US 401 Widening
Wake/Franklin County
STIP Project No. R-2814D

Traffic Operations Analysis
Technical Memorandum

Prepared For:
North Carolina Department of Transportation

Prepared By:
Patriot Transportation Engineering, PLLC

January 2019

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Under a contract with the North Carolina Department of Transportation (NCDOT), Dewberry Engineering, Inc. (Dewberry) has been requested to assist NCDOT in the development of the final design of State Transportation Improvement Program (STIP) Project Number R-2814D; Widen US 401 (Louisburg Rd) to a four-lane divided facility from SR 1103 (Flat Rock Church Road/Clifton Pond Road) to SR 1700 (Fox Park Road) in Franklin County. Patriot Transportation Engineering, PLLC (Patriot), as a subconsultant to Dewberry, has been contracted to develop the traffic capacity analysis for the subject project.

The purpose of this technical memorandum is to analyze the traffic operations for the proposed design for R-2814D. The study includes the analysis of the 2017 and 2040 No-Build Scenarios and 2040 Build scenarios. The analysis utilizes Synchro/SimTraffic (Version 10.1, build 2, revision 20) for both signalized and unsignalized intersections.

R-2814D proposes to widen US 401 (Louisburg Rd) to a four-lane divided facility from SR 1103 (Flat Rock Church Road/Clifton Pond Road) to SR 1700 (Fox Park Road) in Franklin County. The subject project is scheduled for right-of-way in FY 2022 and construction in FY 2024, based on the 2018-2027 STIP. This project is a part of a larger widening project for US 401 undertaken under STIP R-2814. A superstreet configuration is recommended for US 401 between Zebulon Road and Flat Rock Church Road under R-2814 C. To maintain uniformity in cross sections and access control strategy, it is recommended that this portion of US 401 be also converted into a superstreet. Additionally, the US 401 at NC 56/Burke Blvd intersection, included in STIP U-6024 was assumed to be a reverse superstreet configuration to maintain consistency.

The project area includes US 401 which is currently a two-lane undivided section with turn lanes at necessary intersections. US 401 is considered principal north-south arterial with a 2016 AADT ranging between 9,100 and 9,600 vpd.

The analysis of the proposed project includes the evaluation of one build alternative that provides additional capacity and access control. The future year build design alternative is a four-lane superstreet design.

2017 No-Build Model Results

The overall intersection LOS for all signalized intersections in the 2017 Base Year No-Build scenario shows that all of the intersections are operating at LOS C or better in both the AM and PM peak hours.

Based on a review of the intersection operations at the lane group level, the following movements operate at LOS_S E or F in the 2017 Base Year No-Build scenario:

AM peak period

- US 401 (Louisburg Rd) at NC 56/Burke Boulevard, westbound through/left operates at LOS E

PM peak period

- US 401 (Louisburg Rd) at NC 56/Burke Boulevard, westbound through/left operates at LOS E

Based on a review of the unsignalized intersections, all movements operate at LOS C or better in both the AM and PM peak hours. A review of the queue data showed that, in general, the system is adequately processing traffic such that queued traffic is not affecting the operations of adjacent locations.

2040 Future Year No-Build Model Results

The overall intersection LOS for all signalized intersections in the 2040 Future Year No-Build scenario shows that all of the intersections are operating at LOS C or better in both the AM and PM peak hours.

Based on a review of the intersection operations at the lane group level, the following movements operate at LOS_S E or F in the 2040 Future Year No-Build scenario:

AM peak period

- US 401 (Louisburg Rd) at Retail Way, eastbound right operates at LOS E
- US 401 (Louisburg Rd) at NC 56/Burke Boulevard, westbound right operates at LOS E

PM peak period

- US 401 (Louisburg Rd) at Retail Way, eastbound right operates at LOS E
- US 401 (Louisburg Rd) at NC 56/Burke Boulevard, westbound right and left operate at LOS E

Based on a review of the unsignalized intersections, all movements operate at LOS D or better in both the AM and PM peak hour, except for the US 401 (Louisburg Rd) at SR 1110 (EF Cottrell Rd) intersection, which operates at LOS F in both hours. A review of the queue data showed that, in general, the system is adequately processing traffic such that queued traffic is not affecting the operations of adjacent locations.

2040 Future Year Build Model Results

The overall intersection LOS for all signalized intersections in the 2040 Future Year Build scenario shows that all of the intersections are operating at LOS C or better in both the AM and PM peak hours.

Based on a review of the intersection operations at the lane group level, the following movements operate at LOS_S E or F in the 2017 Base Year No-Build scenario:wq

AM peak period

- US 401 (Louisburg Rd) at Retail Way, eastbound right operates at LOS E

PM peak period

- US 401 (Louisburg Rd) at Retail Way, eastbound right operates at LOS E
- US 401 (Louisburg Rd) at NC 56/Burke Boulevard, westbound right operates at LOS E

Based on a review of the unsignalized intersections, all movements operate at LOS D or better in both the AM and PM peak hours. A review of the queue data showed that, in general, the system is adequately processing traffic such that queued traffic is not affecting the operations of adjacent locations.

Conclusions and Recommendations

Based on the results of the analysis, it is recommended that the proposed four-lane superstreet design be carried forward as it improves operations when compared to the 2040 No-Build and provides adequate traffic operations throughout the network. All intersections in the study area operate at LOS D or better in the 2040 Future Year Build and the system is adequately processing traffic such that queued traffic is not affecting the operations of adjacent locations.

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1. PROJECT BACKGROUND

Under a contract with the North Carolina Department of Transportation (NCDOT), Dewberry Engineering, Inc. (Dewberry) has been requested to assist NCDOT in the development of the final design of State Transportation Improvement Program (STIP) Project Number R-2814D; Widen US 401 (Louisburg Rd) to a four-lane divided facility from SR 1103 (Flat Rock Church Road/Clifton Pond Road) to SR 1700 (Fox Park Road) in Franklin County. Patriot Transportation Engineering, PLLC (Patriot), as a subconsultant to Dewberry, has been contracted to develop the traffic capacity analysis for the subject project.

1.1 PURPOSE OF TECHNICAL MEMORANDUM

The purpose of this technical memorandum is to analyze the traffic operations for the proposed design for R-2814D. The study includes the analysis of the 2017 and 2040 No-Build Scenarios and 2040 Build scenarios. The analysis utilizes Synchro/SimTraffic (Version 10.1, build 2, revision 20) for both signalized and unsignalized intersections.

1.2 PROJECT DESCRIPTION

R-2814D proposes to widen US 401 (Louisburg Rd) to a four-lane divided facility from SR 1103 (Flat Rock Church Road/Clifton Pond Road) to SR 1700 (Fox Park Road) in Franklin County. The subject project is scheduled for right-of-way in FY 2022 and construction in FY 2024, based on the 2018-2027 STIP. This project is a part of a larger widening project for US 401 undertaken under STIP R-2814. A superstreet configuration is recommended for US 401 between Zebulon Road and Flat Rock Church Road under R-2814 C. To maintain uniformity in cross sections and access control strategy, it is recommended that this portion of US 401 be also converted into a superstreet. Additionally, the US 401 at NC 56/Burke Blvd intersection, included in STIP U-6024 was assumed to be a reverse superstreet configuration to maintain consistency.

The project area includes US 401 which is currently a two-lane undivided section with turn lanes at necessary intersections. US 401 is considered principal north-south arterial with a 2016 AADT ranging between 9,100 and 9,600 vpd.

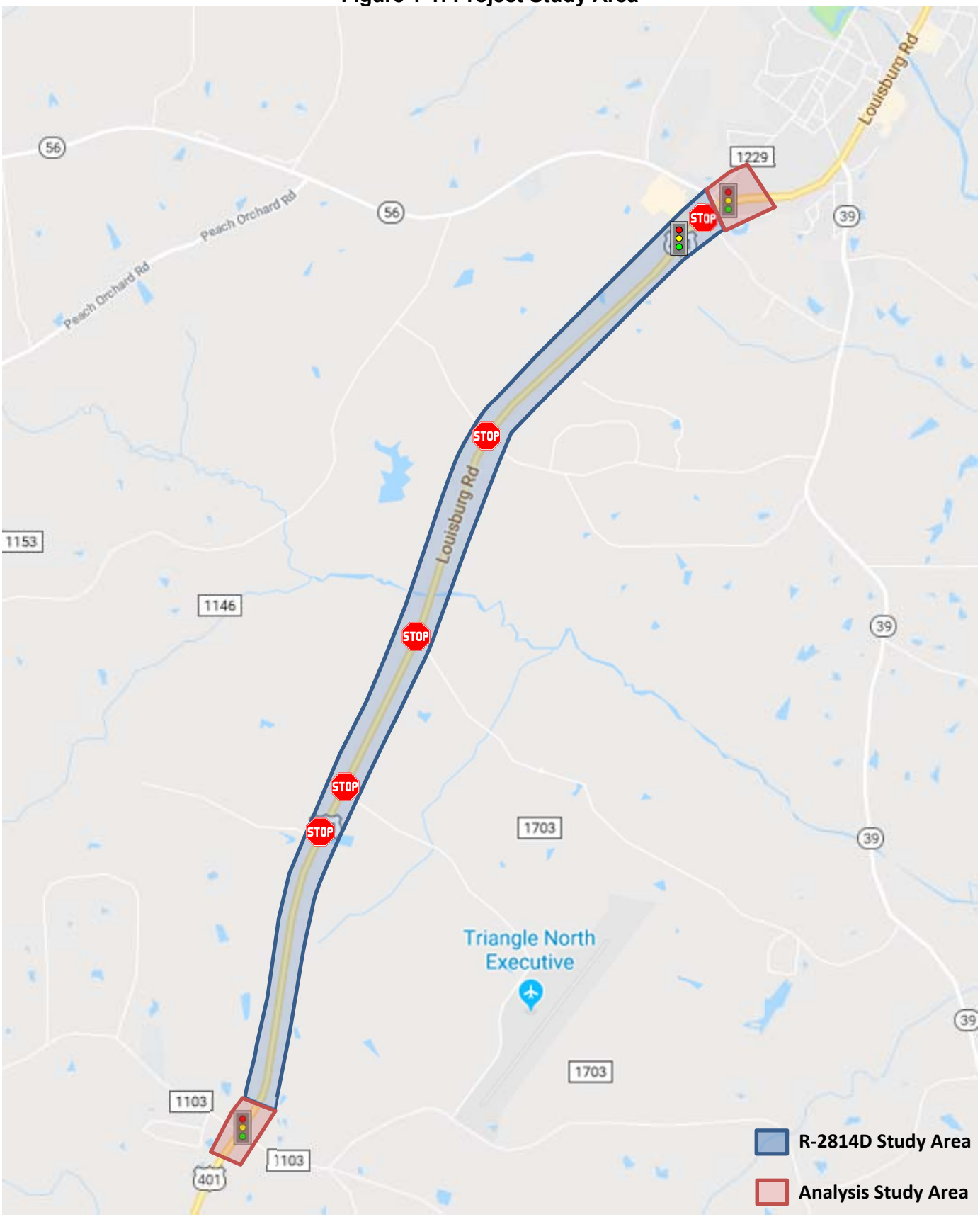
The following intersections are included in the analysis study area and shown in Figure 1-1:

- US 401 (Louisburg Road) and SR 1103 (Flat Rock Church Road) – Signalized*
- US 401 (Louisburg Road) and SR 1986 (Huntsburg Drive) – Unsignalized
- US 401 (Louisburg Road) and SR 1798 (Airport Road) – Unsignalized
- US 401 (Louisburg Road) and SR 1702 (Bennette Perry Road) – Unsignalized
- US 401 (Louisburg Road) and SR 1110 (EF Cottrell Road) – Unsignalized
- US 401 (Louisburg Road) and Retail Way – Signalized
- US 401 (Louisburg Road) and SR 1700 (Fox Park Road)/Driveway – Unsignalized
- US 401 (Louisburg Road) and NC 56/Burke Boulevard – Signalized**

*included in design for R-2814C
**included in design for U-6024

The analysis of the proposed project includes the evaluation of one build alternative that provides additional capacity and access control. The future year build design alternative is a four-lane superstreet design.

Figure 1-1: Project Study Area



2. DESCRIPTION OF SCENARIOS ANALYZED

The scenarios that require analysis as a part of this study include analysis of both existing and future conditions, both with and without the project. The following scenarios were evaluated for traffic operations.

2.1 2017 BASE YEAR NO-BUILD CONDITIONS

The Base Year No-Build analysis is based on the current traffic volumes and the existing configuration of the transportation network within the project study area. This analysis provides a baseline for comparison against future scenarios.

2.2 2040 FUTURE YEAR NO-BUILD SCENARIO

This scenario evaluated what the traffic operations will be in the vicinity of the proposed project in the design year 2040 if the proposed project is or is not constructed. For the study area the following projects are included in the 2040 Future No-Build Scenario:

- U-6024 – Convert US 401, 5-lane section to 4-lane divided facility with bicycle/pedestrian accommodations from Burke Boulevard to NC 56/NC 581 (Nash Street) in Louisburg
- R-2814C – Widen US 401 from NC 96 to just north of SR 1103 (Flat Rock Church/Clifton Pond Rd)

2.3 2040 FUTURE YEAR BUILD SCENARIOS

This scenario evaluated what the traffic operations will be in the vicinity of the proposed project in the design year 2040 if the proposed projects is constructed. The 2040 Future Year Build analysis includes the following Build Alternatives:

- Four-lane superstreet design

3. METHODOLOGY

Synchro and SimTraffic (Version 10.1, build 2, revision 20) was utilized to analyze signalized and unsignalized intersections. The capacity analysis model was developed for the existing and future no-build alternatives for the project based on all relevant background information for the area, including lane configurations, signal plans and any planned future projects. Once the base model was developed, the future year build alternatives could be developed and their results compared. Each scenario model was created in accordance with the *NCDOT Congestion Management Capacity Analysis Guidelines* (Effective July 1, 2015).

4. MEASURES OF EFFECTIVENESS

Measures of Effectiveness (MOE) are system performance statistics that best characterize the degree to which a particular alternative meets the project objectives. For arterial corridors, the primary MOEs are control delay, Level of Service and queue lengths.

The intersection capacity analysis is based on methodologies from Volume 3 (Interrupted Flow) – Chapters 19 through 22 of the Highway Capacity Manual (6th Edition). For this analysis it was determined that the use of intersection level MOEs, such as control delay and level of service at each intersection, would be used as the primary method of comparison for alternatives. The queue lengths also played a substantial role in the evaluation and includes queue lengths for each lane group for each approach to the intersection. Table 4-1 defines the LOS for signalized and unsignalized intersections in terms of delay in seconds per vehicle.

Table 4-1: LOS Criteria for Intersections

Level of Service	Stop Controlled Intersections (sec/veh)	Signalized Intersections (sec/veh)	Roundabouts (sec/veh)
A	≤10	≤10	≤10
B	>10-15	>10-20	>10-15
C	>15-25	>20-35	>15-25
D	>25-35	>35-55	>25-35
E	>35-50	>55-80	>35-50
F	>50, or v/c > 1	>80, or v/c > 1	>50, or v/c > 1

Source: HCM 6th Edition, Transportation Research Board

5. TRAFFIC VOLUME DEVELOPMENT

The primary source of volume data for this study was the *Traffic Forecast Report for R-2814D, R-3608 and U-6024* (HNTB, P.C.; December 2017). The traffic forecast included four scenarios: the 2017 Base Year No-Build and Build and the 2040 Future Year No-Build and Build. Average Annual Daily Traffic (AADT) data included in the traffic forecast was converted to peak hour volumes utilizing the Intersection Analysis Utility (IAU). A copy of the traffic forecast diagrams are included in Appendix A and IAUs are included in Appendix B.

5.1 VOLUME BALANCING AND REROUTING

The traffic volumes for this network were balanced by holding the intersection of US 401 and EF Cottrell Rd constant and balancing the through movements in each direction. Additionally, the future build alternatives include a superstreet design which required manual rerouting of the IAUs. The step by step rerouting of the traffic volumes is included in Appendix C.

6. 2017 BASE YEAR NO-BUILD ANALYSIS

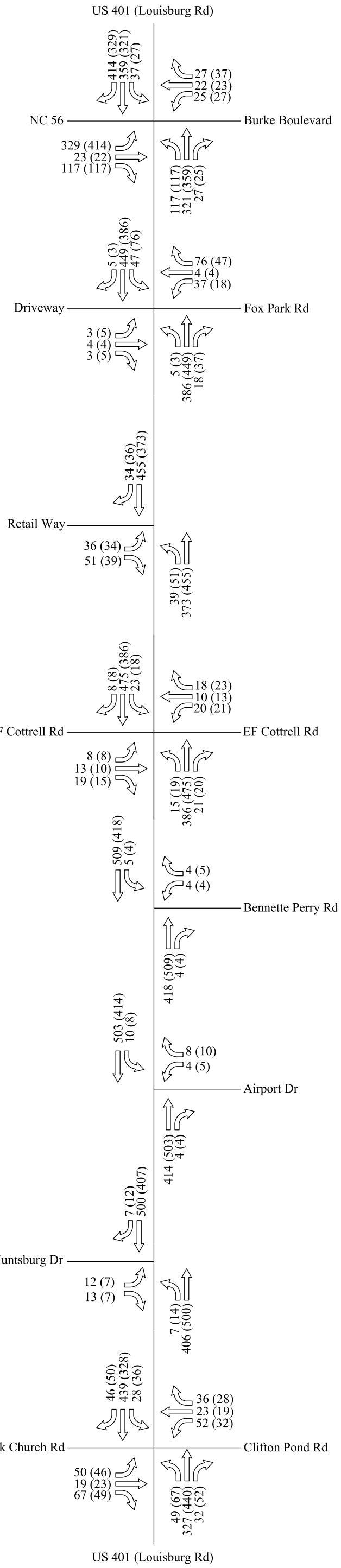
6.1 MODEL GEOMETRY

The basis for developing the geometric data was aerial photography and knowledge based on field observations. The internal Bing Maps aerial photography was used as a background to digitize the network into the Synchro model.

The signal phasing for the signalized intersections were coded in the network according to the signal design plans collected for this study and included in Appendix D.

6.2 VOLUME DATA

The peak hour traffic volumes were developed as described in Section 5. The peak period volumes for the 2017 Base Year No-Build intersection analysis are shown in Figure 6-1.



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*The US 401 volumes were balanced by holding EF Cottrell Rd constant and balancing the through movements in each direction

STIP R-2814D
2017 Existing Year No-Build
Figure 6-1

AM (PM) Turning Movement Volumes

6.3 2017 BASE YEAR NO-BUILD MODEL RESULTS

The output data was extracted from the Synchro and SimTraffic model in accordance with the MOEs defined in Section 4 and are summarized in the following sections.

6.3.1 INTERSECTION RESULTS

The results of the intersection analysis along the arterial portions of the study area are included in Table 6-1 and Figure 6-2. The Synchro/SimTraffic reports are included in Appendix E.

The overall intersection LOS for all signalized intersections in the 2017 Base Year No-Build scenario shows that all of the intersections are operating at LOS C or better in both the AM and PM peak hours.

Based on a review of the intersection operations at the lane group level, the following movements operate at LOS_S E or F in the 2017 Base Year No-Build scenario:

AM peak period

- US 401 (Louisburg Rd) at NC 56/Burke Boulevard, westbound through/left operates at LOS E

PM peak period

- US 401 (Louisburg Rd) at NC 56/Burke Boulevard, westbound through/left operates at LOS E

Based on a review of the unsignalized intersections, all movements operate at LOS C or better in both the AM and PM peak hours. A review of the queue data showed that, in general, the system is adequately processing traffic such that queued traffic is not affecting the operations of adjacent locations.

Table 6-1: 2017 Base Year No-Build Intersection Measures of Effectiveness

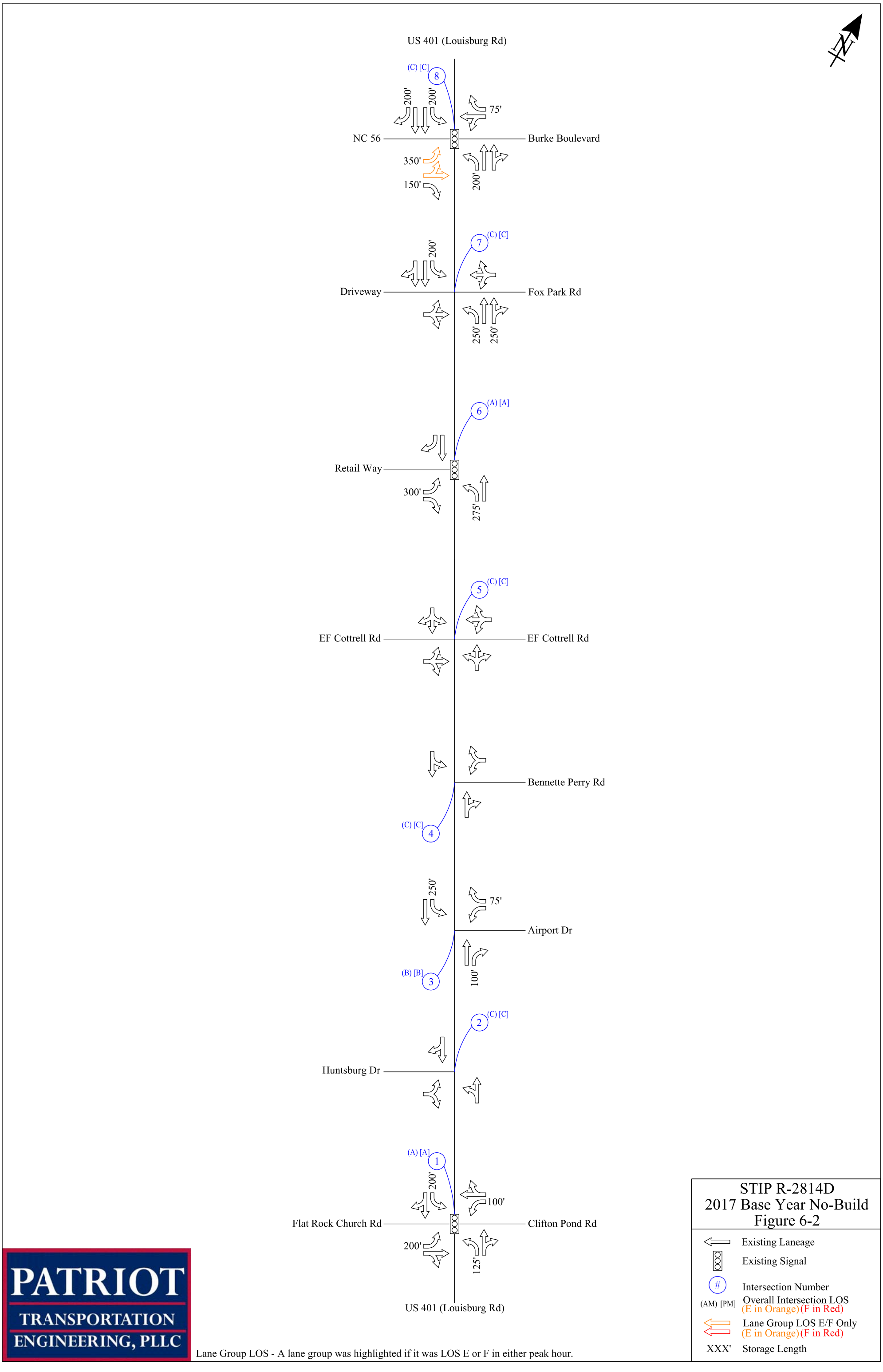
R-2814D - 2017 No-Build Results

Signalized Intersections

Intersection No.	Intersection	Approach	Lane Group	Delay (sec)		LOS		95th % Queue		Max Queue	
				AM	PM	AM	PM	AM	PM	AM	PM
1	US 401 (Louisburg Rd) at SR 1103 (Flat Rock Church Rd/Clifton Pond Rd)	**Overall**		**9.4**	**8.5**	A	A				
		Flat Rock Ch Rd Eastbound	LT	19.4	19.4	B	B	39	36	75	49
			TH/RT	20.1	19.7	C	B	58	50	116	64
		Clifton Pond Rd Westbound	LT	19.7	18.6	B	B	40	28	76	35
			TH/RT	18.7	18.5	B	B	43	36	83	51
		US 401 Northbound	LT	5.6	5.3	A	A	20	24	69	46
			TH/RT	6.1	6.9	A	A	109	156	155	120
		US 401 Southbound	LT	5.1	5.1	A	A	13	15	54	39
			TH/RT	7.2	6.0	A	A	161	111	233	83
6	US 401 (Louisburg Rd) at Retail Way	**Overall**		**6.9**	**6.0**	A	A				
		Retail Dwy Eastbound	LT	54.8	54.7	D	D	64	63	86	48
			RT	41.0	40.0	D	D	74	59	102	64
		US 401 Northbound	LT	2.2	2.1	A	A	12	14	50	36
			TH	2.6	2.8	A	A	90	114	147	51
		US 401 Southbound	TH	3.6	3.0	A	A	101	59	108	56
			RT	0.5	0.5	A	A	2	2	22	5
8	US 401 (Louisburg Rd) at NC 56/Burke Boulevard	**Overall**		**24.3**	**26.9**	C	C				
		NC 56 Eastbound	LT	50.6	49.8	D	D	206	243	245	221
			TH/LT	50.9	50.3	D	D	211	248	314	278
			RT	27.9	25.5	C	C	107	101	240	174
		Burke Blvd Westbound	TH/LT	55.1	55.3	E	E	77	82	99	69
			RT	22.0	22.0	C	C	24	28	70	55
		US 401 Northbound	LT	13.7	15.4	B	B	85	83	161	62
			TH/RT	19.1	21.4	B	C	136	147	169	105
		US 401 Southbound	Lt	14.4	16.3	B	B	36	31	81	34
			TH	22.7	24.9	C	C	165	155	228	176
			RT	7.1	6.3	A	A	118	90	184	120

Unsignalized Intersection

Intersection No.	Intersection	Approach	Lane Group	Delay (sec)		LOS		95th % Queue		Max Queue	
				AM	PM	AM	PM	AM	PM	AM	PM
2	US 401 (Louisburg Rd) at SR 1986 (Huntsburg Rd)	Huntsburg Rd Eastbound	LT/RT	16.3	15.8	C	C	6	4	53	25
		US 401 Northbound	TH/LT	0.2	0.4	A	A	1	1	28	10
3	US 401 (Louisburg Rd) at SR 1798 (Airport Rd)	Airport Rd Westbound	LT	13.9	14.9	B	B	1	2	23	15
			RT	13.9	14.9	B	B	1	2	33	32
		US 401 Southbound	LT	8.3	8.6	A	A	1	1	31	17
4	US 401 (Louisburg Rd) at SR 1702 (Bennette Perry Rd)	Bennette Perry Rd Westbound	LT/RT	15.7	15.2	C	C	2	2	15	12
		US 401 Southbound	TH/LT	0.2	0.1	A	A	0	0	42	3
5	US 401 (Louisburg Rd) at SR 1110 (EF Cottrell Rd)	EF Cottrell Eastbound	TH/LT/RT	20.2	19.9	C	C	14	11	47	23
		EF Cottrell Westbound	TH/LT/RT	23.5	23.4	C	C	20	23	55	46
		US 401 Northbound	TH/LT/RT	0.5	0.5	A	A	1	1	69	12
		US 401 Southbound	TH/LT/RT	0.7	0.6	A	A	2	2	87	28
7	US 401 (Louisburg Rd) at Driveway/Fox Park Rd	Driveway Eastbound	TH/LT/RT	17.9	18.1	C	C	3	4	35	24
		Fox Park Rd Westbound	TH/LT/RT	14.8	15.2	B	C	26	16	98	41
		US 401 Northbound	LT	8.2	8.1	A	A	0	0	29	3
		US 401 Southbound	LT	8.4	8.9	A	A	4	7	41	34



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Lane Group LOS - A lane group was highlighted if it was LOS E or F in either peak hour.

STIP R-2814D
2017 Base Year No-Build
Figure 6-2

- Existing Laneage
- Existing Signal
- # Intersection Number
- (AM) [PM] Overall Intersection LOS (E in Orange) (F in Red)
- Lane Group LOS E/F Only (E in Orange) (F in Red)
- XXX' Storage Length

7. 2040 FUTURE YEAR NO-BUILD ANALYSIS

The Future Year No-Build alternative was analyzed as a means of comparison for the build alternatives. Therefore, the next step was to utilize the validated base model to determine how the transportation network within the study area will operate in the future.

7.1 MODEL GEOMETRY

This scenario evaluated what the traffic operations will be in the vicinity of the proposed project in the design year 2040 if the proposed project is not constructed. This project traverses both the Kerr-Tar Rural Planning Organization (RPO) and Capital Area Metropolitan Planning Organization (CAMPO).

The 2040 Future Year No-Build scenario assumes that all improvements in the *Franklin County Comprehensive Transportation Plan (CTP)* adopted in July 2011 are included in the analysis if they are fiscally constrained and have construction funding in the NCDOT State Transportation Improvement Program (STIP). For the study area included in this analysis, the following projects are included in the future year analysis:

- U-6024 – Convert US 401, 5-lane section to 4-lane divided facility with bicycle/pedestrian accommodations from Burke Boulevard to NC 56/NC 581 (Nash Street) in Louisburg (the intersection of US 401 at NC 56 and Burke Blvd was assumed to be a reverse superstreet for analysis purposes)

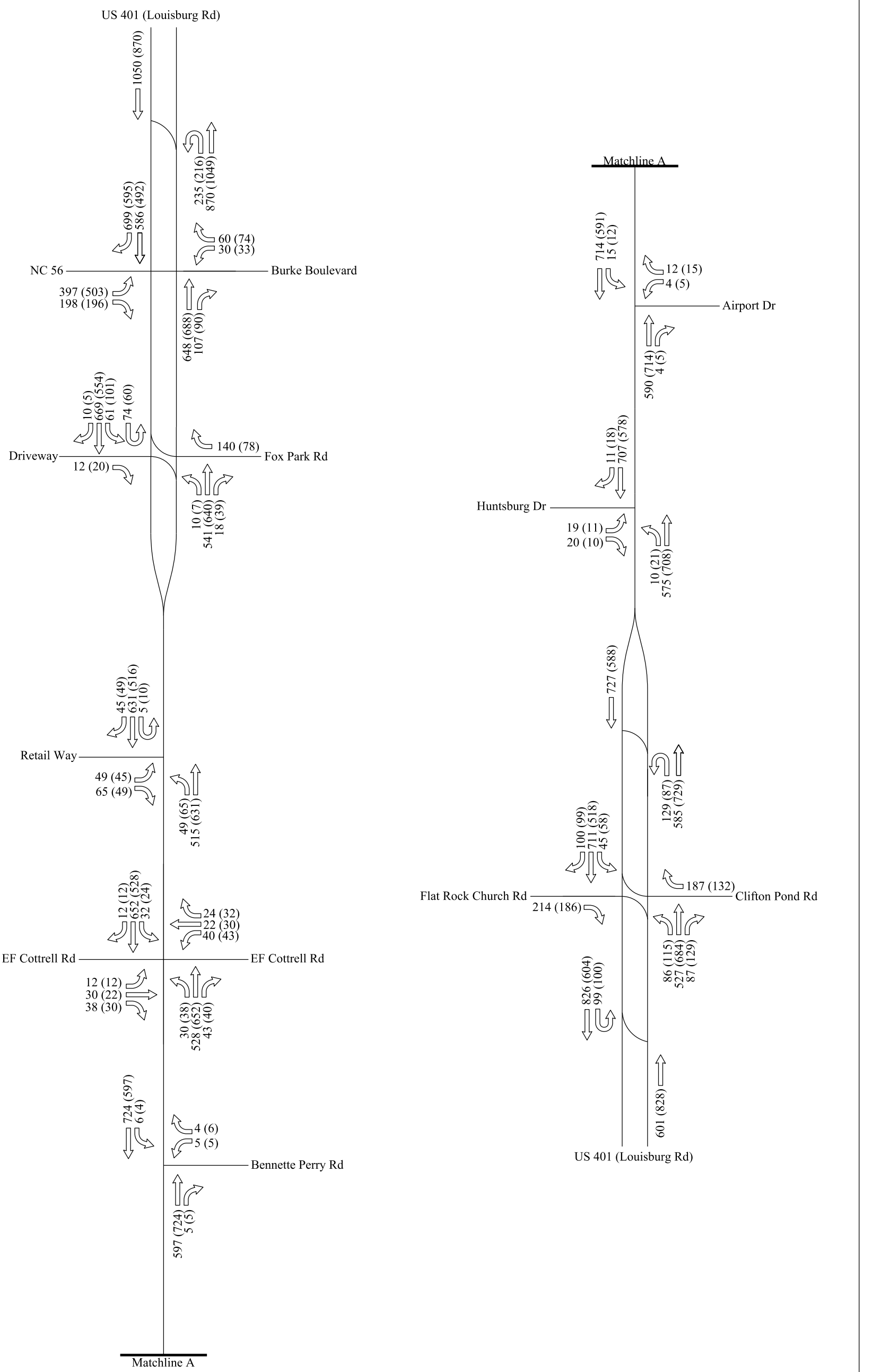
Additionally, all improvements in the CAMPO *Metropolitan Transportation Plan (MTP)* adopted in April 2014 and last updated on August 3, 2017 are included in the analysis. For the study area included in this analysis, the following projects are included in the future year analysis:

- R-2814C – Widen US 401 from NC 96 to just north of SR 1103 (Flat Rock Church/Clifton Pond Rd)

The lane configurations for R-2814C were based on the roadway designs plans developed by HDR Engineering, Inc. (dated 6/13/18) which are included in Appendix F.

7.2 VOLUME DATA

The peak hour traffic volumes were developed as described in Section 5. The peak period volumes for the 2040 Future Year No-Build intersection analysis are shown in Figure 7-1.



PATRIOT TRANSPORTATION ENGINEERING, PLLC

*The US 401 volumes were balanced by holding EF Cottrell Rd constant and balancing the through movements in each direction

STIP R-2814D
2040 Future Year No-Build
Figure 7-1

AM (PM) Turning Movement Volumes

7.3 2040 FUTURE YEAR NO-BUILD MODEL RESULTS

The output data was extracted from the Synchro and SimTraffic model in accordance with the MOEs defined in Section 4 and are summarized in the following sections.

7.3.1 INTERSECTION RESULTS

The results of the intersection analysis along the arterial portions of the study area are included in Table 6-1 and Figure 6-2. The Synchro/SimTraffic reports are included in Appendix G.

The overall intersection LOS for all signalized intersections in the 2040 Future Year No-Build scenario shows that all of the intersections are operating at LOS C or better in both the AM and PM peak hours.

Based on a review of the intersection operations at the lane group level, the following movements operate at LOS_S E or F in the 2040 Future Year No-Build scenario:

AM peak period

- US 401 (Louisburg Rd) at Retail Way, eastbound right operates at LOS E
- US 401 (Louisburg Rd) at NC 56/Burke Boulevard, westbound right operates at LOS E

PM peak period

- US 401 (Louisburg Rd) at Retail Way, eastbound right operates at LOS E
- US 401 (Louisburg Rd) at NC 56/Burke Boulevard, westbound right and left operate at LOS E

Based on a review of the unsignalized intersections, all movements operate at LOS D or better in both the AM and PM peak hour, except for the US 401 (Louisburg Rd) at SR 1110 (EF Cottrell Rd) intersection, which operates at LOS F in both hours. A review of the queue data showed that, in general, the system is adequately processing traffic such that queued traffic is not affecting the operations of adjacent locations.

Table 7-1: 2040 Future Year No-Build Intersection Measures of Effectiveness

R-2814D - 2040 No-Build Results

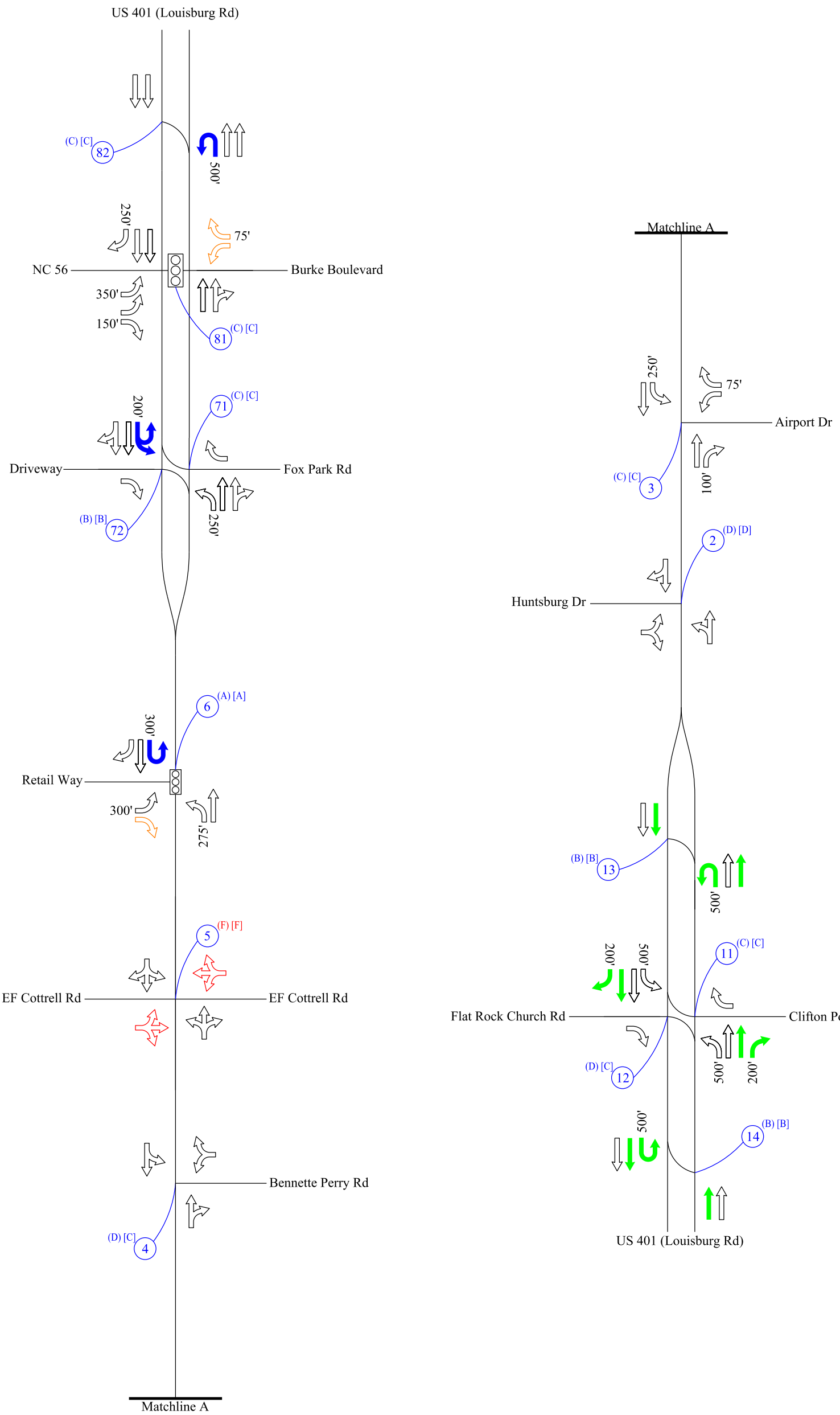
Signalized Intersections

Intersection No.	Intersection	Approach	Lane Group	Delay (sec)		LOS		95th % Queue		Max Queue	
				AM	PM	AM	PM	AM	PM	AM	PM
6	US 401 (Louisburg Rd) at Retail Way	**Overall**		**9.8**	**8.3**	A	A				
		Retail Dwy Eastbound	LT	52.0	53.7	D	D	77	75	91	82
			RT	57.0	56.1	E	E	98	79	136	112
		US 401 Northbound	LT	3.0	2.8	A	A	17	19	64	66
			TH	3.9	4.1	A	A	168	210	178	205
		US 401 Southbound	U-Turn	3.4	4.3	A	A	m3	m5	23	32
			TH	7.7	6.2	A	A	167	121	188	150
			RT	1.8	1.2	A	A	0	8	30	20
81	US 401 (Louisburg Rd) at NC 56/Burke Boulevard	**Overall**		**21.2**	**23.2**	C	C				
		NC 56 Eastbound	LT	40.4	45.1	D	D	165	243	318	366
			RT	37.9	35.9	D	D	182	189	247	249
		Burke Blvd Westbound	LT	54.4	58.4	D	E	57	64	133	152
			RT	57.8	57.4	E	E	95	109	114	132
		US 401 Northbound	TH/RT	18.3	17.9	B	B	302	305	197	199
		US 401 Southbound	TH	18.7	17.7	B	B	262	196	274	249
			RT	6.2	5.7	A	A	298	256	252	219

Unsignalized Intersection

Intersection No.	Intersection	Approach	Lane Group	Delay (sec)		LOS		95th % Queue		Max Queue	
				AM	PM	AM	PM	AM	PM	AM	PM
11	US 401 (Louisburg Rd) at SR 1103 (Clifton Pond Rd)	US 401 Eastbound	LT	16.3	22.1	C	C	12	22	48	63
		Clifton Pond Rd Westbound	RT	12.3	12.7	B	B	31	23	84	61
12	US 401 (Louisburg Rd) at SR 1103 (Flat Rock Church Rd)	Flat Rock Ch Rd Eastbound	RT	14.9	12.2	B	B	47	31	120	102
		US 401 Westbound	LT	25.0	20.0	D	C	38	38	70	65
13	US 401 (Louisburg Rd) at Clifton Pond Rd U-Turn	Clifton Pond Rd U-Turn Westbound	U-Turn	13.4	11.6	B	B	25	13	52	54
14	US 401 (Louisburg Rd) at Flat Rock Ch Rd U-Turn	Flat Rock Ch Rd U-Turn Eastbound	U-Turn	11.9	13.6	B	B	16	20	71	77
2	US 401 (Louisburg Rd) at SR 1986 (Huntsburg Rd)	Huntsburg Rd Eastbound	LT/RT	26.9	25.3	D	D	19	10	65	51
		US 401 Northbound	TH/LT	0.4	0.7	A	A	1	2	66	93
3	US 401 (Louisburg Rd) at SR 1798 (Airport Rd)	Airport Rd Westbound	LT	17.9	19.8	C	C	2	4	22	22
			RT	17.9	19.8	C	C	2	4	48	43
		US 401 Southbound	LT	9.0	9.5	A	A	1	1	30	37
4	US 401 (Louisburg Rd) at SR 1702 (Bennette Perry Rd)	Bennette Perry Rd Westbound	LT/RT	25.9	24.0	D	C	4	5	29	40
		US 401 Southbound	TH/LT	0.2	0.1	A	A	1	0	92	63
5	US 401 (Louisburg Rd) at SR 1110 (EF Cottrell Rd)	EF Cottrell Eastbound	TH/LT/RT	56.7	51.4	F	F	75	57	82	79
		EF Cottrell Westbound	TH/LT/RT	167.2	174.8	F	F	147	175	110	141
		US 401 Northbound	TH/LT/RT	1.0	1.1	A	A	3	3	174	194
		US 401 Southbound	TH/LT/RT	1.0	0.9	A	A	3	2	192	172

71	US 401 (Louisburg Rd) at Fox Park Rd	US 401 Eastbound	LT/U-Turn	20.2	24.1	C	C	45	65	99	142
		Fox Park Rd Westbound	RT	11.8	11.7	B	B	22	12	81	65
72	US 401 (Louisburg Rd) at Driveway	Driveway Eastbound	RT	9.5	9.5	A	A	1	2	36	48
		US 401 Westbound	LT	14.1	13.0	B	B	2	1	33	28
82	US 401 (Louisburg Rd) at Burke Blvd U-Turn	Burke Blvd U-Turn Westbound	U-Turn	24.4	18.2	C	C	93	62	176	147



STIP R-2814D
2040 Future Year No-Build
Figure 7-2

- Existing Laneage
- U-6024 Laneage
- R-2814C Laneage
- Existing Signal
- # Intersection Number
- (AM) [PM] Overall Intersection LOS (E in Orange) (F in Red)
- Lane Group LOS E/F Only (E in Orange) (F in Red)
- XXX' Storage Length

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Lane Group LOS - A lane group was highlighted if it was LOS E or F in either peak hour.

8. 2040 FUTURE YEAR BUILD ANALYSIS

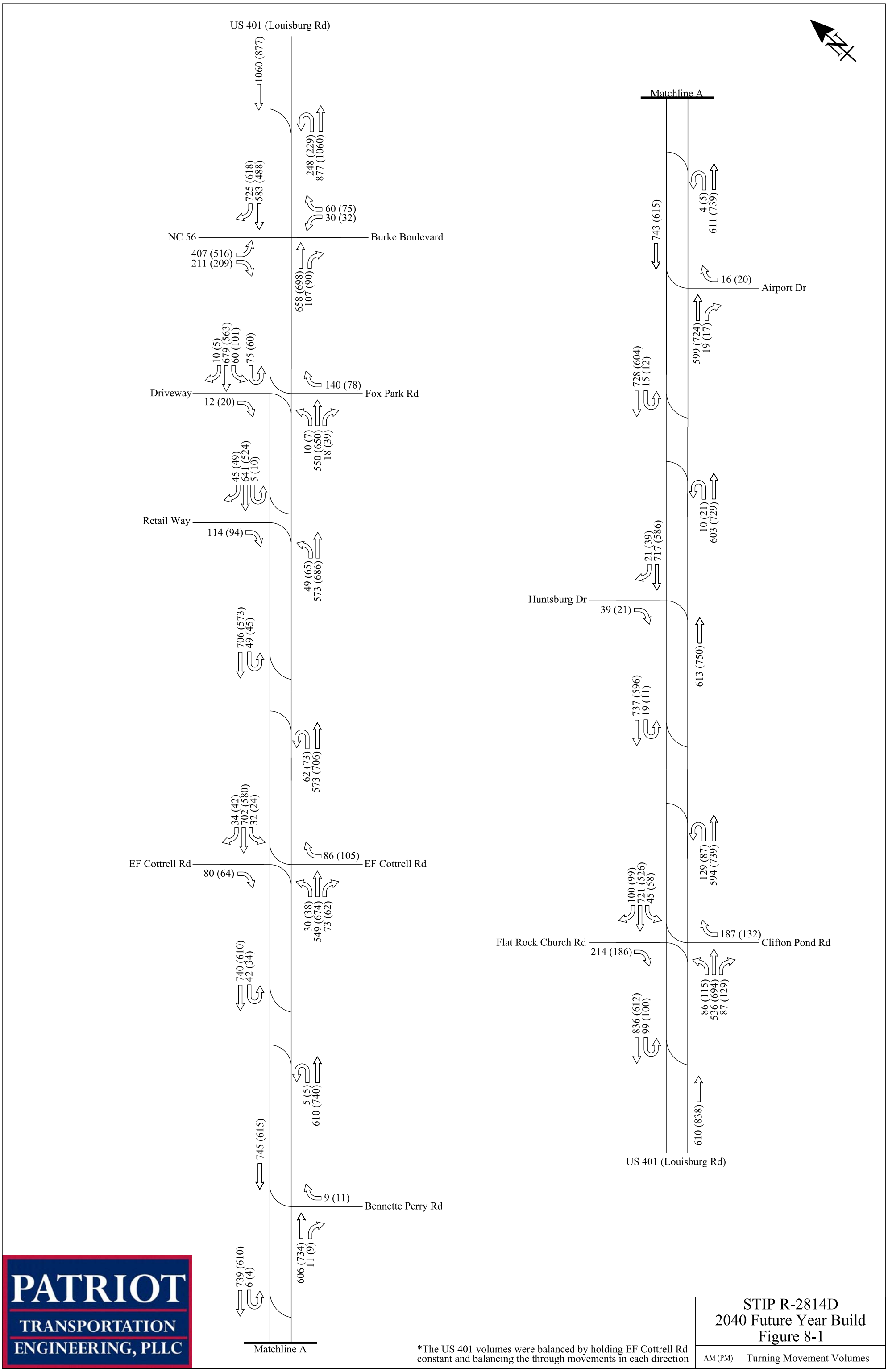
This scenario evaluated what the traffic operations will be in the vicinity of the proposed project in the design year 2040 if the proposed project is constructed. The following alternative was evaluated for the subject project:

- Four-lane superstreet design

The following sections describe the development of the build model for the 2040 build alternative.

8.1 VOLUME DATA

The peak hour traffic volumes were developed as described in Section 5. The peak period volumes for the 2040 Future Year Build intersection analysis are shown in Figure 8-1.



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*The US 401 volumes were balanced by holding EF Cottrell Rd constant and balancing the through movements in each direction

STIP R-2814D
2040 Future Year Build
Figure 8-1

AM (PM) Turning Movement Volumes

8.2 2040 FUTURE YEAR BUILD MODEL RESULTS

The output data was extracted from the Synchro and SimTraffic model in accordance with the MOEs defined in Section 4 and are summarized in the following sections.

8.2.1 INTERSECTION RESULTS

The results of the intersection analysis along the arterial portions of the study area are included in Table 8-1 and Figure 8-2. The Synchro/SimTraffic reports are included in Appendix H.

The overall intersection LOS for all signalized intersections in the 2040 Future Year Build scenario shows that all of the intersections are operating at LOS C or better in both the AM and PM peak hours.

Based on a review of the intersection operations at the lane group level, the following movements operate at LOS_S E or F in the 2017 Base Year No-Build scenario:

AM peak period

- US 401 (Louisburg Rd) at Retail Way, eastbound right operates at LOS E

PM peak period

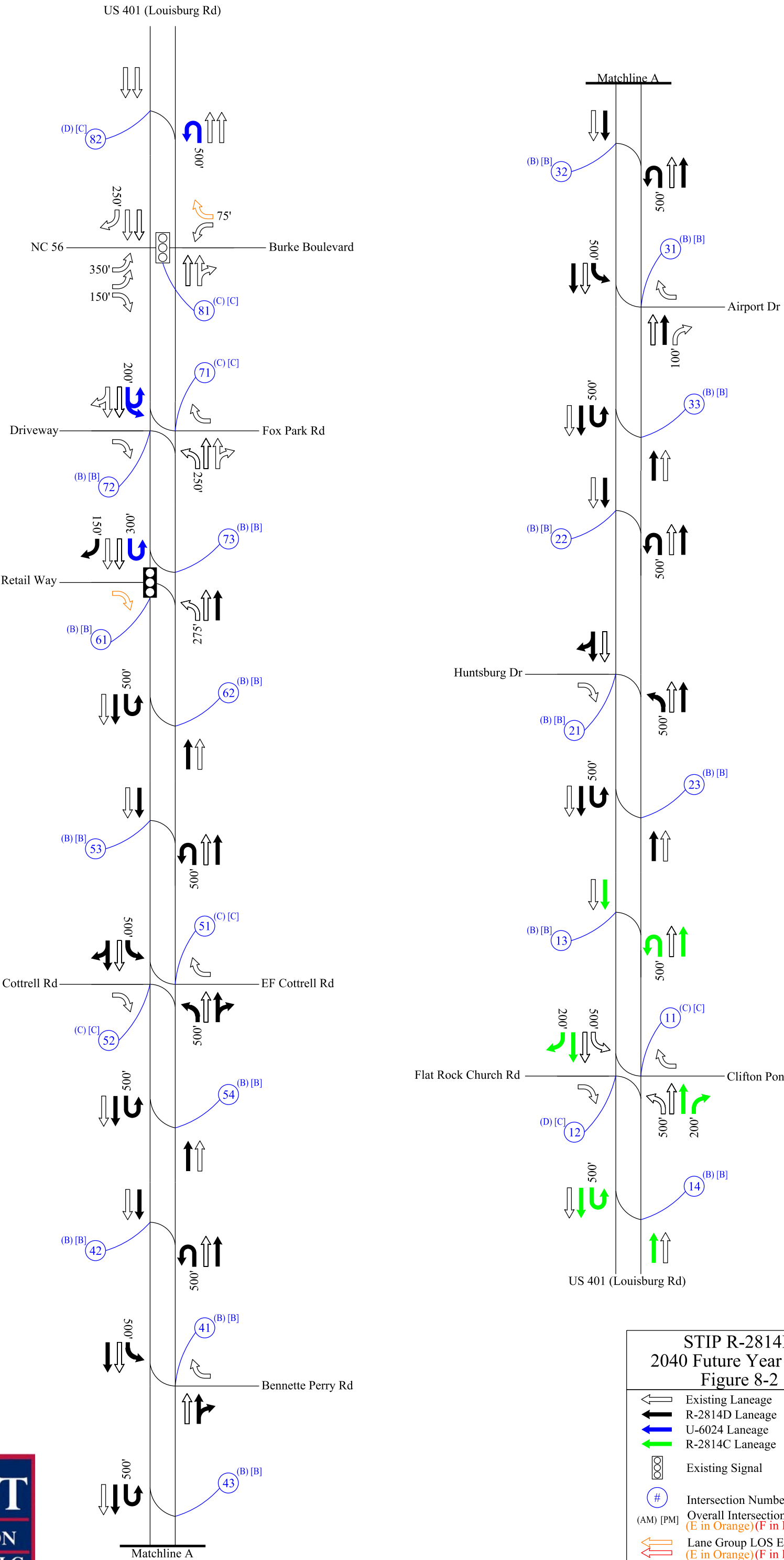
- US 401 (Louisburg Rd) at Retail Way, eastbound right operates at LOS E
- US 401 (Louisburg Rd) at NC 56/Burke Boulevard, westbound right operates at LOS E

Based on a review of the unsignalized intersections, all movements operate at LOS D or better in both the AM and PM peak hours. A review of the queue data showed that, in general, the system is adequately processing traffic such that queued traffic is not affecting the operations of adjacent locations.

Table 8-1: 2040 Future Year Build Intersection Measures of Effectiveness

R-2814D - 2040 Build Results											
Signalized Intersections											
Intersection No.	**Intersection**	**Approach**	**Lane Group**	**Delay (sec)**		**LOS**		**95th % Queue**		**Max Queue**	
				AM	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
61	US 401 (Louisburg Rd) at Retail Way	**Overall**		**11.3**	**13.0**	B	B				
		Retail Way	RT	57.1	57.1	E	E	150	128	165	143
		US 401 Northbound	LT	45.8	49.8	D	D	73	93	96	106
		US 401 Southbound	TH	1.3	1.7	A	A	15	21	70	99
			RT	0.8	1.2	A	A	4	6	34	61
81	US 401 (Louisburg Rd) at NC 56/Burke Boulevard	**Overall**		**24.5**	**24.6**	C	C				
		NC 56 Eastbound	LT	34.2	44.9	C	D	170	248	428	372
			RT	39.9	45.1	D	D	235	234	242	250
		Burke Blvd Westbound	LT	39.6	45.9	D	D	49	55	119	145
			RT	53.4	57.4	D	E	95	109	117	123
		US 401 Northbound	TH/RT	27.4	20.7	C	C	362	343	205	208
		US 401 Southbound	TH	24.8	18.0	C	B	260	196	249	234
			RT	8.4	6.0	A	A	324	276	261	225
Unsignalized Intersection											
Intersection No.	**Intersection**	**Approach**	**Lane Group**	**Delay (sec)**		**LOS**		**95th % Queue**		**Max Queue**	
				AM	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
11	US 401 (Louisburg Rd) at SR 1103 (Clifton Pond Rd)	US 401 Eastbound	LT	16.5	22.4	C	C	12	23	53	60
		Clifton Pond Rd Westbound	RT	12.4	12.8	B	B	31	23	72	73
12	US 401 (Louisburg Rd) at SR 1103 (Flat Rock Church Rd)	Flat Rock Ch Rd Eastbound	RT	15.0	12.3	C	B	48	31	104	88
		US 401 Westbound	LT	25.4	20.2	D	C	39	39	71	69
13	US 401 (Louisburg Rd) at Clifton Pond Rd U-Turn	Clifton Pond Rd U-Turn Westbound	U-Turn	13.5	11.7	B	B	25	13	78	53
14	US 401 (Louisburg Rd) at Flat Rock Ch Rd U-Turn	Flat Rock Ch Rd U-Turn Eastbound	U-Turn	11.9	13.7	B	B	16	20	72	70
21	US 401 (Louisburg Rd) at SR 1986 (Huntsburg Rd)	Huntsburg Rd Eastbound	RT	11.7	10.8	B	B	6	3	52	48
22	US 401 (Louisburg Rd) at SR 1986 (Huntsburg Rd) NB U-Turn	Huntsburg Rd U-Turn Westbound	LT	11.4	10.9	B	B	1	3	30	36
23	US 401 (Louisburg Rd) at SR 1986 (Huntsburg Rd) SB U-Turn	Huntsburg Rd U-Turn Eastbound	LT	10.8	11.5	B	B	3	2	37	32
31	US 401 (Louisburg Rd) at SR 1798 (Airport Rd)	Airport Rd Westbound	RT	10.7	11.4	B	B	2	3	42	48
32	US 401 (Louisburg Rd) at SR 1798 (Airport Rd) NB U-Turn	Airport Rd Westbound U-Turn	LT	11.4	10.8	B	B	1	1	9	15

33	US 401 (Louisburg Rd) at SR 1798 (Airport Rd) SB U-Turn	Airport Rd Eastbound U-Turn	LT	10.9	11.4	B	B	2	2	34	31
41	US 401 (Louisburg Rd) at SR 1702 (Bennette Perry Rd)	Bennette Perry Rd Westbound	RT	10.8	11.5	B	B	1	2	26	27
42	US 401 (Louisburg Rd) at SR 1702 (Bennette Perry Rd) NB U-Turn	Bennette Perry Rd Westbound U-Turn	LT	11.4	10.8	B	B	1	1	22	19
43	US 401 (Louisburg Rd) at SR 1702 (Bennette Perry Rd) SB U-Turn	Bennette Perry Rd Eastbound U-Turn	LT	10.8	11.4	B	B	1	1	25	18
51	US 401 (Louisburg Rd) at SR 1110 (EF Cottrell Rd)	US 401 Eastbound	LT	16.0	17.8	C	C	8	7	54	42
		EF Cottrell Rd Westbound	RT	11.6	12.7	B	B	13	18	56	67
52	US 401 (Louisburg Rd) at SR 1110 (EF Cottrell Rd)	EF Cottrell Rd Eastbound	RT	12.2	11.3	B	B	13	9	58	60
		US 401 Westbound	LT	18.1	16.2	C	C	9	10	36	45
53	US 401 (Louisburg Rd) at SR 1110 (EF Cottrell Rd) NB U-Turn	EF Cottrell Rd NB U-Turn Westbound	U-Turn	12.0	11.4	B	B	10	11	53	51
54	US 401 (Louisburg Rd) at SR 1110 (EF Cottrell Rd) SB U-Turn	EF Cottrell Rd SB U-Turn Eastbound	U-Turn	11.2	11.8	B	B	6	5	46	50
62	US 401 (Louisburg Rd) at Retail Way SB U-Turn	Retail Way SB U-Turn Eastbound	U-Turn	11.1	11.8	B	B	7	7	39	47
71	US 401 (Louisburg Rd) at Fox Park Rd	US 401 Eastbound	LT/U-Turn	20.5	24.6	C	C	46	67	99	118
		Fox Park Rd Westbound	RT	11.9	11.8	B	B	22	12	74	68
72	US 401 (Louisburg Rd) at Driveway	Driveway Eastbound	RT	9.2	9.5	A	A	1	2	33	57
		US 401 Westbound	LT	13.7	13.1	B	B	2	1	31	31
73	US 401 (Louisburg Rd) at Driveway SB U-Turn	Driveway SB U-Turn Eastbound	LT	10.6	11.2	B	B	1	1	24	25
82	US 401 (Louisburg Rd) at Burke Blvd U-Turn	Burke Blvd U-Turn Westbound	U-Turn	26.3	19.0	D	C	106	69	173	163



STIP R-2814D
2040 Future Year Build
Figure 8-2

- Existing Laneage
- R-2814D Laneage
- U-6024 Laneage
- R-2814C Laneage
- Existing Signal
- # Intersection Number
- (AM) [PM] Overall Intersection LOS (E in Orange) (F in Red)
- Lane Group LOS E/F Only (E in Orange) (F in Red)
- XXX' Storage Length

PATRIOT TRANSPORTATION ENGINEERING, PLLC

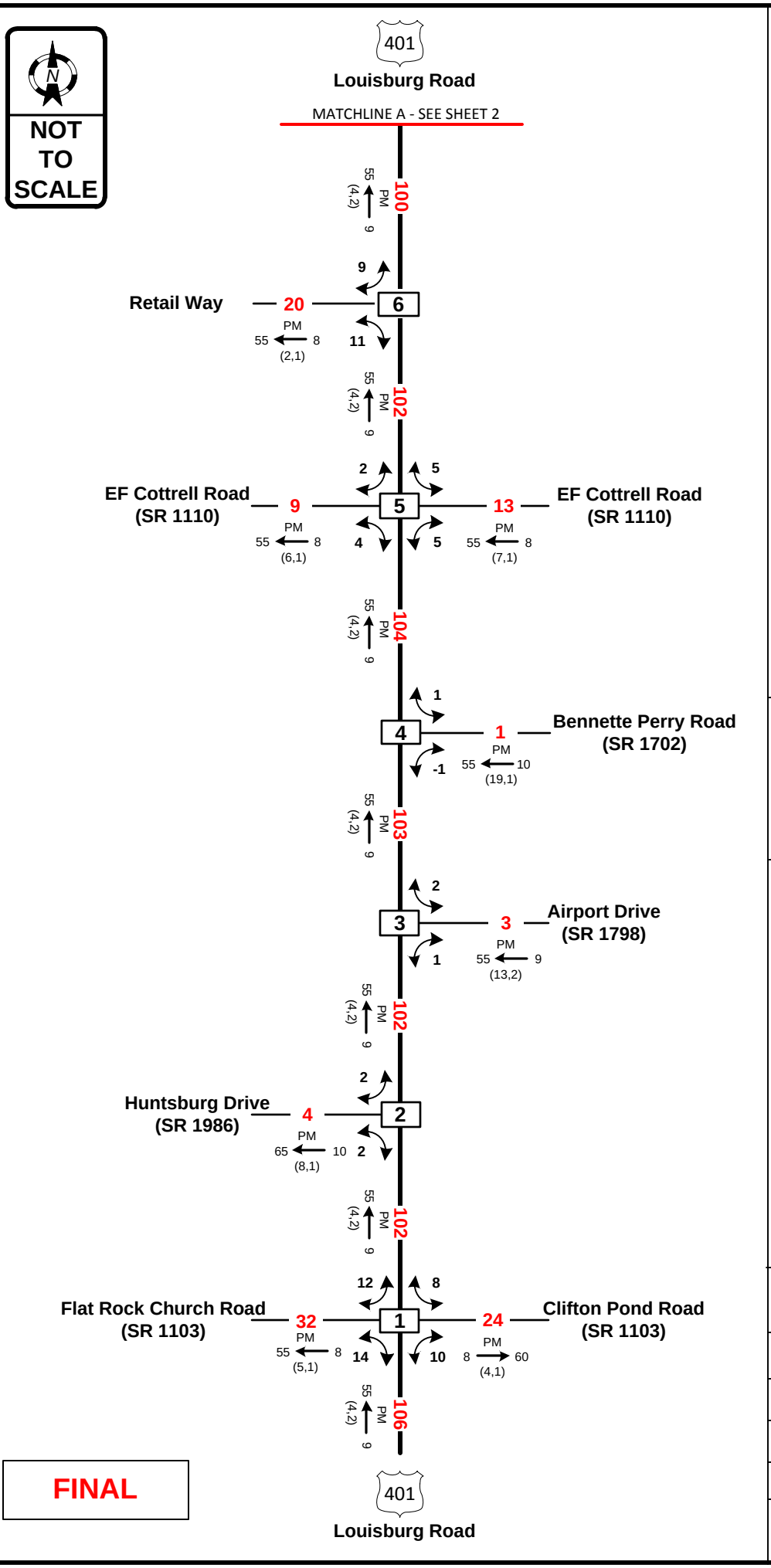
Lane Group LOS - A lane group was highlighted if it was LOS E or F in either peak hour.

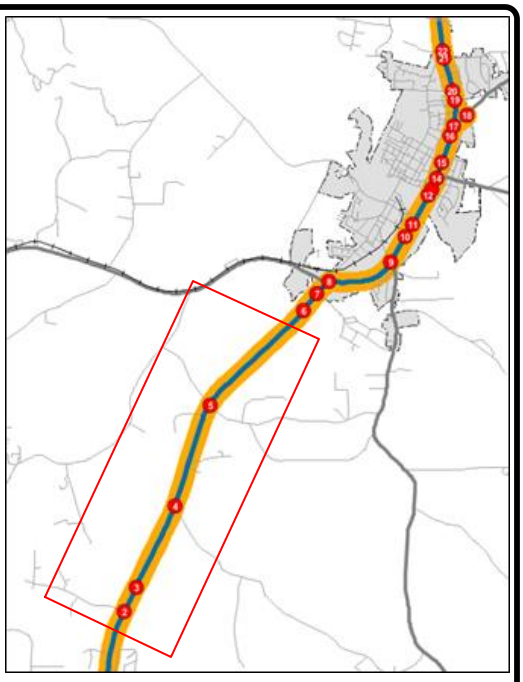
9. CONCLUSIONS AND RECOMMENDATIONS

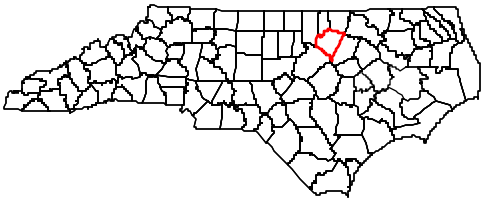
Based on the results of the analysis, it is recommended that the proposed four-lane superstreet design be carried forward as it improves operations when compared to the 2040 No-Build and provides adequate traffic operations throughout the network. All intersections in the study area operate at LOS D or better in the 2040 Future Year Build and the system is adequately processing traffic such that queued traffic is not affecting the operations of adjacent locations.

APPENDIX A:

TRAFFIC FORECAST







2017

ANNUAL AVERAGE DAILY TRAFFIC

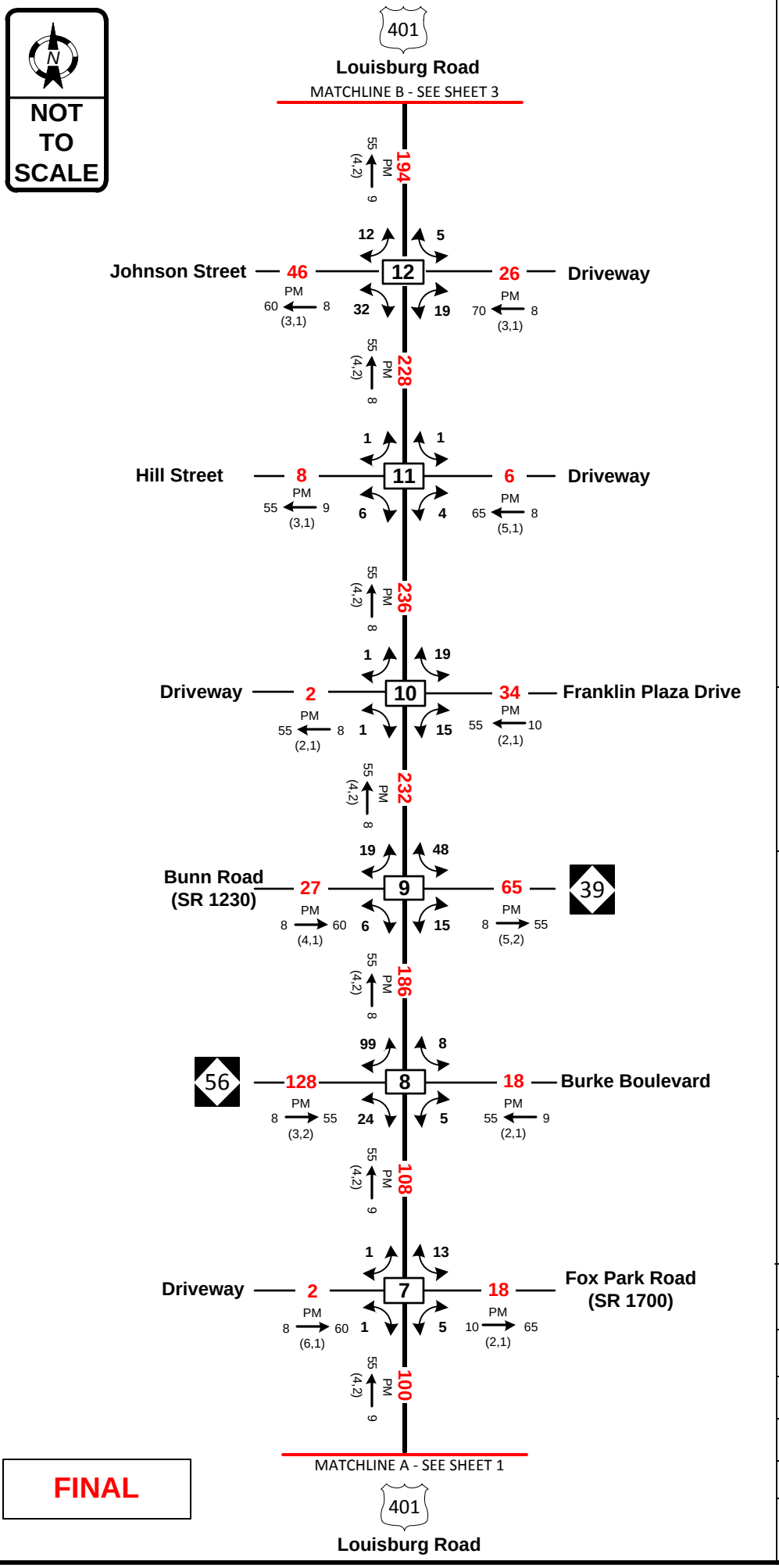
BASE YEAR NO-BUILD

Sheet 1 of 4

L E G E N D

X	= Study Area Intersection ID
###	No. of Vehicles Per Day (VPD) in 100s
K → D (PM, d, t)	
K	Design Hour Factor (%)
PM	PM Peak Period
D	Peak Hour Directional Split (%)
→	Indicates Direction of D
(d, t)	Duals, TT-STs (%)

TIP: R-2814D, R-3608 & U-6024	**WBS:** 34506.1.1, 38873.1.1 & 47151.1.1
COUNTY: Franklin	**DIVISION:** 5
DATE: December 2017	
PREPARED BY: HNTB North Carolina, PC	
LOCATION: Flat Rock Church Rd to N. Main Street	
PROJECT: US 401 Widening from Flat Rock Church Road to N. Main Street	



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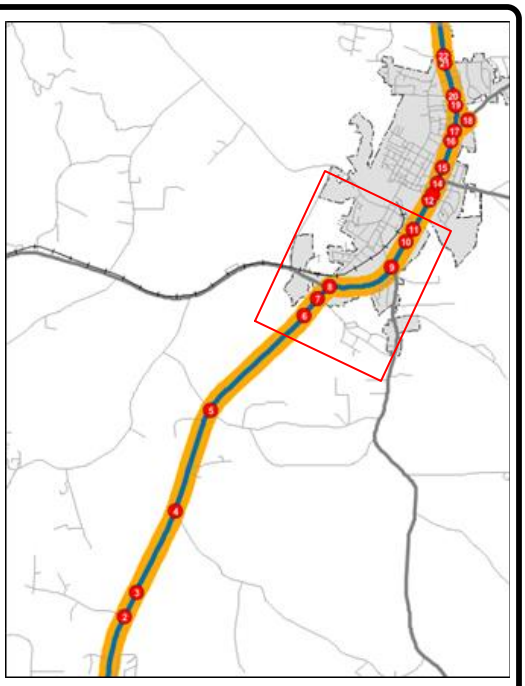

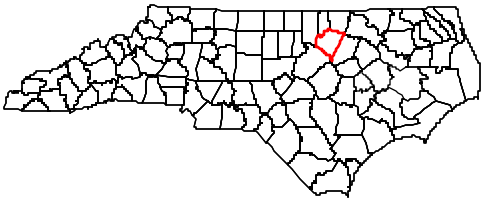

2017

ANNUAL AVERAGE DAILY TRAFFIC

BASE YEAR NO-BUILD

Sheet 2 of 4

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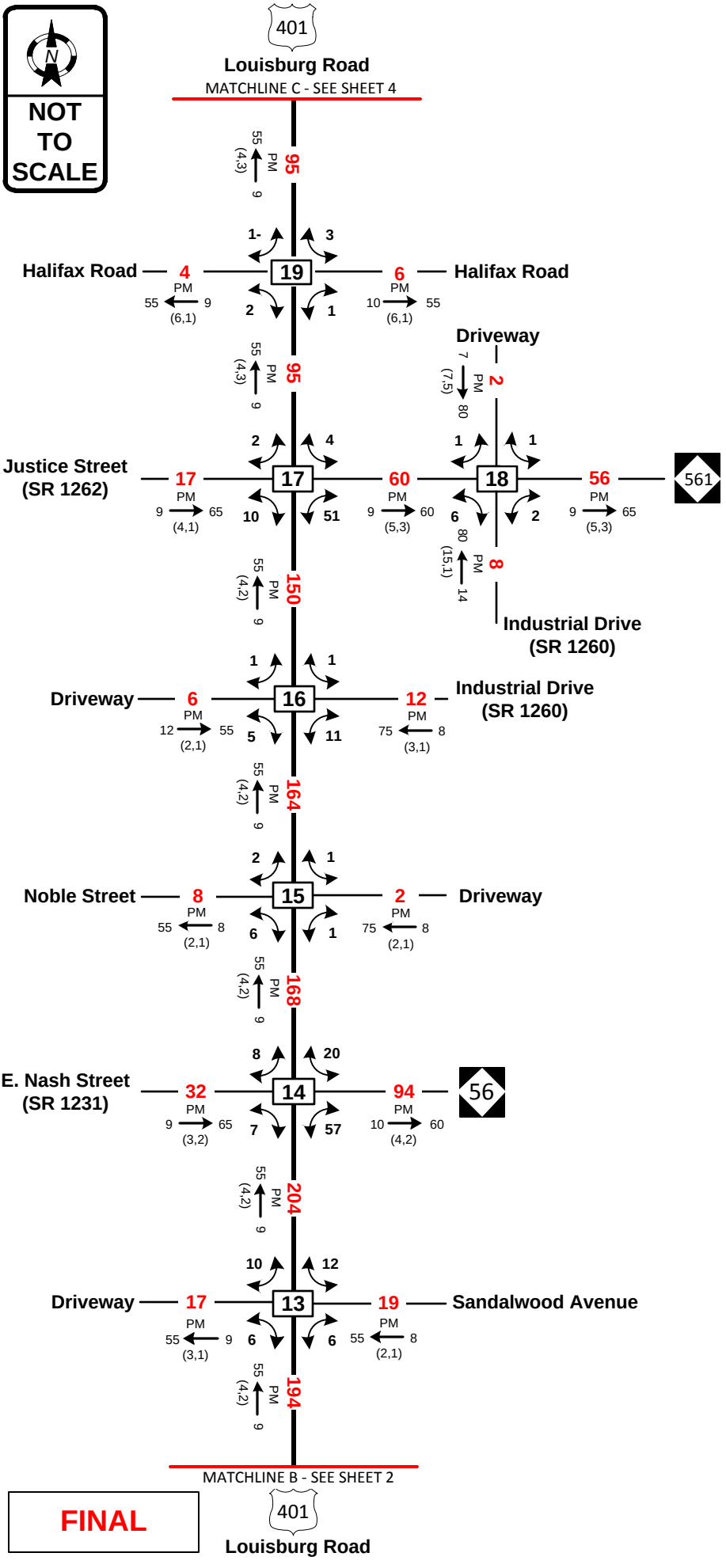

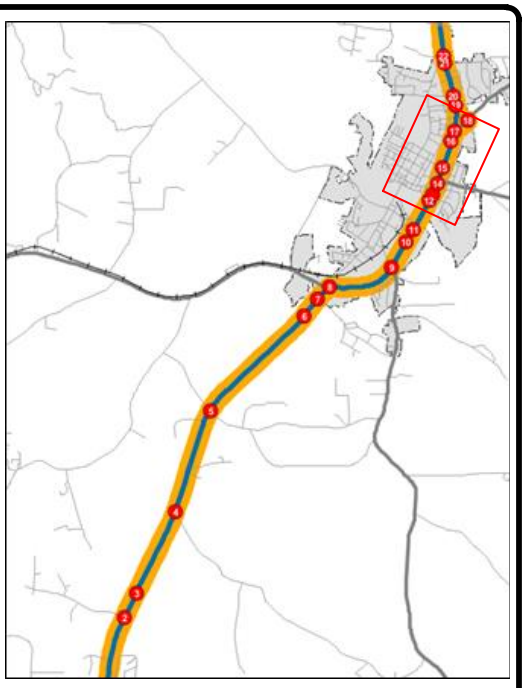

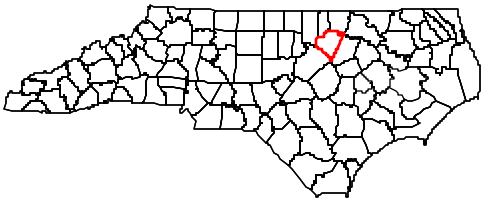

2017

ANNUAL AVERAGE DAILY TRAFFIC

BASE YEAR NO-BUILD

Sheet 3 of 4

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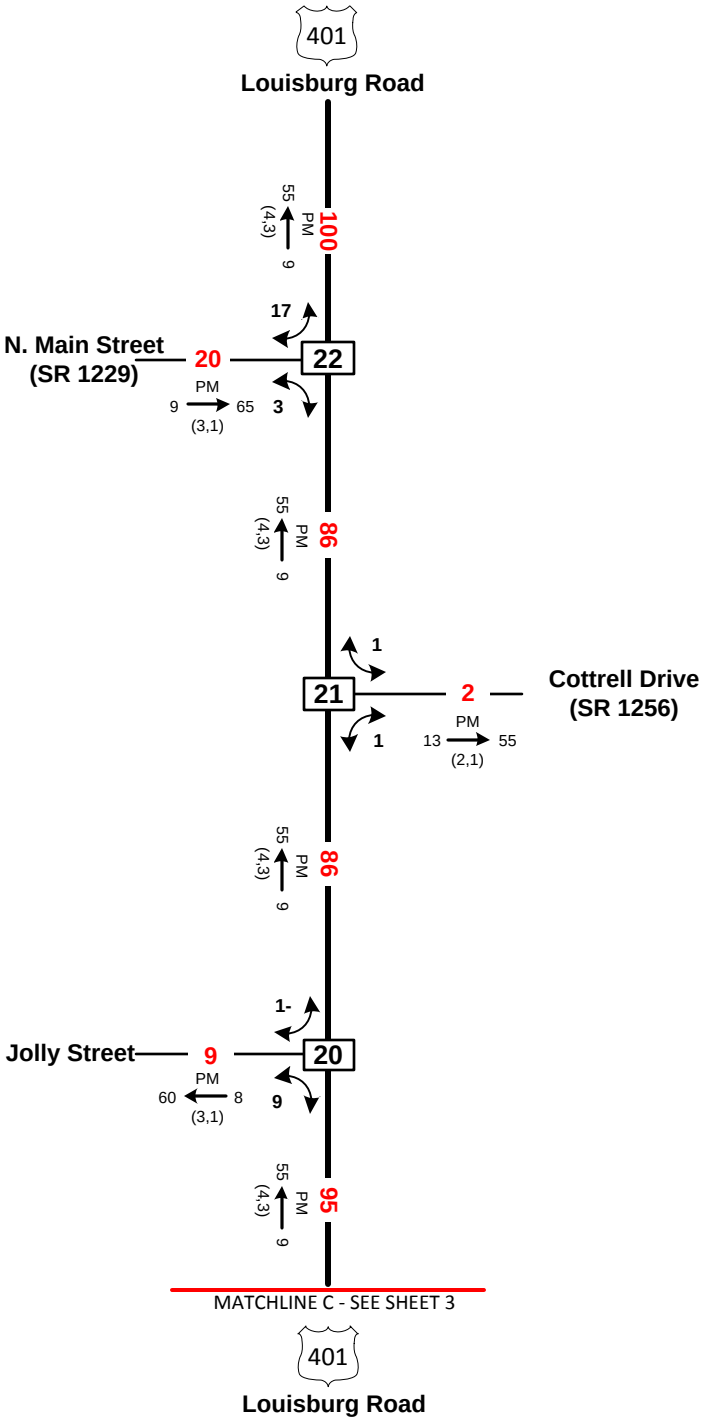
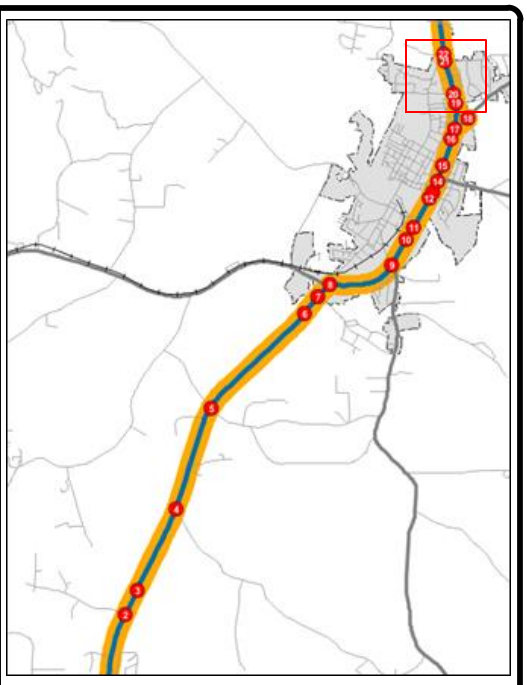
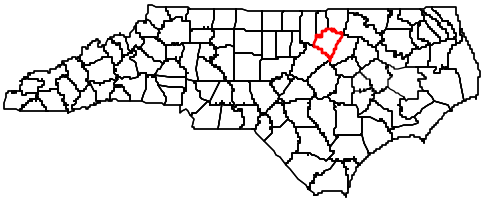
NOT TO SCALE







2017

ANNUAL AVERAGE DAILY TRAFFIC

BASE YEAR NO-BUILD

Sheet 4 of 4

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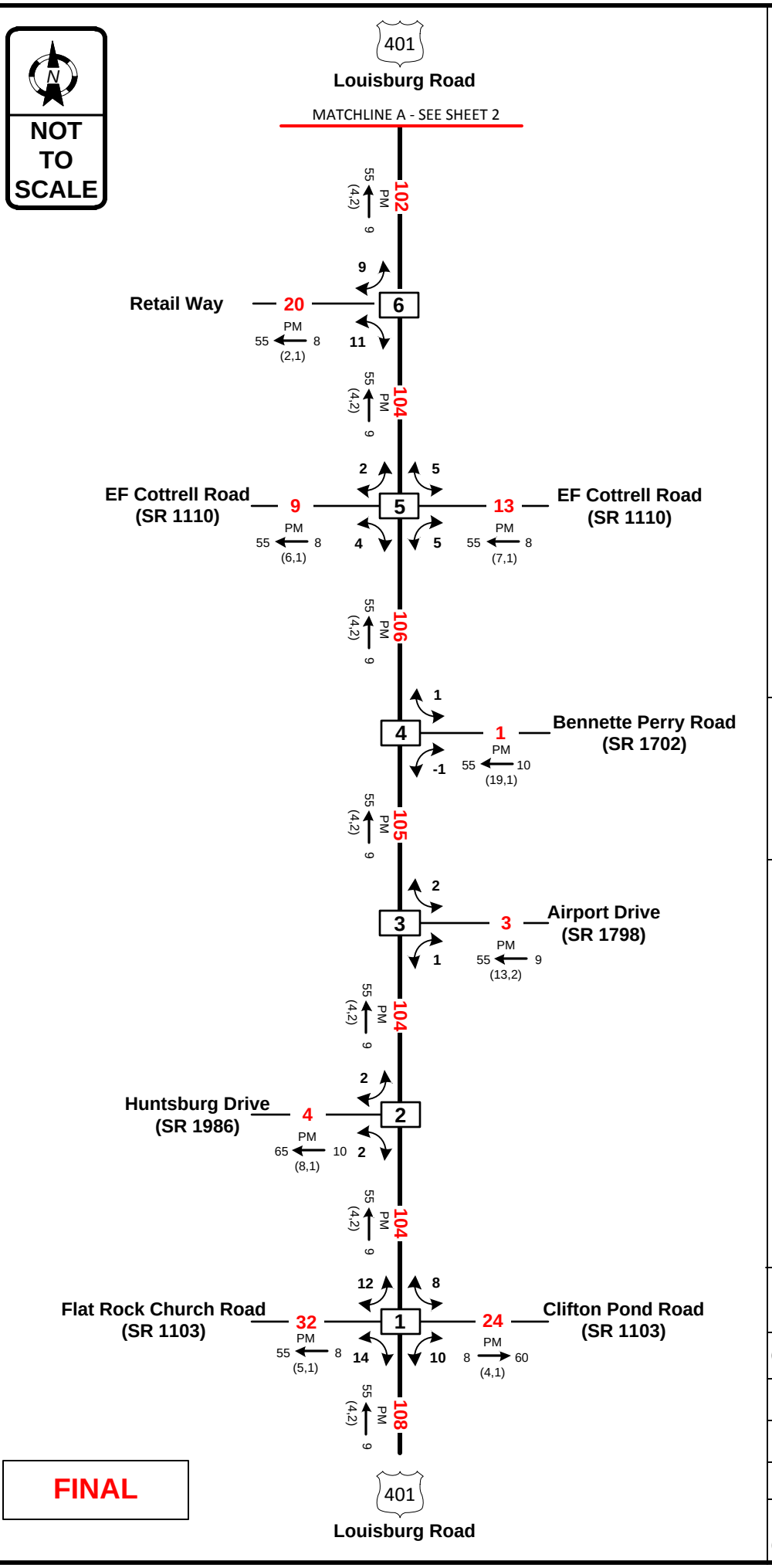

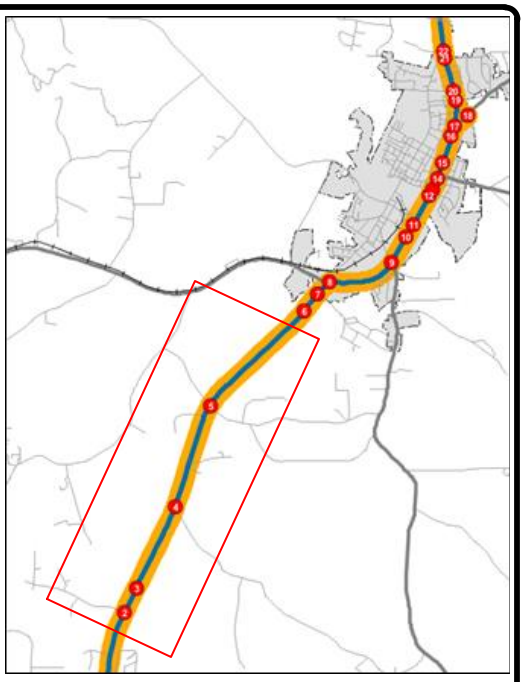

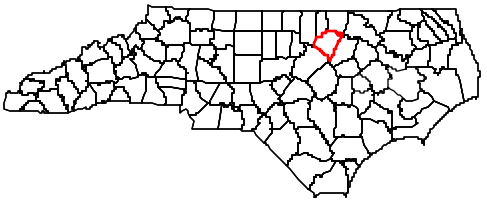

2017

ANNUAL AVERAGE DAILY TRAFFIC

BASE YEAR BUILD

Sheet 1 of 4

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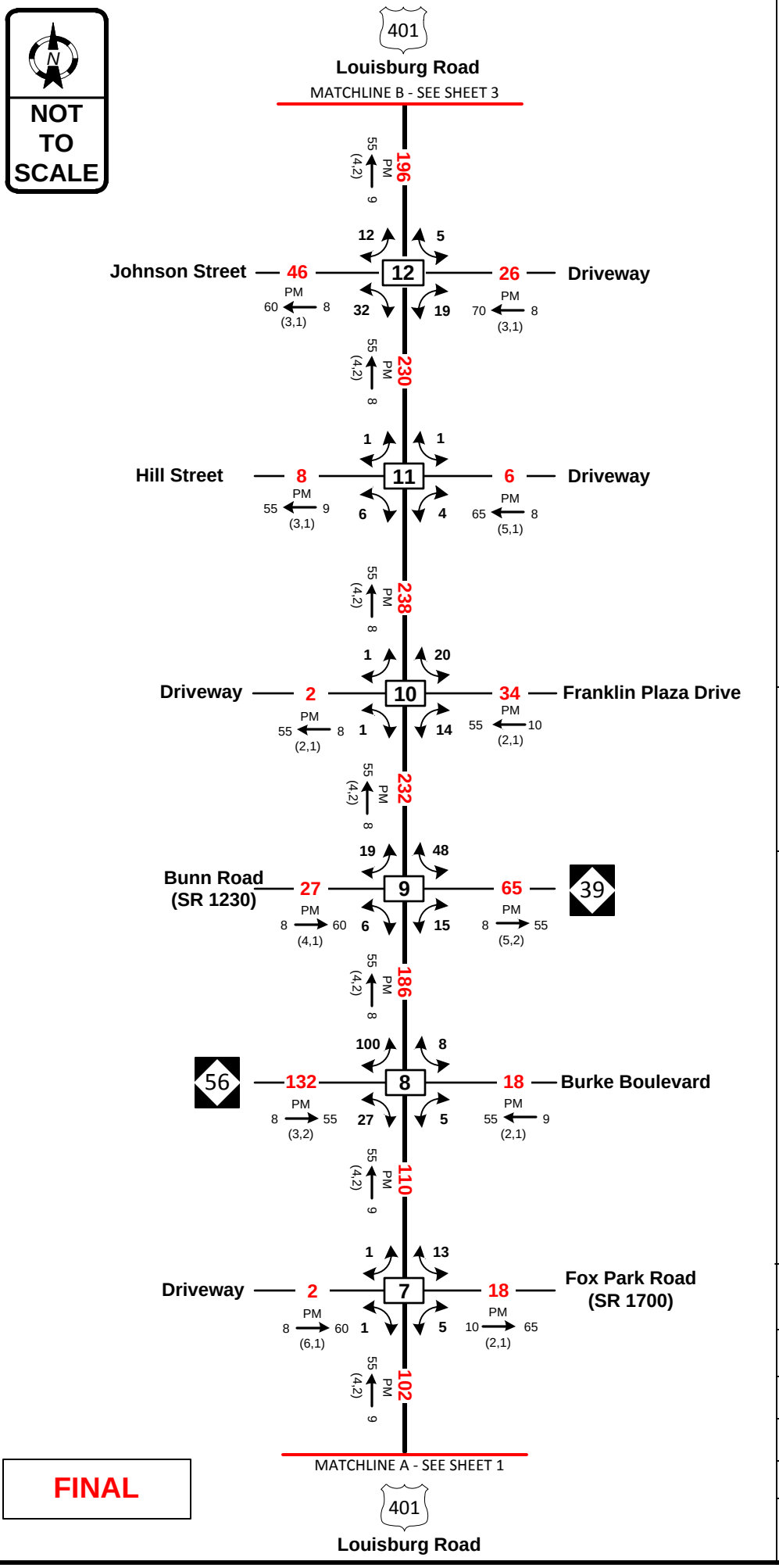

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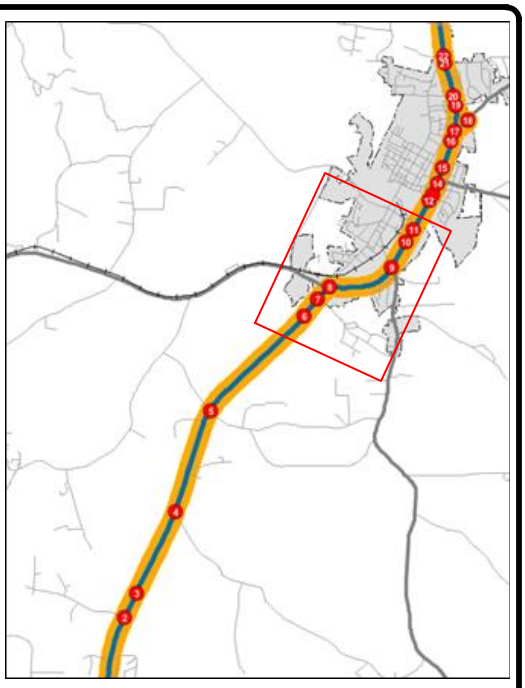

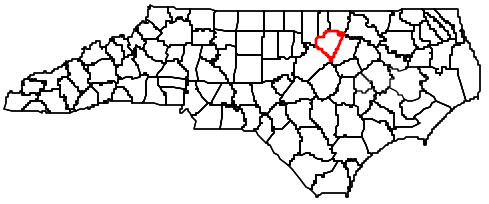

2017

ANNUAL AVERAGE DAILY TRAFFIC

BASE YEAR BUILD

Sheet 2 of 4

L E G E N D

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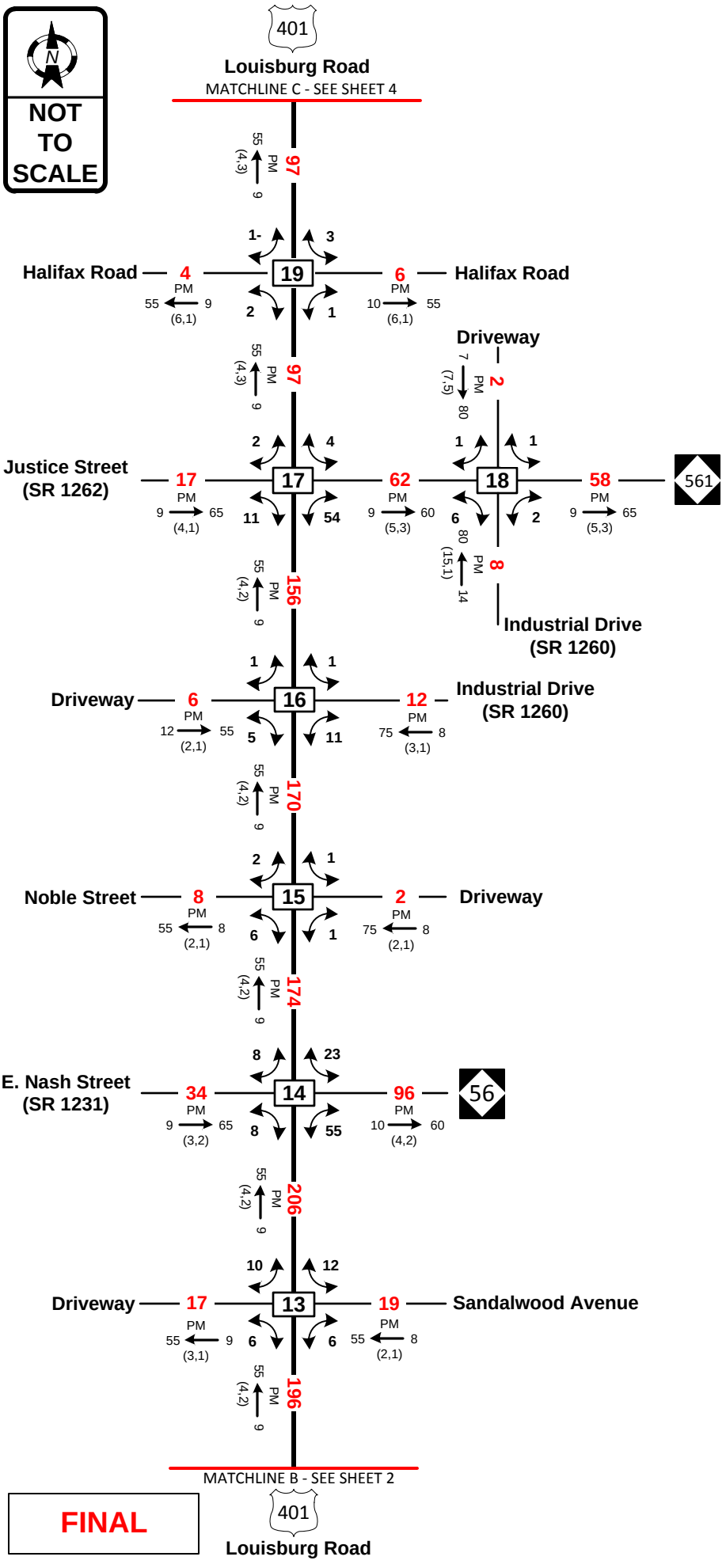

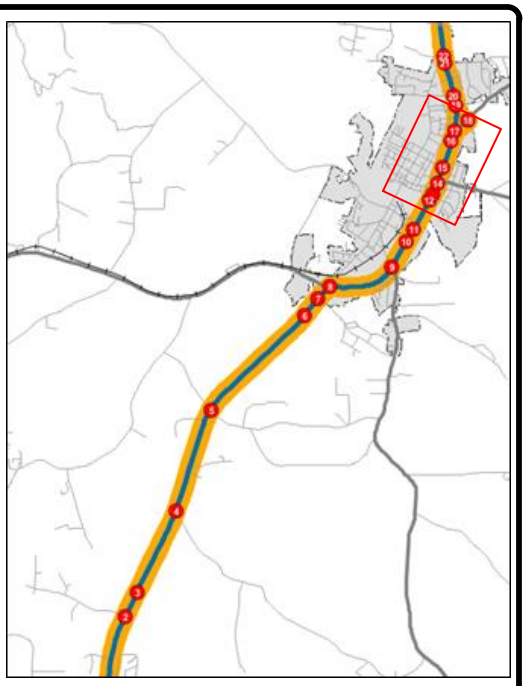

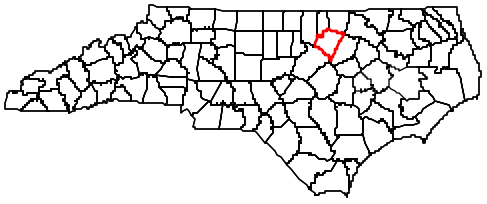

2017

ANNUAL AVERAGE DAILY TRAFFIC

BASE YEAR BUILD

Sheet 3 of 4

L E G E N D

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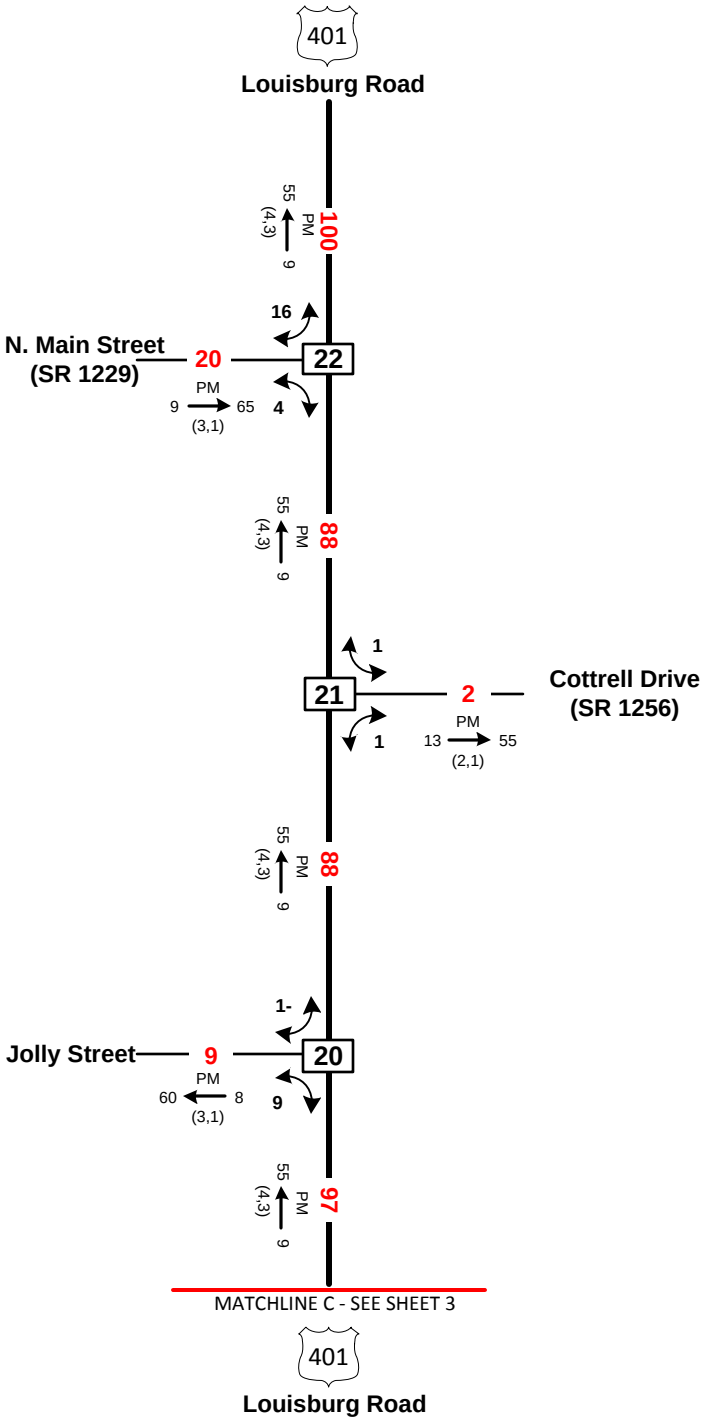
PROJECT: US 401 Widening from Flat Rock Church Road to N. Main Street	

NOT TO SCALE



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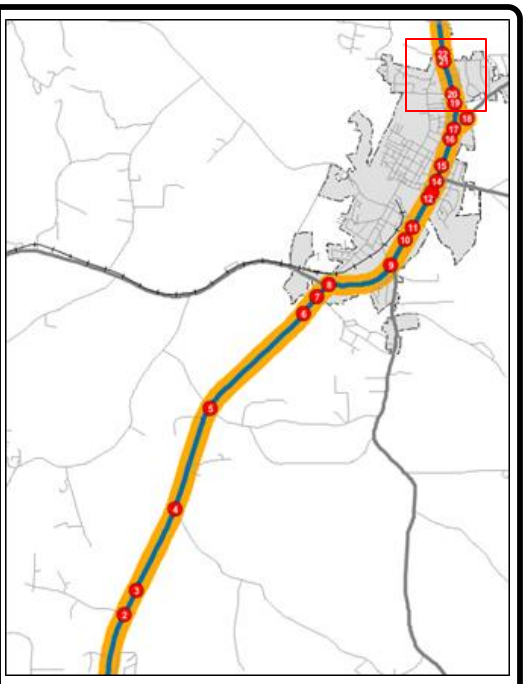
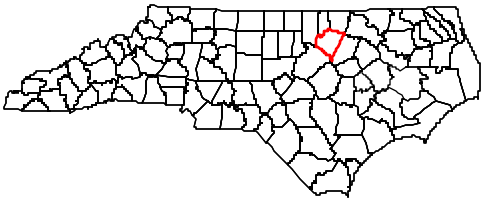




2017

ANNUAL AVERAGE DAILY TRAFFIC

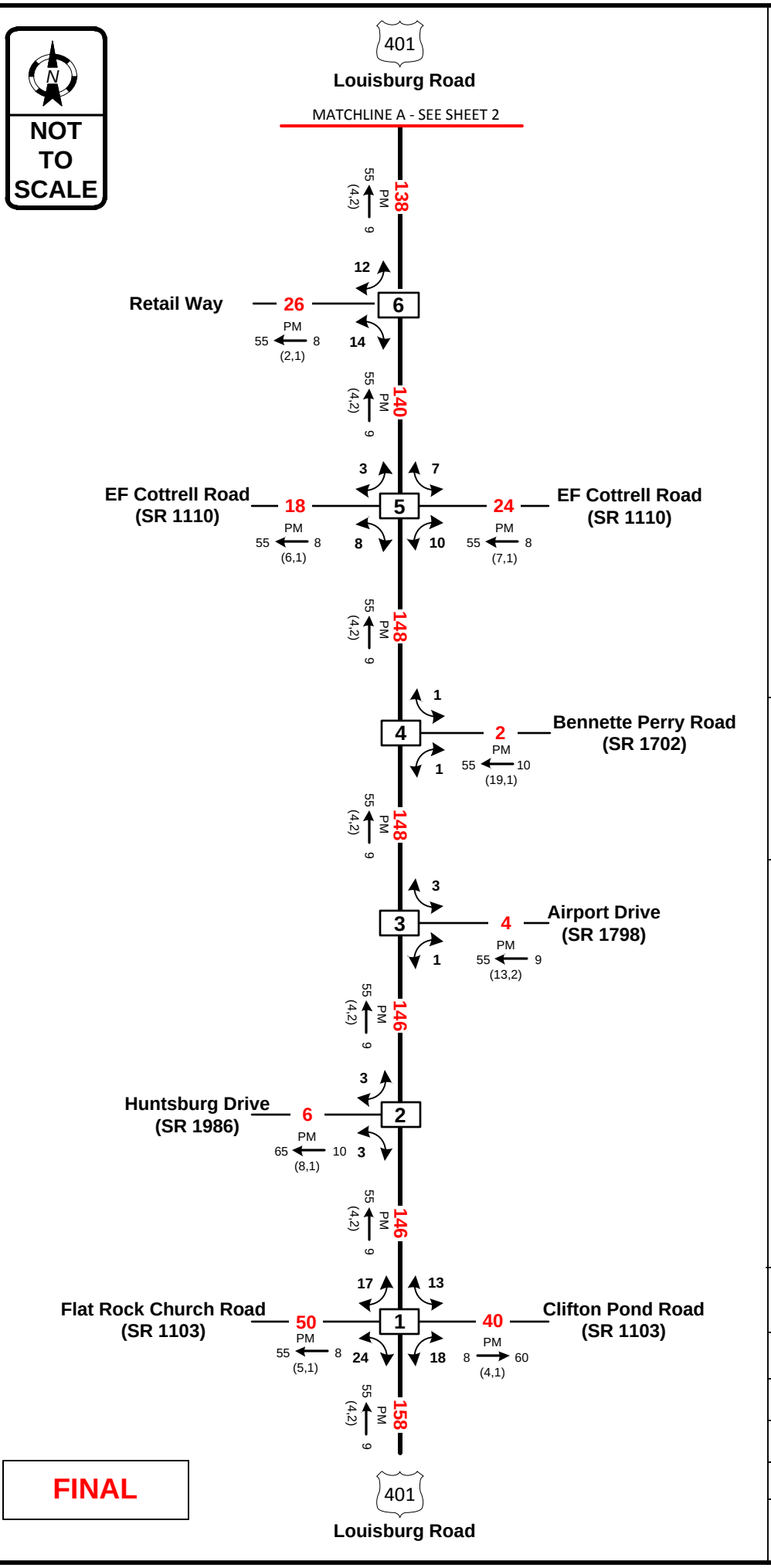
BASE YEAR BUILD

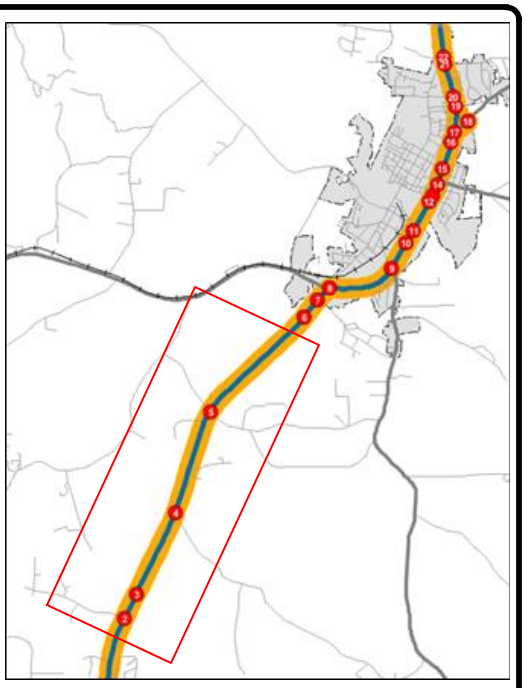
Sheet 4 of 4

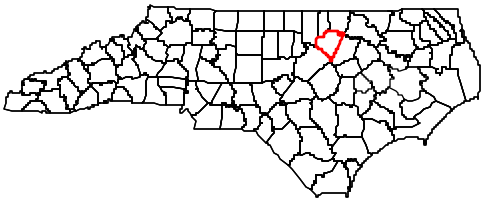
L E G E N D

X	= Study Area Intersection ID
###	No. of Vehicles Per Day (VPD) in 100s
K PM (d, t) D	
K	Design Hour Factor (%)
PM	PM Peak Period
D	Peak Hour Directional Split (%)
→	Indicates Direction of D
(d, t)	Duals, TT-STs (%)

TIP: R-2814D, R-3608 & U-6024	**WBS:** 34506.1.1, 38873.1.1 & 47151.1.1
COUNTY: Franklin	**DIVISION:** 5
DATE: December 2017	
PREPARED BY: HNTB North Carolina, PC	
LOCATION: Flat Rock Church Rd to N. Main Street	
PROJECT: US 401 Widening from Flat Rock Church Road to N. Main Street	







2040

ANNUAL AVERAGE DAILY TRAFFIC

FUTURE YEAR NO-BUILD

Sheet 1 of 4

L E G E N D

X	= Study Area Intersection ID
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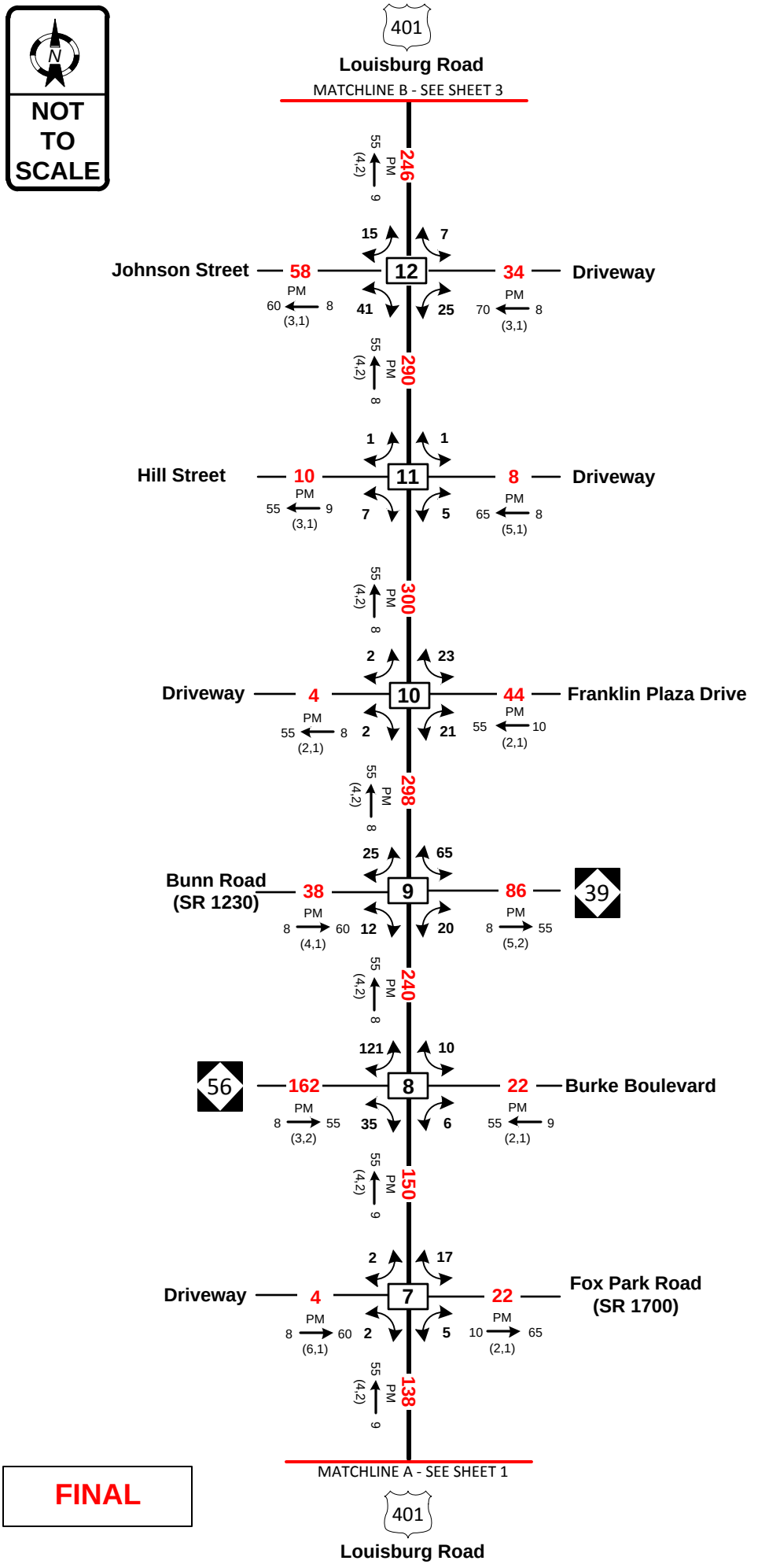
COUNTY: Franklin	**DIVISION:** 5
DATE: December 2017	
PREPARED BY: HNTB North Carolina, PC	
LOCATION: Flat Rock Church Rd to N. Main Street	
PROJECT: US 401 Widening from Flat Rock Church Road to N. Main Street	

FINAL



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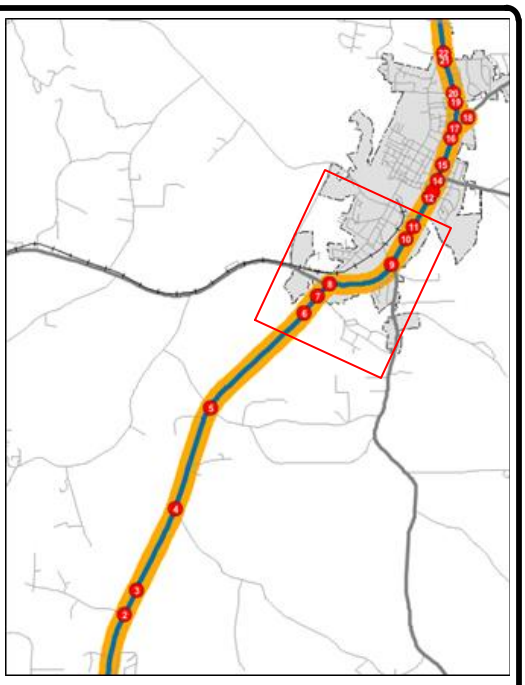

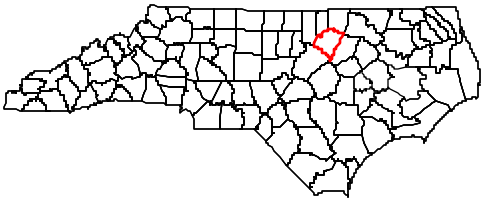

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ANNUAL AVERAGE DAILY TRAFFIC

FUTURE YEAR NO-BUILD

Sheet 2 of 4

L E G E N D

X	= Study Area Intersection ID
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K PM (d, t) → D	
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D	Peak Hour Directional Split (%)
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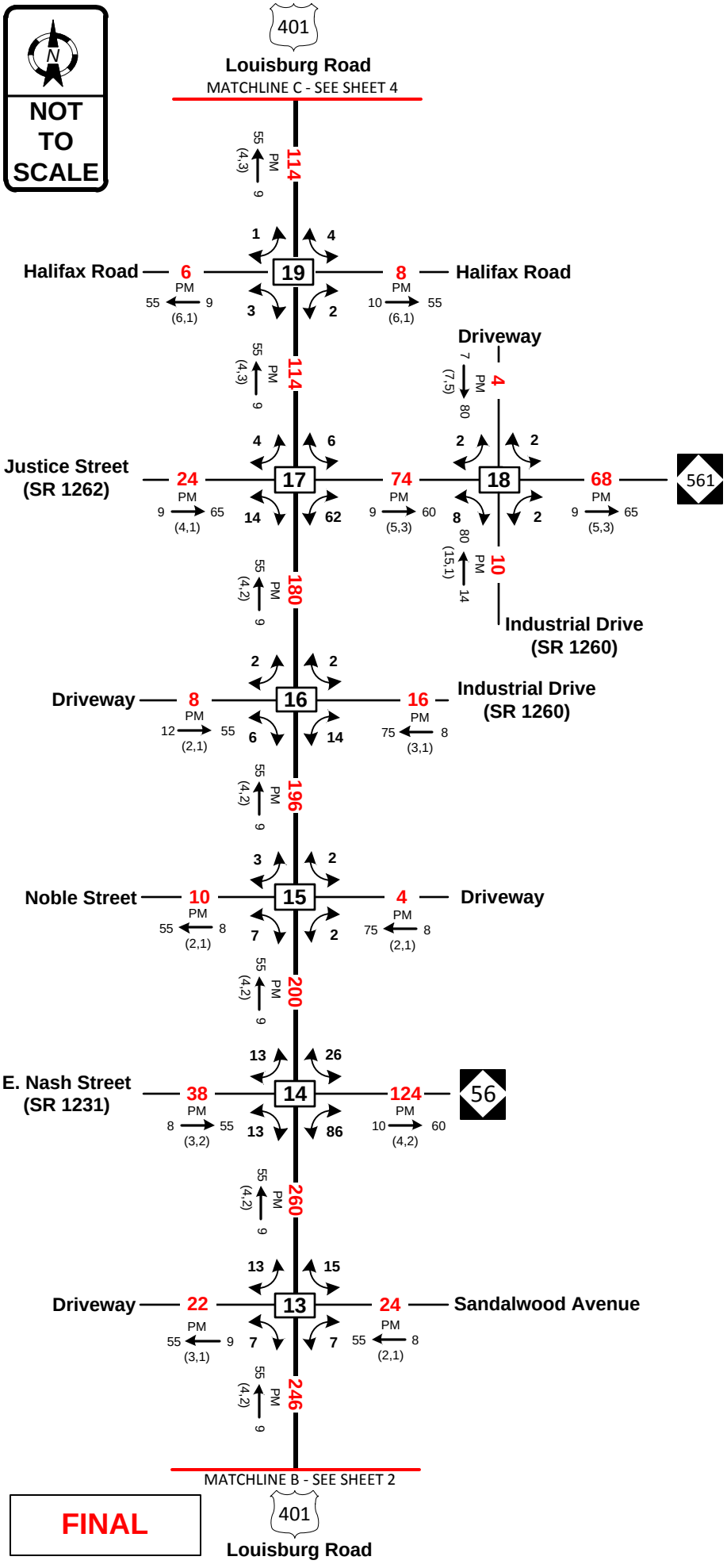
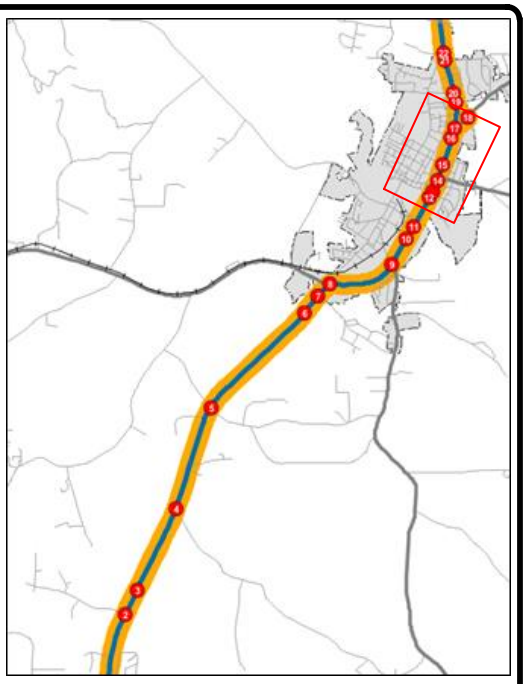
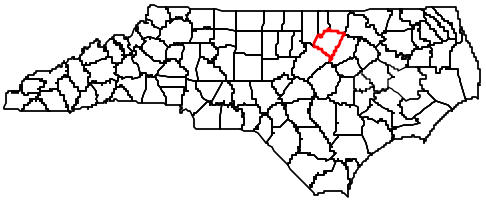
(d, t)	Duals, TT-STs (%)

TIP: R-2814D, R-3608 & U-6024	**WBS:** 34506.1.1, 38873.1.1 & 47151.1.1
COUNTY: Franklin	**DIVISION:** 5
DATE: December 2017	
PREPARED BY: HNTB North Carolina, PC	
LOCATION: Flat Rock Church Rd to N. Main Street	
PROJECT: US 401 Widening from Flat Rock Church Road to N. Main Street	







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ANNUAL AVERAGE DAILY TRAFFIC

FUTURE YEAR NO-BUILD

Sheet 3 of 4

L E G E N D

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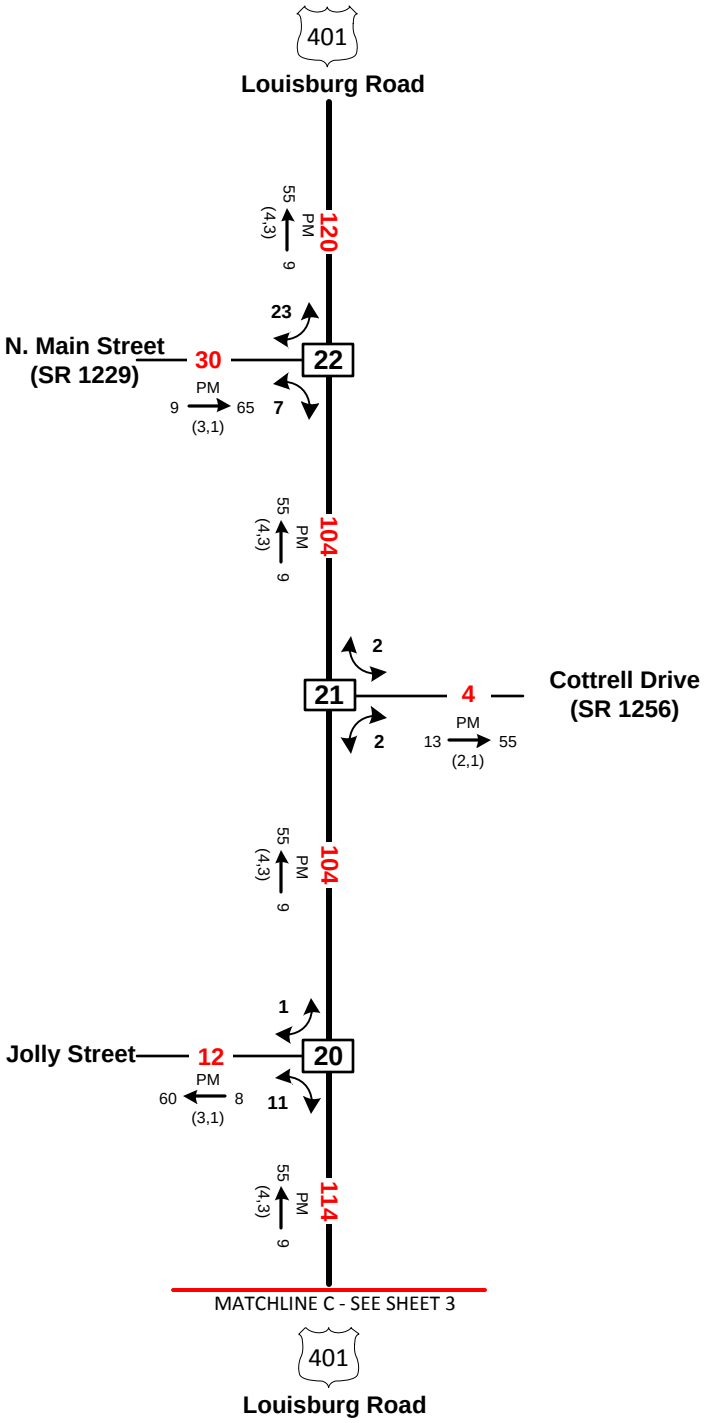
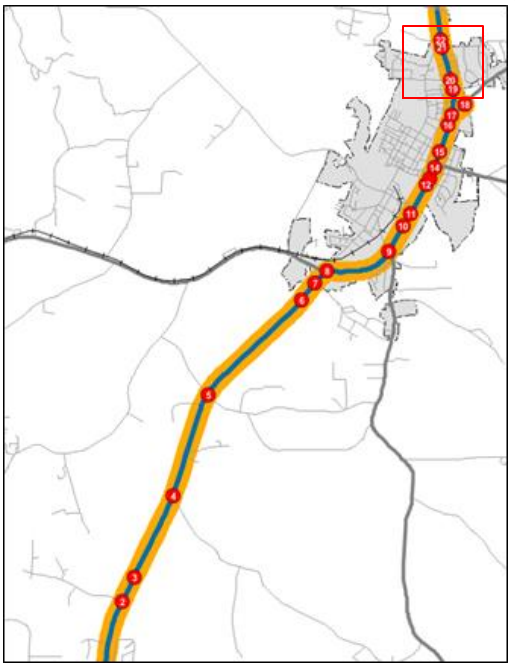
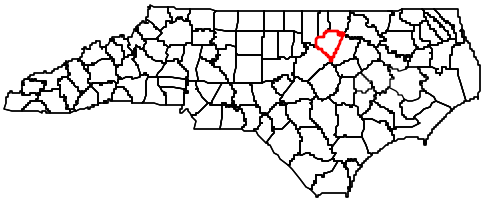
COUNTY: Franklin	**DIVISION:** 5
DATE: December 2017	
PREPARED BY: HNTB North Carolina, PC	
LOCATION: Flat Rock Church Rd to N. Main Street	
PROJECT: US 401 Widening from Flat Rock Church Road to N. Main Street	

NOT TO SCALE







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ANNUAL AVERAGE DAILY TRAFFIC

FUTURE YEAR NO-BUILD

Sheet 4 of 4

L E G E N D

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COUNTY: Franklin	**DIVISION:** 5
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LOCATION: Flat Rock Church Rd to N. Main Street	
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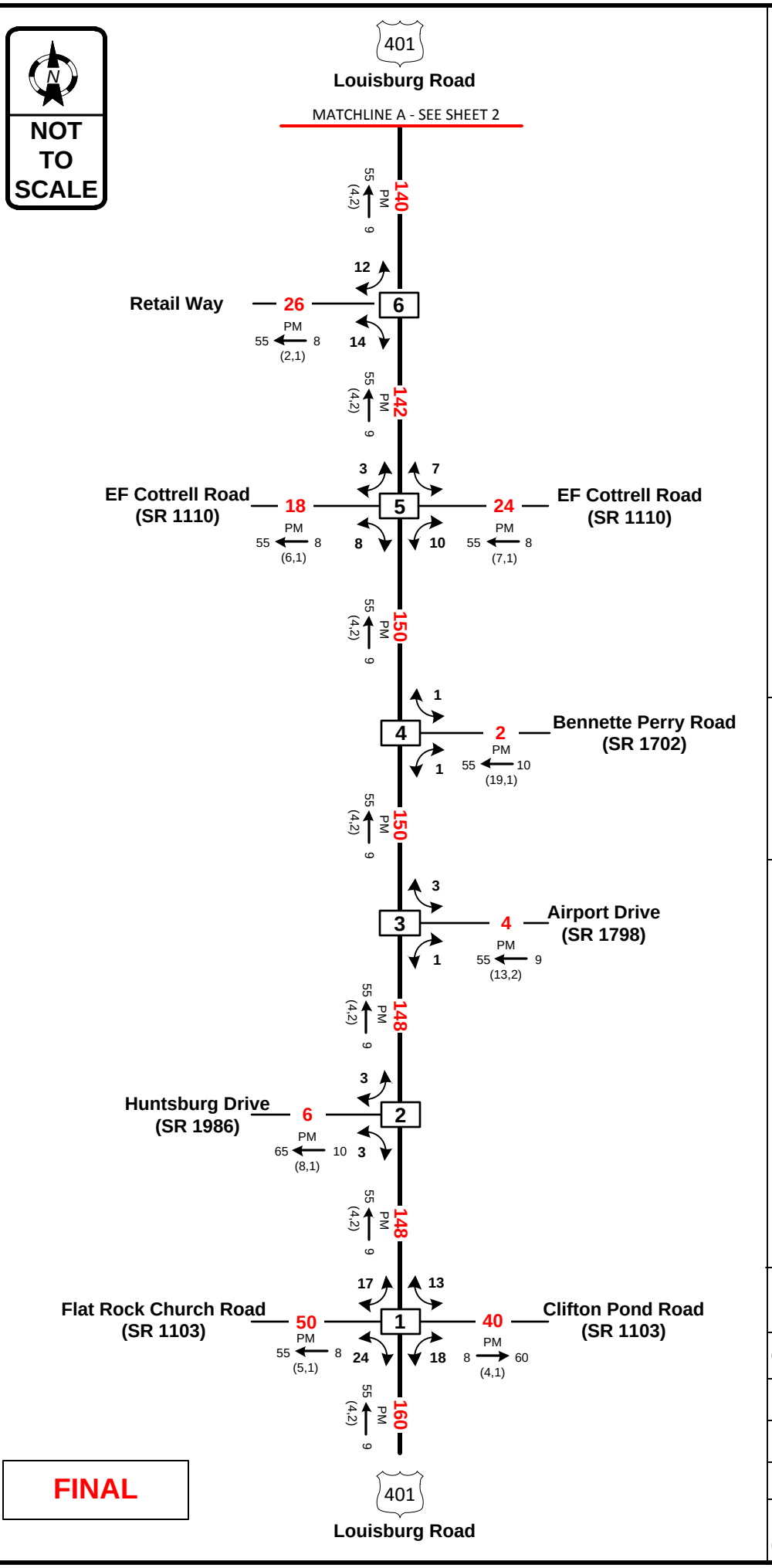
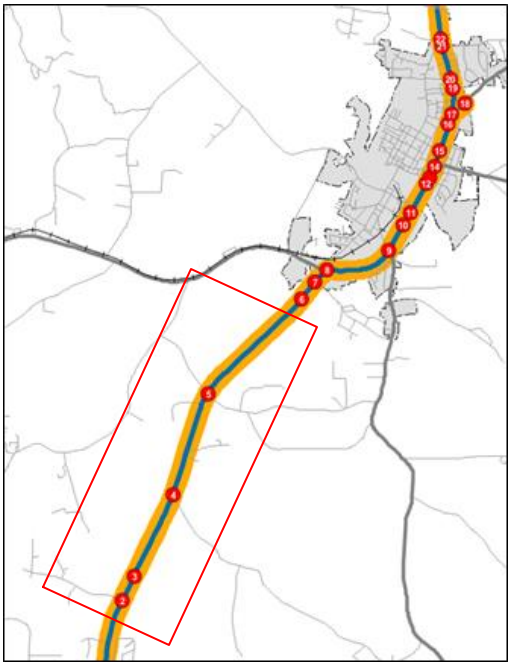
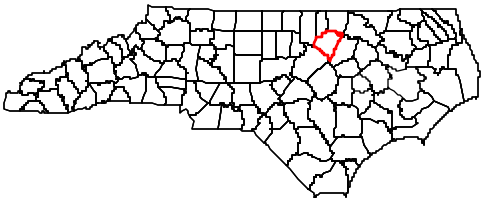
FINAL







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ANNUAL AVERAGE DAILY TRAFFIC

FUTURE YEAR BUILD

Sheet 1 of 4

L E G E N D

X	= Study Area Intersection ID
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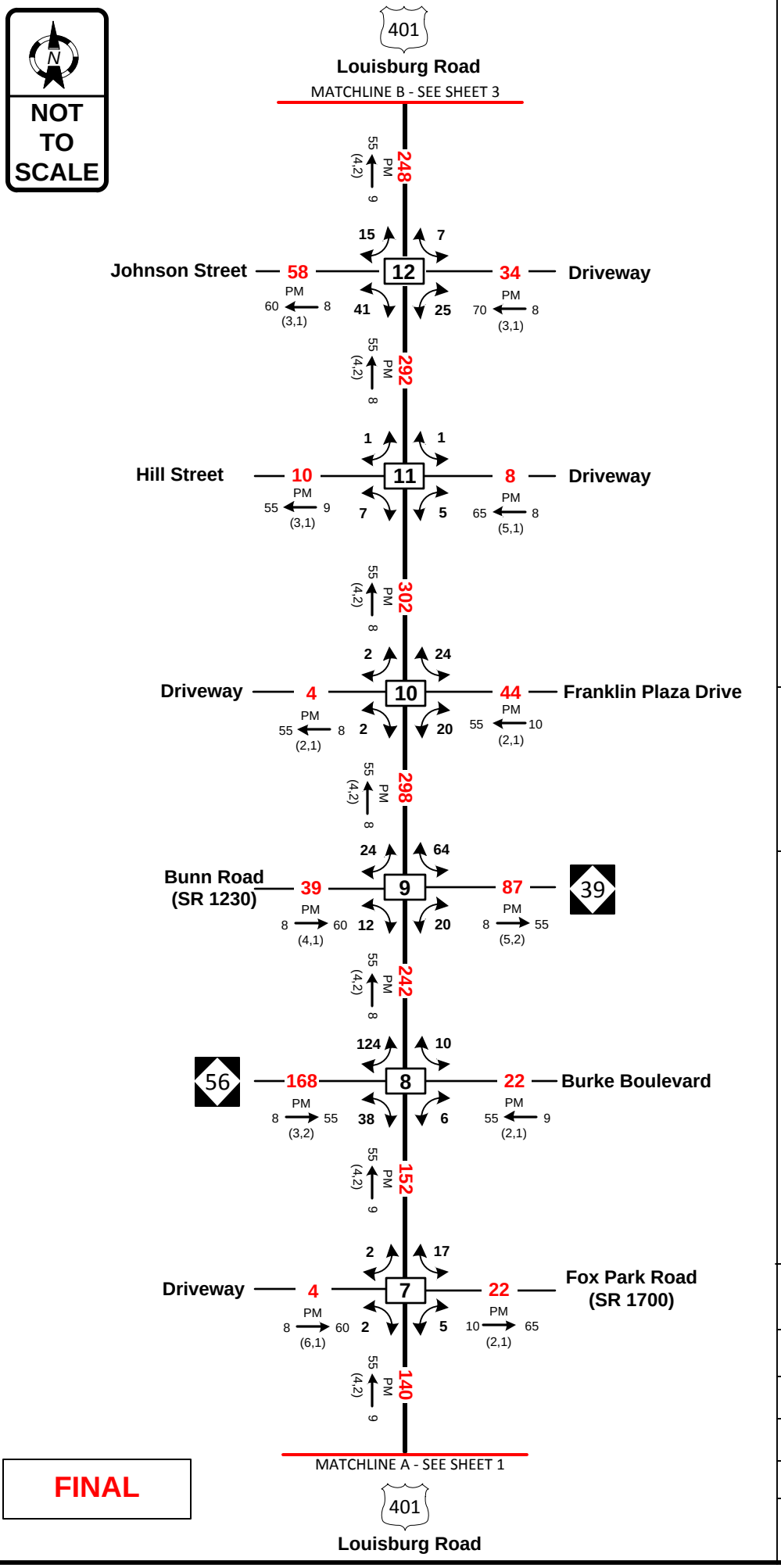

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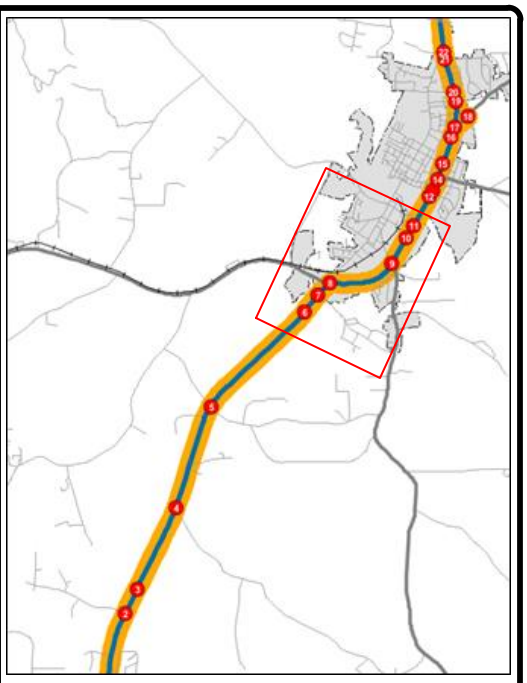

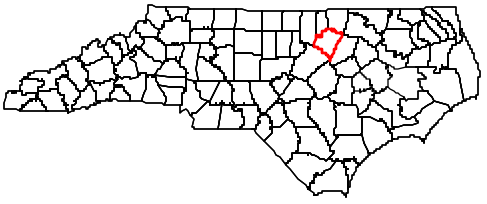

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ANNUAL AVERAGE DAILY TRAFFIC

FUTURE YEAR BUILD

Sheet 2 of 4

L E G E N D

X	= Study Area Intersection ID
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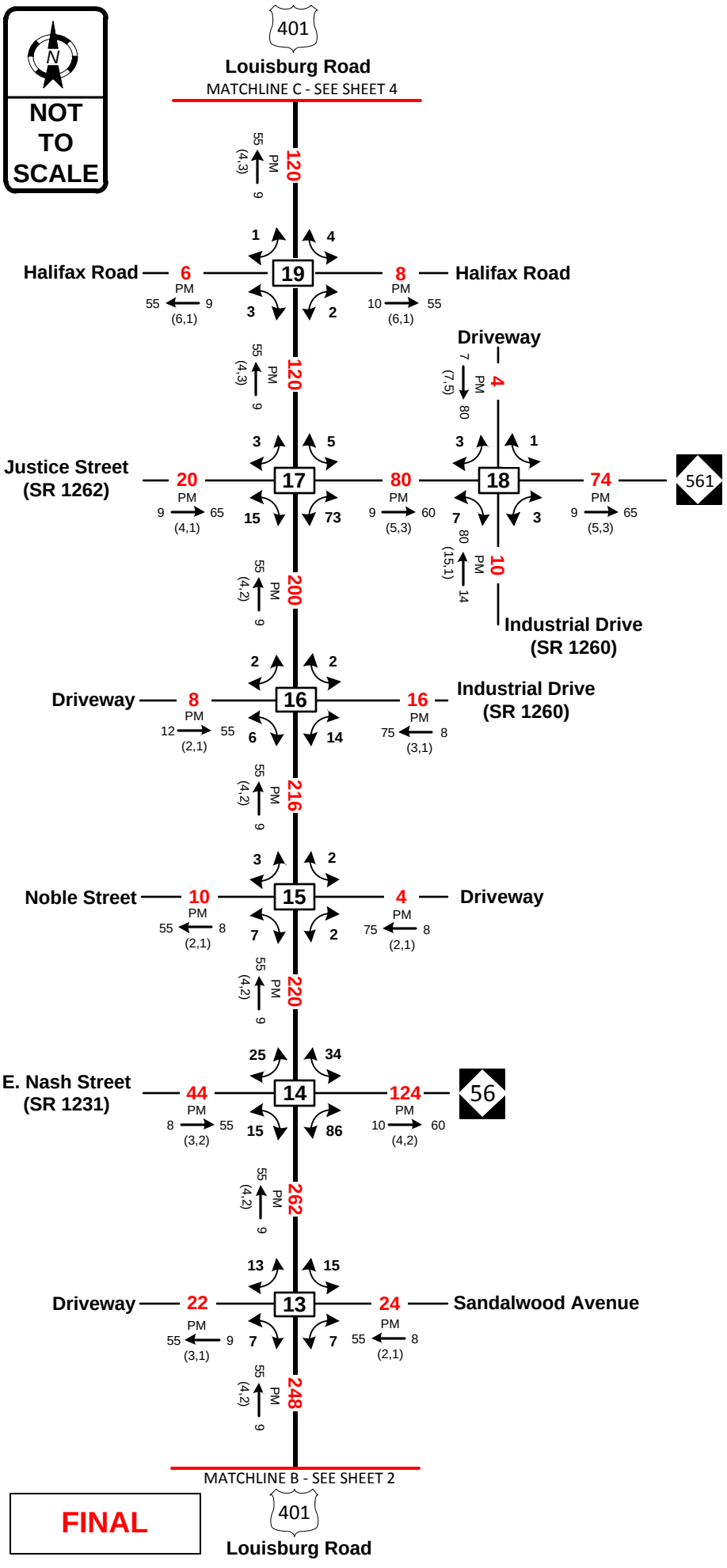

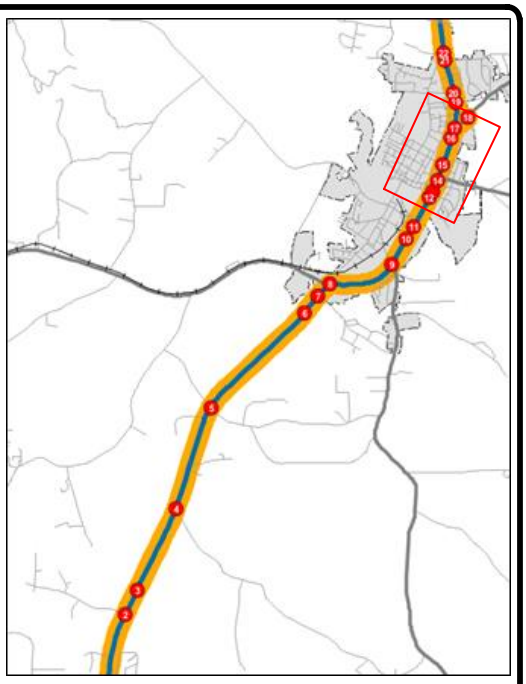

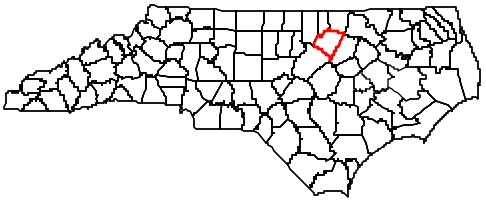

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ANNUAL AVERAGE DAILY TRAFFIC

FUTURE YEAR BUILD

Sheet 3 of 4

L E G E N D

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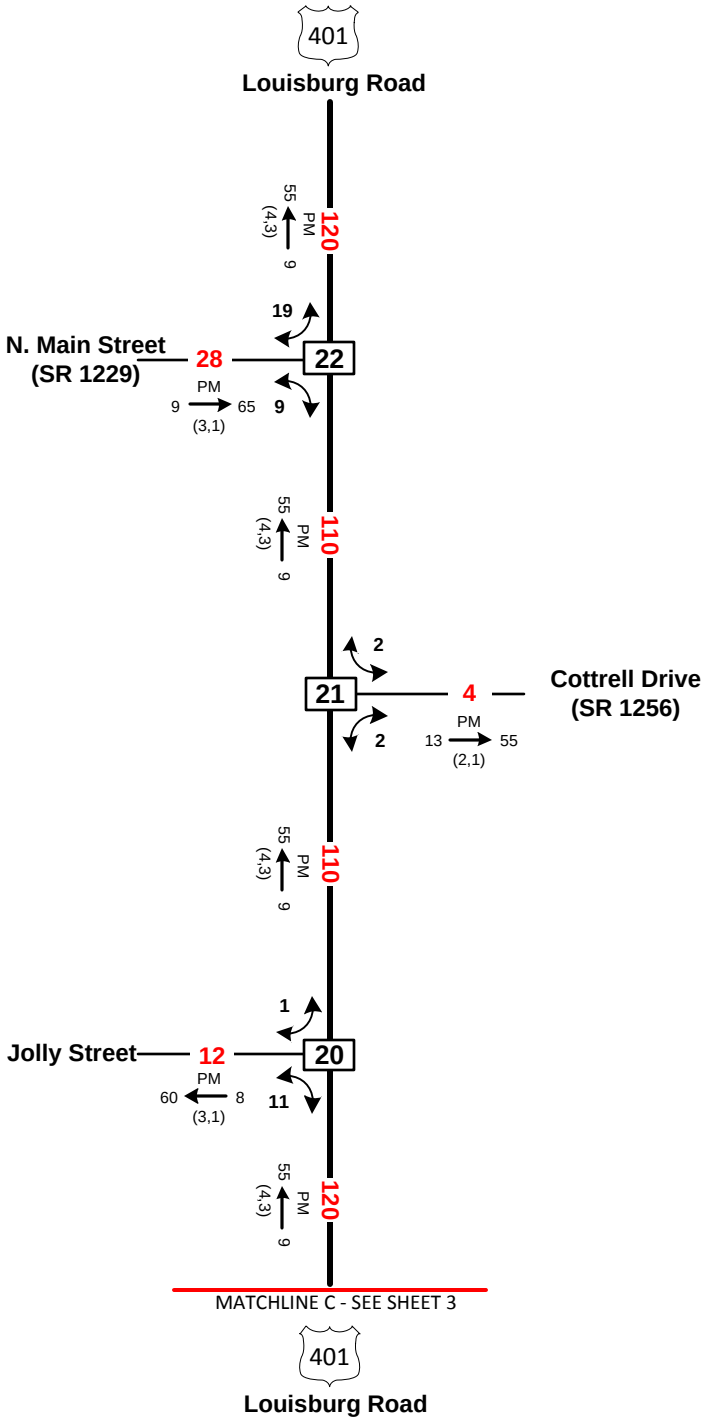
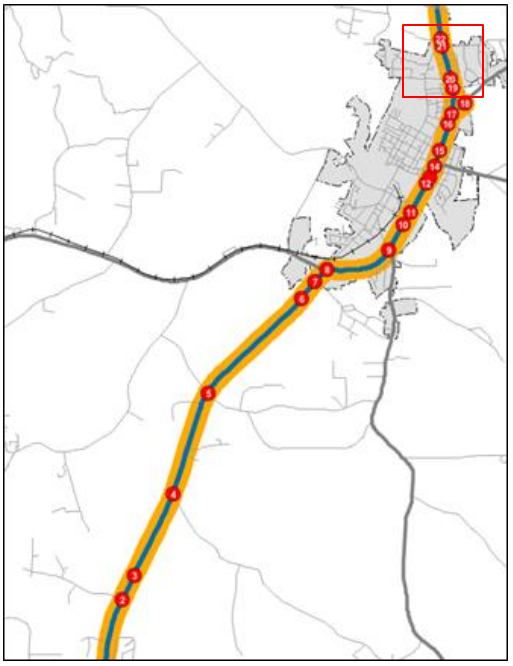
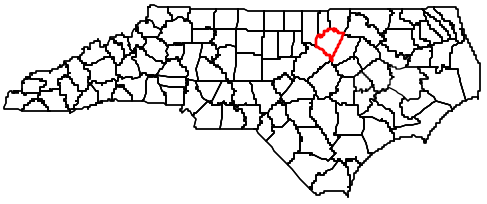
TIP: R-2814D, R-3608 & U-6024	**WBS:** 34506.1.1, 38873.1.1 & 47151.1.1
COUNTY: Franklin	**DIVISION:** 5
DATE: December 2017	
PREPARED BY: HNTB North Carolina, PC	
LOCATION: Flat Rock Church Rd to N. Main Street	
PROJECT: US 401 Widening from Flat Rock Church Road to N. Main Street	

NOT TO SCALE







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ANNUAL AVERAGE DAILY TRAFFIC

FUTURE YEAR BUILD

Sheet 4 of 4

L E G E N D

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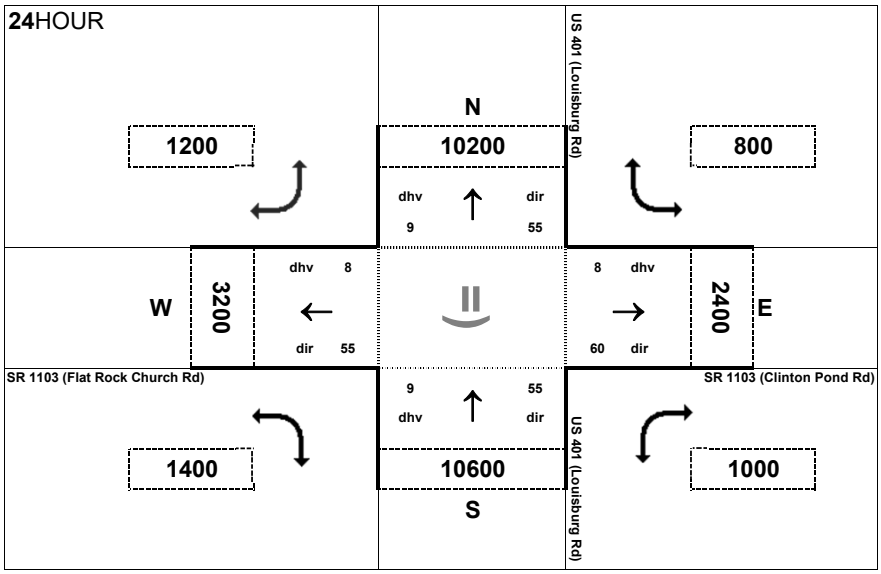
COUNTY: Franklin	**DIVISION:** 5
DATE: December 2017	
PREPARED BY: HNTB North Carolina, PC	
LOCATION: Flat Rock Church Rd to N. Main Street	
PROJECT: US 401 Widening from Flat Rock Church Road to N. Main Street	

FINAL

APPENDIX B:

INTERSECTION ANALYSIS UTILITY OUTPUT

2017 NO- BUILD

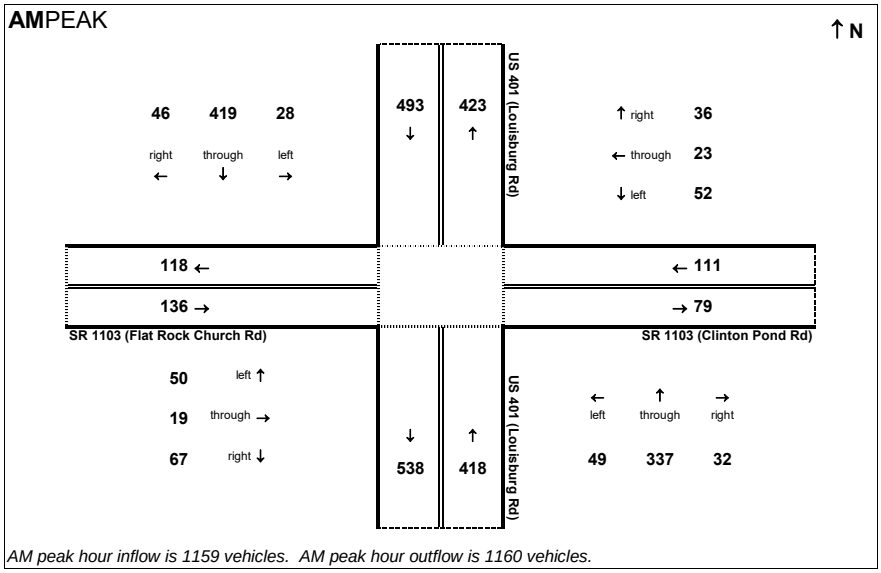


Peak Hour Volume Breakouts Report:
US 401 (Louisburg Rd) at SR 1103 (Flat Rock Church Rd/Clifton Pond Rd)

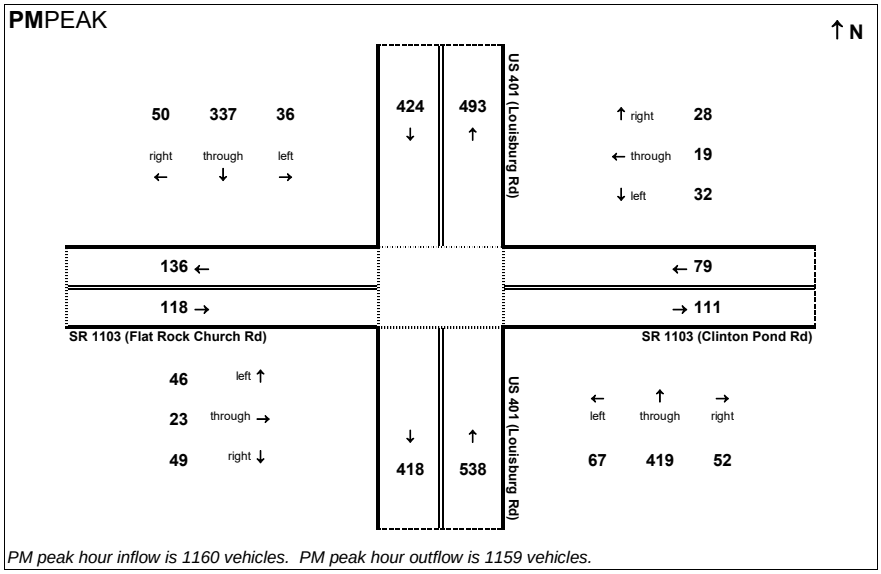
Traffic Forecast Release Date:
December-17

Traffic Data Year:
2017 No-Build

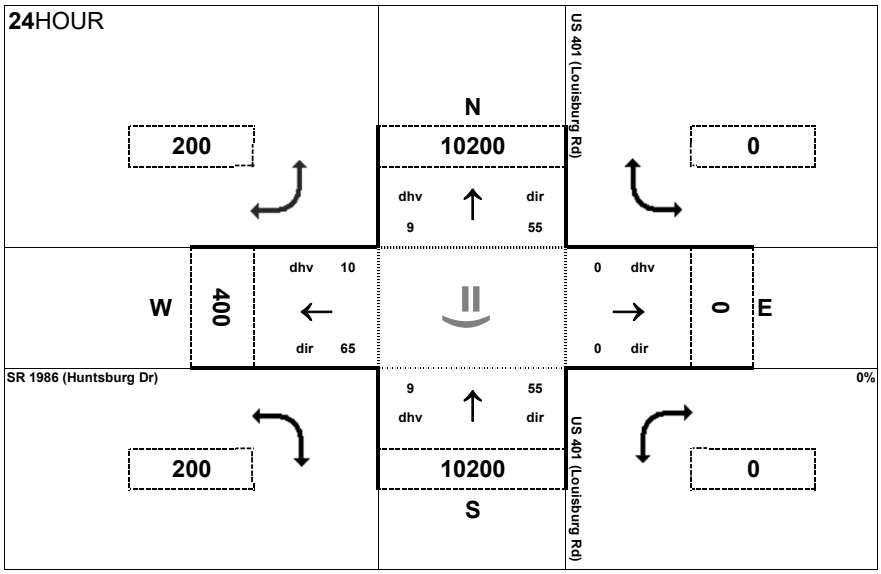
Project:
R-2814D



AM peak hour inflow is 1159 vehicles. AM peak hour outflow is 1160 vehicles.



PM peak hour inflow is 1160 vehicles. PM peak hour outflow is 1159 vehicles.

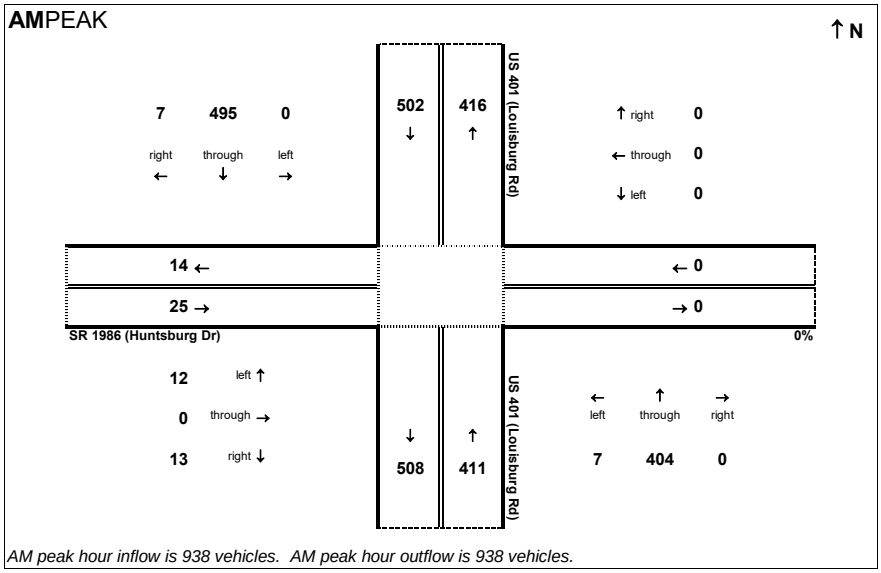


Peak Hour Volume Breakouts Report:
US 401 (Louisburg Rd) at SR 1986 (Huntsburg Rd)

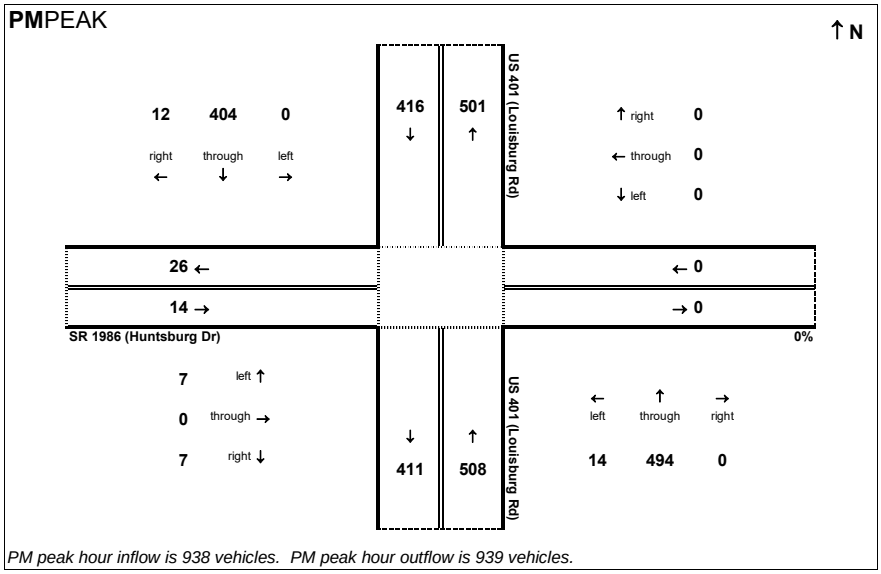
Traffic Forecast Release Date:
December-17

Traffic Data Year:
2017 No-Build

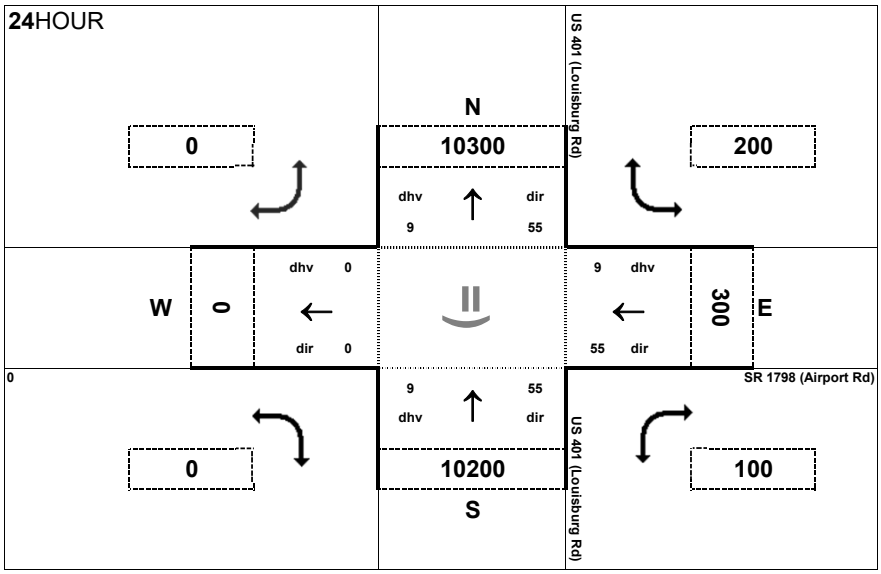
Project:
R-2814D



AM peak hour inflow is 938 vehicles. AM peak hour outflow is 938 vehicles.



PM peak hour inflow is 938 vehicles. PM peak hour outflow is 939 vehicles.

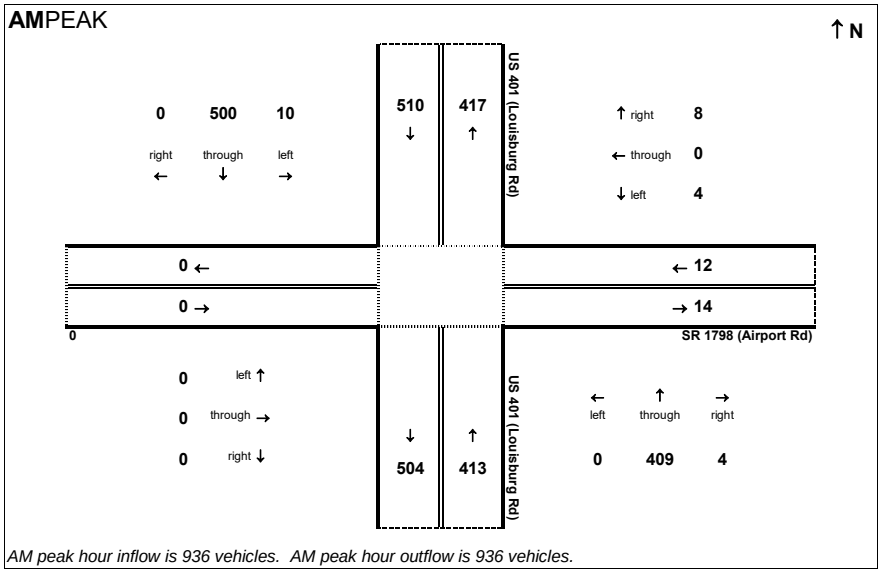


Peak Hour Volume Breakouts Report:
US 401 (Louisburg Rd) at SR 1798 (Airport Rd)

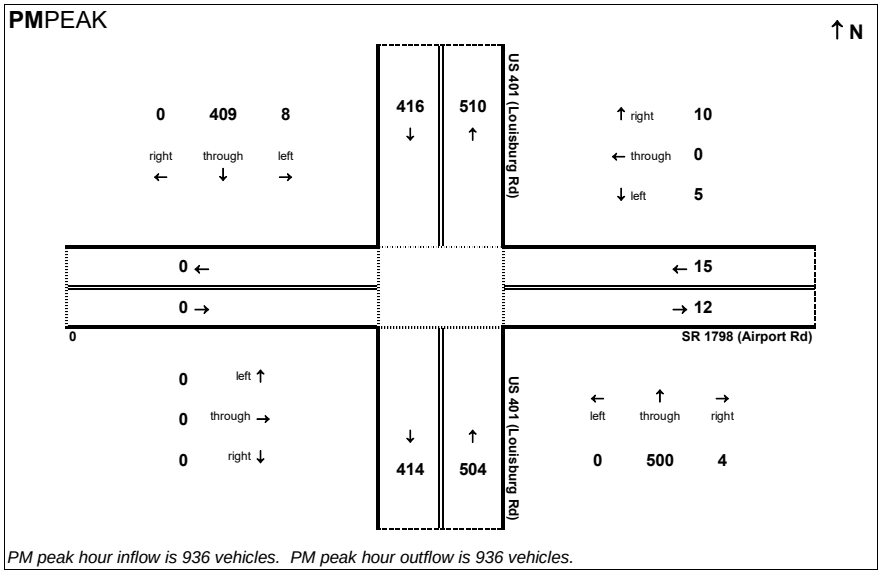
Traffic Forecast Release Date:
December-17

Traffic Data Year:
2017 No-Build

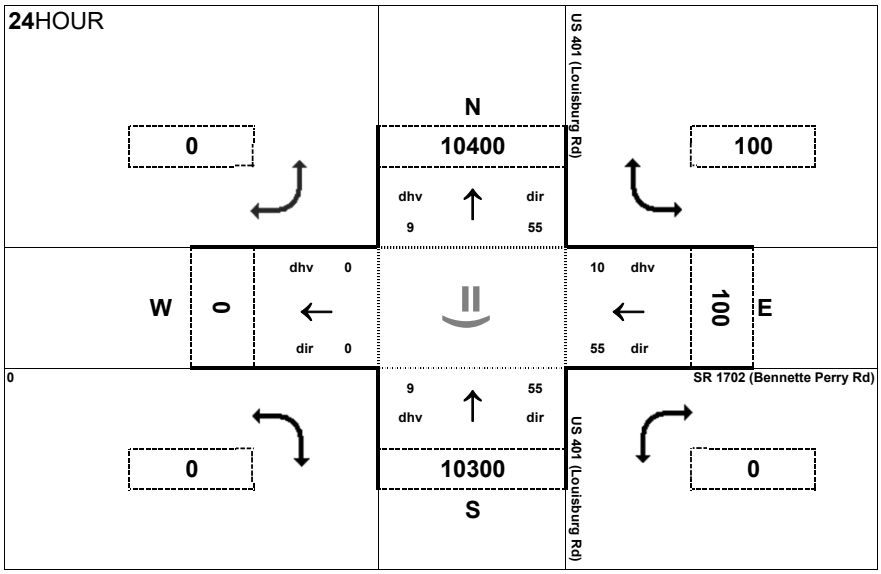
Project:
R-2814D



AM peak hour inflow is 936 vehicles. AM peak hour outflow is 936 vehicles.



PM peak hour inflow is 936 vehicles. PM peak hour outflow is 936 vehicles.

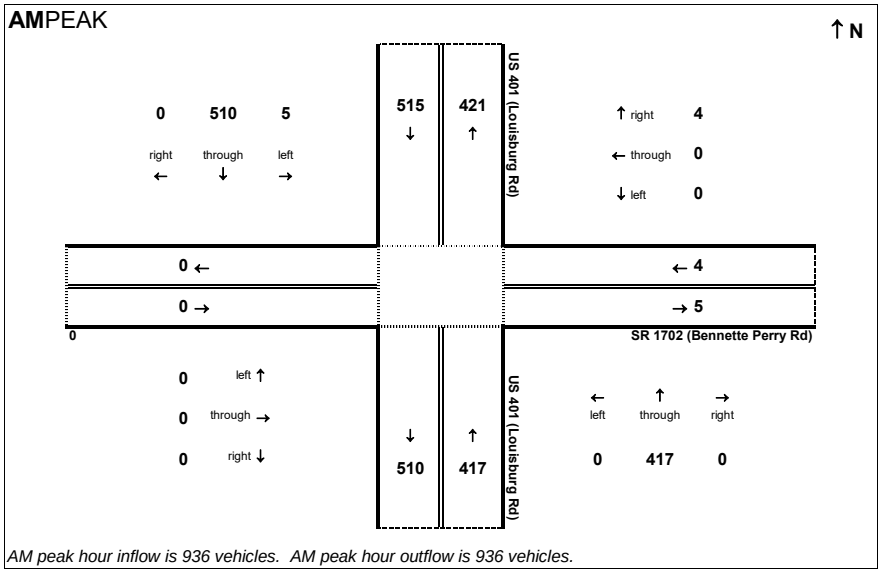


Peak Hour Volume Breakouts Report:
US 401 (Louisburg Rd) at SR 1702 (Bennette Perry Rd)

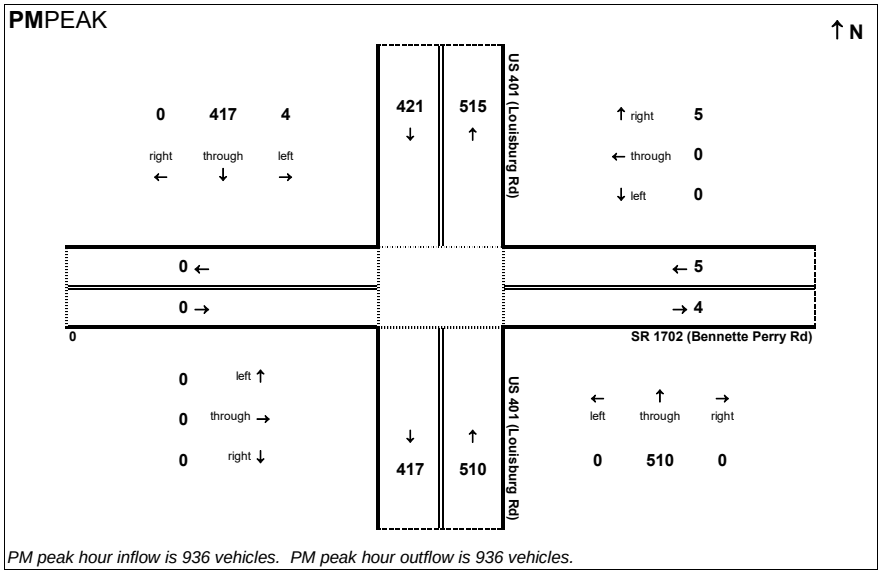
Traffic Forecast Release Date:
December-17

Traffic Data Year:
2017 No-Build

Project:
R-2814D



AM peak hour inflow is 936 vehicles. AM peak hour outflow is 936 vehicles.



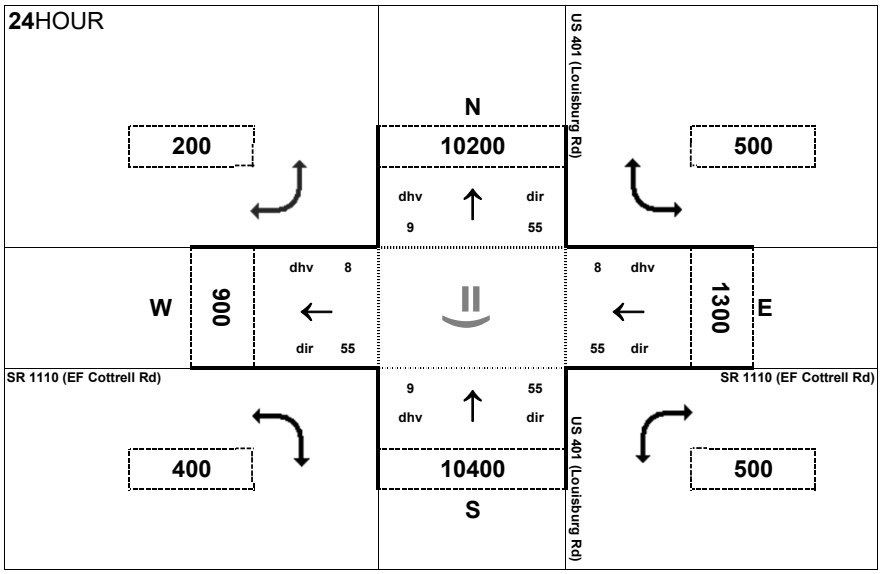
PM peak hour inflow is 936 vehicles. PM peak hour outflow is 936 vehicles.

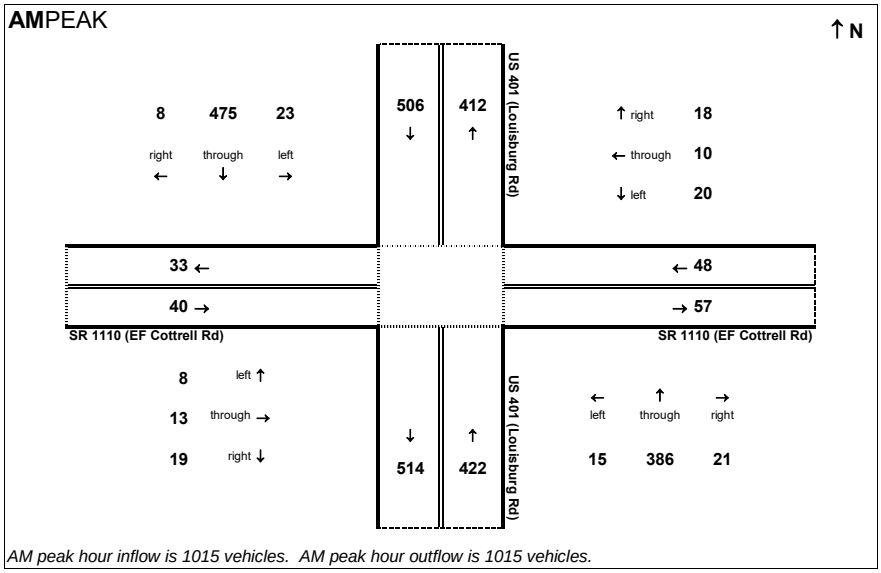
Peak Hour Volume Breakouts Report:
US 401 (Louisburg Rd) at SR 1110 (EF Cottrell Rd)

Traffic Forecast Release Date:
December-17

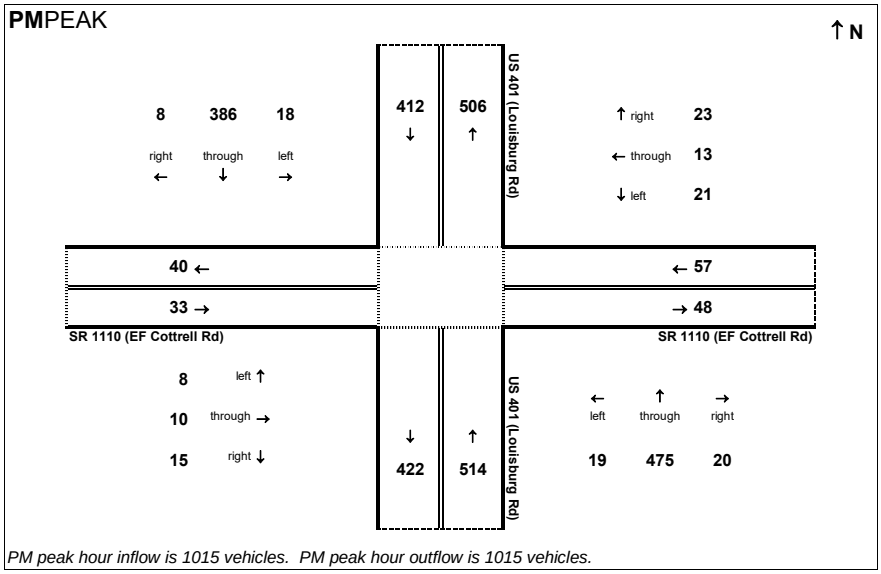
Traffic Data Year:
2017 No-Build

Project:
R-2814D

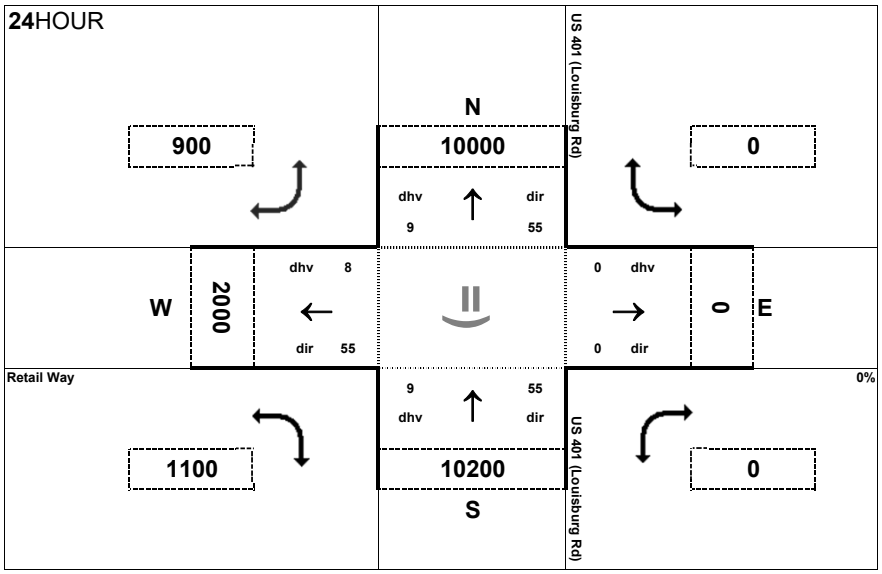


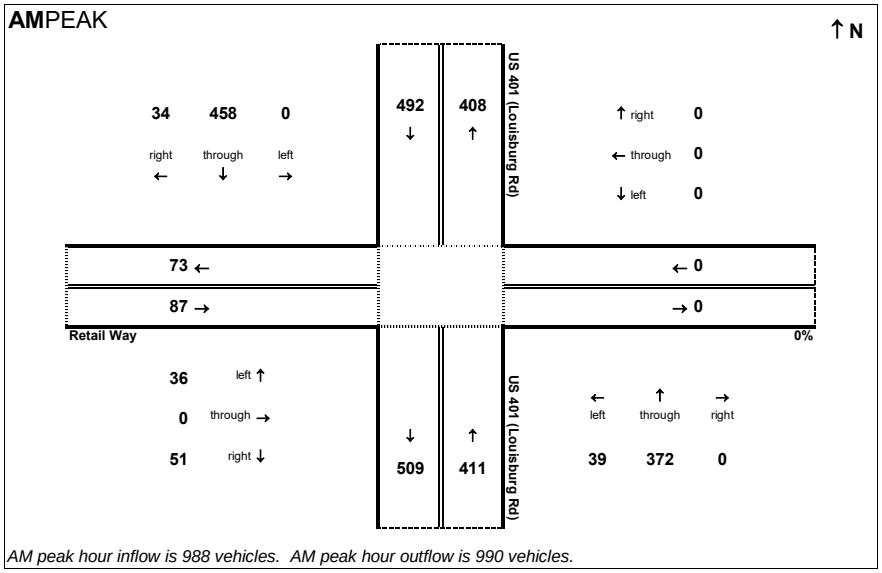


AM peak hour inflow is 1015 vehicles. AM peak hour outflow is 1015 vehicles.

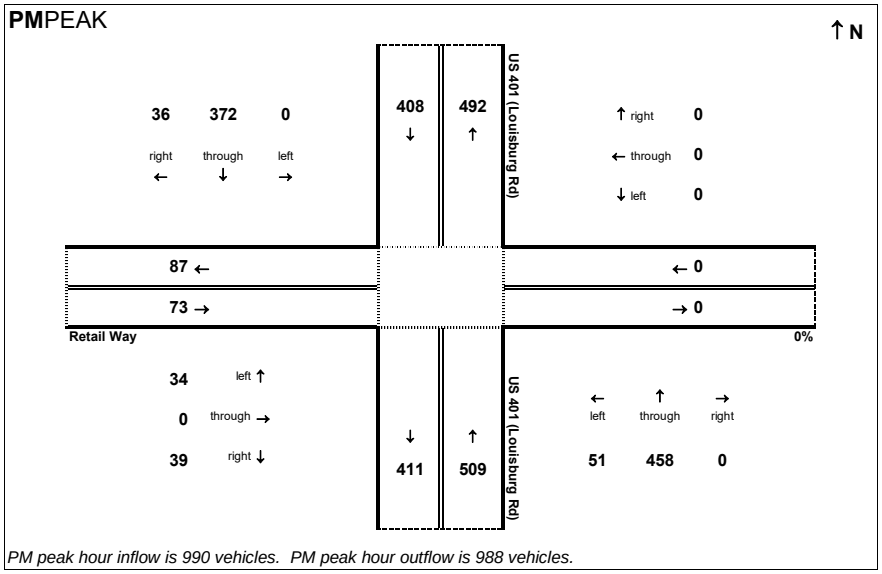


PM peak hour inflow is 1015 vehicles. PM peak hour outflow is 1015 vehicles.





AM peak hour inflow is 988 vehicles. AM peak hour outflow is 990 vehicles.



PM peak hour inflow is 990 vehicles. PM peak hour outflow is 988 vehicles.

Peak Hour Volume Breakouts Report:
US 401 (Louisburg Rd) at Retail Way

Traffic Forecast Release Date:
December-17

Traffic Data Year:
2017 No-Build

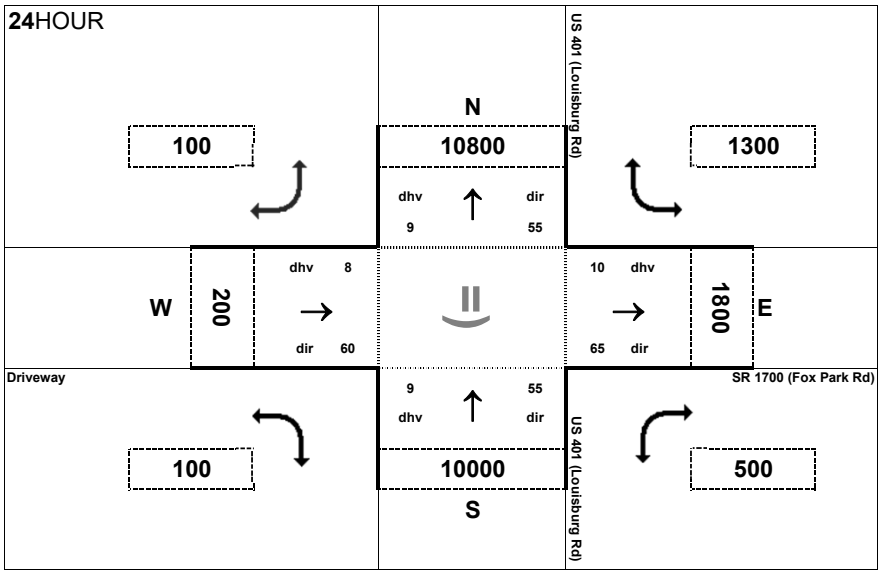
Project:
R-2814D

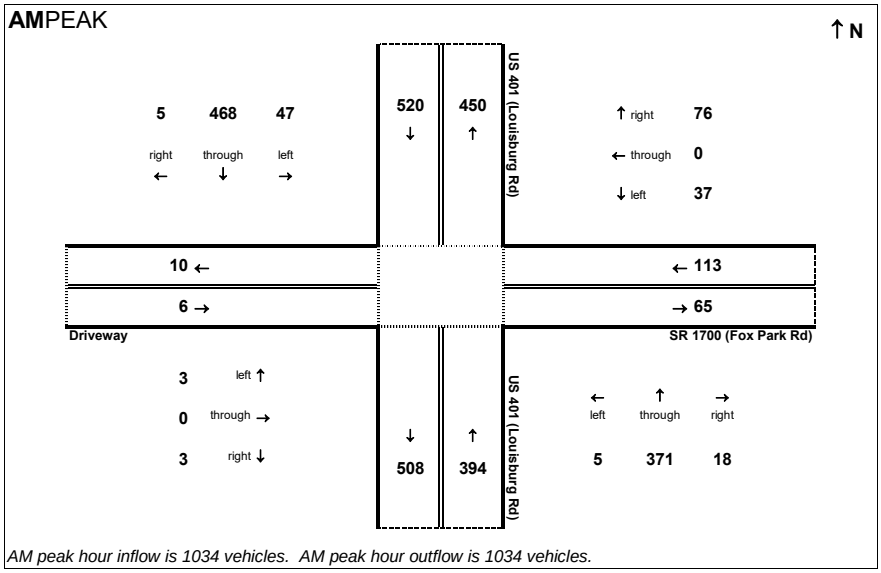
Peak Hour Volume Breakouts Report:
US 401 (Louisburg Rd) at SR 1700 (Fox Park Road)/Driveway

Traffic Forecast Release Date:
December-17

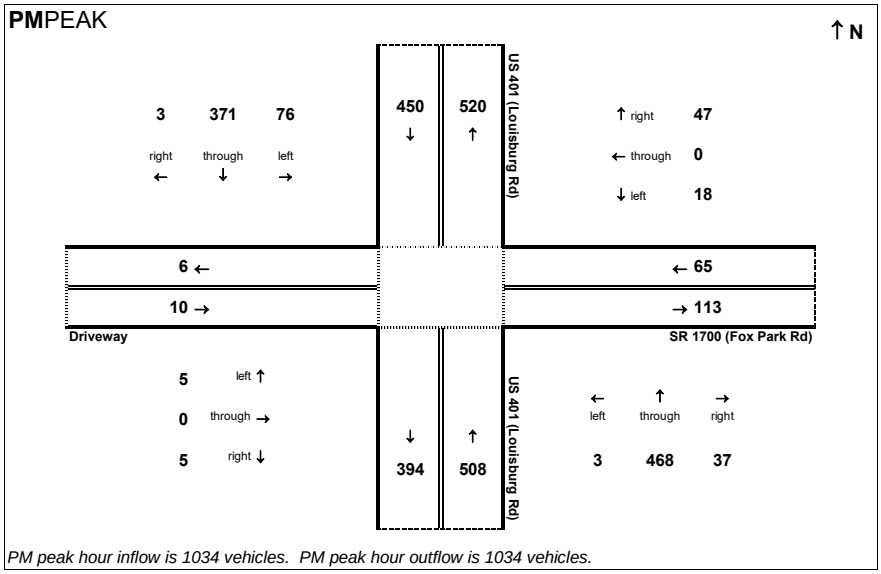
Traffic Data Year:
2017 No-Build

Project:
R-2814D





AM peak hour inflow is 1034 vehicles. AM peak hour outflow is 1034 vehicles.



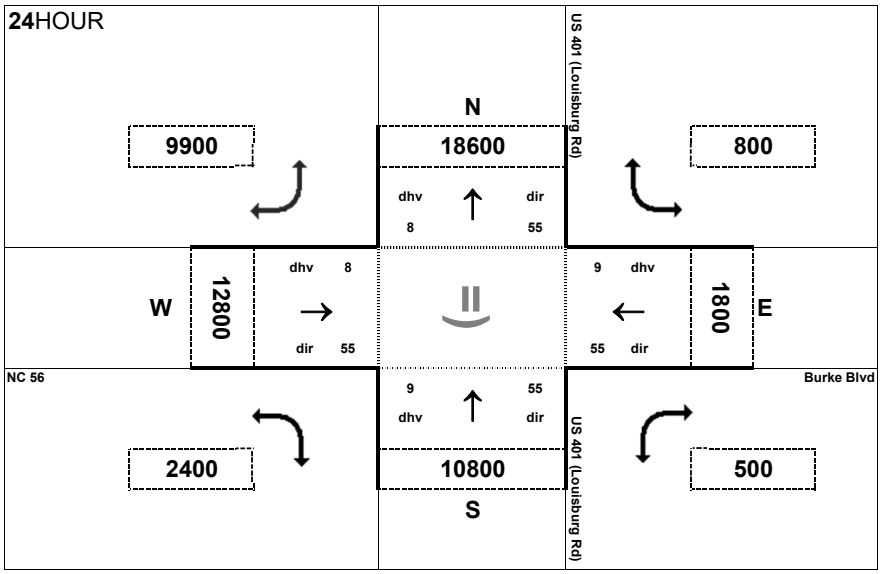
PM peak hour inflow is 1034 vehicles. PM peak hour outflow is 1034 vehicles.

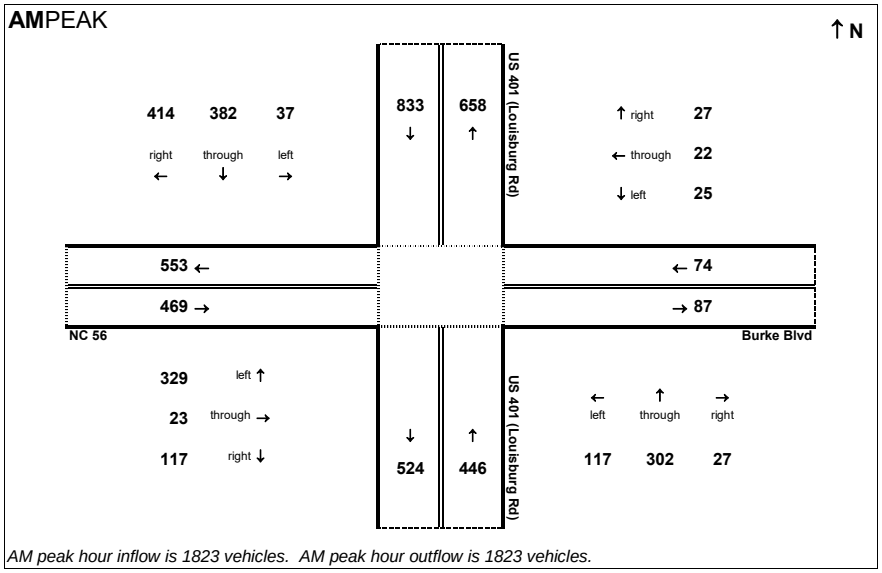
Peak Hour Volume Breakouts Report:
US 401 (Louisburg Rd) at NC 56/Burke Boulevard

Traffic Forecast Release Date:
December-17

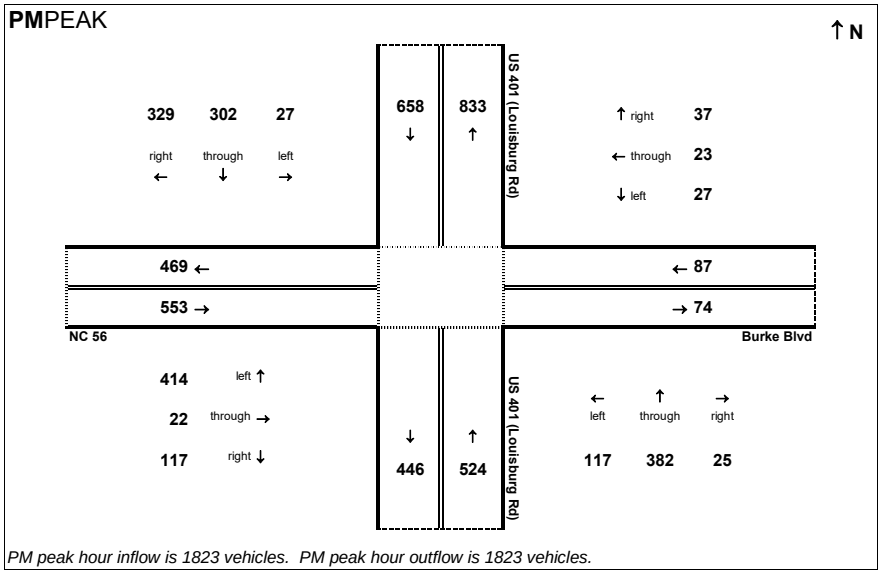
Traffic Data Year:
2017 No-Build

Project:
R-2814D



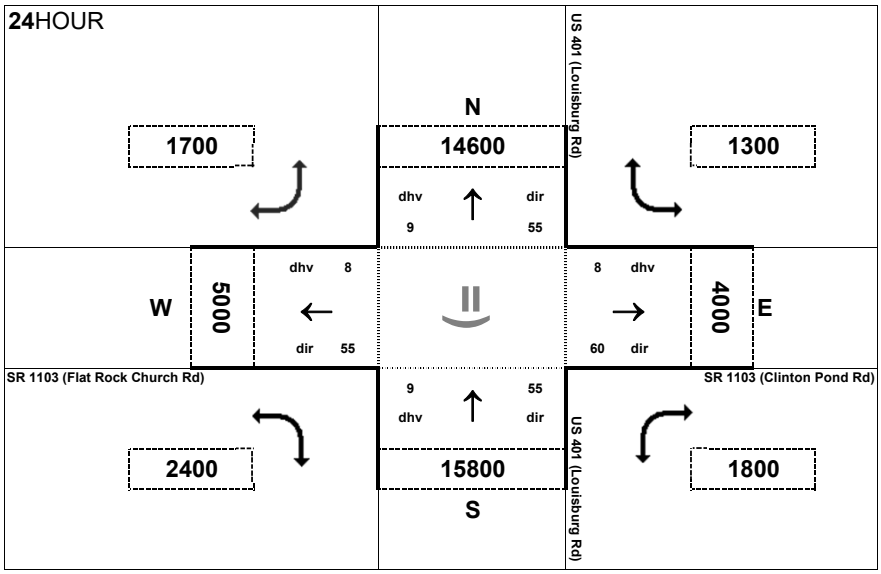


AM peak hour inflow is 1823 vehicles. AM peak hour outflow is 1823 vehicles.



PM peak hour inflow is 1823 vehicles. PM peak hour outflow is 1823 vehicles.

2040 FUTURE YEAR NO-BUILD

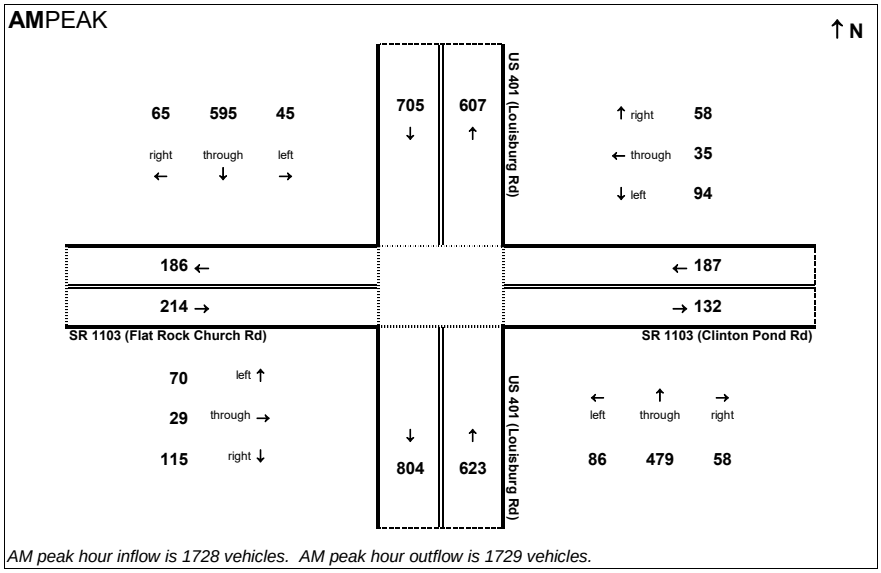


Peak Hour Volume Breakouts Report:
US 401 (Louisburg Rd) at SR 1103 (Flat Rock Church Rd/Clifton Pond Rd)

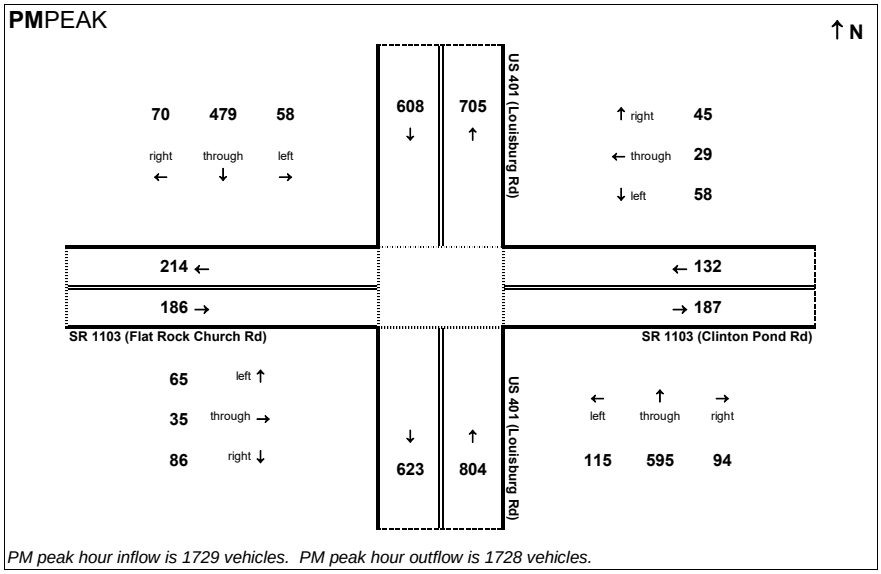
Traffic Forecast Release Date:
December-17

Traffic Data Year:
2040 No-Build

Project:
R-2814D



AM peak hour inflow is 1728 vehicles. AM peak hour outflow is 1729 vehicles.



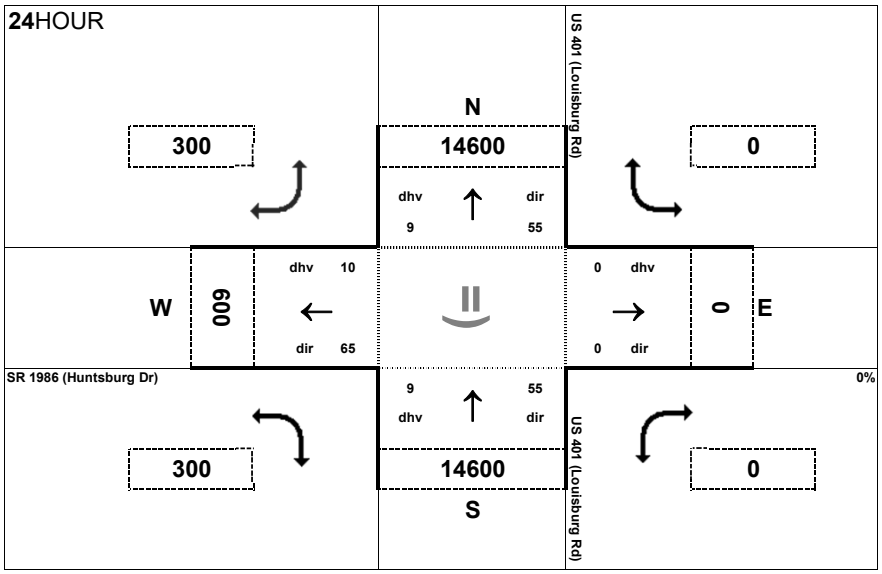
PM peak hour inflow is 1729 vehicles. PM peak hour outflow is 1728 vehicles.

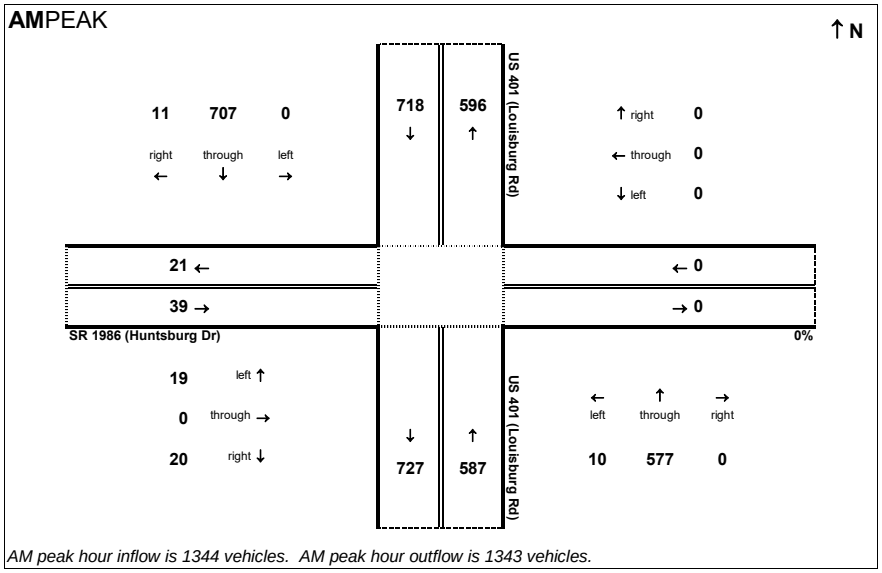
Peak Hour Volume Breakouts Report:
US 401 (Louisburg Rd) at SR 1986 (Huntsburg Rd)

Traffic Forecast Release Date:
December-17

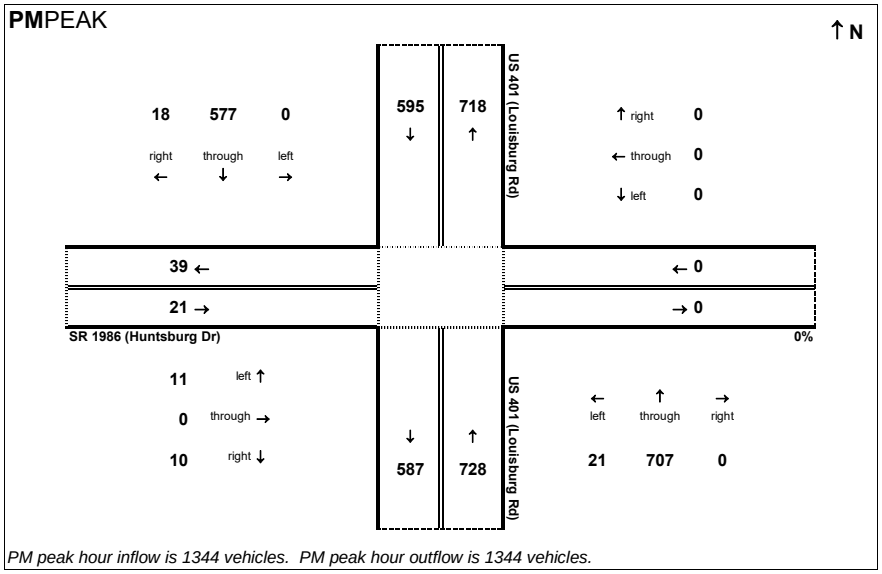
Traffic Data Year:
2040 No-Build

Project:
R-2814D





AM peak hour inflow is 1344 vehicles. AM peak hour outflow is 1343 vehicles.



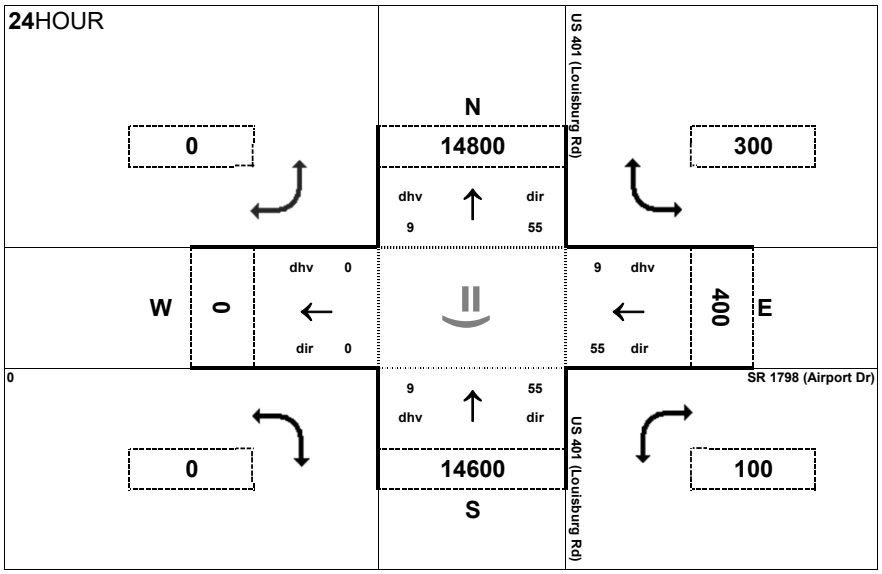
PM peak hour inflow is 1344 vehicles. PM peak hour outflow is 1344 vehicles.

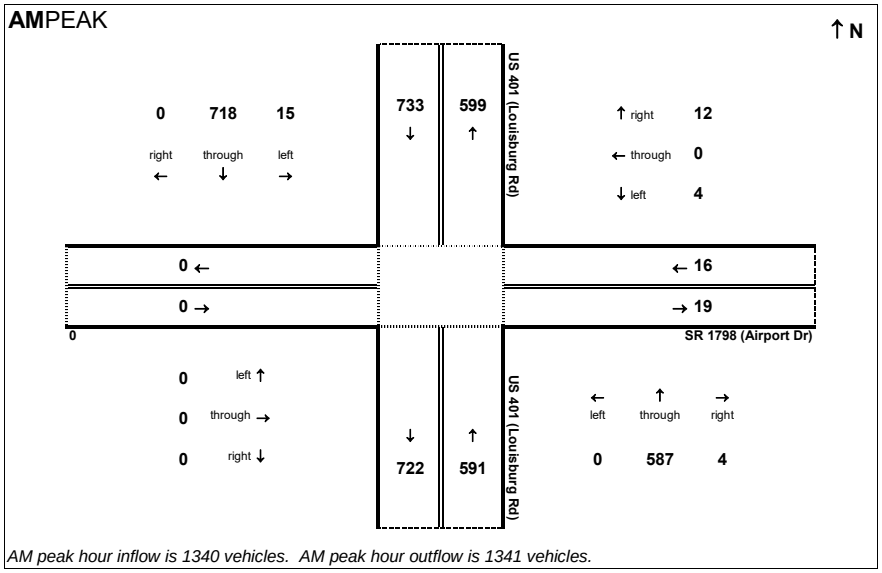
Peak Hour Volume Breakouts Report:
US 401 (Louisburg Rd) at SR 1798 (Airport Dr)

Traffic Forecast Release Date:
December-17

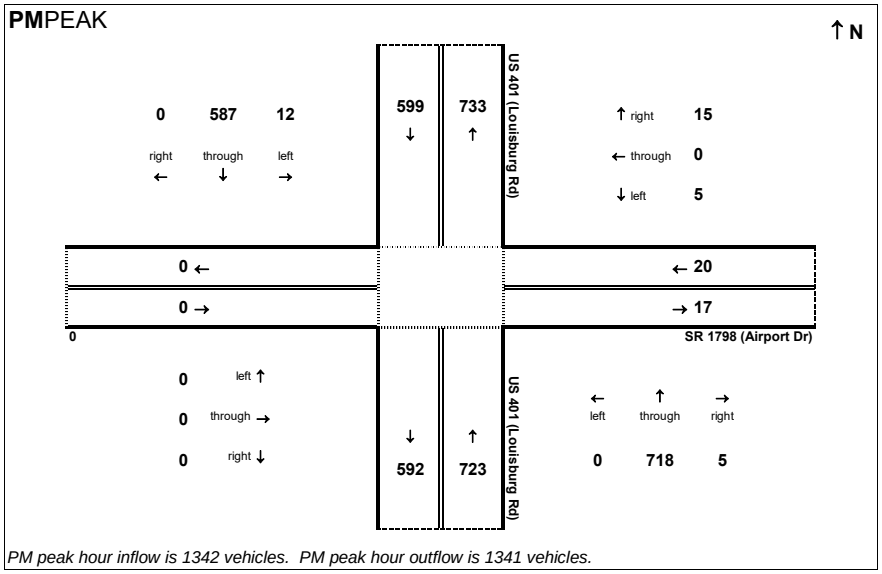
Traffic Data Year:
2040 No-Build

Project:
R-2814D





AM peak hour inflow is 1340 vehicles. AM peak hour outflow is 1341 vehicles.



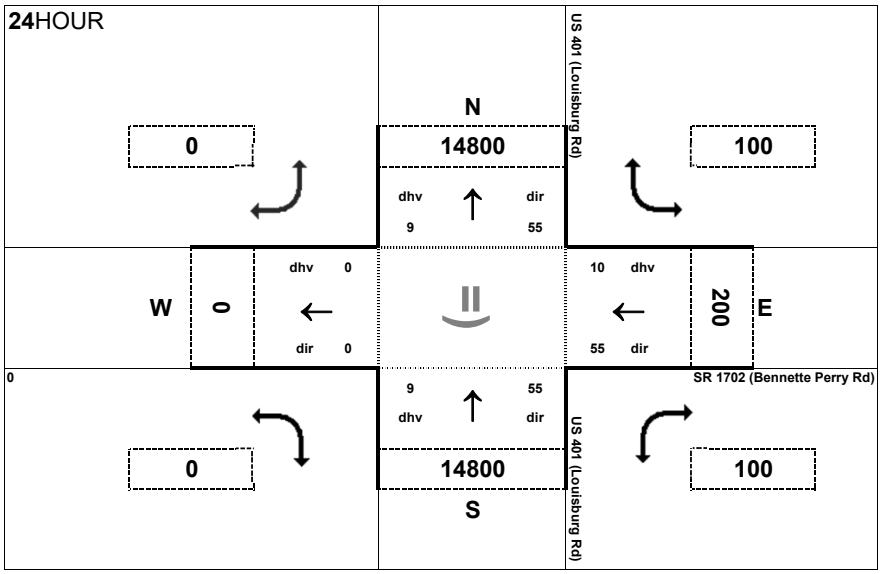
PM peak hour inflow is 1342 vehicles. PM peak hour outflow is 1341 vehicles.

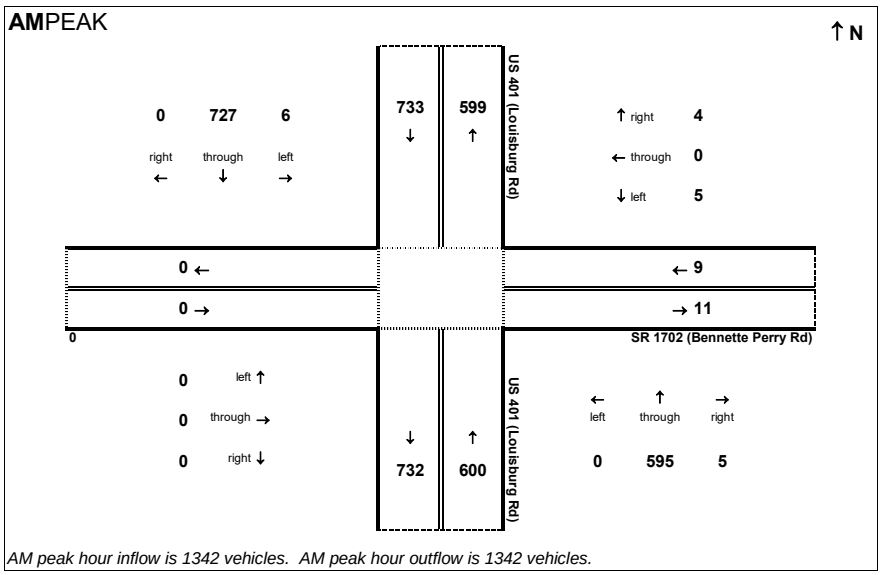
Peak Hour Volume Breakouts Report:
US 401 (Louisburg Rd) at SR 1702 (Bennette Perry Rd)

Traffic Forecast Release Date:
December-17

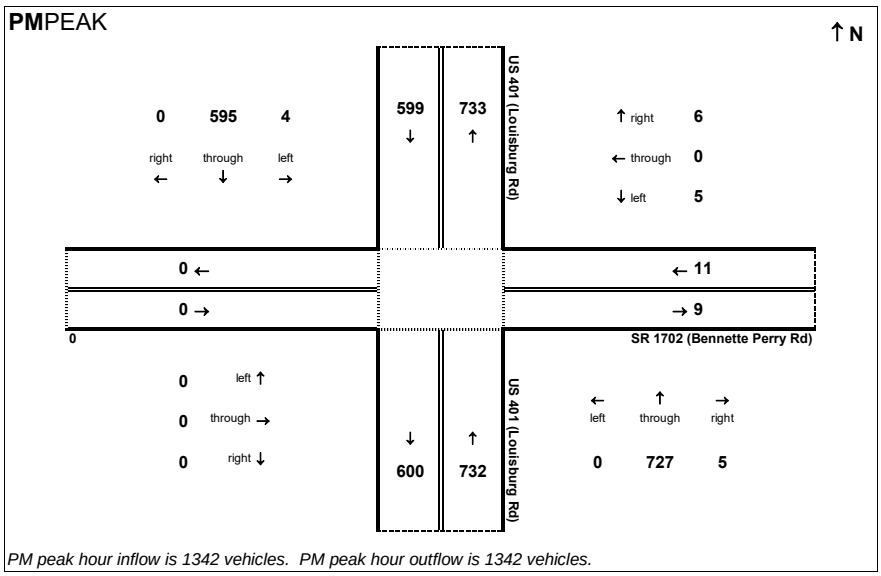
Traffic Data Year:
2040 No-Build

Project:
R-2814D





AM peak hour inflow is 1342 vehicles. AM peak hour outflow is 1342 vehicles.



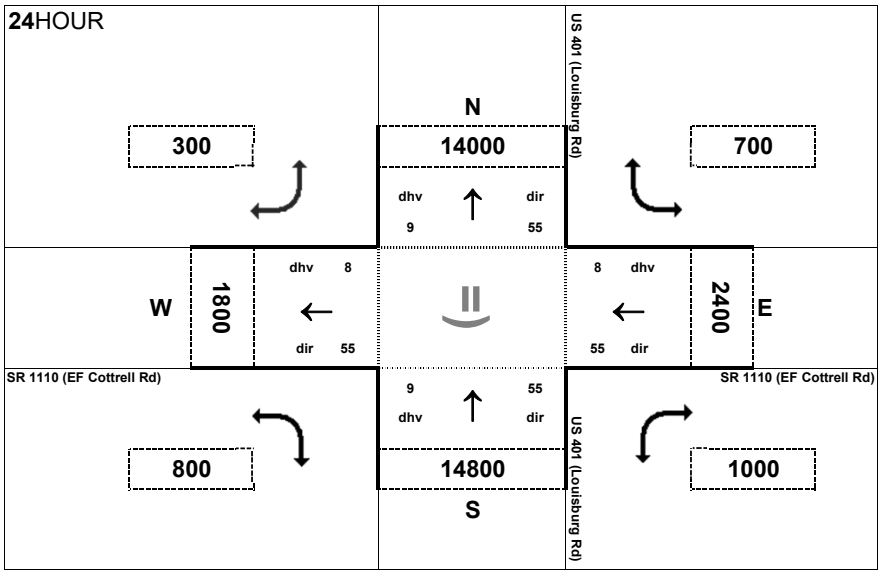
PM peak hour inflow is 1342 vehicles. PM peak hour outflow is 1342 vehicles.

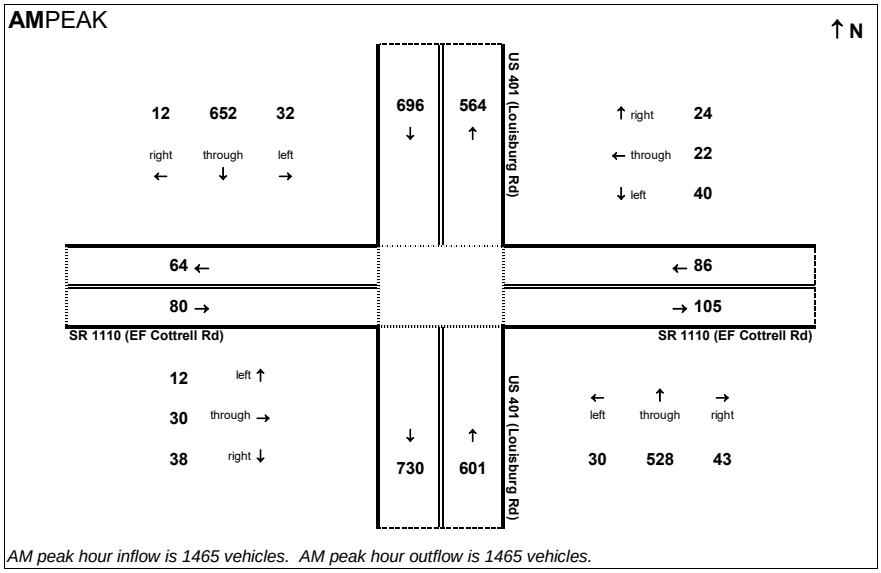
Peak Hour Volume Breakouts Report:
US 401 (Louisburg Rd) at SR 1110 (EF Cottrell Rd)

Traffic Forecast Release Date:
December-17

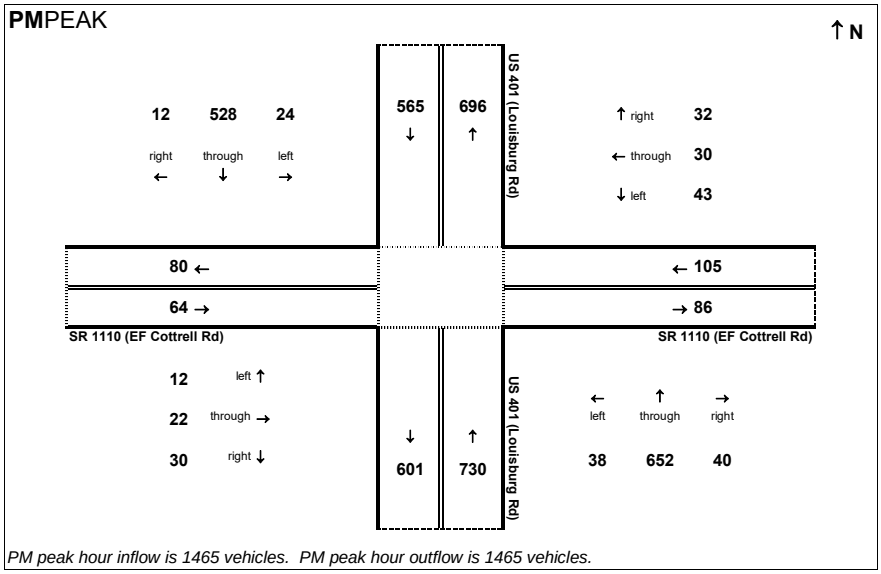
Traffic Data Year:
2040 No-Build

Project:
R-2814D

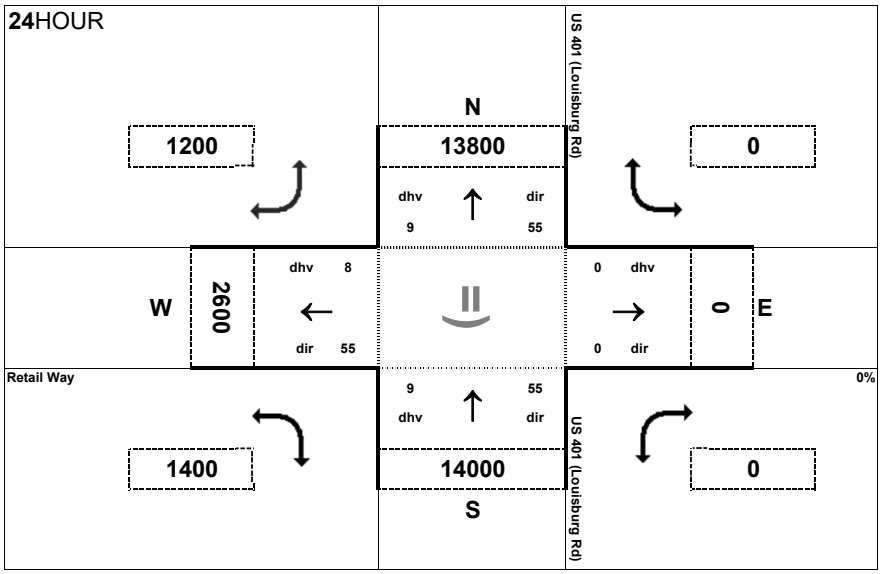




AM peak hour inflow is 1465 vehicles. AM peak hour outflow is 1465 vehicles.



PM peak hour inflow is 1465 vehicles. PM peak hour outflow is 1465 vehicles.

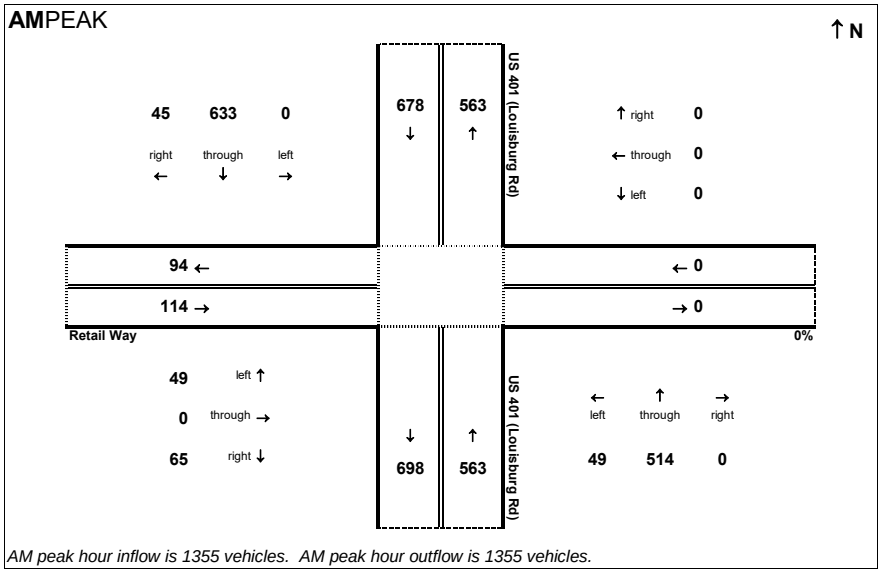


Peak Hour Volume Breakouts Report:
US 401 (Louisburg Rd) at Retail Way

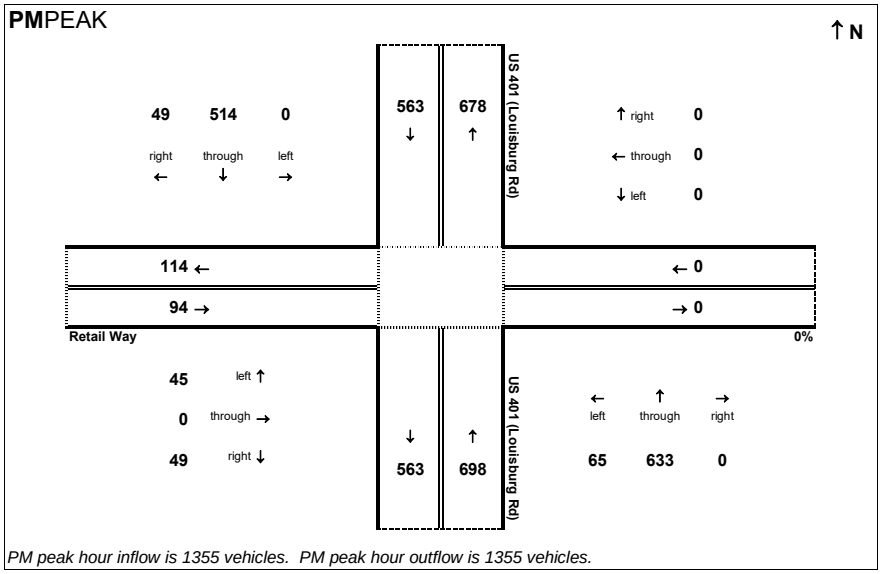
Traffic Forecast Release Date:
December-17

Traffic Data Year:
2040 No-Build

Project:
R-2814D



AM peak hour inflow is 1355 vehicles. AM peak hour outflow is 1355 vehicles.



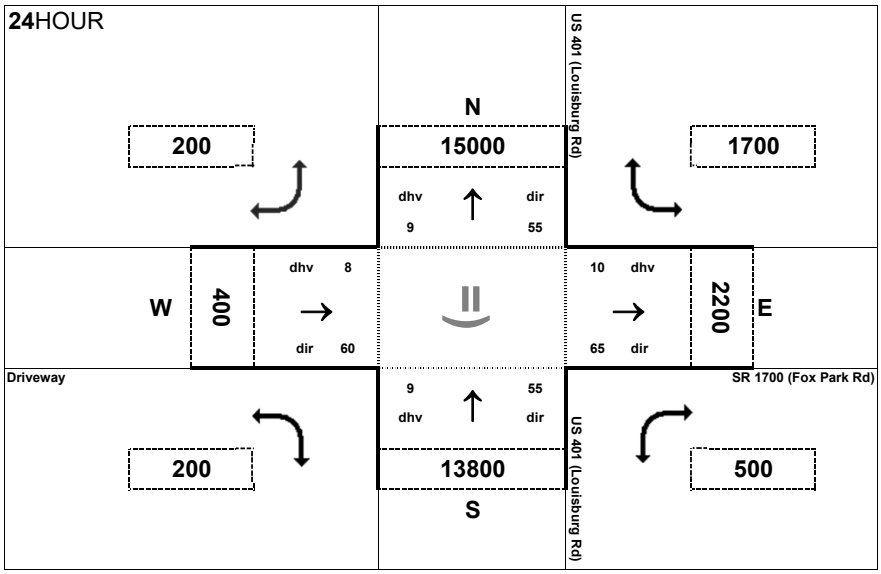
PM peak hour inflow is 1355 vehicles. PM peak hour outflow is 1355 vehicles.

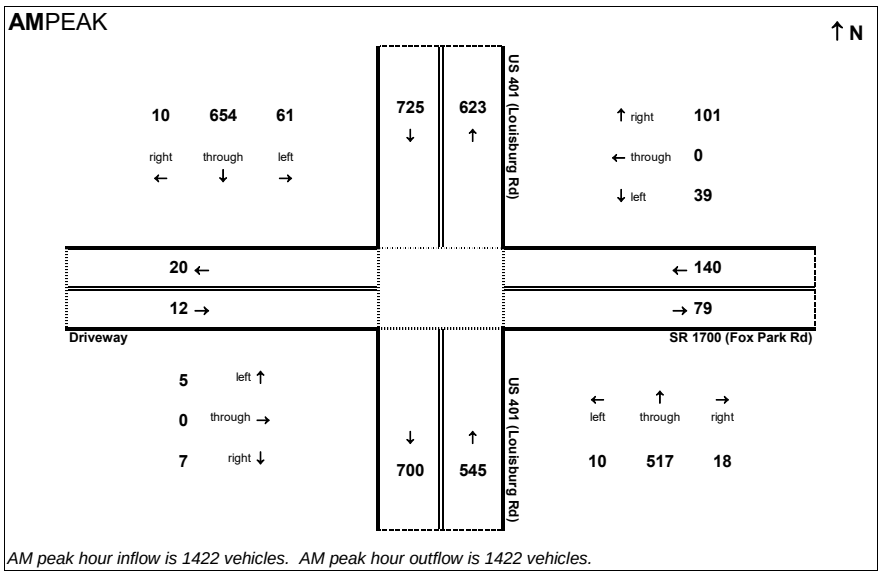
Peak Hour Volume Breakouts Report:
US 401 (Louisburg Rd) at SR 1700 (Fox Park Road)/Driveway

Traffic Forecast Release Date:
December-17

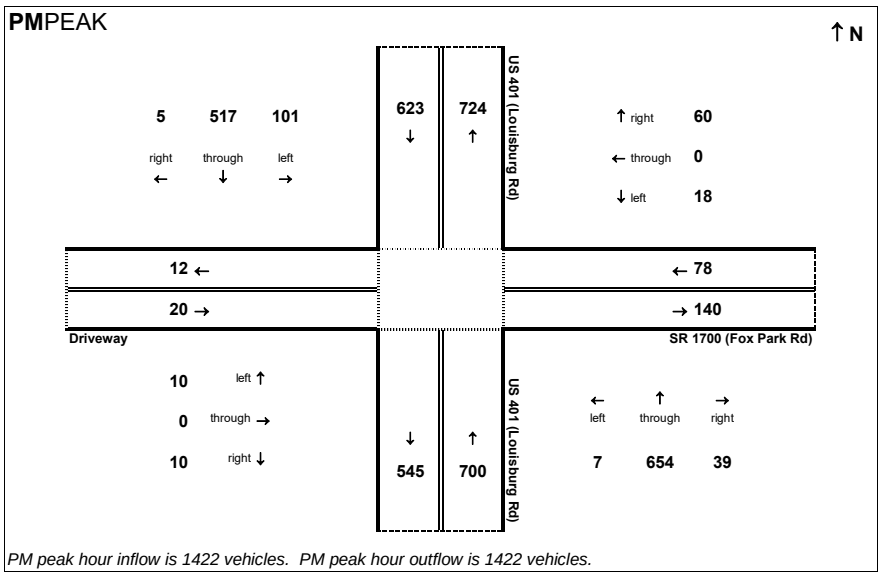
Traffic Data Year:
2040 No-Build

Project:
R-2814D

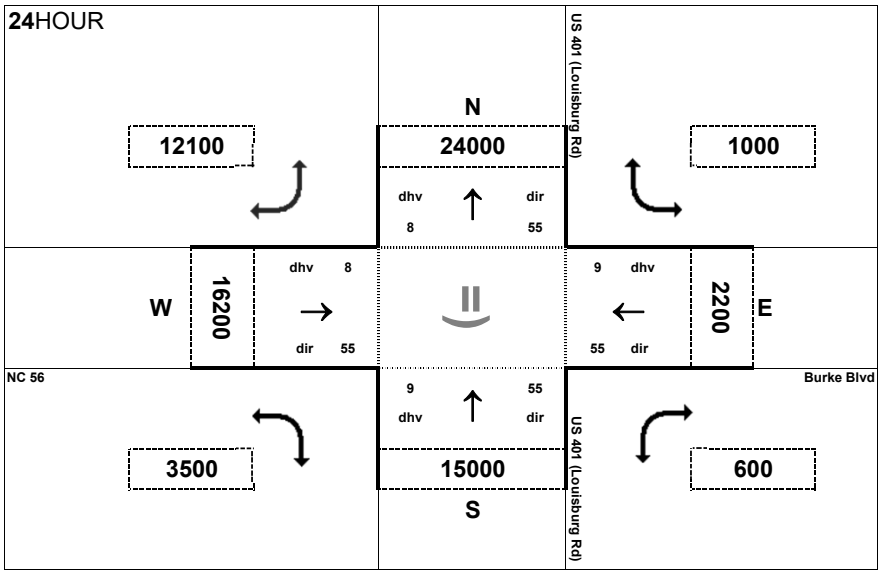




AM peak hour inflow is 1422 vehicles. AM peak hour outflow is 1422 vehicles.



PM peak hour inflow is 1422 vehicles. PM peak hour outflow is 1422 vehicles.

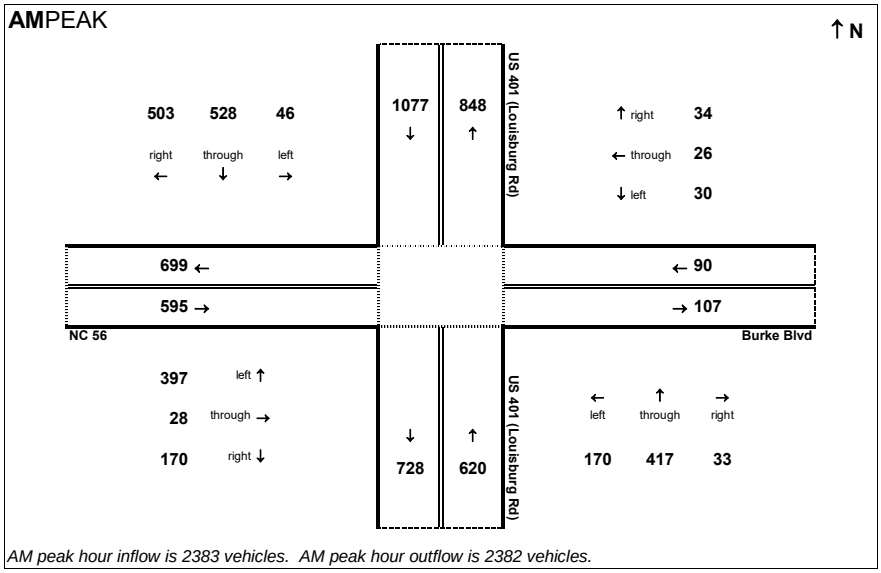


Peak Hour Volume Breakouts Report:
US 401 (Louisburg Rd) at NC 56 / Burke Blvd

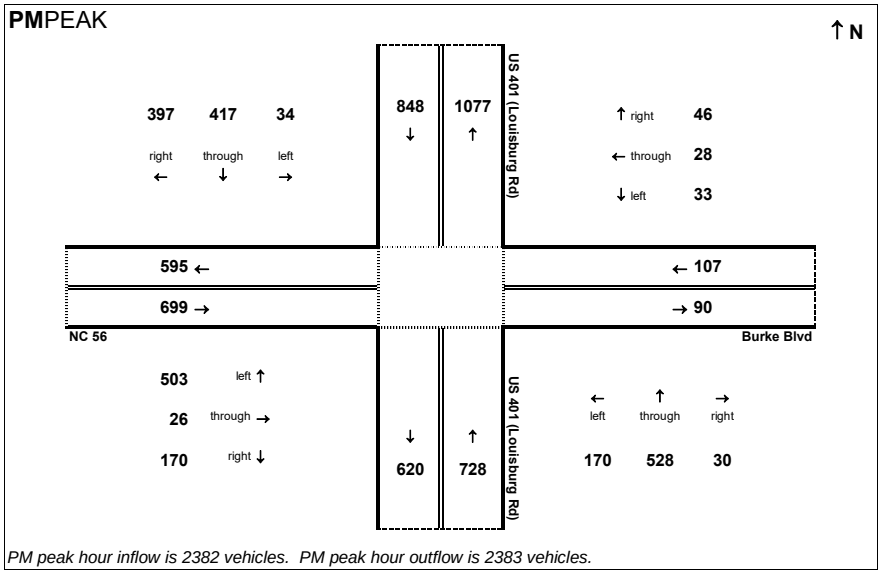
Traffic Forecast Release Date:
December-17

Traffic Data Year:
2040 No-Build

Project:
R-2814D

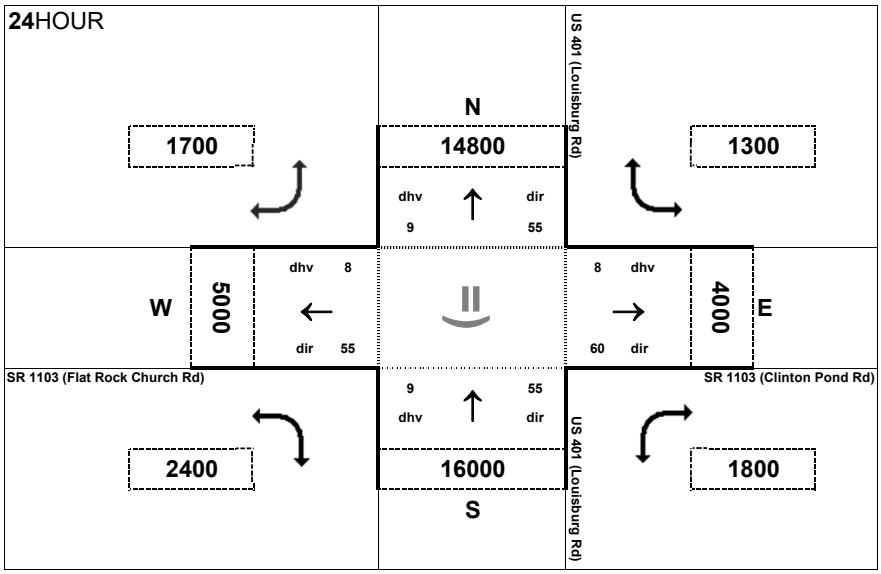


AM peak hour inflow is 2383 vehicles. AM peak hour outflow is 2382 vehicles.



PM peak hour inflow is 2382 vehicles. PM peak hour outflow is 2383 vehicles.

2040 FUTURE YEAR BUILD

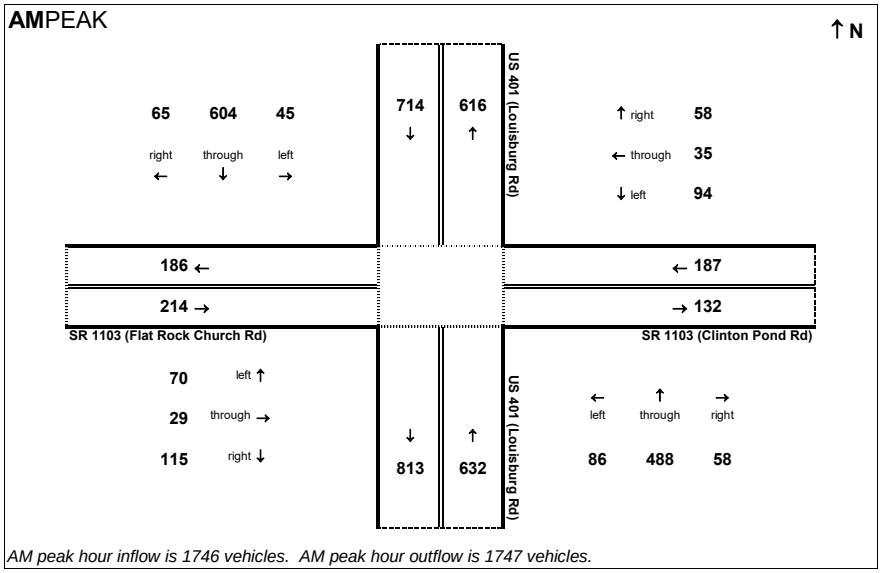


Peak Hour Volume Breakouts Report:
US 401 (Louisburg Rd) at SR 1103 (Flat Rock Church Rd/Clifton Pond Rd)

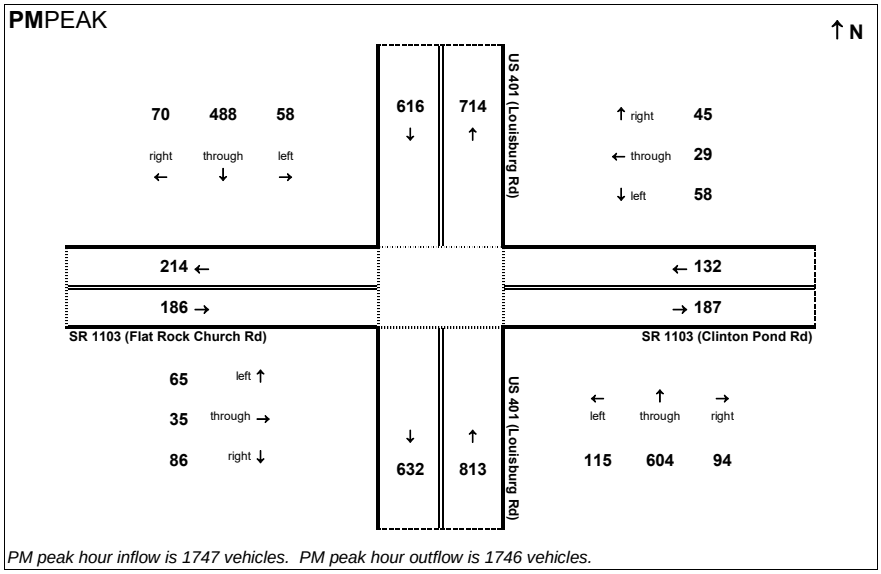
Traffic Forecast Release Date:
December-17

Traffic Data Year:
2040 Build

Project:
R-2814D



AM peak hour inflow is 1746 vehicles. AM peak hour outflow is 1747 vehicles.



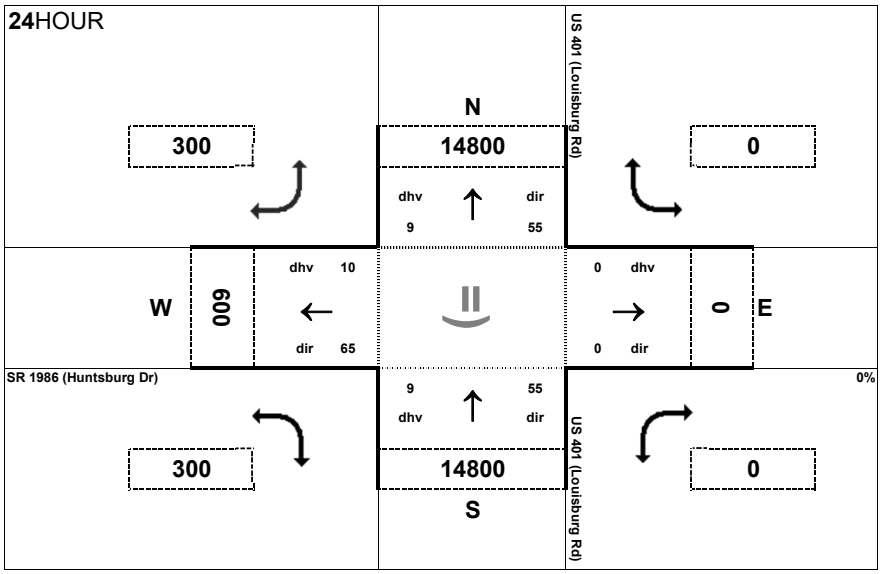
PM peak hour inflow is 1747 vehicles. PM peak hour outflow is 1746 vehicles.

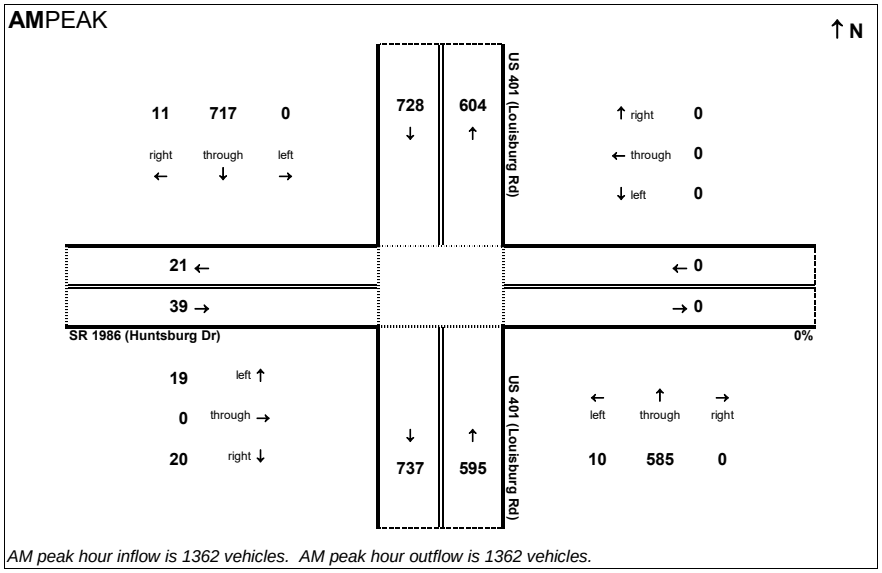
Peak Hour Volume Breakouts Report:
US 401 (Louisburg Rd) at SR 1986 (Huntsburg Rd)

Traffic Forecast Release Date:
December-17

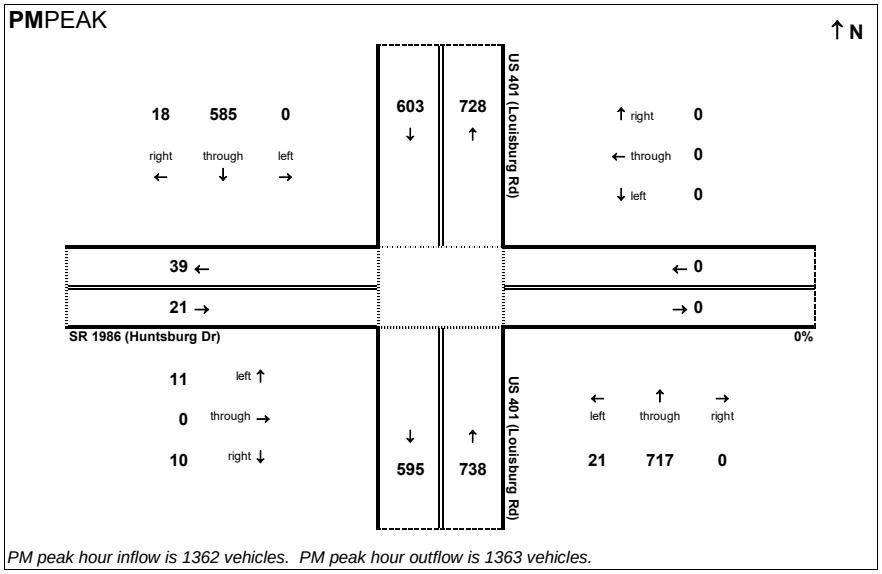
Traffic Data Year:
2040 Build

Project:
R-2814D





AM peak hour inflow is 1362 vehicles. AM peak hour outflow is 1362 vehicles.



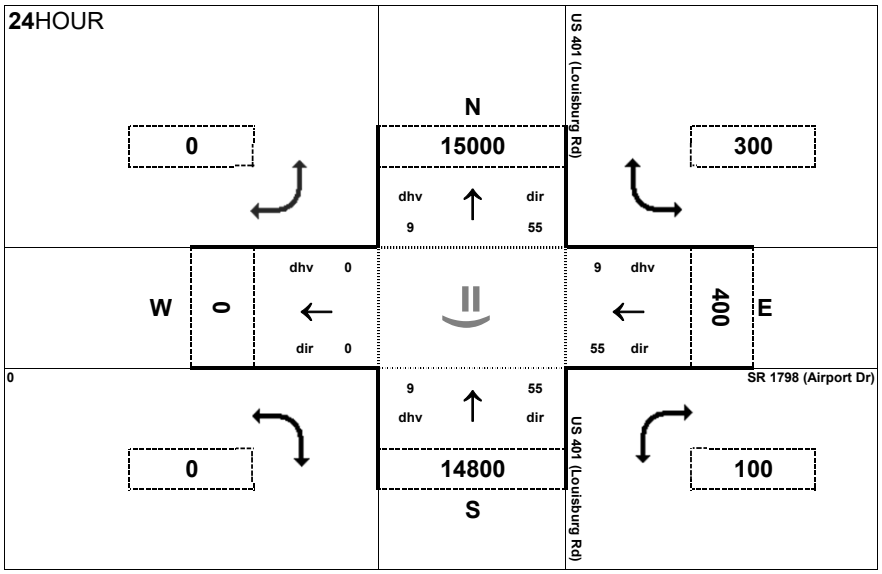
PM peak hour inflow is 1362 vehicles. PM peak hour outflow is 1363 vehicles.

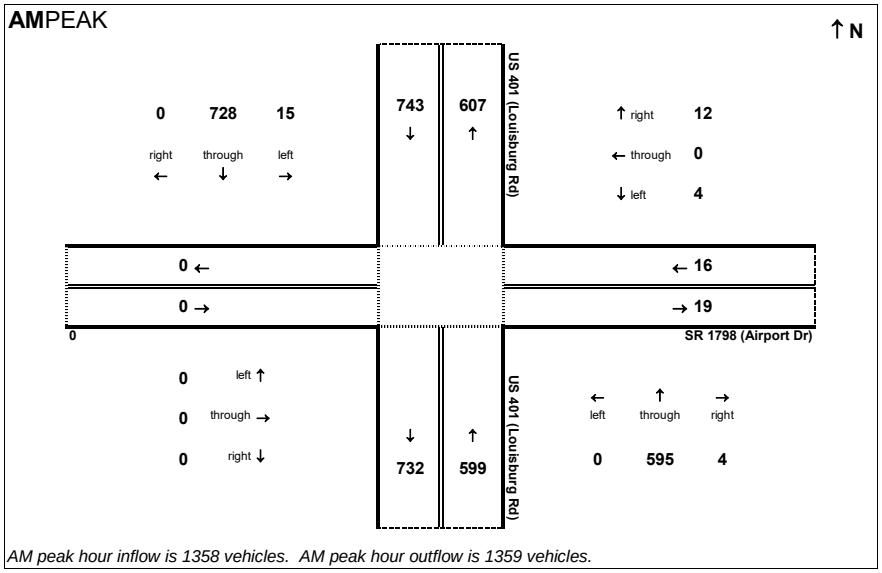
Peak Hour Volume Breakouts Report:
US 401 (Louisburg Rd) at SR 1798 (Airport Dr)

Traffic Forecast Release Date:
December-17

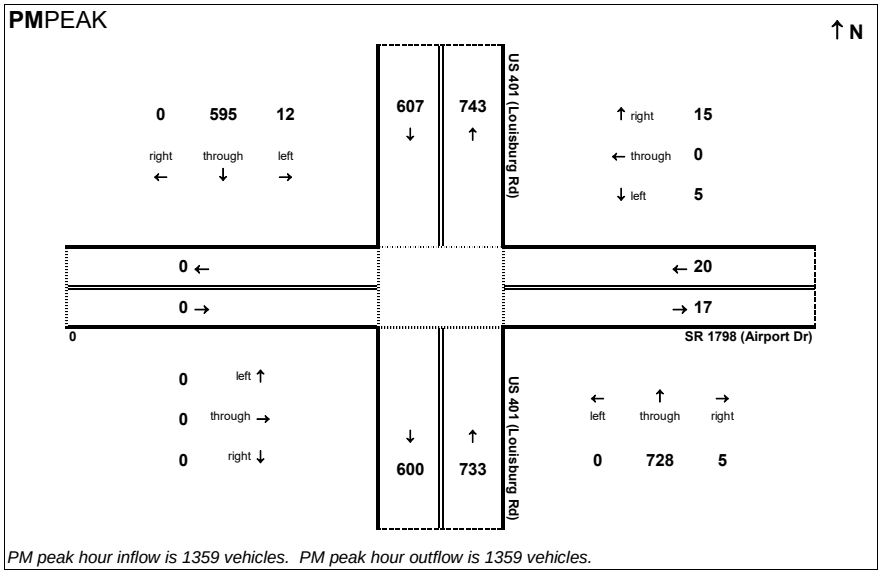
Traffic Data Year:
2040 Build

Project:
R-2814D

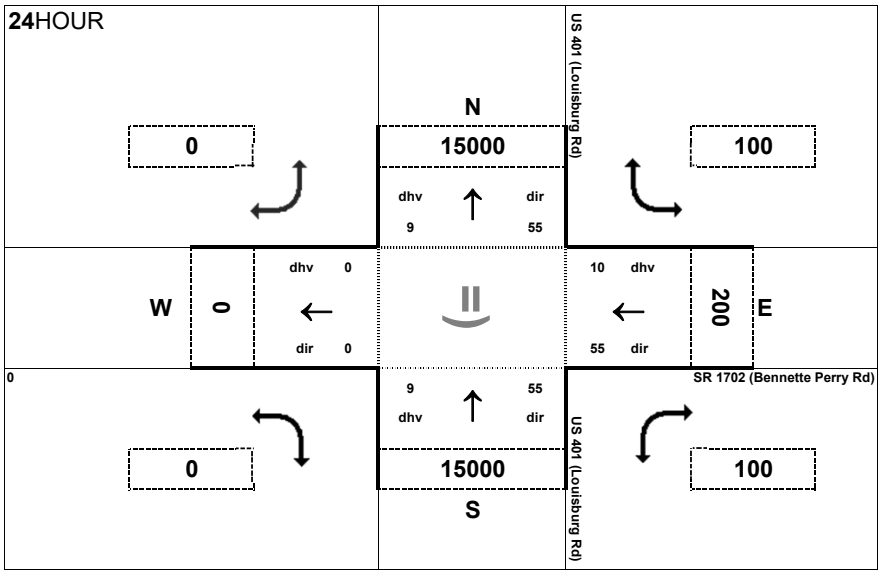




AM peak hour inflow is 1358 vehicles. AM peak hour outflow is 1359 vehicles.



PM peak hour inflow is 1359 vehicles. PM peak hour outflow is 1359 vehicles.

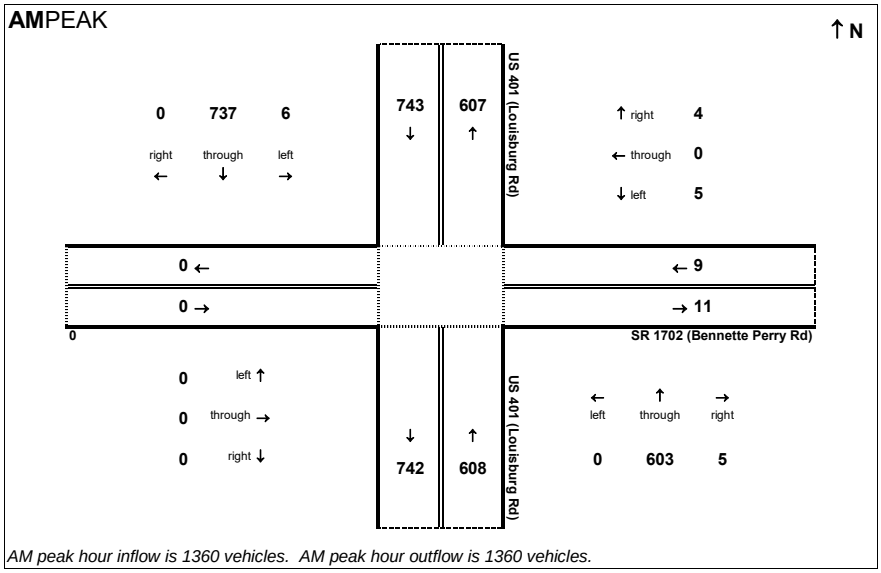


Peak Hour Volume Breakouts Report:
US 401 (Louisburg Rd) at SR 1702 (Bennette Perry Rd)

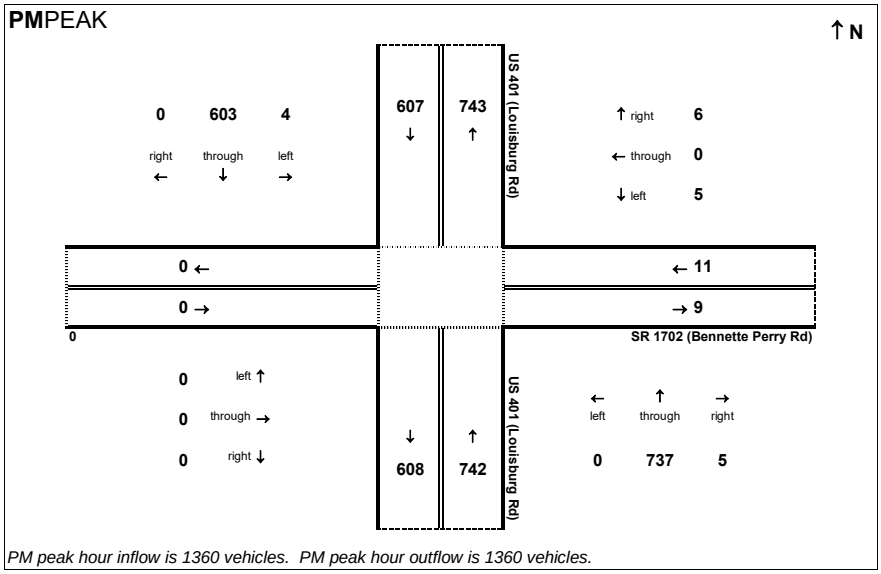
Traffic Forecast Release Date:
December-17

Traffic Data Year:
2040 Build

Project:
R-2814D



AM peak hour inflow is 1360 vehicles. AM peak hour outflow is 1360 vehicles.



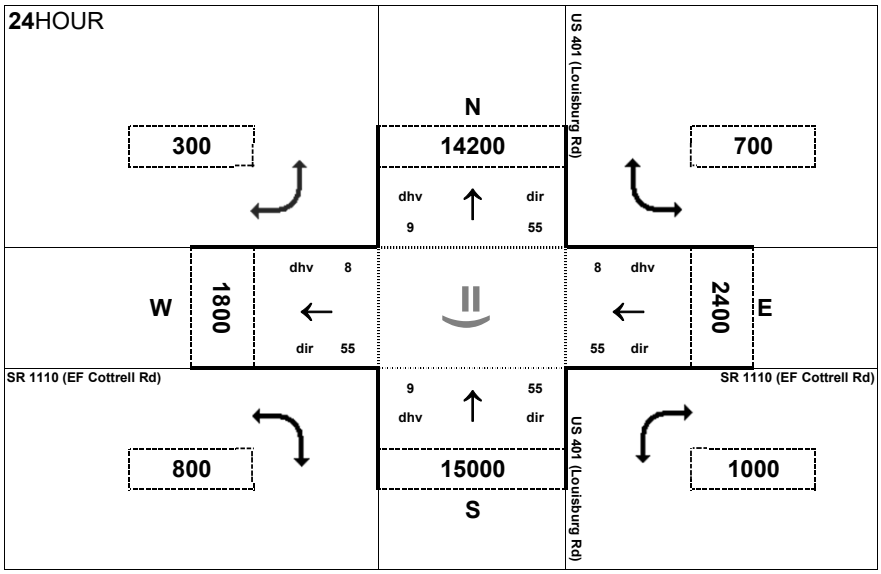
PM peak hour inflow is 1360 vehicles. PM peak hour outflow is 1360 vehicles.

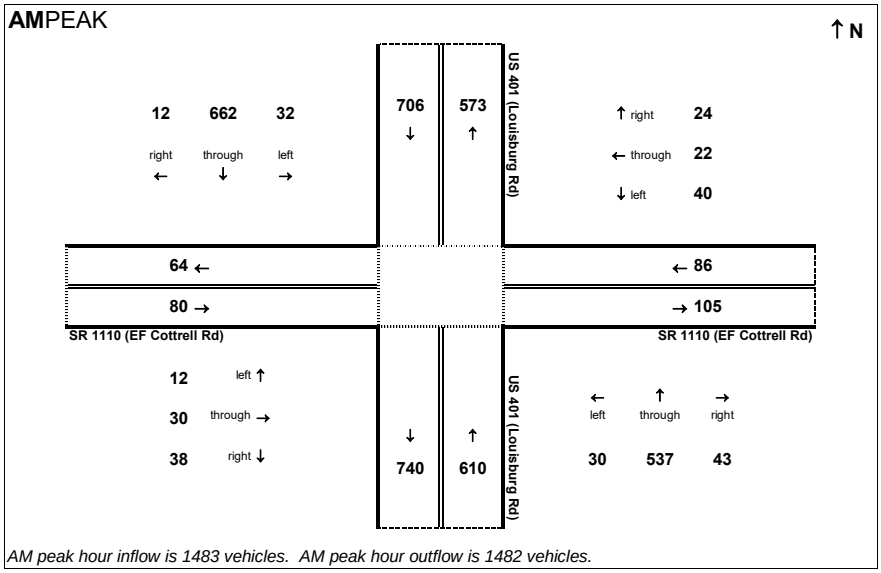
Peak Hour Volume Breakouts Report:
US 401 (Louisburg Rd) at SR 1110 (EF Cottrell Rd)

Traffic Forecast Release Date:
December-17

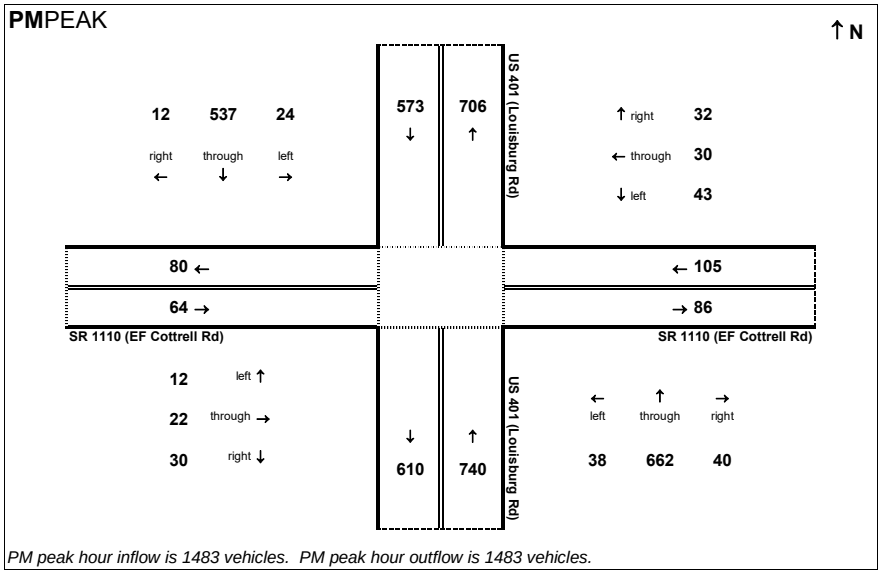
Traffic Data Year:
2040 Build

Project:
R-2814D





AM peak hour inflow is 1483 vehicles. AM peak hour outflow is 1482 vehicles.



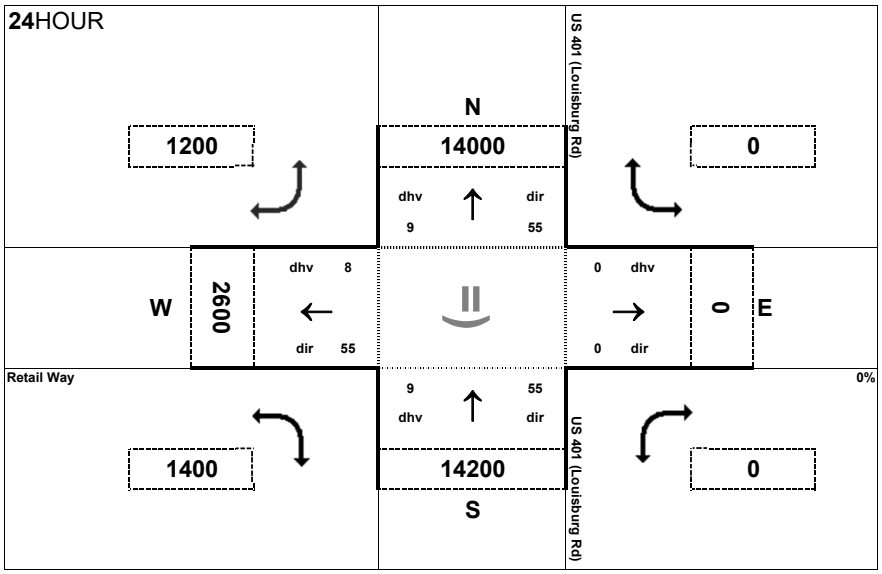
PM peak hour inflow is 1483 vehicles. PM peak hour outflow is 1483 vehicles.

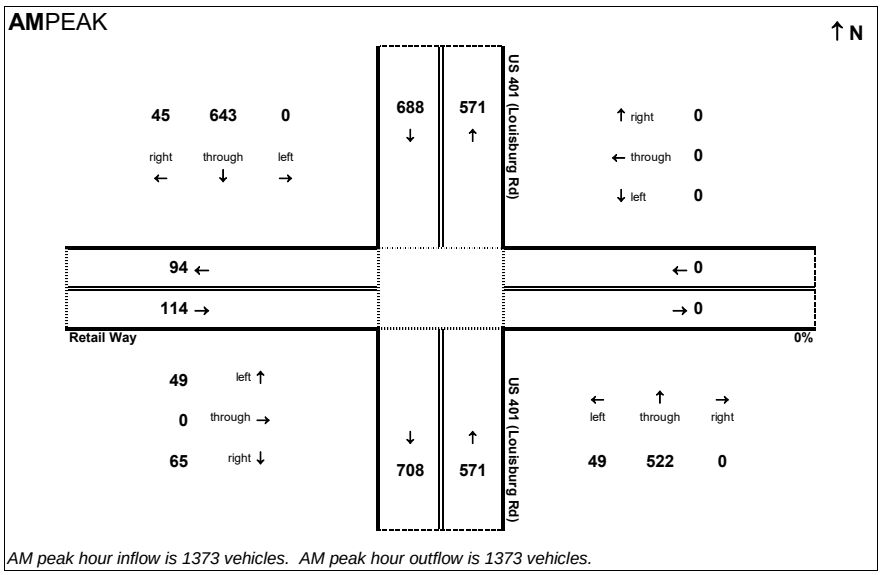
Peak Hour Volume Breakouts Report:
US 401 (Louisburg Rd) at Retail Way

Traffic Forecast Release Date:
December-17

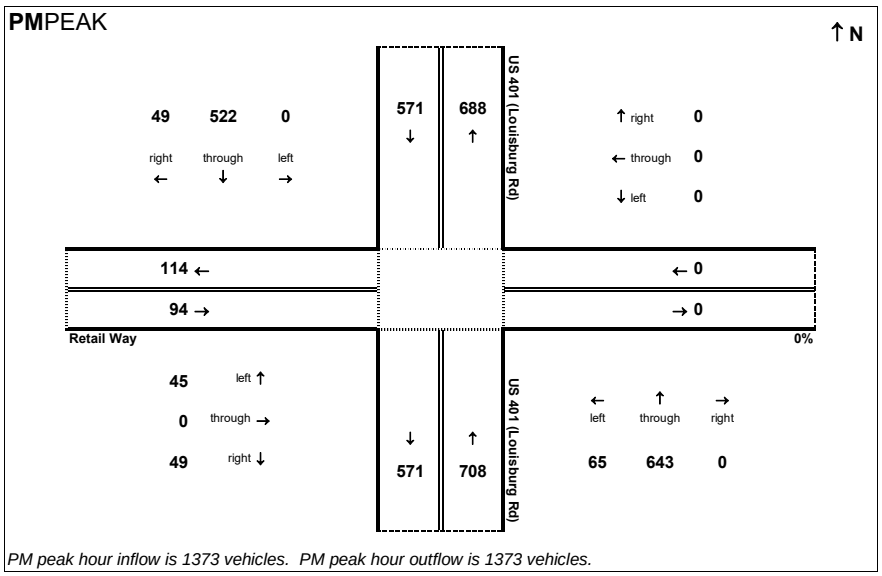
Traffic Data Year:
2040 Build

Project:
R-2814D





AM peak hour inflow is 1373 vehicles. AM peak hour outflow is 1373 vehicles.



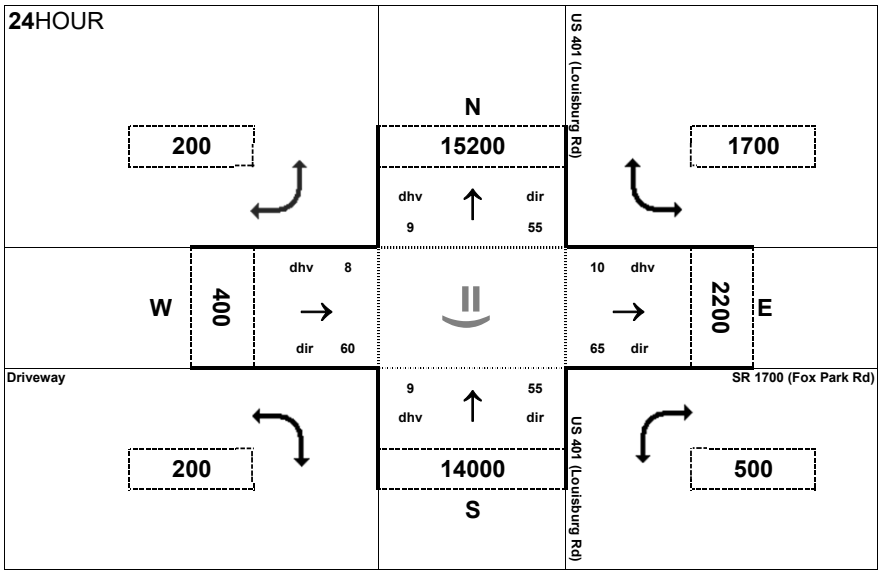
PM peak hour inflow is 1373 vehicles. PM peak hour outflow is 1373 vehicles.

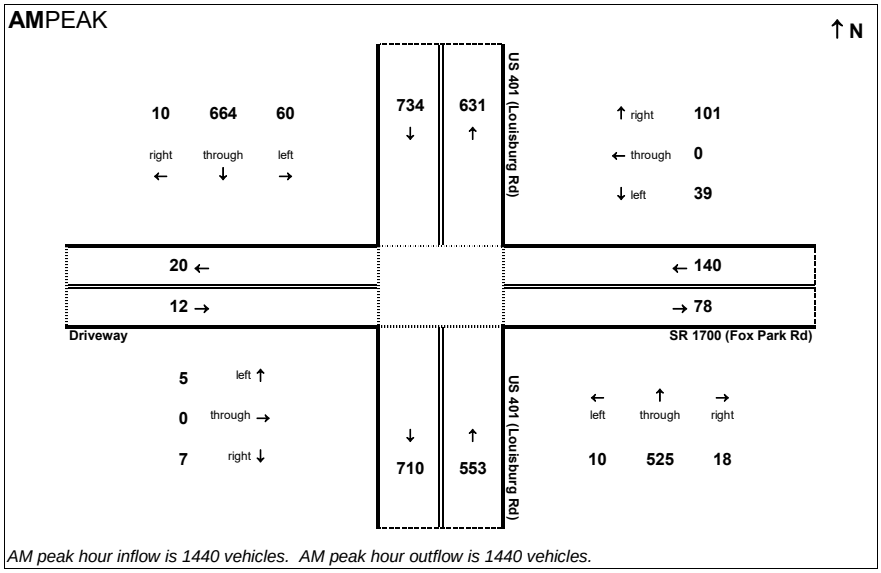
Peak Hour Volume Breakouts Report:
US 401 (Louisburg Rd) at SR 1700 (Fox Park Road)/Driveway

Traffic Forecast Release Date:
December-17

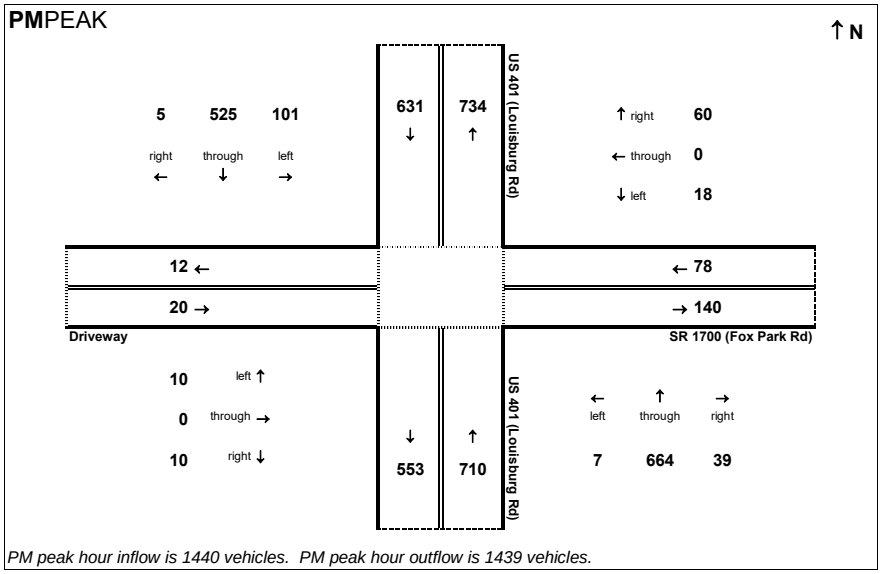
Traffic Data Year:
2040 Build

Project:
R-2814D

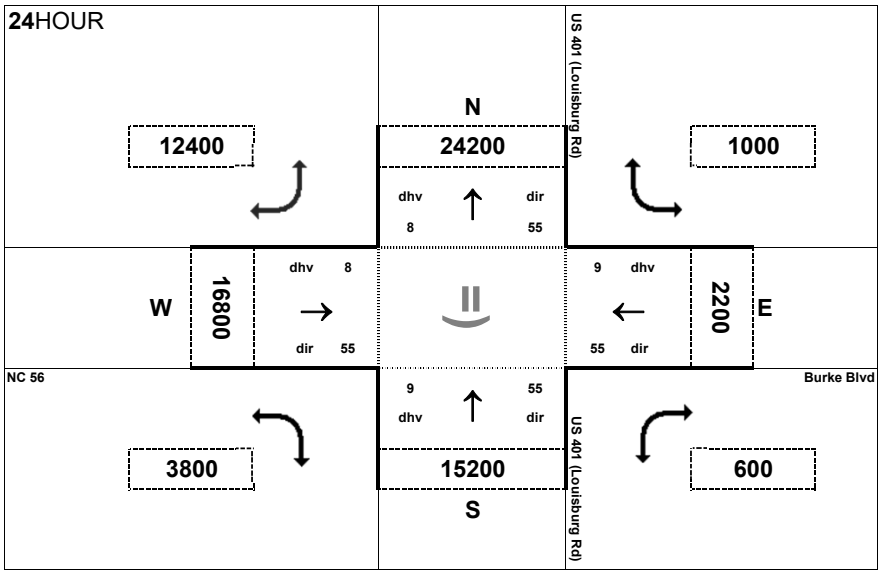


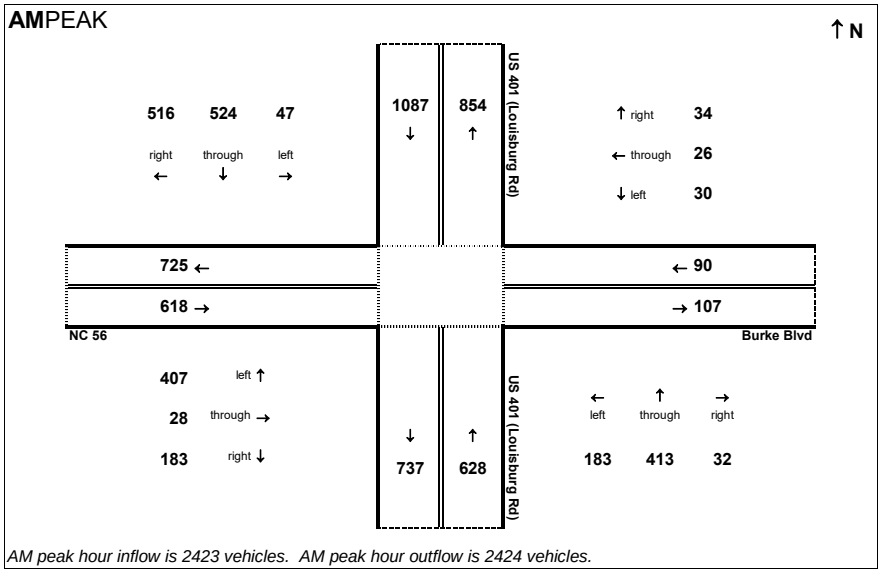


AM peak hour inflow is 1440 vehicles. AM peak hour outflow is 1440 vehicles.

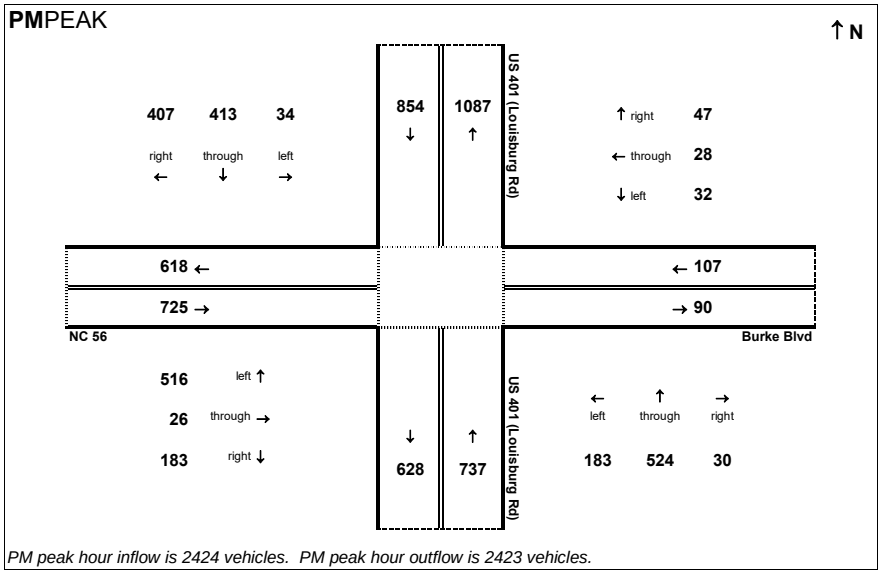


PM peak hour inflow is 1440 vehicles. PM peak hour outflow is 1439 vehicles.





AM peak hour inflow is 2423 vehicles. AM peak hour outflow is 2424 vehicles.



PM peak hour inflow is 2424 vehicles. PM peak hour outflow is 2423 vehicles.

Peak Hour Volume Breakouts Report:
US 401 (Louisburg Rd) at NC 56 / Burke Blvd

Traffic Forecast Release Date:
December-17

Traffic Data Year:
2040 Build

Project:
R-2814D

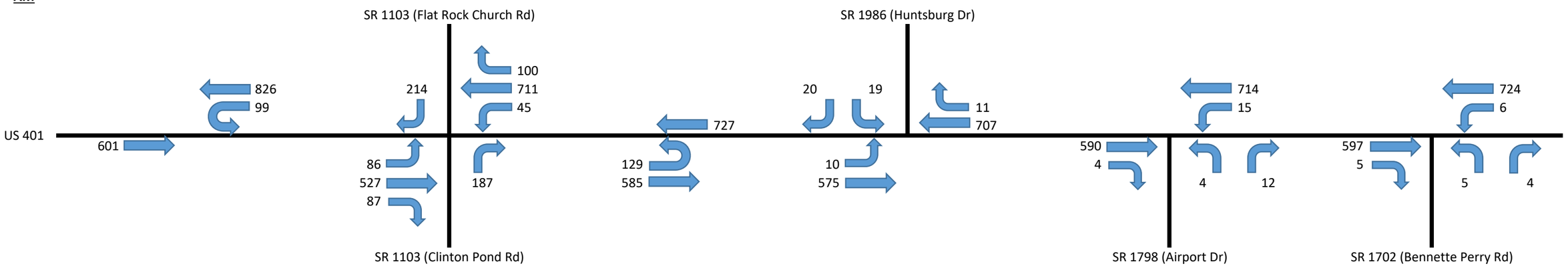
APPENDIX C:

TRAFFIC VOLUME BALANCING AND REROUTING

2040 Future Year No-Build

2040 No-Build Balancing and Rerouting

AM



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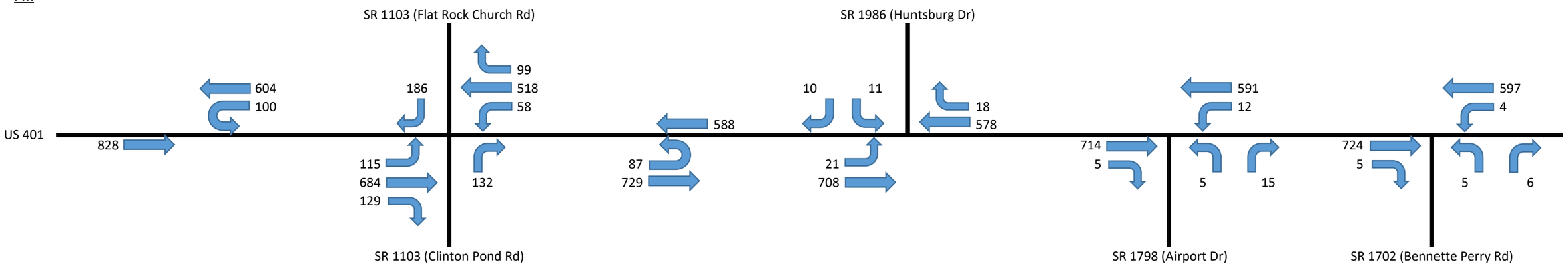
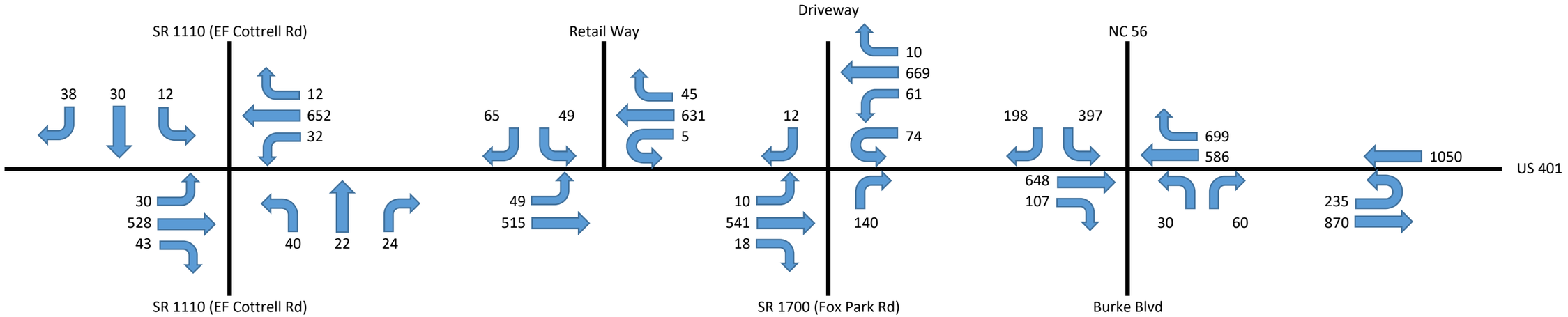
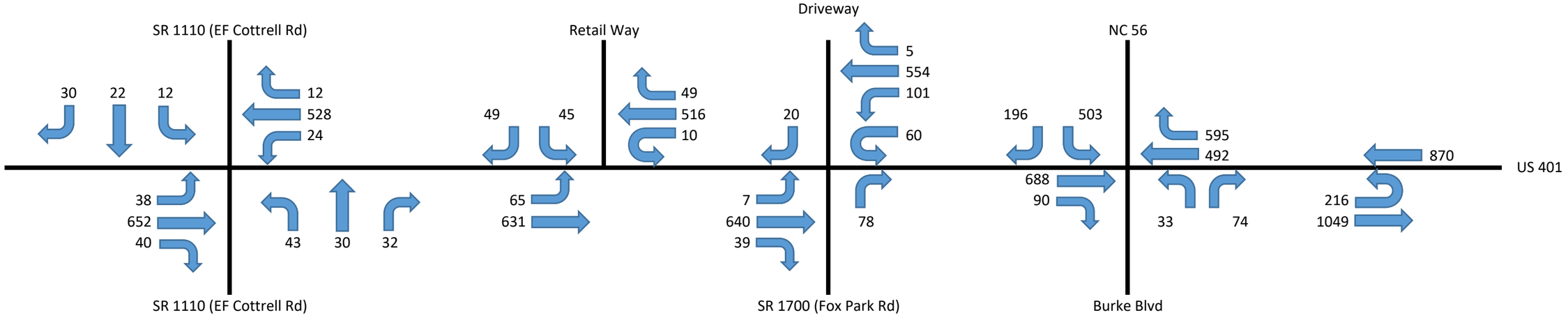


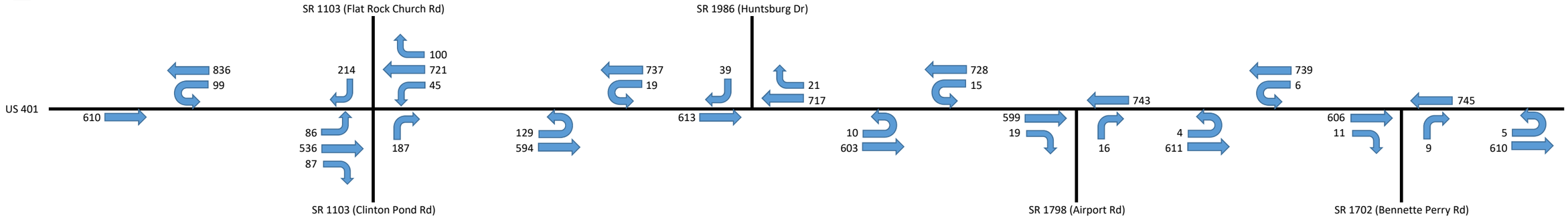

SR 1110 (EF Cottrell Rd)
Retail Way
Driveway
NC 56
US 401
38
30
12
12
652
32
65
49
45
631
5
12
10
669
61
74
198
397
699
586
1050
30
528
43
40
22
24
49
515
10
541
18
140
648
107
30
60
235
870
SR 1110 (EF Cottrell Rd)
SR 1700 (Fox Park Rd)
Burke Blvd


SR 1110 (EF Cottrell Rd)
Retail Way
Driveway
NC 56
US 401
30
22
12
12
528
24
49
45
49
516
10
20
5
554
101
60
196
503
595
492
870
38
652
40
43
30
32
65
631
7
640
39
78
688
90
33
74
216
1049
SR 1110 (EF Cottrell Rd)
SR 1700 (Fox Park Rd)
Burke Blvd

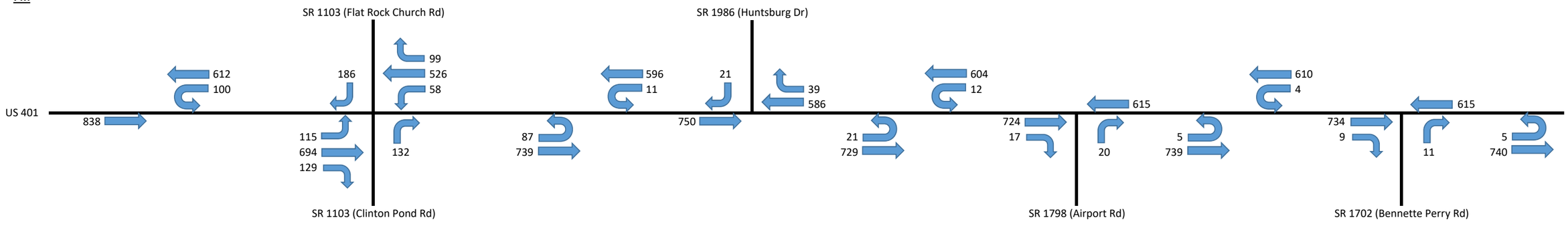
2040 FUTURE YEAR BUILD

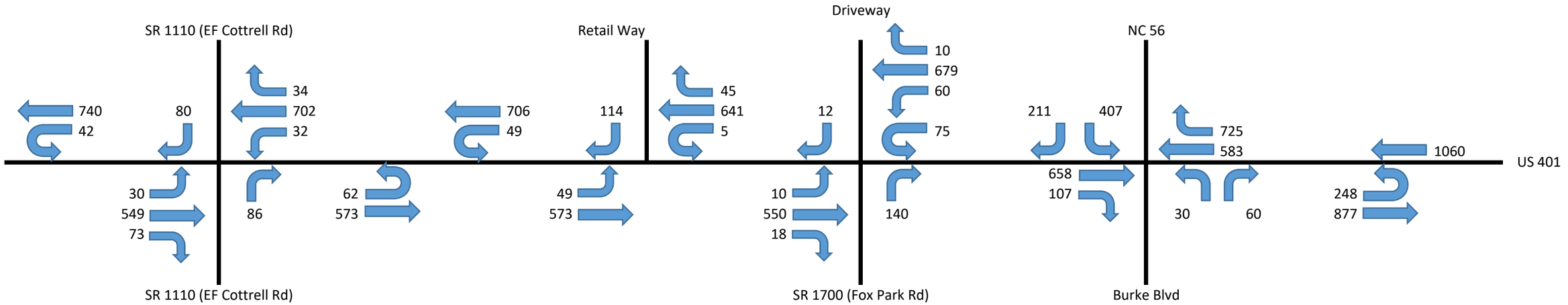
2040 Build Traffic Balancing and Rerouting

AM



PM




SR 1110 (EF Cottrell Rd)
Retail Way
Driveway
NC 56
740
42
80
34
702
32
706
49
114
45
641
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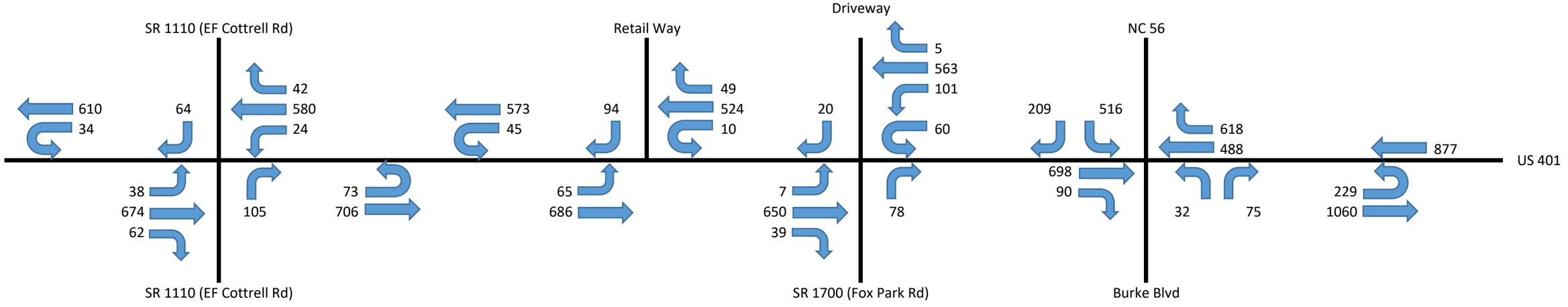
10
679
60
75
211
407
725
583
1060
US 401
30
549
73
86
62
573
49
573
10
550
18
140
658
107
30
60
248
877
SR 1110 (EF Cottrell Rd)
SR 1700 (Fox Park Rd)
Burke Blvd


SR 1110 (EF Cottrell Rd)
Retail Way
Driveway
NC 56
610
34
64
42
580
24
573
45
94
49
524
10
20
5
563
101
60
209
516
618
488
877
US 401
38
674
62
105
73
706
65
686
7
650
39
78
698
90
32
75
229
1060
SR 1110 (EF Cottrell Rd)
SR 1700 (Fox Park Rd)
Burke Blvd

APPENDIX D:

SIGNAL DESIGN PLANS

PROJECT REFERENCE NO.	SHEET NO.
N/A	SIG 1

PHASING DIAGRAM

PHASING DIAGRAM DETECTION LEGEND

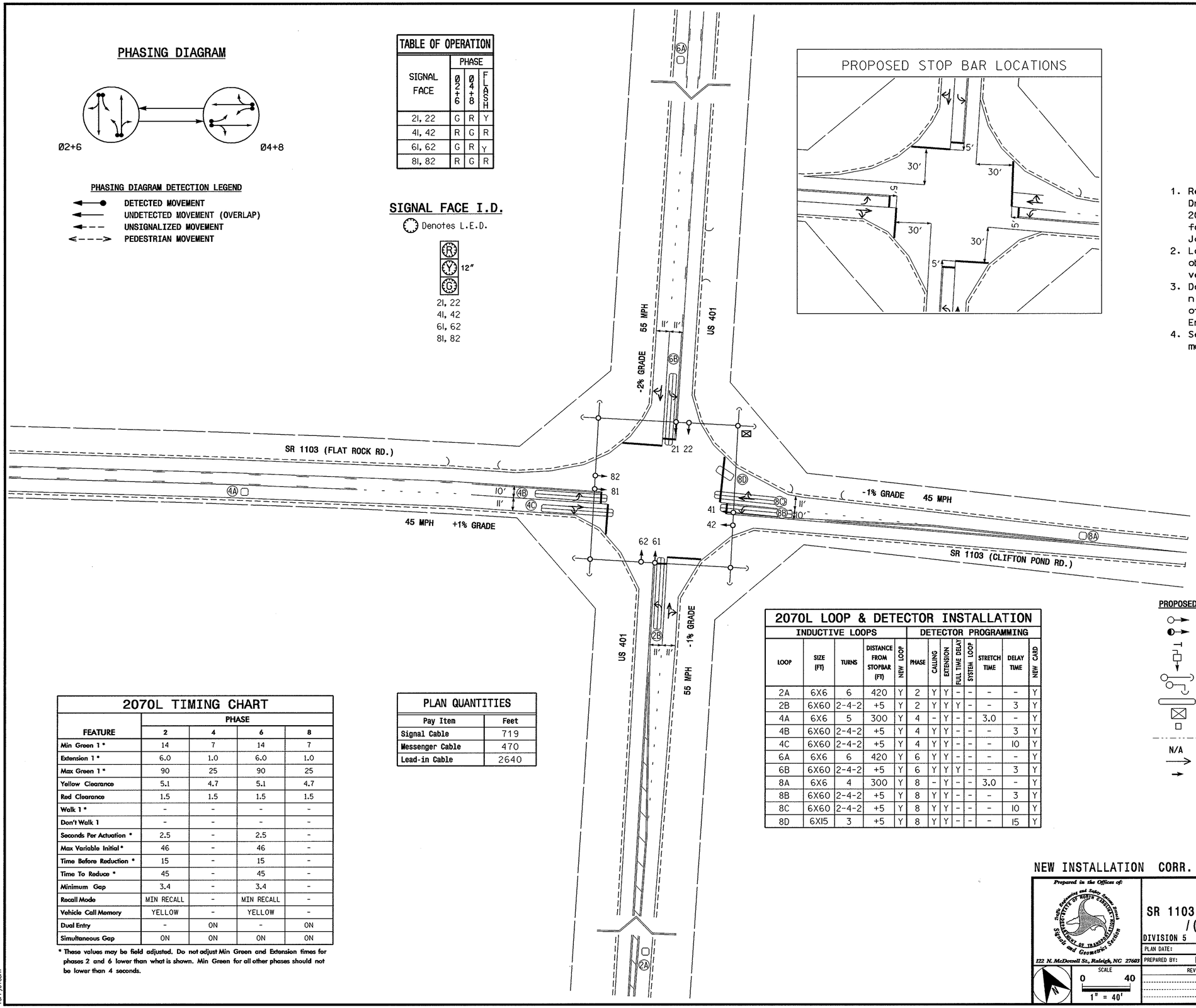
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION			
SIGNAL FACE	PHASE Ø2+6	PHASE Ø4+8	FLASH
21, 22	G	R	Y
41, 42	R	G	R
61, 62	G	R	Y
81, 82	R	G	R

SIGNAL FACE I.D.

Denotes L.E.D.

21, 22
41, 42
61, 62
81, 82



PROPOSED STOP BAR LOCATIONS

TWO PHASE
FULLY ACTUATED
(ISOLATED)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2002 and "Standard Specifications for Roads and Structures" dated January 2002.
2. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
3. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
4. Set all detector units to presence mode.

2070L TIMING CHART

FEATURE	PHASE 2	PHASE 4	PHASE 6	PHASE 8
Min Green 1 *	14	7	14	7
Extension 1 *	6.0	1.0	6.0	1.0
Max Green 1 *	90	25	90	25
Yellow Clearance	5.1	4.7	5.1	4.7
Red Clearance	1.5	1.5	1.5	1.5
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	2.5	-	2.5	-
Max Variable Initial *	46	-	46	-
Time Before Reduction *	15	-	15	-
Time To Reduce *	45	-	45	-
Minimum Gap	3.4	-	3.4	-
Recall Mode	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	YELLOW	-	YELLOW	-
Dual Entry	-	ON	-	ON
Simultaneous Gap	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

PLAN QUANTITIES	
Pay Item	Feet
Signal Cable	719
Messenger Cable	470
Lead-in Cable	2640

2070L LOOP & DETECTOR INSTALLATION

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	TURNS	DISTANCE FROM STOPBAR (FT)	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	SYSTEM LOOP	STRETCH TIME	DELAY TIME	NEW CARD
2A	6X6	6	420	Y	2	Y	Y	-	-	-	-	Y
2B	6X60	2-4-2	+5	Y	2	Y	Y	Y	-	-	3	Y
4A	6X6	5	300	Y	4	-	Y	-	-	3.0	-	Y
4B	6X60	2-4-2	+5	Y	4	Y	Y	-	-	-	3	Y
4C	6X60	2-4-2	+5	Y	4	Y	Y	-	-	-	10	Y
6A	6X6	6	420	Y	6	Y	Y	-	-	-	-	Y
6B	6X60	2-4-2	+5	Y	6	Y	Y	Y	-	-	3	Y
8A	6X6	4	300	Y	8	-	Y	-	-	3.0	-	Y
8B	6X60	2-4-2	+5	Y	8	Y	Y	-	-	-	3	Y
8C	6X60	2-4-2	+5	Y	8	Y	Y	-	-	-	10	Y
8D	6X15	3	+5	Y	8	Y	Y	-	-	-	15	Y

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Pavement Marking Arrow	

NEW INSTALLATION CORR. FILE NO.: 05-03-210

Prepared in the Offices of:
North Carolina Department of Transportation
Signals and Geometrics Section
1722 N. McDowell St., Raleigh, NC 27603

US 401
AT
SR 1103 (FLAT ROCK CHURCH RD.)
/(CLIFTON POND RD.)

DIVISION 5 FRANKLIN COUNTY South of LOUISBURG

PLAN DATE:	02/2004	REVIEWED BY:	MUNTHER MAHBOOBA
PREPARED BY:	L. BLOUNT	REVIEWED BY:	MKM

SCALE 0 40 1" = 40'

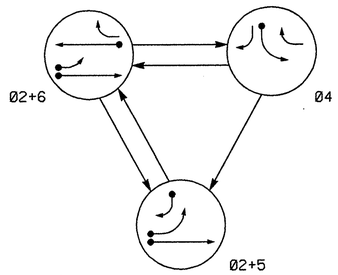
REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 25475 BONIFACE MADUABUCHI
Boniface Madu 4/13/04
SIGNATURE DATE
SIG. INVENTORY NO. 05-1473

02-APR-2004 12:12
W:\Projects\Traffic\Workgroups\Munther Group\Larry\05-1473_2004XXXX.sig
larryblount

PROJECT REFERENCE NO.	SHEET NO.
36249.2671	Sig-1

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

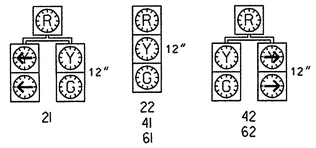
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+5	PHASE Ø2+6	PHASE Ø4	FLASH
21	G	G	R	Y
22	G	G	R	Y
41	R	R	G	R
42	R	R	G	R
61	R	G	R	Y
62	R	G	R	Y

SIGNAL FACE I.D.

Denotes L.E.D.



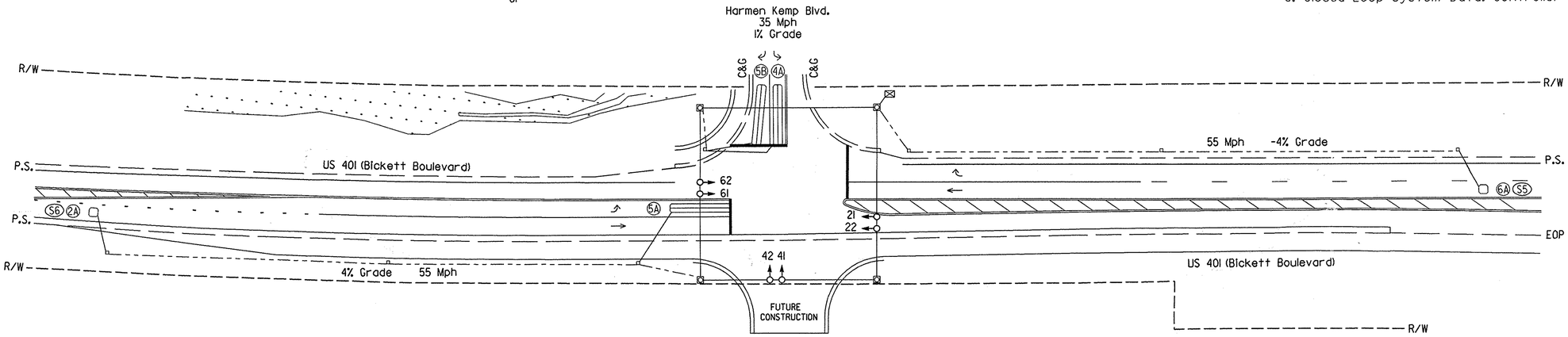
2070L LOOP & DETECTOR INSTALLATION

INDUCTIVE LOOPS					DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A/S6	6X6	420	6	Y	2	Y	Y	–	—	—	Y	Y
4A	6X40	0	2-4-2	Y	4	Y	Y	–	—	3	–	Y
5A	6X40	0	2-4-2	Y	5	Y	Y	–	—	15	–	Y
					2	Y	Y	Y	—	3	–	Y
5B	6X40	0	2-4-2	Y	5	Y	Y	–	—	15	–	Y
6A/S5	6X6	420	6	Y	6	Y	Y	–	—	—	Y	Y

3 Phase
Fully Actuated
(US 401 (Bickett Blvd.) Closed Loop System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated July 2006, "Standard Specifications for Roads and Structures" dated July 2006 and all applicable sections of the latest version of the generic Project Special Provisions. The PSP can be accessed at the following website: 'http://www.ncdot.org/doh/preconstruct/traffic/itss/'
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
5. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
6. Closed Loop System Data: Controller Asset #2305.

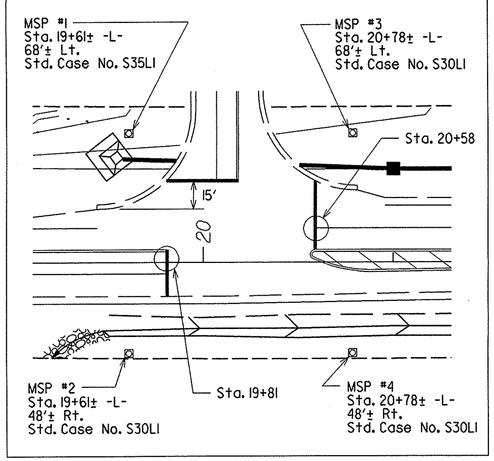


2070L TIMING CHART

FEATURE	PHASE 2	4	5	6
Min Green 1 *	14	7	7	14
Extension 1 *	6.0	2.0	2.0	6.0
Max Green 1 *	90	20	15	90
Yellow Clearance	4.8	3.1	3.0	5.6
Red Clearance	1.0	1.4	1.5	1.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	2.5	-	-	2.5
Max Variable Initial *	46	-	-	46
Time Before Reduction *	15	-	-	15
Time To Reduce *	45	-	-	45
Minimum Gap	3.0	-	-	3.0
Recall Mode	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	YELLOW	-	-	YELLOW
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

Metal Pole and Stop Bar Locations



METAL POLE ELEVATION DATA			
POLE NUMBER	ELEVATION DIFF.	ATTACHMENT HEIGHT	POLE HEIGHT
MSP #1	+3.3'	31.2'	35'
MSP #2	+2.1'	29.9'	30'
MSP #3	+0.84'	28.7'	30'
MSP #4	+1.75'	29.6'	30'

LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
⊠	Controller & Cabinet	
□	Junction Box	■
- - - - - -	2-in Underground Conduit	- - - - -
N/A	Right of Way	
→	Directional Arrow	→
→	Pavement Marking Arrow	→
◎	Metal Strain Pole	◘

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

FINAL DRAWING Date: 6/9/2008

Traffic Engineering Branch

Prepared in the offices of:

RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-8416 Fax.
www.rameykemp.com

New Installation

Prepared for:
North Carolina Department of Transportation
Traffic Engineering Branch
Signals and Geometrics Section
750 Greenfield Parkway, Garner, NC 27529

US 401 (Bickett Boulevard) at Harmen Kemp Boulevard

Division 5 Franklin County Louisburg

PLAN DATE:	Apr 2008	REVIEWED BY:	D.J. Darity
PREPARED BY:	H.M Surti	RKA PROJ. NO.:	07062 (040)

REVISIONS	INIT.	DATE

SCALE 0 40 1"=40'

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19715 ENGINEER DONALD J. DARITY
5-20-2008

SIGNATURE DATE

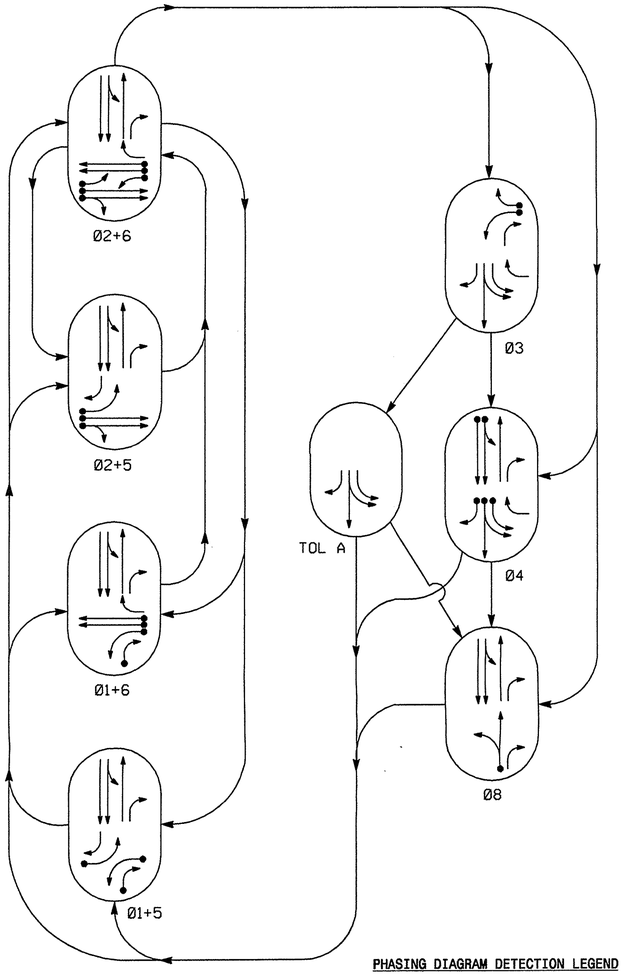
SIG. INVENTORY NO. 05-2305

$$$$USERNAME$$$$
$$$$SYSTIME$$$$

PROJECT REFERENCE NO.	SHEET NO.
36249.2671	Sig-3

7 Phase
Fully Actuated
(US 401 (Bickett Blvd.)
Closed Loop System)

PHASING DIAGRAM



SIGNAL FACE I.D.

Denotes L.E.D.

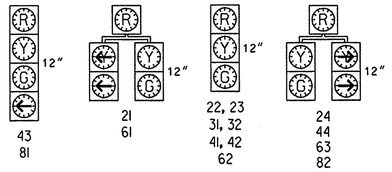
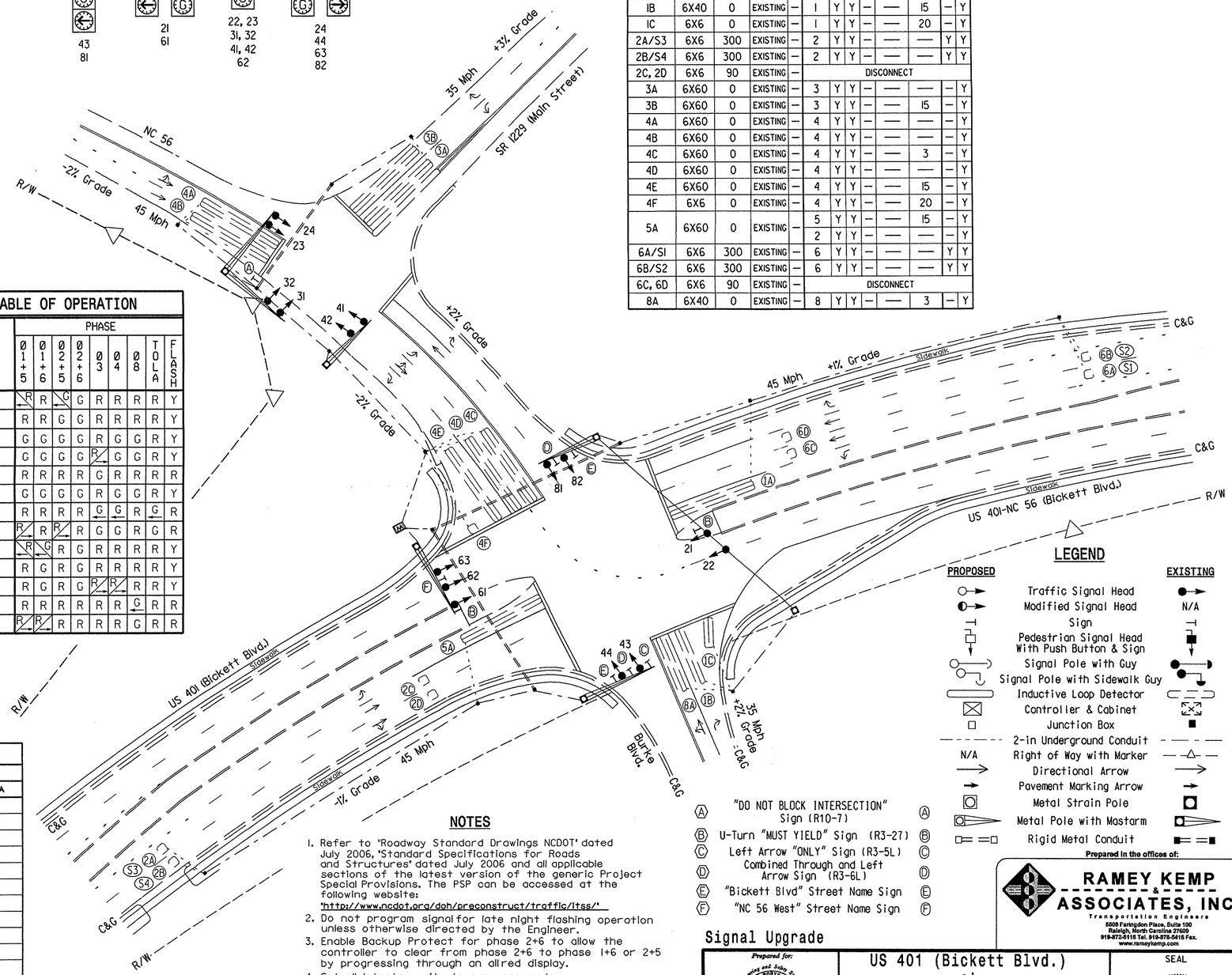


TABLE OF OPERATION

SIGNAL FACE	PHASE								
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3	Ø4	Ø8	TOLA	FLASH
21	R	R	G	G	R	R	R	R	Y
22	R	R	G	G	R	R	R	R	Y
23	G	G	G	G	R	G	G	R	Y
24	G	G	G	G	R	G	G	R	Y
31, 32	R	R	R	R	G	R	R	R	R
41, 42	G	G	G	G	R	G	G	R	Y
43	R	R	R	R	G	G	R	G	R
44	R	R	R	R	G	G	R	G	R
61	R	R	G	R	G	R	R	R	Y
62	R	G	R	G	R	R	R	R	Y
63	R	G	R	G	R	R	R	R	Y
81	R	R	R	R	R	R	G	R	R
82	R	R	R	R	R	R	G	R	R

2070L LOOP & DETECTOR INSTALLATION

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
IA	6X60	0	EXISTING	—	1	Y	Y	—	—	15	—	Y
					6	Y	Y	—	—	—	—	Y
IB	6X40	0	EXISTING	—	1	Y	Y	—	—	15	—	Y
IC	6X6	0	EXISTING	—	1	Y	Y	—	—	20	—	Y
2A/S3	6X6	300	EXISTING	—	2	Y	Y	—	—	—	Y	Y
2B/S4	6X6	300	EXISTING	—	2	Y	Y	—	—	—	Y	Y
2C, 2D	6X6	90	EXISTING	—	DISCONNECT							
3A	6X60	0	EXISTING	—	3	Y	Y	—	—	—	—	Y
3B	6X60	0	EXISTING	—	3	Y	Y	—	—	15	—	Y
4A	6X60	0	EXISTING	—	4	Y	Y	—	—	—	—	Y
4B	6X60	0	EXISTING	—	4	Y	Y	—	—	—	—	Y
4C	6X60	0	EXISTING	—	4	Y	Y	—	—	3	—	Y
4D	6X60	0	EXISTING	—	4	Y	Y	—	—	—	—	Y
4E	6X60	0	EXISTING	—	4	Y	Y	—	—	15	—	Y
4F	6X6	0	EXISTING	—	4	Y	Y	—	—	20	—	Y
5A	6X60	0	EXISTING	—	5	Y	Y	—	—	15	—	Y
					2	Y	Y	—	—	—	—	Y
6A/S1	6X6	300	EXISTING	—	6	Y	Y	—	—	—	Y	Y
6B/S2	6X6	300	EXISTING	—	6	Y	Y	—	—	—	Y	Y
6C, 6D	6X6	90	EXISTING	—	DISCONNECT							
8A	6X40	0	EXISTING	—	8	Y	Y	—	—	3	—	Y



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way with Marker	
	Directional Arrow	
	Pavement Marking Arrow	
	Metal Strain Pole	
	Metal Pole with Mastarm	
	Rigid Metal Conduit	

- (A) "DO NOT BLOCK INTERSECTION" Sign (R10-7)
- (B) U-Turn "MUST YIELD" Sign (R3-27)
- (C) Left Arrow "ONLY" Sign (R3-5L)
- (D) Combined Through and Left Arrow Sign (R3-6L)
- (E) "Bickett Blvd" Street Name Sign
- (F) "NC 56 West" Street Name Sign

PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

2070L TIMING CHART

FEATURE	PHASE							
	1	2	3	4	5	6	8	TOL A
Min Green 1 *	7	12	7	7	7	12	7	6
Extension 1 *	2.0	6.0	2.0	2.0	2.0	6.0	2.0	-
Max Green 1 *	20	90	20	15	20	90	15	-
Yellow Clearance	3.0	4.6	3.0	4.7	3.0	4.4	3.7	4.7
Red Clearance	2.8	1.5	1.8	2.0	2.4	1.6	2.6	2.0
Red Revert	2.0	5.0	2.0	2.0	2.0	5.0	2.0	2.0
Walk 1 *	-	-	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-	-	-
Seconds Per Actuation *	-	1.5	-	-	-	1.5	-	-
Max Variable Initial *	-	34	-	-	-	34	-	-
Time Before Reduction *	-	15	-	-	-	15	-	-
Time To Reduce *	-	30	-	-	-	30	-	-
Minimum Gap	-	3.0	-	-	-	3.0	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-
Dual Entry	-	-	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

NOTES

1. Refer to 'Roadway Standard Drawings NCDOT' dated July 2006, 'Standard Specifications for Roads and Structures' dated July 2006 and all applicable sections of the latest version of the generic Project Special Provisions. The PSP can be accessed at the following website:
   'http://www.ncdot.org/doh/preconstruct/traffic/itss/'
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Enable Backup Protect for phase 2+6 to allow the controller to clear from phase 2+6 to phase 1+6 or 2+5 by progressing through an all red display.
4. Set all detector units to presence mode.
5. In the event of loop replacement, refer to the current Signals and Geometrics Design Manual and submit a Plan of Record to the Signals and Geometrics Section
6. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
7. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
8. Closed Loop System Data: Controller Asset #2039.
   Master Asset # 10503.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

FINAL DRAWING Date: 6/19/2008

Traffic Engineering Branch

Prepared in the offices of:
RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com

Signal Upgrade

Prepared for: Traffic Engineering and Safety Systems Branch, NCDEPARTMENT OF TRANSPORTATION, Signals and Geometrics Section
750 Greenfield Parkway, Garner, NC 27529

US 401 (Bickett Blvd.)
at
NC 56/ Burke Boulevard and
SR 1229 (Main St.)

Division 5 Franklin County Louisburg

PLAN DATE:	Apr 2008	REVIEWED BY:	D.J. Darity
PREPARED BY:	H.W. Surti	RKA PROJ. NO.:	07062 (040)

SCALE: 0 40, 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 19713 ENGINEER DONALD J. DARITY
5-20-2008
SIGNATURE DATE
SIG. INVENTORY NO. 05-2039

$$$$USERNAME$$$$
$$$$LAST LINE$$$$

APPENDIX E:

2017 NO-BUILD SYNCHRO/SIMTRAFFIC REPORTS

1: US 401 (Louisburg Rd) & Flat Rock Church Rd/Clifton Pond Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	19	67	52	23	36	49	327	32	28	439	46
Future Volume (vph)	50	19	67	52	23	36	49	327	32	28	439	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	100		0	125		0	200		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt		0.883			0.909			0.986			0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1629	0	1752	1677	0	1752	1819	0	1752	1819	0
Flt Permitted	0.714			0.695			0.420			0.520		
Satd. Flow (perm)	1317	1629	0	1282	1677	0	775	1819	0	959	1819	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		979			980			916			1202	
Travel Time (s)		14.8			14.8			11.4			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
Adj. Flow (vph)	56	21	74	58	26	40	54	363	36	31	488	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	56	95	0	58	66	0	54	399	0	31	539	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
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		Yes									Yes	
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		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		14.0	14.0		14.0	14.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	23.0	23.0		23.0	23.0		37.0	37.0		37.0	37.0	
Total Split (%)	38.3%	38.3%		38.3%	38.3%		61.7%	61.7%		61.7%	61.7%	
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	-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 Optimize?												
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Act Effct Green (s)	10.7	10.7		10.7	10.7		36.1	36.1		36.1	36.1	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.68	0.68		0.68	0.68	
v/c Ratio	0.21	0.29		0.22	0.19		0.10	0.32		0.05	0.43	

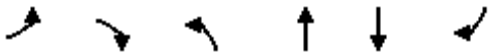
PTE

1: US 401 (Louisburg Rd) & Flat Rock Church Rd/Clifton Pond Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	19.4	20.1		19.7	18.7		5.6	6.1		5.1	7.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	19.4	20.1		19.7	18.7		5.6	6.1		5.1	7.2	
LOS	B	C		B	B		A	A		A	A	
Approach Delay		19.9			19.2			6.1			7.0	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)	15	25		15	17		6	51		3	76	
Queue Length 95th (ft)	39	58		40	43		20	109		13	161	
Internal Link Dist (ft)		899			900			836			1122	
Turn Bay Length (ft)	200			100			125			200		
Base Capacity (vph)	447	554		436	570		528	1240		653	1240	
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	0.13	0.17		0.13	0.12		0.10	0.32		0.05	0.43	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 53			
Natural Cycle: 50			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.43			
Intersection Signal Delay: 9.4		Intersection LOS: A	
Intersection Capacity Utilization 58.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: US 401 (Louisburg Rd) & Flat Rock Church Rd/Clifton Pond Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	13	7	406	500	7
Future Volume (Veh/h)	12	13	7	406	500	7
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)	13	14	8	451	556	8
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	1027	560	564			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1027	560	564			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	97	99			
cM capacity (veh/h)	254	522	1003			

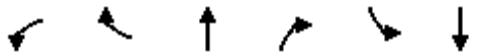
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	27	459	564
Volume Left	13	8	0
Volume Right	14	0	8
cSH	346	1003	1700
Volume to Capacity	0.08	0.01	0.33
Queue Length 95th (ft)	6	1	0
Control Delay (s)	16.3	0.2	0.0
Lane LOS	C	A	
Approach Delay (s)	16.3	0.2	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	37.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	8	414	4	10	503
Future Volume (Veh/h)	4	8	414	4	10	503
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	9	460	4	11	559
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		3				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1041	460			464	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1041	460			464	
tC, single (s)	6.5	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.2	
p0 queue free %	98	98			99	
cM capacity (veh/h)	246	589			1092	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	13	460	4	11	559
Volume Left	4	0	0	11	0
Volume Right	9	0	4	0	0
cSH	798	1700	1700	1092	1700
Volume to Capacity	0.02	0.27	0.00	0.01	0.33
Queue Length 95th (ft)	1	0	0	1	0
Control Delay (s)	13.9	0.0	0.0	8.3	0.0
Lane LOS	B			A	
Approach Delay (s)	13.9	0.0		0.2	
Approach LOS	B				

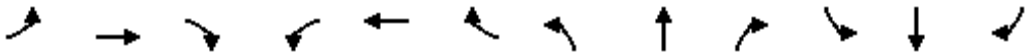
Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	36.5%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	4	418	4	5	509
Future Volume (Veh/h)	4	4	418	4	5	509
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	464	4	6	566
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	1044	466			468	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1044	466			468	
tC, single (s)	6.5	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.2	
p0 queue free %	98	99			99	
cM capacity (veh/h)	244	580			1088	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	8	468	572
Volume Left	4	0	6
Volume Right	4	4	0
cSH	343	1700	1088
Volume to Capacity	0.02	0.28	0.01
Queue Length 95th (ft)	2	0	0
Control Delay (s)	15.7	0.0	0.2
Lane LOS	C		A
Approach Delay (s)	15.7	0.0	0.2
Approach LOS	C		

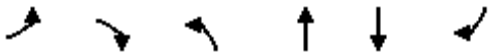
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	13	19	20	10	18	15	386	21	23	475	8
Future Volume (Veh/h)	8	13	19	20	10	18	15	386	21	23	475	8
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)	9	14	21	22	11	20	17	429	23	26	528	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	1084	1070	532	1087	1064	440	537			452		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1084	1070	532	1087	1064	440	537			452		
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 %	95	93	96	87	95	97	98			98		
cM capacity (veh/h)	174	210	543	170	212	612	1026			1103		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	44	53	469	563
Volume Left	9	22	17	26
Volume Right	21	20	23	9
cSH	280	248	1026	1103
Volume to Capacity	0.16	0.21	0.02	0.02
Queue Length 95th (ft)	14	20	1	2
Control Delay (s)	20.2	23.5	0.5	0.7
Lane LOS	C	C	A	A
Approach Delay (s)	20.2	23.5	0.5	0.7
Approach LOS	C	C		

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	46.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø4
Lane Configurations							
Traffic Volume (vph)	36	51	39	373	455	34	
Future Volume (vph)	36	51	39	373	455	34	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	300	0	275			0	
Storage Lanes	1	1	1			1	
Taper Length (ft)	100		100				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.850				0.850	
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1770	1583	1752	1845	1845	1568	
Flt Permitted	0.950		0.414				
Satd. Flow (perm)	1770	1583	764	1845	1845	1568	
Right Turn on Red		No				No	
Satd. Flow (RTOR)							
Link Speed (mph)	35			55	55		
Link Distance (ft)	434			3941	1151		
Travel Time (s)	8.5			48.9	14.3		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%	
Adj. Flow (vph)	40	57	43	414	506	38	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	40	57	43	414	506	38	
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	
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	pm+pt	NA	NA	pm+ov	
Protected Phases	7	5	5	2	6	7	4
Permitted Phases		4	2			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	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0	20.0
Total Split (s)	22.0	20.0	20.0	98.0	78.0	22.0	22.0
Total Split (%)	18.3%	16.7%	16.7%	81.7%	65.0%	18.3%	18%
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		
Recall Mode	None	None	None	C-Max	C-Max	None	None
Act Effct Green (s)	10.5	21.7	102.3	103.3	92.1	104.8	
Actuated g/C Ratio	0.09	0.18	0.85	0.86	0.77	0.87	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø4
v/c Ratio	0.26	0.20	0.06	0.26	0.36	0.03	
Control Delay	54.8	41.0	2.2	2.6	3.6	0.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	54.8	41.0	2.2	2.6	3.6	0.5	
LOS	D	D	A	A	A	A	
Approach Delay	46.7			2.5	3.4		
Approach LOS	D			A	A		
Queue Length 50th (ft)	30	37	4	53	52	1	
Queue Length 95th (ft)	64	74	12	90	101	2	
Internal Link Dist (ft)	354			3861	1071		
Turn Bay Length (ft)	300		275				
Base Capacity (vph)	250	365	774	1588	1416	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	0.16	0.16	0.06	0.26	0.36	0.03	

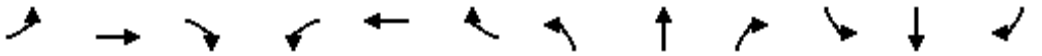
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 117 (98%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.36			
Intersection Signal Delay: 6.9		Intersection LOS: A	
Intersection Capacity Utilization 46.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: Retail Way & US 401 (Louisburg Rd)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	4	3	37	4	76	5	386	18	47	449	5
Future Volume (Veh/h)	3	4	3	37	4	76	5	386	18	47	449	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)	3	4	3	41	4	84	6	429	20	52	499	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)								1151			717	
pX, platoon unblocked	0.94	0.94	0.94	0.94	0.94		0.94					
vC, conflicting volume	918	1067	252	810	1060	224	505			449		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	793	950	87	677	943	224	354			449		
tC, single (s)	7.6	6.6	7.0	7.5	6.5	6.9	4.2			4.2		
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	98	100	86	98	89	99			95		
cM capacity (veh/h)	220	228	894	301	233	779	1126			1101		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	10	129	6	286	163	52	333	172
Volume Left	3	41	6	0	0	52	0	0
Volume Right	3	84	0	0	20	0	0	6
cSH	290	494	1126	1700	1700	1101	1700	1700
Volume to Capacity	0.03	0.26	0.01	0.17	0.10	0.05	0.20	0.10
Queue Length 95th (ft)	3	26	0	0	0	4	0	0
Control Delay (s)	17.9	14.8	8.2	0.0	0.0	8.4	0.0	0.0
Lane LOS	C	B	A			A		
Approach Delay (s)	17.9	14.8	0.1			0.8		
Approach LOS	C	B						

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	35.3%	ICU Level of Service	A	
Analysis Period (min)	15			

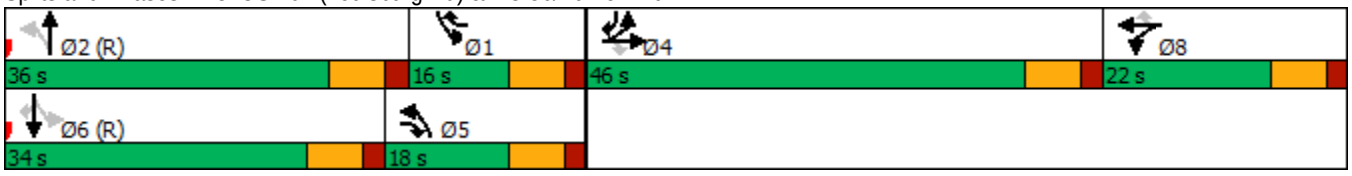


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	329	23	117	25	22	27	117	321	27	37	359	414
Future Volume (vph)	329	23	117	25	22	27	117	321	27	37	359	414
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	0		75	200		0	200		200
Storage Lanes	1		1	0		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850			0.850		0.988				0.850
Flt Protected	0.950	0.958			0.974		0.950			0.950		
Satd. Flow (prot)	1665	1679	1568	0	1814	1583	1752	3463	0	1752	3505	1568
Flt Permitted	0.950	0.958			0.974		0.482			0.494		
Satd. Flow (perm)	1665	1679	1568	0	1814	1583	889	3463	0	911	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			35			45			45	
Link Distance (ft)		525			376			717			821	
Travel Time (s)		8.0			7.3			10.9			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 (%)	3%	3%	3%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	366	26	130	28	24	30	130	357	30	41	399	460
Shared Lane Traffic (%)	47%											
Lane Group Flow (vph)	194	198	130	0	52	30	130	387	0	41	399	460
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
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
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	4	4	5	8	8	1	5	2		1	6	4
Permitted Phases			4			8	2			6		6
Detector Phase	4	4	5	8	8	1	5	2		1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	20.0	20.0	14.0	20.0	20.0	14.0	14.0	20.0		14.0	20.0	20.0
Total Split (s)	46.0	46.0	18.0	22.0	22.0	16.0	18.0	36.0		16.0	34.0	46.0
Total Split (%)	38.3%	38.3%	15.0%	18.3%	18.3%	13.3%	15.0%	30.0%		13.3%	28.3%	38.3%
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		Lag	Lead	
Lead-Lag Optimize?			Yes			Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	None
Act Effct Green (s)	23.4	23.4	40.9		11.1	19.9	70.9	60.5		66.4	55.8	80.2
Actuated g/C Ratio	0.20	0.20	0.34		0.09	0.17	0.59	0.50		0.55	0.46	0.67

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.60	0.61	0.24		0.31	0.11	0.21	0.22		0.07	0.25	0.44
Control Delay	50.6	50.9	27.9		55.1	22.0	13.7	19.1		14.4	22.7	7.1
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	50.6	50.9	27.9		55.1	22.0	13.7	19.1		14.4	22.7	7.1
LOS	D	D	C		E	C	B	B		B	C	A
Approach Delay		45.1			43.0			17.7			14.4	
Approach LOS		D			D			B			B	
Queue Length 50th (ft)	145	148	72		38	13	39	86		13	100	77
Queue Length 95th (ft)	206	211	107		77	24	85	136		36	165	118
Internal Link Dist (ft)		445			296			637			741	
Turn Bay Length (ft)	350		150			75	200			200		200
Base Capacity (vph)	568	573	528		256	268	622	1744		583	1628	1203
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	0.34	0.35	0.25		0.20	0.11	0.21	0.22		0.07	0.25	0.38

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 24.3		Intersection LOS: C	
Intersection Capacity Utilization 50.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 8: US 401 (Louisburg Rd) & NC 56/Burke Blvd



Intersection: 1: US 401 (Louisburg Rd) & Flat Rock Church Rd/Clifton Pond Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	75	116	76	83	69	155	54	233
Average Queue (ft)	30	42	31	31	24	60	15	101
95th Queue (ft)	64	90	65	69	56	116	43	199
Link Distance (ft)		944		945		881		1141
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200		100		125		200	
Storage Blk Time (%)		0	0	0		0		1
Queuing Penalty (veh)		0	0	0		0		0

Intersection: 2: US 401 (Louisburg Rd) & Huntsburg Dr

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	53	28
Average Queue (ft)	17	2
95th Queue (ft)	44	15
Link Distance (ft)	994	2778
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: US 401 (Louisburg Rd) & Airport Rd

Movement	WB	WB	SB
Directions Served	L	R	L
Maximum Queue (ft)	23	33	31
Average Queue (ft)	2	4	3
95th Queue (ft)	13	19	17
Link Distance (ft)	948		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		75	250
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 4: US 401 (Louisburg Rd) & Bennette Perry Rd

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	15	42
Average Queue (ft)	2	2
95th Queue (ft)	10	20
Link Distance (ft)	671	5575
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: US 401 (Louisburg Rd) & EF Cottrell Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	47	55	69	87
Average Queue (ft)	14	20	7	10
95th Queue (ft)	34	44	37	49
Link Distance (ft)	598	502	5575	2937
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Retail Dwy & US 401 (Louisburg Rd)

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	86	102	50	147	108	22
Average Queue (ft)	29	31	12	23	26	1
95th Queue (ft)	67	78	38	85	76	11
Link Distance (ft)		387		3881	1089	1089
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	300		275			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 7: US 401 (Louisburg Rd) & Driveway/Fox Park Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	35	98	29	41
Average Queue (ft)	8	39	2	10
95th Queue (ft)	31	73	13	32
Link Distance (ft)	187	462		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			250	200
Storage Blk Time (%)				
Queuing Penalty (veh)				

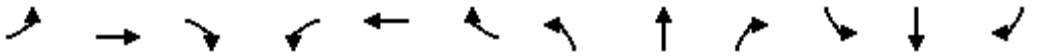
Intersection: 8: US 401 (Louisburg Rd) & NC 56/Burke Blvd

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LT	R	LT	R	L	T	TR	L	T	T	R
Maximum Queue (ft)	245	314	240	99	70	161	144	169	81	228	188	184
Average Queue (ft)	116	182	75	38	25	73	53	66	24	126	61	71
95th Queue (ft)	238	267	168	79	59	133	114	139	62	210	163	138
Link Distance (ft)		471		323			629	629		768	768	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	350		150		75	200			200			200
Storage Blk Time (%)		18	0	4	1	0	0			1	0	0
Queuing Penalty (veh)		52	2	1	0	0	0			0	0	0

Network Summary

Network wide Queuing Penalty: 56

1: US 401 (Louisburg Rd) & Flat Rock Church Rd/Clifton Pond Rd



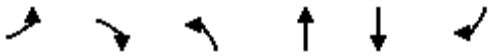
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	23	49	32	19	28	67	440	52	36	328	50
Future Volume (vph)	46	23	49	32	19	28	67	440	52	36	328	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	100		0	125		0	200		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. 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
Frt		0.899			0.911			0.984			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1658	0	1752	1680	0	1752	1815	0	1752	1808	0
Flt Permitted	0.723			0.705			0.506			0.418		
Satd. Flow (perm)	1334	1658	0	1300	1680	0	933	1815	0	771	1808	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		979			980			916			1202	
Travel Time (s)		14.8			14.8			11.4			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
Adj. Flow (vph)	51	26	54	36	21	31	74	489	58	40	364	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	80	0	36	52	0	74	547	0	40	420	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
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		Yes									Yes	
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		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		14.0	14.0		14.0	14.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	23.0	23.0		23.0	23.0		37.0	37.0		37.0	37.0	
Total Split (%)	38.3%	38.3%		38.3%	38.3%		61.7%	61.7%		61.7%	61.7%	
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	-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 Optimize?												
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Act Effct Green (s)	10.3	10.3		10.3	10.3		36.1	36.1		36.1	36.1	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.69	0.69		0.69	0.69	
v/c Ratio	0.20	0.25		0.14	0.16		0.12	0.44		0.08	0.34	

1: US 401 (Louisburg Rd) & Flat Rock Church Rd/Clifton Pond Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	19.4	19.7		18.6	18.5		5.3	6.9		5.1	6.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	19.4	19.7		18.6	18.5		5.3	6.9		5.1	6.0	
LOS	B	B		B	B		A	A		A	A	
Approach Delay		19.6			18.6			6.7			5.9	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)	13	21		9	13		8	75		4	52	
Queue Length 95th (ft)	36	50		28	36		24	156		15	111	
Internal Link Dist (ft)		899			900			836			1122	
Turn Bay Length (ft)	200			100			125			200		
Base Capacity (vph)	457	569		446	576		641	1246		529	1242	
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	0.14		0.08	0.09		0.12	0.44		0.08	0.34	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 52.5			
Natural Cycle: 50			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.44			
Intersection Signal Delay: 8.5		Intersection LOS: A	
Intersection Capacity Utilization 59.7%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: US 401 (Louisburg Rd) & Flat Rock Church Rd/Clifton Pond Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	7	14	500	407	12
Future Volume (Veh/h)	7	7	14	500	407	12
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)	8	8	16	556	452	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)						
pX, platoon unblocked						
vC, conflicting volume	1046	458	465			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1046	458	465			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	99	99			
cM capacity (veh/h)	246	596	1091			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	16	572	465
Volume Left	8	16	0
Volume Right	8	0	13
cSH	348	1091	1700
Volume to Capacity	0.05	0.01	0.27
Queue Length 95th (ft)	4	1	0
Control Delay (s)	15.8	0.4	0.0
Lane LOS	C	A	
Approach Delay (s)	15.8	0.4	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	10	503	4	8	414
Future Volume (Veh/h)	5	10	503	4	8	414
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)	6	11	559	4	9	460
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		3				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1037	559			563	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1037	559			563	
tC, single (s)	6.5	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.2	
p0 queue free %	98	98			99	
cM capacity (veh/h)	247	517			1003	

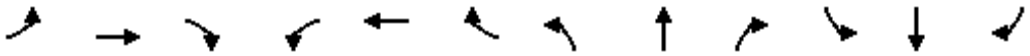
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	17	559	4	9	460
Volume Left	6	0	0	9	0
Volume Right	11	0	4	0	0
cSH	701	1700	1700	1003	1700
Volume to Capacity	0.02	0.33	0.00	0.01	0.27
Queue Length 95th (ft)	2	0	0	1	0
Control Delay (s)	14.9	0.0	0.0	8.6	0.0
Lane LOS	B			A	
Approach Delay (s)	14.9	0.0		0.2	
Approach LOS	B				

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	36.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	5	509	4	4	418
Future Volume (Veh/h)	4	5	509	4	4	418
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	6	566	4	4	464
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	1040	568			570	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1040	568			570	
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)	252	519			997	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	10	570	468
Volume Left	4	0	4
Volume Right	6	4	0
cSH	364	1700	997
Volume to Capacity	0.03	0.34	0.00
Queue Length 95th (ft)	2	0	0
Control Delay (s)	15.2	0.0	0.1
Lane LOS	C		A
Approach Delay (s)	15.2	0.0	0.1
Approach LOS	C		

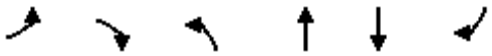
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	37.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	10	15	21	13	23	19	475	20	18	386	8
Future Volume (Veh/h)	8	10	15	21	13	23	19	475	20	18	386	8
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)	9	11	17	23	14	26	21	528	22	20	429	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	1088	1066	434	1077	1059	539	438			550		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1088	1066	434	1077	1059	539	438			550		
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 %	95	95	97	87	93	95	98			98		
cM capacity (veh/h)	168	212	618	177	214	539	1117			1015		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	37	63	571	458
Volume Left	9	23	21	20
Volume Right	17	26	22	9
cSH	279	258	1117	1015
Volume to Capacity	0.13	0.24	0.02	0.02
Queue Length 95th (ft)	11	23	1	2
Control Delay (s)	19.9	23.4	0.5	0.6
Lane LOS	C	C	A	A
Approach Delay (s)	19.9	23.4	0.5	0.6
Approach LOS	C	C		

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	44.9%	ICU Level of Service	A	
Analysis Period (min)	15			

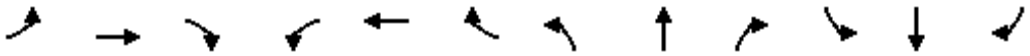


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø4
Lane Configurations							
Traffic Volume (vph)	34	39	51	455	373	36	
Future Volume (vph)	34	39	51	455	373	36	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	300	0	275			0	
Storage Lanes	1	1	1			1	
Taper Length (ft)	100		100				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.850				0.850	
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1770	1583	1752	1845	1845	1568	
Flt Permitted	0.950		0.467				
Satd. Flow (perm)	1770	1583	861	1845	1845	1568	
Right Turn on Red		No				No	
Satd. Flow (RTOR)							
Link Speed (mph)	35			55	55		
Link Distance (ft)	434			3941	1151		
Travel Time (s)	8.5			48.9	14.3		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%	
Adj. Flow (vph)	38	43	57	506	414	40	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	38	43	57	506	414	40	
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	
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	pm+pt	NA	NA	pm+ov	
Protected Phases	7	5	5	2	6	7	4
Permitted Phases		4	2			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	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0	20.0
Total Split (s)	22.0	22.0	22.0	98.0	76.0	22.0	22.0
Total Split (%)	18.3%	18.3%	18.3%	81.7%	63.3%	18.3%	18%
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		
Recall Mode	None	None	None	C-Max	C-Max	None	None
Act Effct Green (s)	10.4	21.6	102.4	103.4	92.2	104.8	
Actuated g/C Ratio	0.09	0.18	0.85	0.86	0.77	0.87	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø4
v/c Ratio	0.25	0.15	0.07	0.32	0.29	0.03	
Control Delay	54.7	40.0	2.1	2.8	3.0	0.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	54.7	40.0	2.1	2.8	3.0	0.5	
LOS	D	D	A	A	A	A	
Approach Delay	46.9			2.8	2.8		
Approach LOS	D			A	A		
Queue Length 50th (ft)	28	28	6	68	26	1	
Queue Length 95th (ft)	63	59	14	114	59	2	
Internal Link Dist (ft)	354			3861	1071		
Turn Bay Length (ft)	300		275				
Base Capacity (vph)	250	390	860	1589	1417	1434	
Starvation Cap Reductn	0	0	0	0	0	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	0.11	0.07	0.32	0.29	0.03	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 1 (1%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.32			
Intersection Signal Delay: 6.0		Intersection LOS: A	
Intersection Capacity Utilization 43.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: Retail Way & US 401 (Louisburg Rd)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	4	5	18	4	47	3	449	37	76	386	3
Future Volume (Veh/h)	5	4	5	18	4	47	3	449	37	76	386	3
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	6	20	4	52	3	499	41	84	429	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								1151			717	
pX, platoon unblocked	0.96	0.96	0.96	0.96	0.96		0.96					
vC, conflicting volume	908	1144	216	916	1126	270	432			540		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	812	1059	88	820	1039	270	314			540		
tC, single (s)	7.6	6.6	7.0	7.5	6.5	6.9	4.2			4.2		
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 %	97	98	99	91	98	93	100			92		
cM capacity (veh/h)	219	192	905	233	200	728	1182			1018		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	16	76	3	333	207	84	286	146
Volume Left	6	20	3	0	0	84	0	0
Volume Right	6	52	0	0	41	0	0	3
cSH	292	429	1182	1700	1700	1018	1700	1700
Volume to Capacity	0.05	0.18	0.00	0.20	0.12	0.08	0.17	0.09
Queue Length 95th (ft)	4	16	0	0	0	7	0	0
Control Delay (s)	18.1	15.2	8.1	0.0	0.0	8.9	0.0	0.0
Lane LOS	C	C	A			A		
Approach Delay (s)	18.1	15.2	0.0			1.4		
Approach LOS	C	C						

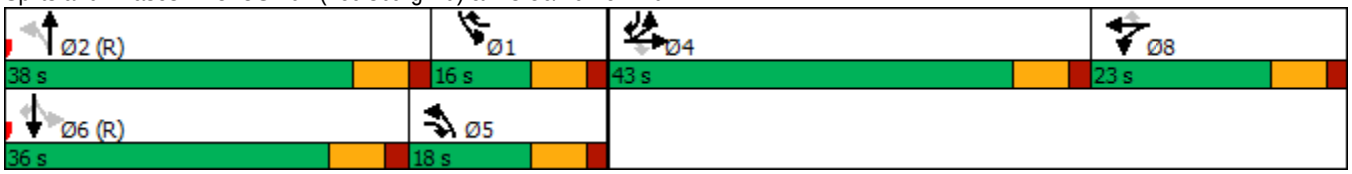
Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	32.7%	ICU Level of Service		A
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	414	22	117	27	23	37	117	359	25	27	321	329
Future Volume (vph)	414	22	117	27	23	37	117	359	25	27	321	329
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	0		75	200		0	200		200
Storage Lanes	1		1	0		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850			0.850		0.990				0.850
Flt Protected	0.950	0.957			0.974		0.950			0.950		
Satd. Flow (prot)	1665	1677	1568	0	1814	1583	1752	3470	0	1752	3505	1568
Flt Permitted	0.950	0.957			0.974		0.507			0.459		
Satd. Flow (perm)	1665	1677	1568	0	1814	1583	935	3470	0	847	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			35			45			45	
Link Distance (ft)		525			376			717			821	
Travel Time (s)		8.0			7.3			10.9			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 (%)	3%	3%	3%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	460	24	130	30	26	41	130	399	28	30	357	366
Shared Lane Traffic (%)	48%											
Lane Group Flow (vph)	239	245	130	0	56	41	130	427	0	30	357	366
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
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
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	4	4	5	8	8	1	5	2		1	6	4
Permitted Phases			4			8	2			6		6
Detector Phase	4	4	5	8	8	1	5	2		1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	20.0	20.0	14.0	20.0	20.0	14.0	14.0	20.0		14.0	20.0	20.0
Total Split (s)	43.0	43.0	18.0	23.0	23.0	16.0	18.0	38.0		16.0	36.0	43.0
Total Split (%)	35.8%	35.8%	15.0%	19.2%	19.2%	13.3%	15.0%	31.7%		13.3%	30.0%	35.8%
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		Lag	Lead	
Lead-Lag Optimize?			Yes			Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	None
Act Effct Green (s)	26.6	26.6	44.1		11.3	20.1	67.5	57.1		63.0	52.4	80.0
Actuated g/C Ratio	0.22	0.22	0.37		0.09	0.17	0.56	0.48		0.52	0.44	0.67

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.65	0.66	0.23		0.33	0.15	0.21	0.26		0.06	0.23	0.35
Control Delay	49.8	50.3	25.5		55.3	22.0	15.4	21.4		16.3	24.9	6.3
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	49.8	50.3	25.5		55.3	22.0	15.4	21.4		16.3	24.9	6.3
LOS	D	D	C		E	C	B	C		B	C	A
Approach Delay		44.9			41.2			20.0			15.5	
Approach LOS		D			D			C			B	
Queue Length 50th (ft)	177	183	68		41	16	43	98		10	94	57
Queue Length 95th (ft)	243	248	101		82	28	83	147		31	155	90
Internal Link Dist (ft)		445			296			637			741	
Turn Bay Length (ft)	350		150			75	200			200		200
Base Capacity (vph)	527	531	556		272	271	618	1650		530	1530	1139
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	0.45	0.46	0.23		0.21	0.15	0.21	0.26		0.06	0.23	0.32

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 26.9		Intersection LOS: C	
Intersection Capacity Utilization 47.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 8: US 401 (Louisburg Rd) & NC 56/Burke Blvd



Intersection: 1: US 401 (Louisburg Rd) & Flat Rock Church Rd/Clifton Pond Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	49	64	35	51	46	120	39	83
Average Queue (ft)	26	40	22	27	23	77	12	37
95th Queue (ft)	57	76	45	65	54	138	45	101
Link Distance (ft)		944		945		881		1141
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200		100		125		200	
Storage Blk Time (%)				0		1		
Queuing Penalty (veh)				0		1		

Intersection: 2: US 401 (Louisburg Rd) & Huntsburg Dr

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	25	10
Average Queue (ft)	11	2
95th Queue (ft)	31	19
Link Distance (ft)	994	2778
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: US 401 (Louisburg Rd) & Airport Rd

Movement	WB	WB	SB
Directions Served	L	R	L
Maximum Queue (ft)	15	32	17
Average Queue (ft)	4	9	3
95th Queue (ft)	18	35	18
Link Distance (ft)	948		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		75	250
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 4: US 401 (Louisburg Rd) & Bennette Perry Rd

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	12	3
Average Queue (ft)	4	1
95th Queue (ft)	15	7
Link Distance (ft)	671	5575
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: US 401 (Louisburg Rd) & EF Cottrell Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	23	46	12	28
Average Queue (ft)	11	26	4	8
95th Queue (ft)	30	57	22	43
Link Distance (ft)	598	502	5575	2937
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Retail Dwy & US 401 (Louisburg Rd)

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	48	64	36	51	56	5
Average Queue (ft)	23	27	12	14	18	1
95th Queue (ft)	53	71	39	70	59	9
Link Distance (ft)		387		3881	1089	1089
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	300		275			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 7: US 401 (Louisburg Rd) & Driveway/Fox Park Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	24	41	3	34
Average Queue (ft)	13	30	1	12
95th Queue (ft)	37	47	6	40
Link Distance (ft)	187	462		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			250	200
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: US 401 (Louisburg Rd) & NC 56/Burke Blvd

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LT	R	LT	R	L	T	TR	L	T	T	R
Maximum Queue (ft)	221	278	174	69	55	62	94	105	34	176	135	120
Average Queue (ft)	150	209	92	33	26	37	46	52	12	116	46	60
95th Queue (ft)	256	287	208	77	65	76	112	126	42	203	146	135
Link Distance (ft)		471		323			629	629		768	768	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	350		150		75	200			200			200
Storage Blk Time (%)		28		3	1					2	0	
Queuing Penalty (veh)		90		1	1					0	0	

Network Summary

Network wide Queuing Penalty: 93

APPENDIX F:

R-2814C ROADWAY DESIGN PLANS

PROJECT REFERENCE NO.	SHEET NO.
R-2814C	26
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 040286 ENGINEER CASEY E HARRIS

6/13/2018

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 35048 ENGINEER INDIA M. JOHNS

6/13/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St. Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER - P-0671

8/17/99

REVISIONS

NAD 83/NSRS 2007

345

350

355

-L-
PI Sta. 343+26.47
Δ = 13° 11' 27.8" (RT)
D = 0° 59' 53.5"
L = 1,321.51'
T = 663.69'
R = 5,740.00'
SEE = SEE PLANS

-L- PT Sta. 349+84.29

BM #64

MATCHLINE -L- STA 341+00 SEE SHEET 25

MATCHLINE -L- STA 355+00 SEE SHEET 27

-L- N 34° 10' 33.0" E

-BL- 218

-BL- 219

-BL- 220

(131) DARK HORSE ACRES, LLC
DB 1983 PG 719
PB 1995 PG 252

(136) JOHN W. DAY & CAROL A. DAY
DB 1909 PG 72

(137) DOUGLAS R. DUNNE
SHERYL A. DUNNE
DB 1070 PG 319

(139) JVC HOMES INC
DB 1321PG 595
PB 2004 PG 236
PB 2003 PG 103

(133) E.C. LUMPKIN LIMITED PARTNERSHIP
DB 1082 PG 459

(138) ROYSTER T. HARRIS, JR
ROCHELLE HARRIS
DB 741Pg 251

(140) KM STANLEY INVESTMENTS LLC
DB 1829 PG 214

(143) LAURA W. HOLLINGSWORTH
WALTER C. HOLLINGSWORTH, JR
DB 1463 PG 538
PB 98 PG 26

(141) ROYSTER T. HARRIS, JR
ROCHELLE HARRIS
DB 883 PG 201
(NO CLAIM)

(142) ROYSTER T. HARRIS, JR
ROCHELLE HARRIS
DB 1005 PG 310
(NO CLAIM)

STD 2' BASE DITCH W/CLASS "I" RIP RAP
EST. 31 TONS
70 SY GEOTEXTILE
DDE = 8 CY
SEE DETAIL BR

SPECIAL LATERAL BASE GRASS SWALE EST. 86 SY EXCELSIOR SEE DETAIL Q

SPECIAL LATERAL GRASS SWALE SEE DETAIL BN

SPECIAL LATERAL BASE DITCH W/CLASS "B" RIP RAP EST. 22 TONS SEE DETAIL BS

CL B RIP RAP = 3 TONS GEOTEXTILE = 10 SY

CL B RIP RAP 6 TONS GEOTEXTILE = 21 SY

CL B RIP RAP 2 TONS GEOTEXTILE = 7 SY SEE DETAIL BS

PLUG & FILL PIPE FULL WITH FLOWABLE FILL

BERM DITCH SEE DETAIL BQ

PROP. 47" WW FENCE

SEAL ABANDONED WELL APPROX. LOC.

GRADE TO DRAIN

150' TAPER

REMOVE

ACCESS POINT

GREU. TL-3

SEE SHEET NO. 2D-1 THRU 2D-3 FOR DRAINAGE DETAILS

SEE SHEET NO. 40 & 41 FOR -L- PROFILE

5/14/2018
11:13:42 AM
R2814C_psh_s26.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2814C	27
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 040286 ENGINEER CASEY E. HARRIS — 6/13/2018

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 32648 ENGINEER LINDA M. JOHNS — 6/13/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

355

360

365

-Y11-

-L- PC Sta. 366+46.03

NAD 83/NSRS 2007

PI Sta 14+64.17
Δ = 1° 24' 29.3" (RT)
D = 2° 51' 53.2"
L = 49.15'
T = 24.58'
R = 2,000.00'
SE = SEE PLANS

PI Sta 17+96.15
Δ = 3° 35' 15.7" (RT)
D = 2° 51' 53.2"
L = 125.23'
T = 62.64'
R = 500.00'
SE = SEE PLANS

PI Sta 20+81.20
Δ = 1° 36' 35.7" (LT)
D = 11° 27' 33.0"
L = 14.05'
T = 7.03'
R = 500.00'
SE = SEE PLANS

SR 1103 FLAT ROCK CHURCH RD
4,009
6,704
10,483 / 15,091 — 1,487 / 2,443 — 1,335 / 2,117 — 10,457 / 14,978
PROP US401
778 / 1,039 — 904 / 1,252
2018 ADT
2038 ADT
2,870
4,435

BEGIN CONST
-Y11- STA 12+40.00

-Y11- PC Sta. 14+39.60

-Y11- PT Sta. 14+88.75

-Y11- PC Sta. 17+33.51

-Y11- PT Sta. 18+58.74

-Y11- PC Sta. 20+74.17

-Y11- PT Sta. 20+88.22

END CONST
-Y11- STA 22+50.00

-L- POT STA 358+85.76=
-Y11- POT STA 17+50.46

R2814C -38 POT 5+00.00
NCDOT GPS MON.

MATCHLINE -L- STA 355+00 SEE SHEET 26

MATCHLINE -L- STA 369+00 SEE SHEET 28

-BL- 221

-BL- 222

(139) JVC HOMES INC
DB 1321PG 595
PB 2004 PG 236
PB 2003 PG 103

(143) LAURA W. HOLLINGSWORTH
WALTER C. HOLLINGSWORTH, JR
DB 1463 PG 538
PB 2002 PG 169

(143) LAURA W. HOLLINGSWORTH
WALTER C. HOLLINGSWORTH, JR
DB 1463 PG 538
PB 98 PG 26

(150) FU-SING CORPORATION
DB 1929 PG 7

(151) ROYAL MINI MART, LLC
DB 1365 PG 84

(152) PHIL MCNAMARA
DB 1287 PG 303
PB 95 PG 382

(152) PHIL MCNAMARA
DB 1287 PG 303
PB 95 PG 382

(152) PHIL MCNAMARA
DB 1287 PG 305

(157) ANNIE S. LLOYD
DB 886 PG 735

(158) LLOYD CARROLL FARM LLC
DB 1904 PG 354
PB 2008 PG 90

(159) BETTY C. PERRY
DB 1156 PG 355
DB 1257 PG 88

(161) JVC HOMES INC
DB 1457 PG 948

(162) BOBBY C. JONES, JR
JUDY T. JONES
DB 931PG 86
PRF 3 SLIDE 90/27

(163) DAN ALAN EWING
DB 976 PG 774
PRF 3 SLIDE 90/274
(NO CLAIM)

(164) JEFFREY C. SCHICKEL
DB 1512 PG 565
PRF 3 SLIDE 90/274
(NO CLAIM)

(165) JOHN R. WILLIAMS
CHRISTINE B. WILLIAMS
DB 944 PG 782
PRF 3 SLIDE 90/274
(NO CLAIM)

(166) ALTON P. CARTER, JR.
DB 1157 PG 988
PRF 3 SLIDE 90/274

(167) HERBERT L. HOLLIFIELD
PATRICIA E. HOLLIFIELD
DB 1006 PG 591

(168) TIMOTHY M. MCKIBBEN
MICHELLE S. MCKIBBEN
DB 1247 PG 741
PB 2001PG 424

(169) GEORGE ROGERS &
WIFE SUSAN ROGERS
DB 1837 PG 833

SEE SHEET NO. 2B-9 FOR INTERSECTION DETAIL AND DIMENSIONS

SEE SHEET NO. 2D-1 THRU 2D-3 FOR DRAINAGE DETAILS

SEE SHEET NO. 41 FOR -L- PROFILE
SEE SHEET NO. 45 FOR -Y11- PROFILE

REVISIONS

8/17/09

6/13/2018
11:29:15 AM
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PROJECT REFERENCE NO.	SHEET NO.
R-2814C	28
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 040266 ENGINEER CASEY E HARRIS

6/13/2018

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 39248 ENGINEER INDIA M. JOHNS

6/13/2018

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1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 833-6606
FIRM PE NUMBER - P-0671

8/17/99

REVISIONS

NAD 83/NSRS 2007

370 375 380

BM #65

MATCHLINE -L- STA 369+00 SEE SHEET 27

158 LLOYD CARROLL FARM LLC DB 1904 PG 354 PB 2008 PG 90

-DET1- PC Sta. 373+38.97

-L- PT Sta. 375+36.40

-DET1- PT Sta. 375+14.46

+00.00 -L- 97' LT 125' LT

+07.00 -L- EXISTING R/W

+85.00 -L- EXISTING R/W BEG FULL C/A

+40.00 -L- 96' LT 125' LT

PROP. 47" WW FENCE

+30.00 -L- 141' LT 125' LT

+50.00 -L- 141' LT 125' LT

+50.00 -L- EXISTING R/W END FULL C/A

+64.00 -L- 131' LT 115' LT

+87.00 -L- 131' LT 115' LT

CL B RIP RAP 5 TONS GEOTEXTILE = 10 SY

STANDARD BASE DITCH DDE = 2 CY SEE DETAIL BT

ACCESS POINT

REMOVE HEADWALL PLUG & PIPE FULL WITH FLOWABLE FILL

REMOVE

50' Taper

TB-2GI

-L-

PI Sta 370+98.95
Δ = 25° 53' 44.1" (LT)
D = 2° 54' 30.3"
L = 890.37'
T = 452.92'
R = 1,970.00'
SE = SEE PLANS

-DET1-

PI Sta 374+26.77
Δ = 5° 09' 56.0" (LT)
D = 2° 56' 36.7"
L = 175.49'
T = 87.80'
R = 1,946.50'
SE = SEE PLANS

PI Sta 380+73.16
Δ = 1° 22' 03.0" (RT)
D = 0° 53' 03.1"
L = 154.66'
T = 77.33'
R = 6,480.00'
SE = SEE PLANS

170 CAROLYN R. MARIN DB 727 PG 592

+12.22 -L- 65.00' RT

+74.76 -L- 65.00' RT

+80.29 -L- 86' RT

SPECIAL LATERAL 'V' DITCH SEE DETAIL F

CL B RIP RAP 1 TON GEOTEXTILE = 5 SY

+85.00 -L- 126.19' RT BEG FULL C/A

+37.81 -L- 127.94' RT

+25.26 -L- 96.53' RT

+92.27 -L- 132.31' RT

173 THE WILLIAMS FAMILY TRUST DB 1380 PG 779

+15.00 -L- 65' RT END FULL C/A

+50.00 -L- 85' RT

174 SHIRLEY G. MARSHALL DB 669 PG 146 PB 2002 PG 373

SPECIAL BACK OF CURB DITCH SEE DETAIL BU

171 AHMAD AL-AMARI RASHA AL-AMARI DB 1380 PG 899 PB 2003 PG 380 (NO CLAIM)

172 W. MAURICE HILL, III DB 1167 PG 284 PB 2000 PG 21 (NO CLAIM)

175 LLOYD CARROLL FARMS, INC. DB 669 PG 492 PB 2008 PG 90

176 SHIRLEY G. MARSHALL DB 623 PG 272 PB 2002 PG 373

177 SHIRLEY G. MARSHALL DB 1494 PG 515

+80.00 -L- 127' LT 112' LT

+01.00 -L- 127' LT 112' LT

PROP. 47" WW FENCE

REMOVE PIPE

CL B RIP RAP 3 TONS GEOTEXTILE = 10 SY

-DET1- PT Sta. 381+50.49

-DET1-

N 8° 51' 24.2" E

N 8° 16' 49.0" E

REMOVE HW & 18" RCP

DO NOT DISTURB FLAG POLE

GRADE TO DRAIN

END CONSTRUCTION -L- POT Sta. 383+00.00

-DET1- POT Sta. 381+95.36

180 JOHN L HARRIS DB 1860 PG 33

+53.79 -L- 113.85' LT

+34.16 -L- 117.68' LT

+31.15 -L- 102.44' LT

+50.57 -L- 97.59' LT

+19.22 -L- EXISTING R/W

GRADE TO DRAIN

CL B RIP RAP = 2 TONS GEOTEXTILE = 7 SY

N 8° 26' 36.9" E

CL B RIP RAP = 2 TONS GEOTEXTILE = 7 SY

178 JOHN P. COOPER HAZEL H. COOPER DB 1001 PG 713 PB 5 PG 110

+92.97 -L- 65' RT

+73.60 -L- 163.03' RT

+78.39 -L- 163.95' RT

+72.57 -L- 193.38' RT

179 GENE GEORGE AND SUSAN GEORGE DB 1995 PG 524

+75.00 -L- 65' RT EXISTING R/W

+23.55 -L- 65' RT

+98.01 -L- 167.83' RT

+03.04 -L- 168.84' RT

+92.20 -L- 197.26' RT

-BL- 224

PROP. 47" WW FENCE

-L- PC Sta. 379+95.83

SEE SHEET NO. 2D-1 THRU 2D-3 FOR DRAINAGE DETAILS

SEE SHEET NO. 41 & 42 FOR -L- PROFILE

END TIP PROJECT R-2814C
-L- STA 381+40.55

5/14/2018
11:14:46 AM
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TIP NO.	SHEET NO.
R-2814C	PMP-18

APPROVED: DocuSigned by: Ayman Alqudwah 732A05CAF9B5472...

DATE: 4/26/2018

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 028387 ENGINEER AYMAN I. ALQUDWAH

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

345

350

355

STA. 345+33+/- -L-

STA. 348+79+/- -L-

STA. 350+10+/- -L-

BREAK LINE -L- SEE SHEET PMP-17

MATCHLINE STA. 356+00 -L- SEE SHEET PMP-19

CAT-1

GREU TL-3

TA TB TC TD TN TO T8 T9

STA. 344+36+/- -L-

STA. 344+46+/- -L-

STA. 344+92+/- -L-

STA. 346+71+/- -L-

STA. 352+06+/- -L-

STA. 353+88+/- -L-

STA. 354+63+/- -L-

SYMBOL AND PAVEMENT MARKING LEGEND

THERMOPLASTIC

- (T8) 2FT.-6FT./SP WHITE MINISKIP (4″)
- (T9) 2FT.-6FT./SP YELLOW MINISKIP (4″)
- (TA) WHITE EDGELINE (4″)
- (TB) YELLOW EDGELINE (4″)
- (TC) 10′ WHITE SKIP (4″)
- (TD) 3FT.-9FT./SP WHITE MINISKIP (4″)
- (TN) WHITE GORE LINE (8″)
- (TO) WHITE DIAGONAL (8″)

- (UT) U-TURN ARROW
- (UA) LEFT TURN ARROW

PAVEMENT MARKING DETAIL

04/24/18
N:\TIPProjects-R\R2814c\Traffic\Signing\CADD\PMP\R2814C_PMP_18.dgn
User:sjohns

TIP NO.	SHEET NO.
R-2814C	PMP-19

APPROVED: DocuSigned by: Ayman Alqudwah 732A05CAF9654726...

DATE: 4/26/2018

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 028387 ENGINEER AYMAN I. ALQUDWAH

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

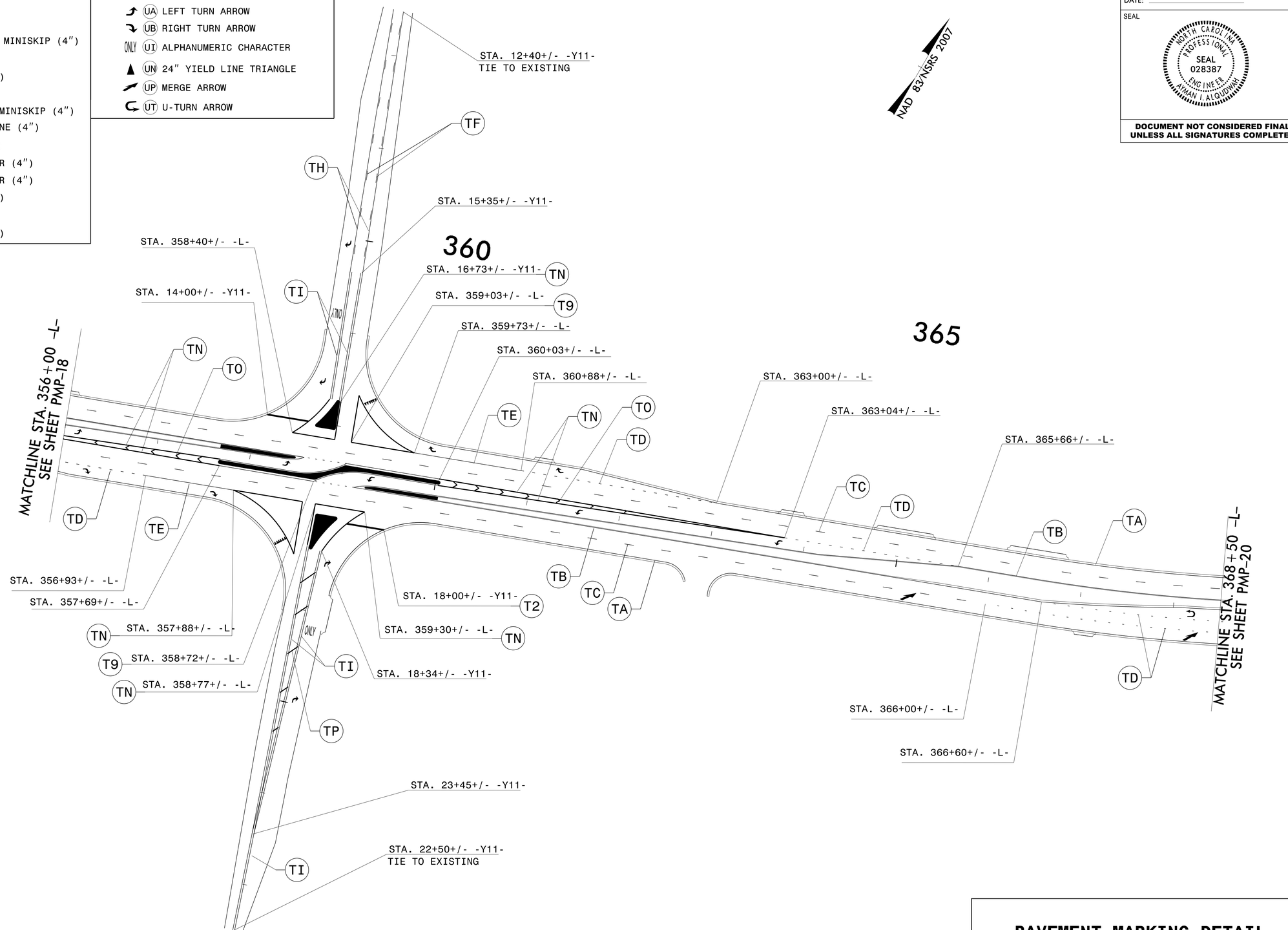
SYMBOL AND PAVEMENT MARKING LEGEND

THERMOPLASTIC

- (T2) WHITE STOPBAR (24")
- (T9) 2FT.-6FT./SP YELLOW MINISKIP (4")
- (TA) WHITE EDGELINE (4")
- (TB) YELLOW EDGELINE (4")
- (TC) 10' WHITE SKIP (4")
- (TD) 3FT.-9FT./SP WHITE MINISKIP (4")
- (TE) WHITE SOLID LANE LINE (4")
- (TF) 10' YELLOW SKIP (4")
- (TH) YELLOW SINGLE CENTER (4")
- (TI) YELLOW DOUBLE CENTER (4")
- (TN) WHITE GORE LINE (8")
- (TO) WHITE DIAGONAL (8")
- (TP) YELLOW DIAGONAL (8")

- (UA) LEFT TURN ARROW
- (UB) RIGHT TURN ARROW
- ONLY (UI) ALPHANUMERIC CHARACTER
- (UN) 24" YIELD LINE TRIANGLE
- (UP) MERGE ARROW
- (UT) U-TURN ARROW

NAD 83/NSRS 2007



PAVEMENT MARKING DETAIL

TIP NO.	SHEET NO.
R-2814C	PMP-20

APPROVED: DocuSigned by: Ayman Alqudwah 732A05CAF9B5472...

DATE: 4/26/2018

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 028387 ENGINEER AYMAN I. ALQUDWAH

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SYMBOL AND PAVEMENT MARKING LEGEND

THERMOPLASTIC

- (T8) 2FT.-6FT./SP WHITE MINISKIP (4″)
- (T9) 2FT.-6FT./SP YELLOW MINISKIP (4″)
- (TA) WHITE EDGELINE (4″)
- (TB) YELLOW EDGELINE (4″)
- (TC) 10′ WHITE SKIP (4″)
- (TD) 3FT.-9FT./SP WHITE MINISKIP (4″)
- (TI) YELLOW DOUBLE CENTER (4″)
- (TN) WHITE GORE LINE (8″)
- (TO) WHITE DIAGONAL (8″)
- (TP) YELLOW DIAGONAL (8″)

(UT) U-TURN ARROW

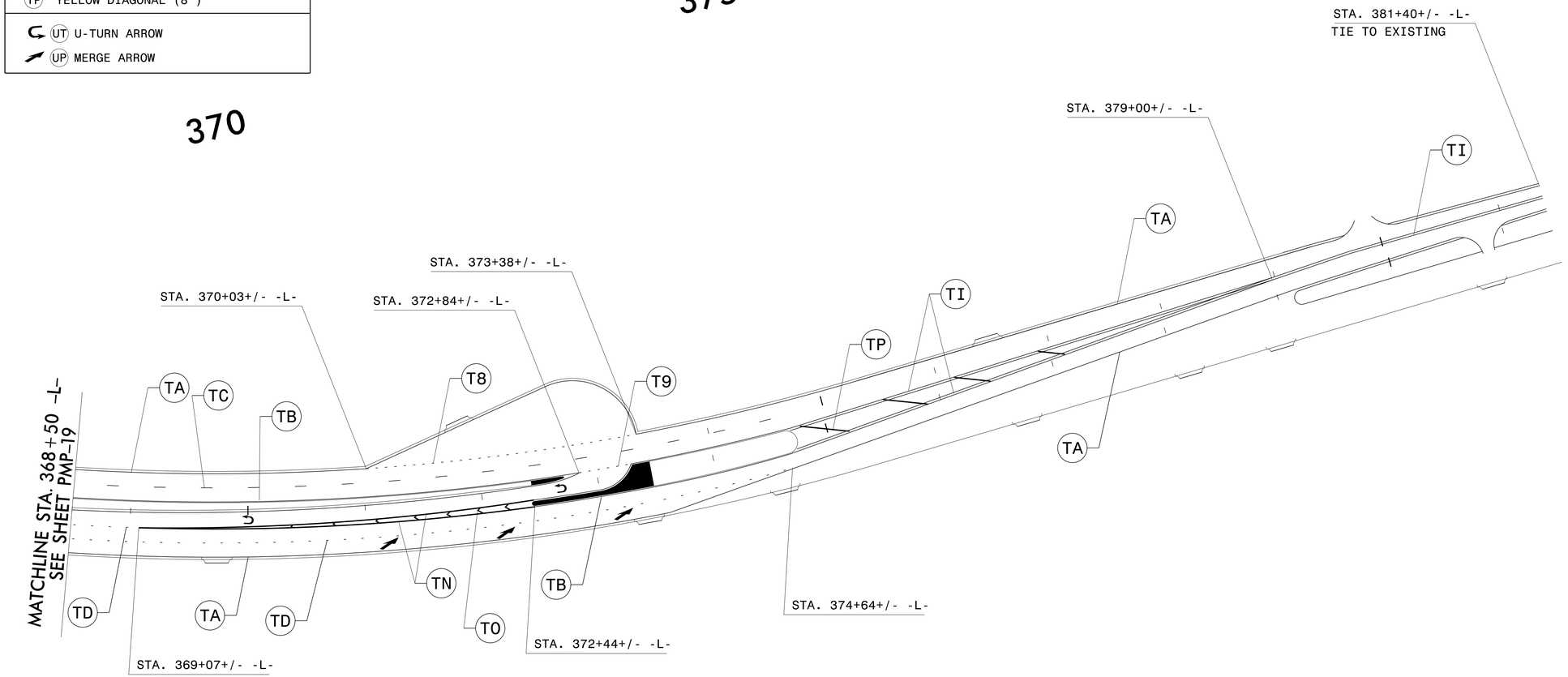
(UP) MERGE ARROW

370

375

380

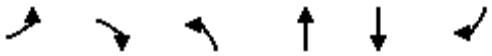
NAD 83/NSRS 2007



PAVEMENT MARKING DETAIL

APPENDIX G:

2040 FUTURE YEAR NO-BUILD SYNCHRO/SIMTRAFFIC REPORTS



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	19	20	10	575	707	11
Future Volume (Veh/h)	19	20	10	575	707	11
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)	21	22	11	639	786	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	1453	792	798			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1453	792	798			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	94	99			
cM capacity (veh/h)	139	384	820			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	43	650	798
Volume Left	21	11	0
Volume Right	22	0	12
cSH	207	820	1700
Volume to Capacity	0.21	0.01	0.47
Queue Length 95th (ft)	19	1	0
Control Delay (s)	26.9	0.4	0.0
Lane LOS	D	A	
Approach Delay (s)	26.9	0.4	0.0
Approach LOS	D		

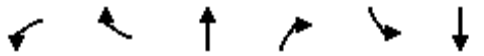
Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	12	590	4	15	714
Future Volume (Veh/h)	4	12	590	4	15	714
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	656	4	17	793
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		3				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1483	656			660	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1483	656			660	
tC, single (s)	6.5	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.2	
p0 queue free %	97	97			98	
cM capacity (veh/h)	131	455			923	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	17	656	4	17	793
Volume Left	4	0	0	17	0
Volume Right	13	0	4	0	0
cSH	556	1700	1700	923	1700
Volume to Capacity	0.03	0.39	0.00	0.02	0.47
Queue Length 95th (ft)	2	0	0	1	0
Control Delay (s)	17.9	0.0	0.0	9.0	0.0
Lane LOS	C			A	
Approach Delay (s)	17.9	0.0		0.2	
Approach LOS	C				

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		

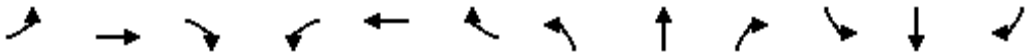
4: US 401 (Louisburg Rd) & Bennette Perry Rd



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	4	597	5	6	724
Future Volume (Veh/h)	5	4	597	5	6	724
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)	6	4	663	6	7	804
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	1484	666			669	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1484	666			669	
tC, single (s)	6.5	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.2	
p0 queue free %	95	99			99	
cM capacity (veh/h)	131	446			916	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	10	669	811
Volume Left	6	0	7
Volume Right	4	6	0
cSH	182	1700	916
Volume to Capacity	0.05	0.39	0.01
Queue Length 95th (ft)	4	0	1
Control Delay (s)	25.9	0.0	0.2
Lane LOS	D		A
Approach Delay (s)	25.9	0.0	0.2
Approach LOS	D		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	52.9%	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)	12	30	38	40	22	24	30	528	43	32	652	12
Future Volume (Veh/h)	12	30	38	40	22	24	30	528	43	32	652	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)	13	33	42	44	24	27	33	587	48	36	724	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)												
pX, platoon unblocked												
vC, conflicting volume	1518	1504	730	1538	1486	611	737			635		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1518	1504	730	1538	1486	611	737			635		
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 %	82	70	90	28	79	94	96			96		
cM capacity (veh/h)	72	111	419	61	114	490	864			943		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	88	95	668	773
Volume Left	13	44	33	36
Volume Right	42	27	48	13
cSH	152	97	864	943
Volume to Capacity	0.58	0.98	0.04	0.04
Queue Length 95th (ft)	75	147	3	3
Control Delay (s)	56.7	167.2	1.0	1.0
Lane LOS	F	F	A	A
Approach Delay (s)	56.7	167.2	1.0	1.0
Approach LOS	F	F		

Intersection Summary				
Average Delay	13.7			
Intersection Capacity Utilization	64.0%	ICU Level of Service	B	
Analysis Period (min)	15			

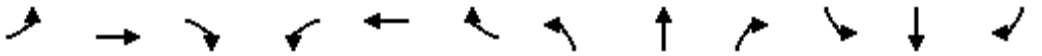
Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	49	65	49	515	5	631	45
Future Volume (vph)	49	65	49	515	5	631	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0	275		0		0
Storage Lanes	1	1	1		1		1
Taper Length (ft)	100		100		100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850					0.850
Flt Protected	0.950		0.950		0.950		
Satd. Flow (prot)	1770	1583	1752	1845	1752	1845	1568
Flt Permitted	0.950		0.303		0.449		
Satd. Flow (perm)	1770	1583	559	1845	828	1845	1568
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	35			55		45	
Link Distance (ft)	434			3941		339	
Travel Time (s)	8.5			48.9		5.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%	3%
Adj. Flow (vph)	54	72	54	572	6	701	50
Shared Lane Traffic (%)							
Lane Group Flow (vph)	54	72	54	572	6	701	50
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	Left	Right	Left	Left	R NA	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	1.00
Turning Speed (mph)	15	9	15		9		9
Turn Type	Prot	Perm	pm+pt	NA	Perm	NA	pm+ov
Protected Phases	4		5	2		6	4
Permitted Phases		4	2		6		6
Detector Phase	4	4	5	2	6	6	4
Switch Phase							
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	12.0	7.0
Minimum Split (s)	20.0	20.0	14.0	20.0	20.0	20.0	20.0
Total Split (s)	22.0	22.0	16.0	98.0	82.0	82.0	22.0
Total Split (%)	18.3%	18.3%	13.3%	81.7%	68.3%	68.3%	18.3%
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	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	Lag	
Lead-Lag Optimize?			Yes		Yes	Yes	
Recall Mode	None	None	None	C-Max	C-Max	C-Max	None
Act Effct Green (s)	12.9	12.9	99.9	100.9	89.7	89.7	104.8
Actuated g/C Ratio	0.11	0.11	0.83	0.84	0.75	0.75	0.87

Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
v/c Ratio	0.29	0.43	0.10	0.37	0.01	0.51	0.04
Control Delay	52.0	57.0	3.0	3.9	3.4	7.7	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.0	57.0	3.0	3.9	3.4	7.7	1.8
LOS	D	E	A	A	A	A	A
Approach Delay	54.9			3.8		7.3	
Approach LOS	D			A		A	
Queue Length 50th (ft)	39	53	7	97	1	160	7
Queue Length 95th (ft)	77	98	17	168	m3	167	0
Internal Link Dist (ft)	354			3861		259	
Turn Bay Length (ft)	300		275				
Base Capacity (vph)	250	224	574	1551	618	1378	1402
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	0.22	0.32	0.09	0.37	0.01	0.51	0.04

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 17 (14%), Referenced to phase 2:NBTL and 6:SBTU, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.51			
Intersection Signal Delay: 9.8		Intersection LOS: A	
Intersection Capacity Utilization 54.9%		ICU Level of Service A	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

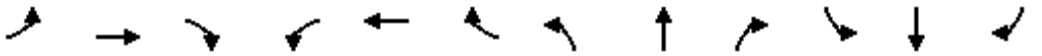
Splits and Phases: 6: US 401 (Louisburg Rd) & Retail Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	45	0	0	0	187	0	527	87	0	0	0
Future Volume (Veh/h)	0	45	0	0	0	187	0	527	87	0	0	0
Sign Control		Yield			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	50	0	0	0	208	0	586	97	0	0	0
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	501	683	0	611	586	293	0			683		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	501	683	0	611	586	293	0			683		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
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	86	100	100	100	70	100			100		
cM capacity (veh/h)	317	368	1081	337	419	700	1614			899		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3
Volume Total	50	208	293	293	97
Volume Left	0	0	0	0	0
Volume Right	0	208	0	0	97
cSH	368	700	1700	1700	1700
Volume to Capacity	0.14	0.30	0.17	0.17	0.06
Queue Length 95th (ft)	12	31	0	0	0
Control Delay (s)	16.3	12.3	0.0	0.0	0.0
Lane LOS	C	B			
Approach Delay (s)	16.3	12.3	0.0		
Approach LOS	C	B			

Intersection Summary				
Average Delay	3.6			
Intersection Capacity Utilization	32.8%	ICU Level of Service		A
Analysis Period (min)	15			

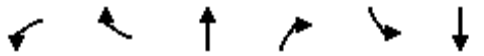


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	214	0	86	0	0	0	0	0	711	100
Future Volume (Veh/h)	0	0	214	0	86	0	0	0	0	0	711	100
Sign Control		Stop			Yield			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	238	0	96	0	0	0	0	0	790	111
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	838	790	395	633	901	0	901			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	838	790	395	633	901	0	901			0		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
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	60	100	65	100	100			100		
cM capacity (veh/h)	187	319	601	219	275	1081	744			1614		

Direction, Lane #	EB 1	WB 1	SB 1	SB 2	SB 3
Volume Total	238	96	395	395	111
Volume Left	0	0	0	0	0
Volume Right	238	0	0	0	111
cSH	601	275	1700	1700	1700
Volume to Capacity	0.40	0.35	0.23	0.23	0.07
Queue Length 95th (ft)	47	38	0	0	0
Control Delay (s)	14.9	25.0	0.0	0.0	0.0
Lane LOS	B	C			
Approach Delay (s)	14.9	25.0	0.0		
Approach LOS	B	C			

Intersection Summary				
Average Delay	4.8			
Intersection Capacity Utilization	39.6%	ICU Level of Service		A
Analysis Period (min)	15			

13: US 401 (Louisburg Rd) & Clifton Pond Rd U-Turn

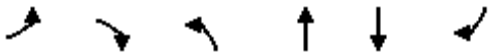


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	129	0	0	0	0	727
Future Volume (Veh/h)	129	0	0	0	0	727
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	143	0	0	0	0	808
Pedestrians						
Lane Width (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	404	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	404	0			0	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	75	100			100	
cM capacity (veh/h)	572	1081			1614	

Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	143	404	404
Volume Left	143	0	0
Volume Right	0	0	0
cSH	572	1700	1700
Volume to Capacity	0.25	0.24	0.24
Queue Length 95th (ft)	25	0	0
Control Delay (s)	13.4	0.0	0.0
Lane LOS	B		
Approach Delay (s)	13.4	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	42.9%	ICU Level of Service	A
Analysis Period (min)	15		

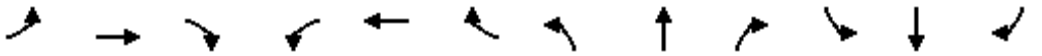
14: US 401 (Louisburg Rd) & Flat Rock Church Rd U-Turn



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	99	0	0	601	0	0
Future Volume (Veh/h)	99	0	0	601	0	0
Sign Control	Yield			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)	110	0	0	668	0	0
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	334	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	334	0	0			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	83	100	100			
cM capacity (veh/h)	633	1081	1614			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	110	334	334
Volume Left	110	0	0
Volume Right	0	0	0
cSH	633	1700	1700
Volume to Capacity	0.17	0.20	0.20
Queue Length 95th (ft)	16	0	0
Control Delay (s)	11.9	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.9	0.0	
Approach LOS	B		

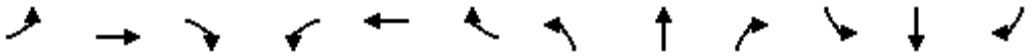
Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	28.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	61	0	0	0	140	0	541	18	0	0	0
Future Volume (Veh/h)	74	61	0	0	0	140	0	541	18	0	0	0
Sign Control		Yield			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)	82	68	0	0	0	156	0	601	20	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								1147				
pX, platoon unblocked												
vC, conflicting volume	456	621	0	645	611	310	0			621		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	456	621	0	645	611	310	0			621		
tC, single (s)	7.6	6.6	7.0	7.5	6.5	6.9	4.2			4.2		
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 %	78	83	100	100	100	77	100			100		
cM capacity (veh/h)	375	400	1081	310	407	685	1614			949		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	150	156	401	220
Volume Left	82	0	0	0
Volume Right	0	156	0	20
cSH	386	685	1700	1700
Volume to Capacity	0.39	0.23	0.24	0.13
Queue Length 95th (ft)	45	22	0	0
Control Delay (s)	20.2	11.8	0.0	0.0
Lane LOS	C	B		
Approach Delay (s)	20.2	11.8	0.0	
Approach LOS	C	B		

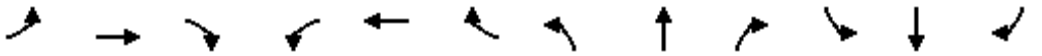
Intersection Summary				
Average Delay	5.2			
Intersection Capacity Utilization	41.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	12	0	10	0	0	0	0	0	669	10
Future Volume (Veh/h)	0	0	12	0	10	0	0	0	0	0	669	10
Sign Control		Stop			Yield			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	13	0	11	0	0	0	0	0	743	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)											698	
pX, platoon unblocked	0.91	0.91	0.91	0.91	0.91		0.91					
vC, conflicting volume	754	748	377	384	754	0	754			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	534	528	120	128	534	0	534			0		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
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	98	100	97	100	100			100		
cM capacity (veh/h)	379	410	822	743	408	1081	932			1614		

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	13	11	495	259
Volume Left	0	0	0	0
Volume Right	13	0	0	11
cSH	822	408	1700	1700
Volume to Capacity	0.02	0.03	0.29	0.15
Queue Length 95th (ft)	1	2	0	0
Control Delay (s)	9.5	14.1	0.0	0.0
Lane LOS	A	B		
Approach Delay (s)	9.5	14.1	0.0	
Approach LOS	A	B		

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	28.8%	ICU Level of Service	A	
Analysis Period (min)	15			

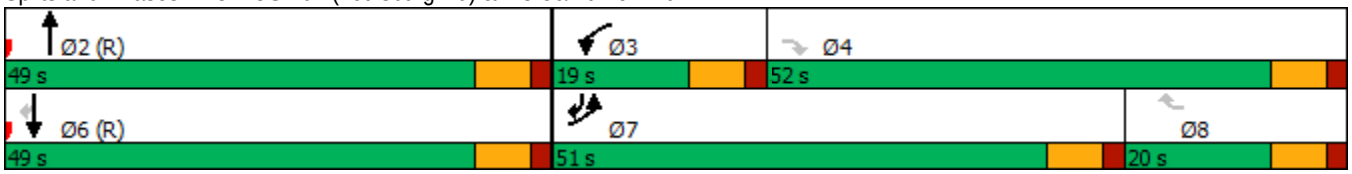


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	397	0	198	30	0	60	0	648	107	0	586	699
Future Volume (vph)	397	0	198	30	0	60	0	648	107	0	586	699
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	0		75	0		100	0		250
Storage Lanes	1		1	1		1	0		0	0		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850			0.850		0.979				0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3400	0	1568	1770	0	1583	0	3431	0	0	3505	1568
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	3400	0	1568	1770	0	1583	0	3431	0	0	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			35			45			45	
Link Distance (ft)		689			521			214			370	
Travel Time (s)		10.4			10.1			3.2			5.6	
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%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	441	0	220	33	0	67	0	720	119	0	651	777
Shared Lane Traffic (%)												
Lane Group Flow (vph)	441	0	220	33	0	67	0	839	0	0	651	777
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			24	
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		Perm	Prot		Perm		NA			NA	pm+ov
Protected Phases	7			3				2			6	7
Permitted Phases			4			8						6
Detector Phase	7		4	3		8		2			6	7
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0		7.0		12.0			12.0	7.0
Minimum Split (s)	19.0		20.0	19.0		20.0		20.0			20.0	19.0
Total Split (s)	51.0		52.0	19.0		20.0		49.0			49.0	51.0
Total Split (%)	42.5%		43.3%	15.8%		16.7%		40.8%			40.8%	42.5%
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	-2.0
Total Lost Time (s)	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
Recall Mode	None		None	None		None		C-Max			C-Max	None
Act Effct Green (s)	29.4		34.3	10.1		12.2		66.2			66.2	101.6
Actuated g/C Ratio	0.24		0.29	0.08		0.10		0.55			0.55	0.85

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.53		0.49	0.22		0.42		0.44			0.34	0.59
Control Delay	40.4		37.9	54.4		57.8		18.3			18.7	6.2
Queue Delay	0.0		0.0	0.0		0.0		0.0			0.0	0.0
Total Delay	40.4		37.9	54.4		57.8		18.3			18.7	6.2
LOS	D		D	D		E		B			B	A
Approach Delay		39.6			56.7			18.3			11.9	
Approach LOS		D			E			B			B	
Queue Length 50th (ft)	161		153	24		49		173			135	176
Queue Length 95th (ft)	165		182	57		95		302			262	298
Internal Link Dist (ft)		609			441			134			290	
Turn Bay Length (ft)	350		150			75						250
Base Capacity (vph)	1303		618	206		197		1892			1933	1466
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	0.34		0.36	0.16		0.34		0.44			0.34	0.53

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 16 (13%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 21.2		Intersection LOS: C	
Intersection Capacity Utilization 50.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 81: US 401 (Louisburg Rd) & NC 56/Burke Blvd



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	1050	235	0
Future Volume (Veh/h)	0	0	0	1050	235	0
Sign Control	Free			Free	Yield	
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	0	1167	261	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	967					
pX, platoon unblocked						
vC, conflicting volume			0		584	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		584	0
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		41	100
cM capacity (veh/h)			1614		441	1081

Direction, Lane #	WB 1	WB 2	NB 1
Volume Total	584	584	261
Volume Left	0	0	261
Volume Right	0	0	0
cSH	1700	1700	441
Volume to Capacity	0.34	0.34	0.59
Queue Length 95th (ft)	0	0	93
Control Delay (s)	0.0	0.0	24.4
Lane LOS			C
Approach Delay (s)	0.0		24.4
Approach LOS			C

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 2: US 401 (Louisburg Rd) & Huntsburg Dr

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	65	66
Average Queue (ft)	23	6
95th Queue (ft)	51	38
Link Distance (ft)	994	2778
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: US 401 (Louisburg Rd) & Airport Rd

Movement	WB	WB	SB
Directions Served	L	R	L
Maximum Queue (ft)	22	48	30
Average Queue (ft)	2	8	4
95th Queue (ft)	13	30	19
Link Distance (ft)	948		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		75	250
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 4: US 401 (Louisburg Rd) & Bennette Perry Rd

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	29	92
Average Queue (ft)	3	6
95th Queue (ft)	16	46
Link Distance (ft)	671	5575
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: US 401 (Louisburg Rd) & EF Cottrell Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	82	110	174	192
Average Queue (ft)	26	38	31	28
95th Queue (ft)	61	81	109	109
Link Distance (ft)	598	502	5575	2937
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: US 401 (Louisburg Rd) & Retail Way

Movement	EB	EB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	U	T	R
Maximum Queue (ft)	91	136	64	178	23	188	30
Average Queue (ft)	32	44	22	65	2	68	3
95th Queue (ft)	76	99	52	152	15	150	19
Link Distance (ft)		388		3881	278	278	278
Upstream Blk Time (%)						0	
Queuing Penalty (veh)						0	
Storage Bay Dist (ft)	300		275				
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 11: US 401 (Louisburg Rd) & Clifton Pond Rd

Movement	EB	WB	NB
Directions Served	T	R	R
Maximum Queue (ft)	48	84	6
Average Queue (ft)	18	34	0
95th Queue (ft)	44	63	4
Link Distance (ft)	157	920	145
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: US 401 (Louisburg Rd) & Flat Rock Church Rd

Movement	EB	WB	SB	SB	SB
Directions Served	R	T	T	T	R
Maximum Queue (ft)	120	70	4	4	23
Average Queue (ft)	50	28	0	0	1
95th Queue (ft)	94	57	3	3	10
Link Distance (ft)	858	156	142	142	142
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 13: US 401 (Louisburg Rd) & Clifton Pond Rd U-Turn

Movement	WB
Directions Served	L
Maximum Queue (ft)	52
Average Queue (ft)	18
95th Queue (ft)	45
Link Distance (ft)	68
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 14: US 401 (Louisburg Rd) & Flat Rock Church Rd U-Turn

Movement	EB
Directions Served	L
Maximum Queue (ft)	71
Average Queue (ft)	29
95th Queue (ft)	58
Link Distance (ft)	61
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 71: US 401 (Louisburg Rd) & Fox Park Rd

Movement	EB	WB	NB
Directions Served	LT	R	TR
Maximum Queue (ft)	99	81	9
Average Queue (ft)	38	38	0
95th Queue (ft)	77	63	6
Link Distance (ft)	114	471	111
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 72: US 401 (Louisburg Rd) & Driveway

Movement	EB	WB	SB
Directions Served	R	T	T
Maximum Queue (ft)	36	33	6
Average Queue (ft)	10	6	0
95th Queue (ft)	33	26	5
Link Distance (ft)	278	124	106
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 81: US 401 (Louisburg Rd) & NC 56/Burke Blvd

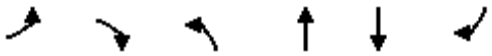
Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	L	R	L	R	T	TR	T	T	R
Maximum Queue (ft)	250	318	247	133	114	197	196	274	269	252
Average Queue (ft)	109	156	106	44	52	136	149	158	109	115
95th Queue (ft)	210	257	207	108	102	205	215	242	212	221
Link Distance (ft)		626		468		141	141	293	293	
Upstream Blk Time (%)						8	11	0	0	0
Queuing Penalty (veh)						30	43	0	0	0
Storage Bay Dist (ft)	350		150		75					250
Storage Blk Time (%)	0	12	3	5	9				0	0
Queuing Penalty (veh)	0	47	13	3	3				0	1

Intersection: 82: US 401 (Louisburg Rd)

Movement	WB	NB
Directions Served	T	L
Maximum Queue (ft)	3	176
Average Queue (ft)	0	86
95th Queue (ft)	3	153
Link Distance (ft)	451	95
Upstream Blk Time (%)		10
Queuing Penalty (veh)		23
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 165



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	10	21	708	578	18
Future Volume (Veh/h)	11	10	21	708	578	18
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)	12	11	23	787	642	20
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	1485	652	662			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1485	652	662			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	91	98	98			
cM capacity (veh/h)	132	463	922			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	23	810	662
Volume Left	12	23	0
Volume Right	11	0	20
cSH	200	922	1700
Volume to Capacity	0.11	0.02	0.39
Queue Length 95th (ft)	10	2	0
Control Delay (s)	25.3	0.7	0.0
Lane LOS	D	A	
Approach Delay (s)	25.3	0.7	0.0
Approach LOS	D		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	15	714	5	12	591
Future Volume (Veh/h)	5	15	714	5	12	591
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)	6	17	793	6	13	657
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		3				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1476	793			799	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1476	793			799	
tC, single (s)	6.5	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.2	
p0 queue free %	95	96			98	
cM capacity (veh/h)	133	379			819	

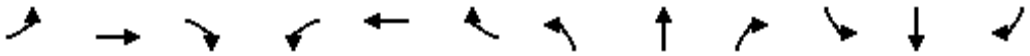
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	23	793	6	13	657
Volume Left	6	0	0	13	0
Volume Right	17	0	6	0	0
cSH	508	1700	1700	819	1700
Volume to Capacity	0.05	0.47	0.00	0.02	0.39
Queue Length 95th (ft)	4	0	0	1	0
Control Delay (s)	19.8	0.0	0.0	9.5	0.0
Lane LOS	C			A	
Approach Delay (s)	19.8	0.0		0.2	
Approach LOS	C				

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	6	724	5	4	597
Future Volume (Veh/h)	5	6	724	5	4	597
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)	6	7	804	6	4	663
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	1478	807			810	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1478	807			810	
tC, single (s)	6.5	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.2	
p0 queue free %	95	98			100	
cM capacity (veh/h)	132	369			811	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	13	810	667
Volume Left	6	0	4
Volume Right	7	6	0
cSH	202	1700	811
Volume to Capacity	0.06	0.48	0.00
Queue Length 95th (ft)	5	0	0
Control Delay (s)	24.0	0.0	0.1
Lane LOS	C		A
Approach Delay (s)	24.0	0.0	0.1
Approach LOS	C		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	48.4%	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)	12	22	30	43	30	32	38	652	40	24	528	12
Future Volume (Veh/h)	12	22	30	43	30	32	38	652	40	24	528	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)	13	24	33	48	33	36	42	724	44	27	587	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)												
pX, platoon unblocked												
vC, conflicting volume	1530	1500	594	1522	1484	746	600			768		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1530	1500	594	1522	1484	746	600			768		
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	79	93	32	71	91	96			97		
cM capacity (veh/h)	63	112	501	71	114	410	972			841		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	70	117	810	627
Volume Left	13	48	42	27
Volume Right	33	36	44	13
cSH	144	111	972	841
Volume to Capacity	0.48	1.06	0.04	0.03
Queue Length 95th (ft)	57	175	3	2
Control Delay (s)	51.4	174.8	1.1	0.9
Lane LOS	F	F	A	A
Approach Delay (s)	51.4	174.8	1.1	0.9
Approach LOS	F	F		

Intersection Summary				
Average Delay	15.7			
Intersection Capacity Utilization	69.1%	ICU Level of Service	C	
Analysis Period (min)	15			

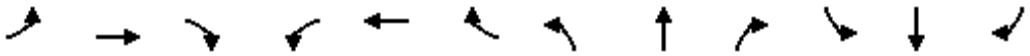
Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	45	49	65	631	10	516	49
Future Volume (vph)	45	49	65	631	10	516	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0	275		0		0
Storage Lanes	1	1	1		1		1
Taper Length (ft)	100		100		100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850					0.850
Flt Protected	0.950		0.950		0.950		
Satd. Flow (prot)	1770	1583	1752	1845	1752	1845	1568
Flt Permitted	0.950		0.396		0.362		
Satd. Flow (perm)	1770	1583	730	1845	668	1845	1568
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	35			55		45	
Link Distance (ft)	434			3941		339	
Travel Time (s)	8.5			48.9		5.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%	3%
Adj. Flow (vph)	50	54	72	701	11	573	54
Shared Lane Traffic (%)							
Lane Group Flow (vph)	50	54	72	701	11	573	54
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	Left	Right	Left	Left	R NA	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	1.00
Turning Speed (mph)	15	9	15		9		9
Turn Type	Prot	Perm	pm+pt	NA	Perm	NA	pm+ov
Protected Phases	4		5	2		6	4
Permitted Phases		4	2		6		6
Detector Phase	4	4	5	2	6	6	4
Switch Phase							
Minimum Initial (s)	7.0	7.0	5.0	12.0	12.0	12.0	7.0
Minimum Split (s)	20.0	20.0	12.0	20.0	20.0	20.0	20.0
Total Split (s)	24.0	24.0	15.0	96.0	81.0	81.0	24.0
Total Split (%)	20.0%	20.0%	12.5%	80.0%	67.5%	67.5%	20.0%
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	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag		Lead	Lead	
Lead-Lag Optimize?			Yes		Yes	Yes	
Recall Mode	None	None	None	C-Max	C-Max	C-Max	None
Act Effct Green (s)	11.7	11.7	102.1	102.1	90.1	90.1	104.0
Actuated g/C Ratio	0.10	0.10	0.85	0.85	0.75	0.75	0.87

Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
v/c Ratio	0.29	0.35	0.10	0.45	0.02	0.41	0.04
Control Delay	53.7	56.1	2.8	4.1	4.3	6.2	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.7	56.1	2.8	4.1	4.3	6.2	1.2
LOS	D	E	A	A	A	A	A
Approach Delay	55.0			4.0		5.8	
Approach LOS	D			A		A	
Queue Length 50th (ft)	37	40	8	122	2	87	4
Queue Length 95th (ft)	75	79	19	210	m5	121	8
Internal Link Dist (ft)	354			3861		259	
Turn Bay Length (ft)	300		275				
Base Capacity (vph)	280	250	700	1569	501	1384	1355
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	0.18	0.22	0.10	0.45	0.02	0.41	0.04

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 96 (80%), Referenced to phase 2:NBTL and 6:SBTU, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.45			
Intersection Signal Delay: 8.3		Intersection LOS: A	
Intersection Capacity Utilization 61.5%		ICU Level of Service B	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

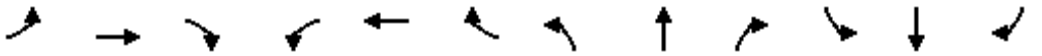
Splits and Phases: 6: US 401 (Louisburg Rd) & Retail Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	58	0	0	0	132	0	684	129	0	0	0
Future Volume (Veh/h)	0	58	0	0	0	132	0	684	129	0	0	0
Sign Control		Yield			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	64	0	0	0	147	0	760	143	0	0	0
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	527	903	0	792	760	380	0			903		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	527	903	0	792	760	380	0			903		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
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	77	100	100	100	76	100			100		
cM capacity (veh/h)	329	274	1081	228	332	615	1614			742		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3
Volume Total	64	147	380	380	143
Volume Left	0	0	0	0	0
Volume Right	0	147	0	0	143
cSH	274	615	1700	1700	1700
Volume to Capacity	0.23	0.24	0.22	0.22	0.08
Queue Length 95th (ft)	22	23	0	0	0
Control Delay (s)	22.1	12.7	0.0	0.0	0.0
Lane LOS	C	B			
Approach Delay (s)	22.1	12.7	0.0		
Approach LOS	C	B			

Intersection Summary				
Average Delay	2.9			
Intersection Capacity Utilization	33.7%	ICU Level of Service	A	
Analysis Period (min)	15			

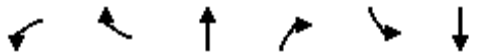


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	186	0	115	0	0	0	0	0	518	99
Future Volume (Veh/h)	0	0	186	0	115	0	0	0	0	0	518	99
Sign Control		Stop			Yield			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	207	0	128	0	0	0	0	0	576	110
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	640	576	288	495	686	0	686			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	640	576	288	495	686	0	686			0		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
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	71	100	65	100	100			100		
cM capacity (veh/h)	261	424	706	322	367	1081	897			1614		

Direction, Lane #	EB 1	WB 1	SB 1	SB 2	SB 3
Volume Total	207	128	288	288	110
Volume Left	0	0	0	0	0
Volume Right	207	0	0	0	110
cSH	706	367	1700	1700	1700
Volume to Capacity	0.29	0.35	0.17	0.17	0.06
Queue Length 95th (ft)	31	38	0	0	0
Control Delay (s)	12.2	20.0	0.0	0.0	0.0
Lane LOS	B	C			
Approach Delay (s)	12.2	20.0	0.0		
Approach LOS	B	C			

Intersection Summary				
Average Delay	5.0			
Intersection Capacity Utilization	52.6%	ICU Level of Service	A	
Analysis Period (min)	15			

13: US 401 (Louisburg Rd) & Clifton Pond Rd U-Turn

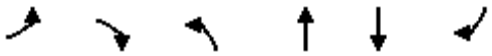


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	87	0	0	0	0	588
Future Volume (Veh/h)	87	0	0	0	0	588
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	97	0	0	0	0	653
Pedestrians						
Lane Width (ft)						
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	326	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	326	0			0	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	85	100			100	
cM capacity (veh/h)	640	1081			1614	

Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	97	326	326
Volume Left	97	0	0
Volume Right	0	0	0
cSH	640	1700	1700
Volume to Capacity	0.15	0.19	0.19
Queue Length 95th (ft)	13	0	0
Control Delay (s)	11.6	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.6	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		

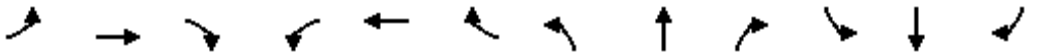
14: US 401 (Louisburg Rd) & Flat Rock Church Rd U-Turn



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	100	0	0	828	0	0
Future Volume (Veh/h)	100	0	0	828	0	0
Sign Control	Yield			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)	111	0	0	920	0	0
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	460	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	460	0	0			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	79	100	100			
cM capacity (veh/h)	527	1081	1614			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	111	460	460
Volume Left	111	0	0
Volume Right	0	0	0
cSH	527	1700	1700
Volume to Capacity	0.21	0.27	0.27
Queue Length 95th (ft)	20	0	0
Control Delay (s)	13.6	0.0	0.0
Lane LOS	B		
Approach Delay (s)	13.6	0.0	
Approach LOS	B		

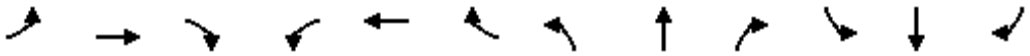
Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	42.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	101	0	0	0	78	0	640	39	0	0	0
Future Volume (Veh/h)	60	101	0	0	0	78	0	640	39	0	0	0
Sign Control		Yield			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)	67	112	0	0	0	87	0	711	43	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								1147				
pX, platoon unblocked												
vC, conflicting volume	442	754	0	788	732	377	0			754		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	442	754	0	788	732	377	0			754		
tC, single (s)	7.6	6.6	7.0	7.5	6.5	6.9	4.2			4.2		
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 %	84	67	100	100	100	86	100			100		
cM capacity (veh/h)	427	335	1081	208	347	621	1614			845		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	179	87	474	280
Volume Left	67	0	0	0
Volume Right	0	87	0	43
cSH	364	621	1700	1700
Volume to Capacity	0.49	0.14	0.28	0.16
Queue Length 95th (ft)	65	12	0	0
Control Delay (s)	24.1	11.7	0.0	0.0
Lane LOS	C	B		
Approach Delay (s)	24.1	11.7	0.0	
Approach LOS	C	B		

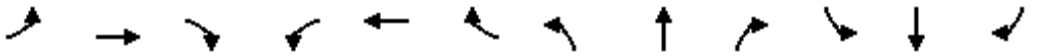
Intersection Summary				
Average Delay	5.2			
Intersection Capacity Utilization	42.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	20	0	7	0	0	0	0	0	554	5
Future Volume (Veh/h)	0	0	20	0	7	0	0	0	0	0	554	5
Sign Control		Stop			Yield			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	22	0	8	0	0	0	0	0	616	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)											698	
pX, platoon unblocked	0.94	0.94	0.94	0.94	0.94		0.94					
vC, conflicting volume	623	619	311	330	622	0	622			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	466	462	134	154	465	0	465			0		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
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	97	100	98	100	100			100		
cM capacity (veh/h)	440	461	830	726	461	1081	1018			1614		

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	22	8	411	211
Volume Left	0	0	0	0
Volume Right	22	0	0	6
cSH	830	461	1700	1700
Volume to Capacity	0.03	0.02	0.24	0.12
Queue Length 95th (ft)	2	1	0	0
Control Delay (s)	9.5	13.0	0.0	0.0
Lane LOS	A	B		
Approach Delay (s)	9.5	13.0	0.0	
Approach LOS	A	B		

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	25.5%	ICU Level of Service	A	
Analysis Period (min)	15			

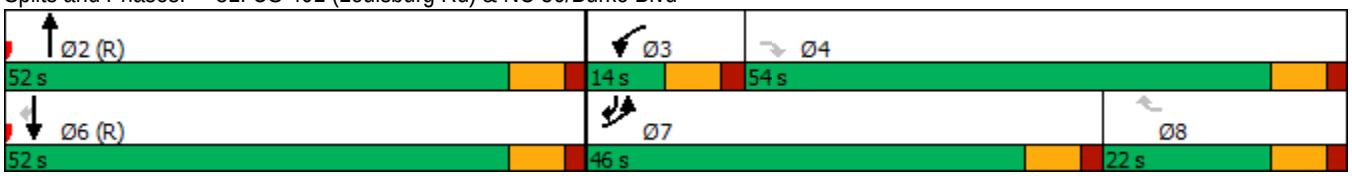


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	503	0	196	33	0	74	0	688	90	0	492	595
Future Volume (vph)	503	0	196	33	0	74	0	688	90	0	492	595
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	0		75	0		100	0		250
Storage Lanes	1		1	1		1	0		0	0		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850			0.850		0.983				0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3400	0	1568	1752	0	1568	0	3445	0	0	3505	1568
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	3400	0	1568	1752	0	1568	0	3445	0	0	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			35			45			45	
Link Distance (ft)		689			521			214			370	
Travel Time (s)		10.4			10.1			3.2			5.6	
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
Adj. Flow (vph)	559	0	218	37	0	82	0	764	100	0	547	661
Shared Lane Traffic (%)												
Lane Group Flow (vph)	559	0	218	37	0	82	0	864	0	0	547	661
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			24	
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		Perm	Prot		Perm		NA			NA	pm+ov
Protected Phases	7			3				2			6	7
Permitted Phases			4			8						6
Detector Phase	7		4	3		8		2			6	7
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0		7.0		12.0			12.0	7.0
Minimum Split (s)	14.0		20.0	14.0		20.0		20.0			20.0	14.0
Total Split (s)	46.0		54.0	14.0		22.0		52.0			52.0	46.0
Total Split (%)	38.3%		45.0%	11.7%		18.3%		43.3%			43.3%	38.3%
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	-2.0
Total Lost Time (s)	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
Recall Mode	None		None	None		None		C-Max			C-Max	None
Act Effct Green (s)	29.1		36.5	9.0		13.6		65.1			65.1	100.2
Actuated g/C Ratio	0.24		0.30	0.08		0.11		0.54			0.54	0.84
v/c Ratio	0.68		0.46	0.28		0.46		0.46			0.29	0.50

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	45.1		35.9	58.4		57.4		17.9			17.7	5.7
Queue Delay	0.0		0.0	0.0		0.0		0.0			0.0	0.0
Total Delay	45.1		35.9	58.4		57.4		17.9			17.7	5.7
LOS	D		D	E		E		B			B	A
Approach Delay		42.5			57.7			17.9			11.1	
Approach LOS		D			E			B			B	
Queue Length 50th (ft)	203		142	28		60		173			122	140
Queue Length 95th (ft)	243		189	64		109		305			196	256
Internal Link Dist (ft)		609			441			134			290	
Turn Bay Length (ft)	350		150			75						250
Base Capacity (vph)	1161		640	131		225		1868			1900	1415
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	0.48		0.34	0.28		0.36		0.46			0.29	0.47

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), 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: 23.2		Intersection LOS: C	
Intersection Capacity Utilization 53.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 81: US 401 (Louisburg Rd) & NC 56/Burke Blvd



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	870	216	0
Future Volume (Veh/h)	0	0	0	870	216	0
Sign Control	Free			Free	Yield	
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	0	967	240	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	967					
pX, platoon unblocked						
vC, conflicting volume			0		484	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		484	0
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		53	100
cM capacity (veh/h)			1614		510	1081

Direction, Lane #	WB 1	WB 2	NB 1
Volume Total	484	484	240
Volume Left	0	0	240
Volume Right	0	0	0
cSH	1700	1700	510
Volume to Capacity	0.28	0.28	0.47
Queue Length 95th (ft)	0	0	62
Control Delay (s)	0.0	0.0	18.2
Lane LOS			C
Approach Delay (s)	0.0		18.2
Approach LOS			C

Intersection Summary			
Average Delay		3.6	
Intersection Capacity Utilization		47.6%	ICU Level of Service A
Analysis Period (min)		15	

Intersection: 2: US 401 (Louisburg Rd) & Huntsburg Dr

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	51	93
Average Queue (ft)	15	11
95th Queue (ft)	43	53
Link Distance (ft)	994	2778
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: US 401 (Louisburg Rd) & Airport Rd

Movement	WB	WB	SB
Directions Served	L	R	L
Maximum Queue (ft)	22	43	37
Average Queue (ft)	3	9	4
95th Queue (ft)	14	29	23
Link Distance (ft)	948		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		75	250
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 4: US 401 (Louisburg Rd) & Bennette Perry Rd

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	40	63
Average Queue (ft)	6	3
95th Queue (ft)	25	29
Link Distance (ft)	671	5575
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: US 401 (Louisburg Rd) & EF Cottrell Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	79	141	194	172
Average Queue (ft)	23	45	31	27
95th Queue (ft)	58	102	110	102
Link Distance (ft)	598	502	5575	2937
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: US 401 (Louisburg Rd) & Retail Way

Movement	EB	EB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	U	T	R
Maximum Queue (ft)	82	112	66	205	32	150	20
Average Queue (ft)	32	34	25	60	5	36	2
95th Queue (ft)	70	80	56	150	22	103	12
Link Distance (ft)		388		3881	278	278	278
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	300		275				
Storage Blk Time (%)				0			
Queuing Penalty (veh)				0			

Intersection: 11: US 401 (Louisburg Rd) & Clifton Pond Rd

Movement	EB	WB	NB	NB
Directions Served	T	R	T	R
Maximum Queue (ft)	63	61	2	19
Average Queue (ft)	21	27	0	1
95th Queue (ft)	51	49	2	11
Link Distance (ft)	157	920	145	145
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: US 401 (Louisburg Rd) & Flat Rock Church Rd

Movement	EB	WB	SB
Directions Served	R	T	R
Maximum Queue (ft)	102	65	25
Average Queue (ft)	41	29	2
95th Queue (ft)	78	59	12
Link Distance (ft)	858	156	142
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 13: US 401 (Louisburg Rd) & Clifton Pond Rd U-Turn

Movement	WB
Directions Served	L
Maximum Queue (ft)	54
Average Queue (ft)	13
95th Queue (ft)	39
Link Distance (ft)	68
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 14: US 401 (Louisburg Rd) & Flat Rock Church Rd U-Turn

Movement	EB
Directions Served	L
Maximum Queue (ft)	77
Average Queue (ft)	32
95th Queue (ft)	64
Link Distance (ft)	61
Upstream Blk Time (%)	1
Queuing Penalty (veh)	1
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 71: US 401 (Louisburg Rd) & Fox Park Rd

Movement	EB	WB	NB
Directions Served	LT	R	TR
Maximum Queue (ft)	142	65	14
Average Queue (ft)	46	32	1
95th Queue (ft)	96	54	8
Link Distance (ft)	114	471	111
Upstream Blk Time (%)	1		
Queuing Penalty (veh)	1		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 72: US 401 (Louisburg Rd) & Driveway

Movement	EB	WB
Directions Served	R	T
Maximum Queue (ft)	48	28
Average Queue (ft)	15	3
95th Queue (ft)	42	16
Link Distance (ft)	278	124
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 81: US 401 (Louisburg Rd) & NC 56/Burke Blvd

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	L	R	L	R	T	TR	T	T	R
Maximum Queue (ft)	308	366	249	152	132	198	199	249	202	219
Average Queue (ft)	149	193	107	46	56	138	153	137	80	103
95th Queue (ft)	251	292	218	114	109	210	216	229	170	198
Link Distance (ft)		626		468		141	141	293	293	
Upstream Blk Time (%)						9	13	0		
Queuing Penalty (veh)						35	50	1		
Storage Bay Dist (ft)	350		150		75					250
Storage Blk Time (%)	0	22	3	6	12				0	0
Queuing Penalty (veh)	0	99	17	5	4				0	0

Intersection: 82: US 401 (Louisburg Rd)

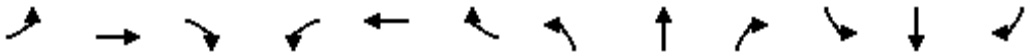
Movement	NB
Directions Served	L
Maximum Queue (ft)	147
Average Queue (ft)	67
95th Queue (ft)	119
Link Distance (ft)	95
Upstream Blk Time (%)	3
Queuing Penalty (veh)	7
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 220

APPENDIX H:

2040 FUTURE YEAR BUILD SYNCHRO/SIMTRAFFIC REPORTS

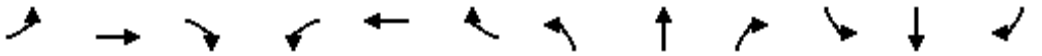


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	45	0	0	0	187	0	536	87	0	0	0
Future Volume (Veh/h)	0	45	0	0	0	187	0	536	87	0	0	0
Sign Control		Yield			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	50	0	0	0	208	0	596	97	0	0	0
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	506	693	0	621	596	298	0			693		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	506	693	0	621	596	298	0			693		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
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	86	100	100	100	70	100			100		
cM capacity (veh/h)	313	363	1081	331	413	695	1614			891		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3
Volume Total	50	208	298	298	97
Volume Left	0	0	0	0	0
Volume Right	0	208	0	0	97
cSH	363	695	1700	1700	1700
Volume to Capacity	0.14	0.30	0.18	0.18	0.06
Queue Length 95th (ft)	12	31	0	0	0
Control Delay (s)	16.5	12.4	0.0	0.0	0.0
Lane LOS	C	B			
Approach Delay (s)	16.5	12.4	0.0		
Approach LOS	C	B			

Intersection Summary				
Average Delay	3.6			
Intersection Capacity Utilization	33.1%	ICU Level of Service	A	
Analysis Period (min)	15			

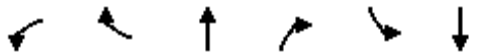
12: US 401 (Louisburg Rd) & Flat Rock Church Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	214	0	86	0	0	0	0	0	721	100
Future Volume (Veh/h)	0	0	214	0	86	0	0	0	0	0	721	100
Sign Control		Stop			Yield			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	238	0	96	0	0	0	0	0	801	111
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	849	801	400	638	912	0	912			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	849	801	400	638	912	0	912			0		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
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	60	100	65	100	100			100		
cM capacity (veh/h)	183	314	596	216	271	1081	737			1614		

Direction, Lane #	EB 1	WB 1	SB 1	SB 2	SB 3
Volume Total	238	96	400	400	111
Volume Left	0	0	0	0	0
Volume Right	238	0	0	0	111
cSH	596	271	1700	1700	1700
Volume to Capacity	0.40	0.35	0.24	0.24	0.07
Queue Length 95th (ft)	48	39	0	0	0
Control Delay (s)	15.0	25.4	0.0	0.0	0.0
Lane LOS	B	D			
Approach Delay (s)	15.0	25.4	0.0		
Approach LOS	B	D			

Intersection Summary				
Average Delay	4.8			
Intersection Capacity Utilization	39.8%	ICU Level of Service		A
Analysis Period (min)	15			

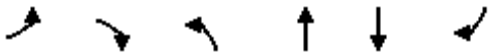


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	129	0	0	0	0	737
Future Volume (Veh/h)	129	0	0	0	0	737
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	143	0	0	0	0	819
Pedestrians						
Lane Width (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	410	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	410	0			0	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	75	100			100	
cM capacity (veh/h)	567	1081			1614	

Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	143	410	410
Volume Left	143	0	0
Volume Right	0	0	0
cSH	567	1700	1700
Volume to Capacity	0.25	0.24	0.24
Queue Length 95th (ft)	25	0	0
Control Delay (s)	13.5	0.0	0.0
Lane LOS	B		
Approach Delay (s)	13.5	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	43.5%	ICU Level of Service	A
Analysis Period (min)	15		

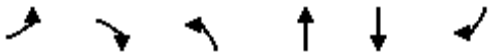
14: US 401 (Louisburg Rd) & Flat Rock Church Rd U-Turn



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	99	0	0	610	0	0
Future Volume (Veh/h)	99	0	0	610	0	0
Sign Control	Yield			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)	110	0	0	678	0	0
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	339	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	339	0	0			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	82	100	100			
cM capacity (veh/h)	628	1081	1614			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	110	339	339
Volume Left	110	0	0
Volume Right	0	0	0
cSH	628	1700	1700
Volume to Capacity	0.18	0.20	0.20
Queue Length 95th (ft)	16	0	0
Control Delay (s)	11.9	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.9	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	29.0%	ICU Level of Service	A
Analysis Period (min)	15		

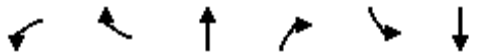


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	39	0	0	717	21
Future Volume (Veh/h)	0	39	0	0	717	21
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	43	0	0	797	23
Pedestrians						
Lane Width (ft)						
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	808	410	820			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	808	410	820			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	93	100			
cM capacity (veh/h)	312	582	798			

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	43	531	289
Volume Left	0	0	0
Volume Right	43	0	23
cSH	582	1700	1700
Volume to Capacity	0.07	0.31	0.17
Queue Length 95th (ft)	6	0	0
Control Delay (s)	11.7	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.7	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	30.5%	ICU Level of Service	A
Analysis Period (min)	15		

22: US 401 (Louisburg Rd) & Huntsburg Rd NB U-Turn

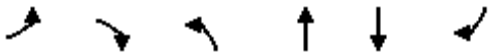


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	0	0	0	0	728
Future Volume (Veh/h)	10	0	0	0	0	728
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	0	0	0	0	809
Pedestrians						
Lane Width (ft)						
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	404	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	404	0			0	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	572	1081			1614	

Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	11	404	404
Volume Left	11	0	0
Volume Right	0	0	0
cSH	572	1700	1700
Volume to Capacity	0.02	0.24	0.24
Queue Length 95th (ft)	1	0	0
Control Delay (s)	11.4	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.4	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	43.5%	ICU Level of Service	A
Analysis Period (min)	15		

23: US 401 (Louisburg Rd) & Huntsburg Rd SB U-Turn



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	19	0	0	594	0	0
Future Volume (Veh/h)	19	0	0	594	0	0
Sign Control	Yield			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)	21	0	0	660	0	0
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	330	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	330	0	0			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	100	100			
cM capacity (veh/h)	637	1081	1614			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	21	330	330
Volume Left	21	0	0
Volume Right	0	0	0
cSH	637	1700	1700
Volume to Capacity	0.03	0.19	0.19
Queue Length 95th (ft)	3	0	0
Control Delay (s)	10.8	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.8	0.0	
Approach LOS	B		

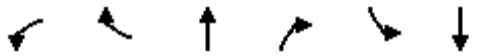
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Traffic Volume (veh/h)	599	19	0	0	0	16
Future Volume (Veh/h)	599	19	0	0	0	16
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)	666	21	0	0	0	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)						
pX, platoon unblocked						
vC, conflicting volume			687		666	333
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			687		666	333
tC, single (s)			4.2		7.0	7.1
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			100		100	97
cM capacity (veh/h)			896		379	645

Direction, Lane #	NB 1	NB 2	NB 3	NW 1
Volume Total	333	333	21	18
Volume Left	0	0	0	0
Volume Right	0	0	21	18
cSH	1700	1700	1700	645
Volume to Capacity	0.20	0.20	0.01	0.03
Queue Length 95th (ft)	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	10.7
Lane LOS				B
Approach Delay (s)	0.0			10.7
Approach LOS				B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	26.6%	ICU Level of Service	A
Analysis Period (min)	15		

32: US 401 (Louisburg Rd) & Airport Rd NB U-Turn

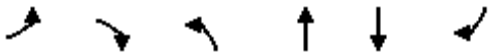


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	0	0	0	0	739
Future Volume (Veh/h)	4	0	0	0	0	739
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	0	0	0	0	821
Pedestrians						
Lane Width (ft)						
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	410	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	410	0			0	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	567	1081			1614	

Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	4	410	410
Volume Left	4	0	0
Volume Right	0	0	0
cSH	567	1700	1700
Volume to Capacity	0.01	0.24	0.24
Queue Length 95th (ft)	1	0	0
Control Delay (s)	11.4	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.4	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	30.4%	ICU Level of Service	A
Analysis Period (min)	15		

33: US 401 (Louisburg Rd) & Airport Rd SB U-Turn



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	0	0	603	0	0
Future Volume (Veh/h)	15	0	0	603	0	0
Sign Control	Yield			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)	17	0	0	670	0	0
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	335	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	335	0	0			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	100	100			
cM capacity (veh/h)	632	1081	1614			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	17	335	335
Volume Left	17	0	0
Volume Right	0	0	0
cSH	632	1700	1700
Volume to Capacity	0.03	0.20	0.20
Queue Length 95th (ft)	2	0	0
Control Delay (s)	10.9	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.9	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	43.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	9	606	11	0	0
Future Volume (Veh/h)	0	9	606	11	0	0
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)	0	10	673	12	0	0
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	679	342			685	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	679	342			685	
tC, single (s)	7.0	7.1			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	368	631			898	

Direction, Lane #	WB 1	NB 1	NB 2
Volume Total	10	449	236
Volume Left	0	0	0
Volume Right	10	0	12
cSH	631	1700	1700
Volume to Capacity	0.02	0.26	0.14
Queue Length 95th (ft)	1	0	0
Control Delay (s)	10.8	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.8	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	27.1%	ICU Level of Service	A
Analysis Period (min)	15		

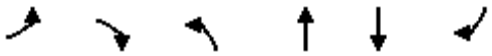
42: US 401 (Louisburg Rd) & Bennette Perry Rd NB U-Turn

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	0	0	0	0	740
Future Volume (Veh/h)	5	0	0	0	0	740
Sign Control	Yield		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)	6	0	0	0	0	822
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	411	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	411	0			0	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	566	1081			1614	

Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	6	411	411
Volume Left	6	0	0
Volume Right	0	0	0
cSH	566	1700	1700
Volume to Capacity	0.01	0.24	0.24
Queue Length 95th (ft)	1	0	0
Control Delay (s)	11.4	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.4	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	30.5%	ICU Level of Service	A
Analysis Period (min)	15		

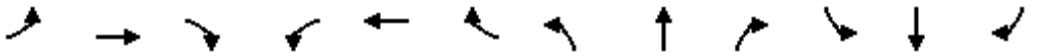
43: US 401 (Louisburg Rd) & Bennette Perry Rd SB U-Turn



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	0	0	611	0	0
Future Volume (Veh/h)	6	0	0	611	0	0
Sign Control	Yield			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	0	0	679	0	0
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	340	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	340	0	0			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	628	1081	1614			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	7	340	340
Volume Left	7	0	0
Volume Right	0	0	0
cSH	628	1700	1700
Volume to Capacity	0.01	0.20	0.20
Queue Length 95th (ft)	1	0	0
Control Delay (s)	10.8	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.8	0.0	
Approach LOS	B		

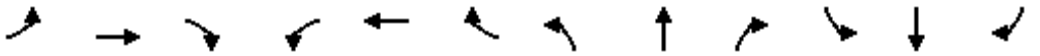
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	26.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	32	0	0	0	86	0	549	73	0	0	0
Future Volume (Veh/h)	0	32	0	0	0	86	0	549	73	0	0	0
Sign Control		Yield			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	36	0	0	0	96	0	610	81	0	0	0
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	401	691	0	668	650	346	0			691		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	401	691	0	668	650	346	0			691		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
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	90	100	100	100	85	100			100		
cM capacity (veh/h)	452	364	1081	314	382	645	1614			893		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	36	96	407	284
Volume Left	0	0	0	0
Volume Right	0	96	0	81
cSH	364	645	1700	1700
Volume to Capacity	0.10	0.15	0.24	0.17
Queue Length 95th (ft)	8	13	0	0
Control Delay (s)	16.0	11.6	0.0	0.0
Lane LOS	C	B		
Approach Delay (s)	16.0	11.6	0.0	
Approach LOS	C	B		

Intersection Summary				
Average Delay	2.0			
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)	0	0	80	0	30	0	0	0	0	0	702	34
Future Volume (Veh/h)	0	0	80	0	30	0	0	0	0	0	702	34
Sign Control		Stop			Yield			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	89	0	33	0	0	0	0	0	780	38
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	816	799	409	479	818	0	818			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	816	799	409	479	818	0	818			0		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
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	85	100	89	100	100			100		
cM capacity (veh/h)	244	313	586	396	307	1081	800			1614		

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	89	33	520	298
Volume Left	0	0	0	0
Volume Right	89	0	0	38
cSH	586	307	1700	1700
Volume to Capacity	0.15	0.11	0.31	0.18
Queue Length 95th (ft)	13	9	0	0
Control Delay (s)	12.2	18.1	0.0	0.0
Lane LOS	B	C		
Approach Delay (s)	12.2	18.1	0.0	
Approach LOS	B	C		

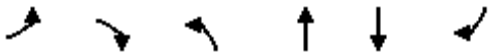
Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	32.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	62	0	0	0	0	706
Future Volume (Veh/h)	62	0	0	0	0	706
Sign Control	Yield		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)	69	0	0	0	0	784
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	392	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	392	0			0	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	100			100	
cM capacity (veh/h)	582	1081			1614	

Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	69	392	392
Volume Left	69	0	0
Volume Right	0	0	0
cSH	582	1700	1700
Volume to Capacity	0.12	0.23	0.23
Queue Length 95th (ft)	10	0	0
Control Delay (s)	12.0	0.0	0.0
Lane LOS	B		
Approach Delay (s)	12.0	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		

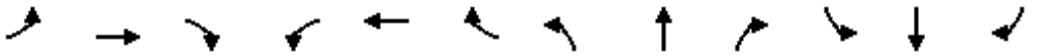
54: US 401 (Louisburg Rd) & EF Cottrell Rd SB U-Turn



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	42	0	0	610	0	0
Future Volume (Veh/h)	42	0	0	610	0	0
Sign Control	Yield			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)	47	0	0	678	0	0
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	339	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	339	0	0			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	100	100			
cM capacity (veh/h)	628	1081	1614			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	47	339	339
Volume Left	47	0	0
Volume Right	0	0	0
cSH	628	1700	1700
Volume to Capacity	0.07	0.20	0.20
Queue Length 95th (ft)	6	0	0
Control Delay (s)	11.2	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.2	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	26.9%	ICU Level of Service	A
Analysis Period (min)	15		



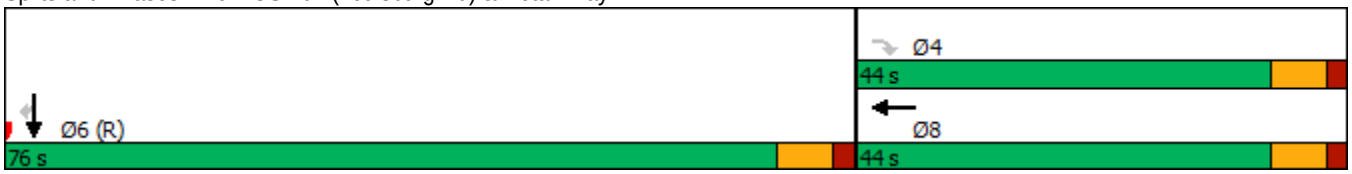
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	114	0	49	0	0	0	0	0	641	45
Future Volume (vph)	0	0	114	0	49	0	0	0	0	0	641	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		150
Storage Lanes	0		1	0		0	0		0	0		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt			0.865									0.850
Flt Protected												
Satd. Flow (prot)	0	0	1611	0	1845	0	0	0	0	0	3505	1568
Flt Permitted												
Satd. Flow (perm)	0	0	1611	0	1845	0	0	0	0	0	3505	1568
Right Turn on Red			No	No		No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			45	
Link Distance (ft)		458			150			803			254	
Travel Time (s)		8.9			2.3			10.0			3.8	
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 (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	127	0	54	0	0	0	0	0	712	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	127	0	54	0	0	0	0	0	712	50
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
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			Perm		NA						NA	Perm
Protected Phases					8						6	
Permitted Phases			4									6
Detector Phase			4		8						6	6
Switch Phase												
Minimum Initial (s)			5.0		5.0						5.0	5.0
Minimum Split (s)			20.0		20.0						20.0	20.0
Total Split (s)			44.0		44.0						76.0	76.0
Total Split (%)			36.7%		36.7%						63.3%	63.3%
Yellow Time (s)			5.0		5.0						5.0	5.0
All-Red Time (s)			2.0		2.0						2.0	2.0
Lost Time Adjust (s)			-2.0		-2.0						-2.0	-2.0
Total Lost Time (s)			5.0		5.0						5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode			None		None						C-Max	C-Max
Act Effct Green (s)			16.8		16.8						93.2	93.2
Actuated g/C Ratio			0.14		0.14						0.78	0.78

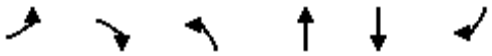
61: US 401 (Louisburg Rd) & Retail Way

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio			0.56		0.21						0.26	0.04
Control Delay			57.1		45.8						1.3	0.8
Queue Delay			0.0		0.0						0.0	0.0
Total Delay			57.1		45.8						1.3	0.8
LOS			E		D						A	A
Approach Delay		57.1			45.8						1.3	
Approach LOS		E			D						A	
Queue Length 50th (ft)			93		38						3	0
Queue Length 95th (ft)			150		73						15	4
Internal Link Dist (ft)		378			70			723			174	
Turn Bay Length (ft)												150
Base Capacity (vph)			523		599						2721	1217
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			0.24		0.09						0.26	0.04

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 45 (38%), Referenced to phase 6:SBT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 11.3		Intersection LOS: B	
Intersection Capacity Utilization 48.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 61: US 401 (Louisburg Rd) & Retail Way

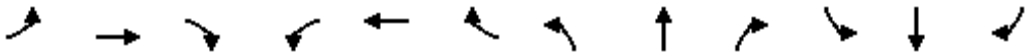




Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	49	0	0	573	0	0
Future Volume (Veh/h)	49	0	0	573	0	0
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	54	0	0	637	0	0
Pedestrians						
Lane Width (ft)						
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	318	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	318	0	0			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	100	100			
cM capacity (veh/h)	647	1081	1614			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	54	318	318
Volume Left	54	0	0
Volume Right	0	0	0
cSH	647	1700	1700
Volume to Capacity	0.08	0.19	0.19
Queue Length 95th (ft)	7	0	0
Control Delay (s)	11.1	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.1	0.0	
Approach LOS	B		

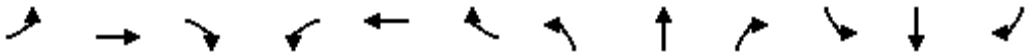
Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	35.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	60	0	0	0	140	0	550	18	0	0	0
Future Volume (Veh/h)	75	60	0	0	0	140	0	550	18	0	0	0
Sign Control		Yield			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)	83	67	0	0	0	156	0	611	20	0	0	0
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	462	631	0	654	621	316	0			631		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	462	631	0	654	621	316	0			631		
tC, single (s)	7.6	6.6	7.0	7.5	6.5	6.9	4.2			4.2		
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 %	78	83	100	100	100	77	100			100		
cM capacity (veh/h)	371	394	1081	306	402	680	1614			941		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	150	156	407	224
Volume Left	83	0	0	0
Volume Right	0	156	0	20
cSH	381	680	1700	1700
Volume to Capacity	0.39	0.23	0.24	0.13
Queue Length 95th (ft)	46	22	0	0
Control Delay (s)	20.5	11.9	0.0	0.0
Lane LOS	C	B		
Approach Delay (s)	20.5	11.9	0.0	
Approach LOS	C	B		

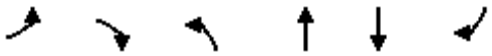
Intersection Summary				
Average Delay	5.2			
Intersection Capacity Utilization	41.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	12	0	10	0	0	0	0	0	679	10
Future Volume (Veh/h)	0	0	12	0	10	0	0	0	0	0	679	10
Sign Control		Stop			Yield			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	13	0	11	0	0	0	0	0	754	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)								1158			698	
pX, platoon unblocked	0.89	0.89	0.89	0.89	0.89		0.89					
vC, conflicting volume	765	760	382	390	765	0	765			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	488	482	58	67	488	0	488			0		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
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	99	100	97	100	100			100		
cM capacity (veh/h)	400	425	880	803	424	1081	947			1614		

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	13	11	503	262
Volume Left	0	0	0	0
Volume Right	13	0	0	11
cSH	880	424	1700	1700
Volume to Capacity	0.01	0.03	0.30	0.15
Queue Length 95th (ft)	1	2	0	0
Control Delay (s)	9.2	13.7	0.0	0.0
Lane LOS	A	B		
Approach Delay (s)	9.2	13.7	0.0	
Approach LOS	A	B		

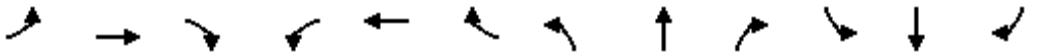
Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	29.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	0	0	573	0	0
Future Volume (Veh/h)	5	0	0	573	0	0
Sign Control	Yield			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)	6	0	0	637	0	0
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	318	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	318	0	0			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	647	1081	1614			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	6	318	318
Volume Left	6	0	0
Volume Right	0	0	0
cSH	647	1700	1700
Volume to Capacity	0.01	0.19	0.19
Queue Length 95th (ft)	1	0	0
Control Delay (s)	10.6	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.6	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	25.8%	ICU Level of Service	A
Analysis Period (min)	15		

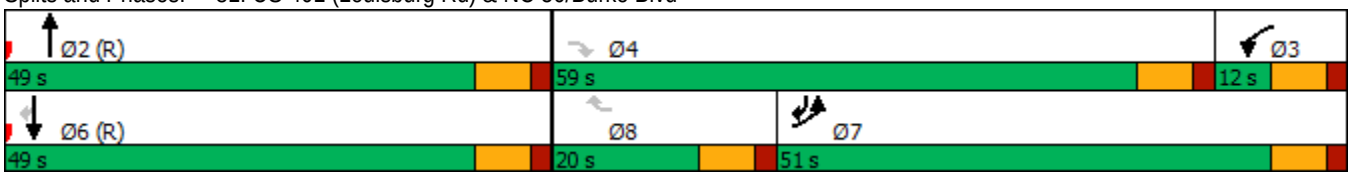


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	407	0	211	30	0	60	0	658	107	0	583	725
Future Volume (vph)	407	0	211	30	0	60	0	658	107	0	583	725
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	0		75	0		100	0		250
Storage Lanes	1		1	1		1	0		0	0		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850			0.850		0.979				0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3400	0	1568	1752	0	1568	0	3431	0	0	3505	1568
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	3400	0	1568	1752	0	1568	0	3431	0	0	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			35			30			45	
Link Distance (ft)		689			521			214			370	
Travel Time (s)		10.4			10.1			4.9			5.6	
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
Adj. Flow (vph)	452	0	234	33	0	67	0	731	119	0	648	806
Shared Lane Traffic (%)												
Lane Group Flow (vph)	452	0	234	33	0	67	0	850	0	0	648	806
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			24	
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		Perm	Prot		Perm		NA			NA	pm+ov
Protected Phases	7			3				2			6	7
Permitted Phases			4			8						6
Detector Phase	7		4	3		8		2			6	7
Switch Phase												
Minimum Initial (s)	5.0		5.0	5.0		5.0		5.0			5.0	5.0
Minimum Split (s)	12.0		12.0	12.0		20.0		20.0			20.0	12.0
Total Split (s)	51.0		59.0	12.0		20.0		49.0			49.0	51.0
Total Split (%)	42.5%		49.2%	10.0%		16.7%		40.8%			40.8%	42.5%
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	-2.0
Total Lost Time (s)	5.0		5.0	5.0		5.0		5.0			5.0	5.0
Lead/Lag	Lag		Lead	Lag		Lead						Lag
Lead-Lag Optimize?	Yes		Yes	Yes		Yes						Yes
Recall Mode	None		None	None		Max		C-Max			C-Max	None
Act Effct Green (s)	36.0		37.0	19.3		15.0		54.0			54.0	95.0
Actuated g/C Ratio	0.30		0.31	0.16		0.12		0.45			0.45	0.79
v/c Ratio	0.44		0.48	0.12		0.34		0.55			0.41	0.65

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	34.2		39.9	39.6		53.4		27.4			24.8	8.4
Queue Delay	0.0		0.0	0.0		0.0		0.0			0.0	0.0
Total Delay	34.2		39.9	39.6		53.4		27.4			24.8	8.4
LOS	C		D	D		D		C			C	A
Approach Delay		36.1			48.8			27.4			15.7	
Approach LOS		D			D			C			B	
Queue Length 50th (ft)	145		169	21		48		247			174	220
Queue Length 95th (ft)	170		235	49		95		362			260	324
Internal Link Dist (ft)		609			441			134			290	
Turn Bay Length (ft)	350		150			75						250
Base Capacity (vph)	1303		705	281		196		1543			1576	1235
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		0.33	0.12		0.34		0.55			0.41	0.65

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 4 (3%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 24.5		Intersection LOS: C	
Intersection Capacity Utilization 49.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 81: US 401 (Louisburg Rd) & NC 56/Burke Blvd



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	1060	248	0
Future Volume (Veh/h)	0	0	0	1060	248	0
Sign Control	Free			Free	Yield	
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	0	1178	276	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	967					
pX, platoon unblocked						
vC, conflicting volume			0		589	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		589	0
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		37	100
cM capacity (veh/h)			1614		437	1081

Direction, Lane #	WB 1	WB 2	NB 1
Volume Total	589	589	276
Volume Left	0	0	276
Volume Right	0	0	0
cSH	1700	1700	437
Volume to Capacity	0.35	0.35	0.63
Queue Length 95th (ft)	0	0	106
Control Delay (s)	0.0	0.0	26.3
Lane LOS			D
Approach Delay (s)	0.0		26.3
Approach LOS			D

Intersection Summary			
Average Delay		5.0	
Intersection Capacity Utilization		49.7%	ICU Level of Service A
Analysis Period (min)		15	

Intersection: 11: US 401 (Louisburg Rd) & Clifton Pond Rd

Movement	EB	WB	NB	NB
Directions Served	T	R	T	R
Maximum Queue (ft)	53	72	2	12
Average Queue (ft)	17	33	0	1
95th Queue (ft)	46	59	2	7
Link Distance (ft)	157	920	145	145
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: US 401 (Louisburg Rd) & Flat Rock Church Rd

Movement	EB	WB	SB	SB
Directions Served	R	T	T	R
Maximum Queue (ft)	104	71	2	15
Average Queue (ft)	44	29	0	1
95th Queue (ft)	81	60	2	9
Link Distance (ft)	857	156	142	142
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 13: US 401 (Louisburg Rd) & Clifton Pond Rd U-Turn

Movement	WB
Directions Served	L
Maximum Queue (ft)	78
Average Queue (ft)	27
95th Queue (ft)	58
Link Distance (ft)	68
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 14: US 401 (Louisburg Rd) & Flat Rock Church Rd U-Turn

Movement	EB
Directions Served	L
Maximum Queue (ft)	72
Average Queue (ft)	30
95th Queue (ft)	58
Link Distance (ft)	143
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 21: US 401 (Louisburg Rd) & Huntsburg Dr

Movement	EB
Directions Served	R
Maximum Queue (ft)	52
Average Queue (ft)	20
95th Queue (ft)	43
Link Distance (ft)	797
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 22: US 401 (Louisburg Rd) & Huntsburg Rd NB U-Turn

Movement	WB
Directions Served	L
Maximum Queue (ft)	30
Average Queue (ft)	2
95th Queue (ft)	16
Link Distance (ft)	90
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 23: US 401 (Louisburg Rd) & Huntsburg Rd SB U-Turn

Movement	EB
Directions Served	L
Maximum Queue (ft)	37
Average Queue (ft)	5
95th Queue (ft)	25
Link Distance (ft)	135
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: US 401 (Louisburg Rd) & Airport Rd

Movement	NW
Directions Served	R
Maximum Queue (ft)	42
Average Queue (ft)	11
95th Queue (ft)	33
Link Distance (ft)	926
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 32: US 401 (Louisburg Rd) & Airport Rd NB U-Turn

Movement	WB
Directions Served	L
Maximum Queue (ft)	9
Average Queue (ft)	0
95th Queue (ft)	5
Link Distance (ft)	98
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 33: US 401 (Louisburg Rd) & Airport Rd SB U-Turn

Movement	EB
Directions Served	L
Maximum Queue (ft)	34
Average Queue (ft)	5
95th Queue (ft)	24
Link Distance (ft)	96
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 41: US 401 (Louisburg Rd) & Bennette Perry Rd

Movement	WB
Directions Served	R
Maximum Queue (ft)	26
Average Queue (ft)	3
95th Queue (ft)	15
Link Distance (ft)	686
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 42: US 401 (Louisburg Rd) & Bennette Perry Rd NB U-Turn

Movement	WB
Directions Served	L
Maximum Queue (ft)	22
Average Queue (ft)	1
95th Queue (ft)	10
Link Distance (ft)	80
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 43: US 401 (Louisburg Rd) & Bennette Perry Rd SB U-Turn

Movement	EB
Directions Served	L
Maximum Queue (ft)	25
Average Queue (ft)	2
95th Queue (ft)	14
Link Distance (ft)	96
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 51: US 401 (Louisburg Rd) & EF Cottrell Rd

Movement	EB	WB	NB
Directions Served	T	R	TR
Maximum Queue (ft)	54	56	13
Average Queue (ft)	14	21	0
95th Queue (ft)	43	41	6
Link Distance (ft)	251	609	137
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 52: US 401 (Louisburg Rd) & EF Cottrell Rd

Movement	EB	WB	SB
Directions Served	R	T	TR
Maximum Queue (ft)	58	36	1
Average Queue (ft)	24	9	0
95th Queue (ft)	45	29	1
Link Distance (ft)	828	221	165
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 53: US 401 (Louisburg Rd) & EF Cottrell Rd NB U-Turn

Movement	WB
Directions Served	L
Maximum Queue (ft)	53
Average Queue (ft)	14
95th Queue (ft)	41
Link Distance (ft)	64
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 54: US 401 (Louisburg Rd) & EF Cottrell Rd SB U-Turn

Movement	EB
Directions Served	L
Maximum Queue (ft)	46
Average Queue (ft)	12
95th Queue (ft)	38
Link Distance (ft)	113
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 61: US 401 (Louisburg Rd) & Retail Way

Movement	EB	WB	SB	SB	SB
Directions Served	R	T	T	T	R
Maximum Queue (ft)	165	96	70	66	34
Average Queue (ft)	88	46	18	14	4
95th Queue (ft)	147	88	53	46	20
Link Distance (ft)	397	94	192	192	
Upstream Blk Time (%)		2			
Queuing Penalty (veh)		1			
Storage Bay Dist (ft)					150
Storage Blk Time (%)				0	
Queuing Penalty (veh)				0	

Intersection: 62: US 401 (Louisburg Rd)

Movement	EB
Directions Served	L
Maximum Queue (ft)	39
Average Queue (ft)	11
95th Queue (ft)	35
Link Distance (ft)	63
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 71: US 401 (Louisburg Rd) & Fox Park Rd

Movement	EB	WB	NB	NB
Directions Served	LT	R	T	TR
Maximum Queue (ft)	99	74	2	7
Average Queue (ft)	36	40	0	0
95th Queue (ft)	76	65	2	4
Link Distance (ft)	117	471	111	111
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 72: US 401 (Louisburg Rd) & Driveway

Movement	EB	WB
Directions Served	R	T
Maximum Queue (ft)	33	31
Average Queue (ft)	11	3
95th Queue (ft)	34	19
Link Distance (ft)	273	124
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 73: US 401 (Louisburg Rd)

Movement	EB
Directions Served	L
Maximum Queue (ft)	24
Average Queue (ft)	1
95th Queue (ft)	12
Link Distance (ft)	125
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 81: US 401 (Louisburg Rd) & NC 56/Burke Blvd

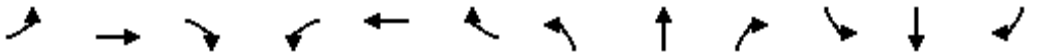
Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	L	R	L	R	T	TR	T	T	R
Maximum Queue (ft)	325	428	242	119	117	205	204	248	249	261
Average Queue (ft)	116	169	119	34	49	176	176	163	134	139
95th Queue (ft)	249	316	215	88	97	221	218	235	212	231
Link Distance (ft)		626		468		141	141	293	293	
Upstream Blk Time (%)		0				20	21	0	0	0
Queuing Penalty (veh)		0				76	81	0	0	0
Storage Bay Dist (ft)	350		150		75					250
Storage Blk Time (%)	0	11	5	4	8				0	0
Queuing Penalty (veh)	0	46	22	2	2				0	1

Intersection: 82: US 401 (Louisburg Rd)

Movement	NB
Directions Served	L
Maximum Queue (ft)	173
Average Queue (ft)	93
95th Queue (ft)	159
Link Distance (ft)	95
Upstream Blk Time (%)	12
Queuing Penalty (veh)	30
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

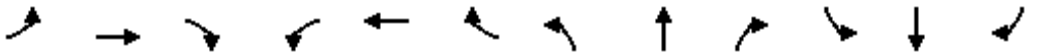
Zone wide Queuing Penalty: 262



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	58	0	0	0	132	0	694	129	0	0	0
Future Volume (Veh/h)	0	58	0	0	0	132	0	694	129	0	0	0
Sign Control		Yield			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	64	0	0	0	147	0	771	143	0	0	0
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	532	914	0	803	771	386	0			914		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	532	914	0	803	771	386	0			914		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
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	76	100	100	100	76	100			100		
cM capacity (veh/h)	325	270	1081	223	327	610	1614			735		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3
Volume Total	64	147	386	386	143
Volume Left	0	0	0	0	0
Volume Right	0	147	0	0	143
cSH	270	610	1700	1700	1700
Volume to Capacity	0.24	0.24	0.23	0.23	0.08
Queue Length 95th (ft)	23	23	0	0	0
Control Delay (s)	22.4	12.8	0.0	0.0	0.0
Lane LOS	C	B			
Approach Delay (s)	22.4	12.8	0.0		
Approach LOS	C	B			

Intersection Summary				
Average Delay	2.9			
Intersection Capacity Utilization	34.0%	ICU Level of Service	A	
Analysis Period (min)	15			

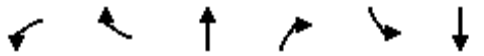


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	186	0	115	0	0	0	0	0	526	99
Future Volume (Veh/h)	0	0	186	0	115	0	0	0	0	0	526	99
Sign Control		Stop			Yield			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	207	0	128	0	0	0	0	0	584	110
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	648	584	292	499	694	0	694			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	648	584	292	499	694	0	694			0		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
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	70	100	65	100	100			100		
cM capacity (veh/h)	257	420	701	319	363	1081	891			1614		

Direction, Lane #	EB 1	WB 1	SB 1	SB 2	SB 3
Volume Total	207	128	292	292	110
Volume Left	0	0	0	0	0
Volume Right	207	0	0	0	110
cSH	701	363	1700	1700	1700
Volume to Capacity	0.30	0.35	0.17	0.17	0.06
Queue Length 95th (ft)	31	39	0	0	0
Control Delay (s)	12.3	20.2	0.0	0.0	0.0
Lane LOS	B	C			
Approach Delay (s)	12.3	20.2	0.0		
Approach LOS	B	C			

Intersection Summary				
Average Delay	5.0			
Intersection Capacity Utilization	53.1%	ICU Level of Service	A	
Analysis Period (min)	15			

13: US 401 (Louisburg Rd) & Clifton Pond Rd U-Turn

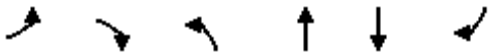


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	87	0	0	0	0	596
Future Volume (Veh/h)	87	0	0	0	0	596
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	97	0	0	0	0	662
Pedestrians						
Lane Width (ft)						
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	331	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	331	0			0	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	85	100			100	
cM capacity (veh/h)	636	1081			1614	

Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	97	331	331
Volume Left	97	0	0
Volume Right	0	0	0
cSH	636	1700	1700
Volume to Capacity	0.15	0.19	0.19
Queue Length 95th (ft)	13	0	0
Control Delay (s)	11.7	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.7	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		

14: US 401 (Louisburg Rd) & Flat Rock Church Rd U-Turn

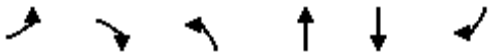


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	100	0	0	838	0	0
Future Volume (Veh/h)	100	0	0	838	0	0
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	111	0	0	931	0	0
Pedestrians						
Lane Width (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	466	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	466	0	0			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	79	100	100			
cM capacity (veh/h)	523	1081	1614			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	111	466	466
Volume Left	111	0	0
Volume Right	0	0	0
cSH	523	1700	1700
Volume to Capacity	0.21	0.27	0.27
Queue Length 95th (ft)	20	0	0
Control Delay (s)	13.7	0.0	0.0
Lane LOS	B		
Approach Delay (s)	13.7	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	42.8%	ICU Level of Service	A
Analysis Period (min)	15		

21: US 401 (Louisburg Rd) & Huntsburg Dr

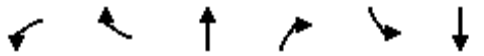


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	21	0	0	586	39
Future Volume (Veh/h)	0	21	0	0	586	39
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	23	0	0	651	43
Pedestrians						
Lane Width (ft)						
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	672	347	694			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	672	347	694			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	96	100			
cM capacity (veh/h)	382	640	891			

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	23	434	260
Volume Left	0	0	0
Volume Right	23	0	43
cSH	640	1700	1700
Volume to Capacity	0.04	0.26	0.15
Queue Length 95th (ft)	3	0	0
Control Delay (s)	10.8	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.8	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	27.4%	ICU Level of Service	A
Analysis Period (min)	15		

22: US 401 (Louisburg Rd) & Huntsburg Rd NB U-Turn

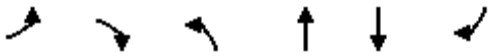


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	0	0	0	0	604
Future Volume (Veh/h)	21	0	0	0	0	604
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	23	0	0	0	0	671
Pedestrians						
Lane Width (ft)						
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	336	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	336	0			0	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	100			100	
cM capacity (veh/h)	631	1081			1614	

Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	23	336	336
Volume Left	23	0	0
Volume Right	0	0	0
cSH	631	1700	1700
Volume to Capacity	0.04	0.20	0.20
Queue Length 95th (ft)	3	0	0
Control Delay (s)	10.9	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.9	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	43.5%	ICU Level of Service	A
Analysis Period (min)	15		

23: US 401 (Louisburg Rd) & Huntsburg Rd SB U-Turn



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	0	0	739	0	0
Future Volume (Veh/h)	11	0	0	739	0	0
Sign Control	Yield			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)	12	0	0	821	0	0
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	410	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	410	0	0			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	100	100			
cM capacity (veh/h)	567	1081	1614			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	12	410	410
Volume Left	12	0	0
Volume Right	0	0	0
cSH	567	1700	1700
Volume to Capacity	0.02	0.24	0.24
Queue Length 95th (ft)	2	0	0
Control Delay (s)	11.5	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.5	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Traffic Volume (veh/h)	724	17	0	0	0	20
Future Volume (Veh/h)	724	17	0	0	0	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
Hourly flow rate (vph)	804	19	0	0	0	22
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			823		804	402
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			823		804	402
tC, single (s)			4.2		7.0	7.1
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			100		100	96
cM capacity (veh/h)			796		309	581

Direction, Lane #	NB 1	NB 2	NB 3	NW 1
Volume Total	402	402	19	22
Volume Left	0	0	0	0
Volume Right	0	0	19	22
cSH	1700	1700	1700	581
Volume to Capacity	0.24	0.24	0.01	0.04
Queue Length 95th (ft)	0	0	0	3
Control Delay (s)	0.0	0.0	0.0	11.4
Lane LOS				B
Approach Delay (s)	0.0			11.4
Approach LOS				B

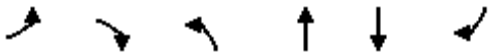
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	30.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	0	0	0	0	610
Future Volume (Veh/h)	5	0	0	0	0	610
Sign Control	Yield		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)	6	0	0	0	0	678
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	339	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	339	0			0	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	628	1081			1614	

Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	6	339	339
Volume Left	6	0	0
Volume Right	0	0	0
cSH	628	1700	1700
Volume to Capacity	0.01	0.20	0.20
Queue Length 95th (ft)	1	0	0
Control Delay (s)	10.8	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.8	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	26.9%	ICU Level of Service	A
Analysis Period (min)	15		

33: US 401 (Louisburg Rd) & Airport Rd SB U-Turn



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	0	0	729	0	0
Future Volume (Veh/h)	12	0	0	729	0	0
Sign Control	Yield			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)	13	0	0	810	0	0
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	405	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	405	0	0			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	100	100			
cM capacity (veh/h)	571	1081	1614			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	13	405	405
Volume Left	13	0	0
Volume Right	0	0	0
cSH	571	1700	1700
Volume to Capacity	0.02	0.24	0.24
Queue Length 95th (ft)	2	0	0
Control Delay (s)	11.4	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.4	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	43.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	11	734	9	0	0
Future Volume (Veh/h)	0	11	734	9	0	0
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)	0	12	816	10	0	0
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	821	413			826	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	821	413			826	
tC, single (s)	7.0	7.1			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	297	566			794	

Direction, Lane #	WB 1	NB 1	NB 2
Volume Total	12	544	282
Volume Left	0	0	0
Volume Right	12	0	10
cSH	566	1700	1700
Volume to Capacity	0.02	0.32	0.17
Queue Length 95th (ft)	2	0	0
Control Delay (s)	11.5	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.5	0.0	
Approach LOS	B		

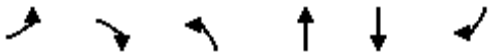
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	30.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	0	0	0	0	610
Future Volume (Veh/h)	5	0	0	0	0	610
Sign Control	Yield		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)	6	0	0	0	0	678
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	339	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	339	0			0	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	628	1081			1614	

Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	6	339	339
Volume Left	6	0	0
Volume Right	0	0	0
cSH	628	1700	1700
Volume to Capacity	0.01	0.20	0.20
Queue Length 95th (ft)	1	0	0
Control Delay (s)	10.8	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.8	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	26.9%	ICU Level of Service	A
Analysis Period (min)	15		

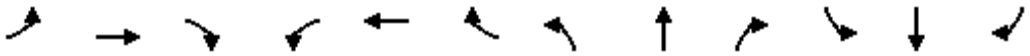
43: US 401 (Louisburg Rd) & Bennette Perry Rd SB U-Turn



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	0	0	739	0	0
Future Volume (Veh/h)	4	0	0	739	0	0
Sign Control	Yield			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	0	0	821	0	0
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	410	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	410	0	0			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	567	1081	1614			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	4	410	410
Volume Left	4	0	0
Volume Right	0	0	0
cSH	567	1700	1700
Volume to Capacity	0.01	0.24	0.24
Queue Length 95th (ft)	1	0	0
Control Delay (s)	11.4	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.4	0.0	
Approach LOS	B		

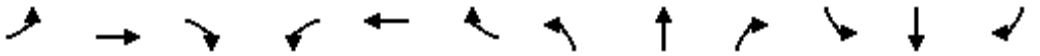
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	30.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	24	0	0	0	105	0	674	62	0	0	0
Future Volume (Veh/h)	0	24	0	0	0	105	0	674	62	0	0	0
Sign Control		Yield			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	27	0	0	0	117	0	749	69	0	0	0
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	492	818	0	797	784	409	0			818		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	492	818	0	797	784	409	0			818		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
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	91	100	100	100	80	100			100		
cM capacity (veh/h)	366	307	1081	255	320	586	1614			800		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	27	117	499	319
Volume Left	0	0	0	0
Volume Right	0	117	0	69
cSH	307	586	1700	1700
Volume to Capacity	0.09	0.20	0.29	0.19
Queue Length 95th (ft)	7	18	0	0
Control Delay (s)	17.8	12.7	0.0	0.0
Lane LOS	C	B		
Approach Delay (s)	17.8	12.7	0.0	
Approach LOS	C	B		

Intersection Summary				
Average Delay	2.0			
Intersection Capacity Utilization	33.8%	ICU Level of Service	A	
Analysis Period (min)	15			

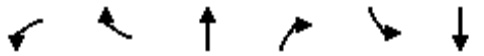


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	64	0	38	0	0	0	0	0	580	42
Future Volume (Veh/h)	0	0	64	0	38	0	0	0	0	0	580	42
Sign Control		Stop			Yield			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	71	0	42	0	0	0	0	0	644	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	688	668	346	393	691	0	691			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	688	668	346	393	691	0	691			0		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
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	89	100	88	100	100			100		
cM capacity (veh/h)	299	374	645	479	364	1081	893			1614		

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	71	42	429	262
Volume Left	0	0	0	0
Volume Right	71	0	0	47
cSH	645	364	1700	1700
Volume to Capacity	0.11	0.12	0.25	0.15
Queue Length 95th (ft)	9	10	0	0
Control Delay (s)	11.3	16.2	0.0	0.0
Lane LOS	B	C		
Approach Delay (s)	11.3	16.2	0.0	
Approach LOS	B	C		

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	28.0%	ICU Level of Service	A	
Analysis Period (min)	15			

53: US 401 (Louisburg Rd) & EF Cottrell Rd NB U-Turn

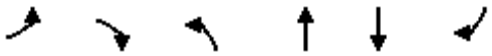


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	73	0	0	0	0	573
Future Volume (Veh/h)	73	0	0	0	0	573
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	81	0	0	0	0	637
Pedestrians						
Lane Width (ft)						
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	318	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	318	0			0	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	100			100	
cM capacity (veh/h)	647	1081			1614	

Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	81	318	318
Volume Left	81	0	0
Volume Right	0	0	0
cSH	647	1700	1700
Volume to Capacity	0.13	0.19	0.19
Queue Length 95th (ft)	11	0	0
Control Delay (s)	11.4	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.4	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		

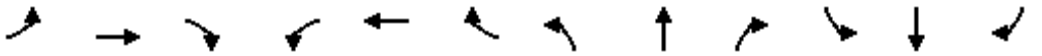
54: US 401 (Louisburg Rd) & EF Cottrell Rd SB U-Turn



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	34	0	0	740	0	0
Future Volume (Veh/h)	34	0	0	740	0	0
Sign Control	Yield			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)	38	0	0	822	0	0
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	411	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	411	0	0			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	100	100			
cM capacity (veh/h)	566	1081	1614			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	38	411	411
Volume Left	38	0	0
Volume Right	0	0	0
cSH	566	1700	1700
Volume to Capacity	0.07	0.24	0.24
Queue Length 95th (ft)	5	0	0
Control Delay (s)	11.8	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.8	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	30.5%	ICU Level of Service	A
Analysis Period (min)	15		

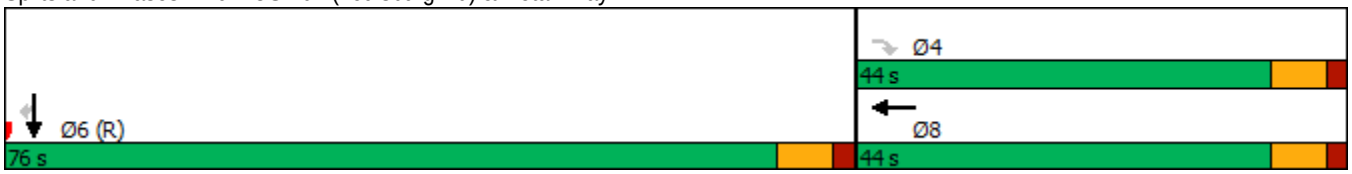


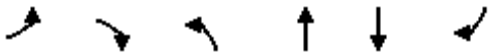
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	94	0	65	0	0	0	0	0	524	49
Future Volume (vph)	0	0	94	0	65	0	0	0	0	0	524	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		150
Storage Lanes	0		1	0		0	0		0	0		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt			0.865									0.850
Flt Protected												
Satd. Flow (prot)	0	0	1611	0	1845	0	0	0	0	0	3505	1568
Flt Permitted												
Satd. Flow (perm)	0	0	1611	0	1845	0	0	0	0	0	3505	1568
Right Turn on Red			No	No		No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			45	
Link Distance (ft)		458			169			803			254	
Travel Time (s)		8.9			2.6			10.0			3.8	
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 (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	104	0	72	0	0	0	0	0	582	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	104	0	72	0	0	0	0	0	582	54
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
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			Perm		NA						NA	Perm
Protected Phases					8						6	
Permitted Phases			4									6
Detector Phase			4		8						6	6
Switch Phase												
Minimum Initial (s)			7.0		7.0						12.0	12.0
Minimum Split (s)			20.0		20.0						20.0	20.0
Total Split (s)			44.0		44.0						76.0	76.0
Total Split (%)			36.7%		36.7%						63.3%	63.3%
Yellow Time (s)			5.0		5.0						5.0	5.0
All-Red Time (s)			2.0		2.0						2.0	2.0
Lost Time Adjust (s)			-2.0		-2.0						-2.0	-2.0
Total Lost Time (s)			5.0		5.0						5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode			None		None						C-Max	C-Max
Act Effct Green (s)			15.1		15.1						94.9	94.9
Actuated g/C Ratio			0.13		0.13						0.79	0.79

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio			0.51		0.31						0.21	0.04
Control Delay			57.1		49.8						1.7	1.2
Queue Delay			0.0		0.0						0.0	0.0
Total Delay			57.1		49.8						1.7	1.2
LOS			E		D						A	A
Approach Delay		57.1			49.8						1.6	
Approach LOS		E			D						A	
Queue Length 50th (ft)			76		51						12	2
Queue Length 95th (ft)			128		93						21	6
Internal Link Dist (ft)		378			89			723			174	
Turn Bay Length (ft)												150
Base Capacity (vph)			523		599						2770	1239
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			0.20		0.12						0.21	0.04

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 118 (98%), Referenced to phase 6:SBT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.51			
Intersection Signal Delay: 13.0		Intersection LOS: B	
Intersection Capacity Utilization 46.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 61: US 401 (Louisburg Rd) & Retail Way

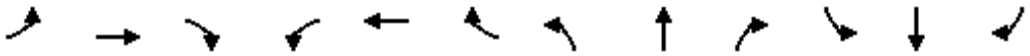




Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	45	0	0	706	0	0
Future Volume (Veh/h)	45	0	0	706	0	0
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	50	0	0	784	0	0
Pedestrians						
Lane Width (ft)						
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	392	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	392	0	0			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	91	100	100			
cM capacity (veh/h)	582	1081	1614			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	50	392	392
Volume Left	50	0	0
Volume Right	0	0	0
cSH	582	1700	1700
Volume to Capacity	0.09	0.23	0.23
Queue Length 95th (ft)	7	0	0
Control Delay (s)	11.8	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.8	0.0	
Approach LOS	B		

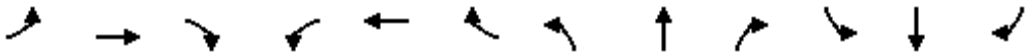
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	101	0	0	0	78	0	650	39	0	0	0
Future Volume (Veh/h)	60	101	0	0	0	78	0	650	39	0	0	0
Sign Control		Yield			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)	67	112	0	0	0	87	0	722	43	0	0	0
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	448	765	0	800	744	382	0			765		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	448	765	0	800	744	382	0			765		
tC, single (s)	7.6	6.6	7.0	7.5	6.5	6.9	4.2			4.2		
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 %	84	66	100	100	100	86	100			100		
cM capacity (veh/h)	422	330	1081	203	341	616	1614			837		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	179	87	481	284
Volume Left	67	0	0	0
Volume Right	0	87	0	43
cSH	359	616	1700	1700
Volume to Capacity	0.50	0.14	0.28	0.17
Queue Length 95th (ft)	67	12	0	0
Control Delay (s)	24.6	11.8	0.0	0.0
Lane LOS	C	B		
Approach Delay (s)	24.6	11.8	0.0	
Approach LOS	C	B		

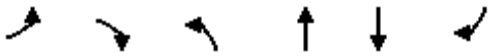
Intersection Summary				
Average Delay	5.3			
Intersection Capacity Utilization	42.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	20	0	7	0	0	0	0	0	563	5
Future Volume (Veh/h)	0	0	20	0	7	0	0	0	0	0	563	5
Sign Control		Stop			Yield			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	22	0	8	0	0	0	0	0	626	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)								1158			698	
pX, platoon unblocked	0.94	0.94	0.94	0.94	0.94		0.94					
vC, conflicting volume	633	629	316	335	632	0	632			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	475	471	137	157	474	0	474			0		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
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	97	100	98	100	100			100		
cM capacity (veh/h)	433	455	825	722	455	1081	1010			1614		

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	22	8	417	215
Volume Left	0	0	0	0
Volume Right	22	0	0	6
cSH	825	455	1700	1700
Volume to Capacity	0.03	0.02	0.25	0.13
Queue Length 95th (ft)	2	1	0	0
Control Delay (s)	9.5	13.1	0.0	0.0
Lane LOS	A	B		
Approach Delay (s)	9.5	13.1	0.0	
Approach LOS	A	B		

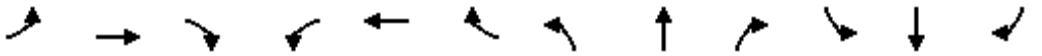
Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	25.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	0	0	686	0	0
Future Volume (Veh/h)	10	0	0	686	0	0
Sign Control	Yield			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)	11	0	0	762	0	0
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	381	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	381	0	0			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	100	100			
cM capacity (veh/h)	591	1081	1614			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	11	381	381
Volume Left	11	0	0
Volume Right	0	0	0
cSH	591	1700	1700
Volume to Capacity	0.02	0.22	0.22
Queue Length 95th (ft)	1	0	0
Control Delay (s)	11.2	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.2	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	29.0%	ICU Level of Service	A
Analysis Period (min)	15		

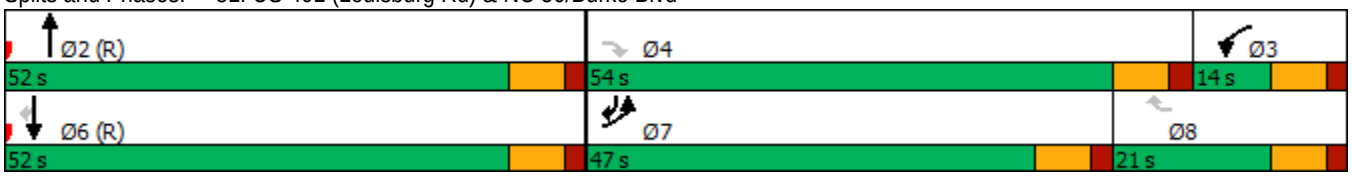


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	516	0	209	32	0	75	0	698	90	0	488	618
Future Volume (vph)	516	0	209	32	0	75	0	698	90	0	488	618
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	0		75	0		100	0		250
Storage Lanes	1		1	1		1	0		0	0		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850			0.850		0.983				0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3400	0	1568	1752	0	1568	0	3445	0	0	3505	1568
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	3400	0	1568	1752	0	1568	0	3445	0	0	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			35			45			45	
Link Distance (ft)		689			521			214			370	
Travel Time (s)		10.4			10.1			3.2			5.6	
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
Adj. Flow (vph)	573	0	232	36	0	83	0	776	100	0	542	687
Shared Lane Traffic (%)												
Lane Group Flow (vph)	573	0	232	36	0	83	0	876	0	0	542	687
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			24	
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		Perm	Prot		Perm		NA			NA	pm+ov
Protected Phases	7			3				2			6	7
Permitted Phases			4			8						6
Detector Phase	7		4	3		8		2			6	7
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0		7.0		12.0			12.0	7.0
Minimum Split (s)	14.0		14.0	14.0		20.0		20.0			20.0	14.0
Total Split (s)	47.0		54.0	14.0		21.0		52.0			52.0	47.0
Total Split (%)	39.2%		45.0%	11.7%		17.5%		43.3%			43.3%	39.2%
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	-2.0
Total Lost Time (s)	5.0		5.0	5.0		5.0		5.0			5.0	5.0
Lead/Lag	Lead		Lead	Lag		Lag						Lead
Lead-Lag Optimize?	Yes		Yes	Yes		Yes						Yes
Recall Mode	None		None	None		None		C-Max			C-Max	None
Act Effct Green (s)	29.6		31.0	15.1		13.7		64.5			64.5	100.1
Actuated g/C Ratio	0.25		0.26	0.13		0.11		0.54			0.54	0.83
v/c Ratio	0.68		0.57	0.16		0.47		0.47			0.29	0.53

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	44.9		45.1	45.9		57.4		20.7			18.0	6.0
Queue Delay	0.0		0.0	0.0		0.0		0.0			0.0	0.0
Total Delay	44.9		45.1	45.9		57.4		20.7			18.0	6.0
LOS	D		D	D		E		C			B	A
Approach Delay		44.9			53.9			20.7			11.3	
Approach LOS		D			D			C			B	
Queue Length 50th (ft)	208		167	25		61		224			122	151
Queue Length 95th (ft)	248		234	55		109		343			196	276
Internal Link Dist (ft)		609			441			134			290	
Turn Bay Length (ft)	350		150			75						250
Base Capacity (vph)	1190		640	220		215		1851			1883	1419
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	0.48		0.36	0.16		0.39		0.47			0.29	0.48

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 84 (70%), 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: 24.6		Intersection LOS: C	
Intersection Capacity Utilization 54.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 81: US 401 (Louisburg Rd) & NC 56/Burke Blvd



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	877	229	0
Future Volume (Veh/h)	0	0	0	877	229	0
Sign Control	Free			Free	Yield	
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	0	974	254	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	967					
pX, platoon unblocked						
vC, conflicting volume			0		487	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		487	0
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		50	100
cM capacity (veh/h)			1614		507	1081

Direction, Lane #	WB 1	WB 2	NB 1
Volume Total	487	487	254
Volume Left	0	0	254
Volume Right	0	0	0
cSH	1700	1700	507
Volume to Capacity	0.29	0.29	0.50
Queue Length 95th (ft)	0	0	69
Control Delay (s)	0.0	0.0	19.0
Lane LOS			C
Approach Delay (s)	0.0		19.0
Approach LOS			C

Intersection Summary			
Average Delay		3.9	
Intersection Capacity Utilization		48.4%	ICU Level of Service A
Analysis Period (min)		15	

Intersection: 11: US 401 (Louisburg Rd) & Clifton Pond Rd

Movement	EB	WB	NB
Directions Served	T	R	R
Maximum Queue (ft)	60	73	24
Average Queue (ft)	24	28	1
95th Queue (ft)	54	54	12
Link Distance (ft)	157	920	145
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: US 401 (Louisburg Rd) & Flat Rock Church Rd

Movement	EB	WB	SB
Directions Served	R	T	R
Maximum Queue (ft)	88	69	20
Average Queue (ft)	37	32	2
95th Queue (ft)	69	60	11
Link Distance (ft)	857	156	142
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 13: US 401 (Louisburg Rd) & Clifton Pond Rd U-Turn

Movement	WB
Directions Served	L
Maximum Queue (ft)	53
Average Queue (ft)	20
95th Queue (ft)	45
Link Distance (ft)	68
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 14: US 401 (Louisburg Rd) & Flat Rock Church Rd U-Turn

Movement	EB
Directions Served	L
Maximum Queue (ft)	70
Average Queue (ft)	33
95th Queue (ft)	62
Link Distance (ft)	143
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 21: US 401 (Louisburg Rd) & Huntsburg Dr

Movement	EB
Directions Served	R
Maximum Queue (ft)	48
Average Queue (ft)	14
95th Queue (ft)	38
Link Distance (ft)	797
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 22: US 401 (Louisburg Rd) & Huntsburg Rd NB U-Turn

Movement	WB
Directions Served	L
Maximum Queue (ft)	36
Average Queue (ft)	6
95th Queue (ft)	26
Link Distance (ft)	90
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 23: US 401 (Louisburg Rd) & Huntsburg Rd SB U-Turn

Movement	EB
Directions Served	L
Maximum Queue (ft)	32
Average Queue (ft)	5
95th Queue (ft)	24
Link Distance (ft)	135
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: US 401 (Louisburg Rd) & Airport Rd

Movement	NW
Directions Served	R
Maximum Queue (ft)	48
Average Queue (ft)	12
95th Queue (ft)	34
Link Distance (ft)	926
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 32: US 401 (Louisburg Rd) & Airport Rd NB U-Turn

Movement	WB
Directions Served	L
Maximum Queue (ft)	15
Average Queue (ft)	1
95th Queue (ft)	9
Link Distance (ft)	98
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 33: US 401 (Louisburg Rd) & Airport Rd SB U-Turn

Movement	EB
Directions Served	L
Maximum Queue (ft)	31
Average Queue (ft)	4
95th Queue (ft)	21
Link Distance (ft)	96
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 41: US 401 (Louisburg Rd) & Bennette Perry Rd

Movement	WB
Directions Served	R
Maximum Queue (ft)	27
Average Queue (ft)	4
95th Queue (ft)	16
Link Distance (ft)	686
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 42: US 401 (Louisburg Rd) & Bennette Perry Rd NB U-Turn

Movement	WB
Directions Served	L
Maximum Queue (ft)	19
Average Queue (ft)	1
95th Queue (ft)	8
Link Distance (ft)	80
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 43: US 401 (Louisburg Rd) & Bennette Perry Rd SB U-Turn

Movement	EB
Directions Served	L
Maximum Queue (ft)	18
Average Queue (ft)	1
95th Queue (ft)	10
Link Distance (ft)	96
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 51: US 401 (Louisburg Rd) & EF Cottrell Rd

Movement	EB	WB	NB
Directions Served	T	R	TR
Maximum Queue (ft)	42	67	4
Average Queue (ft)	10	25	0
95th Queue (ft)	35	49	3
Link Distance (ft)	251	609	137
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 52: US 401 (Louisburg Rd) & EF Cottrell Rd

Movement	EB	WB	SB
Directions Served	R	T	TR
Maximum Queue (ft)	60	45	3
Average Queue (ft)	21	11	0
95th Queue (ft)	43	34	2
Link Distance (ft)	828	221	165
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 53: US 401 (Louisburg Rd) & EF Cottrell Rd NB U-Turn

Movement	WB
Directions Served	L
Maximum Queue (ft)	51
Average Queue (ft)	14
95th Queue (ft)	40
Link Distance (ft)	64
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 54: US 401 (Louisburg Rd) & EF Cottrell Rd SB U-Turn

Movement	EB
Directions Served	L
Maximum Queue (ft)	50
Average Queue (ft)	12
95th Queue (ft)	39
Link Distance (ft)	113
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 61: US 401 (Louisburg Rd) & Retail Way

Movement	EB	WB	SB	SB	SB
Directions Served	R	T	T	T	R
Maximum Queue (ft)	143	106	99	95	61
Average Queue (ft)	64	48	38	34	11
95th Queue (ft)	122	92	79	79	40
Link Distance (ft)	397	112	193	193	
Upstream Blk Time (%)		0			
Queuing Penalty (veh)		0			
Storage Bay Dist (ft)					150
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 62: US 401 (Louisburg Rd)

Movement	EB
Directions Served	L
Maximum Queue (ft)	47
Average Queue (ft)	13
95th Queue (ft)	39
Link Distance (ft)	63
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 71: US 401 (Louisburg Rd) & Fox Park Rd

Movement	EB	WB	NB
Directions Served	LT	R	TR
Maximum Queue (ft)	118	68	14
Average Queue (ft)	48	32	1
95th Queue (ft)	92	55	7
Link Distance (ft)	117	471	111
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 72: US 401 (Louisburg Rd) & Driveway

Movement	EB	WB
Directions Served	R	T
Maximum Queue (ft)	57	31
Average Queue (ft)	16	2
95th Queue (ft)	45	15
Link Distance (ft)	273	124
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 73: US 401 (Louisburg Rd)

Movement	EB
Directions Served	L
Maximum Queue (ft)	25
Average Queue (ft)	3
95th Queue (ft)	16
Link Distance (ft)	163
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 81: US 401 (Louisburg Rd) & NC 56/Burke Blvd

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	L	R	L	R	T	TR	T	T	R
Maximum Queue (ft)	325	372	250	145	123	208	207	234	204	225
Average Queue (ft)	158	206	134	41	61	157	159	132	98	116
95th Queue (ft)	262	308	240	117	114	221	219	209	176	197
Link Distance (ft)		626		468		141	141	293	293	
Upstream Blk Time (%)						17	18	0		0
Queuing Penalty (veh)						67	72	0		0
Storage Bay Dist (ft)	350		150		75					250
Storage Blk Time (%)	0	22	4	5	11				0	0
Queuing Penalty (veh)	0	102	22	4	3				0	0

Intersection: 82: US 401 (Louisburg Rd)

Movement	NB
Directions Served	L
Maximum Queue (ft)	163
Average Queue (ft)	75
95th Queue (ft)	142
Link Distance (ft)	95
Upstream Blk Time (%)	5
Queuing Penalty (veh)	11
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 282

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