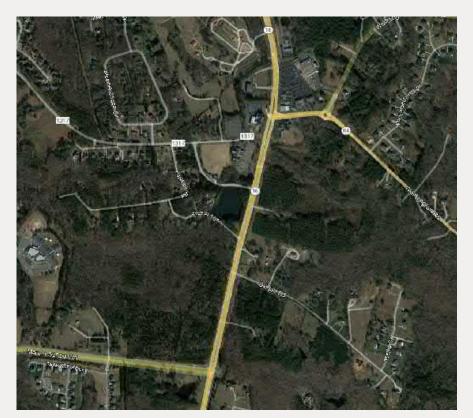
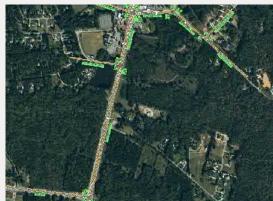
# **RAMEY KEMP ASSOCIATES**

# TOGETHER WE ARE LIMITLESS







Weddington Green **Traffic Impact Analysis Weddington, North Carolina** 



# TRAFFIC IMPACT ANALYSIS

**FOR** 

# WEDDINGTON GREEN

**LOCATED** 

IN

# WEDDINGTON, NORTH CAROLINA

Prepared For: Provident Bayard, LLC 6707 Fairview Road, Ste. B Charlotte, NC 28210

Prepared By:
Ramey Kemp & Associates, Inc.
8210 University Executive Park Drive, Suite 220
Charlotte, NC 28262
License #C-0910

JANUARY 2022

SEAL O36792

NGINEER WITH CAROLLING

NOREW EANITY

Thateur Lage

1-31-2022

RKA Project No. 21675

Prepared By: GWH

Reviewed By: <u>JAE</u>

# TRAFFIC IMPACT ANALYSIS WEDDINGTON GREEN WEDDINGTON, NORTH CAROLINA

## **EXECUTIVE SUMMARY**

# 1. Development Overview

A Traffic Impact Analysis (TIA) was conducted for the proposed Weddington Green mixed-use development in accordance with the North Carolina Department of Transportation (NCDOT) capacity analysis guidelines. The proposed development is to be located south of Weddington Road and east of Providence Road in Weddington, North Carolina.

The proposed development, anticipated to be completed in 2027, is assumed to consist of the following uses:

- 75 single family homes
- 71 townhomes
- 160 senior adult housing units
- 41,500 square feet of general office
- 27,300 square feet of medical-dental office
- 28,800 square feet of shopping center
- 26,000 square feet of shopping center
- 14,000 square feet of drinking place

Site access is proposed via two full movement driveways along Weddington Road and one full movement driveway along Providence Road. Access A will form the southern leg of the existing intersection of Weddington Road and Wheatberry Hill Drive. Access B will form the southern leg of the existing intersection of Weddington Road and Weddington-Matthews Road. Access C will form the eastern leg of the existing intersection of Providence Road and Lenny Stadler Way.



The study analyzes traffic conditions during the weekday AM and PM peak hours for the following scenarios:

- 2021 Existing Traffic Conditions
- 2027 No-Build Traffic Conditions
- 2027 Build Traffic Conditions
- 2027 Build Traffic Conditions + Improvements
- 2027 No-Build Traffic Conditions with U-5769
- 2027 Build Traffic Conditions with U-5769
- 2027 Build Traffic Conditions with U-5769 + Improvements
- 2040 No-Build Traffic Conditions
- 2040 Build Traffic Conditions
- 2040 Build Traffic Conditions + Improvements

# 2. Existing Traffic Conditions

The study area for the TIA was determined through coordination with NCDOT and the Town of Weddington (Town) and consists of the following existing intersections:

- Weddington Road and Wheatberry Hill Drive
- Weddington Road and Weddington-Matthews Road
- Providence Road and Weddington Road
- Providence Road and Lenny Stadler Way
- Providence Road and Rea Road

Existing peak hour traffic volumes were determined based on traffic counts conducted at the study intersections listed below in December of 2021 during a typical weekday AM (7:00 AM – 9:00 AM) and PM (4:00 PM – 6:00 PM) peak periods:

- Weddington Road and Wheatberry Hill Drive
- Weddington Road and Weddington-Matthews Road
- Providence Road and Weddington Road
- Providence Road and Lenny Stadler Way
- Providence Road and Rea Road



Weekday AM and PM traffic volumes were balanced between study intersections, where appropriate.

# 3. Site Trip Generation

The proposed development is assumed to consist of 75 single family homes, 71 townhomes, 160 senior adult housing units, 41,500 square feet of general office, 27,300 square feet of medical-dental office, 28,800 square feet of shopping center, 26,000 square feet of shopping center, and 14,000 square feet of drinking place. Average weekday daily, AM peak hour, and PM peak hour trips for the proposed development were estimated using methodology contained within the ITE *Trip Generation Manual*, 10th Edition. Table E-1 provides a summary of the trip generation potential for the site.



**Table E-1: Trip Generation Summary** 

Land Use (ITE Code)	Intensity	Daily Traffic (vpd)	AM F Hour (vp	Weekday AM Peak Hour Trips (vph)		Weekday PM Peak Hour Trips (vph)	
			Enter	Exit	Enter	Exit	
Single Family Homes (210)	75 DU	798	14	44	48	29	
Townhomes (220)	71 DU	496	7	27	27	17	
Senior Adult Housing-Attached (252)	160 DU	618	11	21	23	18	
General Office Space (710)	41,500 s.f.	452	67	10	20	91	
Medical-Dental Office Building (720)	27,300 s.f.	950	59	17	26	68	
Shopping Center (820)	28,800 s.f.	2,580	103	63	104	112	
Shopping Center (820)	26,000 s.f.	2,406	102	63	96	105	
Drinking Place (925)	14,000 s.f.	954*	0	0	105	54	
Total Trips	Total Trips 9,254		363	245	449	494	
Internal Capture		-16	-16	-123	-124		
Total External Trips		347	229	326	370		
Pass-By Trips: Shopping Center (34% PM)				-54	-54		
Total Primary Trips		347	229	272	316		

<sup>\*</sup>The weekday daily trips were estimated by multiplying the hours of operation by the total weekday PM peak hour trips.

It is estimated that the proposed development will generate approximately 9,254 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 608 trips (363 entering and 245 exiting) will occur during the weekday AM peak hour and 943 trips (449 entering and 494 exiting) will occur during the weekday PM peak hour.



# RAMEY KEMP ASSOCIATES

Internal capture of trips between the office, residential, and retail uses was considered in this study. Internal capture is the consideration for trips that will be made within the site between different land uses, so the vehicle technically never leaves the internal site but can still be considered as a trip to that specific land use. Internal capture typically only considers trips between residential, office, and retail/restaurant land uses. Based on NCHRP Report 684 methodology, a weekday AM peak hour internal capture of 5% and a weekday PM peak hour internal capture rate of 26% was applied to the total trips. The internal capture reductions are expected to account for approximately 32 trips (16 entering and 16 exiting) during the weekday AM peak hour and 247 trips (123 entering and 124 exiting) during the weekday PM peak hour.

Pass-by trips were also taken into consideration in this study. Pass-by trips are made by the traffic already using the adjacent roadway, entering the site as an intermediate stop on their way to another destination. Pass-by percentages are applied to site trips after adjustments for internal capture. Pass-by trips are expected to account for approximately 108 trips (54 entering and 54 exiting) during the weekday PM peak hour. It should be noted that the pass-by trips were balanced, as it is likely that these trips would enter and exit in the same hour.

The total primary site trips are the calculated site trips after the reduction for internal capture and pass-by trips. Primary site trips are expected to generate approximately 576 trips (347 entering and 229 exiting) during the weekday AM peak hour and 588 trips (272 entering and 316 exiting) during the weekday PM peak hour.



### 4. Future Traffic Conditions

Through coordination with NCDOT and the Town, it was determined that an annual growth rate of 2.5% would be used to generate 2027 No-Build weekday AM and PM peak hour traffic volumes. Based on coordination with NCDOT and the Town, it was determined there were no adjacent developments to consider with this study.

Based on coordination with the NCDOT and the Town, it was determined that the roadway improvements associated with the NCDOT State Transportation Improvement Program (STIP) U-5769 and U-3467 should be considered in this study. STIP U-5769 is expected to widen Providence Road to multi-lanes and convert the existing intersection of Providence Road and Rea Road to a Reduced Conflict Intersection (RCI). STIP U-3467 is expected to extend Rea Road from Providence Road to Waxhaw-Indian Trail Road. Construction of U-5769 is expected to begin in 2027. Construction of U-3467 is expected to begin in 2029.

The 2040 No-Build peak hour traffic volumes were developed based on the U-5769 traffic forecast. Peak hour traffic volumes at intersections outside of the U-5769 area were developed by applying a 1.5% growth rate to the 2021 Existing traffic volumes.

# 5. Capacity Analysis Summary

The analysis considered weekday AM and PM peak hour traffic for 2021 Existing, 2027 No-Build, 2027 Build, 2027 Build – Improved, 2027 No-Build with U-5769, 2027 Build with U-5769 – Improved, 2040 No-Build, 2040 Build, and 2040 Build - Improved traffic conditions. Refer to Section 7 of the TIA for the capacity analysis summary performed at each study intersection.

#### 6. Recommendations

Based on the findings of this study, specific geometric and traffic control improvements have been identified at study intersections. The improvements are summarized below and are illustrated in Figures E-1 through E-3.



# Improvements by NCDOT STIP U-5769

# Providence Road and Rea Road

- Convert the existing signalized intersection of Providence Road and Rea Road to an RCI.
- Construct a signalized U-turn intersection north of Rea Road that provides dual northbound Providence Road U-turn lanes with 450 feet of storage and appropriate taper length.
- Construct a signalized U-turn intersection south of Rea Road that provides a southbound Providence Road U-turn lane with 500 feet of storage and appropriate taper length.
- Construct an additional southbound Providence Road through lane at the U-turn location south of Rea Road.

# **Improvements by NCDOT STIP U-3467**

- Construct dual northbound Providence Road right turn lanes at the Providence Road and Rea Road intersection. One right turn lane will be a drop lane, the other will provide 400 feet of storage and appropriate taper length.
- Construct dual through lanes and dual right turn lanes on the westbound approach of Providence Road and Rea Road. One right turn lane will be a drop lane, the other will provide 400 feet of storage and appropriate taper length.
- Construct a signalized U-turn intersection east of Providence Road that provides an eastbound Rea Road Extension U-turn lane with 550 feet of storage and appropriate taper length.
- Construct a signalized U-turn intersection west of Providence Road that provides a westbound Rea Road U-turn lane with 600 feet of storage and appropriate taper length.

# **Recommended Improvements by Developer**

2027 Build

Weddington Road and Wheatberry Hill Drive / Access A

 Construct Access A with one ingress and one egress lane (shared left-throughright).



- Construct an eastbound Weddington Road right turn lane with 100 feet of storage and appropriate taper length.
- Construct a westbound Weddington Road left turn lane with 100 feet of storage and appropriate taper length.
- Provide at least 100 feet of internal protected stem (IPS) length. It should be noted that no on street parking is recommended within the IPS.

# Weddington Road and Weddington Matthews Road / Access B

- Construct Access B with one ingress and one egress lane (shared left-through-right).
- Construct a westbound through-right lane with 125 feet of storage and appropriate taper length.
- Provide at least 130 feet of IPS. It should be noted that no on street parking is recommended within the IPS.

# Providence Road and Lenny Stadler Way / Access C

- Construct Access C with one ingress and two egress lanes (1 left-through and 1 right turn lane). Provide 125 feet of storage and appropriate taper length on the westbound right turn lane.
- Construct a southbound Providence Road left turn lane with 250 feet of storage and appropriate taper length.
- Construct a northbound Providence Road right turn lane with 100 feet of storage and appropriate taper length.
- Provide at least 225 feet of IPS. It should be noted that no on street parking is recommended within the IPS.

### 2027 Build with U-5769

# Providence Road and Lenny Stadler Way / Access C

- Construct a left-over intersection. Lenny Stadler Way and Access C will both have right-in, left-in, and right-out movements.
- Construct a southbound Providence Road left turn lane with 125 feet of storage and appropriate taper length.



- Construct a northbound Providence Road right turn lane with 100 feet of storage and appropriate taper length.
- Provide at least 225 feet of IPS. It should be noted that no on street parking is recommended within the IPS.

# Providence Road and Northbound U-turn

• Construct a northbound Providence Road U-turn lane with at least 300 feet of storage and appropriate taper length between 600-800 feet north of the intersection of Providence Road and Lenny Stadler Way / Access C.

# Providence Road and Southbound U-turn

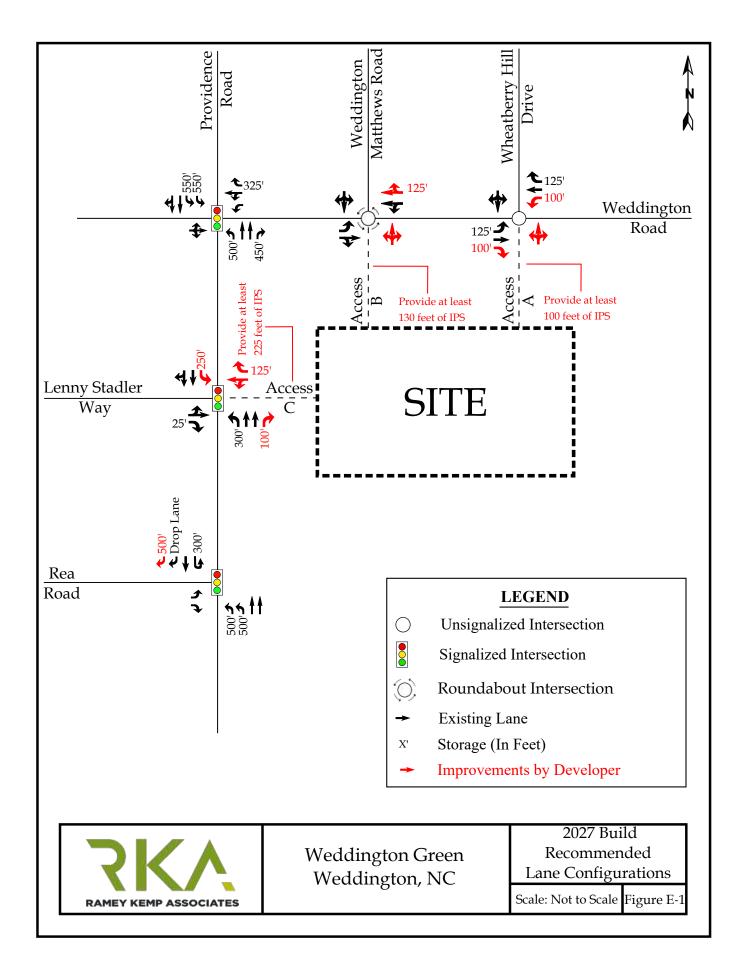
 Construct a southbound Providence Road U-turn lane with at least 150 feet of storage and appropriate taper length between 600-800 feet south of the intersection of Providence Road and Lenny Stadler Way / Access C.

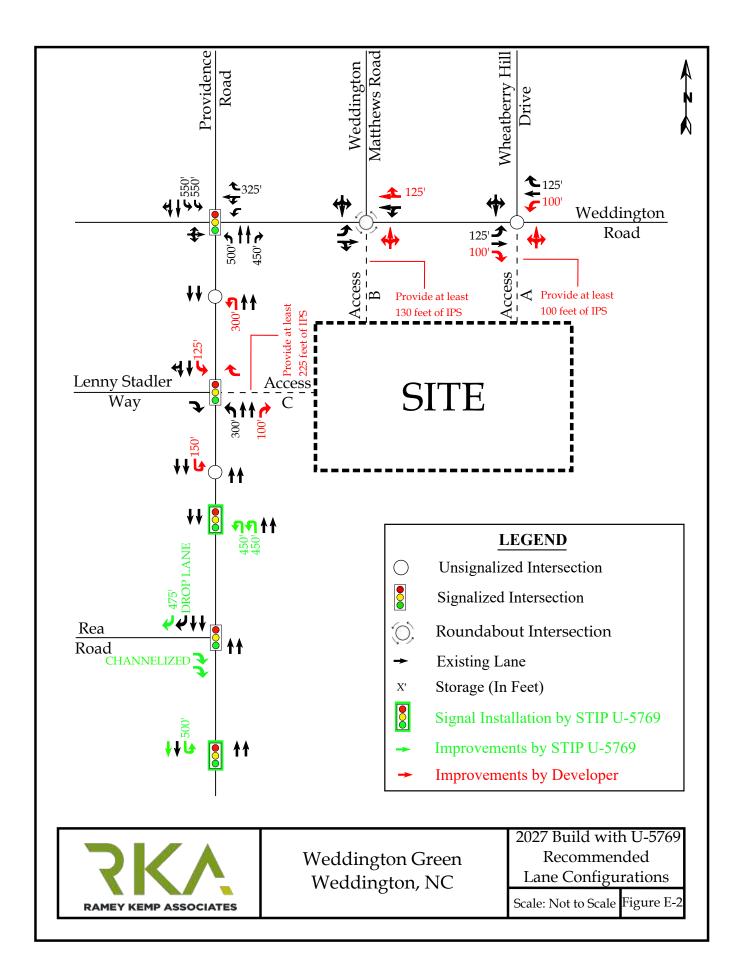
#### 2040 Build

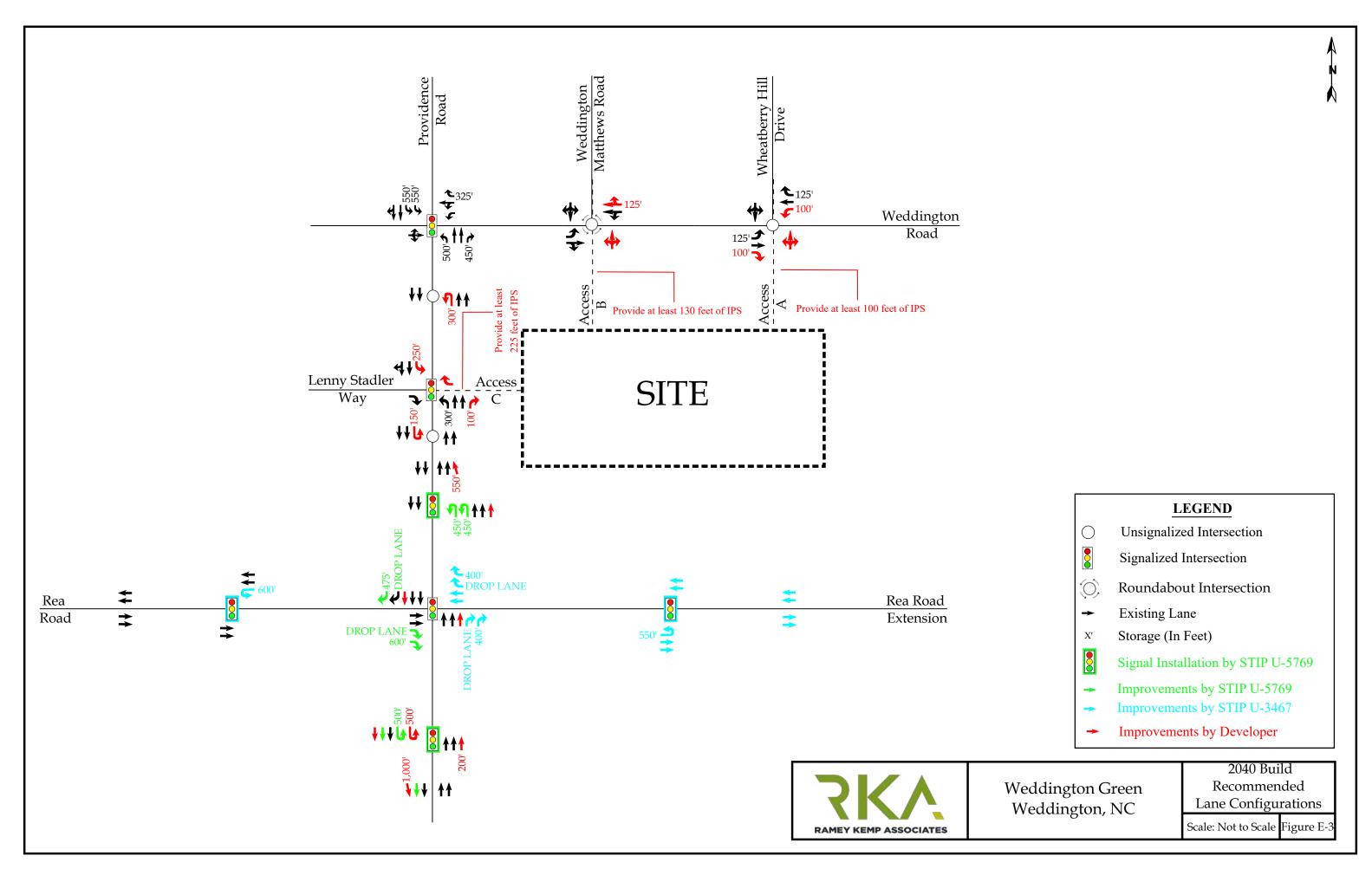
### Providence Road and Rea Road

- Construct an additional northbound Providence Road through lane that extends 200 feet before the U-turn location south of the Providence Road and Rea Road intersection. The through lane is recommended to drop approximately 550 feet past the U-turn location north of the Providence Road and Rea Road intersection.
- Construct an additional southbound Providence Road through lane that extends
  back to the U-turn location north of the Providence Road and Rea Road. The
  through lane is recommended to drop 1,000 feet past the U-turn location south of
  the Providence Road and Rea Road intersection.
- Construct an additional Providence Road U-turn lane that provides 500 feet of storage and appropriate taper length at the southbound U-turn location.









# **TABLE OF CONTENTS**

1. I	NTRODUCTION	5
1.1.S	Site Location and Study Area	6
1.2.P	Proposed Land Use and Site Access	6
1.3.A	Adjacent Land Uses	7
1.4.E	xisting Roadways	7
2. 2	2021 EXISTING PEAK HOUR CONDITIONS	12
2.1.2	2021 Existing Peak Hour Traffic Volumes	.12
2.2.A	Analysis of 2021 Existing Peak Hour Traffic Conditions	.12
3. 2	2027 NO-BUILD PEAK HOUR CONDITIONS	14
3.1.A	Ambient Traffic Growth	.14
3.2.A	Adjacent Development Traffic	.14
3.3.F	uture Roadway Improvements	.14
3.4.2	2027 No-Build Peak Hour Traffic Volumes	.15
3.5.A	Analysis of 2027 No-Build Peak Hour Traffic Conditions	.15
<b>4.</b> S	SITE TRIP GENERATION AND DISTRIBUTION	18
4.1.T	rip Generation	.18
4.2.S	Site Trip Distribution and Assignment	.20
5. 2	2027 BUILD TRAFFIC CONDITIONS	34
5.1.2	2027 Build Peak Hour Traffic Volumes	.34
5.2.A	Analysis of 2027 Build Peak Hour Traffic Conditions	. 34
6. T	TRAFFIC ANALYSIS PROCEDURE	37
6.1.A	Adjustments to Analysis Guidelines	.37
7. (	CAPACITY ANALYSIS	38
7.1.V	Veddington Road and Wheatberry Hill Drive / Access A	.38
7.2.V	Veddington Road and Weddington Matthews Road / Access B	.40
7.3.P	Providence Road and Weddington Road / Church Driveway	.42
7.4.P	Providence Road and Lenny Stadler Way / Access C	.44
7.5.P	Providence Road and Rea Road	.49
8. (	CONCLUSIONS	55
9. F	RECOMMENDATIONS	57



# **LIST OF FIGURES**

Figure 1 – Site Location Map	9
Figure 2 – Preliminary Site Plan	10
Figure 3 – 2021 Existing Lane Configurations	11
Figure 4 – 2021 Existing Peak Hour Traffic	13
Figure 5 – 2027 No-Build Peak Hour Traffic	16
Figure 6 – 2027 No-Build with U-5769 Peak Hour Traffic	17
Figure 7a – Proposed Site Residential Trip Distribution	22
Figure 7b – Proposed Site with U-5769 Residential Trip Distribution	23
Figure 8a – Proposed Site Commercial Trip Distribution	24
Figure 8b – Proposed Site with U-5769 Commercial Trip Distribution	25
Figure 9a – Proposed Site Residential Trip Assignment	26
Figure 9b – Proposed Site with U-5769 Residential Trip Assignment	27
Figure 10a – Proposed Site Commercial Trip Assignment	28
Figure 10b – Proposed Site with U-5769 Commercial Trip Assignment	29
Figure 11 – Proposed Site Pass-By Trip Distribution	30
Figure 12 – Proposed Site Pass-By Trip Assignment	31
Figure 13a – Proposed Site Total Trip Assignment	32
Figure 13b – Proposed Site with U-5769 Total Trip Assignment	33
Figure 14 – 2027 Build Peak Hour Traffic	35
Figure 15 – 2027 Build with U-5769 Peak Hour Traffic	36
Figure 16 – 2027 Build Recommended Lane Configurations	61
Figure 17 - 2027 Build with U-5769 Recommended Lane Configurations	62
Figure 18 – 2040 Build Recommended Lane Configurations	63



# **LIST OF TABLES**

Table 1: Existing Roadway Inventory	8
Table 2: Trip Generation Summary1	9
Table 3: Highway Capacity Manual – Levels-of-Service and Delay	7
Table 4: Analysis Summary of Weddington Rd and Wheatberry Hill Dr / Access3	9
Table 5: Weddington Road and Weddington Matthews Road / Access B4	-1
Table 6: Analysis Summary of Providence Road and Weddington Road4	.3
Table 7: Analysis Summary of Providence Rd and Lenny Stadler Wy / Access C .4	.5
Table 8: Analysis Summary of Providence Road and Lenny Stadler Way4	-6
Table 9: Analysis Summary of Providence Road and Access C4	.7
Table 10: Analysis Summary of Providence Road and Northbound U-turn4	8
Table 11: Analysis Summary of Providence Road and Southbound U-turn4	-8
Table 12: Analysis Summary of Providence Road and Rea Road5	1
Table 12: Analysis Summary of Providence Road and Rea Road - Continued5	2
Table 12: Analysis Summary of Providence Road and Rea Road - Continued5	3
Table 12: Analysis Summary of Providence Road and Rea Road - Continued 5	4



# **TECHNICAL APPENDIX**

Appendix A: Approved Scoping Documentation

Appendix B: Traffic Count Data

Appendix C: Signal Information

Appendix D: Future Roadway Improvements

Appendix E: Capacity Analysis Calculations and Turn Lane Warrants

Weddington Road and Wheatberry Hill Drive / Access A

Appendix F: Capacity Analysis Calculations

Weddington Road and Weddington-Matthews Road / Access B

Appendix G: Capacity Analysis Calculations

Providence Road and Weddington Road / Church Driveway

Appendix H: Capacity Analysis Calculations

Providence Road and Lenny Stadler Way / Access C

Appendix I: Capacity Analysis Calculations

Providence Road and Northbound / Southbound U-turn Locations

Appendix J: Capacity Analysis Calculations

Providence Road and Rea Road

Appendix K: SimTraffic Queuing Reports



# TRAFFIC IMPACT ANALYSIS WEDDINGTON GREEN WEDDINGTON, NORTH CAROLINA

### 1. INTRODUCTION

The contents of this report present the findings of the Traffic Impact Analysis (TIA) conducted for the proposed Weddington Green mixed-use development to be located south of Weddington Road and east of Providence Road in Weddington, North Carolina. The purpose of this study is to determine the potential impacts to the surrounding transportation system created by traffic generated by the proposed development, as well as recommend improvements to mitigate the impacts.

The proposed development, anticipated to be completed in 2027, is assumed to consist of the following uses:

- 75 single family homes
- 71 townhomes
- 160 senior adult housing units
- 41, 500 square feet of general office
- 27,300 square feet of medical-dental office
- 28,800 square feet of shopping center
- 26,000 square feet of shopping center
- 14,000 square feet of drinking place

The study analyzes traffic conditions during the weekday AM and PM peak hours for the following scenarios:

- 2021 Existing Traffic Conditions
- 2027 No-Build Traffic Conditions
- 2027 Build Traffic Conditions
- 2027 Build Traffic Conditions + Improvements
- 2027 No-Build Traffic Conditions with U-5769
- 2027 Build Traffic Conditions with U-5769



- 2027 Build Traffic Conditions with U-5769 + Improvements
- 2040 No-Build Traffic Conditions
- 2040 Build Traffic Conditions
- 2040 Build Traffic Conditions + Improvements

# 1.1. Site Location and Study Area

The development is proposed to be located south of Weddington Road and east of Providence Road in Weddington, North Carolina. Refer to Figure 1 for the site location map. The study area for the TIA was determined through coordination with the North Carolina Department of Transportation (NCDOT) and the Town of Weddington (Town) and consists of the following existing intersections:

- Weddington Road and Wheatberry Hill Drive
- Weddington Road and Weddington-Matthews Road
- Providence Road and Weddington Road
- Providence Road and Lenny Stadler Way
- Providence Road and Rea Road

Refer to Appendix A for the approved scoping documentation.

# 1.2. Proposed Land Use and Site Access

The proposed development, anticipated to be completed in 2027, is assumed to consist of the following uses:

- 75 single family homes
- 71 townhomes
- 160 senior adult housing units
- 41, 500 square feet of general office
- 27,300 square feet of medical-dental office
- 28,800 square feet of shopping center
- 26,000 square feet of shopping center
- 14,000 square feet of drinking place



These land uses are assumed at this time. Site access is proposed via two full movement driveways along Weddington Road and one full movement driveway along Providence Road. Access A will form the southern leg of the existing intersection of Weddington Road and Wheatberry Hill Drive. Access B will form the southern leg of the existing intersection of Weddington Road and Weddington-Matthews Road. Access C will form the eastern leg of the existing intersection of Providence Road and Lenny Stadler Way. Refer to Figure 2 for a copy of the preliminary site plan.

# 1.3. Adjacent Land Uses

The proposed development is located in an area consisting primarily of residential development.

# 1.4. Existing Roadways

Existing lane configurations (number of traffic lanes on each intersection approach), storage capacities, and other intersection and roadway information within the study area are shown in Figure 3. Table 1 provides a summary of this information, as well.

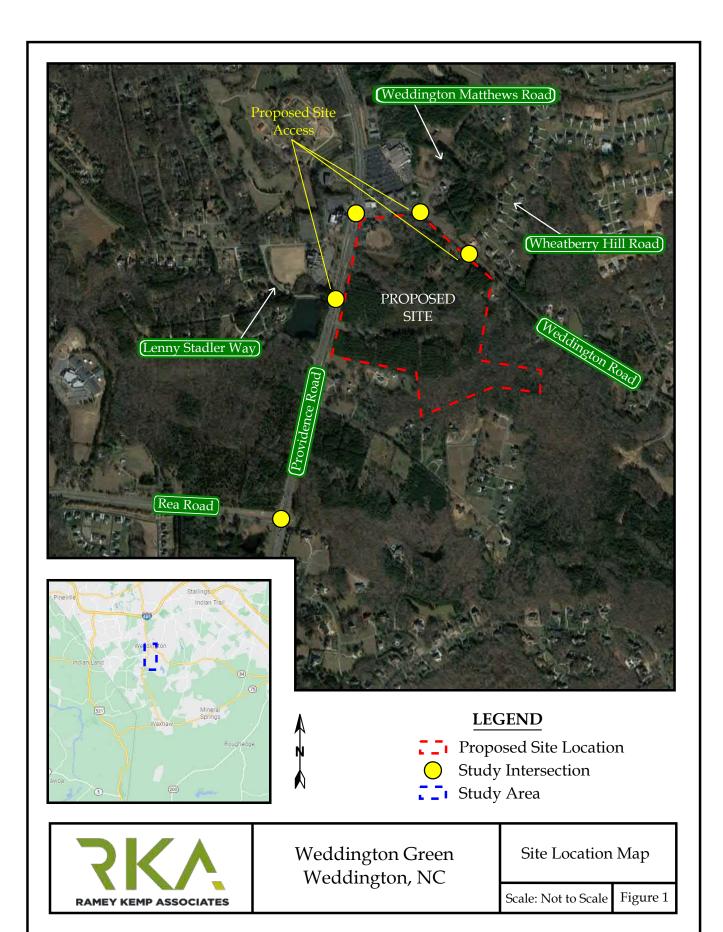


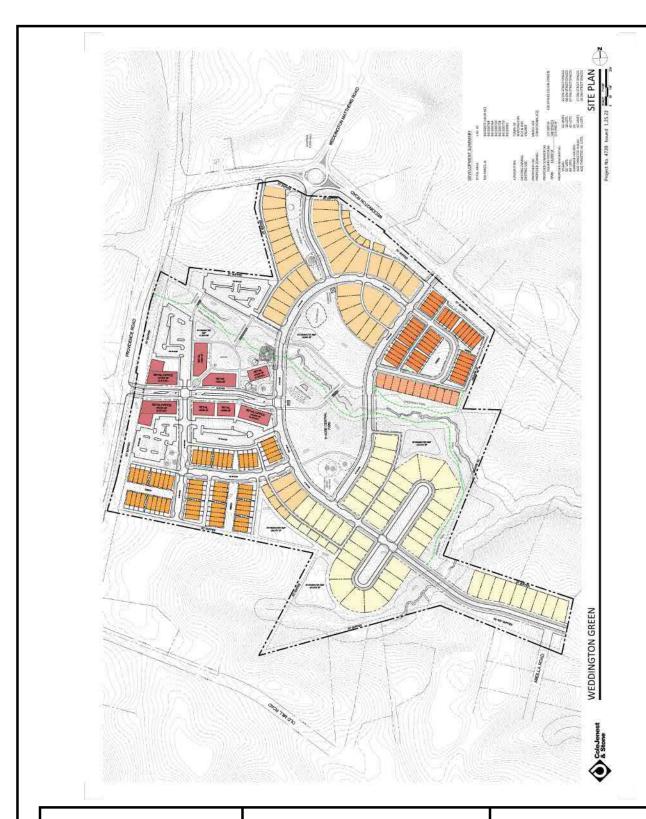
**Table 1: Existing Roadway Inventory** 

Road Name	Route Number	Typical Cross Section	Speed Limit	Maintained By	2018 AADT (vpd)
Providence Road	NC 16	4-lane divided/undivided	35 mph/ 45 mph	NCDOT	32,500
Weddington Road	NC 84	2-lane undivided	35 mph	NCDOT	23,000*
Weddington- Matthews Road	SR 1344	2-lane undivided	45 mph	NCDOT	4,800
Rea Road	SR 1316	4-lane divided	45 mph	NCDOT	16,500
Wheatberry Hill Drive	N/A	2-lane undivided	25 mph (assumed)	Town	N/A
Lenny Stadler	N/A	2-lane undivided	35 mph (assumed)	Town	N/A

<sup>\*</sup>ADT from 2019







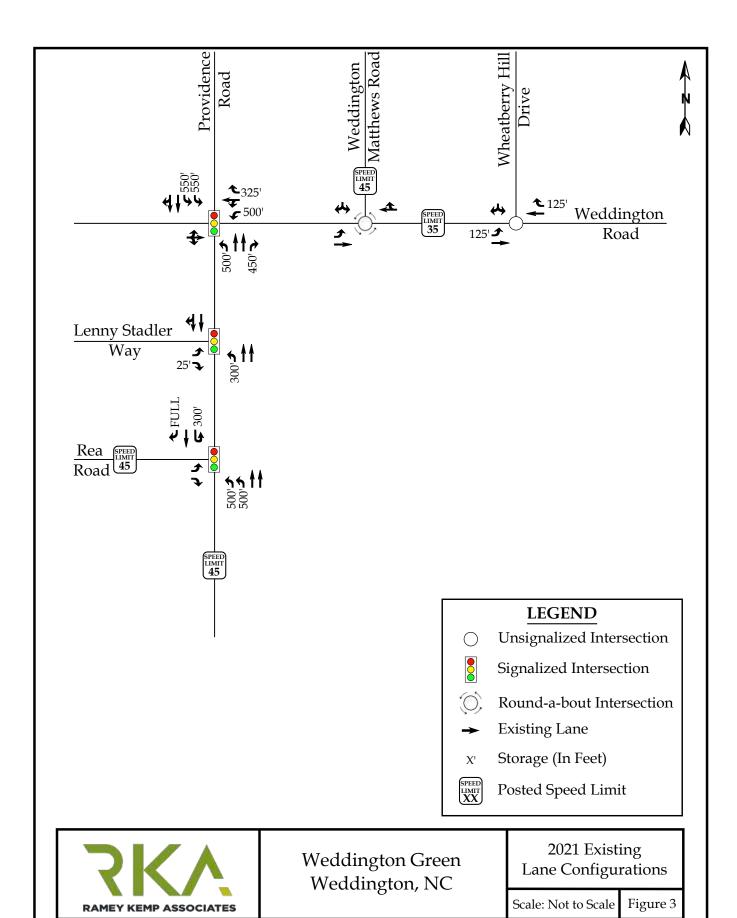


Weddington Green Weddington, NC

Preliminary Site Plan

Scale: Not to Scale

Figure 2



### 2. 2021 EXISTING PEAK HOUR CONDITIONS

# 2.1. 2021 Existing Peak Hour Traffic Volumes

Existing peak hour traffic volumes were determined based on traffic counts conducted at the study intersections listed below, in December of 2021 by Burns Service, Inc. during a typical weekday AM (7:00 AM – 9:00 AM) and PM (4:00 PM – 6:00 PM) peak periods:

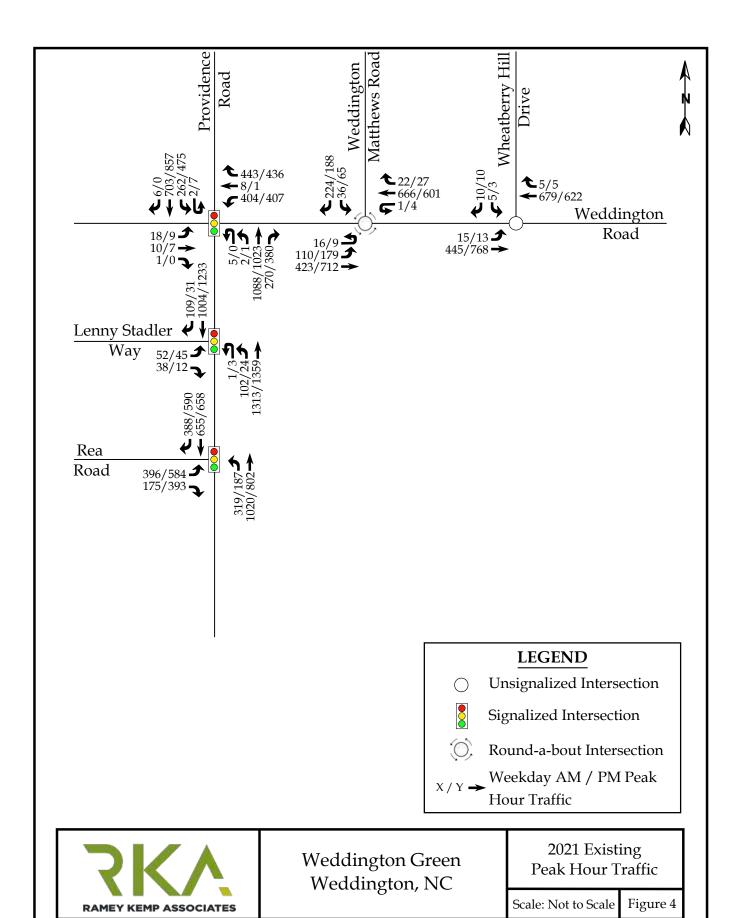
- Weddington Road and Wheatberry Hill Drive
- Weddington Road and Weddington-Matthews Road
- Providence Road and Weddington Road
- Providence Road and Lenny Stadler Way
- Providence Road and Rea Road

Weekday AM and PM traffic volumes were balanced between study intersections, where appropriate. Refer to Figure 4 for 2021 Existing weekday AM and PM peak hour traffic volumes. A copy of the count data is located in Appendix B of this report.

# 2.2. Analysis of 2021 Existing Peak Hour Traffic Conditions

The 2021 Existing weekday AM and PM peak hour traffic volumes were analyzed to determine the current levels of service at the study intersections under existing roadway conditions. Signal information was obtained from NCDOT and is included in Appendix C. The results of the analysis are presented in Section 7 of this report.





### 3. 2027 NO-BUILD PEAK HOUR CONDITIONS

In order to account for growth of traffic and subsequent traffic conditions at a future year, nobuild traffic projections are needed. No-build traffic is the component of traffic due to the growth of the community and surrounding area that is anticipated to occur regardless of whether or not the proposed development is constructed. No-build traffic is comprised of existing traffic growth within the study area and additional traffic created as a result of adjacent approved developments.

#### 3.1. Ambient Traffic Growth

Through coordination with NCDOT and the Town, it was determined that an annual growth rate of 2.5% would be used to generate 2027 No-Build weekday AM and PM peak hour traffic volumes.

# 3.2. Adjacent Development Traffic

Based on coordination with the NCDOT and the Town, it was determined there were no adjacent developments to consider with this study.

# 3.3. Future Roadway Improvements

Based on coordination with the NCDOT and the Town, it was determined that the roadway improvements associated with the NCDOT State Transportation Improvement Program (STIP) U-5769 and U-3467 should be considered in this study. STIP U-5769 is expected to widen Providence Road to multi-lanes and convert the existing intersection of Providence Road and Rea Road to a Reduced Conflict Intersection (RCI). STIP U-3467 is expected to extend Rea Road from Providence Road to Waxhaw-Indian Trail Road. Construction of U-5769 is expected to begin in 2027. Construction of U-3467 is expected to begin in 2029.

The 2040 No-Build peak hour traffic volumes were developed based on the U-5769 traffic forecast. Peak hour traffic volumes at intersections outside of the U-5769 area were developed by applying a 1.5% growth rate to the 2021 Existing traffic volumes.



Refer to Appendix D for the roadway improvement plans, traffic forecast, peak hour traffic volumes, and lane configuration figures.

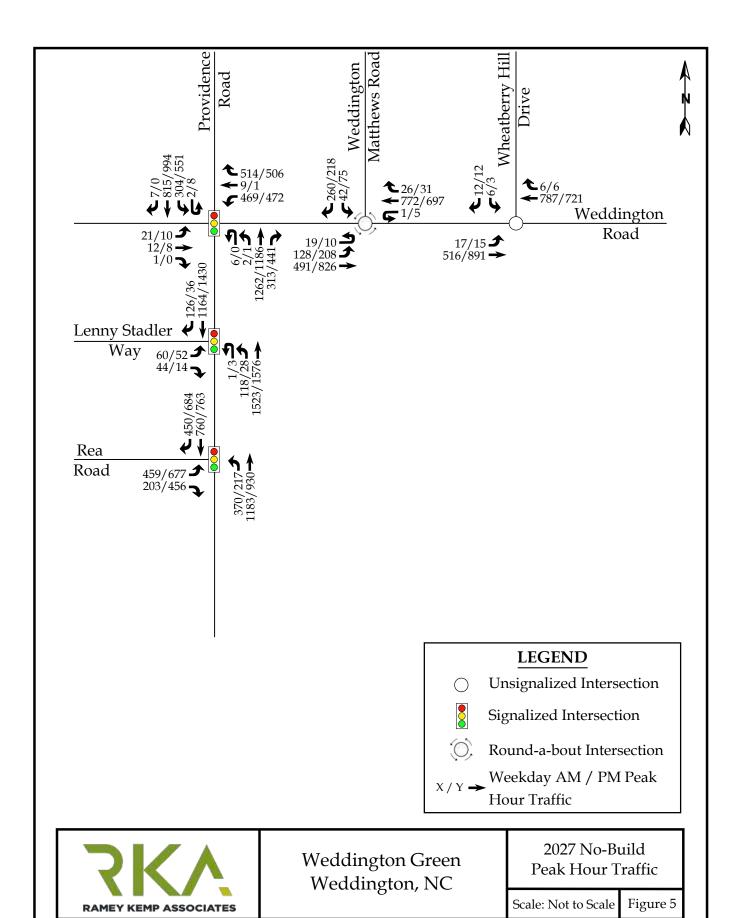
#### 3.4. 2027 No-Build Peak Hour Traffic Volumes

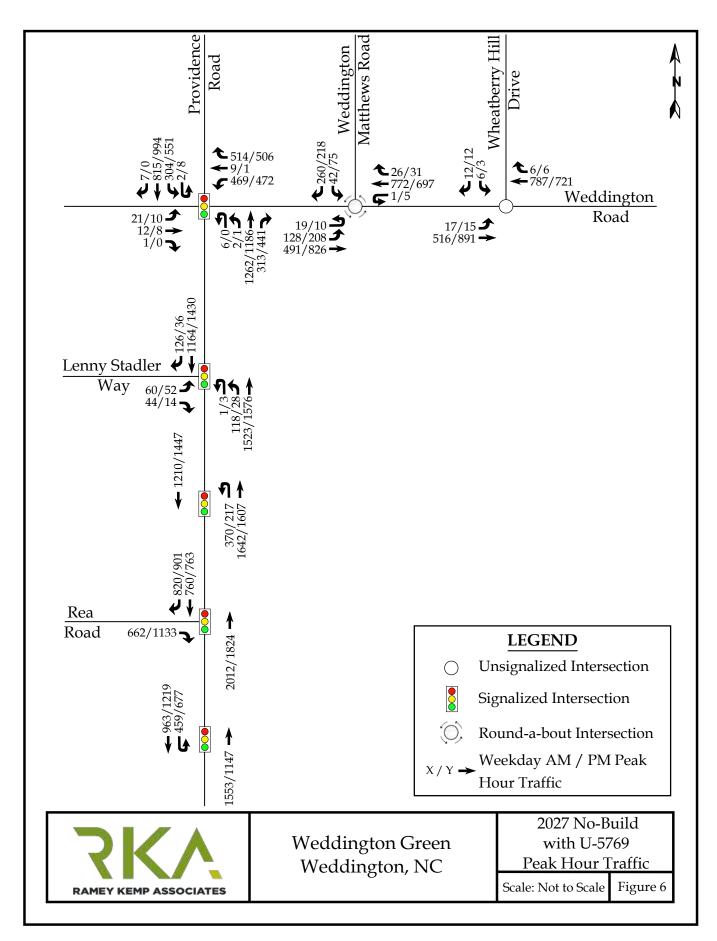
The 2027 No-Build traffic volumes were determined by projecting the 2021 Existing peak hour traffic to the year 2027. Refer to Figure 5 for an illustration of the 2027 No-Build peak hour traffic volumes at the study intersections. Refer to Figure 6 for an illustration of the 2027 No-Build with U-5769 roadway improvements peak hour traffic volumes at the study intersections.

# 3.5. Analysis of 2027 No-Build Peak Hour Traffic Conditions

The 2027 No-Build AM and PM peak hour traffic volumes at the study intersections were analyzed with future geometric roadway conditions and traffic control. For analysis purposes, the U-turn volumes at the signalized intersections along Providence Road, were added to the left-turn volumes due to the U-turn volumes being minimal. This eliminated any conflicts with permitted overlap phasing of right turn movements. The analysis results are presented in Section 7 of this report.







# 4. SITE TRIP GENERATION AND DISTRIBUTION

# 4.1. Trip Generation

The proposed development is assumed to consist of 75 single family homes, 71 townhomes, 160 senior adult housing units, 41,500 square feet of general office, 27,300 square feet of medical-dental office, 28,800 square feet of shopping center, 26,000 square feet of shopping center, and 14,000 square feet of drinking place. Average weekday daily, AM peak hour, and PM peak hour trips for the proposed development were estimated using methodology contained within the ITE *Trip Generation Manual*, 10th Edition. Table 2 provides a summary of the trip generation potential for the site.



**Table 2: Trip Generation Summary** 

Land Use (ITE Code)	Intensity	Daily Traffic (vpd)	Weekday AM Peak Hour Trips (vph)		Weekday PM Peak Hour Trips (vph)	
			Enter	Exit	Enter	Exit
Single Family Homes (210)	75 DU	798	14	44	48	29
Townhomes (220)	71 DU	496	7	27	27	17
Senior Adult Housing-Attached (252)	160 DU	618	11	21	23	18
General Office Space (710)	41,500 s.f.	452	67	10	20	91
Medical-Dental Office Building (720)	27,300 s.f.	950	59	17	26	68
Shopping Center (820)	28,800 s.f.	2,580	103	63	104	112
Shopping Center (820)	26,000 s.f.	2,406	102	63	96	105
Drinking Place (925)	14,000 s.f.	954*	0	0	105	54
Total Trips	Total Trips 9,254		363	245	449	494
Internal Capture		-16	-16	-123	-124	
Total External Trips		347	229	326	370	
Pass-By Trips: Shopping Center (34% PM)				-54	-54	
Total Primary Trips		347	229	272	316	

<sup>\*</sup>The weekday daily trips were estimated by multiplying the hours of operation by the total weekday PM peak hour trips.

It is estimated that the proposed development will generate approximately 9,254 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 608 trips (363 entering and 245 exiting) will occur during the weekday AM peak hour and 943 trips (449 entering and 494 exiting) will occur during the weekday PM peak hour.



Internal capture of trips between the office, residential, and retail uses was considered in this study. Internal capture is the consideration for trips that will be made within the site between different land uses, so the vehicle technically never leaves the internal site but can still be considered as a trip to that specific land use. Internal capture typically only considers trips between residential, office, and retail/restaurant land uses. Based on NCHRP Report 684 methodology, a weekday AM peak hour internal capture of 5% and a weekday PM peak hour internal capture rate of 26% was applied to the total trips. The internal capture reductions are expected to account for approximately 32 trips (16 entering and 16 exiting) during the weekday AM peak hour and 247 trips (123 entering and 124 exiting) during the weekday PM peak hour.

Pass-by trips were also taken into consideration in this study. Pass-by trips are made by the traffic already using the adjacent roadway, entering the site as an intermediate stop on their way to another destination. Pass-by percentages are applied to site trips after adjustments for internal capture. Pass-by trips are expected to account for approximately 108 trips (54 entering and 54 exiting) during the weekday PM peak hour. It should be noted that the pass-by trips were balanced, as it is likely that these trips would enter and exit in the same hour.

The total primary site trips are the calculated site trips after the reduction for internal capture and pass-by trips. Primary site trips are expected to generate approximately 576 trips (347 entering and 229 exiting) during the weekday AM peak hour and 588 trips (272 entering and 316 exiting) during the weekday PM peak hour.

# 4.2. Site Trip Distribution and Assignment

Trip distribution percentages used in assigning site traffic for this development were estimated based on a combination of existing traffic patterns, population centers adjacent to the study area, and engineering judgment.

It is estimated that the residential site trips will be regionally distributed as follows:

- 50% to/from the north via Providence Road
- 10% to/from the south via Providence Road



- 20% to/from the east via Weddington Road
- 20% to/from the west via Read Road

It is estimated that the commercial site trips will be regionally distributed as follows:

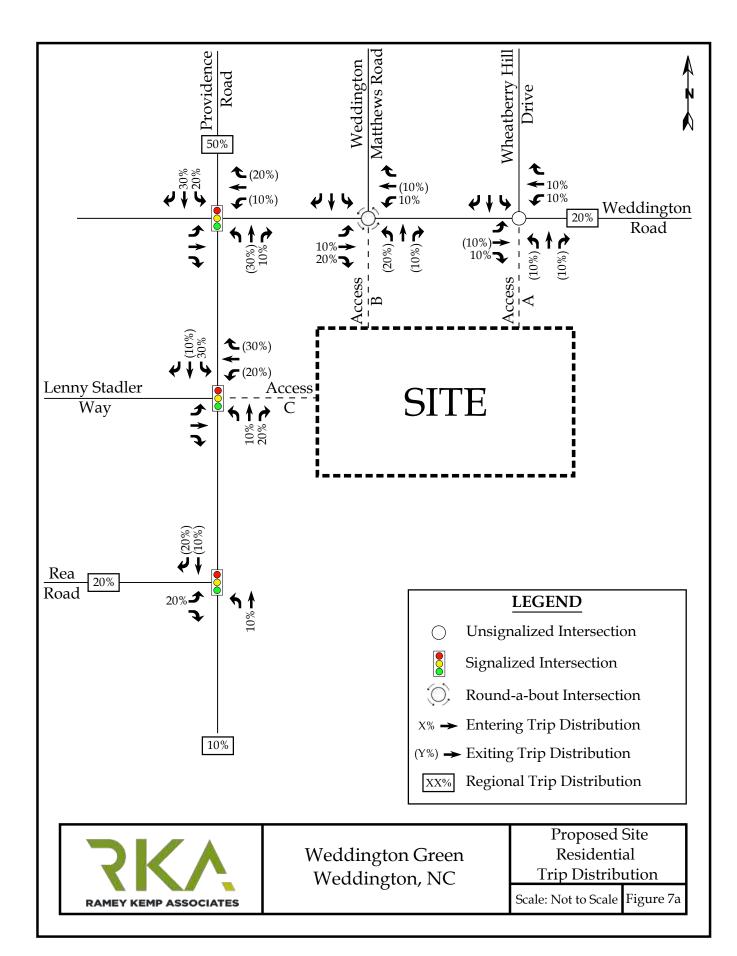
- 30% to/from the north via Providence Road
- 30% to/from the south via Providence Road
- 20% to/from the east via Weddington Road
- 15% to/from the west via Read Road
- 5% to/from the west via Lenny Stadler Way

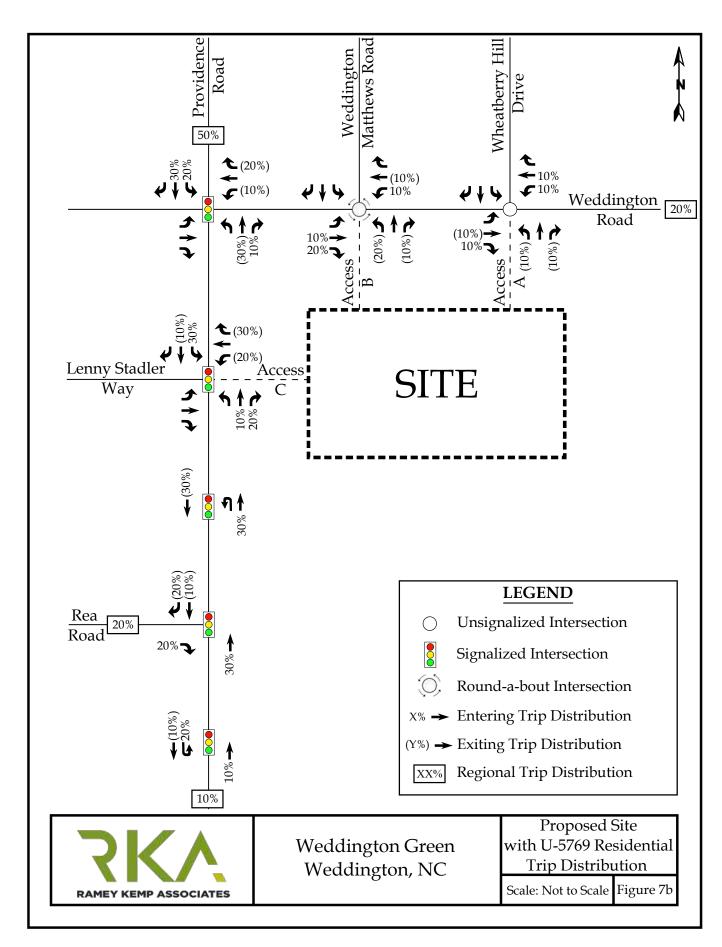
Refer to Figure 7a for the residential site trip distribution percentages and Figure 7b for the residential site trip distribution percentages with U-5769. Refer to Figure 8a for the commercial site trip distribution percentages and Figure 8b for the commercial site trip distribution percentages with U-5769. Refer to Figure 9a for the residential site trip assignment and Figure 9b for the residential site trip assignment with U-5769. Refer to Figure 10a for the commercial site trip assignment, and Figure 10b for the commercial site trip assignment with U-5769.

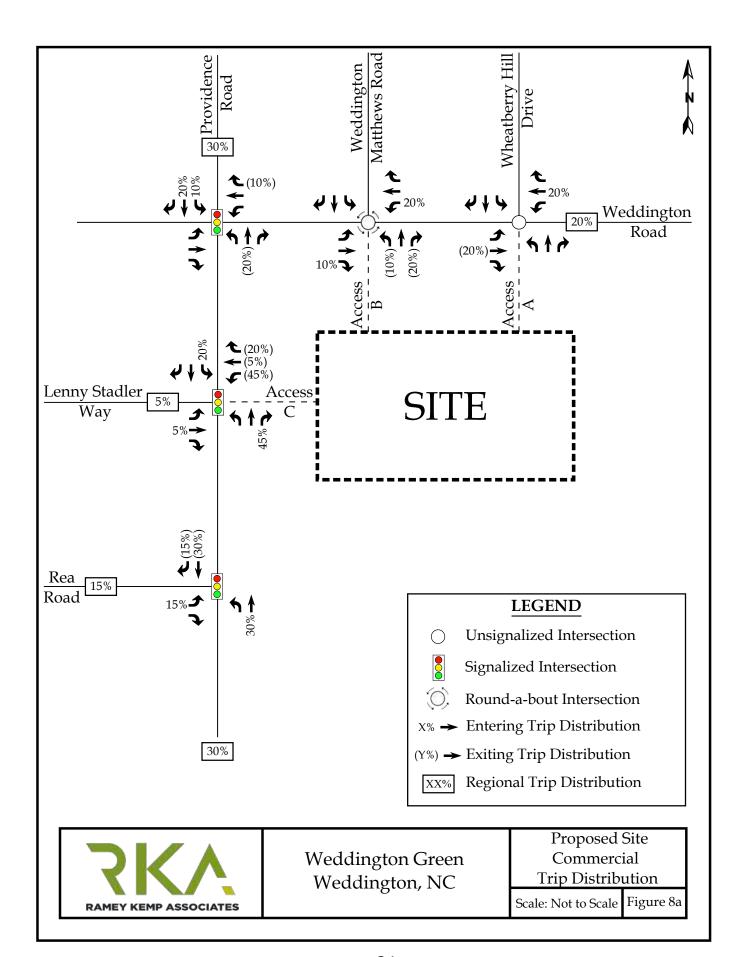
The pass-by site trips were distributed based on existing traffic patterns with consideration given to the proposed driveway access and site layout. Refer to Figure 11 for the pass-by site trip distribution. Pass-by site trips are shown in Figure 12.

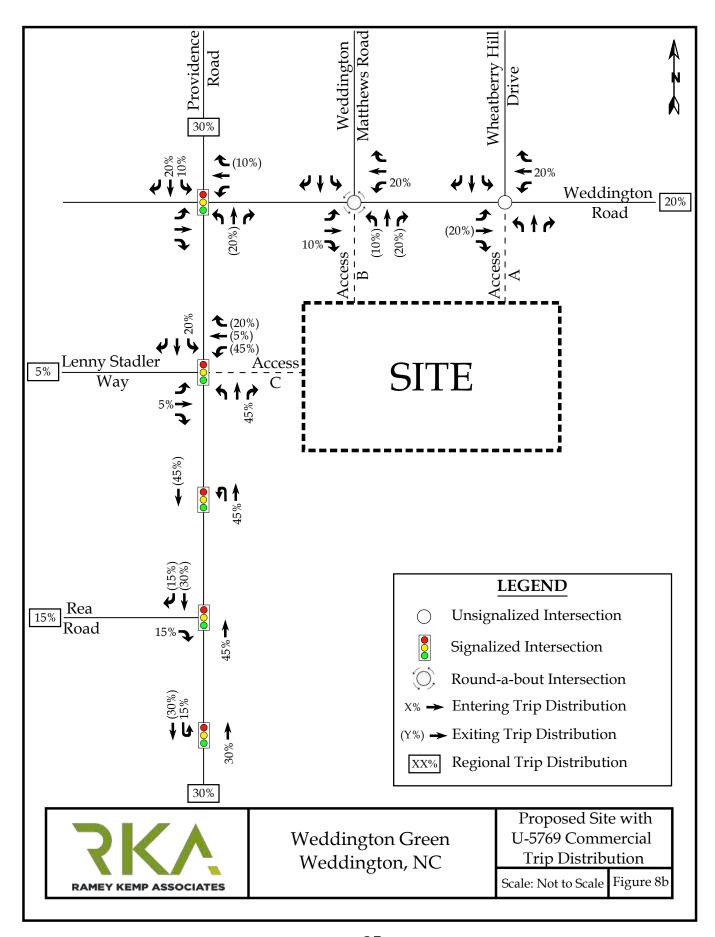
The total site trips were determined by adding the primary site trips (residential and commercial) and the pass-by site trips. Refer to Figure 13a for the total peak hour site trips at the study intersections. Refer to Figure 13b for the total peak hour site trips with U-5769.

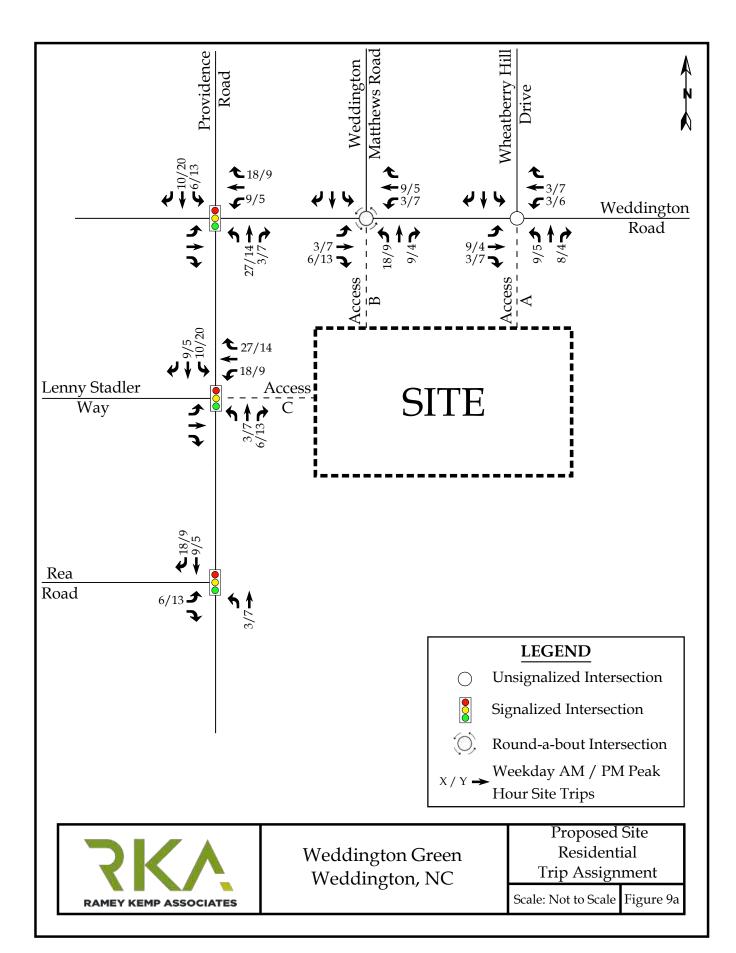


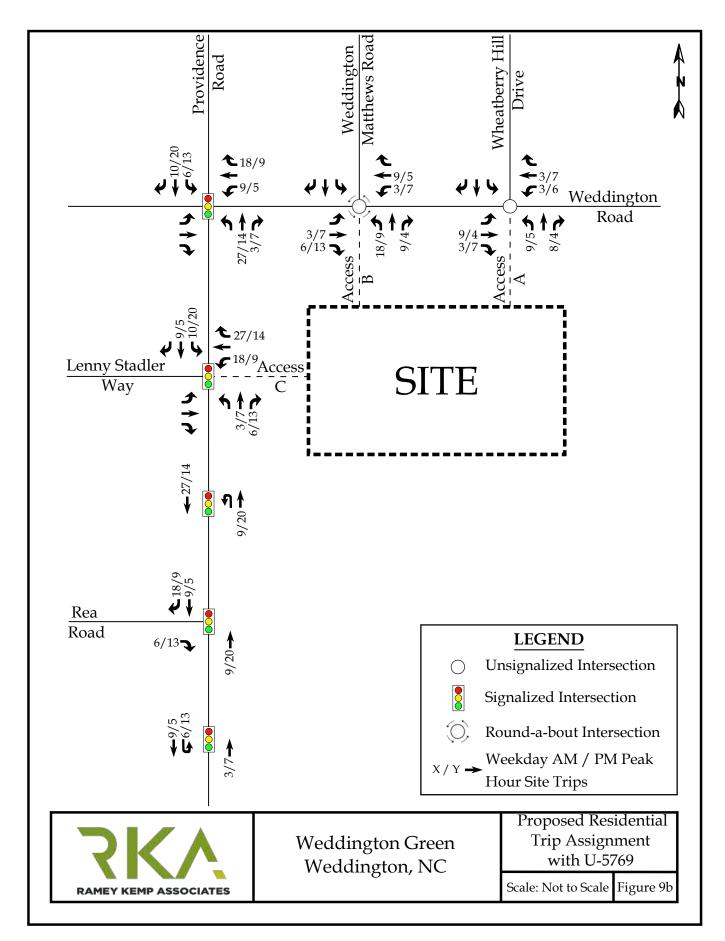


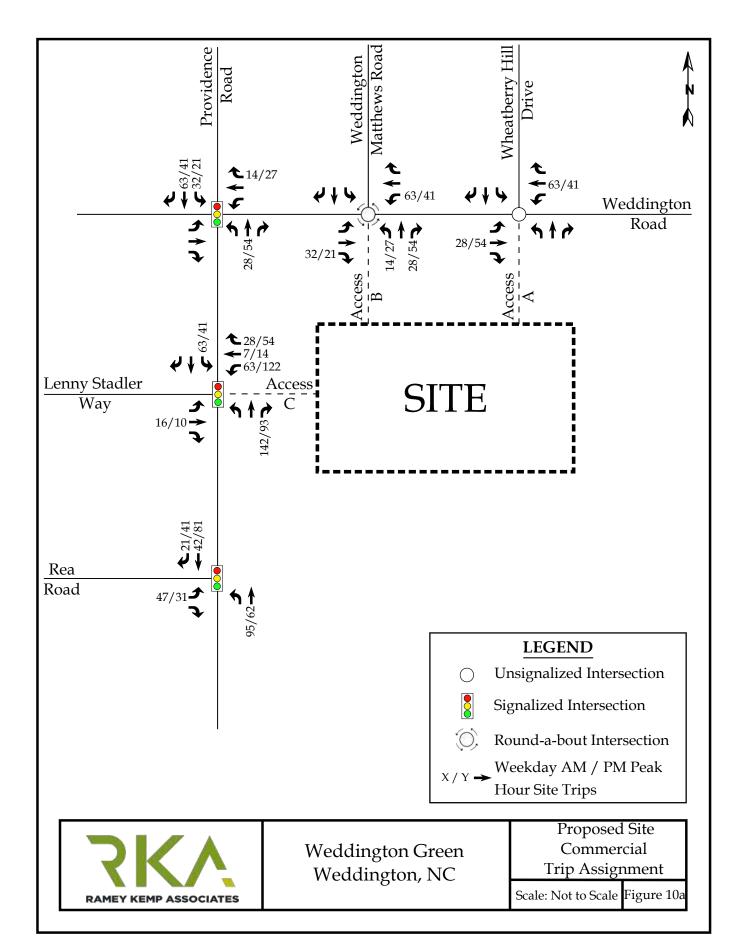


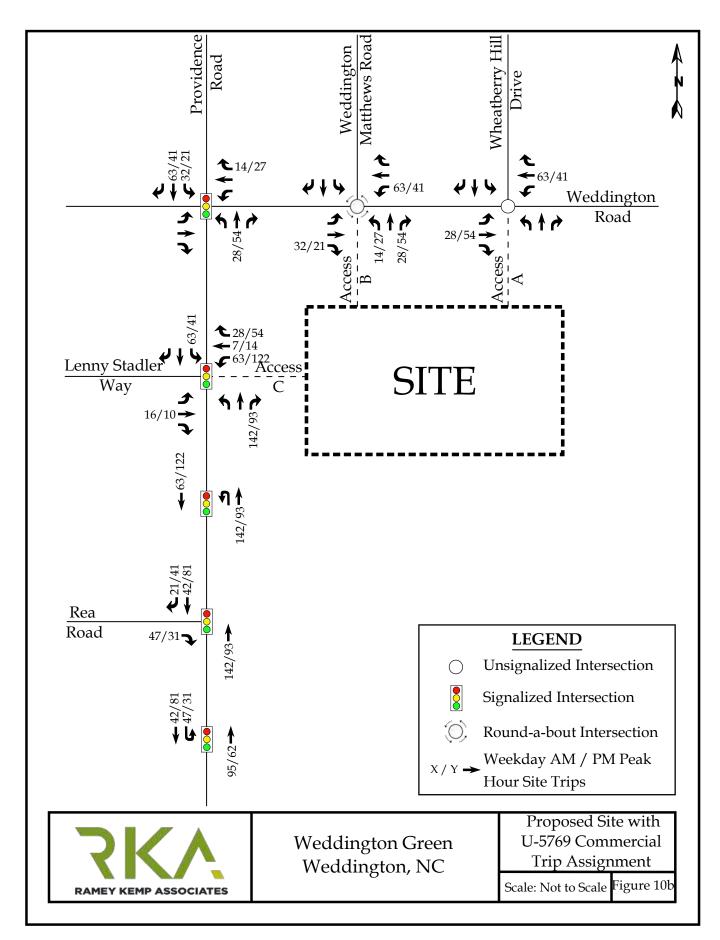


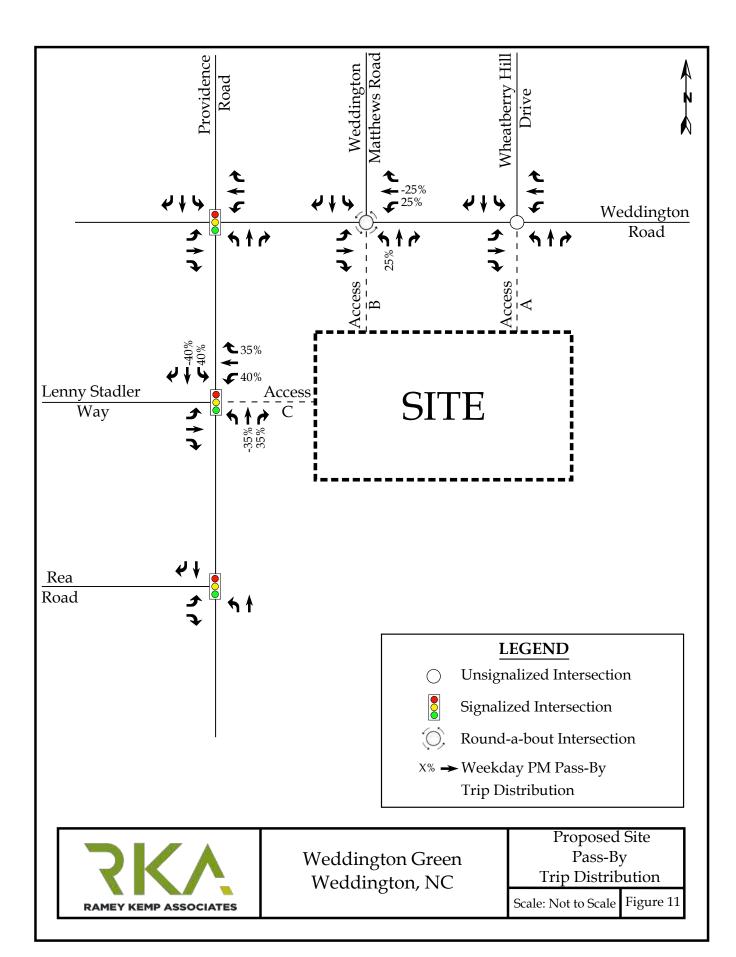


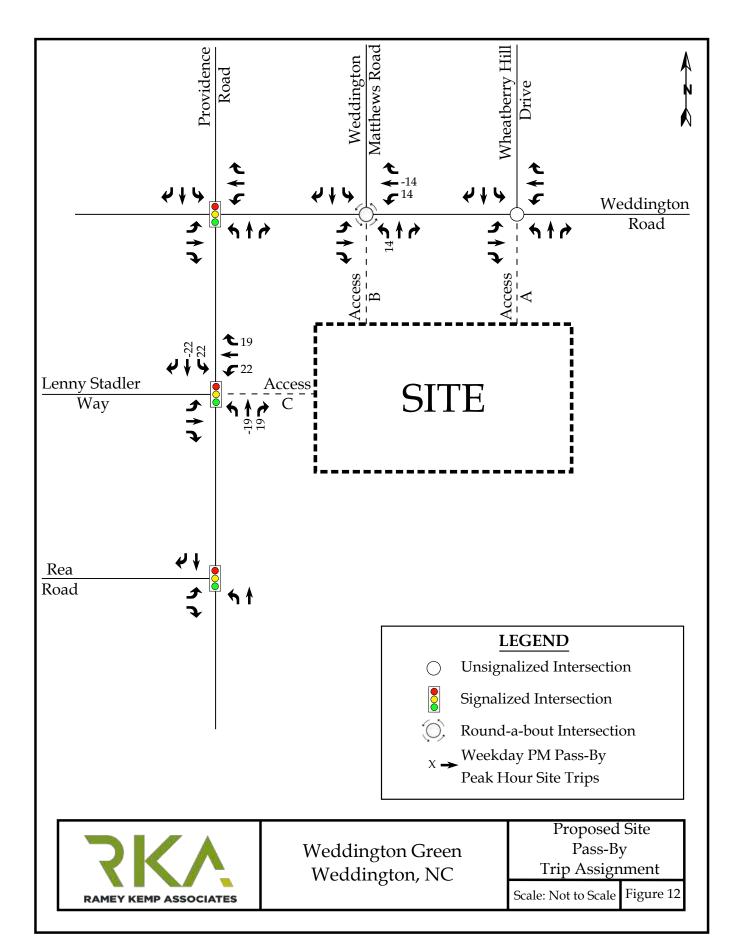


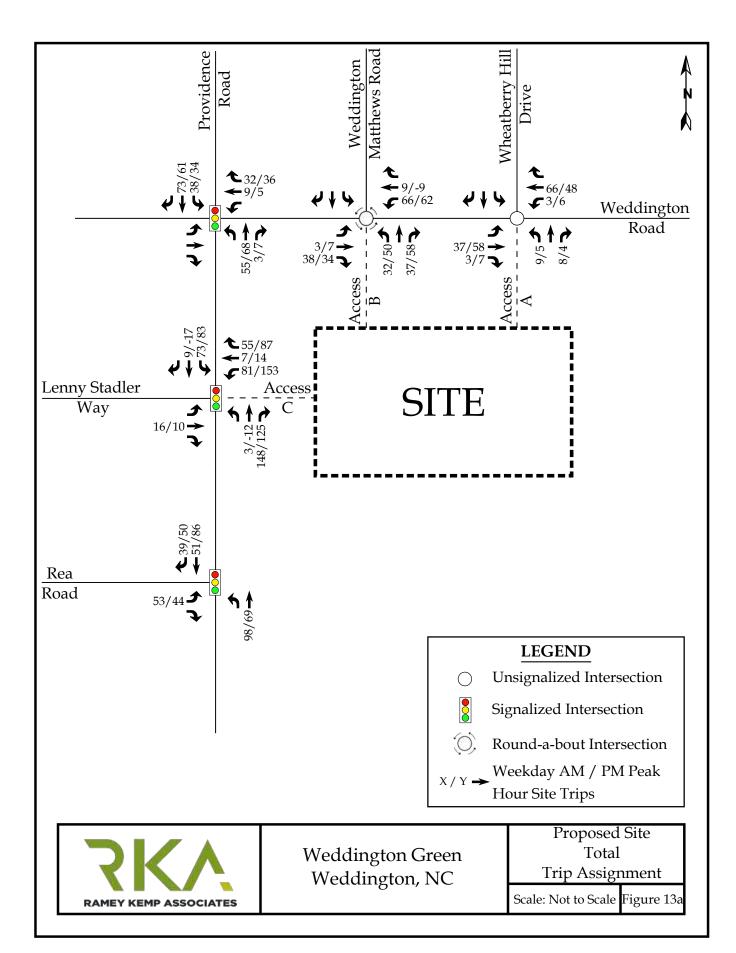


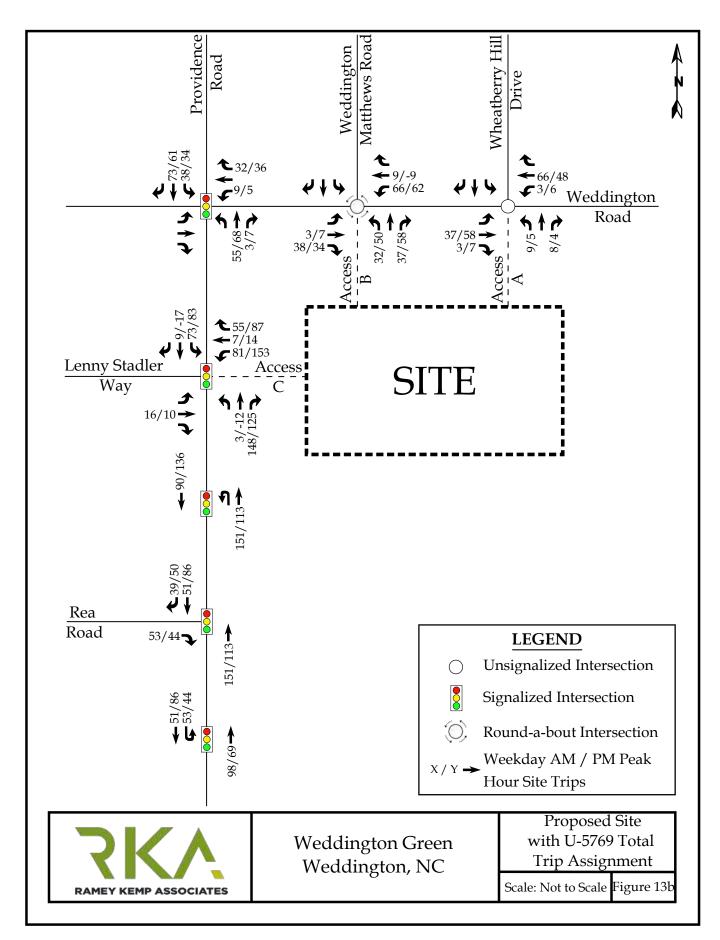












## 5. 2027 BUILD TRAFFIC CONDITIONS

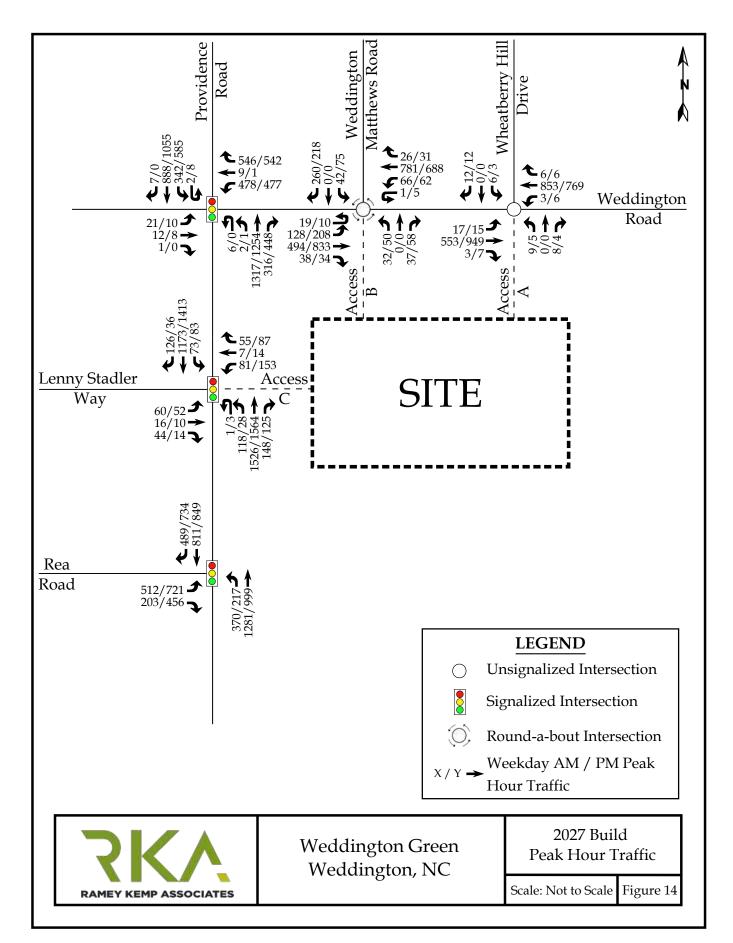
#### 5.1. 2027 Build Peak Hour Traffic Volumes

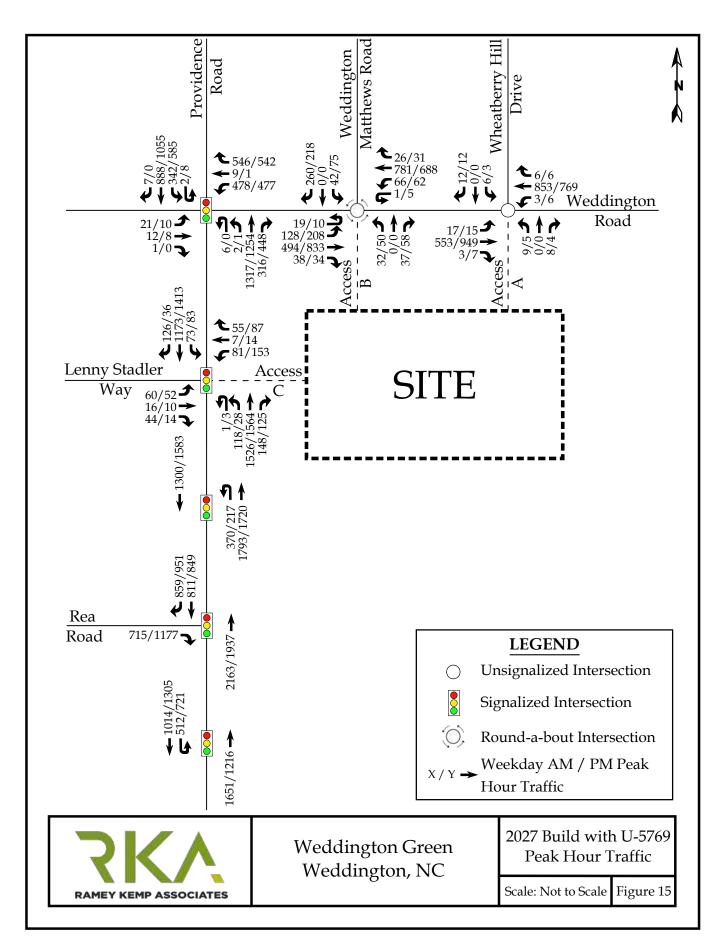
To estimate traffic conditions with the site fully built-out, the total site trips were added to the 2027 No-Build traffic volumes to determine the 2027 Build traffic volumes. Refer to Figure 14 for an illustration of the 2027 Build peak hour traffic volumes with the proposed site fully developed. Refer to Figure 15 for an illustration of the 2027 Build with U-5769 peak hour traffic volumes with the proposed site fully developed.

# 5.2. Analysis of 2027 Build Peak Hour Traffic Conditions

Study intersections were analyzed with the 2027 Build traffic volumes using the same methodology previously discussed for no-build traffic conditions. Intersections were analyzed with improvements necessary to accommodate future traffic volumes. The results of the capacity analysis for each intersection are presented in Section 7 of this report.







#### 6. TRAFFIC ANALYSIS PROCEDURE

Study intersections were analyzed using the methodology outlined in the Highway Capacity Manual (HCM), 6th Edition published by the Transportation Research Board. Capacity and level of service are the design criteria for this traffic study. A computer software package, Synchro (Version 10.3), was used to complete the analyses for most of the study area intersections. Please note that the unsignalized capacity analysis does not provide an overall level of service for an intersection; only delay for an approach with a conflicting movement.

The HCM defines capacity as "the maximum hourly rate at which persons or vehicles can reasonably be expected to traverse a point or uniform section of a lane or roadway during a given time period under prevailing roadway, traffic, and control conditions." Level of service (LOS) is a term used to represent different driving conditions and is defined as a "qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers." Level of service varies from Level "A" representing free flow, to Level "F" where breakdown conditions are evident. Refer to Table 3 for HCM levels of service and related average control delay per vehicle for both signalized and unsignalized intersections. Control delay as defined by the HCM includes "initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay". An average control delay of 50 seconds at a signalized intersection results in LOS "D" operation at the intersection.

Table 3: Highway Capacity Manual – Levels-of-Service and Delay

UNSIGNA	ALIZED INTERSECTION	SIGNAL	IZED INTERSECTION
LEVEL OF SERVICE	AVERAGE CONTROL DELAY PER VEHICLE (SECONDS)	LEVEL OF SERVICE	AVERAGE CONTROL DELAY PER VEHICLE (SECONDS)
A	0-10	A	0-10
В	10-15	В	10-20
С	15-25	С	20-35
D	25-35	D	35-55
E	35-50	E	55-80
F	>50	F	>80

# **Adjustments to Analysis Guidelines**

Capacity analysis at all study intersections was completed according to the NCDOT Congestions Management Guidelines.



#### 7. CAPACITY ANALYSIS

# 7.1. Weddington Road and Wheatberry Hill Drive / Access A

The existing unsignalized intersection of Weddington Road and Wheatberry Hill Drive was analyzed under 2021 Existing and 2027 No-Build traffic conditions as a three-leg intersection with lane configurations and traffic control shown in Table 4. Under 2027 Build traffic conditions, this intersection was analyzed as a four-leg intersection with Access A making up the southern leg. Refer to Table 4 for a summary of the analysis results. Refer to Appendix E for the Synchro capacity analysis reports and turn lane warrants. Refer to Appendix K for the SimTraffic queuing reports.

Capacity analysis indicates that the major street left turn movement is expected to operate at a LOS B or better during the weekday AM and PM peak hours under existing and all future traffic conditions. The minor street approach is expected to operate at less than desirable levels of service and delay under 2027 Build traffic conditions. Higher levels of service and longer delays are not uncommon for minor street approaches during the weekday peak hours when mainline volumes are heaviest. While mitigation should be considered if a level of service degrades by one level or the delay exceeds the 25% threshold, SimTraffic queuing reports indicate that queues are not expected to exceed 45 feet on the minor street approaches during the weekday AM and PM peak hours.

An eastbound Weddington Road right turn lane and westbound Weddington Road left turn lane were not warranted based on the NCDOT *Policy on Street and Driveway Access to North Carolina Highways*. However, after discussions with NCDOT, a left and right turn lane into the site would be required due to Weddington Road having an AADT over 4,000 vehicles per day (vpd). The following improvements are recommended by the developer:

- Construct Access A with one ingress and one egress lane (shared left-through-right).
- Construct an eastbound Weddington Road right turn lane with 100 feet of storage and appropriate taper length.
- Construct a westbound Weddington Road left turn lane with 100 feet of storage and appropriate taper length.



• Provide at least 100 feet of internal protected stem (IPS) length. It should be noted that no on street parking is recommended within the IPS.

Table 4: Analysis Summary of Weddington Road and Wheatberry Hill Drive /
Access A

A P P P ANALYSIS R		LANE	PEAK	DAY AM HOUR SERVICE	PEAK	DAY PM HOUR SERVICE
SCENARIO	O A C H	CONFIGURATIONS	Approach	Overall (seconds)	Approach	Overall (seconds)
2021 Existing	EB WB	1 LT, 1 TH 1 TH, 1 RT 1 LT-RT	A (9.3) <sup>1</sup>	N/A	A (9.1) <sup>1</sup>	N/A
2027 No-Build	SB EB WB SB	1 LT, 1 TH 1 TH, 1 RT 1 LT-RT	C (18.4) <sup>2</sup> A (9.8) <sup>1</sup> C (22.4) <sup>2</sup>	N/A	C (20.4) <sup>2</sup> A (9.5) <sup>1</sup> C (24.6) <sup>2</sup>	N/A
2027 Build	EB WB NB SB	1 LT, 1 TH, <b>1 RT 1 LT</b> , 1 TH, 1 RT <b>1 LT-TH-RT</b> 1 LT- <b>TH-</b> RT	B (10.1) <sup>1</sup> A (8.8) <sup>1</sup> E (42.5) <sup>2</sup> E (35.8) <sup>2</sup>	N/A	A (9.7) <sup>1</sup> B (10.5) <sup>1</sup> F (75.6) <sup>2</sup> E (48.8) <sup>2</sup>	N/A

Bold indicates improvement and/or lane reconfiguration to be done by the developer.

- 1. Level of service for major-street left-turn movement.
- 2. Level of service for minor-street approach.



# 7.2. Weddington Road and Weddington Matthews Road / Access B

The existing roundabout intersection of Weddington Road and Weddington Matthews Road was analyzed under 2021 Existing and 2027 No-Build traffic conditions as a three-leg intersection with lane configurations and traffic control shown in Table 5. Under 2027 Build traffic conditions, this intersection was analyzed as a four-leg intersection with Access B making up the southern leg. Refer to Table 5 for a summary of the analysis results. Refer to Appendix F for the Synchro capacity analysis reports. Refer to Appendix K for the SimTraffic queuing reports.

Capacity analysis indicates that this intersection is expected to operate at an overall LOS C or better during the weekday AM and PM peak hours under existing and all future build traffic conditions. Additionally, all approach levels of service are expected to operate at LOS D or better during the weekday AM and PM peak hours under existing and all future traffic conditions. SimTraffic queuing reports indicate that queues on the westbound approach are expected to exceed 774 feet during the weekday AM and PM peak hours. Due to queuing issues at the intersection, mitigation was considered at this intersection.

Capacity analysis indicates that this intersection is expected to operate at an overall LOS A during the weekday AM and PM peak hours under 2027 Build - Improved traffic conditions. Additionally, all approach levels of service are expected to operate at LOS C or better during the weekday AM and PM peak hours under 2027 Build - Improved traffic conditions. With the construction of an additional westbound through-right lane, westbound queues are not expected to exceed 74 feet. The following improvements are recommended by the developer:

- Construct Access B with one ingress and one egress lane (shared left-through-right).
- Construct a westbound through-right lane with 125 feet of storage and appropriate taper length.
- Provide at least 130 feet of IPS. It should be noted that no on street parking is recommended within the IPS.



Table 5: Weddington Road and Weddington Matthews Road / Access B

A P P ANALYSIS R		LANE	PEAK	DAY AM HOUR SERVICE	PEAK	DAY PM HOUR SERVICE
SCENARIO	O A C H	CONFIGURATIONS	Approach	Overall (seconds)	Approach	Overall (seconds)
2021 Existing	EB WB SB	1 LT, 1 TH 1 TH-RT 1 LT-RT	A (5.4) B (12.1) B (13.4)	A (9.8)	A (8.8) B (12.3) B (11.4)	B (10.4)
2027 No-Build	EB WB SB	1 LT, 1 TH 1 TH-RT 1 LT-RT	A (6.0) C (17.2) C (20.1)	B (13.6)	B (11.3) C (17.9) C (15.9)	B (14.3)
2027 Build	EB WB NB SB	1 LT, 1 TH-RT 1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT	A (7.1) C (20.3) A (6.2) D (27.5)	C (16.3)	C (15.2) C (20.1) B (11.7) C (20.5)	<mark>C</mark> (17.4)
2027 Build - Improved	EB WB NB SB	1 LT, 1 TH- <b>RT</b> 1 LT-TH, <b>1 TH-RT</b> <b>1 LT-TH-RT</b> 1 LT- <b>TH-</b> RT	A (5.7) A (7.5) A (6.2) C (17.2)	A (8.4)	C (17.1) A (7.9) B (11.7) B (14.2)	B (13.3)



# 7.3. Providence Road and Weddington Road / Church Driveway

The existing signalized intersection of Providence Road and Weddington Road / Church Driveway was analyzed under existing and all future traffic conditions with the lane configurations and traffic control shown in Table 6. Refer to Table 6 for a summary of the analysis results. Refer to Appendix G for the Synchro capacity analysis reports. Refer to Appendix K for the SimTraffic queuing reports.

Capacity analysis indicates that the intersection is expected to operate at an overall LOS D or better during the weekday AM and PM peak hours under existing and all future traffic conditions. Approaches are expected to operate at LOS D or better during the weekday AM and PM peak hours, except for the eastbound approach under 2021 Existing traffic conditions, and the eastbound and westbound approach under 2027 No-Build and 2027 Build traffic conditions. While mitigation should be considered if a level of service degrades by one level or the delay exceeds the 25% threshold, SimTraffic queuing reports indicate that queues are not expected to exceed 77 feet on the eastbound approach and 368 feet on the westbound approach during the weekday AM and PM peak hours. The following improvements are recommended by the developer:

 Extend the existing westbound left turn lane to the roundabout at Weddington-Matthews Road to provide an additional receiving lane for the improvements at the intersection Weddington Road and Weddington-Matthews Road



Table 6: Analysis Summary of Providence Road and Weddington Road / Church

Driveway

A P P P ANALYSIS R		LANE	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
SCENARIO	O A C H	A C	Approach	Overall (seconds)	Approach	Overall (seconds)
2021 Existing	EB WB NB SB	1 LT-TH-RT 1 LT, 1 LT-TH, 1 RT 1 LT, 2 TH, 1 RT 2 LT, 1 TH, 1 TH-RT	E (58.2) D (46.5) C (30.8) B (19.7)	C (31.9)	E (55.3) D (44.1) C (30.2) C (25.3)	C (31.8)
2027 No-Build	EB WB NB SB	1 LT-TH-RT 1 LT, 1 LT-TH, 1 RT 1 LT, 2 TH, 1 RT 2 LT, 1 TH, 1 TH-RT	E (66.8) E (71.2) D (42.3) C (22.1)	D (44.1)	E (57.2) E (57.7) D (35.9) C (29.2)	D (38.6)
2027 Build	EB WB NB SB	1 LT-TH-RT 1 LT, 1 LT-TH, 1 RT 1 LT, 2 TH, 1 RT 2 LT, 1 TH, 1 TH-RT	E (75.7)  F (86.7)  D (46.1)  C (23.0)	D (49.7)	E (57.7) E (73.3) D (37.6) C (30.8)	D (43.4)



# 7.4. Providence Road and Lenny Stadler Way / Access C

The existing signalized intersection of Providence Road and Lenny Stadler Way was analyzed under 2021 Existing and 2027 No-Build traffic conditions as a three-leg intersection with lane configurations and traffic control shown in Table 7. Under 2027 Build traffic conditions, this intersection was analyzed as a four-leg intersection with Access C making up the western leg. Refer to Table 7 for a summary of the analysis results. Refer to Appendix H for the Synchro capacity analysis reports and Appendix K for the SimTraffic queuing reports.

Capacity analysis indicates that this intersection is expected to operate at an overall LOS C or better during the weekday AM and PM peak hours under existing and all future traffic conditions. Approach levels of service are expected to operate at LOS D or better during the weekday AM and PM peak hours except for the eastbound and westbound approach during the weekday PM peak hour under 2027 Build traffic conditions. While mitigation should be considered if a level of service degrades by one level or the delay exceeds the 25% threshold, SimTraffic queuing reports indicate that queues are not expected to exceed 149 feet on the eastbound approach and 219 feet on the westbound approach during the weekday AM and PM peak hours.

Based on coordination with NCDOT a southbound Providence Road left turn lane and northbound Providence Road right turn lane would be required. The following improvements are recommended by the developer:

- Construct Access C with one ingress and two egress lanes (1 left/through and 1 right turn lane). Provide 125 feet of storage and appropriate taper length on the westbound right turn lane.
- Construct a southbound Providence Road left turn lane with 250 feet of storage and appropriate taper length.
- Construct a northbound Providence Road right turn lane with 100 feet of storage and appropriate taper length.
- Provide at least 225 feet of IPS. It should be noted that no on street parking is recommended within the IPS.



Table 7: Analysis Summary of Providence Road and Lenny Stadler Way / Access C

A P P P P R ANALYSIS R		LANE	PEAK	DAY AM HOUR SERVICE	PEAK	DAY PM CHOUR F SERVICE
SCENARIO	O A C H	CONFIGURATIONS	Approach	Overall (seconds)	Approach	Overall (seconds)
2021 Existing	EB NB SB	1 LT, 1 RT 1 LT, 2 TH 1 TH, 1 TH-RT	C (20.9) A (4.4) B (11.1)	A (7.8)	C (25.4) A (3.8) A (9.5)	A (6.9)
2027 No-Build	EB NB SB	1 LT, 1 RT 1 LT, 2 TH 1 TH, 1 TH-RT	C (29.2) A (6.2) B (12.8)	A (9.8)	C (32.9) A (4.6) B (10.1)	A (7.8)
2027 Build	EB WB NB SB	1 LT- <b>TH</b> , 1 RT <b>1 LT-TH, 1 RT</b> 1 LT, 2 TH, <b>1 RT</b> <b>1 LT</b> , 1 TH, 1 TH-RT	D (51.6) D (47.9) C (26.3) C (27.3)	C (28.5)	E (57.0) E (57.2) C (30.5) C (24.3)	C (30.3)

It was determined that STIP U-5769 could be in place by the time the development was fully built out. Based on coordination with NCDOT, the study intersections along Providence Road might be changed to Reduced Conflict Intersections (RCI) in the future. Refer to Tables 8 and 9 for a summary of the analysis results which analyzed the intersection of Providence Road and Lenny Stadler Way / Access C as an RCI. Refer to Appendix H for the Synchro capacity analysis reports and Appendix K for the SimTraffic queuing reports.

Capacity analysis indicates that the intersection is expected to operate at an overall LOS B or better during the weekday AM and PM peak hours under 2027 Build with U-5709 traffic conditions. Additionally, all approach levels of service are expected to operate at LOS C or better during the weekday AM and PM peak hours under 2027 Build with U-5709 traffic conditions. No queuing issues were identified.



(seconds)

A

(9.1)

Approach

C (21.5)

B (19.3)

A (8.3)

(seconds)

В

(11.0)

C

H EB

NB

SB

2027 Build

with U-5769

1 RT

1 U-LT

1 TH, 1 TH-RT

Α **WEEKDAY AM WEEKDAY PM** Ρ **PEAK HOUR PEAK HOUR** P **LEVEL OF SERVICE LEVEL OF SERVICE ANALYSIS** R LANE **CONFIGURATIONS SCENARIO** 0 Α **Overall Overall** 

**Approach** 

C (22.0)

C (20.8)

A (9.2)

**Table 8: Analysis Summary of Providence Road and Lenny Stadler Way** 

Capacity analysis indicates that the intersection is expected to operate at an overall LOS B during the weekday AM and PM peak hours under 2027 Build with U-5709 traffic conditions. Additionally, all approach levels of service are expected to operate at LOS C or better during the weekday AM and PM peak hours under 2027 Build with U-5709 traffic conditions. SimTraffic queuing reports indicate that queues on the westbound approach, will spill back into the site no more than 223 feet during the weekday AM and PM peak hours. No queuing issues were identified. The following improvements are recommended by the developer:

- Construct a left-over intersection. Lenny Stadler Way and Access C will both have right-in, left-in, and right-out movements.
- Construct a southbound Providence Road left turn lane with 125 feet of storage and appropriate taper length.
- Construct a northbound Providence Road right turn lane with 100 feet of storage and appropriate taper length.
- Provide at least 225 feet of IPS. It should be noted that no on street parking is recommended within the IPS.



A **WEEKDAY AM WEEKDAY PM** P **PEAK HOUR PEAK HOUR** P LEVEL OF SERVICE **LEVEL OF SERVICE ANALYSIS** R LANE **SCENARIO** 0 CONFIGURATIONS Α **Overall Overall Approach** Approach C (seconds) (seconds) Н **1 RT** WB C (24.1) C (33.7) В В 2027 Build NB 2 TH. 1 RT B (10.8) B (15.5) with U-5769 (12.1)(17.9)SB B (19.5) B (19.3) 1 UT-LT

**Table 9: Analysis Summary of Providence Road and Access C** 

Analyzing Providence Road and Lenny Stadler Way / Access C as a left-over intersection will limit eastbound and westbound traffic to a right-out movement only. To account for this right turn only, unsignalized U-turn bulbs are recommended to be constructed north and south of the intersection to allow for eastbound and westbound left turning traffic to head north and south, respectively. These U-turn bulbs are recommended to be constructed 600-800 feet from the left-over intersection. Refer to Table 10 for a summary of the analysis results for the Providence Road and Northbound U-turn intersection. Refer to Table 11 for a summary of the analysis results for the Providence Road and Southbound U-turn intersection. Refer to Appendix I for the Synchro capacity analysis reports and Appendix K for the SimTraffic queuing reports.

Capacity analysis indicates that the major street U-turn movement is expected to operate at LOS D or better during the weekday AM and PM peak hours under 2027 Build with U-5709 traffic conditions. No queuing issues were identified. The following improvements are recommended by the developer:

 Construct a northbound Providence Road U-turn lane with at least 300 feet of storage and appropriate taper length between 600-800 feet north of the intersection of Providence Road and Lenny Stadler Way / Access C.



ANALYSIS	A P P R	LANE	PEAK	DAY AM HOUR SERVICE	PEAK	DAY PM CHOUR F SERVICE
SCENARIO O A C H		CONFIGURATIONS	Approach	Overall (seconds)	Approach	Overall (seconds)
2027 Build with U-5769	NB SB	1 UT 2 TH	C (19.7) <sup>1</sup>	N/A	D (34.9) <sup>1</sup>	N/A

Table 10: Analysis Summary of Providence Road and Northbound U-turn

Capacity analysis indicates that the major street U-turn movement is expected to operate at LOS D or better during the weekday AM and PM peak hours under 2027 Build with U-5709 traffic conditions. No queuing issues were identified. The following improvements are recommended by the developer:

 Construct a southbound Providence Road U-turn lane with at least 150 feet of storage and appropriate taper length between 600-800 feet south of the intersection of Providence Road and Lenny Stadler Way / Access C.

**Table 11: Analysis Summary of Providence Road and Southbound U-turn** 

ANALYSIS	A P P P ANALYSIS R LANE CONFIGURATIONS A C H		PEAK	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		DAY PM CHOUR F SERVICE
SCENARIO			Approach	Overall (seconds)	Approach	Overall (seconds)
2027 Build with U-5769	NB SB	2 TH 1 UT	 D (27.8) <sup>1</sup>	N/A	 C (24.2) <sup>1</sup>	N/A

Bold indicates improvement and/or lane reconfiguration to be done by the developer.



<sup>1.</sup> Level of service for major-street left-turn movement.

<sup>1.</sup> Level of service for major-street left-turn movement.

### 7.5. Providence Road and Rea Road

The existing signalized intersection of Providence Road and Rea Road was analyzed under existing and all future traffic conditions with lane configurations and traffic control shown below. Refer to Table 12 for a summary of the analysis results. Refer to Appendix J for the Synchro capacity analysis reports and Appendix K for the SimTraffic queuing reports.

Capacity analysis indicates that the intersection is expected to operate at an overall LOS D or better during the weekday AM and PM peak hours under existing and all future build conditions except for the weekday PM peak hour under 2027 Build traffic conditions. Approach levels of service are expected to operate at LOS D or better during the weekday AM and PM peak hours under 2021 Existing traffic conditions. Under 2027 No-Build and 2027 Build traffic conditions, approach levels of service are expected to operate at LOS D or better during the weekday AM and PM peak hours except for the eastbound approach during the weekday AM and PM peak hours and the southbound approach during the weekday PM peak hour. SimTraffic queuing reports indicate that significant queuing is expected on the eastbound and westbound approach during the peak hours. The following improvements are recommended by the developer:

• Construct a southbound Providence Road right turn lane with 500 feet of storage and appropriate taper length.

STIP U-5769 was assumed to be in place by the time the development was built out. Capacity analysis indicates that the intersection, and associated northbound and southbound U-turn intersections, are expected to operate at an overall LOS D or better during the weekday AM and PM peak hours under 2027 No-Build and 2027 Build traffic conditions with U-5769 constructed. Additionally, all approaches are expected to operate at LOS D or better during the weekday AM and PM peak hours under 2027 No-Build and 2027 Build traffic conditions with U-5769. SimTraffic queuing reports indicate that significant queuing is expected on the eastbound approach during the peak hours with U-5769 constructed. No improvements are recommended by the developer.



Multiple approaches are expected to be impacted at the intersection of Providence Road and Rea Road and the associated U-turn intersections during the weekday AM and PM peak hours under 2040 No-Build and 2040 Build traffic conditions. The following improvements are recommended by the developer:

- Construct an additional northbound Providence Road through lane that extends 200 feet before the U-turn location south of the Providence Road and Rea Road intersection. The through lane is recommended to drop approximately 550 feet past the U-turn location north of the Providence Road and Rea Road intersection.
- Construct an additional southbound Providence Road through lane that extends
  back to the U-turn location north of the Providence Road and Rea Road. The
  through lane is recommended to drop 1,000 feet past the U-turn location south of
  the Providence Road and Rea Road intersection.
- Construct an additional Providence Road U-turn lane that provides 500 feet of storage and appropriate taper length at the southbound U-turn location.



Table 12: Analysis Summary of Providence Road and Rea Road

ANALYSIS		LANE	PEAK	DAY AM HOUR SERVICE	WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
SCENARIO	O A C H	CONFIGURATIONS	Approach	Overall (seconds)	Approach	Overall (seconds)
2021 Existing	EB NB SB	1 LT, 1 RT 2 LT, 2 TH 1 UT, 1 TH, 1 RT	D (42.3) C (23.3) C (27.2)	C (28.3)	D (48.2) C (28.7) C (31.0)	D (35.5)
2027 No-Build	EB NB SB	1 LT, 1 RT 2 LT, 2 TH 1 UT, 1 TH, 1 RT	E (64.1) C (31.0) D (46.6)	D (42.9)	E (74.7) D (42.3) D (46.6)	D (53.8)
2027 Build	EB NB SB	1 LT, 1 RT 2 LT, 2 TH 1 UT, 1 TH, 1 RT	E (74.5) D (41.0) D (51.0)	D (51.0)	F (87.7) D (48.0) E (68.1)	E (67.8)
2027 Build Improved	EB NB SB	1 LT, 1 RT 2 LT, 2 TH 1 UT, 1 TH, <b>2 RT</b>	E (74.5) D (41.0) D (50.5)	D (50.9)	F (98.1) D (41.4) E (64.4)	E (67.3)
2027 No-Build with U-5769	EB NB SB	<u>2 RT</u> 2 TH 2 TH, <u>2 RT</u>	D (41.1) A (0.5) A (6.1)	A (8.9)	C (27.8) A (0.4) B (13.4)	B (11.8)
2027 No-Build with U-5769 (U-turn location north)	NB SB	<u>2 UT</u> , 2 TH 2 TH	D (41.3) A (7.9)	B (15.7)	D (42.2) A (6.3)	B (11.0)
2027 No-Build with U-5769 (U-turn location south)	NB SB	2 TH <u>1 UT, 2 TH</u>	C (25.4) D (44.2)	C (29.7)	C (34.9) C (34.4)	C (34.7)
2027 Build with U-5769	EB NB SB	<u>2 RT</u> 2 TH 2 TH, <u>2 RT</u>	D (39.8) A (0.9) A (6.6)	A (9.1)	C (29.3) A (0.6) B (15.1)	B (12.8)

U-5769 improvements are <u>underlined</u>.

U-3467 improvements are in *italics*.



Table 12: Analysis Summary of Providence Road and Rea Road - Continued

ANALYSIS	A P P R	PEAK HOUR		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE		
SCENARIO	O A C H	CONFIGURATIONS	Approach	Overall (seconds)	Approach	Overall (seconds)
2027 Build with U-5769 (U-turn location north)	NB SB	<u>2 UT</u> , 2 TH 2 TH	D (40.4) A (8.4)	B (15.5)	D (43.3) A (7.0)	B (11.3)
2027 Build with U-5769 (U-turn location south)	NB SB	2 TH <u>1 UT, 2 TH</u>	C (31.9) D (51.6)	D (36.5)	D (40.3) D (37.2)	D (39.1)
2040 No-Build	EB WB NB SB	2 TH, <u>2 RT</u> 2 TH, 2 RT 2 TH, 2 RT 2 TH, <u>2 RT</u>	C (33.6) D (52.1) D (41.6) C (26.0)	D (37.8)	F (107.5) C (20.3) F (101.9) D (35.4)	E (75.0)
2040 No-Build (U-turn location east)	EB WB	1 UT, 2 TH 2 TH	C (24.5) C (34.4)	C (29.6)	D (44.2) B (16.5)	C (28.9)
2040 No-Build (U-turn location west)	EB WB	2 TH 1 UT, 2 TH	A (3.5) D (46.5)	A (5.8)	A (5.4) D (47.7)	A (6.8)
2040 No-Build (U-turn location north)	NB SB	<u>2 UT</u> , 2 TH 2 TH	D (40.8) A (7.5)	A (9.8)	C (34.8) A (6.5)	A (8.7)
2040 No-Build (U-turn location south)	NB SB	2 TH <u>1 UT, 2 TH</u>	E (74.8) E (80.0)	E (75.5)	F (80.6) F (81.4)	F (80.8)

U-5769 improvements are <u>underlined</u>.

U-3467 improvements are in italics.



Table 12: Analysis Summary of Providence Road and Rea Road - Continued

ANALYSIS	A P P R	LANE	PEAK	DAY AM HOUR SERVICE	PEAK	DAY PM HOUR SERVICE
SCENARIO	OACH	CONFIGURATIONS	Approach	Overall (seconds)	Approach	Overall (seconds)
2040 Build	EB WB NB SB	2 TH, <u>2 RT</u> 2 TH, 2 RT 2 TH, 2 RT 2 TH, <u>2 RT</u>	D (42.0) E (71.6) D (46.8) C (21.3)	D (43.2)	F (119.0) C (20.8) F (127.9) D (42.8)	F (88.9)
2040 Build (U-turn location east)	EB WB	1 UT, 2 TH 2 TH	C (20.0) D (40.2)	C (30.4)	B (15.3) C (31.3)	C (24.1)
2040 Build (U-turn location west)	EB WB	2 TH 1 UT, 2 TH	A (7.2) D (36.9)	A (8.7)	A (8.5) D (42.0)	A (9.6)
2040 Build (U-turn location north)	NB SB	<u>2 UT</u> , 2 TH 2 TH	D (37.0) B (10.4)	B (12.2)	C (34.2) A (8.2)	B (10.1)
2040 Build (U-turn location south)	NB SB	2 TH <u>1 UT, 2 TH</u>	E (73.9) F (96.8)	E (77.4)	F (94.5) F (101.4)	F (96.1)
2040 Build - Improved	EB WB NB SB	2 TH, <u>2RT</u> 2 TH, 2 RT <b>3 TH</b> , 2 RT <b>3 TH</b> , <u>2 RT</u>	C (32.3) D (43.0) B (18.4) B (16.7)	C (24.8)	C (32.6) B (19.7) C (28.9) C (21.3)	C (26.6)
2040 Build - Improved (U-turn location east)	EB WB	1 UT, 2 TH 2 TH	B (18.0) D (40.2)	C (29.4)	B (14.7) C (31.3)	C (23.9)

U-5769 improvements are <u>underlined</u>.

U-3467 improvements are in *italics*.



Table 12: Analysis Summary of Providence Road and Rea Road - Continued

A P P P ANALYSIS R		LANE	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
SCENARIO	O A C H	A C	Approach	Overall (seconds)	Approach	Overall (seconds)
2040 Build - Improved (U-turn location west)	EB WB	2 TH 1 UT, 2 TH	A (7.2) D (35.8)	A (8.6)	A (8.5) D (42.9)	A (9.6)
2040 Build - Improved (U-turn location north)	NB SB	<u>2 UT</u> , <b>3 TH</b> 2 TH	D (40.6) B (10.3)	B (12.3)	D (35.8) A (8.0)	A (10.0)
2040 Build - Improved (U-turn location south)	NB SB	3 TH 2 UT, 3 TH	B (11.0) D (51.9)	B (17.2)	B (15.2) D (45.5)	C (22.3)



U-5769 improvements are <u>underlined</u>.

U-3467 improvements are in *italics*.

## 8. CONCLUSIONS

This Traffic Impact Analysis was conducted to determine the potential traffic impacts of the proposed Weddington Green mixed-use development to be located south of Weddington Road and east of Providence Road in Weddington, North Carolina. The proposed development is expected to be a mixed-use development and be built out in 2027. Site access is proposed via two full movement driveways along Weddington Road and one full movement driveway along Providence Road. Access A will form the southern leg of the existing intersection of Weddington Road and Wheatberry Hill Drive. Access B will form the southern leg of the existing intersection of Weddington Road and Weddington Matthews Road. Access C will form the eastern leg of the existing intersection of Providence Road and Lenny Stadler Way.

The study analyzes traffic conditions during the weekday AM and PM peak hours for the following scenarios:

- 2021 Existing Traffic Conditions
- 2027 No-Build Traffic Conditions
- 2027 Build Traffic Conditions
- 2027 Build Traffic Conditions + Improvements
- 2027 No-Build Traffic Conditions with U-5769
- 2027 Build Traffic Conditions with U-5769
- 2027 Build Traffic Conditions with U-5769 + Improvements
- 2040 No-Build Traffic Conditions
- 2040 Build Traffic Conditions
- 2040 Build Traffic Conditions + Improvements

### Trip Generation

It is estimated that the proposed development will generate approximately 9,254 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 608 trips (363 entering and 245 exiting) will occur during the weekday AM peak hour and 943 trips (449 entering and 494 exiting) will occur during the weekday PM peak hour.



Internal capture of trips between the office, residential, and retail uses was considered in this study. Internal capture is the consideration for trips that will be made within the site between different land uses, so the vehicle technically never leaves the internal site but can still be considered as a trip to that specific land use. Internal capture typically only considers trips between residential, office, and retail/restaurant land uses. Based on NCHRP Report 684 methodology, a weekday AM peak hour internal capture of 5% and a weekday PM peak hour internal capture rate of 26% was applied to the total trips. The internal capture reductions are expected to account for approximately 32 trips (16 entering and 16 exiting) during the weekday AM peak hour and 247 trips (123 entering and 124 exiting) during the weekday PM peak hour.

Pass-by trips were also taken into consideration in this study. Pass-by trips are made by the traffic already using the adjacent roadway, entering the site as an intermediate stop on their way to another destination. Pass-by percentages are applied to site trips after adjustments for internal capture. Pass-by trips are expected to account for approximately 108 trips (54 entering and 54 exiting) during the weekday PM peak hour. It should be noted that the pass-by trips were balanced, as it is likely that these trips would enter and exit in the same hour.

The total primary site trips are the calculated site trips after the reduction for internal capture and pass-by trips. Primary site trips are expected to generate approximately 576 trips (347 entering and 229 exiting) during the weekday AM peak hour and 588 trips (272 entering and 316 exiting) during the weekday PM peak hour.

#### <u>Adjustments to Analysis Guidelines</u>

Capacity analysis at all study intersections was completed according to NCDOT Congestion Management Guidelines. Refer to section 6.1 of this report for a detailed description of any adjustments to these guidelines made throughout the analysis.



#### 9. RECOMMENDATIONS

Based on the findings of this study, specific geometric improvements have been identified and are recommended to accommodate future traffic conditions. See a more detailed description of the recommended improvements below. Refer to Figure 16 for an illustration of the recommended lane configuration for the proposed development under 2027 Build traffic conditions. Refer to Figure 17 for an illustration of the recommended lane configuration for the proposed development under 2027 Build with U-5769 traffic conditions. Refer to Figure 18 for an illustration of the recommended lane configuration for the proposed development under 2040 Build traffic conditions

# **Improvements by NCDOT STIP U-5769**

# Providence Road and Rea Road

- Convert the existing signalized intersection of Providence Road and Rea Road to an RCI.
- Construct a signalized U-turn intersection north of Rea Road that provides dual northbound Providence Road U-turn lanes with 450 feet of storage and appropriate taper length.
- Construct a signalized U-turn intersection south of Rea Road that provides a southbound Providence Road U-turn lane with 500 feet of storage and appropriate taper length.
- Construct an additional southbound Providence Road through lane at the U-turn location south of Rea Road.

# **Improvements by NCDOT STIP U-3467**

- Construct dual northbound Providence Road right turn lanes at the Providence Road and Rea Road intersection. One right turn lane will be a drop lane, the other will provide 400 feet of storage and appropriate taper length.
- Construct dual through lanes and dual right turn lanes on the westbound approach of Providence Road and Rea Road. One right turn lane will be a drop lane, the other will provide 400 feet of storage and appropriate taper length.



- Construct a signalized U-turn intersection east of Providence Road that provides an eastbound Rea Road Extension U-turn lane with 550 feet of storage and appropriate taper length.
- Construct a signalized U-turn intersection west of Providence Road that provides a westbound Rea Road U-turn lane with 600 feet of storage and appropriate taper length.

# **Recommended Improvements by Developer**

2027 Build

## Weddington Road and Wheatberry Hill Drive / Access A

- Construct Access A with one ingress and one egress lane (shared left-through-right).
- Construct an eastbound Weddington Road right turn lane with 100 feet of storage and appropriate taper length.
- Construct a westbound Weddington Road left turn lane with 100 feet of storage and appropriate taper length.
- Provide at least 100 feet of internal protected stem (IPS) length. It should be noted that no on street parking is recommended within the IPS.

## Weddington Road and Weddington Matthews Road / Access B

- Construct Access B with one ingress and one egress lane (shared left-through-right).
- Construct a westbound through-right lane with 125 feet of storage and appropriate taper length.
- Provide at least 130 feet of IPS. It should be noted that no on street parking is recommended within the IPS.

# Providence Road and Lenny Stadler Way / Access C

• Construct Access C with one ingress and two egress lanes (1 left-through and 1 right turn lane). Provide 125 feet of storage and appropriate taper length on the westbound right turn lane.



- Construct a southbound Providence Road left turn lane with 250 feet of storage and appropriate taper length.
- Construct a northbound Providence Road right turn lane with 100 feet of storage and appropriate taper length.
- Provide at least 225 feet of IPS. It should be noted that no on street parking is recommended within the IPS.

#### 2027 Build with U-5769

## Providence Road and Lenny Stadler Way / Access C

- Construct a left-over intersection. Lenny Stadler Way and Access C will both have right-in, left-in, and right-out movements.
- Construct a southbound Providence Road left turn lane with 125 feet of storage and appropriate taper length.
- Construct a northbound Providence Road right turn lane with 100 feet of storage and appropriate taper length.
- Provide at least 225 feet of IPS. It should be noted that no on street parking is recommended within the IPS.

#### Providence Road and Northbound U-turn

 Construct a northbound Providence Road U-turn lane with at least 300 feet of storage and appropriate taper length between 600-800 feet north of the intersection of Providence Road and Lenny Stadler Way / Access C.

#### Providence Road and Southbound U-turn

 Construct a southbound Providence Road U-turn lane with at least 150 feet of storage and appropriate taper length between 600-800 feet south of the intersection of Providence Road and Lenny Stadler Way / Access C.

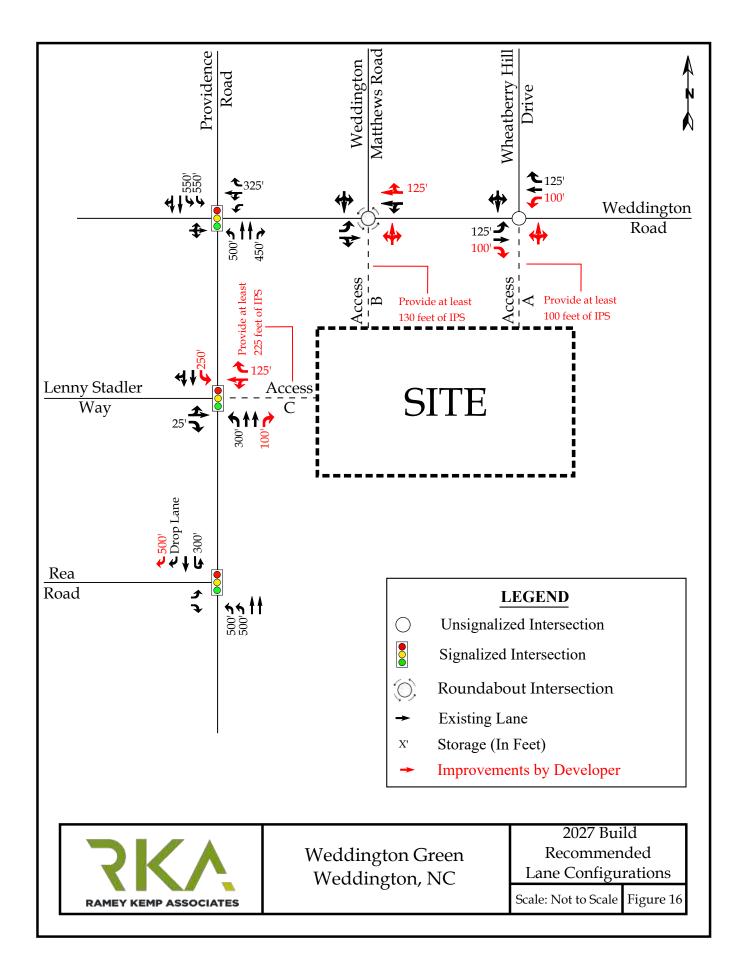


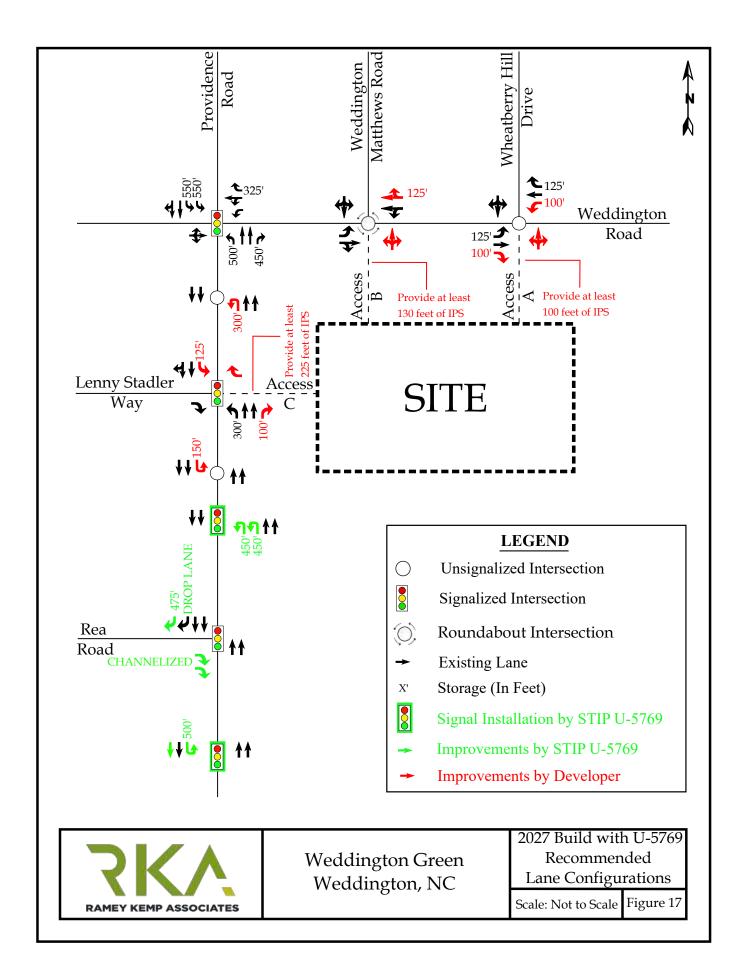
#### 2040 Build

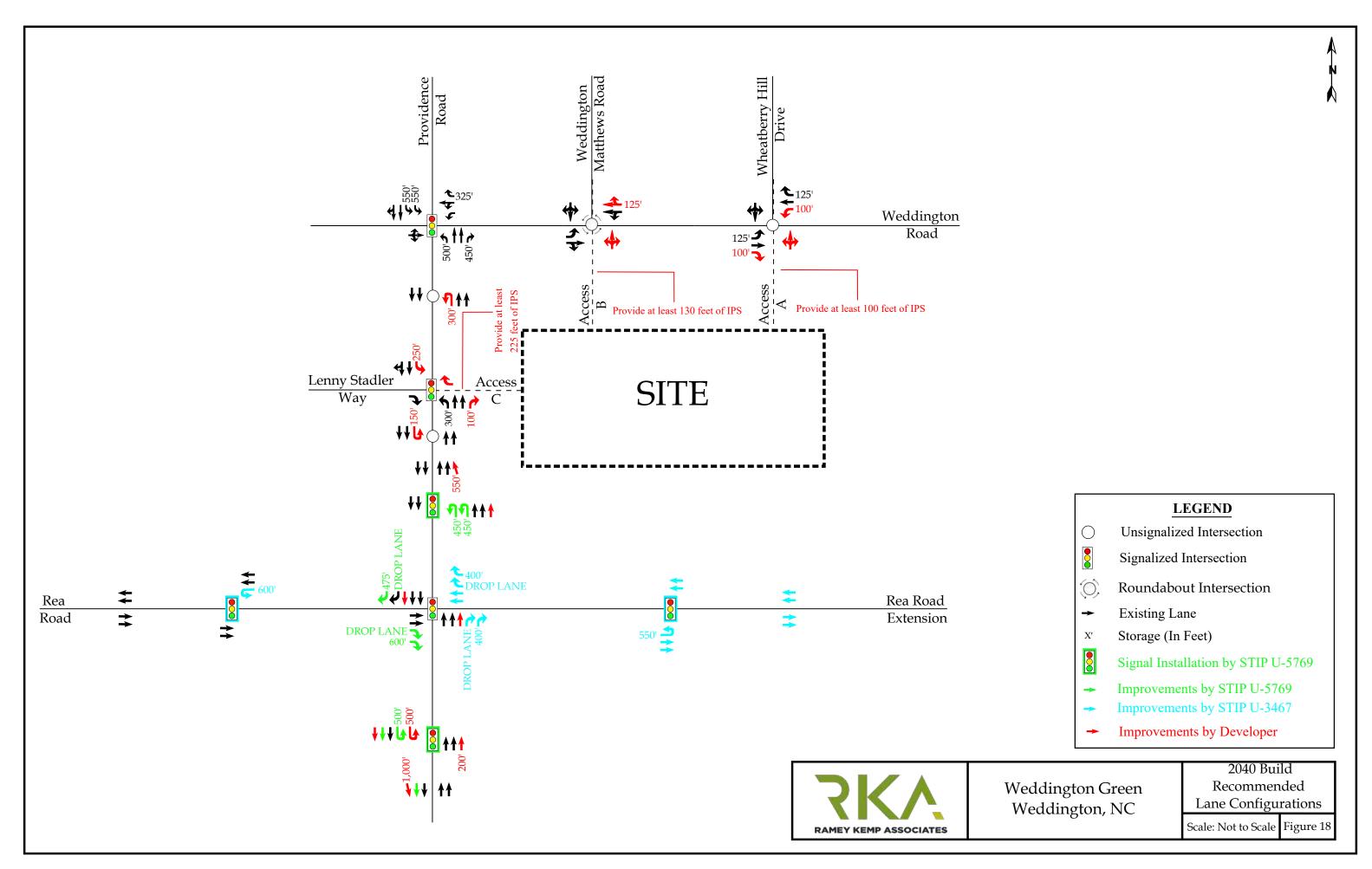
#### Providence Road and Rea Road

- Construct an additional northbound Providence Road through lane that extends 200 feet before the U-turn location south of the Providence Road and Rea Road intersection. The through lane is recommended to drop approximately 550 feet past the U-turn location north of the Providence Road and Rea Road intersection.
- Construct an additional southbound Providence Road through lane that extends back to the U-turn location north of the Providence Road and Rea Road. The through lane is recommended to drop 1,000 feet past the U-turn location south of the Providence Road and Rea Road intersection.
- Construct an additional Providence Road U-turn lane that provides 500 feet of storage and appropriate taper length at the southbound U-turn location.









# **TECHNICAL APPENDIX**



# **APPENDIX A**

# **APPROVED SCOPING DOCUMENTATION**



# STATE OF ORDER

# NCDOT Traffic Impact Analysis Need Screening / Scoping Request









A Traffic Impact Analysis (TIA) may be required for developments based on the site trip generation estimates, site context, or at the discretion of the NCDOT District Engineer. The Applicant or the TIA Consultant shall submit this form along with the site plan to the District Engineer to determine the TIA need and, if a TIA is required, initiate the TIA scoping process. Without an approved scope, the TIA is incomplete and will be rejected until the study is revised to conform to NCDOT's TIA requirements.

Project Name: Weddington Green Previous Name: If Applicable												
Loc	cation: S of Wed	dington Road	, E of Provi	idence Road	County:	Union	ļ	N	lunicipa	ality: <u>W</u>	eddingt	on
Pro	ject Description:	Mixed-Use	e developm	ent located s	south of We	ddingto	n Road	and eas	t of Pro	vidence	Road	
Pro	ject Contact:		Applica	nt				TIA	Consulta	ant		
Cor	mpany Name	Prov	ident Baya	rd, LLC			Ra	mey Ke	emp Ass	ociates		
Cor	ntact Person		Tom Wate	ers			And	lrew Ea	gle, P.E	., PTOE	Ξ	
Pho	one Number		704-201-5	150				704-	220-684	7		
Em	ail	tom@	provident	dev.com			aea	gle@ra	meyker	np.com		<u> </u>
Ma	iling Address	110	8 Industria	l Drive		82	210 Uni	versity	Executi	ve Park	Drive	
	_	Mat	thews, NC	28105			Ste. 2	20, Cha	arlotte, l	NC 282	62	
Site	e Plan Prepared E	<b>By:</b> Colejenes	t & Stone			Site	Plan D	<b>)ate</b> : 1	2-14-20	)21		
See	site plan/vicinity ma	p requirements	on page 2.					_				
Par	rcel Size: <u>76.84</u>	Acre(s)				Ant	icipate	d Build	-Out Ye	ar: <u>20</u>	27	
We	ekday Site Trip G	eneration - D	o NOT adiı	ust for mode	split, pass-b	v. interr	nal capt	ure. or	diverted	trips.		
ITE					Peak Hour	•	eak Hour		г	ak Hour	Trips	Data
LUC	Proposed Land Us	se Size	Unit	Daily Trips	Туре	Enter	Exit	Total	Enter	Exit	Total	Source
210	Single Fam Detac	h 75	DU	798	Adj. Street	14	44	58	48	29	77	ITE Equation
220	MultFam Low Ris	se 71	DU	496	Adj. Street	7	27	34	27	17	44	ITE Equation
252	Senior Housing	160	DU	618	Adj. Street	11	21	32	23	18	41	ITE Equation
710	General Office	41500	SF	452	Generator	67	10	77	20	91	111	ITE Equation
720	Med/Dental Offic	e 27300	SF	950	Adj. Street	59	17	76	26	68	94	ITE Rate
820	Shopping Center	28800	SF	2580	Adj. Street	103	63	166	104	112	216	ITE Equation
820	Shopping Center	26000	SF	2406	Adj. Street	102	63	165	96	105	201	ITE Equation
925	Drinking Place	14000	SF	954	Adj. Street	0	0	0	105	54	159	ITE Equation
												1
	Total			9254		363	245	608	449	494	943	> <
	r to the current NCD			nt Capacity A	nalysis Guide	<u>lines</u> for	accepta	ble trip o	calculatio	n metho	ds and	data sources.
**Exp	olain local or other da	ata sources, if u	sed:									
$\boxtimes$	The estimated s	ite trips meet	NCDOT'	's TIA trip	threshold o	f 3,000	daily t	rips.				
$\boxtimes$	The estimated s	ite trips meet	the muni	cipal TIA tı	rip threshol	d of	500 dai	ily trips	, 50 pea	k hour	trips	
<ul> <li>☑ The estimated site trips meet the municipal TIA trip threshold of 500 daily trips, 50 peak hour trips</li> <li>☑ This project is located in a known STIP and/ or local CIP project # U-5769A, U-3467</li> </ul>												
☐ This project is feeded in a known <u>SXM</u> and of feed on project is <u>G-5769X</u> , <u>G-5467</u> ☐ This project includes a rezoning request.												
	The proposed si	te access is 1	ocated wit	thin 1,000 f	eet of an in	terchar	nge.					
	The Applicant r	equests for a	new or m	odified con	trol-of-acc	ess bre	ak.					
	The Applicant r	-										
		*										
	Applicant's Sign	nature			Print Name	<u>,                                      </u>			-	Dat	e	

Effective Date: 10/01/2017 (Version 17-721) Page 1 of 2



# NCDOT Traffic Impact Analysis Need Screening / Scoping Request









Page 2 of 2

**Site Plan/Vicinity Map Requirement for TIA Need Screening:** While the site plan may not be finalized during the TIA scoping stage, the graphic representation of the proposed development shall provide adequate details on the development scope and context. More specifically, the site plan/map shall clearly show the location and type of each access point, spacing to adjacent and opposing driveways or intersections, internal street network, proposed buildings/parcels with their anticipated uses and sizes at full build-out and, if applicable, any nearby interstate, US, NC or Secondary Roads (SR).

Project Name:	Weddington Green	Proje	ct Reference Nu	mber:				
A TIA is Re	equired by the Local Gove	<b>rnment.</b> In additio	on, the study area	is expected to include				
NCDOT ma	intained transportation facil	ities.						
A TIA is Re	equired by NCDOT, per the	Policy on Street and L	Priveway Access to No	orth Carolina Highways.				
If either or b	ooth of the boxes above are o	checked, the Appli	cant/TIA Consult	ant is hereby requested to				
fill out as m	fill out as much as possible of the following TIA scoping checklist, and return it along with the							
supporting d	locuments to NCDOT prior	to the scoping mee	eting.					
☐ A TIA is NO	OT required. This decision	is based on the de	velopment inform	nation presented above.				
Changes in t	the development plan will i	require re-evaluati	on of the TIA ne	eed, and may necessitate a				
TIA. The Ap	pplicant should inform the I	District Engineer of	f any significant of	changes in a timely fashion				
to avoid dela	sys or rejections of the driver	way permit / encro	achment agreeme	ent applications.				
Additional Con	nments:							
The TIA need d	ecision is made by the NCD	OT Division	District on	·				
NCDOT Diete	rict Representative's Signatu		D	Int Name				
	e may be used in lieu of the signation		PII	int indine				

Effective Date: 10/01/2017 (Version 17-721)











oject Nan	<b>ne:</b> Weddington Gr	reen		TIA Scoping Date: 01-05-22			
		ns are Attached. Pro	ce #:	Decisi	on Date:		
_	n and Access ide a site plan illus	trating site access, in	ternal and ex	ternal roadw	ays, buildings and	I land uses.	
Refer	to NCDOT's <u>Policy on St</u>	reet and Driveway Access to	North Carolina H	Highways pages 1	4 and 15 for site plan red	quirements.	
⊠ Iden	tify site access.						
New	On Road	Access Ty	ре		Driveway Spa	acing	
Access	Road Name	Permitted Movements	Traffic Control	Distance (ft)	Direction	Nearest Intersection / Ac	
Access A	Weddington Rd	Conventional Full-Mvmt	2-Way Stop	0	South	Wheatberry Hill	
Access B	Weddington Rd	Roundabout	Yield	0	South	Wedd-Matt Ro	
Access C	Providence Rd	Conventional Full-Mvmt	Signal	0	East	Lenny Stadler W	
ccess D							
ccess E							
ccess F							
ccess G							
ccess H							
Existing	Existing In	tersection of	Access	Prop	Proposed Interconnectivity (If Ap		
Access	Road A	Road B	Modification	Connector #	Road Connected	Adjacent Developmen	
ccess 1				Connector 1			
ccess 2				Connector 2			
ccess 3				Connector 3			
ccess 4				Connector 4			
mod Site A this e inters	ifications of existin Access A will tie int existing intersection	ications and provisions and provisions and provisions access, loading/un to Weddington Road and Weddington	loading area across from tie in as the 4	access, bike/ Wheatberry Ith leg of the	pedestrian accom Hill Drive as the existing roundab	modation). 4th leg of out at the	
Propose	ed K-12 School Sit	e					
$\square$ NCD	OOT MSTA School	Traffic Calculator f	or	sha	all be used.		
$\square$ Peak	Hour Factors (PH	Fs) shall be adjusted.	weighted for	new school	trips (0.5 PHF by	default).	
☐ Inter	nal school circulati	on analysis is require	ed, and shoul	d be submitte	ed in advance or c	oncurrent	
	the TIA submittal.						
☐ Clari	ify traffic operation	plans (e.g. traffic ci guration, queue stora	•				

Effective Date: 10/01/2017 (Version 17-721)











# **▼** Trip Generation

The TIA Consultant shall prepare trip generation estimates following the current <u>NCDOT Congestion</u> <u>Management Capacity Analysis Guidelines</u>, and submit the calculation sheets and supporting information to the District Engineer for approval prior to capacity analysis.

ITE		0:		Peak Hour		AM Peak Hour Trips		PM Pe	eak Houi	Trips		
LUC	Proposed Land Use	Size	Unit	Daily Trips	Туре	Enter	Exit	Total	Enter	Exit	Total	Data Source
210	Single Fam Detach	75	DU	798	Adj. Street	14	44	58	48	29	77	ITE Equation
220	MultFam Low Rise	71	DU	496	Adj. Street	7	27	34	27	17	44	ITE Equation
252	Senior Housing	160	DU	618	Adj. Street	11	21	32	23	18	41	ITE Equation
710	General Office	41500	SF	452	Generator	67	10	77	20	91	111	ITE Equation
720	Med/Dental Office	27300	SF	950	Adj. Street	59	17	76	26	68	94	ITE Rate
820	Shopping Center	28800	SF	2580	Adj. Street	103	63	166	104	112	216	ITE Equation
820	Shopping Center	26000	SF	2406	Adj. Street	102	63	165	96	105	201	ITE Equation
925	Drinking Place	14000	SF	954	Adj. Street	0	0	0	105	54	159	ITE Equation
	Unadjusted Sit	e Trips		9254		363	245	608	449	494	943	><
lr	nternal Capture Trips (Atta	ch Calculation	Sheets)			16	16	32	123	124	247	NCHRP 684
-	nternal Capture % of Una		,	% %			%					
LUC	Proposed Land Use	Any Inter	nal Trips?		Pa	ass-By % of External Trips						
820	Shopping Center		External Trips		%		0 %			34 %		
	,, ,				%		%			%		
					%		%			%		
					%		%			%		
					%		%			%		
	Pass-By Trips (Attach Calculation Sheets)					0	0	0	54	54	108	
	Adjacent Street Volumes											
	Non-Pass-By Primary Trips					347	229	576	272	316	588	
	Diverted Trips, if Applicat		ifiable									

<sup>\*\*</sup>Explain local or other data sources, if used:

Pass-by trips will be limited to 10% of adjacent street traffic.

	Existing	Site 7	[rip ]	Information	for Rede	velopment	Projects	(Attach	separate	sheets as	s needed)
--	----------	--------	--------	-------------	----------	-----------	----------	---------	----------	-----------	-----------

ITE	Eviating Land Llag	Ciro	Lloit	Doily Tring	Peak Hour	AM Pe	ak Hou	r Trips	PM Pe	eak Hou	r Trips	Data Cauras
LUC	Existing Land Use	Size	Unit	Daily Trips	Type	Enter	Exit	Total	Enter	Exit	Total	Data Source
	Total Existing S	ite Trips										

Effective Date: 10/01/2017 (Version 17-721) Page 2 of 7











$\boxtimes$	Trip	Distribution
-------------	------	--------------

☐ Trip distribution diagrams of District Engineer for review	are submitted concurrently with this will be submitted separately, along w and approval prior to capacity an atticipated traffic patterns, as well as	with suppor alysis. The t	ting info	rmation, bution sh	to the
	neer, the following additional diagrams for residential, of 'internal" trips cross public street	commercial,			
☐ Mode Split					
☐ Provide Data Source and Ju	stification				
		Mode Period AM Peak PM Peak Daily	Auto % % % %	% % % %	% % % %
☐ Identify proper infrastructure	e and accommodation for other mod	les of travel			
Analysis Peak Periods:					
Weekday AM Peak	7:00 AM - 9:00 AM				
Weekday PM Peak	4:00 PM - 6:00 PM				
☐ Weekday Midday Peak					
☐ Weekday PM School Peak					
Weekend Peak	-				
Other					











# **☒** Study Area Intersections and Data Collection

The study area shall include the site access intersections (both new and existing) identified under "Site Plan and Access" on page 1, as well as the following external and, if applicable, internal intersections.

External	Interse	ction of	Traffic	Intersection Tu	rning Moveme	nt Counts	Notes
Intersection	Road A	Road B	Control	New / Existing	Date of Counts	Growth Adjustment	Notes
#1	Providence Road	Weddington Road	Signal	Require New Counts			
#2	Providence Road	Rea Road	Signal	Require New Counts			
#3	Providence Road	Lenny Stadler	Signal	Require New Counts			
#4	Weddington Road	Wedd-Matt Rd	Yield	Require New Counts			
#5	Weddington Road	Wheatberry Hill	2-Way Stop	Require New Counts			
#6							
#7							
#8							
#9							
#10							
#11							
#12							
Internal	Interse	ction of	Ac	ccess Type		pacing	
Intersection	Road A	Road B	Traffic Control	Permitted Movements	Distance (ft)	Direction	Nearest Intersection
#101							
#102							
#103							
#104							
#105							

Effective Date: 10/01/2017 (Version 17-721)

The following data will be collected:











# **▼** Future Year Conditions

□ Project Build-Out Year:	2027	
	2040 (TIP Design Year)	
☐ Identify below any funded/con	nmitted future transportation imp	provements, as well as any approved
but incomplete developments r	ear the site.	

Funded STIP / Local CIP Project	Pro	Year Complete			
U-5769A	NC 16 (Prov	idence Road) Widening	*		
U-3467	NC	**			
Nearby Approved	Location	Future Land Use	Committed Improvements		
Development	Location	(exclude any completed phases)	Committee improvements		

Annual Growth Factor:	%	
Justification/Data Source:	2.5% Based on coordination with NCDOT	

# ☐ Local Comprehensive Transportation Plan Compliance

☐ Identify Applicable Local Transportation Planning Documents

\*Construction for U-5769A is 2027

☐ Identify Applicable Roadways inside the Study Area

Classification	Speed Limit	Proposed Cross-Section	Proposed Right-of-Way	Compliance Requirements	Affect Study Intersection #
			Classification Limit Proposed Cross-Section	Classification Speed Limit Proposed Cross-Section Right-of-Way	Classification Speed Limit Proposed Cross-Section Right-of-Way Compliance Requirements

Effective Date: 10/01/2017 (Version 17-721)

<sup>\*\*</sup> Construction for U-3467 is 2029











# **∑** Study Method

The traffic analysis shall follow the current NCDOT Congestion Management Capacity Analysis Guidelines, Policy on Street and Driveway Access to North Carolina Highways, and use the current approved version of analysis software (e.g. Synchro/SimTraffic, HCS, Sidra Intersection, TransModeler).

The study shall include the following analysis scenarios for each analysis period.

- 1. Existing Conditions
- 2. Future No-Build Conditions (existing + background growth + approved developments + committed or funded improvements)
- 3. Future Build Conditions (future no-build + site trips)

4	4. Future Build with Improvements Conditions (future build traffic with improvements to mitigate
	the proposed development's impacts) and, if applicable:
$\boxtimes 5$	5. TIP Design Year Analysis 2040
$\Box \epsilon$	6. Alternative Access Scenario (without proposed control-of-access or median break / modification)
Γhe t	following additional analysis/outputs should be provided as warranted:
[	☐ Signal Warrant Analysis for accesses/intersections
[	☐ Multi-Modal Level of Service Analysis
[	☐ School Loading Zone Traffic Simulation
[	☐ Phasing Analysis (scope separately as needed)
[	☐ Safety/Crash Analysis
[	☐ Control-of-Access Modification Justification
[	☐ Median Break / Modification Justification
[	☐ Other
$\boxtimes$	Submittals

In addition to the hardcopies required below, the TIA Consultant shall provide the District Engineer and, if required, the local government an electronic copy of the study documents, including the latest site plan, figures and appendices, in searchable PDF files and the original traffic analysis files (e.g., Synchro, HCS). To expedite review, the NCDOT electronic submittals shall also be delivered concurrently to:

☑ Div. Traffic Engr ☐ Regional Traffic Engr ☒ Congestion Management ☐ Other

	Submittals	NCD	OT	Local Gove	ernment
	Submittals	Electronic	Hardcopy	Electronic	Hardcopy
Ī	Trip Generation & Distribution	Required			
Ī	Draft TIA Report	Required			
	Final Sealed TIA Report	Required	2		

Additional Comments (municipal TIA requirements, approved variations from NCDOT guidelines)











#### **Agreement by All Parties**

The undersigned agree to the contents and methodology described above for completing the required traffic impact analysis for the proposed development identified herein. Any changes to the above methodology contemplated by the Applicant or the TIA Consultant must be submitted to the District Engineer in writing. If approved by NCDOT, then such changes may be accepted for the TIA report. Subsequent revisions to the development plan (e.g. land use, density, site access, or schedule) may require additional scoping and analysis, and may modify the TIA requirements.

This agreement shall become effective on the date approved by NCDOT, and shall expire \_\_\_\_\_ months after the effective date or upon significant changes to the roadway network and/or development assumptions, whichever occurs first. Once expired, renewal or re-scoping will be required for subsequent TIA submittals.

Signature	Print Name	Date
TIA CONSULTANT		
Signature  LOCAL GOVERNMENT REPRI		Date
	ESENTATIVE (If Applicable)  Print Name	Date
Signature il concurrence may be used in lieu of the sign	Print Name nature.	
LOCAL GOVERNMENT REPRI	Print Name nature.	

Effective Date: 10/01/2017 (Version 17-721)

# SINCE OF STREET

# **NCDOT TIA Submittal Checklist**









Submittal:	Final Sealed TIA	Report			Do	cument Date:	<u>01-31-2022</u>
Project Name:	Weddington Gre	en		Previous	Name: If Applicable		
NCDOT Division	n:10	District:	3	County:	Union	Municipality:	Weddington
TIA Consultant:	Ramey Kemp	Associates		Submitted	By: J. Andrew Eagle	e, PE, PTOE	
Phone Number:	704-549-4260			Email:	Aeagle@Rameykem	ıp.Com	
TIA Scoping Ch	ecklist Approva	l Date: <u>0</u> 1-19-	2022	Unadjust	ed Daily Site Trips:	9,254	
	ed TIA Scoping	g Checklist is	includ	ed in this	submittal.		
LOS D or b	etter is expecte	d at all study	interse	ctions aft	er proposed mitigat	ions.	
☐ The study r	eport is sealed	by a NC Profe	essiona	l Enginee	er with expertise in	traffic engine	ering.
☐ This study	has identified a	ll known defi	ciencie	s with an	d without the propo	sed developm	ent.
☐ This study	has identified m	nitigation mea	ısures t	o adequa	tely accommodate t	he site trips.	
Explain here if	•						
Some approach are similar to the	-		at LOS	E or F, bu	it queueing impacts	s on these app	oroaches
are similar to ti	ic ito balla col	Microtti					

The undersigned affirms that, except for the deviations noted below, the TIA submittal conforms to the current <u>NCDOT Congestion Management Capacity Analysis Guidelines</u>, <u>Policy on Street and Driveway Access to North Carolina Highways</u>, and the TIA Scoping Checklist approved by the NCDOT District Office. The undersigned also acknowledges that the TIA will be rejected if the deviations and justifications are not properly documented and approved by NCDOT.

**Deviations and Justifications** (e.g., changes in site plan, development schedule, site trip and off-site trip estimates, study area, data collection, analysis period and method. Attached separate sheets if needed.)

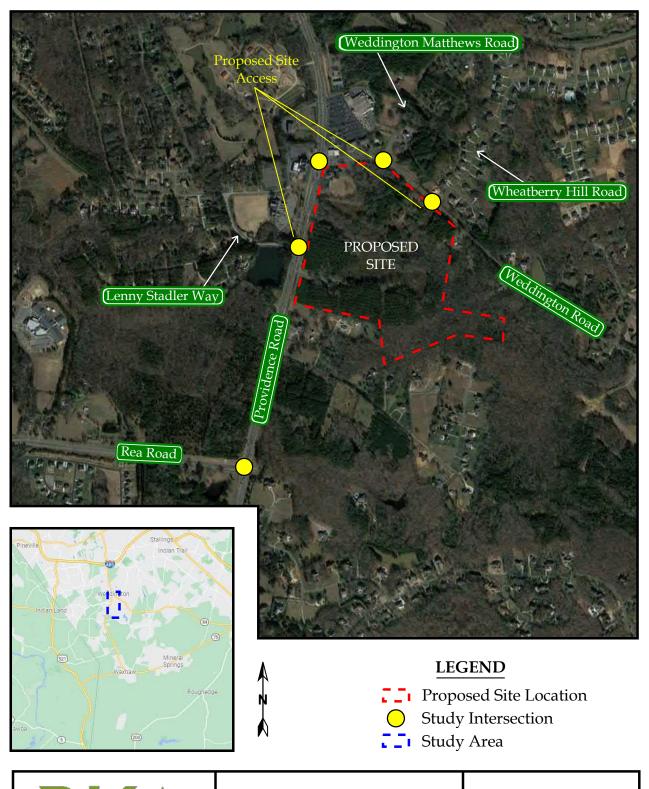
TA Consultant's Signature (Professional Engineer of TIA Record)

Print Name

1-31-2022

Date

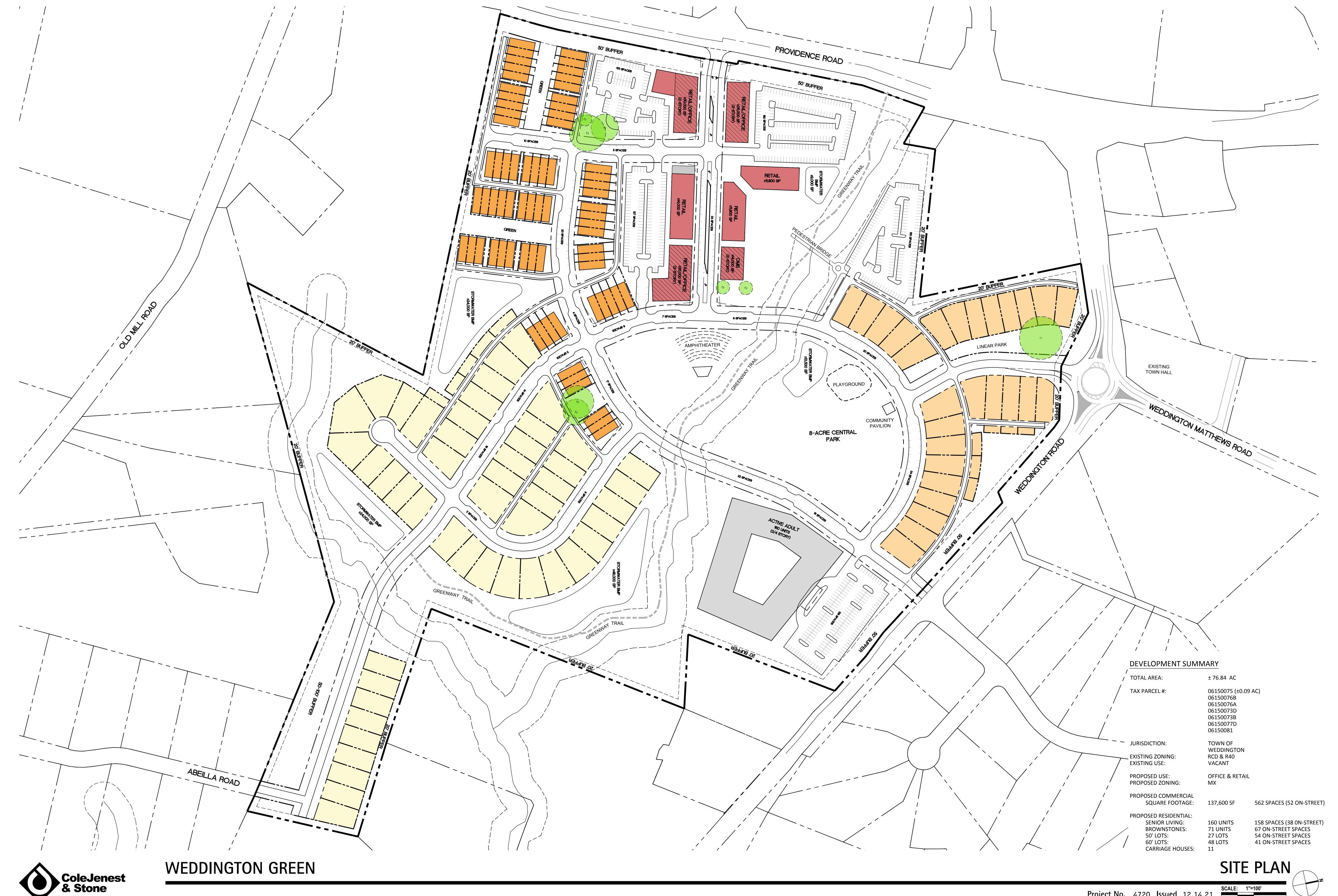
Effective Date: 10/01/2017 (Version 17-721)





Weddington Green Weddington, NC

Site Location Map



**Site Trip Generation** 

					Daily			AM Peak			PM Peak	
Code	Land Use	Size	Unit	ln	Out	Total	In	Out	Total	ln	Out	Total
210	Single Family Homes	75	DU				14	44	58	48	29	77
	Internal Capture Trips		399	399	798	0	1	1	15	9	24	
	Total New External Trips						14	43	57	33	20	53
220	Townhomes	71	DU				7	27	34	27	17	44
		Interna	al Capture Trips	248	248	496	1	1	2	9	5	14
		Total Nev	w External Trips				6	26	32	18	12	30
252	Senior Adult Housing - Attached	160	DU				11	21	32	23	18	41
		Interna	al Capture Trips	309	309	618	0	1	1	8	5	13
		Total Nev	w External Trips				11	20	31	15	13	28
710	General Office Space	41.5	KSF				67	10	77	20	91	111
			al Capture Trips	226	226	452	4	3	7	4	9	13
		Total Nev	w External Trips				63	7	70	16	82	98
720	Medical-Dental Office Building	27.3	KSF				59	17	76	26	68	94
		Interna	al Capture Trips	475	475	950	3	4	7	5	6	11
		Total Nev	w External Trips				56	13	69	21	62	83
820	Shopping Center (B,F,G)	28.8	KSF				103	63	166	104	112	216
		Interna	al Capture Trips	1,290	1,290	2,580	4	3	7	19	29	48
			Pass-By Trips	1,250	1,230	2,000	-	-	-	28	28	56
		Total Nev	w External Trips				99	60	159	57	55	112
820	Shopping Center (A,C,D)	26.0	KSF				102	63	165	96	105	201
		Interna	al Capture Trips	1,203	1,203	2,406	4	3	7	17	27	44
			Pass-By Trips	1,200	1,200	2,400	-	-	-	26	26	52
		Total Nev	w External Trips				98	60	158	53	52	105
925	Drinking Place*	14.0	KSF				0	0	0	105	54	159
	·		al Capture Trips	477	477	954	0	0	0	46	34	80
		Total Nev	w External Trips				0	0	0	59	20	79
			Total Trips	4,627	4,627	9,254	363	245	608	449	494	943
		Total Interna	al Capture Trips	-	-	-	16	16	32	123	124	247
			al Pass-By Trips	-	-	-	-	-	-	54	54	108
		Total New	External Trips	4,627	4,627	9,254	347	229	576	272	316	588

<sup>\*</sup> The weekday daily trips were estimated by multiplying the hours of operation by the total weekday PM peak hour trips.

## Building A

- 6,000 sf of Retail
- 24,000 sf of Office

## **Building B**

- 5,200 sf of Retail
- 20,800 sf of Office

#### Building C

- 14,000 sf of Retail

#### Building D

- 6,000 sf of Retail
- 24,000 sf of Office

#### Building E

- 14,000 sf of Drinking Place

#### Building F

- 11,800 sf of Retail

#### Building G

- 11,800 sf of Retail

\*Total Office square footage was split 60%/40% between General Office/MOB

	NCHRP 684 Internal Trip Capture Estimation Tool									
Project Name:	Weddington Green		Organization:	Ramey Kemp Associates						
Project Location:	Weddington, NC		Performed By:							
Scenario Description:	Weekday AM Peak Hour	Ī	Date:							
Analysis Year:	2027 Build	Ī	Checked By:							
Analysis Period:	AM Street Peak Hour		Date:							

Land Use	Developme	Development Data (For Information Only)			Estimated Vehicle-Trips <sup>3</sup>			
Land Ose	ITE LUCs1	ITE LUCs <sup>1</sup> Quantity		Total	Entering	Exiting		
Office	710/720	68,800	SF	153	126	27		
Retail	820	54,800	SF	331	205	126		
Restaurant	925	14,000	SF					
Cinema/Entertainment								
Residential	210/220/252	306	DU	124	32	92		
Hotel								
All Other Land Uses <sup>2</sup>								
				608	363	245		

	Table 2-A: Mode Split and Vehicle Occupancy Estimates										
Land Use		Entering Trips Exiting Trips			Entering Trips						
Land Ose	Veh. Occ.4	% Transit	% Non-Motorized	on-Motorized Veh. Occ.4		% Transit	% Non-Motorized				
Office	1.10	0%	0%		1.10	0%	0%				
Retail	1.10	0%	0%		1.10	0%	0%				
Restaurant	1.10	0%	0%		1.10	0%	0%				
Cinema/Entertainment	1.10	0%	0%		1.10	0%	0%				
Residential	1.10	0%	0%		1.10	0%	0%				
Hotel	1.10	0%	0%		1.10	0%	0%				
All Other Land Uses <sup>2</sup>	1.10	0%	0%		1.10	0%	0%				

	Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)									
Origin (From)		Destination (To)								
Origin (From)	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel				
Office										
Retail										
Restaurant										
Cinema/Entertainment										
Residential										
Hotel										

	Table 4-A: Internal Person-Trip Origin-Destination Matrix*									
Origin (From)		Destination (To)								
Origin (From)	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel				
Office		8	0	0	0	0				
Retail	6		0	0	1	0				
Restaurant	0	0		0	0	0				
Cinema/Entertainment	0	0	0		0	0				
Residential	2	1	0	0		0				
Hotel	0	0	0	0	0					

Table 5-A	A: Computatio	ns Summary	
	Total	Entering	Exiting
All Person-Trips	670	400	270
Internal Capture Percentage	5%	5%	7%
External Vehicle-Trips <sup>5</sup>	576	347	229
External Transit-Trips <sup>6</sup>	0	0	0
External Non-Motorized Trips <sup>6</sup>	0	0	0

Table 6-A: Interna	Table 6-A: Internal Trip Capture Percentages by Land Use									
Land Use	Entering Trips	Exiting Trips								
Office	6%	27%								
Retail	4%	5%								
Restaurant	N/A	N/A								
Cinema/Entertainment	N/A	N/A								
Residential	3%	3%								
Hotel	N/A	N/A								

<sup>1</sup>Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

<sup>6</sup>Person-Trips

\*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

<sup>&</sup>lt;sup>2</sup>Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

<sup>&</sup>lt;sup>3</sup>Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

<sup>&</sup>lt;sup>4</sup>Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

<sup>&</sup>lt;sup>5</sup>Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

Project Name:	Weddington Green
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends									
Land Use	Tab	ole 7-A (D): Enter	ing Trips		Table 7-A (O): Exiting Trips				
Land OSE	Veh. Occ.	Veh. Occ. Vehicle-Trips Person-Trips*		Veh. Occ.	Vehicle-Trips	Person-Trips*			
Office	1.10	126	139		1.10	27	30		
Retail	1.10	205	226		1.10	126	139		
Restaurant	1.10	0	0		1.10	0	0		
Cinema/Entertainment	1.10	0	0		1.10	0	0		
Residential	1.10	32	35		1.10	92	101		
Hotel	1.10	0	0		1.10	0	0		

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)										
Origin (From)		Destination (To)								
Origin (From)	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel				
Office		8	19	0	0	0				
Retail	40		18	0	19	0				
Restaurant	0	0		0	0	0				
Cinema/Entertainment	0	0	0		0	0				
Residential	2	1	20 0 0							
Hotel	0	0	0	0	0					

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)									
Origin (Fram)				Destination (To)					
Origin (From)	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel			
Office		72	0	0	0	0			
Retail	6		0	0	1	0			
Restaurant	19	18		0	2	0			
Cinema/Entertainment	0	0	0		0	0			
Residential	4	4 38 0 0 0							
Hotel	4	9	0	0	0				

	Table 9-A (D): Internal and External Trips Summary (Entering Trips)										
Destination Land Use		Person-Trip Esti	mates		External Trips by Mode*						
Destination Land Use	Internal	External	Total	1	Vehicles <sup>1</sup>	Transit <sup>2</sup>	Non-Motorized <sup>2</sup>				
Office	8	131	139		119	0	0				
Retail	9	217	226		197	0	0				
Restaurant	0	0	0		0	0	0				
Cinema/Entertainment	0	0	0		0	0	0				
Residential	1	34	35		31	0	0				
Hotel	0	0	0		0	0	0				
All Other Land Uses <sup>3</sup>	0	0	0		0	0	0				

	Table 9-A (O): Internal and External Trips Summary (Exiting Trips)									
Origin Land Lloo		Person-Trip Esti	mates		External Trips by Mode*					
Origin Land Use	Internal	External	Total	1	Vehicles <sup>1</sup>	Transit <sup>2</sup>	Non-Motorized <sup>2</sup>			
Office	8	22	30		20	0	0			
Retail	7	132	139		120	0	0			
Restaurant	0	0	0	Ī	0	0	0			
Cinema/Entertainment	0	0	0		0	0	0			
Residential	3	98	101		89	0	0			
Hotel	0	0	0		0	0	0			
All Other Land Uses <sup>3</sup>	0	0	0		0	0	0			

<sup>1</sup>Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

<sup>2</sup>Person-Trips

<sup>3</sup>Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator \*Indicates computation that has been rounded to the nearest whole number.

	NCHRP 684 Internal Trip Capture Estimation Tool									
Project Name:	Weddington Green	Organization:	Ramey Kemp Associates							
Project Location:	Weddington, NC		Performed By:							
Scenario Description:	Weekday AM Peak Hour		Date:							
Analysis Year:	2027 Build		Checked By:							
Analysis Period:	Analysis Period: PM Street Peak Hour Date:									

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)									
Land Use	Developme	ent Data ( <i>For Info</i>	ormation Only)			Estimated Vehicle-Trips <sup>3</sup>			
Land Ose	ITE LUCs1	Quantity	Units		Total	Entering	Exiting		
Office	710/720	68,800	SF		205	46	159		
Retail	820	54,800	SF		417	200	217		
Restaurant	925	14,000	SF		159	105	54		
Cinema/Entertainment									
Residential	210/220/252	306	DU		162	98	64		
-lotel				ĪΓ					
All Other Land Uses <sup>2</sup>									
					943	449	494		

Table 2-P: Mode Split and Vehicle Occupancy Estimates									
Land Use		Entering Trip	os			Exiting Trips			
Land Ose	Veh. Occ.4	Veh. Occ. <sup>4</sup> % Transit % Non-Motorized			Veh. Occ.⁴	% Transit	% Non-Motorized		
Office	1.10	0%	0%		1.10	0%	0%		
Retail	1.10	0%	0%		1.10	0%	0%		
Restaurant	1.10	0%	0%		1.10	0%	0%		
Cinema/Entertainment	1.10	0%	0%		1.10	0%	0%		
Residential	1.10	0%	0%		1.10	0%	0%		
Hotel	1.10	0%	0%		1.10	0%	0%		
All Other Land Uses <sup>2</sup>	1.10	0%	0%		1.10	0%	0%		

	Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)								
Origin (France)				Destination (To)					
Origin (From)	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel			
Office		850			2870				
Retail					2870				
Restaurant									
Cinema/Entertainment									
Residential		2870							
Hotel									

Table 4-P: Internal Person-Trip Origin-Destination Matrix*									
Origin (Fram)				Destination (To)					
Origin (From)	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel			
Office		14	2	0	1	0			
Retail	5		34	0	23	0			
Restaurant	2	24		0	11	0			
Cinema/Entertainment	0	0	0		0	0			
Residential	3	3 2 15 0 0							
Hotel	0	0	0	0	0				

Table 5-P: Computations Summary										
Total Entering Exiting										
All Person-Trips	1,038	495	543							
Internal Capture Percentage	26%	27%	25%							
External Vehicle-Trips <sup>5</sup>	696	326	370							
External Transit-Trips <sup>6</sup>	0	0	0							
External Non-Motorized Trips <sup>6</sup>	0	0	0							

Table 6-P: Internal Trip Capture Percentages by Land Use									
Land Use	Entering Trips	Exiting Trips							
Office	20%	10%							
Retail	18%	26%							
Restaurant	44%	63%							
Cinema/Entertainment	N/A	N/A							
Residential	32%	29%							
Hotel	N/A	N/A							

<sup>1</sup>Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

<sup>2</sup>Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

<sup>3</sup>Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual* ).

<sup>4</sup>Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made <sup>5</sup>Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

<sup>6</sup>Person-Trips

\*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	Weddington Green
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends												
Land Use	Table	7-P (D): Entering	g Trips		-	Table 7-P (O): Exiting Trips						
	Veh. Occ.	Vehicle-Trips	Person-Trips*	1	Veh. Occ.	Vehicle-Trips	Person-Trips*					
Office	1.10	46	51	1	1.10	159	175					
Retail	1.10	200	220	1	1.10	217	239					
Restaurant	1.10	105	116	1	1.10	54	59					
Cinema/Entertainment	1.10	0	0	1	1.10	0	0					
Residential	1.10	98	108	1	1.10	64	70					
Hotel	1.10	0	0	1	1.10	0	0					

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)												
Origin (From)		Destination (To)										
Origin (From)	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel						
Office		28	7	0	1	0						
Retail	5		69	10	23	12						
Restaurant	2	24		5	11	4						
Cinema/Entertainment	0	0	0		0	0						
Residential	3	3	15	0		2						
Hotel	0	0	0	0	0							

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)												
Origin (From)		Destination (To)										
Origin (From)	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel						
Office		14	2	0	4	0						
Retail	16		34	0	50	0						
Restaurant	15	110		0	17	0						
Cinema/Entertainment	3	9	3		4	0						
Residential	29	2	16	0		0						
Hotel	0	4	6	0	0							

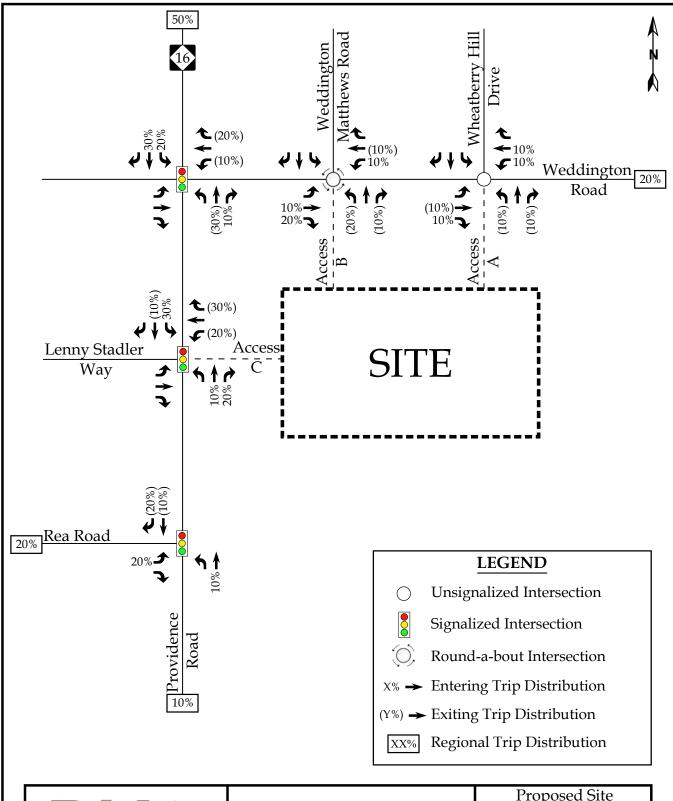
Table 9-P (D): Internal and External Trips Summary (Entering Trips)												
Destination Land Use	Р	erson-Trip Estima	ites			External Trips by Mode*						
Destillation Land Ose	Internal	External	Total		Vehicles <sup>1</sup>	Transit <sup>2</sup>	Non-Motorized <sup>2</sup>					
Office	10	41	51		37	0	0					
Retail	40	180	220		164	0	0					
Restaurant	51	65	116		59	0	0					
Cinema/Entertainment	0	0	0		0	0	0					
Residential	35	73	108		66	0	0					
Hotel	0	0	0		0	0	0					
All Other Land Uses <sup>3</sup>	0	0	0		0	0	0					

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)												
Origin Land Use	P	erson-Trip Estima	ites			External Trips by Mode*						
Origin Land Ose	Internal	External	Total		Vehicles <sup>1</sup>	Transit <sup>2</sup>	Non-Motorized <sup>2</sup>					
Office	17	158	175		144	0	0					
Retail	62	177	239		161	0	0					
Restaurant	37	22	59		20	0	0					
Cinema/Entertainment	0	0	0		0	0	0					
Residential	20	50	70		45	0	0					
Hotel	0	0	0		0	0	0					
All Other Land Uses <sup>3</sup>	0	0	0		0	0	0					

<sup>1</sup>Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

<sup>2</sup>Person-Trips

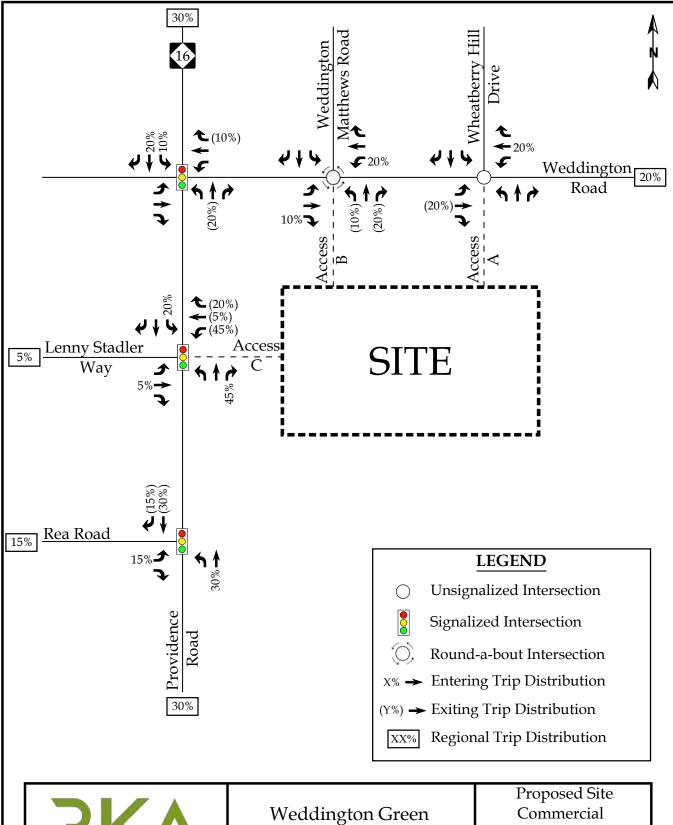
<sup>3</sup>Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator \*Indicates computation that has been rounded to the nearest whole number.





Weddington Green Weddington, NC

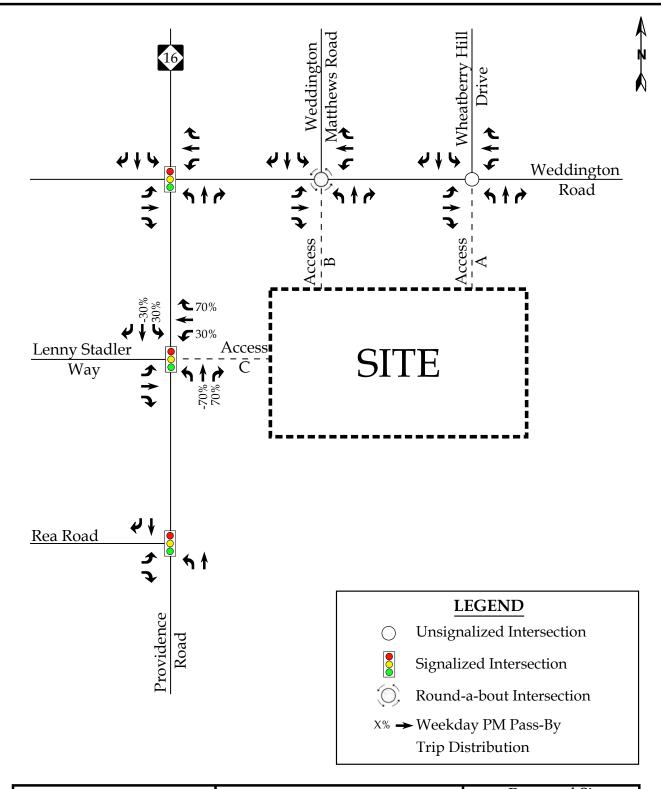
Proposed Site Residential Trip Distribution





Weddington, NC

Trip Distribution





Weddington Green Weddington, NC Proposed Site Pass-By Trip Distribution

# **APPENDIX B**

# TRAFFIC COUNT DATA





File Name: Weddington(Weddington and Wheatberry Hill) AM Peak

Site Code:

Start Date : 12/9/2021

Page No : 1

Groups Printed- Cars + - Trucks

			G	roups Printed	d- Cars + -	Trucks				
	Whea	tberry Hill	Drive	Wed	ddington R	oad	Wed	Idington R	oad	
	S	outhbound	k	\	<b>Nestbound</b>			<u>Eastbound</u>		
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
07:00 AM	3	5	8	4	186	190	79	3	82	280
07:15 AM	1	2	3	1	203	204	90	0	90	297
07:30 AM	6	2	8	3	148	151	116	4	120	279
07:45 AM	2	3	5	1	110	111	102	1	103	219
Total	12	12	24	9	647	656	387	8	395	1075
08:00 AM	4	0	4	2	149	151	105	3	108	263
08:15 AM	0	2	2	1	174	175	113	0	113	290
08:30 AM	3	1	4	1	165	166	105	5	110	280
 08:45 AM	3	2	5	1	191	192	119	7	126	323
Total	10	5	15	5	679	684	442	15	457	1156
Grand Total	22	17	39	14	1326	1340	829	23	852	2231
Apprch %	56.4	43.6		1	99		97.3	2.7		
 Total %	1	0.8	1.7	0.6	59.4	60.1	37.2	1	38.2	
Cars +	22	17	39	13	1306	1319	803	21	824	2182
% Cars +	100	100	100	92.9	98.5	98.4	96.9	91.3	96.7	97.8
Trucks	0	0	0	1	20	21	26	2	28	49
% Trucks	0	0	0	7.1	1.5	1.6	3.1	8.7	3.3	2.2

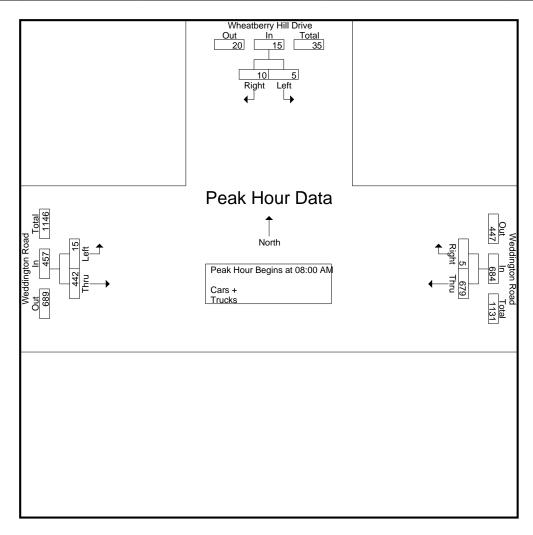


File Name: Weddington(Weddington and Wheatberry Hill) AM Peak

Site Code:

Start Date : 12/9/2021

		atberry Hill		W	Weddington Road Westbound			Weddington Road Eastbound				
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total		
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 08:00 AM												
08:00 AM	4	0	4	2	149	151	105	3	108	263		
08:15 AM	0	2	2	1	174	175	113	0	113	290		
08:30 AM	3	1	4	1	165	166	105	5	110	280		
08:45 AM	3	2	5	1	191	192	119	7	126	323		
Total Volume	10	5	15	5	679	684	442	15	457	1156		
% App. Total	66.7	33.3		0.7	99.3		96.7	3.3				
PHF	.625	.625	.750	.625	.889	.891	.929	.536	.907	.895		





File Name: Weddington(Weddington and Wheatberry Hill) PM Peak

Site Code:

Start Date : 12/9/2021

Page No : 1

Groups Printed- Cars + - Trucks

			G	roups Printed	d- Cars + -	Trucks				
	Whea	tberry Hill	Drive	We	ddington R	oad	Wed	ddington R	oad	
	S	outhbound	k		Westbound			Eastbound		
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
04:00 PM	2	1	3	1	144	145	172	3	175	323
04:15 PM	1	0	1	2	171	173	183	2	185	359
04:30 PM	1	1	2	1	143	144	174	0	174	320
04:45 PM	2	1	3	0	133	133	204	1	205	341_
Total	6	3	9	4	591	595	733	6	739	1343
05:00 PM	4	2	6	0	161	161	218	3	221	388
05:15 PM	2	0	2	3	145	148	175	4	179	329
05:30 PM	2	0	2	2	183	185	169	5	174	361
 05:45 PM	6	0	6	0	152	152	171	3	174	332
Total	14	2	16	5	641	646	733	15	748	1410
Grand Total	20	5	25	9	1232	1241	1466	21	1487	2753
Apprch %	80	20		0.7	99.3		98.6	1.4		
Total %	0.7	0.2	0.9	0.3	44.8	45.1	53.3	8.0	54	
Cars +	19	5	24	9	1218	1227	1448	20	1468	2719
% Cars +	95	100	96	100	98.9	98.9	98.8	95.2	98.7	98.8
Trucks	1	0	1	0	14	14	18	1	19	34
% Trucks	5	0	4	0	1.1	1.1	1.2	4.8	1.3	1.2

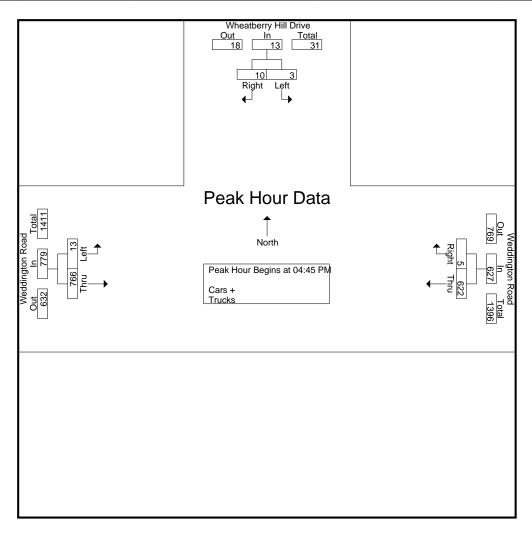


File Name: Weddington(Weddington and Wheatberry Hill) PM Peak

Site Code:

Start Date : 12/9/2021

		tberry Hill Couthbound	Drive		Weddington Road Westbound			Weddington Road Eastbound				
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total		
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 04:45 PM												
04:45 PM	2	1	3	0	133	133	204	1	205	341		
05:00 PM	4	2	6	0	161	161	218	3	221	388		
05:15 PM	2	0	2	3	145	148	175	4	179	329		
05:30 PM	2	0	2	2	183	185	169	5	174	361		
Total Volume	10	3	13	5	622	627	766	13	779	1419		
% App. Total	76.9	23.1		8.0	99.2		98.3	1.7				
PHF	.625	.375	.542	.417	.850	.847	.878	.650	.881	.914		





File Name: Weddington(Weddington and Weddington Matthews)AM Peak

Site Code:

Start Date : 12/9/2021

					Groups F	Printed- Ca	ars + - Tr	ucks					
	Wedo	dington M	1atthews	Road	•	Weddign	iton Road	d	Weddignton Road				
		Southbound Westbound											
Start Time	Right	Left	UTrn	App. Total	Right	Thru	UTrn	App. Total	Thru	Left	UTrn	App. Total	Int. Total
07:00 AM	25	4	0	29	4	185	0	189	82	28	0	110	328
07:15 AM	46	8	0	54	12	191	0	203	80	30	2	112	369
07:30 AM	64	13	0	77	12	146	0	158	110	37	1	148	383
07:45 AM	49	11	0	60	4	111	0	115	93	37	2	132	307
Total	184	36	0	220	32	633	0	665	365	132	5	502	1387
08:00 AM	66	13	0	79	4	149	0	153	92	24	4	120	352
08:15 AM	61	6	0	67	4	166	0	170	108	28	3	139	376
08:30 AM	51	7	0	58	7	163	1	171	103	29	2	134	363
08:45 AM	46	10	0	56	7	185	0	192	120	29	7	156	404
Total	224	36	0	260	22	663	1	686	423	110	16	549	1495
Grand Total	408	72	0	480	54	1296	1	1351	788	242	21	1051	2882
Apprch %	85	15	0		4	95.9	0.1		75	23	2		
Total %	14.2	2.5	0	16.7	1.9	45	0	46.9	27.3	8.4	0.7	36.5	
Cars +	401	72	0	473	54	1276	0	1330	764	237	19	1020	2823
% Cars +	98.3	100	0	98.5	100	98.5	0	98.4	97	97.9	90.5	97.1	98
Trucks	7	0	0	7	0	20	1	21	24	5	2	31	59
% Trucks	17	0	0	1.5	0	1.5	100	16	3	21	9.5	29	2

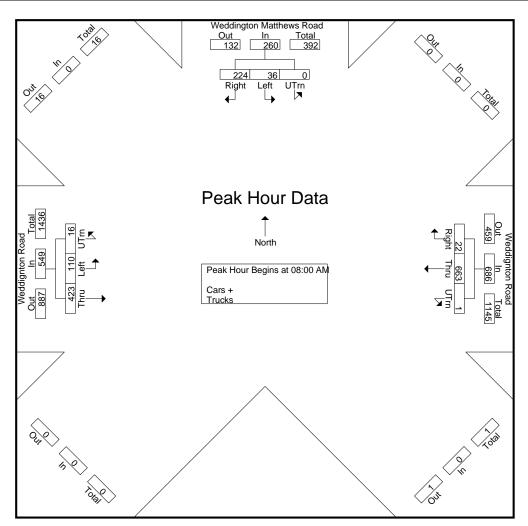


File Name: Weddington(Weddington and Weddington Matthews)AM Peak

Site Code:

Start Date : 12/9/2021

	Wedo	Road		Weddign	ton Road	t	Weddignton Road Eastbound						
Start Time	Right	Left	bound UTrn	App. Total	Right	Thru	UTrn	App. Total	Thru	Left	UTrn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entir	re Intersect	ion Begin	s at 08:00	MA C									
08:00 AM	66	13	0	79	4	149	0	153	92	24	4	120	352
08:15 AM	61	6	0	67	4	166	0	170	108	28	3	139	376
08:30 AM	51	7	0	58	7	163	1	171	103	29	2	134	363
08:45 AM	46	10	0	56	7	185	0	192	120	29	7	156	404
Total Volume	224	36	0	260	22	663	1	686	423	110	16	549	1495
% App. Total	86.2	13.8	0		3.2	96.6	0.1		77	20	2.9		
PHF	.848	.692	.000	.823	.786	.896	.250	.893	.881	.948	.571	.880	.925





File Name: Weddington(Weddington and Weddington Matthews)PM Peak

Site Code:

Start Date : 12/9/2021

					Groups P	<u>rinted- Ca</u>	<u>ırs + - Tr</u>	ucks					
	Wed	dington N	1atthews	Road		Weddign	ton Road	t		l t			
		South	bound		Westbound								
Start Time	Right	Left	UTrn	App. Total	Right	Thru	UTrn	App. Total	Thru	Left	UTrn	App. Total	Int. Total
04:00 PM	56	11	0	67	10	133	0	143	164	35	1	200	410
04:15 PM	44	26	0	70	10	163	0	173	164	37	2	203	446
04:30 PM	37	18	0	55	13	136	0	149	160	38	3	201	405
04:45 PM	55	17	0	72	6	124	1_	131	187	43	4	234	437
Total	192	72	0	264	39	556	1	596	675	153	10	838	1698
05:00 PM	37	16	0	53	11	148	2	161	204	44	1	249	463
05:15 PM	48	17	0	65	5	147	0	152	161	50	1	212	429
05:30 PM	48	15	0	63	5	178	1	184	160	42	3	205	452
05:45 PM	44	11	0	55	5	157	0	162	160	46	2	208	425
Total	177	59	0	236	26	630	3	659	685	182	7	874	1769
Grand Total	369	131	0	500	65	1186	4	1255	1360	335	17	1712	3467
Apprch %	73.8	26.2	0		5.2	94.5	0.3		79.4	19.6	1		
Total %	10.6	3.8	0	14.4	1.9	34.2	0.1	36.2	39.2	9.7	0.5	49.4	
Cars +	367	130	0	497	64	1170	4	1238	1340	328	17	1685	3420
% Cars +	99.5	99.2	0	99.4	98.5	98.7	100	98.6	98.5	97.9	100	98.4	98.6
Trucks	2	1	0	3	1	16	0	17	20	7	0	27	47
% Trucks	0.5	0.8	0	0.6	1.5	1.3	0	1.4	1.5	2.1	0	1.6	1.4

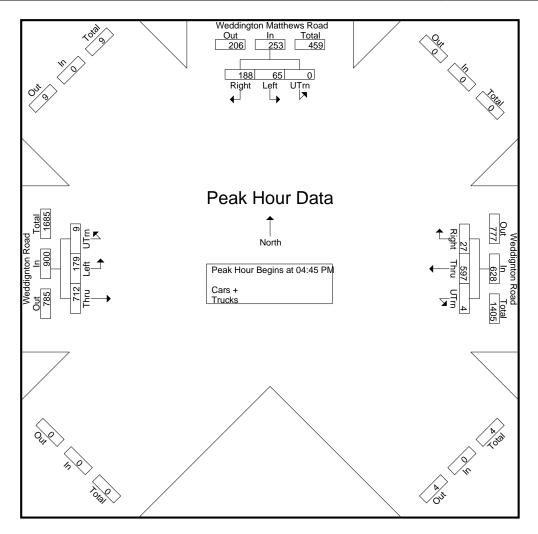


File Name: Weddington(Weddington and Weddington Matthews)PM Peak

Site Code:

Start Date : 12/9/2021

	Wed	Road		Weddign	ton Road	d	Weddignton Road Eastbound						
Start Time	Right	Left	bound UTrn	App. Total	Right	Thru	UTrn	App. Total	Thru	Left	UTrn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entir	e Intersect	ion Begin	s at 04:4	5 PM									
04:45 PM	55	17	0	72	6	124	1	131	187	43	4	234	437
05:00 PM	37	16	0	53	11	148	2	161	204	44	1	249	463
05:15 PM	48	17	0	65	5	147	0	152	161	50	1	212	429
05:30 PM	48	15	0	63	5	178	1	184	160	42	3	205	452
Total Volume	188	65	0	253	27	597	4	628	712	179	9	900	1781
% App. Total	74.3	25.7	0		4.3	95.1	0.6		79.1	19.9	1		
PHF	.855	.956	.000	.878	.614	.838	.500	.853	.873	.895	.563	.904	.962





File Name: Weddington(Providence and Weddington) AM Peak

Site Code:

Start Date : 12/9/2021

Page No : 1

Groups Printed- Cars + - Trucks

										Grou	ps Pr	<u>ınted- (</u>	<u>cars</u>	+ - Ir	ucks										
		Pro	ovide	nce R	load			We	dding	gton F	Road			Pro	ovide	nce R	load			С	hurch	Acce	ess		
			South	nboun	ıd				West	boun	d				North	boun	d				Eastl	bound	t		
Start Time	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTm	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Int. Total
07:00 AM	0	101	51	0	0	152	150	0	48	0	0	198	58	265	0	0	0	323	0	0	0	0	0	0	673
07:15 AM	0	113	50	1	0	164	151	0	85	0	0	236	61	282	0	0	0	343	0	1	0	0	0	1	744
07:30 AM	1	144	59	2	0	206	119	3	87	0	0	209	85	311	0	0	0	396	0	4	2	0	0	6	817
07:45 AM	0	161	69	0	0	230	90	1	77	0	0	168	72	263	0	1	0	336	0	0	1	0	2	3	737
Total	1	519	229	3	0	752	510	4	297	0	0	811	276	1121	0	1	0	1398	0	5	3	0	2	10	2971
							'												'					,	'
08:00 AM	2	149	74	0	0	225	110	1	95	0	0	206	45	237	1	3	0	286	0	5	11	0	0	16	733
08:15 AM	3	170	60	0	0	233	124	3	98	0	0	225	68	277	1	1	0	347	1	1	4	0	0	6	811
08:30 AM	1	170	65	1	0	237	112	2	100	0	0	214	61	239	0	1	0	301	0	0	0	0	0	0	752
08:45 AM	0	155	89	0	0	244	99	1	116	2	0	218	64	205	0	1	0	270	1	11	14	0	4	30	762
Total	6	644	288	1	0	939	445	7	409	2	0	863	238	958	2	6	0	1204	2	17	29	0	4	52	3058
							'												'						
Grand Total	7	1163	517	4	0	1691	955	11	706	2	0	1674	514	2079	2	7	0	2602	2	22	32	0	6	62	6029
Apprch %	0.4	68.8	30.6	0.2	0		57	0.7	42.2	0.1	0		19.8	79.9	0.1	0.3	0		3.2	35.5	51.6	0	9.7		
Total %	0.1	19.3	8.6	0.1	0	28	15.8	0.2	11.7	0	0	27.8	8.5	34.5	0	0.1	0	43.2	0	0.4	0.5	0	0.1	1	
Cars +	7	1121	494	4	0	1626	938	11	695	0	0	1644	503	2064	2	7	0	2576	2	22	32	0	6	62	5908
% Cars +	100	96.4	95.6	100	0	96.2	98.2	100	98.4	0	0	98.2	97.9	99.3	100	100	0	99	100	100	100	0	100	100	98
Trucks	0	42	23	0	0	65	17	0	11	2	0	30	11	15	0	0	0	26	0	0	0	0	0	0	121
% Trucks	0	3.6	4.4	0	0	3.8	1.8	0	1.6	100	0	1.8	2.1	0.7	0	0	0	1	0	0	0	0	0	0	2

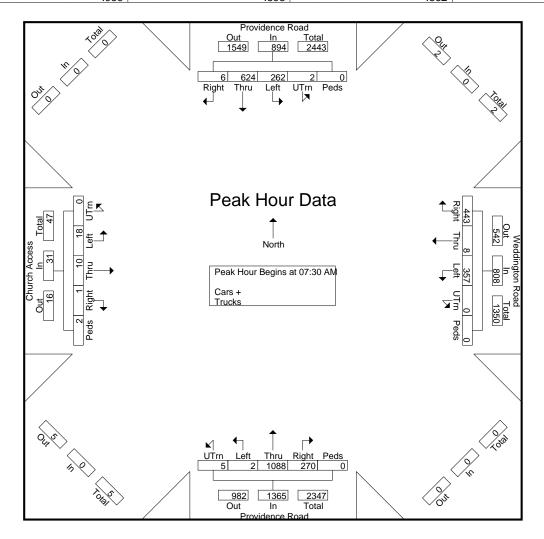


File Name: Weddington(Providence and Weddington) AM Peak

Site Code:

Start Date : 12/9/2021

		Pro	ovide	nce R	load			We	dding	gton F	Road			Pro	ovide	nce R	oad			С	hurch	Acce	ess		
			South	boun	ıd				West	boun	d				North	boun	d				Eastl	bound	t		
Start Time	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Int. Tota
Peak Hour	Anal	ysis F	rom (	07:00	AM t	o 08:4	5 AM	- Pea	k 1 o	f 1															
Peak Hour	for E	ntire	Inters	ectio	n Beg	ins at	07:30	AM																	
07:30 AM	1	144	59	2	0	206	119	3	87	0	0	209	85	311	0	0	0	396	0	4	2	0	0	6	817
07:45 AM	0	161	69	0	0	230	90	1	77	0	0	168	72	263	0	1	0	336	0	0	1	0	2	3	737
08:00 AM	2	149	74	0	0	225	110	1	95	0	0	206	45	237	1	3	0	286	0	5	11	0	0	16	733
08:15 AM	3	170	60	0	0	233	124	3	98	0	0	225	68	277	1	1	0	347	1	1	4	0	0	6	811
Total Volume	6	624	262	2	0	894	443	8	357	0	0	808	270	1088	2	5	0	1365	1	10	18	0	2	31	3098
% App. Total	0.7	69.8	29.3	0.2	0		54.8	1	44.2	0	0		19.8	79.7	0.1	0.4	0		3.2	32.3	58.1	0	6.5		
PHF	.500	.918	.885	.250	.000	.959	.893	.667	.911	.000	.000	.898	.794	.875	.500	.417	.000	.862	.250	.500	.409	.000	.250	.484	.948





File Name: Weddington(Providence and Weddington) PM Peak

Site Code:

Start Date : 12/9/2021

Page No : 1

Groups Printed- Cars + - Trucks

								Gro	ups Pi	<u>rinted- (</u>	Cars +	- Truc	ks								
		Provi	idence	Road			Wedo	dingtor	n Road	i		Prov	idence	Road			Chu	ırch Ad	ccess		
		Sc	outhbo	und			W	estbo	und			N	orthbo	und			E	<u>astbοι</u>	ınd		
Start Time	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Int. Total
04:00 PM	1	200	124	1	326	81	0	92	0	173	66	210	0	0	276	0	0	1	0	1	776
04:15 PM	0	243	116	2	361	115	0	92	0	207	87	235	0	0	322	0	0	1	0	1	891
04:30 PM	0	203	126	2	331	109	0	80	1	190	77	215	0	0	292	0	1	0	0	1	814
_04:45 PM	0	212	126	2	340	99	0	82	0	181	93	244	0	1	338	0	0	4	0	4	863
Total	1	858	492	7	1358	404	0	346	1	751	323	904	0	1	1228	0	1	6	0	7	3344
05:00 PM	0	234	141	3	378	99	0	89	0	188	106	252	0	0	358	0	5	7	0	12	936
05:15 PM	0	190	100	0	290	99	0	92	0	191	97	264	0	0	361	0	1	1	0	2	844
05:30 PM	0	203	124	0	327	127	1	116	0	244	91	223	0	0	314	0	1	1	0	2	887
05:45 PM	0	205	110	4	319	111	0	98	0	209	86	284	1_	0	371	0	0	0	0	0	899
Total	0	832	475	7	1314	436	1	395	0	832	380	1023	1	0	1404	0	7	9	0	16	3566
Grand Total	1	1690	967	14	2672	840	1	741	1	1583	703	1927	1	1	2632	0	8	15	0	23	6910
Apprch %	0	63.2	36.2	0.5		53.1	0.1	46.8	0.1		26.7	73.2	0	0		0	34.8	65.2	0		
Total %	0	24.5	14	0.2	38.7	12.2	0	10.7	0	22.9	10.2	27.9	0	0	38.1	0	0.1	0.2	0	0.3	
Cars +	1	1671	957	14	2643	830	1	734	1	1566	689	1893	1	1	2584	0	8	15	0	23	6816
% Cars +	100	98.9	99	100	98.9	98.8	100	99.1	100	98.9	98	98.2	100	100	98.2	0	100	100	0	100	98.6
Trucks	0	19	10	0	29	10	0	7	0	17	14	34	0	0	48	0	0	0	0	0	94
% Trucks	0	1.1	1	0	1.1	1.2	0	0.9	0	1.1	2	1.8	0	0	1.8	0	0	0	0	0	1.4

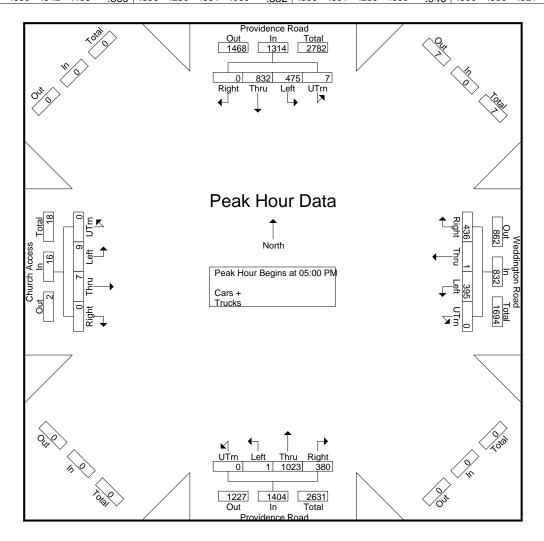


File Name: Weddington(Providence and Weddington) PM Peak

Site Code:

Start Date : 12/9/2021

		Prov	idence	Road			Wedo	dingto	n Road	t		Prov	idence	Road			Chu	ırch A	cess		
		Sc	outhbo	und			W	estbo	und			No	orthbo	und			Е	astbou	ınd		
Start Time	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Int. Total
Peak Hour A	nalysi	s Fron	า 04:00	OPM t	o 05:45	PM - I	Peak 1	of 1													
Peak Hour fo	or Enti	re Inte	rsectio	n Beg	ins at 0	5:00 P	M														
05:00 PM	0	234	141	3	378	99	0	89	0	188	106	252	0	0	358	0	5	7	0	12	936
05:15 PM	0	190	100	0	290	99	0	92	0	191	97	264	0	0	361	0	1	1	0	2	844
05:30 PM	0	203	124	0	327	127	1	116	0	244	91	223	0	0	314	0	1	1	0	2	887
05:45 PM	0	205	110	4	319	111	0	98	0	209	86	284	1	0	371	0	0	0	0	0	899
Total Volume	0	832	475	7	1314	436	1	395	0	832	380	1023	1	0	1404	0	7	9	0	16	3566
% App. Total	0	63.3	36.1	0.5		52.4	0.1	47.5	0		27.1	72.9	0.1	0		0	43.8	56.2	0		
PHF	.000	.889	.842	.438	869	.858	.250	.851	.000	852	.896	.901	.250	.000	946	.000	.350	.321	.000	333	952





File Name: Weddington(Providence and Lenny Stadler) AM Peak

Site Code:

Start Date : 12/9/2021

Page No : 1

Groups Printed- Cars + - Trucks

					Groups F	<u> Printed- Ca</u>	ars + - Tr	<u>ucks</u>					
		Provider	nce Road	ł	•	Provider	nce Road	l	L	enny Sta	adler Roa	nd	
		South	bound			North	bound			Éasth	oound		
Start Time	Right	Thru	UTrn	App. Total	Thru	Left	UTrn	App. Total	Right	Left	UTrn	App. Total	Int. Total
07:00 AM	4	148	0	152	317	5	2	324	7	6	0	13	489
07:15 AM	5	186	0	191	336	8	0	344	10	6	0	16	551
07:30 AM	1	230	0	231	394	13	0	407	8	11	0	19	657
07:45 AM	11	228	0	239	221	23	0	244	8	8	0	16	499
Total	21	792	0	813	1268	49	2	1319	33	31	0	64	2196
08:00 AM	26	245	0	271	299	32	0	331	2	10	0	12	614
08:15 AM	15	269	0	284	310	19	0	329	6	13	0	19	632
08:30 AM	24	251	0	275	293	12	0	305	7	10	0	17	597
08:45 AM	44	237	0	281	274	39	1	314	23	14	0	37	632
Total	109	1002	0	1111	1176	102	1	1279	38	47	0	85	2475
Grand Total	130	1794	0	1924	2444	151	3	2598	71	78	0	149	4671
Apprch %	6.8	93.2	0		94.1	5.8	0.1		47.7	52.3	0		
Total %	2.8	38.4	0	41.2	52.3	3.2	0.1	55.6	1.5	1.7	0	3.2	
Cars +	127	1732	0	1859	2419	149	3	2571	71	75	0	146	4576
% Cars +	97.7	96.5	0	96.6	99	98.7	100	99	100	96.2	0	98	98
Trucks	3	62	0	65	25	2	0	27	0	3	0	3	95
% Trucks	2.3	3.5	0	3.4	1	1.3	0	1	0	3.8	0	2	2

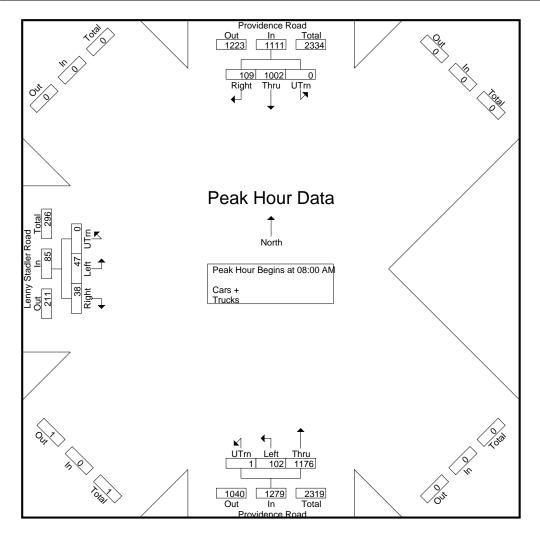


File Name: Weddington(Providence and Lenny Stadler) AM Peak

Site Code:

Start Date : 12/9/2021

			nce Road			Providen	ce Road	i	L	,	adler Roa	ıd	
Start Time	Right	Thru	UTrn	App. Total	Thru	Left	UTrn	App. Total	Right	Left	UTrn	App. Total	Int. Total
Peak Hour Analysis	s From 07:	00 AM to	08:45 AN	И - Peak 1 d	of 1								
Peak Hour for Entir	e Intersect	ion Begir	ns at 08:0	00 AM									
08:00 AM	26	245	0	271	299	32	0	331	2	10	0	12	614
08:15 AM	15	269	0	284	310	19	0	329	6	13	0	19	632
08:30 AM	24	251	0	275	293	12	0	305	7	10	0	17	597
08:45 AM	44	237	0	281	274	39	1	314	23	14	0	37	632
Total Volume	109	1002	0	1111	1176	102	1	1279	38	47	0	85	2475
% App. Total	9.8	90.2	0		91.9	8	0.1		44.7	55.3	0		
PHF	.619	.931	.000	.978	.948	.654	.250	.966	.413	.839	.000	.574	.979





File Name: Weddington(Providence and Lenny Stadler) PM Peak

Site Code:

Start Date : 12/9/2021

					Groups F	Printed- Ca	<u>ars + - Tr</u>	ucks					
		Provider	nce Road	l	•	Provider	nce Road	k	L	enny Sta	adler Roa	ıd	
		South	bound			North	bound			Éasth	oound		
Start Time	Right	Thru	UTrn	App. Total	Thru	Left	UTrn	App. Total	Right	Left	UTrn	App. Total	Int. Total
04:00 PM	9	286	0	295	258	8	0	266	2	11	0	13	574
04:15 PM	11	330	0	341	316	8	0	324	2	6	0	8	673
04:30 PM	5	279	0	284	319	6	0	325	4	9	0	13	622
04:45 PM	7	287	0	294	335	5	2	342	3	13	0	16	652
Total	32	1182	0	1214	1228	27	2	1257	11	39	0	50	2521
05:00 PM	8	337	0	345	339	5	1	345	3	15	0	18	708
05:15 PM	7	284	1	292	334	3	0	337	3	4	0	7	636
05:30 PM	10	306	0	316	320	4	1	325	0	10	0	10	651
05:45 PM	7	287	0	294	340	3	0	343	2	11	0	13	650
Total	32	1214	1	1247	1333	15	2	1350	8	40	0	48	2645
Grand Total	64	2396	1	2461	2561	42	4	2607	19	79	0	98	5166
Apprch %	2.6	97.4	0		98.2	1.6	0.2		19.4	80.6	0		
Total %	1.2	46.4	0	47.6	49.6	0.8	0.1	50.5	0.4	1.5	0	1.9	
Cars +	62	2368	1	2431	2509	40	4	2553	17	77	0	94	5078
% Cars +	96.9	98.8	100	98.8	98	95.2	100	97.9	89.5	97.5	0	95.9	98.3
Trucks	2	28	0	30	52	2	0	54	2	2	0	4	88
% Trucks	3.1	1.2	0	1.2	2	4.8	0	2.1	10.5	2.5	0	4.1	1.7

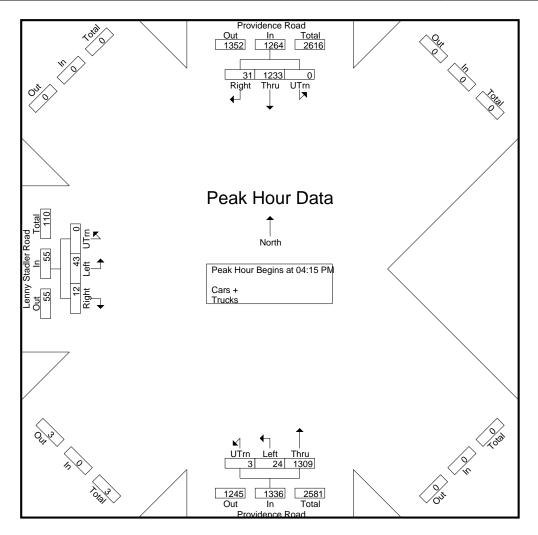


File Name: Weddington(Providence and Lenny Stadler) PM Peak

Site Code:

Start Date : 12/9/2021

			nce Road	I		Provider		i	l	, ,	adler Roa	ıd	
		South	bound			North	bound			East	oound		
Start Time	Right	Thru	UTrn	App. Total	Thru	Left	UTrn	App. Total	Right	Left	UTrn	App. Total	Int. Total
Peak Hour Analysis	s From 04:	00 PM to	05:45 PI	M - Peak 1 d	of 1								
Peak Hour for Entir	re Intersec	tion Begir	ns at 04:1	5 PM									
04:15 PM	11	330	0	341	316	8	0	324	2	6	0	8	673
04:30 PM	5	279	0	284	319	6	0	325	4	9	0	13	622
04:45 PM	7	287	0	294	335	5	2	342	3	13	0	16	652
05:00 PM	8	337	0	345	339	5	1	345	3	15	0	18	708
Total Volume	31	1233	0	1264	1309	24	3	1336	12	43	0	55	2655
% App. Total	2.5	97.5	0		98	1.8	0.2		21.8	78.2	0		
PHF	.705	.915	.000	.916	.965	.750	.375	.968	.750	.717	.000	.764	.938





File Name: Weddington(Providence and Rea) AM Peak

Site Code:

Start Date : 12/9/2021

			Ģ	Froups Printe	<u>ed- Cars + - </u>	Trucks				
	Pro	ovidence Ro	oad	Pı	ovidence Ro	oad		Rea Road		
		Southbound	t		Northbound			Eastbound		
Start Time	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	Int. Total
07:00 AM	73	81	154	268	69	337	33	61	94	585
07:15 AM	80	110	190	238	96	334	65	104	169	693
07:30 AM	91	147	238	286	77	363	38	104	142	743
07:45 AM	83	149	232	249	69	318	37	93	130	680
Total	327	487	814	1041	311	1352	173	362	535	2701
08:00 AM	81	157	238	228	77	305	35	88	123	666
08:15 AM	98	154	252	234	71	305	37	97	134	691
08:30 AM	109	146	255	207	65	272	31	80	111	638
08:45 AM	111	145	256	215	52	267	44	99	143	666
Total	399	602	1001	884	265	1149	147	364	511	2661
Grand Total	726	1089	1815	1925	576	2501	320	726	1046	5362
Apprch %	40	60		77	23		30.6	69.4		
Total %	13.5	20.3	33.8	35.9	10.7	46.6	6	13.5	19.5	
Cars +	717	1047	1764	1906	571	2477	312	721	1033	5274
% Cars +	98.8	96.1	97.2	99	99.1	99	97.5	99.3	98.8	98.4
Trucks	9	42	51	19	5	24	8	5	13	88
% Trucks	1.2	3.9	2.8	1	0.9	1	2.5	0.7	1.2	1.6

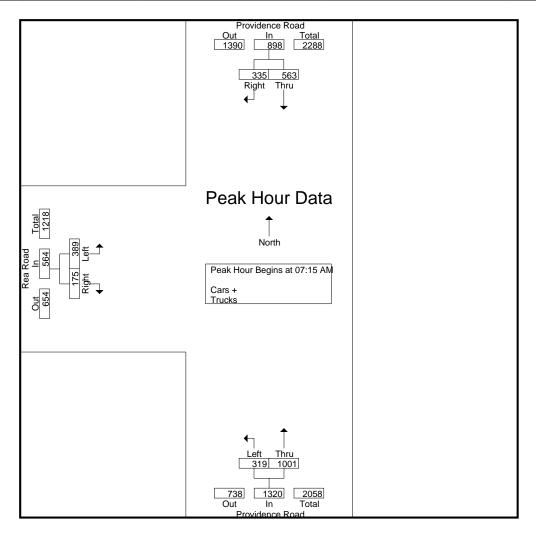


File Name: Weddington(Providence and Rea) AM Peak

Site Code:

Start Date : 12/9/2021

	Pro	ovidence Ro	oad	Pi	rovidence Ro			Rea Road		
		Southbound	t		Northbound	d l		Eastbound		
Start Time	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	Int. Total
Peak Hour Analysis Fro	m 07:00 AM	to 08:45 AN	/I - Peak 1 of	1						
Peak Hour for Entire Int	ersection Be	gins at 07:1	5 AM							
07:15 AM	80	110	190	238	96	334	65	104	169	693
07:30 AM	91	147	238	286	77	363	38	104	142	743
07:45 AM	83	149	232	249	69	318	37	93	130	680
MA 00:80	81	157	238	228	77	305	35	88	123	666
Total Volume	335	563	898	1001	319	1320	175	389	564	2782
% App. Total	37.3	62.7		75.8	24.2		31	69		
PHF	.920	.896	.943	.875	.831	.909	.673	.935	.834	.936





File Name : Weddington(Providence and Rea) PM Peak

Site Code:

Start Date : 12/9/2021

Page No : 1

Groups Printed- Cars + - Trucks

			G	<u> Froups Printe</u>						
	Pro	vidence Ro	oad	Pro	ovidence Ro	oad		Rea Road		
		<u>Southbound</u>	t		<b>Northbound</b>			Eastbound		
Start Time	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	Int. Total
04:00 PM	97	178	275	156	54	210	79	100	179	664
04:15 PM	115	192	307	180	47	227	91	133	224	758
04:30 PM	91	188	279	191	46	237	96	121	217	733
04:45 PM	143	147	290	199	39	238	109	141	250	778
Total	446	705	1151	726	186	912	375	495	870	2933
05:00 PM	162	152	314	190	37	227	90	138	228	769
05:15 PM	124	175	299	199	63	262	91	140	231	792
05:30 PM	141	161	302	180	48	228	103	141	244	774
05:45 PM	124	145	269	205	43	248	77	141	218	735
Total	551	633	1184	774	191	965	361	560	921	3070
Grand Total	997	1338	2335	1500	377	1877	736	1055	1791	6003
Apprch %	42.7	57.3		79.9	20.1		41.1	58.9		
Total %	16.6	22.3	38.9	25	6.3	31.3	12.3	17.6	29.8	
Cars +	986	1323	2309	1473	372	1845	734	1037	1771	5925
% Cars +	98.9	98.9	98.9	98.2	98.7	98.3	99.7	98.3	98.9	98.7
Trucks	11	15	26	27	5	32	2	18	20	78
% Trucks	1.1	1.1	1.1	1.8	1.3	1.7	0.3	1.7	1.1	1.3

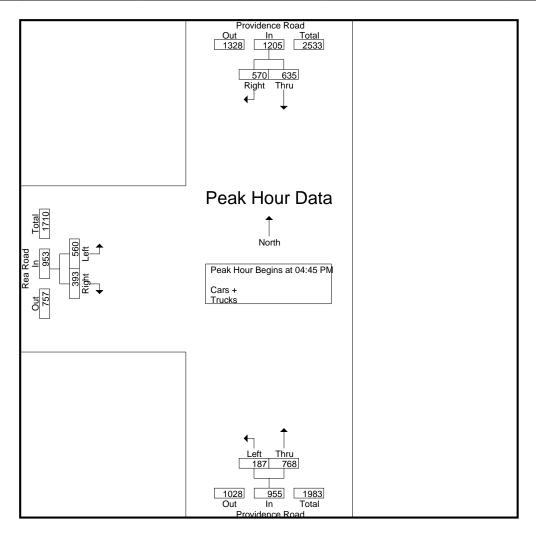


File Name: Weddington(Providence and Rea) PM Peak

Site Code:

Start Date : 12/9/2021

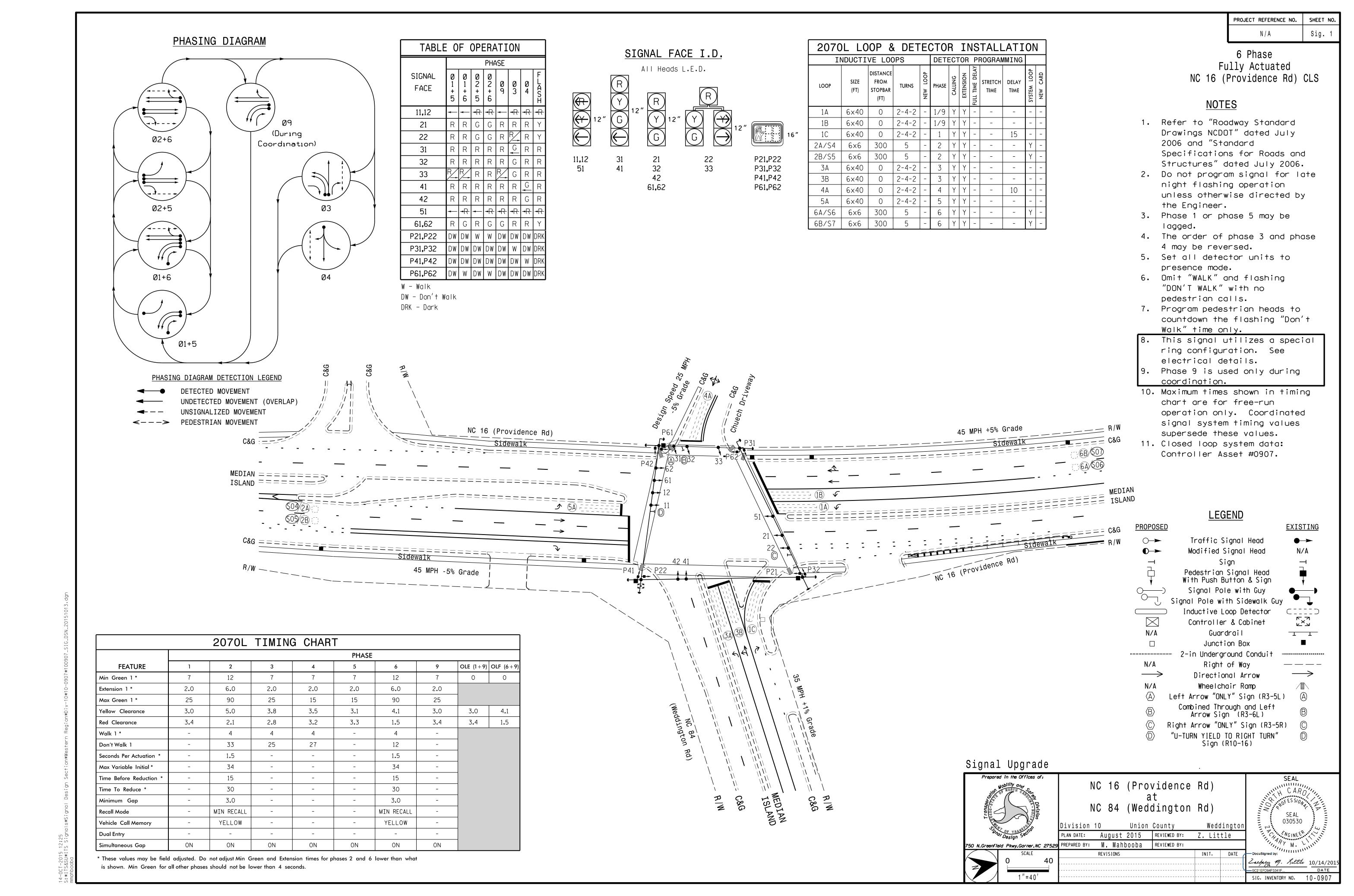
	Pro	ovidence Ro	oad	Pr	ovidence Ro	oad		Rea Road		
		Southbound	l l		Northbound	d l		Eastbound		
Start Time	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	Int. Total
Peak Hour Analysis Fro	m 04:00 PM	to 05:45 PN	/I - Peak 1 of	1						
Peak Hour for Entire Int	ersection Be	gins at 04:4	5 PM							
04:45 PM	143	147	290	199	39	238	109	141	250	778
05:00 PM	162	152	314	190	37	227	90	138	228	769
05:15 PM	124	175	299	199	63	262	91	140	231	792
05:30 PM	141	161	302	180	48	228	103	141	244	774
Total Volume	570	635	1205	768	187	955	393	560	953	3113
% App. Total	47.3	52.7		80.4	19.6		41.2	58.8		
PHF	.880	.907	.959	.965	.742	.911	.901	.993	.953	.983



# **APPENDIX C**

## **SIGNAL INFORMATION**





### PHASING DIAGRAM DETECTION LEGEND

DETECTED MOVEMENT

UNDETECTED MOVEMENT (OVERLAP)

UNSIGNALIZED MOVEMENT <−−> PEDESTRIAN MOVEMENT

OASIS	2070L	TIMIN	IG CHAF	 ₹T
	-5200	PH	IASE	
FEATURE	2	4	5	6
Min Green 1 *	10	7	7	10
Extension 1 *	3.0	2.0	2.0	3.0
Max Green 1 *	50	25	20	50
Yellow Clearance	3,8	3.0	3.0	3.8
Red Clearance	1.5	2.4	2.3	1.5
Walk 1 *	(F	-	-	7
Don't Walk 1	32	and .		24
Seconds Per Actuation *	*	999	P#	-
Max Variable Initial*	3-0		-	-
Time Before Reduction *	-	=	-	
Time To Reduce *	<u>123</u>	2004 2009	-	-
Minimum Gap	= 100 mm =	128	-	-
Recall Mode	MIN RECALL		-	MIN RECALL
Vehicle Call Memory	YELLOW	-	-	YELLOW
Dual Entry		-	-	<u> </u>
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.

SIGNAL FACE I.D.

TABLE OF OPERATION

SIGNAL

FACE

21, 22

42

51

61,62

P61, P62

DW - Don't Walk

W - Walk

DRK - Dark

PHASE

All Heads L.E.D.

51 21, 22 41 61, 62 P61, P62

OASIS	2070L	LOOP	& DE	TE(	CTOR	I	NS	TAI	LATI	ON CH	IAF	₹T
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/S11	6X6	70	3	-	2	Υ	Υ	-	-	120	Y	E
2B/S12	6X6	70	3	72	2	Υ	Υ	-	-		Υ	=
4A	6X40	0	2-4-2	12	4	Υ	Υ	-	-	3	-	-
5A	6X40	0	2 4 2	3	5	Y	Υ	<u>(18</u>	( <u>122</u> ( <del>122</del>	15	-	1770
ЭА	0740		2-4-2	-	2	Υ	Y	-	_	10		=
5B	6X40	0	2-4-2		5	Υ	Υ	-	-	15	-	_
6A/S13	6X6	70	3	-	6	Υ	Υ	-	-	-	Υ	-
6B/S14	6X6	70	3	-	6	Υ	Υ		(40) (val)	3000 S	Υ	_

3 Phase Fully Actuated NC 16 (Providence Rd.) CLS

PROJECT REFERENCE NO.

Sig. 1

# **NOTES**

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.

2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.

3. Phase 5 may be lagged.

4. Set all detector units to presence mode.

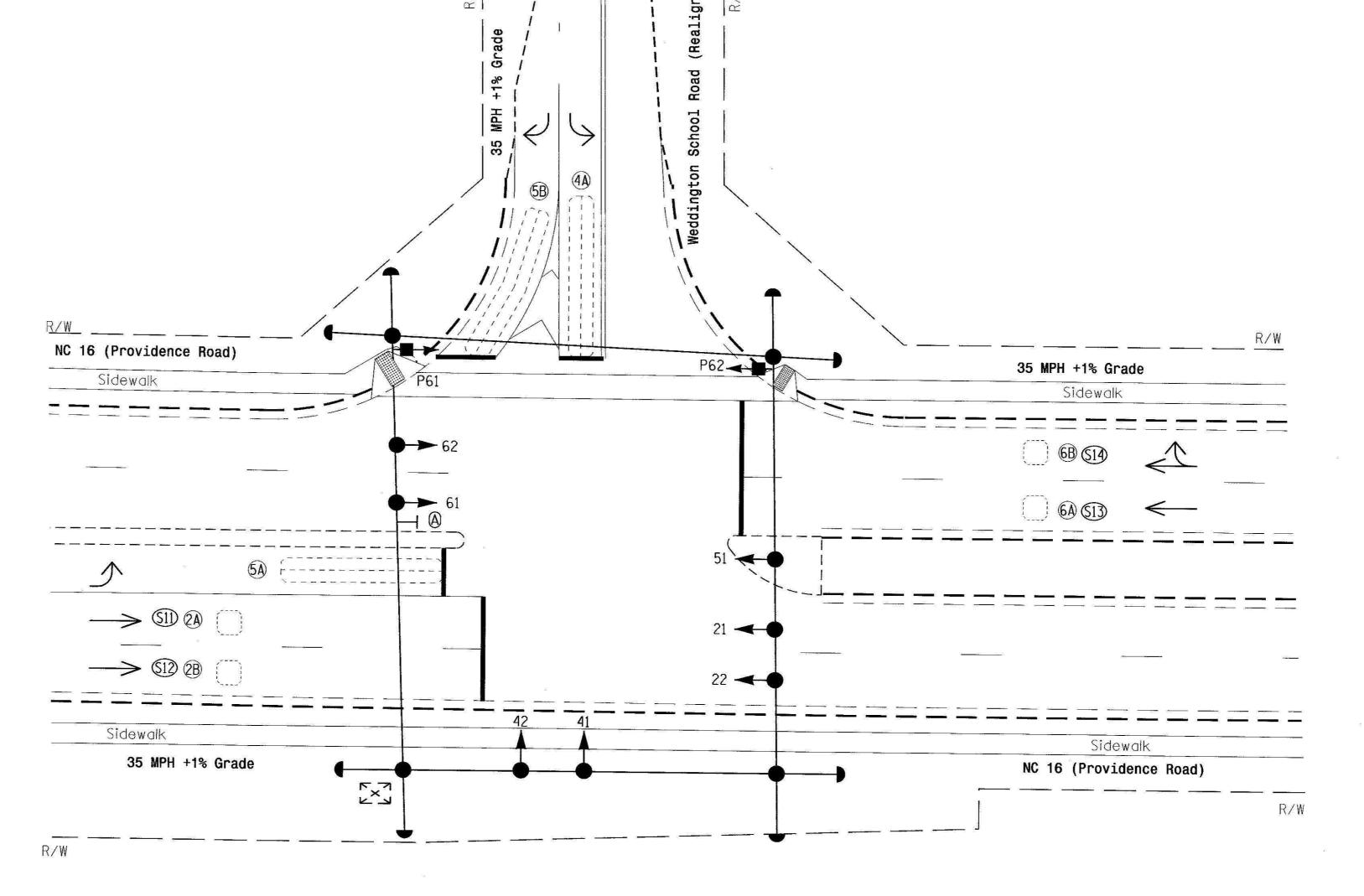
5. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.

6. Program pedestrian heads to countdown the flashing "Don't Walk" time only.

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 # 2119.

	<b>LEGEND</b>	
<u>PROPOSED</u>		<b>EXISTING</b>
<b>○</b> ➤	Traffic Signal Head	<b>-</b>
<b>0</b> →	Modified Signal Head	N/A
<b>+</b>	Sign	-1
₽	Pedestrian Signal Head With Push Button & Sign	•
$\bigcirc \longrightarrow$	Signal Pole with Guy	• •
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	C==
$\boxtimes$	Controller & Cabinet	[×3]
, i	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	<u>—————————————————————————————————————</u>
$\longrightarrow$	Directional Arrow	$\longrightarrow$
	No U-Turn Sign (R3-4)	<b>(A)</b>
	To the second se	



Plan of Record

PREPARED BY: M. Mahbooba DATE: October 2012

REVIEWED BY: T. Williams DATE: October 2012

This plan of record reflects existing field conditions as submitted

Relocated cabinet to the SW quadrant.

by field personnel. This plan may have been modified from

its original state.

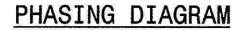
Signal Upgrade

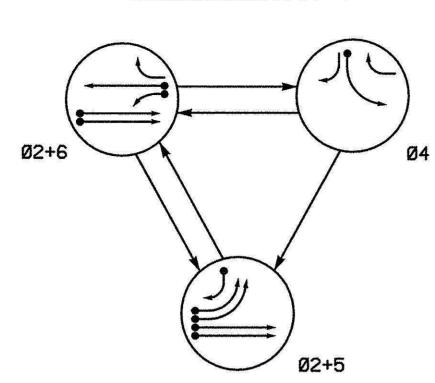
NC 16 (Providence Road) Weddington School Road (Realignment) Division 10 Mecklenburg County PLAN DATE: February 2012 REVIEWED BY:

Not a certified document. This document originally issued and sealed by Timothy J.Williams.PE 24393 on 2/28/2012 This document shall not be considered a certified document.

O N. Greenfield Phwy. Garner. NC 27529 PREPARED BY: M. Mahbooba REVIEWED BY:

SIG. INVENTORY NO. | 10-2119





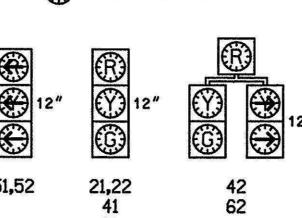
PHASING DIAGRAM DETECTION LEGEND

DETECTED MOVEMENT

UNDETECTED MOVEMENT (OVERLAP)

TABLE OF	0PI	ERA	TIO	N
	8	PHA	SE	
SIGNAL FACE	Ø2+5	Ø2+6	Ø 4	TUANT
21,22	G	G	R	Υ
41	R	R	G	R
42	图	R	G	R
51,52	-	<del>-R</del>	<del>-R</del>	+R
61	R	G	R	Y
62	R	G	R/	Y

Sig	nal	Fac	e I	.D.
€	) Der	otes l	.•E•D	•
	0	3	_	R



I	NDUCTI	VE LOC	)PS		DET	ECT	OR	PI	ROGRAM	MING		3 3
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/S1	6X6	300	5	Y	2	Υ	Υ	-	-	-	Υ	-
2B/S2	6X6	300	5	Y	2	Υ	Υ	=		Æ	Υ	12-
4A	6X40	0	2-4-2	Ξ	4	Y	Υ		-			-
5A	6X40	0	2-4-2	Υ	5	Y	Υ	-		H	•	-
5B	6X40	0	2-4-2	Υ	5	Υ	Υ	-	3-0	-	-	-
5C	6X40	0	2-4-2	-	5	Υ	Υ	-	L	10	-	-
6A/S3	6X6	300	5	Υ	6	Υ	Υ	-	(#4)	(F)=	Y	-
6B	6X40	0	2-4-2	Υ	6	Υ	Υ	Υ	-	3	Н	Υ

## NOTES

PROJECT REFERENCE NO.

U-2510A

3 Phase

Fully Actuated (NC 16 - Providence Rd CLS)

SHEET NO.

Sig. 8

- 1. Refer to "Roadway Standard Drawings NCDOT" dated July 2006 and "Standard Specifications for Roads and Structures" dated July 2006.
- 2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- 3. Enable Backup Protect for phase 2 to allow the controller to clear from phase 2+6 to phase 2+5 by progressing through an all red display.
- 4. Reposition existing signal heads numbered 21, 22, 52, 61 and 62.
- 5. Set all detector units to presence mode.
- 6. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- 7. Closed loop system data: Controller Asset #1694.

**LEGEND** 

Traffic Signal Head

Modified Signal Head

Pedestrian Signal Head With Push Button & Sign

Signal Pole with Guy Signal Pole with Sidewalk Guy Inductive Loop Detector Controller & Cabinet Junction Box

Right of Way

Directional Arrow Wheelchair Ramp

"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)

Right Arrow "ONLY" Sign (R3-5R) N/A

2-in Underground Conduit

	INOTONAL TEED MOVEMENT	W 1								
_	UNSIGNALIZED MOVEMENT			C&G	R/W C&G					
>	PEDESTRIAN MOVEMENT									
					11 1 11					
				i. ii	II (Re SR )	<b>\</b> _				
				22 45 11	11 11 12 12	/				
			,	0211	Rd 48	\				
				rade PII 4 5	!! 1 !!	`\				
				160 (A)!	ii ii	1				
					<u> </u>					
					$\vec{H} = \frac{\Pi}{\Pi} \prod_{i \in \mathcal{A}} \mathbf{I}$					
					# 1 \\\ \ \ T	, '\	AE M	PH -1% Grade		R/W
			/	4 // 11111					- Opposite	
	D 211	NC 16 (Providence Rd)		CH1		2				
	R/W — — — — — —				, ***		Side	ewalk		
					,	=======================================				)&G
				A 62	,	~				
	EOP			•		<b>←</b>		at as the mean constant of the		
	MEDIAN = = = = = = = =			61	´ ® ↓	68 6				
	ISLAND =========		<b>→</b> ⑤ €		51, <del>- 7</del>	<b></b>			=======================================	C&G
			<b>→</b> ⑤ (===================================		52					C&G
			->		21				24 14 14 14 14 14 14 14 14 14 14 14 14 14	
	®@□ ®®□				I	_				
	<b>②</b> ∕®□				22			=	=======================================	C&G
	EOP			4241	====	======	Side	walk		
				11	7					
		i	i		17					R/W
	D (1)	'	,				NC 16	(Providence Rd)		r.V. AA
	R/W ——————	45 MPH +1% Grade		1			NO 10	(11012401100 114)		
		III II VII WI WW								

2070L TIMING CHART							
		PH	IASE				
FEATURE	2	4	5	6			
Min Green 1 *	12	7	7	12			
Extension 1 *	6.0	2.0	2.0	6.0			
Max Green 1 *	60	20	20	60			
Yellow Clearance	4.4	4.7	3.0	4.6			
Red Clearance	2.0	1.7	3.6	1.9			
Red Revert	5.0	2.0	2.0	2.0			
Walk 1 *			-	-			
Don't Walk 1	-	-	-	•			
Seconds Per Actuation *	1.5	2 (mg/)	-	2.5			
Max Variable Initial *	34	Description (Description) (Description)		34			
Time Before Reduction *	15	•••	-	15			
Time To Reduce *	30	-	**	30			
Minimum Gap	3.0		-	3.0			
Recall Mode	MIN RECALL	<del>=</del>	-	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.

2070L TIMING CHART								
PHASE								
FEATURE	2	4	5	6				
Min Green 1 *	12	7	7	12				
Extension 1 *	6.0	2.0	2.0	6.0				
Max Green 1 *	60	20	20	60				
Yellow Clearance	4.4	4.7	3.0	4.6				
Red Clearance	2.0	1.7	3.6	1.9				
Red Revert	5.0	2.0	2.0	2.0				
Walk 1 *	-		-	_				
Don't Walk 1	-		-					
Seconds Per Actuation *	1.5	1047	(pag	2.5				
Max Variable Initial *	34	E STAN SEL MANUSCH MAN 180		34				
Time Before Reduction *	15		•	15				
Time To Reduce *	30	-	•	30				
Minimum Gap	3.0	-	-	3.0				
Recall Mode	MIN RECALL	(2.10 -0.12		MIN RECALL				
Vehicle Call Memory	YELLOW	N 55 MANUSCOS 1000 NO.		YELLOW				
Dual Entry	-		-	-				
Simultaneous Gap	ON	ON	ON	ON				

Final Signal



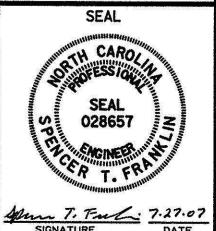
NC 16 (Providence Rd) SR 2948 (Rea Rd)

**PROPOSED** 

 $\circ$ 

N/A

Division 10 Union County Weddington PLAN DATE: July 2007 REVIEWED BY: N.M. Rodevick PREPARED BY: T.R. Terrell REVIEWED BY: S.T. Franklin INIT. DATE



**EXISTING** 

HNTB NORTH CAROLINA, P.C. 343 E. Six Forks Road, Suite 200 Raleigh, North Carolina 27609

Garner, NC 27529 SIG. INVENTORY NO. 10-1694

# **APPENDIX D**

## **FUTURE ROADWAY IMPROVMENTS**



CILITY INFORMATION:
O PROVIDE GREATER VISUAL CLARITY, EXISTING AND PROPOSED UTILITIES ARE NOT SHOWN ON THESE MAPS OR ON OTHER DISPLAYS. THE UTILITY INFORMATION SHOWN ON THESE MAPS IS LIMITED TO LOCATIONS OF MAJOR EXISTING AND POTENTIAL UTILITY EASEMENTS. THE DESIGNS SHOWN ON THESE MAPS, INCLUDING UTILITY EASEMENTS, ARE PRELIMINARY AND ARE SUBJECT TO CHANGE. (ENGLISH) DESIGN DATA Functional Class. = Minor Arterial Design Speed = 40 /50 MPH Max. Superelev. = 4.0% ORTHOPHOTO DATA Imagery Date = 03-06-2015PARCEL DATA UNION CO. GIS (06-21-2018) RELIMINARY PLA DO NOT USE FOR CONSTRUCTION

# **LEGEND**

EXISTING RIGHT OF WAY APPROXIMATE RIGHT OF WAY EXISTING ROADWAY EXISTING ROADWAY TO BE REMOVED EXISTING ROADWAY TO BE RESURFACED PROPOSED ROADWAY PROPOSED STRUCTURES, ISLAND, CURB AND GUTTER, SIDEWALK, AND DRIVEWAYS PROPOSED GRASS MEDIAN NATIONAL HISTORIC REGISTER ELIGIBLE PROPERTY LAKES, RIVERS, STREAMS AND PONDS RIVERS/STREAMS FLOW DIRECTION

PROPOSED SLOPE STAKE LINE

EXISTING / PROPOSED TRAFFIC SIGNAL

PUBLIC MEETING MAP

TIP PROJECT U-5769

NC 16 (PROVIDENCE ROAD SOUTH) IMPROVEMENTS FROM SR 3530 (WAXHAW PARKWAY) TO SR 1316 (REA RD)

UNION COUNTY

ROLL 6 OF 6

**LEGEND** 

EXISTING RIGHT OF WAY APPROXIMATE RIGHT OF WAY

EXISTING ROADWAY EXISTING ROADWAY TO BE REMOVED EXISTING ROADWAY TO BE RESURFACED

PROPOSED ROADWAY PROPOSED STRUCTURES, ISLAND, CURB AND GUTTER, SIDEWALK, AND DRIVEWAYS PROPOSED GRASS MEDIAN NATIONAL HISTORIC REGISTER ELIGIBLE PROPERTY

LAKES, RIVERS, STREAMS AND PONDS RIVERS/STREAMS FLOW DIRECTION WETLANDS PROPOSED RIGHT OF WAY

PROPOSED CONTROL OF ACCESS MUNICIPAL BOUNDARY LINE PROPOSED SLOPE STAKE LINE PROPERTY LINES (GIS)

EXISTING / PROPOSED TRAFFIC SIGNAL

END TIP PROJECT U-5769 END CONSTRUCTION -L- 339 + 98.28

TIP PROJECT U-3467 BY OTHERS \*PROPOSED ROW FOR U-3467 PROJECT SHOWN AS EXISTING\*

DESIGN DATA Functional Class. = Minor Arterial Design Speed = 40 /50 MPH Max. Superelev. = 4.0%

PARCEL DATA

(ENGLISH)

ORTHOPHOTO DATA Imagery Date = 03-06-2015

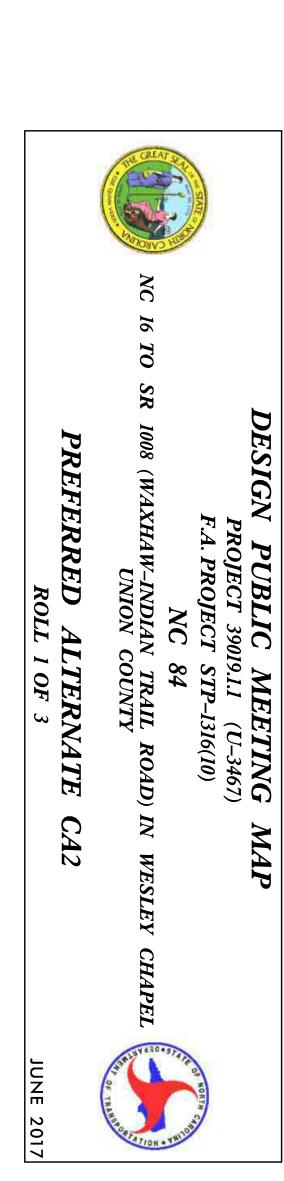
UNION CO. GIS (06-12-2018)

FROM NEW TOWN ROAD TO REA ROAD EXTENSION

€ -L- (NC-16 S PROVIDENCE RD)

PROPOSED RIGHT OF WAY PROPOSED CONTROL OF ACCESS MUNICIPAL BOUNDARY LINE

PROPERTY LINES (GIS)



# **Project Level Traffic Forecast**



FS-1810D: NC 16 from SR 1316 (Rea Road) to Mecklenburg County Line

**Union County** 

**September 2018** 



Submitted by:





# PROJECT LEVEL TRAFFIC FORECAST TECHNICAL MEMORANDUM

FS-1810D: NC 16 from SR 1316 (Rea Road) to Mecklenburg County Line Union County North Carolina

WBS No.: 34263.1.1





Prepared By Rummel, Klepper & Kahl, LLP

900 Ridgefield Drive – Suite 350 Raleigh, NC 27609 (919) 878-9560 **September 2018** 



#### TRAFFIC FORECAST COVER LETTER

#### September 2018

**TO:** Shane York, PE

Feasibility Studies Unit

**NCDOT** 

**FROM:** Stuart M. Samberg, P.E., PTOE, PTP

RK&K, LLP

**SUBJECT:** Traffic Forecast for NC 16 Widening

FS-1810D: NC 16 from SR 1316 (Rea Road) to the Mecklenburg County Line in Union County

Please find attached the 2018 Base Year and 2040 Future Year No-Build and Build traffic forecast for the NC 16 Widening Feasibility Study (FS-1810D) from SR 1316 (Rea Road) to the Mecklenburg County Line in Union County. The total project length is approximately 1.8 miles.

This traffic forecast was approved by NCDOT Transportation Planning Division on September 05,2018

This traffic forecast includes one Build scenario:

Widen NC 16 to a six-lane divided facility from SR 1316 (Rea Road) to the Mecklenburg County Line

Traffic forecasts for the following scenarios are provided in this memorandum:

- 2018 Base Year No-Build
- 2018 Base Year Build (Widen to six-lane divided)
- 2040 Future Year No-Build
- 2040 Future Year Build (Widen to six-lane divided)

#### Certain assumptions were made in the development of this forecast:

#### **Fiscal Constraint:**

The traffic forecasts for this project assume the construction of projects within the Charlotte Regional Transportation Planning Organization's (CRTPO) Metropolitan Transportation Plan (MTP) and Metrolina Regional Travel Demand Model. Projects in the MTP which directly affect the proposed project area include:

- U-3467: Construct / Widen NC 84 from NC 16 to Waxhaw-Indian Trail Road (SR 1008), part on New Location
- U-5769: Widen NC 16 from Rea Road (SR 1316) to Cuthbertson Road (SR 1321)

The Charlotte Regional Transportation Planning Organization (CRTPO) Comprehensive Transportation Plan (CTP) includes the North Access Road project intersecting NC 16 just north of existing NC 84. However, this project is not included in the CRTPO 2045 MTP, and therefore not included in the forecast.

#### **Development Activity:**

Stuart Basham, Division 10 Planning Engineer was contacted to get information on anticipated developments within the study area. Based on the feedback and the information presented in the GIS based application- Virtual Charlotte (<a href="http://vc.charmeck.org/">http://vc.charmeck.org/</a>), it was observed that there is limited development activity that would be anticipated to alter existing traffic pattern in the Future Year of 2040 within the project study area.





#### **Travel Demand Model:**

The Metrolina Regional Model (MRM16) Version 1.0 adopted on October 17, 2017 was used to develop the traffic forecast for the subject project. The model was developed with a Base Year of 2010 using TransCAD Version 5.0 Build 1590.

#### **Forecast Methodology:**

Traffic volume and design factor estimates for the 2018 Base Year were developed using traffic counts collected on May 8<sup>th</sup> and 9<sup>th</sup> of 2018 and historic Annual Average Daily Traffic (AADT) trends projected to 2018. Growth rates derived from the Metrolina Regional Model and historic growth rates extrapolated from AADT trends were used to estimate Future Year 2040 traffic volumes. Engineering judgment was used as necessary to ensure a balanced forecast.

#### Interpolation:

Straight-line interpolation may be used to estimate AADT for years between 2018 and 2040. Extrapolation may be used to estimate AADT volumes for up to two years following 2040.

#### CC (with Attachments):

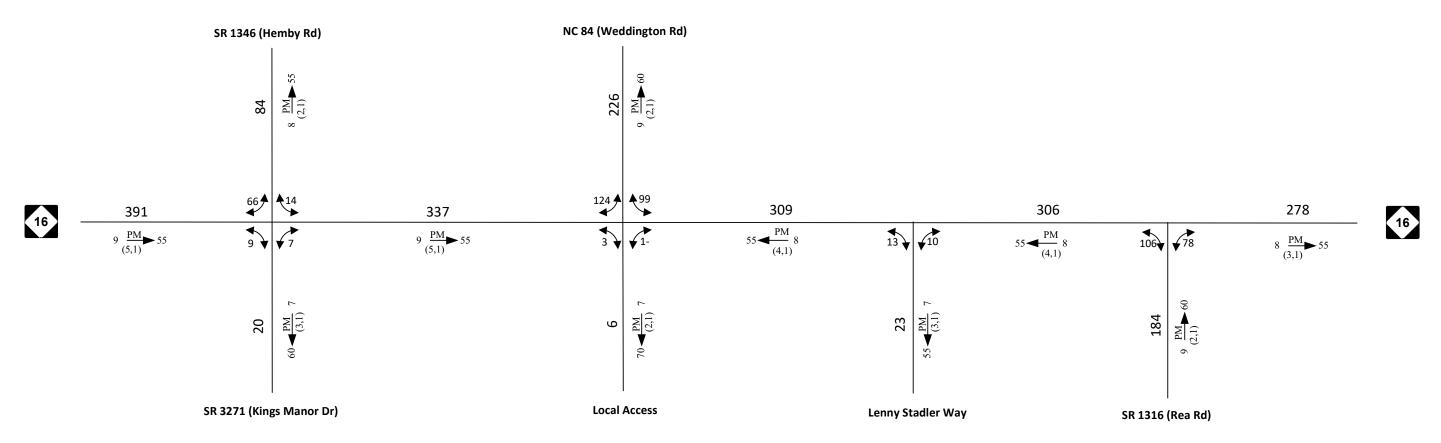
Tim Boland, PE, Highway Division 10 Project Development Engineer Randy Bowers, Highway Division 10 Roadway Project Engineer Stuart Basham, Highway Division 10 Planning Engineer Lee Ainsworth, PE, Anson & Union County District Engineer Brenda Moore, PE, CPM Roadway Design Unit Clark Morrison, PhD, PE, State Pavement Design Engineer Mike Reese, PE, Congestion Management John A. Baliey, Western Piedmont Group Supervisor Keith Dixon, State Traffic Forecast Engineer Traffic Forecasting GIS Support

File Copy: FS-1810D: NC 16 Union County





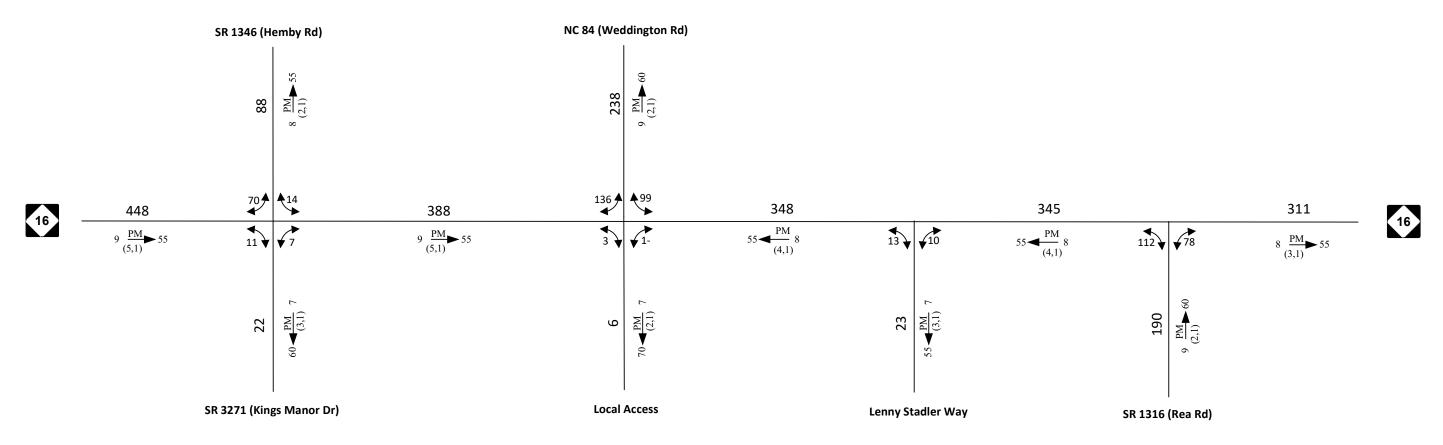


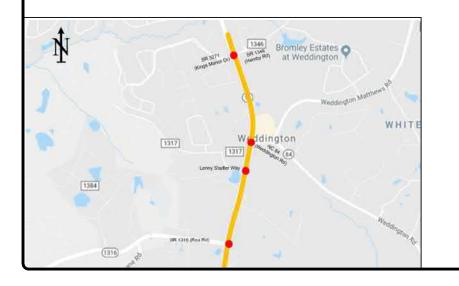




20	18 AVERAGE ANNUAL DAILY TRAFFIC	No-Build	Sheet 1 of 1
###	LEGEND  No. of Vehicles Per Day in 100s	TIP: N/A	<b>WBS:</b> 34263.1.1
1- <b>X</b>	Less than 50 vpd Movement Prohibited	COUNTY: Union	DIVISION: 10
	$K \xrightarrow{AM} D$	DATE: September 2018	
K	Design Hour Factor (%)	PREPARED BY:	<b>5</b>
PM	PM Peak Period	LOCATION: Weddington, NC	
D	Peak Hour Directional Split (%)	ECOATION: Weddington, NO	
— <b>►</b> ( d, t )	Indicates Direction of D Duals, TT-STs (%)	PROJECT: FS-1810D: NC 16 fror the Mecklenburg County Line	n SR 1316 (Rea Road) to

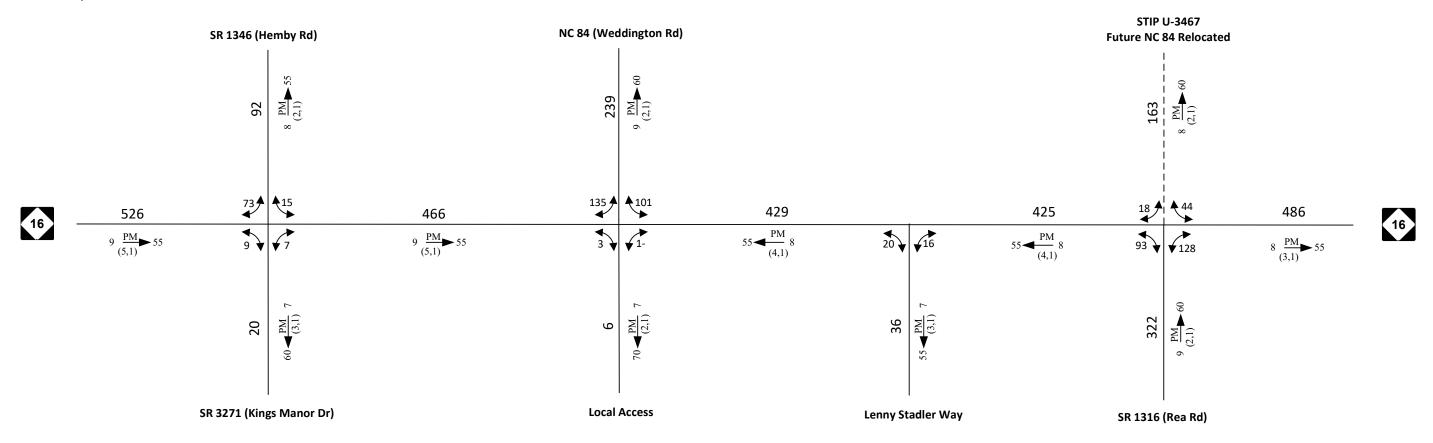


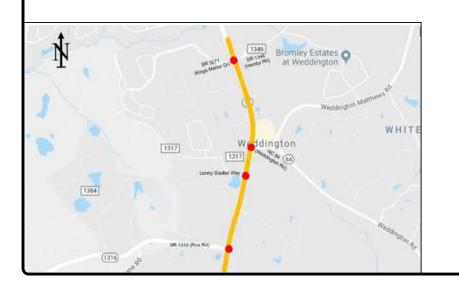




20	18 AVERAGE ANNUAL DAILY TRAFFIC	Build	Sheet 1 of 1
###	LEGEND  No. of Vehicles Per Day in 100s	TIP: N/A	<b>WBS:</b> 34263.1.1
1- <b>X</b>	Less than 50 vpd Movement Prohibited	COUNTY: Union	DIVISION: 10
	$K \xrightarrow{AM} D$	DATE: September 2018	
K	Design Hour Factor (%)	PREPARED BY:	
PM	PM Peak Period	LOCATION: Waddington NC	
D	Peak Hour Directional Split (%)	LOCATION: Weddington, NC	
— <b>→</b> (d, t)	Indicates Direction of D Duals, TT-STs (%)	PROJECT: FS-1810D: NC 16 from the Mecklenburg County Line	n SR 1316 (Rea Road) to

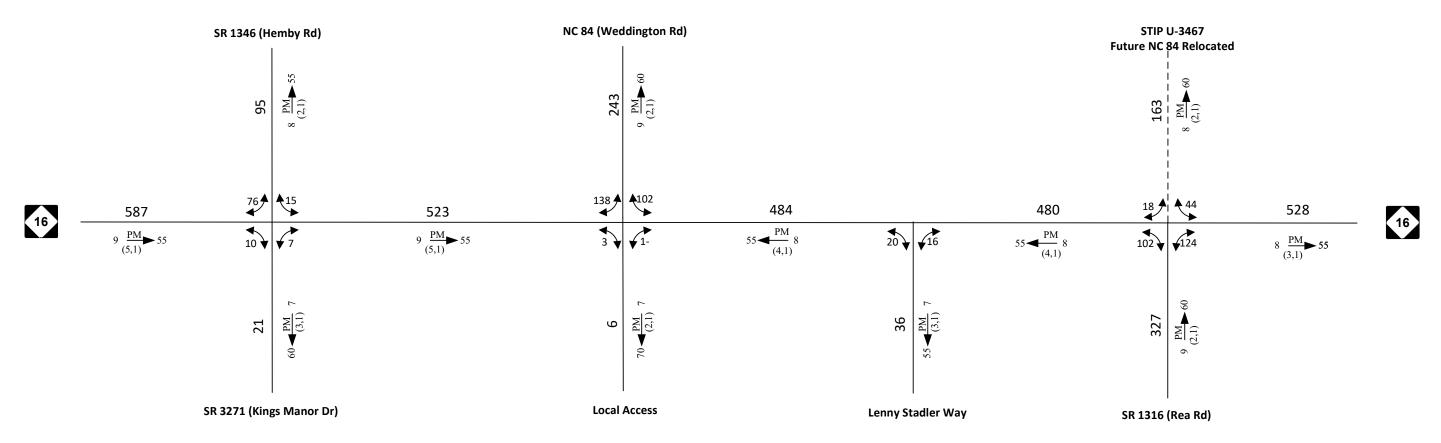


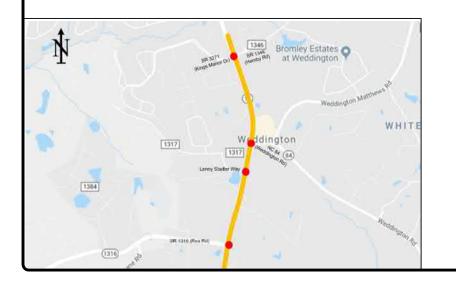




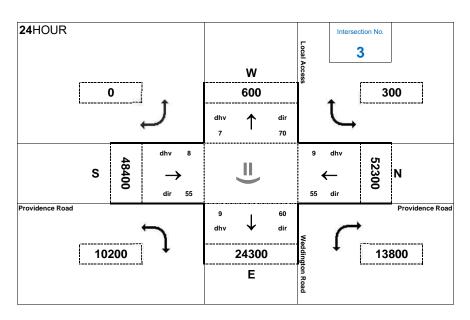
204	40 AVERAGE ANNUAL DAILY TRAFFIC	No-Build	Sheet 1 of 1
###	LEGEND  No. of Vehicles Per Day in 100s	TIP: N/A	<b>WBS:</b> 34263.1.1
1- <b>X</b>	Less than 50 vpd Movement Prohibited	COUNTY: Union	DIVISION: 10
	$K \xrightarrow{AM} D$	DATE: September 2018	
K	Design Hour Factor (%)	PREPARED BY:	
PM	PM Peak Period	LOCATION: Waddington NC	
D	Peak Hour Directional Split (%)	LOCATION: Weddington, NC	
— <b>→</b> (d, t)	Indicates Direction of D Duals, TT-STs (%)	PROJECT: FS-1810D: NC 16 from the Mecklenburg County Line	n SR 1316 (Rea Road) to

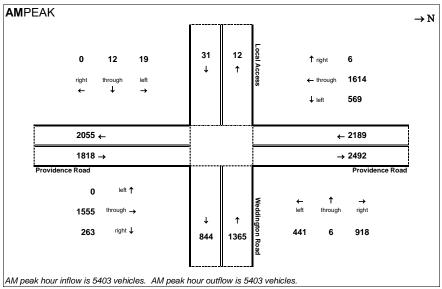


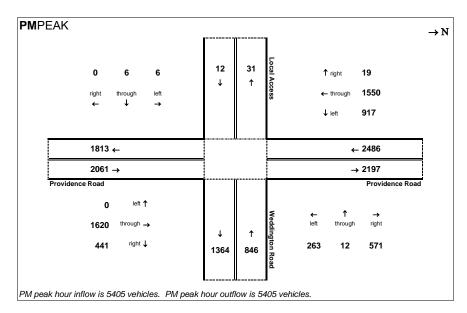




204	40 AVERAGE ANNUAL DAILY TRAFFIC	Build	Sheet 1 of 1
###	LEGEND  ### No. of Vehicles Per Day in 100s  1- Less than 50 vpd  X Movement Prohibited  K M Odd, t)  Design Hour Factor (%)	TIP: N/A	<b>WBS:</b> 34263.1.1
		COUNTY: Union	DIVISION: 10
		DATE: September 2018	
K		PREPARED BY: RKSK	
PM	PM Peak Period	LOCATION: Weddington, NC	
D	Peak Hour Directional Split (%)		
— <b>→</b> ( d, t )	Indicates Direction of D Duals, TT-STs (%)	<b>PROJECT:</b> FS-1810D: NC 16 from SR 1316 (Rea Road) to the Mecklenburg County Line	







### **Peak Hour Volume Breakouts Report:** Providence Road and Weddington Road

Traffic Forecast Release Date:

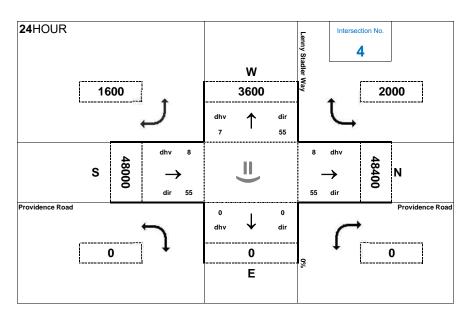
September-18

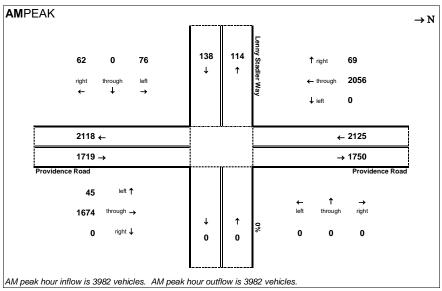
Traffic Data Year:

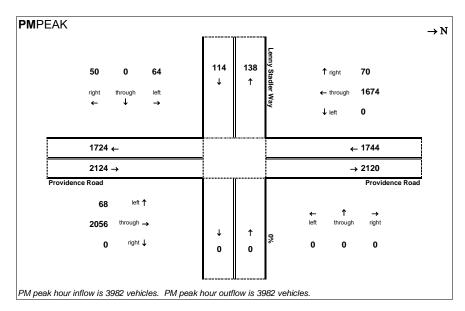
1/1/2040

Project:

FS-1810D







#### Peak Hour Volume Breakouts Report:

Providence Road and Lenny Stadler Way

#### Traffic Forecast Release Date:

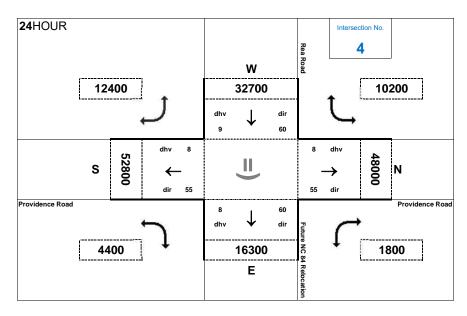
September-18

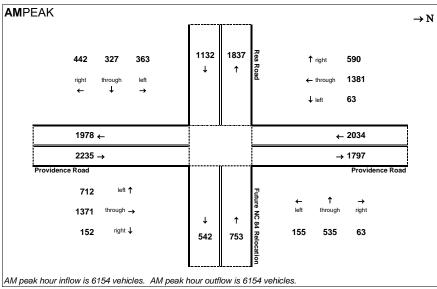
#### Traffic Data Year:

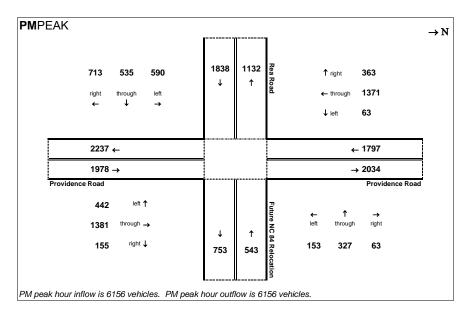
1/1/2040

#### Project:

FS-1810D







#### Peak Hour Volume Breakouts Report:

Providence Road and Rea Road

#### Traffic Forecast Release Date:

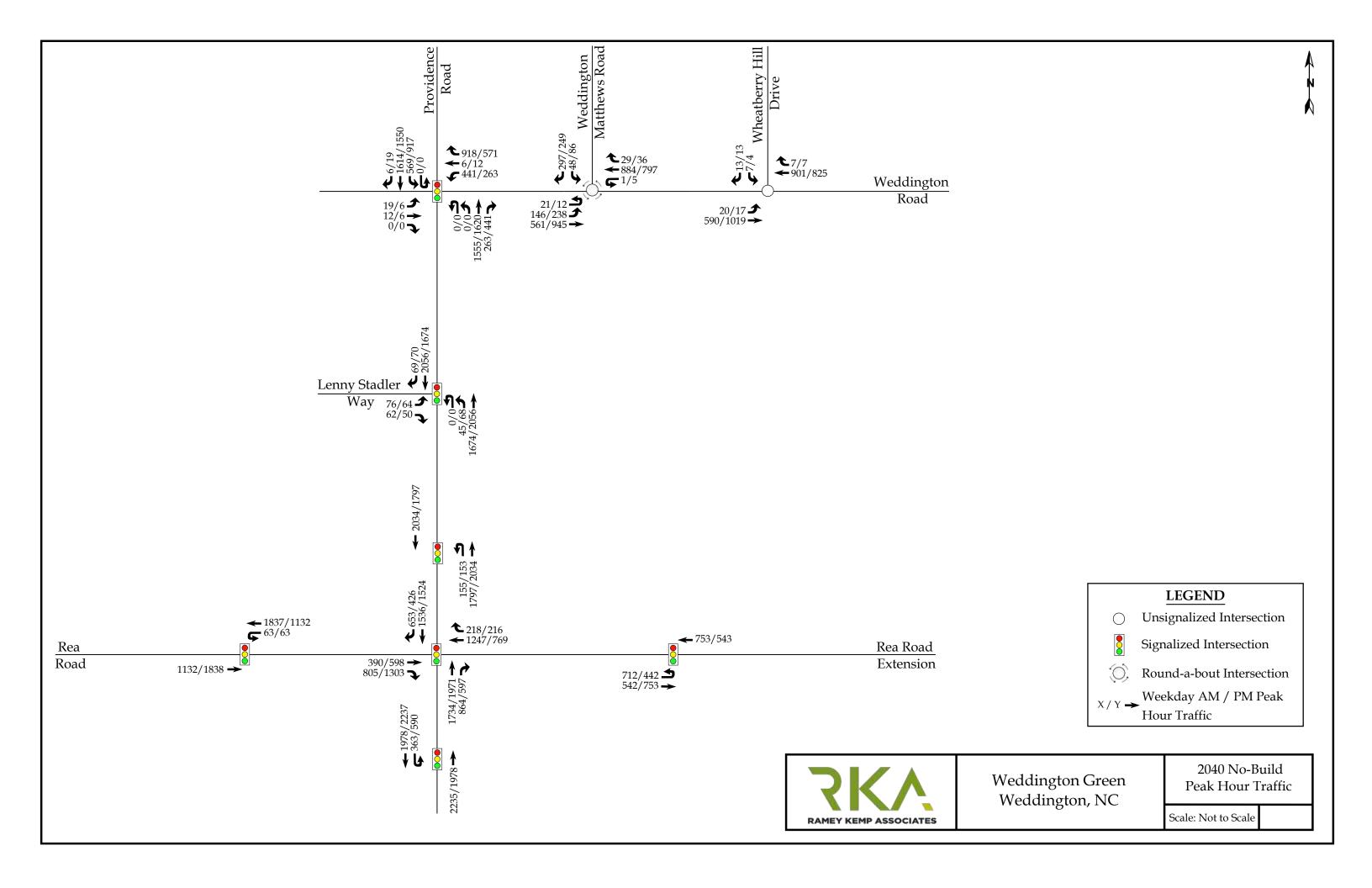
September-18

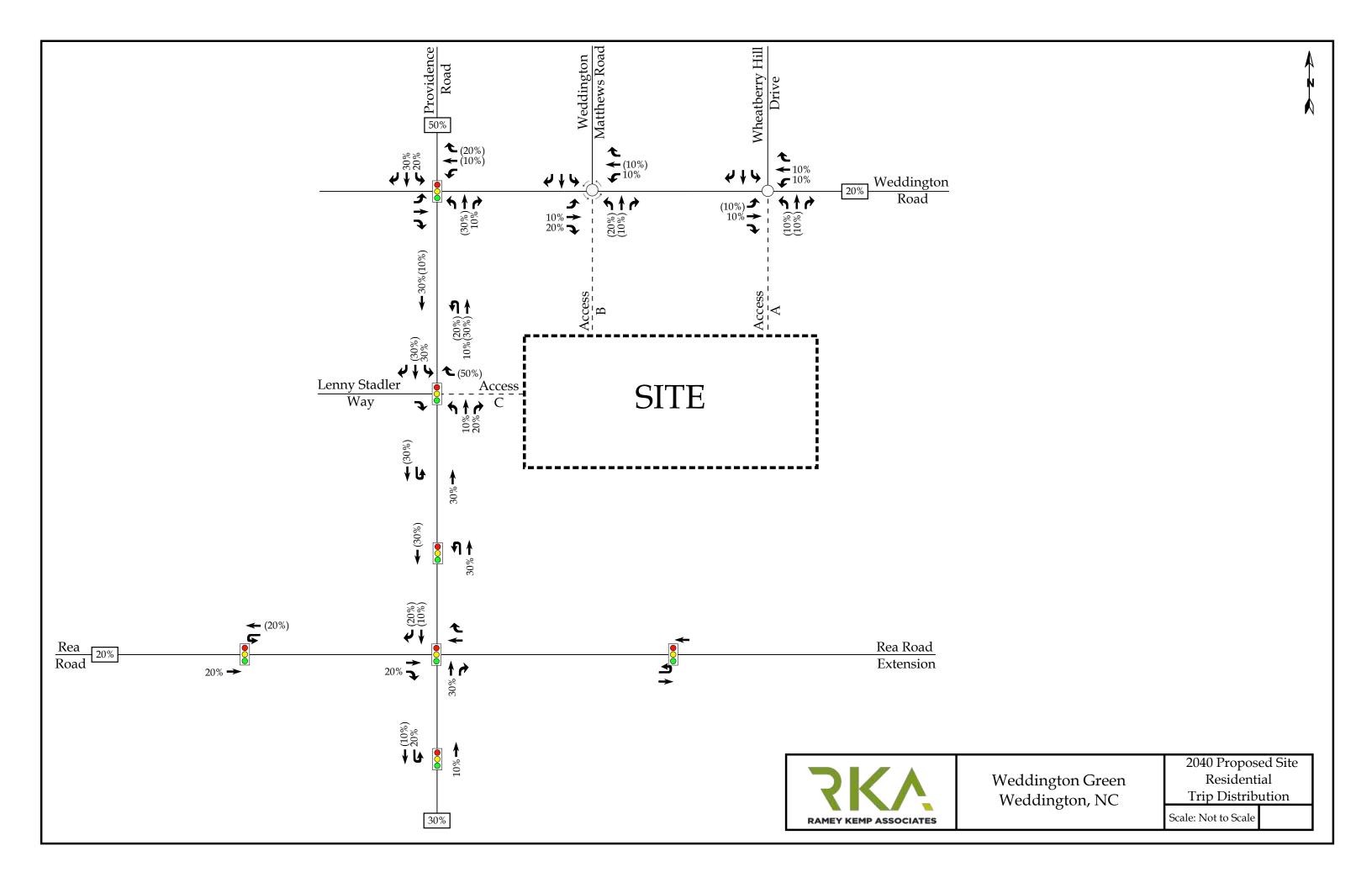
#### Traffic Data Year:

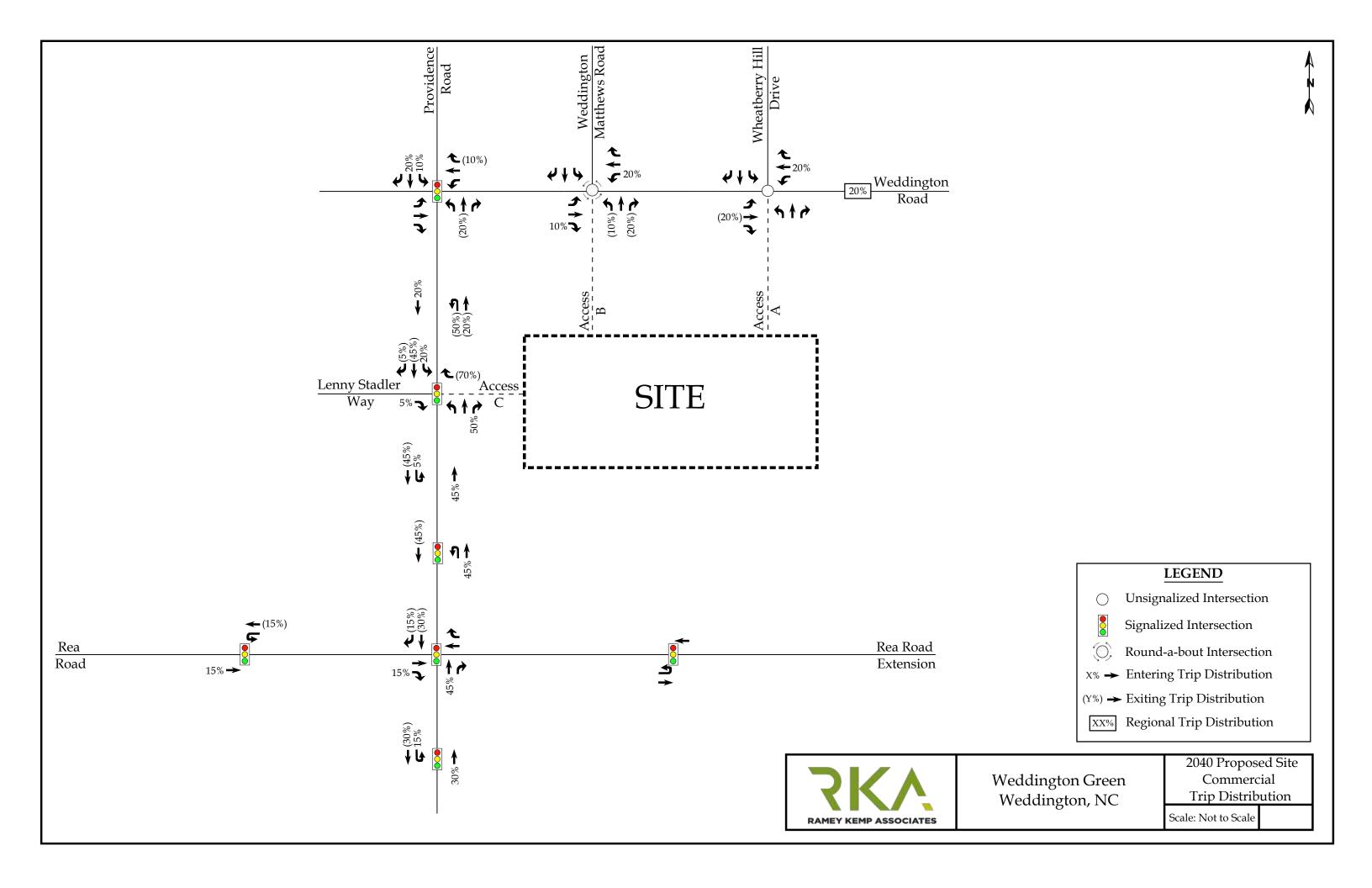
1/1/2040

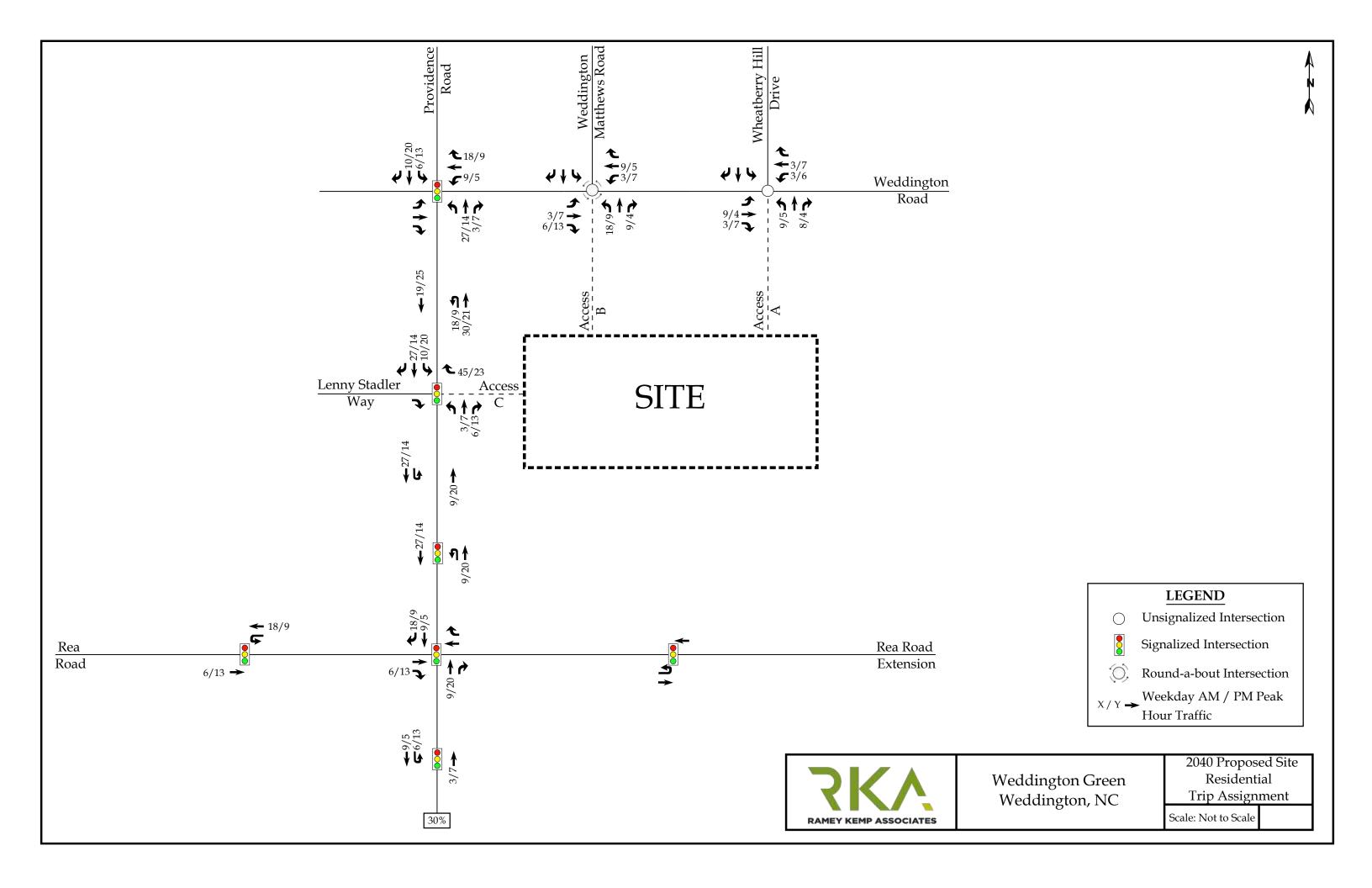
#### Project:

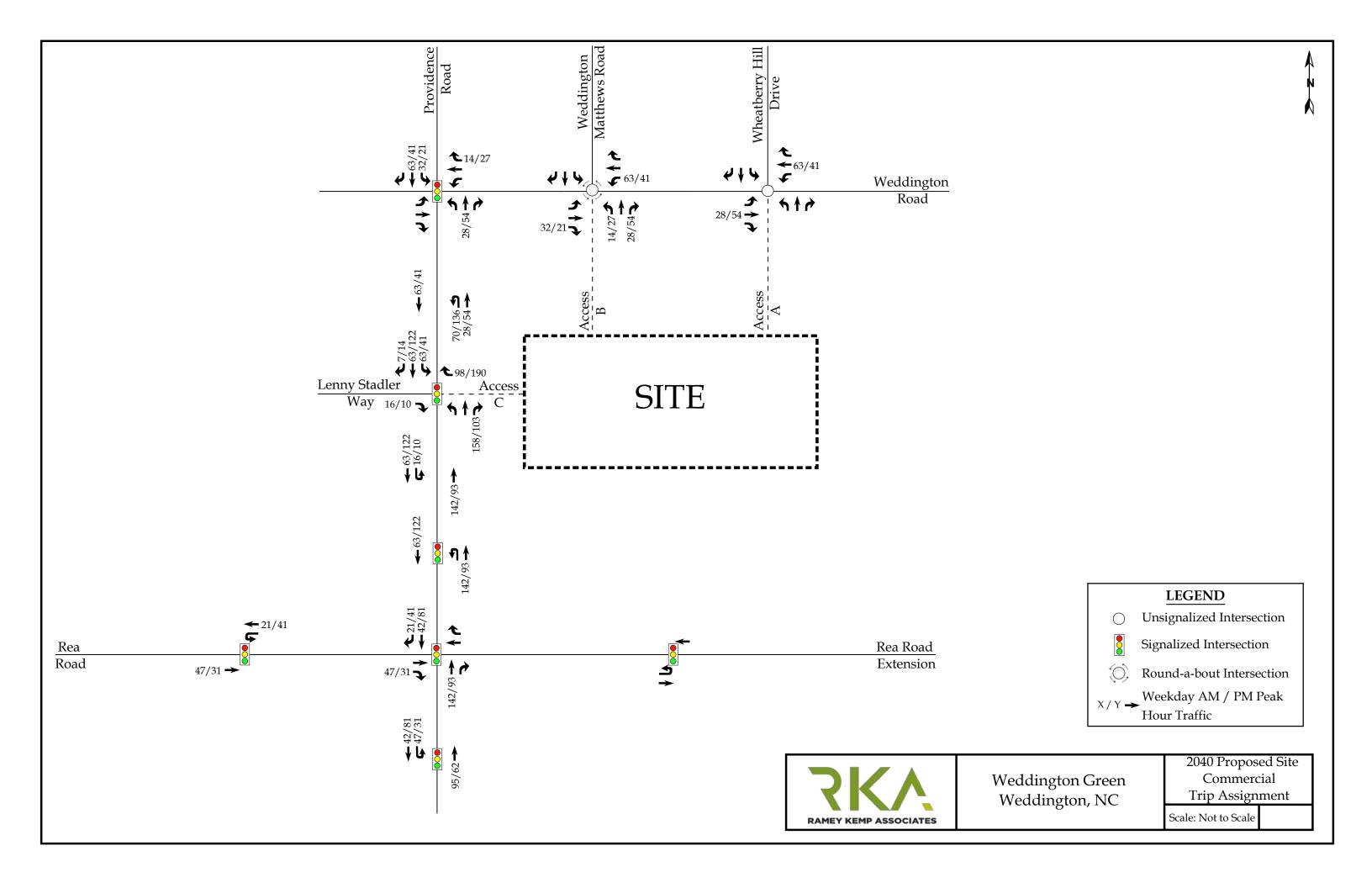
FS-1810D

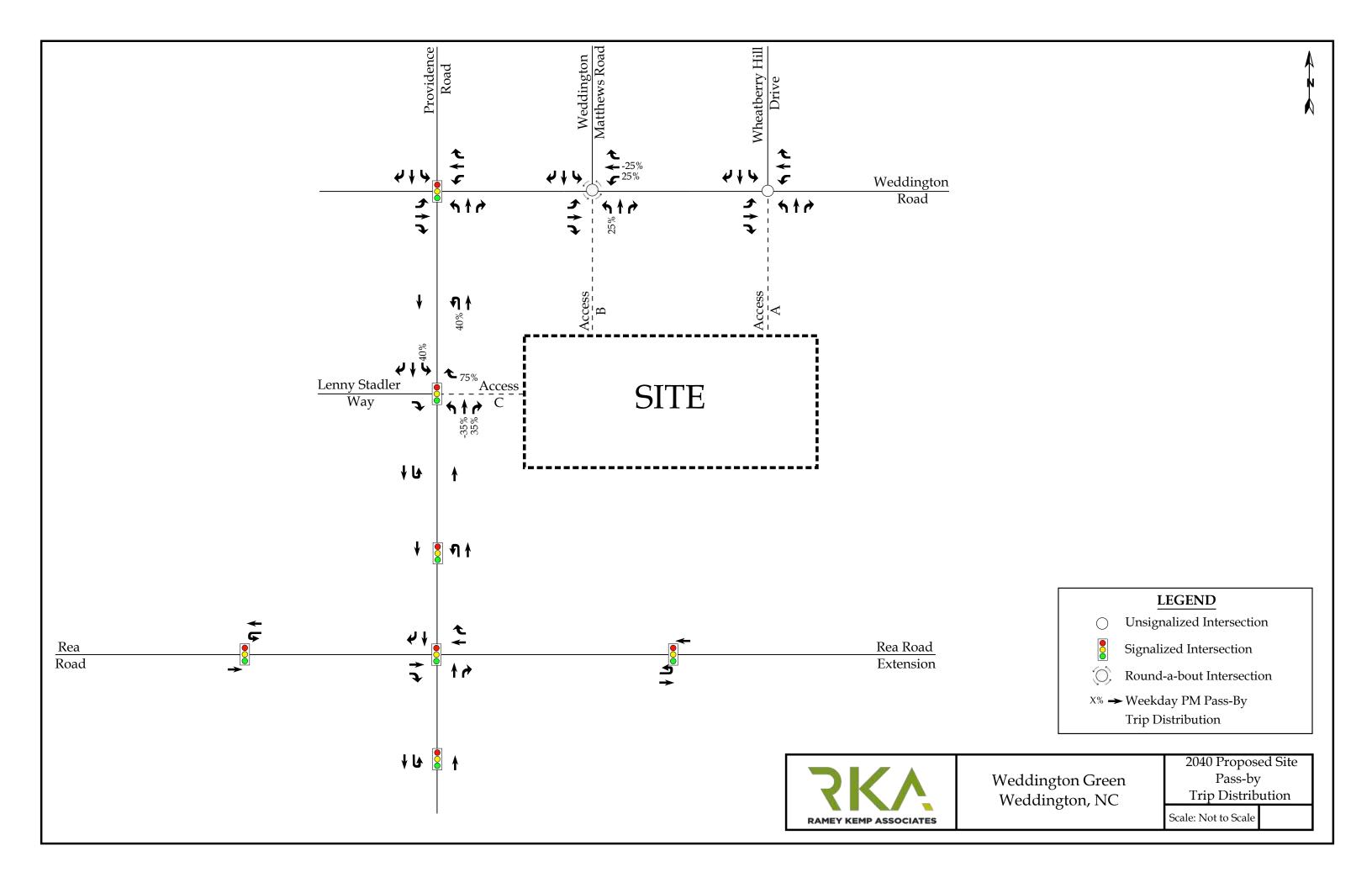


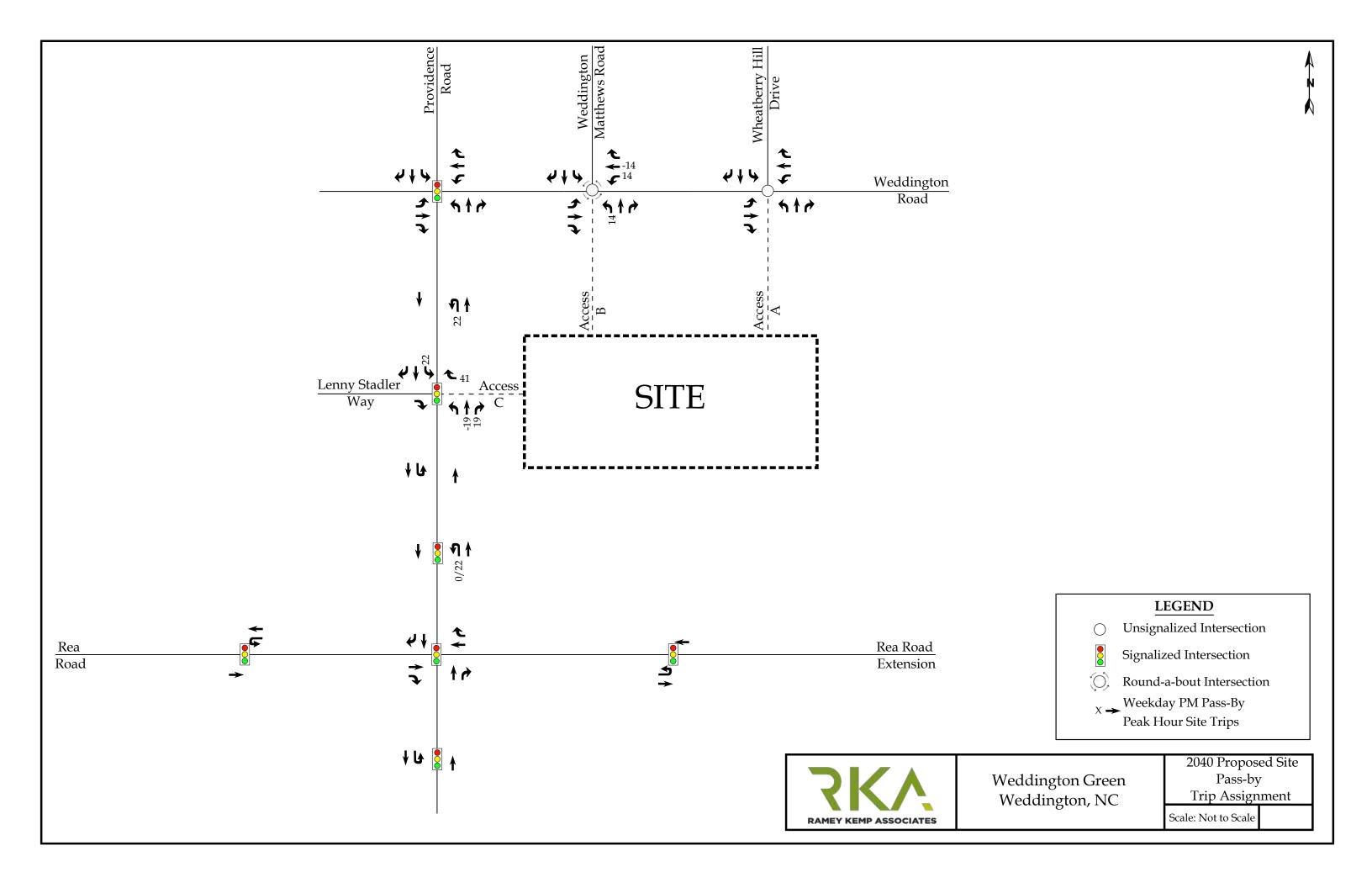


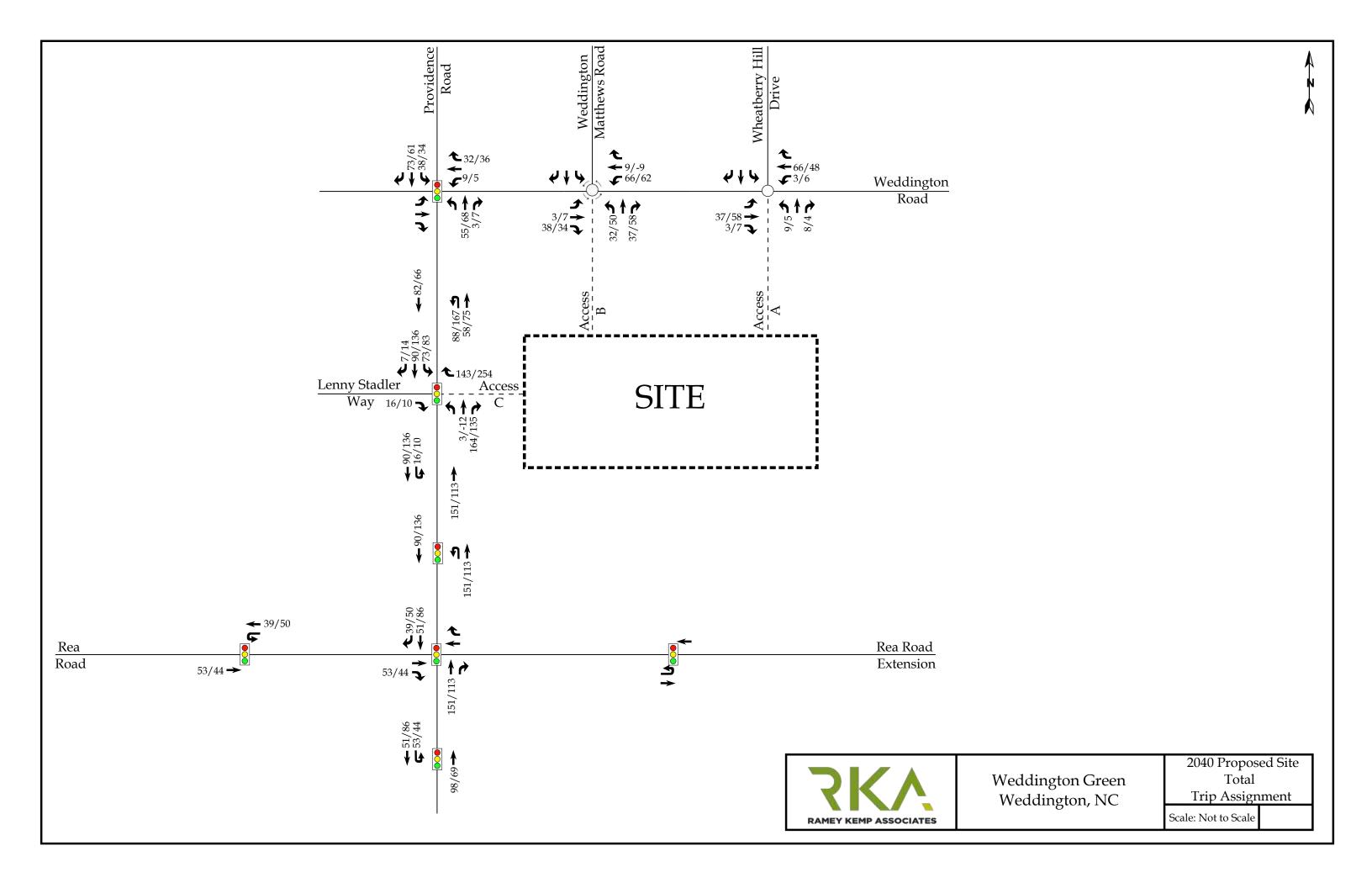


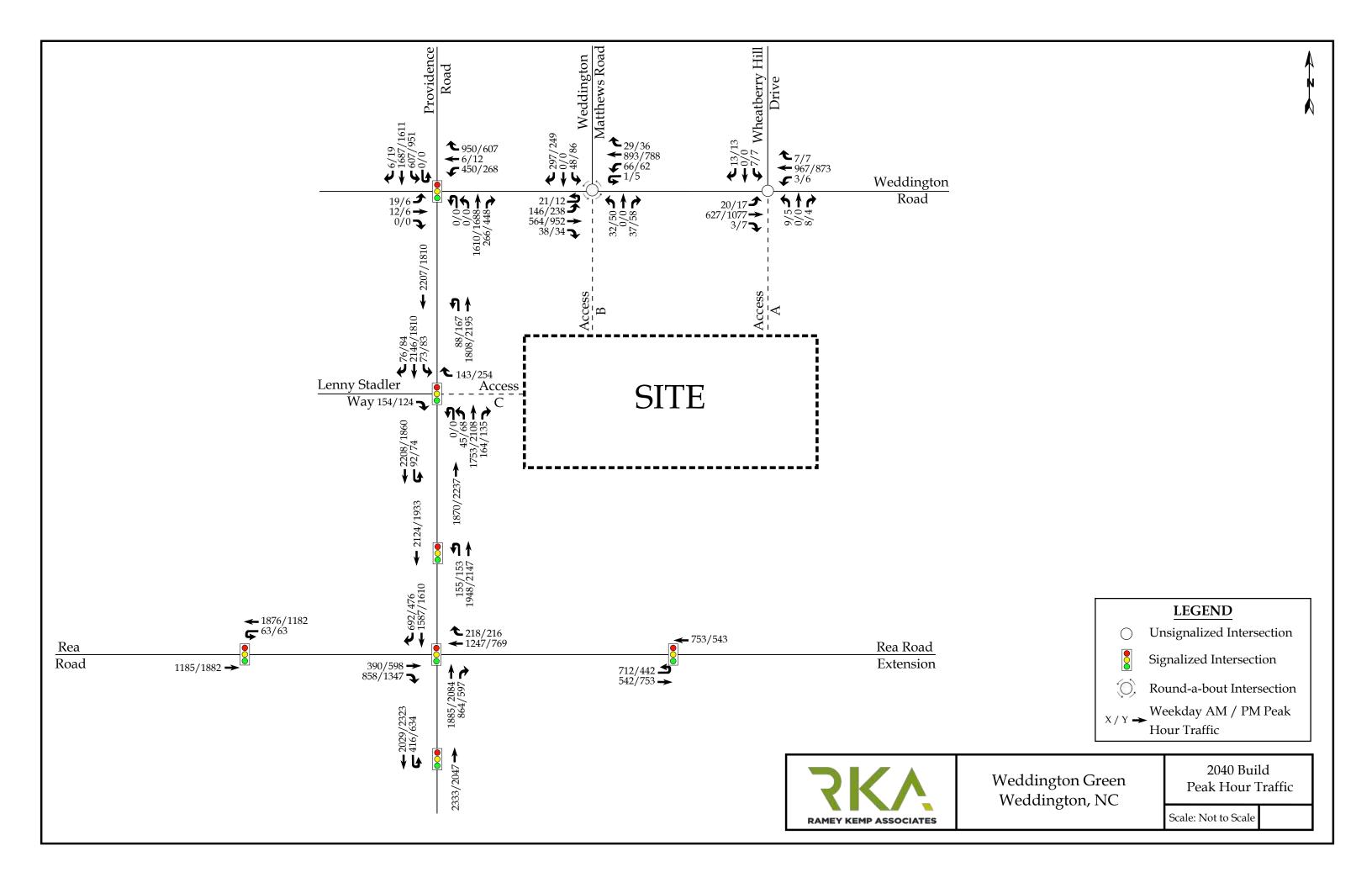












# **APPENDIX E**

# AND TURN LANE WARRANTS WEDDINGTON ROAD AND WHEATBERRY HILL DRIVE / ACCESS A



Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	ሻ	<b>†</b>	<b>↑</b>	7	¥	
Traffic Vol, veh/h	15	445	679	5	5	10
Future Vol, veh/h	15	445	679	5	5	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-		-	None
Storage Length	125	-	-	125	0	-
Veh in Median Storage		0	0	-	0	_
Grade, %	-	0	0	-	0	_
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	494	754	6	6	11
WWW.CT 10W	• •	171	701			• • •
		_		-		
	/lajor1		Major2		/linor2	
Conflicting Flow All	760	0	-	0	1282	754
Stage 1	-	-	-	-	754	-
Stage 2	-	-	-	-	528	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	852	-	-	-	182	409
Stage 1	-	-	-	-	465	-
Stage 2	-	-	-	-	592	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	852	-	-	-	178	409
Mov Cap-2 Maneuver	-	-	_	-	178	-
Stage 1	-	_	-	_	456	_
Stage 2	_	-	_	_	592	_
Olago 2					0,2	
Approach	EB		WB		SB	
HCM Control Delay, s	0.3		0		18.4	
HCM LOS					С	
Minor Lane/Major Mvm	t	EBL	EBT	WBT	WBR :	SBLn1
Capacity (veh/h)		852	-	-	-	285
HCM Lane V/C Ratio		0.02	_	_	_	0.058
HCM Control Delay (s)		9.3	-	-	-	18.4
HCM Lane LOS		A	-	-	-	С
HCM 95th %tile Q(veh)		0.1	-	-	-	0.2

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	7	•	<b>↑</b>	7	N/A	
Traffic Vol, veh/h	13	768	622	5	4	10
Future Vol, veh/h	13	768	622	5	4	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	_	125	0	-
Veh in Median Storage		0	0	-	0	-
Grade, %	-	0	0	_	0	_
Peak Hour Factor	90	90	90	90	90	90
			90			
Heavy Vehicles, %	2	2		2	2	2
Mvmt Flow	14	853	691	6	4	11
Major/Minor N	Major1	N	Major2	ľ	Minor2	
Conflicting Flow All	697	0	-	0	1572	691
	097				691	091
Stage 1		-	-	-		
Stage 2	-	-	-	-	881	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	899	-	-	-	121	445
Stage 1	-	-	-	-	497	-
Stage 2	-	_	_	-	405	-
Platoon blocked, %		_	_	_		
Mov Cap-1 Maneuver	899	_	_	_	119	445
Mov Cap-1 Maneuver	077	-	-	-	119	443
Stage 1	-	-	-	-	489	-
Stage 2	-	-	-	-	405	-
Approach	EB		WB		SB	
HCM Control Delay, s	0.2		0		20.4	
HCM LOS	0.2		U		20.4 C	
HOW LUS					C	
Minor Lane/Major Mvm	nt	EBL	EBT	WBT	WBR :	SBLn1
Capacity (veh/h)		899				250
HCM Lane V/C Ratio		0.016		_		0.062
HCM Control Delay (s)		9.1		-		20.4
			-		-	
HCM Lane LOS	\	A	-	-	-	С
HCM 95th %tile Q(veh)	)	0	-	-	-	0.2

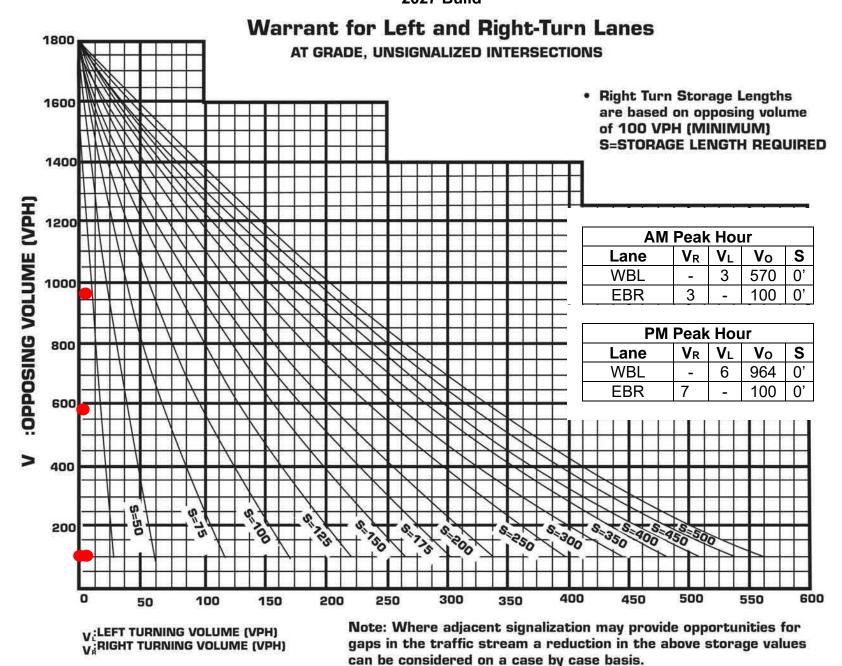
Int Delay, s/veh   0.4   Movement   EBL   EBT   WBT   WBR   SBL   SBR   Lane Configurations   7	Intersection							
Movement		0.4						
Traffic Vol, veh/h			EDT	MDT	WDD	CDI	CDD	
Traffic Vol, veh/h         17         516         787         6         6         12           Future Vol, veh/h         17         516         787         6         6         12           Conflicting Peds, #/hr         0         0         0         0         0         0           Sign Control         Free         Free         Free         Free         Free         Free         Stop         Stop           RT Channelized         -         None         -         None         -         None         -         None           Storage Length         125         -         -         125         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         1         48         1         0         -         0         1485         874         -         -         2							SBK	
Future Vol, veh/h         17         516         787         6         6         12           Conflicting Peds, #/hr         0         0         0         0         0         0           Sign Control         Free         Free         Free         Free         Free         Free         Free         Stop         Stop           RT Channelized         -         None         -         None         -         None           Storage Length         125         -         -         125         0         -         None           Storage Length         125         -         0         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         0         -         0         -         0         0         -         0         0         90         90         90         90         90         90         90         90         90         90         90         90         90         90         90         90         90         90         90 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>10</td>							10	
Conflicting Peds, #/hr         0         0         0         0         0         0           Sign Control         Free         Free         Free         Free         Free         Free         Stop         Stop           RT Channelized         -         None         -         None         -         None           Storage Length         125         -         -         125         0         -           Veh in Median Storage, #         -         0         0         -         0         -           Grade, %         -         0         0         -         0         -           Peak Hour Factor         90         90         90         90         90         90           Heavy Vehicles, %         2 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>								
Sign Control         Free RT Pree RT Pree RT Pree RT Pree RT Channelized         Free RT Channelized         - None RT	-							
RT Channelized         - None         - None         - None           Storage Length         125         - 125         0         -           Veh in Median Storage, # - 0 0 0 - 0         0 0 - 0         -         0         -           Grade, % - 0 0 0 90 90 90 90         90 90 90         90 90         90         90           Heavy Vehicles, % 2 2 2 2 2 2 2 2 2 2 2         3         3								
Storage Length   125								
Veh in Median Storage, #         0         0         0         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         Pole         Pole         90         20         20         20         20								
Grade, %         -         0         0         -         0         -           Peak Hour Factor         90					125		-	
Peak Hour Factor         90         22         2         2         2         2         2         2         2         2         2         2         2		2,# -			-		-	
Heavy Vehicles, %   2   2   2   2   2   2   2   2   2								
Mynt Flow         19         573         874         7         7         13           Major/Minor         Major1         Major2         Minor2           Conflicting Flow All         881         0         -         0         1485         874           Stage 1         -         -         -         874         -           Stage 2         -         -         -         6.42         6.22           Critical Hdwy Stg 1         -         -         -         5.42         -           Critical Hdwy Stg 2         -         -         -         5.42         -           Follow-up Hdwy         2.218         -         -         5.42         -           Follow-up Hdwy         2.218         -         -         137         349           Stage 1         -         -         -         137         349           Stage 1         -         -         -         542         -           Platoon blocked, %         -         -         -         134         349           Mov Cap-1 Maneuver         767         -         -         134         -           Stage 1         -         -         - </td <td>Peak Hour Factor</td> <td>90</td> <td>90</td> <td>90</td> <td>90</td> <td>90</td> <td>90</td>	Peak Hour Factor	90	90	90	90	90	90	
Major/Minor         Major1         Major2         Minor2           Conflicting Flow All         881         0         -         0         1485         874           Stage 1         -         -         -         874         -           Stage 2         -         -         -         611         -           Critical Hdwy         4.12         -         -         6.42         6.22           Critical Hdwy Stg 1         -         -         -         5.42         -           Follow-up Hdwy         2.218         -         -         5.42         -           Follow-up Hdwy         2.218         -         -         3.518         3.318           Pot Cap-1 Maneuver         767         -         -         137         349           Stage 1         -         -         -         542         -           Platoon blocked, %         -         -         -         134         349           Mov Cap-1 Maneuver         767         -         -         134         349           Mov Cap-2 Maneuver         -         -         -         134         -           Stage 1         -         -         -<	Heavy Vehicles, %	2	2	2	2	2	2	
Conflicting Flow All       881       0       -       0       1485       874         Stage 1       -       -       -       874       -         Stage 2       -       -       -       6.11       -         Critical Hdwy       4.12       -       -       6.42       6.22         Critical Hdwy Stg 1       -       -       -       5.42       -         Critical Hdwy Stg 2       -       -       -       5.42       -         Follow-up Hdwy       2.218       -       -       -       5.42       -         Follow-up Hdwy       2.218       -       -       -       3.518       3.318         Pot Cap-1 Maneuver       767       -       -       -       408       -         Stage 1       -       -       -       -       408       -         Stage 2       -       -       -       -       134       349         Mov Cap-2 Maneuver       -       -       -       134       -         Stage 1       -       -       -       398       -         Stage 2       -       -       -       542       -	Mvmt Flow	19	573	874	7	7	13	
Conflicting Flow All       881       0       -       0       1485       874         Stage 1       -       -       -       874       -         Stage 2       -       -       -       6.11       -         Critical Hdwy       4.12       -       -       6.42       6.22         Critical Hdwy Stg 1       -       -       -       5.42       -         Critical Hdwy Stg 2       -       -       -       5.42       -         Follow-up Hdwy       2.218       -       -       -       5.42       -         Follow-up Hdwy       2.218       -       -       -       3.518       3.318         Pot Cap-1 Maneuver       767       -       -       -       408       -         Stage 1       -       -       -       -       408       -         Stage 2       -       -       -       -       134       349         Mov Cap-2 Maneuver       -       -       -       134       -         Stage 1       -       -       -       398       -         Stage 2       -       -       -       542       -								
Conflicting Flow All       881       0       -       0       1485       874         Stage 1       -       -       -       874       -         Stage 2       -       -       -       6.11       -         Critical Hdwy       4.12       -       -       6.42       6.22         Critical Hdwy Stg 1       -       -       -       5.42       -         Critical Hdwy Stg 2       -       -       -       5.42       -         Follow-up Hdwy       2.218       -       -       -       5.42       -         Follow-up Hdwy       2.218       -       -       -       3.518       3.318         Pot Cap-1 Maneuver       767       -       -       -       408       -         Stage 1       -       -       -       -       408       -         Stage 2       -       -       -       -       134       349         Mov Cap-2 Maneuver       -       -       -       134       -         Stage 1       -       -       -       398       -         Stage 2       -       -       -       542       -	N 4 a i a w/N 4 i w a w	Ma:1		Aning?		/!:?		
Stage 1       -       -       -       874       -         Stage 2       -       -       -       6.42       6.22         Critical Hdwy Stg 1       -       -       -       5.42       -         Critical Hdwy Stg 2       -       -       -       5.42       -         Follow-up Hdwy       2.218       -       -       3.518       3.318         Pot Cap-1 Maneuver       767       -       -       137       349         Stage 1       -       -       -       408       -         Stage 2       -       -       -       134       349         Mov Cap-1 Maneuver       767       -       -       134       349         Mov Cap-2 Maneuver       -       -       -       134       -         Stage 1       -       -       -       398       -         Stage 2       -       -       -       542       -         Approach       EB       WB       SB         HCM Control Delay, s       0.3       0       22.4 <td c<="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td>	<td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
Stage 2       -       -       -       611       -         Critical Hdwy       4.12       -       -       6.42       6.22         Critical Hdwy Stg 1       -       -       -       5.42       -         Critical Hdwy Stg 2       -       -       -       5.42       -         Follow-up Hdwy       2.218       -       -       3.518       3.318         Pot Cap-1 Maneuver       767       -       -       137       349         Stage 1       -       -       -       408       -         Stage 2       -       -       -       542       -         Platoon blocked, %       -       -       -       134       349         Mov Cap-1 Maneuver       767       -       -       134       349         Mov Cap-2 Maneuver       -       -       -       134       -         Stage 1       -       -       -       398       -         Stage 2       -       -       -       542       -         Approach       EB       WB       SB         HCM Control Delay, s       0.3       0       22.4         HCM Lane		881	0	-	0		874	
Critical Hdwy       4.12       -       -       6.42       6.22         Critical Hdwy Stg 1       -       -       -       5.42       -         Critical Hdwy Stg 2       -       -       -       5.42       -         Follow-up Hdwy       2.218       -       -       3.518       3.318         Pot Cap-1 Maneuver       767       -       -       137       349         Stage 1       -       -       -       408       -         Stage 2       -       -       -       542       -         Platoon blocked, %       -       -       -       542       -         Mov Cap-1 Maneuver       767       -       -       134       349         Mov Cap-2 Maneuver       -       -       -       134       -         Stage 1       -       -       -       398       -         Stage 2       -       -       -       542       -         Approach       EB       WB       SB         HCM Control Delay, s       0.3       0       22.4         HCM Los       C     Minor Lane/Major Mvmt  EBL  EBT  WBT  WBR SBLn1  Capacity (veh/h)  767  227  Capacit		-	-	-	-		-	
Critical Hdwy Stg 1       -       -       -       5.42       -         Critical Hdwy Stg 2       -       -       -       5.42       -         Follow-up Hdwy       2.218       -       -       3.518       3.318         Pot Cap-1 Maneuver       767       -       -       137       349         Stage 1       -       -       -       -       408       -         Stage 2       -       -       -       -       542       -         Platoon blocked, %       -       -       -       -       -       542       -         Mov Cap-1 Maneuver       767       -       -       134       349         Mov Cap-2 Maneuver       -       -       -       134       -         Stage 1       -       -       -       398       -         Stage 2       -       -       -       542       -         Approach       EB       WB       SB         HCM Control Delay, s       0.3       0       22.4         HCM Los       EBL       EBT       WBT       WBR SBLn1         Capacity (veh/h)       767       -       -       - <td< td=""><td></td><td>-</td><td>-</td><td>-</td><td>-</td><td></td><td></td></td<>		-	-	-	-			
Critical Hdwy Stg 2       -       -       -       5.42       -         Follow-up Hdwy       2.218       -       -       3.518       3.318         Pot Cap-1 Maneuver       767       -       -       137       349         Stage 1       -       -       -       -       408       -         Stage 2       -       -       -       -       542       -         Platoon blocked, %       -       -       -       -       -         Mov Cap-1 Maneuver       767       -       -       134       -         Mov Cap-2 Maneuver       -       -       -       134       -         Stage 1       -       -       -       398       -         Stage 2       -       -       -       542       -         Approach       EB       WB       SB         HCM Control Delay, s       0.3       0       22.4         HCM LOS       C         Minor Lane/Major Mvmt       EBL       EBT       WBT       WBR SBLn1         Capacity (veh/h)       767       -       -       227         HCM Lane V/C Ratio       0.025       -       -		4.12	-	-	-		6.22	
Follow-up Hdwy 2.218 3.518 3.318  Pot Cap-1 Maneuver 767 137 349  Stage 1 408 -  Stage 2 542 -   Platoon blocked, % 134 349  Mov Cap-1 Maneuver 767 134 349  Mov Cap-2 Maneuver 134 - 349  Mov Cap-2 Maneuver 134 -  Stage 1 398 -  Stage 2 542 -    Approach EB WB SB  HCM Control Delay, s 0.3 0 22.4  HCM LOS C  Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1  Capacity (veh/h) 767 227  HCM Lane V/C Ratio 0.025 0.088  HCM Control Delay (s) 9.8 22.4  HCM Lane LOS A C	Critical Hdwy Stg 1	-	-	-	-		-	
Pot Cap-1 Maneuver         767         -         -         137         349           Stage 1         -         -         -         408         -           Stage 2         -         -         -         542         -           Platoon blocked, %         -         -         -         -           Mov Cap-1 Maneuver         767         -         -         134         349           Mov Cap-2 Maneuver         -         -         -         134         -           Stage 1         -         -         -         398         -           Stage 2         -         -         -         542         -           Approach         EB         WB         SB           HCM Control Delay, s         0.3         0         22.4           HCM LOS         C         C    Minor Lane/Major Mvmt  EBL  EBT  WBT  WBR SBLn1  Capacity (veh/h)  767	Critical Hdwy Stg 2	-	-	-	-	5.42	-	
Stage 1       -       -       -       408       -         Stage 2       -       -       -       542       -         Platoon blocked, %       -       -       -       -         Mov Cap-1 Maneuver       767       -       -       134       349         Mov Cap-2 Maneuver       -       -       -       134       -         Stage 1       -       -       -       398       -         Stage 2       -       -       -       542       -         Approach       EB       WB       SB         HCM Control Delay, s       0.3       0       22.4         HCM LOS       C       C         Minor Lane/Major Mvmt       EBL       EBT       WBT       WBR SBLn1         Capacity (veh/h)       767       -       -       227         HCM Lane V/C Ratio       0.025       -       -       0.088         HCM Control Delay (s)       9.8       -       -       22.4         HCM Lane LOS       A       -       -       -       C	Follow-up Hdwy	2.218	-	-	-	3.518	3.318	
Stage 2         -         -         542         -           Platoon blocked, %         -         -         -         -           Mov Cap-1 Maneuver         767         -         -         134         349           Mov Cap-2 Maneuver         -         -         -         134         -           Stage 1         -         -         -         398         -           Stage 2         -         -         -         542         -           Approach         EB         WB         SB           HCM Control Delay, s         0.3         0         22.4           HCM LOS         C         C           Minor Lane/Major Mvmt         EBL         EBT         WBT         WBR SBLn1           Capacity (veh/h)         767         -         -         227           HCM Lane V/C Ratio         0.025         -         -         0.088           HCM Control Delay (s)         9.8         -         -         22.4           HCM Lane LOS         A         -         -         C	Pot Cap-1 Maneuver	767	-	-	-	137	349	
Stage 2       -       -       -       542       -         Platoon blocked, %       -       -       -       -         Mov Cap-1 Maneuver       767       -       -       134       349         Mov Cap-2 Maneuver       -       -       -       134       -         Stage 1       -       -       -       398       -         Stage 2       -       -       -       542       -         Approach       EB       WB       SB         HCM Control Delay, s       0.3       0       22.4         HCM Lane/Major Mvmt       EBL       EBT       WBT       WBR SBLn1         Capacity (veh/h)       767       -       -       227         HCM Lane V/C Ratio       0.025       -       -       0.088         HCM Control Delay (s)       9.8       -       -       22.4         HCM Lane LOS       A       -       -       -       C	•	-	-	-	-	408	-	
Platoon blocked, %		-	-	_	-	542	-	
Mov Cap-1 Maneuver         767         -         -         134         349           Mov Cap-2 Maneuver         -         -         -         134         -           Stage 1         -         -         -         398         -           Stage 2         -         -         -         542         -           Approach         EB         WB         SB           HCM Control Delay, s         0.3         0         22.4           HCM LOS         C         C    Minor Lane/Major Mvmt  EBL  EBT  WBT  WBR SBLn1  Capacity (veh/h)  767  227  HCM Lane V/C Ratio  0.025  0.088  HCM Control Delay (s)  9.8  22.4  HCM Lane LOS  A  C			-	_	-			
Mov Cap-2 Maneuver         -         -         -         134         -           Stage 1         -         -         -         398         -           Stage 2         -         -         -         542         -           Approach         EB         WB         SB           HCM Control Delay, s         0.3         0         22.4           HCM LOS         C         C    Minor Lane/Major Mvmt  EBL  EBT  WBT  WBR SBLn1  Capacity (veh/h)  767  227  HCM Lane V/C Ratio  0.025  0.088  HCM Control Delay (s)  9.8  22.4  HCM Lane LOS  A  C		767	_	-	-	134	349	
Stage 1         -         -         -         398         -           Stage 2         -         -         -         542         -           Approach         EB         WB         SB           HCM Control Delay, s         0.3         0         22.4           HCM LOS         C         C           Minor Lane/Major Mvmt         EBL         EBT         WBT         WBR SBLn1           Capacity (veh/h)         767         -         -         227           HCM Lane V/C Ratio         0.025         -         -         0.088           HCM Control Delay (s)         9.8         -         -         22.4           HCM Lane LOS         A         -         -         C	•		_	_	_			
Stage 2         -         -         -         542         -           Approach         EB         WB         SB           HCM Control Delay, s         0.3         0         22.4           HCM LOS         C           Minor Lane/Major Mvmt         EBL         EBT         WBT         WBR SBLn1           Capacity (veh/h)         767         -         -         227           HCM Lane V/C Ratio         0.025         -         -         0.088           HCM Control Delay (s)         9.8         -         -         22.4           HCM Lane LOS         A         -         -         C			_	_	_			
Approach         EB         WB         SB           HCM Control Delay, s         0.3         0         22.4           HCM LOS         C           Minor Lane/Major Mvmt         EBL         EBT         WBT         WBR SBLn1           Capacity (veh/h)         767         -         -         227           HCM Lane V/C Ratio         0.025         -         -         0.088           HCM Control Delay (s)         9.8         -         -         22.4           HCM Lane LOS         A         -         -         C		_	_	_	_			
HCM Control Delay, s   0.3   0   22.4     HCM LOS	Stage 2					JTZ		
HCM Control Delay, s   0.3   0   22.4     HCM LOS								
Minor Lane/Major Mvmt         EBL         EBT         WBT         WBR SBLn1           Capacity (veh/h)         767         -         -         -         227           HCM Lane V/C Ratio         0.025         -         -         -         0.088           HCM Control Delay (s)         9.8         -         -         22.4           HCM Lane LOS         A         -         -         C	Approach	EB		WB		SB		
Minor Lane/Major Mvmt         EBL         EBT         WBT         WBR SBLn1           Capacity (veh/h)         767         -         -         227           HCM Lane V/C Ratio         0.025         -         -         0.088           HCM Control Delay (s)         9.8         -         -         22.4           HCM Lane LOS         A         -         -         C	HCM Control Delay, s	0.3		0		22.4		
Capacity (veh/h)       767       -       -       227         HCM Lane V/C Ratio       0.025       -       -       0.088         HCM Control Delay (s)       9.8       -       -       22.4         HCM Lane LOS       A       -       -       C	HCM LOS					С		
Capacity (veh/h)       767       -       -       227         HCM Lane V/C Ratio       0.025       -       -       0.088         HCM Control Delay (s)       9.8       -       -       22.4         HCM Lane LOS       A       -       -       C								
Capacity (veh/h)       767       -       -       227         HCM Lane V/C Ratio       0.025       -       -       0.088         HCM Control Delay (s)       9.8       -       -       22.4         HCM Lane LOS       A       -       -       C	NA!	. 1	EDI	EDT	WDT	WDD	CDI1	
HCM Lane V/C Ratio       0.025       -       -       0.088         HCM Control Delay (s)       9.8       -       -       22.4         HCM Lane LOS       A       -       -       C		11		FRI	MRI	WRK:		
HCM Control Delay (s)  9.8  22.4  HCM Lane LOS  A  - C				-	-	-		
HCM Lane LOS A C				-	-	-		
				-	-	-		
LICM OF the O(tile O(tich)				-	-	-		
HCIVI YOUT %tille Q(Ven) U.1 0.3	HCM 95th %tile Q(veh	)	0.1	-	-	-	0.3	

1 1 11						
Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	ች	<b>†</b>	<b>†</b>	7	¥	
Traffic Vol, veh/h	15	891	721	6	4	12
Future Vol, veh/h	15	891	721	6	4	12
Conflicting Peds, #/hr		0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	_	125	0	-
Veh in Median Storage		0	0	-	0	_
Grade, %	-	0	0	_	0	_
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	990	801	7	4	13
IVIVIIIL FIOW	17	990	001	1	4	13
Major/Minor	Major1	N	Major2	I	Minor2	
Conflicting Flow All	808	0	-	0	1825	801
Stage 1	-	-	-	-	801	-
Stage 2	-	-	-	-	1024	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	_	_	_	_	5.42	_
Critical Hdwy Stg 2	_	_	_	_	5.42	_
Follow-up Hdwy	2.218	_	_	_	3.518	3 318
Pot Cap-1 Maneuver	817	_		_	85	384
Stage 1	-	_	_	_	442	-
Stage 2	_			-	347	
Platoon blocked, %					347	
Mov Cap-1 Maneuver						-
IVIOV Cap- i IVIalieuvel	017	-	-	-		201
		-	-	-	83	384
Mov Cap-2 Maneuver	-	- - -	- - -	-	83 83	-
Mov Cap-2 Maneuver Stage 1	-	-	- - -	- -	83 83 433	
Mov Cap-2 Maneuver	-	-	-	-	83 83	-
Mov Cap-2 Maneuver Stage 1	-	-	- - -	- -	83 83 433	-
Mov Cap-2 Maneuver Stage 1	-	-	- - -	- -	83 83 433	-
Mov Cap-2 Maneuver Stage 1 Stage 2  Approach	- - -	-	- - -	- -	83 83 433 347 SB	-
Mov Cap-2 Maneuver Stage 1 Stage 2  Approach HCM Control Delay, s	- - -	-	- - - - WB	- -	83 83 433 347 SB 24.6	-
Mov Cap-2 Maneuver Stage 1 Stage 2  Approach	- - -	-	- - - - WB	- -	83 83 433 347 SB	-
Mov Cap-2 Maneuver Stage 1 Stage 2  Approach HCM Control Delay, s HCM LOS	EB 0.2	-	- - - - WB	-	83 83 433 347 SB 24.6	-
Mov Cap-2 Maneuver Stage 1 Stage 2  Approach HCM Control Delay, s HCM LOS  Minor Lane/Major Mvn	EB 0.2	- - - -	- - - - WB	- -	83 83 433 347 SB 24.6	- - - SBLn1
Mov Cap-2 Maneuver Stage 1 Stage 2  Approach HCM Control Delay, s HCM LOS  Minor Lane/Major Mvn Capacity (veh/h)	EB 0.2	- - - - EBL 817	- - - - WB	-	83 83 433 347 SB 24.6 C	- - - - - SBLn1 201
Mov Cap-2 Maneuver Stage 1 Stage 2  Approach HCM Control Delay, s HCM LOS  Minor Lane/Major Mvn Capacity (veh/h) HCM Lane V/C Ratio	EB 0.2	EBL 817 0.02	- - - - WB	-	83 83 433 347 SB 24.6 C	SBLn1 201 0.088
Mov Cap-2 Maneuver Stage 1 Stage 2  Approach HCM Control Delay, s HCM LOS  Minor Lane/Major Mvn Capacity (veh/h) HCM Lane V/C Ratio HCM Control Delay (s)	EB 0.2	EBL 817 0.02 9.5	- - - - WB	- - - - WBT	83 83 433 347 SB 24.6 C	SBLn1 201 0.088 24.6
Mov Cap-2 Maneuver Stage 1 Stage 2  Approach HCM Control Delay, s HCM LOS  Minor Lane/Major Mvn Capacity (veh/h) HCM Lane V/C Ratio	EB 0.2	EBL 817 0.02	- - - - WB	- - - - WBT	83 83 433 347 SB 24.6 C	SBLn1 201 0.088

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	<b>†</b>	7	ሻ	<u></u>	7		4			4	
Traffic Vol, veh/h	17	553	4	4	853	6	9	4	8	6	4	12
Future Vol, veh/h	17	553	4	4	853	6	9	4	8	6	4	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	125	-	100	100	-	125	-	-	-	-	-	-
Veh in Median Storage,	,# -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	614	4	4	948	7	10	4	9	7	4	13
Major/Minor N	/lajor1		ľ	Major2		ı	Minor1		ľ	Minor2		
Conflicting Flow All	955	0	0	618	0	0	1620	1615	614	1617	1612	948
Stage 1	-	-	-	-	-	-	652	652	-	956	956	-
Stage 2	_	_	_	_	_	_	968	963	_	661	656	-
Critical Hdwy	4.12	_	_	4.12	_	_	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-		_	-			6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	_	_	-	-	6.12	5.52	-	6.12	5.52	-
	2.218		_	2.218			3.518		3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	720	-	-	962	_	-	83	104	492	83	104	316
Stage 1	-	-	-	-	-	-	457	464	-	310	336	-
Stage 2	_	-	-	-	_	-	305	334	-	452	462	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	720	-	-	962	-	-	75	101	492	77	101	316
Mov Cap-2 Maneuver	-	-	-	-	-	-	75	101	-	77	101	-
Stage 1	-	-	-	-	-	-	445	452	-	302	335	-
Stage 2	-	-	-	-	-	-	287	333	-	428	450	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0			42.5			35.8		
HCM LOS	0.0			U			42.5 E			33.0 E		
TOW LOS												
Minor Lane/Major Mvm	+ 1	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR :	CDI n1			
Capacity (veh/h)	t	119	720	LDI	EDK -	962	WDI	WDK .	141			
HCM Lane V/C Ratio		0.196		-		0.005			0.173			
		42.5		-	-		-					
HCM Lang LOS			10.1	-	-	8.8	-	-	35.8			
HCM Lane LOS HCM 95th %tile Q(veh)		0.7	0.1	-	-	A 0	-	-	0.6			
HOW YOU WILLE Q(VEN)		0.7	U. I	-	-	U	-	-	0.0			

Int Delay, s/veh         1.2           Movement         EBL         EBT         EBR         WBL         WBR         NBL         NBT         NBR         SBL         SBT         SBR           Lane Configurations         1
Movement         EBL         EBT         EBR         WBL         WBT         WBR         NBL         NBT         NBR         SBL         SBT         SBR           Lane Configurations         1 <t< td=""></t<>
Lane Configurations         ↑         ↑         ↑         ↑         ↑         ↑         ↑         ↓
Traffic Vol, veh/h         15         949         7         6         769         6         5         4         4         4         4         4         12           Future Vol, veh/h         15         949         7         6         769         6         5         4         4         4         4         12           Conflicting Peds, #/hr         0
Future Vol, veh/h         15         949         7         6         769         6         5         4         4         4         4         4         12           Conflicting Peds, #/hr         0
Conflicting Peds, #/hr 0 0 0 0 0 0 0 0 0 0 0 0 0 0 Stop Stop Stop Stop Stop Stop Stop Stop
Sign Control Free Free Free Free Free Free Stop Stop Stop Stop Stop Stop Stop Stop
RT Channelized None None None
Storage Length 125 - 100 100 - 125
Veh in Median Storage, # - 0 0 0 -
Grade, % - 0 0 0 0 0 0 -
Peak Hour Factor 90 90 90 90 90 90 90 90 90 90 90 90 90
Heavy Vehicles, % 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
Mvmt Flow 17 1054 8 7 854 7 6 4 4 4 13
Major/Minor Major1 Major2 Minor1 Minor2
Conflicting Flow All 861 0 0 1062 0 0 1968 1963 1054 1964 1964 854
Stage 1 1088 1088 - 868 868 -
Stage 2 880 875 - 1096 1096 -
Critical Hdwy 4.12 4.12 7.12 6.52 6.22 7.12 6.52 6.22
Critical Hdwy Stg 1 6.12 5.52 - 6.12 5.52 -
Critical Hdwy Stg 2 6.12 5.52 - 6.12 5.52 -
Follow-up Hdwy 2.218 2.218 3.518 4.018 3.318 3.518 4.018 3.318
Pot Cap-1 Maneuver 781 656 47 63 275 47 63 358
Stage 1 261 292 - 347 370 -
Stage 2 342 367 - 259 289 -
Platoon blocked, %
Mov Cap-1 Maneuver 781 656 42 61 275 43 61 358
Mov Cap-2 Maneuver 42 61 - 43 61 -
Stage 1 255 286 - 339 366 -
Stage 2 322 363 - 245 283 -
Approach EB WB NB SB
HCM Control Delay, s 0.2 0.1 75.6 48.8
HCM LOS F E
TIOWI LOS
Minor Lane/Major Mvmt NBLn1 EBL EBT EBR WBL WBT WBR SBLn1
Capacity (veh/h) 65 781 656 104
HCM Lane V/C Ratio 0.222 0.021 0.01 0.214
HCM Control Delay (s) 75.6 9.7 10.5 48.8
HCM Lane LOS F A B E
HCM 95th %tile Q(veh) 0.8 0.1 0 0.8

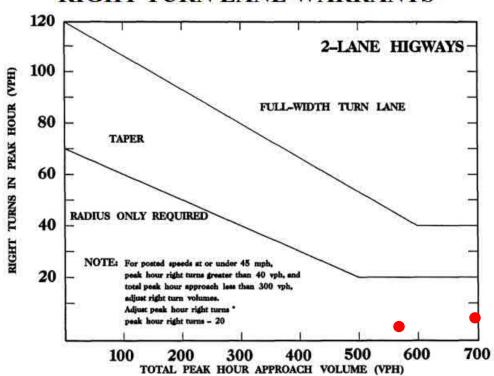
## Weddington Road and Wheatberry Hill Drive / Access A 2027 Build



### Weddington Road and Wheatberry Hill Drive / Access A

	2027 Build												
Peak Hour	Approach	Right Turn Volume	Approach Volume	Warranted?									
AM	Eastbound	3	570	No									
PM	Eastbound	7	964	No									

### RIGHT TURN LANE WARRANTS



## **APPENDIX F**

# CAPACITY ANALYSIS CALCULATIONS WEDDINGTON ROAD AND WEDDINGTON MATTHEWS ROAD / ACCESS B



### **♥** Site: 1 [01 2021 Existing AM (Site Folder: General)]

Weddington Road and Weddington Matthews Road

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INP VOLU [ Total veh/h		DEM/ FLO [ Total veh/h		Deg. Satn v/c		Level of Service		ACK OF EUE Dist ] ft	Prop.   Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East:	Wedd	ington Ro	oad											
1u	U	4	2.0	4	2.0	0.657	12.1	LOS B	6.0	151.9	0.60	0.39	0.60	29.7
6	T1	666	2.0	740	2.0	0.657	12.1	LOS B	6.0	151.9	0.60	0.39	0.60	29.0
16	R2	22	2.0	24	2.0	0.657	12.1	LOS B	6.0	151.9	0.60	0.39	0.60	28.3
Appr	oach	692	2.0	769	2.0	0.657	12.1	LOS B	6.0	151.9	0.60	0.39	0.60	28.9
North	n: Wed	dington M	/latthews	Road										
7	L2	36	2.0	40	2.0	0.472	13.4	LOS B	2.7	69.5	0.75	0.85	1.08	32.2
14	R2	224	2.0	249	2.0	0.472	13.4	LOS B	2.7	69.5	0.75	0.85	1.08	31.6
Appr	oach	260	2.0	289	2.0	0.472	13.4	LOS B	2.7	69.5	0.75	0.85	1.08	31.7
West	: Wed	dington R	oad											
5u	U	16	2.0	18	2.0	0.105	3.5	LOSA	0.4	11.1	0.14	0.05	0.14	30.9
5	L2	110	2.0	122	2.0	0.105	3.5	LOSA	0.4	11.1	0.14	0.05	0.14	30.3
2	T1	423	2.0	470	2.0	0.352	5.9	LOSA	2.0	50.2	0.19	0.07	0.19	31.5
Appr	oach	549	2.0	610	2.0	0.352	5.4	LOSA	2.0	50.2	0.18	0.07	0.18	31.2
All Vehic	cles	1501	2.0	1668	2.0	0.657	9.8	LOSA	6.0	151.9	0.47	0.35	0.53	30.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Geometric Delay is not included).

Queue Model: HCM Queue Formula. Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: RAMEY KEMP & ASSOCIATES, INC. | Licence: PLUS / Enterprise | Processed: Monday, January 10, 2022 4:30:42 PM

Project: Y:\2021 Projects\21675 Weddington Green - Weddington, NC\TIA\Analysis\Sidra\Roundabout (Weddington Road and Weddington Matthews Road).sip9

### **♥** Site: 1 [02 2021 Existing PM (Site Folder: General)]

Weddington Road and Weddington Matthews Road

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INP VOLU [ Total veh/h		DEM/ FLO¹ [ Total veh/h		Deg. Satn v/c		Level of Service		ACK OF EUE Dist ] ft	Prop.   Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East:	Wedd	ington Ro	oad											
1u	U	4	2.0	4	2.0	0.645	12.3	LOS B	7.4	187.7	0.67	0.60	0.83	29.6
6	T1	601	2.0	668	2.0	0.645	12.3	LOS B	7.4	187.7	0.67	0.60	0.83	28.9
16	R2	27	2.0	30	2.0	0.645	12.3	LOS B	7.4	187.7	0.67	0.60	0.83	28.2
Appr	oach	632	2.0	702	2.0	0.645	12.3	LOS B	7.4	187.7	0.67	0.60	0.83	28.8
North	n: Wed	dington M	atthews	Road										
7	L2	65	2.0	72	2.0	0.423	11.4	LOS B	2.3	59.0	0.72	0.78	0.93	32.9
14	R2	188	2.0	209	2.0	0.423	11.4	LOS B	2.3	59.0	0.72	0.78	0.93	32.2
Appr	oach	253	2.0	281	2.0	0.423	11.4	LOS B	2.3	59.0	0.72	0.78	0.93	32.4
West	: Wed	dington R	oad											
5u	U	9	2.0	10	2.0	0.161	4.1	LOSA	0.7	18.0	0.20	0.09	0.20	30.7
5	L2	179	2.0	199	2.0	0.161	4.1	LOSA	0.7	18.0	0.20	0.09	0.20	30.1
2	T1	712	2.0	791	2.0	0.610	10.1	LOS B	5.2	131.1	0.39	0.20	0.39	29.7
Appr	oach	900	2.0	1000	2.0	0.610	8.8	LOSA	5.2	131.1	0.35	0.18	0.35	29.8
All Vehic	cles	1785	2.0	1983	2.0	0.645	10.4	LOS B	7.4	187.7	0.52	0.41	0.60	29.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Geometric Delay is not included).

Queue Model: HCM Queue Formula. Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

### SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: RAMEY KEMP & ASSOCIATES, INC. | Licence: PLUS / Enterprise | Processed: Monday, January 10, 2022 4:33:46 PM Project: Y:\2021 Projects\\21675 Weddington Green - Weddington, NC\TIA\Analysis\Sidra\Roundabout (Weddington Road and Weddington Matthews Road).sip9

### ▼ Site: 1 [03 2027 No-Build AM (Site Folder: General)]

Weddington Road and Weddington Matthews Road

Site Category: (None)

Roundabout

Vehi	Vehicle Movement Performance													
Mov ID	Turn	INP VOLU [ Total veh/h		DEM/ FLO [ Total veh/h		Deg. Satn v/c		Level of Service		ACK OF EUE Dist ] ft	Prop.   Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East:	Wedd	ington Ro	oad											
1u	U	4	2.0	4	2.0	0.781	17.2	LOS C	17.3	439.6	0.82	0.81	1.18	27.8
6	T1	772	2.0	858	2.0	0.781	17.2	LOS C	17.3	439.6	0.82	0.81	1.18	27.2
16	R2	26	2.0	29	2.0	0.781	17.2	LOS C	17.3	439.6	0.82	0.81	1.18	26.6
Appr	oach	802	2.0	891	2.0	0.781	17.2	LOS C	17.3	439.6	0.82	0.81	1.18	27.1
North	n: Wed	dington M	1atthews	Road										
7	L2	42	2.0	47	2.0	0.622	20.1	LOS C	4.3	109.2	0.82	1.00	1.47	29.4
14	R2	260	2.0	289	2.0	0.622	20.1	LOS C	4.3	109.2	0.82	1.00	1.47	28.8
Appr	oach	302	2.0	336	2.0	0.622	20.1	LOS C	4.3	109.2	0.82	1.00	1.47	28.9
West	: Wed	dington R	oad											
5u	U	19	2.0	21	2.0	0.123	3.7	LOSA	0.5	13.3	0.15	0.06	0.15	30.8
5	L2	128	2.0	142	2.0	0.123	3.7	LOSA	0.5	13.3	0.15	0.06	0.15	30.2
2	T1	491	2.0	546	2.0	0.411	6.6	LOSA	2.5	63.7	0.22	0.09	0.22	31.1
Appr	oach	638	2.0	709	2.0	0.411	6.0	LOSA	2.5	63.7	0.21	0.08	0.21	30.9
All Vehic	cles	1742	2.0	1936	2.0	0.781	13.6	LOS B	17.3	439.6	0.60	0.58	0.87	28.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Geometric Delay is not included).

Queue Model: HCM Queue Formula. Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: RAMEY KEMP & ASSOCIATES, INC. | Licence: PLUS / Enterprise | Processed: Tuesday, January 25, 2022 11:14:01 AM

Project: Y:\2021 Projects\21675 Weddington Green - Weddington, NC\TIA\Analysis\Sidra\Roundabout (Weddington Road and Weddington Matthews Road).sip9

### **♥** Site: 1 [04 2027 No-Build PM (Site Folder: General)]

Weddington Road and Weddington Matthews Road

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INP VOLU [ Total veh/h		DEM/ FLO [ Total veh/h		Deg. Satn v/c		Level of Service		ACK OF EUE Dist ] ft	Prop.   Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East:	Wedd	ington Ro	oad											
1u	U	5	2.0	6	2.0	0.775	17.9	LOS C	17.1	434.2	0.87	1.08	1.55	27.5
6	T1	697	2.0	774	2.0	0.775	17.9	LOS C	17.1	434.2	0.87	1.08	1.55	26.9
16	R2	31	2.0	34	2.0	0.775	17.9	LOS C	17.1	434.2	0.87	1.08	1.55	26.3
Appr	oach	733	2.0	814	2.0	0.775	17.9	LOS C	17.1	434.2	0.87	1.08	1.55	26.9
North	n: Wed	dington M	/latthews	Road										
7	L2	75	2.0	83	2.0	0.548	15.9	LOS C	3.6	90.3	0.79	0.92	1.26	30.8
14	R2	218	2.0	242	2.0	0.548	15.9	LOS C	3.6	90.3	0.79	0.92	1.26	30.3
Appr	oach	293	2.0	326	2.0	0.548	15.9	LOS C	3.6	90.3	0.79	0.92	1.26	30.4
West	: Wed	dington R	oad											
5u	U	10	2.0	11	2.0	0.189	4.4	LOSA	0.9	21.7	0.23	0.11	0.23	30.6
5	L2	208	2.0	231	2.0	0.189	4.4	LOSA	0.9	21.7	0.23	0.11	0.23	30.0
2	T1	826	2.0	918	2.0	0.716	13.1	LOS B	7.6	192.4	0.53	0.29	0.53	28.6
Appr	oach	1044	2.0	1160	2.0	0.716	11.3	LOS B	7.6	192.4	0.47	0.25	0.47	28.9
All Vehic	cles	2070	2.0	2300	2.0	0.775	14.3	LOS B	17.1	434.2	0.66	0.64	0.96	28.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Geometric Delay is not included).

Queue Model: HCM Queue Formula. Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

### SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: RAMEY KEMP & ASSOCIATES, INC. | Licence: PLUS / Enterprise | Processed: Tuesday, January 25, 2022 11:15:21 AM Project: Y:\2021 Projects\21675 Weddington Green - Weddington, NC\TIA\Analysis\Sidra\Roundabout (Weddington Road and Weddington Matthews Road).sip9

### ▼ Site: 1 [05 2027 Build AM (Site Folder: General)]

Weddington Road and Weddington Matthews Road

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INP VOLU [ Total veh/h		DEM/ FLO\ [ Total veh/h		Deg. Satn v/c		Level of Service		ACK OF EUE Dist ] ft	Prop. E Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
Sout	h: Acce													
3	L2	32	2.0	35	2.0	0.110	6.2	LOSA	0.4	9.8	0.56	0.55	0.56	23.8
8	T1	4	2.0	4	2.0	0.110	6.2	LOSA	0.4	9.8	0.56	0.55	0.56	23.4
18	R2	37	2.0	40	2.0	0.110	6.2	LOSA	0.4	9.8	0.56	0.55	0.56	22.9
Appr	oach	73	2.0	79	2.0	0.110	6.2	LOSA	0.4	9.8	0.56	0.55	0.56	23.3
East	: Wedd	ington Ro	oad											
1u	U	4	2.0	4	2.0	0.833	20.3	LOS C	24.9	632.5	0.89	1.13	1.67	26.6
1	L2	66	2.0	72	2.0	0.833	20.3	LOS C	24.9	632.5	0.89	1.13	1.67	26.2
6	T1	781	2.0	868	2.0	0.833	20.3	LOS C	24.9	632.5	0.89	1.13	1.67	26.1
16	R2	26	2.0	29	2.0	0.833	20.3	LOS C	24.9	632.5	0.89	1.13	1.67	25.5
Appr	oach	877	2.0	973	2.0	0.833	20.3	LOS C	24.9	632.5	0.89	1.13	1.67	26.1
Nortl	n: Wed	dington M	atthews	s Road										
7	L2	42	2.0	47	2.0	0.711	27.5	LOS D	5.3	134.9	0.86	1.10	1.78	26.8
4	T1	4	2.0	4	2.0	0.711	27.5	LOS D	5.3	134.9	0.86	1.10	1.78	26.8
14	R2	260	2.0	289	2.0	0.711	27.5	LOS D	5.3	134.9	0.86	1.10	1.78	26.3
Appr	oach	306	2.0	340	2.0	0.711	27.5	LOS D	5.3	134.9	0.86	1.10	1.78	26.4
Wes	t: Wed	dington R	oad											
5u	U	19	2.0	21	2.0	0.132	4.0	LOSA	0.6	14.1	0.26	0.14	0.26	30.7
5	L2	128	2.0	142	2.0	0.132	4.0	LOSA	0.6	14.1	0.26	0.14	0.26	30.1
2	T1	494	2.0	549	2.0	0.477	7.9	LOSA	3.0	77.3	0.39	0.24	0.39	30.6
12	R2	38	2.0	41	2.0	0.477	7.9	LOSA	3.0	77.3	0.39	0.24	0.39	29.8
Appr	oach	679	2.0	754	2.0	0.477	7.1	LOSA	3.0	77.3	0.37	0.22	0.37	30.4
All Vehi	cles	1935	2.0	2146	2.0	0.833	16.3	LOS C	24.9	632.5	0.69	0.78	1.19	27.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Geometric Delay is not included).

Queue Model: HCM Queue Formula. Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: RAMEY KEMP & ASSOCIATES, INC. | Licence: PLUS / Enterprise | Processed: Tuesday, January 25, 2022 2:33:14 PM Project: Y:\2021 Projects\21675 Weddington Green - Weddington, NC\TIA\Analysis\Sidra\Roundabout (Weddington Road and Weddington Matthews Road).sip9

### ▼ Site: 1 [06 2027 Build PM (Site Folder: General)]

Weddington Road and Weddington Matthews Road

Site Category: (None)

Roundabout

Vehi	cle M	ovemen	t Perfo	rmance										
	Turn	INP		DEM		Deg.		Level of		ACK OF		Effective	Aver.	Aver.
ID		VOLU [Total	JMES HV ]	FLO' [ Total	WS HV]	Satn	Delay	Service	QUI [ Veh.	EUE Dist ]	Que	Stop Rate	No. Cycles	Speed
		veh/h	%	veh/h	%	v/c	sec		veh	ft		Maic	Cycles	mph
South: Access B														
3	L2	50	2.0	54	2.0	0.260	11.7	LOS B	0.9	23.0	0.73	0.74	0.77	22.5
8	T1	4	2.0	4	2.0	0.260	11.7	LOS B	0.9	23.0	0.73	0.74	0.77	22.2
18	R2	58	2.0	63	2.0	0.260	11.7	LOS B	0.9	23.0	0.73	0.74	0.77	21.7
Appr	oach	112	2.0	122	2.0	0.260	11.7	LOS B	0.9	23.0	0.73	0.74	0.77	22.1
East:	Wedd	lington Ro	oad											
1u	U	5	2.0	6	2.0	0.813	20.1	LOS C	19.3	489.7	0.89	1.28	1.88	26.7
1	L2	62	2.0	67	2.0	0.813	20.1	LOS C	19.3	489.7	0.89	1.28	1.88	26.2
6	T1	688	2.0	764	2.0	0.813	20.1	LOS C	19.3	489.7	0.89	1.28	1.88	26.1
16	R2	31	2.0	34	2.0	0.813	20.1	LOS C	19.3	489.7	0.89	1.28	1.88	25.6
Appr	oach	786	2.0	872	2.0	0.813	20.1	LOS C	19.3	489.7	0.89	1.28	1.88	26.1
North	n: Wed	dington N	/latthews	Road										
7	L2	75	2.0	83	2.0	0.624	20.5	LOS C	4.3	108.4	0.82	1.01	1.48	29.0
4	T1	4	2.0	4	2.0	0.624	20.5	LOS C	4.3	108.4	0.82	1.01	1.48	29.1
14	R2	218	2.0	242	2.0	0.624	20.5	LOS C	4.3	108.4	0.82	1.01	1.48	28.5
Appr	oach	297	2.0	330	2.0	0.624	20.5	LOS C	4.3	108.4	0.82	1.01	1.48	28.6
West	: Wed	dington R	oad											
5u	U	10	2.0	11	2.0	0.202	4.8	LOSA	0.9	23.0	0.32	0.19	0.32	30.5
5	L2	208	2.0	231	2.0	0.202	4.8	LOSA	0.9	23.0	0.32	0.19	0.32	29.9
2	T1	833	2.0	926	2.0	0.803	17.9	LOS C	19.5	496.3	0.81	0.82	1.21	27.0
12	R2	34	2.0	37	2.0	0.803	17.9	LOS C	19.5	496.3	0.81	0.82	1.21	26.3
Appr	oach	1085	2.0	1205	2.0	0.803	15.2	LOS C	19.5	496.3	0.71	0.69	1.03	27.5
All Vehic	cles	2280	2.0	2528	2.0	0.813	17.4	LOS C	19.5	496.3	0.79	0.94	1.37	26.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Geometric Delay is not included).

Queue Model: HCM Queue Formula. Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: RAMEY KEMP & ASSOCIATES, INC. | Licence: PLUS / Enterprise | Processed: Tuesday, January 25, 2022 2:36:33 PM

Project: Y:\2021 Projects\21675 Weddington Green - Weddington, NC\TIA\Analysis\Sidra\Roundabout (Weddington Road and Weddington Matthews Road).sip9

### **♥** Site: 1 [07 2027 Build AM - Improved (Site Folder: General)]

Weddington Road and Weddington Matthews Road

Site Category: (None)

Roundabout

Vehi	cle M	ovemen	t Perfo	rmance										
	Turn	INP		DEM		Deg.		Level of	95% BA			Effective	Aver.	Aver.
ID		VOLU	JMES HV ]	FLO [ Total	WS HV]	Satn	Delay	Service	QUE		Que	Stop		Speed
		veh/h	пv ј %	veh/h	пv ј %	v/c	sec		[ Veh. veh	Dist ] ft		Rate	Cycles	mph
Sout	h: Acce													
3	L2	32	2.0	35	2.0	0.110	6.2	LOSA	0.4	9.8	0.56	0.55	0.56	23.8
8	T1	4	2.0	4	2.0	0.110	6.2	LOSA	0.4	9.8	0.56	0.55	0.56	23.4
18	R2	37	2.0	40	2.0	0.110	6.2	LOSA	0.4	9.8	0.56	0.55	0.56	22.9
Appr	oach	73	2.0	79	2.0	0.110	6.2	LOSA	0.4	9.8	0.56	0.55	0.56	23.3
East:	Wedo	lington Ro	oad											
1u	U	4	2.0	4	2.0	0.422	7.5	LOSA	2.4	60.2	0.45	0.32	0.45	31.2
1	L2	66	2.0	72	2.0	0.422	7.5	LOSA	2.4	60.2	0.45	0.32	0.45	30.6
6	T1	781	2.0	868	2.0	0.422	7.5	LOSA	2.4	60.2	0.45	0.32	0.45	30.6
16	R2	26	2.0	29	2.0	0.422	7.5	LOSA	2.4	60.2	0.45	0.32	0.45	29.9
Appr	oach	877	2.0	973	2.0	0.422	7.5	LOSA	2.4	60.2	0.45	0.32	0.45	30.6
North	n: Wed	dington N	/latthews	Road										
7	L2	42	2.0	47	2.0	0.581	17.2	LOS C	3.5	88.2	0.77	0.92	1.34	30.5
4	T1	4	2.0	4	2.0	0.581	17.2	LOS C	3.5	88.2	0.77	0.92	1.34	30.7
14	R2	260	2.0	289	2.0	0.581	17.2	LOS C	3.5	88.2	0.77	0.92	1.34	29.9
Appr	oach	306	2.0	340	2.0	0.581	17.2	LOS C	3.5	88.2	0.77	0.92	1.34	30.0
West	: Wed	dington R	load											
5u	U	19	2.0	21	2.0	0.305	5.7	LOSA	1.5	39.2	0.31	0.18	0.31	31.3
5	L2	128	2.0	142	2.0	0.305	5.7	LOSA	1.5	39.2	0.31	0.18	0.31	30.7
2	T1	494	2.0	549	2.0	0.305	5.7	LOSA	1.5	39.2	0.31	0.18	0.31	31.1
12	R2	38	2.0	41	2.0	0.305	5.7	LOSA	1.5	39.2	0.31	0.18	0.31	30.7
Appr		679	2.0	754	2.0	0.305	5.7	LOSA	1.5	39.2	0.31	0.18	0.31	31.0
All Vehic	cles	1935	2.0	2146	2.0	0.581	8.4	LOSA	3.5	88.2	0.46	0.38	0.55	30.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Geometric Delay is not included).

Queue Model: HCM Queue Formula. Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: RAMEY KEMP & ASSOCIATES, INC. | Licence: PLUS / Enterprise | Processed: Saturday, January 29, 2022 5:12:32 PM Project: Y:\2021 Projects\21675 Weddington Green - Weddington, NC\TIA\Analysis\Sidra\Roundabout (Weddington Road and Weddington Matthews Road).sip9

### **♥** Site: 1 [08 2027 Build PM - Improved (Site Folder: General)]

Weddington Road and Weddington Matthews Road

Site Category: (None)

Roundabout

Vehi	cle M	ovemen	t Perfo	rmance										
	Turn	INP		DEM		Deg.		Level of		ACK OF		Effective	Aver.	Aver.
ID		VOLU [Total	JMES HV ]	FLO' [ Total	WS HV]	Satn	Delay	Service		EUE Diet 1	Que	Stop Rate		Speed
		veh/h	пv ј %	veh/h	пv ј %	v/c	sec		[ Veh. veh	Dist ] ft		Rate	Cycles	mph
Sout	h: Acce													
3	L2	50	2.0	54	2.0	0.260	11.7	LOS B	0.9	23.0	0.73	0.74	0.77	22.5
8	T1	4	2.0	4	2.0	0.260	11.7	LOS B	0.9	23.0	0.73	0.74	0.77	22.2
18	R2	58	2.0	63	2.0	0.260	11.7	LOS B	0.9	23.0	0.73	0.74	0.77	21.7
Appr	oach	112	2.0	122	2.0	0.260	11.7	LOS B	0.9	23.0	0.73	0.74	0.77	22.1
East:	Wedd	lington Ro	oad											
1u	U	5	2.0	6	2.0	0.414	7.9	LOSA	2.2	55.4	0.53	0.43	0.53	31.0
1	L2	62	2.0	67	2.0	0.414	7.9	LOS A	2.2	55.4	0.53	0.43	0.53	30.4
6	T1	688	2.0	764	2.0	0.414	7.9	LOS A	2.2	55.4	0.53	0.43	0.53	30.4
16	R2	31	2.0	34	2.0	0.414	7.9	LOS A	2.2	55.4	0.53	0.43	0.53	29.8
Appr	oach	786	2.0	872	2.0	0.414	7.9	LOSA	2.2	55.4	0.53	0.43	0.53	30.4
North	n: Wed	dington N	/latthews	Road										
7	L2	75	2.0	83	2.0	0.518	14.2	LOS B	2.9	74.7	0.73	0.86	1.17	31.6
4	T1	4	2.0	4	2.0	0.518	14.2	LOS B	2.9	74.7	0.73	0.86	1.17	31.7
14	R2	218	2.0	242	2.0	0.518	14.2	LOS B	2.9	74.7	0.73	0.86	1.17	31.0
Appr	oach	297	2.0	330	2.0	0.518	14.2	LOS B	2.9	74.7	0.73	0.86	1.17	31.2
West	: Wed	dington R	oad											
5u	U	10	2.0	11	2.0	0.830	19.7	LOS C	24.1	612.2	0.88	0.94	1.40	26.6
5	L2	208	2.0	231	2.0	0.830	19.7	LOS C	24.1	612.2	0.88	0.94	1.40	26.1
2	T1	833	2.0	926	2.0	0.830	16.9	LOS C	24.1	612.2	0.77	0.80	1.19	27.0
12	R2	34	2.0	37	2.0	0.175	4.5	LOSA	8.0	19.4	0.31	0.18	0.31	31.1
Appr	oach	1085	2.0	1205	2.0	0.830	17.1	LOS C	24.1	612.2	0.78	0.81	1.21	26.9
All Vehic	cles	2280	2.0	2528	2.0	0.830	13.3	LOS B	24.1	612.2	0.68	0.68	0.95	28.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Geometric Delay is not included).

Queue Model: HCM Queue Formula. Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: RAMEY KEMP & ASSOCIATES, INC. | Licence: PLUS / Enterprise | Processed: Saturday, January 29, 2022 5:12:43 PM Project: Y:\2021 Projects\21675 Weddington Green - Weddington, NC\TIA\Analysis\Sidra\Roundabout (Weddington Road and Weddington Matthews Road).sip9

# **APPENDIX G**

# CAPACITY ANALYSIS CALCULATIONS PROVIDENCE ROAD AND WEDDINGTON ROAD / CHURCH DRIVEWAY



	۶	<b>→</b>	•	•	-	•	₹I	4	<b>†</b>	<b>/</b>	L	<b>/</b>
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		4		ሻ	4	7		ă	<b>^</b>	7		ሽኘ
Traffic Volume (vph)	18	10	4	404	8	444	5	4	1088	270	4	262
Future Volume (vph)	18	10	4	404	8	444	5	4	1088	270	4	262
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	500		325		500		450		550
Storage Lanes	0		0	1		1		1		1		2
Taper Length (ft)	100			100				100				100
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00	0.95	1.00	0.95	0.97
Frt		0.985				0.850				0.850		
Flt Protected		0.972		0.950	0.954			0.950				0.950
Satd. Flow (prot)	0	1783	0	1681	1688	1583	0	1770	3539	1583	0	3433
Flt Permitted		0.694		0.950	0.954			0.950				0.950
Satd. Flow (perm)	0	1273	0	1681	1688	1583	0	1770	3539	1583	0	3433
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		25			35				45			
Link Distance (ft)		1094			840				1138			
Travel Time (s)		29.8			16.4				17.2			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	20	11	4	449	9	493	6	4	1209	300	4	291
Shared Lane Traffic (%)				49%								
Lane Group Flow (vph)	0	35	0	229	229	493	0	10	1209	300	0	295
Turn Type	Perm	NA		Split	NA	pm+ov	Prot	Prot	NA	pm+ov	Prot	Prot
Protected Phases		4		3	3	1!	5	5	2	3	1!	1
Permitted Phases	4					3				2		
Detector Phase	4	4		3	3	1	5	5	2	3	1	1
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	12.0	7.0	7.0	7.0
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	14.0	20.0	14.0	14.0	14.0
Total Split (s)	14.0	14.0		25.0	25.0	29.0	14.0	14.0	52.0	25.0	29.0	29.0
Total Split (%)	11.7%	11.7%		20.8%	20.8%	24.2%	11.7%	11.7%	43.3%	20.8%	24.2%	24.2%
Maximum Green (s)	7.3	7.3		18.4	18.4	22.6	7.6	7.6	44.9	18.4	22.6	22.6
Yellow Time (s)	3.5	3.5		3.8	3.8	3.0	3.1	3.1	5.0	3.8	3.0	3.0
All-Red Time (s)	3.2	3.2		2.8	2.8	3.4	3.3	3.3	2.1	2.8	3.4	3.4
Lost Time Adjust (s)		-1.7		-1.6	-1.6	-1.4		-1.4	-2.1	-1.6		-1.4
Total Lost Time (s)		5.0		5.0	5.0	5.0		5.0	5.0	5.0		5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lead	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	6.0	2.0	2.0	2.0
Minimum Gap (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	3.0	2.0	2.0	2.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	15.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	30.0	0.0	0.0	0.0
Recall Mode	None	None		None	None	None	None	None	Min	None	None	None
Act Effct Green (s)		9.5		18.4	18.4	39.5		9.0	40.7	64.5		18.2
Actuated g/C Ratio		0.09		0.18	0.18	0.39		0.09	0.40	0.64		0.18
v/c Ratio		0.29		0.74	0.74	0.79		0.06	0.84	0.30		0.47
Control Delay		58.2		59.1	58.8	34.9		53.3	35.5	10.9		41.6
Queue Delay		0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
Total Delay		58.2		59.1	58.8	34.9		53.3	35.5	10.9		41.6

, ∢
-----

Lane Group	SBT	SBR
Lare Configurations	<b>↑</b> ↑	2211
Traffic Volume (vph)	703	6
Future Volume (vph)	703	6
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)	1700	0
Storage Lanes		0
		U
Taper Length (ft)	0.05	0.05
Lane Util. Factor	0.95	0.95
Frt	0.999	
Flt Protected	0507	
Satd. Flow (prot)	3536	0
Flt Permitted	0=0.	
Satd. Flow (perm)	3536	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	2616	
Travel Time (s)	39.6	
Peak Hour Factor	0.90	0.90
Adj. Flow (vph)	781	7
Shared Lane Traffic (%)		
Lane Group Flow (vph)	788	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	18.0	
Total Split (s)	67.0	
Total Split (%)	55.8%	
Maximum Green (s)	61.4	
Yellow Time (s)	4.1	
All-Red Time (s)	1.5	
Lost Time Adjust (s)	-0.6	
Total Lost Time (s)	5.0	
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	6.0	
Minimum Gap (s)	3.0	
Time Before Reduce (s)	15.0	
Time To Reduce (s)	30.0	
Recall Mode	Min	
Act Effet Green (s)	62.0	
Actuated g/C Ratio	0.62	
v/c Ratio	0.36	
Control Delay	11.6	
Ougus Dolay	^ ^	
Queue Delay Total Delay	0.0 11.6	

### 3: Providence Road & Church Driveway/Weddington Road

	•	-	•	•	←	•	₹î	4	<b>†</b>	~	L	-
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
LOS		Е		Е	Е	С		D	D	В		D
Approach Delay		58.2			46.5				30.8			
Approach LOS		Е			D				С			
Queue Length 50th (ft)		26		182	182	254		7	448	108		104
Queue Length 95th (ft)		61		#321	#320	#419		25	547	161		147
Internal Link Dist (ft)		1014			760				1058			
Turn Bay Length (ft)				500		325		500		450		550
Base Capacity (vph)		122		358	360	741		169	1775	1063		879
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		0.29		0.64	0.64	0.67		0.06	0.68	0.28		0.34

### Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 100.5

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 31.9 Intersection LOS: C
Intersection Capacity Utilization 87.7% ICU Level of Service E

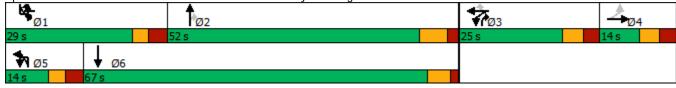
Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

! Phase conflict between lane groups.

Splits and Phases: 3: Providence Road & Church Driveway/Weddington Road



	¥	4
Lane Group	SBT	SBR
LOS	В	
Approach Delay	19.7	
Approach LOS	В	
Queue Length 50th (ft)	141	
Queue Length 95th (ft)	239	
Internal Link Dist (ft)	2536	
Turn Bay Length (ft)		
Base Capacity (vph)	2508	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.31	
Intersection Summary		

	٠	<b>→</b>	•	•	<b>+</b>	•	₽î	•	<b>†</b>	<b>/</b>	L	<b>/</b>
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		4		ች	र्स	7		ă	<b>^</b>	7		35
Traffic Volume (vph)	9	7	4	407	4	436	4	4	1023	380	7	475
Future Volume (vph)	9	7	4	407	4	436	4	4	1023	380	7	475
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	500		325		500		450		550
Storage Lanes	0		0	1		1		1		1		2
Taper Length (ft)	100			100				100				100
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00	0.95	1.00	0.95	0.97
Frt		0.975				0.850				0.850		
Flt Protected		0.978		0.950	0.953			0.950				0.950
Satd. Flow (prot)	0	1776	0	1681	1686	1583	0	1770	3539	1583	0	3433
Flt Permitted		0.740		0.950	0.953			0.950				0.950
Satd. Flow (perm)	0	1344	0	1681	1686	1583	0	1770	3539	1583	0	3433
Right Turn on Red			No		1000	No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		25			35				45			
Link Distance (ft)		1094			840				1138			
Travel Time (s)		29.8			16.4				17.2			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	8	4	452	4	484	4	4	1137	422	8	528
Shared Lane Traffic (%)	10	0	•	50%	•	101	•	•	1107	122		020
Lane Group Flow (vph)	0	22	0	226	230	484	0	8	1137	422	0	536
Turn Type	Perm	NA	0	Split	NA	pm+ov	Prot	Prot	NA	pm+ov	Prot	Prot
Protected Phases	1 01111	4		3	3	1!	5	5	2	3	1!	1
Permitted Phases	4	•		· ·	· ·	3		· ·	<u>-</u>	2	•	•
Detector Phase	4	4		3	3	1	5	5	2	3	1	1
Switch Phase	•	•		· ·	· ·	•		· ·	<u>-</u>		•	•
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	12.0	7.0	7.0	7.0
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	14.0	20.0	14.0	14.0	14.0
Total Split (s)	14.0	14.0		26.0	26.0	29.0	14.0	14.0	51.0	26.0	29.0	29.0
Total Split (%)	11.7%	11.7%		21.7%	21.7%	24.2%	11.7%	11.7%	42.5%	21.7%	24.2%	24.2%
Maximum Green (s)	7.3	7.3		19.4	19.4	22.6	7.6	7.6	43.9	19.4	22.6	22.6
Yellow Time (s)	3.5	3.5		3.8	3.8	3.0	3.1	3.1	5.0	3.8	3.0	3.0
All-Red Time (s)	3.2	3.2		2.8	2.8	3.4	3.3	3.3	2.1	2.8	3.4	3.4
Lost Time Adjust (s)	0.2	-1.7		-1.6	-1.6	-1.4	0.0	-1.4	-2.1	-1.6	0.1	-1.4
Total Lost Time (s)		5.0		5.0	5.0	5.0		5.0	5.0	5.0		5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lead	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	6.0	2.0	2.0	2.0
Minimum Gap (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	3.0	2.0	2.0	2.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	15.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	30.0	0.0	0.0	0.0
Recall Mode	None	None		None	None	None	None	None	Min	None	None	None
Act Effct Green (s)	HOHE	9.3		18.6	18.6	42.7	NOTIC	8.9	39.4	63.3	TAOTIC	21.3
Actuated g/C Ratio		0.09		0.18	0.18	0.42		0.09	0.39	0.62		0.21
v/c Ratio		0.09		0.74	0.75	0.42		0.05	0.83	0.02		0.75
Control Delay		55.2		58.7	59.3	30.1		53.1	36.4	13.1		47.9
Queue Delay		0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
•		55.2										
Total Delay		55.2		58.7	59.3	30.1		53.1	36.4	13.1		47.9

ļ	4

Lano Croun	SBT	SBR
Lane Group		SDK
Lare Configurations	<b>↑</b> }	4
Traffic Volume (vph)	857	4
Future Volume (vph)	857	4
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		
Lane Util. Factor	0.95	0.95
Frt	0.999	
Flt Protected		
Satd. Flow (prot)	3536	0
Flt Permitted		
Satd. Flow (perm)	3536	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	2616	
Travel Time (s)	39.6	
Peak Hour Factor	0.90	0.90
Adj. Flow (vph)	952	4
Shared Lane Traffic (%)		
Lane Group Flow (vph)	956	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	18.0	
Total Split (s)	66.0	
Total Split (%)	55.0%	
Maximum Green (s)	60.4	
Yellow Time (s)	4.1	
All-Red Time (s)	1.5	
Lost Time Adjust (s)	-0.6	
Total Lost Time (s)	5.0	
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	6.0	
Minimum Gap (s)	3.0	
Time Before Reduce (s)	15.0	
Time To Reduce (s)	30.0	
Recall Mode	Min	
Act Effct Green (s)	63.7	
Actuated g/C Ratio	0.62	
v/c Ratio	0.43	
Control Delay	12.6	
Queue Delay	0.0	
Total Delay	12.6	
- Juli Dolaj	12.0	

### 3: Providence Road & Church Driveway/Weddington Road

	•	-	•	•	•	•	₹î	•	<b>†</b>	/	L♣	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
LOS		Е		E	Е	С		D	D	В		D
Approach Delay		55.3			44.1				30.2			
Approach LOS		Е			D				С			
Queue Length 50th (ft)		16		175	178	239		6	414	167		202
Queue Length 95th (ft)		44		#302	#309	#374		22	509	243		269
Internal Link Dist (ft)		1014			760				1058			
Turn Bay Length (ft)				500		325		500		450		550
Base Capacity (vph)		124		364	365	722		164	1679	1034		850
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		0.18		0.62	0.63	0.67		0.05	0.68	0.41		0.63

### Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 102.3

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 31.8 Intersection LOS: C
Intersection Capacity Utilization 91.5% ICU Level of Service F

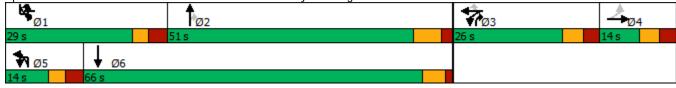
Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

! Phase conflict between lane groups.

Splits and Phases: 3: Providence Road & Church Driveway/Weddington Road



	¥	4
Lane Group	SBT	SBR
LOS	В	
Approach Delay	25.3	
Approach LOS	С	
Queue Length 50th (ft)	185	
Queue Length 95th (ft)	310	
Internal Link Dist (ft)	2536	
Turn Bay Length (ft)		
Base Capacity (vph)	2390	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.40	
Intersection Summary		

	۶	<b>→</b>	•	•	-	•	4	<b>†</b>	/	<b>/</b>	ţ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		7	ર્ન	7	*	<b>^</b>	7	1,4	<b>∱</b> 1>	
Traffic Volume (vph)	21	12	4	469	9	514	8	1262	313	306	815	7
Future Volume (vph)	21	12	4	469	9	514	8	1262	313	306	815	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	500		325	500		450	550		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	0.97	0.95	0.95
Frt		0.986				0.850			0.850		0.999	
Flt Protected		0.972		0.950	0.954		0.950			0.950		
Satd. Flow (prot)	0	1785	0	1681	1688	1583	1770	3539	1583	3433	3536	0
Flt Permitted		0.674		0.950	0.954		0.950			0.950		
Satd. Flow (perm)	0	1238	0	1681	1688	1583	1770	3539	1583	3433	3536	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		1094			840			1138			2616	
Travel Time (s)		29.8			16.4			17.2			39.6	
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)	23	13	4	521	10	571	9	1402	348	340	906	8
Shared Lane Traffic (%)				49%								
Lane Group Flow (vph)	0	40	0	266	265	571	9	1402	348	340	914	0
Turn Type	Perm	NA		Split	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases		4		3	3	1	5	2	3	1	6	
Permitted Phases	4					3			2			
Detector Phase	4	4		3	3	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0	7.0	7.0	12.0	
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	19.0	14.0	14.0	19.0	
Total Split (s)	14.0	14.0		25.0	25.0	27.0	14.0	54.0	25.0	27.0	67.0	
Total Split (%)	11.7%	11.7%		20.8%	20.8%	22.5%	11.7%	45.0%	20.8%	22.5%	55.8%	
Maximum Green (s)	7.0	7.0		18.0	18.0	20.0	7.0	47.0	18.0	20.0	60.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	6.0	2.0	2.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0	2.0	2.0	3.0	2.0	2.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	0.0	0.0	15.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	30.0	0.0	0.0	30.0	
Recall Mode	None	None		None	None	None	None	Min	None	None	Min	
Act Effct Green (s)		9.0		20.1	20.1	43.4	9.0	47.9	73.0	22.1	72.3	
Actuated g/C Ratio		0.08		0.17	0.17	0.37	0.08	0.41	0.63	0.19	0.62	
v/c Ratio		0.42		0.91	0.91	0.96	0.07	0.96	0.35	0.52	0.41	
Control Delay		66.8		83.6	82.4	60.3	52.9	49.7	12.0	46.5	13.1	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings RKA

### 3: Providence Road & Church Driveway/Weddington Road

	•	-	•	•	•	•	1	Ť	/	-	ţ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		Е		F	F	Е	D	D	В	D	В	
Approach Delay		66.8			71.2			42.3			22.1	
Approach LOS		Е			Е			D			С	
Queue Length 50th (ft)		30		216	215	~349	7	551	124	124	171	
Queue Length 95th (ft)		68		#393	#390	#693	24	#714	182	172	290	
Internal Link Dist (ft)		1014			760			1058			2536	
Turn Bay Length (ft)				500		325	500		450	550		
Base Capacity (vph)		96		291	292	592	137	1502	996	654	2204	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.42		0.91	0.91	0.96	0.07	0.93	0.35	0.52	0.41	

### Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 116

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 44.1 Intersection LOS: D
Intersection Capacity Utilization 85.0% ICU Level of Service E

Analysis Period (min) 15

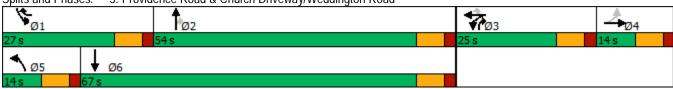
Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Providence Road & Church Driveway/Weddington Road



	۶	<b>→</b>	•	•	-	•	1	<b>†</b>	/	<b>/</b>	ţ	✓
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		ሻ	ર્ન	7	ሻ	<b>^</b>	7	1/1	<b>∱</b> }	
Traffic Volume (vph)	10	8	4	472	4	506	4	1186	441	559	994	4
Future Volume (vph)	10	8	4	472	4	506	4	1186	441	559	994	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	500		325	500		450	550		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	0.97	0.95	0.95
Frt		0.977				0.850			0.850		0.999	
Flt Protected		0.978		0.950	0.953		0.950			0.950		
Satd. Flow (prot)	0	1780	0	1681	1686	1583	1770	3539	1583	3433	3536	0
Flt Permitted		0.721		0.950	0.953		0.950	0007		0.950	0000	
Satd. Flow (perm)	0	1312	0	1681	1686	1583	1770	3539	1583	3433	3536	0
Right Turn on Red		1012	No	1001	1000	No	1770	0007	No	0.100	0000	No
Satd. Flow (RTOR)			140			110			140			140
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		1094			840			1138			2616	
Travel Time (s)		29.8			16.4			17.2			39.6	
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)	11	9	4	524	4	562	4	1318	490	621	1104	4
Shared Lane Traffic (%)	11	7	7	50%	7	302	7	1310	470	021	1104	4
Lane Group Flow (vph)	0	24	0	262	266	562	4	1318	490	621	1108	0
Turn Type	Perm	NA	U	Split	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	U
Protected Phases	I CIIII	4		3 J	3	1	5	2	3	1	6	
Permitted Phases	4	7		J	J	3	J	2	2		U	
Detector Phase	4	4		3	3	1	5	2	3	1	6	
Switch Phase	7	7		J	J		J	2	J		U	
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0	7.0	7.0	12.0	
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	19.0	14.0	14.0	19.0	
Total Split (s)	14.0	14.0		25.0	25.0	28.0	14.0	53.0	25.0	28.0	67.0	
Total Split (%)	11.7%	11.7%		20.8%	20.8%	23.3%	11.7%	44.2%	20.8%	23.3%	55.8%	
Maximum Green (s)	7.0	7.0		18.0	18.0	21.0	7.0	44.270	18.0	21.0	60.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lag			Lead	Lead	Lead	Lead		Lead	Lead		
Lead-Lag Optimize?	Lag	Lag		Leau	Leau	Leau	Leau	Lag	Leau	Leau	Lag	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	6.0	2.0	2.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0	2.0	2.0	3.0	2.0	2.0	3.0	
					0.0		0.0	15.0		0.0		
Time Before Reduce (s) Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	30.0	0.0	0.0	15.0 30.0	
Recall Mode								Min			Min	
	None	None		None	None	None	None		None	None		
Act Effet Green (s)		9.1		20.1	20.1	45.6	9.1	44.8	69.9	23.2	70.5	
Actuated g/C Ratio		0.08		0.18	0.18	0.41	0.08	0.40	0.63	0.21	0.64	
v/c Ratio		0.22		0.86	0.87	0.86	0.03	0.92	0.49	0.86	0.49	
Control Delay		57.2		73.0	74.4	42.8	52.0	44.0	14.0	57.6	13.4	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		57.2		73.0	74.4	42.8	52.0	44.0	14.0	57.6	13.4	

### 3: Providence Road & Church Driveway/Weddington Road

	•	-	•	•	•	•	1	Ť		-	ţ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		Е		Е	Е	D	D	D	В	Е	В	
Approach Delay		57.2			57.7			35.9			29.2	
Approach LOS		Е			Е			D			С	
Queue Length 50th (ft)		18		213	216	315	3	506	202	246	224	
Queue Length 95th (ft)		47		#385	#392	#629	15	#655	290	#358	375	
Internal Link Dist (ft)		1014			760			1058			2536	
Turn Bay Length (ft)				500		325	500		450	550		
Base Capacity (vph)		107		306	307	650	145	1546	998	718	2244	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.22		0.86	0.87	0.86	0.03	0.85	0.49	0.86	0.49	

### Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 111

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.92

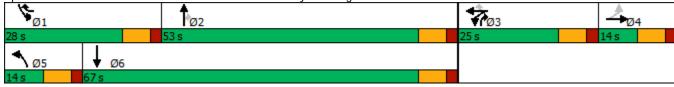
Intersection Signal Delay: 38.6 Intersection LOS: D
Intersection Capacity Utilization 82.4% ICU Level of Service E

Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Providence Road & Church Driveway/Weddington Road



	۶	<b>→</b>	•	•	+	•	1	<b>†</b>	~	<b>/</b>	<b>↓</b>	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		ሻ	ર્ન	7	ሻ	<b>^</b>	7	ሻሻ	<b>∱</b> }	
Traffic Volume (vph)	21	12	4	478	9	546	8	1317	316	344	888	7
Future Volume (vph)	21	12	4	478	9	546	8	1317	316	344	888	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	500		325	500		450	550		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	0.97	0.95	0.95
Frt		0.986				0.850			0.850		0.999	
Flt Protected		0.972		0.950	0.954	4.000	0.950			0.950		
Satd. Flow (prot)	0	1785	0	1681	1688	1583	1770	3539	1583	3433	3536	0
Flt Permitted		0.671		0.950	0.954		0.950	0007		0.950	0000	
Satd. Flow (perm)	0	1232	0	1681	1688	1583	1770	3539	1583	3433	3536	0
Right Turn on Red		1202	No	1001	1000	No	1770	0007	No	0.100	0000	No
Satd. Flow (RTOR)			140			110			140			140
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		1094			840			1138			2616	
Travel Time (s)		29.8			16.4			17.2			39.6	
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)	23	13	4	531	10	607	9	1463	351	382	987	8
Shared Lane Traffic (%)	23	13	7	49%	10	007	7	1403	331	302	707	U
Lane Group Flow (vph)	0	40	0	271	270	607	9	1463	351	382	995	0
Turn Type	Perm	NA	U	Split	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	U
Protected Phases	i Cilli	4		3 J	3	1	5	2	3	1	6	
Permitted Phases	4	7		J	J	3	J	2	2		U	
Detector Phase	4	4		3	3	1	5	2	3	1	6	
Switch Phase	7	7		J	J	1	J	2	J		U	
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0	7.0	7.0	12.0	
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	19.0	14.0	14.0	19.0	
Total Split (s)	14.0	14.0		26.0	26.0	31.0	14.0	59.0	26.0	31.0	76.0	
Total Split (%)	10.8%	10.8%		20.0%	20.0%	23.8%	10.8%	45.4%	20.0%	23.8%	58.5%	
Maximum Green (s)	7.0	7.0		19.0	19.0	24.0	7.0	52.0	19.0	24.0	69.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lag			Lead	Lead	Lead	Lead		Lead	Lead		
Lead-Lag Optimize?	Lag	Lag		Leau	Leau	Leau	Leau	Lag	Leau	Leau	Lag	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	6.0	2.0	2.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0	2.0	2.0	3.0	2.0	2.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	0.0	0.0	15.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	30.0	0.0	0.0	30.0	
Recall Mode											Min	
	None	None		None	None	None	None	Min	None	None		
Act Effet Green (s)		9.0		21.0	21.0	48.2	9.0	54.1	80.2	26.1	82.4	
Actuated g/C Ratio		0.07		0.17	0.17	0.38	0.07	0.43	0.63	0.21	0.65	
v/c Ratio		0.46		0.97	0.97	1.01	0.07	0.97	0.35	0.54	0.43	
Control Delay		75.7		101.8	100.0	74.0	58.1	53.9	13.0	49.3	12.9	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		75.7		101.8	100.0	74.0	58.1	53.9	13.0	49.3	12.9	

### 3: Providence Road & Church Driveway/Weddington Road

	•	-	•	•	•	•	1	<b>†</b>	/	-	ţ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		Е		F	F	Е	Ε	D	В	D	В	
Approach Delay		75.7			86.7			46.1			23.0	
Approach LOS		Е			F			D			С	
Queue Length 50th (ft)		33		243	242	~443	7	638	138	151	197	
Queue Length 95th (ft)		#75		#436	#432	#791	26	#811	199	203	326	
Internal Link Dist (ft)		1014			760			1058			2536	
Turn Bay Length (ft)				500		325	500		450	550		
Base Capacity (vph)		87		278	279	599	125	1505	997	703	2292	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.46		0.97	0.97	1.01	0.07	0.97	0.35	0.54	0.43	

### Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 127.2

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 49.7 Intersection LOS: D
Intersection Capacity Utilization 88.5% ICU Level of Service E

Analysis Period (min) 15

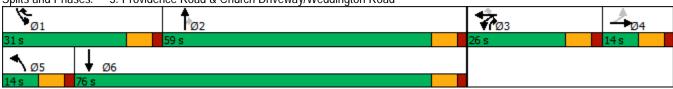
Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Providence Road & Church Driveway/Weddington Road



	۶	<b>→</b>	•	•	-	•	1	<b>†</b>	~	<b>/</b>	<b>↓</b>	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		ሻ	ર્ન	7	ሻ	<b>^</b>	7	1,1	<b>∱</b> }	
Traffic Volume (vph)	10	8	4	477	4	542	4	1254	448	593	1055	4
Future Volume (vph)	10	8	4	477	4	542	4	1254	448	593	1055	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	500		325	500		450	550		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	0.97	0.95	0.95
Frt		0.977				0.850			0.850		0.999	
Flt Protected		0.978		0.950	0.953		0.950			0.950		
Satd. Flow (prot)	0	1780	0	1681	1686	1583	1770	3539	1583	3433	3536	0
Flt Permitted		0.720		0.950	0.953		0.950	0007		0.950	0000	
Satd. Flow (perm)	0	1310	0	1681	1686	1583	1770	3539	1583	3433	3536	0
Right Turn on Red		1010	No	1001	1000	No	1770	0007	No	0 100	0000	No
Satd. Flow (RTOR)			140			110			140			140
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		1094			840			1138			2616	
Travel Time (s)		29.8			16.4			17.2			39.6	
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)	11	9	4	530	4	602	4	1393	498	659	1172	4
Shared Lane Traffic (%)	- 11	,	-	50%	-	002	7	1373	470	037	1172	-
Lane Group Flow (vph)	0	24	0	265	269	602	4	1393	498	659	1176	0
Turn Type	Perm	NA	U	Split	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	U
Protected Phases	1 01111	4		3	3	1	5	2	3	1	6	
Permitted Phases	4	•			· ·	3		_	2	•	· ·	
Detector Phase	4	4		3	3	1	5	2	3	1	6	
Switch Phase	•	•			· ·	•		_		•	· ·	
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0	7.0	7.0	12.0	
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	19.0	14.0	14.0	19.0	
Total Split (s)	14.0	14.0		24.0	24.0	29.0	14.0	53.0	24.0	29.0	68.0	
Total Split (%)	11.7%	11.7%		20.0%	20.0%	24.2%	11.7%	44.2%	20.0%	24.2%	56.7%	
Maximum Green (s)	7.0	7.0		17.0	17.0	22.0	7.0	46.0	17.0	22.0	61.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Lag	Lug		Load	Loud	Loud	Loud	Lug	Loud	Loud	Lug	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	6.0	2.0	2.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0	2.0	2.0	3.0	2.0	2.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	0.0	0.0	15.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	30.0	0.0	0.0	30.0	
Recall Mode	None	None		None	None	None	None	Min	None	None	Min	
Act Effct Green (s)	TVOTIC	9.0		19.1	19.1	45.4	9.0	47.8	71.9	24.1	74.2	
Actuated g/C Ratio		0.08		0.17	0.17	0.40	0.08	0.42	0.63	0.21	0.65	
v/c Ratio		0.08		0.17	0.17	0.40	0.03	0.42	0.50	0.21	0.03	
Control Delay		57.7		89.4	92.1	57.7	52.0	45.8	14.5	62.4	13.1	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
•												
Total Delay		57.7		89.4	92.1	57.7	52.0	45.8	14.5	62.4	13.1	

#### 3: Providence Road & Church Driveway/Weddington Road

	•	-	•	1	←	*	1	<b>†</b>	1	-	<b>↓</b>	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		Е		F	F	Е	D	D	В	Е	В	
Approach Delay		57.7			73.3			37.6			30.8	
Approach LOS		Е			Е			D			С	
Queue Length 50th (ft)		18		218	~224	~393	3	554	212	262	238	
Queue Length 95th (ft)		47		#404	#409	#737	15	#719	305	#380	401	
Internal Link Dist (ft)		1014			760			1058			2536	
Turn Bay Length (ft)				500		325	500		450	550		
Base Capacity (vph)		104		281	282	629	140	1496	997	725	2302	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.23		0.94	0.95	0.96	0.03	0.93	0.50	0.91	0.51	

#### Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 114

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 43.4 Intersection LOS: D
Intersection Capacity Utilization 86.6% ICU Level of Service E

Analysis Period (min) 15

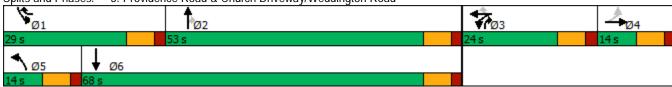
Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Providence Road & Church Driveway/Weddington Road



# **APPENDIX H**

# CAPACITY ANALYSIS CALCULATIONS PROVIDENCE ROAD AND LENNY STADLER WAY / ACCESS C



	•	•	₽ſ	4	<b>†</b>	ļ	4
Lane Group	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations	ች	7		ă	<b>^</b>	<b>↑</b> ↑	
Traffic Volume (vph)	52	38	4	102	1313	1004	109
Future Volume (vph)	52	38	4	102	1313	1004	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	25	1700	300	1700	1700	0
Storage Lanes	1	1		1			0
Taper Length (ft)	100			100			U
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95	0.95
Frt	1.00	0.850	0.75	1.00	0.75	0.985	0.73
Flt Protected	0.950	0.000		0.950		0.900	
	1770	1583	Λ	1770	3539	2404	0
Satd. Flow (prot) Flt Permitted	0.950	1303	0	0.166	3339	3486	U
		1502	0	309	2520	2/104	0
Satd. Flow (perm)	1770	1583	0	309	3539	3486	0
Right Turn on Red		No					No
Satd. Flow (RTOR)	0.5				45	45	
Link Speed (mph)	35				45	45	
Link Distance (ft)	1095				2853	1138	
Travel Time (s)	21.3	0.55	2.55	2.22	43.2	17.2	0.55
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	58	42	4	113	1459	1116	121
Shared Lane Traffic (%)							
Lane Group Flow (vph)	58	42	0	117	1459	1237	0
Turn Type	Prot	pm+ov	pm+pt	pm+pt	NA	NA	
Protected Phases	4	5!	5!	5	2	6	
Permitted Phases		4	2!	2			
Detector Phase	4	5	5	5	2	6	
Switch Phase							
Minimum Initial (s)	7.0	7.0	7.0	7.0	10.0	10.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	19.0	19.0	
Total Split (s)	16.0	16.0	16.0	16.0	74.0	58.0	
Total Split (%)	17.8%	17.8%	17.8%	17.8%	82.2%	64.4%	
Maximum Green (s)	10.6	10.7	10.7	10.7	68.7	52.7	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.8	3.8	
All-Red Time (s)	2.4	2.3	2.3	2.3	1.5	1.5	
Lost Time Adjust (s)	-0.4	-0.3		-0.3	-0.3	-0.3	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	
Lead/Lag		Lag	Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes	Yes		Yes	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	3.0	3.0	
Recall Mode	None	None	None	None	Min	Min	
Act Effct Green (s)	8.3	14.6	NOTIC	38.8	41.5	31.0	
Actuated g/C Ratio	0.16	0.29		0.77	0.82	0.61	
v/c Ratio	0.10	0.29		0.77	0.62	0.58	
Control Delay	25.3	14.8		7.6	4.2	11.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	
Total Delay	25.3	14.8		7.6	4.2	11.1	
LOS	C	В		А	A	В	
Approach Delay	20.9				4.4	11.1	
Approach LOS	С				А	В	

•	$\rightarrow$	₹I	•	<b>†</b>	ļ	4
EBL	EBR	NBU	NBL	NBT	SBT	SBR
17	9		10	103	166	
53	32		24	166	250	
1015				2773	1058	
	25		300			
414	499		595	3539	3252	
0	0		0	0	0	
0	0		0	0	0	
0	0		0	0	0	
0.14	0.08		0.20	0.41	0.38	
Other						
0.7						
ncoordinated						
zation 55.4%			IC	U Level c	of Service	B
	17 53 1015 414 0 0 0 0 0.14	17 9 53 32 1015 25 414 499 0 0 0 0 0 0 0 0 0.14 0.08  Other  0.7  ncoordinated 7.8 zation 55.4%	EBL EBR NBU  17 9 53 32 1015 25 414 499 0 0 0 0 0 0 0 0 0.14 0.08  Other  7.8 zation 55.4%	EBL EBR NBU NBL  17 9 10  53 32 24  1015  25 300  414 499 595  0 0 0 0  0 0 0  0 0 0  0 14 0.08 0.20  Other  7.8 Incoordinated  7.8 Incoordinated	EBL         EBR         NBU         NBL         NBT           17         9         10         103           53         32         24         166           1015         2773         25         300           414         499         595         3539           0         0         0         0         0           0         0         0         0         0         0           0	EBL         EBR         NBU         NBL         NBT         SBT           17         9         10         103         166           53         32         24         166         250           1015         2773         1058           25         300         3252           0         0         0         0         0           0         0         0         0         0         0           0         0         0         0         0         0         0           0.14         0.08         0.20         0.41         0.38         0.20         0.41         0.38           Other           7.8         Intersection LOS: A ICU Level of Service

! Phase conflict between lane groups.

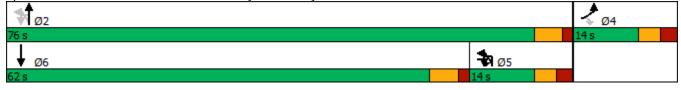
Splits and Phases: 4: Providence Road & Lenny Stadler Way

	•	•	₹I	1	<b>†</b>	ţ	4
Lane Group	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations	ኝ	7		ă	<b>^</b>	<b>↑</b> Ъ	
Traffic Volume (vph)	45	12	4	24	1359	1233	31
Future Volume (vph)	45	12	4	24	1359	1233	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	25		300		.,,,,,	0
Storage Lanes	1	1		1			0
Taper Length (ft)	100	•		100			-
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95	0.95
Frt		0.850	2.70			0.996	
Flt Protected	0.950			0.950			
Satd. Flow (prot)	1770	1583	0	1770	3539	3525	0
Flt Permitted	0.950			0.139			
Satd. Flow (perm)	1770	1583	0	259	3539	3525	0
Right Turn on Red	.,,,	No		_0,	2007	3020	No
Satd. Flow (RTOR)							110
Link Speed (mph)	35				45	45	
Link Distance (ft)	1095				2853	1138	
Travel Time (s)	21.3				43.2	17.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	50	13	4	27	1510	1370	34
Shared Lane Traffic (%)					1010	1370	01
Lane Group Flow (vph)	50	13	0	31	1510	1404	0
Turn Type	Prot	pm+ov	pm+pt	pm+pt	NA	NA	
Protected Phases	4	5!	5!	5	2	6	
Permitted Phases		4	2!	2			
Detector Phase	4	5	5	5	2	6	
Switch Phase						- 0	
Minimum Initial (s)	7.0	7.0	7.0	7.0	10.0	10.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	19.0	19.0	
Total Split (s)	14.0	14.0	14.0	14.0	76.0	62.0	
Total Split (%)	15.6%	15.6%	15.6%	15.6%	84.4%	68.9%	
Maximum Green (s)	8.6	8.7	8.7	8.7	70.7	56.7	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.8	3.8	
All-Red Time (s)	2.4	2.3	2.3	2.3	1.5	1.5	
Lost Time Adjust (s)	-0.4	-0.3	2.5	-0.3	-0.3	-0.3	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	
Lead/Lag	5.0	Lag	Lag	Lag	5.0	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes		Yes	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	3.0	3.0	
Recall Mode	None	None	None	None	Min	3.0 Min	
Act Effct Green (s)	8.7	14.5	None	41.0	43.9	38.0	
Actuated g/C Ratio	0.17	0.28		0.78	0.84	0.73	
						0.73	
v/c Ratio	0.17	0.03		0.07	0.51	9.5	
Control Delay	27.6	17.0		3.5			
Queue Delay	0.0	0.0		0.0	0.0	0.0	
Total Delay	27.6	17.0		3.5	3.8	9.5	
LOS Approach Dolov	C	В		А	A	A	
Approach LOS	25.4				3.8	9.5	
Approach LOS	С				A	Α	

	٠	*	₹I	4	†	<b>↓</b>	✓
Lane Group	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	18	3		3	110	202	
Queue Length 95th (ft)	51	16		8	168	288	
Internal Link Dist (ft)	1015				2773	1058	
Turn Bay Length (ft)		25		300			
Base Capacity (vph)	346	423		502	3529	3239	
Starvation Cap Reductn	0	0		0	0	0	
Spillback Cap Reductn	0	0		0	0	0	
Storage Cap Reductn	0	0		0	0	0	
Reduced v/c Ratio	0.14	0.03		0.06	0.43	0.43	
Intersection Summary							
Area Type:	Other						
Cycle Length: 90							
Actuated Cycle Length: 52	.4						
Natural Cycle: 60							
Control Type: Actuated-Un	coordinated						
Maximum v/c Ratio: 0.55							
Intersection Signal Delay:				In	tersection	LOS: A	
Intersection Capacity Utiliz	ation 51.7%			IC	U Level o	of Service	e A
Analysis Period (min) 15							

! Phase conflict between lane groups.

Splits and Phases: 4: Providence Road & Lenny Stadler Way



	۶	•	4	<b>†</b>	<b>↓</b>	4
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	*	7	ሻ	<b>^</b>	<b>↑</b> ↑	
Traffic Volume (vph)	60	44	119	1523	1164	126
Future Volume (vph)	60	44	119	1523	1164	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	25	300	1700	1730	0
Storage Lanes	1	1	1			0
Taper Length (ft)	100		100			-
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	1.00	0.850	1.00	0.70	0.985	0.70
Flt Protected	0.950	0.000	0.950		0.700	
Satd. Flow (prot)	1770	1583	1770	3539	3486	0
Flt Permitted	0.950	1000	0.950	5557	3 100	
Satd. Flow (perm)	1770	1583	1770	3539	3486	0
Right Turn on Red	1770	No	1770	3337	J <del>1</del> 00	No
Satd. Flow (RTOR)		INU				INU
Link Speed (mph)	35			45	45	
Link Speed (mpn) Link Distance (ft)	1095			2853	1138	
Travel Time (s)	21.3			43.2	17.2	
Peak Hour Factor	0.90	0.00	0.90	0.90	0.90	0.90
Adj. Flow (vph)	67	0.90 49	132	1692	1293	140
Shared Lane Traffic (%)	0/	49	132	1092	1293	140
	67	49	132	1692	1433	0
Lane Group Flow (vph)						U
Turn Type	Prot	pm+ov	Prot	NA 2	NA	
Protected Phases	4	5	5	2	6	
Permitted Phases		4 5		2		
Detector Phase	4	5	5	2	6	
Switch Phase	7.0	7.0	7.0	10.0	10.0	
Minimum Initial (s)	7.0	7.0	7.0	10.0	10.0	
Minimum Split (s)	14.0	14.0	14.0	17.0	17.0	
Total Split (s)	14.0	18.0	18.0	76.0	58.0	
Total Split (%)	15.6%	20.0%	20.0%	84.4%	64.4%	
Maximum Green (s)	7.0	11.0	11.0	69.0	51.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0	2.0	2.0	3.0	3.0	
Recall Mode	None	None	None	Min	Min	
Act Effct Green (s)	9.8	18.8	11.8	57.3	43.5	
Actuated g/C Ratio	0.15	0.28	0.18	0.86	0.65	
v/c Ratio	0.26	0.11	0.42	0.56	0.63	
Control Delay	35.7	20.3	35.0	3.9	12.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	35.7	20.3	35.0	3.9	12.8	
LOS	D	С	С	А	В	
Approach Delay	29.2			6.2	12.8	
Approach LOS	С			Α	В	

	•	*	•	<b>†</b>	ļ	4		
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR		
Queue Length 50th (ft)	29	15	56	154	265			
Queue Length 95th (ft)	77	46	126	197	354			
Internal Link Dist (ft)	1015			2773	1058			
Turn Bay Length (ft)		25	300					
Base Capacity (vph)	260	501	376	3289	2772			
Starvation Cap Reductn	0	0	0	0	0			
Spillback Cap Reductn	0	0	0	0	0			
Storage Cap Reductn	0	0	0	0	0			
Reduced v/c Ratio	0.26	0.10	0.35	0.51	0.52			
Intersection Summary								
	Other							
Cycle Length: 90								
Actuated Cycle Length: 66.8	8							
Natural Cycle: 60								
Control Type: Actuated-Und	coordinated							
Maximum v/c Ratio: 0.63								
Intersection Signal Delay: 9					tersection			
Intersection Capacity Utiliza	ation 61.1%			IC	CU Level of	of Service B		
Analysis Period (min) 15								
Splits and Dhasas: 4: Dro	widonco Da	and O Lor	ny Stadl	or Mov				
Splits and Phases: 4: Pro	ovidence Ro	Jau & Lei	iiiy Staul	ei way			T &	
T <sub>Ø2</sub>							<b>₹</b> Ø4	
76 s							14 s	
\$ ~~	1							
→ Ø5	▼ Ø6							

	۶	•	4	<b>†</b>	ļ	4
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	<u> </u>	7	ሻ	<b>^</b>	<b>†</b>	
Traffic Volume (vph)	52	14	31	1576	1430	36
Future Volume (vph)	52	14	31	1576	1430	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
			300	1900	1900	
Storage Length (ft)	0	25				0
Storage Lanes	1	1	1			0
Taper Length (ft)	100	1.00	100	0.05	0.05	0.05
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.850			0.996	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3525	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3525	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	1095			2853	1138	
Travel Time (s)	21.3			43.2	17.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	58	16	34	1751	1589	40
Shared Lane Traffic (%)	- 30	10	34	1751	1307	40
` ,	ΓO	1/	2.4	1751	1/20	0
Lane Group Flow (vph)	58	16	34	1751	1629	0
Turn Type	Prot	pm+ov	Prot	NA	NA	
Protected Phases	4	5	5	2	6	
Permitted Phases		4				
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	10.0	10.0	
Minimum Split (s)	14.0	14.0	14.0	17.0	17.0	
Total Split (s)	14.0	14.0	14.0	76.0	62.0	
Total Split (%)	15.6%	15.6%	15.6%	84.4%	68.9%	
Maximum Green (s)	7.0	7.0	7.0	69.0	55.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
	5.0			3.0		
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?	2.0	2.0	2.0	2.0	2.0	
Vehicle Extension (s)	2.0	2.0	2.0	3.0	3.0	
Recall Mode	None	None	None	Min	Min	
Act Effct Green (s)	10.1	16.9	10.1	57.1	50.3	
Actuated g/C Ratio	0.15	0.25	0.15	0.86	0.76	
v/c Ratio	0.22	0.04	0.13	0.58	0.61	
Control Delay	35.6	23.2	35.0	4.0	10.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	35.6	23.2	35.0	4.0	10.1	
LOS	D	С	С	Α	В	
Approach Delay	32.9			4.6	10.1	
Approach LOS	C			4.0 A	В	
Approach LO3	C			- Н	ט	

	۶	•	•	<b>†</b>	ļ	✓	
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	
Queue Length 50th (ft)	25	5	15	165	298		
Queue Length 95th (ft)	69	23	47	211	381		
Internal Link Dist (ft)	1015			2773	1058		
Turn Bay Length (ft)		25	300				
Base Capacity (vph)	269	403	269	3259	2884		
Starvation Cap Reductn	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.22	0.04	0.13	0.54	0.56		
Intersection Summary							
Area Type:	Other						
Cycle Length: 90							
Actuated Cycle Length: 66.4	4						
Natural Cycle: 65							
Control Type: Actuated-Unc	oordinated						
Maximum v/c Ratio: 0.61							
Intersection Signal Delay: 7.					tersection		
Intersection Capacity Utiliza	ition 57.7%			IC	CU Level of	of Service B	
Analysis Period (min) 15							
Splits and Phases: 4: Pro	vidence Ro	oad & Ler	ny Stadle	er Way			
<b>↑</b> ø2							<b>≯</b> Ø4
76 s							14 s
\$ ∅5	<b>26</b>						
14 s 62 s							

	۶	<b>→</b>	•	•	<b>←</b>	•	1	<b>†</b>	/	<b>/</b>	ţ	✓
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		ર્ન	7		ર્ન	7	ሻ	<b>^</b>	7	ሻ	<b>∱</b> }	
Traffic Volume (vph)	60	16	44	81	7	55	119	1526	148	73	1173	126
Future Volume (vph)	60	16	44	81	7	55	119	1526	148	73	1173	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		25	0		100	300		250	250		0
Storage Lanes	0		1	0		1	1		1	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	0.95	1.00	1.00	0.95	0.95
Frt			0.850			0.850			0.850		0.985	
Flt Protected		0.962			0.956		0.950			0.950		
Satd. Flow (prot)	0	1792	1583	0	1781	1583	1770	3539	1583	1770	3486	0
Flt Permitted		0.962			0.956		0.950			0.950		
Satd. Flow (perm)	0	1792	1583	0	1781	1583	1770	3539	1583	1770	3486	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		1095			1234			2853			1138	
Travel Time (s)		21.3			33.7			43.2			17.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	67	18	49	90	8	61	132	1696	164	81	1303	140
Shared Lane Traffic (%)	07	10		70		01	102	1070	101	01	1000	110
Lane Group Flow (vph)	0	85	49	0	98	61	132	1696	164	81	1443	0
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Ū
Protected Phases	4	4	5	8	8	1	5	2	1 01111	1	6	
Permitted Phases	•	·	4			8		_	2	•		
Detector Phase	4	4	5	8	8	1	5	2	2	1	6	
Switch Phase	•	·				•		_	_	•		
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	14.0	14.0	14.0	20.0	20.0	14.0	14.0	17.0	17.0	14.0	17.0	
Total Split (s)	14.0	14.0	17.0	20.0	20.0	14.0	17.0	72.0	72.0	14.0	69.0	
Total Split (%)	11.7%	11.7%	14.2%	16.7%	16.7%	11.7%	14.2%	60.0%	60.0%	11.7%	57.5%	
Maximum Green (s)	7.0	7.0	10.0	13.0	13.0	7.0	10.0	65.0	65.0	7.0	62.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	2.0	-2.0	-2.0	2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		0.0	Lead		0.0	Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?			Load			Loud	Loud	Lug	Lug	Load	Lug	
Vehicle Extension (s)	2.0	2.0	2.0	3.0	3.0	3.0	2.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	
Act Effct Green (s)	TVOTIC	9.4	18.5	None	12.9	27.5	11.8	62.1	62.1	9.4	55.3	
Actuated g/C Ratio		0.09	0.17		0.12	0.26	0.11	0.59	0.59	0.09	0.52	
v/c Ratio		0.54	0.18		0.45	0.15	0.67	0.82	0.18	0.52	0.79	
Control Delay		65.7	27.3		55.1	36.5	67.4	24.3	13.1	64.9	25.2	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		65.7	27.3		55.1	36.5	67.4	24.3	13.1	64.9	25.2	
LOS		65.7 E	27.3 C		55.1 E	30.3 D	67.4 E	24.3 C	13.1 B	04.9 E	23.2 C	
Approach Delay		51.6	C		47.9	D	С	26.3	D	E	27.3	
Approach LOS		51.6 D			47.9 D			26.3 C			27.3 C	
Appluacii LOS		U			U			C			U	

#### 4: Providence Road & Lenny Stadler Way/Access C

	•	<b>→</b>	•	•	←	•	4	<b>†</b>	-	-	ļ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		63	23		70	36	97	544	58	60	438	
Queue Length 95th (ft)		#135	51		128	75	#199	674	97	#128	545	
Internal Link Dist (ft)		1015			1154			2773			1058	
Turn Bay Length (ft)			25			100	300		250	250		
Base Capacity (vph)		158	286		263	410	209	2335	1044	156	2198	
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	
Reduced v/c Ratio		0.54	0.17		0.37	0.15	0.63	0.73	0.16	0.52	0.66	

#### **Intersection Summary**

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 106.1

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.82

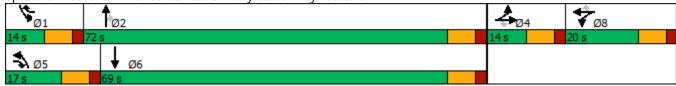
Intersection Signal Delay: 28.5 Intersection LOS: C
Intersection Capacity Utilization 72.0% ICU Level of Service C

Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Providence Road & Lenny Stadler Way/Access C



	۶	<b>→</b>	•	•	-	•	1	<b>†</b>	<i>&gt;</i>	<b>/</b>	<b>↓</b>	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		ર્ન	7		ર્ન	7	ሻ	<b>^</b>	7	ሻ	<b>∱</b> }	
Traffic Volume (vph)	52	10	14	153	14	87	31	1564	125	83	1413	36
Future Volume (vph)	52	10	14	153	14	87	31	1564	125	83	1413	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	.,	25	0		100	300		250	250		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	100		•	100		•	100		•	100		Ū
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.850	1.00	1.00	0.850	1.00	0.70	0.850	1.00	0.996	0.70
Flt Protected		0.960	0.000		0.956	0.000	0.950		0.000	0.950	0.770	
Satd. Flow (prot)	0	1788	1583	0	1781	1583	1770	3539	1583	1770	3525	0
Flt Permitted		0.960	1000		0.956	1000	0.950	0007	1000	0.950	0020	J
Satd. Flow (perm)	0	1788	1583	0	1781	1583	1770	3539	1583	1770	3525	0
Right Turn on Red	<u> </u>	1700	No	<u> </u>	1701	No	1770	3337	No	1770	3323	No
Satd. Flow (RTOR)			NO			NO			NO			NO
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		1095			1234			2853			1138	
Travel Time (s)		21.3			33.7			43.2			17.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	58	11	16	170	16	97	34	1738	139	92	1570	40
Shared Lane Traffic (%)	50	- 11	10	170	10	71	34	1730	137	72	1370	40
Lane Group Flow (vph)	0	69	16	0	186	97	34	1738	139	92	1610	0
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	U
Protected Phases	3piit 4	4	piii+0v 5	Split 8	8	pili+0v 1	5	2	reiiii	1	1NA 6	
Permitted Phases	7	4	4	U	U	8	J	2	2		U	
Detector Phase	4	4	5	8	8	1	5	2	2	1	6	
Switch Phase	7	4	J	U	U		J	2	2		U	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	14.0	14.0	14.0	20.0	20.0	14.0	14.0	17.0	17.0	14.0	17.0	
Total Split (s)	14.0	14.0	14.0	21.0	21.0	14.0	14.0	71.0	71.0	14.0	71.0	
Total Split (%)	11.7%	11.7%	11.7%	17.5%	17.5%	11.7%	11.7%	59.2%	59.2%	11.7%	59.2%	
Maximum Green (s)	7.0	7.0	7.0	14.0	14.0	7.0	7.0	64.0	64.0	7.0	64.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	2.0	-2.0	-2.0	2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		5.0	Lead		5.0	Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?			Lcad			LCau	Loud	Lug	Lag	Load	Lug	
Vehicle Extension (s)	2.0	2.0	2.0	3.0	3.0	3.0	2.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	
Act Effct Green (s)	NOTIC	9.3	16.0	NOTIC	15.5	30.0	9.3	59.9	59.9	9.3	66.6	
Actuated g/C Ratio		0.08	0.14		0.14	0.27	0.08	0.54	0.54	0.08	0.60	
v/c Ratio		0.46	0.17		0.75	0.23	0.23	0.91	0.16	0.62	0.76	
Control Delay		63.7	27.9		67.7	37.2	56.4	31.3	13.9	72.3	21.5	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		63.7	27.9		67.7	37.2	56.4	31.3	13.9	72.3	21.5	
LOS		03.7 E	21.9 C		67.7 E	37.2 D	50.4 E	31.3 C	13.9 B	72.3 E	21.5 C	
Approach Delay		57.0	C		57.2	U		30.5	U		24.3	
Approach LOS		57.0 E			57.2 E			30.5 C			24.3 C	
Appluacii LU3		Ľ			Ľ			C			C	

#### 4: Providence Road & Lenny Stadler Way/Access C

	•	-	•	•	←	•	1	<b>†</b>	1	-	<b>↓</b>	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		52	8		141	60	25	599	51	71	520	
Queue Length 95th (ft)		102	24		#257	109	60	722	86	#151	627	
Internal Link Dist (ft)		1015			1154			2773			1058	
Turn Bay Length (ft)			25			100	300		250	250		
Base Capacity (vph)		150	228		266	428	148	2179	974	148	2232	
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	
Reduced v/c Ratio		0.46	0.07		0.70	0.23	0.23	0.80	0.14	0.62	0.72	

#### **Intersection Summary**

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 110.6

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

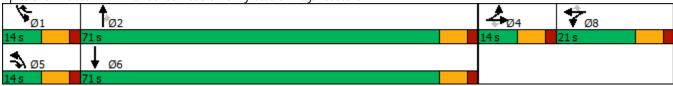
Intersection Signal Delay: 30.3 Intersection LOS: C
Intersection Capacity Utilization 77.4% ICU Level of Service D

Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Providence Road & Lenny Stadler Way/Access C



## 4: Providence Road & Lenny Stadler Way/Lenny Stadler Way Left-Over Timing Plan: AM Peak Hour

	•	-	$\rightarrow$	•	<b>←</b>	•	4	<b>†</b>	<b>/</b>	-	ļ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			7		ર્ન						ħβ	
Traffic Volume (vph)	0	0	120	0	119	0	0	0	0	0	1254	133
Future Volume (vph)	0	0	120	0	119	0	0	0	0	0	1254	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		25	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		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	0.95	0.95
Frt			0.865								0.986	
Flt Protected												
Satd. Flow (prot)	0	0	1611	0	1863	0	0	0	0	0	3490	0
Flt Permitted	-					-	-	-			<u> </u>	
Satd. Flow (perm)	0	0	1611	0	1863	0	0	0	0	0	3490	0
Right Turn on Red			No	No	1000	No			No		0170	No
Satd. Flow (RTOR)			110	110		110			110			110
Link Speed (mph)		35			35			25			45	
Link Distance (ft)		1095			218			644			200	
Travel Time (s)		21.3			4.2			17.6			3.0	
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
Adj. Flow (vph)	0.70	0.70	133	0.70	132	0.70	0.70	0.70	0.70	0.70	1393	148
Shared Lane Traffic (%)	U	U	100	U	102	U	U	U	U	U	1373	140
Lane Group Flow (vph)	0	0	133	0	132	0	0	0	0	0	1541	0
Turn Type	U	U	Perm	U	NA	U	U	U	U	U	NA	U
Protected Phases			1 CIIII		8						6	
Permitted Phases			4	8	U						U	
Detector Phase			4	8	8						6	
Switch Phase			7	U	U						U	
Minimum Initial (s)			7.0	7.0	7.0						7.0	
Minimum Split (s)			20.0	20.0	20.0						20.0	
Total Split (s)			20.0	20.0	20.0						40.0	
Total Split (%)			33.3%	33.3%	33.3%						66.7%	
Maximum Green (s)			13.0	13.0	13.0						33.0	
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	
Lead/Lag			5.0		5.0						5.0	
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0	3.0	3.0						3.0	
Recall Mode				None							Min	
			None	None	None							
Act Effet Green (s)			12.0 0.23		12.0						35.5	
Actuated g/C Ratio					0.23						0.68	
v/c Ratio			0.36		0.31						0.65	
Control Delay			22.0		20.8						9.2	
Queue Delay			0.0		0.0						0.0	
Total Delay			22.0		20.8						9.2	
LOS		22.0	С		C						A	
Approach LOS		22.0			20.8						9.2	
Approach LOS		С			С						А	

Lanes, Volumes, Timings RKA

Synchro 10 Report Page 1

Wedanigion Oreen - Weda	rigion, i		202	. Dulla With 0-0700
4: Providence Road & Lenn	y Stadler Way/Lenn	y Stadler Way	Left-Over	Timing Plan: AM Peak Hour

	٠	<b>→</b>	•	•	•	•	4	<b>†</b>	<b>/</b>	<b>/</b>	ļ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			39		38						161	
Queue Length 95th (ft)			81		78						269	
Internal Link Dist (ft)		1015			138			564			120	
Turn Bay Length (ft)			25									
Base Capacity (vph)			477		551						2411	
Starvation Cap Reductn			0		0						0	
Spillback Cap Reductn			0		0						0	
Storage Cap Reductn			0		0						0	
Reduced v/c Ratio			0.28		0.24						0.64	
Intersection Summary												
Area Type:	Other											
Cycle Length: 60												
Actuated Cycle Length: 52.	.4											
Natural Cycle: 55												
Control Type: Actuated-Une	coordinated											
Maximum v/c Ratio: 0.65												
Intersection Signal Delay: 1					tersection							
Intersection Capacity Utiliza	ation 99.4%			IC	CU Level	of Service	F F					
Analysis Period (min) 15												
Splits and Phases: 4: Pro	ovidence Ro	oad & Ler	ıny Stadle	er Way/Le	enny Stac	ller Way I	_eft-Over					
								¬- Ø4				
							2	0 s				
<b>↓</b> Ø6								₩ Ø8				
40												

## 4: Providence Road & Lenny Stadler Way/Lenny Stadler Way Left-Over Timing Plan: PM Peak Hour

	۶	-	•	•	<b>←</b>	•	•	<b>†</b>	<b>/</b>	<b>&gt;</b>	ļ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			7		ર્ન						<b>♦</b> ₽	
Traffic Volume (vph)	0	0	76	0	31	0	0	0	0	0	1566	50
Future Volume (vph)	0	0	76	0	31	0	0	0	0	0	1566	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		25	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		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	0.95	0.95
Frt			0.865								0.995	
Flt Protected												
Satd. Flow (prot)	0	0	1611	0	1863	0	0	0	0	0	3522	0
Flt Permitted												
Satd. Flow (perm)	0	0	1611	0	1863	0	0	0	0	0	3522	0
Right Turn on Red			No	No		No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			25			45	
Link Distance (ft)		1095			218			644			200	
Travel Time (s)		21.3			4.2			17.6			3.0	
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
Adj. Flow (vph)	0	0	84	0	34	0	0	0	0	0	1740	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	84	0	34	0	0	0	0	0	1796	0
Turn Type			Perm		NA						NA	
Protected Phases					8						6	
Permitted Phases			4	8								
Detector Phase			4	8	8						6	
Switch Phase												
Minimum Initial (s)			7.0	7.0	7.0						7.0	
Minimum Split (s)			20.0	20.0	20.0						20.0	
Total Split (s)			20.0	20.0	20.0						40.0	
Total Split (%)			33.3%	33.3%	33.3%						66.7%	
Maximum Green (s)			13.0	13.0	13.0						33.0	
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	
Total Lost Time (s)			5.0		5.0						5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0	3.0	3.0						3.0	
Recall Mode			None	None	None						Min	
Act Effct Green (s)			10.7		10.7						41.1	
Actuated g/C Ratio			0.20		0.20						0.78	
v/c Ratio			0.26		0.09						0.66	
Control Delay			21.5		19.3						8.3	
Queue Delay			0.0		0.0						0.0	
Total Delay			21.5		19.3						8.3	
LOS			С		В						Α	
Approach Delay		21.5			19.3						8.3	
Approach LOS		С			В						A	

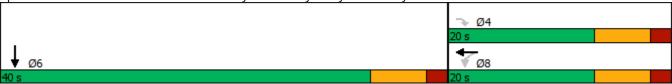
Lanes, Volumes, Timings RKA

Synchro 10 Report Page 1

## 4: Providence Road & Lenny Stadler Way/Lenny Stadler Way Left-Over

Timing Plan: PM Peak Hour

	۶	<b>→</b>	•	•	•	•	4	<b>†</b>	<b>/</b>	<b>/</b>	ļ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			28		11						194	
Queue Length 95th (ft)			56		28						#338	
Internal Link Dist (ft)		1015			138			564			120	
Turn Bay Length (ft)			25									
Base Capacity (vph)			467		539						2737	
Starvation Cap Reductn			0		0						0	
Spillback Cap Reductn			0		0						0	
Storage Cap Reductn			0		0						0	
Reduced v/c Ratio			0.18		0.06						0.66	
Intersection Summary												
Area Type: (	Other											
Cycle Length: 60												
Actuated Cycle Length: 52.9												
Natural Cycle: 60												
Control Type: Actuated-Unco	oordinated											
Maximum v/c Ratio: 0.66												
Intersection Signal Delay: 9.				In	itersection	n LOS: A						
Intersection Capacity Utilizat	tion 59.0%			IC	CU Level	of Service	B					
Analysis Period (min) 15												
# 95th percentile volume e			ieue may	be longe	er.							
Queue shown is maximul	m after two	cycles.										
Splits and Phases: 4: Pro	vidence Ro	oad & Ler	ny Stadle	er Way/L	enny Stac	dler Way I	_eft-Over					
								→ Ø4				
							2	0 s				



	۶	<b>→</b>	•	•	•	•	4	†	<b>/</b>	<b>/</b>	ļ	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		ર્ન				7		<b>^</b>	7			
Traffic Volume (vph)	0	73	0	0	0	143	0	1586	164	0	0	0
Future Volume (vph)	0	73	0	0	0	143	0	1586	164	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt						0.865			0.850			
Flt Protected						0.000						
Satd. Flow (prot)	0	1863	0	0	0	1611	0	3539	1583	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	1863	0	0	0	1611	0	3539	1583	0	0	0
Right Turn on Red	No		No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			25	
Link Distance (ft)		223			1133			200			410	
Travel Time (s)		4.3			30.9			3.0			11.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	81	0	0	0	159	0	1762	182	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	81	0	0	0	159	0	1762	182	0	0	0
Turn Type		NA				Perm		NA	Perm			
Protected Phases		4						2				
Permitted Phases	4	•				8		_	2			
Detector Phase	4	4				8		2	2			
Switch Phase		<u> </u>										
Minimum Initial (s)	7.0	7.0				7.0		7.0	7.0			
Minimum Split (s)	20.0	20.0				20.0		20.0	20.0			
Total Split (s)	20.0	20.0				20.0		40.0	40.0			
Total Split (%)	33.3%	33.3%				33.3%		66.7%	66.7%			
Maximum Green (s)	13.0	13.0				13.0		33.0	33.0			
Yellow Time (s)	5.0	5.0				5.0		5.0	5.0			
All-Red Time (s)	2.0	2.0				2.0		2.0	2.0			
Lost Time Adjust (s)	2.0	-2.0				-2.0		-2.0	-2.0			
Total Lost Time (s)		5.0				5.0		5.0	5.0			
Lead/Lag		0.0				0.0		0.0	0.0			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0				3.0		3.0	3.0			
Recall Mode	None	None				None		Max	Max			
Act Effct Green (s)		12.5				12.5		39.3	39.3			
Actuated g/C Ratio		0.22				0.22		0.68	0.68			
v/c Ratio		0.20				0.46		0.73	0.17			
Control Delay		19.5				24.1		11.3	5.8			
Queue Delay		0.0				0.0		0.0	0.0			
Total Delay		19.5				24.1		11.3	5.8			
LOS		В				С		В	A			
Approach Delay		19.5			24.1			10.8	, ,			
Approach LOS		В			C			В				
Queue Length 50th (ft)		23				48		217	24			
Queue Length 95th (ft)		53				95		#346	53			
Internal Link Dist (ft)		143			1053	70		120			330	
- Intomar Link Dist (it)		נדו			1000			120			550	

Lanes, Volumes, Timings RKA

Synchro 10 Report Page 1

#### 8: Access C Left-Over/Access C & Providence Road

	٠	<b>→</b>	*	•	<b>+</b>	•	•	<b>†</b>	<b>/</b>	<b>/</b>	ļ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)		484				418		2404	1075			
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		0.17				0.38		0.73	0.17			
Intersection Summary												
Area Type:	Other											
Cycle Length: 60												
Actuated Cycle Length: 5	7.8											
Natural Cycle: 60												
Control Type: Actuated-U	ncoordinated											
Maximum v/c Ratio: 0.73												
Intersection Signal Delay:	12.1			In	itersectio	n LOS: B						
Intersection Capacity Utili	zation 61.0%			IC	CU Level	of Service	B B					
Analysis Period (min) 15												
# 95th percentile volum	e exceeds ca	nacity di	ieue may	he longe	er							

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 8: Access C Left-Over/Access C & Providence Road



	۶	<b>→</b>	•	•	•	•	•	<b>†</b>	<b>/</b>	<b>&gt;</b>	ļ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		ર્ન				7		<b>^</b>	7			_
Traffic Volume (vph)	0	83	0	0	0	254	0	1616	135	0	0	0
Future Volume (vph)	0	83	0	0	0	254	0	1616	135	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt						0.865			0.850			
Flt Protected												
Satd. Flow (prot)	0	1863	0	0	0	1611	0	3539	1583	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	1863	0	0	0	1611	0	3539	1583	0	0	0
Right Turn on Red	No		No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			25	
Link Distance (ft)		223			1133			200			410	
Travel Time (s)		4.3			30.9			3.0			11.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	92	0	0	0	282	0	1796	150	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	92	0	0	0	282	0	1796	150	0	0	0
Turn Type		NA				Perm		NA	Perm			
Protected Phases		4						2				
Permitted Phases	4					8			2			
Detector Phase	4	4				8		2	2			
Switch Phase												
Minimum Initial (s)	7.0	7.0				7.0		7.0	7.0			
Minimum Split (s)	20.0	20.0				20.0		20.0	20.0			
Total Split (s)	20.0	20.0				20.0		40.0	40.0			
Total Split (%)	33.3%	33.3%				33.3%		66.7%	66.7%			
Maximum Green (s)	13.0	13.0				13.0		33.0	33.0			
Yellow Time (s)	5.0	5.0				5.0		5.0	5.0			
All-Red Time (s)	2.0	2.0				2.0		2.0	2.0			
Lost Time Adjust (s)		-2.0				-2.0		-2.0	-2.0			
Total Lost Time (s)		5.0				5.0		5.0	5.0			
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0				3.0		3.0	3.0			
Recall Mode	None	None				None		Max	Max			
Act Effct Green (s)		14.3				14.3		35.0	35.0			
Actuated g/C Ratio		0.24				0.24		0.59	0.59			
v/c Ratio		0.20				0.73		0.86	0.16			
Control Delay		19.3				33.7		16.3	6.3			
Queue Delay		0.0				0.0		0.0	0.0			
Total Delay		19.3				33.7		16.3	6.3			
LOS		В				С		В	Α			
Approach Delay		19.3			33.7			15.5				
Approach LOS		В			С			В				
Queue Length 50th (ft)		26				93		253	22			
Queue Length 95th (ft)		58				#190		#377	44			
Internal Link Dist (ft)		143			1053			120			330	

Lanes, Volumes, Timings RKA

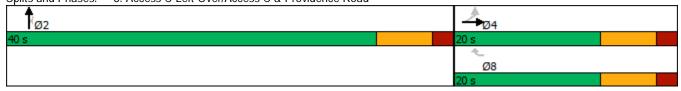
Synchro 10 Report Page 1

#### 8: Access C Left-Over/Access C & Providence Road

	•	<b>→</b>	•	•	•	•	•	<b>†</b>	<i>&gt;</i>	<b>\</b>	Ţ	1
Lane Group	EBL	EBT	EBR	• WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)		470				407		2088	934			
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				0.69		0.86	0.16			
Intersection Summary												
Area Type:	Other											
Cycle Length: 60												
Actuated Cycle Length: 59.3	3											
Natural Cycle: 60												
Control Type: Actuated-Unc	oordinated											
Maximum v/c Ratio: 0.86												
Intersection Signal Delay: 1				In	tersectio	n LOS: B						
Intersection Capacity Utiliza	ition 68.7%			IC	CU Level	of Service	C C					
Analysis Period (min) 15												
# 95th percentile volume	exceeds cap	oacity, qu	ieue may	be longe	er.							

Splits and Phases: 8: Access C Left-Over/Access C & Providence Road

Queue shown is maximum after two cycles.



# **APPENDIX I**

# CAPACITY ANALYSIS CALCULATIONS PROVIDENCE ROAD AND NORTHBOUND / SOUTHBOUND U-TURN LOCATIONS



Intersection						
Int Delay, s/veh	1.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
		WDK	INDI	NDK	SDL	
Lane Configurations	<u>ነ</u>	0	^	0	0	<b>^</b>
Traffic Vol, veh/h	88	0	0	0	0	1372
Future Vol, veh/h	88	0	0	0	0	1372
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage,	, # 0	-	16974	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	98	0	0	0	0	1524
IVIVIIIL I IOW	70	U	U	U	U	1324
Major/Minor N	linor1			N	/lajor2	
Conflicting Flow All	762	_			_	_
Stage 1	0	_			-	_
Stage 2	762	_			_	_
Critical Hdwy	6.84	_			_	_
Critical Hdwy Stg 1						
	-	-				
Critical Hdwy Stg 2	5.84	-			-	-
Follow-up Hdwy	3.52	-			-	-
Pot Cap-1 Maneuver	341	0			0	-
Stage 1	-	0			0	-
Stage 2	421	0			0	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	341	-			-	-
Mov Cap-2 Maneuver	341	_			_	-
Stage 1	-	_			_	_
Stage 2	421	_				
Jiaye 2	421	-			-	-
Approach	WB				SB	
HCM Control Delay, s	19.7				0	
HCM LOS	С					
Minor Lane/Major Mvm	t V	VBLn1	SBT			
Capacity (veh/h)		341	-			
HCM Lane V/C Ratio		0.287	_			
HCM Control Delay (s)		19.7	_			
HCM Lane LOS		C				
HCM 95th %tile Q(veh)		1.2	-			
HOW FOUT MINE Q(VEH)		1.2	-			

Intersection						
Int Delay, s/veh	3.4					
Movement	WBL	WPD	NDT	NIDD	SBL	SBT
		WBR	NBT	NBR	SBL	
Lane Configurations	7		•	•	•	<b>^</b>
Traffic Vol, veh/h	167	0	0	0	0	1532
Future Vol, veh/h	167	0	0	0	0	1532
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage,	# 0		16974	-	_	0
Grade, %	0	_	0	_	_	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mymt Flow	186	0	0	0	0	1702
IVIVIIIL FIOW	100	U	U	U	U	1702
Major/Minor N	1inor1			N	/lajor2	
Conflicting Flow All	851				-	
Stage 1	0	_			_	_
Stage 2	851	_			_	_
	6.84					
Critical Hdwy		-			-	-
Critical Hdwy Stg 1	-	-			-	-
Critical Hdwy Stg 2	5.84	-			-	-
Follow-up Hdwy	3.52	-			-	-
Pot Cap-1 Maneuver	299	0			0	-
Stage 1	-	0			0	-
Stage 2	379	0			0	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	299	_			-	_
Mov Cap-2 Maneuver	299	_			_	_
Stage 1	211	_			_	_
	379					
Stage 2	3/9	-			-	-
Approach	WB				SB	
HCM Control Delay, s	34.9				0	
HCM LOS	D					
TIOWI LOO	U					
Minor Lane/Major Mvmt	t V	VBLn1	SBT			
Capacity (veh/h)		299	-			
HCM Lane V/C Ratio		0.621	_			
HCM Control Delay (s)		34.9	_			
HCM Lane LOS		D	_			
HCM 95th %tile Q(veh)		3.9	_			
HOW FOUT MILE CI(VEII)		3.7	-			

Intersection						
Int Delay, s/veh	1.1					
		EDD	NDI	NDT	CDT	CDD
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	7	•	•	<b>^</b>	•	
Traffic Vol, veh/h	76	0	0	1793	0	0
Future Vol, veh/h	76	0	0	1793	0	0
Conflicting Peds, #/hr	0	0	0	_ 0	0	_ 0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage		-	-	0	16979	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	84	0	0	1992	0	0
N. (a. i. a. v./), (i. i. a. v.	Alman O	Α.	1-11			
	Minor2		/lajor1			
Conflicting Flow All	996	-	-	0		
Stage 1	0	-	-	-		
Stage 2	996	-	-	-		
Critical Hdwy	6.84	-	-	-		
Critical Hdwy Stg 1	-	-	-	-		
Critical Hdwy Stg 2	5.84	-	-	-		
Follow-up Hdwy	3.52	-	-	-		
Pot Cap-1 Maneuver	241	0	0	-		
Stage 1	-	0	0	-		
Stage 2	318	0	0	-		
Platoon blocked, %				-		
Mov Cap-1 Maneuver	241	_	_	_		
Mov Cap-2 Maneuver	241	_	_	_		
Stage 1	271	_	_	_		
Stage 2	318	-				
Judy Z	510	-				
Approach	EB		NB			
HCM Control Delay, s	27.8		0			
HCM LOS	D					
Minor Long/Maior M		NDT	TDI :=1			
Minor Lane/Major Mvm	I	MRIF	EBLn1			
Capacity (veh/h)		-	241			
HCM Lane V/C Ratio		-	0.35			
HCM Control Delay (s)		-	27.8			
HCM Lane LOS		-	D			
HCM 95th %tile Q(veh)		-	1.5			

Intersection						
Int Delay, s/veh	0.8					
		EDD	NDI	NET	CDT	CDD
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	<b>\</b>		•	<b>^</b>	•	•
Traffic Vol, veh/h	62	0	0	1720	0	0
Future Vol, veh/h	62	0	0	1720	0	0
Conflicting Peds, #/hr	0	0	0	_ 0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage		-	-	0	16979	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	69	0	0	1911	0	0
N. (a. i. a. v./), (i. i. a. v.	Alman O		1-11			
	Minor2		/lajor1			
Conflicting Flow All	956	-	-	0		
Stage 1	0	-	-	-		
Stage 2	956	-	-	-		
Critical Hdwy	6.84	-	-	-		
Critical Hdwy Stg 1	-	-	-	-		
Critical Hdwy Stg 2	5.84	-	-	-		
Follow-up Hdwy	3.52	-	-	-		
Pot Cap-1 Maneuver	256	0	0	-		
Stage 1	-	0	0	-		
Stage 2	334	0	0	-		
Platoon blocked, %				-		
Mov Cap-1 Maneuver	256	_	_	_		
Mov Cap-2 Maneuver	256	_	_	_		
Stage 1	-	_	_	_		
Stage 2	334	-				
Judy Z	JJ4	-	-	-		
Approach	EB		NB			
HCM Control Delay, s	24.2		0			
HCM LOS	С					
Minor Long/Maior M		NDT	TDI :=1			
Minor Lane/Major Mvm	I	MRIF	EBLn1			
Capacity (veh/h)		-	256			
HCM Lane V/C Ratio		-	0.269			
HCM Control Delay (s)		-	24.2			
HCM Lane LOS		-	С			
HCM 95th %tile Q(veh)		-	1.1			

# **APPENDIX J**

# CAPACITY ANALYSIS CALCULATIONS PROVIDENCE ROAD AND REA ROAD



	•	•	•	<b>†</b>	L	ļ	4
Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	<u> </u>	7	ሻሻ	<b>^</b>	<b>1</b>	<u> </u>	7
Traffic Volume (vph)	396	175	319	1020	4	655	388
Future Volume (vph)	396	175	319	1020	4	655	388
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	500	1700	300	1700	0
Storage Lanes	1	1	2		1		1
Taper Length (ft)	100		100		100		
Lane Util. Factor	1.00	1.00	0.97	0.95	1.00	1.00	1.00
Frt	1.00	0.850	0.77	0.73	1.00	1.00	0.850
Flt Protected	0.950	0.030	0.950		0.950		0.030
Satd. Flow (prot)	1770	1583	3433	3539	1770	1863	1583
Flt Permitted	0.950	1505	0.950	3337	0.251	1003	1505
Satd. Flow (perm)	1770	1583	3433	3539	468	1863	1583
Right Turn on Red	1770	No	J433	3337	400	1003	No
Satd. Flow (RTOR)		INU					INU
Link Speed (mph)	45			45		45	
Link Distance (ft)	2019			834		2853	
Travel Time (s)	30.6			12.6		43.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	440	194	354	1133	0.90	728	431
Shared Lane Traffic (%)	440	174	304	1133	4	120	431
Lane Group Flow (vph)	440	194	354	1133	4	728	431
Turn Type	Prot	pm+ov	Prot	NA	Perm	NA	pm+ov
Protected Phases	4	pm+0v 5	5	NA 2	Fellil	NA 6	μπ+ον 4
Permitted Phases	4	4	J		6	Ü	6
Detector Phase	4	5	5	2	6	6	4
Switch Phase	4	3	3	Z	Ü	Ü	4
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	12.0	7.0
Minimum Split (s)	14.0	14.0	14.0	19.0	19.0	19.0	14.0
Total Split (s)	30.0	15.0	15.0	60.0	45.0	45.0	30.0
Total Split (%)	33.3%	16.7%	16.7%	66.7%	50.0%	50.0%	33.3%
Maximum Green (s)	23.6	8.4	8.4	53.6	38.5	38.5	23.6
Yellow Time (s)	23.6 4.7	3.0	3.0	4.4	38.5 4.6	4.6	4.7
All-Red Time (s)	1.7	3.6	3.6	2.0	1.9	1.9	1.7
	-1.4	-1.6	-1.6	-1.4	-1.5		-1.4
Lost Time Adjust (s) Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	-1.5 5.0	5.0
. ,	5.0			5.0			5.0
Lead/Lag Optimize?		Lead Yes	Lead Yes		Lag	Lag Yes	
Lead-Lag Optimize?	2.0			4.0	Yes		2.0
Vehicle Extension (s)	2.0 2.0	2.0	2.0	6.0	6.0	6.0	2.0
Minimum Gap (s)		2.0	2.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	15.0	15.0	15.0	0.0
Time To Reduce (s)	0.0	0.0 None	0.0 None	30.0	30.0	30.0	0.0
Recall Mode	None	None	None	Min	Min	Min	None
Act Effet Green (s)	23.8	38.9	10.1	51.7	36.6	36.6	65.4
Actuated g/C Ratio	0.28	0.45	0.12	0.60	0.43	0.43	0.76
v/c Ratio	0.90	0.27	0.88	0.53	0.02	0.91	0.36
Control Delay	53.6	16.6	62.4	11.0	14.5	41.0	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.6	16.6	62.4	11.0	14.5	41.0	4.1

	۶	$\rightarrow$	•	<b>†</b>	L	ļ	4
Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
LOS	D	В	Е	В	В	D	Α
Approach Delay	42.3			23.3		27.2	
Approach LOS	D			С		С	
Queue Length 50th (ft)	240	68	104	176	1	365	58
Queue Length 95th (ft)	#414	116	#187	227	7	#590	90
Internal Link Dist (ft)	1939			754		2773	
Turn Bay Length (ft)			500		300		
Base Capacity (vph)	521	719	404	2293	220	878	1236
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	0.84	0.27	0.88	0.49	0.02	0.83	0.35

#### **Intersection Summary**

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 85.6

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

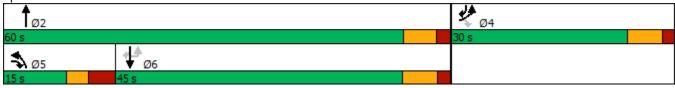
Intersection Signal Delay: 28.3 Intersection LOS: C
Intersection Capacity Utilization 78.0% ICU Level of Service D

Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

#### Splits and Phases: 5: Providence Road & Rea Road



Lane Configurations		•	•	4	<b>†</b>	L	ļ	4
Lane Configurations	Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Traffic Volume (vph)								
Future Volume (vph)								
Ideal Flow (vphph)								
Storage Length (ft)								
Storage Lanes					1700		1700	
Taper Length (ff)         100         1.00         1.00         0.97         0.95         1.00         1.00         1.00           Frt         0.850         0.950         0.950         0.950         0.950         0.950         1.00 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
Lane Utili, Factor		•						
Fit Protected         0.950         0.950         0.950         0.950         0.950         0.950         0.950         0.950         0.950         0.950         0.950         0.950         0.950         0.950         0.318         183         183         183         3433         3539         1972         1863         183         183         Right Turn on Red         No         170         1583         3433         3539         592         1863         1838         Right Turn on Red         No         180         180         180         180         180         183         1833         1833         3539         592         1863         1838         Right Turn on Red         No         180 <t< td=""><td></td><td></td><td>1 00</td><td></td><td>0.95</td><td></td><td>1.00</td><td>1 00</td></t<>			1 00		0.95		1.00	1 00
Fit Protected		1.00		0.77	0.75	1.00	1.00	
Satd. Flow (prot)         1770         1583         3433         3539         1770         1863         1583           Flt Permitted         0.950         0.950         0.318         1583           Satd. Flow (perm)         1770         1583         3433         3539         592         1863         1583           Right Turn on Red         No         No         No         No         No           Satd. Flow (RTOR)         Unix Speed (mph)         45         45         45         45           Link Speed (mph)         45         12.6         43.2         2853         1726         43.2         2853           Travel Time (s)         30.6         12.6         43.2         2853         4731         656           Peak Hour Factor         0.90         <		0.050	0.030	0.050		0.050		0.000
Fit Permitted			1583		3530		1863	1502
Satd. Flow (perm)         1770         1583         3433         3539         592         1863         1583           Right Turn on Red         No         No         No         No         No           Satd. Flow (RTOR)         Link Speed (mph)         45         45         45           Link Distance (ft)         2019         834         2853         177           Travel Time (s)         30.6         12.6         43.2         43.2           Peak Hour Factor         0.90			1303		3337		1003	1000
No			1592		3530		1062	1502
Satd. Flow (RTOR)         Link Speed (mph)         45         45         45         45           Link Distance (ft)         2019         834         2853           Travel Time (s)         30.6         12.6         43.2           Peak Hour Factor         0.90 <td< td=""><td></td><td>1770</td><td></td><td>3433</td><td>3337</td><td>372</td><td>1003</td><td></td></td<>		1770		3433	3337	372	1003	
Link Speed (mph)         45         45         45         45           Link Distance (ft)         2019         834         2853           Travel Time (s)         30.6         12.6         43.2           Peak Hour Factor         0.90			INU					INU
Link Distance (ft)         2019         834         2853           Travel Time (s)         30.6         12.6         43.2           Peak Hour Factor         0.90	. ,	15			15		15	
Travel Time (s)         30.6         12.6         43.2           Peak Hour Factor         0.90         0								
Peak Hour Factor         0.90								
Adj. Flow (vph)         649         437         208         891         4         731         656           Shared Lane Traffic (%)         Lane Group Flow (vph)         649         437         208         891         4         731         656           Turn Type         Prot         pm+ov         Prot         NA         Perm         NA         pm+ov           Protected Phases         4         5         5         2         6         4           Permitted Phases         4         5         5         2         6         6           Detector Phase         4         5         5         2         6         6         4           Switch Phase         4         5         5         2         6         6         4           Switch Phase         4         14.0         14.0         19.0         19.0         12.0         7.0           Minimum Initial (s)         7.0         7.0         7.0         12.0         12.0         12.0         7.0           Minimum Initial (s)         7.0         7.0         14.0         19.0         19.0         19.0         14.0           Total Split (s)         41.7         11.7			0.00	0.00		0.00		0.00
Shared Lane Traffic (%)         Lane Group Flow (vph)         649         437         208         891         4         731         656           Turn Type         Prot         pm+ov         Prot         NA         Perm         NA         pm+ov           Protected Phases         4         5         5         2         6         4           Permitted Phases         4         5         5         2         6         6           Detector Phase         4         5         5         2         6         6           Switch Phase         4         5         5         2         6         6         4           Switch Phase         4         7         7.0         12.0         12.0         12.0         7.0           Minimum Initial (s)         7.0         7.0         7.0         12.0         12.0         12.0         7.0           Minimum Split (s)         14.0         14.0         14.0         19.0         19.0         19.0         14.0           Total Split (s)         50.0         14.0         14.0         19.0         19.0         19.0         14.7           Maximum Green (s)         43.6         7.4         7.4 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
Lane Group Flow (vph)         649         437         208         891         4         731         656           Turn Type         Prot         pm+ov         Prot         NA         Perm         NA         pm+ov           Protected Phases         4         5         5         2         6         4           Permitted Phases         4         5         5         2         6         6           Switch Phase         4         5         5         2         6         6         4           Minimum Initial (s)         7.0         7.0         7.0         12.0         12.0         12.0         7.0           Minimum Split (s)         14.0         14.0         14.0         19.0         19.0         19.0         14.0           Total Split (s)         50.0         14.0         14.0         70.0         56.0         56.0         50.0           Total Split (s)         41.7%         11.7%         11.7%         58.3%         46.7%         41.7%           Maximum Green (s)         43.6         7.4         7.4         63.6         49.5         49.5         43.6           Yellow Time (s)         1.7         3.6         3.6		049	437	208	891	4	731	050
Turn Type         Prot protected Phases         4         5         5         2         6         4           Permitted Phases         4         5         5         2         6         4           Detector Phase         4         5         5         2         6         6           Switch Phase         4         5         5         2         6         6         4           Minimum Initial (s)         7.0         7.0         7.0         12.0         12.0         12.0         7.0           Minimum Split (s)         14.0         14.0         14.0         19.0         19.0         19.0         14.0           Total Split (s)         50.0         14.0         14.0         19.0         19.0         19.0         14.0           Total Split (s)         50.0         14.0         14.0         70.0         56.0         56.0         50.0           Total Split (%)         41.7%         11.7%         11.7%         58.3%         46.7%         46.7%         41.7%           Maximum Green (s)         4.3         7.4         7.4         63.6         49.5         49.5         43.6           Yellow Time (s)         1.7         3.6	. ,	/ 10	407	200	001	4	701	/ [ /
Protected Phases         4         5         5         2         6         4           Permitted Phases         4         5         5         2         6         6         4           Detector Phase         4         5         5         2         6         6         4           Switch Phase         White Phase           Minimum Initial (s)         7.0         7.0         7.0         12.0         12.0         7.0           Minimum Split (s)         14.0         14.0         19.0         19.0         19.0         14.0           Total Split (s)         50.0         14.0         14.0         70.0         56.0         56.0         50.0           Total Split (s)         41.7%         11.7%         11.7%         58.3%         46.7%         46.7%         41.7%           Maximum Green (s)         43.6         7.4         7.4         63.6         49.5         49.5         43.6           Yellow Time (s)         1.7         3.6         3.6         2.0         1.9         1.9         1.7           Lead Time (s)         1.7         3.6         3.6         2.0         1.9         1.9         1.7           Lead								
Permitted Phases         4         5         5         2         6         6         4           Switch Phase         4         5         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)         14.0         14.0         14.0         19.0         19.0         19.0         14.0           Total Split (%)         50.0         14.0         14.0         70.0         56.0         56.0         50.0           Total Split (%)         41.7%         11.7%         11.7%         58.3%         46.7%         46.7%         41.7%           Maximum Green (s)         43.6         7.4         7.4         63.6         49.5         49.5         43.6           Yellow Time (s)         4.7         3.0         3.0         4.4         4.6         4.6         4.7           All-Red Time (s)         1.7         3.6         3.6         2.0         1.9         1.9         1.7           Lost Time Adjust (s)         5.0         5.0         5.0         5.0         5.0         5.0         5.0			•			Perm		•
Detector Phase         4         5         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)         14.0         14.0         14.0         19.0         19.0         19.0         14.0           Total Split (s)         50.0         14.0         14.0         70.0         56.0         56.0         50.0           Total Split (%)         41.7%         11.7%         11.7%         58.3%         46.7%         46.7%         41.7%           Maximum Green (s)         43.6         7.4         7.4         63.6         49.5         49.5         43.6           Yellow Time (s)         4.7         3.0         3.0         4.4         4.6         4.6         4.7           All-Red Time (s)         1.7         3.6         3.6         2.0         1.9         1.9         1.7           Lost Time Adjust (s)         -1.4         -1.6         -1.4         -1.5         -1.5         -1.4           Total Lost Time (s)         5.0         5.0         5.0         5.0         5.0         5.0		4		5	2		6	
Switch Phase         Minimum Initial (s)         7.0         7.0         7.0         12.0         12.0         12.0         7.0           Minimum Split (s)         14.0         14.0         14.0         19.0         19.0         19.0         14.0           Total Split (s)         50.0         14.0         14.0         70.0         56.0         56.0         50.0           Total Split (%)         41.7%         11.7%         11.7%         58.3%         46.7%         46.7%         41.7%           Maximum Green (s)         43.6         7.4         7.4         63.6         49.5         49.5         43.6           Yellow Time (s)         4.7         3.0         3.0         4.4         4.6         4.6         4.7           All-Red Time (s)         1.7         3.6         3.6         2.0         1.9         1.9         1.7           Lost Time Adjust (s)         -1.4         -1.6         -1.6         -1.4         -1.5         -1.5         -1.4           Total Lost Time (s)         5.0         5.0         5.0         5.0         5.0         5.0         5.0           Lead/Lag         Lead         Lead         Lead         Lag         Lag								
Minimum Initial (s)         7.0         7.0         7.0         12.0         12.0         12.0         7.0           Minimum Split (s)         14.0         14.0         14.0         19.0         19.0         19.0         14.0           Total Split (s)         50.0         14.0         14.0         70.0         56.0         56.0         50.0           Total Split (%)         41.7%         11.7%         11.7%         58.3%         46.7%         46.7%         41.7%           Maximum Green (s)         43.6         7.4         7.4         63.6         49.5         49.5         43.6           Yellow Time (s)         4.7         3.0         3.0         4.4         4.6         4.6         4.7           All-Red Time (s)         1.7         3.6         3.6         2.0         1.9         1.9         1.7           Lost Time (s)         1.7         3.6         3.6         2.0         1.9         1.9         1.7           Lost Time (s)         5.0         5.0         5.0         5.0         5.0         5.0         5.0         5.0         5.0         5.0         5.0         5.0         5.0         5.0         5.0         5.0         5.0		4	5	5	2	6	6	4
Minimum Split (s)         14.0         14.0         14.0         19.0         19.0         19.0         14.0           Total Split (s)         50.0         14.0         14.0         70.0         56.0         56.0         50.0           Total Split (%)         41.7%         11.7%         11.7%         58.3%         46.7%         46.7%         41.7%           Maximum Green (s)         43.6         7.4         7.4         63.6         49.5         49.5         43.6           Yellow Time (s)         4.7         3.0         3.0         4.4         4.6         4.6         4.7           All-Red Time (s)         1.7         3.6         3.6         2.0         1.9         1.9         1.7           Lost Time Adjust (s)         -1.4         -1.6         -1.6         -1.4         -1.5         -1.5         -1.4           Total Lost Time (s)         5.0         <		7.0	7.0	7.0	10.0	10.0	10.0	7.0
Total Split (s)         50.0         14.0         14.0         70.0         56.0         56.0         50.0           Total Split (%)         41.7%         11.7%         11.7%         58.3%         46.7%         46.7%         41.7%           Maximum Green (s)         43.6         7.4         7.4         63.6         49.5         49.5         43.6           Yellow Time (s)         4.7         3.0         3.0         4.4         4.6         4.6         4.7           All-Red Time (s)         1.7         3.6         3.6         2.0         1.9         1.9         1.7           Lost Time Adjust (s)         -1.4         -1.6         -1.6         -1.4         -1.5         -1.5         -1.5         -1.4           Total Lost Time (s)         5.0								
Total Split (%)         41.7%         11.7%         11.7%         58.3%         46.7%         46.7%         41.7%           Maximum Green (s)         43.6         7.4         7.4         63.6         49.5         49.5         43.6           Yellow Time (s)         4.7         3.0         3.0         4.4         4.6         4.6         4.7           All-Red Time (s)         1.7         3.6         3.6         2.0         1.9         1.9         1.7           Lost Time Adjust (s)         -1.4         -1.6         -1.6         -1.4         -1.5         -1.5         -1.5         -1.4           Total Lost Time (s)         5.0								
Maximum Green (s)         43.6         7.4         7.4         63.6         49.5         49.5         43.6           Yellow Time (s)         4.7         3.0         3.0         4.4         4.6         4.6         4.7           All-Red Time (s)         1.7         3.6         3.6         2.0         1.9         1.9         1.7           Lost Time Adjust (s)         -1.4         -1.6         -1.6         -1.4         -1.5         -1.5         -1.5         -1.4           Total Lost Time (s)         5.0         2.0								
Yellow Time (s)         4.7         3.0         3.0         4.4         4.6         4.6         4.7           All-Red Time (s)         1.7         3.6         3.6         2.0         1.9         1.9         1.7           Lost Time Adjust (s)         -1.4         -1.6         -1.6         -1.4         -1.5         -1.5         -1.5         -1.4           Total Lost Time (s)         5.0         2.0         2.0         2.0         2.0         3.0         3.0         3.0         3.0								
All-Red Time (s) 1.7 3.6 3.6 2.0 1.9 1.9 1.7  Lost Time Adjust (s) -1.4 -1.6 -1.6 -1.4 -1.5 -1.5 -1.4  Total Lost Time (s) 5.0 5.0 5.0 5.0 5.0 5.0 5.0  Lead/Lag Lead Lead Lead Lag Lag Lag Lead-Lag Optimize? Yes Yes Yes  Vehicle Extension (s) 2.0 2.0 2.0 6.0 6.0 6.0 2.0  Minimum Gap (s) 2.0 2.0 2.0 3.0 3.0 3.0 2.0  Time Before Reduce (s) 0.0 0.0 0.0 15.0 15.0 15.0 0.0  Time To Reduce (s) 0.0 0.0 0.0 30.0 30.0 30.0 0.0  Recall Mode None None None Min Min Min None  Act Effct Green (s) 44.4 58.5 9.0 62.6 48.6 48.6 98.1  Actuated g/C Ratio 0.38 0.50 0.08 0.53 0.42 0.42 0.84  v/c Ratio 0.97 0.55 0.79 0.47 0.02 0.95 0.50								
Lost Time Adjust (s)         -1.4         -1.6         -1.6         -1.4         -1.5         -1.5         -1.5         -1.4           Total Lost Time (s)         5.0         5.0         5.0         5.0         5.0         5.0         5.0         5.0           Lead/Lag         Lead         Lead         Lag         Lag         Lag         Lag         Lag         Lead         Lead         Lead         Lag         La								
Total Lost Time (s)         5.0         5.0         5.0         5.0         5.0         5.0           Lead/Lag         Lead         Lead         Lag         Lag           Lead-Lag Optimize?         Yes         Yes         Yes         Yes           Vehicle Extension (s)         2.0         2.0         2.0         6.0         6.0         6.0         2.0           Minimum Gap (s)         2.0         2.0         2.0         3.0         3.0         3.0         2.0           Time Before Reduce (s)         0.0         0.0         0.0         15.0         15.0         15.0         0.0           Time To Reduce (s)         0.0         0.0         0.0         30.0         30.0         30.0         0.0           Recall Mode         None         None         None         Min         Min         Min         None           Act Effct Green (s)         44.4         58.5         9.0         62.6         48.6         48.6         98.1           Actuated g/C Ratio         0.38         0.50         0.08         0.53         0.42         0.42         0.84           v/c Ratio         0.97         0.55         0.79         0.47         0.02 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>								
Lead/Lag         Lead         Lead         Lag         Lag           Lead-Lag Optimize?         Yes         Yes         Yes         Yes           Vehicle Extension (s)         2.0         2.0         2.0         6.0         6.0         6.0         2.0           Minimum Gap (s)         2.0         2.0         2.0         3.0         3.0         3.0         2.0           Time Before Reduce (s)         0.0         0.0         0.0         15.0         15.0         15.0         0.0           Time To Reduce (s)         0.0         0.0         0.0         30.0         30.0         30.0         0.0           Recall Mode         None         None         None         Min         Min         Min         None           Act Effct Green (s)         44.4         58.5         9.0         62.6         48.6         48.6         98.1           Actuated g/C Ratio         0.38         0.50         0.08         0.53         0.42         0.42         0.84           v/c Ratio         0.97         0.55         0.79         0.47         0.02         0.95         0.50								
Lead-Lag Optimize?         Yes         Yes         Yes         Yes           Vehicle Extension (s)         2.0         2.0         2.0         6.0         6.0         6.0         2.0           Minimum Gap (s)         2.0         2.0         2.0         3.0         3.0         3.0         2.0           Time Before Reduce (s)         0.0         0.0         0.0         15.0         15.0         15.0         0.0           Time To Reduce (s)         0.0         0.0         0.0         30.0         30.0         30.0         0.0           Recall Mode         None         None         None         Min         Min         Min         None           Act Effct Green (s)         44.4         58.5         9.0         62.6         48.6         48.6         98.1           Actuated g/C Ratio         0.38         0.50         0.08         0.53         0.42         0.42         0.84           v/c Ratio         0.97         0.55         0.79         0.47         0.02         0.95         0.50		5.0			5.0			5.0
Vehicle Extension (s)         2.0         2.0         2.0         6.0         6.0         6.0         2.0           Minimum Gap (s)         2.0         2.0         2.0         3.0         3.0         3.0         2.0           Time Before Reduce (s)         0.0         0.0         0.0         15.0         15.0         15.0         0.0           Time To Reduce (s)         0.0         0.0         0.0         30.0         30.0         30.0         0.0           Recall Mode         None         None         None         Min         Min         Min         None           Act Effct Green (s)         44.4         58.5         9.0         62.6         48.6         48.6         98.1           Actuated g/C Ratio         0.38         0.50         0.08         0.53         0.42         0.42         0.84           v/c Ratio         0.97         0.55         0.79         0.47         0.02         0.95         0.50								
Minimum Gap (s)         2.0         2.0         2.0         3.0         3.0         3.0         2.0           Time Before Reduce (s)         0.0         0.0         0.0         15.0         15.0         15.0         0.0           Time To Reduce (s)         0.0         0.0         0.0         30.0         30.0         30.0         0.0           Recall Mode         None         None         None         Min         Min         Min         None           Act Effct Green (s)         44.4         58.5         9.0         62.6         48.6         48.6         98.1           Actuated g/C Ratio         0.38         0.50         0.08         0.53         0.42         0.42         0.84           v/c Ratio         0.97         0.55         0.79         0.47         0.02         0.95         0.50								
Time Before Reduce (s)         0.0         0.0         0.0         15.0         15.0         15.0         0.0           Time To Reduce (s)         0.0         0.0         0.0         30.0         30.0         30.0         0.0           Recall Mode         None         None         None         Min         Min         Min         None           Act Effct Green (s)         44.4         58.5         9.0         62.6         48.6         48.6         98.1           Actuated g/C Ratio         0.38         0.50         0.08         0.53         0.42         0.42         0.84           v/c Ratio         0.97         0.55         0.79         0.47         0.02         0.95         0.50								
Time To Reduce (s)         0.0         0.0         0.0         30.0         30.0         30.0         0.0           Recall Mode         None         None         None         Min         Min         Min         None           Act Effct Green (s)         44.4         58.5         9.0         62.6         48.6         48.6         98.1           Actuated g/C Ratio         0.38         0.50         0.08         0.53         0.42         0.42         0.84           v/c Ratio         0.97         0.55         0.79         0.47         0.02         0.95         0.50			2.0		3.0	3.0	3.0	
Recall Mode         None         None         None         Min         Min         Min         None           Act Effct Green (s)         44.4         58.5         9.0         62.6         48.6         48.6         98.1           Actuated g/C Ratio         0.38         0.50         0.08         0.53         0.42         0.42         0.84           v/c Ratio         0.97         0.55         0.79         0.47         0.02         0.95         0.50	Time Before Reduce (s)	0.0	0.0	0.0	15.0	15.0	15.0	0.0
Recall Mode         None         None         None         Min         Min         Min         None           Act Effct Green (s)         44.4         58.5         9.0         62.6         48.6         48.6         98.1           Actuated g/C Ratio         0.38         0.50         0.08         0.53         0.42         0.42         0.84           v/c Ratio         0.97         0.55         0.79         0.47         0.02         0.95         0.50	Time To Reduce (s)	0.0	0.0	0.0	30.0	30.0	30.0	0.0
Actuated g/C Ratio 0.38 0.50 0.08 0.53 0.42 0.42 0.84 v/c Ratio 0.97 0.55 0.79 0.47 0.02 0.95 0.50		None	None	None	Min	Min	Min	None
Actuated g/C Ratio 0.38 0.50 0.08 0.53 0.42 0.42 0.84 v/c Ratio 0.97 0.55 0.79 0.47 0.02 0.95 0.50					62.6	48.6	48.6	
v/c Ratio 0.97 0.55 0.79 0.47 0.02 0.95 0.50								
Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 0.0								
Total Delay 64.3 24.2 75.0 17.9 20.5 55.2 4.0								

	•	•	1	Ť		¥	4
Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
LOS	Е	С	Е	В	С	Е	А
Approach Delay	48.2			28.7		31.0	
Approach LOS	D			С		С	
Queue Length 50th (ft)	492	231	82	213	2	526	101
Queue Length 95th (ft)	#740	334	#145	265	9	#777	146
Internal Link Dist (ft)	1939			754		2773	
Turn Bay Length (ft)			500		300		
Base Capacity (vph)	681	790	264	1969	258	813	1334
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	0.95	0.55	0.79	0.45	0.02	0.90	0.49

14

#### **Intersection Summary**

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 117.1

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 35.5 Intersection LOS: D
Intersection Capacity Utilization 85.3% ICU Level of Service E

Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

#### Splits and Phases: 5: Providence Road & Rea Road



	٠	•	4	<b>†</b>	L	ļ	4
Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	ሻ	7	ሻሻ	<b>^</b>	1	<u> </u>	7
Traffic Volume (vph)	459	203	370	1183	4	760	450
Future Volume (vph)	459	203	370	1183	4	760	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	500	1700	300	1700	0
Storage Lanes	1	1	2		1		1
Taper Length (ft)	100		100		100		1
Lane Util. Factor	1.00	1.00	0.97	0.95	1.00	1.00	1.00
Frt	1.00	0.850	0.77	0.75	1.00	1.00	0.850
Flt Protected	0.950	0.030	0.950		0.950		0.030
Satd. Flow (prot)	1770	1583	3433	3539	1770	1863	1583
Flt Permitted	0.950	1505	0.950	3337	0.950	1003	1000
Satd. Flow (perm)	1770	1583	3433	3539	1770	1863	1583
Right Turn on Red	1770	No	3433	3339	1770	1003	No
Satd. Flow (RTOR)		INU					INU
Link Speed (mph)	45			45		45	
Link Distance (ft)	2019			834		2853	
Travel Time (s)	30.6			12.6		43.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	510	226	411	1314	0.90	844	500
Shared Lane Traffic (%)	310	220	411	1314	4	044	300
, ,	F10	22/	111	1211	1	844	Ε00
Lane Group Flow (vph)	510	226	411 Drot	1314	4 Drot		500
Turn Type Protected Phases	Prot	pm+ov	Prot	NA	Prot 1	NA	pm+ov
	4	5	5	2	l l	6	4
Permitted Phases	4	4	г	2	1	,	6
Detector Phase	4	5	5	2	l l	6	4
Switch Phase	7.0	7.0	7.0	10.0	7.0	10.0	7.0
Minimum Initial (s)	7.0	7.0	7.0	12.0	7.0	12.0	7.0
Minimum Split (s)	14.0	14.0	14.0	19.0	14.0	19.0	14.0
Total Split (s)	30.0	16.0	16.0	46.0	14.0	44.0	30.0
Total Split (%)	33.3%	17.8%	17.8%	51.1%	15.6%	48.9%	33.3%
Maximum Green (s)	23.0	9.0	9.0	39.0	7.0	37.0	23.0
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		Lead	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?							
Vehicle Extension (s)	2.0	2.0	2.0	6.0	3.0	6.0	2.0
Minimum Gap (s)	2.0	2.0	2.0	3.0	3.0	3.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	15.0	0.0	15.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	30.0	0.0	30.0	0.0
Recall Mode	None	None	None	Min	None	Min	None
Act Effct Green (s)	25.0	41.0	11.0	52.2	9.0	39.0	69.0
Actuated g/C Ratio	0.28	0.46	0.12	0.58	0.10	0.43	0.77
v/c Ratio	1.04	0.31	0.98	0.64	0.02	1.05	0.41
Control Delay	84.9	17.1	80.6	15.5	37.0	71.4	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.9	17.1	80.6	15.5	37.0	71.4	4.8

	•	•	1	Ť	4	¥	4
Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
LOS	F	В	F	В	D	Е	Α
Approach Delay	64.1			31.0		46.6	
Approach LOS	Е			С		D	
Queue Length 50th (ft)	~316	79	122	221	2	~526	76
Queue Length 95th (ft)	#508	132	#215	419	12	#750	119
Internal Link Dist (ft)	1939			754		2773	
Turn Bay Length (ft)			500		300		
Base Capacity (vph)	491	721	419	2052	177	807	1213
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	1.04	0.31	0.98	0.64	0.02	1.05	0.41

#### **Intersection Summary**

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 42.9 Intersection LOS: D
Intersection Capacity Utilization 88.5% ICU Level of Service E

Analysis Period (min) 15

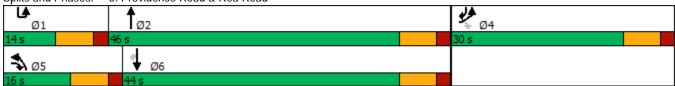
Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Providence Road & Rea Road



	•	•	4	<b>†</b>	L	ļ	4
Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	<u> </u>	7	ሻሻ	<b>†</b>	1	<u> </u>	7
Traffic Volume (vph)	677	456	217	930	4	763	684
Future Volume (vph)	677	456	217	930	4	763	684
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	500	1700	300	1700	0
Storage Lanes	1	1	2		1		1
Taper Length (ft)	100		100		100		
Lane Util. Factor	1.00	1.00	0.97	0.95	1.00	1.00	1.00
Frt	1.00	0.850	0.71	0.75	1.00	1.00	0.850
Flt Protected	0.950	0.000	0.950		0.950		0.000
Satd. Flow (prot)	1770	1583	3433	3539	1770	1863	1583
Flt Permitted	0.950	1303	0.950	3337	0.950	1003	1303
Satd. Flow (perm)	1770	1583	3433	3539	1770	1863	1583
Right Turn on Red	1770	No	J <del>1</del> JJ	3337	1770	1003	No
Satd. Flow (RTOR)		INU					INU
Link Speed (mph)	45			45		45	
Link Distance (ft)	2019			834		2853	
Travel Time (s)	30.6			12.6		43.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	752	507	241	1033	4	848	760
Shared Lane Traffic (%)	132	301	Z7 I	1000	4	040	700
Lane Group Flow (vph)	752	507	241	1033	4	848	760
Turn Type	Prot	pm+ov	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	5	5	2	1	6	4
Permitted Phases	7	4	J		I	U	6
Detector Phase	4	5	5	2	1	6	4
Switch Phase		J	- 3			- 0	
Minimum Initial (s)	7.0	7.0	7.0	12.0	7.0	12.0	7.0
Minimum Split (s)	14.0	14.0	14.0	19.0	14.0	19.0	14.0
Total Split (s)	55.0	14.0	14.0	61.0	14.0	61.0	55.0
Total Split (%)	42.3%	10.8%	10.8%	46.9%	10.8%	46.9%	42.3%
Maximum Green (s)	48.0	7.0	7.0	54.0	7.0	54.0	48.0
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	5.0	Lead	Lead	Lag	Lead	Lag	5.0
Lead-Lag Optimize?		Leau	Leau	Lay	Leau	Lay	
Vehicle Extension (s)	2.0	2.0	2.0	6.0	3.0	6.0	2.0
Minimum Gap (s)	2.0	2.0	2.0	3.0	3.0	3.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	15.0	0.0	15.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	30.0	0.0	30.0	0.0
Recall Mode	None	None	None	Min	None	Min	None
Act Effct Green (s)	50.0	64.0	9.0	67.2	9.0	56.0	111.0
, ,							
Actuated g/C Ratio	0.38	0.49	0.07	0.52	0.07	0.43	0.85
v/c Ratio	1.11	0.65	1.02	0.56	0.03	1.06	0.56
Control Delay	105.1	29.6	121.9	23.8	57.2	84.3	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.1	29.6	121.9	23.8	57.2	84.3	4.5

	•	•	1	<b>†</b>	L.	. ↓	4
Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
LOS	F	С	F	С	E	F	Α
Approach Delay	74.7			42.3		46.6	
Approach LOS	Е			D		D	
Queue Length 50th (ft)	~721	311	~108	288	3	~782	132
Queue Length 95th (ft)	#962	439	#197	440	15	#1031	188
Internal Link Dist (ft)	1939			754		2773	
Turn Bay Length (ft)			500		300		
Base Capacity (vph)	680	779	237	1829	122	802	1351
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	1.11	0.65	1.02	0.56	0.03	1.06	0.56

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.11

Intersection Signal Delay: 53.8 Intersection LOS: D
Intersection Capacity Utilization 96.4% ICU Level of Service F

Analysis Period (min) 15

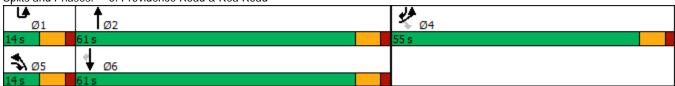
Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Providence Road & Rea Road



•	•	4	<b>†</b>	L	ļ	4
EBL	EBR	NBL	NBT	SBU	SBT	SBR
						7
						489
						489
						1900
			1700		1700	0
						1
•						
	1 00		0.95		1.00	1.00
1.00		0.77	0.75	1.00	1.00	0.850
n 05n	0.030	0.050		0.050		0.030
	1502		3530		1862	1583
	1505		JJJ7		1003	1303
	1502		3530		1862	1583
1770		J4JJ	3337	1770	1003	No
	INU					INU
45			4.5		45	
	0.00	0.00		0.00		0.00
						0.90
569	226	411	1423	4	901	543
F/0	22/	111	1400	4	001	F 4 2
						543
	•					pm+ov
4		5	2	I	6	4
		-	0		,	6
4	5	5	2	1	6	4
7.0	7.0	7.0	10.0	7.0	10.0	7.0
						7.0
						14.0
						45.0
						34.6%
						38.0
						5.0
						2.0
						-2.0
5.0						5.0
	Lead	Lead	Lag	Lead	Lag	
	2.0		6.0		6.0	2.0
2.0	2.0	2.0	3.0	3.0	3.0	2.0
0.0	0.0	0.0	15.0	0.0	15.0	0.0
0.0	0.0	0.0	30.0	0.0	30.0	0.0
None	None	None	Min	None	Min	None
40.0	60.0	15.0	77.2	9.0	60.0	105.0
0.31	0.46	0.12	0.59	0.07	0.46	0.81
1.05	0.31	1.04	0.68	0.03	1.05	0.42
94.8	23.5	110.6	20.9	57.2	78.9	4.8
						0.0
				57.2		4.8
	EBL 512 512 1900 0 1 100 1.00 0.950 1770 0.950 1770 0.950 1770 45 2019 30.6 0.90 569 Frot 4 7.0 14.0 45.0 34.6% 38.0 5.0 2.0 -2.0 5.0 None 40.0 0.31 1.05 94.8 0.0	EBL EBR  512 203 512 203 1900 1900 0 0 0 1 1 1 100 1.00 1.00 0.850 0.950 1770 1583 0.950 1770 1583 No  45 2019 30.6 0.90 0.90 569 226 Prot pm+ov 4 5 4 4 5  7.0 7.0 14.0 14.0 45.0 20.0 34.6% 15.4% 38.0 13.0 5.0 5.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 1.05 0.00 None None 40.0 60.0 0.31 0.46 1.05 0.31 94.8 23.5 0.0 0.0	EBL EBR NBL  512 203 370 512 203 370 1900 1900 1900 0 0 500 1 1 2 100 100 1.00 0.97 0.850 0.950 0.950 1770 1583 3433 0.950 0.950 1770 1583 3433 No  45 2019 30.6 0.90 0.90 0.90 569 226 411 Prot pm+ov Prot 4 5 5 4 4 5 5  7.0 7.0 7.0 7.0 14.0 14.0 14.0 45.0 20.0 20.0 34.6% 15.4% 15.4% 38.0 13.0 13.0 5.0 5.0 5.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 1.05 0.31 1.04 94.8 23.5 110.6 0.0 0.0 0.0  None None 40.0 60.0 15.0 0.31 0.46 0.12 1.05 0.31 1.04 94.8 23.5 110.6 0.0 0.0 0.0	EBL EBR NBL NBT    1	EBL EBR NBL NBT SBU  512 203 370 1281 4 512 203 370 1281 4 1900 1900 1900 1900 1900 0 0 500 300 1 1 1 2 12 1 100 100 100 100 100 1.00 1.00 0.97 0.95 1.00 0.850 0.950 0.950 0.950 1770 1583 3433 3539 1770 0.950 0.950 0.950 1770 1583 3433 3539 1770 No  45 45 45 2019 834 30.6 12.6 0.90 0.90 0.90 0.90 0.90 569 226 411 1423 4  Prot pm+ov Prot NA Prot A Prot A Frot A Fro	FBL   EBR   NBL   NBT   SBU   SBT

	•	•	1	Ī	4	¥	4
Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
LOS	F	С	F	С	Е	Е	Α
Approach Delay	74.5			41.0		51.0	
Approach LOS	Е			D		D	
Queue Length 50th (ft)	~519	117	~192	383	3	~825	109
Queue Length 95th (ft)	#745	178	#296	602	15	#1077	154
Internal Link Dist (ft)	1939			754		2773	
Turn Bay Length (ft)			500		300		
Base Capacity (vph)	544	730	396	2101	122	859	1278
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	1.05	0.31	1.04	0.68	0.03	1.05	0.42

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 51.1 Intersection LOS: D
Intersection Capacity Utilization 94.1% ICU Level of Service F

Analysis Period (min) 15

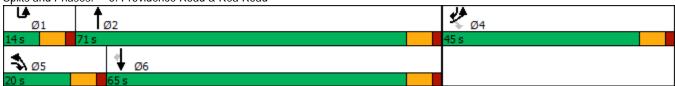
Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Providence Road & Rea Road



	•	•	•	<b>†</b>	L	ļ	4
Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	<u> </u>	7	ሻሻ	<b>^</b>	t Open	<u> </u>	7
Traffic Volume (vph)	721	456	217	999	4	849	734
Future Volume (vph)	721	456	217	999	4	849	734
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	500	.,,,	300	.,,,	0
Storage Lanes	1	1	2		1		1
Taper Length (ft)	100	•	100		100		•
Lane Util. Factor	1.00	1.00	0.97	0.95	1.00	1.00	1.00
Frt	1100	0.850	0.77	0.70	1.00	1.00	0.850
Flt Protected	0.950	0.000	0.950		0.950		0.000
Satd. Flow (prot)	1770	1583	3433	3539	1770	1863	1583
Flt Permitted	0.950	.500	0.950	3307	0.950	.500	.000
Satd. Flow (perm)	1770	1583	3433	3539	1770	1863	1583
Right Turn on Red	1770	No	0 100	0007	1770	1000	No
Satd. Flow (RTOR)		110					110
Link Speed (mph)	45			45		45	
Link Distance (ft)	2019			834		2853	
Travel Time (s)	30.6			12.6		43.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	801	507	241	1110	0.90	943	816
Shared Lane Traffic (%)	001	307	Z <del>1</del> I	1110	4	743	010
Lane Group Flow (vph)	801	507	241	1110	4	943	816
Turn Type	Prot	pm+ov	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	ριτι <del>+</del> υν	5	2	1	6	4
Permitted Phases	4	4	3	2		U	6
Detector Phase	4	5	5	2	1	6	4
Switch Phase	4	3	3	2		U	4
Minimum Initial (s)	7.0	7.0	7.0	12.0	7.0	12.0	7.0
Minimum Split (s)	14.0	14.0	14.0	19.0	14.0	19.0	14.0
Total Split (s)	60.0	14.0	14.0	66.0	14.0	66.0	60.0
Total Split (%)	42.9%	10.0%	10.0%	47.1%	10.0%	47.1%	42.9%
Maximum Green (s)	53.0	7.0	7.0	59.0	7.0	59.0	53.0
Yellow Time (s)	53.0	5.0	5.0	5.0	5.0	5.0	5.0
	2.0	2.0	2.0	2.0	2.0	2.0	2.0
All-Red Time (s)	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0
Lost Time Adjust (s)	-2.0 5.0	-2.0 5.0	-2.0 5.0	-2.0 5.0	-2.0 5.0	-2.0 5.0	5.0
Total Lost Time (s)	5.0						5.0
Lead/Lag		Lead	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?	2.0	2.0	2.0	4.0	2.0	4.0	2.0
Vehicle Extension (s)	2.0	2.0	2.0	6.0	3.0	6.0	2.0
Minimum Gap (s)	2.0	2.0	2.0	3.0	3.0	3.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	15.0	0.0	15.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	30.0	0.0	30.0	0.0
Recall Mode	None	None	None	Min	None	Min	None
Act Effet Green (s)	55.0	69.0	9.0	72.2	9.0	61.0	121.0
Actuated g/C Ratio	0.39	0.49	0.06	0.52	0.06	0.44	0.86
v/c Ratio	1.15	0.65	1.10	0.61	0.04	1.16	0.60
Control Delay	123.3	31.4	147.2	26.5	62.2	123.0	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	123.3	31.4	147.2	26.5	62.2	123.0	4.7

	•	•	1	Ť	L#	¥	4
Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
LOS	F	С	F	С	Е	F	А
Approach Delay	87.7			48.0		68.1	
Approach LOS	F			D		Е	
Queue Length 50th (ft)	~857	337	~127	348	4	~1015	153
Queue Length 95th (ft)	#1106	468	#217	515	17	#1272	215
Internal Link Dist (ft)	1939			754		2773	
Turn Bay Length (ft)			500		300		
Base Capacity (vph)	695	780	220	1824	113	811	1368
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	1.15	0.65	1.10	0.61	0.04	1.16	0.60

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Natural Cycle: 140

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.16

Intersection Signal Delay: 67.8 Intersection LOS: E
Intersection Capacity Utilization 103.3% ICU Level of Service G

Analysis Period (min) 15

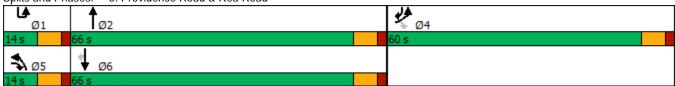
Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Providence Road & Rea Road



	•	•	4	<b>†</b>	L	ļ	4
Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	T T	7	ሻሻ	<b>↑</b> ↑	1	<u> </u>	77.77
Traffic Volume (vph)	512	203	370	1281	4	811	489
Future Volume (vph)	512	203	370	1281	4	811	489
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	500	1700	300	1700	500
Storage Lanes	1	1	2		1		1
Taper Length (ft)	100	1	100		100		
Lane Util. Factor	1.00	1.00	0.97	0.95	1.00	1.00	0.88
Frt	1.00	0.850	0.71	0.75	1.00	1.00	0.850
Flt Protected	0.950	0.000	0.950		0.950		0.000
Satd. Flow (prot)	1770	1583	3433	3539	1770	1863	2787
Flt Permitted	0.950	1303	0.950	3337	0.950	1003	2101
Satd. Flow (perm)	1770	1583	3433	3539	1770	1863	2787
Right Turn on Red	1770	No	J <del>4</del> JJ	3337	1770	1003	No
Satd. Flow (RTOR)		INU					INU
Link Speed (mph)	45			45		45	
Link Distance (ft)	2019			834		2853	
Travel Time (s)	30.6			12.6		43.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	569	226	411	1423	0.90	901	543
Shared Lane Traffic (%)	309	220	411	1423	4	701	343
Lane Group Flow (vph)	569	226	411	1423	4	901	543
Turn Type	Prot		Prot	1423 NA	Prot	NA	
Protected Phases	4	pm+ov 5	5	NA 2	1	NA 6	pm+ov 4
Permitted Phases	4	4	3	2		Ü	6
Detector Phase	4	5	5	2	1	6	4
Switch Phase	4	3	3	Z		Ü	4
Minimum Initial (s)	7.0	7.0	7.0	12.0	7.0	12.0	7.0
Minimum Split (s)	14.0	14.0	14.0	19.0	14.0	19.0	14.0
Total Split (s)	45.0	20.0	20.0	71.0	14.0	65.0	45.0
Total Split (%)	34.6%	15.4%	15.4%	54.6%	10.8%	50.0%	34.6%
Maximum Green (s)	34.0%	13.0	13.0	64.0	7.0	58.0	38.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
. ,	2.0	2.0	2.0	2.0	2.0	2.0	2.0
All-Red Time (s) Lost Time Adjust (s)	-2.0	-2.0	-2.0			-2.0	-2.0
	5.0	-2.0 5.0	5.0	-2.0 5.0	-2.0 5.0	5.0	5.0
Total Lost Time (s)	5.0						5.0
Lead/Lag Lead-Lag Optimize?		Lead	Lead	Lag	Lead	Lag	
	2.0	2.0	2.0	4.0	2.0	4.0	2.0
Vehicle Extension (s)	2.0	2.0	2.0	6.0	3.0	6.0	2.0
Minimum Gap (s)	2.0	2.0	2.0	3.0	3.0	3.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	15.0	0.0	15.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	30.0	0.0	30.0	0.0
Recall Mode	None	None	None	Min	None	Min	None
Act Effet Green (s)	40.0	60.0	15.0	77.2	9.0	60.0	105.0
Actuated g/C Ratio	0.31	0.46	0.12	0.59	0.07	0.46	0.81
v/c Ratio	1.05	0.31	1.04	0.68	0.03	1.05	0.24
Control Delay	94.8	23.5	110.6	20.9	57.2	78.9	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	94.8	23.5	110.6	20.9	57.2	78.9	3.3

	۶	$\rightarrow$	4	<b>†</b>	L	<b>↓</b>	✓
Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
LOS	F	С	F	С	Е	Е	Α
Approach Delay	74.5			41.0		50.5	
Approach LOS	Е			D		D	
Queue Length 50th (ft)	~519	117	~192	383	3	~825	50
Queue Length 95th (ft)	#745	178	#296	602	15	#1077	66
Internal Link Dist (ft)	1939			754		2773	
Turn Bay Length (ft)			500		300		500
Base Capacity (vph)	544	730	396	2101	122	859	2251
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	1.05	0.31	1.04	0.68	0.03	1.05	0.24

### **Intersection Summary**

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 50.9 Intersection LOS: D Intersection Capacity Utilization 94.1% ICU Level of Service F

Analysis Period (min) 15

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Providence Road & Rea Road



	•	•	4	<b>†</b>	Ŀ	ļ	4
Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	<u> </u>	7	ሻሻ	<b>^</b>	1	<u> </u>	77.77
Traffic Volume (vph)	721	456	217	999	4	849	734
Future Volume (vph)	721	456	217	999	4	849	734
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	500	1700	300	1700	500
Storage Lanes	1	1	2		1		1
Taper Length (ft)	100	•	100		100		•
Lane Util. Factor	1.00	1.00	0.97	0.95	1.00	1.00	0.88
Frt	1.00	0.850	0.77	0.70	1.00	1.00	0.850
Flt Protected	0.950	0.000	0.950		0.950		0.000
Satd. Flow (prot)	1770	1583	3433	3539	1770	1863	2787
Flt Permitted	0.950	1000	0.950	0007	0.950	1000	2707
Satd. Flow (perm)	1770	1583	3433	3539	1770	1863	2787
Right Turn on Red	1770	No	J-1JJ	3337	1770	1000	No
Satd. Flow (RTOR)		INU					TNU
Link Speed (mph)	45			45		45	
Link Distance (ft)	2019			834		2853	
Travel Time (s)	30.6			12.6		43.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	801	507	241	1110	4	943	816
Shared Lane Traffic (%)	001	301	Z7 I	1110	7	743	010
Lane Group Flow (vph)	801	507	241	1110	4	943	816
Turn Type	Prot	pm+ov	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	5	5	2	1	6	4
Permitted Phases	4	4	J			U	6
Detector Phase	4	5	5	2	1	6	4
Switch Phase	4	J	J		1	U	7
Minimum Initial (s)	7.0	7.0	7.0	12.0	7.0	12.0	7.0
Minimum Split (s)	14.0	14.0	14.0	19.0	14.0	19.0	14.0
Total Split (s)	54.0	14.0	14.0	62.0	14.0	62.0	54.0
Total Split (%)	41.5%	10.8%	10.8%	47.7%	10.8%	47.7%	41.5%
Maximum Green (s)	47.0	7.0	7.0	55.0	7.0	55.0	47.0
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	3.0	Lead	Lead		Lead		3.0
Lead-Lag Optimize?		Leau	Leau	Lag	Leau	Lag	
Vehicle Extension (s)	2.0	2.0	2.0	6.0	3.0	6.0	2.0
	2.0	2.0	2.0		3.0	3.0	2.0
Minimum Gap (s)				3.0			
Time Before Reduce (s)	0.0	0.0	0.0	15.0	0.0	15.0	0.0
Time To Reduce (s)	0.0	0.0	0.0 None	30.0	0.0	30.0	0.0
Recall Mode	None	None	None	Min	None	Min	None
Act Effet Green (s)	49.0	63.0	9.0	68.2	9.0	57.0	111.0
Actuated g/C Ratio	0.38	0.48	0.07	0.52	0.07	0.44	0.85
v/c Ratio	1.20	0.66	1.02	0.60	0.03	1.16	0.34
Control Delay	140.8	30.6	121.9	23.9	57.2	118.0	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	140.8	30.6	121.9	23.9	57.2	118.0	2.4

	۶	$\rightarrow$	4	<b>†</b>	L	<b>↓</b>	4
Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
LOS	F	С	F	С	Е	F	Α
Approach Delay	98.1			41.4		64.4	
Approach LOS	F			D		Е	
Queue Length 50th (ft)	~818	316	~108	313	3	~936	59
Queue Length 95th (ft)	#1063	446	#197	477	15	#1190	75
Internal Link Dist (ft)	1939			754		2773	
Turn Bay Length (ft)			500		300		500
Base Capacity (vph)	667	767	237	1856	122	816	2379
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	1.20	0.66	1.02	0.60	0.03	1.16	0.34

### **Intersection Summary**

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.20

Intersection Signal Delay: 67.3 Intersection LOS: E Intersection Capacity Utilization 103.3% ICU Level of Service G

Analysis Period (min) 15

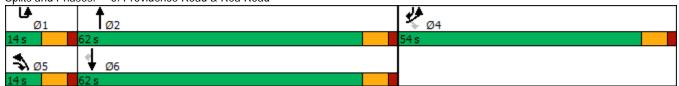
Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Providence Road & Rea Road

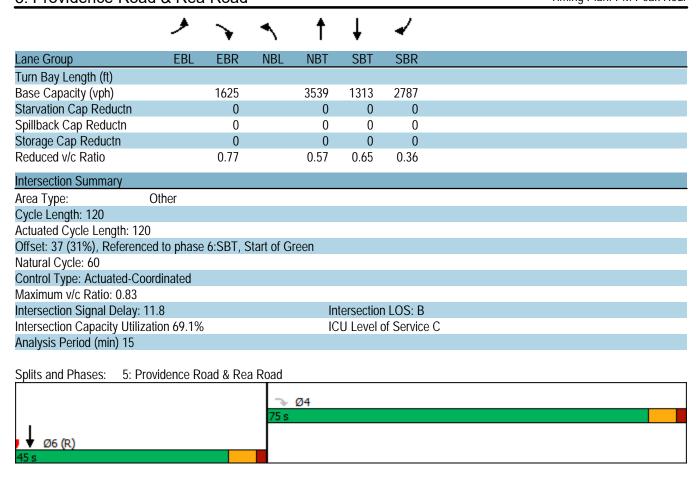


	٠	•	1	<b>†</b>	ļ	4
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		77		<b>^</b>	<b>^</b>	77.77
Traffic Volume (vph)	0	662	0	2012	760	820
Future Volume (vph)	0	662	0	2012	760	820
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.88	1.00	0.95	0.95	0.88
Frt	1.00	0.850	1.00	0.70	0.70	0.850
Flt Protected		0.000				0.000
Satd. Flow (prot)	0	2787	0	3539	3539	2787
Flt Permitted	0	2101	0	3337	3037	2101
Satd. Flow (perm)	0	2787	0	3539	3539	2787
Right Turn on Red		No		0007	0007	No
Satd. Flow (RTOR)		110				110
Link Speed (mph)	45			45	45	
Link Distance (ft)	1592			323	422	
Travel Time (s)	24.1			4.9	6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.4	0.90
Adj. Flow (vph)	0.90	736	0.90	2236	844	911
Shared Lane Traffic (%)	U	730	U	2230	044	711
Lane Group Flow (vph)	0	736	0	2236	844	911
Turn Type	U	Perm	U	2236 NA	NA	Free
Protected Phases		FUIII		Free	INA 6	riee
Permitted Phases		4		riee	0	Free
Detector Phase					4	riee
Switch Phase		4			6	
		7.0			12.0	
Minimum Initial (s)		7.0			12.0	
Minimum Split (s)		20.0			20.0	
Total Split (s)		62.0			58.0	
Total Split (%)		51.7%			48.3%	
Maximum Green (s)		55.0			51.0	
Yellow Time (s)		5.0			5.0	
All-Red Time (s)		2.0			2.0	
Lost Time Adjust (s)		-2.0			-2.0	
Total Lost Time (s)		5.0			5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0			3.0	
Recall Mode		None		100.5	C-Max	400 5
Act Effct Green (s)		40.9		120.0	69.1	120.0
Actuated g/C Ratio		0.34		1.00	0.58	1.00
v/c Ratio		0.78		0.63	0.41	0.33
Control Delay		41.1		0.5	12.4	0.3
Queue Delay		0.0		0.0	0.0	0.0
Total Delay		41.1		0.5	12.4	0.3
LOS		D		Α	В	Α
Approach Delay	41.1			0.5	6.1	
Approach LOS	D			Α	Α	
Queue Length 50th (ft)		289		0	164	0
Queue Length 95th (ft)		328		0	199	0
Internal Link Dist (ft)	1512			243	342	

	•	<u> </u>	•	<u></u>	$\overline{}$	1	-
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	
Turn Bay Length (ft)							
Base Capacity (vph)		1323		3539	2038	2787	
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		0.56		0.63	0.41	0.33	
Intersection Summary							
Area Type:	Other						
Cycle Length: 120							
Actuated Cycle Length: 120							
Offset: 2 (2%), Referenced t		SBT, Sta	rt of Gree	en			
Natural Cycle: 40							
Control Type: Actuated-Coo	rdinated						
Maximum v/c Ratio: 0.78							
Intersection Signal Delay: 8.					ntersection		
Intersection Capacity Utiliza	tion 59.0%	)		IC	CU Level o	of Service B	
Analysis Period (min) 15							
Splits and Phases: 5: Pro	ovidence Ro	oad & Rea	a Road		⊸ Ø4 62 s	+	
▼ Ø6 (R)							
58 s							

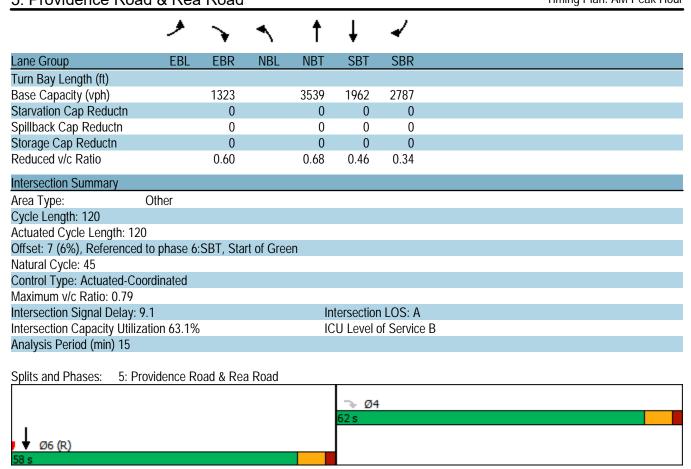
	٠	•	4	<b>†</b>	ļ	4
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		77		<b>^</b>	<b>^</b>	7 7
Traffic Volume (vph)	0	1133	0	1824	763	901
Future Volume (vph)	0	1133	0	1824	763	901
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.88	1.00	0.95	0.95	0.88
Frt	1.00	0.850	1.00	0.75	0.75	0.850
Flt Protected		0.000				0.000
Satd. Flow (prot)	0	2787	0	3539	3539	2787
Flt Permitted	U	2101	U	3337	3337	2101
Satd. Flow (perm)	0	2787	0	3539	3539	2787
Right Turn on Red	U	2787 No	U	3339	3337	2787 No
Satd. Flow (RTOR)		INU				INO
	ΛE			<i>1</i> E	ΛE	
Link Speed (mph)	45			45	45	
Link Distance (ft)	1592			323	422	
Travel Time (s)	24.1	0.00	0.00	4.9	6.4	0.00
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1259	0	2027	848	1001
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1259	0	2027	848	1001
Turn Type		Perm		NA	NA	Free
Protected Phases				Free	6	
Permitted Phases		4				Free
Detector Phase		4			6	
Switch Phase						
Minimum Initial (s)		7.0			12.0	
Minimum Split (s)		20.0			20.0	
Total Split (s)		75.0			45.0	
Total Split (%)		62.5%			37.5%	
Maximum Green (s)		68.0			38.0	
Yellow Time (s)		5.0			5.0	
All-Red Time (s)		2.0			2.0	
Lost Time Adjust (s)		-2.0			-2.0	
Total Lost Time (s)		5.0			5.0	
Lead/Lag		3.0			0.0	
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0			3.0	
Recall Mode		None			C-Max	
Act Effct Green (s)		65.5		120.0	44.5	120.0
Actuated g/C Ratio		0.55		1.00	0.37	1.00
v/c Ratio		0.83		0.57	0.65	0.36
Control Delay		27.8		0.57	28.9	0.36
Queue Delay		0.0		0.0	0.0	0.0
Total Delay		27.8		0.4	28.9	0.3
LOS	27.0	С		Α	C	А
Approach Delay	27.8			0.4	13.4	
Approach LOS	С	40.		A	В	
Queue Length 50th (ft)		424		0	249	0
Queue Length 95th (ft)		503		0	305	0
Internal Link Dist (ft)	1512			243	342	

2021	NO-Build With U-5708	,
	Timing Plan: PM Peak Hou	r



Synchro 10 Report Lanes, Volumes, Timings RKA Page 2

	۶	•	4	<b>†</b>	ļ	4
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	LUL	77	.10	<b>^</b>	<b>↑</b> ↑	7 7
Traffic Volume (vph)	0	715	0	2163	811	859
Future Volume (vph)	0	715	0	2163	811	859
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.88	1.00	0.95	0.95	0.88
Frt	1.00	0.850	1.00	0.75	0.75	0.850
Flt Protected		0.000				0.000
Satd. Flow (prot)	0	2787	0	3539	3539	2787
Flt Permitted	U	2101	U	3337	3337	2101
Satd. Flow (perm)	0	2787	0	3539	3539	2787
ν, ,	U	2787 No	U	3337	3037	2787 No
Right Turn on Red		INO				INO
Satd. Flow (RTOR)	45			45	4 F	
Link Speed (mph)	45			45	45	
Link Distance (ft)	1592			323	422	
Travel Time (s)	24.1			4.9	6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	794	0	2403	901	954
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	794	0	2403	901	954
Turn Type		Perm		NA	NA	Free
Protected Phases				Free	6	
Permitted Phases		4				Free
Detector Phase		4			6	
Switch Phase						
Minimum Initial (s)		7.0			12.0	
Minimum Split (s)		20.0			20.0	
Total Split (s)		62.0			58.0	
Total Split (%)		51.7%			48.3%	
Maximum Green (s)		55.0			51.0	
Yellow Time (s)		5.0			5.0	
All-Red Time (s)		2.0			2.0	
Lost Time Adjust (s)		-2.0			-2.0	
		-2.0 5.0			-2.0 5.0	
Total Lost Time (s)		5.0			0.0	
Lead/Lag						
Lead-Lag Optimize?		0.0			0.0	
Vehicle Extension (s)		3.0			3.0	
Recall Mode		None			C-Max	
Act Effct Green (s)		43.5		120.0	66.5	120.0
Actuated g/C Ratio		0.36		1.00	0.55	1.00
v/c Ratio		0.79		0.68	0.46	0.34
Control Delay		39.8		0.9	13.3	0.3
Queue Delay		0.0		0.0	0.0	0.0
Total Delay		39.8		0.9	13.3	0.3
LOS		D		Α	В	Α
Approach Delay	39.8			0.9	6.6	
Approach LOS	D			Α	А	
Queue Length 50th (ft)		306		0	170	0
Queue Length 95th (ft)		349		0	243	0
Internal Link Dist (ft)	1512	017		243	342	0
intomai Lilik Dist (II)	1312			۷43	JHZ	



	۶	•	4	<b>†</b>	ļ	4
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		77		<b>^</b>	<b>†</b> †	7 7
Traffic Volume (vph)	0	1177	0	1937	849	951
Future Volume (vph)	0	1177	0	1937	849	951
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.88	1.00	0.95	0.95	0.88
Frt	1.00		1.00	0.93	0.93	
		0.850				0.850
Flt Protected	^	2707	0	2520	2520	2707
Satd. Flow (prot)	0	2787	0	3539	3539	2787
Flt Permitted		0707		0505	0500	0=0=
Satd. Flow (perm)	0	2787	0	3539	3539	2787
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			45	45	
Link Distance (ft)	1592			323	422	
Travel Time (s)	24.1			4.9	6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1308	0	2152	943	1057
Shared Lane Traffic (%)					, 10	. 507
Lane Group Flow (vph)	0	1308	0	2152	943	1057
Turn Type	U	Perm	U	NA	NA	Free
Protected Phases		I CIIII		Free	6	1166
Permitted Phases		4		riee	O	Free
					,	riee
Detector Phase		4			6	
Switch Phase		7.0			10.0	
Minimum Initial (s)		7.0			12.0	
Minimum Split (s)		20.0			20.0	
Total Split (s)		74.0			46.0	
Total Split (%)		61.7%			38.3%	
Maximum Green (s)		67.0			39.0	
Yellow Time (s)		5.0			5.0	
All-Red Time (s)		2.0			2.0	
Lost Time Adjust (s)		-2.0			-2.0	
Total Lost Time (s)		5.0			5.0	
Lead/Lag		- 10				
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0			3.0	
Recall Mode		None			C-Max	
		65.9		120.0		120.0
Act Effet Green (s)				120.0	44.1	120.0
Actuated g/C Ratio		0.55		1.00	0.37	1.00
v/c Ratio		0.85		0.61	0.73	0.38
Control Delay		29.3		0.6	31.6	0.3
Queue Delay		0.0		0.0	0.0	0.0
Total Delay		29.3		0.6	31.6	0.3
LOS		С		Α	С	Α
Approach Delay	29.3			0.6	15.1	
Approach LOS	С			Α	В	
Queue Length 50th (ft)		448		0	292	0
Queue Length 95th (ft)		553		0	370	0
Internal Link Dist (ft)	1512			243	342	
internal Link Dist (it)	1012			243	J4Z	

	۶	•	4	<b>†</b>	ļ	4
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Turn Bay Length (ft)						
Base Capacity (vph)		1602		3539	1300	2787
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		0.82		0.61	0.73	0.38
Intersection Summary						
Area Type:	Other					
Cycle Length: 120						
Actuated Cycle Length: 120						
Offset: 44 (37%), Referenced	d to phase	6:SBT, S	start of G	reen		
Natural Cycle: 60						
Control Type: Actuated-Coor	rdinated					
Maximum v/c Ratio: 0.85						
Intersection Signal Delay: 12					tersectior	
Intersection Capacity Utilizat	tion 73.0%			IC	:U Level o	of Service (
Analysis Period (min) 15						
Splits and Phases: 5: Prov	vidence Ro	ad & Rea	a Road			
			- 1-3	Ø4		
			74 5			
1						
▼ Ø6 (R)						

	۶	<b>→</b>	•	•	<b>←</b>	•	•	<b>†</b>	<i>&gt;</i>	<b>&gt;</b>	ţ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		<b>^</b>	77		<b>^</b>	77		<b>^</b>	77		<b>^</b>	77
Traffic Volume (vph)	0	390	805	0	1247	218	0	1734	864	0	1536	653
Future Volume (vph)	0	390	805	0	1247	218	0	1734	864	0	1536	653
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		600	0		400	0		400	0		475
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.88	1.00	0.95	0.88	1.00	0.95	0.88	1.00	0.95	0.88
Frt			0.850			0.850			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	3539	2787	0	3539	2787	0	3539	2787	0	3539	2787
Flt Permitted												
Satd. Flow (perm)	0	3539	2787	0	3539	2787	0	3539	2787	0	3539	2787
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		645			539			350			395	
Travel Time (s)		9.8			8.2			5.3			6.0	
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
Adj. Flow (vph)	0	433	894	0	1386	242	0	1927	960	0	1707	726
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	433	894	0	1386	242	0	1927	960	0	1707	726
Turn Type		NA	Perm		NA	Perm		NA	Perm		NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases		8	4		4	8		6	2		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		12.0	12.0		12.0	12.0
Minimum Split (s)		14.0	14.0		14.0	14.0		19.0	19.0		19.0	19.0
Total Split (s)		51.0	51.0		51.0	51.0		69.0	69.0		69.0	69.0
Total Split (%)		42.5%	42.5%		42.5%	42.5%		57.5%	57.5%		57.5%	57.5%
Maximum Green (s)		44.0	44.0		44.0	44.0		62.0	62.0		62.0	62.0
Yellow Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
All-Red Time (s)		2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-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?												
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0
Recall Mode		None	None		None	None		C-Max	C-Max		C-Max	C-Max
Act Effct Green (s)		46.0	46.0		46.0	46.0		64.0	64.0		64.0	64.0
Actuated g/C Ratio		0.38	0.38		0.38	0.38		0.53	0.53		0.53	0.53
v/c Ratio		0.32	0.84		1.02	0.23		1.02	0.65		0.90	0.49
Control Delay		23.7	38.5		57.7	20.2		32.6	12.1		28.2	15.4
Queue Delay		0.0	0.0		0.0	0.0		23.6	0.0		2.4	0.0
Total Delay		23.7	38.5		57.7	20.2		56.2	12.1		30.6	15.4
LOS		С	D		Е	С		Е	В		С	В
Approach Delay		33.6			52.1			41.6			26.0	
Approach LOS		С			D			D			С	

Lanes, Volumes, Timings RKA

	•	$\rightarrow$	•	•	•	•	1	<b>†</b>	1	-	ţ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		92	358		~611	56		~828	218		622	182
Queue Length 95th (ft)		118	454		#724	m77		m#712	m213		739	217
Internal Link Dist (ft)		565			459			270			315	
Turn Bay Length (ft)			600			400			400			475
Base Capacity (vph)		1356	1068		1356	1068		1887	1486		1887	1486
Starvation Cap Reductn		0	0		0	0		107	0		96	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		0.32	0.84		1.02	0.23		1.08	0.65		0.95	0.49

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 46 (38%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 37.8 Intersection LOS: D
Intersection Capacity Utilization 90.7% ICU Level of Service E

Analysis Period (min) 15

Volume exceeds capacity, queue is theoretically infinite.

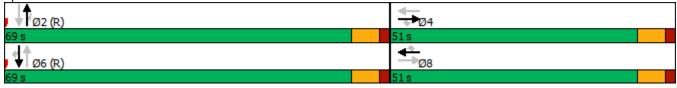
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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

Splits and Phases: 5: Providence Road & Rea Road



	•	<b>→</b>	•	•	<b>←</b>	•	•	<b>†</b>	<i>&gt;</i>	<b>&gt;</b>	ţ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		<b>^</b>	77		<b>^</b>	77.77		<b>^</b>	77		<b>^</b>	77
Traffic Volume (vph)	0	598	1303	0	769	216	0	1971	597	0	1524	426
Future Volume (vph)	0	598	1303	0	769	216	0	1971	597	0	1524	426
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		600	0		400	0		400	0		475
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.88	1.00	0.95	0.88	1.00	0.95	0.88	1.00	0.95	0.88
Frt			0.850			0.850			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	3539	2787	0	3539	2787	0	3539	2787	0	3539	2787
Flt Permitted												
Satd. Flow (perm)	0	3539	2787	0	3539	2787	0	3539	2787	0	3539	2787
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		645			539			350			395	
Travel Time (s)		9.8			8.2			5.3			6.0	
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
Adj. Flow (vph)	0	664	1448	0	854	240	0	2190	663	0	1693	473
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	664	1448	0	854	240	0	2190	663	0	1693	473
Turn Type		NA	Perm		NA	Perm		NA	Perm		NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases		8	4		4	8		6	2		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		12.0	12.0		12.0	12.0
Minimum Split (s)		14.0	14.0		14.0	14.0		19.0	19.0		19.0	19.0
Total Split (s)		55.0	55.0		55.0	55.0		65.0	65.0		65.0	65.0
Total Split (%)		45.8%	45.8%		45.8%	45.8%		54.2%	54.2%		54.2%	54.2%
Maximum Green (s)		48.0	48.0		48.0	48.0		58.0	58.0		58.0	58.0
Yellow Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
All-Red Time (s)		2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-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?												
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0
Recall Mode		None	None		None	None		C-Max	C-Max		C-Max	C-Max
Act Effct Green (s)		50.0	50.0		50.0	50.0		60.0	60.0		60.0	60.0
Actuated g/C Ratio		0.42	0.42		0.42	0.42		0.50	0.50		0.50	0.50
v/c Ratio		0.45	1.25		0.58	0.21		1.24	0.48		0.96	0.34
Control Delay		22.4	146.6		21.4	16.4		129.2	11.2		37.9	15.9
Queue Delay		0.0	0.0		0.0	0.0		0.1	0.0		3.1	0.0
Total Delay		22.4	146.6		21.4	16.4		129.3	11.2		40.9	15.9
LOS		C	F		С	В		F	В		D	В
Approach Delay		107.5	•		20.3			101.9			35.4	
Approach LOS		F			C			F			D	

Lanes, Volumes, Timings RKA

	•	-	•	•	•	•	1	<b>†</b>	~	-	ţ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		162	~800		226	64		~1103	121		655	117
Queue Length 95th (ft)		199	#952		255	77		m#962	m109		#829	147
Internal Link Dist (ft)		565			459			270			315	
Turn Bay Length (ft)			600			400			400			475
Base Capacity (vph)		1474	1161		1474	1161		1769	1393		1769	1393
Starvation Cap Reductn		0	0		0	0		49	0		45	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		0.45	1.25		0.58	0.21		1.27	0.48		0.98	0.34

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 44 (37%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.25

Intersection Signal Delay: 75.0 Intersection LOS: E
Intersection Capacity Utilization 96.0% ICU Level of Service F

Analysis Period (min) 15

Volume exceeds capacity, queue is theoretically infinite.

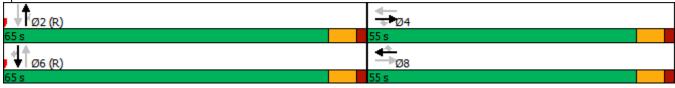
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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

Splits and Phases: 5: Providence Road & Rea Road



	۶	<b>→</b>	•	•	-	•	4	<b>†</b>	<i>&gt;</i>	<b>/</b>	ţ	</th
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		<b>†</b> †	77		<b>^</b>	77		<b>^</b>	77		<b>^</b>	77
Traffic Volume (vph)	0	390	858	0	1247	218	0	1885	864	0	1587	692
Future Volume (vph)	0	390	858	0	1247	218	0	1885	864	0	1587	692
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		600	0		400	0		400	0		475
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.88	1.00	0.95	0.88	1.00	0.95	0.88	1.00	0.95	0.88
Frt			0.850			0.850			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	3539	2787	0	3539	2787	0	3539	2787	0	3539	2787
Flt Permitted												
Satd. Flow (perm)	0	3539	2787	0	3539	2787	0	3539	2787	0	3539	2787
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		638			547			323			422	
Travel Time (s)		9.7			8.3			4.9			6.4	
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
Adj. Flow (vph)	0	433	953	0	1386	242	0	2094	960	0	1763	769
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	433	953	0	1386	242	0	2094	960	0	1763	769
Turn Type		NA	Perm		NA	Perm		NA	Perm		NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases		8	4		4	8		6	2		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		7.0	7.0		12.0	12.0
Minimum Split (s)		20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0
Total Split (s)		48.0	48.0		48.0	48.0		72.0	72.0		72.0	72.0
Total Split (%)		40.0%	40.0%		40.0%	40.0%		60.0%	60.0%		60.0%	60.0%
Maximum Green (s)		41.0	41.0		41.0	41.0		65.0	65.0		65.0	65.0
Yellow Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
All-Red Time (s)		2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-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?												
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0
Recall Mode		None	None		None	None		C-Max	C-Max		C-Max	C-Max
Act Effct Green (s)		43.0	43.0		43.0	43.0		67.0	67.0		67.0	67.0
Actuated g/C Ratio		0.36	0.36		0.36	0.36		0.56	0.56		0.56	0.56
v/c Ratio		0.34	0.95		1.09	0.24		1.06	0.62		0.89	0.49
Control Delay		23.5	50.4		80.4	21.2		46.9	10.1		23.6	12.7
Queue Delay		0.0	0.0		0.0	0.0		16.8	0.0		1.4	0.0
Total Delay		23.5	50.4		80.4	21.2		63.7	10.1		25.0	12.7
LOS		С	D		F	С		E	В		С	В
Approach Delay		42.0			71.6			46.8			21.3	
Approach LOS		D			E			D			С	

Lanes, Volumes, Timings RKA

Synchro 10 Report Page 1

	•	-	•	1	←	•	1	<b>†</b>	1	-	Ų.	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		79	409		~651	56		~933	189		625	170
Queue Length 95th (ft)		112	#560		#764	m78		m637	m164		650	186
Internal Link Dist (ft)		558			467			243			342	
Turn Bay Length (ft)			600			400			400			475
Base Capacity (vph)		1268	998		1268	998		1975	1556		1975	1556
Starvation Cap Reductn		0	0		0	0		167	0		87	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		0.34	0.95		1.09	0.24		1.16	0.62		0.93	0.49

Area Type: Other

Cycle Length: 120 Actuated Cycle Length: 120

Offset: 9 (8%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.09

Intersection Signal Delay: 43.2 Intersection LOS: D
Intersection Capacity Utilization 94.9% ICU Level of Service F

Analysis Period (min) 15

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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

Splits and Phases: 5: Providence Road & Rea Road



	۶	<b>→</b>	•	•	<b>←</b>	•	•	<b>†</b>	<i>&gt;</i>	<b>/</b>	ţ	</th
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		<b>†</b> †	77		<b>^</b>	77		<b>^</b>	77		<b>†</b> †	77
Traffic Volume (vph)	0	598	1347	0	769	216	0	2084	597	0	1610	476
Future Volume (vph)	0	598	1347	0	769	216	0	2084	597	0	1610	476
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		600	0		400	0		400	0		475
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.88	1.00	0.95	0.88	1.00	0.95	0.88	1.00	0.95	0.88
Frt			0.850			0.850			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	3539	2787	0	3539	2787	0	3539	2787	0	3539	2787
Flt Permitted												
Satd. Flow (perm)	0	3539	2787	0	3539	2787	0	3539	2787	0	3539	2787
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		638			547			323			422	
Travel Time (s)		9.7			8.3			4.9			6.4	
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
Adj. Flow (vph)	0	664	1497	0	854	240	0	2316	663	0	1789	529
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	664	1497	0	854	240	0	2316	663	0	1789	529
Turn Type		NA	Perm		NA	Perm		NA	Perm		NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases		8	4		4	8		6	2		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		7.0	7.0		12.0	12.0
Minimum Split (s)		20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0
Total Split (s)		55.0	55.0		55.0	55.0		65.0	65.0		65.0	65.0
Total Split (%)		45.8%	45.8%		45.8%	45.8%		54.2%	54.2%		54.2%	54.2%
Maximum Green (s)		48.0	48.0		48.0	48.0		58.0	58.0		58.0	58.0
Yellow Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
All-Red Time (s)		2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-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?												
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0
Recall Mode		None	None		None	None		C-Max	C-Max		C-Max	C-Max
Act Effct Green (s)		50.0	50.0		50.0	50.0		60.0	60.0		60.0	60.0
Actuated g/C Ratio		0.42	0.42		0.42	0.42		0.50	0.50		0.50	0.50
v/c Ratio		0.45	1.29		0.58	0.21		1.31	0.48		1.01	0.38
Control Delay		20.6	162.6		22.0	16.4		161.2	11.2		47.5	15.5
Queue Delay		0.0	0.0		0.0	0.0		0.1	0.0		3.3	0.0
Total Delay		20.6	162.6		22.0	16.4		161.4	11.2		50.8	15.5
LOS		С	F		С	В		F	В		D	В
Approach Delay		119.0			20.8			127.9			42.8	
Approach LOS		F			С			F			D	
• 1												

Lanes, Volumes, Timings RKA

Synchro 10 Report Page 1

	•	-	•	•	•	•	1	<b>†</b>	~	-	ţ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		147	~846		266	72		~1211	119		~742	125
Queue Length 95th (ft)		182	#996		350	109		m#976	m100		#911	147
Internal Link Dist (ft)		558			467			243			342	
Turn Bay Length (ft)			600			400			400			475
Base Capacity (vph)		1474	1161		1474	1161		1769	1393		1769	1393
Starvation Cap Reductn		0	0		0	0		74	0		19	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		0.45	1.29		0.58	0.21		1.37	0.48		1.02	0.38

Area Type: Other

Cycle Length: 120 Actuated Cycle Length: 120

Offset: 2 (2%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.31

Intersection Signal Delay: 88.9 Intersection LOS: F
Intersection Capacity Utilization 100.0% ICU Level of Service F

Analysis Period (min) 15

Volume exceeds capacity, queue is theoretically infinite.

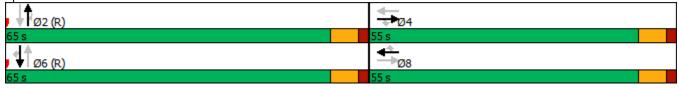
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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

Splits and Phases: 5: Providence Road & Rea Road



	ၨ	<b>→</b>	•	•	<b>←</b>	•	•	<b>†</b>	<i>&gt;</i>	<b>&gt;</b>	ļ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		<b>^</b>	77		<b>^</b>	77		ተተተ	77		ተተተ	77
Traffic Volume (vph)	0	390	858	0	1247	218	0	1885	864	0	1587	692
Future Volume (vph)	0	390	858	0	1247	218	0	1885	864	0	1587	692
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		600	0		400	0		400	0		475
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.88	1.00	0.95	0.88	1.00	0.91	0.88	1.00	0.91	0.88
Frt			0.850			0.850			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	3539	2787	0	3539	2787	0	5085	2787	0	5085	2787
Flt Permitted												
Satd. Flow (perm)	0	3539	2787	0	3539	2787	0	5085	2787	0	5085	2787
Right Turn on Red			No			No	-		No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		638			547			323			422	
Travel Time (s)		9.7			8.3			4.9			6.4	
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
Adj. Flow (vph)	0	433	953	0.70	1386	242	0.70	2094	960	0.70	1763	769
Shared Lane Traffic (%)		100	700	J	1000	2 12	· ·	2071	700		1700	707
Lane Group Flow (vph)	0	433	953	0	1386	242	0	2094	960	0	1763	769
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	Loit	0	rtigrit	Lon	0	rtigitt	Lon	0	rtigitt	Lort	0	rtigrit
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		10			10			10			10	
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	1.00	9	15	1.00	9	15	1.00	9	15	1.00	9
Turn Type	10	NA	Perm	10	NA	Perm	10	NA	Perm	10	NA	Perm
Protected Phases		4	T CITII		8	T CITI		2	1 Cilli		6	1 Cilli
Permitted Phases		8	4		4	8		6	2		2	6
Detector Phase		4	4		8	8		2	2		6	6
Switch Phase		т.	7		U	U		2	2		U	U
Minimum Initial (s)		7.0	7.0		7.0	7.0		7.0	7.0		12.0	12.0
Minimum Split (s)		20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0
Total Split (s)		52.0	52.0		52.0	52.0		68.0	68.0		68.0	68.0
Total Split (%)		43.3%	43.3%		43.3%	43.3%		56.7%	56.7%		56.7%	56.7%
Maximum Green (s)		45.0	45.0		45.0	45.0		61.0	61.0		61.0	61.0
Yellow Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
All-Red Time (s)		2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-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		3.0	5.0		5.0	3.0		5.0	3.0
Lead/Lag Lead-Lag Optimize?												
• .		3.0	3.0		3.0	3.0		2.0	3.0		3.0	3.0
Vehicle Extension (s)								3.0				
Recall Mode		None	None		None	None		C-Max	C-Max		C-Max	C-Max
Act Effct Green (s)		47.0	47.0		47.0	47.0		63.0	63.0		63.0	63.0

Lanes, Volumes, Timings RKA

Synchro 10 Report Page 1

	•	-	$\rightarrow$	•	←	•	•	<b>†</b>	~	-	<b>↓</b>	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.39	0.39		0.39	0.39		0.52	0.52		0.52	0.52
v/c Ratio		0.31	0.87		1.00	0.22		0.78	0.66		0.66	0.53
Control Delay		20.8	37.5		47.3	18.5		18.9	16.7		17.3	15.3
Queue Delay		0.0	0.0		0.0	0.0		0.3	0.0		0.0	0.0
Total Delay		20.8	37.5		47.3	18.5		19.2	16.7		17.3	15.3
LOS		С	D		D	В		В	В		В	В
Approach Delay		32.3			43.0			18.4			16.7	
Approach LOS		С			D			В			В	
Queue Length 50th (ft)		74	388		~589	53		384	201		353	200
Queue Length 95th (ft)		97	#502		#713	m73		324	211		328	217
Internal Link Dist (ft)		558			467			243			342	
Turn Bay Length (ft)			600			400			400			475
Base Capacity (vph)		1386	1091		1386	1091		2669	1463		2669	1463
Starvation Cap Reductn		0	0		0	0		158	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		0.31	0.87		1.00	0.22		0.83	0.66		0.66	0.53

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 96 (80%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 24.8 Intersection LOS: C
Intersection Capacity Utilization 79.2% ICU Level of Service D

Analysis Period (min) 15

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

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

Splits and Phases: 5: Providence Road & Rea Road



	۶	<b>→</b>	•	•	•	•	•	<b>†</b>	<b>/</b>	<b>/</b>	ļ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		<b>^</b>	777		<b>^</b>	77		<b>^</b>	77		<b>^</b>	77
Traffic Volume (vph)	0	598	1347	0	769	216	0	2084	597	0	1610	476
Future Volume (vph)	0	598	1347	0	769	216	0	2084	597	0	1610	476
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		600	0		400	0		400	0		475
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.76	1.00	0.95	0.88	1.00	0.91	0.88	1.00	0.91	0.88
Frt			0.850			0.850			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	3539	3610	0	3539	2787	0	5085	2787	0	5085	2787
Flt Permitted												
Satd. Flow (perm)	0	3539	3610	0	3539	2787	0	5085	2787	0	5085	2787
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		638			547			323			422	
Travel Time (s)		9.7			8.3			4.9			6.4	
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
Adj. Flow (vph)	0	664	1497	0	854	240	0	2316	663	0	1789	529
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	664	1497	0	854	240	0	2316	663	0	1789	529
Turn Type		NA	Perm		NA	Perm		NA	Perm		NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases		8	4		4	8		6	2		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		7.0	7.0		12.0	12.0
Minimum Split (s)		20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0
Total Split (s)		57.0	57.0		57.0	57.0		63.0	63.0		63.0	63.0
Total Split (%)		47.5%	47.5%		47.5%	47.5%		52.5%	52.5%		52.5%	52.5%
Maximum Green (s)		50.0	50.0		50.0	50.0		56.0	56.0		56.0	56.0
Yellow Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
All-Red Time (s)		2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-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?												
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0
Recall Mode		None	None		None	None		C-Max	C-Max		C-Max	C-Max
Act Effct Green (s)		52.0	52.0		52.0	52.0		58.0	58.0		58.0	58.0
Actuated g/C Ratio		0.43	0.43		0.43	0.43		0.48	0.48		0.48	0.48
v/c Ratio		0.43	0.96		0.56	0.20		0.94	0.49		0.73	0.39
Control Delay		19.4	38.5		20.9	15.2		30.6	16.2		22.7	16.8
Queue Delay		0.0	0.0		0.0	0.0		1.9	0.0		0.0	0.0
Total Delay		19.4	38.5		20.9	15.2		32.5	16.2		22.7	16.8
LOS		В	D		C	В		C	В		C	В
Approach Delay		32.6			19.7			28.9			21.3	
Approach LOS		C			В			20.7 C			C C	
- 145100011 200												

Lanes, Volumes, Timings RKA

Synchro 10 Report Page 1

	۶	-	•	•	<b>←</b>	•	4	<b>†</b>	~	-	ļ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		133	487		273	57		643	133		410	134
Queue Length 95th (ft)		168	#619		354	91		#588	148		417	157
Internal Link Dist (ft)		558			467			243			342	
Turn Bay Length (ft)			600			400			400			475
Base Capacity (vph)		1533	1564		1533	1207		2457	1347		2457	1347
Starvation Cap Reductn		0	0		0	0		66	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		0.43	0.96		0.56	0.20		0.97	0.49		0.73	0.39

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 28 (23%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

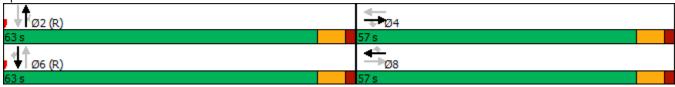
Intersection Signal Delay: 26.6 Intersection Capacity Utilization 70.9% ICU Level of Service C

Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Providence Road & Rea Road



	•	•	4	<b>†</b>	<b>↓</b>	1
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	<u> </u>			<b>^</b>		
Traffic Volume (vph)	459	0	0	1553	0	0
Future Volume (vph)	459	0	0	1553	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt	1.00	1.00	1.00	0.70	1.00	1.00
FIt Protected	0.950					
		0	Λ	2520	0	0
Satd. Flow (prot)	1770	0	0	3539	0	0
Flt Permitted	0.950	0	0	2520	_	^
Satd. Flow (perm)	1770	0	0	3539	0	0
Right Turn on Red	No	No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	25	
Link Distance (ft)	100			200	381	
Travel Time (s)	1.9			3.0	10.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	510	0	0	1726	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	510	0	0	1726	0	0
Turn Type	Prot			NA		_
Protected Phases	4			2		
Permitted Phases	•			_		
Detector Phase	4			2		
Switch Phase	'					
Minimum Initial (s)	7.0			12.0		
Minimum Split (s)	20.0			20.0		
	48.0			72.0		
Total Split (s)	40.0%			60.0%		
Total Split (%)						
Maximum Green (s)	41.0			65.0		
Yellow Time (s)	5.0			5.0		
All-Red Time (s)	2.0			2.0		
Lost Time Adjust (s)	-2.0			-2.0		
Total Lost Time (s)	5.0			5.0		
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0		
Recall Mode	None			C-Max		
Act Effct Green (s)	39.6			70.4		
Actuated g/C Ratio	0.33			0.59		
v/c Ratio	0.87			0.83		
Control Delay	44.2			25.4		
Queue Delay	0.0			0.0		
Total Delay	44.2			25.4		
LOS	D			C C		
Approach Delay	44.2			25.4		
Approach LOS	44.2 D			23.4 C		
Queue Length 50th (ft)	335			566		
Queue Length 95th (ft)	#432			697	004	
Internal Link Dist (ft)	20			120	301	

#### Timing Plan: AM Peak Hour

		*	7	ı	*	•		
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR		
Turn Bay Length (ft)								
Base Capacity (vph)	634			2075				
Starvation Cap Reductn	0			0				
Spillback Cap Reductn	0			0				

0

0.83

ı

#### **Intersection Summary**

Storage Cap Reductn

Reduced v/c Ratio

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 33 (28%), Referenced to phase 2:NBT, Start of Green

0

0.80

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 29.7 Intersection LOS: C
Intersection Capacity Utilization 76.7% ICU Level of Service D

Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.

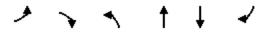
Queue shown is maximum after two cycles.

Splits and Phases: 6: Providence Road & Providence Road SB U-Turn



	۶	•	•	<b>†</b>	<b>↓</b>	4
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	ች			<b>^</b>		
Traffic Volume (vph)	677	0	0	1147	0	0
Future Volume (vph)	677	0	0	1147	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1770	0	0	3539	0	0
Flt Permitted	0.950			0007		
Satd. Flow (perm)	1770	0	0	3539	0	0
Right Turn on Red	No	No	0	0007	- 0	No
Satd. Flow (RTOR)	110	110				140
Link Speed (mph)	35			45	25	
Link Speed (mpn) Link Distance (ft)	100			200	381	
` ,	1.9			3.0	10.4	
Travel Time (s)		0.00	0.00			0.00
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	752	0	0	1274	0	0
Shared Lane Traffic (%)	750	^	0	1074	^	^
Lane Group Flow (vph)	752	0	0	1274	0	0
Turn Type	Prot			NA		
Protected Phases	4			2		
Permitted Phases						
Detector Phase	4			2		
Switch Phase				4.5		
Minimum Initial (s)	7.0			12.0		
Minimum Split (s)	20.0			20.0		
Total Split (s)	65.0			55.0		
Total Split (%)	54.2%			45.8%		
Maximum Green (s)	58.0			48.0		
Yellow Time (s)	5.0			5.0		
All-Red Time (s)	2.0			2.0		
Lost Time Adjust (s)	-2.0			-2.0		
Total Lost Time (s)	5.0			5.0		
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0		
Recall Mode	None			C-Max		
Act Effct Green (s)	56.7			53.3		
Actuated g/C Ratio	0.47			0.44		
v/c Ratio	0.90			0.81		
Control Delay	34.4			34.9		
Queue Delay	0.0			0.0		
Total Delay	34.4			34.9		
LOS	C			C		
Approach Delay	34.4			34.9		
Approach LOS	C C			C C		
Queue Length 50th (ft)	401			461		
	#652			565		
Queue Length 95th (ft)					201	
Internal Link Dist (ft)	20			120	301	

Timing Plan: PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	
Turn Bay Length (ft)							
Base Capacity (vph)	885			1571			
Starvation Cap Reductn	0			0			
Spillback Cap Reductn	0			0			
Storage Cap Reductn	0			0			
Reduced v/c Ratio	0.85			0.81			

## Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 79 (66%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 34.7 Intersection LOS: C
Intersection Capacity Utilization 147.2% ICU Level of Service H

Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: Providence Road & Providence Road SB U-Turn

	•	$\rightarrow$	•	<b>†</b>	ļ	4
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	ሻ			<b>^</b>		
Traffic Volume (vph)	512	0	0	1651	0	0
Future Volume (vph)	512	0	0	1651	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt	1.00	1.00	1.00	0.75	1.00	1.00
Flt Protected	0.950					
Satd. Flow (prot)	1770	0	0	3539	0	0
Flt Permitted	0.950	U	U	3337	U	U
Satd. Flow (perm)	1770	0	0	3539	0	0
			U	2027	U	No
Right Turn on Red	No	No				INO
Satd. Flow (RTOR)	٥٢			45	25	
Link Speed (mph)	35			45	25	
Link Distance (ft)	100			200	381	
Travel Time (s)	1.9			3.0	10.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	569	0	0	1834	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	569	0	0	1834	0	0
Turn Type	Prot			NA		
Protected Phases	4			2		
Permitted Phases						
Detector Phase	4			2		
Switch Phase						
Minimum Initial (s)	7.0			12.0		
Minimum Split (s)	20.0			20.0		
Total Split (s)	48.0			72.0		
Total Split (%)	40.0%			60.0%		
Maximum Green (s)	41.0			65.0		
Yellow Time (s)	5.0			5.0		
All-Red Time (s)	2.0			2.0		
. ,	-2.0					
Lost Time Adjust (s)				-2.0		
Total Lost Time (s)	5.0			5.0		
Lead/Lag						
Lead-Lag Optimize?	2.2			0.0		
Vehicle Extension (s)	3.0			3.0		
Recall Mode	None			C-Max		
Act Effct Green (s)	41.8			68.2		
Actuated g/C Ratio	0.35			0.57		
v/c Ratio	0.92			0.91		
Control Delay	51.6			31.9		
Queue Delay	0.0			0.0		
Total Delay	51.6			31.9		
LOS	D			С		
Approach Delay	51.6			31.9		
Approach LOS	D			С		
Queue Length 50th (ft)	341			654		
Queue Length 95th (ft)	#616			#809		
Internal Link Dist (ft)	20			120	301	
THOMAS EITH DISC (II)	20			120	501	

Timing Plan: AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	
Turn Bay Length (ft)							
Base Capacity (vph)	634			2011			
Starvation Cap Reductn	0			0			
Spillback Cap Reductn	0			0			
Storage Cap Reductn	0			0			
Reduced v/c Ratio	0.90			0.91			

## **Intersection Summary**

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 33 (28%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 36.5 Intersection LOS: D
Intersection Capacity Utilization 82.3% ICU Level of Service E

Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: Providence Road & Providence Road SB U-Turn



	•	$\rightarrow$	<b>1</b>	<b>†</b>	ļ	4
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	ሻ			<b>^</b>		
Traffic Volume (vph)	721	0	0	1216	0	0
Future Volume (vph)	721	0	0	1216	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt	1.00	1.00	1.00	0.70	1.00	1.00
Flt Protected	0.950					
Satd. Flow (prot)	1770	0	0	3539	0	0
Flt Permitted	0.950	U	U	3337	U	U
Satd. Flow (perm)	1770	0	0	3539	0	0
			U	3339	U	
Right Turn on Red	No	No				No
Satd. Flow (RTOR)	٥٢			45	25	
Link Speed (mph)	35			45	25	
Link Distance (ft)	100			200	381	
Travel Time (s)	1.9			3.0	10.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	801	0	0	1351	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	801	0	0	1351	0	0
Turn Type	Prot			NA		
Protected Phases	4			2		
Permitted Phases						
Detector Phase	4			2		
Switch Phase						
Minimum Initial (s)	7.0			12.0		
Minimum Split (s)	20.0			20.0		
Total Split (s)	65.0			55.0		
Total Split (%)	54.2%			45.8%		
Maximum Green (s)	58.0			48.0		
Yellow Time (s)	5.0			5.0		
All-Red Time (s)	2.0			2.0		
. ,	-2.0					
Lost Time Adjust (s)				-2.0		
Total Lost Time (s)	5.0			5.0		
Lead/Lag						
Lead-Lag Optimize?	0.0			0.0		
Vehicle Extension (s)	3.0			3.0		
Recall Mode	None			C-Max		
Act Effct Green (s)	58.3			51.7		
Actuated g/C Ratio	0.49			0.43		
v/c Ratio	0.93			0.89		
Control Delay	37.2			40.3		
Queue Delay	0.0			0.0		
Total Delay	37.2			40.3		
LOS	D			D		
Approach Delay	37.2			40.3		
Approach LOS	D			D		
Queue Length 50th (ft)	426			511		
Queue Length 95th (ft)	#814			#658		
Internal Link Dist (ft)	20			120	301	
	20			.20		

## - **/ √ √ ↑ ↓ √**

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Turn Bay Length (ft)						
Base Capacity (vph)	885			1525		
Starvation Cap Reductn	0			0		
Spillback Cap Reductn	0			0		
Storage Cap Reductn	0			0		
Reduced v/c Ratio	0.91			0.89		

#### Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 88 (73%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

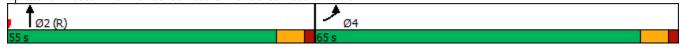
Intersection Signal Delay: 39.1 Intersection LOS: D
Intersection Capacity Utilization 156.1% ICU Level of Service H

Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: Providence Road & Providence Road SB U-Turn



	•	$\rightarrow$	<b>1</b>	<b>†</b>	ļ	4
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	*			<b>^</b>		
Traffic Volume (vph)	363	0	0	2235	0	0
Future Volume (vph)	363	0	0	2235	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt	1.00	1.00	1.00	0.73	1.00	1.00
Flt Protected	0.950					
	1770	0	0	3539	0	0
Satd. Flow (prot) Flt Permitted	0.950	U	U	2037	U	U
		^	Λ	2520	Λ	0
Satd. Flow (perm)	1770	0	0	3539	0	0
Right Turn on Red	No	No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	25	
Link Distance (ft)	100			200	381	
Travel Time (s)	1.9			3.0	10.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	403	0	0	2483	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	403	0	0	2483	0	0
Turn Type	Prot			NA		
Protected Phases	4			2		
Permitted Phases						
Detector Phase	4			2		
Switch Phase	<u>'</u>					
Minimum Initial (s)	7.0			12.0		
Minimum Split (s)	14.0			19.0		
Total Split (s)	32.0			88.0		
	26.7%			73.3%		
Total Split (%)						
Maximum Green (s)	25.0			81.0		
Yellow Time (s)	5.0			5.0		
All-Red Time (s)	2.0			2.0		
Lost Time Adjust (s)	-2.0			-2.0		
Total Lost Time (s)	5.0			5.0		
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0		
Recall Mode	None			C-Max		
Act Effct Green (s)	27.0			83.0		
Actuated g/C Ratio	0.22			0.69		
v/c Ratio	1.01			1.01		
Control Delay	80.0			41.1		
Queue Delay	0.0			33.6		
Total Delay	80.0			74.8		
LOS	E			7 1.0 E		
Approach Delay	80.0			74.8		
Approach LOS	E			74.0 E		
Queue Length 50th (ft)	~331			~991		
Queue Length 95th (ft)	~331 m#421			*1200		
Internal Link Dist (ft)					301	
IIILEIIIAI LIIIK DISI (II)	20			120	3U I	



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Turn Bay Length (ft)						
Base Capacity (vph)	398			2447		
Starvation Cap Reductn	0			0		
Spillback Cap Reductn	0			213		
Storage Cap Reductn	0			0		
Reduced v/c Ratio	1.01			1.11		

#### **Intersection Summary**

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 16 (13%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01
Intersection Signal Delay: 75

Intersection Signal Delay: 75.5 Intersection Capacity Utilization 90.2% ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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

Splits and Phases: 6: Providence Road & Providence Road SB U-Turn



	•	$\rightarrow$	<b>1</b>	<b>†</b>	ļ	4
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	<u> </u>			<b>†</b> †		
Traffic Volume (vph)	590	0	0	1978	0	0
Future Volume (vph)	590	0	0	1978	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt	1.00	1.00	1.00	0.75	1.00	1.00
Flt Protected	0.950					
Satd. Flow (prot)	1770	0	0	3539	0	0
Flt Permitted	0.950		- 0	0007		
Satd. Flow (perm)	1770	0	0	3539	0	0
Right Turn on Red	No	No	U	3337	U	No
	INU	NU				INO
Satd. Flow (RTOR)	35			10	25	
Link Speed (mph)				45		
Link Distance (ft)	100			200	381	
Travel Time (s)	1.9	0.00	0.00	3.0	10.4	0.00
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	656	0	0	2198	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	656	0	0	2198	0	0
Turn Type	Prot			NA		
Protected Phases	4			2		
Permitted Phases						
Detector Phase	4			2		
Switch Phase						
Minimum Initial (s)	7.0			12.0		
Minimum Split (s)	14.0			19.0		
Total Split (s)	46.0			74.0		
Total Split (%)	38.3%			61.7%		
Maximum Green (s)	39.0			67.0		
Yellow Time (s)	5.0			5.0		
All-Red Time (s)	2.0			2.0		
Lost Time Adjust (s)	-2.0			-2.0		
Total Lost Time (s)	5.0			5.0		
Lead/Lag	5.0			3.0		
9						
Lead-Lag Optimize?	3.0			3.0		
Vehicle Extension (s)						
Recall Mode	None			C-Max		
Act Effet Green (s)	41.0			69.0		
Actuated g/C Ratio	0.34			0.58		
v/c Ratio	1.09			1.08		
Control Delay	81.4			71.7		
Queue Delay	0.0			8.9		
Total Delay	81.4			80.6		
LOS	F			F		
Approach Delay	81.4			80.6		
Approach LOS	F			F		
Queue Length 50th (ft)	~570			~1001		
Queue Length 95th (ft)	m#478			#1137		
Internal Link Dist (ft)	20			120	301	

# **→ → + + +** +

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Turn Bay Length (ft)						
Base Capacity (vph)	604			2034		
Starvation Cap Reductn	0			0		
Spillback Cap Reductn	0			421		
Storage Cap Reductn	0			0		
Reduced v/c Ratio	1.09			1.36		

#### **Intersection Summary**

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 24 (20%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.09

Intersection Signal Delay: 80.8 Intersection LOS: F
Intersection Capacity Utilization 102.2% ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

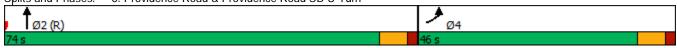
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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

Splits and Phases: 6: Providence Road & Providence Road SB U-Turn



Lane Group		۶	$\rightarrow$	4	<b>†</b>	ļ	4
Lane Configurations   Traffic Volume (vph)	Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Transport   Tran				.10		351	JUIN
Future Volume (vph)			0	0		0	0
Ideal Flow (vphpl)							
Lane Util. Factor							
Fit Fit Protected 0.950   Satd. Flow (prot) 1770   0   0   3539   0   0   0   Fit Permitted 0.950   Satd. Flow (perm) 1770   0   0   3539   0   0   0   0   0   0   0   0   0							
Fit Protected   0.950   Sald, Flow (prot)   1770   0   0   3539   0   0   0   0   0   0   0   0   0		1.00	1.00	1.00	0.75	1.00	1.00
Satd. Flow (prot)         1770         0         0         3539         0         0           Flt Permitted         0.950         0		0.950					
Fit Permitted   0.950   Satd. Flow (perm)   1770   0   0   3539   0   0   0   Right Turn on Red   No   No   No   No   Satd. Flow (RTOR)			Ω	Λ	3530	Λ	Ω
Satd. Flow (perm)         1770         0         0         3539         0         0           Right Turn on Red         No         No         No         No           Satd. Flow (RTOR)         Satd. Flow (Pth)         200         381         Satd. Flow (Pth)         100         200         381         Satd. Flow (Pth)         Satd. Flow (Pth)         10.4         Peak Hour Factor         0.90			U	U	3337	U	U
Right Turn on Red Satd. Flow (RTOR)  Link Speed (Imph) 35 45 25  Link Distance (ft) 100 200 381  Travel Time (s) 1.9 3.0 10.4  Peak Hour Factor 0.90 0.90 0.90 0.90 0.90 0.90  Adj. Flow (vph) 462 0 0 2592 0 0  Shared Lane Traffic (%)  Lane Group Flow (vph) 462 0 0 2592 0 0  Turn Type Prot NA  Protected Phases 4 2  Permitted Phases  Detector Phase 4 2  Switch Phase  Minimum Initial (s) 7.0 12.0  Minimum Split (s) 20.0 20.0  Total Split (s) 34.0 86.0  Total Split (%) 28.3% 71.7%  Maximum Green (s) 27.0 79.0  Yellow Time (s) 5.0 5.0  All-Red Time (s) 2.0 2.0  Lost Time Adjust (s) -2.0 -2.0  Total Lost Time (s) 5.0 5.0  Lead/Lag  Lead-Lag Optimize?  Vehicle Extension (s) 3.0 3.0  Recall Mode None C-Max  Act Effct Green (s) 29.0 81.0  Actuated g/C Ratio 0.24 0.68  v/c Ratio 1.08 1.09  Control Delay 96.8 67.3  Queue Delay 0.0 6.5  Total Delay 96.8 73.9  LOS F E  Approach LOS F E  Approach LOS F E  Cueue Length 50th (ft) -401 -1185  Queue Length 95th (ft) m#473 #1316			Λ	٥	2520	Λ	٥
Said. Flow (RTOR)         Link Speed (mph)         35         45         25           Link Distance (ft)         100         200         381           Travel Time (s)         1.9         3.0         10.4           Peak Hour Factor         0.90         0				U	3339	U	
Link Speed (mph) 35		INO	NO				INO
Link Distance (ft)         100         200         381           Travel Time (s)         1.9         3.0         10.4           Peak Hour Factor         0.90		25			45	ΩE	
Travel Time (s) 1.9 3.0 10.4  Peak Hour Factor 0.90 0.90 0.90 0.90 0.90 0.90 0.90  Adj. Flow (vph) 462 0 0 2592 0 0  Shared Lane Traffic (%)  Lane Group Flow (vph) 462 0 0 2592 0 0  Turn Type Prot NA  Protected Phases 4 2  Permitted Phases  Detector Phase 4 2  Switch Phase  Minimum Initial (s) 7.0 12.0  Minimum Split (s) 20.0 20.0  Total Split (s) 34.0 86.0  Total Split (%) 28.3% 71.7%  Maximum Green (s) 27.0 79.0  Yellow Time (s) 5.0 5.0  All-Red Time (s) 2.0 2.0  Lost Time Adjust (s) -2.0 2.0  Lost Time Adjust (s) -2.0 5.0  Lead/Lag  Lead-Lag Optimize?  Vehicle Extension (s) 8.0  Actuated g/C Ratio 0.24 0.68  v/c Ratio 1.08 1.09  Control Delay 96.8 67.3  Queue Delay 96.8 73.9  LOS F E  Approach LOS F  E Approach LOS F  Cueue Length 95th (ft) m#473 #1316							
Peak Hour Factor         0.90	. ,						
Adj. Flow (vph)       462       0       0       2592       0       0         Shared Lane Traffic (%)       Lane Group Flow (vph)       462       0       0       2592       0       0         Turn Type       Prot       NA       NA       Protected Phases       4       2       Permitted Phases       4       2       Permitted Phases       4       2       State Phase       A       2       D       A       1			0.00	0.00			0.00
Shared Lane Traffic (%) Lane Group Flow (vph)							
Lane Group Flow (vph)         462         0         0         2592         0         0           Tum Type         Prot         NA         NA         Protected Phases         4         2         Permitted Phases         4         2         Switch Phase         Winimum Initial (s)         7.0         12.0         Minimum Split (s)         20.0         20.0         20.0         Total Split (s)         34.0         86.0         Total Split (s)         28.3%         71.7%         Maximum Green (s)         27.0         79.0         Yellow Time (s)         5.0         5.0         All-Red Time (s)         2.0		462	0	0	2592	0	0
Tum Type         Prot         NA           Protected Phases         4         2           Permitted Phases         4         2           Switch Phase         4         2           Minimum Initial (s)         7.0         12.0           Minimum Split (s)         20.0         20.0           Total Split (s)         34.0         86.0           Total Split (%)         28.3%         71.7%           Maximum Green (s)         27.0         79.0           Yellow Time (s)         5.0         5.0           All-Red Time (s)         2.0         2.0           Lost Time Adjust (s)         -2.0         -2.0           Total Lost Time (s)         5.0         5.0           Lead/Lag         -2.0         -2.0           Total Lost Time (s)         5.0         5.0           Lead/Lag         -2.0         -2.0           Vehicle Extension (s)         3.0         3.0           Recall Mode         None         C-Max           Act Effct Green (s)         29.0         81.0           Act Lated g/C Ratio         0.24         0.68           v/c Ratio         1.08         1.09           Control Delay							
Protected Phases         4         2           Permitted Phases         4         2           Switch Phase         4         2           Minimum Initial (s)         7.0         12.0           Minimum Split (s)         20.0         20.0           Total Split (s)         34.0         86.0           Total Split (%)         28.3%         71.7%           Maximum Green (s)         27.0         79.0           Yellow Time (s)         5.0         5.0           All-Red Time (s)         2.0         2.0           Lost Time Adjust (s)         -2.0         -2.0           Total Lost Time (s)         5.0         5.0           Lead/Lag         Lead-Lag Optimize?           Vehicle Extension (s)         3.0         3.0           Recall Mode         None         C-Max           Act Effct Green (s)         29.0         81.0           Act Lated g/C Ratio         0.24         0.68           v/c Ratio         1.08         1.09           Control Delay         96.8         67.3           Queue Delay         0.0         6.5           Total Delay         96.8         73.9           LOS         F         <			0	0		0	0
Permitted Phases         4         2           Switch Phase         4         2           Minimum Initial (s)         7.0         12.0           Minimum Split (s)         20.0         20.0           Total Split (s)         34.0         86.0           Total Split (%)         28.3%         71.7%           Maximum Green (s)         27.0         79.0           Yellow Time (s)         5.0         5.0           All-Red Time (s)         2.0         2.0           Lost Time Adjust (s)         -2.0         2.0           Total Lost Time (s)         5.0         5.0           Lead/Lag         Lead-Lag Optimize?           Vehicle Extension (s)         3.0         3.0           Recall Mode         None         C-Max           Act Effct Green (s)         29.0         81.0           Actuated g/C Ratio         0.24         0.68           V/c Ratio         0.24         0.68           V/c Ratio         1.09         0.0           Control Delay         96.8         67.3           Queue Delay         96.8         73.9           LOS         F         E           Approach LOS         F         E <td></td> <td>Prot</td> <td></td> <td></td> <td></td> <td></td> <td></td>		Prot					
Detector Phase       4       2         Switch Phase       20.0       12.0         Minimum Initial (s)       7.0       12.0         Minimum Split (s)       20.0       20.0         Total Split (s)       34.0       86.0         Total Split (%)       28.3%       71.7%         Maximum Green (s)       27.0       79.0         Yellow Time (s)       5.0       5.0         All-Red Time (s)       2.0       2.0         Lost Time Adjust (s)       -2.0       -2.0         Total Lost Time (s)       5.0       5.0         Lead/Lag       5.0       5.0         Lead/Lag       5.0       5.0         Lead/Lag       5.0       5.0         Lead-Lag Optimize?       Vehicle Extension (s)       3.0         Recall Mode       None       C-Max         Act Effct Green (s)       29.0       81.0         Actuated g/C Ratio       0.24       0.68         v/c Ratio       1.08       1.09         Control Delay       96.8       67.3         Queue Delay       0.0       6.5         Total Delay       96.8       73.9         LOS       F       E		4			2		
Switch Phase       Minimum Initial (s)       7.0       12.0         Minimum Split (s)       20.0       20.0         Total Split (s)       34.0       86.0         Total Split (%)       28.3%       71.7%         Maximum Green (s)       27.0       79.0         Yellow Time (s)       5.0       5.0         All-Red Time (s)       2.0       2.0         Lost Time Adjust (s)       -2.0       -2.0         Total Lost Time (s)       5.0       5.0         Lead/Lag       Lead-Lag Optimize?         Vehicle Extension (s)       3.0       3.0         Recall Mode       None       C-Max         Act Effct Green (s)       29.0       81.0         Actuated g/C Ratio       0.24       0.68         v/c Ratio       1.08       1.09         Control Delay       96.8       67.3         Queue Delay       0.0       6.5         Total Delay       96.8       73.9         LOS       F       E         Approach LOS       F       E         Queue Length 50th (ft)       ~401       ~1185         Queue Length 95th (ft)       m#473       #1316	Permitted Phases						
Minimum Initial (s)       7.0       12.0         Minimum Split (s)       20.0       20.0         Total Split (s)       34.0       86.0         Total Split (%)       28.3%       71.7%         Maximum Green (s)       27.0       79.0         Yellow Time (s)       5.0       5.0         All-Red Time (s)       2.0       2.0         Lost Time Adjust (s)       -2.0       -2.0         Total Lost Time (s)       5.0       5.0         Lead/Lag       Lead-Lag Optimize?         Vehicle Extension (s)       3.0       3.0         Recall Mode       None       C-Max         Act Effct Green (s)       29.0       81.0         Act Effct Green (s)       29.0       81.0         Act Leffct Green (s)       29.0       81.0      <	Detector Phase	4			2		
Minimum Split (s)       20.0       20.0         Total Split (s)       34.0       86.0         Total Split (%)       28.3%       71.7%         Maximum Green (s)       27.0       79.0         Yellow Time (s)       5.0       5.0         All-Red Time (s)       2.0       2.0         Lost Time Adjust (s)       -2.0       -2.0         Total Lost Time (s)       5.0       5.0         Lead/Lag       Lead-Lag Optimize?         Vehicle Extension (s)       3.0       3.0         Recall Mode       None       C-Max         Act Effct Green (s)       29.0       81.0         Actuated g/C Ratio       0.24       0.68         v/c Ratio       1.08       1.09         Control Delay       96.8       67.3         Queue Delay       0.0       6.5         Total Delay       96.8       73.9         LOS       F       E         Approach Delay       96.8       73.9         Approach LOS       F       E         Queue Length 50th (ft)       ~401       ~1185         Queue Length 95th (ft)       m#473       #1316	Switch Phase						
Minimum Split (s)       20.0       20.0         Total Split (s)       34.0       86.0         Total Split (%)       28.3%       71.7%         Maximum Green (s)       27.0       79.0         Yellow Time (s)       5.0       5.0         All-Red Time (s)       2.0       2.0         Lost Time Adjust (s)       -2.0       -2.0         Total Lost Time (s)       5.0       5.0         Lead/Lag       Lead-Lag Optimize?         Vehicle Extension (s)       3.0       3.0         Recall Mode       None       C-Max         Act Effct Green (s)       29.0       81.0         Actuated g/C Ratio       0.24       0.68         v/c Ratio       1.08       1.09         Control Delay       96.8       67.3         Queue Delay       0.0       6.5         Total Delay       96.8       73.9         LOS       F       E         Approach Delay       96.8       73.9         Approach LOS       F       E         Queue Length 50th (ft)       ~401       ~1185         Queue Length 95th (ft)       m#473       #1316	Minimum Initial (s)	7.0			12.0		
Total Split (s)       34.0       86.0         Total Split (%)       28.3%       71.7%         Maximum Green (s)       27.0       79.0         Yellow Time (s)       5.0       5.0         All-Red Time (s)       2.0       2.0         Lost Time Adjust (s)       -2.0       -2.0         Total Lost Time (s)       5.0       5.0         Lead/Lag       -2.0       5.0         Lead/Lag Optimize?       -2.0       -2.0         Vehicle Extension (s)       3.0       3.0         Recall Mode       None       C-Max         Act Effct Green (s)       29.0       81.0         Actuated g/C Ratio       0.24       0.68         v/c Ratio       1.08       1.09         Control Delay       96.8       67.3         Queue Delay       0.0       6.5         Total Delay       96.8       73.9         LOS       F       E         Approach Delay       96.8       73.9         Approach LOS       F       E         Queue Length 50th (ft)       ~401       ~1185         Queue Length 95th (ft)       m#473       #1316							
Total Split (%)       28.3%       71.7%         Maximum Green (s)       27.0       79.0         Yellow Time (s)       5.0       5.0         All-Red Time (s)       2.0       2.0         Lost Time Adjust (s)       -2.0       -2.0         Total Lost Time (s)       5.0       5.0         Lead/Lag       Lead-Lag Optimize?         Vehicle Extension (s)       3.0       3.0         Recall Mode       None       C-Max         Act Effct Green (s)       29.0       81.0         Actuated g/C Ratio       0.24       0.68         v/c Ratio       1.08       1.09         Control Delay       96.8       67.3         Queue Delay       0.0       6.5         Total Delay       96.8       73.9         LOS       F       E         Approach Delay       96.8       73.9         Approach LOS       F       E         Queue Length 50th (ft)       ~401       ~1185         Queue Length 95th (ft)       m#473       #1316							
Maximum Green (s)       27.0       79.0         Yellow Time (s)       5.0       5.0         All-Red Time (s)       2.0       2.0         Lost Time Adjust (s)       -2.0       -2.0         Total Lost Time (s)       5.0       5.0         Lead/Lag       Lead-Lag Optimize?         Vehicle Extension (s)       3.0       3.0         Recall Mode       None       C-Max         Act Effct Green (s)       29.0       81.0         Actuated g/C Ratio       0.24       0.68         v/c Ratio       1.08       1.09         Control Delay       96.8       67.3         Queue Delay       0.0       6.5         Total Delay       96.8       73.9         LOS       F       E         Approach Delay       96.8       73.9         Approach LOS       F       E         Queue Length 50th (ft)       ~401       ~1185         Queue Length 95th (ft)       m#473       #1316							
Yellow Time (s)       5.0       5.0         All-Red Time (s)       2.0       2.0         Lost Time Adjust (s)       -2.0       -2.0         Total Lost Time (s)       5.0       5.0         Lead/Lag       -2.0       5.0         Lead/Lag       -2.0       5.0         Lead-Lag Optimize?       -2.0       -2.0         Vehicle Extension (s)       3.0       3.0         Recall Mode       None       C-Max         Act Effct Green (s)       29.0       81.0         Actuated g/C Ratio       0.24       0.68         v/c Ratio       1.08       1.09         Control Delay       96.8       67.3         Queue Delay       0.0       6.5         Total Delay       96.8       73.9         LOS       F       E         Approach Delay       96.8       73.9         Approach LOS       F       E         Queue Length 50th (ft)       ~401       ~1185         Queue Length 95th (ft)       m#473       #1316							
All-Red Time (s) 2.0 2.0 Lost Time Adjust (s) -2.0 -2.0 Total Lost Time (s) 5.0 5.0 Lead/Lag Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 Recall Mode None C-Max Act Effct Green (s) 29.0 81.0 Actuated g/C Ratio 0.24 0.68 v/c Ratio 1.08 1.09 Control Delay 96.8 67.3 Queue Delay 96.8 73.9 LOS F E Approach Delay 96.8 73.9 Approach LOS F E Queue Length 50th (ft) ~401 ~1185 Queue Length 95th (ft) m#473 #1316							
Lost Time Adjust (s)       -2.0         Total Lost Time (s)       5.0         Lead/Lag         Lead-Lag Optimize?         Vehicle Extension (s)       3.0         Recall Mode       None         Act Effct Green (s)       29.0         Actuated g/C Ratio       0.24         v/c Ratio       1.08         Control Delay       96.8         Queue Delay       0.0         Total Delay       96.8         LOS       F         Approach Delay       96.8         Approach LOS       F         Queue Length 50th (ft)       ~401         Queue Length 95th (ft)       m#473	. ,						
Total Lost Time (s)         5.0         5.0           Lead/Lag         Lead-Lag Optimize?           Vehicle Extension (s)         3.0         3.0           Recall Mode         None         C-Max           Act Effct Green (s)         29.0         81.0           Actuated g/C Ratio         0.24         0.68           v/c Ratio         1.08         1.09           Control Delay         96.8         67.3           Queue Delay         0.0         6.5           Total Delay         96.8         73.9           LOS         F         E           Approach Delay         96.8         73.9           Approach LOS         F         E           Queue Length 50th (ft)         ~401         ~1185           Queue Length 95th (ft)         m#473         #1316							
Lead/Lag         Lead-Lag Optimize?         Vehicle Extension (s)       3.0       3.0         Recall Mode       None       C-Max         Act Effct Green (s)       29.0       81.0         Actuated g/C Ratio       0.24       0.68         v/c Ratio       1.08       1.09         Control Delay       96.8       67.3         Queue Delay       0.0       6.5         Total Delay       96.8       73.9         LOS       F       E         Approach Delay       96.8       73.9         Approach LOS       F       E         Queue Length 50th (ft)       ~401       ~1185         Queue Length 95th (ft)       m#473       #1316							
Lead-Lag Optimize?         Vehicle Extension (s)       3.0       3.0         Recall Mode       None       C-Max         Act Effct Green (s)       29.0       81.0         Actuated g/C Ratio       0.24       0.68         v/c Ratio       1.08       1.09         Control Delay       96.8       67.3         Queue Delay       0.0       6.5         Total Delay       96.8       73.9         LOS       F       E         Approach Delay       96.8       73.9         Approach LOS       F       E         Queue Length 50th (ft)       -401       ~1185         Queue Length 95th (ft)       m#473       #1316		5.0			3.0		
Vehicle Extension (s)         3.0         3.0           Recall Mode         None         C-Max           Act Effct Green (s)         29.0         81.0           Actuated g/C Ratio         0.24         0.68           v/c Ratio         1.08         1.09           Control Delay         96.8         67.3           Queue Delay         0.0         6.5           Total Delay         96.8         73.9           LOS         F         E           Approach Delay         96.8         73.9           Approach LOS         F         E           Queue Length 50th (ft)         ~401         ~1185           Queue Length 95th (ft)         m#473         #1316							
Recall Mode         None         C-Max           Act Effct Green (s)         29.0         81.0           Actuated g/C Ratio         0.24         0.68           v/c Ratio         1.08         1.09           Control Delay         96.8         67.3           Queue Delay         0.0         6.5           Total Delay         96.8         73.9           LOS         F         E           Approach Delay         96.8         73.9           Approach LOS         F         E           Queue Length 50th (ft)         ~401         ~1185           Queue Length 95th (ft)         m#473         #1316		2.0			2.0		
Act Effct Green (s)       29.0       81.0         Actuated g/C Ratio       0.24       0.68         v/c Ratio       1.08       1.09         Control Delay       96.8       67.3         Queue Delay       0.0       6.5         Total Delay       96.8       73.9         LOS       F       E         Approach Delay       96.8       73.9         Approach LOS       F       E         Queue Length 50th (ft)       ~401       ~1185         Queue Length 95th (ft)       m#473       #1316							
Actuated g/C Ratio       0.24       0.68         v/c Ratio       1.08       1.09         Control Delay       96.8       67.3         Queue Delay       0.0       6.5         Total Delay       96.8       73.9         LOS       F       E         Approach Delay       96.8       73.9         Approach LOS       F       E         Queue Length 50th (ft)       ~401       ~1185         Queue Length 95th (ft)       m#473       #1316							
v/c Ratio       1.08       1.09         Control Delay       96.8       67.3         Queue Delay       0.0       6.5         Total Delay       96.8       73.9         LOS       F       E         Approach Delay       96.8       73.9         Approach LOS       F       E         Queue Length 50th (ft)       ~401       ~1185         Queue Length 95th (ft)       m#473       #1316							
Control Delay       96.8       67.3         Queue Delay       0.0       6.5         Total Delay       96.8       73.9         LOS       F       E         Approach Delay       96.8       73.9         Approach LOS       F       E         Queue Length 50th (ft)       ~401       ~1185         Queue Length 95th (ft)       m#473       #1316							
Queue Delay       0.0       6.5         Total Delay       96.8       73.9         LOS       F       E         Approach Delay       96.8       73.9         Approach LOS       F       E         Queue Length 50th (ft)       ~401       ~1185         Queue Length 95th (ft)       m#473       #1316							
Total Delay       96.8       73.9         LOS       F       E         Approach Delay       96.8       73.9         Approach LOS       F       E         Queue Length 50th (ft)       ~401       ~1185         Queue Length 95th (ft)       m#473       #1316							
LOS         F         E           Approach Delay         96.8         73.9           Approach LOS         F         E           Queue Length 50th (ft)         ~401         ~1185           Queue Length 95th (ft)         m#473         #1316	-						
Approach Delay       96.8       73.9         Approach LOS       F       E         Queue Length 50th (ft)       ~401       ~1185         Queue Length 95th (ft)       m#473       #1316							
Approach LOS         F         E           Queue Length 50th (ft)         ~401         ~1185           Queue Length 95th (ft)         m#473         #1316							
Queue Length 50th (ft)       ~401       ~1185         Queue Length 95th (ft)       m#473       #1316							
Queue Length 95th (ft) m#473 #1316							
•							
111 1 111 1 111 1 (0)	Queue Length 95th (ft)	m#473			#1316		
Internal Link Dist (ft) 20 120 301	Internal Link Dist (ft)	20			120	301	

	۶	•	4	<b>†</b>	ļ	✓	
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	
Turn Bay Length (ft)							
Base Capacity (vph)	427			2388			
Starvation Cap Reductn	0			0			
Spillback Cap Reductn	0			285			
Storage Cap Reductn	0			0			
Reduced v/c Ratio	1.08			1.23			
Intersection Summary							
Area Type: Of	ther						
Cycle Length: 120							
Actuated Cycle Length: 120							
Offset: 105 (88%), Reference	d to phas	e 2:NBT,	Start of 0	Green			
Natural Cycle: 140							
Control Type: Actuated-Coord	linated						
Maximum v/c Ratio: 1.09							
Intersection Signal Delay: 77.	4			Int	tersection	ı LOS: E	
Intersection Capacity Utilization	on 95.9%			IC	U Level	of Service F	
Analysis Period (min) 15							
<ul> <li>Volume exceeds capacity</li> </ul>			cally infin	ite.			
Queue shown is maximum							
# 95th percentile volume ex			ieue may	be longe	r.		
Queue shown is maximum	after two	cycles.					
m Volume for 95th percentil	e queue i	s metere	d by upst	ream sigr	nal.		
Splits and Phases: 6: Provi	dence Ro	ad & Pro	vidence l	Road SB	U-Turn		
↑ Ø2 (R)	2200 110						<b>→</b> <sub>04</sub>

	•	$\rightarrow$	<b>1</b>	<b>†</b>	ļ	4
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	*			<b>^</b>		
Traffic Volume (vph)	634	0	0	2047	0	0
Future Volume (vph)	634	0	0	2047	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt	1.00	1.00	1.00	0.73	1.00	1.00
Flt Protected	0.950					
	1770	0	0	3539	0	0
Satd. Flow (prot) Flt Permitted		U	U	3339	U	U
	0.950	0	٥	2520	Λ	0
Satd. Flow (perm)	1770	0	0	3539	0	0
Right Turn on Red	No	No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	25	
Link Distance (ft)	100			200	381	
Travel Time (s)	1.9			3.0	10.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	704	0	0	2274	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	704	0	0	2274	0	0
Turn Type	Prot			NA		
Protected Phases	4			2		
Permitted Phases						
Detector Phase	4			2		
Switch Phase	'			_		
Minimum Initial (s)	7.0			12.0		
Minimum Split (s)	20.0			20.0		
Total Split (s)	47.0			73.0		
Total Split (%)	39.2%			60.8%		
Maximum Green (s)	40.0			66.0		
Yellow Time (s)	5.0			5.0		
All-Red Time (s)	2.0			2.0		
Lost Time Adjust (s)	-2.0			-2.0		
Total Lost Time (s)	5.0			5.0		
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0		
Recall Mode	None			C-Max		
Act Effct Green (s)	42.0			68.0		
Actuated g/C Ratio	0.35			0.57		
v/c Ratio	1.14			1.13		
Control Delay	101.4			93.7		
Queue Delay	0.0			0.8		
Total Delay	101.4			94.5		
LOS	F			F		
Approach Delay	101.4			94.5		
Approach LOS	F			F		
Queue Length 50th (ft)	~637			~1078		
Queue Length 95th (ft)	m#494			#1214		
Internal Link Dist (ft)	20			120	301	
IIIIGIIIAI LIIIK DISI (II)	20			120	301	



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	
Turn Bay Length (ft)							
Base Capacity (vph)	619			2005			
Starvation Cap Reductn	0			0			
Spillback Cap Reductn	0			487			
Storage Cap Reductn	0			0			
Reduced v/c Ratio	1.14			1.50			

#### **Intersection Summary**

Area Type: Other

Cycle Length: 120 Actuated Cycle Length: 120

Offset: 104 (87%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.14
Intersection Signal Delay: 9

Intersection Signal Delay: 96.1Intersection LOS: FIntersection Capacity Utilization 106.8%ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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

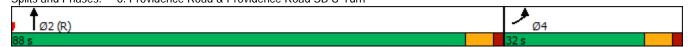
Splits and Phases: 6: Providence Road & Providence Road SB U-Turn



	۶	•	4	<b>†</b>	ļ	4
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	ሻሻ			<b>^</b>		
Traffic Volume (vph)	416	0	0	2333	0	0
Future Volume (vph)	416	0	0	2333	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	0.91	1.00	1.00
Frt	,,					
Flt Protected	0.950					
Satd. Flow (prot)	3433	0	0	5085	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	3433	0	0	5085	0	0
Right Turn on Red	No	No				No
Satd. Flow (RTOR)	140	140				110
Link Speed (mph)	35			45	25	
Link Distance (ft)	100			200	381	
Travel Time (s)	1.9			3.0	10.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	462	0.70	0.70	2592	0.70	0.70
Shared Lane Traffic (%)	402	U	U	2372	U	U
Lane Group Flow (vph)	462	0	0	2592	0	0
Enter Blocked Intersection	462 No	No	No	2592 No	No	No
	Left		Left	Left	Left	
Lane Alignment Median Width(ft)	24	Right	Leit	Leit 0	Len 0	Right
Link Offset(ft) Crosswalk Width(ft)	0 16			0 16	0 16	
. ,	10			10	10	
Two way Left Turn Lane	1.00	1.00	1.00	1.00	1.00	1.00
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	N.1.A		9
Turn Type	Prot			NA		
Protected Phases	4			2		
Permitted Phases						
Detector Phase	4			2		
Switch Phase						
Minimum Initial (s)	7.0			12.0		
Minimum Split (s)	20.0			20.0		
Total Split (s)	32.0			88.0		
Total Split (%)	26.7%			73.3%		
Maximum Green (s)	25.0			81.0		
Yellow Time (s)	5.0			5.0		
All-Red Time (s)	2.0			2.0		
Lost Time Adjust (s)	-2.0			-2.0		
Total Lost Time (s)	5.0			5.0		
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0		
Recall Mode	None			C-Max		
Act Effct Green (s)	23.0			87.0		
Actuated g/C Ratio	0.19			0.72		
v/c Ratio	0.70			0.70		
Control Delay	51.9			11.0		
	3117					

	۶	•	4	<b>†</b>	<b>↓</b>	✓	
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	
Queue Delay	0.0			0.0			
Total Delay	51.9			11.0			
LOS	D			В			
Approach Delay	51.9			11.0			
Approach LOS	D			В			
Queue Length 50th (ft)	172			367			
Queue Length 95th (ft)	m216			471			
Internal Link Dist (ft)	20			120	301		
Turn Bay Length (ft)							
Base Capacity (vph)	772			3686			
Starvation Cap Reductn	0			0			
Spillback Cap Reductn	0			0			
Storage Cap Reductn	0			0			
Reduced v/c Ratio	0.60			0.70			
Intersection Summary							
Area Type:	Other						
Cycle Length: 120							
Actuated Cycle Length: 120							
Offset: 96 (80%), Reference	ed to phase	2:NBT, S	tart of Gr	een			
Natural Cycle: 60							
Control Type: Actuated-Co	ordinated						
Maximum v/c Ratio: 0.70							
Intersection Signal Delay: 1						n LOS: B	
Intersection Capacity Utiliza	ation 65.3%			IC	U Level o	of Service C	
Analysis Period (min) 15							
m Volume for 95th percer	ntile queue is	s metered	d by upstr	eam sign	al.		

Splits and Phases: 6: Providence Road & Providence Road SB U-Turn

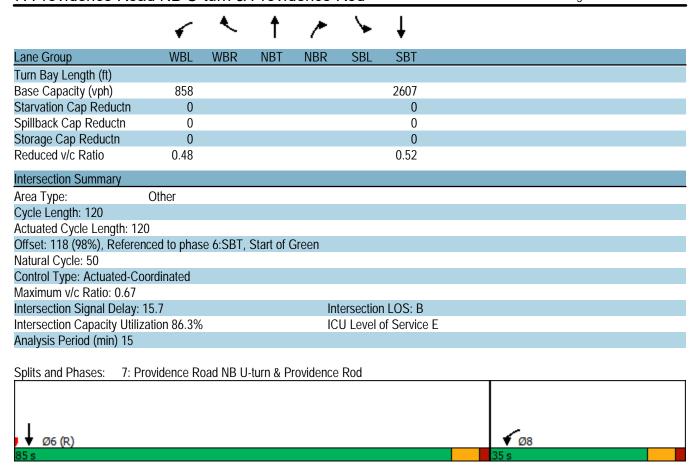


	۶	$\rightarrow$	<b>1</b>	<b>†</b>	ļ	4
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	75			<b>^</b>		
Traffic Volume (vph)	634	0	0	2047	0	0
Future Volume (vph)	634	0	0	2047	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	0.91	1.00	1.00
Frt	0.77	1.00	1.00	0.71	1.00	1.00
Flt Protected	0.950					
Satd. Flow (prot)	3433	0	0	5085	0	0
Flt Permitted	0.950	U	U	3063	U	U
Satd. Flow (perm)	3433	0	0	5085	0	0
			U	2082	U	
Right Turn on Red	No	No				No
Satd. Flow (RTOR)	05			45	05	
Link Speed (mph)	35			45	25	
Link Distance (ft)	100			200	381	
Travel Time (s)	1.9			3.0	10.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	704	0	0	2274	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	704	0	0	2274	0	0
Turn Type	Prot			NA		
Protected Phases	4			2		
Permitted Phases						
Detector Phase	4			2		
Switch Phase	'					
Minimum Initial (s)	7.0			12.0		
Minimum Split (s)	20.0			20.0		
Total Split (s)	42.0			78.0		
Total Split (%)	35.0%			65.0%		
Maximum Green (s)	35.0			71.0		
Yellow Time (s)	5.0			5.0		
All-Red Time (s)	2.0			2.0		
Lost Time Adjust (s)	-2.0			-2.0		
Total Lost Time (s)	5.0			5.0		
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0		
Recall Mode	None			C-Max		
Act Effct Green (s)	31.7			78.3		
Actuated g/C Ratio	0.26			0.65		
v/c Ratio	0.78			0.69		
Control Delay	45.5			15.1		
Queue Delay	0.0			0.1		
Total Delay	45.5			15.2		
LOS	43.5 D			13.2 B		
Approach Delay	45.5			15.2		
Approach LOS	45.5 D			15.2 B		
Queue Length 50th (ft)	255			375		
Queue Length 95th (ft)	m282			486	004	
Internal Link Dist (ft)	20			120	301	

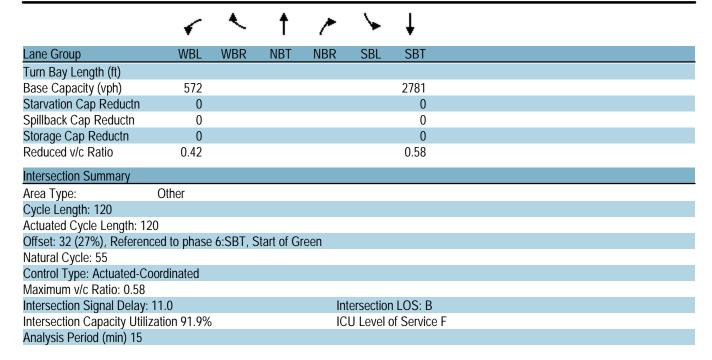
	•	•	4	<b>†</b>	ļ	1		
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR		
Turn Bay Length (ft)								
Base Capacity (vph)	1058			3317				
Starvation Cap Reductn	0			0				
Spillback Cap Reductn	0			162				
Storage Cap Reductn	0			0				
Reduced v/c Ratio	0.67			0.72				
Intersection Summary								
Area Type:	Other							
Cycle Length: 120								
Actuated Cycle Length: 120								
Offset: 26 (22%), Reference	ed to phase	2:NBT, S	tart of Gr	een				
Natural Cycle: 55								
Control Type: Actuated-Co	ordinated							
Maximum v/c Ratio: 0.78								
Intersection Signal Delay: 2						LOS: C		
Intersection Capacity Utiliza	ation 66.0%			IC	U Level	of Service C		
Analysis Period (min) 15								
m Volume for 95th percei	ntile queue is	s metered	d by upstr	ream sign	al.			
Splits and Phases: 6: Pro	ovidence Ro	ad & Pro	vidence F	Road SR I	I-Turn			
<b>♦</b>	OVIGORICO INO	uu (x 1 10	VIUCIICE I	TOUGH SID (	, ruiii		<b>*</b>	
Ø2 (R)							<b>→</b> Ø4	

	•	•	<b>†</b>	~	<b>\</b>	ļ
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	ሻሻ	WOIL	IVDI	HUIT	ODL	<b>*</b>
Traffic Volume (vph)	370	0	0	0	0	1210
Future Volume (vph)	370	0	0	0	0	1210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	0.95
Frt	0.97	1.00	1.00	1.00	1.00	0.95
	0.050					
Flt Protected	0.950 3433	0	0	0	0	3539
Satd. Flow (prot)		U	U	0	0	3339
Flt Permitted	0.950	0	0	0	0	2520
Satd. Flow (perm)	3433	0	0	0	0	3539
Right Turn on Red	No	No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		25			45
Link Distance (ft)	100		358			520
Travel Time (s)	1.9		9.8			7.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	411	0	0	0	0	1344
Shared Lane Traffic (%)						
Lane Group Flow (vph)	411	0	0	0	0	1344
Turn Type	Prot	U	U	U	U	NA
Protected Phases	8					6
Permitted Phases	U					U
Detector Phase	8					6
	0					0
Switch Phase	7.0					12.0
Minimum Initial (s)	7.0					12.0
Minimum Split (s)	20.0					20.0
Total Split (s)	35.0					85.0
Total Split (%)	29.2%					70.8%
Maximum Green (s)	28.0					78.0
Yellow Time (s)	5.0					5.0
All-Red Time (s)	2.0					2.0
Lost Time Adjust (s)	-2.0					-2.0
Total Lost Time (s)	5.0					5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0					3.0
Recall Mode	None					C-Max
Act Effct Green (s)	21.6					88.4
Actuated g/C Ratio	0.18					0.74
	0.18					0.74
v/c Ratio						
Control Delay	41.3					7.9
Queue Delay	0.0					0.0
Total Delay	41.3					7.9
LOS	D					Α
Approach Delay	41.3					7.9
Approach LOS	D					Α
Queue Length 50th (ft)	138					203
Queue Length 95th (ft)	184					291
Internal Link Dist (ft)	20		278			440
internal Link Dist (it)	20		210			740

## 7: Providence Road NB U-turn & Providence Rod



	•	•	<b>†</b>	<b>/</b>	<b>&gt;</b>	ļ
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	ሻሻ	II DIC	1151	HUIT	ODL	<b>↑</b> ↑
Traffic Volume (vph)	217	0	0	0	0	1447
Future Volume (vph)	217	0	0	0	0	1447
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	0.95
	0.97	1.00	1.00	1.00	1.00	0.95
Frt Flt Protected	0.050					
	0.950	0	^	^	Λ	2520
Satd. Flow (prot)	3433	0	0	0	0	3539
Flt Permitted	0.950	0	0	0	0	0500
Satd. Flow (perm)	3433	0	0	0	0	3539
Right Turn on Red	No	No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		25			45
Link Distance (ft)	100		358			520
Travel Time (s)	1.9		9.8			7.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	241	0	0	0	0	1608
Shared Lane Traffic (%)						
Lane Group Flow (vph)	241	0	0	0	0	1608
Turn Type	Prot					NA
Protected Phases	8					6
Permitted Phases						J
Detector Phase	8					6
Switch Phase	U					U
Minimum Initial (s)	7.0					12.0
Minimum Split (s)	20.0					20.0
						95.0
Total Split (s)	25.0					
Total Split (%)	20.8%					79.2%
Maximum Green (s)	18.0					88.0
Yellow Time (s)	5.0					5.0
All-Red Time (s)	2.0					2.0
Lost Time Adjust (s)	-2.0					-2.0
Total Lost Time (s)	5.0					5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0					3.0
Recall Mode	None					C-Max
Act Effct Green (s)	15.7					94.3
Actuated g/C Ratio	0.13					0.79
v/c Ratio	0.13					0.79
Control Delay	42.2					6.3
Queue Delay	0.0					0.0
Total Delay	42.2					6.3
LOS	D					Α
Approach Delay	42.2					6.3
Approach LOS	D					А
Queue Length 50th (ft)	81					212
Queue Length 95th (ft)	118					304
Internal Link Dist (ft)	20		278			440



Splits and Phases: 7: Providence Road NB U-turn & Providence Rod

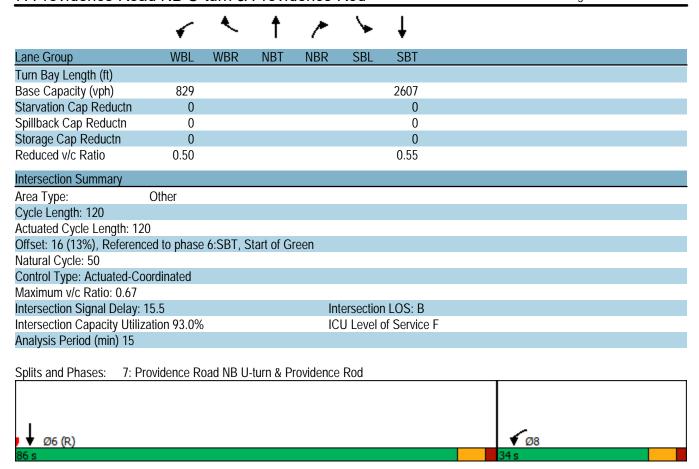
▼ Ø6 (R)

95 s

25 s

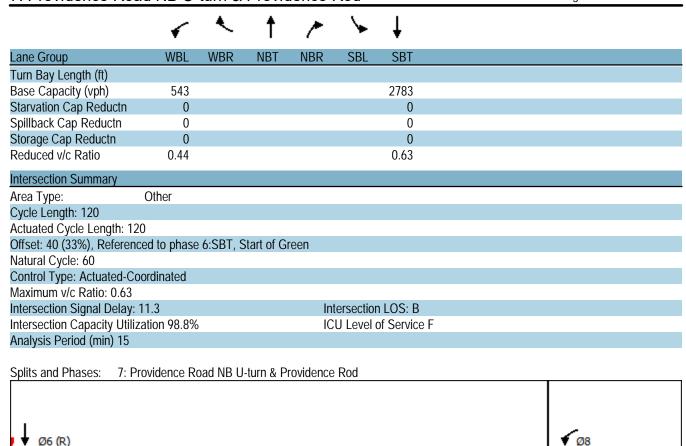
	•	•	<b>†</b>	~	<b>&gt;</b>	ļ
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	ሻሻ	WOIL	NUI	NON	ODL	<b>†</b>
Traffic Volume (vph)	370	0	0	0	0	1300
Future Volume (vph)	370	0	0	0	0	1300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor						
	0.97	1.00	1.00	1.00	1.00	0.95
Frt	0.050					
Flt Protected	0.950	•	•	•	•	0500
Satd. Flow (prot)	3433	0	0	0	0	3539
Flt Permitted	0.950					
Satd. Flow (perm)	3433	0	0	0	0	3539
Right Turn on Red	No	No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		25			45
Link Distance (ft)	100		358			520
Travel Time (s)	1.9		9.8			7.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	411	0	0	0	0	1444
Shared Lane Traffic (%)						
Lane Group Flow (vph)	411	0	0	0	0	1444
Turn Type	Prot	U	U	U	U	NA
Protected Phases	910l 8					NA 6
	δ					0
Permitted Phases	0					,
Detector Phase	8					6
Switch Phase						
Minimum Initial (s)	7.0					12.0
Minimum Split (s)	20.0					20.0
Total Split (s)	34.0					86.0
Total Split (%)	28.3%					71.7%
Maximum Green (s)	27.0					79.0
Yellow Time (s)	5.0					5.0
All-Red Time (s)	2.0					2.0
Lost Time Adjust (s)	-2.0					-2.0
Total Lost Time (s)	5.0					5.0
Lead/Lag	0.0					0.0
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0					3.0
Recall Mode						C-Max
	None					
Act Effet Green (s)	21.6					88.4
Actuated g/C Ratio	0.18					0.74
v/c Ratio	0.67					0.55
Control Delay	40.4					8.4
Queue Delay	0.0					0.0
Total Delay	40.4					8.4
LOS	D					Α
Approach Delay	40.4					8.4
Approach LOS	D					Α
Queue Length 50th (ft)	153					228
Queue Length 95th (ft)	187					327
Internal Link Dist (ft)	20		278			440
	20		210			440

### Timing Plan: AM Peak Hour



	•	•	<b>†</b>	<b>/</b>	<b>&gt;</b>	ļ
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	ሻሻ				UDL	<b>*</b>
Traffic Volume (vph)	217	0	0	0	0	1583
Future Volume (vph)	217	0	0	0	0	1583
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	0.95
	0.97	1.00	1.00	1.00	1.00	0.95
Frt	0.050					
Flt Protected	0.950	0	0	0	0	2520
Satd. Flow (prot)	3433	0	0	0	0	3539
Flt Permitted	0.950		_		_	
Satd. Flow (perm)	3433	0	0	0	0	3539
Right Turn on Red	No	No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		25			45
Link Distance (ft)	100		358			520
Travel Time (s)	1.9		9.8			7.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	241	0	0	0	0	1759
Shared Lane Traffic (%)				-		
Lane Group Flow (vph)	241	0	0	0	0	1759
Turn Type	Prot	U	0	U	<u> </u>	NA
Protected Phases	8					6
Permitted Phases	O					U
Detector Phase	0					4
	8					6
Switch Phase	7.0					12.0
Minimum Initial (s)	7.0					12.0
Minimum Split (s)	20.0					20.0
Total Split (s)	24.0					96.0
Total Split (%)	20.0%					80.0%
Maximum Green (s)	17.0					89.0
Yellow Time (s)	5.0					5.0
All-Red Time (s)	2.0					2.0
Lost Time Adjust (s)	-2.0					-2.0
Total Lost Time (s)	5.0					5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0					3.0
Recall Mode	None					C-Max
Act Effct Green (s)	15.6					94.4
Actuated g/C Ratio	0.13					0.79
v/c Ratio	0.13					0.79
Control Delay	43.3					7.0
Queue Delay	0.0					0.0
Total Delay	43.3					7.0
LOS	D					A
Approach Delay	43.3					7.0
Approach LOS	D					Α
Queue Length 50th (ft)	81					251
Queue Length 95th (ft)	120					354
Internal Link Dist (ft)			278			440

#### Timing Plan: PM Peak Hour



	•	•	<b>†</b>	~	-	ļ
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	ሻሻ				UDL	<b>*</b>
Traffic Volume (vph)	155	0	0	0	0	2034
Future Volume (vph)	155	0	0	0	0	2034
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	0.95
Frt	0.77	1.00	1.00	1.00	1.00	0.70
FIt Protected	0.050					
	0.950	0	0	0	0	2520
Satd. Flow (prot)	3433	U	0	0	0	3539
Flt Permitted	0.950	0	0	0	0	2520
Satd. Flow (perm)	3433	0	0	0	0	3539
Right Turn on Red	No	No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		25			45
Link Distance (ft)	100		358			520
Travel Time (s)	1.9		9.8			7.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	172	0	0	0	0	2260
Shared Lane Traffic (%)						
Lane Group Flow (vph)	172	0	0	0	0	2260
Turn Type	Prot					NA
Protected Phases	8					6
Permitted Phases	- U					
Detector Phase	8					6
Switch Phase	U					U
Minimum Initial (s)	7.0					12.0
	14.0					19.0
Minimum Split (s)						
Total Split (s)	16.0					104.0
Total Split (%)	13.3%					86.7%
Maximum Green (s)	9.0					97.0
Yellow Time (s)	5.0					5.0
All-Red Time (s)	2.0					2.0
Lost Time Adjust (s)	-2.0					-2.0
Total Lost Time (s)	5.0					5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0					3.0
Recall Mode	None					C-Max
Act Effct Green (s)	10.8					99.2
Actuated g/C Ratio	0.09					0.83
v/c Ratio	0.56					0.03
Control Delay	40.8					7.4
						0.1
Queue Delay	0.0					
Total Delay	40.8					7.5
LOS	D					A
Approach Delay	40.8					7.5
Approach LOS	D					Α
Queue Length 50th (ft)	69					344
Queue Length 95th (ft)	m72					420
Internal Link Dist (ft)			278			440

	•	•	<b>†</b>	<i>&gt;</i>	<b>/</b>	<b></b>	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	
Turn Bay Length (ft)							
Base Capacity (vph)	314					2924	
Starvation Cap Reductn	0					0	
Spillback Cap Reductn	0					98	
Storage Cap Reductn	0					0	
Reduced v/c Ratio	0.55					0.80	
Intersection Summary							
Area Type: Of	ther						
Cycle Length: 120							
Actuated Cycle Length: 120							
Offset: 21 (18%), Referenced	to phase	6:SBT, S	tart of G	reen			
Natural Cycle: 60							
Control Type: Actuated-Coord	linated						
Maximum v/c Ratio: 0.77							
Intersection Signal Delay: 9.8					tersectior		
Intersection Capacity Utilization	on 113.49	%		IC	U Level	of Service H	
Analysis Period (min) 15							
m Volume for 95th percentil	e queue	is metere	d by upst	ream sigr	nal.		
Splits and Phases: 7: Provi	dence Ro	oad NB U	-Turn & F	Providence	e Road		
<b>↓</b> Ø6 (R)			3.1				<b>√</b> Ø8

Synchro 10 Report Lanes, Volumes, Timings Page 2 RKA

	•	•	<b>†</b>	/	-	<b>↓</b>
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	ሻሻ	W.D.K	1101	HOI	UDL	<b>^</b>
Traffic Volume (vph)	153	0	0	0	0	1797
Future Volume (vph)	153	0	0	0	0	1797
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	0.95
Frt	0.97	1.00	1.00	1.00	1.00	0.93
Flt Protected	0.950					
	3433	0	0	0	0	3539
Satd. Flow (prot) Flt Permitted		U	U	U	U	3339
	0.950	0	0	0	0	2520
Satd. Flow (perm)	3433	0	0	0	0	3539
Right Turn on Red	No	No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		25			45
Link Distance (ft)	100		358			520
Travel Time (s)	1.9		9.8			7.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	170	0	0	0	0	1997
Shared Lane Traffic (%)						
Lane Group Flow (vph)	170	0	0	0	0	1997
Turn Type	Prot					NA
Protected Phases	8					6
Permitted Phases						
Detector Phase	8					6
Switch Phase						
Minimum Initial (s)	7.0					12.0
Minimum Split (s)	14.0					19.0
Total Split (s)	18.0					102.0
Total Split (%)	15.0%					85.0%
Maximum Green (s)	11.0%					95.0
. ,						
Yellow Time (s)	5.0					5.0
All-Red Time (s)	2.0					2.0
Lost Time Adjust (s)	-2.0					-2.0
Total Lost Time (s)	5.0					5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0					3.0
Recall Mode	None					C-Max
Act Effct Green (s)	12.2					97.8
Actuated g/C Ratio	0.10					0.82
v/c Ratio	0.49					0.69
Control Delay	34.8					6.4
Queue Delay	0.0					0.1
Total Delay	34.8					6.5
LOS	C					A
Approach Delay	34.8					6.5
Approach LOS	C C					Α
Queue Length 50th (ft)	68					285
						345
Queue Length 95th (ft)	m60		270			
Internal Link Dist (ft)	20		278			440

# Weddington Green - Weddington, NC 7: Providence Road NB U-Turn & Providence Road

	•	•	<b>†</b>	<i>&gt;</i>	<b>\</b>	<b>↓</b>	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	
Turn Bay Length (ft)							
Base Capacity (vph)	371					2883	
Starvation Cap Reductn	0					0	
Spillback Cap Reductn	0					176	
Storage Cap Reductn	0					0	
Reduced v/c Ratio	0.46					0.74	
Intersection Summary							
Area Type:	Other						
Cycle Length: 120							
Actuated Cycle Length: 120							
Offset: 16 (13%), Reference	ed to phase	6:SBT, S	Start of G	reen			
Natural Cycle: 60							
Control Type: Actuated-Coo	ordinated						
Maximum v/c Ratio: 0.69							
Intersection Signal Delay: 8	.7			Int	tersection	ı LOS: A	
Intersection Capacity Utiliza	ntion 113.49	%		IC	U Level o	of Service H	
Analysis Period (min) 15							
m Volume for 95th percen	ntile queue	is metere	d by upst	ream sign	ıal.		
Splits and Phases: 7: Pro	ovidence Ro	oad NB U	-Turn & F	Providence	e Road		 
1							
							<b>I ▼</b> Ø8

Synchro 10 Report Page 2 Lanes, Volumes, Timings RKA

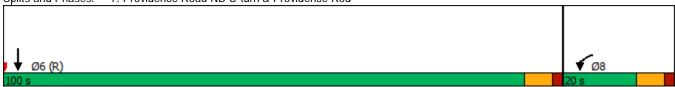
	•	•	<b>†</b>	~	-	ļ
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	ሻሻ	.,,,,,	.101	·IDIC	300	<b>*</b>
Traffic Volume (vph)	155	0	0	0	0	2124
Future Volume (vph)	155	0	0	0	0	2124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
	0.97					
Lane Util. Factor Frt	0.97	1.00	1.00	1.00	1.00	0.95
	0.050					
Flt Protected	0.950	0	0	0	0	0500
Satd. Flow (prot)	3433	0	0	0	0	3539
Flt Permitted	0.950		_		_	
Satd. Flow (perm)	3433	0	0	0	0	3539
Right Turn on Red	No	No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		25			45
Link Distance (ft)	100		358			520
Travel Time (s)	1.9		9.8			7.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	172	0	0.70	0	0.70	2360
Shared Lane Traffic (%)	.,_					_500
Lane Group Flow (vph)	172	0	0	0	0	2360
Turn Type	Prot	U	U	U	U	NA
Protected Phases	8					6
Permitted Phases	0					Ü
	0					,
Detector Phase	8					6
Switch Phase	7.0					10.0
Minimum Initial (s)	7.0					12.0
Minimum Split (s)	20.0					20.0
Total Split (s)	20.0					100.0
Total Split (%)	16.7%					83.3%
Maximum Green (s)	13.0					93.0
Yellow Time (s)	5.0					5.0
All-Red Time (s)	2.0					2.0
Lost Time Adjust (s)	-2.0					-2.0
Total Lost Time (s)	5.0					5.0
Lead/Lag	0.0					0.0
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0					3.0
Recall Mode	None					C-Max
	13.0					97.0
Act Effet Green (s)						
Actuated g/C Ratio	0.11					0.81
v/c Ratio	0.46					0.83
Control Delay	37.0					10.3
Queue Delay	0.0					0.1
Total Delay	37.0					10.4
LOS	D					В
Approach Delay	37.0					10.4
Approach LOS	D					В
Queue Length 50th (ft)	65					448
Queue Length 95th (ft)	m65					607
Internal Link Dist (ft)	20		278			440
Internal Lilik Dist (II)	20		210			440

	•	•	<b>†</b>	<b>/</b>	<b>&gt;</b>	<b>↓</b>	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	
Turn Bay Length (ft)							
Base Capacity (vph)	429					2860	
Starvation Cap Reductn	0					0	
Spillback Cap Reductn	0					53	
Storage Cap Reductn	0					0	
Reduced v/c Ratio	0.40					0.84	
Intersection Summary							
Area Type: O	ther						
Cycle Length: 120							
Actuated Cycle Length: 120							
Offset: 104 (87%), Reference	ed to phas	e 6:SBT,	Start of (	Green			
Natural Cycle: 80							
Control Type: Actuated-Coord	dinated						
Maximum v/c Ratio: 0.83							
Intersection Signal Delay: 12					tersectior		
Intersection Capacity Utilizati	on 120.19	%		IC	U Level	of Service H	
Analysis Period (min) 15							
m Volume for 95th percenti	le queue	is metere	d by upst	ream sigr	nal.		
					_		
Splits and Phases: 7: Prov	idence Ro	oad NB U	-turn & P	rovidence	Rod		

Synchro 10 Report Page 2 Lanes, Volumes, Timings RKA

	•	•	<b>†</b>	~	<b>&gt;</b>	ļ
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	ሻሻ	WDI(	NUI	NON	ODL	<b>^</b>
Traffic Volume (vph)	153	0	0	0	0	1933
Future Volume (vph)	153	0	0	0	0	1933
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	0.95
Frt	0.77	1.00	1.00	1.00	1.00	0.73
Flt Protected	0.950					
Satd. Flow (prot)	3433	0	0	0	0	3539
Flt Permitted	0.950	U	U	U	U	3337
	3433	0	0	0	0	3539
Satd. Flow (perm)			U		U	3339
Right Turn on Red	No	No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		25			45
Link Distance (ft)	100		358			520
Travel Time (s)	1.9		9.8			7.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	170	0	0	0	0	2148
Shared Lane Traffic (%)						
Lane Group Flow (vph)	170	0	0	0	0	2148
Turn Type	Prot					NA
Protected Phases	8					6
Permitted Phases						
Detector Phase	8					6
Switch Phase	U					U
Minimum Initial (s)	7.0					12.0
	20.0					20.0
Minimum Split (s)						
Total Split (s)	20.0					100.0
Total Split (%)	16.7%					83.3%
Maximum Green (s)	13.0					93.0
Yellow Time (s)	5.0					5.0
All-Red Time (s)	2.0					2.0
Lost Time Adjust (s)	-2.0					-2.0
Total Lost Time (s)	5.0					5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0					3.0
Recall Mode	None					C-Max
Act Effct Green (s)	13.0					97.0
Actuated g/C Ratio	0.11					0.81
v/c Ratio	0.46					0.75
	34.2					8.0
Control Delay	0.0					
Queue Delay						0.3
Total Delay	34.2					8.2
LOS	С					Α
Approach Delay	34.2					8.2
Approach LOS	С					Α
Queue Length 50th (ft)	68					344
Queue Length 95th (ft)	m56					463
Internal Link Dist (ft)	20		278			440

	•	•	<b>†</b>	<i>&gt;</i>	<b>&gt;</b>	<b>↓</b>	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	
Turn Bay Length (ft)							
Base Capacity (vph)	429					2861	
Starvation Cap Reductn	0					0	
Spillback Cap Reductn	0					189	
Storage Cap Reductn	0					0	
Reduced v/c Ratio	0.40					0.80	
Intersection Summary							
Area Type:	Other						
Cycle Length: 120							
Actuated Cycle Length: 120							
Offset: 97 (81%), Reference	ed to phase	6:SBT, S	Start of G	reen			
Natural Cycle: 70							
Control Type: Actuated-Coo	ordinated						
Maximum v/c Ratio: 0.75							
Intersection Signal Delay: 1					tersection		
Intersection Capacity Utiliza	ation 120.39	%		IC	U Level o	of Service H	
Analysis Period (min) 15							
m Volume for 95th percer	ntile queue	is metere	d by upst	ream sigr	nal.		
Splits and Phases: 7: Pro	ovidence Ro	oad NB II	-turn & P	rovidence	Rod		
71110							



Synchro 10 Report Page 2 Lanes, Volumes, Timings RKA

	•	•	<b>†</b>	~	-	ļ
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	ሻሻ				UDL	<b>†</b> †
Traffic Volume (vph)	155	0	0	0	0	2124
Future Volume (vph)	155	0	0	0	0	2124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	0.95
Frt	0.97	1.00	1.00	1.00	1.00	0.90
	0.050					
Flt Protected	0.950	•	•	•	0	0500
Satd. Flow (prot)	3433	0	0	0	0	3539
Flt Permitted	0.950		_			
Satd. Flow (perm)	3433	0	0	0	0	3539
Right Turn on Red	No	No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		25			45
Link Distance (ft)	100		358			520
Travel Time (s)	1.9		9.8			7.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	172	0	0	0	0	2360
Shared Lane Traffic (%)	112	<u> </u>	<u> </u>	<u> </u>		2300
Lane Group Flow (vph)	172	0	0	0	0	2360
Enter Blocked Intersection	No	No	No	No	No	No
					Left	Left
Lane Alignment	Left	Right	Left	Right	Leit	
Median Width(ft)	24		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot					NA
Protected Phases	8					6
Permitted Phases						
Detector Phase	8					6
Switch Phase						
Minimum Initial (s)	7.0					12.0
Minimum Split (s)	20.0					20.0
Total Split (s)	20.0					100.0
Total Split (%)	16.7%					83.3%
Maximum Green (s)	13.0					93.0
Yellow Time (s)	5.0					5.0
All-Red Time (s)	2.0					2.0
Lost Time Adjust (s)	-2.0					-2.0
Total Lost Time (s)	5.0					5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0					3.0
Recall Mode	None					C-Max
Act Effct Green (s)	13.0					97.0
Actuated g/C Ratio	0.11					0.81
v/c Ratio	0.46					0.83
Control Delay						10.3
Culliul Delay	40.6					10.3

# ~ \* 1 / \* 4

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0					0.0
Total Delay	40.6					10.3
LOS	D					В
Approach Delay	40.6					10.3
Approach LOS	D					В
Queue Length 50th (ft)	69					448
Queue Length 95th (ft)	m88					607
Internal Link Dist (ft)	20		278			440
Turn Bay Length (ft)						
Base Capacity (vph)	429					2860
Starvation Cap Reductn	0					0
Spillback Cap Reductn	0					0
Storage Cap Reductn	0					0
Reduced v/c Ratio	0.40					0.83

#### Intersection Summary

Area Type: Other

Cycle Length: 120 Actuated Cycle Length: 120

Offset: 66 (55%), Referenced to phase 6:SBT, Start of Green

Natural Cycle: 80

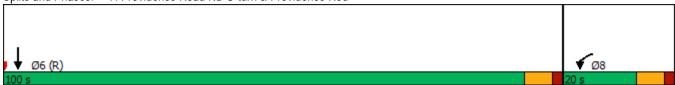
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 12.3 Intersection LOS: B
Intersection Capacity Utilization 103.9% ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 7: Providence Road NB U-turn & Providence Rod



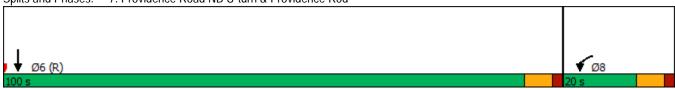
m Volume for 95th percentile queue is metered by upstream signal.

	•	•	<b>†</b>	~	<b>&gt;</b>	ļ
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	ሻሻ	WER	NUI	NON	ODL	<b>†</b>
Traffic Volume (vph)	153	0	0	0	0	1933
Future Volume (vph)	153	0	0	0	0	1933
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	0.95
Frt	0.77	1.00	1.00	1.00	1.00	0.73
Flt Protected	0.950					
Satd. Flow (prot)	3433	0	0	0	0	3539
Flt Permitted	0.950	U	U	U	U	3337
Satd. Flow (perm)	3433	0	0	0	0	3539
			U		U	3339
Right Turn on Red	No	No		No		
Satd. Flow (RTOR)	0.5		0.5			
Link Speed (mph)	35		25			45
Link Distance (ft)	100		358			520
Travel Time (s)	1.9		9.8			7.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	170	0	0	0	0	2148
Shared Lane Traffic (%)						
Lane Group Flow (vph)	170	0	0	0	0	2148
Turn Type	Prot					NA
Protected Phases	8					6
Permitted Phases						
Detector Phase	8					6
Switch Phase						
Minimum Initial (s)	7.0					12.0
Minimum Split (s)	20.0					20.0
Total Split (s)	20.0					100.0
Total Split (%)	16.7%					83.3%
Maximum Green (s)	13.0					93.0
. ,						
Yellow Time (s)	5.0					5.0
All-Red Time (s)	2.0					2.0
Lost Time Adjust (s)	-2.0					-2.0
Total Lost Time (s)	5.0					5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0					3.0
Recall Mode	None					C-Max
Act Effct Green (s)	13.0					97.0
Actuated g/C Ratio	0.11					0.81
v/c Ratio	0.46					0.75
Control Delay	35.8					8.0
Queue Delay	0.0					0.0
Total Delay	35.8					8.0
LOS	D					A
Approach Delay	35.8					8.0
Approach LOS	55.0 D					0.0 A
Queue Length 50th (ft)	68					344
Queue Length 95th (ft)	m74		070			463
Internal Link Dist (ft)	20		278			440

## 7: Providence Road NB U-turn & Providence Rod

	•	•	<b>†</b>	<i>&gt;</i>	<b>\</b>	ļ
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Bay Length (ft)					002	
Base Capacity (vph)	429					2861
Starvation Cap Reductn	0					0
Spillback Cap Reductn	0					0
Storage Cap Reductn	0					0
Reduced v/c Ratio	0.40					0.75
Intersection Summary						
Area Type:	Other					
Cycle Length: 120						
Actuated Cycle Length: 12						
Offset: 1 (1%), Reference	d to phase 6:S	SBT, Star	t of Gree	n		
Natural Cycle: 70						
Control Type: Actuated-Co	oordinated					
Maximum v/c Ratio: 0.75						
Intersection Signal Delay:				Int	tersection	LOS: A
Intersection Capacity Utiliz	zation 102.4%	)		IC	U Level o	f Service G
Analysis Period (min) 15						
m Volume for 95th perce	entile queue is	s metered	by upstr	eam sign	al.	

Splits and Phases: 7: Providence Road NB U-turn & Providence Rod



Synchro 10 Report Lanes, Volumes, Timings Page 2 RKA

	ᄼ	-	<b>←</b>	•	<b>\</b>	1
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	LUL	<b>†</b> †	וטיי	VVDIC	JDL	JUIN
Traffic Volume (vph)	0	<b>TT</b> 1132	0	0	63	0
Future Volume (vph)	0	1132	0	0	63	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	0.93	1.00	1.00	1.00	1.00
					0.050	
Flt Protected	0	2520	0	0	0.950	0
Satd. Flow (prot)	0	3539	0	0	1770	0
Flt Permitted	0	0500	0	0	0.950	0
Satd. Flow (perm)	0	3539	0	0	1770	0
Right Turn on Red				No	No	No
Satd. Flow (RTOR)						
Link Speed (mph)		45	25		35	
Link Distance (ft)		242	505		100	
Travel Time (s)		3.7	13.8		1.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1258	0	0	70	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1258	0	0	70	0
Turn Type		NA	<u> </u>		Prot	<u> </u>
Protected Phases		6			4	
Permitted Phases		U				
Detector Phase		6			4	
Switch Phase		U			4	
		12.0			7.0	
Minimum Initial (s)						
Minimum Split (s)		19.0			14.0	
Total Split (s)		97.0			23.0	
Total Split (%)		80.8%			19.2%	
Maximum Green (s)		90.0			16.0	
Yellow Time (s)		5.0			5.0	
All-Red Time (s)		2.0			2.0	
Lost Time Adjust (s)		-2.0			-2.0	
Total Lost Time (s)		5.0			5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0			3.0	
Recall Mode		C-Max			None	
Act Effct Green (s)		101.5			12.3	
Actuated g/C Ratio		0.85			0.10	
v/c Ratio		0.42			0.39	
Control Delay		3.5			46.5	
Queue Delay		0.0			0.0	
Total Delay		3.5			46.5	
LOS		3.3 A			40.3 D	
Approach LOS		3.5			46.5	
Approach LOS		A			D	
Queue Length 50th (ft)		114			54	
Queue Length 95th (ft)		173			m67	
Internal Link Dist (ft)		162	425		20	

	۶	<b>→</b>	<b>+</b>	•	<b>\</b>	4	
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	
Turn Bay Length (ft)							
Base Capacity (vph)		2994			265		
Starvation Cap Reductn		0			0		
Spillback Cap Reductn		0			0		
Storage Cap Reductn		0			0		
Reduced v/c Ratio		0.42			0.26		
Intersection Summary							
Area Type:	Other						
Cycle Length: 120							
Actuated Cycle Length: 120							
Offset: 106 (88%), Reference	ed to phase	6:EBT,	Start of (	Green			
Natural Cycle: 40							
Control Type: Actuated-Coor	rdinated						
Maximum v/c Ratio: 0.42							
Intersection Signal Delay: 5.8					tersection		
Intersection Capacity Utilizat	tion 89.6%			IC	U Level c	of Service E	
Analysis Period (min) 15							
m Volume for 95th percent	tile queue is	metere	d by upst	tream sigr	nal.		
Splits and Phases: 11: Re	ea Road & R	oa Doar	۱WBIL	Turn			
Spins and mases. Tr. Ne	a Noau & N	ca Road	A VVD U-	Turri			Τ.
							<b>9</b> Ø4
							23 s

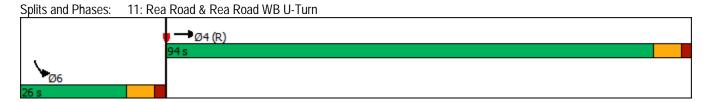
	ၨ	-	<b>←</b>	•	<b>\</b>	1
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	LUL	<b>†</b>	WDI	VVDIX	JDL	JUIC
Traffic Volume (vph)	0	<b>1838</b>	0	0	63	0
Future Volume (vph)	0	1838	0	0	63	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	0.93	1.00	1.00	1.00	1.00
					0.050	
Flt Protected	^	2520	0	0	0.950	0
Satd. Flow (prot)	0	3539	0	0	1770	0
Flt Permitted	0	0500	0	0	0.950	0
Satd. Flow (perm)	0	3539	0	0	1770	0
Right Turn on Red				No	No	No
Satd. Flow (RTOR)						
Link Speed (mph)		45	25		35	
Link Distance (ft)		242	505		100	
Travel Time (s)		3.7	13.8		1.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	2042	0	0	70	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2042	0	0	70	0
Turn Type		NA	<u> </u>		Prot	<u> </u>
Protected Phases		6			4	
Permitted Phases		U				
Detector Phase		6			4	
Switch Phase		U			7	
		12.0			7.0	
Minimum Initial (s)						
Minimum Split (s)		19.0			14.0	
Total Split (s)		103.0			17.0	
Total Split (%)		85.8%			14.2%	
Maximum Green (s)		96.0			10.0	
Yellow Time (s)		5.0			5.0	
All-Red Time (s)		2.0			2.0	
Lost Time Adjust (s)		-2.0			-2.0	
Total Lost Time (s)		5.0			5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0			3.0	
Recall Mode		C-Max			None	
Act Effct Green (s)		102.7			11.1	
Actuated g/C Ratio		0.86			0.09	
v/c Ratio		0.67			0.43	
Control Delay		5.4			47.4	
Queue Delay		0.0			0.0	
•		5.4			47.4	
Total Delay LOS		5.4 A			47.4 D	
Approach LOS		5.4			47.4	
Approach LOS		A			D	
Queue Length 50th (ft)		283			46	
Queue Length 95th (ft)		342			m89	
Internal Link Dist (ft)		162	425		20	

	•	<b>→</b>	<b>—</b>	•	<b>\</b>	4		
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR		
Turn Bay Length (ft)								
Base Capacity (vph)		3029			177			
Starvation Cap Reductn		0			0			
Spillback Cap Reductn		0			0			
Storage Cap Reductn		0			0			
Reduced v/c Ratio		0.67			0.40			
Intersection Summary								
JI	Other							
Cycle Length: 120								
Actuated Cycle Length: 120								
Offset: 84 (70%), Reference	ed to phase	6:EBT, S	Start of G	reen				
Natural Cycle: 60								
Control Type: Actuated-Coo	rdinated							
Maximum v/c Ratio: 0.67								
Intersection Signal Delay: 6.					tersection			
Intersection Capacity Utiliza	tion 89.6%			IC	U Level c	of Service E		
Analysis Period (min) 15								
m Volume for 95th percen	tile queue i	is metere	d by upst	ream sigr	nal.			
Splits and Phases: 11: Re	ea Road &	Rea Roa	d WB U-	Turn				
								04 17 s
<b>→</b> Ø6 (R)								

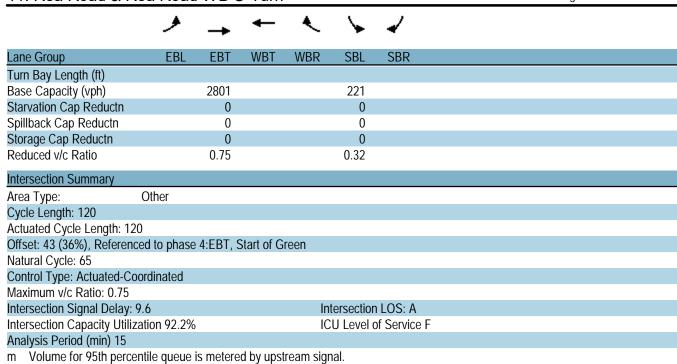
	•	<b>→</b>	•	•	-	4
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		<b>^</b>			) j	
Traffic Volume (vph)	0	1185	0	0	63	0
Future Volume (vph)	0	1185	0	0	63	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	0.75	1.00	1.00	1.00	1.00
Flt Protected					0.950	
Satd. Flow (prot)	0	3539	0	0	1770	0
Flt Permitted	· ·	0007	· ·	· ·	0.950	•
Satd. Flow (perm)	0	3539	0	0	1770	0
Right Turn on Red	- U	0007	- U	No	No	No
Satd. Flow (RTOR)				140	140	140
Link Speed (mph)		45	25		35	
Link Distance (ft)		242	505		100	
Travel Time (s)		3.7	13.8		1.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
		1317	0.90		70	
Adj. Flow (vph) Shared Lane Traffic (%)	0	1317	U	0	70	0
Lane Group Flow (vph)	0	1317	0	0	70	0
Turn Type	U	NA	U	U	Prot	U
Protected Phases		4			6	
Permitted Phases		4			U	
Detector Phase		4			6	
Switch Phase		4			U	
Minimum Initial (s)		7.0			7.0	
Minimum Split (s)		20.0			20.0	
		94.0			26.0	
Total Split (s)						
Total Split (%)		78.3%			21.7%	
Maximum Green (s)		87.0			19.0	
Yellow Time (s)		5.0			5.0	
All-Red Time (s)		2.0			2.0	
Lost Time Adjust (s)		-2.0			-2.0	
Total Lost Time (s)		5.0			5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0			3.0	
Recall Mode		C-Max			Max	
Act Effct Green (s)		89.0			21.0	
Actuated g/C Ratio		0.74			0.18	
v/c Ratio		0.50			0.23	
Control Delay		7.2			36.9	
Queue Delay		0.0			0.0	
Total Delay		7.2			36.9	
LOS		Α			D	
Approach Delay		7.2			36.9	
Approach LOS		Α			D	
Queue Length 50th (ft)		191			48	
Queue Length 95th (ft)		232			m62	
Internal Link Dist (ft)		162	425		20	

	•	<b>→</b>	+	•	<b>\</b>	4
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Turn Bay Length (ft)						
Base Capacity (vph)		2624			309	
Starvation Cap Reductn		0			0	
Spillback Cap Reductn		0			0	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		0.50			0.23	
Intersection Summary						
Area Type:	Other					
Cycle Length: 120						
Actuated Cycle Length: 12						
Offset: 64 (53%), Reference	ced to phase 4	1:EBT, S	Start of G	reen		
Natural Cycle: 45						
Control Type: Actuated-Co	oordinated					
Maximum v/c Ratio: 0.50						
Intersection Signal Delay:	8.7			Ir	ntersection	LOS: A
Intersection Capacity Utiliz	zation 92.1%			IC	CU Level o	f Service F
Analysis Period (min) 15						
m Volume for 95th perce	entile queue is	metere	d by upst	ream sig	nal.	

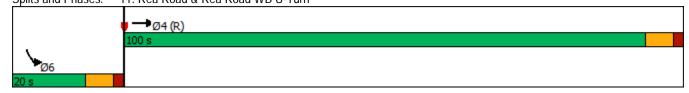
The volume for 75th percentile queue is metered by apstream sign



	۶	<b>→</b>	•	•	-	4
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		<b>^</b>		TIDIC	) j	OBIN
Traffic Volume (vph)	0	1882	0	0	63	0
Future Volume (vph)	0	1882	0	0	63	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	0.73	1.00	1.00	1.00	1.00
Flt Protected					0.950	
Satd. Flow (prot)	0	3539	0	0	1770	0
Flt Permitted	U	3339	U	U	0.950	U
	0	2520	Λ	0	1770	0
Satd. Flow (perm)	U	3539	0			
Right Turn on Red				No	No	No
Satd. Flow (RTOR)			0.5		0.5	
Link Speed (mph)		45	25		35	
Link Distance (ft)		242	505		100	
Travel Time (s)		3.7	13.8		1.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	2091	0	0	70	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2091	0	0	70	0
Turn Type		NA			Prot	
Protected Phases		4			6	
Permitted Phases						
Detector Phase		4			6	
Switch Phase						
Minimum Initial (s)		7.0			7.0	
Minimum Split (s)		20.0			20.0	
Total Split (s)		100.0			20.0	
Total Split (%)		83.3%			16.7%	
Maximum Green (s)		93.0			13.0	
Yellow Time (s)		5.0			5.0	
All-Red Time (s)		2.0			2.0	
Lost Time Adjust (s)		-2.0			-2.0	
Total Lost Time (s)		5.0			5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0			3.0	
Recall Mode		C-Max			Max	
Act Effct Green (s)		95.0			15.0	
Actuated g/C Ratio		0.79			0.12	
v/c Ratio		0.75			0.32	
Control Delay		8.5			42.0	
Queue Delay		0.0			0.0	
Total Delay		8.5			42.0	
LOS		A			D	
Approach Delay		8.5			42.0	
Approach LOS		Α			72.0 D	
Queue Length 50th (ft)		355			44	
Queue Length 95th (ft)		431			m85	
Internal Link Dist (ft)		162	425		20	
IIIGHAI LIIK DISI (II)		102	425		20	



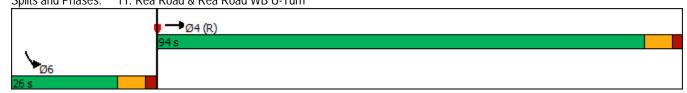
Splits and Phases: 11: Rea Road & Rea Road WB U-Turn



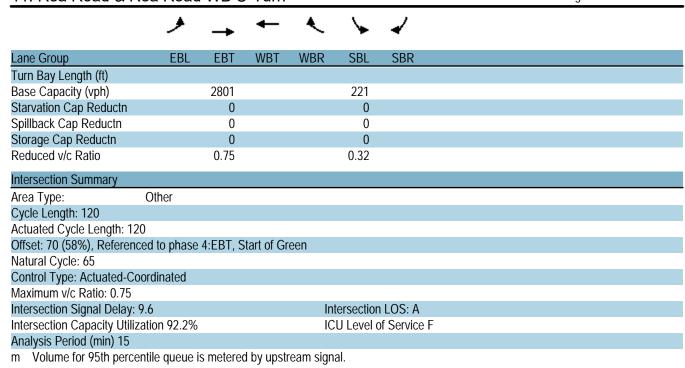
	۶	<b>→</b>	←	•	-	4
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	LUL	<b>↑</b> ↑	VVDI	WDIX	JDL Š	JDR
Traffic Volume (vph)	0	1185	0	0	63	0
Future Volume (vph)	0	1185	0	0	63	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	0.75	1.00	1.00	1.00	1.00
Flt Protected					0.950	
Satd. Flow (prot)	0	3539	0	0	1770	0
Flt Permitted		3337	- 0		0.950	
Satd. Flow (perm)	0	3539	0	0	1770	0
Right Turn on Red	U	3337	U	No	No	No
Satd. Flow (RTOR)				NU	INU	INU
		45	25		35	
Link Speed (mph)						
Link Distance (ft)		242	505		100	
Travel Time (s)	0.00	3.7	13.8	0.00	1.9	0.00
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1317	0	0	70	0
Shared Lane Traffic (%)	^	1017	_		70	_
Lane Group Flow (vph)	0	1317	0	0	70	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Turn Type		NA			Prot	
Protected Phases		4			6	
Permitted Phases						
Detector Phase		4			6	
Switch Phase						
Minimum Initial (s)		7.0			7.0	
Minimum Split (s)		20.0			20.0	
Total Split (s)		94.0			26.0	
Total Split (%)		78.3%			21.7%	
Maximum Green (s)		87.0			19.0	
Yellow Time (s)		5.0			5.0	
All-Red Time (s)		2.0			2.0	
Lost Time Adjust (s)		-2.0			-2.0	
Total Lost Time (s)		5.0			5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0			3.0	
Recall Mode		C-Max			Max	
Act Effct Green (s)		89.0			21.0	
Actuated g/C Ratio		0.74			0.18	
v/c Ratio		0.50			0.23	
Control Delay		7.2			35.8	
Control Delay		1.2			55.0	

	۶	<b>→</b>	<b>←</b>	•	<b>&gt;</b>	✓
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Delay		0.0			0.0	
Total Delay		7.2			35.8	
LOS		Α			D	
Approach Delay		7.2			35.8	
Approach LOS		Α			D	
Queue Length 50th (ft)		191			46	
Queue Length 95th (ft)		232			m63	
Internal Link Dist (ft)		162	425		20	
Turn Bay Length (ft)						
Base Capacity (vph)		2624			309	
Starvation Cap Reductn		0			0	
Spillback Cap Reductn		0			0	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		0.50			0.23	
Intersection Summary						
Area Type:	Other					
Cycle Length: 120						
Actuated Cycle Length: 120						
Offset: 28 (23%), Reference	ed to phase	4:EBT, S	tart of Gr	een		
Natural Cycle: 45						
Control Type: Actuated-Coo	ordinated					
Maximum v/c Ratio: 0.50						
Intersection Signal Delay: 8					ntersection	
Intersection Capacity Utiliza	ation 92.1%			IC	CU Level o	f Service F
Analysis Period (min) 15						
m Volume for 95th percer	ntile queue is	s metered	l by upstr	eam sigr	nal.	

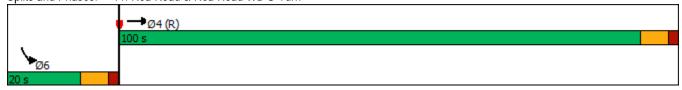
Splits and Phases: 11: Rea Road & Rea Road WB U-Turn



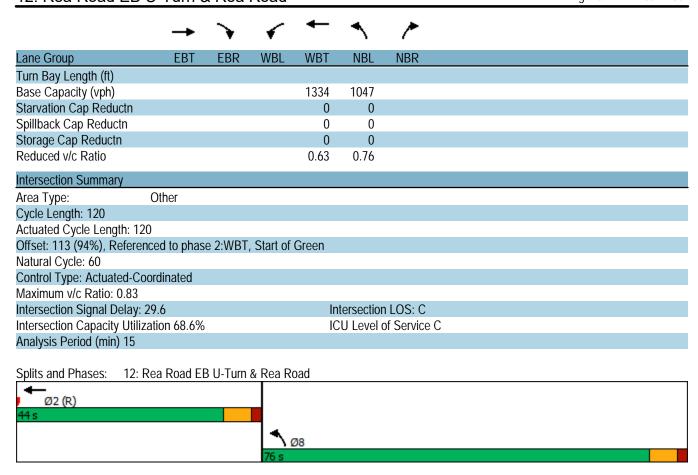
	•	-	<b>←</b>	•	<b>\</b>	1
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	LUL	<b>^</b>	VVDI	WDR	JDL T	OBIN
Traffic Volume (vph)	0	1882	0	0	63	0
Future Volume (vph)	0	1882	0	0	63	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	0.73	1.00	1.00	1.00	1.00
Flt Protected					0.950	
Satd. Flow (prot)	0	3539	0	0	1770	0
Flt Permitted	U	3339	U	U	0.950	U
	0	2520	0	0		0
Satd. Flow (perm)	0	3539	0	0	1770	0
Right Turn on Red				No	No	No
Satd. Flow (RTOR)						
Link Speed (mph)		45	25		35	
Link Distance (ft)		242	505		100	
Travel Time (s)		3.7	13.8		1.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	2091	0	0	70	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2091	0	0	70	0
Turn Type		NA			Prot	
Protected Phases		4			6	
Permitted Phases						
Detector Phase		4			6	
Switch Phase		<u></u>			U	
Minimum Initial (s)		7.0			7.0	
Minimum Split (s)		20.0			20.0	
Total Split (s)		100.0			20.0	
Total Split (%)		83.3%			16.7%	
Maximum Green (s)		93.0			13.0	
Yellow Time (s)		5.0			5.0	
All-Red Time (s)		2.0			2.0	
Lost Time Adjust (s)		-2.0			-2.0	
Total Lost Time (s)		5.0			5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0			3.0	
Recall Mode		C-Max			Max	
Act Effct Green (s)		95.0			15.0	
Actuated g/C Ratio		0.79			0.12	
v/c Ratio		0.75			0.32	
Control Delay		8.5			42.9	
Queue Delay		0.0			0.0	
Total Delay		8.5			42.9	
LOS		8.5 A			42.9 D	
Approach LOS		8.5			42.9	
Approach LOS		A			D	
Queue Length 50th (ft)		355			43	
Queue Length 95th (ft)		431			m88	
Internal Link Dist (ft)		162	425		20	



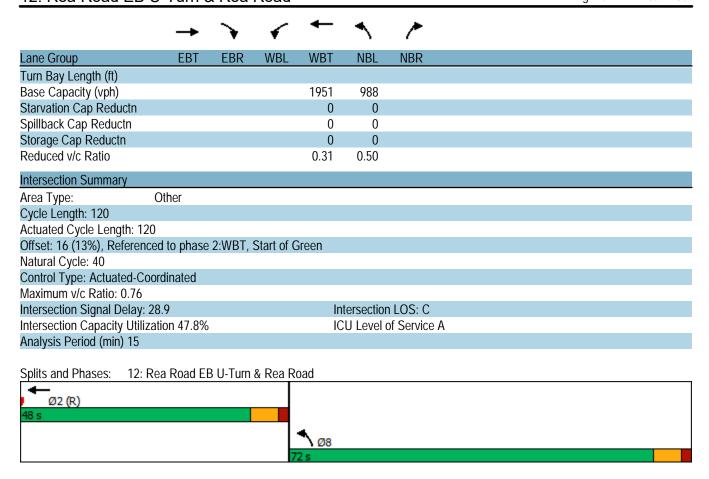
Splits and Phases: 11: Rea Road & Rea Road WB U-Turn



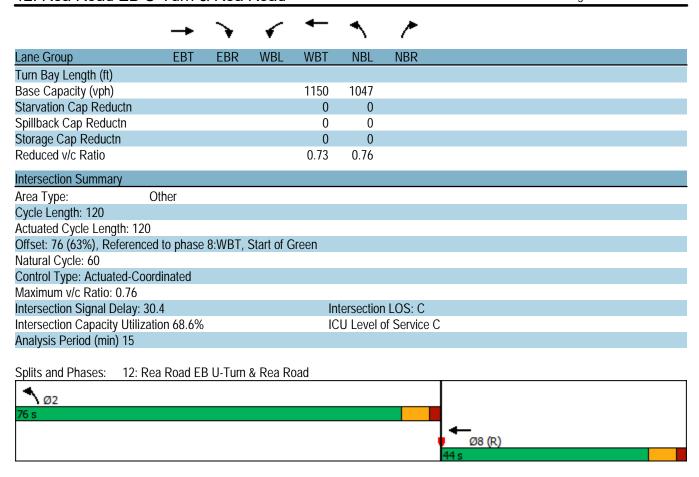
	-	•	•	•	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				<b>^</b>	ሻ	
Traffic Volume (vph)	0	0	0	753	712	0
Future Volume (vph)	0	0	0	753	712	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt	1.00	1.00	1.00	0.70	1.00	1.00
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	3539	1770	0
Flt Permitted				3337	0.950	
Satd. Flow (perm)	0	0	0	3539	1770	0
Right Turn on Red	- 0	No	U	3337	No	No
Satd. Flow (RTOR)		INU			INU	NU
Link Speed (mph)	25			45	35	
	447				100	
Link Distance (ft)				326		
Travel Time (s)	12.2	0.00	0.00	4.9	1.9	0.00
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	837	791	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	837	791	0
Turn Type				NA	Prot	
Protected Phases				2	8	
Permitted Phases						
Detector Phase				2	8	
Switch Phase						
Minimum Initial (s)				12.0	7.0	
Minimum Split (s)				19.0	14.0	
Total Split (s)				44.0	76.0	
Total Split (%)				36.7%	63.3%	
Maximum Green (s)				37.0	69.0	
Yellow Time (s)				5.0	5.0	
All-Red Time (s)				2.0	2.0	
Lost Time Adjust (s)				-2.0	-2.0	
Total Lost Time (s)				5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)				3.0	3.0	
Recall Mode				C-Max	None	
Act Effct Green (s)				45.3	64.7	
Actuated g/C Ratio				0.38	0.54	
v/c Ratio				0.63	0.83	
Control Delay				34.4	24.5	
Queue Delay				0.0	0.0	
Total Delay				34.4	24.5	
LOS				34.4 C	24.5 C	
Approach LOS				34.4	24.5	
Approach LOS				C	C	
Queue Length 50th (ft)				285	309	
Queue Length 95th (ft)	6.1-			375	349	
Internal Link Dist (ft)	367			246	20	



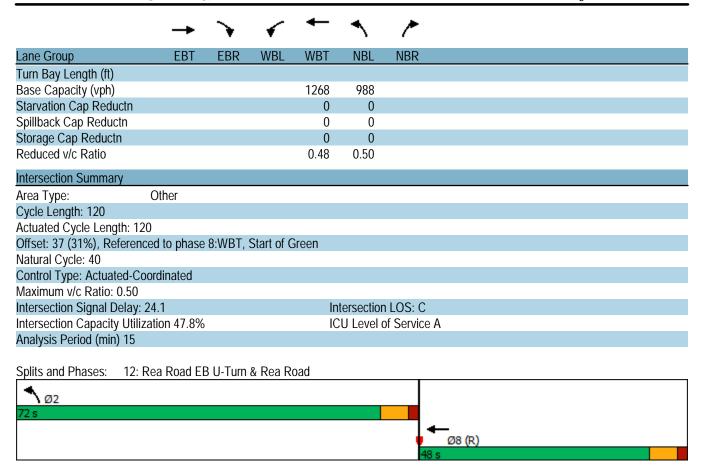
	-	•	•	•	4	~
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				<b>^</b>	ሻ	
Traffic Volume (vph)	0	0	0	543	442	0
Future Volume (vph)	0	0	0	543	442	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt	1.00	1.00	1.00	0.70	1.00	1.00
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	3539	1770	0
Flt Permitted	O .	U	U	3337	0.950	U
Satd. Flow (perm)	0	0	0	3539	1770	0
Right Turn on Red	U	No	U	3337	No	No
Satd. Flow (RTOR)		INU			INU	INU
	25			45	35	
Link Speed (mph)						
Link Distance (ft)	447			326	100	
Travel Time (s)	12.2	0.00	0.00	4.9	1.9	0.00
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	603	491	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	603	491	0
Turn Type				NA	Prot	
Protected Phases				2	8	
Permitted Phases						
Detector Phase				2	8	
Switch Phase						
Minimum Initial (s)				12.0	7.0	
Minimum Split (s)				19.0	14.0	
Total Split (s)				48.0	72.0	
Total Split (%)				40.0%	60.0%	
Maximum Green (s)				41.0	65.0	
Yellow Time (s)				5.0	5.0	
All-Red Time (s)				2.0	2.0	
Lost Time Adjust (s)				-2.0	-2.0	
				-2.0 5.0	-2.0 5.0	
Total Lost Time (s)				5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?				2.0	2.0	
Vehicle Extension (s)				3.0	3.0	
Recall Mode				C-Max	None	
Act Effct Green (s)				66.2	43.8	
Actuated g/C Ratio				0.55	0.36	
v/c Ratio				0.31	0.76	
Control Delay				16.5	44.2	
Queue Delay				0.0	0.0	
Total Delay				16.5	44.2	
LOS				В	D	
Approach Delay				16.5	44.2	
Approach LOS				В	D	
Queue Length 50th (ft)				127	362	
Queue Length 95th (ft)				205	444	
Internal Link Dist (ft)	367			246	20	
- Internal Link Dist (II)	301			<b>4</b> 10	20	



	-	$\rightarrow$	•	<b>←</b>	•	<b>/</b>
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations		LUIT	1100	<b>^</b>	NDE 1	HOIL
Traffic Volume (vph)	0	0	0	753	712	0
Future Volume (vph)	0	0	0	753	712	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt	1.00	1.00	1.00	0.75	1.00	1.00
FIt Protected					0.950	
Satd. Flow (prot)	0	0	0	3539	1770	0
Flt Permitted	U	U	U	3339	0.950	U
	٥	0	Λ	2520		0
Satd. Flow (perm)	0		0	3539	1770	
Right Turn on Red		No			No	No
Satd. Flow (RTOR)						
Link Speed (mph)	25			45	35	
Link Distance (ft)	447			326	100	
Travel Time (s)	12.2			4.9	1.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	837	791	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	837	791	0
Turn Type				NA	Prot	
Protected Phases				8	2	
Permitted Phases					_	
Detector Phase				8	2	
Switch Phase				0		
Minimum Initial (s)				7.0	7.0	
Minimum Split (s)				20.0	20.0	
Total Split (s)				44.0	76.0	
Total Split (%)				36.7%	63.3%	
Maximum Green (s)				37.0	69.0	
Yellow Time (s)				5.0	5.0	
All-Red Time (s)				2.0	2.0	
Lost Time Adjust (s)				-2.0	-2.0	
Total Lost Time (s)				5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)				3.0	3.0	
Recall Mode				C-Max	Max	
Act Effct Green (s)				39.0	71.0	
Actuated g/C Ratio				0.32	0.59	
v/c Ratio				0.73	0.76	
Control Delay				40.2	20.0	
Queue Delay				0.0	0.0	
Total Delay				40.2	20.0	
LOS				40.2 D	20.0 C	
				40.2	20.0	
Approach LOS				40.2 D	20.0 C	
Approach LOS						
Queue Length 50th (ft)				300	306	
Queue Length 95th (ft)	0.47			375	368	
Internal Link Dist (ft)	367			246	20	



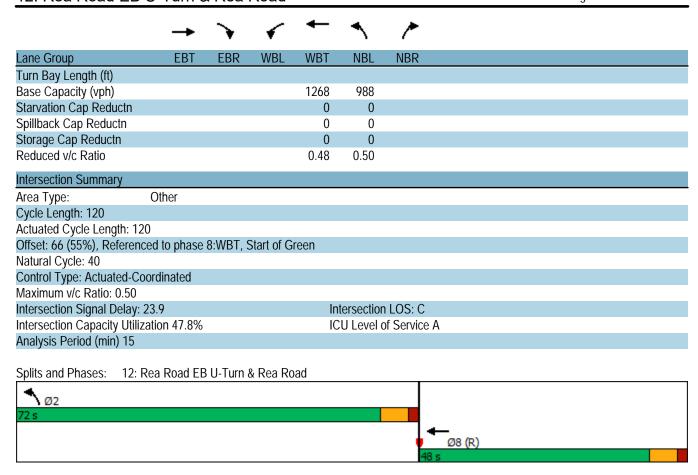
	-	$\rightarrow$	•	<b>←</b>	•	<b>/</b>
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				<b>^</b>	ሻ	
Traffic Volume (vph)	0	0	0	543	442	0
Future Volume (vph)	0	0	0	543	442	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt	1.00	1.00	1.00	0.75	1.00	1.00
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	3539	1770	0
Flt Permitted	U	U	U	3339	0.950	U
	0	0	0	2520		0
Satd. Flow (perm)	U		0	3539	1770	
Right Turn on Red		No			No	No
Satd. Flow (RTOR)						
Link Speed (mph)	25			45	35	
Link Distance (ft)	447			326	100	
Travel Time (s)	12.2			4.9	1.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	603	491	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	603	491	0
Turn Type				NA	Prot	
Protected Phases				8	2	
Permitted Phases					_	
Detector Phase				8	2	
Switch Phase				U		
Minimum Initial (s)				7.0	7.0	
, ,				20.0	20.0	
Minimum Split (s)						
Total Split (s)				48.0	72.0	
Total Split (%)				40.0%	60.0%	
Maximum Green (s)				41.0	65.0	
Yellow Time (s)				5.0	5.0	
All-Red Time (s)				2.0	2.0	
Lost Time Adjust (s)				-2.0	-2.0	
Total Lost Time (s)				5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)				3.0	3.0	
Recall Mode				C-Max	Max	
Act Effct Green (s)				43.0	67.0	
Actuated g/C Ratio				0.36	0.56	
v/c Ratio				0.48	0.50	
Control Delay				31.3	15.3	
Queue Delay				0.0	0.0	
,						
Total Delay				31.3	15.3	
LOS				C	В	
Approach Delay				31.3	15.3	
Approach LOS				C	В	
Queue Length 50th (ft)				188	240	
Queue Length 95th (ft)				243	346	
Internal Link Dist (ft)	367			246	20	



	-	•	•	•	4	~
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				**	ħ	
Traffic Volume (vph)	0	0	0	753	712	0
Future Volume (vph)	0	0	0	753	712	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt				2.73		.,
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	3539	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	3539	1770	0
Right Turn on Red		No		0007	No	No
Satd. Flow (RTOR)		140			140	140
Link Speed (mph)	25			45	35	
Link Distance (ft)	447			326	100	
Travel Time (s)	12.2			4.9	1.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0.90	0.70	0.70	837	791	0.70
Shared Lane Traffic (%)	U	U	U	037	171	U
Lane Group Flow (vph)	0	0	0	837	791	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left		Left	Left	Left	Right
Median Width(ft)	0	Right	Len	Len 0	12	Rigitt
Link Offset(ft)	0			0	0	
	16			16	16	
Crosswalk Width(ft)	10			10	10	
Two way Left Turn Lane	1.00	1.00	1.00	1.00	1.00	1.00
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15	N I A	15 Dret	9
Turn Type				NA	Prot	
Protected Phases				8	2	
Permitted Phases					_	
Detector Phase				8	2	
Switch Phase						
Minimum Initial (s)				7.0	7.0	
Minimum Split (s)				20.0	20.0	
Total Split (s)				44.0	76.0	
Total Split (%)				36.7%	63.3%	
Maximum Green (s)				37.0	69.0	
Yellow Time (s)				5.0	5.0	
All-Red Time (s)				2.0	2.0	
Lost Time Adjust (s)				-2.0	-2.0	
Total Lost Time (s)				5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)				3.0	3.0	
Recall Mode				C-Max	Max	
Act Effct Green (s)				39.0	71.0	
Actuated g/C Ratio				0.32	0.59	
v/c Ratio				0.73	0.76	
Control Delay				40.2	18.0	

	<b>→</b>	•	•	<b>←</b>	4	/			
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR			
Queue Delay				0.0	0.0				
Total Delay				40.2	18.0				
LOS				D	В				
Approach Delay				40.2	18.0				
Approach LOS				D	В				
Queue Length 50th (ft)				300	254				
Queue Length 95th (ft)				375	365				
Internal Link Dist (ft)	367			246	20				
Turn Bay Length (ft)									
Base Capacity (vph)				1150	1047				
Starvation Cap Reductn				0	0				
Spillback Cap Reductn				0	0				
Storage Cap Reductn				0	0				
Reduced v/c Ratio				0.73	0.76				
Intersection Summary									
	Other								
Cycle Length: 120									
Actuated Cycle Length: 120									
Offset: 42 (35%), Referenced	d to phase	8:WBT, 9	Start of G	reen					
Natural Cycle: 60									
Control Type: Actuated-Coor	dinated								
Maximum v/c Ratio: 0.76									
Intersection Signal Delay: 29					tersection				
Intersection Capacity Utilizati	on 68.6%			IC	U Level o	f Service C			
Analysis Period (min) 15									
Splits and Phases: 12: Rea	a Road EB	U-Turn 8	& Rea Ro	ad				 	
• •									
76 s									
,,,,							4		
						•	Ø8 (R)		

0 0 1900 1.00	0 0	WBL 0	WBT <b>↑↑</b>	NBL	NBR
0 0 1900	0				
0 1900		Λ		7	
0 1900			543	442	0
1900	U	0	543	442	0
	1900	1900	1900	1900	1900
	1.00	1.00	0.95	1.00	1.00
1.00	1.00	1.00	0.70	1.00	1.00
				0.950	
0	0	0	3539	1770	0
0		U	3337		- 0
0	0	n	3530		0
U		U	3337		No
	NU			INU	INU
25			10	25	
	0.00	0.00			0.00
					0.90
0	0	0	603	491	0
0	0	0			0
			8	2	
			8	2	
			7.0	7.0	
			20.0	20.0	
			48.0	72.0	
			40.0%	60.0%	
			5.0	3.0	
			3.0	3.0	
			188	222	
			243	329	
367			246	20	
	0 25 447 12.2 0.90 0	0 0 No 25 447 12.2 0.90 0.90 0 0 0 0	0 0 0 0 No  25 447 12.2 0.90 0.90 0.90 0 0 0  0 0 0	0 0 0 3539 No  25 45 447 326 12.2 4.9 0.90 0.90 0.90 0.90 0 0 0 603  0 0 0 603  NA  8  7.0 20.0 48.0 40.0% 41.0 5.0 2.0 -2.0 5.0  C-Max 43.0 0.36 0.48 31.3 0.0 31.3 C C 31.3 C C 188 243	0.950 0 0 0 3539 1770 No No No  25 45 35 447 326 100 12.2 4.9 1.9 0.90 0.90 0.90 0.90 0.90 0 0 0 603 491  0 0 0 603 491  NA Prot 8 2  8 2  7.0 7.0 20.0 20.0 48.0 72.0 40.0% 60.0% 41.0 65.0 5.0 5.0 2.0 2.0 2.0 2.0 48.0 72.0 5.0 5.0 5.0 5.0  C-Max Max 43.0 67.0 5.0 5.0  S-C-Max Max 43.0 67.0 5.0 5.0  C-Max Max 43.0 67.0 0.36 0.56 0.48 0.50 31.3 14.7 0.0 0.0 31.3 14.7 0.0 0.0 31.3 14.7 0.0 0.0 31.3 14.7 0.0 B 31.3 14.7



# **APPENDIX K**

## SIMTRAFFIC QUEUING REPORTS



## Intersection: 1: Weddington Road & Wheatberry Hill Drive

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	36	34
Average Queue (ft)	7	9
95th Queue (ft)	28	28
Link Distance (ft)		969
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	125	
Storage Blk Time (%)		
Queuing Penalty (veh)		

## Intersection: 2: Weddington Road & Weddington Matthews Road

Movement	EB	EB	WB	SB
Directions Served	UL	T	UTR	LR
Maximum Queue (ft)	48	40	228	126
Average Queue (ft)	4	3	87	51
95th Queue (ft)	23	20	192	92
Link Distance (ft)	694	694	774	1315
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

#### Intersection: 3: Providence Road & Church Driveway/Weddington Road

Movement	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	L	LT	R	UL	Т	Т	R	UL	L	T	TR
Maximum Queue (ft)	78	179	191	249	40	349	360	168	147	195	159	170
Average Queue (ft)	25	104	121	109	8	222	225	75	65	92	76	81
95th Queue (ft)	58	161	175	197	29	342	347	137	118	157	136	145
Link Distance (ft)	1038		694			1072	1072				2572	2572
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)		500		325	500			450	550	550		
Storage Blk Time (%)				0								
Queuing Penalty (veh)				0								

## Intersection: 4: Providence Road & Lenny Stadler Way

Movement	EB	EB	NB	NB	NB	SB	SB	
Directions Served	L	R	UL	T	T	T	TR	
Maximum Queue (ft)	76	67	95	119	162	190	198	
Average Queue (ft)	31	25	44	32	55	80	86	
95th Queue (ft)	61	59	84	89	123	162	168	
Link Distance (ft)	1046			2773	2773	1072	1072	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		25	300					
Storage Blk Time (%)	18	15						
Queuing Penalty (veh)	7	8						

#### Intersection: 5: Providence Road & Rea Road

Movement	EB	EB	NB	NB	NB	NB	SB	SB	SB	
Directions Served	L	R	L	L	T	T	U	T	R	
Maximum Queue (ft)	374	144	231	264	192	208	108	602	305	
Average Queue (ft)	199	58	117	147	104	107	7	367	90	
95th Queue (ft)	325	118	202	232	164	171	62	549	218	
Link Distance (ft)	1970	1970			770	770		2773	2773	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)			500	500			300			
Storage Blk Time (%)								21		
Queuing Penalty (veh)								1		

#### **Network Summary**

Network wide Queuing Penalty: 15

## Intersection: 1: Weddington Road & Wheatberry Hill Drive

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	30	30
Average Queue (ft)	5	9
95th Queue (ft)	23	27
Link Distance (ft)		969
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	125	
Storage Blk Time (%)		
Queuing Penalty (veh)		

## Intersection: 2: Weddington Road & Weddington Matthews Road

Movement	EB	EB	WB	SB
Directions Served	UL	Т	UTR	LR
Maximum Queue (ft)	82	86	309	144
Average Queue (ft)	13	15	99	49
95th Queue (ft)	46	55	224	104
Link Distance (ft)	694	694	774	1315
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

#### Intersection: 3: Providence Road & Church Driveway/Weddington Road

Movement	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	L	LT	R	UL	Т	Т	R	UL	L	T	TR
Maximum Queue (ft)	60	194	197	225	30	371	392	222	253	278	172	178
Average Queue (ft)	17	109	121	107	7	224	226	107	112	153	82	87
95th Queue (ft)	48	167	175	191	24	339	346	187	199	236	150	156
Link Distance (ft)	1038		694			1072	1072				2572	2572
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)		500		325	500			450	550	550		
Storage Blk Time (%)							0					
Queuing Penalty (veh)							0					

## Intersection: 4: Providence Road & Lenny Stadler Way

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	UL	T	Т	T	TR
Maximum Queue (ft)	79	30	49	90	126	172	181
Average Queue (ft)	26	7	15	31	52	58	62
95th Queue (ft)	57	27	42	81	116	134	139
Link Distance (ft)	1046			2773	2773	1072	1072
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		25	300				
Storage Blk Time (%)	13	4					
Queuing Penalty (veh)	2	2					

#### Intersection: 5: Providence Road & Rea Road

Movement	EB	EB	NB	NB	NB	NB	SB	SB	SB	
Directions Served	L	R	L	L	T	T	U	T	R	
Maximum Queue (ft)	545	302	145	180	209	206	104	610	282	
Average Queue (ft)	291	145	65	94	123	123	6	387	114	
95th Queue (ft)	493	248	133	157	189	194	61	578	218	
Link Distance (ft)	1970	1970			770	770		2773	2773	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)			500	500			300			
Storage Blk Time (%)								23		
Queuing Penalty (veh)								1		

#### **Network Summary**

Network wide Queuing Penalty: 5

## Intersection: 1: Weddington Road & Wheatberry Hill Drive

Movement	EB	WB	WB	SB
Directions Served	L	T	R	LR
Maximum Queue (ft)	35	235	88	39
Average Queue (ft)	9	66	7	11
95th Queue (ft)	33	362	73	32
Link Distance (ft)		1179		969
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	125		125	
Storage Blk Time (%)		11		
Queuing Penalty (veh)		1		

## Intersection: 2: Weddington Road & Weddington Matthews Road

Movement	EB	EB	WB	SB
Directions Served	UL	Т	UTR	LR
Maximum Queue (ft)	36	66	603	192
Average Queue (ft)	5	8	350	69
95th Queue (ft)	24	38	762	140
Link Distance (ft)	694	694	774	1315
Upstream Blk Time (%)			1	
Queuing Penalty (veh)			8	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

#### Intersection: 3: Providence Road & Church Driveway/Weddington Road

Movement	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	L	LT	R	L	T	Т	R	L	L	T	TR
Maximum Queue (ft)	86	214	234	285	35	487	522	334	203	204	180	204
Average Queue (ft)	33	131	152	170	7	311	319	98	80	112	96	104
95th Queue (ft)	71	202	216	269	27	456	470	214	154	181	160	172
Link Distance (ft)	1038		694			1072	1072				2572	2572
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)		500		325	500			450	550	550		
Storage Blk Time (%)				0		0	1					
Queuing Penalty (veh)				0		0	5					

## Intersection: 4: Providence Road & Lenny Stadler Way

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	T	TR
Maximum Queue (ft)	88	69	151	145	190	269	289
Average Queue (ft)	39	27	69	54	81	134	143
95th Queue (ft)	75	59	122	119	157	229	239
Link Distance (ft)	1046			2773	2773	1072	1072
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		25	300				
Storage Blk Time (%)	33	16					
Queuing Penalty (veh)	15	10					

#### Intersection: 5: Providence Road & Rea Road

Movement	EB	EB	NB	NB	NB	NB	SB	SB	SB	
Directions Served	L	R	L	L	T	T	U	T	R	
Maximum Queue (ft)	796	269	230	254	229	246	326	1477	1175	
Average Queue (ft)	533	89	143	168	138	141	23	982	465	
95th Queue (ft)	1035	260	229	252	206	215	160	1888	1475	
Link Distance (ft)	1970	1970			770	770		2773	2773	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)			500	500			300			
Storage Blk Time (%)								57		
Queuing Penalty (veh)								2		

#### **Network Summary**

Network wide Queuing Penalty: 40

## Intersection: 1: Weddington Road & Wheatberry Hill Drive

Movement	EB	WB	SB
Directions Served	L	T	LR
Maximum Queue (ft)	35	20	39
Average Queue (ft)	8	1	10
95th Queue (ft)	31	16	31
Link Distance (ft)		1179	969
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	125		
Storage Blk Time (%)			
Queuing Penalty (veh)			

## Intersection: 2: Weddington Road & Weddington Matthews Road

Movement	EB	EB	WB	SB
Directions Served	UL	Т	UTR	LR
Maximum Queue (ft)	81	252	630	135
Average Queue (ft)	17	43	252	56
95th Queue (ft)	56	142	584	102
Link Distance (ft)	694	694	774	1315
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

#### Intersection: 3: Providence Road & Church Driveway/Weddington Road

Movement	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	L	LT	R	L	T	Т	R	L	L	T	TR
Maximum Queue (ft)	70	224	239	290	36	488	474	309	326	320	249	238
Average Queue (ft)	23	141	153	151	4	295	300	135	172	215	109	110
95th Queue (ft)	58	206	218	251	21	438	442	253	285	304	189	192
Link Distance (ft)	1038		694			1072	1072				2572	2572
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)		500		325	500			450	550	550		
Storage Blk Time (%)				0		0	1					
Queuing Penalty (veh)				0		0	3					

## Intersection: 4: Providence Road & Lenny Stadler Way

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	T	TR
Maximum Queue (ft)	68	42	70	152	182	269	284
Average Queue (ft)	34	11	25	54	86	107	113
95th Queue (ft)	64	35	58	125	172	206	210
Link Distance (ft)	1046			2773	2773	1072	1072
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		25	300				
Storage Blk Time (%)	27	7					
Queuing Penalty (veh)	4	3					

#### Intersection: 5: Providence Road & Rea Road

Movement	EB	EB	NB	NB	NB	NB	SB	SB	SB	
Directions Served	L	R	L	L	T	T	U	T	R	
Maximum Queue (ft)	1706	1414	224	244	276	279	251	1322	1000	
Average Queue (ft)	1111	596	136	157	177	182	13	891	291	
95th Queue (ft)	1976	1624	221	236	251	263	119	1362	829	
Link Distance (ft)	1970	1970			770	770		2773	2773	
Upstream Blk Time (%)	1	0								
Queuing Penalty (veh)	0	0								
Storage Bay Dist (ft)			500	500			300			
Storage Blk Time (%)								57		
Queuing Penalty (veh)								2		

#### **Network Summary**

Network wide Queuing Penalty: 13

## Intersection: 1: Access A/Wheatberry Hill Drive & Weddington Road

Movement	EB	WB	WB	WB	NB	SB
Directions Served	L	L	T	R	LTR	LTR
Maximum Queue (ft)	30	159	1229	225	148	128
Average Queue (ft)	8	11	709	24	53	44
95th Queue (ft)	27	85	1486	138	151	114
Link Distance (ft)			1185		1014	969
Upstream Blk Time (%)			27			
Queuing Penalty (veh)			0			
Storage Bay Dist (ft)	125	100		125		
Storage Blk Time (%)			75			
Queuing Penalty (veh)			7			

#### Intersection: 2: Access B/Weddington Matthews Road & Weddington Road

Movement	EB	EB	WB	NB	SB
Directions Served	UL	TR	ULTR	LTR	LTR
Maximum Queue (ft)	79	56	774	82	154
Average Queue (ft)	17	6	731	28	65
95th Queue (ft)	53	32	896	65	121
Link Distance (ft)	694	694	762	961	1316
Upstream Blk Time (%)			11		
Queuing Penalty (veh)			98		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

## Intersection: 3: Providence Road & Church Driveway/Weddington Road

Movement	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	L	LT	R	L	T	T	R	L	L	Т	TR
Maximum Queue (ft)	95	239	261	333	35	575	597	496	209	223	213	222
Average Queue (ft)	31	145	159	184	6	345	353	139	101	136	104	114
95th Queue (ft)	74	218	233	301	25	588	601	376	177	206	179	190
Link Distance (ft)	1038		694			1060	1060				2572	2572
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)		500		325	500			450	550	550		
Storage Blk Time (%)			0	1		3	6					
Queuing Penalty (veh)			0	3		0	18					

## Intersection: 4: Providence Road & Lenny Stadler Way/Access C

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	
Directions Served	LT	R	LT	R	L	T	T	R	L	T	TR	
Maximum Queue (ft)	160	92	140	96	223	377	405	253	146	366	371	
Average Queue (ft)	62	27	66	33	89	200	234	45	52	201	210	
95th Queue (ft)	124	70	117	75	167	335	364	150	114	317	326	
Link Distance (ft)	1045		1176			2766	2766			1060	1060	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)		25		100	300			250	250			
Storage Blk Time (%)	58	21	3	0		2	6			4		
Queuing Penalty (veh)	25	16	1	0		2	9			3		

#### Intersection: 5: Providence Road & Rea Road

Movement	EB	EB	NB	NB	NB	NB	SB	SB	SB	
Directions Served	L	R	L	L	T	T	U	T	R	
Maximum Queue (ft)	805	258	350	383	283	303	166	1020	749	
Average Queue (ft)	460	95	198	223	201	213	9	722	199	
95th Queue (ft)	751	191	311	342	273	291	102	1057	569	
Link Distance (ft)	1970	1970			770	770		2766	2766	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)			500	500			300			
Storage Blk Time (%)								48		
Queuing Penalty (veh)								2		

#### **Network Summary**

Network wide Queuing Penalty: 186

## Intersection: 1: Access A/Wheatberry Hill Drive & Weddington Road

Movement	EB	WB	WB	WB	NB	SB
Directions Served	L	L	T	R	LTR	LTR
Maximum Queue (ft)	32	92	682	134	101	73
Average Queue (ft)	5	7	200	7	25	18
95th Queue (ft)	23	61	688	74	90	56
Link Distance (ft)			1185		1014	969
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	125	100		125		
Storage Blk Time (%)			32			
Queuing Penalty (veh)			4			

## Intersection: 2: Access B/Weddington Matthews Road & Weddington Road

Movement	EB	EB	WB	NB	SB
Directions Served	UL	TR	ULTR	LTR	LTR
Maximum Queue (ft)	163	281	771	164	175
Average Queue (ft)	32	55	574	58	63
95th Queue (ft)	118	220	953	121	129
Link Distance (ft)	694	694	762	961	1316
Upstream Blk Time (%)		0	7		
Queuing Penalty (veh)		0	57		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

## Intersection: 3: Providence Road & Church Driveway/Weddington Road

Movement	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	L	LT	R	L	Т	Т	R	L	L	T	TR
Maximum Queue (ft)	56	230	237	310	26	561	561	451	459	476	371	240
Average Queue (ft)	20	139	149	172	3	267	268	129	277	310	118	121
95th Queue (ft)	50	203	213	281	15	498	507	314	514	523	241	210
Link Distance (ft)	1038		694			1060	1060				2572	2572
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)		500		325	500			450	550	550		
Storage Blk Time (%)				0		1	3		1	2	0	
Queuing Penalty (veh)				2		0	12		4	9	0	

## Intersection: 4: Providence Road & Lenny Stadler Way/Access C

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	
Directions Served	LT	R	LT	R	L	T	T	R	L	T	TR	
Maximum Queue (ft)	109	77	280	199	70	422	444	347	318	679	695	
Average Queue (ft)	48	14	124	64	23	221	255	62	82	253	258	
95th Queue (ft)	93	47	222	145	56	373	410	228	220	567	572	
Link Distance (ft)	1045		1176			2766	2766			1060	1060	
Upstream Blk Time (%)										0	0	
Queuing Penalty (veh)										0	0	
Storage Bay Dist (ft)		25		100	300			250	250			
Storage Blk Time (%)	47	13	20	2		2	8			11		
Queuing Penalty (veh)	7	8	18	3		1	11			9		

#### Intersection: 5: Providence Road & Rea Road

Movement	EB	EB	NB	NB	NB	NB	SB	SB	SB	
Directions Served	L	R	L	L	T	T	U	T	R	
Maximum Queue (ft)	1769	1735	401	430	466	398	182	2705	2690	
Average Queue (ft)	1320	929	253	278	226	219	12	2113	1686	
95th Queue (ft)	2249	2218	471	498	402	343	104	3031	3261	
Link Distance (ft)	1970	1970			770	770		2766	2766	
Upstream Blk Time (%)	21	14			0			3	1	
Queuing Penalty (veh)	0	0			0			22	11	
Storage Bay Dist (ft)			500	500			300			
Storage Blk Time (%)			3	6	0			60		
Queuing Penalty (veh)			15	28	0			2		

#### **Network Summary**

Network wide Queuing Penalty: 224

## Intersection: 1: Access A/Wheatberry Hill Drive & Weddington Road

Movement	EB	WB	NB	SB
Directions Served	L	L	LTR	LTR
Maximum Queue (ft)	36	23	45	34
Average Queue (ft)	6	1	17	13
95th Queue (ft)	26	10	41	34
Link Distance (ft)			1014	969
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	125	100		
Storage Blk Time (%)				
Queuing Penalty (veh)				

#### Intersection: 2: Access B/Weddington Matthews Road & Weddington Road

Movement	EB	EB	WB	WB	NB	SB
Directions Served	UL	TR	ULT	TR	LTR	LTR
Maximum Queue (ft)	60	51	67	19	78	349
Average Queue (ft)	12	6	26	1	26	121
95th Queue (ft)	41	30	56	9	61	274
Link Distance (ft)	692	692	761		961	1316
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)				125		
Storage Blk Time (%)						
Queuing Penalty (veh)						

#### Intersection: 3: Providence Road & Church Driveway/Weddington Road

Movement	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	L	LT	R	L	T	T	R	L	L	T	TR
Maximum Queue (ft)	77	264	293	368	31	639	642	494	182	216	192	207
Average Queue (ft)	28	164	177	200	6	395	402	160	94	135	110	114
95th Queue (ft)	62	255	271	328	23	605	620	441	168	203	177	187
Link Distance (ft)	1038	692	692			1060	1060				2572	2572
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)				325	500			450	550	550		
Storage Blk Time (%)			0	1		5	9					
Queuing Penalty (veh)			2	2		0	30					

## Intersection: 4: Providence Road & Lenny Stadler Way/Access C

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	
Directions Served	LT	R	LT	R	L	T	T	R	L	T	TR	
Maximum Queue (ft)	149	98	130	87	147	314	367	200	125	298	312	
Average Queue (ft)	58	32	54	33	71	150	180	59	47	164	170	
95th Queue (ft)	114	79	107	69	130	268	312	176	95	283	290	
Link Distance (ft)	1045		1176			2768	2768			1060	1060	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)		25		125	300			100	250			
Storage Blk Time (%)	48	23	1	0		0	16	0		1		
Queuing Penalty (veh)	21	17	0	0		0	23	2		1		

#### Intersection: 5: Providence Road & Rea Road

Movement	EB	EB	NB	NB	NB	NB	SB	SB	SB	SB	
Directions Served	L	R	L	L	T	T	U	Т	R	R	
Maximum Queue (ft)	682	181	370	412	337	318	182	1284	1115	465	
Average Queue (ft)	422	75	227	257	201	214	9	945	255	92	
95th Queue (ft)	651	147	358	391	291	301	85	1439	852	303	
Link Distance (ft)	1956	1956			770	770		2768	2768		
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			500	500			300			500	
Storage Blk Time (%)			0	0				53	0	0	
Queuing Penalty (veh)			0	0				2	0	0	

#### **Network Summary**

Network wide Queuing Penalty: 102

## Intersection: 1: Access A/Wheatberry Hill Drive & Weddington Road

Movement	EB	WB	NB	SB
Directions Served	L	L	LTR	LTR
Maximum Queue (ft)	32	33	37	38
Average Queue (ft)	6	5	9	10
95th Queue (ft)	25	22	32	29
Link Distance (ft)			1014	969
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	125	100		
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 2: Access B/Weddington Matthews Road & Weddington Road

Movement	EB	EB	WB	WB	NB	SB
Directions Served	UL	TR	ULT	TR	LTR	LTR
Maximum Queue (ft)	91	353	74	20	129	190
Average Queue (ft)	28	73	31	1	58	85
95th Queue (ft)	74	254	61	10	105	155
Link Distance (ft)	692	692	761		961	1316
Upstream Blk Time (%)		0				
Queuing Penalty (veh)		0				
Storage Bay Dist (ft)				125		
Storage Blk Time (%)						
Queuing Penalty (veh)						

### Intersection: 3: Providence Road & Church Driveway/Weddington Road

Movement	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	L	LT	R	L	Т	Т	R	L	L	Т	TR
Maximum Queue (ft)	65	257	276	353	31	548	553	456	369	400	236	242
Average Queue (ft)	20	154	161	189	3	321	327	145	215	254	116	119
95th Queue (ft)	50	233	242	323	16	516	522	312	343	370	201	201
Link Distance (ft)	1038	692	692			1060	1060				2572	2572
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)				325	500			450	550	550		
Storage Blk Time (%)				1		1	3					
Queuing Penalty (veh)				2		0	13					

## Intersection: 4: Providence Road & Lenny Stadler Way/Access C

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	
Directions Served	LT	R	LT	R	L	T	T	R	L	T	TR	
Maximum Queue (ft)	122	98	219	154	57	395	447	200	317	621	605	
Average Queue (ft)	48	13	109	46	20	187	228	61	82	223	222	
95th Queue (ft)	96	49	186	106	50	329	374	189	225	503	502	
Link Distance (ft)	1045		1176			2768	2768			1060	1060	
Upstream Blk Time (%)										0	0	
Queuing Penalty (veh)										1	2	
Storage Bay Dist (ft)		25		125	300			100	250			
Storage Blk Time (%)	44	12	8	0		1	22	0		10		
Queuing Penalty (veh)	6	7	7	0		0	28	3		8		

### Intersection: 5: Providence Road & Rea Road

Movement	EB	EB	NB	NB	NB	NB	SB	SB	SB	SB	
Directions Served	L	R	L	L	T	T	U	T	R	R	
Maximum Queue (ft)	1941	1922	312	348	313	334	178	2627	2585	600	
Average Queue (ft)	1464	1042	200	226	191	198	8	1917	1503	128	
95th Queue (ft)	2268	2312	351	377	283	285	84	3004	3120	418	
Link Distance (ft)	1956	1956			770	770		2768	2768		
Upstream Blk Time (%)	20	14						3	1		
Queuing Penalty (veh)	0	0						20	6		
Storage Bay Dist (ft)			500	500			300			500	
Storage Blk Time (%)				0				59	0	0	
Queuing Penalty (veh)				0				2	1	0	

### **Network Summary**

Network wide Queuing Penalty: 106

## Intersection: 1: Weddington Road & Wheatberry Hill Drive

Movement	EB	WB	SB
Directions Served	L	T	LR
Maximum Queue (ft)	44	38	35
Average Queue (ft)	8	2	10
95th Queue (ft)	33	24	30
Link Distance (ft)		1179	969
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	125		
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

### Intersection: 2: Weddington Road & Weddington Matthews Road

Movement	EB	EB	WB	SB
Directions Served	UL	T	UTR	LR
Maximum Queue (ft)	44	48	683	227
Average Queue (ft)	4	5	312	73
95th Queue (ft)	23	27	656	146
Link Distance (ft)	694	694	774	1315
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 3: Providence Road & Church Driveway/Weddington Road

Movement	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	L	LT	R	L	T	Т	R	L	L	T	TR
Maximum Queue (ft)	107	270	277	292	46	560	544	353	167	192	174	204
Average Queue (ft)	32	148	169	163	7	329	333	93	83	114	87	110
95th Queue (ft)	74	234	256	268	28	505	502	222	148	177	149	182
Link Distance (ft)	1038		694			1072	1072				2572	2572
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)		500		325	500			450	550	550		
Storage Blk Time (%)			0	0		1	2					
Queuing Penalty (veh)			3	0		0	7					

## Intersection: 4: Providence Road & Lenny Stadler Way

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	T	TR
Maximum Queue (ft)	106	90	159	127	163	247	323
Average Queue (ft)	43	29	69	57	82	131	185
95th Queue (ft)	80	67	126	118	153	228	293
Link Distance (ft)	1046			1492	1492	1072	1072
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		25	300				
Storage Blk Time (%)	37	19					
Queuing Penalty (veh)	16	11					

### Intersection: 5: Providence Road & Rea Road

Movement	EB	EB	NB
Directions Served	R	R	Т
Maximum Queue (ft)	279	220	8
Average Queue (ft)	141	45	0
95th Queue (ft)	272	180	6
Link Distance (ft)	1552	1552	277
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 6: Providence Road & Providence Road SB U-Turn

Movement	EB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	128	243	226
Average Queue (ft)	109	209	183
95th Queue (ft)	122	253	244
Link Distance (ft)	57	161	161
Upstream Blk Time (%)	62	20	13
Queuing Penalty (veh)	283	153	101
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 7: Providence Road NB U-turn & Providence Rod

Movement	WB	WB	SB	SB
Directions Served	L	L	Т	T
Maximum Queue (ft)	110	140	227	374
Average Queue (ft)	71	113	106	201
95th Queue (ft)	113	145	206	350
Link Distance (ft)	49	49	474	474
Upstream Blk Time (%)	35	63		0
Queuing Penalty (veh)	65	116		0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 12: Providence Road

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

### Intersection: 13: Providence Road & Providence Road SB U-Turn

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	336	338	92
Average Queue (ft)	208	22	5
95th Queue (ft)	334	157	58
Link Distance (ft)	340	340	340
Upstream Blk Time (%)	1	0	
Queuing Penalty (veh)	3	1	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 16: Providence Road

Movement	NB	NB
Directions Served	R	R
Maximum Queue (ft)	259	214
Average Queue (ft)	78	39
95th Queue (ft)	196	135
Link Distance (ft)	984	984
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

#### Intersection: 18: Providence Rod & Providence Road

Movement	SB
Directions Served	R
Maximum Queue (ft)	56
Average Queue (ft)	3
95th Queue (ft)	25
Link Distance (ft)	1492
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 19: Providence Road & Providence Road NB U-turn

Movement	NB	NB	NB
Directions Served	L	L	Т
Maximum Queue (ft)	78	162	6
Average Queue (ft)	9	47	0
95th Queue (ft)	44	124	4
Link Distance (ft)	313	313	313
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 21: Providence Road

Movement	SB
Directions Served	R
Maximum Queue (ft)	26
Average Queue (ft)	1
95th Queue (ft)	17
Link Distance (ft)	277
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### **Network Summary**

Network wide Queuing Penalty: 760

## Intersection: 1: Weddington Road & Wheatberry Hill Drive

Movement	EB	WB	SB
Directions Served	L	T	LR
Maximum Queue (ft)	31	6	36
Average Queue (ft)	8	0	9
95th Queue (ft)	29	6	28
Link Distance (ft)		1179	969
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	125		
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 2: Weddington Road & Weddington Matthews Road

Movement	EB	EB	WB	SB
Directions Served	UL	T	UTR	LR
Maximum Queue (ft)	127	183	538	137
Average Queue (ft)	22	29	282	55
95th Queue (ft)	76	106	607	103
Link Distance (ft)	694	694	774	1315
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 3: Providence Road & Church Driveway/Weddington Road

Movement	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	L	LT	R	L	T	Т	R	L	L	Т	TR
Maximum Queue (ft)	70	253	259	269	20	502	502	319	384	392	238	261
Average Queue (ft)	23	144	162	152	2	315	320	143	189	233	97	120
95th Queue (ft)	56	222	230	251	14	478	488	290	327	360	189	209
Link Distance (ft)	1038		694			1072	1072				2572	2572
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)		500		325	500			450	550	550		
Storage Blk Time (%)						1	1					
Queuing Penalty (veh)						0	7					

## Intersection: 4: Providence Road & Lenny Stadler Way

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	Т	TR
Maximum Queue (ft)	85	59	86	132	185	244	269
Average Queue (ft)	31	13	25	50	78	96	135
95th Queue (ft)	66	42	62	115	160	192	241
Link Distance (ft)	1046			1492	1492	1072	1072
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		25	300				
Storage Blk Time (%)	25	9					
Queuing Penalty (veh)	4	5					

### Intersection: 5: Providence Road & Rea Road

Movement	EB	EB
Directions Served	R	R
Maximum Queue (ft)	1203	1162
Average Queue (ft)	718	664
95th Queue (ft)	1180	1149
Link Distance (ft)	1552	1552
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 6: Providence Road & Providence Road SB U-Turn

Movement	EB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	130	224	233
Average Queue (ft)	110	207	187
95th Queue (ft)	122	253	250
Link Distance (ft)	57	161	161
Upstream Blk Time (%)	53	24	18
Queuing Penalty (veh)	358	135	104
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 7: Providence Road NB U-turn & Providence Rod

Movement	WB	WB	SB	SB
Directions Served	L	L	T	T
Maximum Queue (ft)	108	134	184	313
Average Queue (ft)	58	106	79	163
95th Queue (ft)	101	142	153	282
Link Distance (ft)	49	49	474	474
Upstream Blk Time (%)	22	53		
Queuing Penalty (veh)	24	58		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

#### Intersection: 12: Providence Road

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

### Intersection: 13: Providence Road & Providence Road SB U-Turn

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	363	401	168
Average Queue (ft)	261	88	6
95th Queue (ft)	354	334	71
Link Distance (ft)	340	340	340
Upstream Blk Time (%)	2	2	0
Queuing Penalty (veh)	15	10	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 16: Providence Road

Movement	NB	NB
Directions Served	R	R
Maximum Queue (ft)	206	170
Average Queue (ft)	67	40
95th Queue (ft)	169	130
Link Distance (ft)	984	984
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

#### Intersection: 18: Providence Rod & Providence Road

Movement	SB
Directions Served	R
Maximum Queue (ft)	51
Average Queue (ft)	3
95th Queue (ft)	24
Link Distance (ft)	1492
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 19: Providence Road & Providence Road NB U-turn

Movement	NB	NB
Directions Served	L	L
Maximum Queue (ft)	18	92
Average Queue (ft)	2	22
95th Queue (ft)	14	74
Link Distance (ft)	313	313
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 21: Providence Road

Movement	SB
Directions Served	R
Maximum Queue (ft)	79
Average Queue (ft)	4
95th Queue (ft)	32
Link Distance (ft)	277
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### **Network Summary**

Network wide Queuing Penalty: 718

## Intersection: 1: Access A/Wheatberry Hill Drive & Weddington Road

Movement	EB	WB	WB	WB	NB	SB
Directions Served	L	L	T	R	LTR	LTR
Maximum Queue (ft)	30	125	1184	225	71	124
Average Queue (ft)	6	12	681	31	21	41
95th Queue (ft)	24	91	1440	160	57	143
Link Distance (ft)			1185		1014	969
Upstream Blk Time (%)			32			
Queuing Penalty (veh)			0			
Storage Bay Dist (ft)	125	100		125		
Storage Blk Time (%)			76			
Queuing Penalty (veh)			8			

### Intersection: 2: Access B/Weddington Matthews Road & Weddington Road

Movement	EB	EB	WB	NB	SB	
Directions Served	UL	TR	ULTR	LTR	LTR	
Maximum Queue (ft)	61	49	771	68	185	
Average Queue (ft)	11	5	738	26	73	
95th Queue (ft)	41	28	872	61	143	
Link Distance (ft)	693	693	762	961	1316	
Upstream Blk Time (%)			10			
Queuing Penalty (veh)			90			
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

### Intersection: 3: Providence Road & Church Driveway/Weddington Road

Movement	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	L	LT	R	L	Т	T	R	L	L	Т	TR
Maximum Queue (ft)	94	238	246	320	34	512	520	324	228	231	239	237
Average Queue (ft)	32	147	162	174	6	354	364	125	96	133	110	114
95th Queue (ft)	69	220	232	279	23	521	529	313	177	206	193	203
Link Distance (ft)	1038		693			558	558				2572	2572
Upstream Blk Time (%)						0	0	0				
Queuing Penalty (veh)						4	4	0				
Storage Bay Dist (ft)		500		325	500			450	550	550		
Storage Blk Time (%)				0		2	4					
Queuing Penalty (veh)				1		0	12					

## Intersection: 4: Providence Road & Lenny Stadler Way/Lenny Stadler Way Left-Over

Movement	EB	WB	SB	SB
Directions Served	R	LT	T	TR
Maximum Queue (ft)	127	121	182	174
Average Queue (ft)	58	55	114	136
95th Queue (ft)	107	98	177	181
Link Distance (ft)	1045	161	143	143
Upstream Blk Time (%)		0	2	5
Queuing Penalty (veh)		0	13	32
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

#### Intersection: 5: Providence Road & Rea Road

Movement	EB	EB
Directions Served	R	R
Maximum Queue (ft)	372	341
Average Queue (ft)	199	127
95th Queue (ft)	367	325
Link Distance (ft)	1552	1552
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 6: Providence Road & Providence Road SB U-Turn

Movement	EB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	131	246	226
Average Queue (ft)	109	218	196
95th Queue (ft)	120	246	248
Link Distance (ft)	57	161	161
Upstream Blk Time (%)	62	27	20
Queuing Penalty (veh)	319	221	167
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 7: Providence Road NB U-turn & Providence Rod

Movement	WB	WB	SB	SB
Directions Served	L	L	Т	T
Maximum Queue (ft)	104	141	234	355
Average Queue (ft)	73	117	109	190
95th Queue (ft)	118	142	190	298
Link Distance (ft)	49	49	474	474
Upstream Blk Time (%)	33	65		0
Queuing Penalty (veh)	60	120		0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 8: Access C Left-Over/Access C & Providence Road

Movement	EB	WB	NB	NB	NB
Directions Served	LT	R	T	T	R
Maximum Queue (ft)	81	127	142	149	79
Average Queue (ft)	32	61	100	107	19
95th Queue (ft)	63	111	142	150	55
Link Distance (ft)	160	1075	115	115	115
Upstream Blk Time (%)			3	5	
Queuing Penalty (veh)			19	27	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

### Intersection: 9: Providence Road & Providence Road NB U-Turn

Movement	WB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	101	8	25
Average Queue (ft)	47	0	1
95th Queue (ft)	83	5	12
Link Distance (ft)	60	65	65
Upstream Blk Time (%)	5		0
Queuing Penalty (veh)	5		0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 10: Providence Road & Providence Road SB U-Turn

Movement	EB
Directions Served	L
Maximum Queue (ft)	100
Average Queue (ft)	49
95th Queue (ft)	95
Link Distance (ft)	57
Upstream Blk Time (%)	16
Queuing Penalty (veh)	12
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 12: Providence Road

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

### Intersection: 13: Providence Road & Providence Road SB U-Turn

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	355	383	195
Average Queue (ft)	254	63	13
95th Queue (ft)	369	286	115
Link Distance (ft)	340	340	340
Upstream Blk Time (%)	2	1	0
Queuing Penalty (veh)	11	7	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 18: Providence Rod & Providence Road

Movement	SB
Directions Served	R
Maximum Queue (ft)	6
Average Queue (ft)	0
95th Queue (ft)	4
Link Distance (ft)	524
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 19: Providence Road & Providence Road NB U-turn

Movement	NB	NB	NB
Directions Served	L	L	Т
Maximum Queue (ft)	106	170	46
Average Queue (ft)	12	51	2
95th Queue (ft)	57	128	33
Link Distance (ft)	313	313	313
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 21: Providence Road

Movement	NB	SB	SB
Directions Served	T	R	R
Maximum Queue (ft)	74	54	29
Average Queue (ft)	2	5	1
95th Queue (ft)	52	41	20
Link Distance (ft)	341	277	277
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 23: Providence Road

Movement	NB
Directions Served	R
Maximum Queue (ft)	62
Average Queue (ft)	3
95th Queue (ft)	33
Link Distance (ft)	524
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 24: Providence Road & Lenny Stadler Way Left-Over

Movement	NB	NB
Directions Served	T	Т
Maximum Queue (ft)	98	124
Average Queue (ft)	17	34
95th Queue (ft)	64	98
Link Distance (ft)	453	453
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

### Intersection: 26: Providence Road & Access C Left-Over

Movement	SB	SB	SB
Directions Served	L	T	Т
Maximum Queue (ft)	25	110	122
Average Queue (ft)	1	12	33
95th Queue (ft)	18	56	101
Link Distance (ft)		164	164
Upstream Blk Time (%)		0	0
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)	27		
Storage Blk Time (%)		1	
Queuing Penalty (veh)		1	

### Intersection: 28: Providence Road

Movement	NB	NB	SB	SB
Directions Served	Ţ	T	R	R
Maximum Queue (ft)	19	39	54	88
Average Queue (ft)	2	4	3	13
95th Queue (ft)	24	32	27	57
Link Distance (ft)	84	84	558	558
Upstream Blk Time (%)	0	0		
Queuing Penalty (veh)	1	2		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

#### Intersection: 29: Providence Road & Providence Road SB U-Turn

Movement	SB	SB
Directions Served	L	T
Maximum Queue (ft)	39	29
Average Queue (ft)	4	3
95th Queue (ft)	27	32
Link Distance (ft)		594
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	50	
Storage Blk Time (%)	2	
Queuing Penalty (veh)	12	

### Intersection: 31: Providence Road & Providence Road NB U-Turn

Movement	NB	NB	NB
Directions Served	L	Т	Т
Maximum Queue (ft)	30	39	49
Average Queue (ft)	1	1	3
95th Queue (ft)	16	28	34
Link Distance (ft)		363	363
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	50		
Storage Blk Time (%)	0	0	
Queuing Penalty (veh)	1	0	

### Intersection: 32: Providence Road

Movement	NB	NB
Directions Served	R	R
Maximum Queue (ft)	369	316
Average Queue (ft)	148	98
95th Queue (ft)	314	267
Link Distance (ft)	984	984
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### **Network Summary**

Network wide Queuing Penalty: 1150

## Intersection: 1: Access A/Wheatberry Hill Drive & Weddington Road

Movement	EB	WB	WB	WB	NB	SB
Directions Served	L	L	T	R	LTR	LTR
Maximum Queue (ft)	32	130	690	135	62	86
Average Queue (ft)	6	11	446	18	19	24
95th Queue (ft)	24	81	1271	119	66	78
Link Distance (ft)			1185		1014	969
Upstream Blk Time (%)			17			
Queuing Penalty (veh)			0			
Storage Bay Dist (ft)	125	100		125		
Storage Blk Time (%)			49			
Queuing Penalty (veh)			6			

### Intersection: 2: Access B/Weddington Matthews Road & Weddington Road

Movement	EB	EB	WB	NB	SB	
Directions Served	UL	TR	ULTR	LTR	LTR	
Maximum Queue (ft)	210	426	671	129	141	
Average Queue (ft)	32	61	554	55	58	
95th Queue (ft)	134	264	987	105	112	
Link Distance (ft)	693	693	762	961	1316	
Upstream Blk Time (%)	0	0	10			
Queuing Penalty (veh)	0	0	79			
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

### Intersection: 3: Providence Road & Church Driveway/Weddington Road

Movement	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	L	LT	R	L	T	T	R	L	L	Т	TR
Maximum Queue (ft)	66	218	243	312	24	440	453	288	425	458	224	214
Average Queue (ft)	21	138	151	160	3	312	321	148	219	258	113	114
95th Queue (ft)	53	203	215	268	15	417	434	247	388	414	194	195
Link Distance (ft)	1038		693			558	558				2572	2572
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)		500		325	500			450	550	550		
Storage Blk Time (%)				0		0	0			0		
Queuing Penalty (veh)				1		0	1			0		

## Intersection: 4: Providence Road & Lenny Stadler Way/Lenny Stadler Way Left-Over

Movement	EB	WB	SB	SB
Directions Served	R	LT	T	TR
Maximum Queue (ft)	99	73	169	184
Average Queue (ft)	42	20	110	135
95th Queue (ft)	82	53	173	189
Link Distance (ft)	1045	161	143	143
Upstream Blk Time (%)			2	5
Queuing Penalty (veh)			15	38
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 5: Providence Road & Rea Road

Movement	EB	EB
Directions Served	R	R
Maximum Queue (ft)	1520	1512
Average Queue (ft)	1183	1145
95th Queue (ft)	1782	1774
Link Distance (ft)	1552	1552
Upstream Blk Time (%)	30	18
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 6: Providence Road & Providence Road SB U-Turn

Movement	EB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	114	242	233
Average Queue (ft)	109	214	193
95th Queue (ft)	112	248	246
Link Distance (ft)	57	161	161
Upstream Blk Time (%)	54	29	22
Queuing Penalty (veh)	392	178	134
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 7: Providence Road NB U-turn & Providence Rod

Movement	WB	WB	SB	SB
Directions Served	L	L	Т	T
Maximum Queue (ft)	101	122	203	308
Average Queue (ft)	60	107	88	162
95th Queue (ft)	100	138	163	269
Link Distance (ft)	49	49	474	474
Upstream Blk Time (%)	24	58		
Queuing Penalty (veh)	26	63		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 8: Access C Left-Over/Access C & Providence Road

Movement	EB	WB	NB	NB	NB
Directions Served	LT	R	Т	T	R
Maximum Queue (ft)	85	262	144	149	78
Average Queue (ft)	35	113	111	116	19
95th Queue (ft)	69	210	146	150	54
Link Distance (ft)	160	1075	115	115	115
Upstream Blk Time (%)			5	6	
Queuing Penalty (veh)			27	35	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

### Intersection: 9: Providence Road & Providence Road NB U-Turn

Movement	WB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	124	35	50
Average Queue (ft)	76	1	2
95th Queue (ft)	122	14	22
Link Distance (ft)	60	65	65
Upstream Blk Time (%)	25	0	0
Queuing Penalty (veh)	42	0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 10: Providence Road & Providence Road SB U-Turn

Movement	EB
Directions Served	Ĺ
Maximum Queue (ft)	93
Average Queue (ft)	43
95th Queue (ft)	80
Link Distance (ft)	57
Upstream Blk Time (%)	12
Queuing Penalty (veh)	7
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 12: Providence Road

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

### Intersection: 13: Providence Road & Providence Road SB U-Turn

Movement	SB	SB	SB
Directions Served	L	T	Т
Maximum Queue (ft)	352	372	235
Average Queue (ft)	256	61	17
95th Queue (ft)	351	275	126
Link Distance (ft)	340	340	340
Upstream Blk Time (%)	2	1	0
Queuing Penalty (veh)	13	8	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 18: Providence Rod & Providence Road

Movement	SB
Directions Served	R
Maximum Queue (ft)	31
Average Queue (ft)	2
95th Queue (ft)	16
Link Distance (ft)	524
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 19: Providence Road & Providence Road NB U-turn

Movement	NB	NB	NB
Directions Served	L	L	Т
Maximum Queue (ft)	30	98	7
Average Queue (ft)	2	20	0
95th Queue (ft)	14	65	5
Link Distance (ft)	313	313	313
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 21: Providence Road

Movement	SB		
Directions Served	R		
Maximum Queue (ft)	76		
Average Queue (ft)	3		
95th Queue (ft)	36		
Link Distance (ft)	277		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 23: Providence Road

Movement	NB	NB
Directions Served	R	R
Maximum Queue (ft)	78	81
Average Queue (ft)	4	9
95th Queue (ft)	31	46
Link Distance (ft)	524	524
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 24: Providence Road & Lenny Stadler Way Left-Over

Movement	NB	NB
Directions Served	Ţ	T
Maximum Queue (ft)	115	132
Average Queue (ft)	25	43
95th Queue (ft)	76	108
Link Distance (ft)	453	453
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

### Intersection: 26: Providence Road & Access C Left-Over

Movement	SB	SB
Directions Served	T	T
Maximum Queue (ft)	136	146
Average Queue (ft)	15	35
95th Queue (ft)	68	102
Link Distance (ft)	164	164
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)	1	
Queuing Penalty (veh)	1	

### Intersection: 28: Providence Road

Movement	SB	SB
Directions Served	R	R
Maximum Queue (ft)	58	285
Average Queue (ft)	4	24
95th Queue (ft)	39	143
Link Distance (ft)	558	558
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

#### Intersection: 29: Providence Road & Providence Road SB U-Turn

Movement	SB
Directions Served	L
Maximum Queue (ft)	17
Average Queue (ft)	1
95th Queue (ft)	9
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	50
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

### Intersection: 31: Providence Road & Providence Road NB U-Turn

Movement	NB	NB	NB
Directions Served	L	T	Т
Maximum Queue (ft)	90	82	35
Average Queue (ft)	13	4	1
95th Queue (ft)	58	43	25
Link Distance (ft)		363	363
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	50		
Storage Blk Time (%)	4	0	
Queuing Penalty (veh)	34	0	

# Intersection: 32: Providence Road

Movement	NB	NB
Directions Served	R	R
Maximum Queue (ft)	253	227
Average Queue (ft)	105	53
95th Queue (ft)	230	170
Link Distance (ft)	984	984
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

# **Network Summary**

Network wide Queuing Penalty: 1102

# Intersection: 1: Access A/Wheatberry Hill Drive & Weddington Road

Movement	EB	WB	NB	SB
Directions Served	L	L	LTR	LTR
Maximum Queue (ft)	27	22	41	44
Average Queue (ft)	7	1	16	13
95th Queue (ft)	26	9	39	36
Link Distance (ft)			1014	969
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	125	100		
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 2: Access B/Weddington Matthews Road & Weddington Road

Movement	EB	EB	WB	WB	NB	SB	
Directions Served	UL	TR	ULT	TR	LTR	LTR	
Maximum Queue (ft)	56	80	73	78	78	353	
Average Queue (ft)	11	8	31	8	29	139	
95th Queue (ft)	40	45	65	42	63	285	
Link Distance (ft)	691	691	761		961	1316	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)				100			
Storage Blk Time (%)			0	0			
Queuing Penalty (veh)			0	0			

### Intersection: 3: Providence Road & Church Driveway/Weddington Road

Movement	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	L	LT	R	L	T	T	R	L	L	T	TR
Maximum Queue (ft)	96	291	344	375	39	557	538	399	206	222	226	244
Average Queue (ft)	38	177	193	208	6	372	381	136	100	133	120	121
95th Queue (ft)	78	275	305	343	25	543	549	363	177	204	201	209
Link Distance (ft)	1038	691	691			558	558				2572	2572
Upstream Blk Time (%)						0	0	0				
Queuing Penalty (veh)						4	3	0				
Storage Bay Dist (ft)				325	500			450	550	550		
Storage Blk Time (%)			1	1		3	6					
Queuing Penalty (veh)			5	3		0	18					

## Intersection: 4: Providence Road & Lenny Stadler Way/Lenny Stadler Way Left-Over

Movement	EB	WB	SB	SB
Directions Served	R	LT	T	TR
Maximum Queue (ft)	124	119	167	188
Average Queue (ft)	56	52	113	138
95th Queue (ft)	106	96	170	183
Link Distance (ft)	1045	161	143	143
Upstream Blk Time (%)		0	2	5
Queuing Penalty (veh)		0	12	35
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

#### Intersection: 5: Providence Road & Rea Road

Movement	EB	EB
Directions Served	R	R
Maximum Queue (ft)	355	325
Average Queue (ft)	211	134
95th Queue (ft)	349	323
Link Distance (ft)	1552	1552
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 6: Providence Road & Providence Road SB U-Turn

Movement	EB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	134	242	230
Average Queue (ft)	109	217	203
95th Queue (ft)	118	245	244
Link Distance (ft)	57	161	161
Upstream Blk Time (%)	62	27	22
Queuing Penalty (veh)	316	226	180
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 7: Providence Road NB U-turn & Providence Rod

Movement	WB	WB	SB	SB
Directions Served	L	L	Т	Т
Maximum Queue (ft)	105	138	197	360
Average Queue (ft)	74	113	99	192
95th Queue (ft)	116	147	177	301
Link Distance (ft)	49	49	474	474
Upstream Blk Time (%)	35	64		
Queuing Penalty (veh)	64	119		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 8: Access C Left-Over/Access C & Providence Road

Movement	EB	WB	NB	NB	NB
Directions Served	LT	R	T	T	R
Maximum Queue (ft)	84	140	146	146	95
Average Queue (ft)	33	63	104	109	23
95th Queue (ft)	69	111	145	147	62
Link Distance (ft)	160	1075	115	115	115
Upstream Blk Time (%)			4	4	0
Queuing Penalty (veh)			22	23	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

### Intersection: 9: Providence Road & Providence Road NB U-Turn

Movement	WB	SB	SB
Directions Served	L	Т	Т
Maximum Queue (ft)	104	19	32
Average Queue (ft)	45	1	2
95th Queue (ft)	82	8	22
Link Distance (ft)	60	65	65
Upstream Blk Time (%)	5		0
Queuing Penalty (veh)	5		1
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 10: Providence Road & Providence Road SB U-Turn

Movement	EB
Directions Served	L
Maximum Queue (ft)	112
Average Queue (ft)	54
95th Queue (ft)	102
Link Distance (ft)	57
Upstream Blk Time (%)	20
Queuing Penalty (veh)	15
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 12: Providence Road

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)
, , , , , , , , , , , , , , , , , , ,

### Intersection: 13: Providence Road & Providence Road SB U-Turn

Movement	SB	SB	SB
Directions Served	L	T	Т
Maximum Queue (ft)	360	320	195
Average Queue (ft)	249	56	20
95th Queue (ft)	367	272	144
Link Distance (ft)	340	340	340
Upstream Blk Time (%)	3	2	0
Queuing Penalty (veh)	14	11	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 18: Providence Rod & Providence Road

Movement	SB
Directions Served	R
Maximum Queue (ft)	9
Average Queue (ft)	0
95th Queue (ft)	6
Link Distance (ft)	524
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 19: Providence Road & Providence Road NB U-turn

Movement	NB	NB
Directions Served	L	L
Maximum Queue (ft)	126	171
Average Queue (ft)	14	53
95th Queue (ft)	64	131
Link Distance (ft)	313	313
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 21: Providence Road

Movement	SB	SB
Directions Served	R	R
Maximum Queue (ft)	77	60
Average Queue (ft)	8	3
95th Queue (ft)	56	37
Link Distance (ft)	277	277
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 23: Providence Road

Movement	NB	NB
Directions Served	R	R
Maximum Queue (ft)	11	29
Average Queue (ft)	0	1
95th Queue (ft)	7	16
Link Distance (ft)	524	524
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 24: Providence Road & Lenny Stadler Way Left-Over

Movement	NB	NB
Directions Served	T	Т
Maximum Queue (ft)	96	124
Average Queue (ft)	15	28
95th Queue (ft)	58	85
Link Distance (ft)	453	453
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

### Intersection: 26: Providence Road & Access C Left-Over

Movement	SB	SB
Directions Served	T	T
Maximum Queue (ft)	132	148
Average Queue (ft)	17	37
95th Queue (ft)	72	109
Link Distance (ft)	164	164
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)	1	
Queuing Penalty (veh)	1	

### Intersection: 28: Providence Road

Movement	NB	NB	SB	SB
Directions Served	T	T	R	R
Maximum Queue (ft)	61	46	139	186
Average Queue (ft)	5	4	6	19
95th Queue (ft)	39	30	90	135
Link Distance (ft)	84	84	558	558
Upstream Blk Time (%)	0	0		0
Queuing Penalty (veh)	2	0		0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 29: Providence Road & Providence Road SB U-Turn

Movement	SB	SB
Directions Served	L	T
Maximum Queue (ft)	31	25
Average Queue (ft)	4	1
95th Queue (ft)	25	18
Link Distance (ft)		594
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	50	
Storage Blk Time (%)	2	
Queuing Penalty (veh)	16	

### Intersection: 31: Providence Road & Providence Road NB U-Turn

Movement	NB	NB	NB
Directions Served	L	Т	Т
Maximum Queue (ft)	8	31	39
Average Queue (ft)	0	1	1
95th Queue (ft)	4	17	20
Link Distance (ft)		363	363
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150		
Storage Blk Time (%)			
Queuing Penalty (veh)			

# Intersection: 32: Providence Road

Movement	NB	NB
Directions Served	R	R
Maximum Queue (ft)	381	350
Average Queue (ft)	151	104
95th Queue (ft)	312	268
Link Distance (ft)	984	984
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### **Network Summary**

Network wide Queuing Penalty: 1095

# Intersection: 1: Access A/Wheatberry Hill Drive & Weddington Road

Movement	EB	WB	NB	SB
Directions Served	L	L	LTR	LTR
Maximum Queue (ft)	31	29	50	47
Average Queue (ft)	7	4	13	13
95th Queue (ft)	26	20	39	36
Link Distance (ft)			1014	969
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	125	100		
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 2: Access B/Weddington Matthews Road & Weddington Road

Movement	EB	EB	WB	WB	NB	SB
Directions Served	UL	TR	ULT	TR	LTR	LTR
Maximum Queue (ft)	105	235	69	80	111	264
Average Queue (ft)	27	41	28	9	51	90
95th Queue (ft)	74	139	60	48	96	197
Link Distance (ft)	691	691	761		961	1316
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)				100		
Storage Blk Time (%)			0	0		
Queuing Penalty (veh)			0	1		

## Intersection: 3: Providence Road & Church Driveway/Weddington Road

Movement	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	L	LT	R	L	T	T	R	L	L	T	TR
Maximum Queue (ft)	56	281	319	350	23	468	475	259	339	346	216	214
Average Queue (ft)	20	161	171	182	2	312	323	138	183	225	112	114
95th Queue (ft)	49	252	273	306	12	433	448	227	289	323	190	191
Link Distance (ft)	1038	691	691			558	558				2572	2572
Upstream Blk Time (%)							0					
Queuing Penalty (veh)							0					
Storage Bay Dist (ft)				325	500			450	550	550		
Storage Blk Time (%)			1	1		0	1					
Queuing Penalty (veh)			4	1		0	3					

# Intersection: 4: Providence Road & Lenny Stadler Way/Lenny Stadler Way Left-Over

Movement	EB	WB	SB	SB
Directions Served	R	LT	T	TR
Maximum Queue (ft)	100	64	170	183
Average Queue (ft)	41	20	110	132
95th Queue (ft)	78	54	174	194
Link Distance (ft)	1045	161	143	143
Upstream Blk Time (%)			2	4
Queuing Penalty (veh)			12	33
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

#### Intersection: 5: Providence Road & Rea Road

Movement	EB	EB
Directions Served	R	R
Maximum Queue (ft)	1604	1592
Average Queue (ft)	1384	1357
95th Queue (ft)	1833	1839
Link Distance (ft)	1552	1552
Upstream Blk Time (%)	55	35
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 6: Providence Road & Providence Road SB U-Turn

Movement	EB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	127	239	224
Average Queue (ft)	110	209	189
95th Queue (ft)	119	255	246
Link Distance (ft)	57	161	161
Upstream Blk Time (%)	53	30	23
Queuing Penalty (veh)	383	184	137
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

## Intersection: 7: Providence Road NB U-turn & Providence Rod

Movement	WB	WB	SB	SB
Directions Served	L	L	T	T
Maximum Queue (ft)	99	122	196	297
Average Queue (ft)	57	96	94	169
95th Queue (ft)	95	135	174	278
Link Distance (ft)	49	49	474	474
Upstream Blk Time (%)	22	51		
Queuing Penalty (veh)	24	55		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 8: Access C Left-Over/Access C & Providence Road

Movement	EB	WB	NB	NB	NB
Directions Served	LT	R	T	T	R
Maximum Queue (ft)	92	223	142	154	76
Average Queue (ft)	37	112	109	116	19
95th Queue (ft)	73	187	143	152	53
Link Distance (ft)	160	1075	115	115	115
Upstream Blk Time (%)			5	6	
Queuing Penalty (veh)			28	33	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

### Intersection: 9: Providence Road & Providence Road NB U-Turn

Movement	WB	SB	SB
Directions Served	L	T	Т
Maximum Queue (ft)	125	9	37
Average Queue (ft)	84	1	3
95th Queue (ft)	131	9	22
Link Distance (ft)	60	65	65
Upstream Blk Time (%)	36		0
Queuing Penalty (veh)	60		1
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

## Intersection: 10: Providence Road & Providence Road SB U-Turn

Movement	EB
Directions Served	L
Maximum Queue (ft)	100
Average Queue (ft)	41
95th Queue (ft)	77
Link Distance (ft)	57
Upstream Blk Time (%)	8
Queuing Penalty (veh)	5
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 12: Providence Road

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Blk Time (%)
Queuing Penalty (veh)
Gueuing Penalty (veh) Storage Bay Dist (ft) Storage Blk Time (%) Queuing Penalty (veh)

### Intersection: 13: Providence Road & Providence Road SB U-Turn

Movement	SB	SB	SB
Directions Served	L	T	Т
Maximum Queue (ft)	365	396	219
Average Queue (ft)	258	59	16
95th Queue (ft)	353	275	118
Link Distance (ft)	340	340	340
Upstream Blk Time (%)	3	1	
Queuing Penalty (veh)	17	9	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

## Intersection: 18: Providence Rod & Providence Road

Movement	SB
Directions Served	R
Maximum Queue (ft)	29
Average Queue (ft)	1
95th Queue (ft)	12
Link Distance (ft)	524
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 19: Providence Road & Providence Road NB U-turn

Movement	NB	NB
Directions Served	L	L
Maximum Queue (ft)	19	63
Average Queue (ft)	1	11
95th Queue (ft)	9	45
Link Distance (ft)	313	313
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 21: Providence Road

Movement	SB
Directions Served	R
Maximum Queue (ft)	41
Average Queue (ft)	2
95th Queue (ft)	22
Link Distance (ft)	277
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

## Intersection: 23: Providence Road

Movement	NB	NB
Directions Served	R	R
Maximum Queue (ft)	66	90
Average Queue (ft)	3	10
95th Queue (ft)	29	50
Link Distance (ft)	524	524
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

## Intersection: 24: Providence Road & Lenny Stadler Way Left-Over

Movement	NB	NB
Directions Served	T	Т
Maximum Queue (ft)	125	142
Average Queue (ft)	30	47
95th Queue (ft)	86	113
Link Distance (ft)	453	453
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)	1	
Queuing Penalty (veh)	0	

### Intersection: 26: Providence Road & Access C Left-Over

Movement	SB	SB
Directions Served	T	T
Maximum Queue (ft)	99	137
Average Queue (ft)	12	33
95th Queue (ft)	57	100
Link Distance (ft)	164	164
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)	1	
Queuing Penalty (veh)	1	

## Intersection: 28: Providence Road

Movement	NB	SB	SB
Directions Served	T	R	R
Maximum Queue (ft)	14	72	224
Average Queue (ft)	0	3	22
95th Queue (ft)	10	28	120
Link Distance (ft)	84	558	558
Upstream Blk Time (%)	0		0
Queuing Penalty (veh)	0		0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 29: Providence Road & Providence Road SB U-Turn

Movement	SB
Directions Served	L
Maximum Queue (ft)	17
Average Queue (ft)	1
95th Queue (ft)	8
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	50
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

### Intersection: 31: Providence Road & Providence Road NB U-Turn

Movement	NB	NB	
Directions Served	L	T	
Maximum Queue (ft)	154	30	
Average Queue (ft)	26	1	
95th Queue (ft)	97	21	
Link Distance (ft)		363	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150		
Storage Blk Time (%)	1	0	
Queuing Penalty (veh)	5	0	

# Intersection: 32: Providence Road

Movement	NB	NB
Directions Served	R	R
Maximum Queue (ft)	333	296
Average Queue (ft)	111	72
95th Queue (ft)	263	215
Link Distance (ft)	984	984
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

## **Network Summary**

Network wide Queuing Penalty: 996

# Intersection: 1: Weddington Road & Wheatberry Hill Drive

Movement	EB	WB	WB	SB
Directions Served	L	T	R	LR
Maximum Queue (ft)	31	1233	225	139
Average Queue (ft)	6	1102	34	53
95th Queue (ft)	26	1463	168	153
Link Distance (ft)		1179		969
Upstream Blk Time (%)		77		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)	125		125	
Storage Blk Time (%)		98		
Queuing Penalty (veh)		7		

## Intersection: 2: Weddington Road & Weddington Matthews Road

Movement	EB	EB	WB	SB
Directions Served	UL	Т	UTR	LR
Maximum Queue (ft)	54	70	787	971
Average Queue (ft)	8	11	776	472
95th Queue (ft)	34	45	785	1023
Link Distance (ft)	694	694	774	1315
Upstream Blk Time (%)			13	
Queuing Penalty (veh)			117	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 3: Providence Road & Church Driveway/Weddington Road

Movement	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	L	LT	R	L	Т	Ţ	R	L	L	T	TR
Maximum Queue (ft)	96	600	762	425	484	1092	1101	550	306	320	354	345
Average Queue (ft)	37	538	681	423	22	1071	1076	467	175	201	186	205
95th Queue (ft)	82	699	868	439	199	1136	1134	764	270	283	311	323
Link Distance (ft)	1038		694			1072	1072				2572	2572
Upstream Blk Time (%)			26			27	29					
Queuing Penalty (veh)			316			233	255					
Storage Bay Dist (ft)		500		325	500			450	550	550		
Storage Blk Time (%)		4	61	25		63	66					
Queuing Penalty (veh)		42	694	113		3	173					

# Intersection: 4: Providence Road & Lenny Stadler Way

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	T	TR
Maximum Queue (ft)	235	123	400	1520	1535	528	546
Average Queue (ft)	99	58	175	1193	1202	262	300
95th Queue (ft)	216	123	478	1945	1939	459	496
Link Distance (ft)	1046			1492	1492	1072	1072
Upstream Blk Time (%)				13	17		
Queuing Penalty (veh)				116	149		
Storage Bay Dist (ft)		25	300				
Storage Blk Time (%)	73	35		64			
Queuing Penalty (veh)	45	27		29			

### Intersection: 5: Providence Road & Rea Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	T	Т	R	R	T	Т	R	R	Т	T	R	R
Maximum Queue (ft)	206	135	250	274	491	519	60	141	364	364	191	70
Average Queue (ft)	115	63	172	175	403	423	5	12	294	300	70	11
95th Queue (ft)	186	121	249	267	540	548	45	74	389	382	158	47
Link Distance (ft)	574	574	574		468	468	468		277	277	277	
Upstream Blk Time (%)					16	18			25	28		
Queuing Penalty (veh)					76	88			218	240		
Storage Bay Dist (ft)				600				400				400
Storage Blk Time (%)												
Queuing Penalty (veh)												

### Intersection: 5: Providence Road & Rea Road

Movement	SB	SB	SB	SB	
Directions Served	T	T	R	R	
Maximum Queue (ft)	367	372	130	137	
Average Queue (ft)	236	250	51	61	
95th Queue (ft)	346	358	118	128	
Link Distance (ft)	321	321	321		
Upstream Blk Time (%)	1	2			
Queuing Penalty (veh)	9	15			
Storage Bay Dist (ft)				475	
Storage Blk Time (%)					
Queuing Penalty (veh)					

## Intersection: 6: Providence Road & Providence Road SB U-Turn

Movement	EB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	121	242	250
Average Queue (ft)	109	213	217
95th Queue (ft)	114	249	238
Link Distance (ft)	57	161	161
Upstream Blk Time (%)	72	29	33
Queuing Penalty (veh)	260	323	373
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 7: Providence Road NB U-Turn & Providence Road

Movement	WB	WB	SB	SB
Directions Served	L	L	T	T
Maximum Queue (ft)	92	116	187	238
Average Queue (ft)	47	73	103	142
95th Queue (ft)	82	112	182	233
Link Distance (ft)	49	49	474	474
Upstream Blk Time (%)	10	32		
Queuing Penalty (veh)	8	25		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 11: Rea Road & Rea Road WB U-Turn

Movement	EB	EB	SB
Directions Served	T	T	L
Maximum Queue (ft)	113	216	93
Average Queue (ft)	44	109	47
95th Queue (ft)	95	214	88
Link Distance (ft)	202	202	56
Upstream Blk Time (%)		1	18
Queuing Penalty (veh)		5	11
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

## Intersection: 12: Rea Road EB U-Turn & Rea Road

Movement	WB	WB	NB
Directions Served	Т	T	L
Maximum Queue (ft)	298	287	134
Average Queue (ft)	202	200	109
95th Queue (ft)	310	302	120
Link Distance (ft)	285	285	54
Upstream Blk Time (%)	6	5	49
Queuing Penalty (veh)	22	20	346
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 13: Providence Road & Providence Road SB U-Turn

Movement	SB	SB	SB
Directions Served	L	T	Т
Maximum Queue (ft)	346	406	388
Average Queue (ft)	224	119	86
95th Queue (ft)	375	401	337
Link Distance (ft)	340	340	340
Upstream Blk Time (%)	3	5	1
Queuing Penalty (veh)	21	38	7
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 16: Providence Road

Movement	NB	NB
Directions Served	R	R
Maximum Queue (ft)	1015	1010
Average Queue (ft)	400	457
95th Queue (ft)	1050	1083
Link Distance (ft)	984	984
Upstream Blk Time (%)	8	18
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

## Intersection: 18: Providence Road

Movement	NB	NB	SB	SB
Directions Served	T	T	R	R
Maximum Queue (ft)	589	599	51	55
Average Queue (ft)	292	297	2	4
95th Queue (ft)	739	749	36	28
Link Distance (ft)	476	476	1492	1492
Upstream Blk Time (%)	40	44		
Queuing Penalty (veh)	360	394		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 19: Providence Road & Providence Road NB U-Turn

Movement	NB	NB	NB
Directions Served	L	Т	T
Maximum Queue (ft)	313	406	414
Average Queue (ft)	120	170	172
95th Queue (ft)	369	480	484
Link Distance (ft)	313	313	313
Upstream Blk Time (%)	0	29	37
Queuing Penalty (veh)	2	141	178
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 21: Providence Road

Movement	NB	NB	SB	SB
Directions Served	T	T	R	R
Maximum Queue (ft)	405	396	150	149
Average Queue (ft)	133	133	37	27
95th Queue (ft)	418	395	203	170
Link Distance (ft)	341	341	277	277
Upstream Blk Time (%)	7	5	3	2
Queuing Penalty (veh)	57	41	29	20
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

# Intersection: 22: Rea Road

Movement	EB	WB	WB	WB
Directions Served	R	T	T	T
Maximum Queue (ft)	285	293	299	184
Average Queue (ft)	22	120	119	57
95th Queue (ft)	130	398	395	266
Link Distance (ft)	468	409	409	409
Upstream Blk Time (%)	0	3	3	0
Queuing Penalty (veh)	2	14	15	1
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 23: Rea Road WB U-Turn & Rea Road /Rea Road

Movement	WB
Directions Served	L
Maximum Queue (ft)	5
Average Queue (ft)	0
95th Queue (ft)	3
Link Distance (ft)	466
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 24: Rea Road

Movement	WB	WB
Directions Served	R	R
Maximum Queue (ft)	20	18
Average Queue (ft)	1	1
95th Queue (ft)	10	8
Link Distance (ft)	574	574
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

## Intersection: 25: Rea Road & Rea Road

Movement	EB	EB
Directions Served	R	R
Maximum Queue (ft)	56	174
Average Queue (ft)	2	16
95th Queue (ft)	32	85
Link Distance (ft)	1043	1043
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

#### Intersection: 27: Providence Road

Movement	NB	NB	SB	SB
Directions Served	R	R	T	T
Maximum Queue (ft)	412	421	11	25
Average Queue (ft)	146	152	1	1
95th Queue (ft)	441	452	7	13
Link Distance (ft)	321	321	312	312
Upstream Blk Time (%)	7	10		
Queuing Penalty (veh)	71	97		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 28: Rea Road/Rea Road & Rea Road EB U-Turn

Movement	EB	EB	EB
Directions Served	L	Т	Т
Maximum Queue (ft)	413	480	88
Average Queue (ft)	290	107	3
95th Queue (ft)	456	426	62
Link Distance (ft)	414	414	414
Upstream Blk Time (%)	3	4	0
Queuing Penalty (veh)	11	15	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

## Intersection: 29: Rea Road & Rea Road

Movement	WB	WB
Directions Served	R	R
Maximum Queue (ft)	220	154
Average Queue (ft)	39	31
95th Queue (ft)	234	223
Link Distance (ft)	1047	1047
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

## **Network Summary**

Network wide Queuing Penalty: 5874

# Intersection: 1: Weddington Road & Wheatberry Hill Drive

Movement	EB	WB	WB	SB
Directions Served	L	Т	R	LR
Maximum Queue (ft)	31	1226	225	74
Average Queue (ft)	6	660	18	18
95th Queue (ft)	26	1369	118	58
Link Distance (ft)		1179		969
Upstream Blk Time (%)		23		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)	125		125	
Storage Blk Time (%)		78		
Queuing Penalty (veh)		5		

## Intersection: 2: Weddington Road & Weddington Matthews Road

Movement	EB	EB	WB	SB
Directions Served	UL	Т	UTR	LR
Maximum Queue (ft)	219	572	782	198
Average Queue (ft)	33	102	752	72
95th Queue (ft)	131	334	887	151
Link Distance (ft)	694	694	774	1315
Upstream Blk Time (%)		0	8	
Queuing Penalty (veh)		0	67	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 3: Providence Road & Church Driveway/Weddington Road

Movement	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	L	LT	R	L	T	Т	R	L	L	T	TR
Maximum Queue (ft)	51	196	255	382	146	822	862	550	600	650	2534	2533
Average Queue (ft)	14	116	137	238	8	561	574	378	568	614	1606	1560
95th Queue (ft)	41	184	221	350	89	764	793	702	692	746	3167	3123
Link Distance (ft)	1038		694			1072	1072				2572	2572
Upstream Blk Time (%)											18	6
Queuing Penalty (veh)											0	0
Storage Bay Dist (ft)		500		325	500			450	550	550		
Storage Blk Time (%)				2		16	23		34	52	0	
Queuing Penalty (veh)				5		1	101		265	400	0	

# Intersection: 4: Providence Road & Lenny Stadler Way

Movement	EB	EB	NB	NB	NB	SB	SB	
Directions Served	L	R	L	T	T	Т	TR	
Maximum Queue (ft)	115	98	109	189	235	326	361	
Average Queue (ft)	48	31	46	88	122	156	181	
95th Queue (ft)	93	72	91	174	221	272	310	
Link Distance (ft)	1046			1492	1492	1072	1072	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		25	300					
Storage Blk Time (%)	45	24						
Queuing Penalty (veh)	23	15						

### Intersection: 5: Providence Road & Rea Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	T	T	R	R	T	T	R	R	Т	T	R	R
Maximum Queue (ft)	494	588	626	574	293	320	23	65	350	356	113	88
Average Queue (ft)	150	327	582	565	169	198	1	4	279	289	33	18
95th Queue (ft)	336	674	634	617	263	290	16	35	396	393	94	62
Link Distance (ft)	574	574	574		468	468	468		277	277	277	
Upstream Blk Time (%)	0	1	26	6					16	20		
Queuing Penalty (veh)	0	7	167	0					141	174		
Storage Bay Dist (ft)				600				400				400
Storage Blk Time (%)			26	6								
Queuing Penalty (veh)			171	39								

### Intersection: 5: Providence Road & Rea Road

Movement	SB	SB	SB	SB
Directions Served	T	T	R	R
Maximum Queue (ft)	345	367	81	94
Average Queue (ft)	182	200	18	17
95th Queue (ft)	318	343	63	63
Link Distance (ft)	321	321	321	
Upstream Blk Time (%)	1	2		
Queuing Penalty (veh)	6	10		
Storage Bay Dist (ft)				475
Storage Blk Time (%)				
Queuing Penalty (veh)				

## Intersection: 6: Providence Road & Providence Road SB U-Turn

Movement	EB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	116	250	242
Average Queue (ft)	109	222	218
95th Queue (ft)	112	234	228
Link Distance (ft)	57	161	161
Upstream Blk Time (%)	63	39	41
Queuing Penalty (veh)	369	387	405
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 7: Providence Road NB U-Turn & Providence Road

Movement	WB	WB	SB	SB
Directions Served	L	L	T	T
Maximum Queue (ft)	96	122	203	248
Average Queue (ft)	51	72	87	106
95th Queue (ft)	91	114	181	221
Link Distance (ft)	49	49	474	474
Upstream Blk Time (%)	14	29		
Queuing Penalty (veh)	10	23		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 11: Rea Road & Rea Road WB U-Turn

Movement	EB	EB	SB
Directions Served	T	Т	L
Maximum Queue (ft)	190	218	106
Average Queue (ft)	63	202	51
95th Queue (ft)	150	266	97
Link Distance (ft)	202	202	56
Upstream Blk Time (%)	0	16	16
Queuing Penalty (veh)	1	149	10
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

## Intersection: 12: Rea Road EB U-Turn & Rea Road

Movement	WB	WB	NB
Directions Served	T	T	L
Maximum Queue (ft)	204	207	135
Average Queue (ft)	93	96	110
95th Queue (ft)	168	171	122
Link Distance (ft)	285	285	54
Upstream Blk Time (%)		0	55
Queuing Penalty (veh)		0	243
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 13: Providence Road & Providence Road SB U-Turn

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	373	406	390
Average Queue (ft)	274	159	82
95th Queue (ft)	393	454	317
Link Distance (ft)	340	340	340
Upstream Blk Time (%)	5	5	1
Queuing Penalty (veh)	44	47	5
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 16: Providence Road

Movement	NB	NB
Directions Served	R	R
Maximum Queue (ft)	818	877
Average Queue (ft)	561	586
95th Queue (ft)	1095	1110
Link Distance (ft)	984	984
Upstream Blk Time (%)	8	14
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

## Intersection: 18: Providence Road

Movement	SB	SB
Directions Served	R	R
Maximum Queue (ft)	56	64
Average Queue (ft)	2	4
95th Queue (ft)	24	29
Link Distance (ft)	1492	1492
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 19: Providence Road & Providence Road NB U-Turn

Movement	NB	NB	NB
Directions Served	L	L	T
Maximum Queue (ft)	6	42	6
Average Queue (ft)	0	2	0
95th Queue (ft)	5	18	4
Link Distance (ft)	313	313	313
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 21: Providence Road

Mayramant	ND	ND	CD	CD
Movement	NB	NB	SB	SB
Directions Served	T	T	R	R
Maximum Queue (ft)	388	358	302	277
Average Queue (ft)	77	82	47	31
95th Queue (ft)	269	271	219	176
Link Distance (ft)	341	341	277	277
Upstream Blk Time (%)	0	0	4	2
Queuing Penalty (veh)	4	3	59	27
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

# Intersection: 22: Rea Road

Movement	EB
Directions Served	R
Maximum Queue (ft)	21
Average Queue (ft)	1
95th Queue (ft)	15
Link Distance (ft)	468
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 23: Rea Road WB U-Turn & Rea Road /Rea Road

Movement	WB
Directions Served	L
Maximum Queue (ft)	42
Average Queue (ft)	3
95th Queue (ft)	26
Link Distance (ft)	466
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 24: Rea Road

Movement	EB	EB	EB
Directions Served	T	T	T
Maximum Queue (ft)	145	465	497
Average Queue (ft)	6	315	416
95th Queue (ft)	71	605	622
Link Distance (ft)	466	466	466
Upstream Blk Time (%)		1	9
Queuing Penalty (veh)		6	55
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

## Intersection: 25: Rea Road & Rea Road

Movement	EB	EB
Directions Served	R	R
Maximum Queue (ft)	1077	1102
Average Queue (ft)	929	968
95th Queue (ft)	1430	1370
Link Distance (ft)	1043	1043
Upstream Blk Time (%)	20	66
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

#### Intersection: 27: Providence Road

Movement	SB	SB
Directions Served	T	T
Maximum Queue (ft)	18	15
Average Queue (ft)	1	1
95th Queue (ft)	13	8
Link Distance (ft)	312	312
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 28: Rea Road/Rea Road & Rea Road EB U-Turn

Movement	EB	EB
Directions Served	L	Т
Maximum Queue (ft)	354	94
Average Queue (ft)	182	3
95th Queue (ft)	319	66
Link Distance (ft)	414	414
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

# Intersection: 29: Rea Road & Rea Road

lovement
irections Served
laximum Queue (ft)
verage Queue (ft)
5th Queue (ft)
ink Distance (ft)
pstream Blk Time (%)
lueuing Penalty (veh)
torage Bay Dist (ft)
torage Blk Time (%)
lueuing Penalty (veh)

## **Network Summary**

Network wide Queuing Penalty: 3444

# Intersection: 1: Access A/Wheatberry Hill Drive & Weddington Road

Movement	EB	WB	WB	WB	NB	SB
Directions Served	L	L	T	R	LTR	LTR
Maximum Queue (ft)	27	160	1235	225	295	279
Average Queue (ft)	3	12	1189	16	127	123
95th Queue (ft)	18	90	1292	113	305	301
Link Distance (ft)			1185		1014	969
Upstream Blk Time (%)			93			
Queuing Penalty (veh)			0			
Storage Bay Dist (ft)	125	100		125		
Storage Blk Time (%)			98			
Queuing Penalty (veh)			11			

## Intersection: 2: Access B/Weddington Matthews Road & Weddington Road

Movement	EB	EB	WB	NB	SB
Directions Served	UL	TR	ULTR	LTR	LTR
Maximum Queue (ft)	90	151	779	289	1342
Average Queue (ft)	17	12	766	71	743
95th Queue (ft)	62	72	776	213	1692
Link Distance (ft)	693	693	762	961	1316
Upstream Blk Time (%)			51		41
Queuing Penalty (veh)			509		0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

## Intersection: 3: Providence Road & Church Driveway/Weddington Road

Movement	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	L	LT	R	L	T	T	R	L	L	Т	TR
Maximum Queue (ft)	146	600	750	425	19	580	592	550	292	650	2612	2614
Average Queue (ft)	46	466	630	287	1	368	376	189	118	339	1629	1627
95th Queue (ft)	114	661	908	595	7	694	702	562	265	774	3460	3450
Link Distance (ft)	1038		693			558	558				2572	2572
Upstream Blk Time (%)			51			16	17	0			52	44
Queuing Penalty (veh)			636			142	155	0			0	0
Storage Bay Dist (ft)		500		325	500			450	550	550		
Storage Blk Time (%)		21	72	9		22	27				60	
Queuing Penalty (veh)		246	844	42		1	72				364	

# Intersection: 4: Providence Road & Lenny Stadler Way/Lenny Stadler Way Left-Over

Movement	EB	WB	SB	SB
Directions Served	R	LT	T	TR
Maximum Queue (ft)	975	82	186	210
Average Queue (ft)	399	20	152	153
95th Queue (ft)	947	62	173	217
Link Distance (ft)	1045	161	143	143
Upstream Blk Time (%)	7		58	45
Queuing Penalty (veh)	0		643	504
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 5: Providence Road & Rea Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	T	Т	R	R	T	T	R	R	Т	T	R	R
Maximum Queue (ft)	168	101	252	258	506	526	136	99	337	337	161	75
Average Queue (ft)	80	44	105	115	448	456	9	7	288	296	66	13
95th Queue (ft)	139	86	225	239	576	576	97	52	364	348	132	51
Link Distance (ft)	569	569	569		474	474	474		252	252	252	
Upstream Blk Time (%)					34	37			44	47		
Queuing Penalty (veh)					167	182			407	433		
Storage Bay Dist (ft)				600				400				400
Storage Blk Time (%)							0					
Queuing Penalty (veh)							0					

### Intersection: 5: Providence Road & Rea Road

Movement	SB	SB	SB	SB
Directions Served	T	T	R	R
Maximum Queue (ft)	323	336	100	128
Average Queue (ft)	150	156	27	43
95th Queue (ft)	300	316	79	111
Link Distance (ft)	347	347	347	
Upstream Blk Time (%)	1	1		
Queuing Penalty (veh)	6	8		
Storage Bay Dist (ft)				475
Storage Blk Time (%)				
Queuing Penalty (veh)				

## Intersection: 6: Providence Road & Providence Road SB U-Turn

Movement	EB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	128	256	252
Average Queue (ft)	105	224	222
95th Queue (ft)	128	240	239
Link Distance (ft)	57	161	161
Upstream Blk Time (%)	63	52	51
Queuing Penalty (veh)	262	604	596
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 7: Providence Road NB U-turn & Providence Rod

Movement	WB	WB	SB	SB
Directions Served	L	L	Т	Т
Maximum Queue (ft)	89	123	175	249
Average Queue (ft)	33	58	62	78
95th Queue (ft)	72	106	155	194
Link Distance (ft)	49	49	474	474
Upstream Blk Time (%)	8	28		
Queuing Penalty (veh)	6	22		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 8: Access C Left-Over/Access C & Providence Road

Movement	EB	WB	NB	NB	NB
Directions Served	LT	R	Т	Т	R
Maximum Queue (ft)	59	547	150	173	82
Average Queue (ft)	14	218	120	135	21
95th Queue (ft)	46	750	135	155	58
Link Distance (ft)	160	1075	115	115	115
Upstream Blk Time (%)		7	69	40	
Queuing Penalty (veh)		0	443	254	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

## Intersection: 9: Providence Road & Providence Road NB U-Turn

Movement	WB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	124	100	92
Average Queue (ft)	99	72	69
95th Queue (ft)	142	116	105
Link Distance (ft)	60	65	65
Upstream Blk Time (%)	86	56	52
Queuing Penalty (veh)	75	616	579
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 10: Providence Road & Providence Road SB U-Turn

Movement	EB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	111	306	307
Average Queue (ft)	101	245	250
95th Queue (ft)	125	375	379
Link Distance (ft)	57	253	253
Upstream Blk Time (%)	92	32	34
Queuing Penalty (veh)	85	300	315
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 11: Rea Road & Rea Road WB U-Turn

Movement	EB	EB	SB
Directions Served	T	Ţ	L
Maximum Queue (ft)	184	216	86
Average Queue (ft)	85	178	30
95th Queue (ft)	156	251	72
Link Distance (ft)	202	202	56
Upstream Blk Time (%)	0	6	6
Queuing Penalty (veh)	0	34	4
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

## Intersection: 12: Rea Road EB U-Turn & Rea Road

Movement	WB	WB	NB
Directions Served	T	T	L
Maximum Queue (ft)	308	308	116
Average Queue (ft)	240	237	106
95th Queue (ft)	329	327	122
Link Distance (ft)	285	285	54
Upstream Blk Time (%)	16	15	29
Queuing Penalty (veh)	60	55	210
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 13: Providence Road & Providence Road SB U-Turn

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	340	408	386
Average Queue (ft)	157	84	55
95th Queue (ft)	354	337	264
Link Distance (ft)	340	340	340
Upstream Blk Time (%)	3	5	1
Queuing Penalty (veh)	24	40	8
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 16: Providence Road

Movement	NB	NB
Directions Served	R	R
Maximum Queue (ft)	1022	1038
Average Queue (ft)	875	901
95th Queue (ft)	1222	1198
Link Distance (ft)	984	984
Upstream Blk Time (%)	29	52
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

## Intersection: 18: Providence Rod & Providence Road

Movement	NB	NB	SB	SB
Directions Served	T	Т	R	R
Maximum Queue (ft)	595	591	15	14
Average Queue (ft)	391	398	0	0
95th Queue (ft)	795	800	10	10
Link Distance (ft)	475	475	524	524
Upstream Blk Time (%)	56	59		
Queuing Penalty (veh)	547	573		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 19: Providence Road & Providence Road NB U-turn

Movement	NB	NB	NB	NB
Directions Served	L	L	T	T
Maximum Queue (ft)	6	313	410	407
Average Queue (ft)	0	151	223	223
95th Queue (ft)	4	407	531	526
Link Distance (ft)	313	313	313	313
Upstream Blk Time (%)		1	48	52
Queuing Penalty (veh)		3	252	274
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 21: Providence Road

Mayamant	ND	ND	ND	CD	CD
Movement	NB	NB	NB	SB	SB
Directions Served	T	Τ	Τ	R	R
Maximum Queue (ft)	407	404	166	209	160
Average Queue (ft)	187	190	11	26	21
95th Queue (ft)	468	464	121	158	138
Link Distance (ft)	341	341	341	252	252
Upstream Blk Time (%)	14	13		2	1
Queuing Penalty (veh)	129	122		24	15
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

# Intersection: 22: Rea Road

Movement	EB	WB	WB	WB
Directions Served	R	Т	Т	Т
Maximum Queue (ft)	35	398	405	363
Average Queue (ft)	2	229	240	123
95th Queue (ft)	26	509	511	380
Link Distance (ft)	474	409	409	409
Upstream Blk Time (%)		3	2	0
Queuing Penalty (veh)		13	10	1
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 23: Rea Road WB U-Turn & Rea Road

Movement	WB
Directions Served	L
Maximum Queue (ft)	9
Average Queue (ft)	0
95th Queue (ft)	5
Link Distance (ft)	466
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 24: Rea Road

Movement	WB	WB
Directions Served	R	R
Maximum Queue (ft)	16	35
Average Queue (ft)	1	2
95th Queue (ft)	7	18
Link Distance (ft)	569	569
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

## Intersection: 25: Rea Road

Movement	EB	EB
Directions Served	R	R
Maximum Queue (ft)	99	294
Average Queue (ft)	9	84
95th Queue (ft)	71	226
Link Distance (ft)	1043	1043
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 27: Providence Road

Movement	NB	NB	SB	SB
Directions Served	R	R	T	T
Maximum Queue (ft)	435	432	51	56
Average Queue (ft)	202	198	3	3
95th Queue (ft)	514	505	40	43
Link Distance (ft)	347	347	312	312
Upstream Blk Time (%)	16	17		
Queuing Penalty (veh)	164	184		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 28: Rea Road/Rea Road & Rea Road EB U-Turn

Movement	EB	EB
Directions Served	L	Т
Maximum Queue (ft)	360	94
Average Queue (ft)	155	12
95th Queue (ft)	323	135
Link Distance (ft)	414	414
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	1	1
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

## Intersection: 29: Rea Road & Rea Road

Movement	WB	WB
Directions Served	R	R
Maximum Queue (ft)	324	283
Average Queue (ft)	145	131
95th Queue (ft)	626	600
Link Distance (ft)	1047	1047
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 31: Providence Road & Providence Road NB U-Turn

Movement	NB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	150	391	421
Average Queue (ft)	119	371	209
95th Queue (ft)	197	404	525
Link Distance (ft)		363	363
Upstream Blk Time (%)		60	10
Queuing Penalty (veh)		571	99
Storage Bay Dist (ft)	50		
Storage Blk Time (%)	76	15	
Queuing Penalty (veh)	685	13	

# Intersection: 33: Providence Road & Lenny Stadler Way Left-Over

Movement	NB	NB	NB
Directions Served	L	T	Т
Maximum Queue (ft)	182	480	514
Average Queue (ft)	55	441	454
95th Queue (ft)	193	587	597
Link Distance (ft)		453	453
Upstream Blk Time (%)		39	34
Queuing Penalty (veh)		386	330
Storage Bay Dist (ft)	82		
Storage Blk Time (%)		80	
Queuing Penalty (veh)		36	

## Intersection: 34: Providence Road

Movement	NB	NB
Directions Served	R	R
Maximum Queue (ft)	571	568
Average Queue (ft)	433	438
95th Queue (ft)	760	764
Link Distance (ft)	524	524
Upstream Blk Time (%)	21	28
Queuing Penalty (veh)	200	268
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 36: Providence Road & Access C Left-Over

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	127	207	220
Average Queue (ft)	30	164	173
95th Queue (ft)	118	230	228
Link Distance (ft)		164	164
Upstream Blk Time (%)		51	50
Queuing Penalty (veh)		588	574
Storage Bay Dist (ft)	27		
Storage Blk Time (%)		67	
Queuing Penalty (veh)		49	

### Intersection: 39: Providence Road

Movement	NB	NB	SB	SB
Directions Served	T	T	R	R
Maximum Queue (ft)	111	113	613	602
Average Queue (ft)	38	42	452	470
95th Queue (ft)	114	120	798	788
Link Distance (ft)	84	84	558	558
Upstream Blk Time (%)	14	15	42	46
Queuing Penalty (veh)	125	140	451	488
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

## Intersection: 40: Providence Road & Providence Road SB U-Turn

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	150	617	658
Average Queue (ft)	120	479	377
95th Queue (ft)	193	861	879
Link Distance (ft)		594	594
Upstream Blk Time (%)		52	30
Queuing Penalty (veh)		603	346
Storage Bay Dist (ft)	50		
Storage Blk Time (%)	87	0	
Queuing Penalty (veh)	955	0	

## **Network Summary**

Network wide Queuing Penalty: 19189

# Intersection: 1: Access A/Wheatberry Hill Drive & Weddington Road

Movement	EB	WB	WB	WB	NB	SB
Directions Served	L	L	T	R	LTR	LTR
Maximum Queue (ft)	27	199	1239	225	70	108
Average Queue (ft)	4	31	1098	31	17	33
95th Queue (ft)	19	149	1502	160	60	95
Link Distance (ft)			1185		1014	969
Upstream Blk Time (%)			70			
Queuing Penalty (veh)			0			
Storage Bay Dist (ft)	125	100		125		
Storage Blk Time (%)			96			
Queuing Penalty (veh)			13			

### Intersection: 2: Access B/Weddington Matthews Road & Weddington Road

Movement	EB	EB	WB	NB	SB	
Directions Served	UL	TR	ULTR	LTR	LTR	
Maximum Queue (ft)	295	446	774	138	196	
Average Queue (ft)	42	122	764	57	74	
95th Queue (ft)	177	410	778	114	146	
Link Distance (ft)	693	693	762	961	1316	
Upstream Blk Time (%)	0	0	18			
Queuing Penalty (veh)	0	0	158			
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

# Intersection: 3: Providence Road & Church Driveway/Weddington Road

Movement	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	L	LT	R	L	T	T	R	L	L	Т	TR
Maximum Queue (ft)	57	284	359	411	24	572	592	550	600	650	2623	2598
Average Queue (ft)	15	163	179	255	3	470	474	287	582	630	1994	1927
95th Queue (ft)	42	302	332	381	14	618	623	591	675	726	3476	3467
Link Distance (ft)	1038		693			558	558				2572	2572
Upstream Blk Time (%)						2	3	0			34	8
Queuing Penalty (veh)						27	35	0			0	0
Storage Bay Dist (ft)		500		325	500			450	550	550		
Storage Blk Time (%)			2	3		9	15	0	37	58		
Queuing Penalty (veh)			14	7		0	69	0	296	466		

## Intersection: 4: Providence Road & Lenny Stadler Way/Lenny Stadler Way Left-Over

Movement	EB	WB	SB	SB
Directions Served	R	LT	T	TR
Maximum Queue (ft)	132	88	176	184
Average Queue (ft)	62	34	136	143
95th Queue (ft)	106	73	181	183
Link Distance (ft)	1045	161	143	143
Upstream Blk Time (%)			5	7
Queuing Penalty (veh)			52	62
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 5: Providence Road & Rea Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	T	T	R	R	T	T	R	R	Т	T	R	R
Maximum Queue (ft)	460	602	609	569	265	301	65	47	320	332	87	66
Average Queue (ft)	133	242	582	565	170	191	3	2	244	257	22	13
95th Queue (ft)	318	577	602	580	255	276	31	24	338	342	76	47
Link Distance (ft)	569	569	569		474	474	474		252	252	252	
Upstream Blk Time (%)		1	32	10					10	12		
Queuing Penalty (veh)		9	209	0					86	104		
Storage Bay Dist (ft)				600				400				400
Storage Blk Time (%)			32	10								
Queuing Penalty (veh)			217	64								

### Intersection: 5: Providence Road & Rea Road

Movement	SB	SB	SB	SB	
Directions Served	T	T	R	R	
Maximum Queue (ft)	302	320	72	87	
Average Queue (ft)	164	178	13	18	
95th Queue (ft)	257	276	52	64	
Link Distance (ft)	347	347	347		
Upstream Blk Time (%)	0	0			
Queuing Penalty (veh)	0	0			
Storage Bay Dist (ft)				475	
Storage Blk Time (%)					
Queuing Penalty (veh)					

### Intersection: 6: Providence Road & Providence Road SB U-Turn

Movement	EB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	135	242	243
Average Queue (ft)	111	222	219
95th Queue (ft)	123	233	230
Link Distance (ft)	57	161	161
Upstream Blk Time (%)	63	44	45
Queuing Penalty (veh)	400	446	460
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 7: Providence Road NB U-turn & Providence Rod

Movement	WB	WB	SB	SB
Directions Served	L	L	T	T
Maximum Queue (ft)	97	119	221	251
Average Queue (ft)	42	64	113	136
95th Queue (ft)	83	110	194	224
Link Distance (ft)	49	49	474	474
Upstream Blk Time (%)	11	28		
Queuing Penalty (veh)	9	22		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 8: Access C Left-Over/Access C & Providence Road

Movement	EB	WB	NB	NB	NB
Directions Served	LT	R	Т	T	R
Maximum Queue (ft)	113	358	162	152	57
Average Queue (ft)	44	193	118	119	11
95th Queue (ft)	91	328	161	160	38
Link Distance (ft)	160	1075	115	115	115
Upstream Blk Time (%)			13	13	
Queuing Penalty (veh)			95	94	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

### Intersection: 9: Providence Road & Providence Road NB U-Turn

Movement	WB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	127	27	42
Average Queue (ft)	85	2	4
95th Queue (ft)	135	14	29
Link Distance (ft)	60	65	65
Upstream Blk Time (%)	46	0	0
Queuing Penalty (veh)	76	0	2
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 10: Providence Road & Providence Road SB U-Turn

Movement	EB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	111	51	66
Average Queue (ft)	60	7	8
95th Queue (ft)	112	70	79
Link Distance (ft)	57	253	253
Upstream Blk Time (%)	28	0	0
Queuing Penalty (veh)	21	2	3
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 11: Rea Road & Rea Road WB U-Turn

Movement	EB	EB	SB
Directions Served	T	Т	L
Maximum Queue (ft)	221	219	108
Average Queue (ft)	92	211	50
95th Queue (ft)	186	217	98
Link Distance (ft)	202	202	56
Upstream Blk Time (%)	1	23	11
Queuing Penalty (veh)	5	217	7
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 12: Rea Road EB U-Turn & Rea Road

Movement	WB	WB	NB
Directions Served	T	T	L
Maximum Queue (ft)	240	257	126
Average Queue (ft)	148	151	83
95th Queue (ft)	213	222	133
Link Distance (ft)	285	285	54
Upstream Blk Time (%)		0	23
Queuing Penalty (veh)		0	101
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 13: Providence Road & Providence Road SB U-Turn

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	382	410	367
Average Queue (ft)	274	140	84
95th Queue (ft)	389	420	319
Link Distance (ft)	340	340	340
Upstream Blk Time (%)	4	4	1
Queuing Penalty (veh)	39	42	6
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 16: Providence Road

Movement	NB	NB
Directions Served	R	R
Maximum Queue (ft)	1018	1029
Average Queue (ft)	938	942
95th Queue (ft)	1194	1198
Link Distance (ft)	984	984
Upstream Blk Time (%)	29	46
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 18: Providence Rod & Providence Road

Movement	SB	SB
Directions Served	R	R
Maximum Queue (ft)	23	8
Average Queue (ft)	1	0
95th Queue (ft)	13	6
Link Distance (ft)	524	524
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 19: Providence Road & Providence Road NB U-turn

Movement	NB	NB
Directions Served	L	L
Maximum Queue (ft)	12	11
Average Queue (ft)	0	0
95th Queue (ft)	6	6
Link Distance (ft)	313	313
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 21: Providence Road

Movement	NB	NB	SB	SB
	ND	IND		
Directions Served	T	T	R	R
Maximum Queue (ft)	285	284	240	228
Average Queue (ft)	29	35	32	16
95th Queue (ft)	150	163	175	115
Link Distance (ft)	341	341	252	252
Upstream Blk Time (%)	0	0	3	0
Queuing Penalty (veh)	1	1	50	6
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

# Intersection: 22: Rea Road

Movement		
Directions Served		
Maximum Queue (ft)		
Average Queue (ft)		
95th Queue (ft)		
Link Distance (ft)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 23: Rea Road WB U-Turn & Rea Road

Movement	WB
Directions Served	L
Maximum Queue (ft)	45
Average Queue (ft)	2
95th Queue (ft)	18
Link Distance (ft)	466
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 24: Rea Road

Movement	EB	EB	EB
Directions Served	T	T	Т
Maximum Queue (ft)	195	465	495
Average Queue (ft)	10	322	440
95th Queue (ft)	93	620	577
Link Distance (ft)	466	466	466
Upstream Blk Time (%)		1	9
Queuing Penalty (veh)		6	56
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 25: Rea Road

Movement	EB	EB
Directions Served	R	R
Maximum Queue (ft)	1087	1102
Average Queue (ft)	1043	1057
95th Queue (ft)	1182	1173
Link Distance (ft)	1043	1043
Upstream Blk Time (%)	29	83
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 27: Providence Road

Movement	SB
Directions Served	T
Maximum Queue (ft)	10
Average Queue (ft)	0
95th Queue (ft)	7
Link Distance (ft)	312
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 28: Rea Road/Rea Road & Rea Road EB U-Turn

Movement	EB
Directions Served	L
Maximum Queue (ft)	112
Average Queue (ft)	23
95th Queue (ft)	81
Link Distance (ft)	414
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 29: Rea Road & Rea Road

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

### Intersection: 31: Providence Road & Providence Road NB U-Turn

Movement	NB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	148	317	331
Average Queue (ft)	42	68	63
95th Queue (ft)	137	258	253
Link Distance (ft)		363	363
Upstream Blk Time (%)		0	1
Queuing Penalty (veh)		5	10
Storage Bay Dist (ft)	50		
Storage Blk Time (%)	21	2	
Queuing Penalty (veh)	232	3	

## Intersection: 33: Providence Road & Lenny Stadler Way Left-Over

Movement	NB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	72	284	310
Average Queue (ft)	5	103	125
95th Queue (ft)	52	264	293
Link Distance (ft)		453	453
Upstream Blk Time (%)		1	1
Queuing Penalty (veh)		7	7
Storage Bay Dist (ft)	82		
Storage Blk Time (%)		7	
Queuing Penalty (veh)		5	

### Intersection: 34: Providence Road

Movement	NB	NB
Directions Served	R	R
Maximum Queue (ft)	53	70
Average Queue (ft)	5	7
95th Queue (ft)	59	68
Link Distance (ft)	524	524
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 36: Providence Road & Access C Left-Over

Movement	SB	SB
Directions Served	T	T
Maximum Queue (ft)	160	170
Average Queue (ft)	51	61
95th Queue (ft)	138	147
Link Distance (ft)	164	164
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	2	2
Storage Bay Dist (ft)		
Storage Blk Time (%)	5	
Queuing Penalty (veh)	4	

### Intersection: 39: Providence Road

Movement	NB	NB	SB	SB
Directions Served	T	T	R	R
Maximum Queue (ft)	94	111	26	73
Average Queue (ft)	18	24	1	6
95th Queue (ft)	75	89	15	36
Link Distance (ft)	84	84	558	558
Upstream Blk Time (%)	1	2		
Queuing Penalty (veh)	14	20		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 40: Providence Road & Providence Road SB U-Turn

Movement	SB	SB	SB
Directions Served	L	T	Т
Maximum Queue (ft)	80	158	123
Average Queue (ft)	12	19	15
95th Queue (ft)	66	156	154
Link Distance (ft)		594	594
Upstream Blk Time (%)		0	0
Queuing Penalty (veh)		0	1
Storage Bay Dist (ft)	50		
Storage Blk Time (%)	7		
Queuing Penalty (veh)	64		

### **Network Summary**

Network wide Queuing Penalty: 4430

## Intersection: 1: Access A/Wheatberry Hill Drive & Weddington Road

Movement	EB	WB	WB	WB	NB	SB
Directions Served	L	L	T	R	LTR	LTR
Maximum Queue (ft)	26	131	1220	135	122	233
Average Queue (ft)	5	6	621	10	34	72
95th Queue (ft)	21	52	1586	88	122	221
Link Distance (ft)			1185		1014	969
Upstream Blk Time (%)			42			
Queuing Penalty (veh)			0			
Storage Bay Dist (ft)	125	100		125		
Storage Blk Time (%)			44			
Queuing Penalty (veh)			5			

### Intersection: 2: Access B/Weddington Matthews Road & Weddington Road

Movement	EB	EB	WB	WB	NB	SB
Directions Served	UL	TR	ULT	TR	LTR	LTR
Maximum Queue (ft)	119	354	783	225	81	1345
Average Queue (ft)	33	136	491	185	21	1168
95th Queue (ft)	85	298	1047	299	63	1713
Link Distance (ft)	691	691	761		961	1316
Upstream Blk Time (%)			31			73
Queuing Penalty (veh)			306			0
Storage Bay Dist (ft)				125		
Storage Blk Time (%)			1	68		
Queuing Penalty (veh)			5	352		

### Intersection: 3: Providence Road & Church Driveway/Weddington Road

Movement	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	L	LT	R	L	T	T	R	L	L	Т	TR
Maximum Queue (ft)	90	758	767	425	25	583	604	550	286	650	2624	2619
Average Queue (ft)	32	652	738	408	2	436	443	262	159	478	1540	1536
95th Queue (ft)	82	845	753	545	13	709	718	656	257	834	3392	3378
Link Distance (ft)	1038	691	691			558	558				2572	2572
Upstream Blk Time (%)		26	77			23	25	1			46	33
Queuing Penalty (veh)		159	478			212	224	0			0	0
Storage Bay Dist (ft)				325	500			450	550	550		
Storage Blk Time (%)			76	22		32	36				57	
Queuing Penalty (veh)			725	51		1	97				347	

## Intersection: 4: Providence Road & Lenny Stadler Way/Lenny Stadler Way Left-Over

Movement	EB	EB	WB	SB	SB	
Directions Served	R	R	LT	T	TR	
Maximum Queue (ft)	218	194	80	180	205	
Average Queue (ft)	99	81	24	148	161	
95th Queue (ft)	197	171	63	181	189	
Link Distance (ft)	1044	1044	148	143	143	
Upstream Blk Time (%)				49	28	
Queuing Penalty (veh)				544	314	
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

### Intersection: 5: Providence Road & Rea Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	T	T	R	R	T	T	R	R	T	T	T	R
Maximum Queue (ft)	317	216	291	297	483	498	21	46	318	326	321	254
Average Queue (ft)	103	67	119	141	358	374	1	4	218	244	242	113
95th Queue (ft)	270	223	299	307	524	536	15	37	341	343	337	231
Link Distance (ft)	544	544	544		462	462	462		248	248	248	248
Upstream Blk Time (%)	2	1	1	0	13	15			24	31	30	0
Queuing Penalty (veh)	7	5	6	0	66	73			167	213	203	3
Storage Bay Dist (ft)				600				400				
Storage Blk Time (%)			1	0								0
Queuing Penalty (veh)			6	1								2

### Intersection: 5: Providence Road & Rea Road

Movement	NB	SB	SB	SB	SB	SB
Directions Served	R	T	T	T	R	R
Maximum Queue (ft)	219	286	299	291	124	137
Average Queue (ft)	51	132	161	146	34	47
95th Queue (ft)	165	272	287	275	97	119
Link Distance (ft)		343	343	343	343	
Upstream Blk Time (%)	0	5	5	5		
Queuing Penalty (veh)	0	31	31	27		
Storage Bay Dist (ft)	400					475
Storage Blk Time (%)	0					
Queuing Penalty (veh)	0					

### Intersection: 6: Providence Road & Providence Road SB U-Turn

Movement	EB	EB	NB	NB	NB
Directions Served	L	L	Т	T	T
Maximum Queue (ft)	100	131	236	230	226
Average Queue (ft)	66	113	145	180	186
95th Queue (ft)	111	133	239	247	255
Link Distance (ft)	44	44	154	154	154
Upstream Blk Time (%)	43	70	19	27	27
Queuing Penalty (veh)	89	146	149	209	209
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

#### Intersection: 7: Providence Road NB U-turn & Providence Rod

Movement	WB	WB	SB	SB
Directions Served	L	L	Т	T
Maximum Queue (ft)	87	126	396	420
Average Queue (ft)	26	71	101	178
95th Queue (ft)	67	123	269	353
Link Distance (ft)	49	49	474	474
Upstream Blk Time (%)	5	26	0	1
Queuing Penalty (veh)	4	20	3	6
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 8: Access C Left-Over/Access C & Providence Road

Movement	EB	WB	WB	NB	NB	NB
Directions Served	LT	R	R	T	T	R
Maximum Queue (ft)	91	207	190	149	169	90
Average Queue (ft)	18	95	62	121	135	21
95th Queue (ft)	58	187	162	136	157	61
Link Distance (ft)	132	1075	1075	115	115	115
Upstream Blk Time (%)	0			62	43	0
Queuing Penalty (veh)	0			399	273	0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

### Intersection: 9: Providence Road & Providence Road NB U-Turn

Movement	WB	SB	SB
Directions Served	L	Т	Т
Maximum Queue (ft)	119	102	98
Average Queue (ft)	98	66	65
95th Queue (ft)	132	127	117
Link Distance (ft)	60	65	65
Upstream Blk Time (%)	83	47	30
Queuing Penalty (veh)	73	517	331
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 10: Providence Road & Providence Road SB U-Turn

Movement	EB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	111	298	308
Average Queue (ft)	100	252	257
95th Queue (ft)	127	358	367
Link Distance (ft)	57	253	253
Upstream Blk Time (%)	93	30	33
Queuing Penalty (veh)	85	285	304
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 11: Rea Road & Rea Road WB U-Turn

Movement	EB	EB	SB
Directions Served	T	Ţ	L
Maximum Queue (ft)	184	222	91
Average Queue (ft)	82	183	38
95th Queue (ft)	161	249	76
Link Distance (ft)	202	202	56
Upstream Blk Time (%)	0	6	7
Queuing Penalty (veh)	0	36	4
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 12: Rea Road EB U-Turn & Rea Road

Movement	WB	WB	NB
Directions Served	T	T	L
Maximum Queue (ft)	310	310	130
Average Queue (ft)	233	231	105
95th Queue (ft)	324	327	132
Link Distance (ft)	285	285	54
Upstream Blk Time (%)	10	10	34
Queuing Penalty (veh)	38	39	244
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 13: Providence Road & Providence Road SB U-Turn

Movement	SB	SB
Directions Served	L	L
Maximum Queue (ft)	314	393
Average Queue (ft)	79	138
95th Queue (ft)	268	346
Link Distance (ft)	338	338
Upstream Blk Time (%)	5	13
Queuing Penalty (veh)	26	62
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 16: Providence Road

Movement	NB	NB	NB
Directions Served	R	R	R
Maximum Queue (ft)	924	956	1011
Average Queue (ft)	171	211	244
95th Queue (ft)	719	821	866
Link Distance (ft)	980	980	980
Upstream Blk Time (%)	0	6	15
Queuing Penalty (veh)	0	0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 18: Providence Rod & Providence Road

Movement	NB	NB	NB	SB	SB
Directions Served	T	T	T	R	R
Maximum Queue (ft)	596	587	590	79	142
Average Queue (ft)	391	417	422	8	16
95th Queue (ft)	752	737	731	76	119
Link Distance (ft)	475	475	475	524	524
Upstream Blk Time (%)	43	48	49		
Queuing Penalty (veh)	280	310	319		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

### Intersection: 19: Providence Road & Providence Road NB U-turn

Movement	NB	NB	NB	NB	NB
Directions Served	L	L	T	T	T
Maximum Queue (ft)	21	145	401	397	382
Average Queue (ft)	1	7	150	152	147
95th Queue (ft)	11	63	446	440	431
Link Distance (ft)	313	313	313	313	313
Upstream Blk Time (%)		0	34	34	34
Queuing Penalty (veh)		1	143	145	144
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

### Intersection: 21: Providence Road

Movement	NB	NB	NB	NB	SB	SB	SB	SB	
Directions Served	T	T	T	T	R	R	R	R	
Maximum Queue (ft)	388	400	374	18	224	197	196	196	
Average Queue (ft)	99	103	98	1	34	31	31	27	
95th Queue (ft)	361	368	354	10	184	179	183	172	
Link Distance (ft)	336	336	336	336	248	248	248	248	
Upstream Blk Time (%)	14	15	12		8	8	9	3	
Queuing Penalty (veh)	98	103	82		49	47	52	17	
Storage Bay Dist (ft)									
Storage Blk Time (%)									
Queuing Penalty (veh)									

### Intersection: 22: Rea Road

Movement	EB	EB	WB	WB	WB
Directions Served	R	R	Т	T	T
Maximum Queue (ft)	127	84	263	274	188
Average Queue (ft)	14	3	86	89	46
95th Queue (ft)	142	59	350	349	233
Link Distance (ft)	462	462	409	409	409
Upstream Blk Time (%)	0		4	4	0
Queuing Penalty (veh)	3		17	17	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

### Intersection: 23: Rea Road WB U-Turn & Rea Road

Movement	WB
Directions Served	L
Maximum Queue (ft)	14
Average Queue (ft)	1
95th Queue (ft)	8
Link Distance (ft)	466
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 24: Rea Road

Movement	EB	EB	EB	WB	WB	
Directions Served	T	T	T	R	R	
Maximum Queue (ft)	70	93	94	11	13	
Average Queue (ft)	7	12	12	0	1	
95th Queue (ft)	78	115	124	6	6	
Link Distance (ft)	466	466	466	544	544	
Upstream Blk Time (%)		0	0			
Queuing Penalty (veh)		0	1			
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

### Intersection: 25: Rea Road

Movement	EB	EB
Directions Served	R	R
Maximum Queue (ft)	173	346
Average Queue (ft)	7	89
95th Queue (ft)	88	247
Link Distance (ft)	1043	1043
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

#### Intersection: 27: Providence Road

Movement	NB	NB	NB	NB	SB	SB	SB
Directions Served	R	R	R	R	T	T	T
Maximum Queue (ft)	426	434	414	250	78	71	70
Average Queue (ft)	115	140	128	84	17	17	17
95th Queue (ft)	394	440	416	277	134	132	130
Link Distance (ft)	343	343	343		312	312	312
Upstream Blk Time (%)	5	15	12		1	1	1
Queuing Penalty (veh)	38	104	81		8	8	6
Storage Bay Dist (ft)				150			
Storage Blk Time (%)			32	30			
Queuing Penalty (veh)			166	156			

### Intersection: 28: Rea Road/Rea Road & Rea Road EB U-Turn

Movement	EB	EB
Directions Served	L	T
Maximum Queue (ft)	408	376
Average Queue (ft)	193	33
95th Queue (ft)	390	228
Link Distance (ft)	414	414
Upstream Blk Time (%)	1	1
Queuing Penalty (veh)	5	5
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 29: Rea Road & Rea Road

Movement	WB	WB
Directions Served	R	R
Maximum Queue (ft)	377	350
Average Queue (ft)	70	60
95th Queue (ft)	400	382
Link Distance (ft)	1047	1047
Upstream Blk Time (%)	2	2
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 31: Providence Road & Providence Road NB U-Turn

Movement	NB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	250	384	412
Average Queue (ft)	189	364	261
95th Queue (ft)	341	407	527
Link Distance (ft)		346	346
Upstream Blk Time (%)		53	12
Queuing Penalty (veh)		502	118
Storage Bay Dist (ft)	150		
Storage Blk Time (%)	59	22	
Queuing Penalty (veh)	532	19	

### Intersection: 33: Providence Road & Lenny Stadler Way Left-Over

Movement	NB	NB	NB	
Directions Served	L	T	T	_
Maximum Queue (ft)	182	484	509	
Average Queue (ft)	60	452	462	
95th Queue (ft)	200	550	552	
Link Distance (ft)		453	453	
Upstream Blk Time (%)		36	33	
Queuing Penalty (veh)		348	321	
Storage Bay Dist (ft)	82			
Storage Blk Time (%)		75		
Queuing Penalty (veh)		34		

### Intersection: 34: Providence Road

Movement	NB	NB
Directions Served	R	R
Maximum Queue (ft)	564	575
Average Queue (ft)	465	474
95th Queue (ft)	730	732
Link Distance (ft)	524	524
Upstream Blk Time (%)	19	25
Queuing Penalty (veh)	180	242
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 36: Providence Road & Access C Left-Over

Movement	SB	SB	SB
Directions Served	L	T	Т
Maximum Queue (ft)	127	195	227
Average Queue (ft)	38	148	164
95th Queue (ft)	133	238	244
Link Distance (ft)		164	164
Upstream Blk Time (%)		40	26
Queuing Penalty (veh)		458	302
Storage Bay Dist (ft)	27		
Storage Blk Time (%)		64	
Queuing Penalty (veh)		46	

### Intersection: 39: Providence Road

Movement	NB	NB	SB	SB
Directions Served	T	T	R	R
Maximum Queue (ft)	104	121	613	618
Average Queue (ft)	52	56	420	432
95th Queue (ft)	129	136	833	827
Link Distance (ft)	84	84	558	558
Upstream Blk Time (%)	22	23	23	28
Queuing Penalty (veh)	195	208	244	297
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 40: Providence Road & Providence Road SB U-Turn

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	149	614	644
Average Queue (ft)	118	454	279
95th Queue (ft)	194	847	777
Link Distance (ft)		582	582
Upstream Blk Time (%)		43	9
Queuing Penalty (veh)		491	104
Storage Bay Dist (ft)	50		
Storage Blk Time (%)	85		
Queuing Penalty (veh)	941		

### **Network Summary**

Network wide Queuing Penalty: 16202

## Intersection: 1: Access A/Wheatberry Hill Drive & Weddington Road

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	T	LTR	LTR
Maximum Queue (ft)	35	30	10	53	56
Average Queue (ft)	5	5	0	13	15
95th Queue (ft)	23	23	7	42	42
Link Distance (ft)			1185	1014	969
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	125	100			
Storage Blk Time (%)					
Queuing Penalty (veh)					

### Intersection: 2: Access B/Weddington Matthews Road & Weddington Road

Movement	EB	EB	WB	WB	NB	SB	
Directions Served	UL	TR	ULT	TR	LTR	LTR	
Maximum Queue (ft)	728	730	220	100	96	434	
Average Queue (ft)	523	673	58	27	32	173	
95th Queue (ft)	925	800	221	125	72	690	
Link Distance (ft)	691	691	761		961	1316	
Upstream Blk Time (%)	2	13	0			5	
Queuing Penalty (veh)	16	92	1			0	
Storage Bay Dist (ft)				125			
Storage Blk Time (%)			2	5			
Queuing Penalty (veh)			7	22			

## Intersection: 3: Providence Road & Church Driveway/Weddington Road

Movement	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	L	LT	R	L	T	T	R	L	L	T	TR
Maximum Queue (ft)	48	592	687	425	24	581	598	550	600	650	2628	2617
Average Queue (ft)	14	279	369	348	2	507	509	359	597	648	2413	2393
95th Queue (ft)	41	595	726	498	14	639	645	646	625	671	3234	3229
Link Distance (ft)	1038	691	691			558	558				2572	2572
Upstream Blk Time (%)		4	8			9	10	1			60	23
Queuing Penalty (veh)		23	43			96	109	0			0	0
Storage Bay Dist (ft)				325	500			450	550	550		
Storage Blk Time (%)			13	18		18	25	3	52	75		
Queuing Penalty (veh)			79	26		1	114	24	417	601		

# Intersection: 4: Providence Road & Lenny Stadler Way/Lenny Stadler Way Left-Over

Movement	EB	WB	SB	SB
Directions Served	R	LT	T	TR
Maximum Queue (ft)	125	96	169	178
Average Queue (ft)	64	37	122	134
95th Queue (ft)	115	75	183	186
Link Distance (ft)	1045	161	143	143
Upstream Blk Time (%)			4	5
Queuing Penalty (veh)			33	52
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 5: Providence Road & Rea Road

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	R	R	R	T	T	R	R	T	T	T
Maximum Queue (ft)	237	201	255	252	207	266	296	20	23	300	312	310
Average Queue (ft)	112	102	182	179	141	157	175	1	1	191	223	207
95th Queue (ft)	189	176	241	244	210	233	261	14	16	287	315	306
Link Distance (ft)	544	544	544	544		462	462	462		248	248	248
Upstream Blk Time (%)										3	7	5
Queuing Penalty (veh)										21	47	36
Storage Bay Dist (ft)					600				400			
Storage Blk Time (%)												
Queuing Penalty (veh)												

### Intersection: 5: Providence Road & Rea Road

Movement	NB	NB	SB	SB	SB	SB	SB
Directions Served	R	R	T	T	T	R	R
Maximum Queue (ft)	131	79	223	192	214	78	83
Average Queue (ft)	58	15	101	103	115	15	27
95th Queue (ft)	122	55	172	165	178	58	77
Link Distance (ft)	248		343	343	343	343	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		400					475
Storage Blk Time (%)							
Queuing Penalty (veh)							

### Intersection: 6: Providence Road & Providence Road SB U-Turn

Movement	EB	EB	NB	NB	NB
Directions Served	L	L	T	T	T
Maximum Queue (ft)	113	147	209	227	237
Average Queue (ft)	78	119	147	195	174
95th Queue (ft)	121	130	204	242	244
Link Distance (ft)	44	44	154	154	154
Upstream Blk Time (%)	39	65	3	16	12
Queuing Penalty (veh)	124	206	24	107	80
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

### Intersection: 7: Providence Road NB U-turn & Providence Rod

Movement	WB	WB	SB	SB
Directions Served	L	L	T	T
Maximum Queue (ft)	91	126	300	365
Average Queue (ft)	37	75	126	208
95th Queue (ft)	79	126	240	319
Link Distance (ft)	49	49	474	474
Upstream Blk Time (%)	10	34		0
Queuing Penalty (veh)	8	26		0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 8: Access C Left-Over/Access C & Providence Road

Movement	EB	WB	NB	NB	NB	
Directions Served	LT	R	Т	T	R	
Maximum Queue (ft)	96	435	159	151	86	
Average Queue (ft)	35	229	121	125	16	
95th Queue (ft)	78	428	149	151	56	
Link Distance (ft)	160	1075	115	115	115	
Upstream Blk Time (%)			14	16		
Queuing Penalty (veh)			108	117		
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

### Intersection: 9: Providence Road & Providence Road NB U-Turn

Movement	WB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	130	36	43
Average Queue (ft)	76	2	4
95th Queue (ft)	131	18	30
Link Distance (ft)	60	65	65
Upstream Blk Time (%)	31	0	0
Queuing Penalty (veh)	52	1	2
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 10: Providence Road & Providence Road SB U-Turn

Movement	EB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	111	108	122
Average Queue (ft)	62	9	15
95th Queue (ft)	120	74	101
Link Distance (ft)	57	253	253
Upstream Blk Time (%)	37	0	0
Queuing Penalty (veh)	27	2	3
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 11: Rea Road & Rea Road WB U-Turn

Movement	EB	EB	SB
Directions Served	Т	T	L
Maximum Queue (ft)	209	216	105
Average Queue (ft)	105	210	48
95th Queue (ft)	203	215	95
Link Distance (ft)	202	202	56
Upstream Blk Time (%)	1	12	13
Queuing Penalty (veh)	7	112	8
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 12: Rea Road EB U-Turn & Rea Road

Movement	WB	WB	NB
Directions Served	T	T	L
Maximum Queue (ft)	258	248	113
Average Queue (ft)	140	141	93
95th Queue (ft)	216	216	133
Link Distance (ft)	285	285	54
Upstream Blk Time (%)	0	0	25
Queuing Penalty (veh)	0	0	111
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 13: Providence Road & Providence Road SB U-Turn

Movement	SB	SB	
Directions Served	L	L	
Maximum Queue (ft)	189	257	
Average Queue (ft)	62	126	
95th Queue (ft)	161	228	
Link Distance (ft)	338	338	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 16: Providence Road

Movement	NB	NB	NB
Directions Served	R	R	R
Maximum Queue (ft)	89	164	180
Average Queue (ft)	4	45	29
95th Queue (ft)	39	130	111
Link Distance (ft)	980	980	980
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 18: Providence Rod & Providence Road

Movement	NB	NB	NB	SB	SB
Directions Served	T	T	T	R	R
Maximum Queue (ft)	171	214	232	28	98
Average Queue (ft)	41	113	134	1	4
95th Queue (ft)	135	190	217	16	54
Link Distance (ft)	475	475	475	524	524
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					

# Intersection: 19: Providence Road & Providence Road NB U-turn

Movement	NB
Directions Served	L
Maximum Queue (ft)	68
Average Queue (ft)	5
95th Queue (ft)	33
Link Distance (ft)	313
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 21: Providence Road

Queuing Penalty (veh)

Movement	NB	NB	NB
Directions Served	Т	T	T
Maximum Queue (ft)	145	177	162
Average Queue (ft)	8	16	10
95th Queue (ft)	79	96	84
Link Distance (ft)	336	336	336
Upstream Blk Time (%)	0	0	0
Queuing Penalty (veh)	0	0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 22: Rea Road

Movement	EB
Directions Served	R
Maximum Queue (ft)	4
Average Queue (ft)	0
95th Queue (ft)	3
Link Distance (ft)	462
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 23: Rea Road WB U-Turn & Rea Road

Movement	WB
Directions Served	L
Maximum Queue (ft)	21
Average Queue (ft)	1
95th Queue (ft)	10
Link Distance (ft)	466
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 24: Rea Road

Movement	WB		
Directions Served	R		
Maximum Queue (ft)	6		
Average Queue (ft)	0		
95th Queue (ft)	4		
Link Distance (ft)	544		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 25: Rea Road

Movement	EB	EB
Directions Served	R	R
Maximum Queue (ft)	1086	1097
Average Queue (ft)	1055	1063
95th Queue (ft)	1110	1110
Link Distance (ft)	1043	1043
Upstream Blk Time (%)	21	70
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 27: Providence Road

Movement	NB	NB	NB
Directions Served	R	R	R
Maximum Queue (ft)	78	170	236
Average Queue (ft)	3	8	11
95th Queue (ft)	55	97	114
Link Distance (ft)	343	343	343
Upstream Blk Time (%)	0	0	0
Queuing Penalty (veh)	0	2	2
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 28: Rea Road/Rea Road & Rea Road EB U-Turn

Movement	EB
Directions Served	L
Maximum Queue (ft)	141
Average Queue (ft)	39
95th Queue (ft)	109
Link Distance (ft)	414
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 29: Rea Road & Rea Road

Movement	WB	WB
Directions Served	R	R
Maximum Queue (ft)	6	6
Average Queue (ft)	0	0
95th Queue (ft)	4	4
Link Distance (ft)	1047	1047
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 31: Providence Road & Providence Road NB U-Turn

Movement	NB	NB	NB
Directions Served	L	T	Т
Maximum Queue (ft)	234	335	327
Average Queue (ft)	55	104	112
95th Queue (ft)	198	325	344
Link Distance (ft)		363	363
Upstream Blk Time (%)		1	1
Queuing Penalty (veh)		12	14
Storage Bay Dist (ft)	150		
Storage Blk Time (%)	4	5	
Queuing Penalty (veh)	45	9	

### Intersection: 33: Providence Road & Lenny Stadler Way Left-Over

Movement	NB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	145	410	415
Average Queue (ft)	6	155	179
95th Queue (ft)	60	363	390
Link Distance (ft)		453	453
Upstream Blk Time (%)		0	1
Queuing Penalty (veh)		6	11
Storage Bay Dist (ft)	82		
Storage Blk Time (%)		11	
Queuing Penalty (veh)		7	

### Intersection: 34: Providence Road

Movement	NB	NB
Directions Served	R	R
Maximum Queue (ft)	164	156
Average Queue (ft)	9	12
95th Queue (ft)	90	91
Link Distance (ft)	524	524
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 36: Providence Road & Access C Left-Over

Movement	SB	SB
Directions Served	T	Т
Maximum Queue (ft)	139	152
Average Queue (ft)	33	49
95th Queue (ft)	109	129
Link Distance (ft)	164	164
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	1	1
Storage Bay Dist (ft)		
Storage Blk Time (%)	3	
Queuing Penalty (veh)	3	

### Intersection: 39: Providence Road

Movement	NB	NB	SB	SB
Directions Served	T	T	R	R
Maximum Queue (ft)	106	121	61	89
Average Queue (ft)	44	50	4	15
95th Queue (ft)	119	129	29	61
Link Distance (ft)	84	84	558	558
Upstream Blk Time (%)	7	8		
Queuing Penalty (veh)	76	89		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 40: Providence Road & Providence Road SB U-Turn

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	84	157	143
Average Queue (ft)	19	21	20
95th Queue (ft)	83	158	164
Link Distance (ft)		594	594
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)	50		
Storage Blk Time (%)	13	0	
Queuing Penalty (veh)	121	0	

## **Network Summary**

Network wide Queuing Penalty: 3384

### Intersection: 5: Providence Road & Rea Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	T	T	R	R	T	T	R	R	T	T	T	R
Maximum Queue (ft)	149	120	236	242	458	483	21	150	305	315	306	270
Average Queue (ft)	78	50	123	146	333	349	1	5	194	228	224	131
95th Queue (ft)	129	95	204	219	487	501	20	67	282	312	306	232
Link Distance (ft)	544	544	544		462	462	462		248	248	248	248
Upstream Blk Time (%)					10	11			3	7	6	0
Queuing Penalty (veh)					48	54			23	47	38	2
Storage Bay Dist (ft)				600				400				
Storage Blk Time (%)												0
Queuing Penalty (veh)												1

### Intersection: 5: Providence Road & Rea Road

Movement	NB	SB	SB	SB	SB	SB
Directions Served	R	T	T	T	R	R
Maximum Queue (ft)	243	253	291	259	147	152
Average Queue (ft)	55	156	187	163	70	82
95th Queue (ft)	170	243	258	231	131	150
Link Distance (ft)		343	343	343	343	
Upstream Blk Time (%)	0					
Queuing Penalty (veh)	0					
Storage Bay Dist (ft)	400					475
Storage Blk Time (%)	0					
Queuing Penalty (veh)	0					

### Intersection: 6: Providence Road & Providence Road SB U-Turn

Movement	EB	EB	NB	NB	NB	
Directions Served	L	L	T	Т	T	
Maximum Queue (ft)	105	139	182	226	212	
Average Queue (ft)	69	117	130	183	179	
95th Queue (ft)	114	128	185	242	243	
Link Distance (ft)	44	44	154	154	154	
Upstream Blk Time (%)	34	62	1	11	11	
Queuing Penalty (veh)	71	130	11	82	87	
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

### Intersection: 7: Providence Road NB U-turn & Providence Rod

Movement	WB	WB	SB	SB
Directions Served	L	L	Т	T
Maximum Queue (ft)	87	128	500	493
Average Queue (ft)	29	81	277	349
95th Queue (ft)	70	132	487	527
Link Distance (ft)	49	49	474	474
Upstream Blk Time (%)	5	28	0	1
Queuing Penalty (veh)	4	22	3	11
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 11: Rea Road & Rea Road WB U-Turn

Movement	EB	EB	SB
Directions Served	T	T	L
Maximum Queue (ft)	193	229	103
Average Queue (ft)	83	181	53
95th Queue (ft)	151	250	97
Link Distance (ft)	202	202	56
Upstream Blk Time (%)	0	6	14
Queuing Penalty (veh)	1	34	9
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 12: Rea Road EB U-Turn & Rea Road

Movement	WB	WB	NB
Directions Served	T	T	L
Maximum Queue (ft)	303	306	123
Average Queue (ft)	215	216	109
95th Queue (ft)	305	305	117
Link Distance (ft)	285	285	54
Upstream Blk Time (%)	3	2	36
Queuing Penalty (veh)	9	8	254
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 13: Providence Road & Providence Road SB U-Turn

Movement	SB	SB
Directions Served	L	L
Maximum Queue (ft)	182	268
Average Queue (ft)	43	106
95th Queue (ft)	137	212
Link Distance (ft)	338	338
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 16: Providence Road

Movement	NB	NB	NB
Directions Served	R	R	R
Maximum Queue (ft)	37	123	187
Average Queue (ft)	1	21	37
95th Queue (ft)	21	78	132
Link Distance (ft)	980	980	980
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 18: Providence Rod & Providence Road

Movement	SB	SB
Directions Served	R	R
Maximum Queue (ft)	400	487
Average Queue (ft)	86	152
95th Queue (ft)	342	476
Link Distance (ft)	552	552
Upstream Blk Time (%)	0	2
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 19: Providence Road & Providence Road NB U-turn

Movement	NB	NB
Directions Served	L	L
Maximum Queue (ft)	5	79
Average Queue (ft)	0	7
95th Queue (ft)	4	37
Link Distance (ft)	313	313
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 21: Providence Road

Movement	NB	NB	NB	NB
Directions Served	T	T	T	T
Maximum Queue (ft)	42	87	69	4
Average Queue (ft)	2	7	5	0
95th Queue (ft)	22	43	40	2
Link Distance (ft)	336	336	336	336
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 22: Rea Road

Movement	EB	WB	WB	WB	
Directions Served	R	T	T	T	
Maximum Queue (ft)	59	186	217	125	
Average Queue (ft)	3	68	74	32	
95th Queue (ft)	41	297	309	191	
Link Distance (ft)	462	409	409	409	
Upstream Blk Time (%)		1	1	0	
Queuing Penalty (veh)		3	3	0	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

### Intersection: 23: Rea Road WB U-Turn & Rea Road

Movement	WB
Directions Served	L
Maximum Queue (ft)	15
Average Queue (ft)	0
95th Queue (ft)	6
Link Distance (ft)	466
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 24: Rea Road

Movement	WB	WB
Directions Served	R	R
Maximum Queue (ft)	22	32
Average Queue (ft)	1	2
95th Queue (ft)	12	19
Link Distance (ft)	544	544
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 25: Rea Road

Movement	EB	EB
Directions Served	R	R
Maximum Queue (ft)	69	264
Average Queue (ft)	3	80
95th Queue (ft)	33	212
Link Distance (ft)	1043	1043
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 27: Providence Road

Movement	NB	NB	NB	SB
Directions Served	R	R	R	T
Maximum Queue (ft)	79	264	27	5
Average Queue (ft)	3	13	1	0
95th Queue (ft)	56	129	12	3
Link Distance (ft)	343	343	343	312
Upstream Blk Time (%)	0	1		
Queuing Penalty (veh)	0	4		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 28: Rea Road/Rea Road & Rea Road EB U-Turn

Movement	EB	EB
Directions Served	L	Т
Maximum Queue (ft)	394	189
Average Queue (ft)	204	9
95th Queue (ft)	359	118
Link Distance (ft)	414	414
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	1	1
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 29: Rea Road & Rea Road

Movement	WB	WB
Directions Served	R	R
Maximum Queue (ft)	123	81
Average Queue (ft)	12	7
95th Queue (ft)	67	42
Link Distance (ft)	1047	1047
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### **Network Summary**

Network wide Queuing Penalty: 962

### Intersection: 5: Providence Road & Rea Road

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	Т	T	R	R	R	T	T	R	T	T	T	R
Maximum Queue (ft)	225	204	269	252	220	280	305	47	298	309	311	147
Average Queue (ft)	113	107	192	188	155	160	177	2	190	225	212	58
95th Queue (ft)	184	174	250	243	208	248	271	24	275	309	301	133
Link Distance (ft)	544	544	544	544		462	462		248	248	248	248
Upstream Blk Time (%)									2	5	4	
Queuing Penalty (veh)									14	35	25	
Storage Bay Dist (ft)					600			400				
Storage Blk Time (%)												
Queuing Penalty (veh)												

### Intersection: 5: Providence Road & Rea Road

Movement	NB	SB	SB	SB	SB	SB
Directions Served	R	T	Т	T	R	R
Maximum Queue (ft)	125	250	242	243	98	112
Average Queue (ft)	20	124	126	131	23	32
95th Queue (ft)	77	201	200	203	74	88
Link Distance (ft)		343	343	343	343	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	400					475
Storage Blk Time (%)						
Queuing Penalty (veh)						

### Intersection: 6: Providence Road & Providence Road SB U-Turn

Movement	EB	EB	NB	NB	NB
Directions Served	L	L	T	T	T
Maximum Queue (ft)	115	137	199	222	225
Average Queue (ft)	88	119	146	196	175
95th Queue (ft)	116	127	197	238	236
Link Distance (ft)	44	44	154	154	154
Upstream Blk Time (%)	46	66	4	16	11
Queuing Penalty (veh)	146	209	25	108	76
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

### Intersection: 7: Providence Road NB U-turn & Providence Rod

Movement	WB	WB	SB	SB
Directions Served	L	L	Т	Т
Maximum Queue (ft)	83	122	431	466
Average Queue (ft)	34	73	186	242
95th Queue (ft)	76	121	335	374
Link Distance (ft)	49	49	474	474
Upstream Blk Time (%)	10	31	0	0
Queuing Penalty (veh)	8	24	0	1
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Intersection: 11: Rea Road & Rea Road WB U-Turn

Movement	EB	EB	SB
Directions Served	T	T	L
Maximum Queue (ft)	211	219	106
Average Queue (ft)	107	209	43
95th Queue (ft)	203	216	91
Link Distance (ft)	202	202	56
Upstream Blk Time (%)	1	12	11
Queuing Penalty (veh)	8	113	7
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 12: Rea Road EB U-Turn & Rea Road

Movement	WB	WB	NB
Directions Served	T	T	L
Maximum Queue (ft)	237	246	120
Average Queue (ft)	144	149	96
95th Queue (ft)	214	225	137
Link Distance (ft)	285	285	54
Upstream Blk Time (%)			26
Queuing Penalty (veh)			114
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 13: Providence Road & Providence Road SB U-Turn

Movement	SB	SB
Directions Served	L	L
Maximum Queue (ft)	312	331
Average Queue (ft)	101	167
95th Queue (ft)	229	293
Link Distance (ft)	338	338
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 16: Providence Road

Movement	NB	NB	NB
Directions Served	R	R	R
Maximum Queue (ft)	129	171	159
Average Queue (ft)	6	45	28
95th Queue (ft)	54	130	101
Link Distance (ft)	980	980	980
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 18: Providence Rod & Providence Road

Movement	SB	SB
Directions Served	R	R
Maximum Queue (ft)	77	251
Average Queue (ft)	4	19
95th Queue (ft)	35	107
Link Distance (ft)	552	552
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 19: Providence Road & Providence Road NB U-turn

Movement	NB	NB
Directions Served	L	L
Maximum Queue (ft)	12	42
Average Queue (ft)	0	3
95th Queue (ft)	9	20
Link Distance (ft)	313	313
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

#### Intersection: 21: Providence Road

Movement	NB	NB	NB
Directions Served	T	T	Т
Maximum Queue (ft)	42	84	63
Average Queue (ft)	2	8	4
95th Queue (ft)	24	48	35
Link Distance (ft)	336	336	336
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 22: Rea Road

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

### Intersection: 23: Rea Road WB U-Turn & Rea Road

Movement	WB
Directions Served	L
Maximum Queue (ft)	34
Average Queue (ft)	2
95th Queue (ft)	14
Link Distance (ft)	466
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 24: Rea Road

Movement	WB
Directions Served	R
Maximum Queue (ft)	10
Average Queue (ft)	0
95th Queue (ft)	7
Link Distance (ft)	544
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 25: Rea Road

Movement	EB	EB
Directions Served	R	R
Maximum Queue (ft)	1083	1094
Average Queue (ft)	1023	1042
95th Queue (ft)	1300	1230
Link Distance (ft)	1043	1043
Upstream Blk Time (%)	20	66
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 27: Providence Road

Movement	NB	NB
Directions Served	R	R
Maximum Queue (ft)	238	150
Average Queue (ft)	10	5
95th Queue (ft)	114	77
Link Distance (ft)	343	343
Upstream Blk Time (%)	1	0
Queuing Penalty (veh)	5	3
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 28: Rea Road/Rea Road & Rea Road EB U-Turn

Movement	EB
Directions Served	L
Maximum Queue (ft)	161
Average Queue (ft)	47
95th Queue (ft)	126
Link Distance (ft)	414
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 29: Rea Road & Rea Road

Movement	WB
Directions Served	R
Maximum Queue (ft)	11
Average Queue (ft)	0
95th Queue (ft)	8
Link Distance (ft)	1047
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### **Network Summary**

Network wide Queuing Penalty: 922