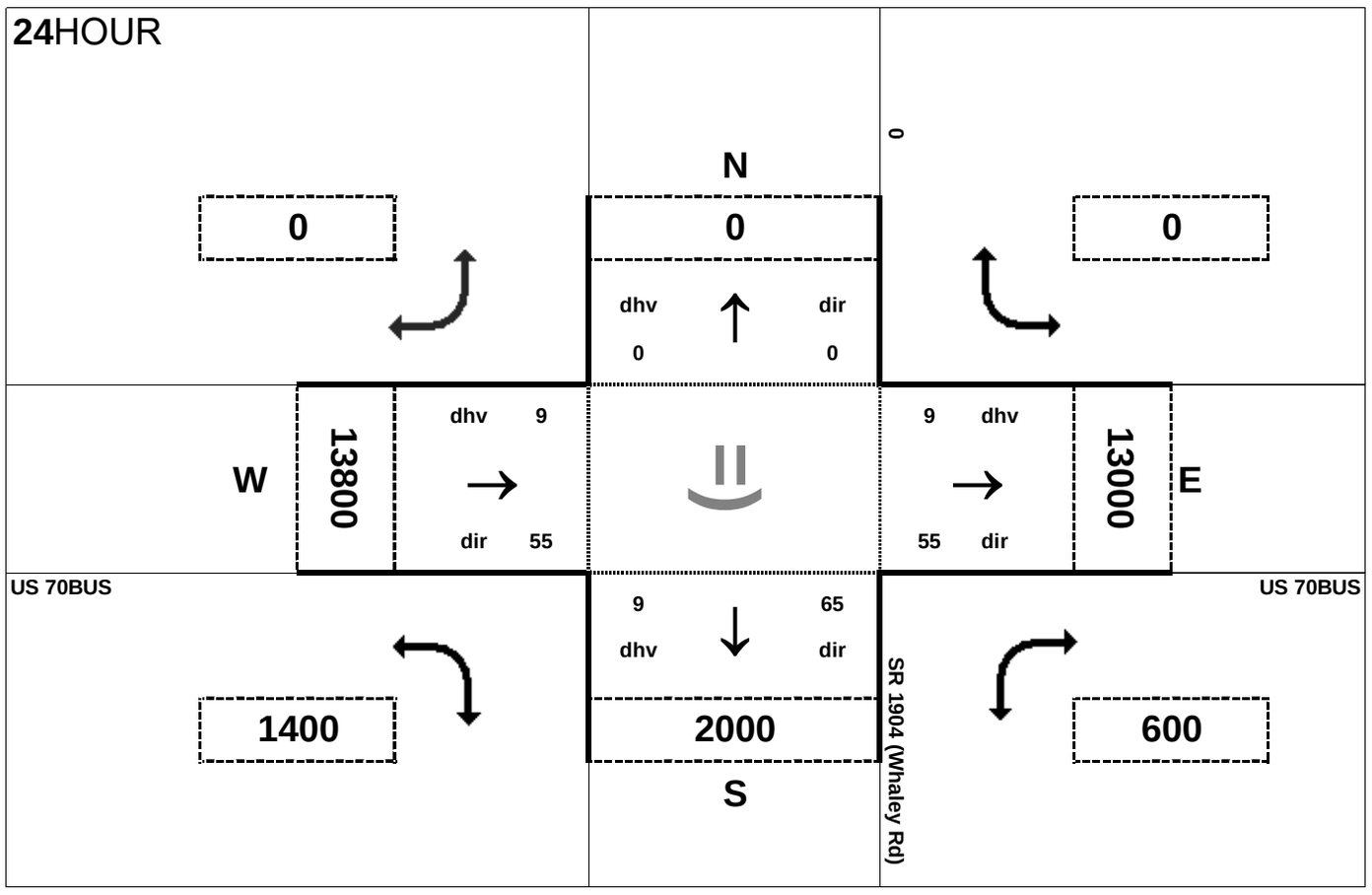
Traffic Forecast Release Date:
November-16

Traffic Data Year:
2040 Build Alt 65

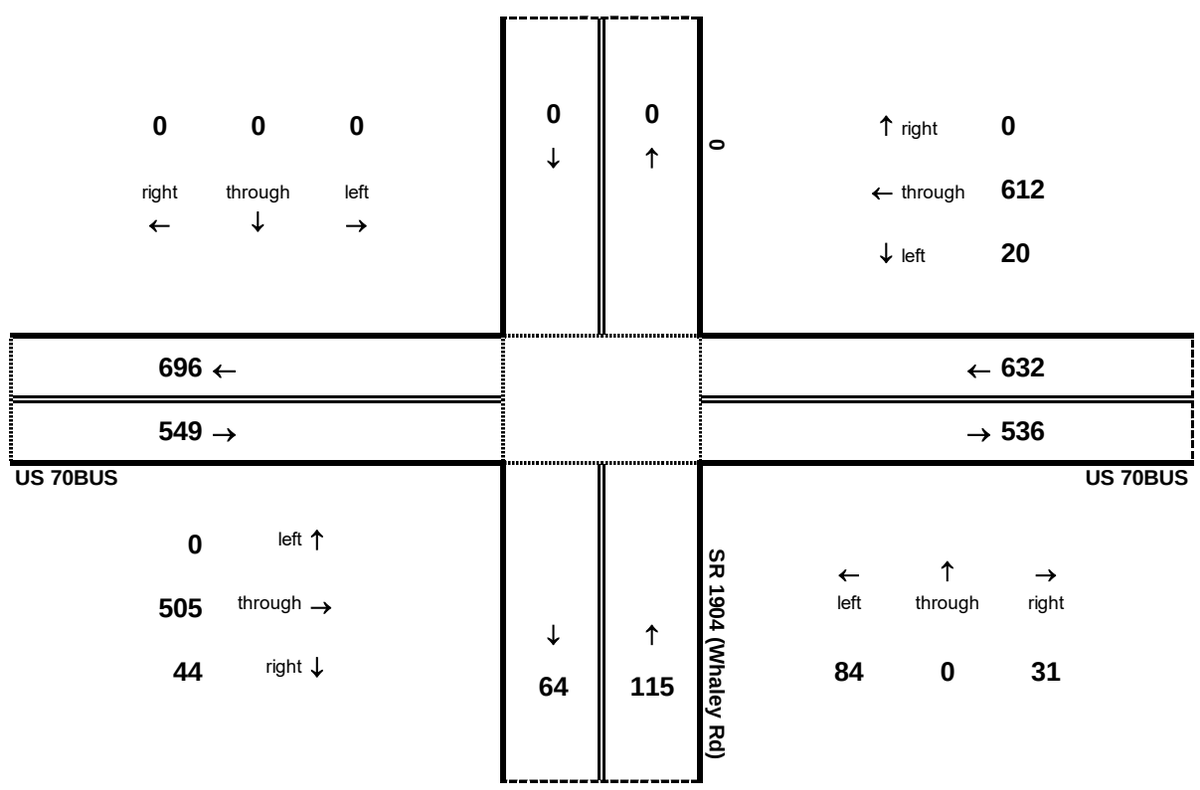
Project:
R-2553

K and D factors are missing for SR 1904 (Whaley Rd). They are assumed to be the same as 2040 No Build.

24HOUR

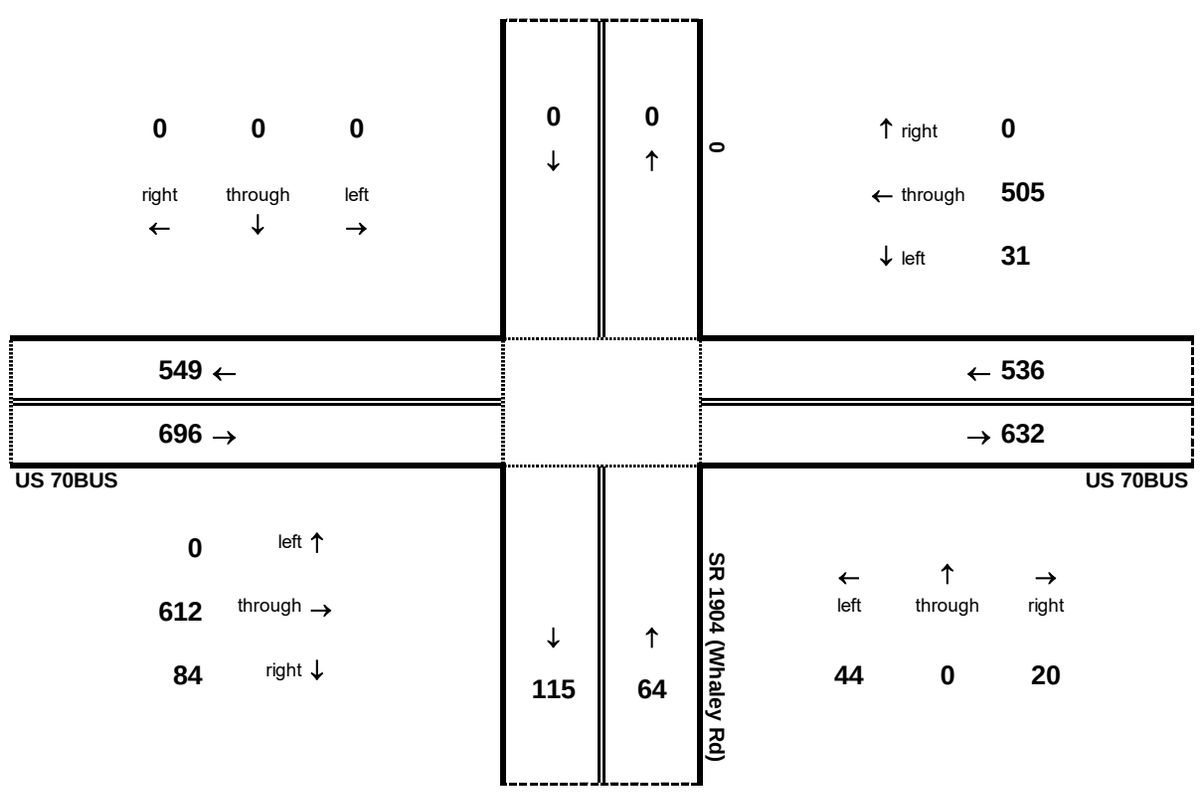


AMPEAK



AM peak hour inflow is 1296 vehicles. AM peak hour outflow is 1296 vehicles.

PMPEAK



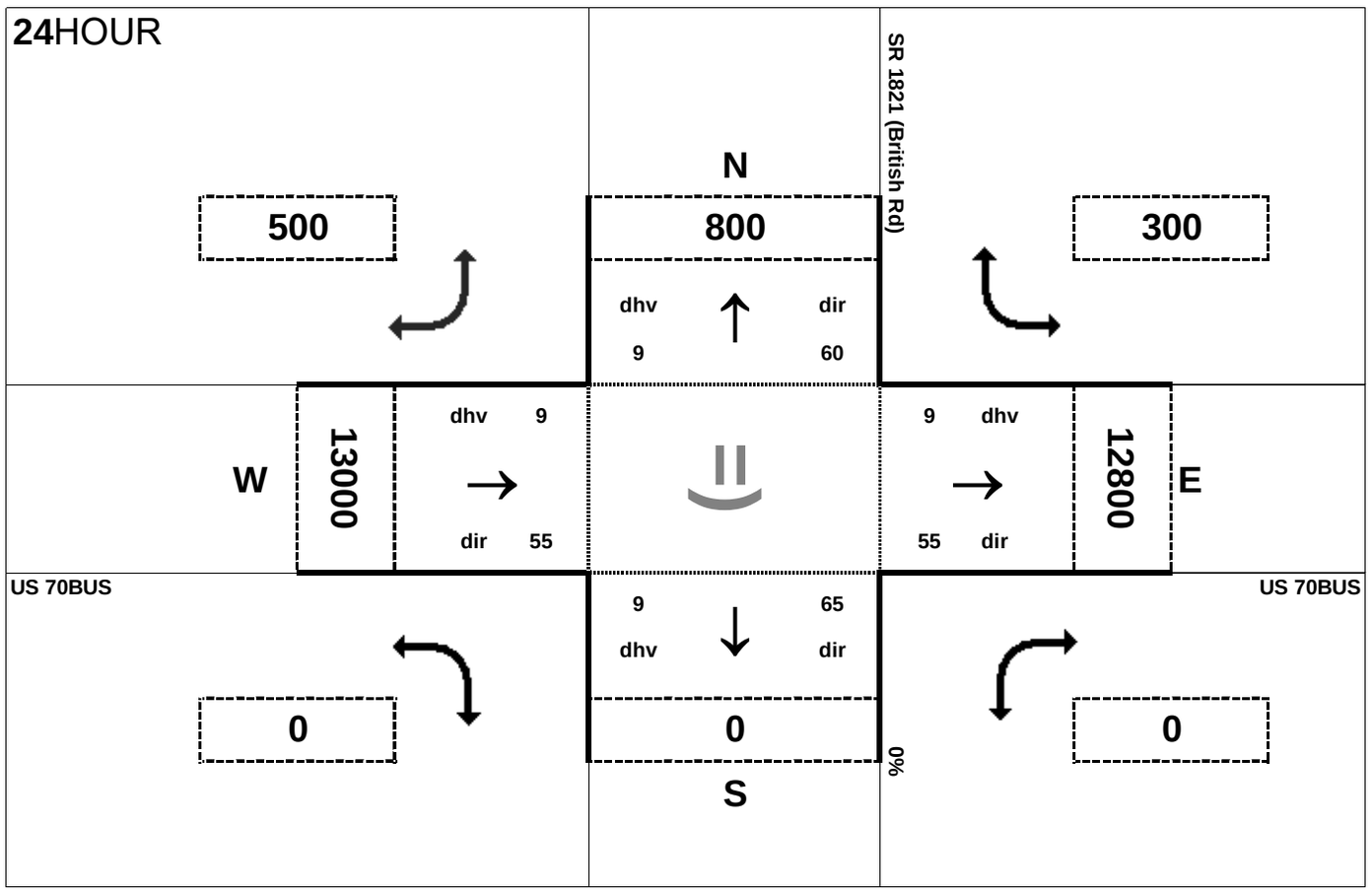
PM peak hour inflow is 1296 vehicles. PM peak hour outflow is 1296 vehicles.

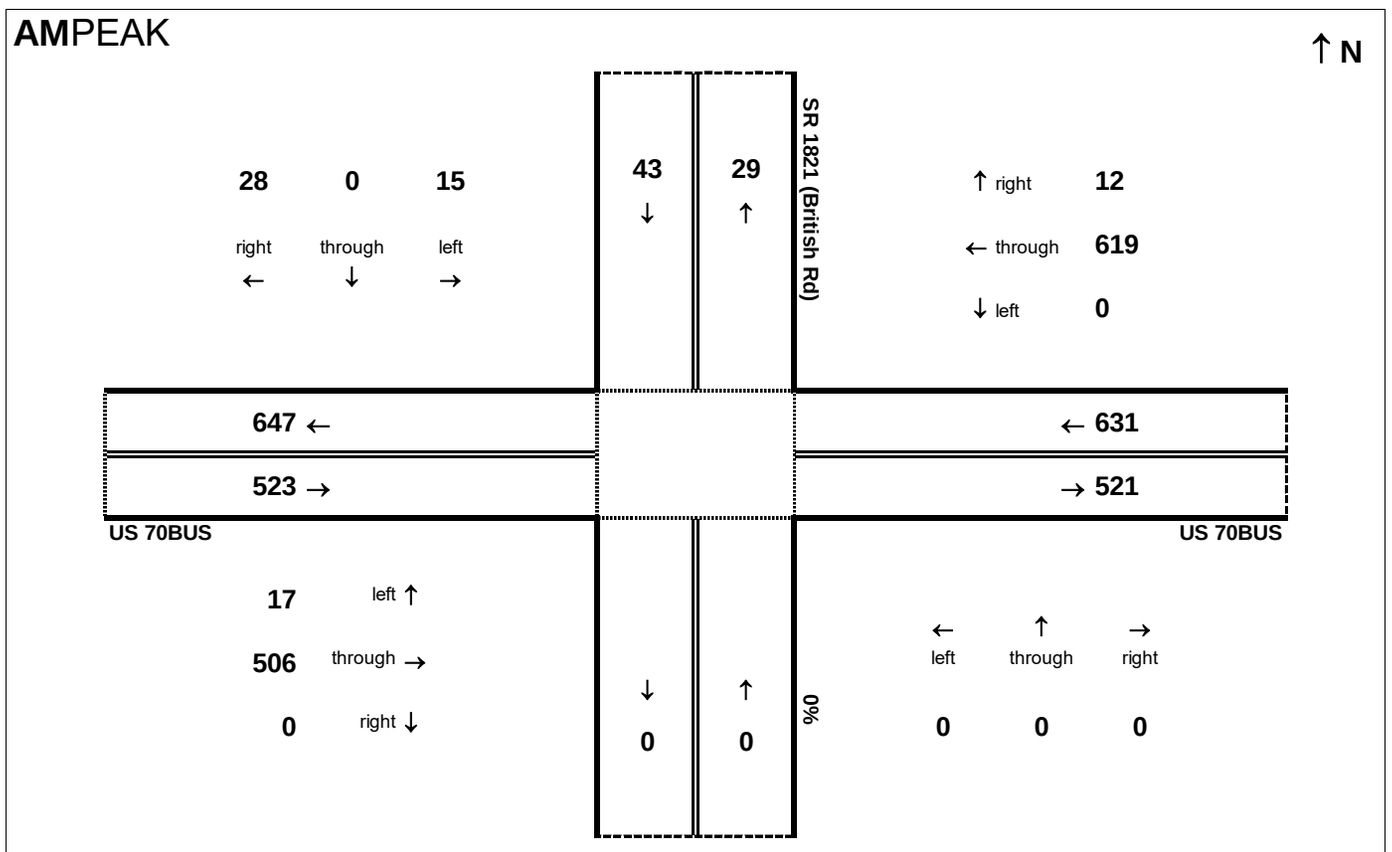
Peak Hour Volume Breakouts Report:
422 Intersection of US 70BUS and SR 1821 (British Rd)

Traffic Forecast Release Date:
November-16

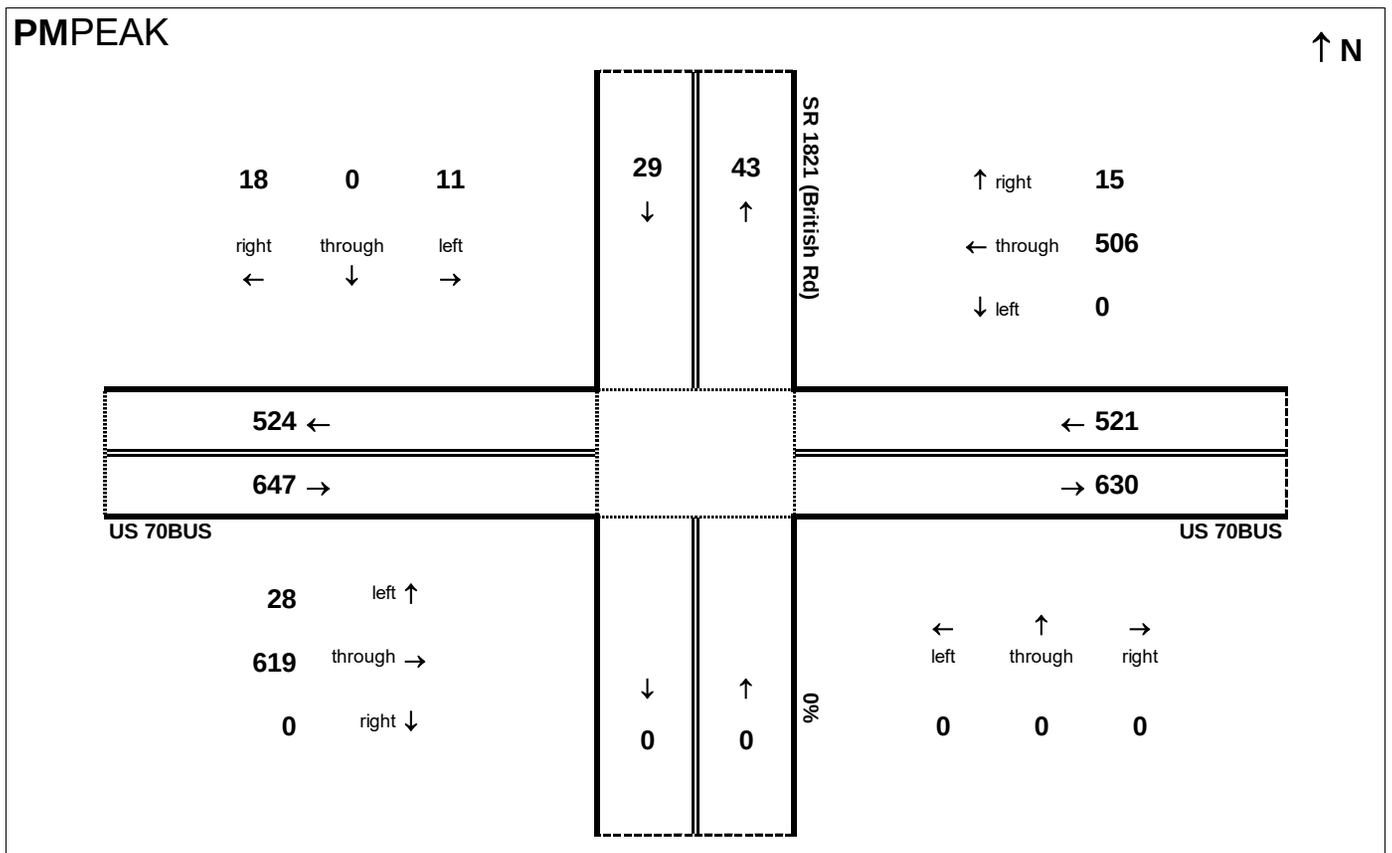
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553





AM peak hour inflow is 1197 vehicles. AM peak hour outflow is 1197 vehicles.



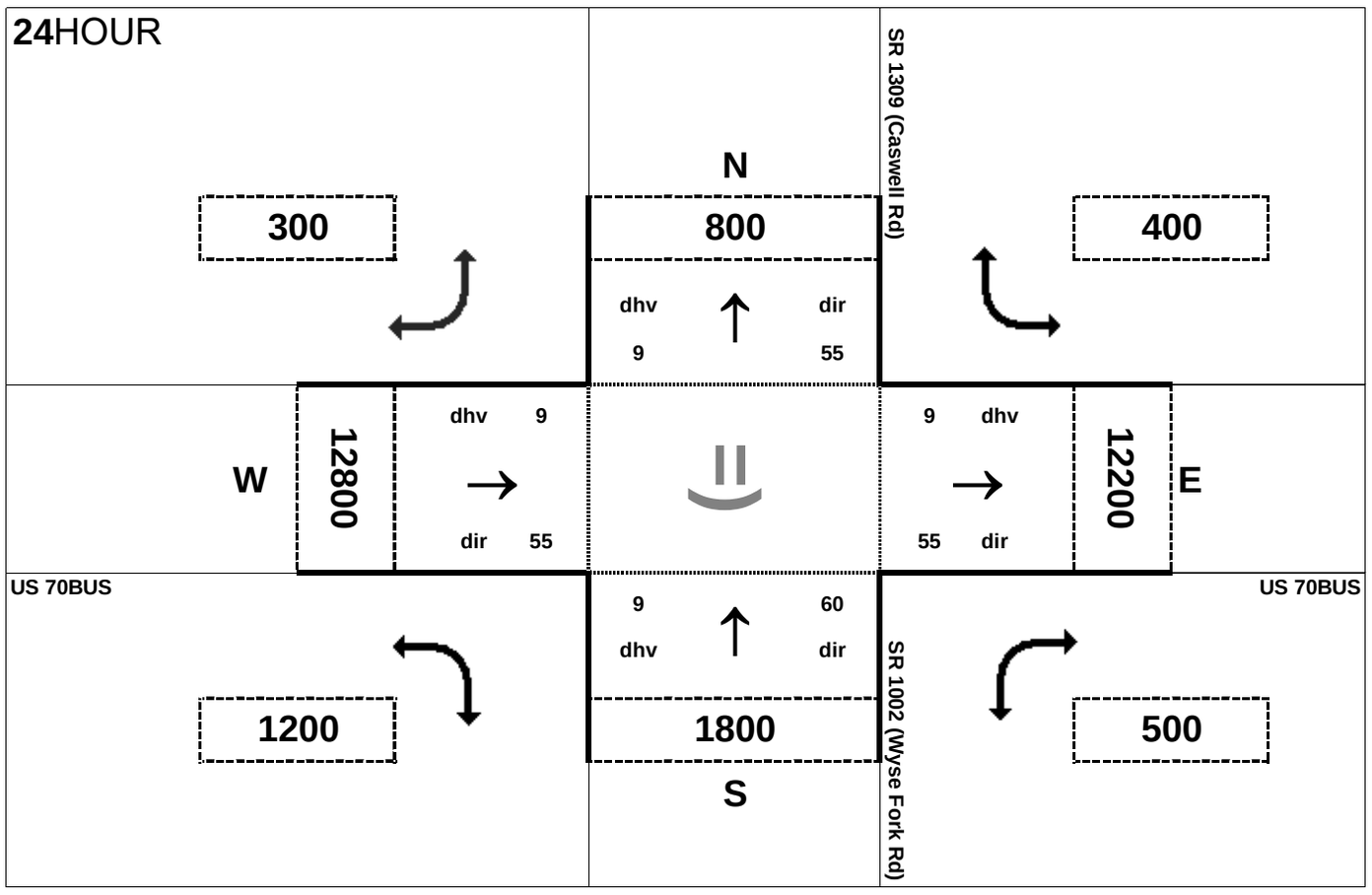
PM peak hour inflow is 1197 vehicles. PM peak hour outflow is 1197 vehicles.

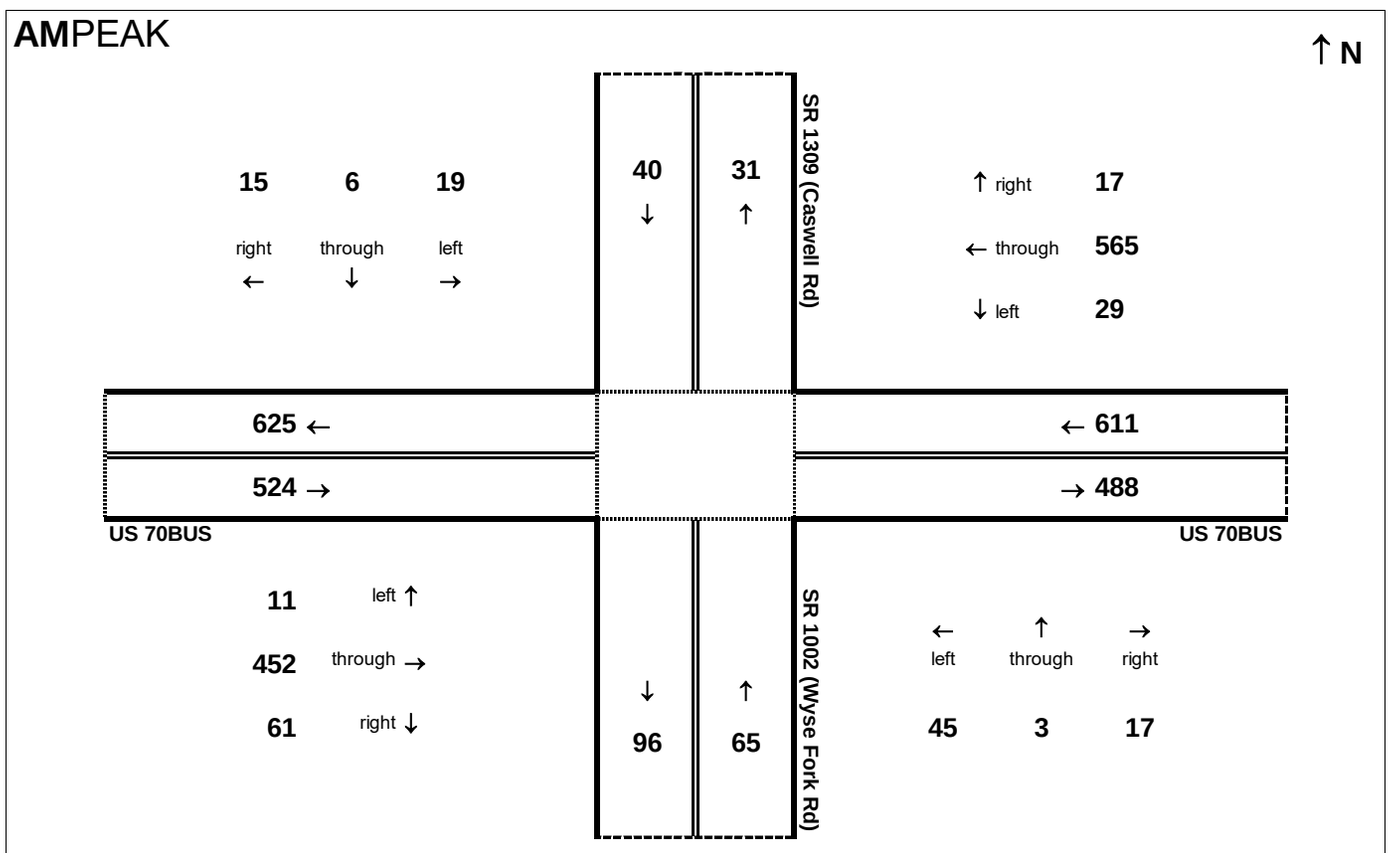
Peak Hour Volume Breakouts Report:
423 Intersection of US 70BUS and SR 1309 (Caswell Rd) / SR 1002 (Wyse Fork Rd)

Traffic Forecast Release Date:
November-16

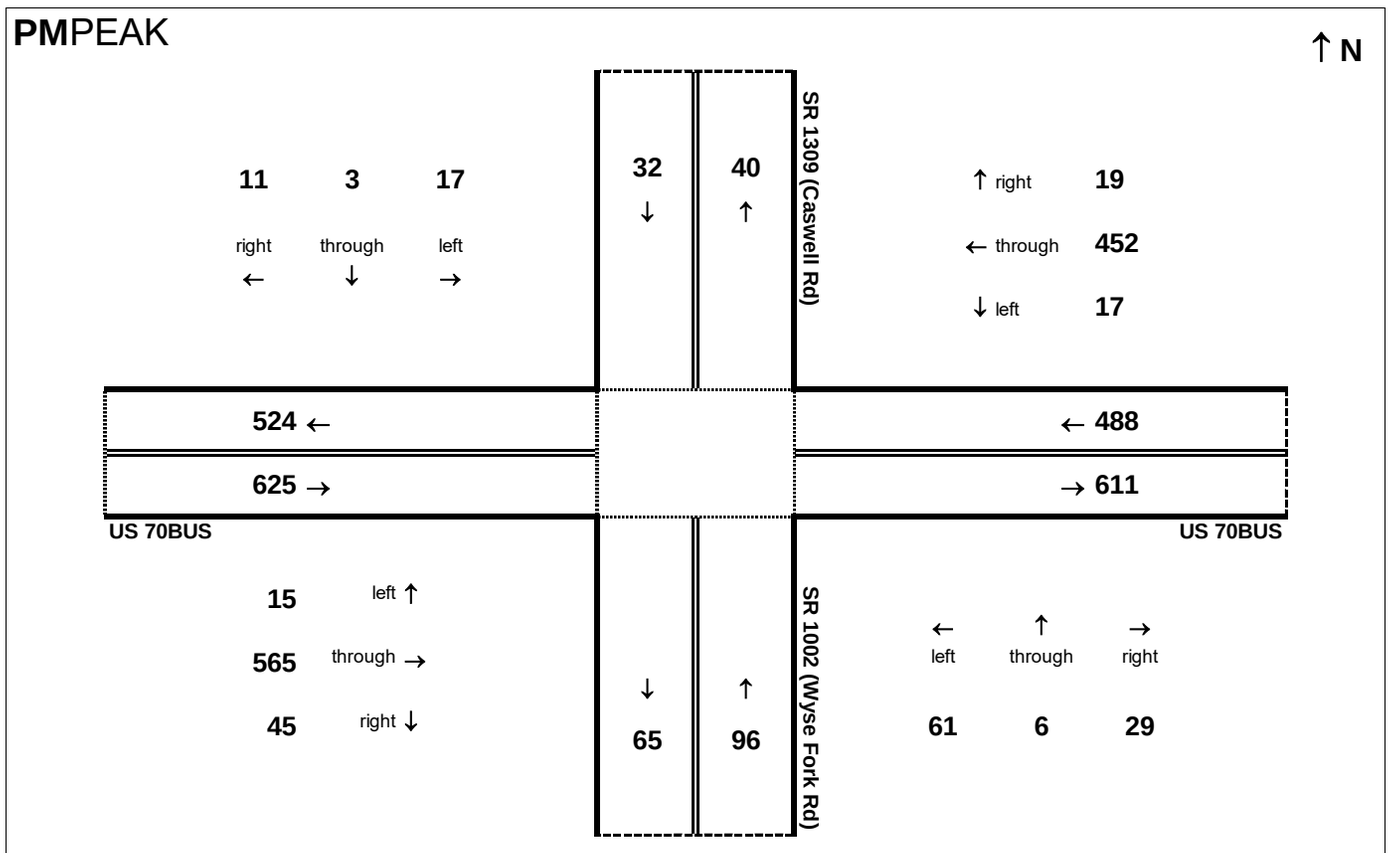
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553





AM peak hour inflow is 1242 vehicles. AM peak hour outflow is 1242 vehicles.



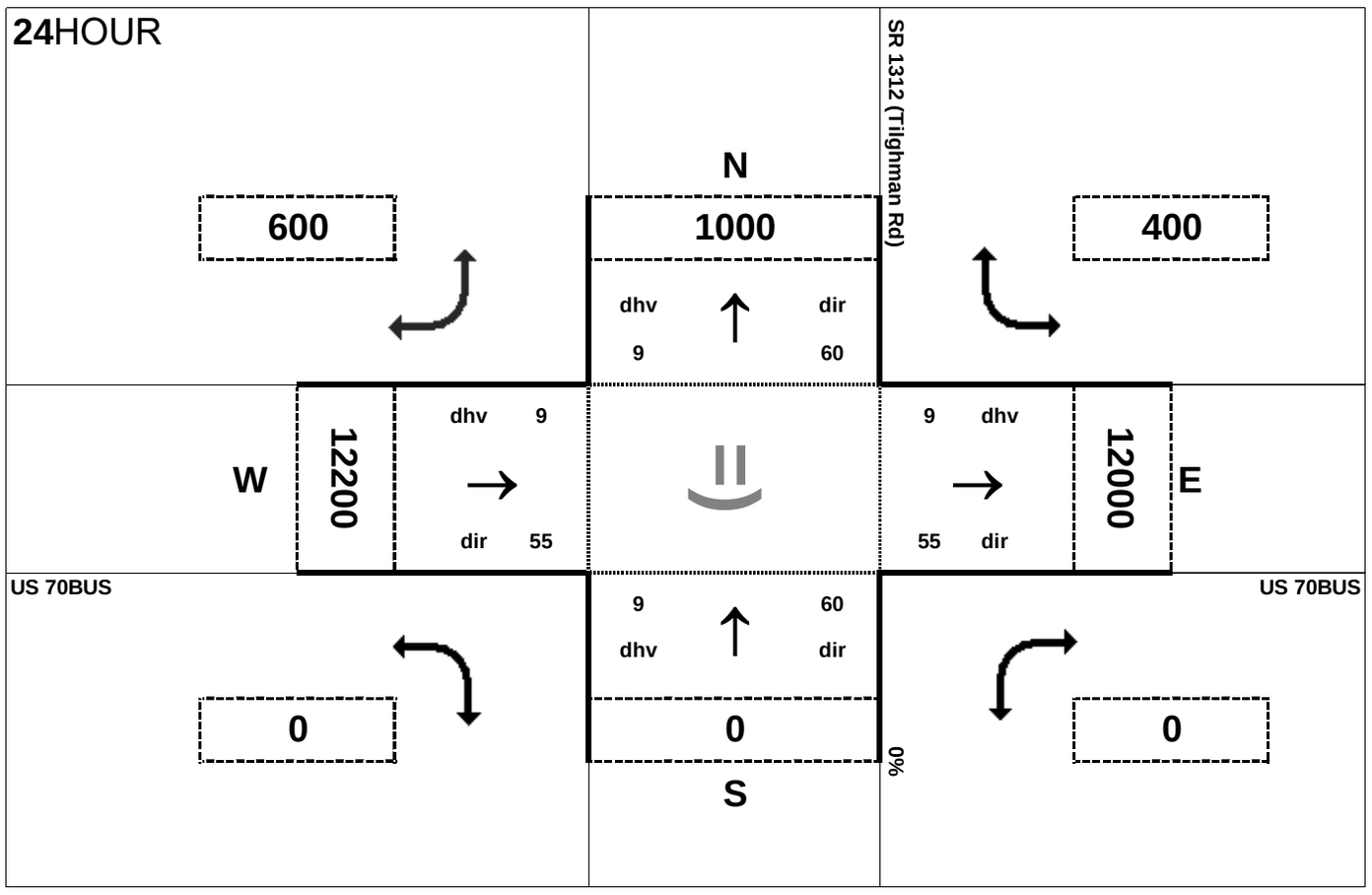
PM peak hour inflow is 1242 vehicles. PM peak hour outflow is 1242 vehicles.

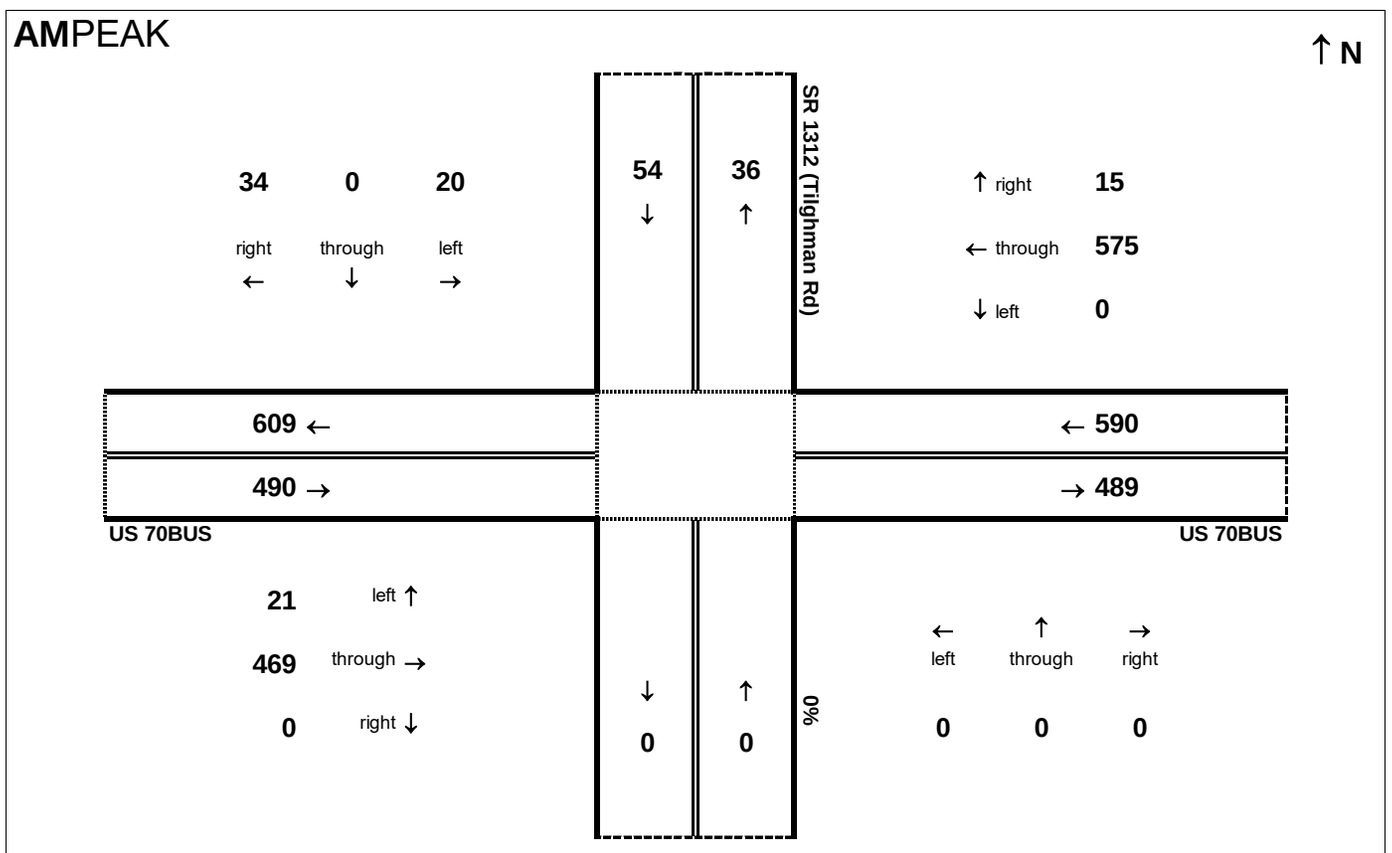
Peak Hour Volume Breakouts Report:
424 Intersection of US 70BUS and SR 1312 (Tilghman Rd)

Traffic Forecast Release Date:
November-16

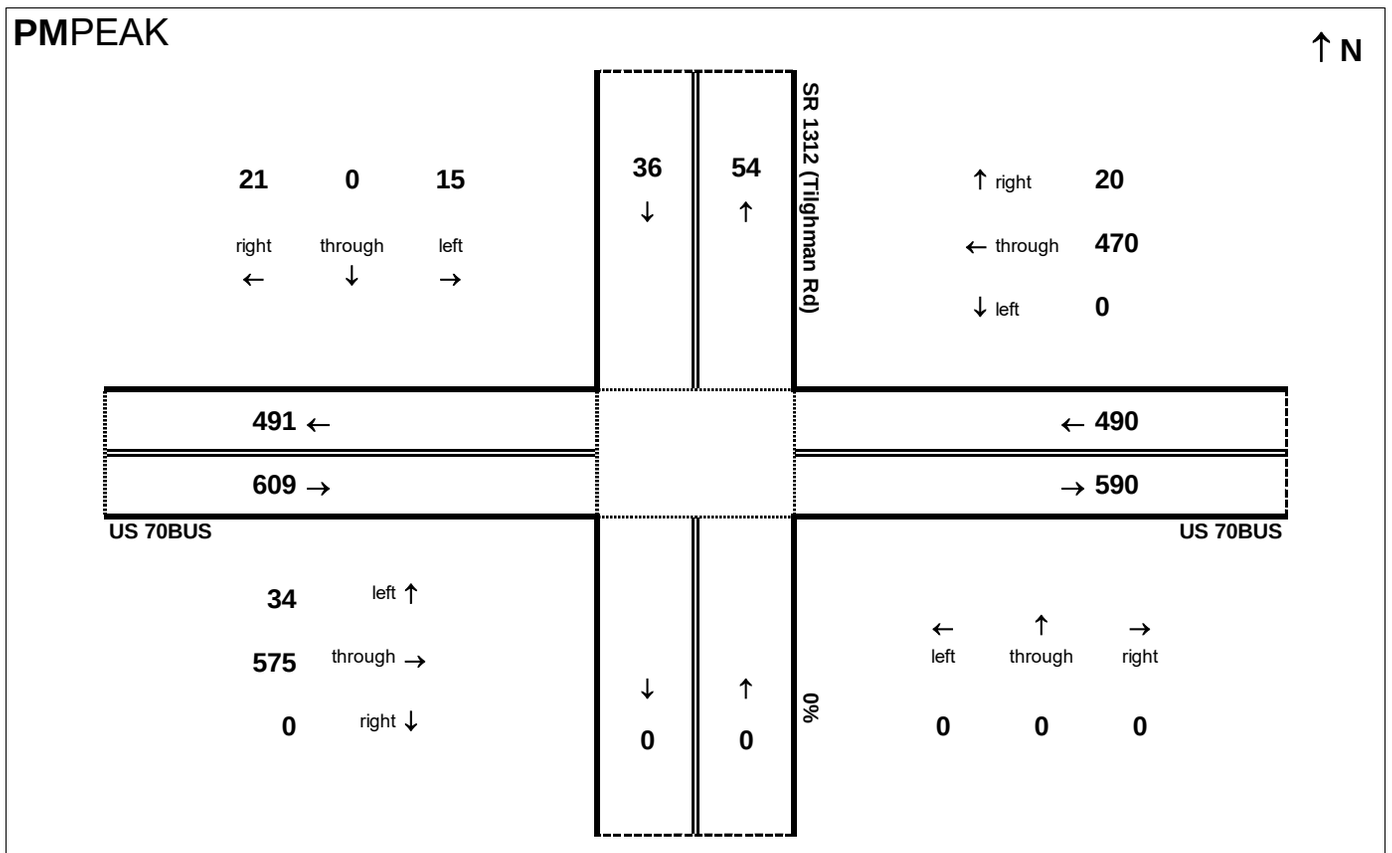
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553





AM peak hour inflow is 1134 vehicles. AM peak hour outflow is 1134 vehicles.



PM peak hour inflow is 1133 vehicles. PM peak hour outflow is 1135 vehicles.

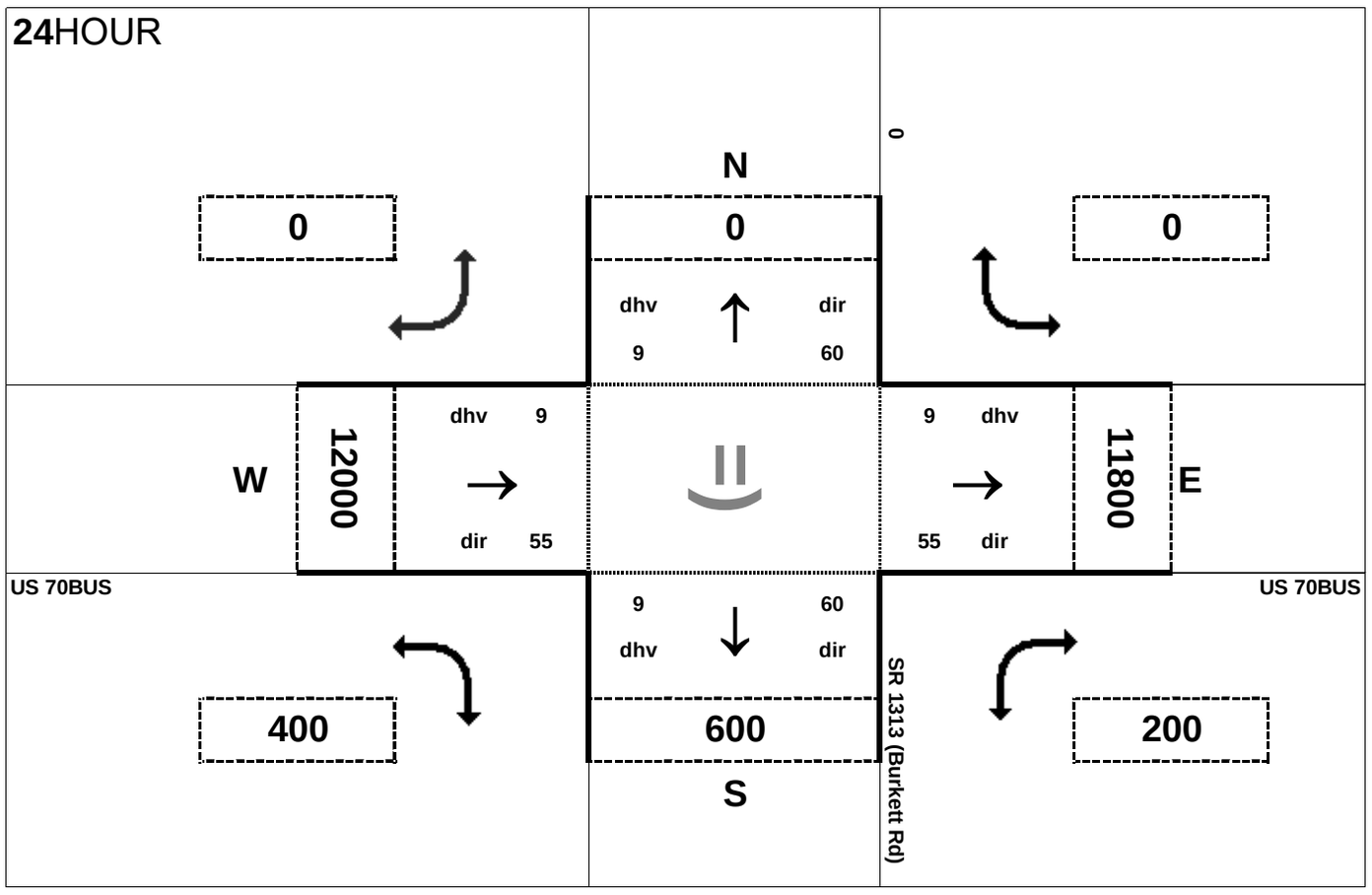
Peak Hour Volume Breakouts Report:
425 Intersection of US 70BUS and SR 1313 (Burkett Rd)

Traffic Forecast Release Date:
November-16

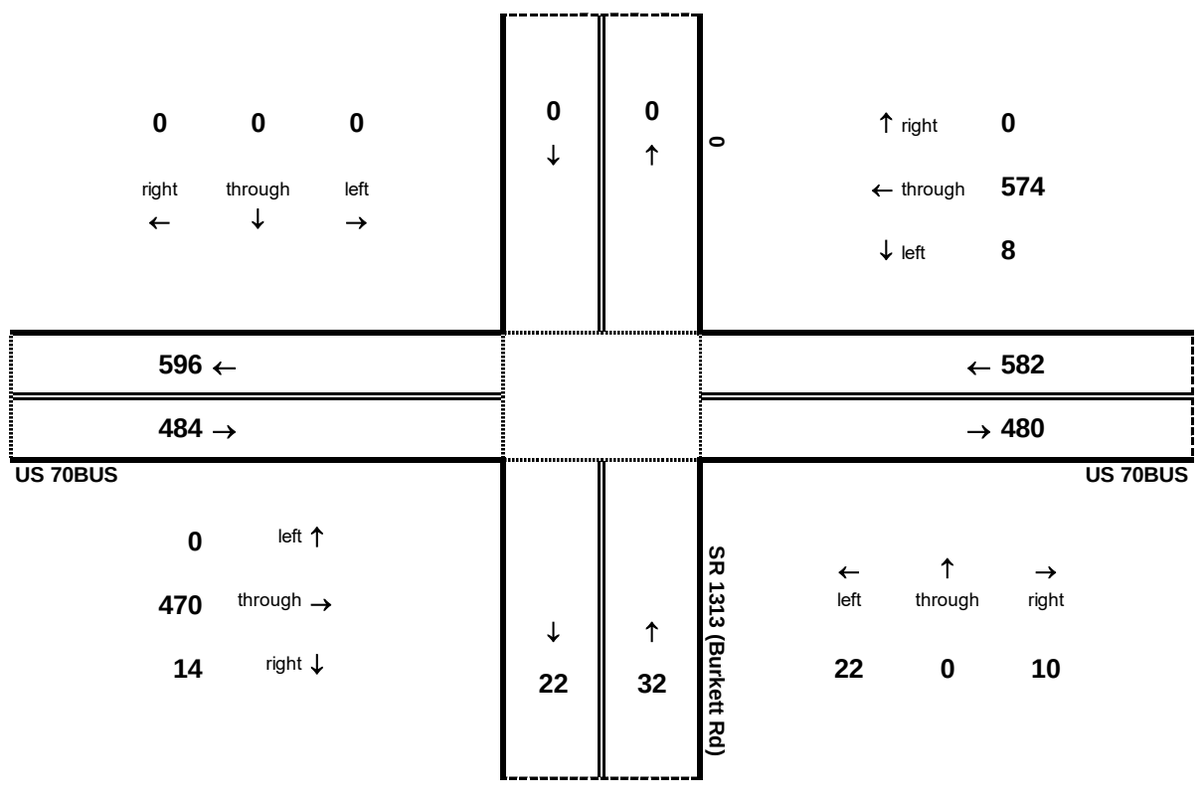
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553

24HOUR

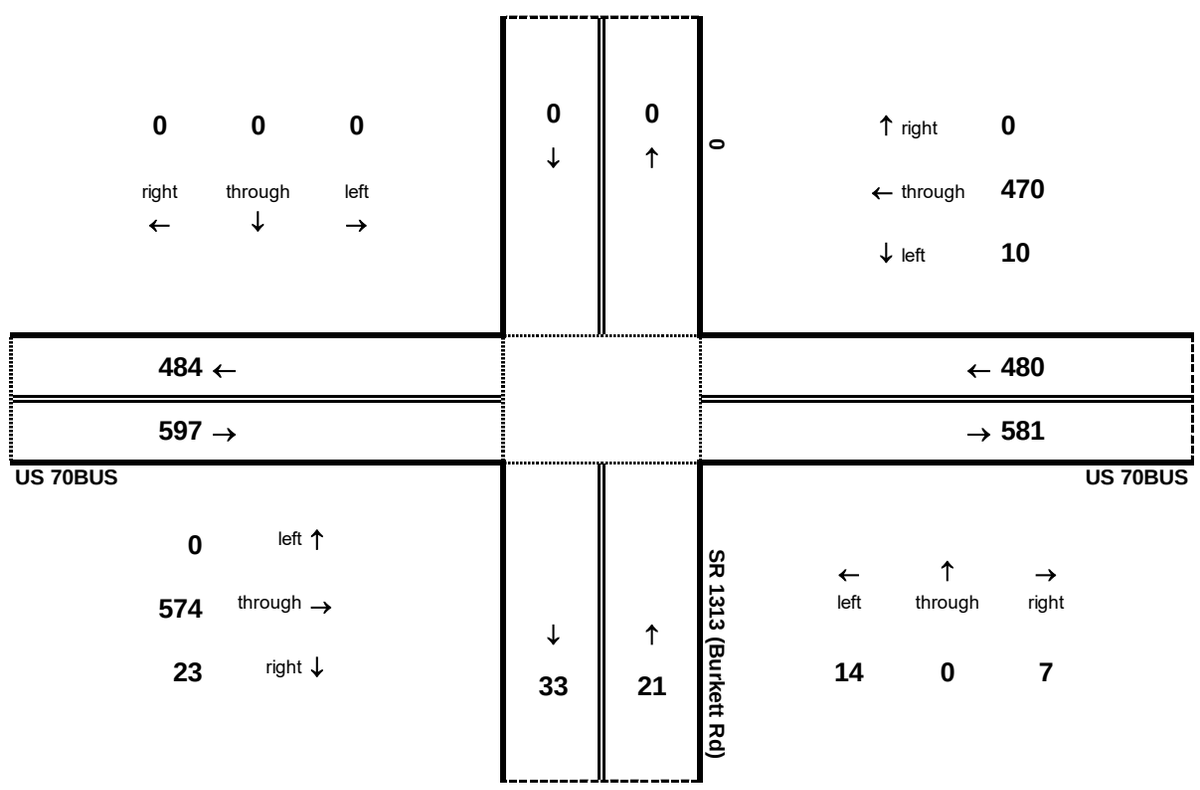


AMPEAK



AM peak hour inflow is 1098 vehicles. AM peak hour outflow is 1098 vehicles.

PMPEAK



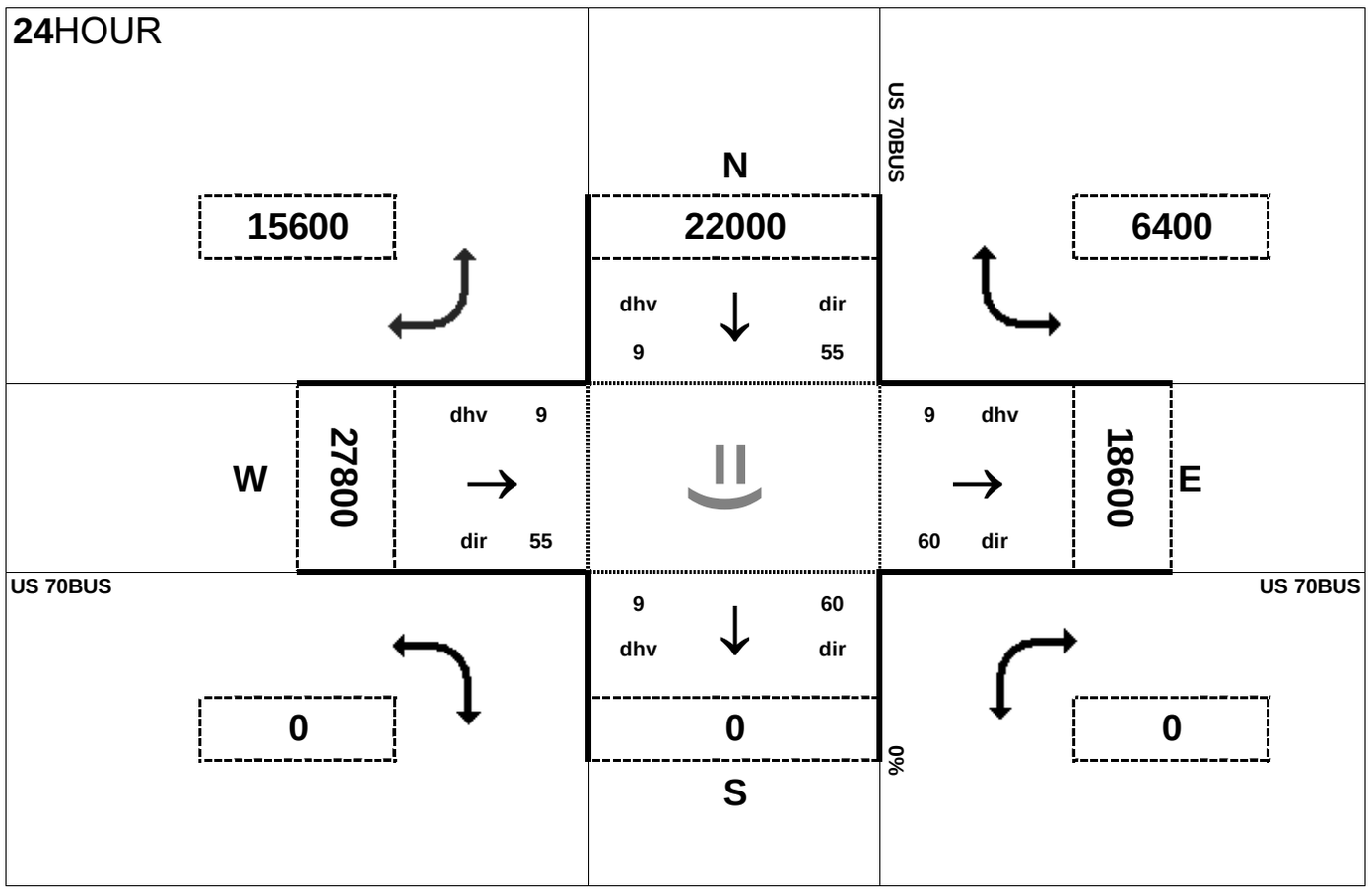
PM peak hour inflow is 1099 vehicles. PM peak hour outflow is 1098 vehicles.

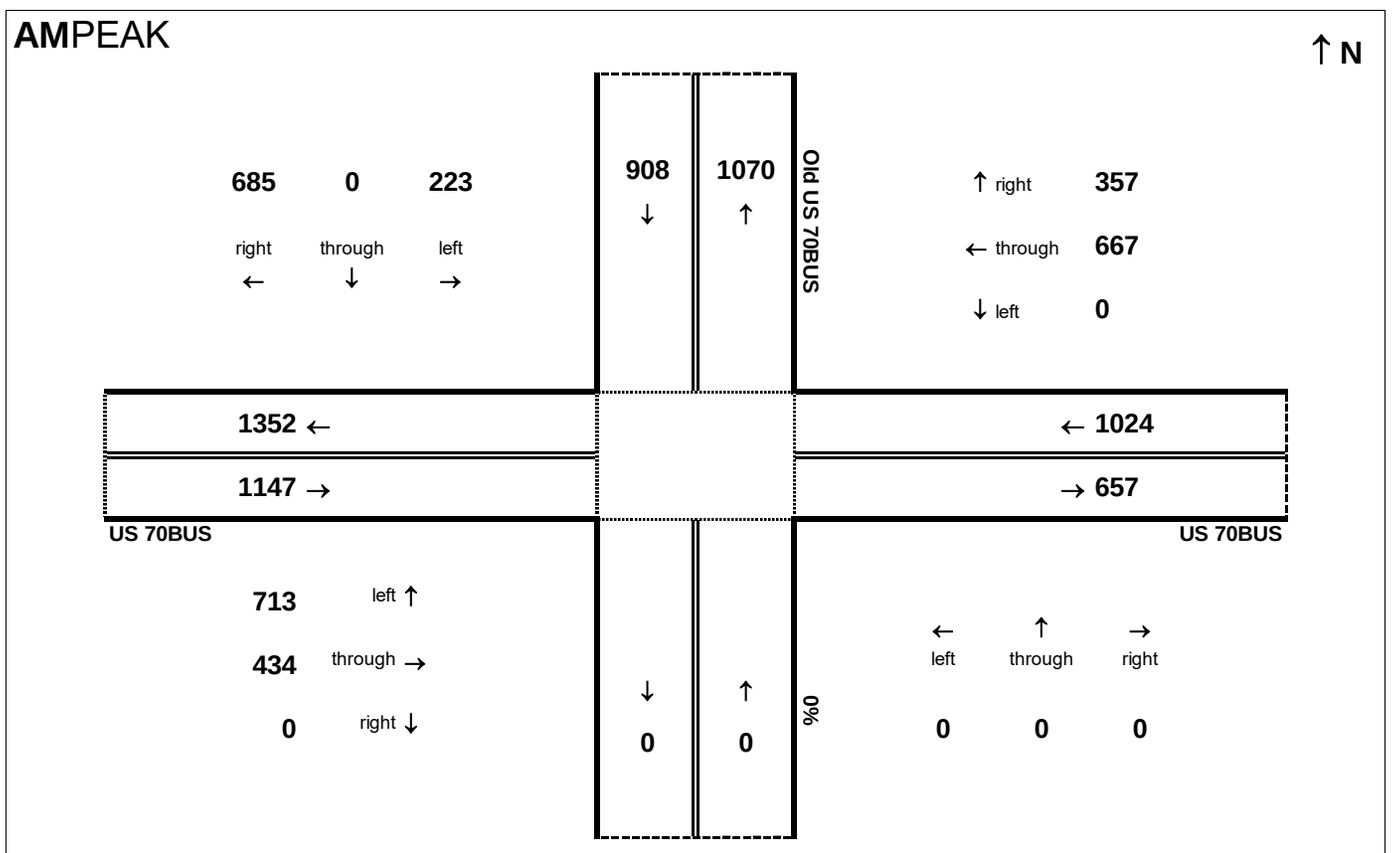
Peak Hour Volume Breakouts Report:
S1 Intersection of US 70 BUS and Old US 70 BUS

Traffic Forecast Release Date:
November-16

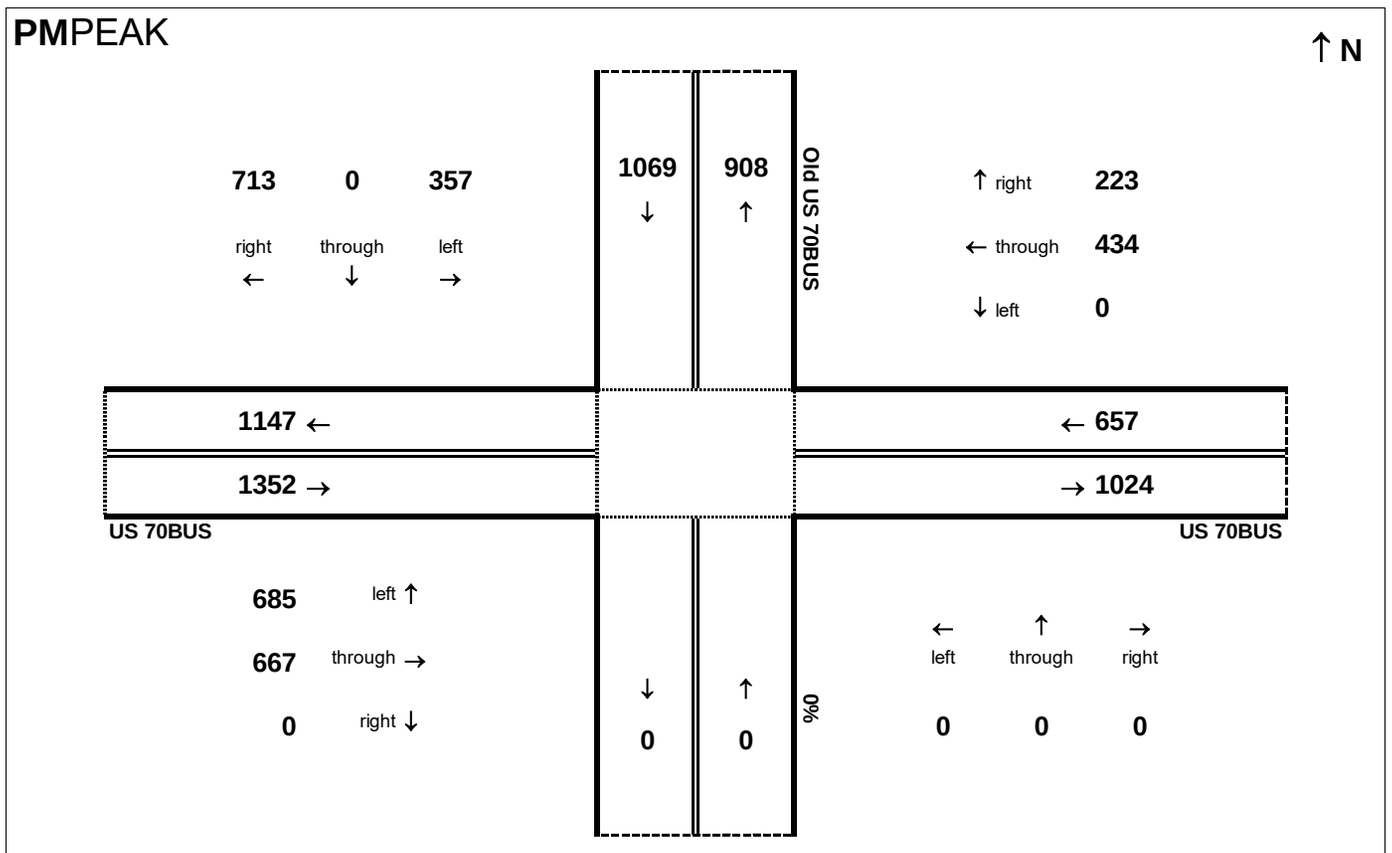
Traffic Data Year:
2040 Build Alt 65

Project:
R-2553





AM peak hour inflow is 3078 vehicles. AM peak hour outflow is 3077 vehicles.



PM peak hour inflow is 3077 vehicles. PM peak hour outflow is 3078 vehicles.

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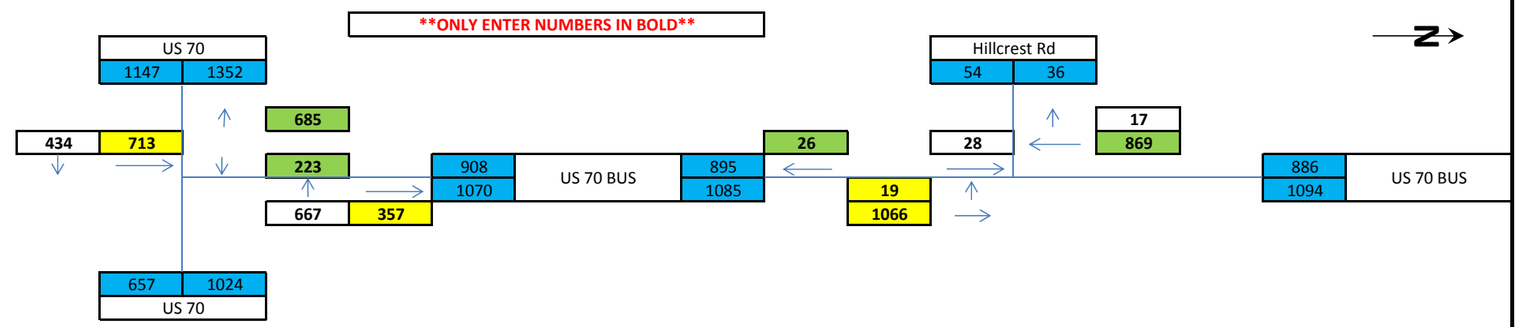
R-2553 - Kinston Bypass
Traffic Volume Redistributions from IAU

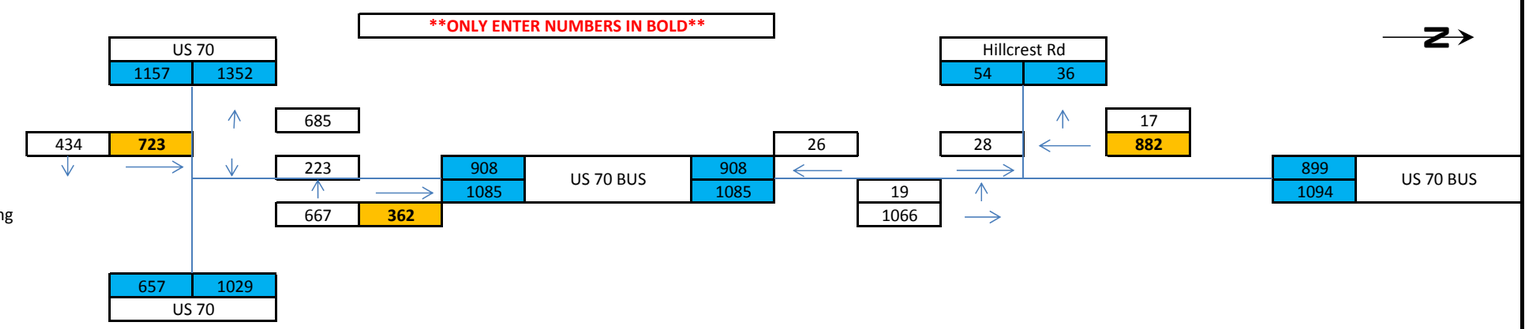
2040 REPRESENTATIVE BUILD 65 AM PEAK

Blue	Input/Output Volumes
No Color	Unchanging Volumes
Green	SB US 70 BUS Redistriubtions
Yellow	NB US 70 BUS Redistributions



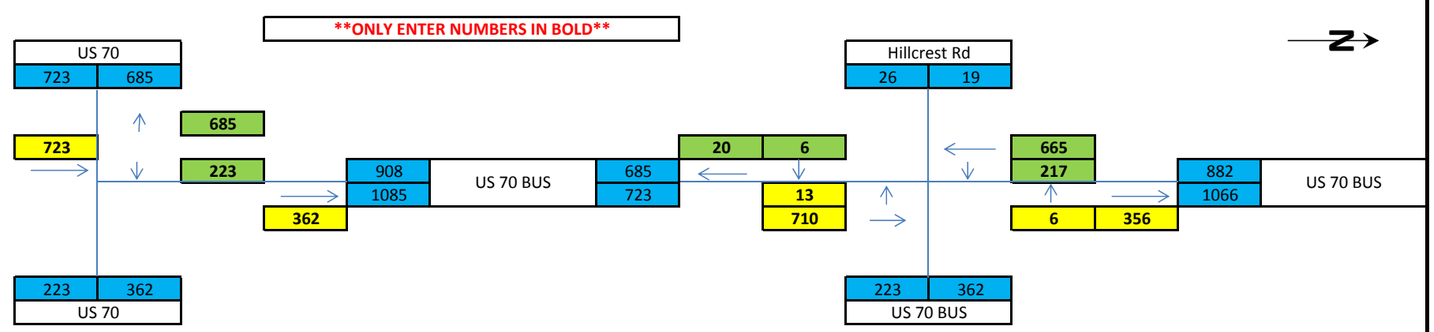
BALANCED VOLUMES

Blue	Input/Output Volumes
Orange	Adjusted Volumes for Balancing



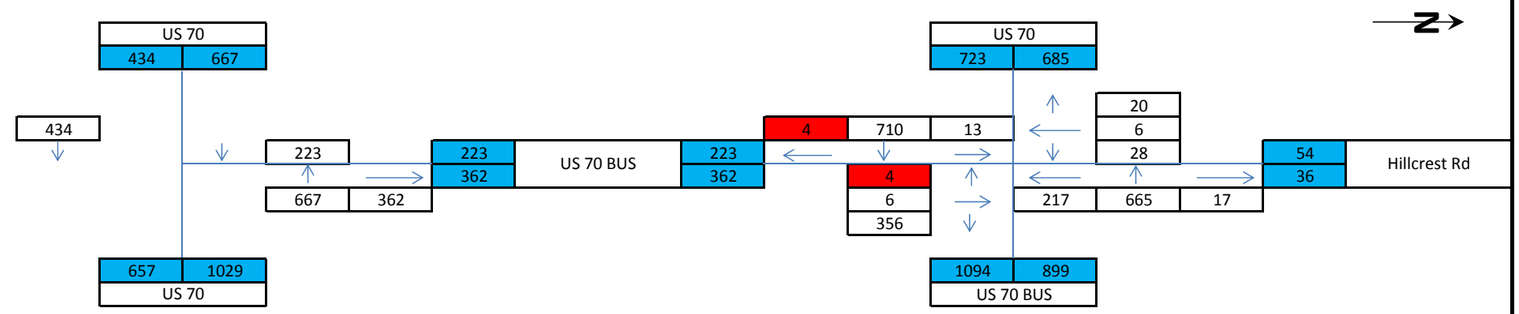
REDISTRIBUTIONS

Green	SB US 70 BUS Redistriubtions
Yellow	NB US 70 BUS Redistributions



FINAL VOLUMES

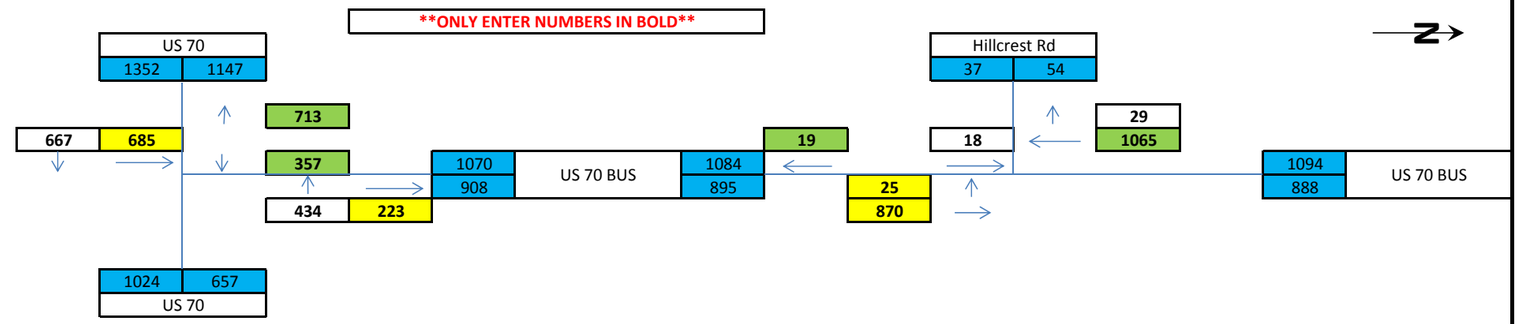
Blue	Input/Output Volumes
Red	Token 4 Vehicles



R-2553 - Kinston Bypass
Traffic Volume Redistributions from IAU

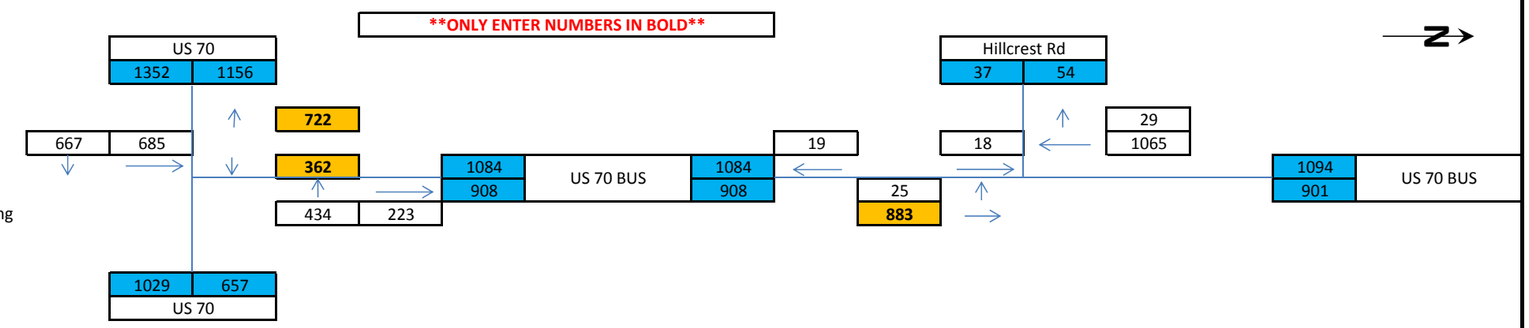
2040 REPRESENTATIVE BUILD 65 PM PEAK

Blue	Input/Output Volumes
No Color	Unchanging Volumes
Green	SB US 70 BUS Redistriubtions
Yellow	NB US 70 BUS Redistributions



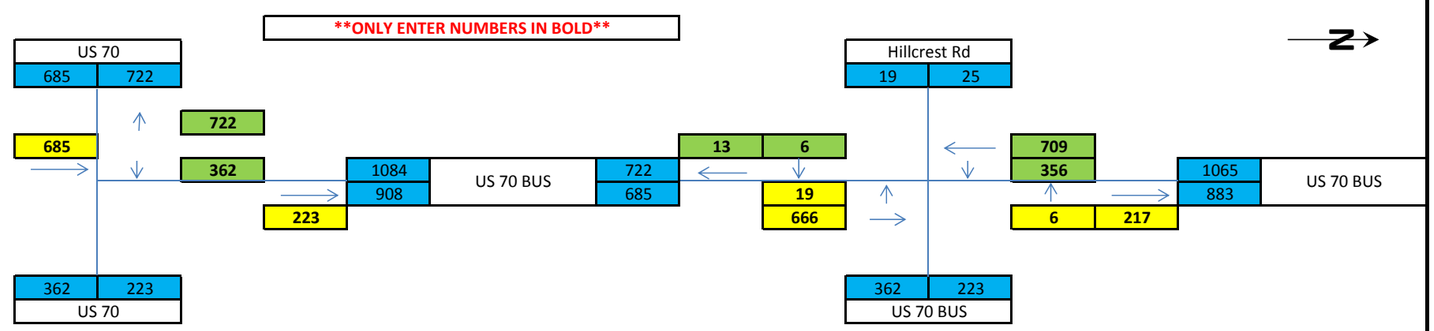
BALANCED VOLUMES

Blue	Input/Output Volumes
Orange	Adjusted Volumes for Balancing



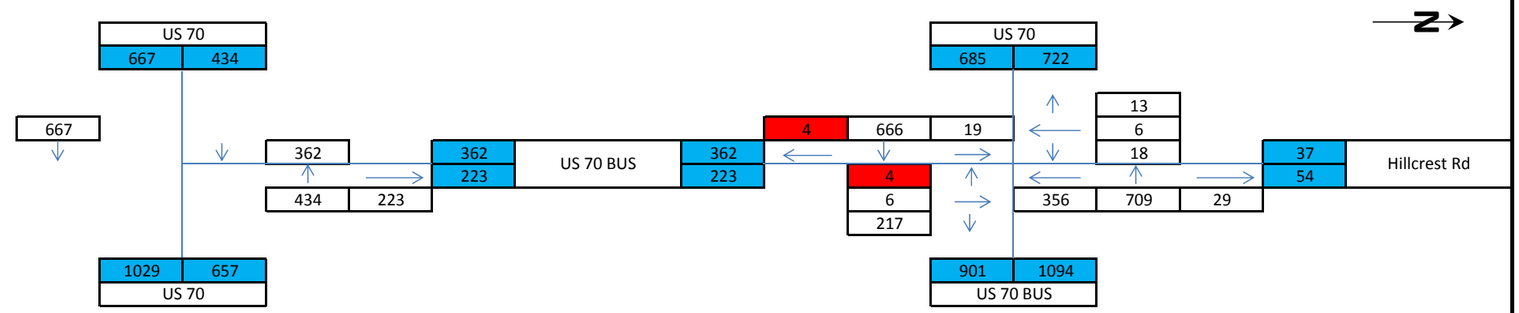
REDISTRIBUTIONS

Green	SB US 70 BUS Redistriubtions
Yellow	NB US 70 BUS Redistributions



FINAL VOLUMES

Blue	Input/Output Volumes
Red	Token 4 Vehicles



2040 Representative
Build Alternative 65
Synchro Reports

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	142	9	9	185	122	93
Future Volume (vph)	142	9	9	185	122	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1698	0	0	1823	1705	0
Flt Permitted	0.955			0.998		
Satd. Flow (perm)	1698	0	0	1823	1705	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1310			602	499	
Travel Time (s)	16.2			7.5	6.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	4%	4%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	168	0	0	216	239	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	18			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 32.1%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	142	9	9	185	122	93
Future Volume (Veh/h)	142	9	9	185	122	93
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	158	10	10	206	136	103
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	414	188	239			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	414	188	239			
tC, single (s)	6.5	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.2			
p0 queue free %	73	99	99			
cM capacity (veh/h)	583	844	1316			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	168	216	239
Volume Left	158	10	0
Volume Right	10	0	103
cSH	594	1316	1700
Volume to Capacity	0.28	0.01	0.14
Queue Length 95th (ft)	29	1	0
Control Delay (s)	13.4	0.4	0.0
Lane LOS	B	A	
Approach Delay (s)	13.4	0.4	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	32.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	93	9	9	122	185	142
Future Volume (vph)	93	9	9	122	185	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1693	0	0	1821	1703	0
Flt Permitted	0.956			0.997		
Satd. Flow (perm)	1693	0	0	1821	1703	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	1310			602	499	
Travel Time (s)	16.2			7.5	6.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	4%	4%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	113	0	0	146	364	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	18			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	93	9	9	122	185	142
Future Volume (Veh/h)	93	9	9	122	185	142
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	103	10	10	136	206	158
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	441	285	364			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	441	285	364			
tC, single (s)	6.5	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.2			
p0 queue free %	82	99	99			
cM capacity (veh/h)	561	745	1184			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	113	146	364
Volume Left	103	10	0
Volume Right	10	0	158
cSH	574	1184	1700
Volume to Capacity	0.20	0.01	0.21
Queue Length 95th (ft)	18	1	0
Control Delay (s)	12.8	0.6	0.0
Lane LOS	B	A	
Approach Delay (s)	12.8	0.6	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	30.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	4	60	0	0	0	0	195	129	57	156	0
Future Volume (vph)	80	4	60	0	0	0	0	195	129	57	156	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	0		150	225		0
Storage Lanes	0		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1726	1538	0	0	0	0	1810	1538	1719	1810	0
Flt Permitted		0.954								0.950		
Satd. Flow (perm)	0	1726	1538	0	0	0	0	1810	1538	1719	1810	0
Link Speed (mph)		45			30			55			55	
Link Distance (ft)		1311			824			499			723	
Travel Time (s)		19.9			18.7			6.2			9.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	93	67	0	0	0	0	217	143	63	173	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 28.2%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	4	60	0	0	0	0	195	129	57	156	0
Future Volume (Veh/h)	80	4	60	0	0	0	0	195	129	57	156	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	89	4	67	0	0	0	0	217	143	63	173	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			4									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	516	659	173	518	516	217	173			360		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	516	659	173	518	516	217	173			360		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	80	99	92	100	100	100	100			95		
cM capacity (veh/h)	446	360	863	407	434	815	1386			1182		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	160	217	143	63	173
Volume Left	89	0	0	63	0
Volume Right	67	0	143	0	0
cSH	761	1700	1700	1182	1700
Volume to Capacity	0.21	0.13	0.08	0.05	0.10
Queue Length 95th (ft)	20	0	0	4	0
Control Delay (s)	12.9	0.0	0.0	8.2	0.0
Lane LOS	B			A	
Approach Delay (s)	12.9	0.0		2.2	
Approach LOS	B				

Intersection Summary				
Average Delay	3.4			
Intersection Capacity Utilization	28.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	4	73	0	0	0	0	129	87	68	251	0
Future Volume (vph)	54	4	73	0	0	0	0	129	87	68	251	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	0		150	225		0
Storage Lanes	0		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1728	1538	0	0	0	0	1810	1538	1719	1810	0
Flt Permitted		0.955								0.950		
Satd. Flow (perm)	0	1728	1538	0	0	0	0	1810	1538	1719	1810	0
Link Speed (mph)		45			30			55			55	
Link Distance (ft)		1311			824			499			723	
Travel Time (s)		19.9			18.7			6.2			9.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	64	81	0	0	0	0	143	97	76	279	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 30.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	4	73	0	0	0	0	129	87	68	251	0
Future Volume (Veh/h)	54	4	73	0	0	0	0	129	87	68	251	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	60	4	81	0	0	0	0	143	97	76	279	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			4									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	574	671	279	576	574	143	279			240		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	574	671	279	576	574	143	279			240		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	85	99	89	100	100	100	100			94		
cM capacity (veh/h)	406	352	753	358	400	897	1267			1309		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	145	143	97	76	279
Volume Left	60	0	0	76	0
Volume Right	81	0	97	0	0
cSH	913	1700	1700	1309	1700
Volume to Capacity	0.16	0.08	0.06	0.06	0.16
Queue Length 95th (ft)	14	0	0	5	0
Control Delay (s)	12.7	0.0	0.0	7.9	0.0
Lane LOS	B			A	
Approach Delay (s)	12.7	0.0		1.7	
Approach LOS	B				

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	30.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	87	4	68	73	202	0	0	126	55
Future Volume (vph)	0	0	0	87	4	68	73	202	0	0	126	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		100	250		0	0		150
Storage Lanes	0		0	0		1	1		0	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	0	0	0	1726	1538	1719	1810	0	0	1827	1553
Flt Permitted					0.954		0.950					
Satd. Flow (perm)	0	0	0	0	1726	1538	1719	1810	0	0	1827	1553
Link Speed (mph)		30			45			55			55	
Link Distance (ft)		1007			1367			723			825	
Travel Time (s)		22.9			20.7			9.0			10.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	101	76	81	224	0	0	140	61
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 28.2%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	87	4	68	73	202	0	0	126	55
Future Volume (Veh/h)	0	0	0	87	4	68	73	202	0	0	126	55
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	97	4	76	81	224	0	0	140	61
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						4						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	528	526	140	526	587	224	201			224		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	528	526	140	526	587	224	201			224		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	78	99	91	94			100		
cM capacity (veh/h)	391	426	900	437	393	808	1353			1333		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	177	81	224	140	61
Volume Left	97	81	0	0	0
Volume Right	76	0	0	0	61
cSH	762	1353	1700	1700	1700
Volume to Capacity	0.23	0.06	0.13	0.08	0.04
Queue Length 95th (ft)	22	5	0	0	0
Control Delay (s)	13.3	7.8	0.0	0.0	0.0
Lane LOS	B	A			
Approach Delay (s)	13.3	2.1		0.0	
Approach LOS	B				

Intersection Summary				
Average Delay	4.4			
Intersection Capacity Utilization	28.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	129	4	57	60	123	0	0	190	80
Future Volume (vph)	0	0	0	129	4	57	60	123	0	0	190	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		100	250		0	0		150
Storage Lanes	0		0	0		1	1		0	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	0	0	0	1726	1538	1719	1810	0	0	1827	1553
Flt Permitted					0.954		0.950					
Satd. Flow (perm)	0	0	0	0	1726	1538	1719	1810	0	0	1827	1553
Link Speed (mph)		30			45			55			55	
Link Distance (ft)		1007			1367			723			825	
Travel Time (s)		22.9			20.7			9.0			10.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	147	63	67	137	0	0	211	89
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 30.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	129	4	57	60	123	0	0	190	80
Future Volume (Veh/h)	0	0	0	129	4	57	60	123	0	0	190	80
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	143	4	63	67	137	0	0	211	89
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						4						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	484	482	211	482	571	137	300			137		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	484	482	211	482	571	137	300			137		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	70	99	93	95			100		
cM capacity (veh/h)	432	454	822	470	404	904	1244			1435		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	210	67	137	211	89
Volume Left	143	67	0	0	0
Volume Right	63	0	0	0	89
cSH	668	1244	1700	1700	1700
Volume to Capacity	0.31	0.05	0.08	0.12	0.05
Queue Length 95th (ft)	34	4	0	0	0
Control Delay (s)	14.1	8.1	0.0	0.0	0.0
Lane LOS	B	A			
Approach Delay (s)	14.1	2.6		0.0	
Approach LOS	B				

Intersection Summary				
Average Delay	4.9			
Intersection Capacity Utilization	30.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	1098	17	56	729	38	18	4	89	62	4	14
Future Volume (vph)	13	1098	17	56	729	38	18	4	89	62	4	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		250	50		50	0		0	0		0
Storage Lanes	1		1	1		1	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	0	1646	0	0	1751	0
Flt Permitted	0.950			0.950				0.992			0.963	
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	0	1646	0	0	1751	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1210			866			1023			1010	
Travel Time (s)		15.0			10.7			12.7			12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	1220	19	62	810	42	0	123	0	0	89	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		50			50			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 54.8%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	1098	17	56	729	38	18	4	89	62	4	14
Future Volume (Veh/h)	13	1098	17	56	729	38	18	4	89	62	4	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	14	1220	19	62	810	42	20	4	99	69	4	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		2			2							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	852			1239			1795	2224	610	1673	2201	405
vC1, stage 1 conf vol							1248	1248		934	934	
vC2, stage 2 conf vol							547	976		739	1267	
vCu, unblocked vol	852			1239			1795	2224	610	1673	2201	405
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			89			88	98	77	58	97	97
cM capacity (veh/h)	764			542			163	178	437	166	149	595

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	14	610	610	19	62	405	405	42	123	89
Volume Left	14	0	0	0	62	0	0	0	20	69
Volume Right	0	0	0	19	0	0	0	42	99	16
cSH	764	1700	1700	1700	542	1700	1700	1700	331	190
Volume to Capacity	0.02	0.36	0.36	0.01	0.11	0.24	0.24	0.02	0.37	0.47
Queue Length 95th (ft)	1	0	0	0	10	0	0	0	42	56
Control Delay (s)	9.8	0.0	0.0	0.0	12.5	0.0	0.0	0.0	22.2	39.8
Lane LOS	A				B				C	E
Approach Delay (s)	0.1				0.8				22.2	39.8
Approach LOS									C	E

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	729	18	90	1098	62	17	4	56	38	4	12
Future Volume (vph)	13	729	18	90	1098	62	17	4	56	38	4	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		250	50		50	0		0	0		0
Storage Lanes	1		1	1		1	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	0	1662	0	0	1745	0
Flt Permitted	0.950			0.950				0.989			0.966	
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	0	1662	0	0	1745	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1210			866			1023			1010	
Travel Time (s)		15.0			10.7			12.7			12.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	810	20	100	1220	69	0	85	0	0	59	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		50			50			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 51.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	729	18	90	1098	62	17	4	56	38	4	12
Future Volume (Veh/h)	13	729	18	90	1098	62	17	4	56	38	4	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	14	810	20	100	1220	69	19	4	62	42	4	13
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		2			2							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1289			830			1663	2327	405	1917	2278	610
vC1, stage 1 conf vol							838	838		1420	1420	
vC2, stage 2 conf vol							825	1489		497	858	
vCu, unblocked vol	1289			830			1663	2327	405	1917	2278	610
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			87			91	97	90	64	97	97
cM capacity (veh/h)	518			779			203	135	595	116	144	437

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	14	405	405	20	100	610	610	69	85	59
Volume Left	14	0	0	0	100	0	0	0	19	42
Volume Right	0	0	0	20	0	0	0	69	62	13
cSH	518	1700	1700	1700	779	1700	1700	1700	374	141
Volume to Capacity	0.03	0.24	0.24	0.01	0.13	0.36	0.36	0.04	0.23	0.42
Queue Length 95th (ft)	2	0	0	0	11	0	0	0	22	46
Control Delay (s)	12.1	0.0	0.0	0.0	10.3	0.0	0.0	0.0	17.4	47.7
Lane LOS	B				B				C	E
Approach Delay (s)	0.2				0.7				17.4	47.7
Approach LOS									C	E

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	41	1186	680	76	0	168
Future Volume (vph)	41	1186	680	76	0	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	400			150	0	0
Storage Lanes	1			1	0	1
Taper Length (ft)	100				100	
Satd. Flow (prot)	1719	3438	3438	1538	0	1611
Flt Permitted	0.950					
Satd. Flow (perm)	1719	3438	3438	1538	0	1611
Link Speed (mph)		55	55		55	
Link Distance (ft)		866	1113		995	
Travel Time (s)		10.7	13.8		12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	2%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	46	1318	756	84	0	187
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		50	50		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 36.1%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	41	1186	680	76	0	168
Future Volume (Veh/h)	41	1186	680	76	0	168
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	46	1318	756	84	0	187
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		Raised	Raised			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	840				1507	378
vC1, stage 1 conf vol					756	
vC2, stage 2 conf vol					751	
vCu, unblocked vol	840				1507	378
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	94				100	70
cM capacity (veh/h)	772				303	620

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	46	659	659	378	378	84	187
Volume Left	46	0	0	0	0	0	0
Volume Right	0	0	0	0	0	84	187
cSH	772	1700	1700	1700	1700	1700	620
Volume to Capacity	0.06	0.39	0.39	0.22	0.22	0.05	0.30
Queue Length 95th (ft)	5	0	0	0	0	0	32
Control Delay (s)	10.0	0.0	0.0	0.0	0.0	0.0	13.3
Lane LOS	A						B
Approach Delay (s)	0.3			0.0			13.3
Approach LOS							B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	36.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	81	763	1101	89	0	118
Future Volume (vph)	81	763	1101	89	0	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	400			150	0	0
Storage Lanes	1			1	0	1
Taper Length (ft)	100				100	
Satd. Flow (prot)	1719	3438	3438	1538	0	1611
Flt Permitted	0.950					
Satd. Flow (perm)	1719	3438	3438	1538	0	1611
Link Speed (mph)		55	55		55	
Link Distance (ft)		866	1113		995	
Travel Time (s)		10.7	13.8		12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	2%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	90	848	1223	99	0	131
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		50	50		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 44.4%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	81	763	1101	89	0	118
Future Volume (Veh/h)	81	763	1101	89	0	118
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	90	848	1223	99	0	131
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		Raised	Raised			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1322				1827	612
vC1, stage 1 conf vol					1223	
vC2, stage 2 conf vol					604	
vCu, unblocked vol	1322				1827	612
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	82				100	70
cM capacity (veh/h)	503				209	436

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	90	424	424	612	612	99	131
Volume Left	90	0	0	0	0	0	0
Volume Right	0	0	0	0	0	99	131
cSH	503	1700	1700	1700	1700	1700	436
Volume to Capacity	0.18	0.25	0.25	0.36	0.36	0.06	0.30
Queue Length 95th (ft)	16	0	0	0	0	0	31
Control Delay (s)	13.7	0.0	0.0	0.0	0.0	0.0	16.7
Lane LOS	B						C
Approach Delay (s)	1.3			0.0			16.7
Approach LOS							C

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	77	21	115	66	122	8	110	53	44	87	21
Future Volume (vph)	68	77	21	115	66	122	8	110	53	44	87	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	0		0	150		0
Storage Lanes	0		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1768	1538	0	1679	0	0	1787	1524	1703	1740	0
Flt Permitted		0.977			0.981			0.997		0.950		
Satd. Flow (perm)	0	1768	1538	0	1679	0	0	1787	1524	1703	1740	0
Link Speed (mph)		55			55			25			55	
Link Distance (ft)		990			864			578			2029	
Travel Time (s)		12.3			10.7			15.8			25.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	162	23	0	337	0	0	131	59	49	120	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 43.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	77	21	115	66	122	8	110	53	44	87	21
Future Volume (Veh/h)	68	77	21	115	66	122	8	110	53	44	87	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	76	86	23	128	73	136	9	122	59	49	97	23
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	209			86			706	703	86	696	635	141
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	209			86			706	703	86	696	635	141
tC, single (s)	4.1			4.1			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	94			91			96	60	94	76	71	97
cM capacity (veh/h)	1344			1492			235	308	962	205	337	896

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	162	23	337	131	59	49	120
Volume Left	76	0	128	9	0	49	0
Volume Right	0	23	136	0	59	0	23
cSH	1344	1700	1492	302	962	205	383
Volume to Capacity	0.06	0.01	0.09	0.43	0.06	0.24	0.31
Queue Length 95th (ft)	4	0	7	52	5	22	33
Control Delay (s)	3.9	0.0	3.4	25.8	9.0	27.9	18.6
Lane LOS	A		A	D	A	D	C
Approach Delay (s)	3.4		3.4	20.6		21.3	
Approach LOS				C		C	

Intersection Summary			
Average Delay	10.5		
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	66	8	53	77	44	21	87	115	122	110	68
Future Volume (vph)	21	66	8	53	77	44	21	87	115	122	110	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	0		0	150		0
Storage Lanes	0		1	0		0	0		1	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1788	1538	0	1722	0	0	1776	1524	1703	1688	0
Flt Permitted		0.988			0.985			0.991		0.950		
Satd. Flow (perm)	0	1788	1538	0	1722	0	0	1776	1524	1703	1688	0
Link Speed (mph)		55			55			25			55	
Link Distance (ft)		990			864			578			2029	
Travel Time (s)		12.3			10.7			15.8			25.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	96	9	0	194	0	0	120	128	136	198	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 42.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	66	8	53	77	44	21	87	115	122	110	68
Future Volume (Veh/h)	21	66	8	53	77	44	21	87	115	122	110	68
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	23	73	9	59	86	49	23	97	128	136	122	76
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	135			73			484	372	73	396	348	110
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	135			73			484	372	73	396	348	110
tC, single (s)	4.1			4.1			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	98			96			94	81	87	66	77	92
cM capacity (veh/h)	1431			1508			354	522	978	398	539	932

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	96	9	194	120	128	136	198
Volume Left	23	0	59	23	0	136	0
Volume Right	0	9	49	0	128	0	76
cSH	1431	1700	1508	478	978	398	643
Volume to Capacity	0.02	0.01	0.04	0.25	0.13	0.34	0.31
Queue Length 95th (ft)	1	0	3	25	11	37	33
Control Delay (s)	1.9	0.0	2.5	15.0	9.2	18.7	13.1
Lane LOS	A		A	C	A	C	B
Approach Delay (s)	1.7		2.5	12.0		15.4	
Approach LOS				B		C	

Intersection Summary			
Average Delay	10.0		
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	579	287	0	810	0	184
Future Volume (vph)	579	287	0	810	0	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300	0		0	0
Storage Lanes		1	0		0	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	3471	1553	0	3471	0	1550
Flt Permitted						
Satd. Flow (perm)	3471	1553	0	3471	0	1550
Link Speed (mph)	55			55	55	
Link Distance (ft)	1588			916	864	
Travel Time (s)	19.7			11.4	10.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	643	319	0	900	0	204
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	50			50	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	579	287	0	810	0	184
Future Volume (Veh/h)	579	287	0	810	0	184
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	643	319	0	900	0	204
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			643		1093	322
vC1, stage 1 conf vol					643	
vC2, stage 2 conf vol					450	
vCu, unblocked vol			643		1093	322
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)			2.2		3.6	3.4
p0 queue free %			100		100	69
cM capacity (veh/h)			924		405	663

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	322	322	319	450	450	204
Volume Left	0	0	0	0	0	0
Volume Right	0	0	319	0	0	204
cSH	1700	1700	1700	1700	1700	663
Volume to Capacity	0.19	0.19	0.19	0.26	0.26	0.31
Queue Length 95th (ft)	0	0	0	0	0	33
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.8
Lane LOS						B
Approach Delay (s)	0.0			0.0		12.8
Approach LOS						B

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	34.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	576	177	0	810	0	297
Future Volume (vph)	576	177	0	810	0	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300	0		0	0
Storage Lanes		1	0		0	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	3471	1553	0	3471	0	1550
Flt Permitted						
Satd. Flow (perm)	3471	1553	0	3471	0	1550
Link Speed (mph)	55			55	55	
Link Distance (ft)	1588			916	864	
Travel Time (s)	19.7			11.4	10.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	6%	6%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	640	197	0	900	0	330
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	50			50	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	576	177	0	810	0	297
Future Volume (Veh/h)	576	177	0	810	0	297
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	640	197	0	900	0	330
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			640		1090	320
vC1, stage 1 conf vol					640	
vC2, stage 2 conf vol					450	
vCu, unblocked vol			640		1090	320
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)			2.2		3.6	3.4
p0 queue free %			100		100	50
cM capacity (veh/h)			927		406	664

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	320	320	197	450	450	330
Volume Left	0	0	0	0	0	0
Volume Right	0	0	197	0	0	330
cSH	1700	1700	1700	1700	1700	664
Volume to Capacity	0.19	0.19	0.12	0.26	0.26	0.50
Queue Length 95th (ft)	0	0	0	0	0	69
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	15.7
Lane LOS						C
Approach Delay (s)	0.0			0.0		15.7
Approach LOS						C

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	41.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	713	64	150	798	9	75	4	158	4	4	4
Future Volume (vph)	8	713	64	150	798	9	75	4	158	4	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	400		0	0		100	0		0
Storage Lanes	1		1	1		0	0		1	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1736	3471	1553	1736	3464	0	0	1760	1568	0	1768	0
Flt Permitted	0.950			0.950				0.954			0.984	
Satd. Flow (perm)	1736	3471	1553	1736	3464	0	0	1760	1568	0	1768	0
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1082			910			306			327	
Travel Time (s)		16.4			13.8			8.3			8.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	3%	3%	3%	1%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	792	71	167	897	0	0	87	176	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		50			50			0			18	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 48.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	713	64	150	798	9	75	4	158	4	4	4
Future Volume (Veh/h)	8	713	64	150	798	9	75	4	158	4	4	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	792	71	167	887	10	83	4	176	4	4	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									4			
Median type		Raised			Raised							
Median storage veh)		2			2							
Upstream signal (ft)					910							
pX, platoon unblocked	0.82						0.82	0.82		0.82	0.82	0.82
vC, conflicting volume	897			863			1594	2041	396	1642	2107	448
vC1, stage 1 conf vol							810	810		1226	1226	
vC2, stage 2 conf vol							784	1231		416	881	
vCu, unblocked vol	427			863			1279	1827	396	1338	1907	0
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.5	6.5	6.9
tC, 2 stage (s)							6.6	5.6		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			78			69	98	71	98	97	100
cM capacity (veh/h)	911			763			267	198	600	163	154	889

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	9	396	396	71	167	591	306	263	12
Volume Left	9	0	0	0	167	0	0	83	4
Volume Right	0	0	0	71	0	0	10	176	4
cSH	911	1700	1700	1700	763	1700	1700	798	218
Volume to Capacity	0.01	0.23	0.23	0.04	0.22	0.35	0.18	0.33	0.05
Queue Length 95th (ft)	1	0	0	0	21	0	0	36	4
Control Delay (s)	9.0	0.0	0.0	0.0	11.0	0.0	0.0	17.3	22.4
Lane LOS	A				B			C	C
Approach Delay (s)	0.1				1.7			17.3	22.4
Approach LOS								C	C

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	798	75	158	713	4	64	4	150	9	4	8
Future Volume (vph)	4	798	75	158	713	4	64	4	150	9	4	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	400		0	0		100	0		0
Storage Lanes	1		1	1		0	0		1	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1736	3471	1553	1736	3468	0	0	1762	1568	0	1744	0
Flt Permitted	0.950			0.950				0.955			0.979	
Satd. Flow (perm)	1736	3471	1553	1736	3468	0	0	1762	1568	0	1744	0
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1082			910			306			327	
Travel Time (s)		16.4			13.8			8.3			8.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	3%	3%	3%	1%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	887	83	176	796	0	0	75	167	0	23	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		50			50			0			18	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 48.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	798	75	158	713	4	64	4	150	9	4	8
Future Volume (Veh/h)	4	798	75	158	713	4	64	4	150	9	4	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	887	83	176	792	4	71	4	167	10	4	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									4			
Median type		Raised			Raised							
Median storage veh)		2			2							
Upstream signal (ft)					910							
pX, platoon unblocked	0.87						0.87	0.87		0.87	0.87	0.87
vC, conflicting volume	796			970			1654	2043	444	1600	2124	398
vC1, stage 1 conf vol							895	895		1146	1146	
vC2, stage 2 conf vol							759	1148		454	978	
vCu, unblocked vol	466			970			1453	1900	444	1390	1993	9
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.5	6.5	6.9
tC, 2 stage (s)							6.6	5.6		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			75			69	98	70	93	97	99
cM capacity (veh/h)	937			694			231	192	559	151	130	934

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	4	444	444	83	176	528	268	242	23
Volume Left	4	0	0	0	176	0	0	71	10
Volume Right	0	0	0	83	0	0	4	167	9
cSH	937	1700	1700	1700	694	1700	1700	739	215
Volume to Capacity	0.00	0.26	0.26	0.05	0.25	0.31	0.16	0.33	0.11
Queue Length 95th (ft)	0	0	0	0	25	0	0	36	9
Control Delay (s)	8.9	0.0	0.0	0.0	11.9	0.0	0.0	18.5	23.7
Lane LOS	A				B			C	C
Approach Delay (s)	0.0				2.2			18.5	23.7
Approach LOS								C	C

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	643	54	128	818	196	88	97	166	152	58	117
Future Volume (vph)	119	643	54	128	818	196	88	97	166	152	58	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		250	225		450	0		125	325		100
Storage Lanes	1		1	1		1	0		1	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1736	3471	1553	1736	3471	1553	0	1785	1553	1649	1697	1553
Flt Permitted	0.950			0.950				0.977		0.950	0.978	
Satd. Flow (perm)	1736	3471	1553	1736	3471	1553	0	1785	1553	1649	1697	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			45	
Link Distance (ft)		910			969			438			630	
Travel Time (s)		13.8			14.7			11.9			9.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)										32%		
Lane Group Flow (vph)	132	714	60	142	909	218	0	206	184	115	118	130
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		50			50			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6		8	8		4	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	19.0	19.0	14.0	19.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	14.0	66.0	66.0	19.0	71.0	71.0	21.0	21.0	21.0	14.0	14.0	14.0
Total Split (%)	11.7%	55.0%	55.0%	15.8%	59.2%	59.2%	17.5%	17.5%	17.5%	11.7%	11.7%	11.7%
Maximum Green (s)	7.0	59.0	59.0	12.0	64.0	64.0	14.0	14.0	14.0	7.0	7.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	13.9	47.8	47.8	14.5	48.3	48.3		20.3	20.3	17.4	17.4	31.3
Actuated g/C Ratio	0.12	0.40	0.40	0.12	0.40	0.40		0.17	0.17	0.14	0.14	0.26
v/c Ratio	0.66	0.52	0.10	0.68	0.65	0.35		0.68	0.70	0.48	0.48	0.32
Control Delay	68.2	29.7	24.6	67.6	31.6	26.8		59.2	62.1	53.6	53.4	22.4

409: Sussex St/Hill Farm Rd & US 70 Bus

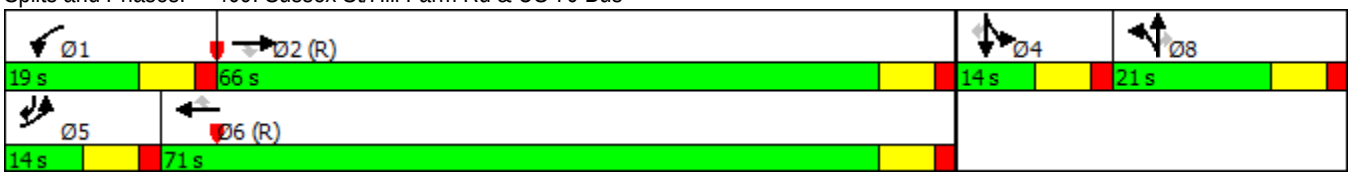
2040 Representative Build Alt 65 AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	68.2	29.7	24.6	67.6	31.6	26.8		59.2	62.1	53.6	53.4	22.4
LOS	E	C	C	E	C	C		E	E	D	D	C
Approach Delay		35.0			34.8			60.6			42.4	
Approach LOS		C			C			E			D	
Queue Length 50th (ft)	97	238	32	104	321	126		147	131	87	89	46
Queue Length 95th (ft)	#237	273	58	#198	338	166		#287	#269	147	149	97
Internal Link Dist (ft)		830			889			358			550	
Turn Bay Length (ft)	300		250	225		450			125	325		100
Base Capacity (vph)	201	1764	789	215	1909	854		302	263	239	246	405
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Reduced v/c Ratio	0.66	0.40	0.08	0.66	0.48	0.26		0.68	0.70	0.48	0.48	0.32

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 39.2 Intersection LOS: D
Intersection Capacity Utilization 58.3% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 409: Sussex St/Hill Farm Rd & US 70 Bus



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	818	88	166	643	152	54	58	128	196	97	119
Future Volume (vph)	117	818	88	166	643	152	54	58	128	196	97	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		250	225		450	0		125	325		100
Storage Lanes	1		1	1		1	0		1	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1736	3471	1553	1736	3471	1553	0	1783	1553	1649	1706	1553
Flt Permitted	0.950			0.950				0.976		0.950	0.983	
Satd. Flow (perm)	1736	3471	1553	1736	3471	1553	0	1783	1553	1649	1706	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			45	
Link Distance (ft)		910			969			438			630	
Travel Time (s)		13.8			14.7			11.9			9.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)										26%		
Lane Group Flow (vph)	130	909	98	184	714	169	0	124	142	161	165	132
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		50			50			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6		8	8		4	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	19.0	19.0	14.0	19.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	14.0	66.0	66.0	19.0	71.0	71.0	21.0	21.0	21.0	14.0	14.0	14.0
Total Split (%)	11.7%	55.0%	55.0%	15.8%	59.2%	59.2%	17.5%	17.5%	17.5%	11.7%	11.7%	11.7%
Maximum Green (s)	7.0	59.0	59.0	12.0	64.0	64.0	14.0	14.0	14.0	7.0	7.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	12.4	44.4	44.4	15.8	47.8	47.8		15.7	15.7	24.1	24.1	36.5
Actuated g/C Ratio	0.10	0.37	0.37	0.13	0.40	0.40		0.13	0.13	0.20	0.20	0.30
v/c Ratio	0.73	0.71	0.17	0.81	0.52	0.27		0.53	0.70	0.49	0.48	0.28
Control Delay	76.7	35.4	25.3	77.0	28.2	24.5		57.3	68.3	49.7	49.3	21.7

409: Sussex St/Hill Farm Rd & US 70 Bus

2040 Representative Build Alt 65 PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	76.7	35.4	25.3	77.0	28.2	24.5		57.3	68.3	49.7	49.3	21.7
LOS	E	D	C	E	C	C		E	E	D	D	C
Approach Delay		39.2			36.0			63.2			41.5	
Approach LOS		D			D			E			D	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 40.6	Intersection LOS: D
Intersection Capacity Utilization 59.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 409: Sussex St/Hill Farm Rd & US 70 Bus

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	920	11	97	917	217	0	0	128	0	0	269
Future Volume (vph)	15	920	11	97	917	217	0	0	128	0	0	269
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		150	250		0	0		0	0		0
Storage Lanes	1		1	1		1	0		1	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1736	4978	0	1736	3471	1553	0	0	1580	0	0	1580
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	1736	4978	0	1736	3471	1553	0	0	1580	0	0	1580
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		969			1040			433			297	
Travel Time (s)		14.7			15.8			8.4			8.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	1034	0	108	1019	241	0	0	142	0	0	299
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		50			50			12			18	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 48.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	920	11	97	917	217	0	0	128	0	0	269
Future Volume (Veh/h)	15	920	11	97	917	217	0	0	128	0	0	269
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	1022	12	108	1019	241	0	0	142	0	0	299
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		2			2							
Upstream signal (ft)		969			1040							
pX, platoon unblocked	0.84			0.92			0.88	0.88	0.92	0.88	0.88	0.84
vC, conflicting volume	1260			1034			2086	2538	347	1610	2303	510
vC1, stage 1 conf vol							1062	1062		1235	1235	
vC2, stage 2 conf vol							1024	1476		375	1068	
vCu, unblocked vol	917			729			1403	1918	0	858	1650	19
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)							6.6	5.6		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			86			100	100	86	100	100	66
cM capacity (veh/h)	607			788			163	154	991	211	189	876

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	17	409	409	216	108	510	510	241	142	299
Volume Left	17	0	0	0	108	0	0	0	0	0
Volume Right	0	0	0	12	0	0	0	241	142	299
cSH	607	1700	1700	1700	788	1700	1700	1700	991	876
Volume to Capacity	0.03	0.24	0.24	0.13	0.14	0.30	0.30	0.14	0.14	0.34
Queue Length 95th (ft)	2	0	0	0	12	0	0	0	12	38
Control Delay (s)	11.1	0.0	0.0	0.0	10.3	0.0	0.0	0.0	9.2	11.2
Lane LOS	B				B				A	B
Approach Delay (s)	0.2				0.8				9.2	11.2
Approach LOS									A	B

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	1134	21	106	703	243	0	0	108	0	0	230
Future Volume (vph)	30	1134	21	106	703	243	0	0	108	0	0	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		150	250		0	0		0	0		0
Storage Lanes	1		1	1		1	0		1	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1736	4973	0	1736	3471	1553	0	0	1580	0	0	1580
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	1736	4973	0	1736	3471	1553	0	0	1580	0	0	1580
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		969			1040			433			297	
Travel Time (s)		14.7			15.8			8.4			8.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	1283	0	118	781	270	0	0	120	0	0	256
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		50			50			12			18	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 40.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	1134	21	106	703	243	0	0	108	0	0	230
Future Volume (Veh/h)	30	1134	21	106	703	243	0	0	108	0	0	230
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	1260	23	118	781	270	0	0	120	0	0	256
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		2			2							
Upstream signal (ft)		969			1040							
pX, platoon unblocked	0.91			0.85			0.89	0.89	0.85	0.89	0.89	0.91
vC, conflicting volume	1051			1283			2220	2624	432	1503	2366	390
vC1, stage 1 conf vol							1338	1338		1017	1017	
vC2, stage 2 conf vol							882	1287		486	1349	
vCu, unblocked vol	862			708			1427	1880	0	623	1590	138
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)							6.6	5.6		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			84			100	100	87	100	100	68
cM capacity (veh/h)	696			741			153	158	914	246	175	801

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	33	504	504	275	118	390	390	270	120	256
Volume Left	33	0	0	0	118	0	0	0	0	0
Volume Right	0	0	0	23	0	0	0	270	120	256
cSH	696	1700	1700	1700	741	1700	1700	1700	914	801
Volume to Capacity	0.05	0.30	0.30	0.16	0.16	0.23	0.23	0.16	0.13	0.32
Queue Length 95th (ft)	4	0	0	0	14	0	0	0	11	35
Control Delay (s)	10.4	0.0	0.0	0.0	10.8	0.0	0.0	0.0	9.5	11.6
Lane LOS	B				B				A	B
Approach Delay (s)	0.3				1.1				9.5	11.6
Approach LOS									A	B

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	40.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	132	888	4	1111	223	241	178
Future Volume (vph)	132	888	4	1111	223	241	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	450		300		0	250	0
Storage Lanes	2		1		1	1	1
Taper Length (ft)	100		100			100	
Satd. Flow (prot)	3367	4988	1736	3471	1553	3367	1553
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	3367	4988	1736	3471	1553	3367	1553
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		45		45		45	
Link Distance (ft)		1040		666		2390	
Travel Time (s)		15.8		10.1		36.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)							
Lane Group Flow (vph)	147	987	4	1234	248	268	198
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		32		32		24	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		16		16		16	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	Free
Protected Phases	5	2	1	6	4	4	
Permitted Phases					6		Free
Detector Phase	5	2	1	6	4	4	
Switch Phase							
Minimum Initial (s)	7.0	12.0	7.0	12.0	7.0	7.0	
Minimum Split (s)	14.0	19.0	14.0	19.0	14.0	14.0	
Total Split (s)	14.0	66.0	14.0	66.0	20.0	20.0	
Total Split (%)	14.0%	66.0%	14.0%	66.0%	20.0%	20.0%	
Maximum Green (s)	7.0	59.0	7.0	59.0	13.0	13.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Min	None	C-Min	None	None	
Act Effct Green (s)	10.6	72.0	9.0	59.2	79.4	15.2	100.0
Actuated g/C Ratio	0.11	0.72	0.09	0.59	0.79	0.15	1.00
v/c Ratio	0.41	0.27	0.03	0.60	0.20	0.52	0.13
Control Delay	45.5	6.0	42.0	14.9	3.0	42.5	0.2

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.5	6.0	42.0	14.9	3.0	42.5	0.2
LOS	D	A	D	B	A	D	A
Approach Delay		11.1		13.0		24.5	
Approach LOS		B		B		C	
Queue Length 50th (ft)	45	60	2	251	32	81	0
Queue Length 95th (ft)	78	142	13	324	43	117	0
Internal Link Dist (ft)		960		586		2310	
Turn Bay Length (ft)	450		300			250	
Base Capacity (vph)	357	3630	156	2141	1247	543	1553
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.27	0.03	0.58	0.20	0.49	0.13

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 14.1 Intersection LOS: B
Intersection Capacity Utilization 55.9% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 411: US 70 Bus & US 258

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	178	1111	4	888	241	223	132
Future Volume (vph)	178	1111	4	888	241	223	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	450		300		0	250	0
Storage Lanes	2		1		1	1	1
Taper Length (ft)	100		100			100	
Satd. Flow (prot)	3367	4988	1736	3471	1553	3367	1553
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	3367	4988	1736	3471	1553	3367	1553
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		45		45		45	
Link Distance (ft)		1040		666		2390	
Travel Time (s)		15.8		10.1		36.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)							
Lane Group Flow (vph)	198	1234	4	987	268	248	147
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		32		32		24	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		16		16		16	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	Free
Protected Phases	5	2	1	6	4	4	
Permitted Phases					6		Free
Detector Phase	5	2	1	6	4	4	
Switch Phase							
Minimum Initial (s)	7.0	12.0	7.0	12.0	7.0	7.0	
Minimum Split (s)	14.0	19.0	14.0	19.0	14.0	14.0	
Total Split (s)	14.0	66.0	14.0	66.0	20.0	20.0	
Total Split (%)	14.0%	66.0%	14.0%	66.0%	20.0%	20.0%	
Maximum Green (s)	7.0	59.0	7.0	59.0	13.0	13.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Min	None	C-Min	None	None	
Act Effct Green (s)	13.2	72.4	9.0	57.1	76.8	14.8	100.0
Actuated g/C Ratio	0.13	0.72	0.09	0.57	0.77	0.15	1.00
v/c Ratio	0.45	0.34	0.03	0.50	0.22	0.50	0.09
Control Delay	42.9	6.3	42.0	14.8	4.0	42.3	0.1

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.9	6.3	42.0	14.8	4.0	42.3	0.1
LOS	D	A	D	B	A	D	A
Approach Delay		11.4		12.6		26.6	
Approach LOS		B		B		C	
Queue Length 50th (ft)	60	77	2	185	39	76	0
Queue Length 95th (ft)	92	186	13	283	72	109	0
Internal Link Dist (ft)		960		586		2310	
Turn Bay Length (ft)	450		300			250	
Base Capacity (vph)	443	3652	156	2136	1212	538	1553
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.34	0.03	0.46	0.22	0.46	0.09

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.50
Intersection Signal Delay: 13.8 Intersection LOS: B
Intersection Capacity Utilization 49.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 411: US 70 Bus & US 258

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	1093	9	5	1338	9	0	0	22	0	0	23
Future Volume (vph)	4	1093	9	5	1338	9	0	0	22	0	0	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	150		0	0		0	0		0
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1736	3471	1553	1736	4983	0	0	0	1611	0	0	1611
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	1736	3471	1553	1736	4983	0	0	0	1611	0	0	1611
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		666			581			197			240	
Travel Time (s)		10.1			8.8			5.4			6.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	1214	10	6	1497	0	0	0	24	0	0	26
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		32			32			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 40.2%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	1093	9	5	1338	9	0	0	22	0	0	23
Future Volume (Veh/h)	4	1093	9	5	1338	9	0	0	22	0	0	23
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	1214	10	6	1487	10	0	0	24	0	0	26
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)		666			581							
pX, platoon unblocked	0.86			0.90			0.91	0.91	0.90	0.91	0.91	0.86
vC, conflicting volume	1497			1224			1756	2731	607	2143	2736	501
vC1, stage 1 conf vol							1222	1222		1504	1504	
vC2, stage 2 conf vol							534	1509		639	1232	
vCu, unblocked vol	999			1018			884	1957	330	1310	1962	0
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			100	100	96	100	100	97
cM capacity (veh/h)	580			596			207	149	597	176	148	930

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	4	607	607	10	6	595	595	307	24	26
Volume Left	4	0	0	0	6	0	0	0	0	0
Volume Right	0	0	0	10	0	0	0	10	24	26
cSH	580	1700	1700	1700	596	1700	1700	1700	597	930
Volume to Capacity	0.01	0.36	0.36	0.01	0.01	0.35	0.35	0.18	0.04	0.03
Queue Length 95th (ft)	1	0	0	0	1	0	0	0	3	2
Control Delay (s)	11.2	0.0	0.0	0.0	11.1	0.0	0.0	0.0	11.3	9.0
Lane LOS	B				B				B	A
Approach Delay (s)	0.0				0.0				11.3	9.0
Approach LOS									B	A

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	40.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	1337	15	6	1093	15	0	0	14	0	0	13
Future Volume (vph)	9	1337	15	6	1093	15	0	0	14	0	0	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	150		0	0		0	0		0
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1736	3471	1553	1736	4978	0	0	0	1611	0	0	1611
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	1736	3471	1553	1736	4978	0	0	0	1611	0	0	1611
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		666			581			197			240	
Travel Time (s)		10.1			8.8			5.4			6.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	1486	17	7	1231	0	0	0	16	0	0	14
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		32			32			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 47.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	1337	15	6	1093	15	0	0	14	0	0	13
Future Volume (Veh/h)	9	1337	15	6	1093	15	0	0	14	0	0	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	10	1486	17	7	1214	17	0	0	16	0	0	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)		666			581							
pX, platoon unblocked	0.90			0.86			0.91	0.91	0.86	0.91	0.91	0.90
vC, conflicting volume	1231			1503			1939	2751	743	2016	2760	413
vC1, stage 1 conf vol							1506	1506		1236	1236	
vC2, stage 2 conf vol							433	1245		779	1523	
vCu, unblocked vol	859			1261			1164	2055	377	1248	2064	0
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			98			100	100	97	100	100	99
cM capacity (veh/h)	687			462			138	133	534	206	130	974

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	10	743	743	17	7	486	486	260	16	14
Volume Left	10	0	0	0	7	0	0	0	0	0
Volume Right	0	0	0	17	0	0	0	17	16	14
cSH	687	1700	1700	1700	462	1700	1700	1700	534	974
Volume to Capacity	0.01	0.44	0.44	0.01	0.02	0.29	0.29	0.15	0.03	0.01
Queue Length 95th (ft)	1	0	0	0	1	0	0	0	2	1
Control Delay (s)	10.3	0.0	0.0	0.0	12.9	0.0	0.0	0.0	12.0	8.8
Lane LOS	B				B				B	A
Approach Delay (s)	0.1				0.1				12.0	8.8
Approach LOS									B	A

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	19	1087	4	1334	38	43	26
Future Volume (vph)	19	1087	4	1334	38	43	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		75		0	0	0
Storage Lanes	1		1		0	1	0
Taper Length (ft)	100		100			100	
Satd. Flow (prot)	1736	3471	1827	4968	0	1698	0
Flt Permitted	0.950					0.970	
Satd. Flow (perm)	1736	3471	1827	4968	0	1698	0
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		45		45		25	
Link Distance (ft)		581		901		412	
Travel Time (s)		8.8		13.7		11.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	3%	3%
Shared Lane Traffic (%)							
Lane Group Flow (vph)	21	1208	0	1524	0	77	0
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		32		32		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		16		16		16	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Turn Type	Prot	NA	Prot	NA		Prot	
Protected Phases	5	2	1	6		4	
Permitted Phases							
Detector Phase	5	2	1	6		4	
Switch Phase							
Minimum Initial (s)	7.0	12.0	7.0	12.0		7.0	
Minimum Split (s)	14.0	19.0	14.0	19.0		14.0	
Total Split (s)	14.0	62.0	14.0	62.0		14.0	
Total Split (%)	15.6%	68.9%	15.6%	68.9%		15.6%	
Maximum Green (s)	7.0	55.0	7.0	55.0		7.0	
Yellow Time (s)	5.0	5.0	5.0	5.0		5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0		-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0		5.0	
Lead/Lag	Lead	Lag	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0	
Recall Mode	None	C-Min	None	C-Min		None	
Act Effct Green (s)	9.3	72.2		66.2		11.6	
Actuated g/C Ratio	0.10	0.80		0.74		0.13	
v/c Ratio	0.12	0.43		0.42		0.35	
Control Delay	37.9	4.4		7.6		39.6	

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Queue Delay	0.0	0.0		0.0		0.0	
Total Delay	37.9	4.4		7.6		39.6	
LOS	D	A		A		D	
Approach Delay		5.0		7.6		39.6	
Approach LOS		A		A		D	
Queue Length 50th (ft)	11	104		86		41	
Queue Length 95th (ft)	33	165		234		79	
Internal Link Dist (ft)		501		821		332	
Turn Bay Length (ft)	175						
Base Capacity (vph)	180	2782		3783		219	
Starvation Cap Reductn	0	0		0		0	
Spillback Cap Reductn	0	0		0		0	
Storage Cap Reductn	0	0		0		0	
Reduced v/c Ratio	0.12	0.43		0.40		0.35	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.43
Intersection Signal Delay: 7.3 Intersection LOS: A
Intersection Capacity Utilization 44.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 413: US 70 Bus & Mt Vernon Park Dr

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	27	1334	4	1087	42	37	20
Future Volume (vph)	27	1334	4	1087	42	37	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		75		0	0	0
Storage Lanes	1		1		0	1	0
Taper Length (ft)	100		100			100	
Satd. Flow (prot)	1736	3471	1827	4958	0	1702	0
Flt Permitted	0.950					0.968	
Satd. Flow (perm)	1736	3471	1827	4958	0	1702	0
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		45		45		25	
Link Distance (ft)		581		901		412	
Travel Time (s)		8.8		13.7		11.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	3%	3%
Shared Lane Traffic (%)							
Lane Group Flow (vph)	30	1482	0	1255	0	63	0
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		32		32		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		16		16		16	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Turn Type	Prot	NA	Prot	NA		Prot	
Protected Phases	5	2	1	6		4	
Permitted Phases							
Detector Phase	5	2	1	6		4	
Switch Phase							
Minimum Initial (s)	7.0	12.0	7.0	12.0		7.0	
Minimum Split (s)	14.0	19.0	14.0	19.0		14.0	
Total Split (s)	14.0	62.0	14.0	62.0		14.0	
Total Split (%)	15.6%	68.9%	15.6%	68.9%		15.6%	
Maximum Green (s)	7.0	55.0	7.0	55.0		7.0	
Yellow Time (s)	5.0	5.0	5.0	5.0		5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0		-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0		5.0	
Lead/Lag	Lead	Lag	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0	
Recall Mode	None	C-Min	None	C-Min		None	
Act Effct Green (s)	9.6	72.7		63.7		11.1	
Actuated g/C Ratio	0.11	0.81		0.71		0.12	
v/c Ratio	0.16	0.53		0.36		0.30	
Control Delay	38.3	4.9		8.1		39.1	

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Queue Delay	0.0	0.0		0.0		0.0	
Total Delay	38.3	4.9		8.1		39.1	
LOS	D	A		A		D	
Approach Delay		5.6		8.1		39.1	
Approach LOS		A		A		D	

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 7.4	Intersection LOS: A
Intersection Capacity Utilization 51.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 413: US 70 Bus & Mt Vernon Park Dr

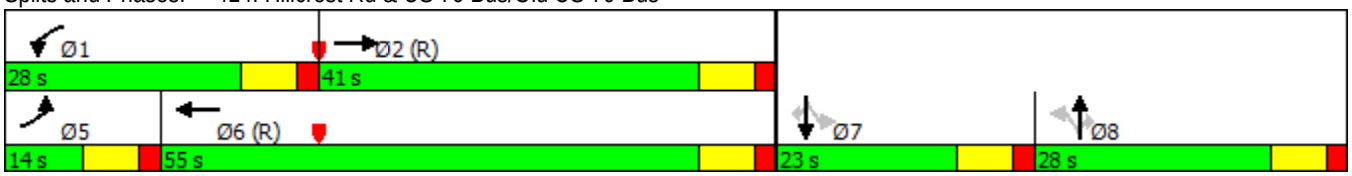
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	710	4	217	665	17	4	6	356	28	6	20
Future Volume (vph)	13	710	4	217	665	17	4	6	356	28	6	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	300		0	0		225	75		0
Storage Lanes	1		0	1		0	0		2	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1752	3501	0	1752	3491	0	0	1811	2760	0	1773	1568
Flt Permitted	0.950			0.950				0.930			0.249	
Satd. Flow (perm)	1752	3501	0	1752	3491	0	0	1716	2760	0	459	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		848			988			656			424	
Travel Time (s)		12.8			15.0			12.8			11.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	793	0	241	758	0	0	11	396	0	38	22
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		76			56			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			7	
Permitted Phases							8		8	7		7
Detector Phase	5	2		1	6		8	8	8	7	7	7
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	14.0	41.0		28.0	55.0		28.0	28.0	28.0	23.0	23.0	23.0
Total Split (%)	11.7%	34.2%		23.3%	45.8%		23.3%	23.3%	23.3%	19.2%	19.2%	19.2%
Maximum Green (s)	7.0	34.0		21.0	48.0		21.0	21.0	21.0	16.0	16.0	16.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0			-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	None
Act Effct Green (s)	9.0	43.6		21.3	64.3			21.9	21.9		16.3	16.3
Actuated g/C Ratio	0.08	0.36		0.18	0.54			0.18	0.18		0.14	0.14
v/c Ratio	0.11	0.62		0.78	0.41			0.04	0.79		0.61	0.10
Control Delay	53.8	36.7		64.5	20.3			40.0	58.8		88.3	45.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	53.8	36.7		64.5	20.3			40.0	58.8		88.3	45.5
LOS	D	D		E	C			D	E		F	D
Approach Delay		37.0			30.9			58.3			72.6	
Approach LOS		D			C			E			E	
Queue Length 50th (ft)	10	294		177	178			7	165		28	15
Queue Length 95th (ft)	32	367		#282	285			24	228		#82	40
Internal Link Dist (ft)		768			908			576			344	
Turn Bay Length (ft)	75			300					225			
Base Capacity (vph)	131	1276		335	1871			328	529		68	236
Starvation Cap Reductn	0	0		0	0			0	0		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.11	0.62		0.72	0.41			0.03	0.75		0.56	0.09

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 39.1 Intersection LOS: D
Intersection Capacity Utilization 52.8% ICU Level of Service A
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 414: Hillcrest Rd & US 70 Bus/Old US 70 Bus

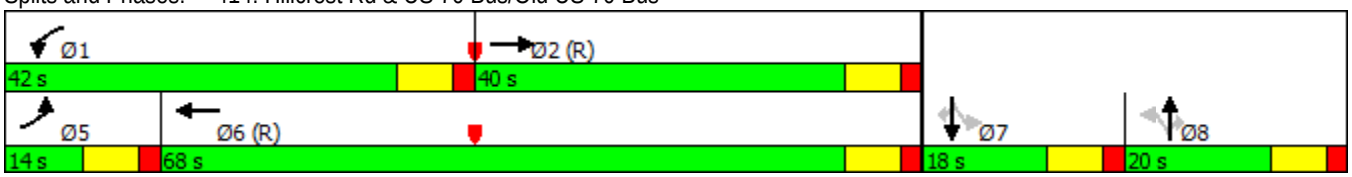


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	666	4	356	709	29	4	6	217	18	6	13
Future Volume (vph)	19	666	4	356	709	29	4	6	217	18	6	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	300		0	0		225	75		0
Storage Lanes	1		0	1		0	0		2	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1752	3501	0	1752	3484	0	0	1811	2760	0	1778	1568
Flt Permitted	0.950			0.950				0.914			0.391	
Satd. Flow (perm)	1752	3501	0	1752	3484	0	0	1686	2760	0	721	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		848			988			656			424	
Travel Time (s)		12.8			15.0			12.8			11.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	744	0	396	820	0	0	11	241	0	27	14
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		76			56			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			7	
Permitted Phases							8		8	7		7
Detector Phase	5	2		1	6		8	8	8	7	7	7
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	14.0	40.0		42.0	68.0		20.0	20.0	20.0	18.0	18.0	18.0
Total Split (%)	11.7%	33.3%		35.0%	56.7%		16.7%	16.7%	16.7%	15.0%	15.0%	15.0%
Maximum Green (s)	7.0	33.0		35.0	61.0		13.0	13.0	13.0	11.0	11.0	11.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0			-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	None
Act Effct Green (s)	9.0	46.1		32.7	78.3			15.0	15.0		12.1	12.1
Actuated g/C Ratio	0.08	0.38		0.27	0.65			0.12	0.12		0.10	0.10
v/c Ratio	0.16	0.55		0.83	0.36			0.05	0.70		0.38	0.09
Control Delay	55.1	33.8		56.0	12.6			46.9	61.7		65.0	49.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	55.1	33.8		56.0	12.6			46.9	61.7		65.0	49.6
LOS	E	C		E	B			D	E		E	D
Approach Delay		34.4			26.7			61.1			59.7	
Approach LOS		C			C			E			E	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 33.7	Intersection LOS: C
Intersection Capacity Utilization 58.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 414: Hillcrest Rd & US 70 Bus/Old US 70 Bus



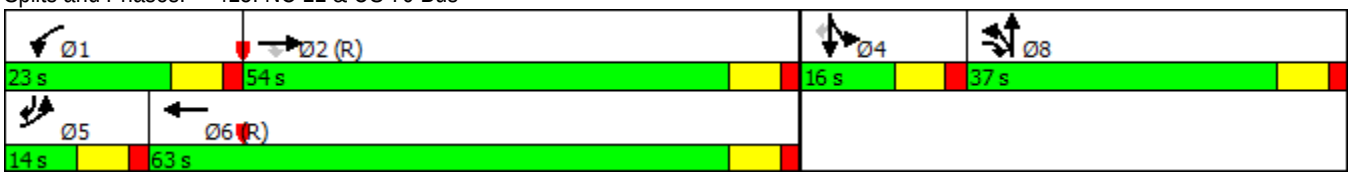
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	232	301	142	133	527	80	273	590	146	39	259	196
Future Volume (vph)	232	301	142	133	527	80	273	590	146	39	259	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	325		475	275		600	275		0	400		400
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	3335	3438	1538	1719	3438	1538	3367	3367	0	3367	3471	1553
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3438	1538	1719	3438	1538	3367	3367	0	3367	3471	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1036			1050			1060			982	
Travel Time (s)		15.7			15.9			16.1			14.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	258	334	158	148	586	89	303	818	0	43	288	218
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		45			45			28			28	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	pm+ov	Prot	NA	Free	Split	NA		Split	NA	pm+ov
Protected Phases	5	2	8	1	6		8	8		4	4	5
Permitted Phases			2			Free						4
Detector Phase	5	2	8	1	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	14.0	54.0	37.0	23.0	63.0		37.0	37.0		16.0	16.0	14.0
Total Split (%)	10.8%	41.5%	28.5%	17.7%	48.5%		28.5%	28.5%		12.3%	12.3%	10.8%
Maximum Green (s)	7.0	47.0	30.0	16.0	56.0		30.0	30.0		9.0	9.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min	None	None	C-Min		None	None		None	None	None
Act Effct Green (s)	15.1	31.2	73.7	16.5	32.7	130.0	42.5	42.5		19.7	19.7	34.8
Actuated g/C Ratio	0.12	0.24	0.57	0.13	0.25	1.00	0.33	0.33		0.15	0.15	0.27
v/c Ratio	0.67	0.40	0.18	0.68	0.68	0.06	0.28	0.74		0.08	0.55	0.53
Control Delay	64.8	44.6	7.7	69.9	48.2	0.1	32.9	43.6		47.0	55.0	29.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	64.8	44.6	7.7	69.9	48.2	0.1	32.9	43.6		47.0	55.0	29.5
LOS	E	D	A	E	D	A	C	D		D	D	C
Approach Delay		43.8			46.9			40.7			44.2	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)	108	130	29	119	240	0	95	315		16	119	85
Queue Length 95th (ft)	#218	177	51	194	285	0	137	404		33	164	149
Internal Link Dist (ft)		956			970			980			902	
Turn Bay Length (ft)	325		475	275		600	275			400		400
Base Capacity (vph)	386	1295	872	239	1533	1538	1101	1101		511	527	415
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.67	0.26	0.18	0.62	0.38	0.06	0.28	0.74		0.08	0.55	0.53

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 43.6 Intersection LOS: D
Intersection Capacity Utilization 64.7% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 415: NC 11 & US 70 Bus

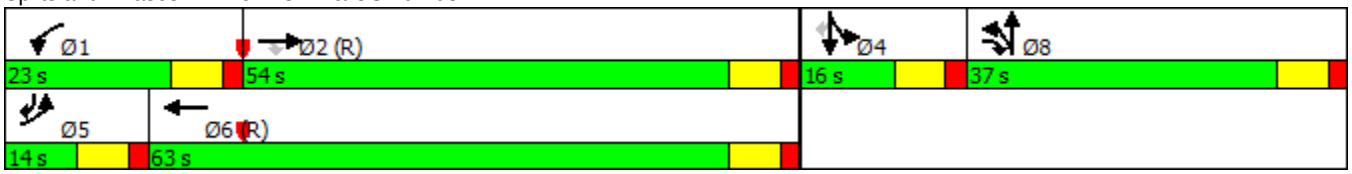


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	196	527	273	146	301	39	142	259	133	80	590	232
Future Volume (vph)	196	527	273	146	301	39	142	259	133	80	590	232
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	325		475	275		600	275		0	400		400
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	3335	3438	1538	1719	3438	1538	3367	3294	0	3367	3471	1553
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3438	1538	1719	3438	1538	3367	3294	0	3367	3471	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1036			1050			1060			982	
Travel Time (s)		15.7			15.9			16.1			14.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	218	586	303	162	334	43	158	436	0	89	656	258
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		45			45			28			28	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	pm+ov	Prot	NA	Free	Split	NA		Split	NA	pm+ov
Protected Phases	5	2	8	1	6		8	8		4	4	5
Permitted Phases			2			Free						4
Detector Phase	5	2	8	1	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	14.0	54.0	37.0	23.0	63.0		37.0	37.0		16.0	16.0	14.0
Total Split (%)	10.8%	41.5%	28.5%	17.7%	48.5%		28.5%	28.5%		12.3%	12.3%	10.8%
Maximum Green (s)	7.0	47.0	30.0	16.0	56.0		30.0	30.0		9.0	9.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min	None	None	C-Min		None	None		None	None	None
Act Effct Green (s)	14.8	35.3	61.5	17.7	38.3	130.0	26.2	26.2		30.7	30.7	45.5
Actuated g/C Ratio	0.11	0.27	0.47	0.14	0.29	1.00	0.20	0.20		0.24	0.24	0.35
v/c Ratio	0.58	0.63	0.42	0.69	0.33	0.03	0.23	0.66		0.11	0.80	0.48
Control Delay	62.1	45.2	13.2	69.1	35.9	0.0	43.3	52.3		41.8	55.9	23.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	62.1	45.2	13.2	69.1	35.9	0.0	43.3	52.3		41.8	55.9	23.7
LOS	E	D	B	E	D	A	D	D		D	E	C
Approach Delay		39.8			43.0			49.9			46.3	
Approach LOS		D			D			D			D	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 44.2	Intersection LOS: D
Intersection Capacity Utilization 61.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 415: NC 11 & US 70 Bus



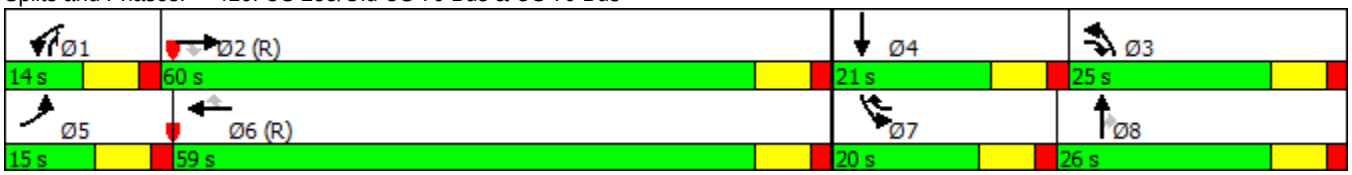
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	313	108	57	490	535	172	408	58	348	260	71
Future Volume (vph)	70	313	108	57	490	535	172	408	58	348	260	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		250	225		0	400		275	275		0
Storage Lanes	1		1	1		1	2		1	2		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1719	4940	1538	1736	3471	1553	1719	3438	1538	3367	3360	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1736	3471	1553	1719	3438	1538	3367	3360	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		728			2078			588			1049	
Travel Time (s)		11.0			31.5			8.9			15.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	5%	5%	5%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	78	348	120	63	544	594	191	453	64	387	368	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			18			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	
Permitted Phases			2			6			8			
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0	
Total Split (s)	15.0	60.0	25.0	14.0	59.0	20.0	25.0	26.0	14.0	20.0	21.0	
Total Split (%)	12.5%	50.0%	20.8%	11.7%	49.2%	16.7%	20.8%	21.7%	11.7%	16.7%	17.5%	
Maximum Green (s)	8.0	53.0	18.0	7.0	52.0	13.0	18.0	19.0	7.0	13.0	14.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None	None	None	None	
Act Effct Green (s)	11.7	39.5	72.4	10.9	38.7	72.8	31.8	23.3	39.2	29.1	20.6	
Actuated g/C Ratio	0.10	0.33	0.60	0.09	0.32	0.61	0.26	0.19	0.33	0.24	0.17	
v/c Ratio	0.46	0.21	0.13	0.40	0.49	0.63	0.42	0.68	0.13	0.47	0.64	
Control Delay	60.3	31.4	7.0	71.9	26.2	18.6	39.9	49.9	27.3	41.5	51.3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	60.3	31.4	7.0	71.9	26.2	18.6	39.9	49.9	27.3	41.5	51.3	
LOS	E	C	A	E	C	B	D	D	C	D	D	
Approach Delay		30.1			24.8			45.1			46.3	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	57	77	22	43	147	457	118	173	35	126	141	
Queue Length 95th (ft)	110	103	45	91	235	598	198	214	63	191	185	
Internal Link Dist (ft)		648			1998			508			969	
Turn Bay Length (ft)	225		250	225			400		275	275		
Base Capacity (vph)	171	2300	927	157	1592	941	455	687	502	816	575	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.46	0.15	0.13	0.40	0.34	0.63	0.42	0.66	0.13	0.47	0.64	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 116 (97%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 35.3 Intersection LOS: D
Intersection Capacity Utilization 62.7% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 416: US 258/Old US 70 Bus & US 70 Bus



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	490	172	58	313	348	108	260	57	535	408	70
Future Volume (vph)	71	490	172	58	313	348	108	260	57	535	408	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		250	225		0	400		275	275		0
Storage Lanes	1		1	1		1	2		1	2		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1719	4940	1538	1736	3471	1553	1719	3438	1538	3367	3395	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1736	3471	1553	1719	3438	1538	3367	3395	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		728			2078			588			1049	
Travel Time (s)		11.0			31.5			8.9			15.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	5%	5%	5%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	544	191	64	348	387	120	289	63	594	531	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			18			30	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	
Permitted Phases			2			6			8			
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0	
Total Split (s)	15.0	60.0	25.0	14.0	59.0	20.0	25.0	26.0	14.0	20.0	21.0	
Total Split (%)	12.5%	50.0%	20.8%	11.7%	49.2%	16.7%	20.8%	21.7%	11.7%	16.7%	17.5%	
Maximum Green (s)	8.0	53.0	18.0	7.0	52.0	13.0	18.0	19.0	7.0	13.0	14.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None	None	None	None	
Act Effct Green (s)	12.9	34.5	60.0	12.0	33.6	77.6	24.4	17.3	34.3	39.0	31.9	
Actuated g/C Ratio	0.11	0.29	0.50	0.10	0.28	0.65	0.20	0.14	0.29	0.32	0.27	
v/c Ratio	0.43	0.38	0.25	0.37	0.36	0.39	0.34	0.58	0.14	0.54	0.59	
Control Delay	56.5	35.8	11.4	75.6	27.3	7.3	44.9	52.5	30.9	36.9	41.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	56.5	35.8	11.4	75.6	27.3	7.3	44.9	52.5	30.9	36.9	41.9	
LOS	E	D	B	E	C	A	D	D	C	D	D	
Approach Delay		32.1			21.5			47.7			39.3	
Approach LOS		C			C			D			D	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 116 (97%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 34.2	Intersection LOS: C
Intersection Capacity Utilization 54.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 416: US 258/Old US 70 Bus & US 70 Bus

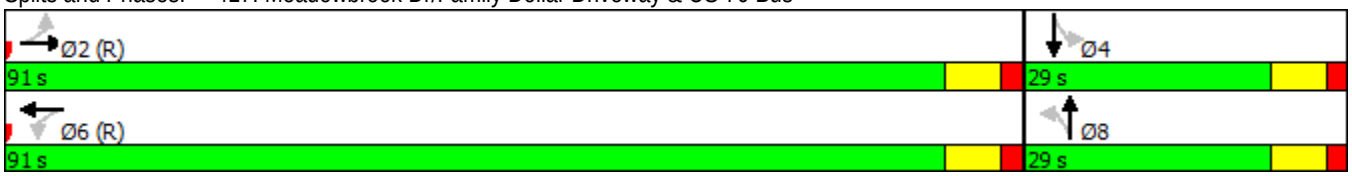
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	661	55	25	996	4	91	4	27	4	4	4
Future Volume (vph)	4	661	55	25	996	4	91	4	27	4	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	225		0	75		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1736	4928	0	1736	4983	0	1752	1601	0	0	1750	0
Flt Permitted	0.238			0.339			0.750				0.922	
Satd. Flow (perm)	435	4928	0	619	4983	0	1383	1601	0	0	1640	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		2078			2483			1026			272	
Travel Time (s)		31.5			37.6			20.0			7.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	795	0	28	1111	0	101	34	0	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	19.0	19.0		19.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	91.0	91.0		91.0	91.0		29.0	29.0		29.0	29.0	
Total Split (%)	75.8%	75.8%		75.8%	75.8%		24.2%	24.2%		24.2%	24.2%	
Maximum Green (s)	84.0	84.0		84.0	84.0		22.0	22.0		22.0	22.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0			-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min		C-Min	C-Min		None	None		None	None	
Act Effct Green (s)	94.0	94.0		94.0	94.0		16.0	16.0			16.0	
Actuated g/C Ratio	0.78	0.78		0.78	0.78		0.13	0.13			0.13	
v/c Ratio	0.01	0.21		0.06	0.28		0.55	0.16			0.06	
Control Delay	9.8	7.2		0.4	0.5		59.0	45.6			43.2	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	9.8	7.2		0.4	0.5		59.0	45.6			43.2	
LOS	A	A		A	A		E	D			D	
Approach Delay		7.2			0.5			55.7			43.2	
Approach LOS		A			A			E			D	
Queue Length 50th (ft)	1	78		0	0		74	24			8	
Queue Length 95th (ft)	m5	111		m1	6		127	53			26	
Internal Link Dist (ft)		1998			2403			946			192	
Turn Bay Length (ft)	225			225			75					
Base Capacity (vph)	340	3861		484	3905		276	320			328	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.01	0.21		0.06	0.28		0.37	0.11			0.04	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.55
Intersection Signal Delay: 6.9 Intersection LOS: A
Intersection Capacity Utilization 40.8% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 417: Meadowbrook Dr/Family Dollar Driveway & US 70 Bus

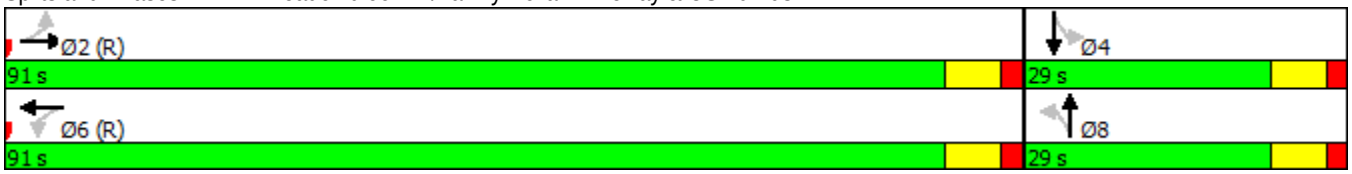


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	995	91	27	661	4	55	4	24	4	4	4
Future Volume (vph)	4	995	91	27	661	4	55	4	24	4	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	225		0	75		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1736	4923	0	1736	4983	0	1752	1603	0	0	1750	0
Flt Permitted	0.360			0.217			0.750				0.902	
Satd. Flow (perm)	658	4923	0	396	4983	0	1383	1603	0	0	1605	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		2078			2483			1026			272	
Travel Time (s)		31.5			37.6			20.0			7.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	1207	0	30	738	0	61	31	0	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	19.0	19.0		19.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	91.0	91.0		91.0	91.0		29.0	29.0		29.0	29.0	
Total Split (%)	75.8%	75.8%		75.8%	75.8%		24.2%	24.2%		24.2%	24.2%	
Maximum Green (s)	84.0	84.0		84.0	84.0		22.0	22.0		22.0	22.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0			-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min		C-Min	C-Min		None	None		None	None	
Act Effct Green (s)	101.0	101.0		101.0	101.0		12.8	12.8			12.8	
Actuated g/C Ratio	0.84	0.84		0.84	0.84		0.11	0.11			0.11	
v/c Ratio	0.01	0.29		0.09	0.18		0.41	0.18			0.07	
Control Delay	5.2	4.0		0.6	0.2		57.6	49.8			47.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	5.2	4.0		0.6	0.2		57.6	49.8			47.1	
LOS	A	A		A	A		E	D			D	
Approach Delay		4.0			0.2			55.0			47.1	
Approach LOS		A			A			D			D	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.41	
Intersection Signal Delay: 5.1	Intersection LOS: A
Intersection Capacity Utilization 38.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 417: Meadowbrook Dr/Family Dollar Driveway & US 70 Bus



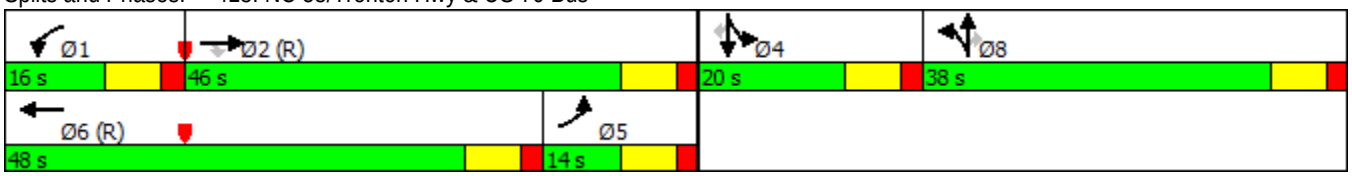
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	355	272	143	510	77	451	22	165	99	24	84
Future Volume (vph)	45	355	272	143	510	77	451	22	165	99	24	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	225		0	275		100	0		100
Storage Lanes	1		1	2		0	1		1	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1736	3471	1553	1719	4841	0	1665	1677	1568	0	1773	1568
Flt Permitted	0.950			0.950			0.950	0.957			0.961	
Satd. Flow (perm)	1736	3471	1553	1719	4841	0	1665	1677	1568	0	1773	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			25	
Link Distance (ft)		2483			1780			813			641	
Travel Time (s)		37.6			27.0			12.3			17.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)							48%					
Lane Group Flow (vph)	50	394	302	159	653	0	261	264	183	0	137	93
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			36			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	19.0	19.0	14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	14.0	46.0	46.0	16.0	48.0		38.0	38.0	38.0	20.0	20.0	20.0
Total Split (%)	11.7%	38.3%	38.3%	13.3%	40.0%		31.7%	31.7%	31.7%	16.7%	16.7%	16.7%
Maximum Green (s)	7.0	39.0	39.0	9.0	41.0		31.0	31.0	31.0	13.0	13.0	13.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0		5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None	None	None	None	None
Act Effct Green (s)	17.7	41.2	41.2	17.2	43.5		26.5	26.5	26.5		15.1	15.1
Actuated g/C Ratio	0.15	0.34	0.34	0.14	0.36		0.22	0.22	0.22		0.13	0.13
v/c Ratio	0.20	0.33	0.57	0.65	0.37		0.71	0.71	0.53		0.61	0.47
Control Delay	18.6	11.4	16.7	62.7	32.6		53.5	53.6	45.9		61.8	56.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	18.6	11.4	16.7	62.7	32.6		53.5	53.6	45.9		61.8	56.6
LOS	B	B	B	E	C		D	D	D		E	E
Approach Delay		14.0			38.5			51.6			59.7	
Approach LOS		B			D			D			E	
Queue Length 50th (ft)	26	42	62	113	147		196	198	125		101	67
Queue Length 95th (ft)	37	37	57	#270	203		277	280	188		171	124
Internal Link Dist (ft)		2403			1700			733			561	
Turn Bay Length (ft)	100			225			275		100			100
Base Capacity (vph)	255	1252	560	246	2020		457	461	431		236	209
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	0
Reduced v/c Ratio	0.20	0.31	0.54	0.65	0.32		0.57	0.57	0.42		0.58	0.44

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 88 (73%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 36.9 Intersection LOS: D
Intersection Capacity Utilization 50.2% ICU Level of Service A
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 418: NC 58/Trenton Hwy & US 70 Bus

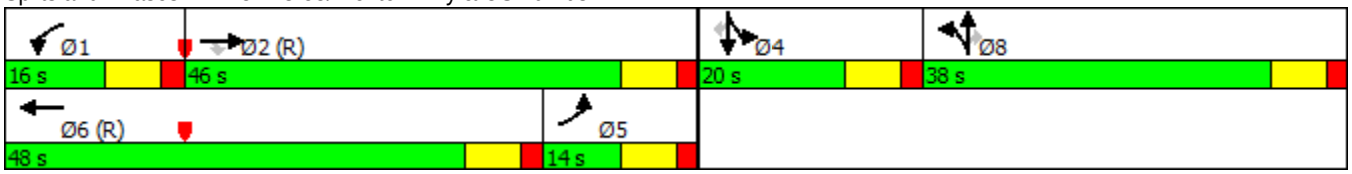


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	510	451	165	355	99	272	24	143	77	22	45
Future Volume (vph)	84	510	451	165	355	99	272	24	143	77	22	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	225		0	275		100	0		100
Storage Lanes	1		1	2		0	1		1	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1736	3471	1553	1719	4777	0	1665	1682	1568	0	1775	1568
Flt Permitted	0.950			0.950			0.950	0.960			0.962	
Satd. Flow (perm)	1736	3471	1553	1719	4777	0	1665	1682	1568	0	1775	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			25	
Link Distance (ft)		2483			1780			813			641	
Travel Time (s)		37.6			27.0			12.3			17.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)							46%					
Lane Group Flow (vph)	93	567	501	183	504	0	163	166	159	0	110	50
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			36			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	19.0	19.0	14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	14.0	46.0	46.0	16.0	48.0		38.0	38.0	38.0	20.0	20.0	20.0
Total Split (%)	11.7%	38.3%	38.3%	13.3%	40.0%		31.7%	31.7%	31.7%	16.7%	16.7%	16.7%
Maximum Green (s)	7.0	39.0	39.0	9.0	41.0		31.0	31.0	31.0	13.0	13.0	13.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0		5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None	None	None	None	None
Act Effct Green (s)	32.3	44.0	44.0	22.6	34.3		20.0	20.0	20.0		13.4	13.4
Actuated g/C Ratio	0.27	0.37	0.37	0.19	0.29		0.17	0.17	0.17		0.11	0.11
v/c Ratio	0.20	0.45	0.88	0.57	0.37		0.59	0.59	0.61		0.56	0.29
Control Delay	19.9	17.0	42.7	53.3	36.2		54.0	54.1	55.5		61.1	52.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	19.9	17.0	42.7	53.3	36.2		54.0	54.1	55.5		61.1	52.5
LOS	B	B	D	D	D		D	D	E		E	D
Approach Delay		28.4			40.8			54.5			58.4	
Approach LOS		C			D			D			E	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 88 (73%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 38.8	Intersection LOS: D
Intersection Capacity Utilization 55.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 418: NC 58/Trenton Hwy & US 70 Bus



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	524	46	7	737	0	110
Future Volume (vph)	524	46	7	737	0	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		150	150		0	0
Storage Lanes		1	1		0	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	3438	1538	1719	3438	0	1627
Flt Permitted			0.950			
Satd. Flow (perm)	3438	1538	1719	3438	0	1627
Link Speed (mph)	45			45	25	
Link Distance (ft)	1780			1040	439	
Travel Time (s)	27.0			15.8	12.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	582	51	8	819	0	122
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	45			45	6	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	524	46	7	737	0	110
Future Volume (Veh/h)	524	46	7	737	0	110
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	582	51	8	819	0	122
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	1			1		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			633		1008	291
vC1, stage 1 conf vol					582	
vC2, stage 2 conf vol					426	
vCu, unblocked vol			633		1008	291
tC, single (s)			4.2		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	83
cM capacity (veh/h)			926		367	709

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	291	291	51	8	410	410	122
Volume Left	0	0	0	8	0	0	0
Volume Right	0	0	51	0	0	0	122
cSH	1700	1700	1700	926	1700	1700	709
Volume to Capacity	0.17	0.17	0.03	0.01	0.24	0.24	0.17
Queue Length 95th (ft)	0	0	0	1	0	0	15
Control Delay (s)	0.0	0.0	0.0	8.9	0.0	0.0	11.1
Lane LOS				A			B
Approach Delay (s)	0.0			0.1			11.1
Approach LOS							B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	28.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	665	94	21	593	0	51
Future Volume (vph)	665	94	21	593	0	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		150	150		0	0
Storage Lanes		1	1		0	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	3438	1538	1719	3438	0	1627
Flt Permitted			0.950			
Satd. Flow (perm)	3438	1538	1719	3438	0	1627
Link Speed (mph)	45			45	25	
Link Distance (ft)	1780			1040	439	
Travel Time (s)	27.0			15.8	12.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	739	104	23	659	0	57
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	45			45	6	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.4%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	665	94	21	593	0	51
Future Volume (Veh/h)	665	94	21	593	0	51
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	739	104	23	659	0	57
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	1			1		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			843		1114	370
vC1, stage 1 conf vol					739	
vC2, stage 2 conf vol					376	
vCu, unblocked vol			843		1114	370
tC, single (s)			4.2		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			97		100	91
cM capacity (veh/h)			770		322	631

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	370	370	104	23	330	330	57
Volume Left	0	0	0	23	0	0	0
Volume Right	0	0	104	0	0	0	57
cSH	1700	1700	1700	770	1700	1700	631
Volume to Capacity	0.22	0.22	0.06	0.03	0.19	0.19	0.09
Queue Length 95th (ft)	0	0	0	2	0	0	7
Control Delay (s)	0.0	0.0	0.0	9.8	0.0	0.0	11.3
Lane LOS				A			B
Approach Delay (s)	0.0			0.3			11.3
Approach LOS							B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	28.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	53	541	4	658	19	24	81
Future Volume (vph)	53	541	4	658	19	24	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		175		150	0	0
Storage Lanes	1		1		1	1	0
Taper Length (ft)	100		100			100	
Satd. Flow (prot)	1719	3438	1810	3438	1538	1619	0
Flt Permitted	0.950					0.989	
Satd. Flow (perm)	1719	3438	1810	3438	1538	1619	0
Link Speed (mph)		55		55		45	
Link Distance (ft)		1063		973		1036	
Travel Time (s)		13.2		12.1		15.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	4%	4%
Shared Lane Traffic (%)							
Lane Group Flow (vph)	59	601	0	731	21	117	0
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		42		42		18	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		16		16		16	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Sign Control		Free		Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 37.8%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	53	541	4	658	19	24	81
Future Volume (Veh/h)	53	541	4	658	19	24	81
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	59	601	0	731	21	27	90
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		Raised		Raised			
Median storage veh)		1		1			
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	752		0			1150	366
vC1, stage 1 conf vol						731	
vC2, stage 2 conf vol						418	
vCu, unblocked vol	752		0			1150	366
tC, single (s)	4.2		0.0			6.9	7.0
tC, 2 stage (s)						5.9	
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	93		0			91	86
cM capacity (veh/h)	834		0			304	626

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	59	300	300	366	366	21	0	117
Volume Left	59	0	0	0	0	0	0	27
Volume Right	0	0	0	0	0	21	0	90
cSH	834	1700	1700	1700	1700	1700	1700	503
Volume to Capacity	0.07	0.18	0.18	0.21	0.21	0.01	0.00	0.23
Queue Length 95th (ft)	6	0	0	0	0	0	0	22
Control Delay (s)	9.6	0.0	0.0	0.0	0.0	0.0	0.0	14.3
Lane LOS	A							B
Approach Delay (s)	0.9			0.0				14.3
Approach LOS								B

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	37.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	81	658	4	541	23	18	53
Future Volume (vph)	81	658	4	541	23	18	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		175		150	0	0
Storage Lanes	1		1		1	1	0
Taper Length (ft)	100		100			100	
Satd. Flow (prot)	1719	3438	1810	3438	1538	1623	0
Flt Permitted	0.950					0.988	
Satd. Flow (perm)	1719	3438	1810	3438	1538	1623	0
Link Speed (mph)		55		55		45	
Link Distance (ft)		1063		973		1036	
Travel Time (s)		13.2		12.1		15.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	4%	4%
Shared Lane Traffic (%)							
Lane Group Flow (vph)	90	731	0	601	26	79	0
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		42		42		18	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		16		16		16	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Sign Control		Free		Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 35.8%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	81	658	4	541	23	18	53
Future Volume (Veh/h)	81	658	4	541	23	18	53
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	90	731	0	601	26	20	59
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		Raised		Raised			
Median storage veh)		1		1			
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	627		0			1146	300
vC1, stage 1 conf vol						601	
vC2, stage 2 conf vol						546	
vCu, unblocked vol	627		0			1146	300
tC, single (s)	4.2		0.0			6.9	7.0
tC, 2 stage (s)						5.9	
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	90		0			93	91
cM capacity (veh/h)	931		0			304	690

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	90	366	366	300	300	26	0	79
Volume Left	90	0	0	0	0	0	0	20
Volume Right	0	0	0	0	0	26	0	59
cSH	931	1700	1700	1700	1700	1700	1700	522
Volume to Capacity	0.10	0.21	0.21	0.18	0.18	0.02	0.00	0.15
Queue Length 95th (ft)	8	0	0	0	0	0	0	13
Control Delay (s)	9.3	0.0	0.0	0.0	0.0	0.0	0.0	13.1
Lane LOS	A							B
Approach Delay (s)	1.0			0.0				13.1
Approach LOS								B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	35.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	4	505	44	20	612	84	31
Future Volume (vph)	4	505	44	20	612	84	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		0	0
Storage Lanes	1		1	1		1	0
Taper Length (ft)	100			100		100	
Satd. Flow (prot)	1719	3438	1538	1703	3406	1700	0
Flt Permitted	0.950			0.950		0.965	
Satd. Flow (perm)	1719	3438	1538	1703	3406	1700	0
Link Speed (mph)		55			55	55	
Link Distance (ft)		1018			2379	969	
Travel Time (s)		12.6			29.5	12.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	6%	6%	4%	4%
Shared Lane Traffic (%)							
Lane Group Flow (vph)	4	561	49	22	680	127	0
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Right	Left	Left	Left	Right
Median Width(ft)		48			48	12	
Link Offset(ft)		0			0	0	
Crosswalk Width(ft)		16			16	16	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9		9	15		15	9
Sign Control		Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	4	505	44	20	612	84	31
Future Volume (Veh/h)	4	505	44	20	612	84	31
Sign Control		Free			Free	Stop	
Grade		0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	561	49	22	680	93	34
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		Raised			Raised		
Median storage veh)		1			1		
Upstream signal (ft)							
pX, platoon unblocked	0.00						
vC, conflicting volume	0			610		945	280
vC1, stage 1 conf vol						561	
vC2, stage 2 conf vol						384	
vCu, unblocked vol	0			610		945	280
tC, single (s)	0.0			4.2		6.9	7.0
tC, 2 stage (s)						5.9	
tF (s)	0.0			2.3		3.5	3.3
p0 queue free %	0			98		75	95
cM capacity (veh/h)	0			938		376	711

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1
Volume Total	280	280	49	0	22	340	340	127
Volume Left	0	0	0	0	22	0	0	93
Volume Right	0	0	49	0	0	0	0	34
cSH	1700	1700	1700	1700	938	1700	1700	431
Volume to Capacity	0.17	0.17	0.03	0.00	0.02	0.20	0.20	0.29
Queue Length 95th (ft)	0	0	0	0	2	0	0	30
Control Delay (s)	0.0	0.0	0.0	0.0	8.9	0.0	0.0	16.8
Lane LOS					A			C
Approach Delay (s)	0.0				0.3			16.8
Approach LOS								C

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	30.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	4	612	84	31	505	44	20
Future Volume (vph)	4	612	84	31	505	44	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		0	0
Storage Lanes	1		1	1		1	0
Taper Length (ft)	100			100		100	
Satd. Flow (prot)	1719	3438	1538	1703	3406	1692	0
Flt Permitted	0.950			0.950		0.967	
Satd. Flow (perm)	1719	3438	1538	1703	3406	1692	0
Link Speed (mph)		55			55	55	
Link Distance (ft)		1018			2379	969	
Travel Time (s)		12.6			29.5	12.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	6%	6%	4%	4%
Shared Lane Traffic (%)							
Lane Group Flow (vph)	4	680	93	34	561	71	0
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Right	Left	Left	Left	Right
Median Width(ft)		48			48	12	
Link Offset(ft)		0			0	0	
Crosswalk Width(ft)		16			16	16	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9		9	15		15	9
Sign Control		Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 33.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	4	612	84	31	505	44	20
Future Volume (Veh/h)	4	612	84	31	505	44	20
Sign Control		Free			Free	Stop	
Grade		0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	680	93	34	561	49	22
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		Raised			Raised		
Median storage veh)		1			1		
Upstream signal (ft)							
pX, platoon unblocked	0.00						
vC, conflicting volume	0			773		1028	340
vC1, stage 1 conf vol						680	
vC2, stage 2 conf vol						348	
vCu, unblocked vol	0			773		1028	340
tC, single (s)	0.0			4.2		6.9	7.0
tC, 2 stage (s)						5.9	
tF (s)	0.0			2.3		3.5	3.3
p0 queue free %	0			96		86	97
cM capacity (veh/h)	0			812		340	650

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1
Volume Total	340	340	93	0	34	280	280	71
Volume Left	0	0	0	0	34	0	0	49
Volume Right	0	0	93	0	0	0	0	22
cSH	1700	1700	1700	1700	812	1700	1700	399
Volume to Capacity	0.20	0.20	0.05	0.00	0.04	0.17	0.17	0.18
Queue Length 95th (ft)	0	0	0	0	3	0	0	16
Control Delay (s)	0.0	0.0	0.0	0.0	9.6	0.0	0.0	16.0
Lane LOS					A			C
Approach Delay (s)	0.0				0.5			16.0
Approach LOS								C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	33.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	17	506	4	619	12	15	28
Future Volume (vph)	17	506	4	619	12	15	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		125		200	0	0
Storage Lanes	1		1		1	1	0
Taper Length (ft)	100		100			100	
Satd. Flow (prot)	1703	3406	1792	3406	1524	1656	0
Flt Permitted	0.950					0.983	
Satd. Flow (perm)	1703	3406	1792	3406	1524	1656	0
Link Speed (mph)		55		55		55	
Link Distance (ft)		2379		1010		1049	
Travel Time (s)		29.5		12.5		13.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	3%	3%
Shared Lane Traffic (%)							
Lane Group Flow (vph)	19	562	0	688	13	48	0
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		42		42		18	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		16		16		16	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Sign Control		Free		Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 27.1%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	17	506	4	619	12	15	28
Future Volume (Veh/h)	17	506	4	619	12	15	28
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	19	562	0	688	13	17	31
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		Raised		Raised			
Median storage veh)		1		1			
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	701		0			1007	344
vC1, stage 1 conf vol						688	
vC2, stage 2 conf vol						319	
vCu, unblocked vol	701		0			1007	344
tC, single (s)	4.2		0.0			6.9	7.0
tC, 2 stage (s)						5.9	
tF (s)	2.3		0.0			3.5	3.3
p0 queue free %	98		0			95	95
cM capacity (veh/h)	866		0			349	649

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	19	281	281	344	344	13	0	48
Volume Left	19	0	0	0	0	0	0	17
Volume Right	0	0	0	0	0	13	0	31
cSH	866	1700	1700	1700	1700	1700	1700	498
Volume to Capacity	0.02	0.17	0.17	0.20	0.20	0.01	0.00	0.10
Queue Length 95th (ft)	2	0	0	0	0	0	0	8
Control Delay (s)	9.3	0.0	0.0	0.0	0.0	0.0	0.0	13.0
Lane LOS	A							B
Approach Delay (s)	0.3			0.0				13.0
Approach LOS								B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	27.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	28	619	4	506	15	11	18
Future Volume (vph)	28	619	4	506	15	11	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		125		200	0	0
Storage Lanes	1		1		1	1	0
Taper Length (ft)	100		100			100	
Satd. Flow (prot)	1703	3406	1792	3406	1524	1659	0
Flt Permitted	0.950					0.982	
Satd. Flow (perm)	1703	3406	1792	3406	1524	1659	0
Link Speed (mph)		55		55		55	
Link Distance (ft)		2379		1010		1049	
Travel Time (s)		29.5		12.5		13.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	3%	3%
Shared Lane Traffic (%)							
Lane Group Flow (vph)	31	688	0	562	17	32	0
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		42		42		18	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		16		16		16	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Sign Control		Free		Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 33.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	28	619	4	506	15	11	18
Future Volume (Veh/h)	28	619	4	506	15	11	18
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	31	688	0	562	17	12	20
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		Raised		Raised			
Median storage veh)		1		1			
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	579		0			968	281
vC1, stage 1 conf vol						562	
vC2, stage 2 conf vol						406	
vCu, unblocked vol	579		0			968	281
tC, single (s)	4.2		0.0			6.9	7.0
tC, 2 stage (s)						5.9	
tF (s)	2.3		0.0			3.5	3.3
p0 queue free %	97		0			97	97
cM capacity (veh/h)	964		0			370	713

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	31	344	344	281	281	17	0	32
Volume Left	31	0	0	0	0	0	0	12
Volume Right	0	0	0	0	0	17	0	20
cSH	964	1700	1700	1700	1700	1700	1700	529
Volume to Capacity	0.03	0.20	0.20	0.17	0.17	0.01	0.00	0.06
Queue Length 95th (ft)	2	0	0	0	0	0	0	5
Control Delay (s)	8.9	0.0	0.0	0.0	0.0	0.0	0.0	12.2
Lane LOS	A							B
Approach Delay (s)	0.4			0.0				12.2
Approach LOS								B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	33.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	452	61	29	565	17	45	4	17	19	6	15
Future Volume (vph)	11	452	61	29	565	17	45	4	17	19	6	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		175	200		50	0		0	0		0
Storage Lanes	1		1	1		1	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1703	3406	1524	1703	3406	1524	0	1705	0	0	1710	0
Flt Permitted	0.950			0.950				0.967			0.977	
Satd. Flow (perm)	1703	3406	1524	1703	3406	1524	0	1705	0	0	1710	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1012			1011			1002			1036	
Travel Time (s)		12.5			12.5			12.4			12.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	4%	4%	4%	3%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	502	68	32	628	19	0	73	0	0	45	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		42			42			6			6	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 34.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	452	61	29	565	17	45	4	17	19	6	15
Future Volume (Veh/h)	11	452	61	29	565	17	45	4	17	19	6	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	12	502	68	32	628	19	50	4	19	21	7	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	647			570			924	1237	251	988	1286	314
vC1, stage 1 conf vol							526	526		692	692	
vC2, stage 2 conf vol							398	711		296	594	
vCu, unblocked vol	647			570			924	1237	251	988	1286	314
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)							6.6	5.6		6.6	5.6	
tF (s)	2.3			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			97			85	99	97	93	97	97
cM capacity (veh/h)	908			971			327	280	743	294	270	679

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	12	251	251	68	32	314	314	19	73	45
Volume Left	12	0	0	0	32	0	0	0	50	21
Volume Right	0	0	0	68	0	0	0	19	19	17
cSH	908	1700	1700	1700	971	1700	1700	1700	379	368
Volume to Capacity	0.01	0.15	0.15	0.04	0.03	0.18	0.18	0.01	0.19	0.12
Queue Length 95th (ft)	1	0	0	0	3	0	0	0	18	10
Control Delay (s)	9.0	0.0	0.0	0.0	8.8	0.0	0.0	0.0	16.8	16.1
Lane LOS	A				A				C	C
Approach Delay (s)	0.2				0.4				16.8	16.1
Approach LOS									C	C

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	34.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	565	45	17	452	19	61	6	29	17	4	11
Future Volume (vph)	15	565	45	17	452	19	61	6	29	17	4	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		175	200		50	0		0	0		0
Storage Lanes	1		1	1		1	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1703	3406	1524	1703	3406	1524	0	1699	0	0	1714	0
Flt Permitted	0.950			0.950				0.969			0.974	
Satd. Flow (perm)	1703	3406	1524	1703	3406	1524	0	1699	0	0	1714	0
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1012			1011			1002			1036	
Travel Time (s)		12.5			12.5			12.4			12.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	4%	4%	4%	3%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	628	50	19	502	21	0	107	0	0	35	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		42			42			6			6	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 29.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	565	45	17	452	19	61	6	29	17	4	11
Future Volume (Veh/h)	15	565	45	17	452	19	61	6	29	17	4	11
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	628	50	19	502	21	68	7	32	19	4	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	523			678			965	1223	314	924	1252	251
vC1, stage 1 conf vol							662	662		540	540	
vC2, stage 2 conf vol							303	561		384	712	
vCu, unblocked vol	523			678			965	1223	314	924	1252	251
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)							6.6	5.6		6.6	5.6	
tF (s)	2.3			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			98			78	98	95	94	99	98
cM capacity (veh/h)	1012			883			307	287	676	324	278	746

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	17	314	314	50	19	251	251	21	107	35
Volume Left	17	0	0	0	19	0	0	0	68	19
Volume Right	0	0	0	50	0	0	0	21	32	12
cSH	1012	1700	1700	1700	883	1700	1700	1700	365	393
Volume to Capacity	0.02	0.18	0.18	0.03	0.02	0.15	0.15	0.01	0.29	0.09
Queue Length 95th (ft)	1	0	0	0	2	0	0	0	30	7
Control Delay (s)	8.6	0.0	0.0	0.0	9.2	0.0	0.0	0.0	18.9	15.1
Lane LOS	A				A				C	C
Approach Delay (s)	0.2				0.3				18.9	15.1
Approach LOS									C	C

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	29.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	21	469	4	575	15	20	34
Future Volume (vph)	21	469	4	575	15	20	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		125		75	0	0
Storage Lanes	1		1		1	1	0
Taper Length (ft)	100		100			100	
Satd. Flow (prot)	1703	3406	1792	3406	1524	1672	0
Flt Permitted	0.950					0.982	
Satd. Flow (perm)	1703	3406	1792	3406	1524	1672	0
Link Speed (mph)		55		55		55	
Link Distance (ft)		1066		1064		1004	
Travel Time (s)		13.2		13.2		12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	2%	2%
Shared Lane Traffic (%)							
Lane Group Flow (vph)	23	521	0	639	17	60	0
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		45		45		24	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		16		16		16	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Sign Control		Free		Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 27.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	21	469	4	575	15	20	34
Future Volume (Veh/h)	21	469	4	575	15	20	34
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	23	521	0	639	17	22	38
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		Raised		Raised			
Median storage veh)		1		1			
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	656		0			946	320
vC1, stage 1 conf vol						639	
vC2, stage 2 conf vol						306	
vCu, unblocked vol	656		0			946	320
tC, single (s)	4.2		0.0			6.8	6.9
tC, 2 stage (s)						5.8	
tF (s)	2.3		0.0			3.5	3.3
p0 queue free %	97		0			94	94
cM capacity (veh/h)	901		0			372	676

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	23	260	260	320	320	17	0	60
Volume Left	23	0	0	0	0	0	0	22
Volume Right	0	0	0	0	0	17	0	38
cSH	901	1700	1700	1700	1700	1700	1700	520
Volume to Capacity	0.03	0.15	0.15	0.19	0.19	0.01	0.00	0.12
Queue Length 95th (ft)	2	0	0	0	0	0	0	10
Control Delay (s)	9.1	0.0	0.0	0.0	0.0	0.0	0.0	12.8
Lane LOS	A							B
Approach Delay (s)	0.4			0.0				12.8
Approach LOS								B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	27.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	34	575	4	470	20	15	21
Future Volume (vph)	34	575	4	470	20	15	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		125		75	0	0
Storage Lanes	1		1		1	1	0
Taper Length (ft)	100		100			100	
Satd. Flow (prot)	1703	3406	1792	3406	1524	1681	0
Flt Permitted	0.950					0.979	
Satd. Flow (perm)	1703	3406	1792	3406	1524	1681	0
Link Speed (mph)		55		55		55	
Link Distance (ft)		1066		1064		1004	
Travel Time (s)		13.2		13.2		12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	2%	2%
Shared Lane Traffic (%)							
Lane Group Flow (vph)	38	639	0	522	22	40	0
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		45		45		24	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		16		16		16	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Sign Control		Free		Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 32.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	34	575	4	470	20	15	21
Future Volume (Veh/h)	34	575	4	470	20	15	21
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	38	639	0	522	22	17	23
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		Raised		Raised			
Median storage veh)		1		1			
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	544		0			918	261
vC1, stage 1 conf vol						522	
vC2, stage 2 conf vol						396	
vCu, unblocked vol	544		0			918	261
tC, single (s)	4.2		0.0			6.8	6.9
tC, 2 stage (s)						5.8	
tF (s)	2.3		0.0			3.5	3.3
p0 queue free %	96		0			96	97
cM capacity (veh/h)	994		0			388	738

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	38	320	320	261	261	22	0	40
Volume Left	38	0	0	0	0	0	0	17
Volume Right	0	0	0	0	0	22	0	23
cSH	994	1700	1700	1700	1700	1700	1700	533
Volume to Capacity	0.04	0.19	0.19	0.15	0.15	0.01	0.00	0.08
Queue Length 95th (ft)	3	0	0	0	0	0	0	6
Control Delay (s)	8.8	0.0	0.0	0.0	0.0	0.0	0.0	12.3
Lane LOS	A							B
Approach Delay (s)	0.5			0.0				12.3
Approach LOS								B

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	32.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	4	470	14	8	574	22	10
Future Volume (vph)	4	470	14	8	574	22	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		175	175		0	0
Storage Lanes	1		1	1		1	0
Taper Length (ft)	100			100		100	
Satd. Flow (prot)	1792	3406	1524	1687	3374	1709	0
Flt Permitted				0.950		0.967	
Satd. Flow (perm)	1792	3406	1524	1687	3374	1709	0
Link Speed (mph)		55			55	55	
Link Distance (ft)		999			1536	937	
Travel Time (s)		12.4			19.0	11.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	7%	7%	3%	3%
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	522	16	9	638	35	0
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Right	Left	Left	Left	Right
Median Width(ft)		45			45	12	
Link Offset(ft)		0			0	0	
Crosswalk Width(ft)		16			16	16	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9		9	15		15	9
Sign Control		Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 25.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	4	470	14	8	574	22	10
Future Volume (Veh/h)	4	470	14	8	574	22	10
Sign Control		Free			Free	Stop	
Grade		0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	522	16	9	638	24	11
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		Raised			Raised		
Median storage veh)		1			1		
Upstream signal (ft)							
pX, platoon unblocked	0.00						
vC, conflicting volume	0			538		859	261
vC1, stage 1 conf vol						522	
vC2, stage 2 conf vol						337	
vCu, unblocked vol	0			538		859	261
tC, single (s)	0.0			4.2		6.9	7.0
tC, 2 stage (s)						5.9	
tF (s)	0.0			2.3		3.5	3.3
p0 queue free %	0			99		94	99
cM capacity (veh/h)	0			992		411	735

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1
Volume Total	261	261	16	0	9	319	319	35
Volume Left	0	0	0	0	9	0	0	24
Volume Right	0	0	16	0	0	0	0	11
cSH	1700	1700	1700	1700	992	1700	1700	477
Volume to Capacity	0.15	0.15	0.01	0.00	0.01	0.19	0.19	0.07
Queue Length 95th (ft)	0	0	0	0	1	0	0	6
Control Delay (s)	0.0	0.0	0.0	0.0	8.7	0.0	0.0	13.1
Lane LOS					A			B
Approach Delay (s)	0.0				0.1			13.1
Approach LOS								B

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	25.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	4	574	23	10	470	14	7
Future Volume (vph)	4	574	23	10	470	14	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		175	175		0	0
Storage Lanes	1		1	1		1	0
Taper Length (ft)	100			100		100	
Satd. Flow (prot)	1792	3406	1524	1687	3374	1705	0
Flt Permitted				0.950		0.968	
Satd. Flow (perm)	1792	3406	1524	1687	3374	1705	0
Link Speed (mph)		55			55	55	
Link Distance (ft)		999			1536	937	
Travel Time (s)		12.4			19.0	11.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	7%	7%	3%	3%
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	638	26	11	522	24	0
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Right	Left	Left	Left	Right
Median Width(ft)		45			45	12	
Link Offset(ft)		0			0	0	
Crosswalk Width(ft)		16			16	16	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9		9	15		15	9
Sign Control		Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 25.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	4	574	23	10	470	14	7
Future Volume (Veh/h)	4	574	23	10	470	14	7
Sign Control		Free			Free	Stop	
Grade		0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	638	26	11	522	16	8
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		Raised			Raised		
Median storage veh)		1			1		
Upstream signal (ft)							
pX, platoon unblocked	0.00						
vC, conflicting volume	0			664		921	319
vC1, stage 1 conf vol						638	
vC2, stage 2 conf vol						283	
vCu, unblocked vol	0			664		921	319
tC, single (s)	0.0			4.2		6.9	7.0
tC, 2 stage (s)						5.9	
tF (s)	0.0			2.3		3.5	3.3
p0 queue free %	0			99		96	99
cM capacity (veh/h)	0			888		378	674

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1
Volume Total	319	319	26	0	11	261	261	24
Volume Left	0	0	0	0	11	0	0	16
Volume Right	0	0	26	0	0	0	0	8
cSH	1700	1700	1700	1700	888	1700	1700	443
Volume to Capacity	0.19	0.19	0.02	0.00	0.01	0.15	0.15	0.05
Queue Length 95th (ft)	0	0	0	0	1	0	0	4
Control Delay (s)	0.0	0.0	0.0	0.0	9.1	0.0	0.0	13.6
Lane LOS					A			B
Approach Delay (s)	0.0				0.2			13.6
Approach LOS								B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	25.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	667	362	223	0
Future Volume (vph)	0	0	667	362	223	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			275	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	100				100	
Satd. Flow (prot)	0	0	3438	1538	1752	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	3438	1538	1752	0
Link Speed (mph)		45	45		35	
Link Distance (ft)		676	1073		656	
Travel Time (s)		10.2	16.3		12.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	3%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	741	402	248	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	R NA	Left	Right	L NA	Right
Median Width(ft)		64	48		12	
Link Offset(ft)		0	8		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 37.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	667	362	223	0
Future Volume (Veh/h)	0	0	667	362	223	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	741	402	248	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		Raised	Raised			
Median storage veh)		2	1			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	741				741	370
vC1, stage 1 conf vol					741	
vC2, stage 2 conf vol					0	
vCu, unblocked vol	741				741	370
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				41	100
cM capacity (veh/h)	842				418	624

Direction, Lane #	WB 1	WB 2	WB 3	SB 1
Volume Total	370	370	402	248
Volume Left	0	0	0	248
Volume Right	0	0	402	0
cSH	1700	1700	1700	418
Volume to Capacity	0.22	0.22	0.24	0.59
Queue Length 95th (ft)	0	0	0	93
Control Delay (s)	0.0	0.0	0.0	25.4
Lane LOS				D
Approach Delay (s)	0.0			25.4
Approach LOS				D

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	434	223	362	0
Future Volume (vph)	0	0	434	223	362	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			275	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	100				100	
Satd. Flow (prot)	0	0	3438	1538	1752	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	3438	1538	1752	0
Link Speed (mph)		45	45		35	
Link Distance (ft)		676	1073		656	
Travel Time (s)		10.2	16.3		12.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	3%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	482	248	402	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	R NA	Left	Right	L NA	Right
Median Width(ft)		64	48		12	
Link Offset(ft)		0	8		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 38.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	434	223	362	0
Future Volume (Veh/h)	0	0	434	223	362	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	482	248	402	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		Raised	Raised			
Median storage veh)		2	1			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	482				482	241
vC1, stage 1 conf vol					482	
vC2, stage 2 conf vol					0	
vCu, unblocked vol	482				482	241
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				29	100
cM capacity (veh/h)	1056				569	757

Direction, Lane #	WB 1	WB 2	WB 3	SB 1
Volume Total	241	241	248	402
Volume Left	0	0	0	402
Volume Right	0	0	248	0
cSH	1700	1700	1700	569
Volume to Capacity	0.14	0.14	0.15	0.71
Queue Length 95th (ft)	0	0	0	142
Control Delay (s)	0.0	0.0	0.0	25.1
Lane LOS				D
Approach Delay (s)	0.0			25.1
Approach LOS				D

Intersection Summary			
Average Delay	8.9		
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		

2040 Representative
Build Alternative 65
SimTraffic Reports

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Summary of All Intervals

Start Time	6:50
End Time	8:00
Total Time (min)	70
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	24728
Vehs Exited	24617
Starting Vehs	501
Ending Vehs	612
Travel Distance (mi)	14232
Travel Time (hr)	588.3
Total Delay (hr)	257.1
Total Stops	13736
Fuel Used (gal)	566.7

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	24728
Vehs Exited	24617
Starting Vehs	501
Ending Vehs	612
Travel Distance (mi)	14232
Travel Time (hr)	588.3
Total Delay (hr)	257.1
Total Stops	13736
Fuel Used (gal)	566.7

Intersection: 401: Jenny Lind Rd & NC 903

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	75	25
Average Queue (ft)	38	2
95th Queue (ft)	63	11
Link Distance (ft)	1281	577
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 402: NC 903 & US 70 EB Ramps

Movement	EB	SB
Directions Served	LT	L
Maximum Queue (ft)	51	27
Average Queue (ft)	32	8
95th Queue (ft)	50	26
Link Distance (ft)	1276	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		225
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 403: NC 903 & US 70 WB Ramps

Movement	WB	WB	NB
Directions Served	LT	R	L
Maximum Queue (ft)	52	43	28
Average Queue (ft)	26	1	6
95th Queue (ft)	50	14	23
Link Distance (ft)	1330		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		100	250
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 404: Kennedy Home Rd/Eason Rd & US 70 Bus

Movement	EB	WB	NB	SB
Directions Served	L	L	LTR	LTR
Maximum Queue (ft)	22	56	947	949
Average Queue (ft)	4	25	423	820
95th Queue (ft)	18	54	884	1167
Link Distance (ft)			933	934
Upstream Blk Time (%)			2	53
Queuing Penalty (veh)			0	0
Storage Bay Dist (ft)	175	50		
Storage Blk Time (%)		5		
Queuing Penalty (veh)		18		

Intersection: 405: US 70 Bus & Banks School Rd

Movement	EB	SB
Directions Served	L	R
Maximum Queue (ft)	53	40
Average Queue (ft)	18	6
95th Queue (ft)	45	30
Link Distance (ft)		911
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	400	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 406: Industrial Dr & Sanderson Way

Movement	EB	WB	NB	SB	SB
Directions Served	LT	LTR	LT	L	TR
Maximum Queue (ft)	56	90	111	80	75
Average Queue (ft)	11	16	43	17	32
95th Queue (ft)	38	54	87	49	54
Link Distance (ft)	945	782	545		1972
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				150	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 407: Sanderson Way & US 70 Bus

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 408: Shopping Center Dr/Pinelawn Cemetery Dr & US 70 Bus

Movement	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	R	L	T	TR	LT	R	LTR
Maximum Queue (ft)	25	17	155	28	29	240	200	48
Average Queue (ft)	3	1	56	1	1	112	59	12
95th Queue (ft)	17	8	114	9	9	201	142	34
Link Distance (ft)				816	816	225		259
Upstream Blk Time (%)						4		
Queuing Penalty (veh)						0		
Storage Bay Dist (ft)	150	150	400				100	
Storage Blk Time (%)						28	0	
Queuing Penalty (veh)						44	0	

Intersection: 409: Sussex St/Hill Farm Rd & US 70 Bus

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	T	L	T	T	R	LT	R	L	LT	R
Maximum Queue (ft)	194	328	328	325	351	378	248	263	221	220	244	186
Average Queue (ft)	93	177	168	107	204	221	111	130	112	66	125	58
95th Queue (ft)	156	279	276	202	316	328	211	225	202	159	208	119
Link Distance (ft)		816	816		887	887		364			548	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300			225			450		125	325		100
Storage Blk Time (%)		0	1		6			14	6		18	0
Queuing Penalty (veh)		0	1		8			24	12		35	1

Intersection: 410: Sheffield Dr/Walmart Dr & US 70 Bus

Movement	EB	WB	NB	SB
Directions Served	L	L	R	R
Maximum Queue (ft)	21	92	56	234
Average Queue (ft)	3	32	6	108
95th Queue (ft)	16	68	33	205
Link Distance (ft)			356	219
Upstream Blk Time (%)				2
Queuing Penalty (veh)				0
Storage Bay Dist (ft)	225	250		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 411: US 70 Bus & US 258

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	SB	SB
Directions Served	L	L	T	T	T	U	T	T	R	L	L
Maximum Queue (ft)	98	118	170	198	77	50	308	358	196	162	140
Average Queue (ft)	40	61	73	82	13	4	150	168	45	65	99
95th Queue (ft)	90	101	145	154	50	22	281	311	123	130	143
Link Distance (ft)			960	960	960		598	598	598		2328
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	450	450				300				250	
Storage Blk Time (%)							0				
Queuing Penalty (veh)							0				

Intersection: 412: Driveway/Ruby Tuesday & US 70 Bus

Movement	EB	WB	NB	SB
Directions Served	L	L	R	R
Maximum Queue (ft)	26	24	50	26
Average Queue (ft)	2	3	17	15
95th Queue (ft)	14	16	37	35
Link Distance (ft)			128	166
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	300	150		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 413: US 70 Bus & Mt Vernon Park Dr

Movement	EB	EB	EB	WB	WB	WB	WB	SB
Directions Served	L	T	T	U	T	T	TR	LR
Maximum Queue (ft)	78	241	254	31	265	191	179	157
Average Queue (ft)	24	58	69	5	105	81	51	54
95th Queue (ft)	59	152	163	21	208	161	125	110
Link Distance (ft)		525	525		861	861	861	340
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	175			75				
Storage Blk Time (%)		1			8			
Queuing Penalty (veh)		0			0			

Intersection: 414: Hillcrest Rd & Old US 70 Bus

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	R	LT	R
Maximum Queue (ft)	174	323	242	324	222	184	20	296	203	79	72
Average Queue (ft)	19	195	149	148	116	98	5	105	96	32	24
95th Queue (ft)	90	276	246	264	194	180	18	192	159	72	60
Link Distance (ft)		785	785		949	949	449				348
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	75			300				225	225	75	
Storage Blk Time (%)		38		1				0		2	1
Queuing Penalty (veh)		5		3				0		0	0

Intersection: 415: NC 11 & US 70 Bus

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	L	L	T	TR
Maximum Queue (ft)	292	310	168	169	92	267	311	271	149	172	279	340
Average Queue (ft)	137	179	114	92	29	133	191	156	47	107	167	194
95th Queue (ft)	248	260	161	156	63	219	270	234	124	165	261	288
Link Distance (ft)			975	975			989	989			983	983
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	325	325			475	275			275	275		
Storage Blk Time (%)		0				0	1				0	
Queuing Penalty (veh)		0				0	1				0	

Intersection: 415: NC 11 & US 70 Bus

Movement	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	R
Maximum Queue (ft)	29	71	221	180	287
Average Queue (ft)	1	23	132	93	120
95th Queue (ft)	11	53	197	184	212
Link Distance (ft)			914	914	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	400	400			400
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 416: US 258/Old US 70 Bus & US 70 Bus

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	T	L	T	T	R	L	T	T	R
Maximum Queue (ft)	184	105	105	92	74	191	219	514	216	292	328	93
Average Queue (ft)	43	51	50	36	16	97	109	32	107	125	167	22
95th Queue (ft)	107	86	95	82	48	179	199	229	187	228	259	62
Link Distance (ft)		627	627	627		1931	1931	1931			481	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	225				225				400	400		275
Storage Blk Time (%)											1	
Queuing Penalty (veh)											3	

Intersection: 416: US 258/Old US 70 Bus & US 70 Bus

Movement	SB	SB	SB	SB
Directions Served	L	L	T	TR
Maximum Queue (ft)	231	271	187	215
Average Queue (ft)	110	154	71	83
95th Queue (ft)	207	247	125	151
Link Distance (ft)			951	951
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	275	275		
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection: 417: Meadowbrook Dr/Family Dollar Driveway & US 70 Bus

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	T	TR	L	T	T	TR	L	TR	LTR
Maximum Queue (ft)	18	92	169	155	70	70	115	133	112	89	28
Average Queue (ft)	1	29	35	44	16	10	37	34	64	32	10
95th Queue (ft)	8	71	94	114	44	38	82	90	103	75	30
Link Distance (ft)		1931	1931	1931		2404	2404	2404		961	211
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	225				225				75		
Storage Blk Time (%)									10	2	
Queuing Penalty (veh)									3	2	

Intersection: 418: NC 58/Trenton Hwy & US 70 Bus

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	TR	L	LT	R	LT
Maximum Queue (ft)	140	158	193	211	235	206	202	233	374	526	200	197
Average Queue (ft)	36	76	85	13	112	76	87	106	165	224	73	90
95th Queue (ft)	85	140	156	94	198	161	163	187	277	363	232	172
Link Distance (ft)		2404	2404	2404			1703	1703		758		573
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	100				225	225			275		100	
Storage Blk Time (%)	1	6			1	0			1	47		11
Queuing Penalty (veh)	2	3			1	0			4	183		10

Intersection: 418: NC 58/Trenton Hwy & US 70 Bus

Movement	SB
Directions Served	R
Maximum Queue (ft)	183
Average Queue (ft)	58
95th Queue (ft)	116
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	100
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 419: Lenoir CC Driveway & US 70 Bus

Movement	WB	NB
Directions Served	L	R
Maximum Queue (ft)	27	85
Average Queue (ft)	4	35
95th Queue (ft)	21	59
Link Distance (ft)		364
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	150	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 420: US 70 Bus & Neuse Rd

Movement	EB	WB	SB
Directions Served	L	U	LR
Maximum Queue (ft)	79	21	196
Average Queue (ft)	22	1	70
95th Queue (ft)	54	7	166
Link Distance (ft)			917
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	350	175	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 421: Whaley Rd & US 70 Bus

Movement	EB	WB	NB
Directions Served	U	L	LR
Maximum Queue (ft)	24	50	90
Average Queue (ft)	2	9	41
95th Queue (ft)	11	31	76
Link Distance (ft)			894
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150	150	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 422: US 70 Bus & British Rd

Movement	EB	WB	SB
Directions Served	L	U	LR
Maximum Queue (ft)	48	25	30
Average Queue (ft)	10	2	6
95th Queue (ft)	33	11	21
Link Distance (ft)			934
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150	125	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 423: Wyse Fork Rd/Caswell Rd & US 70 Bus

Movement	EB	NB	SB
Directions Served	L	LTR	LTR
Maximum Queue (ft)	10	92	88
Average Queue (ft)	0	39	31
95th Queue (ft)	3	80	62
Link Distance (ft)		891	936
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 424: US 70 Bus & Tilghman Rd

Movement	EB	WB	SB
Directions Served	L	U	LR
Maximum Queue (ft)	30	24	84
Average Queue (ft)	9	2	22
95th Queue (ft)	29	14	51
Link Distance (ft)			917
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150	125	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 425: Burkett Rd & US 70 Bus

Movement	EB	WB	NB
Directions Served	U	L	LR
Maximum Queue (ft)	25	28	50
Average Queue (ft)	2	3	21
95th Queue (ft)	14	17	42
Link Distance (ft)			858
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	175	175	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 1414: US 70 Bus & Hillcrest Rd

Movement	SB
Directions Served	L
Maximum Queue (ft)	332
Average Queue (ft)	152
95th Queue (ft)	283
Link Distance (ft)	449
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 364

Summary of All Intervals

Run Number	1	2	3	4	5		Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	24305	24330	24482	24520	24383	24572	24430
Vehs Exited	24278	24342	24490	24463	24352	24543	24410
Starting Vehs	532	531	520	507	532	506	507
Ending Vehs	559	519	512	564	563	535	525
Travel Distance (mi)	14077	14118	14234	14209	14238	14222	14183
Travel Time (hr)	545.1	549.1	544.5	554.8	565.2	552.8	551.9
Total Delay (hr)	216.7	220.2	212.8	223.3	232.7	221.5	221.2
Total Stops	13939	13653	13977	14075	14331	13884	13974
Fuel Used (gal)	555.2	555.9	559.3	561.1	565.3	562.5	559.9

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5		Avg
Vehs Entered	24305	24330	24482	24520	24383	24572	24430
Vehs Exited	24278	24342	24490	24463	24352	24543	24410
Starting Vehs	532	531	520	507	532	506	507
Ending Vehs	559	519	512	564	563	535	525
Travel Distance (mi)	14077	14118	14234	14209	14238	14222	14183
Travel Time (hr)	545.1	549.1	544.5	554.8	565.2	552.8	551.9
Total Delay (hr)	216.7	220.2	212.8	223.3	232.7	221.5	221.2
Total Stops	13939	13653	13977	14075	14331	13884	13974
Fuel Used (gal)	555.2	555.9	559.3	561.1	565.3	562.5	559.9

Intersection: 401: Jenny Lind Rd & NC 903

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	71	40	7
Average Queue (ft)	34	6	0
95th Queue (ft)	58	25	4
Link Distance (ft)	1281	577	432
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 402: NC 903 & US 70 EB Ramps

Movement	EB	EB	NB	SB
Directions Served	LT	R	R	L
Maximum Queue (ft)	55	43	3	50
Average Queue (ft)	25	2	0	9
95th Queue (ft)	49	19	2	32
Link Distance (ft)	1276			
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		100	150	225
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection: 403: NC 903 & US 70 WB Ramps

Movement	WB	NB	SB
Directions Served	LT	L	R
Maximum Queue (ft)	75	38	4
Average Queue (ft)	38	8	0
95th Queue (ft)	63	28	3
Link Distance (ft)	1330		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		250	150
Storage Blk Time (%)	0		
Queuing Penalty (veh)	0		

Intersection: 404: Kennedy Home Rd/Eason Rd & US 70 Bus

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	R	L	T	R	LTR	LTR
Maximum Queue (ft)	40	10	4	92	52	9	322	510
Average Queue (ft)	7	0	0	32	2	0	125	288
95th Queue (ft)	26	6	3	68	24	6	302	581
Link Distance (ft)		1158			834		933	934
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	175		250	50		50		
Storage Blk Time (%)				3		0		
Queuing Penalty (veh)				19		0		

Intersection: 405: US 70 Bus & Banks School Rd

Movement	EB	WB	WB	SB
Directions Served	L	T	R	R
Maximum Queue (ft)	112	7	13	45
Average Queue (ft)	42	0	1	3
95th Queue (ft)	87	4	9	21
Link Distance (ft)		1085		911
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	400		150	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 406: Industrial Dr & Sanderson Way

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LT	LTR	LT	R	L	TR
Maximum Queue (ft)	37	34	95	82	77	102
Average Queue (ft)	3	3	38	11	30	41
95th Queue (ft)	19	19	72	50	60	72
Link Distance (ft)	945	782	545	545		1972
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)					150	
Storage Blk Time (%)	0					
Queuing Penalty (veh)	0					

Intersection: 407: Sanderson Way & US 70 Bus

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 408: Shopping Center Dr/Pinelawn Cemetery Dr & US 70 Bus

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	T	R	L	T	TR	LT	R	LTR
Maximum Queue (ft)	18	10	5	32	155	5	11	261	200	114
Average Queue (ft)	2	0	0	2	66	0	0	163	101	27
95th Queue (ft)	12	6	4	14	126	4	7	293	236	90
Link Distance (ft)		1045	1045			816	816	225		259
Upstream Blk Time (%)								30		
Queuing Penalty (veh)								0		
Storage Bay Dist (ft)	150			150	400				100	
Storage Blk Time (%)								64	3	
Queuing Penalty (veh)								96	2	

Intersection: 409: Sussex St/Hill Farm Rd & US 70 Bus

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	LT	R	L	LT
Maximum Queue (ft)	231	331	324	58	232	288	298	206	260	200	228	274
Average Queue (ft)	102	235	215	4	124	164	169	81	102	97	97	172
95th Queue (ft)	194	328	313	64	219	263	272	163	198	173	203	258
Link Distance (ft)		816	816			887	887		364			548
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300			250	225			450		125	325	
Storage Blk Time (%)	0	1	3		3	2			7	7		37
Queuing Penalty (veh)	0	1	3		8	3			9	8		80

Intersection: 409: Sussex St/Hill Farm Rd & US 70 Bus

Movement	SB
Directions Served	R
Maximum Queue (ft)	200
Average Queue (ft)	84
95th Queue (ft)	194
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	100
Storage Blk Time (%)	1
Queuing Penalty (veh)	3

Intersection: 410: Sheffield Dr/Walmart Dr & US 70 Bus

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	TR	L	R	R	R
Maximum Queue (ft)	50	8	4	112	15	37	148
Average Queue (ft)	11	0	0	42	1	2	60
95th Queue (ft)	35	6	2	91	8	17	112
Link Distance (ft)		887			960	356	219
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	225		150	250			
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 411: US 70 Bus & US 258

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	SB	SB
Directions Served	L	L	T	T	T	U	T	T	R	L	L
Maximum Queue (ft)	127	133	259	271	215	30	304	328	119	146	167
Average Queue (ft)	62	77	83	92	25	4	132	140	40	61	87
95th Queue (ft)	116	124	184	196	113	23	249	260	97	116	141
Link Distance (ft)			960	960	960		598	598	598		2328
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	450	450				300				250	
Storage Blk Time (%)							0				
Queuing Penalty (veh)							0				

Intersection: 412: Driveway/Ruby Tuesday & US 70 Bus

Movement	EB	WB	NB	SB
Directions Served	L	L	R	R
Maximum Queue (ft)	36	29	33	34
Average Queue (ft)	4	4	9	11
95th Queue (ft)	21	19	28	32
Link Distance (ft)			128	166
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	300	150		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 413: US 70 Bus & Mt Vernon Park Dr

Movement	EB	EB	EB	WB	WB	WB	WB	SB
Directions Served	L	T	T	U	T	T	TR	LR
Maximum Queue (ft)	76	222	231	30	144	138	120	122
Average Queue (ft)	23	54	66	4	61	52	43	46
95th Queue (ft)	58	148	165	20	126	116	99	93
Link Distance (ft)		525	525		861	861	861	340
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	175			75				
Storage Blk Time (%)		0			4			
Queuing Penalty (veh)		0			0			

Intersection: 414: Hillcrest Rd & Old US 70 Bus

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	R	LT	R
Maximum Queue (ft)	152	307	261	385	402	267	47	148	136	64	54
Average Queue (ft)	19	198	160	225	116	92	7	69	64	23	14
95th Queue (ft)	88	292	263	356	261	188	30	120	114	57	44
Link Distance (ft)		785	785		949	949	449				348
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	75			300				225	225	75	
Storage Blk Time (%)	0	41		5	0			0	0	1	0
Queuing Penalty (veh)	0	8		18	0			0	0	0	0

Intersection: 415: NC 11 & US 70 Bus

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	L	L	T	TR
Maximum Queue (ft)	239	267	298	267	191	224	218	184	115	159	216	236
Average Queue (ft)	95	147	190	163	94	116	122	84	20	76	116	130
95th Queue (ft)	206	232	273	250	168	197	192	161	72	137	189	213
Link Distance (ft)			975	975			989	989			983	983
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	325	325			475	275			275	275		
Storage Blk Time (%)			0			0	0					
Queuing Penalty (veh)			0			0	0					

Intersection: 415: NC 11 & US 70 Bus

Movement	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	R
Maximum Queue (ft)	59	182	443	412	252
Average Queue (ft)	9	57	256	223	105
95th Queue (ft)	42	127	379	349	182
Link Distance (ft)			914	914	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	400	400			400
Storage Blk Time (%)			1	0	
Queuing Penalty (veh)			1	1	

Intersection: 416: US 258/Old US 70 Bus & US 70 Bus

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	T	L	T	T	R	L	T	T	R
Maximum Queue (ft)	132	177	192	165	119	167	196	73	131	191	215	83
Average Queue (ft)	47	97	100	76	30	57	79	2	65	81	116	22
95th Queue (ft)	102	161	167	144	78	136	157	56	118	164	188	62
Link Distance (ft)		627	627	627		1931	1931	1931			481	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	225				225				400	400		275
Storage Blk Time (%)						0						
Queuing Penalty (veh)						0						

Intersection: 416: US 258/Old US 70 Bus & US 70 Bus

Movement	SB	SB	SB	SB
Directions Served	L	L	T	TR
Maximum Queue (ft)	305	337	253	247
Average Queue (ft)	161	201	102	124
95th Queue (ft)	254	289	189	208
Link Distance (ft)			951	951
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	275	275		
Storage Blk Time (%)	0	2		
Queuing Penalty (veh)	0	3		

Intersection: 417: Meadowbrook Dr/Family Dollar Driveway & US 70 Bus

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	T	TR	L	T	T	TR	L	TR	LTR
Maximum Queue (ft)	20	104	139	157	61	90	110	95	87	71	51
Average Queue (ft)	1	33	52	56	15	16	27	27	41	25	12
95th Queue (ft)	9	82	118	128	45	55	76	73	78	60	38
Link Distance (ft)		1931	1931	1931		2404	2404	2404		961	211
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	225				225				75		
Storage Blk Time (%)									2	0	
Queuing Penalty (veh)									1	0	

Intersection: 418: NC 58/Trenton Hwy & US 70 Bus

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	TR	L	LT	R	LT
Maximum Queue (ft)	190	229	229	209	232	205	140	173	229	293	199	189
Average Queue (ft)	62	107	118	13	120	56	70	92	110	169	34	90
95th Queue (ft)	135	194	199	101	202	140	126	158	212	261	158	163
Link Distance (ft)		2404	2404	2404			1703	1703		758		573
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	100				225	225			275		100	
Storage Blk Time (%)	5	12			2	0			0	36		11
Queuing Penalty (veh)	12	10			2	1			0	102		5

Intersection: 418: NC 58/Trenton Hwy & US 70 Bus

Movement	SB
Directions Served	R
Maximum Queue (ft)	142
Average Queue (ft)	42
95th Queue (ft)	95
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	100
Storage Blk Time (%)	1
Queuing Penalty (veh)	1

Intersection: 419: Lenoir CC Driveway & US 70 Bus

Movement	EB	WB	NB
Directions Served	R	L	R
Maximum Queue (ft)	7	38	55
Average Queue (ft)	0	9	22
95th Queue (ft)	4	31	44
Link Distance (ft)			364
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150	150	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 420: US 70 Bus & Neuse Rd

Movement	EB	WB	WB	SB
Directions Served	L	U	R	LR
Maximum Queue (ft)	94	23	8	118
Average Queue (ft)	32	2	0	24
95th Queue (ft)	67	14	6	82
Link Distance (ft)				917
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	350	175	150	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 421: Whaley Rd & US 70 Bus

Movement	EB	EB	WB	NB
Directions Served	U	R	L	LR
Maximum Queue (ft)	24	7	60	91
Average Queue (ft)	1	0	12	26
95th Queue (ft)	9	5	39	62
Link Distance (ft)				894
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	150	150	150	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 422: US 70 Bus & British Rd

Movement	EB	WB	SB
Directions Served	L	U	LR
Maximum Queue (ft)	45	24	42
Average Queue (ft)	14	3	4
95th Queue (ft)	38	15	20
Link Distance (ft)			934
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150	125	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 423: Wyse Fork Rd/Caswell Rd & US 70 Bus

Movement	EB	WB	NB	SB
Directions Served	L	L	LTR	LTR
Maximum Queue (ft)	1	7	198	67
Average Queue (ft)	0	0	71	21
95th Queue (ft)	0	4	162	53
Link Distance (ft)			891	936
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	150	200		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 424: US 70 Bus & Tilghman Rd

Movement	EB	WB	WB	SB
Directions Served	L	U	T	LR
Maximum Queue (ft)	56	20	4	57
Average Queue (ft)	13	2	0	14
95th Queue (ft)	41	12	3	37
Link Distance (ft)			1005	917
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	150	125		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 425: Burkett Rd & US 70 Bus

Movement	EB	WB	NB
Directions Served	U	L	LR
Maximum Queue (ft)	16	34	42
Average Queue (ft)	1	5	12
95th Queue (ft)	8	22	32
Link Distance (ft)			858
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	175	175	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 1414: US 70 Bus & Hillcrest Rd

Movement	SB
Directions Served	L
Maximum Queue (ft)	424
Average Queue (ft)	248
95th Queue (ft)	392
Link Distance (ft)	449
Upstream Blk Time (%)	0
Queuing Penalty (veh)	1
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 397

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