CANDLERS MOUNTAIN ROAD CORRIDOR STUDY

BETWEEN US 460 AND WARDS ROAD

STARS

VDOT

Kimley»Horn

List of Acronyms

AADT - Annual Average Daily Traffic

AASHTO - American Association of State Highway and Transportation Officials

CEI - Construction Engineering and Inspection

CLRP - Constrained Long Range Plan

CN - Construction

CRF - Crash Reduction Factor

CVMPO - Central Virginia Metropolitan Planning Organization

GIS - Geographic Information System

HCM - Highway Capacity Manual

HSIP - Highway Safety Improvement Program

LOS - Level of Service

MOE - Measure of Effectiveness

MPO - Metropolitan Planning Organization

PCES - Project Cost Estimating System

PE - Preliminary Engineering

PDO - Property Damage Only

PHF - Peak Hour Factor

RNS - Roadway Network System

ROW - Right-of-Way

RRFB - Rapid Rectangular Flashing Beacon

RSA - Roadway Safety Assessment

SWG - Study Work Group

SYIP - Six-Year Improvement Program

TMC - Turning Movement Count

v/c - Volume-to-Capacity Ratio

VDOT - Virginia Department of Transportation

Table of Contents

Introduction 1
Background 1
Purpose of Study 1
Study Work Group 1
General Description of the Study Area 1
Data Collection and Inventory 3
Zoning and Future Land Use 3
Other Relevant Studies 3
Traffic Volume Data 4
Existing Roadway Geometry 7
Speed Data 7
Crash Analysis and Roadway Safety Assessment 9
Geometric Characteristics 14
Access Management Spacing 14
Existing Conditions (2015) 19
CORSIM Analysis 19
Synchro/SimTraffic Analysis 20
Traffic Forecasting 24
Traffic Growth Rate Development 24
Projected Traffic Volumes 24
No-Build Conditions (2025 and 2040) 27
CORSIM Analysis 27
Synchro/SimTraffic Analysis 29
Improvement Screening and Analysis 36
Concept Development 36
Alternative Analysis 36
Improvement Project Selection 36
Build Conditions 42
CORSIM Analysis 42
Synchro/SimTraffic Analysis 47
Conceptual Design, Costs, and Schedules 53
Conceptual Design 53
Planning Level Cost Estimates and Schedules 53
Project Benefits 54
Traffic Operations Benefits 54
Safety Benefits 55
Project Advancement 57

Table of Figures

Figure 1 – Study Area Location Map 2
Figure 2 – Existing (2015) Peak Hour Volumes 6
Figure 3 – Existing (2015) Lane Configurations 8
Figure 4 – Eastbound Candlers Mountain Road Crash Type Summary 10
Figure 5 – Westbound Candlers Mountain Road Crash Type Summary 10
Figure 6 – Candler Mountain Road Crash Histograms (Crash Type) 12
Figure 7 – Candler Mountain Road Crash Histograms (Crash Severity) 13
Figure 8 – VDOT Access Management Regulations (Principal Arterial with 35-45 MPH Speed Limit) 14
Figure 9 – VDOT Access Management Regulations on Multilane Highways at Interchanges 14
Figure 10 – Existing Access Point Spacing (1 of 3) 16
Figure 11 – Existing Access Point Spacing (2 of 3) 17
Figure 12 – Existing Access Point Spacing (3 of 3) 18
Figure 13 – Existing (2015) Levels of Service 21
Figure 14 – Projected 2025 No-Build Peak Hour Volumes 25
Figure 15 – Projected 2040 No-Build Peak Hour Volumes 26
Figure 16 – No-Build 2025 Levels of Service 34
Figure 17 – No-Build 2040 Levels of Service 35

Figure 18 – Project 1: Wards Road Intersection and Access Management Improvements 38
Figure 19 – Project 2: Lynchburg Expressway Ramps and Ramp Terminal Improvements 39
Figure 20 – Project 3: Murray Place and River Ridge Mall Continuous Green T Intersection Improvements 40
Figure 21 – Project 4: Mayflower Drive Intersection Improvements 41
Figure 22 – Proposed Build Lane Configuration 43
Figure 23 – Projected 2025 Build Peak Hour Volumes 44
Figure 24 – Projected 2040 Build Peak Hour Volumes 45
Figure 25 – Build 2025 Levels of Service 51
Figure 26 –Build 2040 Levels of Service 52

Table of Tables

Table 1 – Count Data Locations and Source 5
Table 2 – INRIX AM and PM Peak Hour Average Travel Speed 7
Table 3 – Study Area Crash Summary 9
Table 4 – Crash Summary by Intersection(s) 9
Table 5 – Crash Rate Summary – Undivided 11
Table 6 – Crash Rate Summary – Divided 11
Table 7 – Signalized Intersection Spacing 15
Table 8 – Simulation Freeway Facility LOS Criteria 19
Table 9 – CORSIM Links with Simulation LOS of D or Worse 20
Table 10 – Growth Rate Assumptions 24
Table 11 – No-Build CORSIM Links with Simulation LOS of D or Worse 28
Table 12 – Build CORSIM Links with Simulation LOS of D or Worse 46
Table 13 – Project 1 Planning Level Cost Estimate and Schedule 53
Table 14 – Project 2 Planning Level Cost Estimate and Schedule 53
Table 15 – Project 3 Planning Level Cost Estimate and Schedule 54
Table 16 – Project 4 Planning Level Cost Estimate and Schedule 54
Table 17 – Project 1 Traffic Operations Benefits 54
Table 18 – Project 2 Traffic Operations Benefits 54
Table 19 – Project 3 Traffic Operations Benefits 55
Table 20 – Project 4 Traffic Operations Benefits 55
Table 21 – Project 1 Safety Benefits 55
Table 22 – Project 2 Safety Benefits 56
Table 23 – Project 3 Safety Benefits 56
Table 24 – Project 4 Safety Benefits 56

Appendix

Appendix A – Data Collection
Appendix B – Existing Conditions
Appendix C – Traffic Forecasting
Appendix D – No-Build Conditions
Appendix E – Improvement Screening
Appendix F – Build Conditions
Appendix G – Planning Level Cost Estimates

INTRODUCTION

Background

In early 2015, a study was completed on the Lynchburg Expressway, which is also known as US 29 Business, in the City of Lynchburg. The Lynchburg Expressway Improvement Study examined existing and projected operational challenges on the Lynchburg Expressway between the Amherst County Line at the James River and the Wards Road, State Route 163, interchange and identified potential improvements along this corridor. The results of the Lynchburg Expressway Improvement Study analysis indicated that queued vehicles on Candlers Mountain Road significantly impact the operations on the Lynchburg Expressway. However, since the primary focus of the Lynchburg Expressway Improvement Study was mainline and ramp operations of the Lynchburg Expressway, a full assessment of the Candlers Mountain Road corridor was not included in the analysis.

Purpose of Study

The purpose of this study, the Candlers Mountain Road Corridor Study, was to supplement the Lynchburg Expressway Improvement Study by identifying the extent of the operational and safety challenges related to the congestion on Candlers Mountain Road. This study evaluated the existing and projected future conditions on Candlers Mountain Road between Wards Road and US 460; identified deficiencies in the road network; formulated alternatives and corrective measures; computed planning level cost estimates; and prioritized recommended improvements along Candlers Mountain Road and the interchange with the Lynchburg Expressway.

Study Work Group

A study work group (SWG) was formed for the Candlers Mountain Road Corridor Study to capture input from local stakeholders throughout the study process and to shape the development of improvement concepts. The SWG provided institutional knowledge of the corridor, reviewed study methodologies, provided input on key assumptions, and reviewed proposed improvements developed through the study process. The Candlers Mountain Road Corridor Study SWG included members representing the following organizations:

- Virginia Department of Transportation (VDOT)
- City of Lynchburg
- Liberty University
- Central Virginia Metropolitan Planning Organization (CVMPO)
- Kimley-Horn and Associates

General Description of the Study Area

The study area for the Candlers Mountain Road Corridor Study was approximately one mile long, located within the City of Lynchburg, and oriented in a general northwest/southeast direction. For the purposes of this study, the corridor was considered to have an east/west alignment throughout the study area. The western limit of the study corridor was the intersection of Candlers Mountain Road/Sheffield Drive at Wards Road and the eastern limit of the study corridor was the US 460 interchange at Candlers Mountain Road. **Figure 1** shows the limits of the Candlers Mountain Road Corridor Study.

Field reconnaissance of existing conditions in the study area revealed that the corridor exists within an urban setting. The posted speed limit on Candlers Mountain Road throughout the study area is 35 MPH. According to VDOT's 2014 Functional Classification Map, Candlers Mountain Road between Wards Road and US 460 is classified as an other principal arterial and Candlers Mountain Road from the Mayflower Drive intersection to the Westbound US 501 Ramp/Mountain View Road intersection is classified as a minor arterial. Based on the latest (2014) published VDOT traffic data, the approximate annual average daily traffic (AADT) on Candlers Mountain Road was:

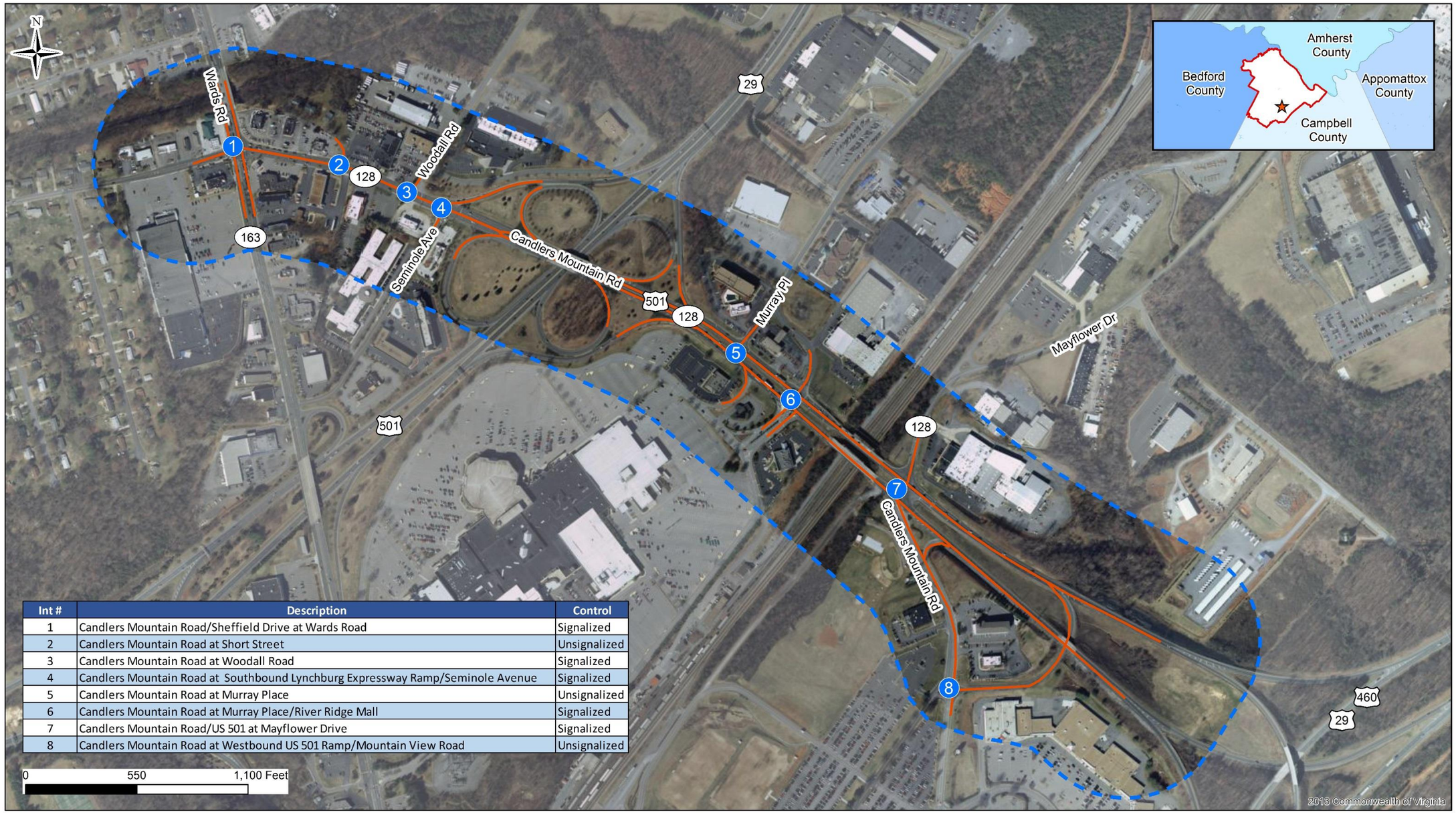
- 18,000 vehicles per day between Wards Road and the Lynchburg Expressway
- 39,000 vehicles per day between the Lynchburg Expressway and Mayflower Drive
- 16,000 vehicles per day between Mayflower Drive and US 460
- 14,000 vehicles per day between Mayflower Drive and the Westbound US 501 Ramp/Mountain View Road

The Candlers Mountain Road study area included eight at-grade intersections and 12 ramps. The eight intersections are listed below and shown in **Figure 1**.

Study Intersections

1. Candlers Mountain Road/Sheffield Drive at Wards Road - Signalized
2. Candlers Mountain Road at Short Street - Unsignalized
3. Candlers Mountain Road at Woodall Road - Signalized
4. Candlers Mountain Road at Southbound Lynchburg Expressway Ramp/Seminole Avenue - Signalized
5. Candlers Mountain Road at Murray Place - Unsignalized
6. Candlers Mountain Road at Murray Place/River Ridge Mall - Signalized
7. Candlers Mountain Road/US 501 at Mayflower Drive - Signalized
8. Candlers Mountain Road at Westbound US 501 Ramp/Mountain View Road - Unsignalized

Figure 1 – Study Area Location Map



Int #	Description	Control
1	Candlers Mountain Road/Sheffield Drive at Wards Road	Signalized
2	Candlers Mountain Road at Short Street	Unsignalized
3	Candlers Mountain Road at Woodall Road	Signalized
4	Candlers Mountain Road at Southbound Lynchburg Expressway Ramp/Seminole Avenue	Signalized
5	Candlers Mountain Road at Murray Place	Unsignalized
6	Candlers Mountain Road at Murray Place/River Ridge Mall	Signalized
7	Candlers Mountain Road/US 501 at Mayflower Drive	Signalized
8	Candlers Mountain Road at Westbound US 501 Ramp/Mountain View Road	Unsignalized

DATA COLLECTION AND INVENTORY

A preliminary field review of the study area was conducted on Wednesday, October 14, 2015 and Thursday, October 15, 2015 to verify existing conditions and traffic control devices, and observe peak hour traffic conditions and driver behavior. In addition to the field review, zoning, future land used, and other relevant studies in or near the Candlers Mountain Road study corridor were obtained; traffic data was acquired from a combination of turning movement counts, 48-hour vehicle classification tube counts, and recent studies; and speed data and crash data were provided by VDOT. The following subsections of the report summarize collected data and field review observations.

Zoning and Future Land Use

A review of existing zoning and future land use plans was conducted for the areas adjacent to the Candlers Mountain Road study corridor. Along the study corridor the primary zoning classifications are business and industrial. Future land uses along the study corridor are primarily commercial and employment. Maps showing the existing zoning and future land uses in the vicinity of the study corridor are provided in **Appendix A**. Zoning classification and future land use as of 1/7/2016 were provided by the City of Lynchburg Geographic Information System (GIS) Division.

Other Relevant Studies

Candler's Mountain Road Corridor Study (1999)

The Candler's Mountain Road Corridor Study was completed in June 1999. The study evaluated existing conditions, projected future traffic volumes, and evaluated potential improvement projects on Candlers Mountain Road between the Lynchburg Expressway and US 460.

The preferred alternatives developed as part of the Candler's Mountain Road Corridor Study included:

- Replacement of the pair of two-lane bridges on Candlers Mountain Road over the railroad tracks between Murray Place/River Ridge Mall and Mayflower Drive with a nine-lane bridge
- Reconstruction of the Candlers Mountain Road interchange on the Lynchburg Expressway in two phases
  - Phase 1: Construction of a diamond interchange with a loop ramp in the northeast quadrant
  - Phase 2: Construction of a new bridge on Candlers Mountain Road over the Lynchburg Expressway that provides horizontal clearance for four lanes in each direction on the Lynchburg Expressway and conversion of the diamond interchange to a partial cloverleaf interchange with loop ramps in the northeast and northwest quadrant

Candlers Mountain Road/Liberty Mountain Drive Bike/Pedestrian Study (2014)

The Candlers Mountain Road/Liberty Mountain Drive Bike/Pedestrian Study was completed in August 2014. The goal of the study was to develop bicycle and pedestrian improvements along Candlers Mountain Road and Liberty Mountain Drive and identify projects that may qualify for Highway Safety Improvement Program (HSIP) funding.

The improvement concepts developed as part of the Candlers Mountain Road/Liberty Mountain Drive Bike/Pedestrian Study included the following concepts in the Candlers Mountain Road study corridor:

Short Term Alternatives

- Complete the sidewalk network on the north and south sides of Candlers Mountain Road between Wards Road and the Lynchburg Expressway interchange

Mid Term Alternatives

- Install pedestrian signals and modify the intersection of Candlers Mountain Road at Woodall Road to accommodate pedestrian crossings across the north approach of Woodall Road and the west approach of Candlers Mountain Road
- Construct sidewalk on the south side of Candlers Mountain Road between Murray Place/River Ridge Mall and Mayflower Drive
- Construct sidewalk on the south side of Candlers Mountain Road between Seminole Avenue and Murray Place/River Ridge Mall with rapid rectangular flashing beacon (RRFB) pedestrian warning signs at the ramp crossing locations
- Install pedestrian signals and modify the intersection of Candlers Mountain Road/Sheffield Drive at Wards Road to accommodate pedestrian crossings across the west approach of Sheffield Drive and the south approach of Wards Roads

Long-Term Alternatives

- Reconstruct the Candlers Mountain Road bridge over the Lynchburg Expressway and include pedestrian accommodations in the design
- Develop a long-term planning concept to create an area-wide sidewalk/shared use path network around the Liberty University area and surrounding commercial and residential properties

Liberty University On-campus Development Program Traffic Study (2014)

The Liberty University On-campus Development Program Traffic Study was completed in October 2014. The purpose of the study was to evaluate the traffic impacts related to the projected increase in student enrollment and anticipated building projects at Liberty University and identify improvements to accommodate transportation needs. The recommended improvements included intersection improvements, bridge widening, and construction of a new eastbound US 460 exit ramp. None of the recommended improvements were located within the Candlers Mountain Road study corridor; however, it was referenced to consider how the projected traffic volume growth around Liberty University will impact traffic operations along Candlers Mountain Road.

Lynchburg Expressway Improvement Study (2015)

The Lynchburg Expressway Improvement Study was completed in February 2015. The study identified geometric and operational deficiencies and developed short-term and long-term improvement projects to improve safety and operations on the Lynchburg Expressway between the Amherst County line and the Wards Road (Route 163) interchange.

The Lynchburg Expressway Corridor Study identified the following geometric deficiencies at the Candlers Mountain Road interchange:

- Based on the guidelines for acceleration lane lengths identified in the 2011 American Association of State Highway Transportation Officials (AASHTO) *A Policy on Geometric Design of Highways and Streets*, Sixth Edition (heretofore referred to as the "AASHTO Green Book"), the following ramps had deficient acceleration lane lengths:
  - Northbound Lynchburg Expressway entrance ramp from eastbound Candlers Mountain Road
  - Northbound Lynchburg Expressway entrance ramp from westbound Candlers Mountain Road
  - Southbound Lynchburg Expressway entrance ramp from westbound Candlers Mountain Road
- Based on the guidelines for deceleration lane lengths identified in the AASHTO Green Book, the following ramps had deficient deceleration lane lengths:
  - Northbound Lynchburg Expressway exit ramp to westbound Candlers Mountain Road
  - Southbound Lynchburg Expressway exit ramp to eastbound Candlers Mountain Road
- The Candlers Mountain Road bridge over the Lynchburg Expressway does not meet the desired minimum bridge vertical clearance guideline of 16.5 feet provided in the *VDOT Manual of the Structure and Bridge Division – Volume V – Part 2 Design Aids* (Chapter 6 Geometrics)

In addition, the following existing (2014) operational deficiencies were identified at the Candlers Mountain Road interchange:

- The southbound Lynchburg Expressway entrance ramp from westbound Candlers Mountain Road operated at LOS F during the AM and PM peak hours
- The northbound Lynchburg Expressway exit ramp to eastbound Candlers Mountain Road operated at LOS F during the PM peak hour
- Extensive queuing existed on the northbound Lynchburg Expressway exit ramp to eastbound Candlers Mountain Road which spilled back onto the northbound Lynchburg Expressway mainline

The Lynchburg Expressway Improvement Study identified potential improvement projects that could be programed into the VDOT Six Year Improvement Program (SYIP). One of the candidate SYIP projects identified was the construction of auxiliary lanes between the loop ramps at the Candlers Mountain Road interchange in both the northbound and southbound travel directions of the Lynchburg Expressway.

Traffic Volume Data

Data Collection

Traffic volume data used in the Candlers Mountain Road Corridor Study was a combination of traffic volume data collected for the Lynchburg Expressway Improvement Study and traffic counts conducted in 2015.

Study area intersection traffic volumes were obtained from TMC data. TMC data from the Lynchburg Expressway Improvement Study was collected on Thursday, November 14, 2013 for four of the study area intersections and the supplemental TMC data was collected on Wednesday, October 14, 2015 and Thursday, October 15, 2015 for the remaining four study area intersections. All TMC data was collected between the hours of 6 AM – 10 AM and 3 PM – 7 PM.

Study area ramp traffic volumes were obtained from forty-eight-hour vehicle classification counts, TMC data, and calculation. Forty-eight-hour vehicle classification tube counts were collected for four of the Lynchburg Expressway ramps at Candlers Mountain Road on Wednesday, November 13, 2013 and Thursday, November 14, 2013 as part of the Lynchburg Expressway Improvement Study. Traffic counts for one of the Lynchburg Expressway ramps was collected as part of the TMC at Intersection 4 and traffic counts for the remaining two Lynchburg Expressway ramps were calculated based on the volume difference between intersections adjacent to the Lynchburg Expressway interchange. Additional forty-eight-hour vehicle classification tube counts were collected for the US 460 ramps at Candlers Mountain Road on Wednesday, October 14, 2015 and Thursday, October 15, 2015.

Table 1 summaries the date and source of the count data for each of the eight study area intersection and 11 ramps. TMC and tube count data is provided in **Appendix A.**

Table 1 – Count Data Locations and Source

Location	Count Date (Source)
STUDY AREA INTERSECTIONS	
1 Candlers Mountain Rd/Sheffield Dr at Wards Rd	10/14/15 (TMC)
2 Candlers Mountain Rd at Short St	10/14/15 (TMC)
3 Candlers Mountain Rd at Woodall Rd	11/14/13 (TMC)
4 Candlers Mountain Rd at Lynchburg Expressway Ramp/Seminole Ave	11/14/13 (TMC)
5 Candlers Mountain Rd at Murray Pl	11/14/13 (TMC)
6 Candlers Mountain Rd at Murray Pl/River Ridge Mall	11/14/13 (TMC)
7 Candlers Mountain Rd/US 501 at Mayflower Dr	10/15/15 (TMC)
8 Candlers Mountain Rd at Westbound US 501 Ramp/Mountain View Rd	10/15/15 (TMC)
STUDY AREA RAMPS	
A Southbound Lynchburg Expressway Exit Ramp to Eastbound Candlers Mountain Rd	Not Counted - Calculated
B Northbound Lynchburg Expressway Entrance Ramp from Eastbound Candlers Mountain Rd	11/13/13-11/14/13 (Tube)
C Northbound Lynchburg Expressway Exit Ramp to Eastbound Candlers Mountain Rd	11/13/13-11/14/13 (Tube)
D Northbound Lynchburg Expressway Entrance Ramp from Westbound Candlers Mountain Rd	11/13/13-11/14/13 (Tube)
E Northbound Lynchburg Expressway Exit Ramp to Westbound Candlers Mountain Rd	11/13/13-11/14/13 (Tube)
F Southbound Lynchburg Expressway Entrance Ramp from Westbound Candlers Mountain Rd	Not Counted - Calculated
G Southbound Lynchburg Expressway Exit Ramp to Eastbound/Westbound Candlers Mountain Rd	11/14/13 (TMC)
H Westbound US 460 Entrance Ramp from Eastbound Candlers Mountain Rd	10/14/15-10/15/15 (Tube)
I Eastbound US 460 Entrance Ramp from Eastbound Candlers Mountain Rd	10/14/15-10/15/15 (Tube)
J Eastbound US 460 Exit Ramp to Westbound Candlers Mountain Rd	10/14/15-10/15/15 (Tube)
K Westbound US 460 Exit Ramp to Westbound Candlers Mountain Rd	10/14/15-10/15/15 (Tube)

Peak Hour Determination

The overall AM and PM peak hours of the study area were determined by first evaluating the individual intersection and ramp peak hours. The individual intersection and ramp peak hour volumes were compared to hourly overall study area volumes to determine a common peak hour that best represents existing traffic conditions in the study area.

It was determined that the common peak hour of 7:15 – 8:15 AM best represented the volumes observed during the AM peak hour in the study corridor. This peak hour captured more than 99% of the total volumes observed during the individual peak hours at intersections and more than 93% of the total volumes observed during the individual peak hours at ramp locations.

Similarly, the common peak hour of 4:45 – 5:45 PM best represented the volumes observed during the PM peak hour in the study corridor. This peak hour captured more than 99% of the total volumes observed during the individual peak hours at intersections and more than 94% of the total volumes observed during the individual peak hours at ramp locations.

A table comparing individual intersections and ramp peak hours to the 7:15 – 8:15 AM and 4:45 – 5:45 PM overall study area peak hours is provided in **Appendix A**.

A peak hour factor (PHF) was calculated for each movement at each of the study area intersections during the overall study area AM and PM peak hours using the TMC data. **Appendix A** contains a summary of the AM and PM PHFs for each intersection movement.

Heavy Vehicle Percentages

Heavy vehicle percentages were calculated for each movement at all study area intersections and for all study area freeway ramps and mainline during the overall study area AM and PM peak hours. **Appendix A** contains a summary of the AM and PM peak hour heavy vehicle percentages for each intersection movement and ramp.

Seasonal Adjustment Factor

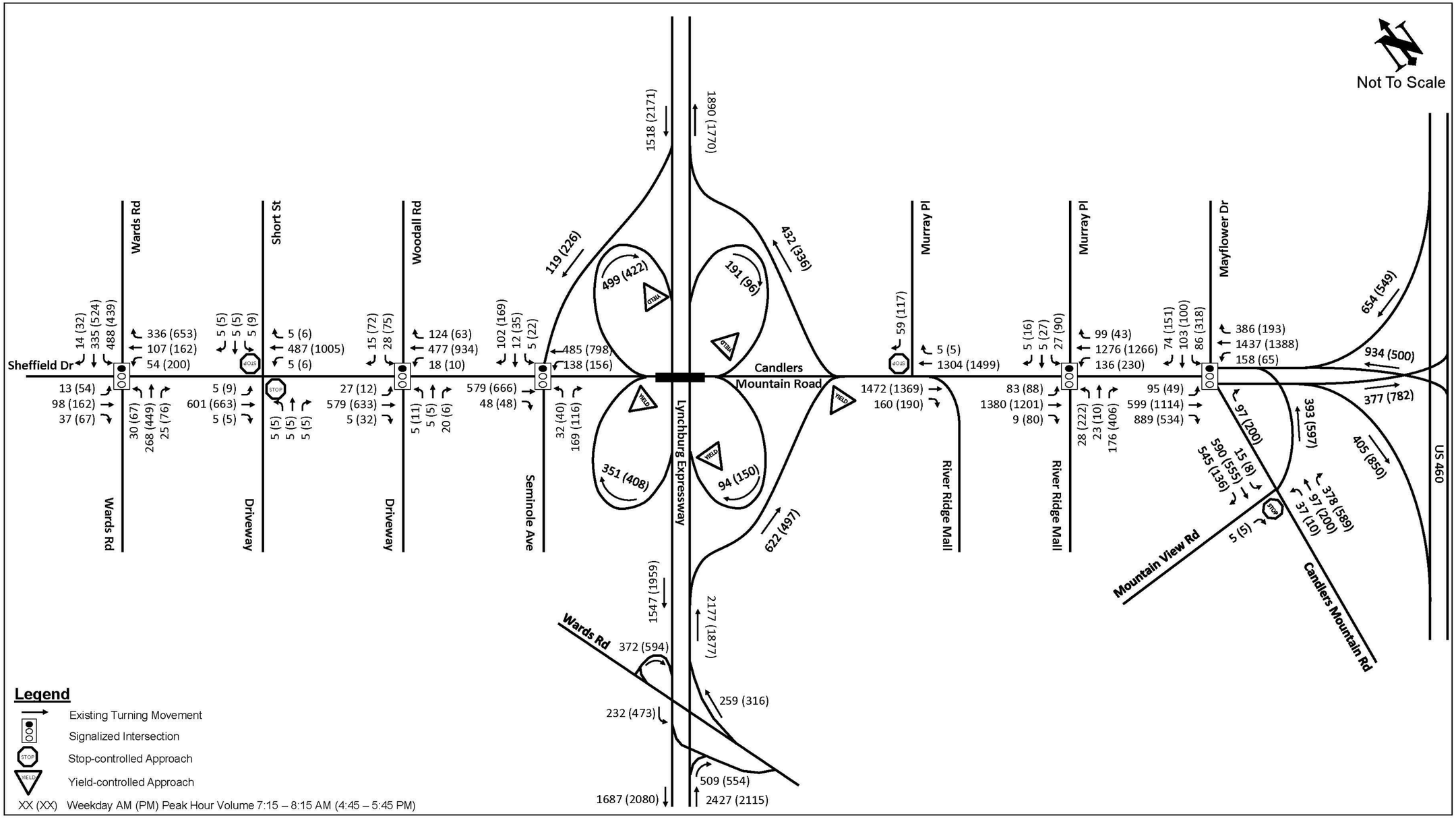
Seasonal adjustment factors were not applied to the traffic counts used for this study.

Traffic Volume Balancing

Using the available TMC and tube count data, the traffic volumes were balanced throughout the network in preparation for the existing conditions operational analyses. Traffic volume balancing was required due to the volume variations observed throughout the corridor. Peak hour traffic volumes were balanced using an iterative process of adjusting intersection and ramp volumes until the volumes were within a reasonable tolerance. The balanced intersection and ramp volumes were within ±10% for all movements in the AM peak hour and within ±12% or for all movements with more than 10 vehicles in the PM peak hour. **Appendix A** contains additional details on of the volume balancing methodology and a summary table showing the difference between unbalanced and balanced traffic volumes.

The Existing 2015 balanced AM and PM peak hour volumes in the study area are summarized in **Figure 2**.

Figure 2 – Existing (2015) Peak Hour Volumes



Existing Roadway Geometry

The existing roadway geometry in the Candlers Mountain Road study area was observed and documented during the field review. **Figure 3** summarizes the existing lane configurations, including storage and taper lengths for left- and right-turn storage bays, for the Candlers Mountain Road study area.

The cross section of Candlers Mountain Road varies throughout the study area. Between Wards Road and US 460 there are two through lanes in both the eastbound and westbound travel directions that range from 10-feet to 12-feet wide. At the eastern end of the study area, between Wards Road and Woodall Road, a two-way left-turn lane separates the two through lanes in each travel direction. In the vicinity of the Lynchburg Expressway interchange, opposing traffic is separated by either guardrail or a concrete barrier. At the western end of the study area, between the eastern side of the Lynchburg Expressway interchange and the US 460 interchange, a variable width grass median separates eastbound and westbound traffic. The portion of Candlers Mountain Road between the Mayflower Drive intersection and the westbound US 501 ramp/Mountain View Road intersection has two travel lanes in the southbound direction and one travel lane in the northbound direction and has no physical barriers between the two travel directions.

Speed Data

INRIX speed data was used to identify the average peak hour travel speeds at locations throughout the study area. VDOT provided INRIX speed data for a one week period from Sunday, October 11, 2015 to Saturday, October 17, 2015 for locations in the study area where INRIX data was available. The data from October 14, 2015 and October 15, 2015, which correspond with the dates the field review and traffic data collection was performed, was extracted from the data set and used to calculate the average travel speeds for segments during the AM (7:15 – 8:15 AM) and PM (4:45 – 5:45 PM) peak hour periods. A summary of the average travel speed by segment is provided in **Table 2.**

Average travel speed is an indicator of the level of congestion on a roadway. Average travel speeds at or near the posted speed limit are an indicator of minimal congestion, while average travel speeds significantly lower than the posted speed limit are an indicator of significant congestion. Based on the calculated average travel speeds from INRIX, the following roadway segments operated at travel speeds at least five miles per hour lower than the posted speed limit during the AM and PM peak hours:

- Northbound Lynchburg Expressway between Wards Road and Candlers Mountain Road
- Northbound Lynchburg Expressway Exit Ramp to Eastbound Candlers Mountain Road
- Westbound Candlers Mountain Road between US 460 Ramps and the Lynchburg Expressway
- Eastbound Candlers Mountain Road between the Lynchburg Expressway and US 460 Ramps
- Westbound US 460 Exit Ramp to Westbound Candlers Mountain Road

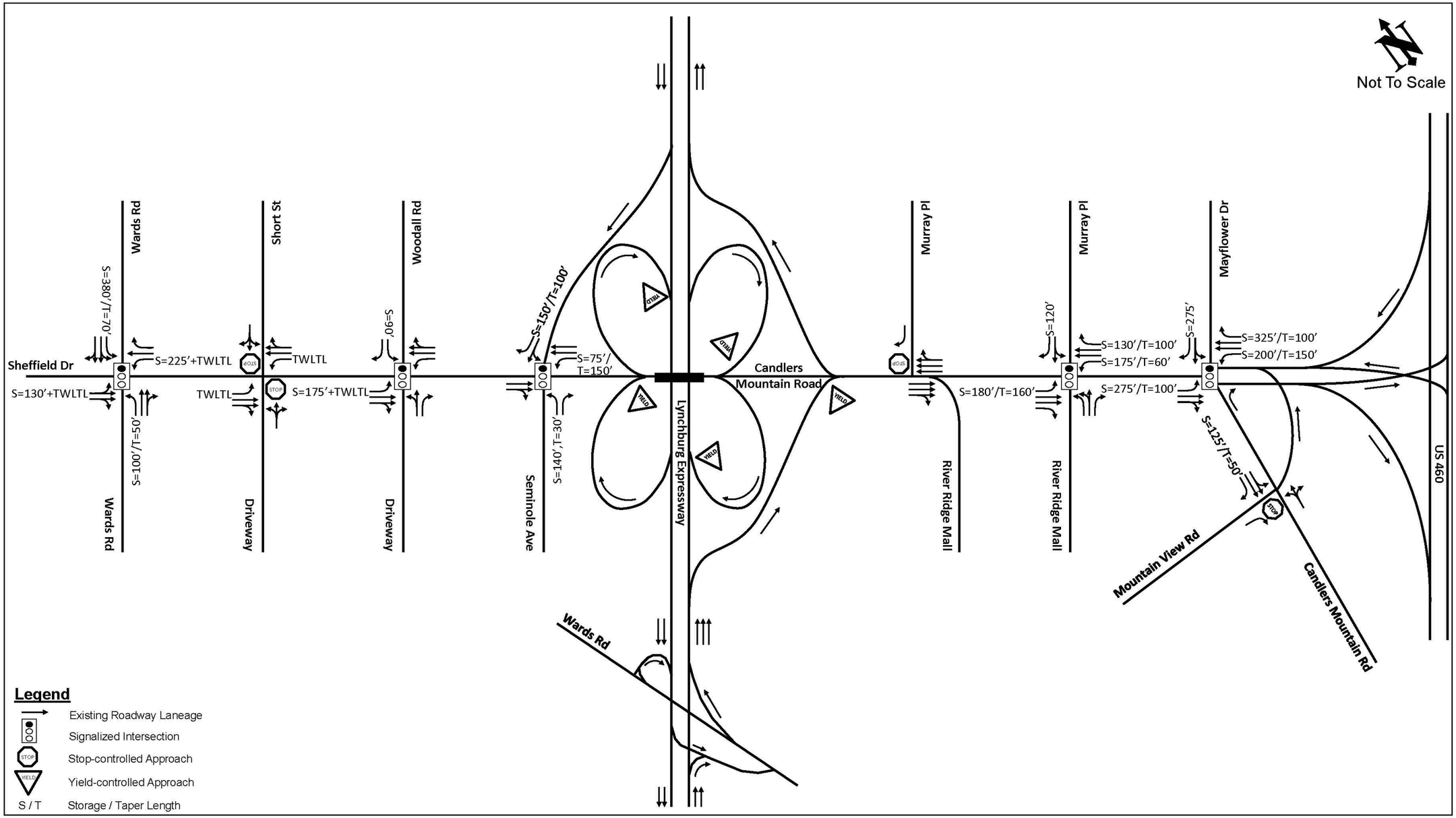
During the field review, congestion was observed in both the AM and PM peak hours at the locations listed above.

Table 2 – INRIX AM and PM Peak Hour Average Travel Speed

INRIX Segment	Posted Speed Limit (mph)	Average Speed (mph)	
		AM Peak Hour	PM Peak Hour
Northbound Lynchburg Expressway			
FROM: Entrance Ramp from Wards Rd TO: Exit Ramp to Eastbound Candlers Mountain Rd	55	45	44
FROM: Exit Ramp to Eastbound Candlers Mountain Rd TO: Entrance Ramp from Westbound Candlers Mountain Rd	55	55	56
FROM: Entrance Ramp from Westbound Candlers Mountain Rd TO: Exit Ramp to Odd Fellows Rd	55	58	57
Southbound Lynchburg Expressway			
FROM: Entrance Ramp from Odd Fellows Rd TO: Exit Ramp to Eastbound/Westbound Candlers Mountain Rd	55	57	57
FROM: Exit Ramp to Eastbound/Westbound Candlers Mountain Rd TO: Exit Ramp to Eastbound Candlers Mountain Rd	55	55	53
FROM: Exit Ramp to Eastbound Candlers Mountain Rd TO: Exit Ramp to Old Wards Rd	55	53	53
Lynchburg Expressway Ramps			
Northbound Lynchburg Expressway Exit Ramp to Eastbound Candlers Mountain Rd	25*	20	9
Westbound Candlers Mountain Road			
FROM: US 460 Exit Ramps TO: Lynchburg Expressway	35	17	13
Eastbound Candlers Mountain Road			
FROM: Lynchburg Expressway TO: US 460 Entrance Ramps	35	21	16
US 460 Ramps			
Westbound US 460 Ramp to Westbound Candlers Mountain Rd	35*	17	13
Eastbound US 460 Ramp to Eastbound Candlers Mountain Rd	45*	51	51

*Posted Ramp Advisory Speed

Figure 3 – Existing (2015) Lane Configurations



Crash Analysis and Roadway Safety Assessment

Crash data for the Candlers Mountain Road study corridor was used to evaluate corridor safety and identify crash patterns. VDOT Roadway Network System (RNS) crash data was obtained for the latest available five years of crash data (January 1, 2010 to December 31, 2014). This crash data was used to identify crash patterns and locations with high crash rates along the study corridor.

A Roadway Safety Assessment (RSA) was conducted on October 14 and 15, 2015 with VDOT and Liberty University staff to observe and document safety concerns along the study corridor. Special focus was given to areas where the crash data indicated a crash pattern or a high crash rate. The purpose of the RSA was to identify factors contributing to the crash patterns as well as identify potential improvements to mitigate crash risks and improve safety along the corridor.

The following sections summarize the crashes that occurred within the Candlers Mountain Road study corridor during the five-year crash analysis period and field observations made during the RSA.

Summary of Overall Study Area Crashes

Over the five-year period crash analysis period, 387 total crashes were reported within the Candlers Mountain Road study area. Of the reported crashes, there were zero fatal crashes, 89 injury crashes, and 298 property damage only (PDO) crashes. For the purposes of crash analysis, study area crashes included crashes located on Candlers Mountain Road or within 250 feet from the center of a study area intersection. Crashes located on the Lynchburg Expressway mainline, Lynchburg Expressway ramps, or US 460 ramps were not considered study area crashes and were not included in the crash analysis. A summary of the study area crashes is shown in **Table 3** and additional details are provided in the following sections.

Table 3 – Study Area Crash Summary

Year	Number of Crashes			
	Fatal	Injury	PDO	Total
2010	0	15	49	64
2011	0	18	79	97
2012	0	12	55	67
2013	0	23	62	85
2014	0	21	53	74
Total	**0**	**89**	**298**	**387**

Summary of Intersection Crashes

The Candlers Mountain Road study area crashes were further analyzed by intersection. The locations of the study area crashes were reviewed in GIS to determine, based on location, crashes in the vicinity of or related to intersections. In locations where intersections were closely spaced, two intersection were grouped together for the intersection crash analysis. Crashes not located near an intersection were not included in the intersection analysis. **Table 4** summarizes crashes at each intersection or group of intersections by severity (fatal, injury, or PDO). Intersection summary maps that include a break-down of crashes by crash type and severity are provided in **Appendix A**.

Table 4 – Crash Summary by Intersection(s)

Intersection(s)	Number of Crashes			
	Fatal	Injury	PDO	Total
Candlers Mountain Road/Sheffield Drive at Wards Road	0	7	32	**39**
Candlers Mountain Road at Short Street	0	5	13	**18**
Candlers Mountain Road at Woodall Road & Candlers Mountain Road at Southbound Lynchburg Expressway Ramp/Seminole Avenue	0	10	8	**18**
Candlers Mountain Road at Lynchburg Expressway Ramps	0	10	19	**29**
Candlers Mountain Road at Murray Place	0	4	13	**17**
Candlers Mountain Road at Murray Place/River Ridge Mall & Candlers Mountain Road/US 501 at Mayflower Drive	0	51	194	**245**
Candlers Mountain Road at Westbound US 501 Ramp/Mountain View Road	0	1	13	**14**

During the five-year analysis period, the majority of reported crashes in the study area occurred in the vicinity of the Candlers Mountain Road at Murray Place/River Ridge Mall and the Candlers Mountain Road/US 501 at Mayflower Drive intersections. The predominant crash type in the vicinity of these two intersections was rear end, which correlates to the congestion that was observed during the field review.

Summary of Candlers Mountain Road Crashes

The study area crashes were also analyzed by eastbound and westbound directions along Candlers Mountain Road between Wards Road and US 460. Study area crashes located on side streets and on Candlers Mountain Road south of the Mayflower Drive intersection were not included in the eastbound and westbound directional crash analysis. Over the five-year crash analysis period, 214 total crashes were reported on eastbound Candlers Mountain Road and 140 total crashes were reported on westbound Candlers Mountain Road. The predominant crash types in both the eastbound and westbound directions of Candlers Mountain Road were rear-end and angle crashes. Over the crash analysis period, similar total numbers of angle crashes were reported in both the eastbound and westbound directions; however, approximately twice the number of rear-end crashes were reported in the eastbound direction than in the westbound direction. Many of the eastbound rear-end crashes occurred between the northbound Lynchburg Expressway exit ramp and the Mayflower Drive intersection.

Additional details on the on the eastbound and westbound Candlers Mountain Road crashes are provided in the following sections.

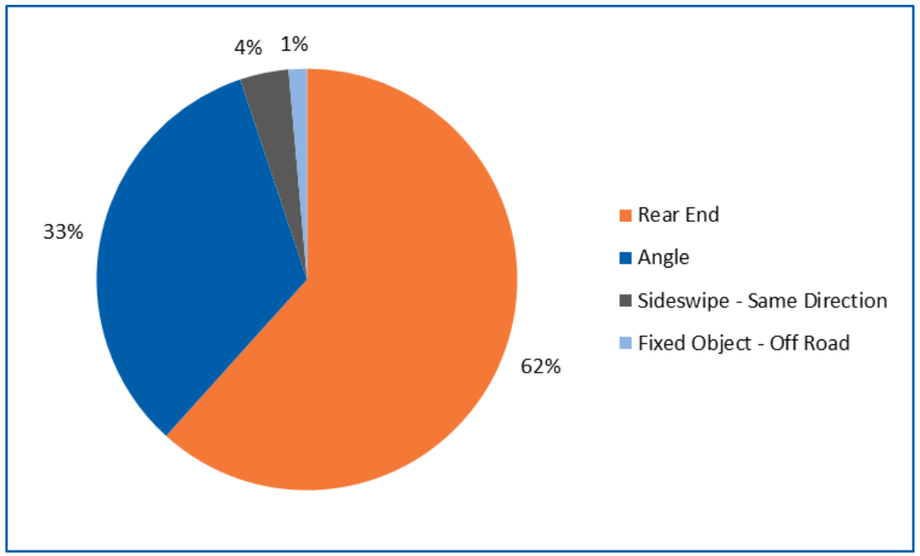
Eastbound Candlers Mountain Road Crash Summary

During the five-year period from January 1, 2010 to December 31, 2014, the following crashes were reported on eastbound Candlers Mountain Road between Wards Road and US 460:

- Total number of reported crashes: 214
- Total number of reported injury crashes: 51
- Total number of reported fatal crashes: 0

A summary of the eastbound Candlers Mountain Road crashes by crash type is provided in **Figure 4**. The majority of eastbound Candlers Mountain Road crashes (62%) were rear-end crashes. The next most frequent crash was angle, which accounted for 33% of all reported eastbound crashes.

Figure 4 – Eastbound Candlers Mountain Road Crash Type Summary



Other crash trends on eastbound Candlers Mountain Road included:

- 47% of the reported crashes occur in during the PM peak hour and 17% occur during the AM peak hour
- 76% of the reported crashes occur in daylight conditions
- 86% of the reported crashes occur in clear weather conditions

Appendix A contains additional details on the eastbound Candlers Mountain Road crashes.

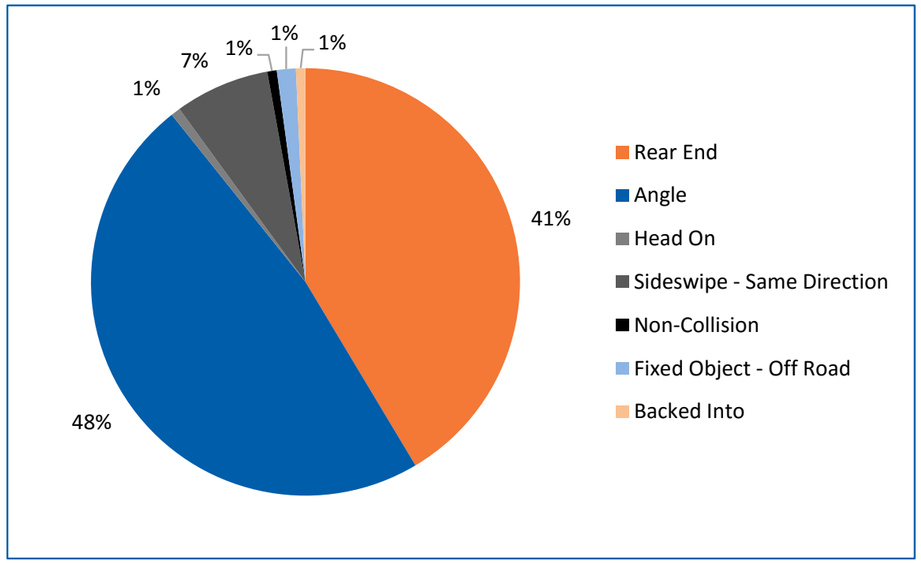
Westbound Candlers Mountain Road Crash Summary

During the five-year period from January 1, 2010 to December 31, 2014, the following crashes were reported on westbound Candlers Mountain Road between Wards Road and US 460:

- Total number of reported crashes: 140
- Total number of reported injury crashes: 33
- Total number of reported fatal crashes: 0

A summary of the westbound Candlers Mountain Road crashes by crash type is provided in **Figure 5**. The predominant crash type was angle crashes, which accounted for 48% of all reported crashes in the westbound direction. The next most frequent crash type was rear end, which accounted for 41% of all reported westbound crashes.

Figure 5 – Westbound Candlers Mountain Road Crash Type Summary



Other crash trends on westbound Candlers Mountain Road included:

- 26% of the reported crashes occur in during the PM peak hour and 14% occur during the AM peak hour
- 78% of the reported crashes occur in daylight conditions
- 92% of the reported crashes occur in clear weather conditions

Appendix A contains additional details on the westbound Candlers Mountain Road crashes.

Crash Histograms

Crash activity by 0.1 mile segments of roadway, or crash density, for the eastbound and westbound directions of Candlers Mountain Road is shown on the histograms in **Figure 6** and **Figure 7**. **Figure 6** shows crash density by crash type and **Figure 7** shows crash density by severity. In both the eastbound and westbound directions of Candlers Mountain Road, the segment of Candlers Mountain Road with the highest crash density extends from the east side of the Lynchburg Expressway interchange to east of Mayflower Drive.

Crash Rates

Crash rates were computed for the Candlers Mountain Road study corridor using the number of crashes during the five-year analysis period, AADT volumes, and the length of the study corridor. Separate crash rates were calculated for the undivided and divided portions of Candlers Mountain Road in the study area. **Table 5** provides the overall crash rate, injury crash rate, and fatal crash rate for the undivided segment of Candlers Mountain Road, between Wards Road and the southbound Lynchburg Expressway exit ramp/Seminole Avenue. **Table 6** provides the overall crash rate, injury crash rate, and fatal crash rate for the divided segment of Candlers Mountain Road, between the southbound Lynchburg Expressway exit ramp/Seminole Avenue and US 460. All crash rates are expressed in terms of crashes per 100 million vehicle-miles traveled.

Table 5 – Crash Rate Summary – Undivided

Crash Severity	Number of Crashes	Crash Rate - Undivided
		Candlers Mountain Road (2010-2014)*
Injury	19	**716.64**
Fatal	0	**0**
All	62	**2,338.52**

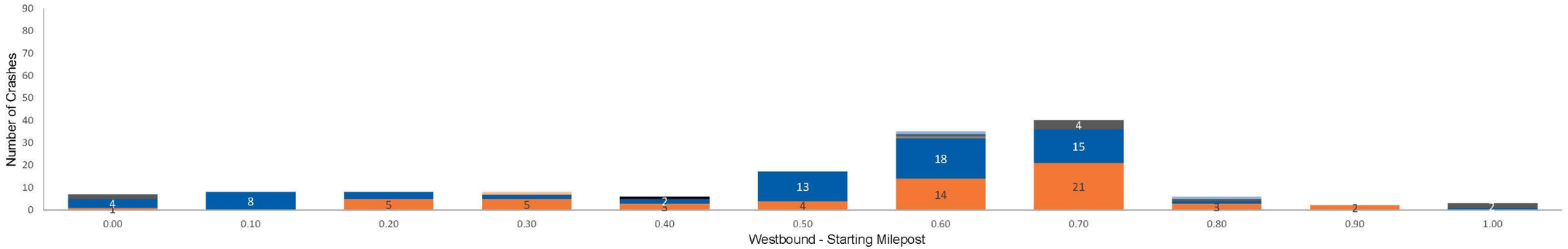
* Crash rates expressed in crashes per 100 million vehicle miles traveled

Table 6 – Crash Rate Summary – Divided

Crash Severity	Number of Crashes	Crash Rate - Divided
		Candlers Mountain Road (2010-2014)*
Injury	65	**178.36**
Fatal	0	**0**
All	292	**801.27**

* Crash rates expressed in crashes per 100 million vehicle miles traveled

Figure 6 – Candler Mountain Road Crash Histograms (Crash Type)



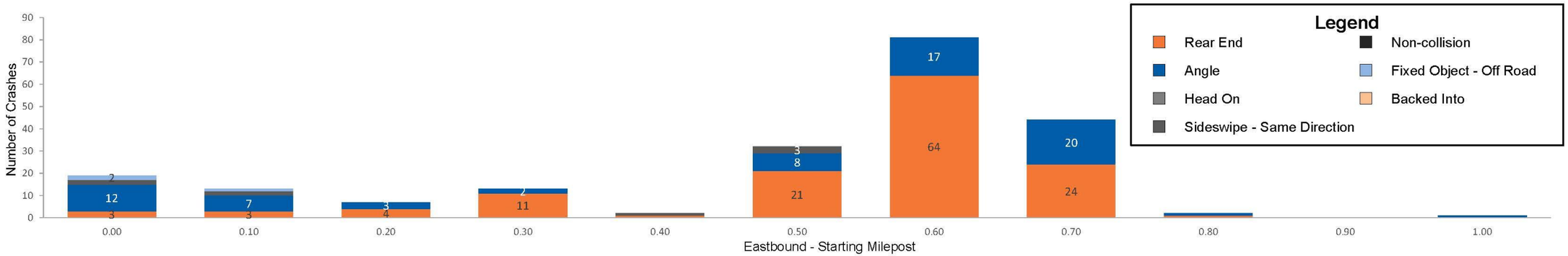
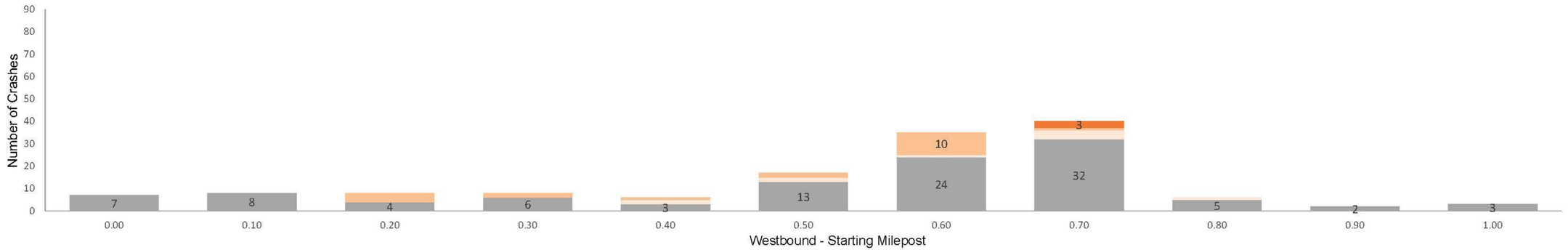
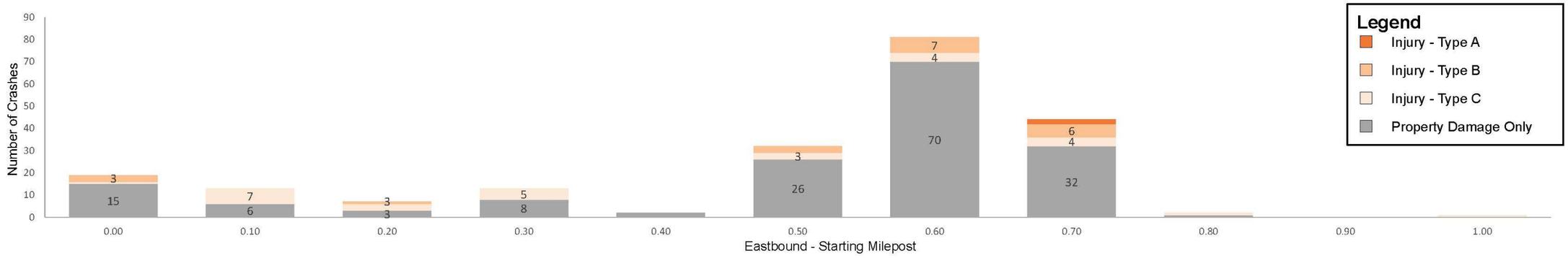


Figure 7 – Candler Mountain Road Crash Histograms (Crash Severity)





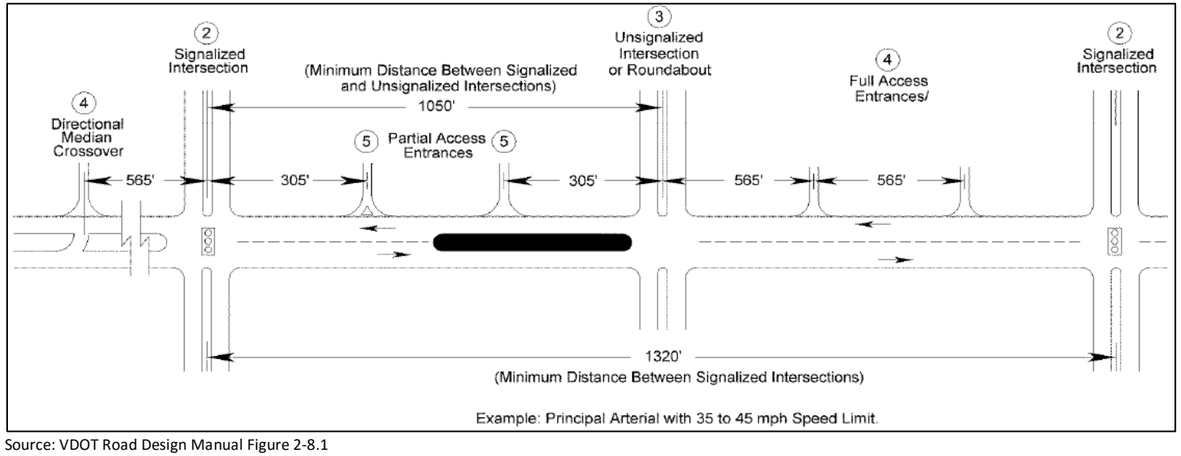
GEOMETRIC CHARACTERISTICS

Access Management Spacing

The existing intersection and entrance spacing on Candlers Mountain Road in the study area was evaluated according to the VDOT access management regulations in Appendix F of the *VDOT Road Design Manual*. Within the study area, Candlers Mountain Road has a posted speed limit of 35 MPH and is classified as a principal arterial. VDOT access management regulations applicable to principal arterials with a 35 MPH speed limit are listed below and shown in **Figure 8**.

- Minimum spacing between a signalized intersection and another signalized intersection – 1,320 feet
- Minimum spacing between an unsignalized intersection or a full median crossover and a signalized intersection, an unsignalized intersection, or a full median crossover – 1,050 feet
- Minimum spacing between a full access entrance or directional median and any intersection, full access entrance, or median crossover – 565 feet
- Minimum spacing between a partial access one- or two-way entrance and any type of entrance, intersection, or median crossover – 305 feet

Figure 8 – VDOT Access Management Regulations (Principal Arterial with 35-45 MPH Speed Limit)

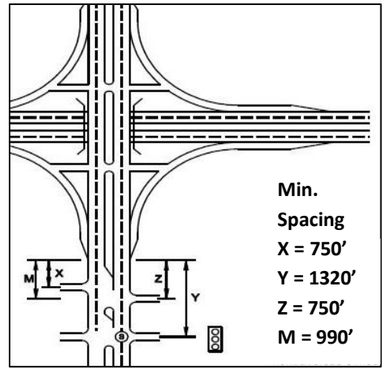


Source: VDOT Road Design Manual Figure 2-8.1

Appendix F of the *VDOT Road Design Manual* also provides minimum spacing standards between interchange ramps and other intersections. These standards are listed below and shown in **Figure 9** for multilane highways at interchanges. The start/end of a ramp terminal is defined as the start/end of the taper. In situations where the interchange ramp connects to a continuous auxiliary lane, the start/end of the ramp terminal is defined as the location where an AASHTO calculated acceleration or deceleration lane and taper would start/end.

- Minimum spacing between the start/end of a ramp terminal and any intersection, full access entrance, or median crossover – 1,320 feet
- Minimum spacing between the start/end of a ramp terminal and a directional median crossover – 990 feet
- Minimum spacing between the start/end of a ramp terminal and a right in/right out partial access entrance – 750 feet

Figure 9 – VDOT Access Management Regulations on Multilane Highways at Interchanges



Source: VDOT Road Design Manual Figure 2-9

The existing access point spacing on Candlers Mountain Road is shown in **Figure 10** through **Figure 12** and summarized in the following sections.

Signalized Intersection Spacing

There are five signalized intersections in the study area. The required spacing between signalized intersections in Appendix F of the *VDOT Road Design Manual* for an arterial with a posted speed of 35 mph is 1,320 feet. Signalized intersection spacing in the study area is summarized in **Table 7** below.

Table 7 – Signalized Intersection Spacing

Mainline	From	To	Existing Spacing	Required Spacing	Meets Standard?
Candlers Mountain Road	Wards Road	Woodall Road	895’	1,320’	No
Candlers Mountain Road	Woodall Road	Seminole Road	185’	1,320’	No
Candlers Mountain Road	Seminole Road	Murray Place / River Ridge Mall	1,965’	1,320’	Yes
Candlers Mountain Road	Murray Place / River Ridge Mall	Mayflower Drive	730’	1,320’	No
Candlers Mountain Road	Mayflower Drive	Regents Parkway	1,635’	1,320’	Yes

Unsignalized Intersection Spacing

There is one full access, unsignalized intersection in the study area at the intersection of Candlers Mountain Road/US 501 and Mountain View Road. This intersection does not meet the required spacing in Appendix F of the VDOT Road Design Manual of 1,050 feet from a full median crossover to an unsignalized intersection, signalized intersection, or other full median crossover.

Full Access Entrance Spacing

The existing full access entrances on Candlers Mountain Road between Lynchburg Expressway and Wards Road and between Candlers Mountain Road/US 501 and Mountain View Road do not meet the required spacing in Appendix F of the VDOT Road Design Manual of 565 feet between full access entrances and any entrance, intersection, or median crossover.

Partial Access Entrance Spacing

The existing partial access entrances on Candlers Mountain Road between Murray Place and Murray Place/River Ridge Mall do not meet the required spacing in Appendix F of the VDOT Road Design Manual of 305 feet between partial access entrances and any entrance, intersection, or median crossover.

Ramp Spacing

The existing spacing between the on- and off-ramp terminals and the first partial and full access entrances do not meet the required spacing in Appendix F of the VDOT Road Design Manual for the eastbound or westbound direction of Candlers Mountain Road. Lynchburg Expressway ramps, ramps to US 460, and the ramp from Candlers Mountain Road to westbound Candlers Mountain Road/US 501 do not meet spacing requirements.

Figure 10 – Existing Access Point Spacing (1 of 3)

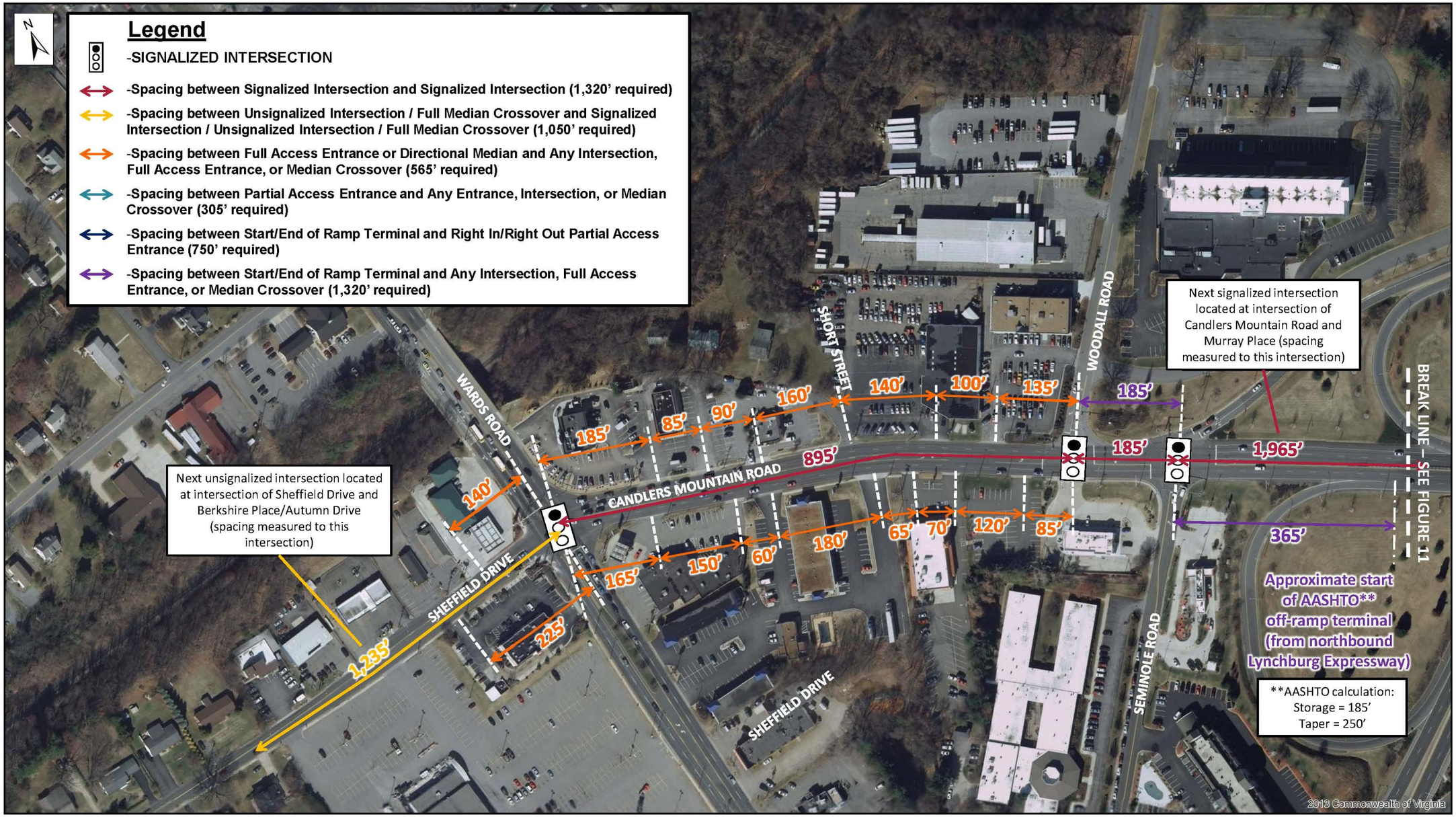


Figure 11 – Existing Access Point Spacing (2 of 3)

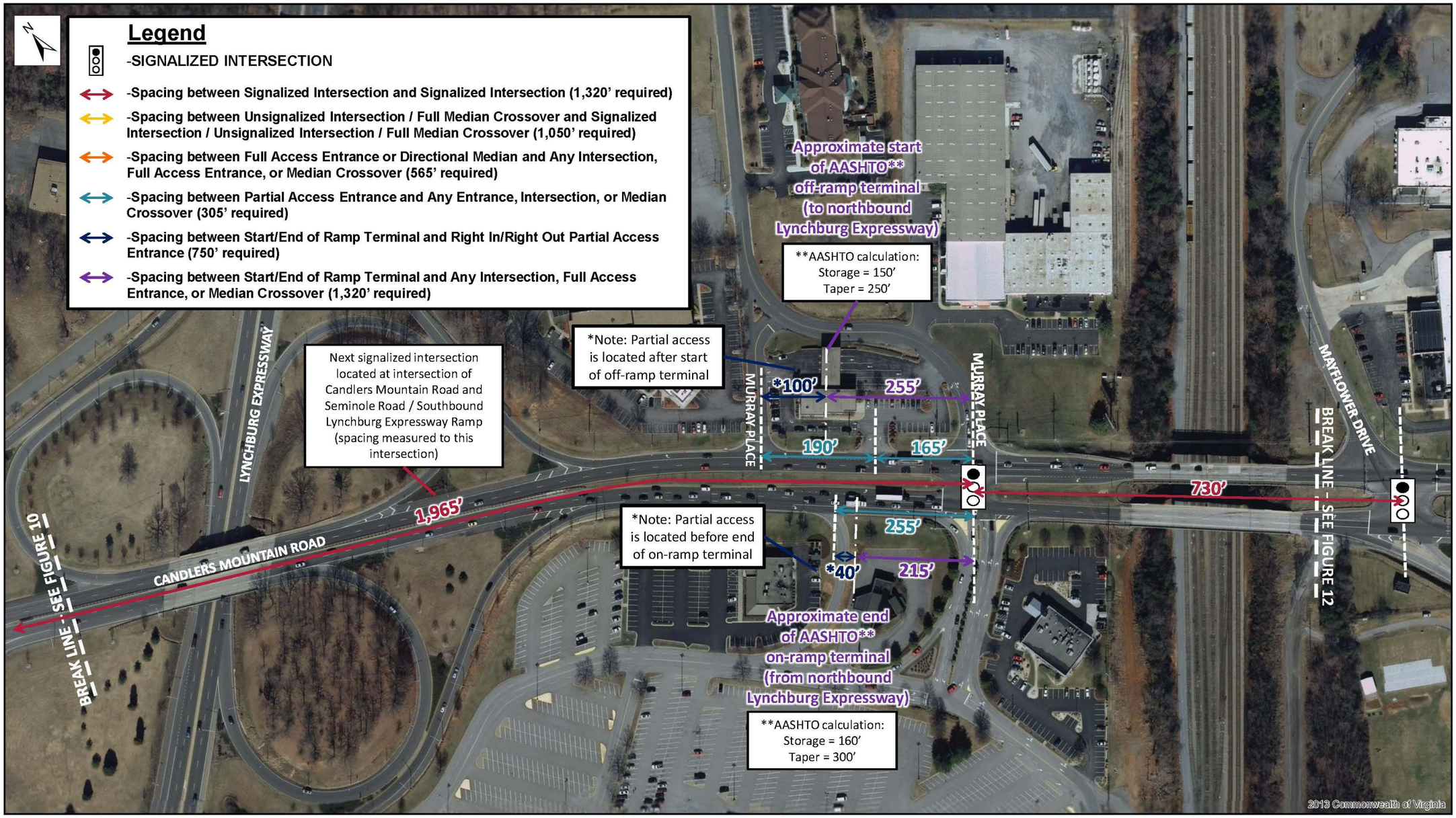
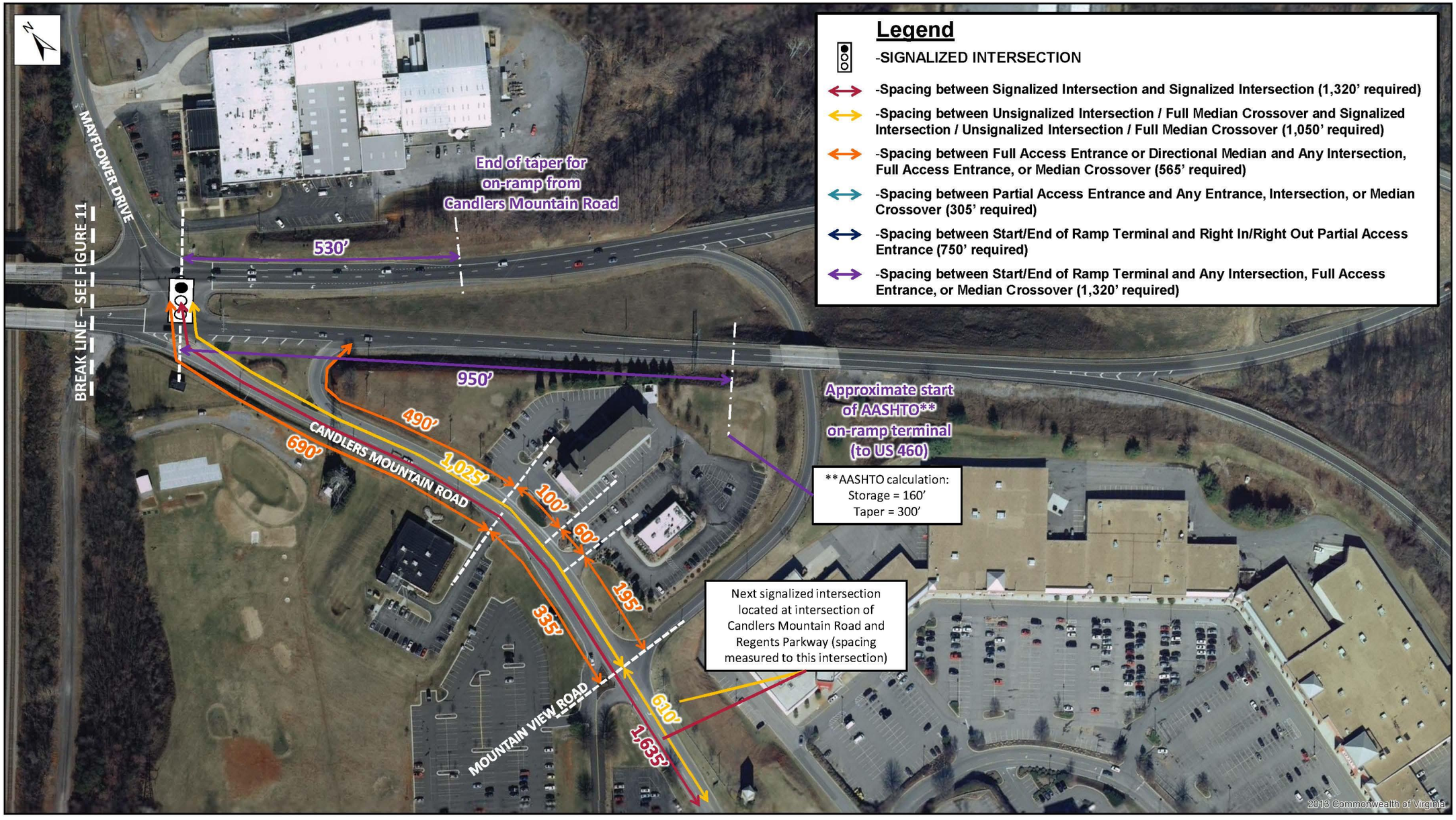


Figure 12 – Existing Access Point Spacing (3 of 3)



EXISTING CONDITIONS (2015)

Traffic operational analyses were conducted to evaluate the overall performance of the study corridor under existing (2015) AM and PM peak hour conditions. The intent of the existing conditions analyses was to provide a general understanding of the baseline traffic conditions as a starting point for developing future improvement strategies. Existing conditions were modeled using both CORSIM and Synchro/SimTraffic. CORSIM was used to evaluate the arterial operations of the Candlers Mountain Road study corridor, as well as the mainline, merge, diverge, and weaving segments of the Lynchburg Expressway near the Candlers Mountain Road interchange. Synchro/SimTraffic were used to analyze the operations of the study intersections. Existing conditions CORSIM and Synchro/SimTraffic modeling assumptions and results are described in more detail in the following sections.

CORSIM Analysis

CORSIM models were developed to analyze the arterial operation of Candlers Mountain Road as well as the freeway operation of the Lynchburg Expressway in the vicinity of Candlers Mountain Road under existing (2015) AM and PM peak hour conditions.

Modeling Assumptions

The existing AM and PM CORSIM models were developed based on a combination of collected data and visual observations from the field review. The models were calibrated for volume, speed, and queue length. A detailed summary of CORSIM modeling inputs, assumptions, and calibration is provided in **Appendix B**. A CORSIM calibration summary table is also provided in **Appendix B**.

The VDOT *Sample Size Determination Tool* was used to confirm that ten simulation runs would provide the acceptable 95% confidence level for both the AM and PM models. Ten simulation runs were conducted for both the AM and PM models using different random number seeds. The averages of these runs were reported. The VDOT *Sample Size Determination Tool* results are provided in **Appendix B**.

Results

The following measures of effectiveness (MOEs) were used to measure the quantitative performance of the freeway network:

- Vehicle density on freeways links – measured in vehicles per lane per mile
- Vehicle speeds on freeway links – measured in miles per hour

The following MOEs were used to measure the quantitative performance of the arterial network:

- Microsimulation delay – measured in seconds
- Maximum queue length – measured in vehicles per lane

Detailed simulation results including freeway lane schematics and intersection delay and queue tables are provided in **Appendix B**. Key findings from the CORSIM analysis are summarized in the subsequent sections.

Vehicle Density on Freeway Links

The *2010 Highway Capacity Manual* (HCM) methodologies govern the methodology for evaluating capacity and the quality of service provided to road users traveling through a roadway network. For freeway facilities, Level of Service (LOS) is defined by the HCM in terms of density measured in passenger cars per mile per lane. LOS ranges from A to F, where LOS A indicates a condition of little or no congestion and LOS F indicates a condition of severe congestion, unstable traffic flow, and stop-and-go conditions.

CORSIM reports density in terms of vehicles per mile per lane (veh/mi/ln), which is not directly comparable with the HCM LOS definition. Although CORSIM density outputs cannot be used to determine an HCM LOS, the LOS scale is still a useful measure to understand the relative difference between densities. For the purposes of this study, a simulation LOS scale, which is solely based on the HCM freeway facility LOS criteria for basic freeway segments, freeway weaving segments, and freeway merge/diverge segments, was used to relate CORSIM density to a LOS.

Summary tables with the CORSIM density results and corresponding simulation LOS for the AM and PM peak periods are provided in **Appendix B.**

Table 8 – Simulation Freeway Facility LOS Criteria

LOS	Density (veh/mi/ln)		
	Basic Freeway Segments	Freeway Weaving Segments	Freeway Ramps
A	≤11	≤10	≤10
B	>11-18	>10-20	>10-20
C	>18-26	>20-28	>20-28
D	>26-35	>28-35	>28-35
E	>35-45	>35	>35
F	>45 demand exceeds capacity	Demand exceeds capacity	Demand exceeds capacity

Critical links with a reported density that corresponds to a simulation LOS of D or worse are described below.

Southbound Lynchburg Expressway

Under existing conditions no overall mainline links on the southbound Lynchburg Expressway operate at a simulation LOS of D or worse in the AM or PM peak hours. One ramp, the entrance ramp from westbound Candlers Mountain Road, operates at a simulation LOS of D or worse in both the AM and PM peak hours. This ramp has a short acceleration lane and poor sight distance and many vehicles slow to almost a stop before margining onto the expressway. In CORSIM this ramp was modeled with a ramp meter to simulation the near stop condition of merging vehicles. The density and simulation LOS for southbound Lynchburg Expressway links with a simulation LOS of D or worse are summarized in **Table 9**.

Northbound Lynchburg Expressway

Under existing conditions no overall mainline links on the northbound Lynchburg Expressway operate at a simulation LOS of D or worse in the AM or PM peak hours. One ramp, the exit ramp to eastbound Candlers Mountain Road, operates at a simulation LOS of D or worse in both the AM and PM peak hours. Vehicles queue back on this ramp due to congestion on Candlers Mountain Road. The density and simulation LOS for southbound Lynchburg Expressway links with a simulation LOS of D or worse are summarized in **Table 9**.

Table 9 – CORSIM Links with Simulation LOS of D or Worse

Location	AM Peak Hour		PM Peak Hour	
	Density	Simulation LOS	Density	Simulation LOS
Southbound Lynchburg Expressway Mainline				
No overall links operate at simulation LOS of D or worse				
Southbound Lynchburg Expressway Ramps				
Southbound Lynchburg Expressway Entrance Ramp from Westbound Candlers Mountain Road (Ramp F)	96.4	F	68.0	F
Northbound Lynchburg Expressway Mainline				
No overall links operate at simulation LOS of D or worse				
Northbound Lynchburg Expressway Ramps				
Northbound Lynchburg Expressway Exit Ramp to Eastbound Candlers Mountain Road (Ramp C)	34.2	D	56.0	F

Vehicle Speeds on Freeway Links

Vehicle speeds on the Lynchburg Expressway were generally simulated within the average range of 50 to 58 mph during the AM and PM peak periods, with the exception of the following:

- During the AM peak hour, the northbound Lynchburg Expressway reported speeds of less than 50 mph at the exit ramp to and entrance ramp from Wards Road and at the exit ramp to eastbound Candlers Mountain Road
- During the PM peak hour, the northbound Lynchburg Expressway reported speeds of less than 50 mph at the exit ramp to and entrance ramp from Wards Road and at the entrance ramp from and the exit ramp to eastbound Candlers Mountain Road
- During the AM peak hour, the southbound Lynchburg Expressway reported speeds of less than 50 mph at the exit ramp to and entrance ramp from eastbound and westbound Candlers Mountain Road
- During the PM peak hour, the southbound Lynchburg Expressway reported speeds of less than 50 mph at the exit ramp to and entrance ramp from eastbound and westbound Candlers Mountain Road

Microsimulation Delay on Arterial Links

CORSIM microsimulation delay by movement, approach, and overall intersection was reported for the arterial intersections during the AM and PM peak periods. The complete microsimulation delay results by intersection are provided in **Appendix B**. This microsimulation delay from CORSIM cannot be directly correlated with a HCM LOS. For this reason, as well as some signal timing limitations of CORSIM, Synchro was used as the primary tool for reporting intersection delay and LOS. The CORSIM microsimulation delay results were reviewed and found to generally align with the Synchro results. A summary of the Synchro delay and LOS results is provided the Synchro/SimTraffic Analysis section of this report.

Maximum Queue Length on Arterial Links

While SimTraffic was the primary tool for reporting maximum queue length, the CORSIM maximum queue lengths were reviewed and found to generally align with the SimTraffic results. For reference, the complete maximum queue length results by movement and link during the AM and PM peak periods are provided in **Appendix B**. A summary of the SimTraffic maximum queue length results is provided in the Synchro/SimTraffic Analysis section of this report.

Synchro/SimTraffic Analysis

Synchro (version 8.0) and SimTraffic (version 8.0) models were developed to analyze the eight study-area intersections under existing (2015) AM and PM peak hour conditions. For all Synchro analyses, the HCM 2000 methodology was used due to the limitations of the HCM 2010 methodology to analyze clustered intersections and non-standard traffic signal phasing.

Modeling Assumptions

The existing AM and PM Synchro/SimTraffic models were developed based on a combination of collected data and visual observations from the field review. A detailed summary of Synchro/SimTraffic modeling assumptions is provided in **Appendix B**.

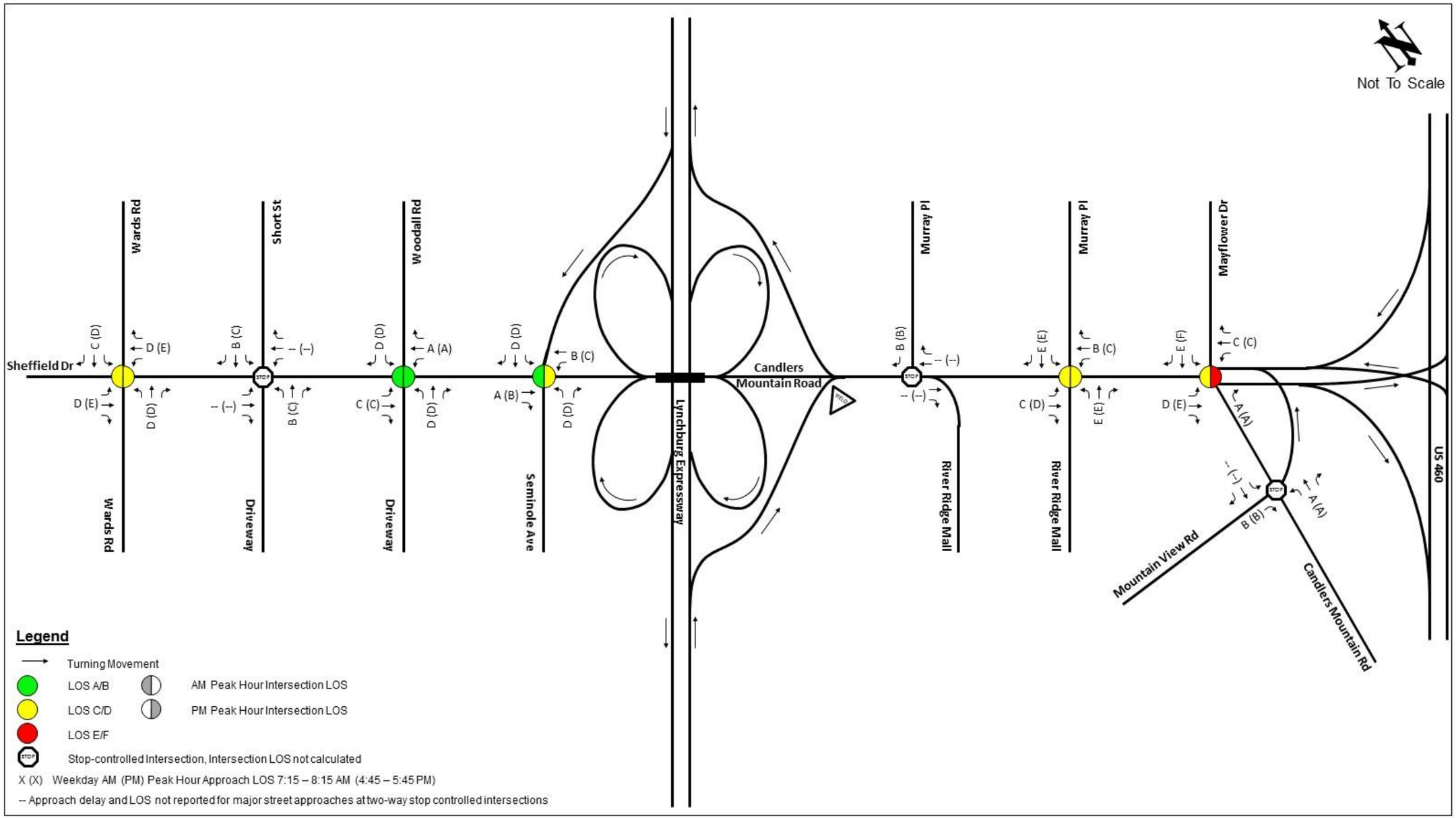
Results

The following MOEs were selected to measure the quantitative performance of the intersections within the network.

- Average vehicle delay and HCM LOS by movement, approach, and intersection – measured in seconds per vehicle
- Maximum queue length – measured in feet

Tables summarizing the delay, HCM LOS, and queuing results for the study area intersections are included in **Appendix B**. **Figure 13** shows a graphical representation of the LOS results in the study area. Key findings for the intersection analysis are summarized in the subsequent sections.

Figure 13 – Existing (2015) Levels of Service



Delay and Level of Service

Intersection capacity analysis allows traffic engineers to assess the operational conditions at intersections and identifies the impacts of traffic on the surrounding roadway network. The intersections are evaluated using control delay expressed in seconds per vehicles. Intersections with LOS E or F, overall volume-to-capacity ratio (v/c) greater than one, at least one approach with LOS F, or at least one lane group with v/c greater than one are summarized below.

Intersection 7 – Candlers Mountain Road / US 501 at Mayflower Drive

- The overall intersection operates at LOS E (55.3 sec/veh) during the PM peak hour and v/c greater than one during the PM peak hour.
- The southbound approach of Mayflower Drive operates at LOS F (123.5 sec/veh) and v/c greater than one during the PM peak hour.
- The eastbound through-right lane group operates with a v/c greater than one in both the AM and PM peak hours.

Queue Length

A queuing analysis was completed for the study area intersections under both Existing AM and PM peak hour conditions. Queue length is another key performance indicator of capacity at both signalized and unsignalized intersection. Queues exceeding the length of turn lane storage lengths may indicate capacity or operational issues. Understanding possible causes of significant queue lengths helps in the identification of potential solutions.

SimTraffic was used to perform a 60-minute simulation for the queuing analyses. The maximum queue length, measured in feet, was reported and is summarized in **Appendix B**. For movements without conflicting volumes, no queue length is reported by SimTraffic.

Movements with queues that exceed storage bays include:

Intersection 1 – Candlers Mountain Road / Sheffield Drive at Wards Road

- Westbound left turn, PM peak hour

Intersection 3 – Candlers Mountain Road at Woodall Road

- Southbound left turn, PM peak hour

Intersection 4 – Candlers Mountain Road at Southbound Lynchburg Expressway Ramp / Seminole Avenue

- Westbound left turn, both AM and PM peak hours

Intersection 6 – Candlers Mountain Road at Murray Place / River Ridge Mall

- Eastbound left turn, both AM and PM peak hours
- Westbound left turn, both AM and PM peak hours
- Westbound right turn, both AM and PM peak hours

Intersection 7 – Candlers Mountain Road / US 501 at Mayflower Drive

- Westbound left turn, both AM and PM peak hours
- Westbound right turn, both AM and PM peak hours
- Southbound right turn, both AM and PM peak hours

Intersection 8 – Candlers Mountain Road at Westbound US 501 Ramp / Mountain View Road

- Southbound right turn, AM peak hour

Movements with queues that block the storage bays of adjacent lanes include:

Intersection 1 – Candlers Mountain Road / Sheffield Drive at Wards Road

- Westbound left-turn lane blocked by through movement, PM peak hour
- Northbound left-turn lane blocked by through movement, both AM and PM peak hours
- Southbound left-turn lane blocked by through-left movement, PM peak hour

Intersection 2 – Candlers Mountain Road at Short Street

- Westbound left-turn lane blocked by through movement, PM peak hour

Intersection 3 – Candlers Mountain Road at Woodall Road

- Eastbound left-turn blocked by through movement, both AM and PM peak hours
- Southbound left-turn blocked by right-turn movement, PM peak hour

Intersection 4 – Candlers Mountain Road at Southbound Lynchburg Expressway Ramp / Seminole Avenue

- Westbound left-turn lane blocked by through movement, both AM and PM peak hours
- Northbound left-turn lane blocked by through movement, AM and PM peak hour

Intersection 6 – Candlers Mountain Road at Murray Place / River Ridge Mall

- Eastbound left-turn lane blocked by through movement, both AM and PM peak hours
- Westbound left-turn lane blocked by through movement, both AM and PM peak hours
- Westbound right-turn lane blocked by through movement, both AM and PM peak hours
- Southbound right-turn lane blocked by through-left movement, both AM and PM peak hours

Intersection 7 – Candlers Mountain Road / US 501 at Mayflower Drive

- Eastbound left-turn lane blocked by through movement, both AM and PM peak hours
- Westbound left-turn lane blocked by through movement, both AM and PM peak hours
- Westbound right-turn lane blocked by through movement, both AM and PM peak hours
- Southbound right-turn lane blocked by through-left movement, both AM and PM peak hours

Intersection 8 – Candlers Mountain Road at Westbound US 501 Ramp / Mountain View Road

- Southbound right -turn lane blocked by through movement, AM peak hour

Queues at several intersections extend through upstream intersections under existing conditions. These queues are summarized below.

Eastbound Candlers Mountain Road, AM Peak

- The queue at Intersection 4 – Candlers Mountain Road at Southbound Lynchburg Expressway Ramp / Seminole Avenue extends through Intersection 3 – Candlers Mountain Road at Woodall Road.
- Beginning of the queue at Intersection 8 – Candlers Mountain Road at Westbound US 501 Ramp / Mountain View Road extends through Intersection 7 – Candlers Mountain Road/US 501 at Mayflower Drive; the queue at Intersection 7 extends through Intersection 6 – Candlers Mountain Road at Murray Place / River Ridge Mall.

Eastbound Candlers Mountain Road, PM Peak

- The queue at Intersection 4 – Candlers Mountain Road at Southbound Lynchburg Expressway Ramp / Seminole Avenue extends through Intersection 3 – Candlers Mountain Road at Woodall Road; the queue at Intersection 3 extends through Intersection 2 – Candlers Mountain Road at Short Street.
- The queue at Intersection 7 – Candlers Mountain Road/US 501 at Mayflower Drive extends through Intersection 6 – Candlers Mountain Road at Murray Place / River Ridge Mall.

Westbound Candlers Mountain Road, AM Peak

- The queue at Intersection 3 – Candlers Mountain Road at Woodall Road extends through Intersection 4 – Candlers Mountain Road at Southbound Lynchburg Expressway Ramp / Seminole Avenue.

TRAFFIC FORECASTING

In order to understand future traffic conditions on Candlers Mountain Road, traffic volumes were forecasted for the future year analysis. VDOT identified 2025 as the Interim Year and 2040 as the Design Year for traffic analysis to align with the previous planning efforts of the region's long-range vision, goals, and objectives. The following sections describe the methodology for developing growth rates and projecting traffic volumes for the study corridor.

Traffic Growth Rate Development

Traffic growth rates were developed as part of the Lynchburg Expressway Improvement Study using both historic growth trends and available travel demand models. Historic traffic growth rates were calculated using published VDOT traffic count data. Travel demand model forecasted growth rates were calculated as an average of the 2008 and 2035 traffic forecasts from the Lynchburg Regional Travel Demand Model, which is based on the 2010 MPO Constrained Long Range Plan (CLRP). After reviewing both the historic traffic growth rates and travel demand model forecasted growth rates, the Lynchburg Expressway Improvement Study SWG agreed upon conservative growth rates of 1% for both the Lynchburg Expressway mainline and Candlers Mountain Road. In addition, the Lynchburg Expressway Improvement Study assumed that heavy vehicle percentages would not change in the study area and, as a result, applied existing heavy vehicle percentages to future year analyses.

After the Lynchburg Expressway Improvement Study was completed, the Lynchburg Regional Travel Demand Model was updated. The update primarily consisted of adjustments to the baseline model (2008) to reflect current traffic volumes. This adjustment resulted in slightly lower projected volumes for the forecast years of 2025 and 2040 in the travel demand model. These projections were also assumed to take into consideration the anticipated growth in and around the Liberty University campus as shown in the campus master planning efforts.

Based on the available data, the growth rate assumptions previously agreed upon for the Lynchburg Expressway Improvement Study were determined to still be relevant and therefore were applied to the Candlers Mountain Road Corridor Study as shown in **Table 10**.

Table 10 – Growth Rate Assumptions

Roadway	Growth Rates
Expressway (US 29/US 501)	1.00%
Wards Road	1.00%
Candlers Mountain Road	1.00%

Supporting data for traffic growth rate development is included in **Appendix C**.

Projected Traffic Volumes

Standard linear growth rate calculations were applied to the 2015 existing peak hour traffic volumes to generate 2025 and 2040 no-build peak hour traffic volumes. The projected volumes were re-balanced throughout the study area. The balanced projected 2025 and 2040 no-build AM and PM peak hour volumes for the study corridor are summarized in **Figure 14** and **Figure 15**, respectively.

Figure 14 – Projected 2025 No-Build Peak Hour Volumes

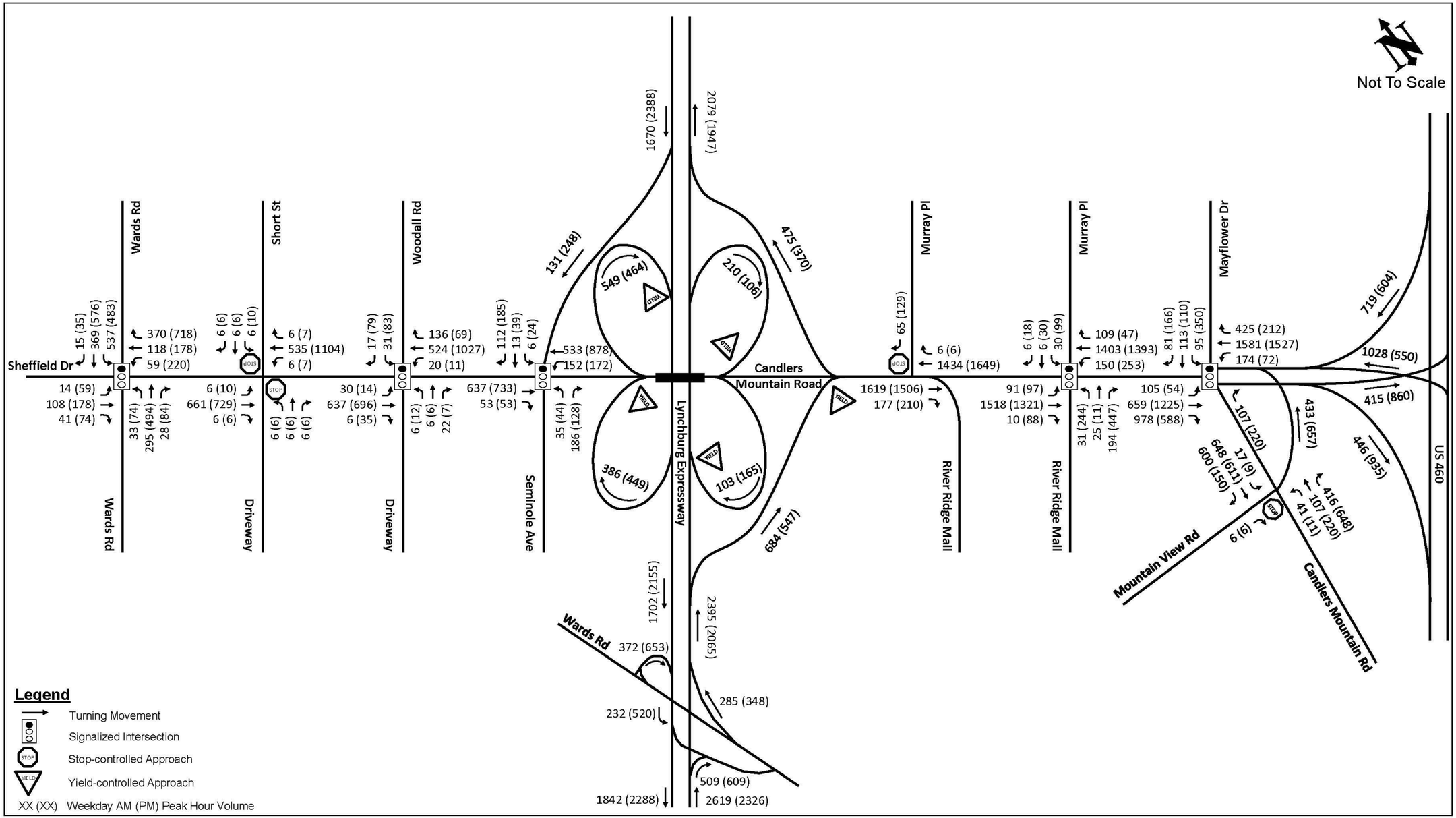
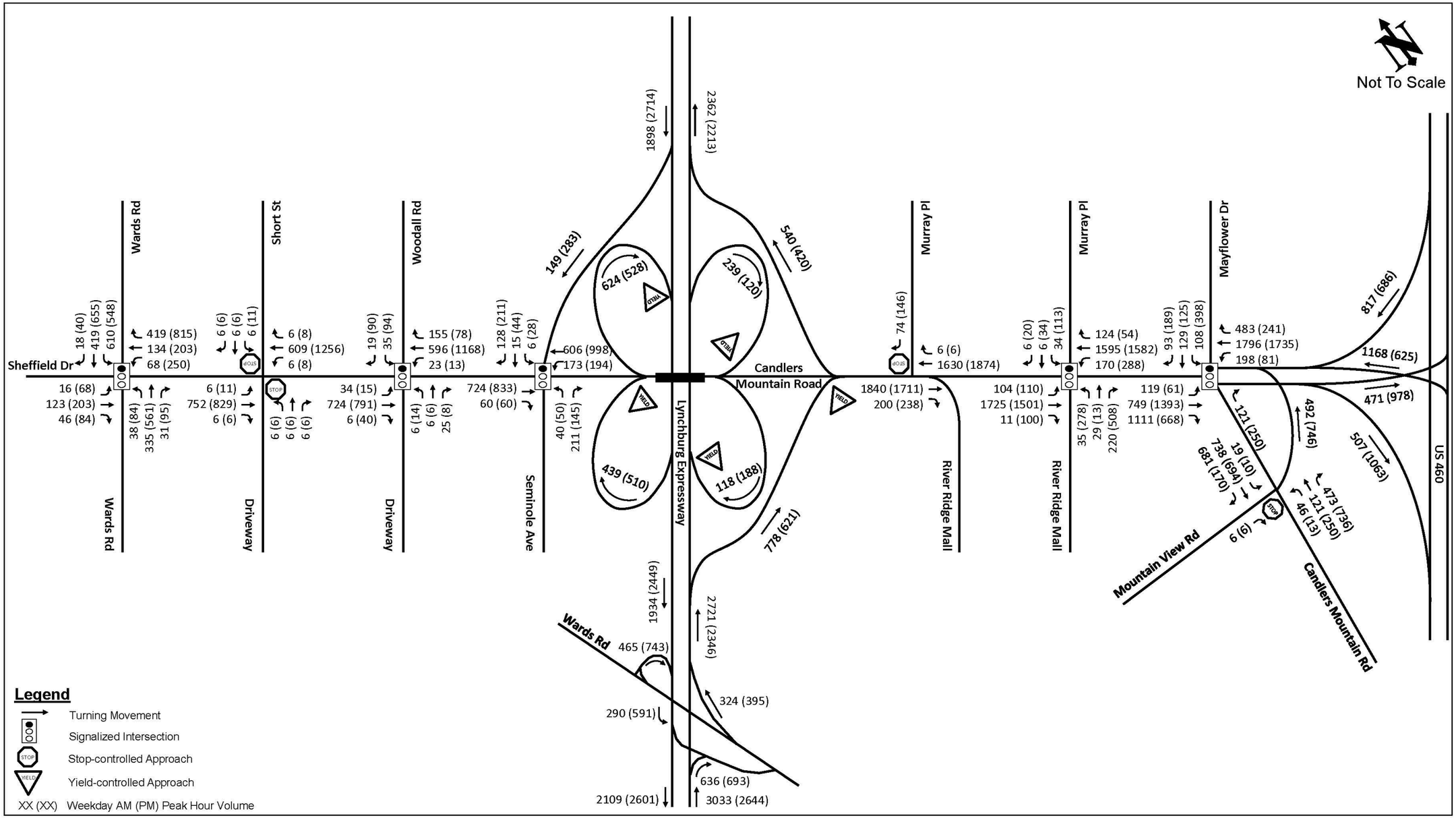


Figure 15 – Projected 2040 No-Build Peak Hour Volumes



NO-BUILD CONDITIONS (2025 AND 2040)

No-build conditions were analyzed to evaluate the results of future traffic demand on the existing roadway network. The intent of the no-build conditions analysis was to provide a general understanding of baseline future traffic conditions to be used to evaluate the effectiveness of potential future improvement strategies. CORSIM and Synchro modeling assumptions and analysis results for no-build conditions in Interim Year 2025 and Design Year 2040 are described in the following sections.

CORSIM Analysis

CORSIM models were developed to analyze the operation of the Candlers Mountain Road study area under Design Year 2040 no-build AM and PM peak hour conditions. Interim Year 2025 conditions were not analyzed in CORSIM.

Modeling Assumptions

The calibrated existing conditions CORSIM models were used as a basis to develop the no-build models. No geometric changes were made, but the models were updated with projected 2040 no-build traffic volumes and optimized signal timing splits. A detailed summary of CORSIM modeling inputs and assumptions for the no-build models is provided in **Appendix D**.

The VDOT *Sample Size Determination Tool* was used to determine the minimum number of simulation runs required for both AM and PM no-build models. Thirty simulation runs were conducted for both the AM and PM models using different random number seeds. The averages of these runs were reported. The VDOT *Sample Size Determination Tool* results are provided in **Appendix D**.

Results

The same MOEs used to evaluate existing conditions were used to measure the quantitative performance of the no-build CORSIM freeway and arterial networks:

- Vehicle density on freeway links
- Vehicle speeds on freeway links
- Microsimulation delay at arterial intersections
- Maximum queue length on arterial links

Detailed simulation results including freeway lane schematics and intersection delay and queue tables are provided in **Appendix D**. Key findings from the no-build CORSIM analysis are summarized in the subsequent sections.

As was observed in existing conditions, under no-build 2040 AM peak hour conditions, there were capacity constraints due to congestion from the school drop-off on southbound Candlers Mountain Road. The congestion from the school caused extensive queuing throughout the entire network. Queuing from the school backed up along the entire stretch of eastbound Candlers Mountain Road in the study area and caused queuing on the Lynchburg Expressway mainline and ramps.

Under no-build 2040 PM conditions, there were capacity constraints due to congestion on Candlers Mountain at the Murray Place/River Ridge Mall and Mayflower Drive intersections. The congestion in this area caused extensive queuing throughout the entire network. Queues extended along the entire stretch of Candlers Mountain Road in the study area and on the Lynchburg Expressway mainline and ramps.

Due to the extensive queuing under both AM and PM no-build 2040 conditions, simulated volumes on many links were lower than projected no-build volumes. These locations are discussed in more detail in **Appendix D**. The CORSIM no-build results should be interpreted understanding that the volumes simulated were lower than projected.

Vehicle Density on Freeway Links

Similar to the existing conditions analysis, the simulation LOS scale shown in **Table 8** was used to relate CORSIM density results to an LOS. Summary tables with the CORSIM density results and corresponding simulation LOS for the AM and PM peak periods are provided in **Appendix D**. Critical links with a reported density that corresponds to a simulation LOS of D or worse are described below.

Southbound Lynchburg Expressway

Under 2040 no-build conditions, all southbound Lynchburg Expressway mainline links report higher vehicle densities than under existing conditions in both the AM and PM peak hours. In the AM peak hour only the mainline link directly south of the entrance ramp from westbound Candlers Mountain Road operates at a simulation LOS of D or worse. In the no-build 2040 PM peak hour, all mainline links north of the exit ramp to eastbound Candlers Mountain Road operate at a simulation LOS of D or worse. In addition, in both the AM and PM peak hours, two ramps, the Lynchburg Expressway entrance ramp from westbound Candlers Mountain Road and the Lynchburg Expressway exit ramp to eastbound Candlers Mountain Road, operate at a simulation LOS of D or worse. Vehicles queue back onto these ramps due to congestion on eastbound and westbound Candlers Mountain Road.

The density and simulation LOS for southbound Lynchburg Expressway links with a simulation LOS of D or worse are summarized in **Table 11**. For segments composed of multiple links, the results for the link with the highest density were reported.

Northbound Lynchburg Expressway

Under 2040 no-build conditions, all northbound Lynchburg Expressway mainline links south of the exit ramp to eastbound Candlers Mountain Road report higher vehicle densities than under existing conditions in both the AM and PM peak hours. Northbound Lynchburg Expressway mainline links north of the Candlers Mountain Road interchange report lower vehicle densities under no-build conditions than under existing conditions due to lower vehicle throughput as a result of extensive queuing on Candlers Mountain Road that backed up onto the Lynchburg Expressway ramps and mainline. In both the AM and PM peak hours, all mainline links south of the exit ramp to eastbound Candlers Mountain Road operate at a simulation LOS of D or worse. In addition, in both the AM and PM peak hours, one ramp, the exit ramp to eastbound Candlers Mountain Road, operates at a simulation

LOS of D or worse in both the AM and PM peak hours. As in existing conditions, vehicles queue back onto this ramp due to congestion on Candlers Mountain Road.

The density and simulation LOS for northbound Lynchburg Expressway links with a simulation LOS of D or worse are summarized in **Table 11**. For segments composed of multiple links, the results for the link with the highest density are reported.

Table 11 – No-Build CORSIM Links with Simulation LOS of D or Worse

Location	AM Peak Hour		PM Peak Hour	
	Density	Simulation LOS	Density	Simulation LOS
Southbound Lynchburg Expressway Mainline				
Southbound Lynchburg Expressway north of exit ramp to EB/WB Candlers Mountain Road (Ramp G)			51.0	F
Southbound Lynchburg Expressway between exit ramp to EB/WB Candlers Mountain Road (Ramp G) and entrance ramp from WB Candlers Mountain Road (Ramp F)			59.6	F
Southbound Lynchburg Expressway between entrance ramp from WB Candlers Mountain Road (Ramp F) and exit ramp to EB Candlers Mountain Road (Ramp A)	38.5	E	63.1	F
Southbound Lynchburg Expressway Ramps				
Southbound Lynchburg Expressway Entrance Ramp from Westbound Candlers Mountain Road (Ramp F)	152.3	F	118.4	F
Southbound Lynchburg Expressway Exit Ramp to Eastbound Candlers Mountain Road (Ramp A)	43.5	E	87.1	F
Northbound Lynchburg Expressway Mainline				
Northbound Lynchburg Expressway south of exit ramp to Old Wards Road	43.7	E	46.5	F
Northbound Lynchburg Expressway between exit ramp to Old Wards Road and entrance ramp from Wards Road	34.9	D	42.2	E
Northbound Lynchburg Expressway weave between entrance ramp from Wards Road and exit ramp to EB Candlers Mountain Road (Ramp C)	36.1	E	44.9	E
Northbound Lynchburg Expressway Ramps				
Northbound Lynchburg Expressway Exit Ramp to Eastbound Candlers Mountain Road (Ramp C)	99.8	F	126.4	F

Vehicle Speeds on Freeway Links

Under no-build conditions, vehicle speeds on the Lynchburg Expressway were equal to or lower than under existing conditions for all links in both the AM and PM peak hours. The most significant speed differentials between existing and no-build conditions were in the vicinity of the Candlers Mountain Road interchange. The following areas reported speeds lower than 50 mph:

- During the AM Peak, the northbound Lynchburg Expressway reported speeds of less than 50 mph south of the Candlers Mountain Road interchange. The lowest northbound Lynchburg Expressway mainline speed reported in the AM peak hour was 15.6 mph in the weave segment between the entrance ramp from Wards Road and the exit ramp to eastbound Candlers Mountain Road.
- During the PM Peak, the northbound Lynchburg Expressway reported speeds of less than 50 mph south of the Candlers Mountain Road interchange. The lowest northbound Lynchburg Expressway mainline speed reported in the PM peak hour was 11.8 mph in the weave segment between the entrance ramp from Wards Road and the exit ramp to eastbound Candlers Mountain Road.
- During the AM Peak, the southbound Lynchburg Expressway reported speeds of less than 50 mph in the vicinity of the Candlers Mountain Road interchange. The lowest southbound Lynchburg Expressway mainline speed reported in the AM peak hour was 26.5 mph between the entrance ramp from westbound Candlers Mountain Road and the exit ramp to eastbound Candlers Mountain Road.
- During the PM Peak, the southbound Lynchburg Expressway reported speeds of less than 50 mph in the vicinity of the Candlers Mountain Road interchange. The lowest southbound Lynchburg Expressway mainline speed reported in the AM peak hour was 21.0 mph between the entrance ramp from westbound Candlers Mountain Road and the exit ramp to eastbound Candlers Mountain Road.

Microsimulation Delay on Arterial Links

CORSIM microsimulation delay by movement, approach, and overall intersection was reported for the arterial intersections during the no-build 2040 AM and PM peak periods. The complete microsimulation delay results by intersection are provided in **Appendix D**. This microsimulation delay from CORSIM cannot be directly correlated with a HCM LOS. For this reason, as well as some signal timing limitations of CORSIM, Synchro was used as the primary tool for reporting intersection delay and LOS. The CORSIM microsimulation delay results were reviewed and found to generally align with the Synchro results for the no-build 2040 AM and PM peak periods. A summary of the Synchro delay and LOS results is provided in the Synchro/SimTraffic Analysis section of this report.

Maximum Queue Length on Arterial Links

While SimTraffic was the primary tool for reporting maximum queue length, the CORSIM maximum queue lengths were reviewed and found to generally align with the SimTraffic results for no-build 2040 conditions. For reference, the complete maximum queue length CORSIM results by movement and link for the no-build 2040 AM and PM peak periods are provided in **Appendix D**. A summary of the SimTraffic maximum queue length results is provided in the Synchro/SimTraffic Analysis section of this report.

Synchro/SimTraffic Analysis

Synchro/SimTraffic models were developed to analyze the operation of the Candlers Mountain Road study area under Interim Year 2025 and Design Year 2040 no-build AM and PM peak hour conditions.

Modeling Assumptions

The calibrated existing conditions Synchro/SimTraffic models were used as a basis to develop the no-build models. No geometric changes were made, but the models were updated with projected 2025 and 2040 no-build traffic volumes and optimized signal timing splits. A detailed summary of Synchro/SimTraffic modeling inputs and assumptions for the no-build models is provided in **Appendix D**.

Results

The same MOEs used to evaluate existing conditions were used to measure the quantitative performance of the no-build Synchro/SimTraffic models:

- Average vehicle delay and HCM LOS by movement, approach, and intersection – measured in seconds per vehicle
- Maximum queue length – measured in feet

Tables summarizing the delay, HCM LOS, and queuing results for the study area intersections are included in **Appendix D**. **Figure 16** and **Figure 17** show graphical representations of the LOS results in the study area under 2025 and 2040 no-build conditions. Key findings for the intersection analysis are summarized in the subsequent sections.

Delay and Level of Service

Intersections with LOS E or F, overall volume-to-capacity ratio (v/c) greater than one, at least one approach with LOS F, or at least one lane group with v/c greater than one are summarized below.

Intersection 1 – Candlers Mountain Road / Sheffield Drive at Wards Road

- 2025 No-Build Model
  - The overall intersection operates at LOS E (64.4 sec/veh) in the PM peak hour.
  - The eastbound approach of Sheffield Drive operates at LOS F (84.0 sec/veh) in the PM peak hour.
  - The westbound approach of Candlers Mountain Road operates at LOS E (60.8 sec/veh) in the PM peak hour.
  - The northbound approach of Wards Road operates at LOS E (64.4 sec/veh) in the PM peak hour.
  - The southbound approach of Wards Road operates at LOS E (62.1 sec/veh) in the PM peak hour.
- 2040 No-Build Model
  - The overall intersection operates at LOS F (99.6 sec/veh) in the PM peak hour.
  - The eastbound approach of Sheffield Drive operates at LOS E (58.5 sec/veh) in the AM peak hour and LOS F (138.0 sec/veh) in the PM peak hour; this approach operates at v/c greater than one in the PM peak hour.
  - The westbound approach of Candlers Mountain Road operates at LOS F (91.2 sec/veh) and v/c greater than one in the PM peak hour.
  - The northbound approach of Wards Road operates at LOS F (96.8 sec/veh) and v/c greater than one in the PM peak hour.
  - The southbound approach of Wards Road operates at LOS F (98.0 sec/veh) and v/c greater than one in the PM peak hour.

Intersection 3 – Candlers Mountain Road at Woodall Road

- 2040 No-Build Model
  - The overall intersection operates at LOS B in the PM peak hour.
  - The southbound approach of Woodall Road operates at LOS E (56.7 sec/veh) in the PM peak hour.

Intersection 6 – Candlers Mountain Road at Murray Place / River Ridge Mall

- 2025 No-Build Model
  - The overall intersection operates at LOS E (77.9 sec/veh) and v/c greater than one in the PM peak hour.
  - The eastbound approach of Candlers Mountain Road operates at LOS E (79.8 sec/veh) and v/c greater than one in the PM peak hour.
  - The westbound approach of Candlers Mountain Road operates at LOS F (58.2 sec/veh) and v/c greater than one in the PM peak hour.
  - The northbound approach of Murray Place operates at LOS E (73.9 sec/veh) in the AM peak hour and LOS F (114.4 sec/veh) in the PM peak hour; this approach operates at v/c greater than one in the PM peak hour.
  - The southbound approach to River Ridge Mall operates at LOS E (62.7 sec/veh) in the AM peak hour and LOS F (96.7 sec/veh) in the PM peak hour.
- 2040 No-Build Model
  - The overall intersection operates at LOS F (82.4 sec/veh) in the AM peak hour and LOS F (131.6 sec/veh) in the PM peak hour; the overall intersection operates at v/c greater than one in both the AM and PM peak hours.
  - The eastbound approach of Candlers Mountain Road operates at LOS F (104.0 sec/veh) in the PM peak hour; this approach operates at v/c greater than one in both the AM and PM peak hours.
  - The westbound approach of Candlers Mountain Road operates at LOS F (96.8 sec/veh) and v/c greater than one in the PM peak hour.

- The northbound approach of Murray Place operates at LOS F (94.0 sec/veh) in the AM peak hour and LOS F (166.4 sec/veh) in the PM peak hour; this approach operates at v/c greater than one in the PM peak hour.
- The southbound approach to River Ridge Mall operates at LOS E (62.9 sec/veh) in the AM peak hour and LOS F (127.8 sec/veh) in the PM peak hour; this approach operates at v/c greater than one in the PM peak hour.

Intersection 7 – Candlers Mountain Road / US 501 at Mayflower Drive

- 2025 No-Build Model
  - The overall intersection operates at LOS F (80.6 sec/veh) in the PM peak hour; the overall intersection operates at v/c greater than one in both the AM and PM peak hours.
  - The eastbound approach of Candlers Mountain Road / US 501 operates at LOS F (108.2 sec/veh) in the PM peak hour; this approach operates at v/c greater than one in both the AM and PM peak hours.
  - The southbound approach of Mayflower Drive operates at LOS F (100.4 sec/veh) in the AM peak hour and LOS F (117.6 sec/veh) in the PM peak hour; this approach operates at v/c greater than one in both the AM and PM peak hours.
- 2040 No-Build Model
  - The overall intersection operates at LOS E (77.2 sec/veh) in the AM peak hour and LOS F (131.3 sec/veh) in the PM peak hour; the overall intersection operates at v/c greater than one in both the AM and PM peak hours.
  - The eastbound approach of Candlers Mountain Road / US 501 operates at LOS F (117.7 sec/veh) in the AM peak hour and LOS F (181.4 sec/veh) in the PM peak hour; this approach operates at v/c greater than one in both the AM and PM peak hours.
  - The westbound approach of Candlers Mountain Road / US 501 operates at LOS F (83.5 sec/veh) and v/c greater than one in the PM peak hour.
  - The southbound approach of Mayflower Drive operates at LOS F (122.2 sec/veh) in the AM peak hour and LOS F (165.3 sec/veh) in the PM peak hour; this approach operates at v/c greater than one in both the AM and PM peak hours.

Queue Length

A queuing analysis was completed for the study area intersections under 2025 and 2040 no-build AM and PM peak hour conditions. Queue length is another key performance indicator of capacity at both signalized and unsignalized intersection. Queues exceeding the length of turn lane storage lengths may indicate capacity or operational issues. Understanding possible causes of significant queue lengths helps in the identification of potential solutions.

SimTraffic was used to perform 60-minute simulations for the queuing analyses. The maximum queue lengths, measured in feet, were reported for 2025 and 2040 no-build AM and PM peak hour conditions and are summarized in **Appendix D**. For movements without conflicting volumes, no queue length is reported by SimTraffic.

Movements with queues that exceed storage bays include:

Intersection 1 – Candlers Mountain Road / Sheffield Drive at Wards Road

- 2025 No-Build Model
  - Westbound left turn, PM peak hour
  - Northbound left-turn, PM peak hour
  - Southbound left-turn, PM peak hour
- 2040 No-Build Model
  - Eastbound through-left turn, PM peak hour
  - Westbound left turn, PM peak hour
  - Northbound left-turn, both AM and PM peak hours
  - Southbound through-left, both AM and PM peak hours

Intersection 2 – Candlers Mountain Road at Short Street

- 2025 No-Build Model
  - Eastbound left turn, PM peak hour
- 2040 No-Build Model
  - Eastbound left turn, PM peak hour
  - Westbound left-turn, PM peak hour

Intersection 3 – Candlers Mountain Road at Woodall Road

- 2025 No-Build Model
  - Eastbound left turn, PM peak hour
  - Southbound left turn, PM peak hour
- 2040 No-Build Model
  - Eastbound left turn, both AM and PM peak hours
  - Southbound left turn, PM peak hour

Intersection 4 – Candlers Mountain Road at Southbound Lynchburg Expressway Ramp / Seminole Avenue

- 2025 No-Build Model
  - Westbound left turn, both AM and PM peak hours
  - Southbound right turn, PM peak hour
- 2040 No-Build Model
  - Westbound left turn, both AM and PM peak hours
  - Northbound left-turn, both AM and PM peak hours
  - Southbound right turn, PM peak hour

Intersection 6 – Candlers Mountain Road at Murray Place / River Ridge Mall

- 2025 No-Build Model
  - Eastbound left turn, both AM and PM peak hours
  - Westbound left turn, both AM and PM peak hours
  - Westbound right turn, both AM and PM peak hours
  - Southbound right turn, PM peak hour
- 2040 No-Build Model
  - Eastbound left turn, both AM and PM peak hours
  - Westbound left turn, both AM and PM peak hours
  - Westbound right turn, both AM and PM peak hours
  - Southbound right turn, PM peak hour

Intersection 7 – Candlers Mountain Road / US 501 at Mayflower Drive

- 2025 No-Build Model
  - Eastbound left turn, PM peak hour
  - Westbound left turn, both AM and PM peak hours
  - Westbound right turn, both AM and PM peak hours
  - Southbound right turn, both AM and PM peak hours
- 2040 No-Build Model
  - Eastbound left turn, PM peak hour
  - Westbound left turn, both AM and PM peak hours
  - Westbound right turn, both AM and PM peak hours
  - Southbound right turn, both AM and PM peak hours

Intersection 8 – Candlers Mountain Road at Westbound US 501 Ramp / Mountain View Road

- 2025 No-Build Model
  - Southbound right turn, AM peak hour
- 2040 No-Build Model
  - Southbound right turn, AM peak hour

Movements with queues that block the storage bays of adjacent lanes include:

Intersection 1 – Candlers Mountain Road / Sheffield Drive at Wards Road

- 2025 No-Build Model
  - Westbound left-turn lane blocked by through movement, PM peak hour
  - Northbound left-turn lane blocked by through movement, both AM and PM peak hours
  - Southbound left-turn lane blocked by through-left movement, PM peak hour
- 2040 No-Build Model
  - Eastbound left-turn lane blocked by through movement, PM peak hour
  - Westbound left-turn lane blocked by through movement, PM peak hour
  - Northbound left-turn lane blocked by through movement, both AM and PM peak hours
  - Southbound left-turn lane blocked by through-left movement, both AM and PM peak hours

Intersection 2 – Candlers Mountain Road at Short Street

- 2025 No-Build Model
  - Eastbound left-turn lane blocked by through movements, both AM and PM peak hours
  - Westbound left-turn lane blocked by through movement, PM peak hour
- 2040 No-Build Model
  - Eastbound left-turn lane blocked by through movements, both AM and PM peak hours
  - Westbound left-turn lane blocked by through movement, PM peak hour

Intersection 3 – Candlers Mountain Road at Woodall Road

- 2025 No-Build Model
  - Eastbound left-turn blocked by through movement, both AM and PM peak hours
  - Southbound left-turn blocked by right-turn movement, both AM and PM peak hours

- 2040 No-Build Model
  - Eastbound left-turn blocked by through movement, both AM and PM peak hours
  - Southbound left-turn blocked by right-turn movement, both AM and PM peak hours

Intersection 4 – Candlers Mountain Road at Southbound Lynchburg Expressway Ramp / Seminole Avenue

- 2025 No-Build Model
  - Westbound left-turn lane blocked by through movement, both AM and PM peak hours
  - Northbound left-turn lane blocked by through movement, AM and PM peak hour
  - Southbound right-turn lane blocked by through-left movement, PM peak hour
- 2040 No-Build Model
  - Westbound left-turn lane blocked by through movement, both AM and PM peak hours
  - Northbound left-turn lane blocked by through movement, AM and PM peak hour
  - Southbound right-turn lane blocked by through-left movement, PM peak hour

Intersection 6 – Candlers Mountain Road at Murray Place / River Ridge Mall

- 2025 No-Build Model
  - Eastbound left-turn lane blocked by through movement, both AM and PM peak hours
  - Westbound left-turn lane blocked by through movement, both AM and PM peak hours
  - Westbound right-turn lane blocked by through movement, both AM and PM peak hours
  - Southbound right-turn lane blocked by through-left movement, both AM and PM peak hours
- 2040 No-Build Model
  - Eastbound left-turn lane blocked by through movement, both AM and PM peak hours
  - Westbound left-turn lane blocked by through movement, both AM and PM peak hours
  - Westbound right-turn lane blocked by through movement, both AM and PM peak hours
  - Southbound right-turn lane blocked by through-left movement, both AM and PM peak hours

Intersection 7 – Candlers Mountain Road / US 501 at Mayflower Drive

- 2025 No-Build Model
  - Eastbound left-turn lane blocked by through movement, both AM and PM peak hours
  - Westbound left-turn lane blocked by through movement, both AM and PM peak hours
  - Westbound right-turn lane blocked by through movement, both AM and PM peak hours
  - Southbound right-turn lane blocked by through-left movement, both AM and PM peak hours
- 2040 No-Build Model
  - Eastbound left-turn lane blocked by through movement, both AM and PM peak hours
  - Westbound left-turn lane blocked by through movement, both AM and PM peak hours
  - Westbound right-turn lane blocked by through movement, both AM and PM peak hours
  - Southbound right-turn lane blocked by through-left movement, both AM peak hour

Intersection 8 – Candlers Mountain Road at Westbound US 501 Ramp / Mountain View Road

- 2025 No-Build Model
  - Southbound right -turn lane blocked by through movement, AM peak hour
- 2040 No-Build Model
  - Southbound right -turn lane blocked by through movement, AM peak hour

Queues at several intersections extend through upstream intersections under no-build conditions. These queues are summarized below.

Eastbound Candlers Mountain Road, AM Peak

- 2025 No-Build Model
  - The queue at Intersection 4 – Candlers Mountain Road at Southbound Lynchburg Expressway Ramp / Seminole Avenue extends through Intersection 3 – Candlers Mountain Road at Woodall Road; the queue at Intersection 3 extends through Intersection 2 – Candlers Mountain Road at Short Street.
  - Beginning of the queue at Intersection 8 – Candlers Mountain Road at Westbound US 501 Ramp / Mountain View Road extends through Intersection 7 – Candlers Mountain Road/US 501 at Mayflower Drive; the queue at Intersection 7 extends through Intersection 6 – Candlers Mountain Road at Murray Place / River Ridge Mall.

- 2040 No-Build Model
    - The queue at Intersection 4 – Candlers Mountain Road at Southbound Lynchburg Expressway Ramp / Seminole Avenue extends through Intersection 3 – Candlers Mountain Road at Woodall Road; the queue at Intersection 3 extends through Intersection 2 – Candlers Mountain Road at Short Street.
    - Beginning of the queue at Intersection 8 – Candlers Mountain Road at Westbound US 501 Ramp / Mountain View Road extends through Intersection 7 – Candlers Mountain Road/US 501 at Mayflower Drive; the queue at Intersection 7 extends through Intersection 6 – Candlers Mountain Road at Murray Place / River Ridge Mall.

Eastbound Candlers Mountain Road, PM Peak

- 2025 No-Build Model
    - The queue at Intersection 4 – Candlers Mountain Road at Southbound Lynchburg Expressway Ramp / Seminole Avenue extends through Intersection 3 – Candlers Mountain Road at Woodall Road; the queue at Intersection 3 extends through Intersection 2 – Candlers Mountain Road at Short Street.
    - The queue at Intersection 7 – Candlers Mountain Road/US 501 at Mayflower Drive extends through Intersection 6 – Candlers Mountain Road at Murray Place / River Ridge Mall.
- 2040 No-Build Model
    - The queue at Intersection 7 – Candlers Mountain Road/US 501 at Mayflower Drive extends through Intersection 6 – Candlers Mountain Road at Murray Place / River Ridge Mall; the queue at Intersection 6 extends through Intersection 4 – Candlers Mountain Road at Southbound Lynchburg Expressway Ramp / Seminole Avenue; the queue at Intersection 4 extends through Intersection 3 – Candlers Mountain Road at Woodall Road; the queue at Intersection 3 extends through Intersection 2 – Candlers Mountain Road at Short Street.

Westbound Candlers Mountain Road, AM Peak

- 2040 No-Build Model
    - The queue at Intersection 3 – Candlers Mountain Road at Woodall Road extends through Intersection 4 – Candlers Mountain Road at Southbound Lynchburg Expressway Ramp / Seminole Avenue.

Westbound Candlers Mountain Road, PM Peak

- 2025 No-Build Model
    - The queue at Intersection 1 – Candlers Mountain Road / Sheffield Drive at Wards Road extends through Intersection 2 – Candlers Mountain Road at Short Street.
    - The queue at Intersection 3 – Candlers Mountain Road at Woodall Road extends through Intersection 4 – Candlers Mountain Road at Southbound Lynchburg Expressway Ramp / Seminole Avenue.
    - Beginning of the queue at Intersection 7 – Candlers Mountain Road/US 501 at Mayflower Drive extends through Intersection 8 – Candlers Mountain Road at Westbound US 501 Ramp/Mountain View Road; the queue at Intersection 8 extends to the US 460 on-ramps. The queue would potentially impact the operations on US 460.
- 2040 No-Build Model
    - The queue at Intersection 1 – Candlers Mountain Road / Sheffield Drive at Wards Road extends through Intersection 2 – Candlers Mountain Road at Short Street.
    - The queue at Intersection 3 – Candlers Mountain Road at Woodall Road extends through Intersection 4 – Candlers Mountain Road at Southbound Lynchburg Expressway Ramp / Seminole Avenue.
    - Beginning of the queue at Intersection 7 – Candlers Mountain Road/US 501 at Mayflower Drive extends through Intersection 8 – Candlers Mountain Road at Westbound US 501 Ramp/Mountain View Road; the queue at Intersection 8 extends to the US 460 on-ramps. The queue would potentially impact the operations on US 460.

Figure 16 – No-Build 2025 Levels of Service

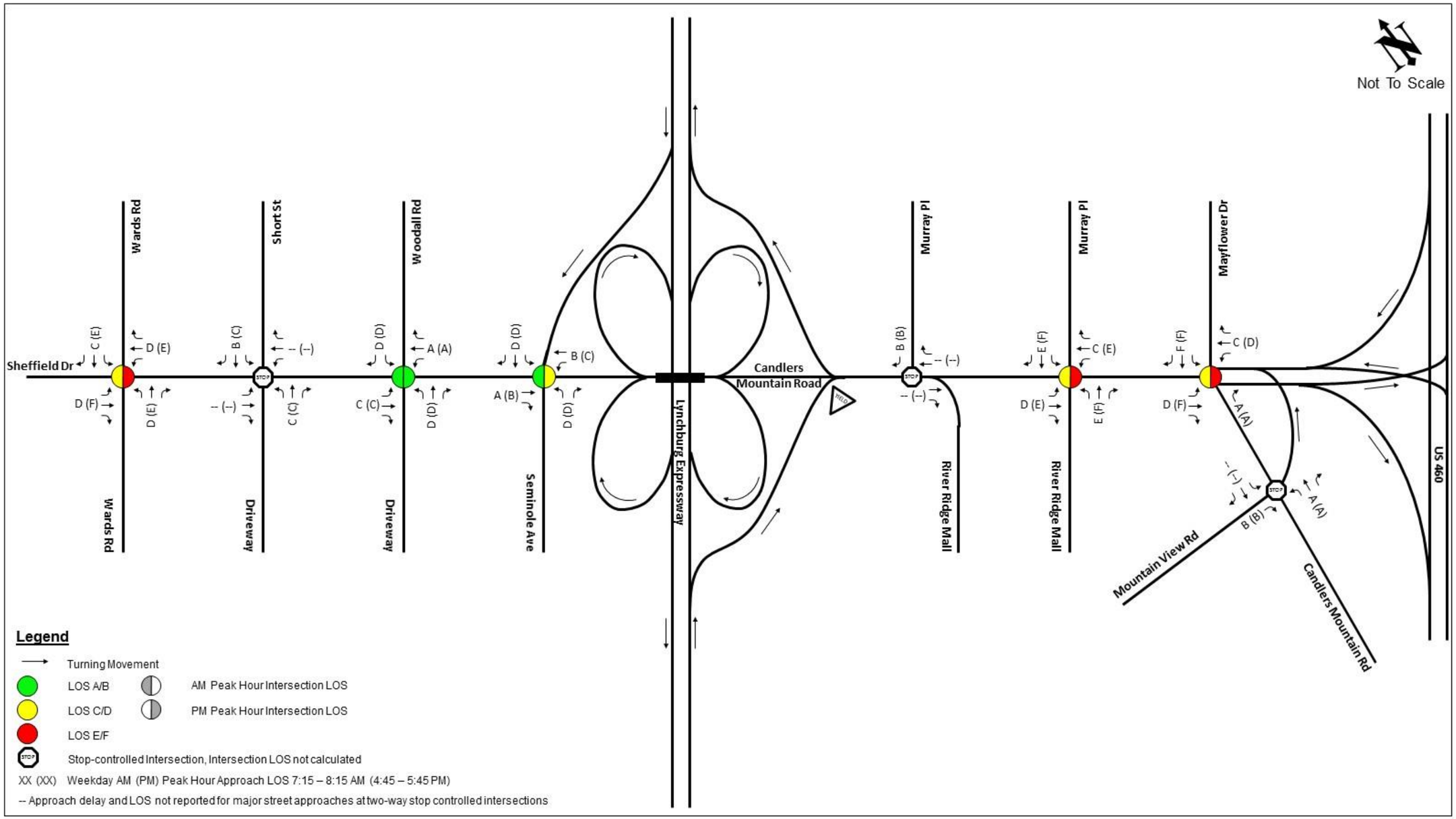
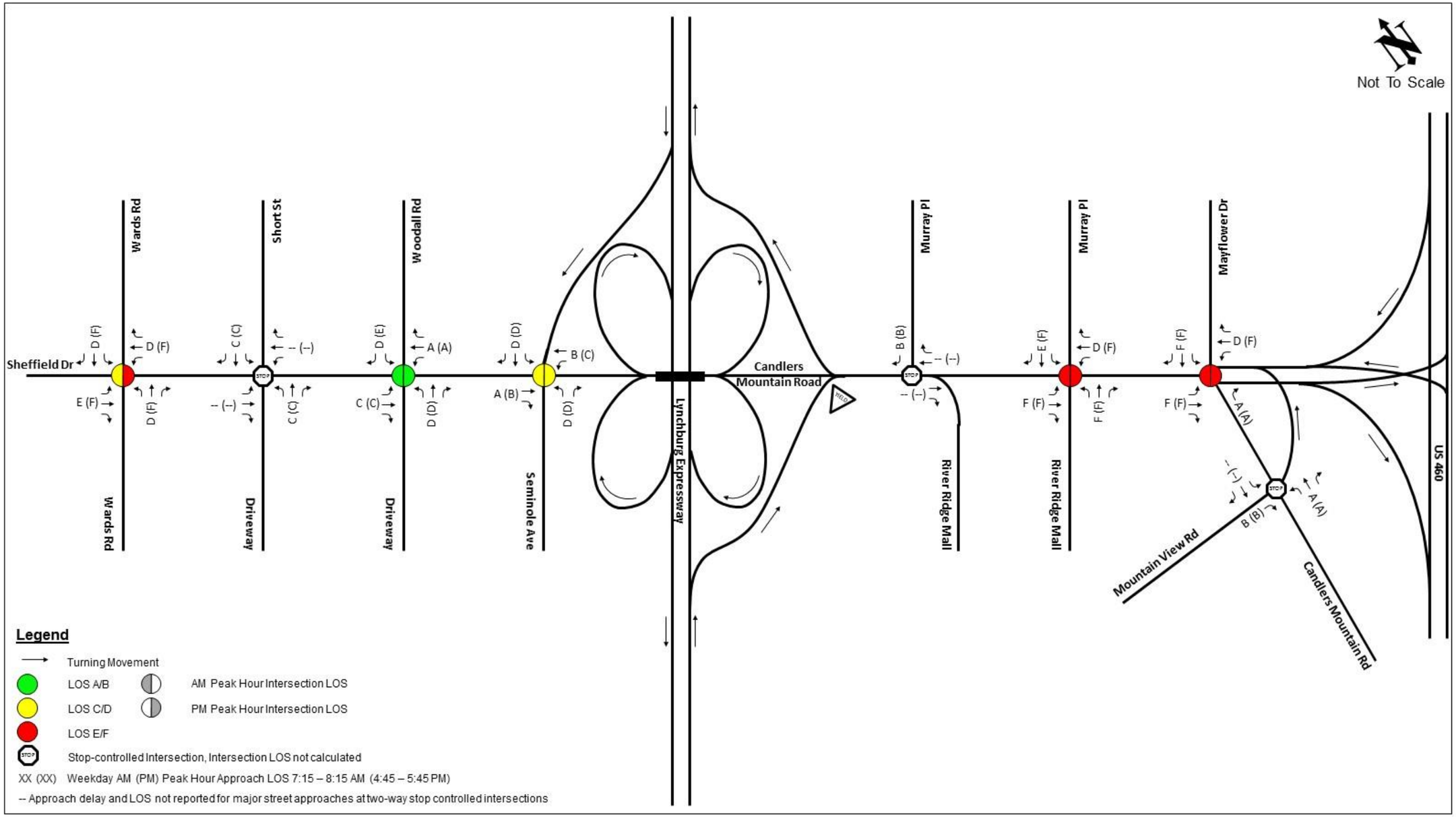


Figure 17 – No-Build 2040 Levels of Service



IMPROVEMENT SCREENING AND ANALYSIS

Potential improvement concepts were developed for Candlers Mountain Road and the Lynchburg Expressway to address operational, geometric, and safety deficiencies identified in the existing and no-build analyses as well as during the field review. A list of candidate projects was developed for consideration by the SWG. The candidate projects were then screened based on a combination of operational analyses, feasibility, and input from the SWG. The purpose of the screening process was to narrow down the list of potential improvements to projects that can be programmed into the VDOT SYIP.

Concept Development

The SWG developed a list of potential improvement concepts during the concept development phase. Improvement concepts were divided into the following categories:

- **West of the Lynchburg Expressway Improvement Concepts** – Potential improvement concepts at Wards Road, Woodall Road, and Seminole Avenue intersections
- **Lynchburg Expressway Interchange Improvement Concepts** – Potential improvement concepts on the Lynchburg Expressway mainline and entrance/exit ramps at Candlers Mountain Road
- **East of the Lynchburg Expressway Improvement Concepts** – Potential improvement concepts at Murray Place, Murray Place/River Ridge Mall, and Mayflower Drive intersections
- **Corridor-Wide Improvement Concepts** – Potential improvement concepts extending over the entire corridor
- **Further Study** – Potential improvement concepts that warrant further evaluation

During the concept development phase, the SWG qualitatively assessed the feasibility of the improvement concepts. The purpose of this qualitative assessment was to identify which alternatives would be analyzed for operational impacts. The improvement matrix in **Appendix E** provides a full list of the potential improvement concepts developed during the concept development phase.

Alternative Analysis

The second step of the screening process included operational analysis of selected improvement concepts from the concept development phase. Synchro and SIDRA were used to assess operational benefits of the alternative concepts. The alternatives were analyzed under 2040 PM peak hour traffic conditions and the operational results of the potential improvement concepts were compared to 2040 PM peak hour no-build results. The purpose of the alternative analysis was to screen the alternatives and select candidate projects to include in the 2025 and 2040 build models.

The geometric improvements listed below were selected for operational screening analysis. Additional details on the improvements and screening results are provided in **Appendix E**.

West of the Lynchburg Expressway Improvement Concepts

- Turn lane improvements at Wards Road intersection
- Dual lane roundabout at Wards Road intersection
- Median on Candlers Mountain Road between Wards Road and Woodall Road

Lynchburg Expressway Improvement Concepts

- Diamond interchange with loop in the northeast quadrant
- Partial cloverleaf interchange with loops in the northeast and northwest quadrants

East of the Lynchburg Expressway Improvement Concepts

- Dual lane roundabout at Murray Place/River Ridge Mall intersection
- Dual lane roundabout at Mayflower Drive intersection
- Turn lane improvements at Murray Place/River Ridge Mall intersection (with and without bridge widening)
- Turn lane improvements at Mayflower Drive intersection (with and without bridge widening)
- Double continuous Green-Ts at Murray Place/River Ridge Mall intersections (with and without bridge widening)
- Continuous Green-T at Mayflower Drive intersection (with and without bridge widening)
- Close River Ridge Mall free-flow right entrance
- Eliminate right-in, right-out Murray Place intersection

Improvement Project Selection

The final step of the screening process was the selection of improvements projects to carry further in the project development process. The selection of improvement projects was based on a review of the alternative analysis operational results, safety impacts, and general project feasibility. Project feasibility considered both constructability of improvements and project cost. The selected improvement projects are described in the following sections. Geometric improvement concepts were broken down into four stand-alone projects within the study area.

Geometric Improvements

Project 1: Wards Road Intersection and Access Management Improvements

Project 1 focused on improvements that would provide additional capacity to the Wards Road intersection and improve access management on Candlers Mountain Road between Wards Road and Woodall Road. A graphical representation of Project 1 is shown in **Figure 18**. Improvements included in Project 1 consisted of the following:

- Construct dual southbound left-turn lanes at the Wards Road intersection
- Construct dual westbound right-turn lanes at the Wards Road intersection
- Remove two-way left-turn lane and replace with a median on Candlers Mountain Road between Wards Road and Woodall Road
- Complete the sidewalk network on Candlers Mountain Road between Wards Road and the Lynchburg Expressway
- Install pedestrian crosswalks and signals on the north and west approaches of the Woodall Road intersection

Project 2: Lynchburg Expressway Ramps and Ramp Terminal Improvements

Project 2 focused on improvements to the Lynchburg Expressway interchange that would improve safety of entering and exiting vehicles by extending acceleration/deceleration lanes and reducing the number of weaving areas. A graphical representation of Project 2 is shown in **Figure 19**. Improvements included in Project 2 consisted of the following:

- Close the southbound Lynchburg Expressway exit ramp to eastbound Candlers Mountain Road
- Close the northbound Lynchburg Expressway entrance ramp from eastbound Candlers Mountain Road
- Realign the southbound Lynchburg Expressway exit ramp and install signal at ramp terminal
  - Construct two left-turn lanes and one right-turn lane at ramp terminal
- Realign the northbound Lynchburg Expressway entrance ramp and install signal at ramp terminal
  - Construct eastbound left-turn lane on Candlers Mountain Road at signal
  - Increase radius on ramp and provide acceleration and taper lengths that meet VDOT standards
- Lengthen the bridge over Lynchburg Expressway to allow for the construction of acceleration/deceleration lanes
  - Extend acceleration lane for the southbound Lynchburg Expressway entrance ramp
  - Extend deceleration lane for the northbound Lynchburg Expressway exit ramp to westbound Candlers Mountain Road
- Convert Seminole Avenue to a right-in, right-out, stop-controlled intersection and remove signal
- Construct sidewalks on the south side of Candlers Mountain Road between Seminole Avenue and the River Ridge Mall

Project 3: Murray Place and River Ridge Mall Continuous Green-T Intersection Improvements

Project 3 focused on improvements to the Murray Place and Murray/Place River Ridge Mall intersections that would improve operations on Candlers Mountain Road by eliminating signal phases and providing additional green time for vehicles. This project was constrained by the railroad bridge. Due to the good condition of the existing bridge and cost considerations, Project 3 were designed to remain within the footprint of the existing bridge. A graphical representation of Project 3 is shown in **Figure 20**. Improvements included in Project 3 consisted of the following:

- Construct a continuous Green-T at Murray Place (existing right-in, right-out) intersection
  - Construct a new signal
  - Construct an eastbound left-turn lane on Candlers Mountain Road
  - Eastbound through traffic does not stop at this intersection
  - Southbound traffic only permitted to make left-turn
  - Merge lane for southbound left turn continues through Murray Place/River Ridge Mall intersection
- Construct a continuous Green-T at Murray Place/River Ridge Road intersection
  - Construct a new signal
  - Construct a second westbound left-turn lane on Candlers Mountain Road
  - Construct a third receiving lane at the River Ridge Mall entrance to accommodate the dual westbound left-turn lanes and the free-flow right-turn lane
  - Construct a third northbound lane (one left-turn lane and dual right-turn lanes)
  - Westbound through traffic does not stop at this intersection
  - Merge lane for northbound left turn continues through eastern Murray Place intersection
  - Convert southbound approach to right-in, right-out, yield-controlled approach
- Close free-flow right-turn entrance ramp to River Ridge Mall
- Construct sidewalks on the north and south sides of Candlers Mountain Road between the Lynchburg Expressway and Murray Place/River Ridge Mall intersection

Project 4: Mayflower Drive Intersection Improvements

Project 4 focused on improvements to the Mayflower Drive intersection that would provide additional capacity to the Mayflower Drive intersection. A graphical representation of Project 4 is shown in **Figure 21**. Improvements included in Project 4 consisted of the following:

- Construct a southbound left-turn lane (in addition to the existing southbound left-through lane)
- Extend the eastbound right-turn lane back to the railroad bridge

Non-Geometric Improvements

Corridor-Wide Improvements

- Signal Communication – Incorporate the installation of signal communication infrastructure into design projects to align with VDOT's plans for a centralized signal software system

Further Study

- School Circulation Study – Perform a study to improve traffic flow during drop-off/pick-up at Liberty Christian Academy and identify circulation plans that eliminate queuing on Candlers Mountain Road
- Access Management Study – Perform additional study on opportunities to consolidate driveways on Candlers Mountain Road west of the Lynchburg Expressway interchange
- Pedestrian Crossing Study – Perform a study to evaluate alternatives for a pedestrian crossing at Murray Place/River Ridge Mall if double continuous Green-T's are constructed

Figure 18 – Project 1: Wards Road Intersection and Access Management Improvements

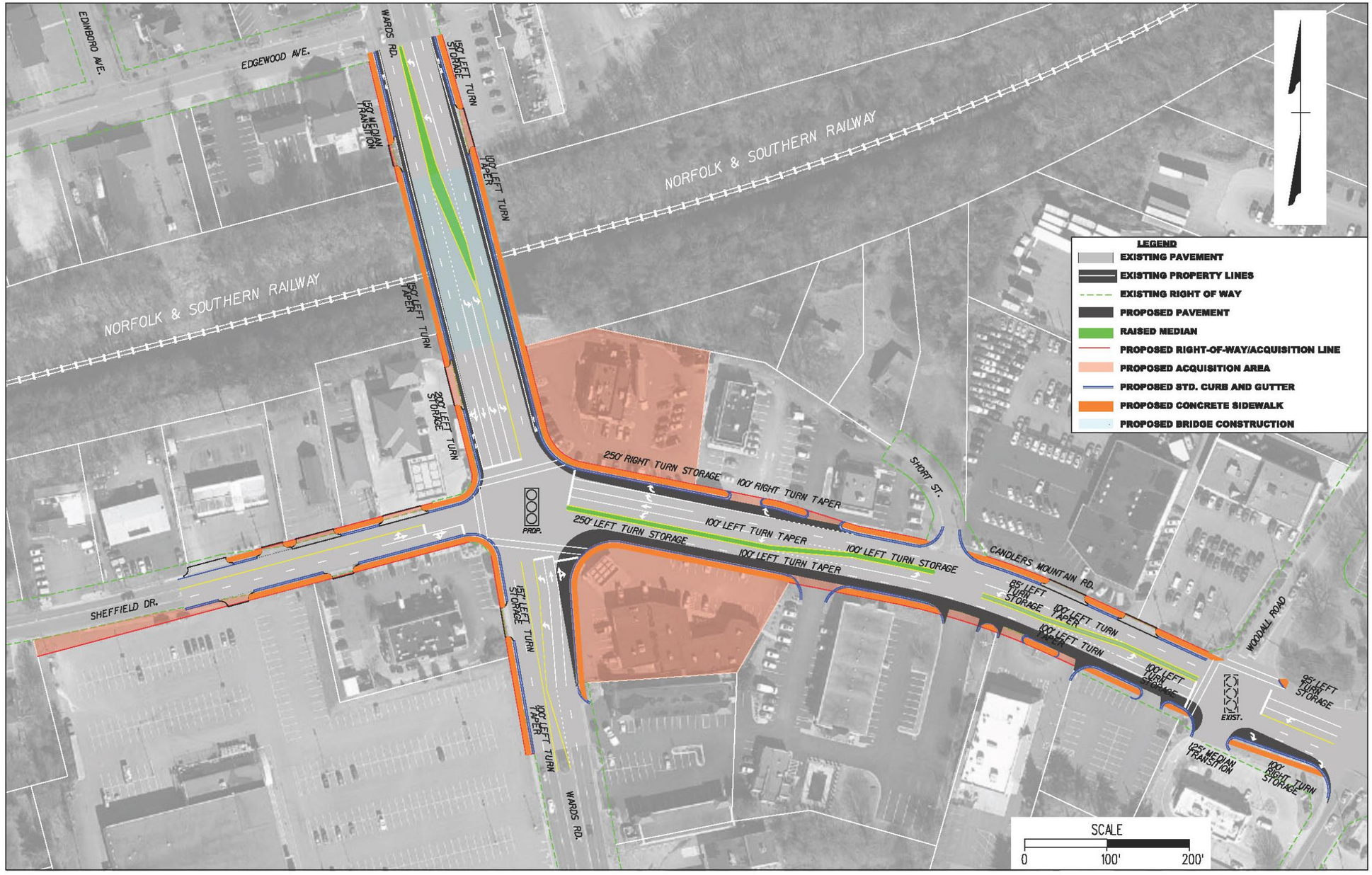


Figure 19 – Project 2: Lynchburg Expressway Ramps and Ramp Terminal Improvements

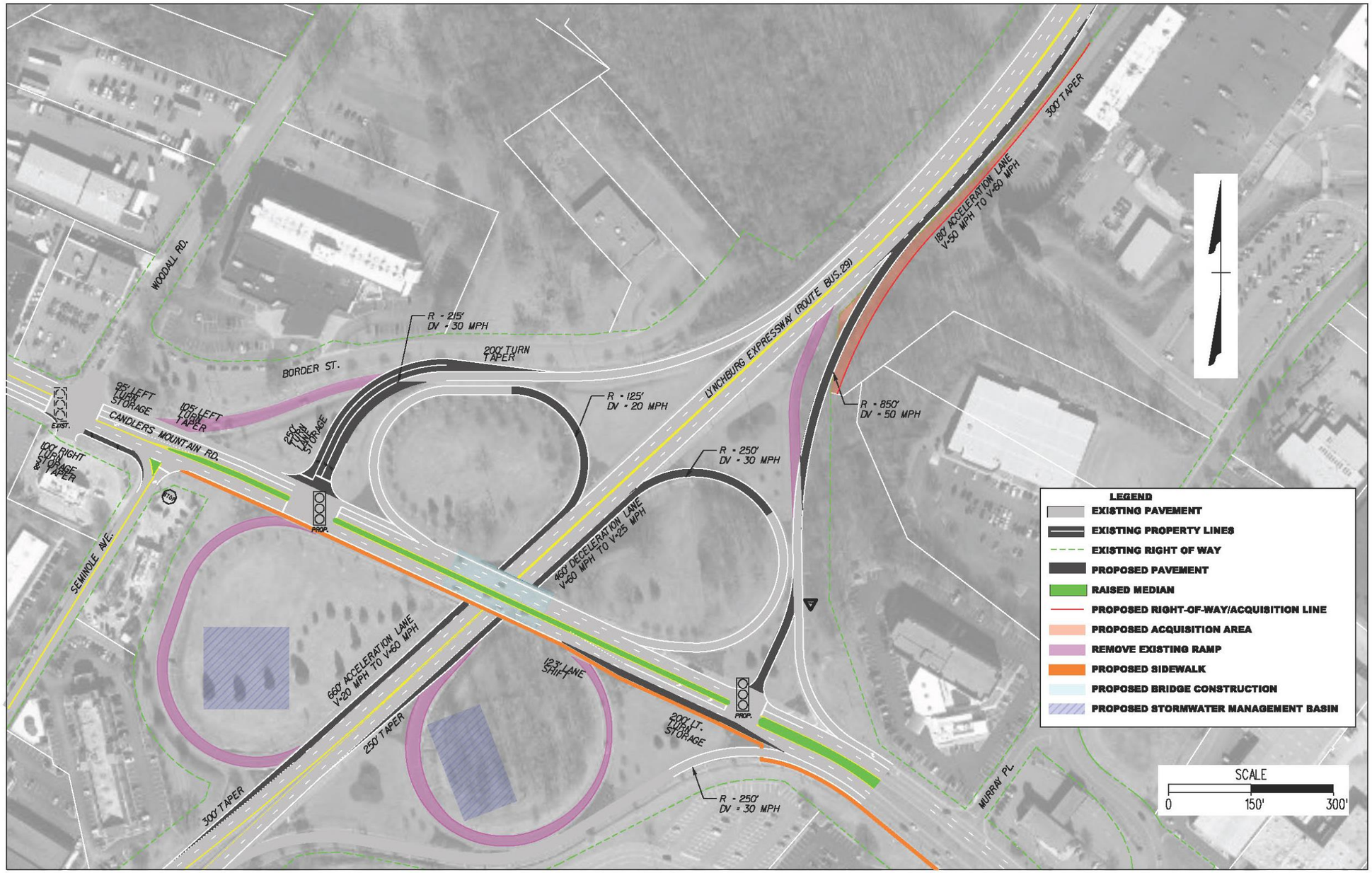


Figure 20 – Project 3: Murray Place and River Ridge Mall Continuous Green T Intersection Improvements

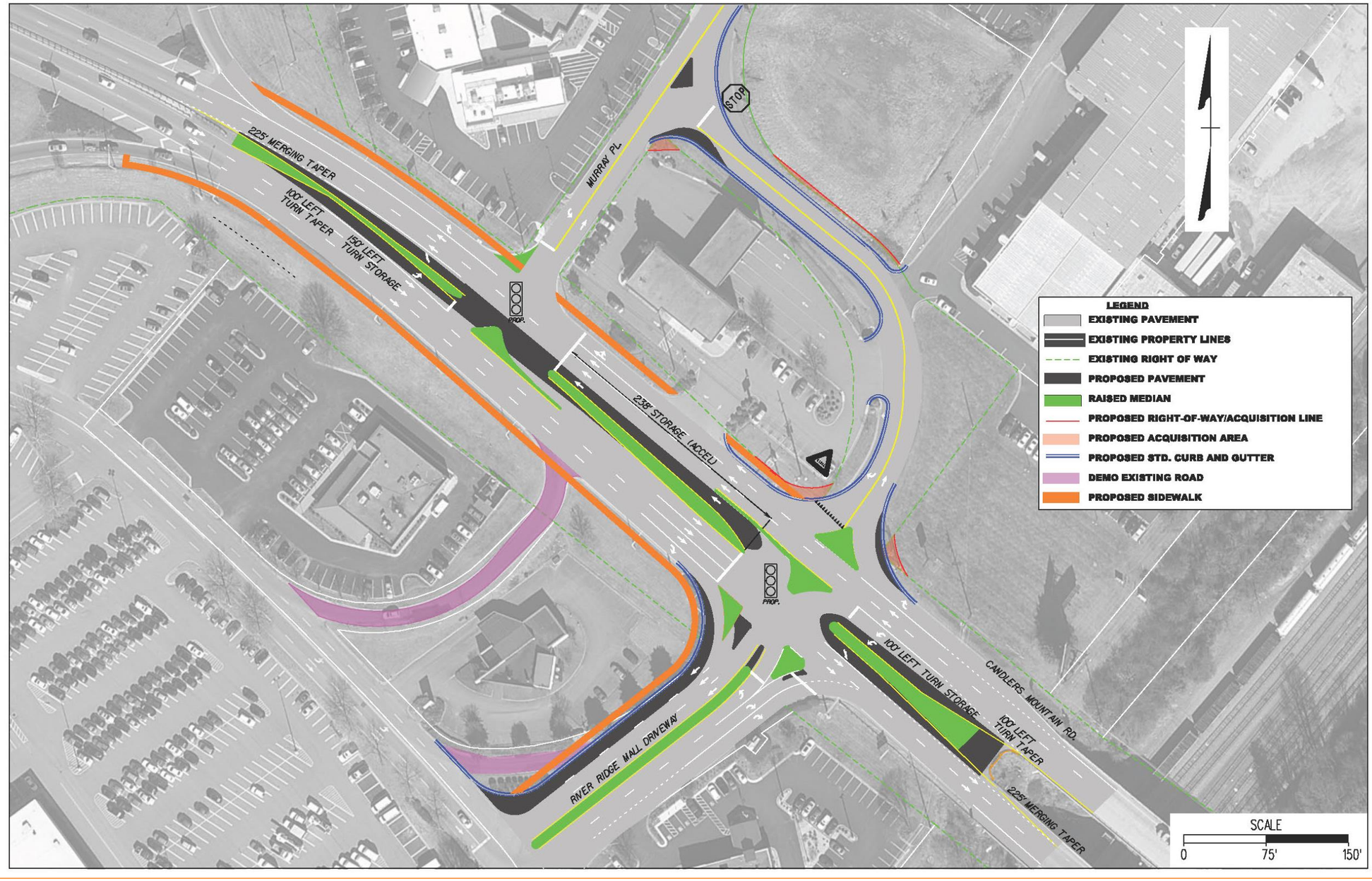
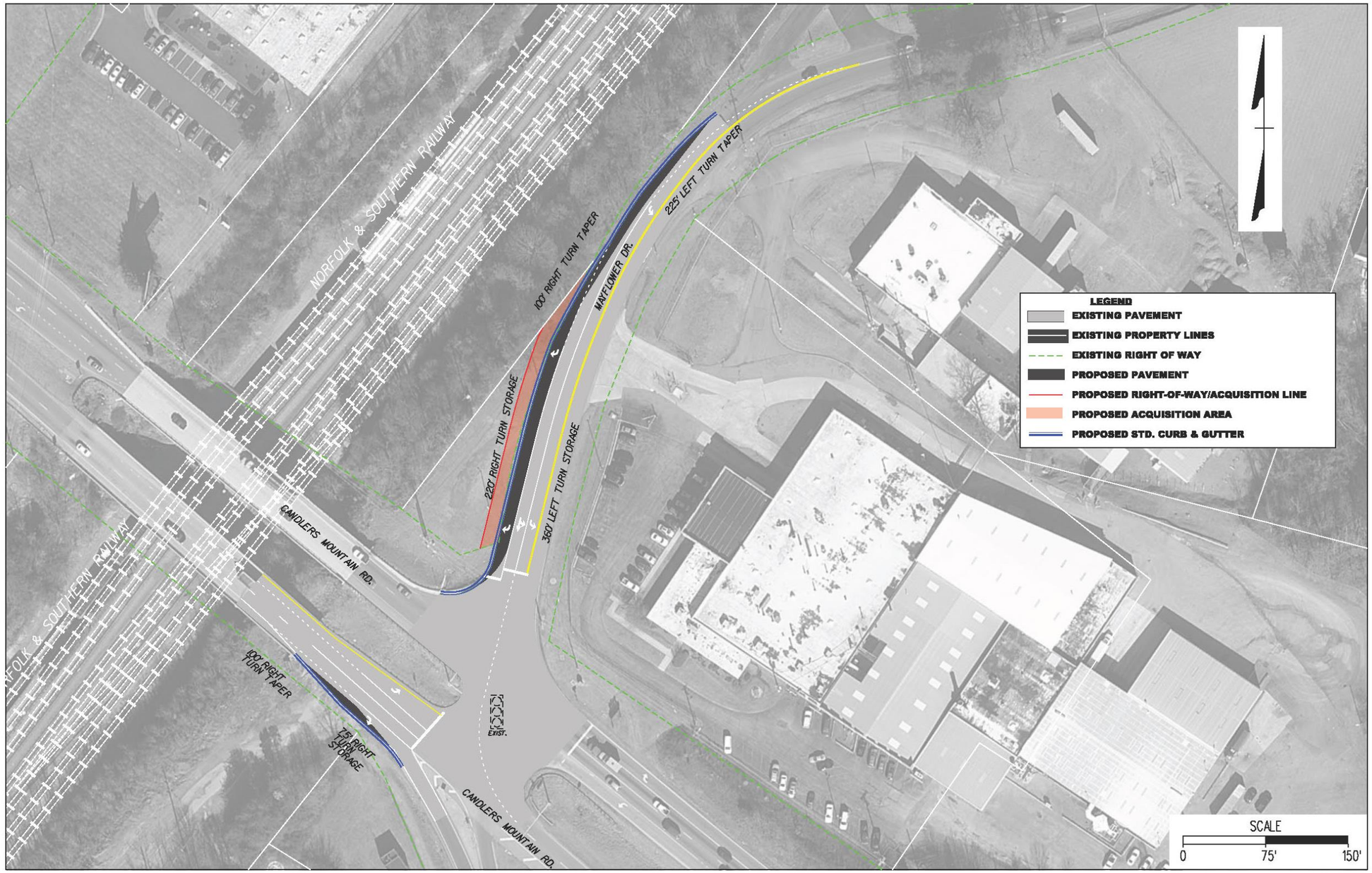


Figure 21 – Project 4: Mayflower Drive Intersection Improvements



BUILD CONDITIONS

Build conditions were analyzed to evaluate the results of future traffic demand on the proposed roadway network. The intent of the build analyses was to assess the effectiveness and operational benefits of the selected projects.

CORSIM and Synchro were used to analyze the build conditions. The CORSIM and Synchro build conditions models incorporated the geometric improvements associated with the four selected projects. The 2025 and 2040 build volumes were developed by from the 2025 and 2040 no-build AM and PM peak hour volumes. No-build volumes were rerouted to take into account the geometric improvements associated with the build conditions. The proposed build lane configurations are shown in **Figure 22**. Balanced projected 2025 and 2040 build AM and PM peak hour volumes are summarized in **Figure 23** and **Figure 24**, respectively.

CORSIM and Synchro modeling assumptions and analysis results for the build conditions in Interim Year 2025 and Design Year 2040 are described in the following sections.

CORSIM Analysis

CORSIM models were developed to analyze the operation of the Candlers Mountain Road study area under Design Year 2040 build AM and PM peak hour conditions. Interim Year 2025 build conditions were not analyzed in CORSIM.

Modeling Assumptions

The no-build conditions CORSIM models were used as a basis to develop the build models. Geometry in the build models was updated to reflect the proposed improvement concepts and the models were updated with projected 2040 build traffic volumes and optimized signal timing splits. A detailed summary of CORSIM modeling inputs and assumptions for the build models is provided in **Appendix F**.

The VDOT *Sample Size Determination Tool* was used to confirm that ten simulation runs would provide the acceptable 95% confidence level for both AM and PM build models. Ten simulation runs were conducted for both the AM and PM models using different random number seeds. The averages of these runs were reported. The VDOT *Sample Size Determination Tool* results are provided in **Appendix F**.

Results

The same MOEs used to evaluate existing conditions were used to measure the quantitative performance of the build CORSIM freeway and arterial networks:

- Vehicle density on freeway links
- Vehicle speed on freeway links
- Microsimulation delay at arterial intersections
- Maximum queue length on arterial links

Detailed simulation results including freeway lane schematics and intersection delay and queue tables are provided in **Appendix F**. Key findings from the build CORSIM analysis are summarized in the subsequent sections.

Vehicle Density on Freeway Links

Similar to the existing and no-build conditions analysis, the simulation LOS scale shown in **Table 8** was used to relate CORSM density results to an LOS. Summary tables with the CORSIM density results and corresponding simulation LOS for the AM and PM peak periods are provided in **Appendix F**. Critical links with a reported density that corresponds to a simulation LOS of D or worse are described below and summarized in **Table 12**.

Southbound Lynchburg Expressway

Under 2040 build conditions, no overall mainline links or ramps on the southbound Lynchburg Expressway operated at a simulation LOS of D or worse in the AM or PM peak hour.

Overall, the southbound Lynchburg Expressway mainline links reported lower vehicle densities under 2040 build conditions than under 2040 no-build conditions. Due to capacity constraints under no-build conditions that resulted in lower downstream simulated volumes, some mainline links south of the Candlers Mountain Road interchange reported slightly higher vehicle densities under 2040 build conditions than under 2040 no-build conditions. The difference between 2040 build and 2040 no-build densities at these locations were less than 2.0 vehicles per lane per mile.

Southbound Lynchburg Expressway ramp links reported equal or lower vehicle densities under 2040 build conditions than under 2040 no-build conditions, except at ramps with higher traffic volumes under build conditions due to the closure of another ramp. The Lynchburg Expressway entrance ramp from westbound Candlers Mountain Road, where the acceleration lane length was increased from 65 feet to 860 feet under build conditions, improved from simulation LOS F under no-build AM and PM peak hour conditions to simulation LOS C or better under build AM and PM peak hour conditions. The closure of the southbound Lynchburg Expressway exit ramp to eastbound Candlers Mountain road under build conditions resulted in higher traffic volumes and higher reported vehicle densities on the southbound Lynchburg Expressway exit ramp to eastbound/westbound Candlers Mountain Road under build conditions than under no-build conditions. With the additional traffic volumes under build conditions, the southbound Lynchburg Expressway exit ramp to eastbound/westbound Candlers Mountain Road operated at a simulation LOS B in the AM peak hour and LOS C in the PM peak hour.

Northbound Lynchburg Expressway

Under 2040 build conditions, overall mainline links on the northbound Lynchburg Expressway south of the exit ramp to Old Wards Road operated at a simulation LOS D in the AM and PM peak hours. No overall mainline links on the northbound Lynchburg Expressway operated at LOS E or LOS F under 2040 build AM and PM peak hour conditions. In addition, under 2040 build conditions, no ramps on the northbound Lynchburg Expressway operated at a simulation LOS of D or worse.

Figure 22 – Proposed Build Lane Configuration

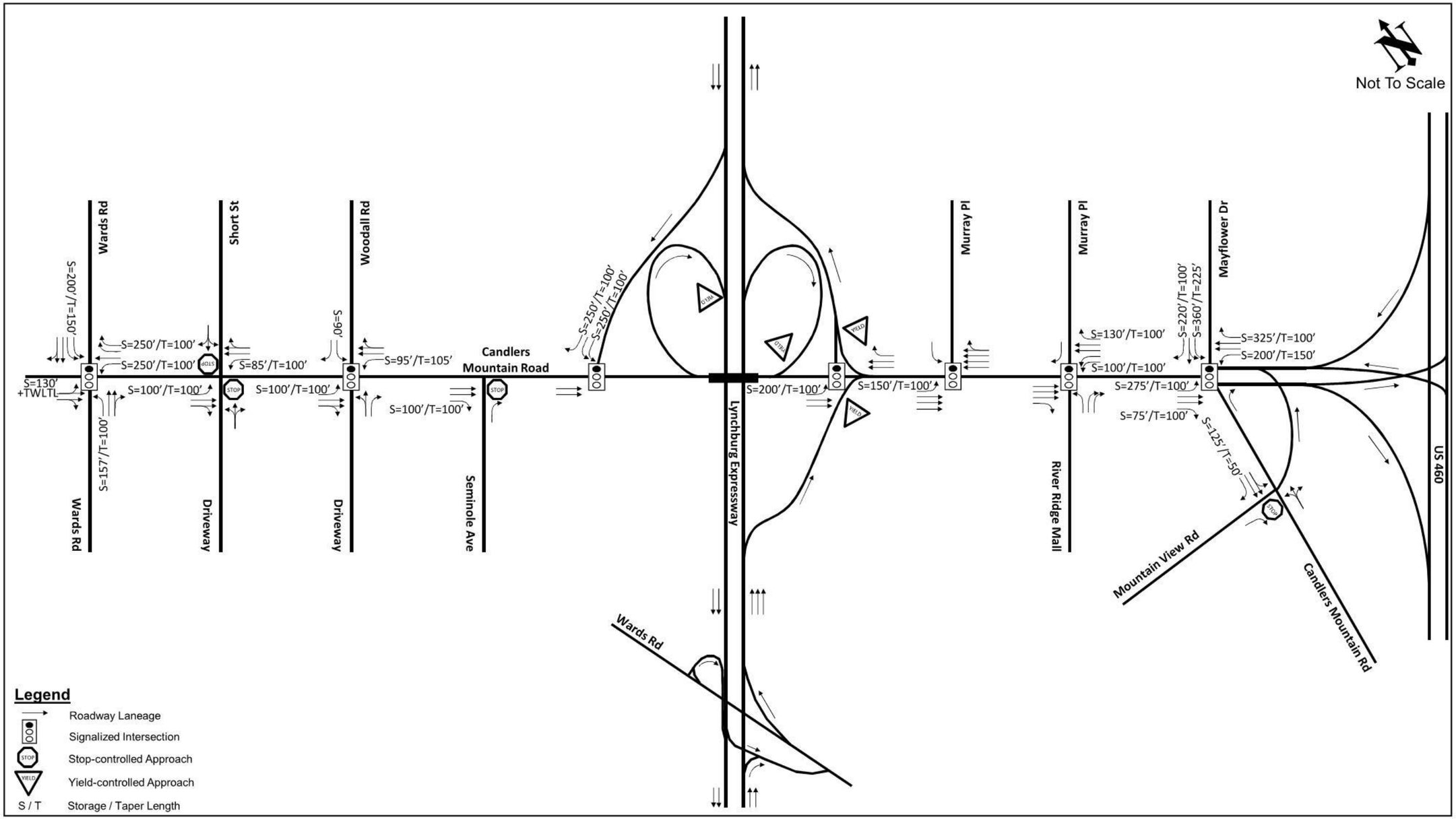


Figure 23 – Projected 2025 Build Peak Hour Volumes

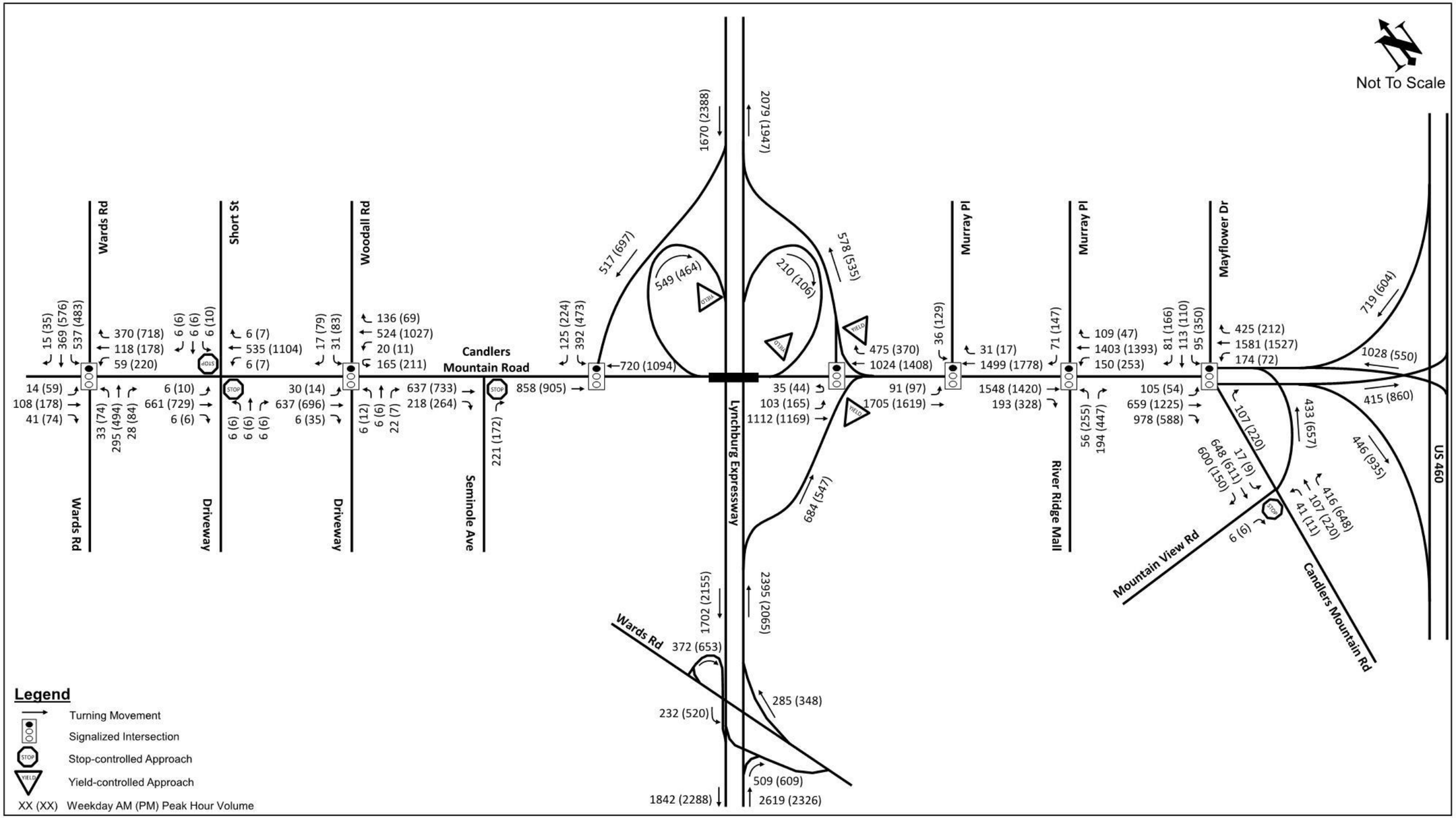
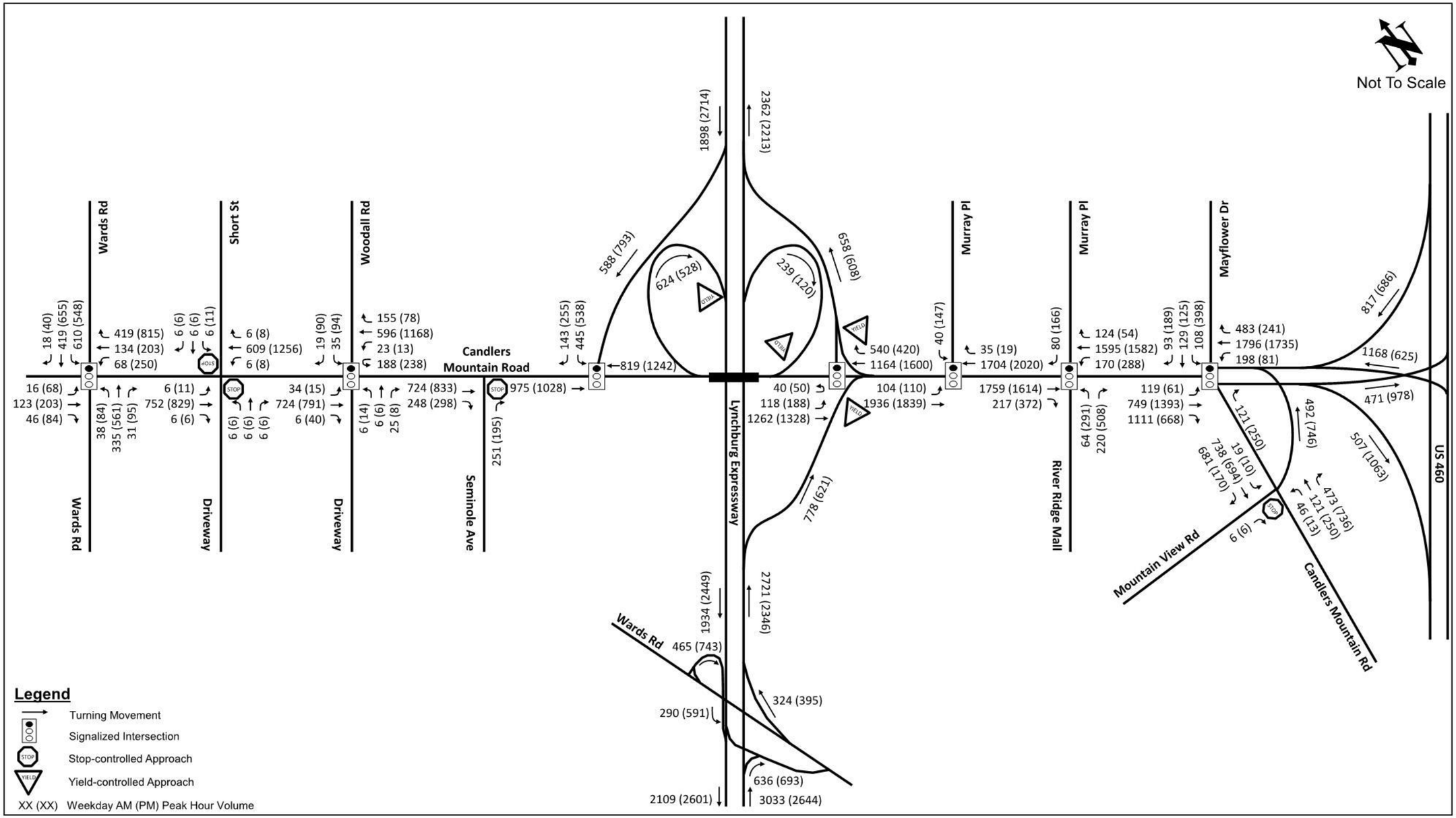


Figure 24 – Projected 2040 Build Peak Hour Volumes



Overall, the northbound Lynchburg Expressway mainline links reported lower vehicle densities under 2040 build conditions than other 2040 no-build conditions. Under 2040 no-build conditions, capacity constraints at the Lynchburg Expressway interchange resulted in simulated volumes more than 20% lower than actual volumes in both the AM and PM peak hours. As a result, northbound Lynchburg Expressway links north of the exit ramp to eastbound Candlers Mountain Road reported higher vehicle densities under 2040 build conditions than under 2040 no-build conditions. The difference between 2040 build and 2040 no-build densities at these locations was at most 6.1 vehicles per lane per mile.

Northbound Lynchburg Expressway ramp links reported lower vehicle densities under 2040 build conditions than under 2040 no-build conditions, except at ramps with higher traffic volumes under build conditions due to the closure of another ramp or due to capacity constraints under no-build conditions. The Lynchburg Expressway exit ramp to eastbound Candlers Mountain Road improved from simulation LOS F under no-build AM and PM peak hour conditions to LOS B under build AM and PM peak hour conditions because of improved operations on Candlers Mountain Road. The northbound Lynchburg Expressway exit ramp to Old Wards Road and exit ramp to westbound Candler Mountain Road both reported higher vehicle densities under 2040 build conditions than 2040 no-build conditions due to capacity constraints that resulted in lower simulated volumes on these ramps under 2040 no-build conditions. In addition, the closure of the northbound Lynchburg Expressway entrance ramp from eastbound Candlers Mountain Road under build conditions resulted in higher traffic volumes on the reconfigured northbound Lynchburg Expressway entrance ramp from eastbound/ westbound Candlers Mountain Road under build conditions than under no-build conditions. With the additional traffic volumes under build conditions, the entrance ramp from eastbound/westbound Candlers Mountain Road operated at a simulation LOS B in both the AM and PM peak hours.

Table 12 – Build CORSIM Links with Simulation LOS of D or Worse

Location	AM Peak Hour		PM Peak Hour	
	Density	Simulation LOS	Density	Simulation LOS
Southbound Lynchburg Expressway Mainline				
No overall links operate at simulation LOS of D or worse				
Southbound Lynchburg Expressway Ramps				
No ramps operate at simulation LOS of D or worse				
Northbound Lynchburg Expressway Mainline				
Northbound Lynchburg Expressway south of exit ramp to Old Wards Road	31.6	D	26.5	D
Northbound Lynchburg Expressway Ramps				
No ramps operate at simulation LOS of D or worse				

Vehicle Speeds on Freeway Links

Under build conditions, vehicle speeds on the Lynchburg Expressway were generally higher than or consistent with simulated speeds under no-build conditions. The most significant speed differentials between no-build and build conditions were reported at the following locations:

- The northbound Lynchburg Expressway reported speeds greater than 30 mph higher during the AM peak hour and greater than 35 mph higher during the PM peak hour under build conditions than under no-build conditions in the weave segment between the entrance ramp from Wards Road and the exit ramp to eastbound Candlers Mountain Road. Under build conditions, improved operations on Candlers Mountain Road reduced the queuing on mainline northbound Lynchburg Expressway from the exit ramp to eastbound Candlers Mountain Road, which allowed for increased vehicle speeds in the weave segment.
- The southbound Lynchburg Expressway reported speeds greater than 20 mph higher during the AM peak hour and greater than 25 mph higher during the PM peak hour under build conditions than under no-build conditions near the entrance ramp from westbound Candlers Mountain Road. Under build conditions, the acceleration lane was lengthened for this ramp, which allowed vehicles to maintain higher speeds when merging onto the Lynchburg expressway.

Overall, vehicle speeds on the Lynchburg Expressway under build conditions were simulated within the average range of 50-57 mph during the AM and PM peak periods. No Lynchburg Expressway mainline speeds were simulated under 43 mph during either the AM or PM peak periods. Simulated speeds less than 50 mph were reported at the following locations:

- During the AM and PM peak hours, the northbound Lynchburg Expressway reported speeds of less than 50 mph at the exit ramp to Old Wards Road and the exit ramp to eastbound Candlers Mountain Road
- During the AM and PM peak hours, the southbound Lynchburg Expressway reported speeds of less than 50 mph at the entrance ramp from westbound Candlers Mountain Road and the entrance ramp from Wards Road

Microsimulation Delay on Arterial Links

CORSIM microsimulation delay by movement, approach, and overall intersection was reported for the arterial intersections during the build 2040 AM and PM peak periods. The complete microsimulation delay results are provided in **Appendix F**. This microsimulation delay from CORSIM cannot be directly correlated with an HCM LOS. Similar to the existing and no-build conditions analysis, for this reason, Synchro was used as the primary tool for reporting intersection delay and LOS. The CORSIM microsimulation delay results were reviewed and found to generally align with the Synchro results for the build AM and PM peak periods. A summary of the Synchro delay and LOS results is provided in the Synchro/SimTraffic Analysis section of this report.

Maximum Queue Length on Arterial Links

While SimTraffic was the primary tool for reporting maximum queue length, the CORSIM maximum queue lengths were reviewed and found to generally align with the SimTraffic results for build 2040 conditions. For reference, the complete maximum queue length CORSIM results by movement and link for the build 2040 AM and PM peak

periods are provided in **Appendix F**. A summary of the SimTraffic maximum queue length results is provided in the Synchro/SimTraffic Analysis section of this report.

Synchro/SimTraffic Analysis

Synchro/SimTraffic models were developed to analyze the operation of the Candlers Mountain Road study area under Interim Year 2025 and Design Year 2040 build AM and PM peak hour conditions.

Modeling Assumptions

The no-build Synchro/SimTraffic models were used as a basis to develop the build models. Geometry in the build models was updated to reflect the proposed improvement concepts and the models were updated with projected 2040 build traffic volumes and optimized signal timing splits. A detailed summary of Synchro/SimTraffic modeling inputs and assumptions for the build models is provided in **Appendix F**.

Results

The same MOEs used to evaluate existing and no-build conditions were used to measure the quantitative performance of the build Synchro/SimTraffic models:

- Average vehicle delay and HCM LOS by movement, approach, and intersection – measured in seconds per vehicle
- Maximum queue length – measured in feet

Tables summarizing the delay, HCM LOS, and queuing results for the study area intersections are included in **Appendix F**. **Figure 25** and **Figure 26** show graphical representations of the LOS results in the study area under 2025 and 2040 build conditions. Key findings for the intersection analysis are summarized in the subsequent sections.

Delay and Level of Service

Under build conditions, all study area intersections operate at an overall intersection LOS of D or better under 2025 and 2040 build AM and PM peak hour conditions. All signalized intersections in the study area operate with lower overall intersection delay under 2025 and 2040 build conditions than under 2025 and 2040 no-build conditions. None of the overall intersections reported v/c greater than one under 2025 or 2040 build conditions.

When adjusting signal timings under build conditions, priority was given to through movement progression on eastbound and westbound Candlers Mountain Road. As a result, the overall eastbound and westbound Candlers Mountain Road approaches at all study area intersections operate at an LOS of D or better during the 2025 and 2040 AM and PM peak hours. However, some Candlers Mountain Road left-turn movements and side street movements operate at LOS E or LOS F during the AM and PM peak hours under 2025 and 2040 build conditions.

The Candlers Mountain Road eastbound and westbound left-turn movements listed below operate at a LOS E or LOS F under 2025 and/or 2040 build conditions. None of the movements on Candlers Mountain Road reported a v/c greater than one.

- Intersection 1 – Candlers Mountain Road / Sheffield Drive
  - Under 2040 build conditions, the westbound Candlers Mountain Road left-turn movement operates at LOS E (67.0 sec/veh) in the PM peak hour
- Intersection 5 – Candlers Mountain Road at Murray Place
  - Under 2025 build conditions, the eastbound Candlers Mountain Road left-turn movement operates at LOS E (70.3 sec/veh) in the AM peak hour and LOS E (75.2 sec/veh) in the PM peak hour
  - Under 2040 build conditions, the eastbound Candlers Mountain Road left-turn movement operates at LOS E (73.9 sec/veh) in the AM peak hour and LOS E (76.4 sec/veh) in the PM peak hour
- Intersection 6 – Candlers Mountain Road at Murray Place/River Ridge Mall
  - Under 2025 build conditions, the westbound Candlers Mountain Road left-turn movement operates at LOS F (80.8 sec/veh) in the AM peak hour and LOS E (68.4 sec/veh) in the PM peak hour
  - Under 2040 build conditions, the westbound Candlers Mountain Road left-turn movement operates at LOS F (80.4 sec/veh) in the AM peak hour and LOS E (61.9 sec/veh) in the PM peak hour
- Intersection 7 – Candlers Mountain Road / US 501 at Mayflower Drive
  - Under 2040 build conditions, the westbound Candlers Mountain Road left-turn movement operates at LOS E (67.0 sec/veh) in the AM peak hour and LOS E (57.0 sec/veh) in the PM peak hour

The side street approaches listed below operate at LOS E or LOS F under 2025 and/or 2040 build conditions:

- Intersection 2 – Candlers Mountain Road at Short Street
  - Under 2025 build conditions, the northbound commercial driveway approach operates at LOS F (66.5 sec/veh) in the PM peak hour
  - Under 2025 build conditions, the southbound Short Street approach operates at LOS F (82.7 sec/veh) in the PM peak hour
  - Under 2040 build conditions, the northbound commercial driveway approach operates at LOS E (36.8 sec/veh) and LOS F (132.8 sec/veh) in the PM peak hour
  - Under 2040 build conditions, the southbound Short Street approach operates at LOS F (209.4 sec/veh) in the PM peak hour
- Intersection 3 – Candlers Mountain Road at Woodall Road
  - Under 2025 build conditions, the northbound commercial driveway approach operates at LOS E (60.9 sec/veh) in the AM peak hour
  - Under 2025 build conditions, the southbound Woodall Road approach operates at LOS E (64.6 sec/veh) in the AM peak hour and LOS E (60.0 sec/veh) in the PM peak hour

- Under 2040 build conditions, the northbound commercial driveway approach operates at LOS E (60.4 sec/veh) in the AM peak hour
- Under 2040 build conditions, the southbound Woodall Road approach operates at LOS E (64.9 sec/veh) in the AM peak hour and LOS E (59.5 sec/veh) in the PM peak hour

- Intersection 5 – Candlers Mountain Road at Murray Place
  - Under 2025 build conditions, the southbound Murray Place approach operates at LOS E (67.4 sec/veh) in the AM peak hour and LOS F (88.5 sec/veh) in the PM peak hour
  - Under 2040 build conditions, the southbound Murray Place approach operates at LOS E (67.0 sec/veh) in the AM peak hour and LOS F (193.6 sec/veh) in the PM peak hour
- Intersection 6 – Candlers Mountain Road at Murray Place/River Ridge Mall
  - Under 2025 build conditions, the northbound River Ridge Mall approach operates at LOS E (59.9 sec/veh) in the AM peak hour and LOS F (91.3 sec/veh) in the PM peak hour
  - Under 2040 build conditions, the northbound River Ridge Mall approach operates at LOS E (60.1 sec/veh) in the AM peak hour and LOS F (127.7 sec/veh) in the PM peak hour
- Intersection 7 – Candlers Mountain Road / US 501 at Mayflower Drive
  - Under 2025 build conditions, the southbound Mayflower Drive approach operates at LOS E (64.4 sec/veh) in the AM peak hour and LOS E (62.5 sec/veh) in the PM peak hour
  - Under 2040 build conditions, the southbound Mayflower Drive approach operates at LOS E (68.1 sec/veh) in the AM peak hour and LOS F (81.6 sec/veh) in the PM peak hour
- Intersection 9 – Candlers Mountain Road at Southbound Lynchburg Expressway
  - Under 2025 build conditions, the southbound Lynchburg Expressway exit ramp approach operates at LOS E (58.4 sec/veh) in the AM peak hour and LOS E (58.5 sec/veh) in the PM peak hour
  - Under 2040 build conditions, the southbound Lynchburg Expressway exit ramp approach operates at LOS E (57.3 sec/veh) in the AM peak hour and LOS E (56.9 sec/veh) in the PM peak hour

Queue Length

A queuing analysis was completed for the study area intersections under 2025 and 2040 build AM and PM peak hour conditions. SimTraffic was used to perform 60-minute simulations for queuing analyses. The maximum queue lengths, measured in feet, were reported for 2025 and 2040 build AM and PM peak hour conditions and are summarized in **Appendix F**. For movements without conflicting volumes, no queue length is reported by SimTraffic.

The following turning movements reported maximum queue lengths that exceed storage bays under 2025 and/or 2040 build conditions for at least one percent of the peak hour analysis period:

Intersection 3 – Candlers Mountain Road at Woodall Road

- 2025 Build Model
  - Westbound left turn, 2% of PM peak hour
  - Southbound left turn, 12% of PM peak hour
- 2040 Build Model
  - Southbound left turn, 15% of PM peak hour

Intersection 6 – Candlers Mountain Road at Murray Place / River Ridge Mall

- 2025 Build Model
  - Westbound left turn, 5% of PM peak hour
- 2040 Build Model
  - Westbound left turn, 9% of PM peak hour

Intersection 7 – Candlers Mountain Road / US 501 at Mayflower Drive

- 2025 Build Model
  - Eastbound right turn, 1% of PM peak hour
  - Southbound right turn, 1% PM peak hour
- 2040 Build Model
  - Eastbound right turn, 2% of PM peak hour
  - Westbound right turn, 2% of AM peak hour and 1% of PM peak hour
  - Southbound right turn, 1% of PM peak hour

The following movements reported maximum queue lengths that block storage bays of adjacent lanes under 2025 and/or 2040 build conditions for at least one percent of the analysis period:

Intersection 1 – Candlers Mountain Road / Sheffield Drive at Wards Road

- 2025 Build Model
  - Northbound left-turn lane blocked by through movement, 3% of PM peak hour
- 2040 Build Model
  - Northbound left-turn lane blocked by through movement, 6% of PM peak hour

Intersection 3 – Candlers Mountain Road at Woodall Road

- 2025 Build Model
  - Eastbound left-turn lane blocked by through movement, 1% of PM peak hour
  - Westbound left-turn lane blocked by through movement, 1% of AM peak hour and 5% of PM peak hour
  - Southbound left-turn lane blocked by right-turn movement, 1% of PM peak hour
- 2040 Build Model
  - Eastbound left-turn lane blocked by through movement, 1% of AM peak hour and 4% of PM peak hour
  - Westbound left-turn lane blocked by through movement, 2% of AM peak hour and 10% of PM peak hour
  - Southbound left-turn lane blocked by right-turn movement, 2% of PM peak hour

Intersection 5 – Candlers Mountain Road at Murray Place

- 2025 Build Model
  - Eastbound left-turn lane blocked by through movement, 1% of AM peak hour and 2% of PM peak hour
- 2040 Build Model
  - Eastbound left-turn lane blocked by through movement, 9% of AM peak hour and 16% of PM peak hour

Intersection 6 – Candlers Mountain Road at Murray Place / River Ridge Mall

- 2025 Build Model
  - Westbound left-turn lane blocked by through movement, 5% of PM peak hour
- 2040 Build Model
  - Westbound left-turn lane blocked by through movement, 1% of AM peak hour and 5% of PM peak hour

Intersection 7 – Candlers Mountain Road / US 501 at Mayflower Drive

- 2025 Build Model
  - Eastbound left-turn lane blocked by through movement, 7% of PM peak hour
  - Eastbound right-turn lane blocked by through movement, 1% of AM peak hour and 14% of PM peak hour
  - Westbound left-turn lane blocked by through movement, 5% of AM peak hour and 7% of PM peak hour
  - Westbound right-turn lane blocked by through movement, 3% of AM peak hour and 3% of PM peak hours
  - Southbound right-turn lane blocked by through-left movement, 3% of PM peak hour
- 2040 Build Model
  - Eastbound left-turn lane blocked by through movement, 12% of PM peak hour
  - Eastbound right-turn lane blocked by through movement, 1% of AM peak hour and 17% of PM peak hour
  - Westbound left-turn lane blocked by through movement, 17% of AM peak hour and 21% of PM peak hour
  - Westbound right-turn lane blocked by through movement, 14% of AM peak hour and 18% of PM peak hours
  - Southbound left-turn lane blocked by through-left movement, 9% of the PM peak hour
  - Southbound right-turn lane blocked by through-left movement, 2% of the AM peak hour and 9% of PM peak hour

Intersection 9 – Candlers Mountain Road at Southbound Lynchburg Expressway Ramps

- 2025 Build Model
  - Southbound inner left -turn lane blocked by outer left-turn movement, 1% of AM peak hour and 2% of PM peak hour
  - Southbound right-turn lane blocked by left-turn movement, 1% of AM peak hour and 2% of PM peak hour
- 2040 Build Model
  - Southbound inner left -turn lane blocked by outer left-turn movement, 2% of AM peak hour and 3% of PM peak hour
  - Southbound right-turn lane blocked by left-turn movement, 2% of AM peak hour and 3% of PM peak hour

Intersection 10 – Candlers Mountain Road at Northbound Lynchburg Expressway Ramps

- 2040 Build Model
  - Eastbound left-turn lane blocked by through movement, 5% of AM peak hour and 2% of PM peak hour

Queues at several intersections extend through upstream intersections under build conditions. These queues are summarized below.

Eastbound Candlers Mountain Road, AM Peak

- 2025 Build Model
  - The maximum queue at Intersection 6 – Candlers Mountain Road at Murray Place / River Ridge Mall extends through Intersection 5 – Candlers Mountain Road at Murray Place
- 2040 Build Model
  - The maximum queue at Intersection 9 – Candlers Mountain Road at Southbound Lynchburg Expressway extends through Intersection 4 – Candlers Mountain Road at Seminole Avenue
  - The maximum queue at Intersection 6 – Candlers Mountain Road at Murray Place / River Ridge Mall extends through intersection 5 – Candlers Mountain Road at Murray Place; the maximum queue at Intersection 5 extends through Intersection 10 – Candlers Mountain Road at Northbound Lynchburg Expressway Ramps

Eastbound Candlers Mountain Road, PM Peak

- 2025 Build Model
  - The maximum queue at Intersection 3 – Candlers Mountain Road at Woodall Road extends through Intersection 2 – Candlers Mountain Road at Short Street
  - The maximum queue at Intersection 7 – Candlers Mountain Road / US 501 at Mayflower Drive extends through Intersection 6 – Candlers Mountain Road at Murray Place / River Ridge Mall; the maximum queue at Intersection 6 extends through intersection 5 – Candlers Mountain Road at Murray Place
- 2040 Build Model
  - The maximum queue at Intersection 3 – Candlers Mountain Road at Woodall Road extends through Intersection 2 – Candlers Mountain Road at Short Street
  - The maximum queue at Intersection 9 – Candlers Mountain Road at Southbound Lynchburg Expressway extends through Intersection 4 – Candlers Mountain Road at Seminole Avenue
  - The maximum queue at Intersection 7 – Candlers Mountain Road / US 501 at Mayflower Drive extends through Intersection 6 – Candlers Mountain Road at Murray Place / River Ridge Mall; the maximum queue at Intersection 6 extends through intersection 5 – Candlers Mountain Road at Murray Place; the maximum queue at Intersection 5 extends through Intersection 10 – Candlers Mountain Road at Northbound Lynchburg Expressway Ramps

Westbound Candlers Mountain Road, AM Peak

- 2025 Build Model
  - The maximum queue at Intersection 3 – Candlers Mountain Road at Woodall Road extends through Intersection 4 – Candlers Mountain Road at Seminole Avenue
  - The maximum queue at Intersection 10 – Candlers Mountain Road at Northbound Lynchburg Expressway Ramps extends through Intersection 5 – Candlers Mountain Road at Murray Place
- 2040 Build Model
  - The maximum queue at Intersection 3 – Candlers Mountain Road at Woodall Road extends through Intersection 4 – Candlers Mountain Road at Seminole Avenue
  - The maximum queue at Intersection 10 – Candlers Mountain Road at Northbound Lynchburg Expressway Ramps extends through Intersection 5 – Candlers Mountain Road at Murray Place

Westbound Candlers Mountain Road, PM Peak

- 2025 Build Model
  - The maximum queue at Intersection 3 – Candlers Mountain Road at Woodall Road extends through Intersection 4 – Candlers Mountain Road at Seminole Avenue
  - The maximum queue at Intersection 10 – Candlers Mountain Road at Northbound Lynchburg Expressway Ramps extends through Intersection 5 – Candlers Mountain Road at Murray Place
- 2040 Build Model
  - The maximum queue at Intersection 3 – Candlers Mountain Road at Woodall Road extends through Intersection 4 – Candlers Mountain Road at Seminole Avenue
  - The maximum queue at Intersection 10 – Candlers Mountain Road at Northbound Lynchburg Expressway Ramps extends through Intersection 5 – Candlers Mountain Road at Murray Place

Figure 25 – Build 2025 Levels of Service

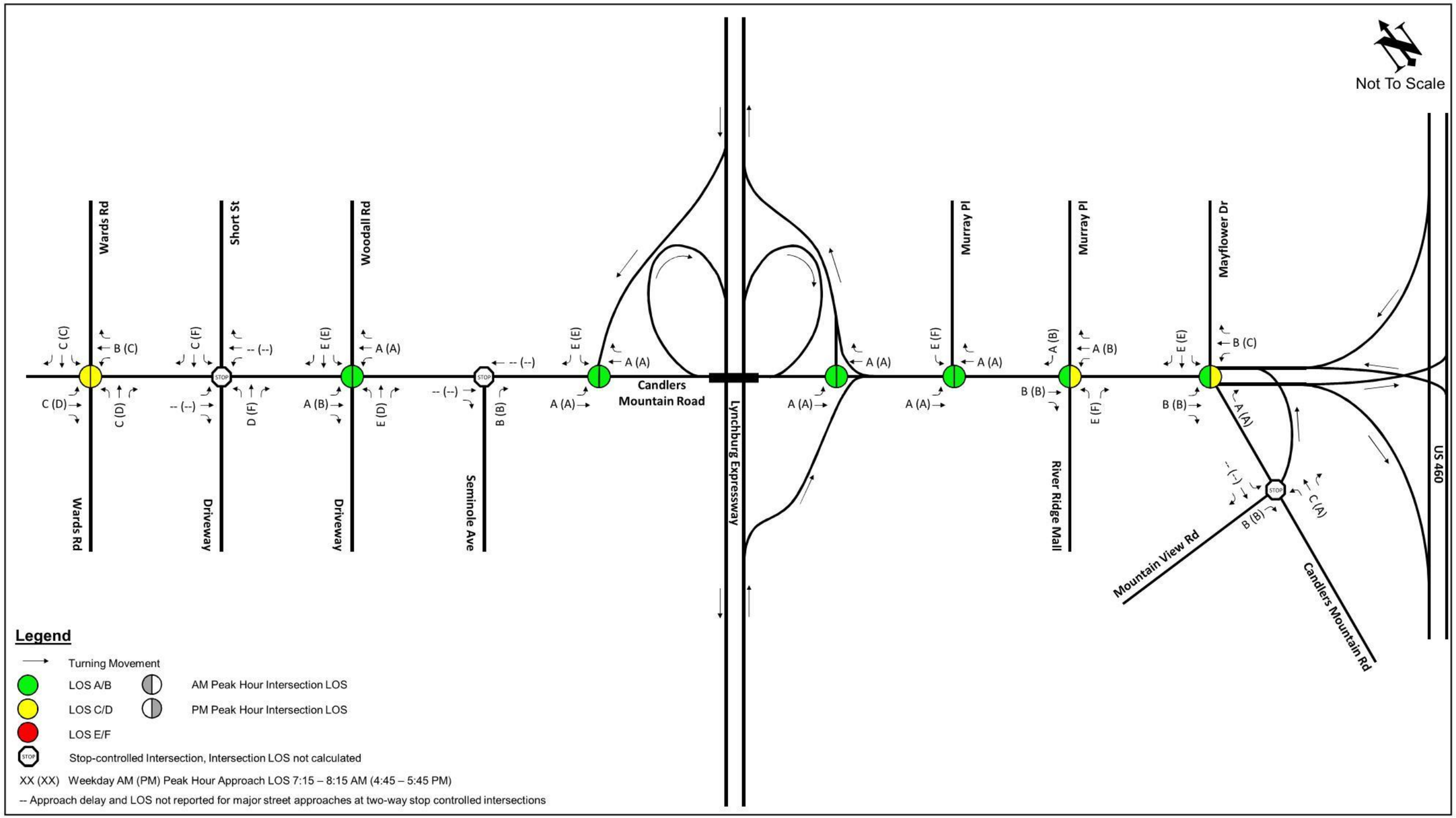
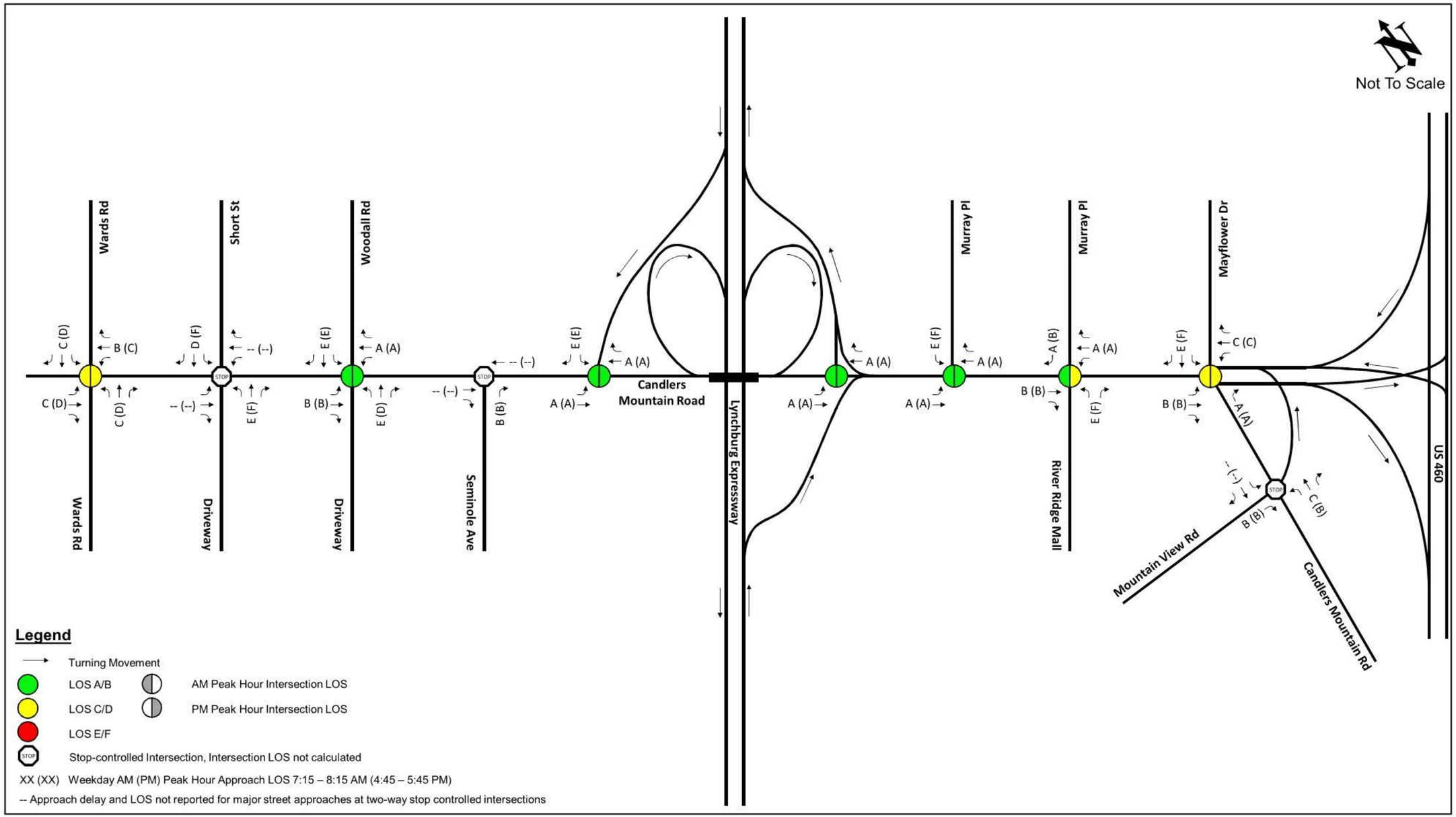


Figure 26 –Build 2040 Levels of Service



CONCEPTUAL DESIGN, COSTS, AND SCHEDULES

Conceptual Design

Conceptual design plans were developed for the four projects selected for further analysis. The design and geometric criteria for each project and the preferred project conceptual design is described in the following sections.

Conceptual design plans were developed in accordance with the following applicable guidelines:

- A Policy on Geometric Design of Highways and Streets (AASHTO 2011)
- A Policy on Design Standards – Interstate System, 5th Edition (AASHTO 2005)
- VDOT Road Design Manual (Issued January 2005, Revised July 2016)
- VDOT Road and Bridge Standards (VDOT 2016, latest revisions)
- Manual on Uniform Traffic Control Devices (MUTCD 2009)
- 2011 Virginia Supplement to the MUTCD

Design criteria and guidance from these documents were applied to roadways within the project limits based on functional classification and roadway design speeds. The proposed design assumed a WB-67 as the design vehicle to determine the design impacts of the turning radius.

Conceptual design figures are shown in **Figure 18** through **Figure 21.**

Planning Level Cost Estimates and Schedules

Planning level cost estimates in 2016 dollars were also developed for each of the four projects. Construction (CN) costs were estimated using a combination of PCES, VDOT Planning Level Cost Estimate worksheet, and recent bid costs. Preliminary engineering (PE) and construction engineering and inspection (CEI) costs were estimated as a percentage of construction costs. A 20% contingency was included on the construction estimate not including mobilization and CEI. A detailed cost estimate should be prepared during the design phase of these projects.

A summary of the planning level costs estimates and schedules for each project are included in the following sections and in **Appendix G**.

Project 1: Wards Road Intersection and Access Management Improvements

Table 13 – Project 1 Planning Level Cost Estimate and Schedule

Description	Costs (2016)	Schedule (years)
Preliminary Engineering	$2,200,000	3.0
R/W and Utility Relocation	$5,100,000	2.5
Construction (CN)	$13,000,000	2.0
Total	**$20,300,000**	**7.5**

Project 2: Lynchburg Expressway Ramps and Ramp Terminal Improvements

Table 14 – Project 2 Planning Level Cost Estimate and Schedule

Description	Costs (2016)	Schedule (years)
Preliminary Engineering	$3,200,000	3.0
R/W and Utility Relocation	$310,000	0.5
Construction (CN)	$19,000,000	2.5
Total	**$22,510,000**	**6.0**

Project 3: Murray Place and River Ridge Mall Continuous Green T Intersection Improvements

Table 15 – Project 3 Planning Level Cost Estimate and Schedule

Description	Costs (2016)	Schedule (years)
Preliminary Engineering	$1,000,000	2.0
R/W and Utility Relocation	$980,000	1.0
Construction (CN)	$4,250,000	1.0
Total	**$6,230,000**	**4.0**

Project 4: Mayflower Drive Intersection Improvements

Table 16 – Project 4 Planning Level Cost Estimate and Schedule

Description	Costs (2016)	Schedule (years)
Preliminary Engineering	$700,000	1.0
R/W and Utility Relocation	$290,000	0.5
Construction (CN)	$1,400,000	0.5
Total	**$2,390,000**	**2.0**

PROJECT BENEFITS

Traffic operations and safety benefits were evaluated for the four projects selected for further analysis. Traffic operations benefits were evaluated by comparing the intersection delay under 2040 build conditions to the intersection delay under 2040 no-build conditions. Safety benefits were evaluated by calculating the potential reduction in crashes associated with each project. To calculate the potential reduction in crashes, crash reduction factors (CRFs) were applied to existing applicable crashes in the vicinity of the improvement project. The traffic operation and safety benefits for each of the projects are summarized in the following sections.

Traffic Operations Benefits

Project 1: Wards Road Intersection and Access Management Improvements

Table 17 – Project 1 Traffic Operations Benefits

	AM	PM
Candlers Mountain Road at Wards Road		
2040 No Build Intersection Delay	44.9 sec/veh	99.6 sec/veh
2040 Build Intersection Delay	23.8 sec/veh	38.2 sec/veh
Δ Intersection Delay	**-21.1 sec/veh**	**-61.4 sec/veh**
Candlers Mountain Road at Woodall Road		
2040 No Build Intersection Delay	16.9 sec/veh	18.0 sec/veh
2040 Build Intersection Delay	12.5 sec/veh	18.0 sec/veh
Δ Intersection Delay	**-4.4 sec/veh**	**0.0 sec/veh**

Project 2: Lynchburg Expressway Ramps and Ramp Terminal Improvements

Table 18 – Project 2 Traffic Operations Benefits

	AM	PM
Candlers Mountain Road at Southbound Lynchburg Expressway Ramp		
2040 No Build Intersection Delay	21.2 sec/veh	24.3 sec/veh
2040 Build Intersection Delay	14.4 sec/veh	15.7 sec/veh
Δ Intersection Delay	**-6.8 sec/veh**	**-8.6 sec/veh**
Candlers Mountain Road at Northbound Lynchburg Expressway Ramp		
2040 No Build Intersection Delay	- -	- -
2040 Build Intersection Delay	4.1 sec/veh	6.0 sec/veh
Δ Intersection Delay	**- -**	**- -**

Project 3: Murray Place and River Ridge Mall Continuous Green T Intersection Improvements

Table 19 – Project 3 Traffic Operations Benefits

	AM	PM
Candlers Mountain Road at Murray Place (west intersection)		
2040 No Build Intersection Delay	- -	- -
2040 Build Intersection Delay	4.2 sec/veh	13.4 sec/veh
Δ Intersection Delay	- -	- -
Candlers Mountain Road at Murray Place/River Ridge Mall		
2040 No Build Intersection Delay	61.8 sec/veh	126.2 sec/veh
2040 Build Intersection Delay	13.4 sec/veh	32.5 sec/veh
Δ Intersection Delay	**-48.4 sec/veh**	**-93.7 sec/veh**

Project 4: Mayflower Drive Intersection Improvements

Table 20 – Project 4 Traffic Operations Benefits

	AM	PM
Candlers Mountain Road at Mayflower Drive		
2040 No Build Intersection Delay	77.2 sec/veh	131.3 sec/veh
2040 Build Intersection Delay	23.7 sec/veh	31.3 sec/veh
Δ Intersection Delay	**-53.5 sec/veh**	**-100.0 sec/veh**

Safety Benefits

Project 1: Wards Road Intersection and Access Management Improvements

Table 21 – Project 1 Safety Benefits

Crash Reduction Factor (CRF)	CFR Crash Types	CRF Crash Severities	Study Area Applicable Crashes	Change in Crashes Due to Improvement
Replace two-way left-turn lane (TWLTL) with raised median[1]				
23	Angle, Fixed Object, Head On, Rear End, Run Off Road, Sideswipe, Single Vehicle	All	40	**-9.2**
Install left-turn lane[2]				
25	All	All	3	**-0.8**
Install right-turn lane[2]				
4	All	All	25	**-1.0**

Notes:
- CRFs were applied individually to the respective applicable crashes
- The median CRF was applied to crashes located within the limits of the proposed median
- The turn-lane CRFs were applied to crashes located on the specific approach and within the limits of the proposed turn lane

[1] Source: CMF Clearinghouse
[2] Source: FHWA Desktop Reference for Crash Reduction Factors

Project 2: Lynchburg Expressway Ramps and Ramp Terminal Improvements

Table 22 – Project 2 Safety Benefits

Crash Reduction Factor (CRF)	CFR Crash Types	CRF Crash Severities	Study Area Applicable Crashes	Change in Crashes Due to Improvement
SB Lynchburg Expressway Entrance Ramp from WB Candlers Mountain Road - Install acceleration lanes[1]				
75	All	All	39	**-29.3**
NB Lynchburg Expressway Entrance Ramp from WB Candlers Mountain Road – Install acceleration lanes[1]				
75	All	All	2	**-1.5**
NB Lynchburg Expressway Exit Ramp to WB Candlers Mountain Road - Install deceleration lanes[1]				
75	All	All	2	**-1.5**

Notes:
- CRFs were applied individually to the respective applicable crashes
- Crashes were separated by ramp based on the Lynchburg Expressway Improvement Study

[1] Source: FHWA Desktop Reference for Crash Reduction Factors

Project 3: Murray Place and River Ridge Mall Continuous Green T Intersection Improvements

Table 23 – Project 3 Safety Benefits

Crash Reduction Factor (CRF)	CFR Crash Types	CRF Crash Severities	Study Area Applicable Crashes	Change in Crashes Due to Improvement
Convert four-leg intersection into two three-leg intersections[1]				
57	All	All	101	**-57.6**
Install left-turn lane[1]				
25	All	All	7	**-1.8**

Notes:
- CRFs were applied individually to the respective applicable crashes
- The CRF for the conversion of a 4-leg intersection to two 3-leg intersections was applied to crashes located within the end of the turn lanes for approaches of the existing 4-leg intersection
- The turn-lane CRF was applied to crashes located on the specific approach and within the limits of the proposed turn lane

[1] Source: FHWA Desktop Reference for Crash Reduction Factors

Project 4: Mayflower Drive Intersection Improvements

Table 24 – Project 4 Safety Benefits

Crash Reduction Factor (CRF)	CFR Crash Types	CRF Crash Severities	Study Area Applicable Crashes	Change in Crashes Due to Improvement
Install left-turn lane[1]				
25	All	All	0	**- -**
Increase length of right-turn lane[1]				
15	All	Fatal, Injury	7	**-1.1**

Notes:
- CRFs were applied individually to the respective applicable crashes
- The turn-lane CRF was applied to crashes located on the specific approach and within 375 feet (the length of the proposed turn lane plus 200 feet to capture the effects of queuing) from the intersection

[1] Source: FHWA Desktop Reference for Crash Reduction Factors

PROJECT ADVANCEMENT

The Candlers Mountain Road Corridor Study should be used as a planning tool to achieve the next steps of planning, programming, designing, and constructing the identified operational and safety improvements in the study corridor. Specific steps include:

1. Gain consensus for projects and align with regional priorities

Conduct outreach meetings to stakeholders who were not part of the SWG for this study to gain acceptance for the proposed projects.

The SWG reached consensus on Project 1, Project 2 and Project 4. Project 3, the continuous green T intersection improvements, demonstrated the most feasibility for the River Ridge Mall and Murray Place intersections given funding constraints. However, the SWG expressed concerns about the applicability of the innovative design at this location. It is recommended that Project 3 be considered for further evaluation of operations in a more regional context to better understand the travel patterns of traffic to and from the River Ridge Mall property. This additional data and the use of a more detailed analysis tool may provide additional insight to the functionality and viability of Project 3 on the Candlers Mountain Road corridor.

2. Prepare projects for advancement

Once projects have been prioritized at the regional level, the highest priority projects should be advanced to the following:

- Constrained Long Range Transportation Plan (CLRP)
- Transportation Improvement Plan (TIP)
- Statewide Transportation Improvement Plan (STIP)
- VDOT Six-Year Improvement Program (SYIP)

Improvements identified in this study have been compiled into four project packages for consideration in implementation plans. However, some improvements could be implemented separately and/or with other projects based on funding availability and regional priorities to implement the projects in a more efficient timeframe. Examples may include the implementation of access management improvements, turn lanes, or pedestrian accommodations.

3. Apply for prioritized funding programs

Consider the following funding sources, or revenue sharing, for improvement projects identified in this study:

Highway Safety Improvement Program (HSIP)

Candidate improvement projects for HSIP funding:

- Project 2: Lynchburg Expressway Ramps and Ramp Terminal Improvements
  - Improves safety on the Lynchburg Expressway by eliminating weave areas and providing additional pavement for acceleration and deceleration lanes

SmartScale

Candidate improvement projects for SmartScale funding:

- Project 1: Wards Road Intersection and Access Management Improvements
- Project 2: Lynchburg Expressway Ramps and Ramp Terminal Improvements
- Project 3: Murray Place and River Ridge Mall Continuous Green-T Intersection Improvements
- Project 4: Mayflower Drive Intersection Improvements
- Signal Communication: Incorporate the installation of signal communication infrastructure into design projects to align with VDOT's plans for a centralized signal software system

Revenue Sharing

Candidate improvement projects for Revenue Sharing funding:

- Project 1: Wards Road Intersection and Access Management Improvements
- Project 3: Murray Place and River Ridge Mall Continuous Green-T Intersection Improvements
- Project 4: Mayflower Drive Intersection Improvements
- Signal Communication: Incorporate the installation of signal communication infrastructure into design projects to align with VDOT's plans for a centralized signal software system

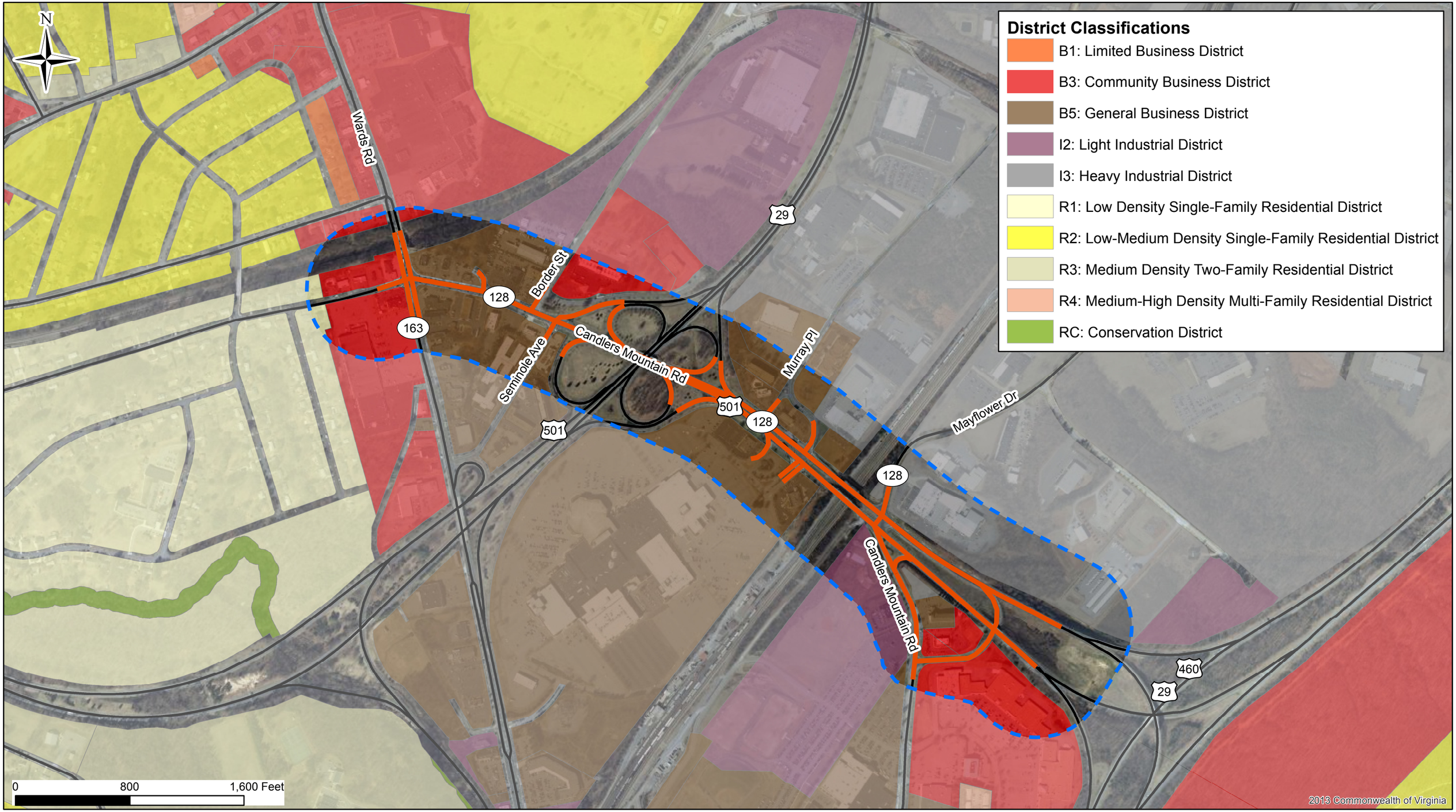
Projects Identified for Further Study

Candidate improvement projects for further study:

- School Circulation Study – Perform a study to improve traffic flow during drop-off/pick-up at Liberty Christian Academy and identify circulation plans that eliminate queuing on Candlers Mountain Road
- Access Management Study – Perform additional study on opportunities to consolidate driveways on Candlers Mountain Road west of the Lynchburg Expressway interchange
- Pedestrian Crossing Study – Perform a study to evaluate alternatives for a pedestrian crossing at Murray Place/River Ridge Mall if double continuous Green-T's are constructed

APPENDIX A – DATA COLLECTION

APPENDIX A-1: ZONING AND FUTURE LAND USE

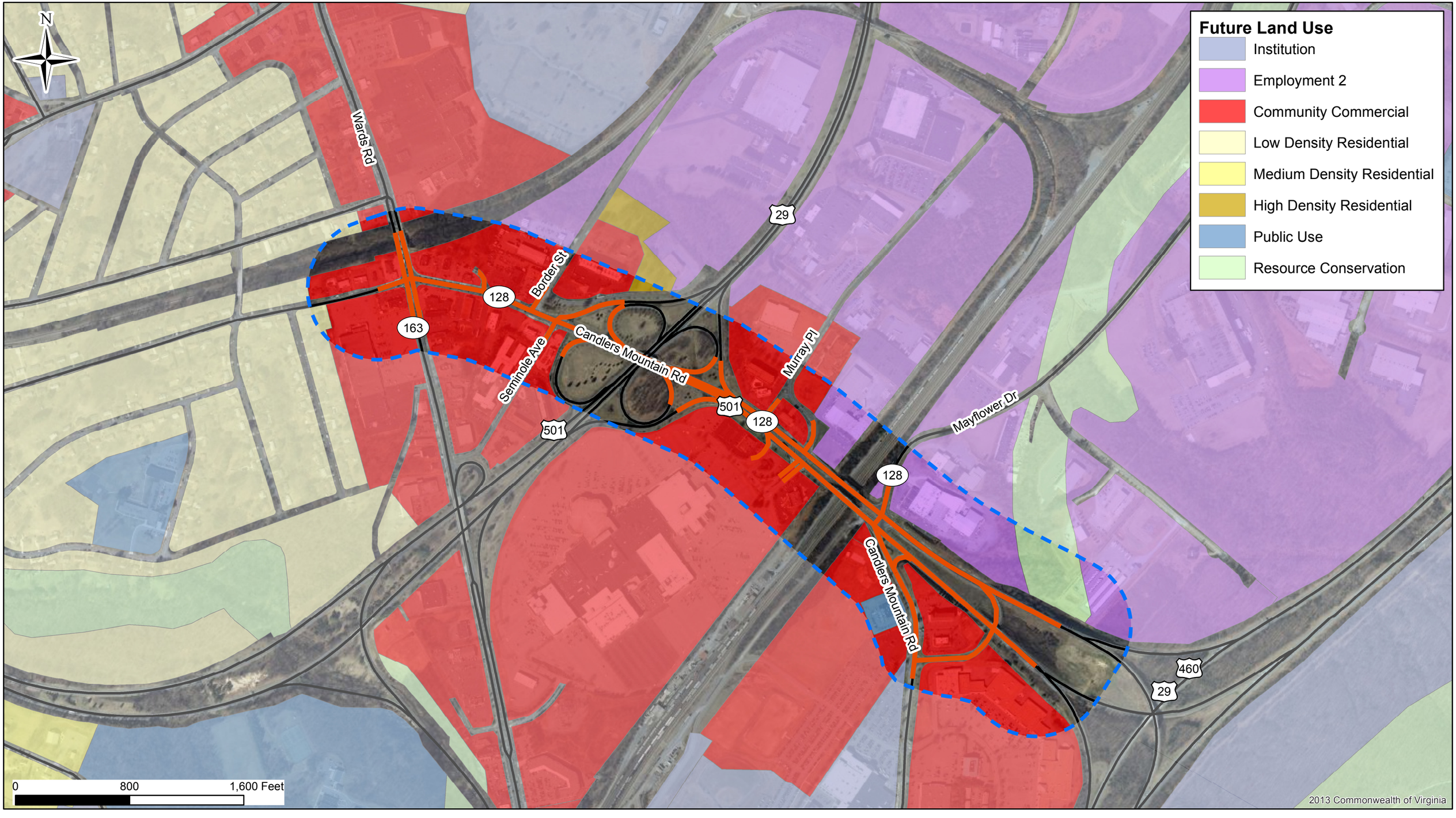


VDOT Virginia Department of Transportation

STARS STRATEGICALLY TARGETED AND AFFORDABLE ROADWAY SOLUTIONS

Existing Zoning
Candlers Mountain Road Corridor Study
Lynchburg, VA

FIGURE 1



VDOT Virginia Department of Transportation

STARS STRATEGICALLY TARGETED AND AFFORDABLE ROADWAY SOLUTIONS

Future Land Use
Candlers Mountain Road Corridor Study
Lynchburg, VA

FIGURE 2

APPENDIX A-2: TURING MOVEMENT COUNT DATA

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 1-Wards Rd. and Candlers Mtn Rd. AM
Site Code :
Start Date : 10/14/2015
Page No : 1

Groups Printed- Car

	Wards Rd. Southbound					Candlers Mountain Rd. Westbound					Wards Rd. Northbound					Candlers Mountain Rd. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	1	21	39	0	61	28	6	1	0	35	2	30	0	0	32	1	2	0	0	3	131
06:15 AM	2	31	44	1	78	34	10	3	0	47	9	31	4	0	44	1	2	0	1	4	173
06:30 AM	0	26	74	0	100	34	3	5	0	42	4	39	4	0	47	4	7	3	0	14	203
06:45 AM	1	41	63	0	105	50	13	6	0	69	1	45	2	0	48	2	11	0	0	13	235
Total	4	119	220	1	344	146	32	15	0	193	16	145	10	0	171	8	22	3	1	34	742
07:00 AM	3	28	68	0	99	70	18	12	0	100	4	44	1	0	49	3	10	1	1	15	263
07:15 AM	2	58	87	0	147	60	17	8	0	85	4	45	9	0	58	7	17	1	0	25	315
07:30 AM	0	91	117	0	208	89	26	20	0	135	3	62	7	0	72	13	32	2	0	47	462
07:45 AM	8	112	173	0	293	81	31	12	0	124	11	66	7	0	84	12	33	3	0	48	549
Total	13	289	445	0	747	300	92	52	0	444	22	217	24	0	263	35	92	7	1	135	1589
08:00 AM	4	65	101	0	170	90	31	12	0	133	5	80	6	0	91	5	15	6	0	26	420
08:15 AM	10	56	63	0	129	87	23	17	0	127	5	73	13	0	91	14	14	9	0	37	384
08:30 AM	2	81	79	0	162	78	21	25	0	124	7	52	7	0	66	15	17	7	2	41	393
08:45 AM	10	82	88	0	180	108	21	24	0	153	11	66	9	0	86	7	15	5	1	28	447
Total	26	284	331	0	641	363	96	78	0	537	28	271	35	0	334	41	61	27	3	132	1644
09:00 AM	4	79	92	0	175	70	14	17	0	101	8	66	5	0	79	11	15	10	0	36	391
09:15 AM	3	66	53	0	122	90	13	25	0	128	9	69	9	0	87	5	17	8	0	30	367
09:30 AM	4	79	66	0	149	74	20	27	0	121	11	73	2	0	86	5	18	9	0	32	388
09:45 AM	8	92	70	0	170	71	17	19	1	108	15	65	3	0	83	12	10	9	0	31	392
Total	19	316	281	0	616	305	64	88	1	458	43	273	19	0	335	33	60	36	0	129	1538
Grand Total	62	1008	1277	1	2348	1114	284	233	1	1632	109	906	88	0	1103	117	235	73	5	430	5513
Apprch %	2.6	42.9	54.4	0		68.3	17.4	14.3	0.1		9.9	82.1	8	0		27.2	54.7	17	1.2		
Total %	1.1	18.3	23.2	0	42.6	20.2	5.2	4.2	0	29.6	2	16.4	1.6	0	20	2.1	4.3	1.3	0.1	7.8	

	Wards Rd. Southbound				Candlers Mountain Rd. Westbound				Wards Rd. Northbound				Candlers Mountain Rd. Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	91	117	208	89	26	**20**	**135**	3	62	7	72	13	32	2	47	462
07:45 AM	8	**112**	**173**	**293**	81	**31**	12	124	**11**	66	7	84	12	**33**	3	**48**	**549**
08:00 AM	4	65	101	170	**90**	31	12	133	5	**80**	6	**91**	5	15	6	26	420
08:15 AM	**10**	56	63	129	87	23	17	127	5	73	**13**	91	**14**	14	**9**	37	384
Total Volume	22	324	454	800	347	111	61	519	24	281	33	338	44	94	20	158	1815
% App. Total	2.8	40.5	56.8		66.9	21.4	11.8		7.1	83.1	9.8		27.8	59.5	12.7		
PHF	.550	.723	.656	.683	.964	.895	.763	.961	.545	.878	.635	.929	.786	.712	.556	.823	.827

Groups Printed- Truck

	Wards Rd. Southbound					Candlers Mountain Rd. Westbound					Wards Rd. Northbound					Candlers Mountain Rd. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3
06:15 AM	0	3	2	0	5	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	8
06:30 AM	0	1	4	0	5	2	1	0	0	3	0	0	0	0	0	1	0	0	0	1	9
06:45 AM	0	3	1	0	4	4	0	0	0	4	0	3	0	0	3	0	0	0	0	0	11
Total	0	9	7	0	16	7	1	0	0	8	0	5	0	0	5	1	1	0	0	2	31
07:00 AM	0	0	1	0	1	1	0	0	0	1	1	1	0	0	2	0	0	0	0	0	4
07:15 AM	0	3	0	0	3	6	0	2	0	8	0	6	0	0	6	0	0	0	0	0	17
07:30 AM	0	1	2	0	3	4	0	0	0	4	1	2	1	0	4	0	0	0	0	0	11
07:45 AM	0	4	5	0	9	2	2	0	0	4	1	3	0	0	4	0	1	1	0	2	19
Total	0	8	8	0	16	13	2	2	0	17	3	12	1	0	16	0	1	1	0	2	51
08:00 AM	0	1	3	0	4	4	0	0	0	4	0	4	0	0	4	0	0	0	0	0	12
08:15 AM	0	2	7	0	9	2	0	0	0	2	0	3	0	0	3	0	3	1	0	4	18
08:30 AM	1	2	4	0	7	1	0	0	0	1	0	1	0	0	1	0	6	0	0	6	15
08:45 AM	1	1	4	0	6	2	1	0	0	3	0	0	0	0	0	0	0	1	0	1	10
Total	2	6	18	0	26	9	1	0	0	10	0	8	0	0	8	0	9	2	0	11	55
09:00 AM	0	1	0	0	1	5	4	7	0	16	0	2	0	0	2	0	2	0	0	2	21
09:15 AM	0	3	1	0	4	3	1	7	0	11	0	3	0	0	3	0	0	0	0	0	18
09:30 AM	1	1	1	0	3	2	0	2	0	4	2	3	2	0	7	0	0	1	0	1	15
09:45 AM	0	5	2	0	7	4	0	1	0	5	0	4	1	0	5	0	0	0	0	0	17
Total	1	10	4	0	15	14	5	17	0	36	2	12	3	0	17	0	2	1	0	3	71
Grand Total	3	33	37	0	73	43	9	19	0	71	5	37	4	0	46	1	13	4	0	18	208
Apprch %	4.1	45.2	50.7	0		60.6	12.7	26.8	0		10.9	80.4	8.7	0		5.6	72.2	22.2	0		
Total %	1.4	15.9	17.8	0	35.1	20.7	4.3	9.1	0	34.1	2.4	17.8	1.9	0	22.1	0.5	6.2	1.9	0	8.7	

	Wards Rd. Southbound				Candlers Mountain Rd. Westbound				Wards Rd. Northbound				Candlers Mountain Rd. Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 AM																	
09:00 AM	0	1	0	1	**5**	**4**	**7**	**16**	0	2	0	2	0	**2**	0	**2**	**21**
09:15 AM	0	3	1	4	3	1	7	11	0	3	0	3	0	0	0	0	18
09:30 AM	**1**	1	1	3	2	0	2	4	**2**	3	**2**	**7**	0	0	**1**	1	15
09:45 AM	0	**5**	**2**	**7**	4	0	1	5	0	**4**	1	5	0	0	0	0	17
Total Volume	1	10	4	15	14	5	17	36	2	12	3	17	0	2	1	3	71
% App. Total	6.7	66.7	26.7		38.9	13.9	47.2		11.8	70.6	17.6		0	66.7	33.3		
PHF	.250	.500	.500	.536	.700	.313	.607	.563	.250	.750	.375	.607	.000	.250	.250	.375	.845

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 1-Wards Rd. and Candlers Mtn Rd. AM
Site Code :
Start Date : 10/14/2015
Page No : 1

Groups Printed- Combined

	Wards Rd. Southbound					Candlers Mountain Rd. Westbound					Wards Rd. Northbound					Candlers Mountain Rd. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	1	23	39	0	63	28	6	1	0	35	2	30	0	0	32	1	3	0	0	4	134
06:15 AM	2	34	46	1	83	35	10	3	0	48	9	33	4	0	46	1	2	0	1	4	181
06:30 AM	0	27	78	0	105	36	4	5	0	45	4	39	4	0	47	5	7	3	0	15	212
06:45 AM	1	44	64	0	109	54	13	6	0	73	1	48	2	0	51	2	11	0	0	13	246
Total	4	128	227	1	360	153	33	15	0	201	16	150	10	0	176	9	23	3	1	36	773
07:00 AM	3	28	69	0	100	71	18	12	0	101	5	45	1	0	51	3	10	1	1	15	267
07:15 AM	2	61	87	0	150	66	17	10	0	93	4	51	9	0	64	7	17	1	0	25	332
07:30 AM	0	92	119	0	211	93	26	20	0	139	4	64	8	0	76	13	32	2	0	47	473
07:45 AM	8	116	178	0	302	83	33	12	0	128	12	69	7	0	88	12	34	4	0	50	568
Total	13	297	453	0	763	313	94	54	0	461	25	229	25	0	279	35	93	8	1	137	1640
08:00 AM	4	66	104	0	174	94	31	12	0	137	5	84	6	0	95	5	15	6	0	26	432
08:15 AM	10	58	70	0	138	89	23	17	0	129	5	76	13	0	94	14	17	10	0	41	402
08:30 AM	3	83	83	0	169	79	21	25	0	125	7	53	7	0	67	15	23	7	2	47	408
08:45 AM	11	83	92	0	186	110	22	24	0	156	11	66	9	0	86	7	15	6	1	29	457
Total	28	290	349	0	667	372	97	78	0	547	28	279	35	0	342	41	70	29	3	143	1699
09:00 AM	4	80	92	0	176	75	18	24	0	117	8	68	5	0	81	11	17	10	0	38	412
09:15 AM	3	69	54	0	126	93	14	32	0	139	9	72	9	0	90	5	17	8	0	30	385
09:30 AM	5	80	67	0	152	76	20	29	0	125	13	76	4	0	93	5	18	10	0	33	403
09:45 AM	8	97	72	0	177	75	17	20	1	113	15	69	4	0	88	12	10	9	0	31	409
Total	20	326	285	0	631	319	69	105	1	494	45	285	22	0	352	33	62	37	0	132	1609
Grand Total	65	1041	1314	1	2421	1157	293	252	1	1703	114	943	92	0	1149	118	248	77	5	448	5721
Apprch %	2.7	43	54.3	0		67.9	17.2	14.8	0.1		9.9	82.1	8	0		26.3	55.4	17.2	1.1		
Total %	1.1	18.2	23	0	42.3	20.2	5.1	4.4	0	29.8	2	16.5	1.6	0	20.1	2.1	4.3	1.3	0.1	7.8	

	Wards Rd. Southbound				Candlers Mountain Rd. Westbound				Wards Rd. Northbound				Candlers Mountain Rd. Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	92	119	211	93	26	**20**	**139**	4	64	8	76	13	32	2	47	473
07:45 AM	8	**116**	**178**	**302**	83	**33**	12	128	**12**	69	7	88	12	**34**	4	**50**	**568**
08:00 AM	4	66	104	174	**94**	31	12	137	5	**84**	6	**95**	5	15	6	26	432
08:15 AM	**10**	58	70	138	89	23	17	129	5	76	**13**	94	**14**	17	**10**	41	402
Total Volume	22	332	471	825	359	113	61	533	26	293	34	353	44	98	22	164	1875
% App. Total	2.7	40.2	57.1		67.4	21.2	11.4		7.4	83	9.6		26.8	59.8	13.4		
PHF	.550	.716	.662	.683	.955	.856	.763	.959	.542	.872	.654	.929	.786	.721	.550	.820	.825

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 1-Wards Rd. and Candlers Mtn Rd. PM
Site Code :
Start Date : 10/14/2015
Page No : 1

Groups Printed- Car

	Wards Rd. Southbound					Candlers Mountain Rd. Westbound					Wards Rd. Northbound					Candlers Mountain Rd. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:00 PM	8	109	115	0	232	106	21	24	0	151	16	127	16	0	159	7	28	8	1	44	586
03:15 PM	10	118	114	0	242	128	35	34	0	197	17	113	12	0	142	3	28	18	0	49	630
03:30 PM	5	120	88	0	213	138	32	37	1	208	19	127	19	0	165	12	26	12	0	50	636
03:45 PM	10	118	122	0	250	107	44	47	0	198	14	89	6	0	109	17	31	21	0	69	626
Total	33	465	439	0	937	479	132	142	1	754	66	456	53	0	575	39	113	59	1	212	2478
04:00 PM	3	97	82	0	182	104	29	29	0	162	23	101	11	0	135	16	22	10	1	49	528
04:15 PM	8	130	115	0	253	160	32	29	0	221	13	124	13	0	150	14	34	14	0	62	686
04:30 PM	7	113	120	0	240	111	38	43	0	192	18	117	20	0	155	14	31	13	0	58	645
04:45 PM	10	132	101	0	243	150	27	38	0	215	23	107	21	0	151	12	28	12	1	53	662
Total	28	472	418	0	918	525	126	139	0	790	77	449	65	0	591	56	115	49	2	222	2521
05:00 PM	10	130	112	0	252	135	46	49	0	230	22	107	12	0	141	18	51	8	3	80	703
05:15 PM	6	120	122	0	248	165	43	61	0	269	15	113	19	0	147	24	47	18	0	89	753
05:30 PM	6	140	123	0	269	137	29	32	0	198	18	116	15	0	149	13	45	16	1	75	691
05:45 PM	9	119	125	0	253	123	34	38	0	195	14	110	19	0	143	12	28	8	1	49	640
Total	31	509	482	0	1022	560	152	180	0	892	69	446	65	0	580	67	171	50	5	293	2787
06:00 PM	4	92	119	0	215	119	20	34	0	173	20	111	19	0	150	11	26	5	0	42	580
06:15 PM	7	87	104	0	198	127	29	36	0	192	20	101	15	0	136	6	27	19	0	52	578
06:30 PM	5	76	112	0	193	112	14	26	0	152	14	95	13	0	122	10	17	8	0	35	502
06:45 PM	6	111	89	1	207	94	15	30	0	139	18	106	9	0	133	7	15	11	1	34	513
Total	22	366	424	1	813	452	78	126	0	656	72	413	56	0	541	34	85	43	1	163	2173
Grand Total	114	1812	1763	1	3690	2016	488	587	1	3092	284	1764	239	0	2287	196	484	201	9	890	9959
Apprch %	3.1	49.1	47.8	0		65.2	15.8	19	0		12.4	77.1	10.5	0		22	54.4	22.6	1		
Total %	1.1	18.2	17.7	0	37.1	20.2	4.9	5.9	0	31	2.9	17.7	2.4	0	23	2	4.9	2	0.1	8.9	

	Wards Rd. Southbound				Candlers Mountain Rd. Westbound				Wards Rd. Northbound				Candlers Mountain Rd. Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**10**	132	101	243	150	27	38	215	**23**	107	**21**	**151**	12	28	12	52	661
05:00 PM	10	130	112	252	135	**46**	49	230	22	107	12	141	18	**51**	8	77	700
05:15 PM	6	120	122	248	**165**	43	**61**	**269**	15	113	19	147	**24**	47	**18**	**89**	**753**
05:30 PM	6	**140**	**123**	**269**	137	29	32	198	18	**116**	15	149	13	45	16	74	690
Total Volume	32	522	458	1012	587	145	180	912	78	443	67	588	67	171	54	292	2804
% App. Total	3.2	51.6	45.3		64.4	15.9	19.7		13.3	75.3	11.4		22.9	58.6	18.5		
PHF	.800	.932	.931	.941	.889	.788	.738	.848	.848	.955	.798	.974	.698	.838	.750	.820	.931

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 1-Wards Rd. and Candlers Mtn Rd. PM
Site Code :
Start Date : 10/14/2015
Page No : 1

Groups Printed- Truck

	Wards Rd. Southbound					Candlers Mountain Rd. Westbound					Wards Rd. Northbound					Candlers Mountain Rd. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:00 PM	0	0	2	0	2	2	2	1	0	5	0	5	0	0	5	0	0	1	0	1	13
03:15 PM	0	0	8	0	8	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	11
03:30 PM	1	3	1	0	5	1	0	0	0	1	2	0	0	0	2	0	0	0	0	0	8
03:45 PM	0	2	6	0	8	2	0	0	0	2	0	1	0	0	1	0	0	1	0	1	12
Total	1	5	17	0	23	6	2	1	0	9	2	8	0	0	10	0	0	2	0	2	44
04:00 PM	0	1	2	0	3	1	1	1	0	3	0	3	0	0	3	0	1	0	0	1	10
04:15 PM	0	1	0	0	1	3	0	1	0	4	1	2	0	0	3	0	1	0	0	1	9
04:30 PM	0	2	3	0	5	2	1	2	0	5	0	0	0	0	0	0	0	0	0	0	10
04:45 PM	0	1	2	0	3	4	2	1	0	7	1	1	0	0	2	0	0	0	0	0	12
Total	0	5	7	0	12	10	4	5	0	19	2	6	0	0	8	0	2	0	0	2	41
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3
05:15 PM	0	0	6	0	6	3	0	1	0	4	1	1	0	0	2	0	1	0	0	1	13
05:30 PM	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	3
05:45 PM	0	4	3	0	7	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	9
Total	0	5	9	0	14	4	1	1	0	6	1	5	0	0	6	0	2	0	0	2	28
06:00 PM	0	2	1	0	3	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	6
06:15 PM	0	0	1	0	1	3	0	0	0	3	0	1	0	0	1	0	0	0	0	0	5
06:30 PM	0	1	2	0	3	1	0	1	0	2	1	0	0	0	1	0	0	0	0	0	6
06:45 PM	0	0	2	0	2	1	0	0	0	1	0	0	0	0	0	0	2	0	0	2	5
Total	0	3	6	0	9	6	0	1	0	7	1	3	0	0	4	0	2	0	0	2	22
Grand Total	1	18	39	0	58	26	7	8	0	41	6	22	0	0	28	0	6	2	0	8	135
Apprch %	1.7	31	67.2	0		63.4	17.1	19.5	0		21.4	78.6	0	0		0	75	25	0		
Total %	0.7	13.3	28.9	0	43	19.3	5.2	5.9	0	30.4	4.4	16.3	0	0	20.7	0	4.4	1.5	0	5.9	

	Wards Rd. Southbound				Candlers Mountain Rd. Westbound				Wards Rd. Northbound				Candlers Mountain Rd. Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	0	0	2	2	**2**	**2**	**1**	**5**	0	**5**	0	**5**	0	0	**1**	**1**	**13**
03:15 PM	0	0	**8**	**8**	1	0	0	1	0	2	0	2	0	0	0	0	11
03:30 PM	**1**	**3**	1	5	1	0	0	1	**2**	0	0	2	0	0	0	0	8
03:45 PM	0	2	6	8	2	0	0	2	0	1	0	1	0	0	1	1	12
Total Volume	1	5	17	23	6	2	1	9	2	8	0	10	0	0	2	2	44
% App. Total	4.3	21.7	73.9		66.7	22.2	11.1		20	80	0		0	0	100		
PHF	.250	.417	.531	.719	.750	.250	.250	.450	.250	.400	.000	.500	.000	.000	.500	.500	.846

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 1-Wards Rd. and Candlers Mtn Rd. PM
Site Code :
Start Date : 10/14/2015
Page No : 1

Groups Printed- Combined

	Wards Rd. Southbound					Candlers Mountain Rd. Westbound					Wards Rd. Northbound					Candlers Mountain Rd. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:00 PM	8	109	117	0	234	108	23	25	0	156	16	132	16	0	164	7	28	9	1	45	599
03:15 PM	10	118	122	0	250	129	35	34	0	198	17	115	12	0	144	3	28	18	0	49	641
03:30 PM	6	123	89	0	218	139	32	37	1	209	21	127	19	0	167	12	26	12	0	50	644
03:45 PM	10	120	128	0	258	109	44	47	0	200	14	90	6	0	110	17	31	22	0	70	638
Total	34	470	456	0	960	485	134	143	1	763	68	464	53	0	585	39	113	61	1	214	2522
04:00 PM	3	98	84	0	185	105	30	30	0	165	23	104	11	0	138	16	23	10	1	50	538
04:15 PM	8	131	115	0	254	163	32	30	0	225	14	126	13	0	153	14	35	14	0	63	695
04:30 PM	7	115	123	0	245	113	39	45	0	197	18	117	20	0	155	14	31	13	0	58	655
04:45 PM	10	133	103	0	246	154	29	39	0	222	24	108	21	0	153	12	28	12	1	53	674
Total	28	477	425	0	930	535	130	144	0	809	79	455	65	0	599	56	117	49	2	224	2562
05:00 PM	10	130	112	0	252	135	46	49	0	230	22	110	12	0	144	18	51	8	3	80	706
05:15 PM	6	120	128	0	254	168	43	62	0	273	16	114	19	0	149	24	48	18	0	90	766
05:30 PM	6	141	123	0	270	137	30	32	0	199	18	117	15	0	150	13	45	16	1	75	694
05:45 PM	9	123	128	0	260	124	34	38	0	196	14	110	19	0	143	12	29	8	1	50	649
Total	31	514	491	0	1036	564	153	181	0	898	70	451	65	0	586	67	173	50	5	295	2815
06:00 PM	4	94	120	0	218	120	20	34	0	174	20	113	19	0	152	11	26	5	0	42	586
06:15 PM	7	87	105	0	199	130	29	36	0	195	20	102	15	0	137	6	27	19	0	52	583
06:30 PM	5	77	114	0	196	113	14	27	0	154	15	95	13	0	123	10	17	8	0	35	508
06:45 PM	6	111	91	1	209	95	15	30	0	140	18	106	9	0	133	7	17	11	1	36	518
Total	22	369	430	1	822	458	78	127	0	663	73	416	56	0	545	34	87	43	1	165	2195
Grand Total	115	1830	1802	1	3748	2042	495	595	1	3133	290	1786	239	0	2315	196	490	203	9	898	10094
Apprch %	3.1	48.8	48.1	0		65.2	15.8	19	0		12.5	77.1	10.3	0		21.8	54.6	22.6	1		
Total %	1.1	18.1	17.9	0	37.1	20.2	4.9	5.9	0	31	2.9	17.7	2.4	0	22.9	1.9	4.9	2	0.1	8.9	

	Wards Rd. Southbound				Candlers Mountain Rd. Westbound				Wards Rd. Northbound				Candlers Mountain Rd. Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**10**	133	103	246	154	29	39	222	**24**	108	**21**	**153**	12	28	12	52	673
05:00 PM	10	130	112	252	135	**46**	49	230	22	110	12	144	18	**51**	8	77	703
05:15 PM	6	120	**128**	254	**168**	43	**62**	**273**	16	114	19	149	**24**	48	**18**	**90**	**766**
05:30 PM	6	**141**	123	**270**	137	30	32	199	18	**117**	15	150	13	45	16	74	693
Total Volume	32	524	466	1022	594	148	182	924	80	449	67	596	67	172	54	293	2835
% App. Total	3.1	51.3	45.6		64.3	16	19.7		13.4	75.3	11.2		22.9	58.7	18.4		
PHF	.800	.929	.910	.946	.884	.804	.734	.846	.833	.959	.798	.974	.698	.843	.750	.814	.925

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 2-Short St. and Candlers Mtn Rd. AM
Site Code :
Start Date : 10/14/2015
Page No : 1

Groups Printed- Car

	Short St. Southbound					Candlers Mountain Rd. Westbound					Best Western Northbound					Candlers Mountain Rd. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	0	0	0	0	0	33	0	0	33	1	0	1	0	2	0	45	0	0	45	80
06:15 AM	0	0	0	0	0	0	48	1	0	49	0	0	0	0	0	0	57	0	0	57	106
06:30 AM	0	0	0	1	1	0	40	0	0	40	0	0	0	2	2	0	83	1	0	84	127
06:45 AM	0	0	0	0	0	0	77	0	0	77	1	0	0	1	2	0	85	0	0	85	164
Total	0	0	0	1	1	0	198	1	0	199	2	0	1	3	6	0	270	1	0	271	477
07:00 AM	0	0	0	1	1	0	93	0	0	93	0	0	2	0	2	0	90	0	0	90	186
07:15 AM	0	0	0	1	1	0	97	1	0	98	0	0	0	0	0	0	108	0	0	108	207
07:30 AM	0	0	0	0	0	0	128	0	0	128	2	0	0	0	2	0	160	1	0	161	291
07:45 AM	0	0	0	0	0	0	127	1	0	128	1	0	0	0	1	1	212	0	0	213	342
Total	0	0	0	2	2	0	445	2	0	447	3	0	2	0	5	1	570	1	0	572	1026
08:00 AM	0	0	1	2	3	0	132	0	0	132	1	0	0	0	1	0	130	1	2	133	269
08:15 AM	1	0	0	0	1	0	140	0	0	140	0	0	0	0	0	0	96	0	0	96	237
08:30 AM	0	0	0	0	0	1	128	0	0	129	2	0	0	0	2	0	106	0	0	106	237
08:45 AM	0	0	0	0	0	0	144	1	0	145	0	0	0	0	0	1	114	1	0	116	261
Total	1	0	1	2	4	1	544	1	0	546	3	0	0	0	3	1	446	2	2	451	1004
09:00 AM	1	0	0	0	1	0	104	0	0	104	0	0	0	1	1	0	120	0	0	120	226
09:15 AM	2	0	0	0	2	0	141	0	0	141	0	0	0	0	0	0	90	0	0	90	233
09:30 AM	1	0	1	0	2	1	123	0	0	124	0	0	0	0	0	0	104	2	0	106	232
09:45 AM	1	0	1	0	2	0	105	1	0	106	1	0	0	0	1	0	101	0	0	101	210
Total	5	0	2	0	7	1	473	1	0	475	1	0	0	1	2	0	415	2	0	417	901
Grand Total	6	0	3	5	14	2	1660	5	0	1667	9	0	3	4	16	2	1701	6	2	1711	3408
Apprch %	42.9	0	21.4	35.7		0.1	99.6	0.3	0		56.2	0	18.8	25		0.1	99.4	0.4	0.1		
Total %	0.2	0	0.1	0.1	0.4	0.1	48.7	0.1	0	48.9	0.3	0	0.1	0.1	0.5	0.1	49.9	0.2	0.1	50.2	

	Short St. Southbound				Candlers Mountain Rd. Westbound				Best Western Northbound				Candlers Mountain Rd. Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	128	0	128	**2**	0	0	**2**	0	160	**1**	161	291
07:45 AM	0	0	0	0	0	127	**1**	128	1	0	0	1	**1**	**212**	0	**213**	**342**
08:00 AM	0	0	**1**	**1**	0	132	0	132	1	0	0	1	0	130	1	131	265
08:15 AM	**1**	0	0	1	0	**140**	0	**140**	0	0	0	0	0	96	0	96	237
Total Volume	1	0	1	2	0	527	1	528	4	0	0	4	1	598	2	601	1135
% App. Total	50	0	50		0	99.8	0.2		100	0	0		0.2	99.5	0.3		
PHF	.250	.000	.250	.500	.000	.941	.250	.943	.500	.000	.000	.500	.250	.705	.500	.705	.830

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 2-Short St. and Candlers Mtn Rd. AM
Site Code :
Start Date : 10/14/2015
Page No : 1

Groups Printed- Truck

	Short St. Southbound					Candlers Mountain Rd. Westbound					Best Western Northbound					Candlers Mountain Rd. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
06:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
06:30 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	7
06:45 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	4
Total	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	8	0	0	8	17
07:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
07:15 AM	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	0	0	0	0	9
07:30 AM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	3	0	0	3	8
07:45 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	6	0	0	6	10
Total	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	0	11	0	0	11	31
08:00 AM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	4	0	0	4	9
08:15 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	9	0	0	9	12
08:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	12	0	0	12	13
08:45 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	5	0	0	5	8
Total	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	0	30	0	0	30	42
09:00 AM	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	0	4	0	0	4	23
09:15 AM	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	7
09:30 AM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	3	0	0	3	8
09:45 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	6
Total	0	0	0	0	0	0	35	0	0	35	0	0	0	0	0	0	9	0	0	9	44
Grand Total	0	0	0	0	0	0	76	0	0	76	0	0	0	0	0	0	58	0	0	58	134
Apprch %	0	0	0	0		0	100	0	0		0	0	0	0		0	100	0	0		
Total %	0	0	0	0	0	0	56.7	0	0	56.7	0	0	0	0	0	0	43.3	0	0	43.3	

	Short St. Southbound				Candlers Mountain Rd. Westbound				Best Western Northbound				Candlers Mountain Rd. Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:15 AM																	
08:15 AM	0	0	0	0	0	3	0	3	0	0	0	0	0	9	0	9	12
08:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	**12**	0	**12**	13
08:45 AM	0	0	0	0	0	3	0	3	0	0	0	0	0	5	0	5	8
09:00 AM	0	0	0	0	0	**19**	0	**19**	0	0	0	0	0	4	0	4	**23**
Total Volume	0	0	0	0	0	26	0	26	0	0	0	0	0	30	0	30	56
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.342	.000	.342	.000	.000	.000	.000	.000	.625	.000	.625	.609

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 2-Short St. and Candlers Mtn Rd. AM
Site Code :
Start Date : 10/14/2015
Page No : 1

Groups Printed- Combined

	Short St. Southbound					Candlers Mountain Rd. Westbound					Best Western Northbound					Candlers Mountain Rd. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	0	0	0	0	0	34	0	0	34	1	0	1	0	2	0	46	0	0	46	82
06:15 AM	0	0	0	0	0	0	50	1	0	51	0	0	0	0	0	0	59	0	0	59	110
06:30 AM	0	0	0	1	1	0	43	0	0	43	0	0	0	2	2	0	87	1	0	88	134
06:45 AM	0	0	0	0	0	0	80	0	0	80	1	0	0	1	2	0	86	0	0	86	168
Total	0	0	0	1	1	0	207	1	0	208	2	0	1	3	6	0	278	1	0	279	494
07:00 AM	0	0	0	1	1	0	95	0	0	95	0	0	2	0	2	0	92	0	0	92	190
07:15 AM	0	0	0	1	1	0	106	1	0	107	0	0	0	0	0	0	108	0	0	108	216
07:30 AM	0	0	0	0	0	0	133	0	0	133	2	0	0	0	2	0	163	1	0	164	299
07:45 AM	0	0	0	0	0	0	131	1	0	132	1	0	0	0	1	1	218	0	0	219	352
Total	0	0	0	2	2	0	465	2	0	467	3	0	2	0	5	1	581	1	0	583	1057
08:00 AM	0	0	1	2	3	0	137	0	0	137	1	0	0	0	1	0	134	1	2	137	278
08:15 AM	1	0	0	0	1	0	143	0	0	143	0	0	0	0	0	0	105	0	0	105	249
08:30 AM	0	0	0	0	0	1	129	0	0	130	2	0	0	0	2	0	118	0	0	118	250
08:45 AM	0	0	0	0	0	0	147	1	0	148	0	0	0	0	0	1	119	1	0	121	269
Total	1	0	1	2	4	1	556	1	0	558	3	0	0	0	3	1	476	2	2	481	1046
09:00 AM	1	0	0	0	1	0	123	0	0	123	0	0	0	1	1	0	124	0	0	124	249
09:15 AM	2	0	0	0	2	0	148	0	0	148	0	0	0	0	0	0	90	0	0	90	240
09:30 AM	1	0	1	0	2	1	128	0	0	129	0	0	0	0	0	0	107	2	0	109	240
09:45 AM	1	0	1	0	2	0	109	1	0	110	1	0	0	0	1	0	103	0	0	103	216
Total	5	0	2	0	7	1	508	1	0	510	1	0	0	1	2	0	424	2	0	426	945
Grand Total	6	0	3	5	14	2	1736	5	0	1743	9	0	3	4	16	2	1759	6	2	1769	3542
Apprch %	42.9	0	21.4	35.7		0.1	99.6	0.3	0		56.2	0	18.8	25		0.1	99.4	0.3	0.1		
Total %	0.2	0	0.1	0.1	0.4	0.1	49	0.1	0	49.2	0.3	0	0.1	0.1	0.5	0.1	49.7	0.2	0.1	49.9	

	Short St. Southbound				Candlers Mountain Rd. Westbound				Best Western Northbound				Candlers Mountain Rd. Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	133	0	133	**2**	0	0	**2**	0	163	**1**	164	299
07:45 AM	0	0	0	0	0	131	**1**	132	1	0	0	1	**1**	**218**	0	**219**	**352**
08:00 AM	0	0	**1**	**1**	0	137	0	137	1	0	0	1	0	134	1	135	274
08:15 AM	**1**	0	0	1	0	**143**	0	**143**	0	0	0	0	0	105	0	105	249
Total Volume	1	0	1	2	0	544	1	545	4	0	0	4	1	620	2	623	1174
% App. Total	50	0	50		0	99.8	0.2		100	0	0		0.2	99.5	0.3		
PHF	.250	.000	.250	.500	.000	.951	.250	.953	.500	.000	.000	.500	.250	.711	.500	.711	.834

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 2-Short St. and Candlers Mtn Rd. PM
Site Code :
Start Date : 10/14/2015
Page No : 1

Groups Printed- Car

	Short St. Southbound					Candlers Mountain Rd. Westbound					Best Western Northbound					Candlers Mountain Rd. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:00 PM	3	0	0	0	3	2	161	0	0	163	0	0	0	0	0	0	160	1	0	161	327
03:15 PM	2	0	2	0	4	1	200	1	0	202	1	0	0	1	2	0	153	2	0	155	363
03:30 PM	2	0	5	1	8	0	221	0	0	221	1	0	0	1	2	0	145	1	0	146	377
03:45 PM	0	0	2	0	2	1	206	1	0	208	1	0	0	0	1	0	165	0	0	165	376
Total	7	0	9	1	17	4	788	2	0	794	3	0	0	2	5	0	623	4	0	627	1443
04:00 PM	0	0	1	0	1	0	154	1	0	155	1	0	0	0	1	0	135	2	0	137	294
04:15 PM	4	0	2	1	7	0	224	1	0	225	0	0	1	0	1	1	160	3	0	164	397
04:30 PM	2	0	1	0	3	0	206	1	0	207	0	0	0	0	0	0	181	0	0	181	391
04:45 PM	1	0	5	0	6	2	228	0	0	230	0	0	1	2	3	0	154	1	0	155	394
Total	7	0	9	1	17	2	812	3	0	817	1	0	2	2	5	1	630	6	0	637	1476
05:00 PM	2	0	1	0	3	0	232	2	0	234	0	0	0	0	0	1	186	1	0	188	425
05:15 PM	3	0	1	1	5	2	248	0	0	250	0	0	0	0	0	0	168	4	0	172	427
05:30 PM	0	0	2	0	2	1	211	0	0	212	0	0	0	0	0	0	199	3	0	202	416
05:45 PM	0	0	1	0	1	0	197	2	0	199	0	0	0	2	2	0	169	2	0	171	373
Total	5	0	5	1	11	3	888	4	0	895	0	0	0	2	2	1	722	10	0	733	1641
06:00 PM	2	0	2	0	4	1	192	0	0	193	0	0	1	0	1	1	164	0	0	165	363
06:15 PM	1	0	1	0	2	1	165	0	0	166	0	0	1	1	2	0	149	0	0	149	319
06:30 PM	2	0	1	0	3	1	158	0	0	159	0	0	0	1	1	0	146	0	0	146	309
06:45 PM	0	0	1	0	1	0	138	0	0	138	0	0	0	0	0	0	123	1	0	124	263
Total	5	0	5	0	10	3	653	0	0	656	0	0	2	2	4	1	582	1	0	584	1254
Grand Total	24	0	28	3	55	12	3141	9	0	3162	4	0	4	8	16	3	2557	21	0	2581	5814
Apprch %	43.6	0	50.9	5.5		0.4	99.3	0.3	0		25	0	25	50		0.1	99.1	0.8	0		
Total %	0.4	0	0.5	0.1	0.9	0.2	54	0.2	0	54.4	0.1	0	0.1	0.1	0.3	0.1	44	0.4	0	44.4	

	Short St. Southbound				Candlers Mountain Rd. Westbound				Best Western Northbound				Candlers Mountain Rd. Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	1	0	**5**	**6**	**2**	228	0	230	0	0	**1**	**1**	0	154	1	155	392
05:00 PM	2	0	1	3	0	232	**2**	234	0	0	0	0	**1**	186	1	188	425
05:15 PM	**3**	0	1	4	2	**248**	0	**250**	0	0	0	0	0	168	**4**	172	**426**
05:30 PM	0	0	2	2	1	211	0	212	0	0	0	0	0	**199**	3	**202**	416
Total Volume	6	0	9	15	5	919	2	926	0	0	1	1	1	707	9	717	1659
% App. Total	40	0	60		0.5	99.2	0.2		0	0	100		0.1	98.6	1.3		
PHF	.500	.000	.450	.625	.625	.926	.250	.926	.000	.000	.250	.250	.250	.888	.563	.887	.974

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 2-Short St. and Candlers Mtn Rd. PM
Site Code :
Start Date : 10/14/2015
Page No : 1

Groups Printed- Truck

	Short St. Southbound					Candlers Mountain Rd. Westbound					Best Western Northbound					Candlers Mountain Rd. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:00 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	1	0	0	1	6
03:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	10	0	0	10	12
03:30 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	7
03:45 PM	0	0	0	0	0	0	1	1	0	2	1	0	0	0	1	0	5	0	0	5	8
Total	0	0	0	0	0	0	11	1	0	12	1	0	0	0	1	0	20	0	0	20	33
04:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	7
04:15 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	6
04:30 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	3	0	0	3	8
04:45 PM	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	4	0	0	4	11
Total	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	0	13	0	0	13	32
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	5	0	0	5	10
05:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	5
05:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4	0	0	4	5
Total	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	12	0	0	12	20
06:00 PM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	1	0	0	1	4
06:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	4
06:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
06:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4	0	0	4	5
Total	0	0	0	0	0	0	7	0	0	7	1	0	0	0	1	0	9	0	0	9	17
Grand Total	0	0	0	0	0	0	45	1	0	46	2	0	0	0	2	0	54	0	0	54	102
Apprch %	0	0	0	0		0	97.8	2.2	0		100	0	0	0		0	100	0	0		
Total %	0	0	0	0	0	0	44.1	1	0	45.1	2	0	0	0	2	0	52.9	0	0	52.9	

	Short St. Southbound				Candlers Mountain Rd. Westbound				Best Western Northbound				Candlers Mountain Rd. Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:15 PM																	
03:15 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	**10**	0	**10**	**12**
03:30 PM	0	0	0	0	0	**3**	0	**3**	0	0	0	0	0	4	0	4	7
03:45 PM	0	0	0	0	0	1	**1**	2	**1**	0	0	**1**	0	5	0	5	8
04:00 PM	0	0	0	0	0	3	0	3	0	0	0	0	0	4	0	4	7
Total Volume	0	0	0	0	0	9	1	10	1	0	0	1	0	23	0	23	34
% App. Total	0	0	0		0	90	10		100	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.750	.250	.833	.250	.000	.000	.250	.000	.575	.000	.575	.708

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 2-Short St. and Candlers Mtn Rd. PM
Site Code :
Start Date : 10/14/2015
Page No : 1

Groups Printed- Combined

	Short St. Southbound					Candlers Mountain Rd. Westbound					Best Western Northbound					Candlers Mountain Rd. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:00 PM	3	0	0	0	3	2	166	0	0	168	0	0	0	0	0	0	161	1	0	162	333
03:15 PM	2	0	2	0	4	1	202	1	0	204	1	0	0	1	2	0	163	2	0	165	375
03:30 PM	2	0	5	1	8	0	224	0	0	224	1	0	0	1	2	0	149	1	0	150	384
03:45 PM	0	0	2	0	2	1	207	2	0	210	2	0	0	0	2	0	170	0	0	170	384
Total	7	0	9	1	17	4	799	3	0	806	4	0	0	2	6	0	643	4	0	647	1476
04:00 PM	0	0	1	0	1	0	157	1	0	158	1	0	0	0	1	0	139	2	0	141	301
04:15 PM	4	0	2	1	7	0	228	1	0	229	0	0	1	0	1	1	162	3	0	166	403
04:30 PM	2	0	1	0	3	0	211	1	0	212	0	0	0	0	0	0	184	0	0	184	399
04:45 PM	1	0	5	0	6	2	235	0	0	237	0	0	1	2	3	0	158	1	0	159	405
Total	7	0	9	1	17	2	831	3	0	836	1	0	2	2	5	1	643	6	0	650	1508
05:00 PM	2	0	1	0	3	0	232	2	0	234	0	0	0	0	0	1	186	1	0	188	425
05:15 PM	3	0	1	1	5	2	253	0	0	255	0	0	0	0	0	0	173	4	0	177	437
05:30 PM	0	0	2	0	2	1	213	0	0	214	0	0	0	0	0	0	202	3	0	205	421
05:45 PM	0	0	1	0	1	0	198	2	0	200	0	0	0	2	2	0	173	2	0	175	378
Total	5	0	5	1	11	3	896	4	0	903	0	0	0	2	2	1	734	10	0	745	1661
06:00 PM	2	0	2	0	4	1	194	0	0	195	1	0	1	0	2	1	165	0	0	166	367
06:15 PM	1	0	1	0	2	1	168	0	0	169	0	0	1	1	2	0	150	0	0	150	323
06:30 PM	2	0	1	0	3	1	159	0	0	160	0	0	0	1	1	0	149	0	0	149	313
06:45 PM	0	0	1	0	1	0	139	0	0	139	0	0	0	0	0	0	127	1	0	128	268
Total	5	0	5	0	10	3	660	0	0	663	1	0	2	2	5	1	591	1	0	593	1271
Grand Total	24	0	28	3	55	12	3186	10	0	3208	6	0	4	8	18	3	2611	21	0	2635	5916
Apprch %	43.6	0	50.9	5.5		0.4	99.3	0.3	0		33.3	0	22.2	44.4		0.1	99.1	0.8	0		
Total %	0.4	0	0.5	0.1	0.9	0.2	53.9	0.2	0	54.2	0.1	0	0.1	0.1	0.3	0.1	44.1	0.4	0	44.5	

	Short St. Southbound				Candlers Mountain Rd. Westbound				Best Western Northbound				Candlers Mountain Rd. Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	1	0	**5**	**6**	**2**	235	0	237	0	0	**1**	**1**	0	158	1	159	403
05:00 PM	2	0	1	3	0	232	**2**	234	0	0	0	0	**1**	186	1	188	425
05:15 PM	**3**	0	1	4	2	**253**	0	**255**	0	0	0	0	0	173	**4**	177	**436**
05:30 PM	0	0	2	2	1	213	0	214	0	0	0	0	0	**202**	3	**205**	421
Total Volume	6	0	9	15	5	933	2	940	0	0	1	1	1	719	9	729	1685
% App. Total	40	0	60		0.5	99.3	0.2		0	0	100		0.1	98.6	1.2		
PHF	.500	.000	.450	.625	.625	.922	.250	.922	.000	.000	.250	.250	.250	.890	.563	.889	.966

Peggy Malone & Associates, Inc.

File Name : 16 Border St_Bus Dvwy & Candlers Mtn Rd AM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Car

	Candlers Mtn Rd Eastbound				Candlers Mtn Rd Westbound				Bus Drvwy Northbound				Border St Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00 AM	4	35	0	39	0	23	6	29	0	0	0	0	8	0	3	11	79
06:15 AM	3	54	0	57	0	41	5	46	0	0	0	0	2	0	1	3	106
06:30 AM	4	78	0	82	0	37	10	47	0	0	0	0	1	0	3	4	133
06:45 AM	6	89	0	95	0	59	17	76	0	0	0	0	8	0	1	9	180
Total	17	256	0	273	0	160	38	198	0	0	0	0	19	0	8	27	498
07:00 AM	0	74	1	75	0	71	10	81	0	0	0	0	4	0	5	9	165
07:15 AM	6	104	1	111	0	84	19	103	0	0	0	0	5	0	2	7	221
07:30 AM	8	147	0	155	1	96	28	125	0	0	1	1	8	0	6	14	295
07:45 AM	9	163	0	172	11	131	48	190	0	0	14	14	3	0	4	7	383
Total	23	488	2	513	12	382	105	499	0	0	15	15	20	0	17	37	1064
08:00 AM	2	119	0	121	6	129	27	162	0	0	5	5	7	0	2	9	297
08:15 AM	7	88	1	96	2	125	26	153	0	0	0	0	2	0	4	6	255
08:30 AM	3	117	2	122	0	107	22	129	1	0	0	1	3	0	6	9	261
08:45 AM	9	149	0	158	1	131	28	160	0	0	1	1	11	0	6	17	336
Total	21	473	3	497	9	492	103	604	1	0	6	7	23	0	18	41	1149
09:00 AM	3	103	0	106	1	116	9	126	0	0	0	0	14	0	15	29	261
09:15 AM	0	108	0	108	0	100	12	112	0	0	0	0	6	0	3	9	229
09:30 AM	2	79	1	82	0	123	10	133	0	0	0	0	11	0	7	18	233
09:45 AM	0	125	0	125	0	115	8	123	0	0	1	1	8	0	6	14	263
Total	5	415	1	421	1	454	39	494	0	0	1	1	39	0	31	70	986
Grand Total	66	1632	6	1704	22	1488	285	1795	1	0	22	23	101	0	74	175	3697
Apprch %	3.9	95.8	0.4		1.2	82.9	15.9		4.3	0	95.7		57.7	0	42.3		
Total %	1.8	44.1	0.2	46.1	0.6	40.2	7.7	48.6	0	0	0.6	0.6	2.7	0	2	4.7	

	Candlers Mtn Rd Eastbound				Candlers Mtn Rd Westbound				Bus Drvwy Northbound				Border St Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	8	147	0	155	1	96	28	125	0	0	1	1	**8**	0	**6**	**14**	295
07:45 AM	**9**	**163**	0	**172**	**11**	**131**	**48**	**190**	0	0	**14**	**14**	3	0	4	7	**383**
08:00 AM	2	119	0	121	6	129	27	162	0	0	5	5	7	0	2	9	297
08:15 AM	7	88	**1**	96	2	125	26	153	0	0	0	0	2	0	4	6	255
Total Volume	26	517	1	544	20	481	129	630	0	0	20	20	20	0	16	36	1230
% App. Total	4.8	95	0.2		3.2	76.3	20.5		0	0	100		55.6	0	44.4		
PHF	.722	.793	.250	.791	.455	.918	.672	.829	.000	.000	.357	.357	.625	.000	.667	.643	.803

Peggy Malone & Associates, Inc.

File Name : 16 Border St_Bus Dvwy & Candlers Mtn Rd AM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Truck

	Candlers Mtn Rd Eastbound				Candlers Mtn Rd Westbound				Bus Drvwy Northbound				Border St Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00 AM	0	1	0	1	0	2	0	2	0	0	0	0	0	0	0	0	3
06:15 AM	0	0	0	0	0	5	0	5	0	0	0	0	0	0	0	0	5
06:30 AM	0	0	0	0	0	4	1	5	0	0	0	0	0	0	0	0	5
06:45 AM	0	1	0	1	0	7	2	9	0	0	0	0	0	0	1	1	11
Total	0	2	0	2	0	18	3	21	0	0	0	0	0	0	1	1	24
07:00 AM	0	1	0	1	0	3	1	4	0	0	0	0	1	0	0	1	6
07:15 AM	0	2	0	2	0	8	0	8	0	0	0	0	2	0	0	2	12
07:30 AM	0	2	0	2	0	3	0	3	0	0	0	0	1	0	0	1	6
07:45 AM	0	3	0	3	0	5	2	7	0	0	0	0	0	0	0	0	10
Total	0	8	0	8	0	19	3	22	0	0	0	0	4	0	0	4	34
08:00 AM	0	5	0	5	0	4	0	4	0	0	0	0	2	0	0	2	11
08:15 AM	0	9	0	9	0	7	0	7	0	0	0	0	0	0	0	0	16
08:30 AM	0	8	0	8	0	4	1	5	0	0	0	0	0	0	0	0	13
08:45 AM	0	3	0	3	0	1	1	2	0	0	0	0	2	0	0	2	7
Total	0	25	0	25	0	16	2	18	0	0	0	0	4	0	0	4	47
09:00 AM	0	4	0	4	0	4	4	8	0	0	0	0	4	0	7	11	23
09:15 AM	0	3	0	3	0	4	1	5	0	0	0	0	24	0	12	36	44
09:30 AM	0	3	0	3	0	3	1	4	0	0	0	0	3	0	0	3	10
09:45 AM	0	1	0	1	0	5	2	7	0	0	0	0	0	0	0	0	8
Total	0	11	0	11	0	16	8	24	0	0	0	0	31	0	19	50	85
Grand Total	0	46	0	46	0	69	16	85	0	0	0	0	39	0	20	59	190
Apprch %	0	100	0		0	81.2	18.8		0	0	0		66.1	0	33.9		
Total %	0	24.2	0	24.2	0	36.3	8.4	44.7	0	0	0	0	20.5	0	10.5	31.1	

	Candlers Mtn Rd Eastbound				Candlers Mtn Rd Westbound				Bus Drvwy Northbound				Border St Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:30 AM																	
08:30 AM	0	**8**	0	**8**	0	**4**	1	5	0	0	0	0	0	0	0	0	13
08:45 AM	0	3	0	3	0	1	1	2	0	0	0	0	2	0	0	2	7
09:00 AM	0	4	0	4	0	4	**4**	**8**	0	0	0	0	4	0	7	11	23
09:15 AM	0	3	0	3	0	4	1	5	0	0	0	0	**24**	0	**12**	**36**	**44**
Total Volume	0	18	0	18	0	13	7	20	0	0	0	0	30	0	19	49	87
% App. Total	0	100	0		0	65	35		0	0	0		61.2	0	38.8		
PHF	.000	.563	.000	.563	.000	.813	.438	.625	.000	.000	.000	.000	.313	.000	.396	.340	.494

Peggy Malone & Associates, Inc.

File Name : 16 Border St_Bus Dvwy & Candlers Mtn Rd AM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Combined

	Candlers Mtn Rd Eastbound				Candlers Mtn Rd Westbound				Bus Drvwy Northbound				Border St Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00 AM	4	36	0	40	0	25	6	31	0	0	0	0	8	0	3	11	82
06:15 AM	3	54	0	57	0	46	5	51	0	0	0	0	2	0	1	3	111
06:30 AM	4	78	0	82	0	41	11	52	0	0	0	0	1	0	3	4	138
06:45 AM	6	90	0	96	0	66	19	85	0	0	0	0	8	0	2	10	191
Total	17	258	0	275	0	178	41	219	0	0	0	0	19	0	9	28	522
07:00 AM	0	75	1	76	0	74	11	85	0	0	0	0	5	0	5	10	171
07:15 AM	6	106	1	113	0	92	19	111	0	0	0	0	7	0	2	9	233
07:30 AM	8	149	0	157	1	99	28	128	0	0	1	1	9	0	6	15	301
07:45 AM	9	166	0	175	11	136	50	197	0	0	14	14	3	0	4	7	393
Total	23	496	2	521	12	401	108	521	0	0	15	15	24	0	17	41	1098
08:00 AM	2	124	0	126	6	133	27	166	0	0	5	5	9	0	2	11	308
08:15 AM	7	97	1	105	2	132	26	160	0	0	0	0	2	0	4	6	271
08:30 AM	3	125	2	130	0	111	23	134	1	0	0	1	3	0	6	9	274
08:45 AM	9	152	0	161	1	132	29	162	0	0	1	1	13	0	6	19	343
Total	21	498	3	522	9	508	105	622	1	0	6	7	27	0	18	45	1196
09:00 AM	3	107	0	110	1	120	13	134	0	0	0	0	18	0	22	40	284
09:15 AM	0	111	0	111	0	104	13	117	0	0	0	0	30	0	15	45	273
09:30 AM	2	82	1	85	0	126	11	137	0	0	0	0	14	0	7	21	243
09:45 AM	0	126	0	126	0	120	10	130	0	0	1	1	8	0	6	14	271
Total	5	426	1	432	1	470	47	518	0	0	1	1	70	0	50	120	1071
Grand Total	66	1678	6	1750	22	1557	301	1880	1	0	22	23	140	0	94	234	3887
Apprch %	3.8	95.9	0.3		1.2	82.8	16		4.3	0	95.7		59.8	0	40.2		
Total %	1.7	43.2	0.2	45	0.6	40.1	7.7	48.4	0	0	0.6	0.6	3.6	0	2.4	6	

	Candlers Mtn Rd Eastbound				Candlers Mtn Rd Westbound				Bus Drvwy Northbound				Border St Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	8	149	0	157	1	99	28	128	0	0	1	1	**9**	0	**6**	**15**	301
07:45 AM	**9**	**166**	0	**175**	**11**	**136**	**50**	**197**	0	0	**14**	**14**	3	0	4	7	**393**
08:00 AM	2	124	0	126	6	133	27	166	0	0	5	5	9	0	2	11	308
08:15 AM	7	97	**1**	105	2	132	26	160	0	0	0	0	2	0	4	6	271
Total Volume	26	536	1	563	20	500	131	651	0	0	20	20	23	0	16	39	1273
% App. Total	4.6	95.2	0.2		3.1	76.8	20.1		0	0	100		59	0	41		
PHF	.722	.807	.250	.804	.455	.919	.655	.826	.000	.000	.357	.357	.639	.000	.667	.650	.810

Peggy Malone & Associates, Inc.

File Name : 16 Border St_Bus Dvwy & Candlers Mtn Rd PM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Car

	Candlers Mtn Rd Eastbound					Candlers Mtn Rd Westbound					Bus Drvwy Northbound					Border St Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:00 PM	4	162	3	0	169	0	182	18	0	200	0	0	0	0	0	10	0	5	0	15	384
03:15 PM	3	140	4	0	147	1	203	17	0	221	1	0	2	0	3	9	0	8	0	17	388
03:30 PM	2	148	2	0	152	0	223	14	0	237	1	0	1	0	2	24	0	24	0	48	439
03:45 PM	3	149	3	0	155	2	224	10	0	236	0	0	0	0	0	14	0	8	0	22	413
Total	12	599	12	0	623	3	832	59	0	894	2	0	3	0	5	57	0	45	0	102	1624
04:00 PM	4	154	3	0	161	0	208	6	0	214	1	0	1	0	2	8	0	6	0	14	391
04:15 PM	2	130	3	0	135	0	188	9	0	197	1	0	1	0	2	16	0	3	0	19	353
04:30 PM	9	157	2	0	168	1	214	10	0	225	1	0	0	1	2	38	0	31	0	69	464
04:45 PM	4	181	5	0	190	2	252	13	0	267	0	0	1	1	2	6	0	14	0	20	479
Total	19	622	13	0	654	3	862	38	0	903	3	0	3	2	8	68	0	54	0	122	1687
05:00 PM	0	189	9	0	198	2	273	15	0	290	4	0	1	0	5	29	0	31	0	60	553
05:15 PM	2	156	8	0	166	6	287	11	1	305	6	1	4	0	11	24	0	19	1	44	526
05:30 PM	4	153	9	0	166	0	217	7	0	224	2	0	0	0	2	17	0	15	0	32	424
05:45 PM	2	160	7	0	169	1	191	14	0	206	1	0	6	0	7	10	0	12	0	22	404
Total	8	658	33	0	699	9	968	47	1	1025	13	1	11	0	25	80	0	77	1	158	1907
06:00 PM	0	147	3	0	150	2	188	7	0	197	3	0	4	2	9	12	0	5	1	18	374
06:15 PM	1	153	3	0	157	0	159	9	0	168	2	0	2	0	4	5	0	2	0	7	336
06:30 PM	3	142	5	0	150	6	164	5	0	175	0	0	1	0	1	7	0	15	0	22	348
06:45 PM	1	115	8	0	124	1	128	7	0	136	1	0	1	1	3	7	0	5	0	12	275
Total	5	557	19	0	581	9	639	28	0	676	6	0	8	3	17	31	0	27	1	59	1333
Grand Total	44	2436	77	0	2557	24	3301	172	1	3498	24	1	25	5	55	236	0	203	2	441	6551
Apprch %	1.7	95.3	3	0		0.7	94.4	4.9	0		43.6	1.8	45.5	9.1		53.5	0	46	0.5		
Total %	0.7	37.2	1.2	0	39	0.4	50.4	2.6	0	53.4	0.4	0	0.4	0.1	0.8	3.6	0	3.1	0	6.7	

	Candlers Mtn Rd Eastbound					Candlers Mtn Rd Westbound					Bus Drvwy Northbound					Border St Southbound					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	**9**	157	2	168		1	214	10	225		1	0	0	1		**38**	0	**31**	**69**		463
04:45 PM	4	181	5	190		2	252	13	267		0	0	1	1		6	0	14	20		478
05:00 PM	0	**189**	**9**	**198**		2	273	**15**	290		4	0	1	5		29	0	31	60		**553**
05:15 PM	2	156	8	166		**6**	**287**	11	**304**		**6**	**1**	**4**	**11**		24	0	19	43		524
Total Volume	15	683	24	722		11	1026	49	1086		11	1	6	18		97	0	95	192		2018
% App. Total	2.1	94.6	3.3			1	94.5	4.5			61.1	5.6	33.3			50.5	0	49.5			
PHF	.417	.903	.667	.912		.458	.894	.817	.893		.458	.250	.375	.409		.638	.000	.766	.696		.912

Peggy Malone & Associates, Inc.

File Name : 16 Border St_Bus Dvwy & Candlers Mtn Rd PM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Truck

	Candlers Mtn Rd Eastbound					Candlers Mtn Rd Westbound					Bus Drvwy Northbound					Border St Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:00 PM	0	1	0	0	1	0	3	1	0	4	0	0	0	0	0	0	0	0	0	0	5
03:15 PM	0	5	0	0	5	0	2	4	0	6	0	0	0	0	0	1	0	1	0	2	13
03:30 PM	0	3	0	0	3	0	2	2	0	4	0	0	0	0	0	4	0	0	0	4	11
03:45 PM	1	5	0	0	6	0	3	1	0	4	0	0	0	0	0	1	0	0	0	1	11
Total	1	14	0	0	15	0	10	8	0	18	0	0	0	0	0	6	0	1	0	7	40
04:00 PM	0	3	0	0	3	0	1	2	0	3	0	0	0	0	0	0	0	0	0	0	6
04:15 PM	0	4	0	0	4	0	2	0	0	2	0	0	0	0	0	2	0	0	0	2	8
04:30 PM	0	7	0	0	7	0	1	1	0	2	0	0	0	0	0	2	0	0	0	2	11
04:45 PM	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	0	0	0	0	0	5
Total	0	14	0	0	14	0	8	4	0	12	0	0	0	0	0	4	0	0	0	4	30
05:00 PM	1	1	0	0	2	0	0	5	0	5	0	0	0	0	0	1	0	0	0	1	8
05:15 PM	0	2	0	0	2	0	3	4	0	7	0	0	0	0	0	3	0	1	0	4	13
05:30 PM	1	2	0	0	3	0	1	2	0	3	0	0	0	0	0	3	0	0	0	3	9
05:45 PM	0	3	0	0	3	0	2	7	0	9	0	0	0	0	0	0	0	0	0	0	12
Total	2	8	0	0	10	0	6	18	0	24	0	0	0	0	0	7	0	1	0	8	42
06:00 PM	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	1	0	2	0	3	6
06:15 PM	0	1	0	0	1	0	0	2	0	2	0	0	0	0	0	1	0	0	0	1	4
06:30 PM	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
06:45 PM	0	2	0	0	2	0	4	5	0	9	0	0	0	0	0	0	0	0	0	0	11
Total	1	5	0	0	6	0	5	8	0	13	0	0	0	0	0	2	0	2	0	4	23
Grand Total	4	41	0	0	45	0	29	38	0	67	0	0	0	0	0	19	0	4	0	23	135
Apprch %	8.9	91.1	0	0		0	43.3	56.7	0		0	0	0	0		82.6	0	17.4	0		
Total %	3	30.4	0	0	33.3	0	21.5	28.1	0	49.6	0	0	0	0	0	14.1	0	3	0	17	

	Candlers Mtn Rd Eastbound				Candlers Mtn Rd Westbound				Bus Drvwy Northbound				Border St Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	**1**	1	0	2	0	0	5	5	0	0	0	0	1	0	0	1	8
05:15 PM	0	2	0	2	0	**3**	4	7	0	0	0	0	**3**	0	**1**	**4**	**13**
05:30 PM	1	2	0	**3**	0	1	2	3	0	0	0	0	3	0	0	3	9
05:45 PM	0	**3**	0	3	0	2	**7**	**9**	0	0	0	0	0	0	0	0	12
Total Volume	2	8	0	10	0	6	18	24	0	0	0	0	7	0	1	8	42
% App. Total	20	80	0		0	25	75		0	0	0		87.5	0	12.5		
PHF	.500	.667	.000	.833	.000	.500	.643	.667	.000	.000	.000	.000	.583	.000	.250	.500	.808

Peggy Malone & Associates, Inc.

File Name : 16 Border St_Bus Dvwy & Candlers Mtn Rd PM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Combined

	Candlers Mtn Rd Eastbound					Candlers Mtn Rd Westbound					Bus Drvwy Northbound					Border St Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:00 PM	4	163	3	0	170	0	185	19	0	204	0	0	0	0	0	10	0	5	0	15	389
03:15 PM	3	145	4	0	152	1	205	21	0	227	1	0	2	0	3	10	0	9	0	19	401
03:30 PM	2	151	2	0	155	0	225	16	0	241	1	0	1	0	2	28	0	24	0	52	450
03:45 PM	4	154	3	0	161	2	227	11	0	240	0	0	0	0	0	15	0	8	0	23	424
Total	13	613	12	0	638	3	842	67	0	912	2	0	3	0	5	63	0	46	0	109	1664
04:00 PM	4	157	3	0	164	0	209	8	0	217	1	0	1	0	2	8	0	6	0	14	397
04:15 PM	2	134	3	0	139	0	190	9	0	199	1	0	1	0	2	18	0	3	0	21	361
04:30 PM	9	164	2	0	175	1	215	11	0	227	1	0	0	1	2	40	0	31	0	71	475
04:45 PM	4	181	5	0	190	2	256	14	0	272	0	0	1	1	2	6	0	14	0	20	484
Total	19	636	13	0	668	3	870	42	0	915	3	0	3	2	8	72	0	54	0	126	1717
05:00 PM	1	190	9	0	200	2	273	20	0	295	4	0	1	0	5	30	0	31	0	61	561
05:15 PM	2	158	8	0	168	6	290	15	1	312	6	1	4	0	11	27	0	20	1	48	539
05:30 PM	5	155	9	0	169	0	218	9	0	227	2	0	0	0	2	20	0	15	0	35	433
05:45 PM	2	163	7	0	172	1	193	21	0	215	1	0	6	0	7	10	0	12	0	22	416
Total	10	666	33	0	709	9	974	65	1	1049	13	1	11	0	25	87	0	78	1	166	1949
06:00 PM	0	149	3	0	152	2	189	7	0	198	3	0	4	2	9	13	0	7	1	21	380
06:15 PM	1	154	3	0	158	0	159	11	0	170	2	0	2	0	4	6	0	2	0	8	340
06:30 PM	4	142	5	0	151	6	164	6	0	176	0	0	1	0	1	7	0	15	0	22	350
06:45 PM	1	117	8	0	126	1	132	12	0	145	1	0	1	1	3	7	0	5	0	12	286
Total	6	562	19	0	587	9	644	36	0	689	6	0	8	3	17	33	0	29	1	63	1356
Grand Total	48	2477	77	0	2602	24	3330	210	1	3565	24	1	25	5	55	255	0	207	2	464	6686
Apprch %	1.8	95.2	3	0		0.7	93.4	5.9	0		43.6	1.8	45.5	9.1		55	0	44.6	0.4		
Total %	0.7	37	1.2	0	38.9	0.4	49.8	3.1	0	53.3	0.4	0	0.4	0.1	0.8	3.8	0	3.1	0	6.9	

	Candlers Mtn Rd Eastbound				Candlers Mtn Rd Westbound				Bus Drvwy Northbound				Border St Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**9**	164	2	175	1	215	11	227	1	0	0	1	**40**	0	**31**	**71**	474
04:45 PM	4	181	5	190	2	256	14	272	0	0	1	1	6	0	14	20	483
05:00 PM	1	**190**	**9**	**200**	2	273	**20**	295	4	0	1	5	30	0	31	61	**561**
05:15 PM	2	158	8	168	**6**	**290**	15	**311**	**6**	**1**	**4**	**11**	27	0	20	47	537
Total Volume	16	693	24	733	11	1034	60	1105	11	1	6	18	103	0	96	199	2055
% App. Total	2.2	94.5	3.3		1	93.6	5.4		61.1	5.6	33.3		51.8	0	48.2		
PHF	.444	.912	.667	.916	.458	.891	.750	.888	.458	.250	.375	.409	.644	.000	.774	.701	.916

Peggy Malone & Associates, Inc.

File Name : 17 Seminole Ave_SB Lynch Ex Off & Candler Mtn Rd AM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Car

	Candlers Mtn Rd Eastbound				Candlers Mtn Rd Westbound				Seminole Ave Northbound				SB Lynchburg Exp Off Ramp Southbound				
Start Time	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00 AM	43	3	0	46	2	24	0	26	3	5	0	8	1	0	2	0	3	83
06:15 AM	58	1	0	59	5	37	0	42	3	5	0	8	1	4	6	0	11	120
06:30 AM	74	5	0	79	13	34	0	47	2	9	0	11	1	6	11	1	19	156
06:45 AM	94	7	0	101	20	59	0	79	3	21	0	24	0	3	14	0	17	221
Total	269	16	0	285	40	154	0	194	11	40	0	51	3	13	33	1	50	580
07:00 AM	70	8	0	78	17	67	0	84	4	17	0	21	3	6	10	0	19	202
07:15 AM	97	10	0	107	21	76	0	97	6	27	1	34	1	2	21	0	24	262
07:30 AM	144	12	0	156	34	96	0	130	7	37	0	44	3	2	23	0	28	358
07:45 AM	168	11	0	179	58	152	0	210	13	73	0	86	1	1	27	0	29	504
Total	479	41	0	520	130	391	0	521	30	154	1	185	8	11	81	0	100	1326
08:00 AM	122	12	0	134	24	131	0	155	4	31	0	35	0	6	22	0	28	352
08:15 AM	83	7	0	90	18	115	0	133	9	22	0	31	0	5	27	0	32	286
08:30 AM	111	8	0	119	9	99	0	108	5	19	0	24	3	9	25	0	37	288
08:45 AM	151	10	0	161	18	125	0	143	8	25	0	33	1	7	26	0	34	371
Total	467	37	0	504	69	470	0	539	26	97	0	123	4	27	100	0	131	1297
09:00 AM	114	8	0	122	16	89	0	105	8	18	0	26	1	3	30	0	34	287
09:15 AM	104	11	0	115	16	87	0	103	5	18	0	23	0	1	19	0	20	261
09:30 AM	81	8	0	89	13	90	0	103	4	14	0	18	0	2	39	0	41	251
09:45 AM	125	7	0	132	19	88	0	107	12	12	0	24	0	3	25	0	28	291
Total	424	34	0	458	64	354	0	418	29	62	0	91	1	9	113	0	123	1090
Grand Total	1639	128	0	1767	303	1369	0	1672	96	353	1	450	16	60	327	1	404	4293
Apprch %	92.8	7.2	0		18.1	81.9	0		21.3	78.4	0.2		4	14.9	80.9	0.2		
Total %	38.2	3	0	41.2	7.1	31.9	0	38.9	2.2	8.2	0	10.5	0.4	1.4	7.6	0	9.4	

	Candlers Mtn Rd Eastbound			Candlers Mtn Rd Westbound			Seminole Ave Northbound			SB Lynchburg Exp Off Ramp Southbound				
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 07:30 AM														
07:30 AM	144	**12**	156	34	96	130	7	37	44	**3**	2	23	28	358
07:45 AM	**168**	11	**179**	**58**	**152**	**210**	**13**	**73**	**86**	1	1	**27**	29	**504**
08:00 AM	122	12	134	24	131	155	4	31	35	0	**6**	22	28	352
08:15 AM	83	7	90	18	115	133	9	22	31	0	5	27	**32**	286
Total Volume	517	42	559	134	494	628	33	163	196	4	14	99	117	1500
% App. Total	92.5	7.5		21.3	78.7		16.8	83.2		3.4	12	84.6		
PHF	.769	.875	.781	.578	.813	.748	.635	.558	.570	.333	.583	.917	.914	.744

Peggy Malone & Associates, Inc.

File Name : 17 Seminole Ave_SB Lynch Ex Off & Candler Mtn Rd AM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Truck

	Candlers Mtn Rd Eastbound				Candlers Mtn Rd Westbound				Seminole Ave Northbound				SB Lynchburg Exp Off Ramp Southbound				
Start Time	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00 AM	1	0	0	1	0	1	0	1	0	0	0	0	0	0	1	0	1	3
06:15 AM	0	0	0	0	1	4	0	5	0	0	0	0	0	0	1	0	1	6
06:30 AM	0	0	0	0	1	4	0	5	0	2	0	2	0	0	1	0	1	8
06:45 AM	2	0	0	2	0	7	0	7	1	0	0	1	0	0	1	0	1	11
Total	3	0	0	3	2	16	0	18	1	2	0	3	0	0	4	0	4	28
07:00 AM	2	0	0	2	0	4	0	4	0	4	0	4	0	0	0	0	0	10
07:15 AM	5	0	0	5	0	4	0	4	0	0	0	0	0	0	4	0	4	13
07:30 AM	3	0	0	3	1	1	0	2	0	0	0	0	0	0	2	0	2	7
07:45 AM	3	0	0	3	0	6	0	6	1	1	0	2	0	0	0	0	0	11
Total	13	0	0	13	1	15	0	16	1	5	0	6	0	0	6	0	6	41
08:00 AM	7	0	0	7	0	4	0	4	0	0	0	0	0	1	0	0	1	12
08:15 AM	9	0	0	9	0	4	0	4	0	0	0	0	0	0	3	0	3	16
08:30 AM	9	0	0	9	0	3	0	3	0	0	0	0	0	0	2	0	2	14
08:45 AM	5	0	0	5	0	1	0	1	0	0	0	0	0	0	1	0	1	7
Total	30	0	0	30	0	12	0	12	0	0	0	0	0	1	6	0	7	49
09:00 AM	4	1	0	5	0	7	0	7	0	0	0	0	0	0	1	0	1	13
09:15 AM	26	1	0	27	0	5	0	5	0	1	0	1	0	0	0	0	0	33
09:30 AM	5	0	0	5	0	3	0	3	0	1	0	1	0	0	1	0	1	10
09:45 AM	1	0	0	1	0	5	0	5	1	1	0	2	0	1	0	0	1	9
Total	36	2	0	38	0	20	0	20	1	3	0	4	0	1	2	0	3	65
Grand Total	82	2	0	84	3	63	0	66	3	10	0	13	0	2	18	0	20	183
Apprch %	97.6	2.4	0		4.5	95.5	0		23.1	76.9	0		0	10	90	0		
Total %	44.8	1.1	0	45.9	1.6	34.4	0	36.1	1.6	5.5	0	7.1	0	1.1	9.8	0	10.9	

	Candlers Mtn Rd Eastbound			Candlers Mtn Rd Westbound			Seminole Ave Northbound			SB Lynchburg Exp Off Ramp Southbound				
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 08:30 AM														
08:30 AM	9	0	9	0	3	3	0	0	0	0	0	**2**	**2**	14
08:45 AM	5	0	5	0	1	1	0	0	0	0	0	1	1	7
09:00 AM	4	**1**	5	0	**7**	**7**	0	0	0	0	0	1	1	13
09:15 AM	**26**	1	**27**	0	5	5	0	**1**	**1**	0	0	0	0	**33**
Total Volume	44	2	46	0	16	16	0	1	1	0	0	4	4	67
% App. Total	95.7	4.3		0	100		0	100		0	0	100		
PHF	.423	.500	.426	.000	.571	.571	.000	.250	.250	.000	.000	.500	.500	.508

Peggy Malone & Associates, Inc.

File Name : 17 Seminole Ave_SB Lynch Ex Off & Candler Mtn Rd AM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Combined

	Candlers Mtn Rd Eastbound				Candlers Mtn Rd Westbound				Seminole Ave Northbound				SB Lynchburg Exp Off Ramp Southbound				
Start Time	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00 AM	44	3	0	47	2	25	0	27	3	5	0	8	1	0	3	0	4	86
06:15 AM	58	1	0	59	6	41	0	47	3	5	0	8	1	4	7	0	12	126
06:30 AM	74	5	0	79	14	38	0	52	2	11	0	13	1	6	12	1	20	164
06:45 AM	96	7	0	103	20	66	0	86	4	21	0	25	0	3	15	0	18	232
Total	272	16	0	288	42	170	0	212	12	42	0	54	3	13	37	1	54	608
07:00 AM	72	8	0	80	17	71	0	88	4	21	0	25	3	6	10	0	19	212
07:15 AM	102	10	0	112	21	80	0	101	6	27	1	34	1	2	25	0	28	275
07:30 AM	147	12	0	159	35	97	0	132	7	37	0	44	3	2	25	0	30	365
07:45 AM	171	11	0	182	58	158	0	216	14	74	0	88	1	1	27	0	29	515
Total	492	41	0	533	131	406	0	537	31	159	1	191	8	11	87	0	106	1367
08:00 AM	129	12	0	141	24	135	0	159	4	31	0	35	0	7	22	0	29	364
08:15 AM	92	7	0	99	18	119	0	137	9	22	0	31	0	5	30	0	35	302
08:30 AM	120	8	0	128	9	102	0	111	5	19	0	24	3	9	27	0	39	302
08:45 AM	156	10	0	166	18	126	0	144	8	25	0	33	1	7	27	0	35	378
Total	497	37	0	534	69	482	0	551	26	97	0	123	4	28	106	0	138	1346
09:00 AM	118	9	0	127	16	96	0	112	8	18	0	26	1	3	31	0	35	300
09:15 AM	130	12	0	142	16	92	0	108	5	19	0	24	0	1	19	0	20	294
09:30 AM	86	8	0	94	13	93	0	106	4	15	0	19	0	2	40	0	42	261
09:45 AM	126	7	0	133	19	93	0	112	13	13	0	26	0	4	25	0	29	300
Total	460	36	0	496	64	374	0	438	30	65	0	95	1	10	115	0	126	1155
Grand Total	1721	130	0	1851	306	1432	0	1738	99	363	1	463	16	62	345	1	424	4476
Apprch %	93	7	0		17.6	82.4	0		21.4	78.4	0.2		3.8	14.6	81.4	0.2		
Total %	38.4	2.9	0	41.4	6.8	32	0	38.8	2.2	8.1	0	10.3	0.4	1.4	7.7	0	9.5	

	Candlers Mtn Rd Eastbound			Candlers Mtn Rd Westbound			Seminole Ave Northbound			SB Lynchburg Exp Off Ramp Southbound				
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 07:30 AM														
07:30 AM	147	**12**	159	35	97	132	7	37	44	**3**	2	25	30	365
07:45 AM	**171**	11	**182**	**58**	**158**	**216**	**14**	**74**	**88**	1	1	27	29	**515**
08:00 AM	129	12	141	24	135	159	4	31	35	0	**7**	22	29	364
08:15 AM	92	7	99	18	119	137	9	22	31	0	5	**30**	**35**	302
Total Volume	539	42	581	135	509	644	34	164	198	4	15	104	123	1546
% App. Total	92.8	7.2		21	79		17.2	82.8		3.3	12.2	84.6		
PHF	.788	.875	.798	.582	.805	.745	.607	.554	.563	.333	.536	.867	.879	.750

Peggy Malone & Associates, Inc.

File Name : 17 Seminole Ave_SB Lynch Ex Off & Candler Mtn Rd PM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Car

	Candlers Mtn Rd Eastbound				Candlers Mtn Rd Westbound				Seminole Ave Northbound				SB Lynchburg Exp Off Ramp Southbound				
Start Time	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:00 PM	160	17	0	177	12	151	0	163	16	32	0	48	0	4	32	0	36	424
03:15 PM	144	6	0	150	15	170	0	185	12	26	0	38	5	7	38	0	50	423
03:30 PM	163	9	0	172	28	181	0	209	8	28	0	36	3	6	48	0	57	474
03:45 PM	151	13	0	164	22	173	0	195	12	26	0	38	2	2	47	0	51	448
Total	618	45	0	663	77	675	0	752	48	112	0	160	10	19	165	0	194	1769
04:00 PM	159	8	0	167	17	161	0	178	11	22	0	33	4	1	44	0	49	427
04:15 PM	133	13	0	146	22	141	0	163	10	21	0	31	1	2	44	0	47	387
04:30 PM	185	12	0	197	21	161	0	182	4	19	0	23	5	3	59	0	67	469
04:45 PM	178	10	0	188	29	210	0	239	9	36	0	45	6	3	47	0	56	528
Total	655	43	0	698	89	673	0	762	34	98	0	132	16	9	194	0	219	1811
05:00 PM	205	10	0	215	44	231	0	275	9	38	0	47	3	10	47	0	60	597
05:15 PM	171	15	0	186	42	247	0	289	8	29	0	37	11	11	51	0	73	585
05:30 PM	162	8	0	170	27	168	0	195	18	25	0	43	4	11	38	0	53	461
05:45 PM	163	16	0	179	24	155	0	179	11	30	0	41	1	6	39	0	46	445
Total	701	49	0	750	137	801	0	938	46	122	0	168	19	38	175	0	232	2088
06:00 PM	144	15	0	159	28	147	0	175	14	33	0	47	4	10	32	0	46	427
06:15 PM	152	10	0	162	19	138	0	157	9	35	0	44	1	6	20	0	27	390
06:30 PM	133	16	0	149	21	140	0	161	15	24	0	39	2	5	20	0	27	376
06:45 PM	111	11	0	122	17	93	0	110	15	26	0	41	3	4	27	0	34	307
Total	540	52	0	592	85	518	0	603	53	118	0	171	10	25	99	0	134	1500
Grand Total	2514	189	0	2703	388	2667	0	3055	181	450	0	631	55	91	633	0	779	7168
Apprch %	93	7	0		12.7	87.3	0		28.7	71.3	0		7.1	11.7	81.3	0		
Total %	35.1	2.6	0	37.7	5.4	37.2	0	42.6	2.5	6.3	0	8.8	0.8	1.3	8.8	0	10.9	

	Candlers Mtn Rd Eastbound			Candlers Mtn Rd Westbound			Seminole Ave Northbound			SB Lynchburg Exp Off Ramp Southbound				
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 04:30 PM														
04:30 PM	185	12	197	21	161	182	4	19	23	5	3	**59**	67	469
04:45 PM	178	10	188	29	210	239	**9**	36	45	6	3	47	56	528
05:00 PM	**205**	10	**215**	**44**	231	275	9	**38**	**47**	3	10	47	60	**597**
05:15 PM	171	**15**	186	42	**247**	**289**	8	29	37	**11**	**11**	51	**73**	585
Total Volume	739	47	786	136	849	985	30	122	152	25	27	204	256	2179
% App. Total	94	6		13.8	86.2		19.7	80.3		9.8	10.5	79.7		
PHF	.901	.783	.914	.773	.859	.852	.833	.803	.809	.568	.614	.864	.877	.912

Peggy Malone & Associates, Inc.

File Name : 17 Seminole Ave_SB Lynch Ex Off & Candler Mtn Rd PM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Truck

	Candlers Mtn Rd Eastbound				Candlers Mtn Rd Westbound				Seminole Ave Northbound				SB Lynchburg Exp Off Ramp Southbound					
Start Time	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:00 PM	2	0	0	2	0	2	0	2	0	0	0	0	0	0	2	0	2	6
03:15 PM	6	0	0	6	0	4	0	4	0	0	0	0	0	0	1	0	1	11
03:30 PM	6	0	0	6	0	3	0	3	0	0	0	0	0	0	1	0	1	10
03:45 PM	5	0	0	5	0	2	0	2	0	0	0	0	0	0	1	0	1	8
Total	19	0	0	19	0	11	0	11	0	0	0	0	0	0	5	0	5	35
04:00 PM	2	1	0	3	0	3	0	3	0	1	0	1	0	0	0	0	0	7
04:15 PM	6	0	0	6	0	2	0	2	0	0	0	0	0	0	0	0	0	8
04:30 PM	7	1	0	8	0	2	0	2	0	0	0	0	0	0	0	0	0	10
04:45 PM	0	0	0	0	0	4	0	4	0	0	0	0	0	0	1	0	1	5
Total	15	2	0	17	0	11	0	11	0	1	0	1	0	0	1	0	1	30
05:00 PM	2	0	0	2	0	4	0	4	0	0	0	0	0	0	1	0	1	7
05:15 PM	5	1	0	6	0	6	0	6	0	0	0	0	0	0	2	0	2	14
05:30 PM	5	0	0	5	0	4	0	4	0	0	0	0	0	0	0	0	0	9
05:45 PM	3	0	0	3	1	8	0	9	0	0	0	0	0	0	0	0	0	12
Total	15	1	0	16	1	22	0	23	0	0	0	0	0	0	3	0	3	42
06:00 PM	4	0	0	4	0	0	0	0	0	0	0	0	0	0	1	0	1	5
06:15 PM	2	0	0	2	0	1	0	1	0	0	0	0	0	0	1	0	1	4
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
06:45 PM	2	1	0	3	0	5	0	5	0	0	0	0	0	0	4	0	4	12
Total	8	1	0	9	0	6	0	6	0	0	0	0	0	0	7	0	7	22
Grand Total	57	4	0	61	1	50	0	51	0	1	0	1	0	0	16	0	16	129
Apprch %	93.4	6.6	0		2	98	0		0	100	0		0	0	100	0		
Total %	44.2	3.1	0	47.3	0.8	38.8	0	39.5	0	0.8	0	0.8	0	0	12.4	0	12.4	

	Candlers Mtn Rd Eastbound			Candlers Mtn Rd Westbound			Seminole Ave Northbound			SB Lynchburg Exp Off Ramp Southbound				
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 05:00 PM														
05:00 PM	2	0	2	0	4	4	0	0	0	0	0	1	1	7
05:15 PM	**5**	**1**	**6**	0	6	6	0	0	0	0	0	**2**	**2**	**14**
05:30 PM	5	0	5	0	4	4	0	0	0	0	0	0	0	9
05:45 PM	3	0	3	**1**	**8**	**9**	0	0	0	0	0	0	0	12
Total Volume	15	1	16	1	22	23	0	0	0	0	0	3	3	42
% App. Total	93.8	6.2		4.3	95.7		0	0		0	0	100		
PHF	.750	.250	.667	.250	.688	.639	.000	.000	.000	.000	.000	.375	.375	.750

Peggy Malone & Associates, Inc.

File Name : 17 Seminole Ave_SB Lynch Ex Off & Candler Mtn Rd PM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Combined

	Candlers Mtn Rd Eastbound				Candlers Mtn Rd Westbound				Seminole Ave Northbound				SB Lynchburg Exp Off Ramp Southbound					
Start Time	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:00 PM	162	17	0	179	12	153	0	165	16	32	0	48	0	4	34	0	38	430
03:15 PM	150	6	0	156	15	174	0	189	12	26	0	38	5	7	39	0	51	434
03:30 PM	169	9	0	178	28	184	0	212	8	28	0	36	3	6	49	0	58	484
03:45 PM	156	13	0	169	22	175	0	197	12	26	0	38	2	2	48	0	52	456
Total	637	45	0	682	77	686	0	763	48	112	0	160	10	19	170	0	199	1804
04:00 PM	161	9	0	170	17	164	0	181	11	23	0	34	4	1	44	0	49	434
04:15 PM	139	13	0	152	22	143	0	165	10	21	0	31	1	2	44	0	47	395
04:30 PM	192	13	0	205	21	163	0	184	4	19	0	23	5	3	59	0	67	479
04:45 PM	178	10	0	188	29	214	0	243	9	36	0	45	6	3	48	0	57	533
Total	670	45	0	715	89	684	0	773	34	99	0	133	16	9	195	0	220	1841
05:00 PM	207	10	0	217	44	235	0	279	9	38	0	47	3	10	48	0	61	604
05:15 PM	176	16	0	192	42	253	0	295	8	29	0	37	11	11	53	0	75	599
05:30 PM	167	8	0	175	27	172	0	199	18	25	0	43	4	11	38	0	53	470
05:45 PM	166	16	0	182	25	163	0	188	11	30	0	41	1	6	39	0	46	457
Total	716	50	0	766	138	823	0	961	46	122	0	168	19	38	178	0	235	2130
06:00 PM	148	15	0	163	28	147	0	175	14	33	0	47	4	10	33	0	47	432
06:15 PM	154	10	0	164	19	139	0	158	9	35	0	44	1	6	21	0	28	394
06:30 PM	133	16	0	149	21	140	0	161	15	24	0	39	2	5	21	0	28	377
06:45 PM	113	12	0	125	17	98	0	115	15	26	0	41	3	4	31	0	38	319
Total	548	53	0	601	85	524	0	609	53	118	0	171	10	25	106	0	141	1522
Grand Total	2571	193	0	2764	389	2717	0	3106	181	451	0	632	55	91	649	0	795	7297
Apprch %	93	7	0		12.5	87.5	0		28.6	71.4	0		6.9	11.4	81.6	0		
Total %	35.2	2.6	0	37.9	5.3	37.2	0	42.6	2.5	6.2	0	8.7	0.8	1.2	8.9	0	10.9	

	Candlers Mtn Rd Eastbound			Candlers Mtn Rd Westbound			Seminole Ave Northbound			SB Lynchburg Exp Off Ramp Southbound				
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 04:30 PM														
04:30 PM	192	13	205	21	163	184	4	19	23	5	3	**59**	67	479
04:45 PM	178	10	188	29	214	243	**9**	36	45	6	3	48	57	533
05:00 PM	**207**	10	**217**	**44**	235	279	9	**38**	**47**	3	10	48	61	**604**
05:15 PM	176	**16**	192	42	**253**	**295**	8	29	37	**11**	**11**	53	**75**	599
Total Volume	753	49	802	136	865	1001	30	122	152	25	27	208	260	2215
% App. Total	93.9	6.1		13.6	86.4		19.7	80.3		9.6	10.4	80		
PHF	.909	.766	.924	.773	.855	.848	.833	.803	.809	.568	.614	.881	.867	.917

Peggy Malone & Associates, Inc.

(904) 992-8072

File Name : 18 Murray Pl. & Candlers Mtn Rd AM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Car

	Murray Pl. Southbound			Candlers Mtn. Rd. Westbound				Candlers Mtn. Rd. Eastbound			
Start Time	Right	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Peds	App. Total	Int. Total
06:00 AM	4	0	4	0	91	0	91	131	0	131	226
06:15 AM	5	0	5	0	148	0	148	173	0	173	326
06:30 AM	4	0	4	0	166	0	166	232	0	232	402
06:45 AM	11	0	11	0	218	0	218	301	0	301	530
Total	24	0	24	0	623	0	623	837	0	837	1484
07:00 AM	37	0	37	0	190	0	190	281	0	281	508
07:15 AM	9	0	9	0	259	0	259	380	0	380	648
07:30 AM	15	0	15	0	302	0	302	445	0	445	762
07:45 AM	15	0	15	1	339	0	340	498	0	498	853
Total	76	0	76	1	1090	0	1091	1604	0	1604	2771
08:00 AM	18	0	18	1	352	0	353	362	0	362	733
08:15 AM	14	0	14	0	326	0	326	260	0	260	600
08:30 AM	5	0	5	0	225	0	225	334	0	334	564
08:45 AM	8	0	8	0	264	0	264	445	0	445	717
Total	45	0	45	1	1167	0	1168	1401	0	1401	2614
09:00 AM	13	0	13	0	206	0	206	376	0	376	595
09:15 AM	12	0	12	1	197	0	198	264	0	264	474
09:30 AM	10	0	10	0	197	0	197	245	0	245	452
09:45 AM	8	0	8	0	209	0	209	278	0	278	495
Total	43	0	43	1	809	0	810	1163	0	1163	2016
Grand Total	188	0	188	3	3689	0	3692	5005	0	5005	8885
Apprch %	100	0		0.1	99.9	0		100	0		
Total %	2.1	0	2.1	0	41.5	0	41.6	56.3	0	56.3	

	Murray Pl. Southbound		Candlers Mtn. Rd. Westbound			Candlers Mtn. Rd. Eastbound		
Start Time	Right	App. Total	Right	Thru	App. Total	Thru	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1								
Peak Hour for Entire Intersection Begins at 07:15 AM								
07:15 AM	9	9	0	259	259	380	380	648
07:30 AM	15	15	0	302	302	445	445	762
07:45 AM	15	15	**1**	339	340	**498**	**498**	**853**
08:00 AM	**18**	**18**	1	**352**	**353**	362	362	733
Total Volume	57	57	2	1252	1254	1685	1685	2996
% App. Total	100		0.2	99.8		100		
PHF	.792	.792	.500	.889	.888	.846	.846	.878

Peggy Malone & Associates, Inc.

(904) 992-8072

File Name : 18 Murray Pl. & Candlers Mtn Rd AM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Truck

	Murray Pl. Southbound			Candlers Mtn. Rd. Westbound				Candlers Mtn. Rd. Eastbound			
Start Time	Right	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Peds	App. Total	Int. Total
06:00 AM	0	0	0	0	6	0	6	3	0	3	9
06:15 AM	1	0	1	0	13	0	13	8	0	8	22
06:30 AM	0	0	0	0	15	0	15	6	0	6	21
06:45 AM	0	0	0	0	19	0	19	11	0	11	30
Total	1	0	1	0	53	0	53	28	0	28	82
07:00 AM	1	0	1	0	12	0	12	14	0	14	27
07:15 AM	0	0	0	0	10	0	10	14	0	14	24
07:30 AM	1	0	1	0	9	0	9	11	0	11	21
07:45 AM	1	0	1	0	16	0	16	9	0	9	26
Total	3	0	3	0	47	0	47	48	0	48	98
08:00 AM	0	0	0	0	17	0	17	12	0	12	29
08:15 AM	0	0	0	0	18	0	18	12	0	12	30
08:30 AM	1	0	1	0	11	0	11	28	0	28	40
08:45 AM	0	0	0	1	14	0	15	15	0	15	30
Total	1	0	1	1	60	0	61	67	0	67	129
09:00 AM	1	0	1	0	18	0	18	15	0	15	34
09:15 AM	1	0	1	0	13	0	13	29	0	29	43
09:30 AM	0	0	0	0	17	0	17	19	0	19	36
09:45 AM	2	0	2	0	20	0	20	8	0	8	30
Total	4	0	4	0	68	0	68	71	0	71	143
Grand Total	9	0	9	1	228	0	229	214	0	214	452
Apprch %	100	0		0.4	99.6	0		100	0		
Total %	2	0	2	0.2	50.4	0	50.7	47.3	0	47.3	

	Murray Pl. Southbound		Candlers Mtn. Rd. Westbound			Candlers Mtn. Rd. Eastbound		
Start Time	Right	App. Total	Right	Thru	App. Total	Thru	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1								
Peak Hour for Entire Intersection Begins at 08:30 AM								
08:30 AM	**1**	**1**	0	11	11	28	28	40
08:45 AM	0	0	**1**	14	15	15	15	30
09:00 AM	1	1	0	**18**	**18**	15	15	34
09:15 AM	1	1	0	13	13	**29**	**29**	**43**
Total Volume	3	3	1	56	57	87	87	147
% App. Total	100		1.8	98.2		100		
PHF	.750	.750	.250	.778	.792	.750	.750	.855

Peggy Malone & Associates, Inc.

(904) 992-8072

File Name : 18 Murray Pl. & Candlers Mtn Rd AM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Combined

	Murray Pl. Southbound			Candlers Mtn. Rd. Westbound				Candlers Mtn. Rd. Eastbound			
Start Time	Right	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Peds	App. Total	Int. Total
06:00 AM	4	0	4	0	97	0	97	134	0	134	235
06:15 AM	6	0	6	0	161	0	161	181	0	181	348
06:30 AM	4	0	4	0	181	0	181	238	0	238	423
06:45 AM	11	0	11	0	237	0	237	312	0	312	560
Total	25	0	25	0	676	0	676	865	0	865	1566
07:00 AM	38	0	38	0	202	0	202	295	0	295	535
07:15 AM	9	0	9	0	269	0	269	394	0	394	672
07:30 AM	16	0	16	0	311	0	311	456	0	456	783
07:45 AM	16	0	16	1	355	0	356	507	0	507	879
Total	79	0	79	1	1137	0	1138	1652	0	1652	2869
08:00 AM	18	0	18	1	369	0	370	374	0	374	762
08:15 AM	14	0	14	0	344	0	344	272	0	272	630
08:30 AM	6	0	6	0	236	0	236	362	0	362	604
08:45 AM	8	0	8	1	278	0	279	460	0	460	747
Total	46	0	46	2	1227	0	1229	1468	0	1468	2743
09:00 AM	14	0	14	0	224	0	224	391	0	391	629
09:15 AM	13	0	13	1	210	0	211	293	0	293	517
09:30 AM	10	0	10	0	214	0	214	264	0	264	488
09:45 AM	10	0	10	0	229	0	229	286	0	286	525
Total	47	0	47	1	877	0	878	1234	0	1234	2159
Grand Total	197	0	197	4	3917	0	3921	5219	0	5219	9337
Apprch %	100	0		0.1	99.9	0		100	0		
Total %	2.1	0	2.1	0	42	0	42	55.9	0	55.9	

	Murray Pl. Southbound		Candlers Mtn. Rd. Westbound			Candlers Mtn. Rd. Eastbound		
Start Time	Right	App. Total	Right	Thru	App. Total	Thru	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1								
Peak Hour for Entire Intersection Begins at 07:15 AM								
07:15 AM	9	9	0	269	269	394	394	672
07:30 AM	16	16	0	311	311	456	456	783
07:45 AM	16	16	**1**	355	356	**507**	**507**	**879**
08:00 AM	**18**	**18**	1	**369**	**370**	374	374	762
Total Volume	59	59	2	1304	1306	1731	1731	3096
% App. Total	100		0.2	99.8		100		
PHF	.819	.819	.500	.883	.882	.854	.854	.881

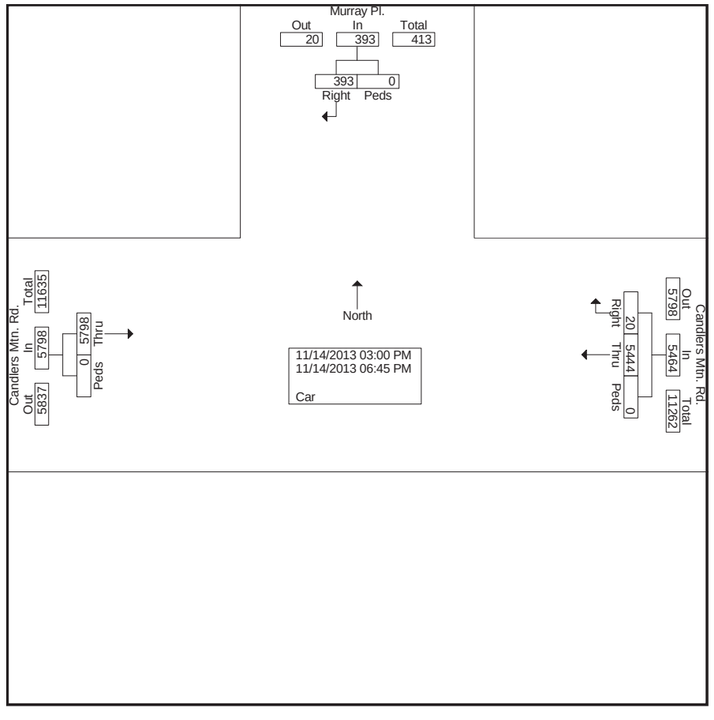
Peggy Malone & Associates, Inc.

(904) 992-8072

File Name : 18 Murray Pl. & Candlers Mtn Rd PM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Car

	Murray Pl. Southbound			Candlers Mtn. Rd. Westbound				Candlers Mtn. Rd. Eastbound			
Start Time	Right	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Peds	App. Total	Int. Total
03:00 PM	6	0	6	0	303	0	303	373	0	373	682
03:15 PM	26	0	26	0	367	0	367	359	0	359	752
03:30 PM	76	0	76	0	368	0	368	353	0	353	797
03:45 PM	35	0	35	2	330	0	332	336	0	336	703
Total	143	0	143	2	1368	0	1370	1421	0	1421	2934
04:00 PM	18	0	18	0	349	0	349	330	0	330	697
04:15 PM	21	0	21	2	288	0	290	346	0	346	657
04:30 PM	32	0	32	3	351	0	354	374	0	374	760
04:45 PM	32	0	32	0	355	0	355	435	0	435	822
Total	103	0	103	5	1343	0	1348	1485	0	1485	2936
05:00 PM	41	0	41	0	433	0	433	391	0	391	865
05:15 PM	21	0	21	0	431	0	431	431	0	431	883
05:30 PM	19	0	19	2	361	0	363	395	0	395	777
05:45 PM	17	0	17	1	334	0	335	387	0	387	739
Total	98	0	98	3	1559	0	1562	1604	0	1604	3264
06:00 PM	16	0	16	3	330	0	333	338	0	338	687
06:15 PM	11	0	11	3	307	0	310	359	0	359	680
06:30 PM	13	0	13	3	281	0	284	295	0	295	592
06:45 PM	9	0	9	1	256	0	257	296	0	296	562
Total	49	0	49	10	1174	0	1184	1288	0	1288	2521
Grand Total	393	0	393	20	5444	0	5464	5798	0	5798	11655
Apprch %	100	0		0.4	99.6	0		100	0		
Total %	3.4	0	3.4	0.2	46.7	0	46.9	49.7	0	49.7	



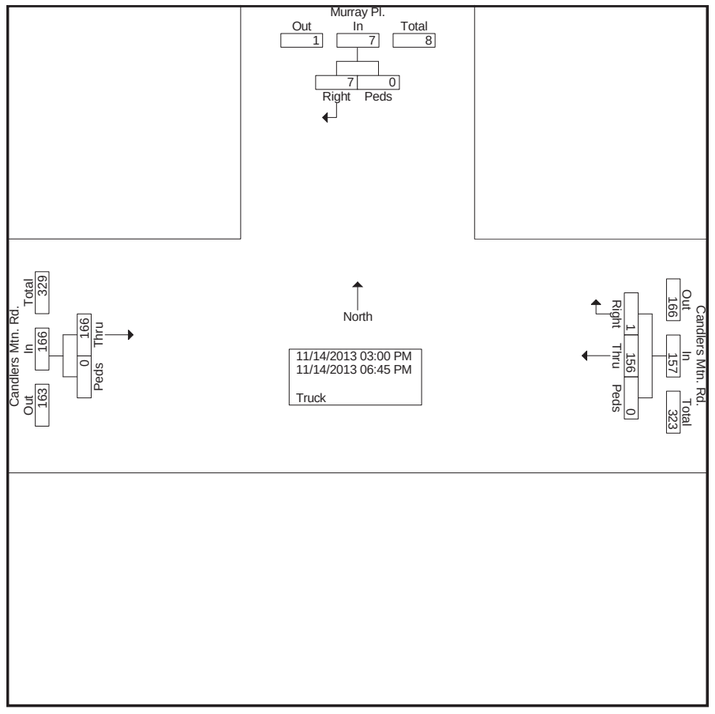
Peggy Malone & Associates, Inc.

(904) 992-8072

File Name : 18 Murray Pl. & Candlers Mtn Rd PM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Truck

	Murray Pl. Southbound			Candlers Mtn. Rd. Westbound				Candlers Mtn. Rd. Eastbound			
Start Time	Right	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Peds	App. Total	Int. Total
03:00 PM	1	0	1	0	13	0	13	11	0	11	25
03:15 PM	1	0	1	1	15	0	16	15	0	15	32
03:30 PM	1	0	1	0	16	0	16	16	0	16	33
03:45 PM	0	0	0	0	9	0	9	13	0	13	22
Total	3	0	3	1	53	0	54	55	0	55	112
04:00 PM	0	0	0	0	9	0	9	16	0	16	25
04:15 PM	0	0	0	0	11	0	11	22	0	22	33
04:30 PM	0	0	0	0	6	0	6	12	0	12	18
04:45 PM	2	0	2	0	8	0	8	12	0	12	22
Total	2	0	2	0	34	0	34	62	0	62	98
05:00 PM	1	0	1	0	5	0	5	5	0	5	11
05:15 PM	0	0	0	0	11	0	11	4	0	4	15
05:30 PM	1	0	1	0	10	0	10	14	0	14	25
05:45 PM	0	0	0	0	11	0	11	8	0	8	19
Total	2	0	2	0	37	0	37	31	0	31	70
06:00 PM	0	0	0	0	8	0	8	10	0	10	18
06:15 PM	0	0	0	0	8	0	8	5	0	5	13
06:30 PM	0	0	0	0	5	0	5	1	0	1	6
06:45 PM	0	0	0	0	11	0	11	2	0	2	13
Total	0	0	0	0	32	0	32	18	0	18	50
Grand Total	7	0	7	1	156	0	157	166	0	166	330
Apprch %	100	0		0.6	99.4	0		100	0		
Total %	2.1	0	2.1	0.3	47.3	0	47.6	50.3	0	50.3	



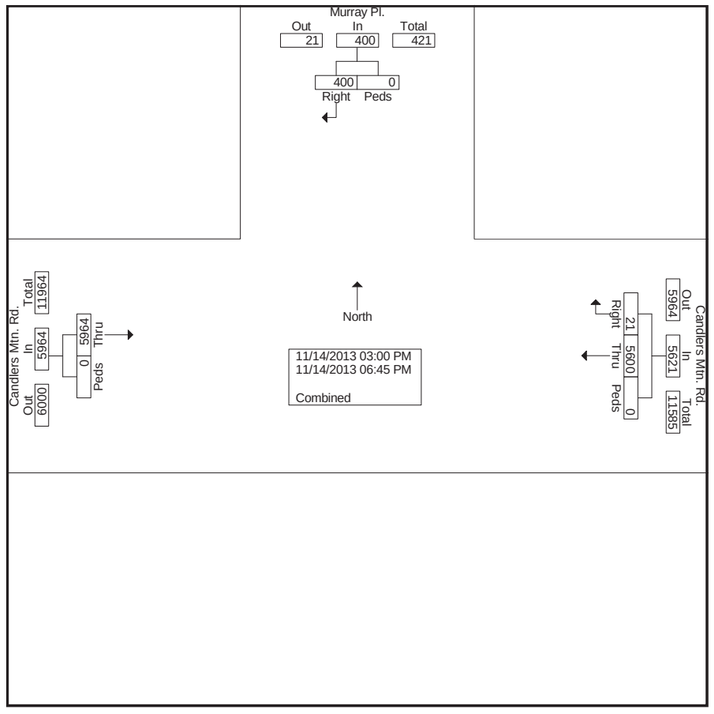
Peggy Malone & Associates, Inc.

(904) 992-8072

File Name : 18 Murray Pl. & Candlers Mtn Rd PM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Combined

	Murray Pl. Southbound			Candlers Mtn. Rd. Westbound				Candlers Mtn. Rd. Eastbound			
Start Time	Right	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Peds	App. Total	Int. Total
03:00 PM	7	0	7	0	316	0	316	384	0	384	707
03:15 PM	27	0	27	1	382	0	383	374	0	374	784
03:30 PM	77	0	77	0	384	0	384	369	0	369	830
03:45 PM	35	0	35	2	339	0	341	349	0	349	725
Total	146	0	146	3	1421	0	1424	1476	0	1476	3046
04:00 PM	18	0	18	0	358	0	358	346	0	346	722
04:15 PM	21	0	21	2	299	0	301	368	0	368	690
04:30 PM	32	0	32	3	357	0	360	386	0	386	778
04:45 PM	34	0	34	0	363	0	363	447	0	447	844
Total	105	0	105	5	1377	0	1382	1547	0	1547	3034
05:00 PM	42	0	42	0	438	0	438	396	0	396	876
05:15 PM	21	0	21	0	442	0	442	435	0	435	898
05:30 PM	20	0	20	2	371	0	373	409	0	409	802
05:45 PM	17	0	17	1	345	0	346	395	0	395	758
Total	100	0	100	3	1596	0	1599	1635	0	1635	3334
06:00 PM	16	0	16	3	338	0	341	348	0	348	705
06:15 PM	11	0	11	3	315	0	318	364	0	364	693
06:30 PM	13	0	13	3	286	0	289	296	0	296	598
06:45 PM	9	0	9	1	267	0	268	298	0	298	575
Total	49	0	49	10	1206	0	1216	1306	0	1306	2571
Grand Total	400	0	400	21	5600	0	5621	5964	0	5964	11985
Apprch %	100	0		0.4	99.6	0		100	0		
Total %	3.3	0	3.3	0.2	46.7	0	46.9	49.8	0	49.8	



Peggy Malone & Associates, Inc.

File Name : 19 Murray Pl_River Ridge Mall & Candlers Mtn Rd AM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Car

	Candlers Mountain Rd. Eastbound					Candlers Mountain Rd. Westbound					River Ridge Mall Driveway Northbound					Murray Pl. Southbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	2	118	11	0	131	7	91	8	0	106	6	0	1	0	7	0	0	9	0	9	253
06:15 AM	3	158	6	0	167	14	137	6	0	157	4	0	3	0	7	0	0	1	0	1	332
06:30 AM	5	187	33	0	225	28	160	9	1	198	11	3	3	0	17	0	0	3	0	3	443
06:45 AM	6	243	36	0	285	34	218	12	0	264	20	3	2	0	25	0	3	2	0	5	579
Total	16	706	86	0	808	83	606	35	1	725	41	6	9	0	56	0	3	15	0	18	1607
07:00 AM	1	251	19	0	271	20	176	14	0	210	11	2	3	0	16	0	0	13	0	13	510
07:15 AM	2	314	20	1	337	21	253	23	0	297	22	4	6	0	32	0	0	13	0	13	679
07:30 AM	4	390	21	0	415	33	298	28	0	359	34	5	8	0	47	2	3	2	0	7	828
07:45 AM	2	382	28	0	412	28	320	47	0	395	68	8	5	0	81	0	1	7	0	8	896
Total	9	1337	88	1	1435	102	1047	112	0	1261	135	19	22	0	176	2	4	35	0	41	2913
08:00 AM	1	358	20	0	379	21	358	38	0	417	68	6	5	0	79	2	0	7	0	9	884
08:15 AM	3	212	13	0	228	10	320	33	0	363	15	0	6	0	21	1	0	3	0	4	616
08:30 AM	8	256	8	0	272	12	239	33	0	284	31	0	10	0	41	1	1	7	0	9	606
08:45 AM	9	361	20	0	390	5	247	43	0	295	26	5	7	0	38	2	1	2	0	5	728
Total	21	1187	61	0	1269	48	1164	147	0	1359	140	11	28	0	179	6	2	19	0	27	2834
09:00 AM	11	314	27	0	352	21	195	21	0	237	23	12	7	0	42	4	2	10	0	16	647
09:15 AM	9	211	25	0	245	14	174	27	0	215	10	2	10	0	22	3	4	5	0	12	494
09:30 AM	17	176	21	0	214	12	179	16	0	207	35	1	14	0	50	3	3	3	0	9	480
09:45 AM	8	196	13	0	217	11	192	39	0	242	27	0	11	0	38	1	3	7	0	11	508
Total	45	897	86	0	1028	58	740	103	0	901	95	15	42	0	152	11	12	25	0	48	2129
Grand Total	91	4127	321	1	4540	291	3557	397	1	4246	411	51	101	0	563	19	21	94	0	134	9483
Apprch %	2	90.9	7.1	0		6.9	83.8	9.3	0		73	9.1	17.9	0		14.2	15.7	70.1	0		
Total %	1	43.5	3.4	0	47.9	3.1	37.5	4.2	0	44.8	4.3	0.5	1.1	0	5.9	0.2	0.2	1	0	1.4	

	Candlers Mountain Rd. Eastbound				Candlers Mountain Rd. Westbound				River Ridge Mall Driveway Northbound				Murray Pl. Southbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	2	314	20	336	21	253	23	297	22	4	6	32	0	0	**13**	**13**	678
07:30 AM	**4**	**390**	21	**415**	**33**	298	28	359	34	5	**8**	47	**2**	**3**	2	7	828
07:45 AM	2	382	**28**	412	28	320	**47**	395	**68**	**8**	5	**81**	0	1	7	8	**896**
08:00 AM	1	358	20	379	21	**358**	38	**417**	68	6	5	79	2	0	7	9	884
Total Volume	9	1444	89	1542	103	1229	136	1468	192	23	24	239	4	4	29	37	3286
% App. Total	0.6	93.6	5.8		7	83.7	9.3		80.3	9.6	10		10.8	10.8	78.4		
PHF	.563	.926	.795	.929	.780	.858	.723	.880	.706	.719	.750	.738	.500	.333	.558	.712	.917

Peggy Malone & Associates, Inc.

File Name : 19 Murray Pl_River Ridge Mall & Candlers Mtn Rd AM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Truck

	Candlers Mountain Rd. Eastbound					Candlers Mountain Rd. Westbound					River Ridge Mall Driveway Northbound					Murray Pl. Southbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	3	0	0	3	1	6	0	0	7	1	0	0	0	1	0	0	0	0	0	11
06:15 AM	0	8	0	0	8	0	13	1	0	14	0	0	0	0	0	0	0	1	0	1	23
06:30 AM	1	5	0	0	6	0	13	1	0	14	0	0	0	0	0	0	0	0	0	0	20
06:45 AM	0	10	0	0	10	1	20	1	0	22	2	0	1	0	3	0	0	0	0	0	35
Total	1	26	0	0	27	2	52	3	0	57	3	0	1	0	4	0	0	1	0	1	89
07:00 AM	0	12	1	0	13	0	13	0	0	13	3	0	0	0	3	0	0	0	0	0	29
07:15 AM	1	11	1	0	13	0	9	1	0	10	0	0	1	0	1	0	0	0	0	0	24
07:30 AM	0	11	1	0	12	1	8	1	0	10	0	0	1	0	1	0	0	0	0	0	23
07:45 AM	0	7	0	0	7	0	17	0	0	17	0	0	0	0	0	0	0	1	0	1	25
Total	1	41	3	0	45	1	47	2	0	50	3	0	2	0	5	0	0	1	0	1	101
08:00 AM	0	10	1	0	11	0	17	0	0	17	3	0	0	0	3	0	0	0	0	0	31
08:15 AM	0	12	0	0	12	2	19	1	0	22	0	0	0	0	0	0	0	0	0	0	34
08:30 AM	0	28	0	0	28	0	11	0	0	11	1	0	1	0	2	0	0	1	0	1	42
08:45 AM	0	15	0	0	15	0	13	0	0	13	1	0	0	0	1	0	0	0	0	0	29
Total	0	65	1	0	66	2	60	1	0	63	5	0	1	0	6	0	0	1	0	1	136
09:00 AM	0	14	1	0	15	1	17	0	0	18	1	0	0	0	1	0	0	1	0	1	35
09:15 AM	0	26	2	0	28	0	13	1	0	14	2	0	0	0	2	0	0	0	0	0	44
09:30 AM	1	17	1	0	19	2	16	0	0	18	1	0	0	0	1	0	0	2	0	2	40
09:45 AM	0	9	0	0	9	1	18	2	0	21	3	0	1	0	4	0	0	0	0	0	34
Total	1	66	4	0	71	4	64	3	0	71	7	0	1	0	8	0	0	3	0	3	153
Grand Total	3	198	8	0	209	9	223	9	0	241	18	0	5	0	23	0	0	6	0	6	479
Apprch %	1.4	94.7	3.8	0		3.7	92.5	3.7	0		78.3	0	21.7	0		0	0	100	0		
Total %	0.6	41.3	1.7	0	43.6	1.9	46.6	1.9	0	50.3	3.8	0	1	0	4.8	0	0	1.3	0	1.3	

	Candlers Mountain Rd. Eastbound				Candlers Mountain Rd. Westbound				River Ridge Mall Driveway Northbound				Murray Pl. Southbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 AM																	
09:00 AM	0	14	1	15	1	17	0	18	1	0	0	1	0	0	1	1	35
09:15 AM	0	**26**	**2**	**28**	0	13	1	14	2	0	0	2	0	0	0	0	**44**
09:30 AM	**1**	17	1	19	**2**	16	0	18	1	0	0	1	0	0	**2**	**2**	40
09:45 AM	0	9	0	9	1	**18**	**2**	**21**	**3**	0	**1**	**4**	0	0	0	0	34
Total Volume	1	66	4	71	4	64	3	71	7	0	1	8	0	0	3	3	153
% App. Total	1.4	93	5.6		5.6	90.1	4.2		87.5	0	12.5		0	0	100		
PHF	.250	.635	.500	.634	.500	.889	.375	.845	.583	.000	.250	.500	.000	.000	.375	.375	.869

Peggy Malone & Associates, Inc.

File Name : 19 Murray Pl_River Ridge Mall & Candlers Mtn Rd AM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Combined

	Candlers Mountain Rd. Eastbound					Candlers Mountain Rd. Westbound					River Ridge Mall Driveway Northbound					Murray Pl. Southbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	2	121	11	0	134	8	97	8	0	113	7	0	1	0	8	0	0	9	0	9	264
06:15 AM	3	166	6	0	175	14	150	7	0	171	4	0	3	0	7	0	0	2	0	2	355
06:30 AM	6	192	33	0	231	28	173	10	1	212	11	3	3	0	17	0	0	3	0	3	463
06:45 AM	6	253	36	0	295	35	238	13	0	286	22	3	3	0	28	0	3	2	0	5	614
Total	17	732	86	0	835	85	658	38	1	782	44	6	10	0	60	0	3	16	0	19	1696
07:00 AM	1	263	20	0	284	20	189	14	0	223	14	2	3	0	19	0	0	13	0	13	539
07:15 AM	3	325	21	1	350	21	262	24	0	307	22	4	7	0	33	0	0	13	0	13	703
07:30 AM	4	401	22	0	427	34	306	29	0	369	34	5	9	0	48	2	3	2	0	7	851
07:45 AM	2	389	28	0	419	28	337	47	0	412	68	8	5	0	81	0	1	8	0	9	921
Total	10	1378	91	1	1480	103	1094	114	0	1311	138	19	24	0	181	2	4	36	0	42	3014
08:00 AM	1	368	21	0	390	21	375	38	0	434	71	6	5	0	82	2	0	7	0	9	915
08:15 AM	3	224	13	0	240	12	339	34	0	385	15	0	6	0	21	1	0	3	0	4	650
08:30 AM	8	284	8	0	300	12	250	33	0	295	32	0	11	0	43	1	1	8	0	10	648
08:45 AM	9	376	20	0	405	5	260	43	0	308	27	5	7	0	39	2	1	2	0	5	757
Total	21	1252	62	0	1335	50	1224	148	0	1422	145	11	29	0	185	6	2	20	0	28	2970
09:00 AM	11	328	28	0	367	22	212	21	0	255	24	12	7	0	43	4	2	11	0	17	682
09:15 AM	9	237	27	0	273	14	187	28	0	229	12	2	10	0	24	3	4	5	0	12	538
09:30 AM	18	193	22	0	233	14	195	16	0	225	36	1	14	0	51	3	3	5	0	11	520
09:45 AM	8	205	13	0	226	12	210	41	0	263	30	0	12	0	42	1	3	7	0	11	542
Total	46	963	90	0	1099	62	804	106	0	972	102	15	43	0	160	11	12	28	0	51	2282
Grand Total	94	4325	329	1	4749	300	3780	406	1	4487	429	51	106	0	586	19	21	100	0	140	9962
Apprch %	2	91.1	6.9	0		6.7	84.2	9	0		73.2	8.7	18.1	0		13.6	15	71.4	0		
Total %	0.9	43.4	3.3	0	47.7	3	37.9	4.1	0	45	4.3	0.5	1.1	0	5.9	0.2	0.2	1	0	1.4	

	Candlers Mountain Rd. Eastbound				Candlers Mountain Rd. Westbound				River Ridge Mall Driveway Northbound				Murray Pl. Southbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	3	325	21	349	21	262	24	307	22	4	7	33	0	0	**13**	**13**	702
07:30 AM	**4**	**401**	22	**427**	**34**	306	29	369	34	5	**9**	48	**2**	**3**	2	7	851
07:45 AM	2	389	**28**	419	28	337	**47**	412	68	**8**	5	81	0	1	8	9	**921**
08:00 AM	1	368	21	390	21	**375**	38	**434**	**71**	6	5	**82**	2	0	7	9	915
Total Volume	10	1483	92	1585	104	1280	138	1522	195	23	26	244	4	4	30	38	3389
% App. Total	0.6	93.6	5.8		6.8	84.1	9.1		79.9	9.4	10.7		10.5	10.5	78.9		
PHF	.625	.925	.821	.928	.765	.853	.734	.877	.687	.719	.722	.744	.500	.333	.577	.731	.920

Peggy Malone & Associates, Inc.

File Name : 19 Murray Pl_River Ridge Mall & Candlers Mtn Rd PM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Car

	Candlers Mountain Rd. Eastbound					Candlers Mountain Rd. Westbound					River Ridge Mall Driveway Northbound					Murray Pl. Southbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:00 PM	17	297	29	1	344	20	248	26	0	294	79	4	47	0	130	2	4	10	0	16	784
03:15 PM	21	269	29	0	319	18	313	40	0	371	71	3	41	0	115	1	0	17	0	18	823
03:30 PM	13	278	14	0	305	16	317	49	0	382	63	0	43	0	106	4	8	39	0	51	844
03:45 PM	26	255	17	0	298	9	296	51	0	356	58	0	34	0	92	2	3	18	0	23	769
Total	77	1099	89	1	1266	63	1174	166	0	1403	271	7	165	0	443	9	15	84	0	108	3220
04:00 PM	13	242	17	0	272	7	279	49	0	335	81	0	50	0	131	9	2	20	0	31	769
04:15 PM	19	276	14	1	310	11	264	47	0	322	63	0	36	0	99	4	3	5	0	12	743
04:30 PM	19	263	14	1	297	13	245	51	0	309	80	0	68	0	148	3	6	24	0	33	787
04:45 PM	18	339	14	0	371	17	329	52	0	398	123	0	54	0	177	3	8	25	0	36	982
Total	69	1120	59	2	1250	48	1117	199	0	1364	347	0	208	0	555	19	19	74	0	112	3281
05:00 PM	23	307	26	0	356	8	311	68	0	387	131	0	64	0	195	9	6	38	0	53	991
05:15 PM	12	345	18	0	375	6	366	72	0	444	111	2	56	0	169	3	7	16	0	26	1014
05:30 PM	19	339	21	0	379	12	301	50	0	363	82	8	45	0	135	1	6	18	0	25	902
05:45 PM	19	295	21	0	335	15	276	62	0	353	82	4	30	1	117	5	3	8	0	16	821
Total	73	1286	86	0	1445	41	1254	252	0	1547	406	14	195	1	616	18	22	80	0	120	3728
06:00 PM	17	277	33	0	327	15	273	49	0	337	94	5	64	0	163	3	1	6	0	10	837
06:15 PM	22	293	15	0	330	8	234	53	0	295	64	5	60	0	129	1	3	6	0	10	764
06:30 PM	18	239	15	0	272	9	247	37	0	293	84	1	50	0	135	1	0	2	0	3	703
06:45 PM	20	248	7	0	275	8	193	33	0	234	65	4	35	0	104	3	0	3	0	6	619
Total	77	1057	70	0	1204	40	947	172	0	1159	307	15	209	0	531	8	4	17	0	29	2923
Grand Total	296	4562	304	3	5165	192	4492	789	0	5473	1331	36	777	1	2145	54	60	255	0	369	13152
Apprch %	5.7	88.3	5.9	0.1		3.5	82.1	14.4	0		62.1	1.7	36.2	0		14.6	16.3	69.1	0		
Total %	2.3	34.7	2.3	0	39.3	1.5	34.2	6	0	41.6	10.1	0.3	5.9	0	16.3	0.4	0.5	1.9	0	2.8	

	Candlers Mountain Rd. Eastbound				Candlers Mountain Rd. Westbound				River Ridge Mall Driveway Northbound				Murray Pl. Southbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	18	339	14	371	**17**	329	52	398	123	0	54	177	3	**8**	25	36	982
05:00 PM	**23**	307	**26**	356	8	311	68	387	**131**	0	**64**	**195**	**9**	6	**38**	**53**	991
05:15 PM	12	**345**	18	375	6	**366**	**72**	**444**	111	2	56	169	3	7	16	26	**1014**
05:30 PM	19	339	21	**379**	12	301	50	363	82	**8**	45	135	1	6	18	25	902
Total Volume	72	1330	79	1481	43	1307	242	1592	447	10	219	676	16	27	97	140	3889
% App. Total	4.9	89.8	5.3		2.7	82.1	15.2		66.1	1.5	32.4		11.4	19.3	69.3		
PHF	.783	.964	.760	.977	.632	.893	.840	.896	.853	.313	.855	.867	.444	.844	.638	.660	.959

Peggy Malone & Associates, Inc.

File Name : 19 Murray Pl_River Ridge Mall & Candlers Mtn Rd PM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Truck

	Candlers Mountain Rd. Eastbound					Candlers Mountain Rd. Westbound					River Ridge Mall Driveway Northbound					Murray Pl. Southbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:00 PM	0	8	1	0	9	0	14	0	0	14	2	0	0	0	2	0	0	0	0	0	25
03:15 PM	0	15	0	0	15	1	14	0	0	15	1	0	0	0	1	2	0	1	0	3	34
03:30 PM	0	11	2	0	13	1	14	0	0	15	1	0	1	0	2	0	0	1	0	1	31
03:45 PM	0	11	4	0	15	1	9	0	0	10	0	0	0	0	0	0	0	1	0	1	26
Total	0	45	7	0	52	3	51	0	0	54	4	0	1	0	5	2	0	3	0	5	116
04:00 PM	0	13	0	0	13	0	8	0	0	8	1	0	0	0	1	1	0	2	0	3	25
04:15 PM	0	22	0	0	22	1	11	1	0	13	1	0	0	0	1	0	0	3	0	3	39
04:30 PM	0	11	1	0	12	1	6	0	0	7	0	0	0	0	0	0	0	0	0	0	19
04:45 PM	0	9	1	0	10	3	7	1	0	11	1	0	0	0	1	0	0	0	0	0	22
Total	0	55	2	0	57	5	32	2	0	39	3	0	0	0	3	1	0	5	0	6	105
05:00 PM	0	6	0	0	6	0	3	1	0	4	1	0	1	0	2	0	0	1	0	1	13
05:15 PM	0	4	0	0	4	0	9	1	0	10	0	0	1	0	1	0	0	0	0	0	15
05:30 PM	1	12	0	0	13	0	9	0	0	9	2	0	1	0	3	0	0	2	0	2	27
05:45 PM	0	8	0	0	8	1	10	0	0	11	1	0	0	0	1	1	0	1	0	2	22
Total	1	30	0	0	31	1	31	2	0	34	4	0	3	0	7	1	0	4	0	5	77
06:00 PM	0	8	1	0	9	0	9	0	0	9	1	0	0	0	1	0	0	1	0	1	20
06:15 PM	1	4	0	0	5	0	7	1	0	8	0	0	0	0	0	0	0	0	0	0	13
06:30 PM	0	2	0	0	2	1	7	0	0	8	0	0	0	0	0	0	0	0	0	0	10
06:45 PM	0	2	0	0	2	0	10	0	0	10	0	0	0	0	0	0	0	1	0	1	13
Total	1	16	1	0	18	1	33	1	0	35	1	0	0	0	1	0	0	2	0	2	56
Grand Total	2	146	10	0	158	10	147	5	0	162	12	0	4	0	16	4	0	14	0	18	354
Apprch %	1.3	92.4	6.3	0		6.2	90.7	3.1	0		75	0	25	0		22.2	0	77.8	0		
Total %	0.6	41.2	2.8	0	44.6	2.8	41.5	1.4	0	45.8	3.4	0	1.1	0	4.5	1.1	0	4	0	5.1	

	Candlers Mountain Rd. Eastbound				Candlers Mountain Rd. Westbound				River Ridge Mall Driveway Northbound				Murray Pl. Southbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:30 PM																	
03:30 PM	0	11	2	13	**1**	**14**	0	**15**	**1**	0	**1**	**2**	0	0	1	1	31
03:45 PM	0	11	**4**	15	1	9	0	10	0	0	0	0	0	0	1	1	26
04:00 PM	0	13	0	13	0	8	0	8	1	0	0	1	**1**	0	2	**3**	25
04:15 PM	0	**22**	0	**22**	1	11	**1**	13	1	0	0	1	0	0	**3**	3	**39**
Total Volume	0	57	6	63	3	42	1	46	3	0	1	4	1	0	7	8	121
% App. Total	0	90.5	9.5		6.5	91.3	2.2		75	0	25		12.5	0	87.5		
PHF	.000	.648	.375	.716	.750	.750	.250	.767	.750	.000	.250	.500	.250	.000	.583	.667	.776

Peggy Malone & Associates, Inc.

File Name : 19 Murray Pl_River Ridge Mall & Candlers Mtn Rd PM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Combined

	Candlers Mountain Rd. Eastbound					Candlers Mountain Rd. Westbound					River Ridge Mall Driveway Northbound					Murray Pl. Southbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:00 PM	17	305	30	1	353	20	262	26	0	308	81	4	47	0	132	2	4	10	0	16	809
03:15 PM	21	284	29	0	334	19	327	40	0	386	72	3	41	0	116	3	0	18	0	21	857
03:30 PM	13	289	16	0	318	17	331	49	0	397	64	0	44	0	108	4	8	40	0	52	875
03:45 PM	26	266	21	0	313	10	305	51	0	366	58	0	34	0	92	2	3	19	0	24	795
Total	77	1144	96	1	1318	66	1225	166	0	1457	275	7	166	0	448	11	15	87	0	113	3336
04:00 PM	13	255	17	0	285	7	287	49	0	343	82	0	50	0	132	10	2	22	0	34	794
04:15 PM	19	298	14	1	332	12	275	48	0	335	64	0	36	0	100	4	3	8	0	15	782
04:30 PM	19	274	15	1	309	14	251	51	0	316	80	0	68	0	148	3	6	24	0	33	806
04:45 PM	18	348	15	0	381	20	336	53	0	409	124	0	54	0	178	3	8	25	0	36	1004
Total	69	1175	61	2	1307	53	1149	201	0	1403	350	0	208	0	558	20	19	79	0	118	3386
05:00 PM	23	313	26	0	362	8	314	69	0	391	132	0	65	0	197	9	6	39	0	54	1004
05:15 PM	12	349	18	0	379	6	375	73	0	454	111	2	57	0	170	3	7	16	0	26	1029
05:30 PM	20	351	21	0	392	12	310	50	0	372	84	8	46	0	138	1	6	20	0	27	929
05:45 PM	19	303	21	0	343	16	286	62	0	364	83	4	30	1	118	6	3	9	0	18	843
Total	74	1316	86	0	1476	42	1285	254	0	1581	410	14	198	1	623	19	22	84	0	125	3805
06:00 PM	17	285	34	0	336	15	282	49	0	346	95	5	64	0	164	3	1	7	0	11	857
06:15 PM	23	297	15	0	335	8	241	54	0	303	64	5	60	0	129	1	3	6	0	10	777
06:30 PM	18	241	15	0	274	10	254	37	0	301	84	1	50	0	135	1	0	2	0	3	713
06:45 PM	20	250	7	0	277	8	203	33	0	244	65	4	35	0	104	3	0	4	0	7	632
Total	78	1073	71	0	1222	41	980	173	0	1194	308	15	209	0	532	8	4	19	0	31	2979
Grand Total	298	4708	314	3	5323	202	4639	794	0	5635	1343	36	781	1	2161	58	60	269	0	387	13506
Apprch %	5.6	88.4	5.9	0.1		3.6	82.3	14.1	0		62.1	1.7	36.1	0		15	15.5	69.5	0		
Total %	2.2	34.9	2.3	0	39.4	1.5	34.3	5.9	0	41.7	9.9	0.3	5.8	0	16	0.4	0.4	2	0	2.9	

	Candlers Mountain Rd. Eastbound				Candlers Mountain Rd. Westbound				River Ridge Mall Driveway Northbound				Murray Pl. Southbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	18	348	15	381	**20**	336	53	409	124	0	54	178	3	**8**	25	36	1004
05:00 PM	**23**	313	**26**	362	8	314	69	391	**132**	0	**65**	**197**	**9**	6	**39**	**54**	1004
05:15 PM	12	349	18	379	6	**375**	**73**	**454**	111	2	57	170	3	7	16	26	**1029**
05:30 PM	20	**351**	21	**392**	12	310	50	372	84	**8**	46	138	1	6	20	27	929
Total Volume	73	1361	80	1514	46	1335	245	1626	451	10	222	683	16	27	100	143	3966
% App. Total	4.8	89.9	5.3		2.8	82.1	15.1		66	1.5	32.5		11.2	18.9	69.9		
PHF	.793	.969	.769	.966	.575	.890	.839	.895	.854	.313	.854	.867	.444	.844	.641	.662	.964

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 3-Mayflower Dr. and Candlers Mountain Rd. AM
Site Code :
Start Date : 10/15/2015
Page No : 1

Groups Printed- Car

	Mayflower Dr. Southbound					Candlers Mountain Rd. Westbound					Mayflower Dr. Northbound					Candlers Mountain Rd. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	15	4	13	0	32	39	109	3	0	151	9	0	0	0	9	36	57	27	0	120	312
06:15 AM	9	7	6	0	22	68	153	3	0	224	3	0	0	0	3	30	91	34	0	155	404
06:30 AM	10	7	7	0	24	113	230	2	0	345	9	0	0	0	9	59	110	43	0	212	590
06:45 AM	11	8	13	0	32	143	241	5	0	389	7	0	0	0	7	96	118	41	0	255	683
Total	45	26	39	0	110	363	733	13	0	1109	28	0	0	0	28	221	376	145	0	742	1989
07:00 AM	23	12	45	0	80	63	184	11	0	258	11	0	0	0	11	82	123	14	0	219	568
07:15 AM	10	26	19	0	55	72	325	17	0	414	13	0	0	0	13	128	159	14	0	301	783
07:30 AM	15	16	13	0	44	86	357	32	0	475	11	0	0	0	11	191	126	22	0	339	869
07:45 AM	13	34	16	0	63	95	356	44	0	495	31	0	0	0	31	240	141	20	0	401	990
Total	61	88	93	0	242	316	1222	104	0	1642	66	0	0	0	66	641	549	70	0	1260	3210
08:00 AM	23	19	20	0	62	120	321	60	0	501	46	0	0	0	46	242	112	28	0	382	991
08:15 AM	15	13	16	0	44	62	341	14	0	417	27	0	0	0	27	81	89	21	0	191	679
08:30 AM	16	7	14	0	37	56	269	7	0	332	9	0	0	0	9	76	80	14	0	170	548
08:45 AM	8	14	17	0	39	44	291	7	0	342	10	0	0	0	10	113	96	26	0	235	626
Total	62	53	67	0	182	282	1222	88	0	1592	92	0	0	0	92	512	377	89	0	978	2844
09:00 AM	14	17	21	0	52	33	224	11	1	269	5	0	0	0	5	133	104	9	0	246	572
09:15 AM	28	15	11	0	54	50	185	12	0	247	13	0	0	0	13	121	95	14	0	230	544
09:30 AM	27	15	19	0	61	21	197	4	0	222	9	0	0	0	9	107	70	20	0	197	489
09:45 AM	16	11	17	0	44	44	206	5	0	255	14	0	0	0	14	86	97	21	0	204	517
Total	85	58	68	0	211	148	812	32	1	993	41	0	0	0	41	447	366	64	0	877	2122
Grand Total	253	225	267	0	745	1109	3989	237	1	5336	227	0	0	0	227	1821	1668	368	0	3857	10165
Apprch %	34	30.2	35.8	0		20.8	74.8	4.4	0		100	0	0	0		47.2	43.2	9.5	0		
Total %	2.5	2.2	2.6	0	7.3	10.9	39.2	2.3	0	52.5	2.2	0	0	0	2.2	17.9	16.4	3.6	0	37.9	

	Mayflower Dr. Southbound				Candlers Mountain Rd. Westbound				Mayflower Dr. Northbound				Candlers Mountain Rd. Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	10	26	19	55	72	325	17	414	13	0	0	13	128	**159**	14	301	783
07:30 AM	15	16	13	44	86	**357**	32	475	11	0	0	11	191	126	22	339	869
07:45 AM	13	**34**	16	**63**	95	356	44	495	31	0	0	31	240	141	20	**401**	990
08:00 AM	**23**	19	**20**	62	**120**	321	**60**	**501**	**46**	0	0	**46**	**242**	112	**28**	382	**991**
Total Volume	61	95	68	224	373	1359	153	1885	101	0	0	101	801	538	84	1423	3633
% App. Total	27.2	42.4	30.4		19.8	72.1	8.1		100	0	0		56.3	37.8	5.9		
PHF	.663	.699	.850	.889	.777	.952	.638	.941	.549	.000	.000	.549	.827	.846	.750	.887	.916

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 3-Mayflower Dr. and Candlers Mountain Rd. AM
Site Code :
Start Date : 10/15/2015
Page No : 1

Groups Printed- Truck

	Mayflower Dr. Southbound					Candlers Mountain Rd. Westbound					Mayflower Dr. Northbound					Candlers Mountain Rd. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	2	0	5	0	7	0	7	0	0	7	0	0	0	0	0	4	5	1	0	10	24
06:15 AM	5	0	5	0	10	1	7	0	0	8	1	0	0	0	1	1	5	0	0	6	25
06:30 AM	5	1	3	0	9	6	9	1	0	16	2	0	0	0	2	1	9	0	0	10	37
06:45 AM	5	1	5	0	11	3	7	1	0	11	1	0	0	0	1	5	10	1	0	16	39
Total	17	2	18	0	37	10	30	2	0	42	4	0	0	0	4	11	29	2	0	42	125
07:00 AM	4	2	7	0	13	0	9	0	0	9	2	0	0	0	2	6	9	0	0	15	39
07:15 AM	4	1	8	0	13	5	11	0	0	16	0	0	0	0	0	6	12	0	0	18	47
07:30 AM	2	2	4	0	8	7	9	0	0	16	1	0	0	0	1	2	4	1	0	7	32
07:45 AM	3	2	11	0	16	4	9	4	0	17	0	0	0	0	0	4	6	2	0	12	45
Total	13	7	30	0	50	16	38	4	0	58	3	0	0	0	3	18	31	3	0	52	163
08:00 AM	2	3	4	0	9	7	14	1	0	22	0	0	0	0	0	3	8	0	0	11	42
08:15 AM	1	1	2	0	4	6	14	0	0	20	0	0	0	0	0	1	8	12	0	21	45
08:30 AM	2	0	6	0	8	6	13	0	0	19	1	0	0	0	1	2	8	7	0	17	45
08:45 AM	1	1	3	0	5	7	11	1	0	19	1	0	0	0	1	4	9	3	0	16	41
Total	6	5	15	0	26	26	52	2	0	80	2	0	0	0	2	10	33	22	0	65	173
09:00 AM	1	0	9	0	10	10	11	0	0	21	0	0	0	0	0	3	10	3	0	16	47
09:15 AM	3	1	5	0	9	10	11	0	0	21	0	0	0	0	0	3	18	3	0	24	54
09:30 AM	3	0	7	0	10	7	8	0	0	15	0	0	0	0	0	5	14	2	0	21	46
09:45 AM	1	1	3	0	5	8	9	0	0	17	1	0	0	0	1	4	12	1	0	17	40
Total	8	2	24	0	34	35	39	0	0	74	1	0	0	0	1	15	54	9	0	78	187
Grand Total	44	16	87	0	147	87	159	8	0	254	10	0	0	0	10	54	147	36	0	237	648
Apprch %	29.9	10.9	59.2	0		34.3	62.6	3.1	0		100	0	0	0		22.8	62	15.2	0		
Total %	6.8	2.5	13.4	0	22.7	13.4	24.5	1.2	0	39.2	1.5	0	0	0	1.5	8.3	22.7	5.6	0	36.6	

	Mayflower Dr. Southbound				Candlers Mountain Rd. Westbound				Mayflower Dr. Northbound				Candlers Mountain Rd. Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:45 AM																	
08:45 AM	1	**1**	3	5	7	**11**	**1**	19	**1**	0	0	**1**	4	9	**3**	16	41
09:00 AM	1	0	**9**	**10**	**10**	11	0	**21**	0	0	0	0	3	10	3	16	47
09:15 AM	**3**	1	5	9	10	11	0	21	0	0	0	0	3	**18**	3	**24**	**54**
09:30 AM	3	0	7	10	7	8	0	15	0	0	0	0	**5**	14	2	21	46
Total Volume	8	2	24	34	34	41	1	76	1	0	0	1	15	51	11	77	188
% App. Total	23.5	5.9	70.6		44.7	53.9	1.3		100	0	0		19.5	66.2	14.3		
PHF	.667	.500	.667	.850	.850	.932	.250	.905	.250	.000	.000	.250	.750	.708	.917	.802	.870

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 3-Mayflower Dr. and Candlers Mountain Rd. AM
Site Code :
Start Date : 10/15/2015
Page No : 1

Groups Printed- Combined

	Mayflower Dr. Southbound					Candlers Mountain Rd. Westbound					Mayflower Dr. Northbound					Candlers Mountain Rd. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	17	4	18	0	39	39	116	3	0	158	9	0	0	0	9	40	62	28	0	130	336
06:15 AM	14	7	11	0	32	69	160	3	0	232	4	0	0	0	4	31	96	34	0	161	429
06:30 AM	15	8	10	0	33	119	239	3	0	361	11	0	0	0	11	60	119	43	0	222	627
06:45 AM	16	9	18	0	43	146	248	6	0	400	8	0	0	0	8	101	128	42	0	271	722
Total	62	28	57	0	147	373	763	15	0	1151	32	0	0	0	32	232	405	147	0	784	2114
07:00 AM	27	14	52	0	93	63	193	11	0	267	13	0	0	0	13	88	132	14	0	234	607
07:15 AM	14	27	27	0	68	77	336	17	0	430	13	0	0	0	13	134	171	14	0	319	830
07:30 AM	17	18	17	0	52	93	366	32	0	491	12	0	0	0	12	193	130	23	0	346	901
07:45 AM	16	36	27	0	79	99	365	48	0	512	31	0	0	0	31	244	147	22	0	413	1035
Total	74	95	123	0	292	332	1260	108	0	1700	69	0	0	0	69	659	580	73	0	1312	3373
08:00 AM	25	22	24	0	71	127	335	61	0	523	46	0	0	0	46	245	120	28	0	393	1033
08:15 AM	16	14	18	0	48	68	355	14	0	437	27	0	0	0	27	82	97	33	0	212	724
08:30 AM	18	7	20	0	45	62	282	7	0	351	10	0	0	0	10	78	88	21	0	187	593
08:45 AM	9	15	20	0	44	51	302	8	0	361	11	0	0	0	11	117	105	29	0	251	667
Total	68	58	82	0	208	308	1274	90	0	1672	94	0	0	0	94	522	410	111	0	1043	3017
09:00 AM	15	17	30	0	62	43	235	11	1	290	5	0	0	0	5	136	114	12	0	262	619
09:15 AM	31	16	16	0	63	60	196	12	0	268	13	0	0	0	13	124	113	17	0	254	598
09:30 AM	30	15	26	0	71	28	205	4	0	237	9	0	0	0	9	112	84	22	0	218	535
09:45 AM	17	12	20	0	49	52	215	5	0	272	15	0	0	0	15	90	109	22	0	221	557
Total	93	60	92	0	245	183	851	32	1	1067	42	0	0	0	42	462	420	73	0	955	2309
Grand Total	297	241	354	0	892	1196	4148	245	1	5590	237	0	0	0	237	1875	1815	404	0	4094	10813
Apprch %	33.3	27	39.7	0		21.4	74.2	4.4	0		100	0	0	0		45.8	44.3	9.9	0		
Total %	2.7	2.2	3.3	0	8.2	11.1	38.4	2.3	0	51.7	2.2	0	0	0	2.2	17.3	16.8	3.7	0	37.9	

	Mayflower Dr. Southbound				Candlers Mountain Rd. Westbound				Mayflower Dr. Northbound				Candlers Mountain Rd. Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	14	27	**27**	68	77	336	17	430	13	0	0	13	134	**171**	14	319	830
07:30 AM	17	18	17	52	93	**366**	32	491	12	0	0	12	193	130	23	346	901
07:45 AM	16	**36**	27	**79**	99	365	48	512	31	0	0	31	244	147	22	**413**	**1035**
08:00 AM	**25**	22	24	71	**127**	335	**61**	**523**	**46**	0	0	**46**	**245**	120	**28**	393	1033
Total Volume	72	103	95	270	396	1402	158	1956	102	0	0	102	816	568	87	1471	3799
% App. Total	26.7	38.1	35.2		20.2	71.7	8.1		100	0	0		55.5	38.6	5.9		
PHF	.720	.715	.880	.854	.780	.958	.648	.935	.554	.000	.000	.554	.833	.830	.777	.890	.918

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 3-Mayflower Dr. and Candlers Mountain Rd. PM
Site Code :
Start Date : 10/15/2015
Page No : 1

Groups Printed- Car

	Mayflower Dr. Southbound					Candlers Mountain Rd. Westbound					Mayflower Dr. Northbound					Candlers Mountain Rd. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:00 PM	37	21	51	0	109	32	261	25	0	318	31	0	0	0	31	120	210	23	0	353	811
03:15 PM	37	17	38	0	92	43	306	8	0	357	64	0	0	0	64	122	183	19	0	324	837
03:30 PM	57	22	77	0	156	47	280	10	0	337	29	0	0	0	29	127	214	17	0	358	880
03:45 PM	30	13	34	0	77	32	229	12	0	273	35	0	0	0	35	117	216	20	0	353	738
Total	161	73	200	0	434	154	1076	55	0	1285	159	0	0	0	159	486	823	79	0	1388	3266
04:00 PM	30	21	67	0	118	39	297	12	0	348	36	0	0	0	36	106	246	13	0	365	867
04:15 PM	28	13	40	0	81	37	275	10	0	322	37	0	0	0	37	136	214	14	0	364	804
04:30 PM	39	27	65	0	131	35	319	8	0	362	27	0	0	0	27	121	289	13	0	423	943
04:45 PM	30	36	58	0	124	37	312	8	0	357	37	0	0	0	37	117	242	15	0	374	892
Total	127	97	230	0	454	148	1203	38	0	1389	137	0	0	0	137	480	991	55	0	1526	3506
05:00 PM	52	18	98	0	168	52	290	26	0	368	51	0	0	0	51	129	244	9	0	382	969
05:15 PM	30	27	84	0	141	39	289	13	0	341	57	0	0	0	57	99	275	5	0	379	918
05:30 PM	25	19	61	0	105	32	346	14	0	392	48	0	0	0	48	133	221	13	0	367	912
05:45 PM	15	25	37	0	77	36	326	13	0	375	47	0	0	0	47	135	224	8	0	367	866
Total	122	89	280	0	491	159	1251	66	0	1476	203	0	0	0	203	496	964	35	0	1495	3665
06:00 PM	19	11	52	0	82	41	326	21	0	388	48	0	0	0	48	123	114	7	0	244	762
06:15 PM	16	9	35	0	60	29	263	20	0	312	29	0	0	0	29	122	138	12	0	272	673
06:30 PM	12	17	35	0	64	25	279	21	0	325	33	0	0	0	33	130	181	13	0	324	746
06:45 PM	14	9	34	0	57	28	251	24	0	303	31	0	0	0	31	121	172	10	0	303	694
Total	61	46	156	0	263	123	1119	86	0	1328	141	0	0	0	141	496	605	42	0	1143	2875
Grand Total	471	305	866	0	1642	584	4649	245	0	5478	640	0	0	0	640	1958	3383	211	0	5552	13312
Apprch %	28.7	18.6	52.7	0		10.7	84.9	4.5	0		100	0	0	0		35.3	60.9	3.8	0		
Total %	3.5	2.3	6.5	0	12.3	4.4	34.9	1.8	0	41.2	4.8	0	0	0	4.8	14.7	25.4	1.6	0	41.7	

	Mayflower Dr. Southbound				Candlers Mountain Rd. Westbound				Mayflower Dr. Northbound				Candlers Mountain Rd. Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	39	27	65	131	35	**319**	8	362	27	0	0	27	121	**289**	13	**423**	943
04:45 PM	30	**36**	58	124	37	312	8	357	37	0	0	37	117	242	**15**	374	892
05:00 PM	**52**	18	**98**	**168**	**52**	290	**26**	**368**	51	0	0	51	**129**	244	9	382	**969**
05:15 PM	30	27	84	141	39	289	13	341	**57**	0	0	**57**	99	275	5	379	918
Total Volume	151	108	305	564	163	1210	55	1428	172	0	0	172	466	1050	42	1558	3722
% App. Total	26.8	19.1	54.1		11.4	84.7	3.9		100	0	0		29.9	67.4	2.7		
PHF	.726	.750	.778	.839	.784	.948	.529	.970	.754	.000	.000	.754	.903	.908	.700	.921	.960

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 3-Mayflower Dr. and Candlers Mountain Rd. PM
Site Code :
Start Date : 10/15/2015
Page No : 1

Groups Printed- Truck

	Mayflower Dr. Southbound					Candlers Mountain Rd. Westbound					Mayflower Dr. Northbound					Candlers Mountain Rd. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:00 PM	0	2	9	0	11	5	13	1	0	19	1	0	0	0	1	4	13	0	0	17	48
03:15 PM	1	0	6	0	7	8	11	0	0	19	5	0	0	0	5	4	9	3	0	16	47
03:30 PM	1	0	2	0	3	7	9	0	0	16	3	0	0	0	3	4	12	2	0	18	40
03:45 PM	2	0	3	0	5	7	5	0	0	12	1	0	0	0	1	2	14	1	0	17	35
Total	4	2	20	0	26	27	38	1	0	66	10	0	0	0	10	14	48	6	0	68	170
04:00 PM	1	0	3	0	4	7	7	0	0	14	0	0	0	0	0	5	9	1	0	15	33
04:15 PM	2	0	3	0	5	3	10	0	0	13	0	0	0	0	0	3	11	5	0	19	37
04:30 PM	0	0	3	0	3	8	8	0	0	16	0	0	0	0	0	1	8	3	0	12	31
04:45 PM	1	0	6	0	7	3	8	0	0	11	0	0	0	0	0	2	11	0	0	13	31
Total	4	0	15	0	19	21	33	0	0	54	0	0	0	0	0	11	39	9	0	59	132
05:00 PM	1	0	2	0	3	3	10	0	0	13	0	0	0	0	0	3	6	1	0	10	26
05:15 PM	1	0	7	0	8	3	5	0	0	8	0	0	0	0	0	1	7	1	0	9	25
05:30 PM	1	0	2	0	3	10	6	0	0	16	1	0	0	0	1	2	7	1	0	10	30
05:45 PM	1	0	3	0	4	4	5	0	0	9	0	0	0	0	0	3	7	2	0	12	25
Total	4	0	14	0	18	20	26	0	0	46	1	0	0	0	1	9	27	5	0	41	106
06:00 PM	1	0	1	0	2	7	7	0	0	14	3	0	0	0	3	2	2	0	0	4	23
06:15 PM	1	0	2	0	3	8	8	2	0	18	2	0	0	0	2	2	3	2	0	7	30
06:30 PM	0	1	5	0	6	1	6	0	0	7	0	0	0	0	0	1	2	2	0	5	18
06:45 PM	1	1	10	0	12	2	4	0	0	6	0	0	0	0	0	2	7	0	0	9	27
Total	3	2	18	0	23	18	25	2	0	45	5	0	0	0	5	7	14	4	0	25	98
Grand Total	15	4	67	0	86	86	122	3	0	211	16	0	0	0	16	41	128	24	0	193	506
Apprch %	17.4	4.7	77.9	0		40.8	57.8	1.4	0		100	0	0	0		21.2	66.3	12.4	0		
Total %	3	0.8	13.2	0	17	17	24.1	0.6	0	41.7	3.2	0	0	0	3.2	8.1	25.3	4.7	0	38.1	

	Mayflower Dr. Southbound				Candlers Mountain Rd. Westbound				Mayflower Dr. Northbound				Candlers Mountain Rd. Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	0	**2**	**9**	**11**	5	**13**	**1**	**19**	1	0	0	1	**4**	13	0	17	**48**
03:15 PM	1	0	6	7	**8**	11	0	19	**5**	0	0	**5**	4	9	**3**	16	47
03:30 PM	1	0	2	3	7	9	0	16	3	0	0	3	4	12	2	**18**	40
03:45 PM	**2**	0	3	5	7	5	0	12	1	0	0	1	2	**14**	1	17	35
Total Volume	4	2	20	26	27	38	1	66	10	0	0	10	14	48	6	68	170
% App. Total	15.4	7.7	76.9		40.9	57.6	1.5		100	0	0		20.6	70.6	8.8		
PHF	.500	.250	.556	.591	.844	.731	.250	.868	.500	.000	.000	.500	.875	.857	.500	.944	.885

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 3-Mayflower Dr. and Candlers Mountain Rd. PM
Site Code :
Start Date : 10/15/2015
Page No : 1

Groups Printed- Combined

	Mayflower Dr. Southbound					Candlers Mountain Rd. Westbound					Mayflower Dr. Northbound					Candlers Mountain Rd. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:00 PM	37	23	60	0	120	37	274	26	0	337	32	0	0	0	32	124	223	23	0	370	859
03:15 PM	38	17	44	0	99	51	317	8	0	376	69	0	0	0	69	126	192	22	0	340	884
03:30 PM	58	22	79	0	159	54	289	10	0	353	32	0	0	0	32	131	226	19	0	376	920
03:45 PM	32	13	37	0	82	39	234	12	0	285	36	0	0	0	36	119	230	21	0	370	773
Total	165	75	220	0	460	181	1114	56	0	1351	169	0	0	0	169	500	871	85	0	1456	3436
04:00 PM	31	21	70	0	122	46	304	12	0	362	36	0	0	0	36	111	255	14	0	380	900
04:15 PM	30	13	43	0	86	40	285	10	0	335	37	0	0	0	37	139	225	19	0	383	841
04:30 PM	39	27	68	0	134	43	327	8	0	378	27	0	0	0	27	122	297	16	0	435	974
04:45 PM	31	36	64	0	131	40	320	8	0	368	37	0	0	0	37	119	253	15	0	387	923
Total	131	97	245	0	473	169	1236	38	0	1443	137	0	0	0	137	491	1030	64	0	1585	3638
05:00 PM	53	18	100	0	171	55	300	26	0	381	51	0	0	0	51	132	250	10	0	392	995
05:15 PM	31	27	91	0	149	42	294	13	0	349	57	0	0	0	57	100	282	6	0	388	943
05:30 PM	26	19	63	0	108	42	352	14	0	408	49	0	0	0	49	135	228	14	0	377	942
05:45 PM	16	25	40	0	81	40	331	13	0	384	47	0	0	0	47	138	231	10	0	379	891
Total	126	89	294	0	509	179	1277	66	0	1522	204	0	0	0	204	505	991	40	0	1536	3771
06:00 PM	20	11	53	0	84	48	333	21	0	402	51	0	0	0	51	125	116	7	0	248	785
06:15 PM	17	9	37	0	63	37	271	22	0	330	31	0	0	0	31	124	141	14	0	279	703
06:30 PM	12	18	40	0	70	26	285	21	0	332	33	0	0	0	33	131	183	15	0	329	764
06:45 PM	15	10	44	0	69	30	255	24	0	309	31	0	0	0	31	123	179	10	0	312	721
Total	64	48	174	0	286	141	1144	88	0	1373	146	0	0	0	146	503	619	46	0	1168	2973
Grand Total	486	309	933	0	1728	670	4771	248	0	5689	656	0	0	0	656	1999	3511	235	0	5745	13818
Apprch %	28.1	17.9	54	0		11.8	83.9	4.4	0		100	0	0	0		34.8	61.1	4.1	0		
Total %	3.5	2.2	6.8	0	12.5	4.8	34.5	1.8	0	41.2	4.7	0	0	0	4.7	14.5	25.4	1.7	0	41.6	

	Mayflower Dr. Southbound				Candlers Mountain Rd. Westbound				Mayflower Dr. Northbound				Candlers Mountain Rd. Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	39	27	68	134	43	**327**	8	378	27	0	0	27	122	**297**	**16**	**435**	974
04:45 PM	31	**36**	64	131	40	320	8	368	37	0	0	37	119	253	15	387	923
05:00 PM	**53**	18	**100**	**171**	**55**	300	**26**	**381**	51	0	0	51	**132**	250	10	392	**995**
05:15 PM	31	27	91	149	42	294	13	349	**57**	0	0	**57**	100	282	6	388	943
Total Volume	154	108	323	585	180	1241	55	1476	172	0	0	172	473	1082	47	1602	3835
% App. Total	26.3	18.5	55.2		12.2	84.1	3.7		100	0	0		29.5	67.5	2.9		
PHF	.726	.750	.808	.855	.818	.949	.529	.969	.754	.000	.000	.754	.896	.911	.734	.921	.964

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 4-Candlers Mtn Rd. and Mountain View AM
Site Code :
Start Date : 10/15/2015
Page No : 1

Groups Printed- Car

	Candlers Mountain Rd. Southbound					Mountain View Rd. Westbound					Candlers Mountain Rd. Northbound					Mountain View Rd. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	1	40	0	0	41	0	0	0	0	0	20	9	0	0	29	0	0	0	0	0	70
06:15 AM	4	33	1	0	38	0	0	0	0	0	23	3	0	0	26	0	0	0	0	0	64
06:30 AM	4	59	1	0	64	0	0	0	0	0	39	10	0	0	49	0	0	0	0	0	113
06:45 AM	28	84	5	0	117	0	0	0	0	0	40	7	0	0	47	0	1	0	0	1	165
Total	37	216	7	0	260	0	0	0	0	0	122	29	0	0	151	0	1	0	0	1	412
07:00 AM	36	70	2	0	108	0	0	0	0	0	33	9	0	0	42	0	0	0	0	0	150
07:15 AM	71	102	7	0	180	0	0	0	1	1	59	12	0	0	71	0	0	0	0	0	252
07:30 AM	109	135	3	0	247	0	0	0	1	1	93	13	2	0	108	0	0	0	0	0	356
07:45 AM	177	144	1	0	322	0	0	0	0	0	93	33	14	0	140	0	0	0	0	0	462
Total	393	451	13	0	857	0	0	0	2	2	278	67	16	0	361	0	0	0	0	0	1220
08:00 AM	163	160	1	0	324	0	0	0	0	0	119	49	21	0	189	0	0	0	0	0	513
08:15 AM	36	76	2	0	114	0	0	0	0	0	96	28	6	0	130	0	0	0	0	0	244
08:30 AM	13	79	3	0	95	0	0	0	0	0	51	9	0	0	60	0	0	1	0	1	156
08:45 AM	30	101	0	0	131	0	0	0	0	0	66	11	3	0	80	1	0	0	0	1	212
Total	242	416	6	0	664	0	0	0	0	0	332	97	30	0	459	1	0	1	0	2	1125
09:00 AM	28	128	3	0	159	0	0	0	0	0	67	6	0	0	73	0	0	1	0	1	233
09:15 AM	33	120	3	0	156	0	0	0	0	0	62	9	0	0	71	0	0	0	0	0	227
09:30 AM	23	109	2	0	134	0	0	0	0	0	46	10	0	0	56	0	0	0	0	0	190
09:45 AM	14	83	1	0	98	0	0	0	0	0	66	14	0	0	80	0	3	0	0	3	181
Total	98	440	9	0	547	0	0	0	0	0	241	39	0	0	280	0	3	1	0	4	831
Grand Total	770	1523	35	0	2328	0	0	0	2	2	973	232	46	0	1251	1	4	2	0	7	3588
Apprch %	33.1	65.4	1.5	0		0	0	0	100		77.8	18.5	3.7	0		14.3	57.1	28.6	0		
Total %	21.5	42.4	1	0	64.9	0	0	0	0.1	0.1	27.1	6.5	1.3	0	34.9	0	0.1	0.1	0	0.2	

	Candlers Mountain Rd. Southbound				Mountain View Rd. Westbound				Candlers Mountain Rd. Northbound				Mountain View Rd. Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	71	102	**7**	180	0	0	0	0	59	12	0	71	0	0	0	0	251
07:30 AM	109	135	3	247	0	0	0	0	93	13	2	108	0	0	0	0	355
07:45 AM	**177**	144	1	322	0	0	0	0	93	33	14	140	0	0	0	0	462
08:00 AM	163	**160**	1	**324**	0	0	0	0	**119**	**49**	**21**	**189**	0	0	0	0	**513**
Total Volume	520	541	12	1073	0	0	0	0	364	107	37	508	0	0	0	0	1581
% App. Total	48.5	50.4	1.1		0	0	0		71.7	21.1	7.3		0	0	0		
PHF	.734	.845	.429	.828	.000	.000	.000	.000	.765	.546	.440	.672	.000	.000	.000	.000	.770

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 4-Candlers Mtn Rd. and Mountain View AM
Site Code :
Start Date : 10/15/2015
Page No : 1

Groups Printed- Truck

	Candlers Mountain Rd. Southbound					Mountain View Rd. Westbound					Candlers Mountain Rd. Northbound					Mountain View Rd. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	5	0	0	5	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	7
06:15 AM	0	1	0	0	1	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	3
06:30 AM	0	3	0	0	3	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	5
06:45 AM	1	6	0	0	7	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	8
Total	1	15	0	0	16	0	0	0	0	0	4	3	0	0	7	0	0	0	0	0	23
07:00 AM	0	8	0	0	8	0	0	0	0	0	2	3	0	0	5	0	0	0	0	0	13
07:15 AM	0	6	1	0	7	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	9
07:30 AM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
07:45 AM	0	8	1	0	9	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	10
Total	0	25	2	0	27	0	0	0	0	0	5	3	0	0	8	0	0	0	0	0	35
08:00 AM	0	7	0	0	7	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	9
08:15 AM	0	2	0	0	2	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	4
08:30 AM	0	2	0	0	2	0	0	0	0	0	3	1	0	0	4	0	0	0	0	0	6
08:45 AM	0	5	0	0	5	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	6
Total	0	16	0	0	16	0	0	0	0	0	7	2	0	0	9	0	0	0	0	0	25
09:00 AM	0	2	0	0	2	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	4
09:15 AM	0	4	0	0	4	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	7
09:30 AM	0	4	0	0	4	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	6
09:45 AM	0	6	1	0	7	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	9
Total	0	16	1	0	17	0	0	0	0	0	9	0	0	0	9	0	0	0	0	0	26
Grand Total	1	72	3	0	76	0	0	0	0	0	25	8	0	0	33	0	0	0	0	0	109
Apprch %	1.3	94.7	3.9	0		0	0	0	0		75.8	24.2	0	0		0	0	0	0		
Total %	0.9	66.1	2.8	0	69.7	0	0	0	0	0	22.9	7.3	0	0	30.3	0	0	0	0	0	

	Candlers Mountain Rd. Southbound				Mountain View Rd. Westbound				Candlers Mountain Rd. Northbound				Mountain View Rd. Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:30 AM																	
06:30 AM	0	3	0	3	0	0	0	0	1	1	0	2	0	0	0	0	5
06:45 AM	**1**	6	0	7	0	0	0	0	0	1	0	1	0	0	0	0	8
07:00 AM	0	**8**	0	**8**	0	0	0	0	**2**	**3**	0	**5**	0	0	0	0	**13**
07:15 AM	0	6	**1**	7	0	0	0	0	2	0	0	2	0	0	0	0	9
Total Volume	1	23	1	25	0	0	0	0	5	5	0	10	0	0	0	0	35
% App. Total	4	92	4		0	0	0		50	50	0		0	0	0		
PHF	.250	.719	.250	.781	.000	.000	.000	.000	.625	.417	.000	.500	.000	.000	.000	.000	.673

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 4-Candlers Mtn Rd. and Mountain View AM
Site Code :
Start Date : 10/15/2015
Page No : 1

Groups Printed- Combined

	Candlers Mountain Rd. Southbound					Mountain View Rd. Westbound					Candlers Mountain Rd. Northbound					Mountain View Rd. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	1	45	0	0	46	0	0	0	0	0	22	9	0	0	31	0	0	0	0	0	77
06:15 AM	4	34	1	0	39	0	0	0	0	0	24	4	0	0	28	0	0	0	0	0	67
06:30 AM	4	62	1	0	67	0	0	0	0	0	40	11	0	0	51	0	0	0	0	0	118
06:45 AM	29	90	5	0	124	0	0	0	0	0	40	8	0	0	48	0	1	0	0	1	173
Total	38	231	7	0	276	0	0	0	0	0	126	32	0	0	158	0	1	0	0	1	435
07:00 AM	36	78	2	0	116	0	0	0	0	0	35	12	0	0	47	0	0	0	0	0	163
07:15 AM	71	108	8	0	187	0	0	0	1	1	61	12	0	0	73	0	0	0	0	0	261
07:30 AM	109	138	3	0	250	0	0	0	1	1	93	13	2	0	108	0	0	0	0	0	359
07:45 AM	177	152	2	0	331	0	0	0	0	0	94	33	14	0	141	0	0	0	0	0	472
Total	393	476	15	0	884	0	0	0	2	2	283	70	16	0	369	0	0	0	0	0	1255
08:00 AM	163	167	1	0	331	0	0	0	0	0	121	49	21	0	191	0	0	0	0	0	522
08:15 AM	36	78	2	0	116	0	0	0	0	0	98	28	6	0	132	0	0	0	0	0	248
08:30 AM	13	81	3	0	97	0	0	0	0	0	54	10	0	0	64	0	0	1	0	1	162
08:45 AM	30	106	0	0	136	0	0	0	0	0	66	12	3	0	81	1	0	0	0	1	218
Total	242	432	6	0	680	0	0	0	0	0	339	99	30	0	468	1	0	1	0	2	1150
09:00 AM	28	130	3	0	161	0	0	0	0	0	69	6	0	0	75	0	0	1	0	1	237
09:15 AM	33	124	3	0	160	0	0	0	0	0	65	9	0	0	74	0	0	0	0	0	234
09:30 AM	23	113	2	0	138	0	0	0	0	0	48	10	0	0	58	0	0	0	0	0	196
09:45 AM	14	89	2	0	105	0	0	0	0	0	68	14	0	0	82	0	3	0	0	3	190
Total	98	456	10	0	564	0	0	0	0	0	250	39	0	0	289	0	3	1	0	4	857
Grand Total	771	1595	38	0	2404	0	0	0	2	2	998	240	46	0	1284	1	4	2	0	7	3697
Apprch %	32.1	66.3	1.6	0		0	0	0	100		77.7	18.7	3.6	0		14.3	57.1	28.6	0		
Total %	20.9	43.1	1	0	65	0	0	0	0.1	0.1	27	6.5	1.2	0	34.7	0	0.1	0.1	0	0.2	

	Candlers Mountain Rd. Southbound				Mountain View Rd. Westbound				Candlers Mountain Rd. Northbound				Mountain View Rd. Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	71	108	**8**	187	0	0	0	0	61	12	0	73	0	0	0	0	260
07:30 AM	109	138	3	250	0	0	0	0	93	13	2	108	0	0	0	0	358
07:45 AM	**177**	152	2	**331**	0	0	0	0	94	33	14	141	0	0	0	0	472
08:00 AM	163	**167**	1	331	0	0	0	0	**121**	**49**	**21**	**191**	0	0	0	0	**522**
Total Volume	520	565	14	1099	0	0	0	0	369	107	37	513	0	0	0	0	1612
% App. Total	47.3	51.4	1.3		0	0	0		71.9	20.9	7.2		0	0	0		
PHF	.734	.846	.438	.830	.000	.000	.000	.000	.762	.546	.440	.671	.000	.000	.000	.000	.772

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 4-Candlers Mtn Rd. and Mountain View PM
Site Code :
Start Date : 10/15/2015
Page No : 1

Groups Printed- Car

	Candlers Mountain Rd. Southbound					Mountain View Rd. Westbound					Candlers Mountain Rd. Northbound					Mountain View Rd. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:00 PM	57	116	3	0	176	0	0	0	0	0	128	36	15	1	180	0	0	0	0	0	356
03:15 PM	53	99	1	0	153	0	0	0	0	0	174	72	9	0	255	0	2	0	0	2	410
03:30 PM	33	136	0	0	169	0	0	0	0	0	144	34	2	0	180	1	1	0	0	2	351
03:45 PM	28	123	1	0	152	0	0	0	0	0	122	40	5	0	167	2	1	0	0	3	322
Total	171	474	5	0	650	0	0	0	0	0	568	182	31	1	782	3	4	0	0	7	1439
04:00 PM	25	123	0	0	148	0	0	0	0	0	121	36	4	0	161	1	1	0	0	2	311
04:15 PM	36	125	4	0	165	0	0	0	1	1	138	38	0	0	176	0	2	0	0	2	344
04:30 PM	32	126	2	0	160	0	0	0	1	1	146	29	0	0	175	3	4	0	0	7	343
04:45 PM	28	139	2	0	169	0	0	0	1	1	155	38	0	0	193	1	0	0	2	3	366
Total	121	513	8	0	642	0	0	0	3	3	560	141	4	0	705	5	7	0	2	14	1364
05:00 PM	38	135	2	0	175	1	0	0	0	1	159	56	2	0	217	0	1	0	0	1	394
05:15 PM	21	112	1	0	134	1	0	0	0	1	108	55	8	0	171	2	0	0	0	2	308
05:30 PM	38	114	3	0	155	0	0	0	0	0	152	55	0	0	207	2	0	1	0	3	365
05:45 PM	21	143	3	0	167	1	0	0	0	1	111	50	4	0	165	0	2	0	0	2	335
Total	118	504	9	0	631	3	0	0	0	3	530	216	14	0	760	4	3	1	0	8	1402
06:00 PM	21	120	2	0	143	0	0	0	3	3	121	45	6	0	172	0	1	0	0	1	319
06:15 PM	8	125	4	0	137	0	0	0	0	0	99	32	0	0	131	0	1	0	0	1	269
06:30 PM	11	146	3	0	160	0	0	0	0	0	118	38	0	0	156	1	0	0	0	1	317
06:45 PM	4	132	6	0	142	0	0	0	0	0	127	35	0	0	162	2	1	0	0	3	307
Total	44	523	15	0	582	0	0	0	3	3	465	150	6	0	621	3	3	0	0	6	1212
Grand Total	454	2014	37	0	2505	3	0	0	6	9	2123	689	55	1	2868	15	17	1	2	35	5417
Apprch %	18.1	80.4	1.5	0		33.3	0	0	66.7		74	24	1.9	0		42.9	48.6	2.9	5.7		
Total %	8.4	37.2	0.7	0	46.2	0.1	0	0	0.1	0.2	39.2	12.7	1	0	52.9	0.3	0.3	0	0	0.6	

	Candlers Mountain Rd. Southbound				Mountain View Rd. Westbound				Candlers Mountain Rd. Northbound				Mountain View Rd. Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	36	125	**4**	165	0	0	0	0	138	38	0	176	0	2	0	2	343
04:30 PM	32	126	2	160	0	0	0	0	146	29	0	175	**3**	**4**	0	**7**	342
04:45 PM	28	**139**	2	169	0	0	0	0	155	38	0	193	1	0	0	1	363
05:00 PM	**38**	135	2	**175**	**1**	0	0	**1**	**159**	**56**	**2**	**217**	0	1	0	1	**394**
Total Volume	134	525	10	669	1	0	0	1	598	161	2	761	4	7	0	11	1442
% App. Total	20	78.5	1.5		100	0	0		78.6	21.2	0.3		36.4	63.6	0		
PHF	.882	.944	.625	.956	.250	.000	.000	.250	.940	.719	.250	.877	.333	.438	.000	.393	.915

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 4-Candlers Mtn Rd. and Mountain View PM
Site Code :
Start Date : 10/15/2015
Page No : 1

Groups Printed- Truck

	Candlers Mountain Rd. Southbound					Mountain View Rd. Westbound					Candlers Mountain Rd. Northbound					Mountain View Rd. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:00 PM	0	5	0	0	5	0	0	0	0	0	3	1	0	0	4	0	0	0	0	0	9
03:15 PM	1	3	0	0	4	0	0	0	0	0	4	5	0	0	9	0	0	0	0	0	13
03:30 PM	1	3	0	0	4	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	6
03:45 PM	0	2	0	0	2	0	0	0	0	0	3	1	0	0	4	0	0	0	0	0	6
Total	2	13	0	0	15	0	0	0	0	0	11	8	0	0	19	0	0	0	0	0	34
04:00 PM	0	4	0	0	4	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	6
04:15 PM	0	3	0	0	3	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	5
04:30 PM	0	1	0	0	1	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	4
04:45 PM	0	3	0	0	3	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	4
Total	0	11	0	0	11	0	0	0	0	0	7	0	1	0	8	0	0	0	0	0	19
05:00 PM	0	3	0	0	3	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	4
05:15 PM	0	1	0	0	1	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	4
05:30 PM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
05:45 PM	0	3	0	0	3	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	4
Total	0	9	0	0	9	0	0	0	0	0	5	1	0	0	6	0	0	0	0	0	15
06:00 PM	0	2	0	0	2	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	5
06:15 PM	0	3	0	0	3	0	0	0	0	0	4	2	0	0	6	0	0	0	0	0	9
06:30 PM	0	3	0	0	3	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	4
06:45 PM	0	2	0	0	2	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3
Total	0	10	0	0	10	0	0	0	0	0	7	4	0	0	11	0	0	0	0	0	21
Grand Total	2	43	0	0	45	0	0	0	0	0	30	13	1	0	44	0	0	0	0	0	89
Apprch %	4.4	95.6	0	0		0	0	0	0		68.2	29.5	2.3	0		0	0	0	0		
Total %	2.2	48.3	0	0	50.6	0	0	0	0	0	33.7	14.6	1.1	0	49.4	0	0	0	0	0	

	Candlers Mountain Rd. Southbound				Mountain View Rd. Westbound				Candlers Mountain Rd. Northbound				Mountain View Rd. Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	0	**5**	0	**5**	0	0	0	0	3	1	0	4	0	0	0	0	9
03:15 PM	**1**	3	0	4	0	0	0	0	**4**	**5**	0	**9**	0	0	0	0	**13**
03:30 PM	1	3	0	4	0	0	0	0	1	1	0	2	0	0	0	0	6
03:45 PM	0	2	0	2	0	0	0	0	3	1	0	4	0	0	0	0	6
Total Volume	2	13	0	15	0	0	0	0	11	8	0	19	0	0	0	0	34
% App. Total	13.3	86.7	0		0	0	0		57.9	42.1	0		0	0	0		
PHF	.500	.650	.000	.750	.000	.000	.000	.000	.688	.400	.000	.528	.000	.000	.000	.000	.654

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 4-Candlers Mtn Rd. and Mountain View PM
Site Code :
Start Date : 10/15/2015
Page No : 1

Groups Printed- Combined

	Candlers Mountain Rd. Southbound					Mountain View Rd. Westbound					Candlers Mountain Rd. Northbound					Mountain View Rd. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:00 PM	57	121	3	0	181	0	0	0	0	0	131	37	15	1	184	0	0	0	0	0	365
03:15 PM	54	102	1	0	157	0	0	0	0	0	178	77	9	0	264	0	2	0	0	2	423
03:30 PM	34	139	0	0	173	0	0	0	0	0	145	35	2	0	182	1	1	0	0	2	357
03:45 PM	28	125	1	0	154	0	0	0	0	0	125	41	5	0	171	2	1	0	0	3	328
Total	173	487	5	0	665	0	0	0	0	0	579	190	31	1	801	3	4	0	0	7	1473
04:00 PM	25	127	0	0	152	0	0	0	0	0	122	36	5	0	163	1	1	0	0	2	317
04:15 PM	36	128	4	0	168	0	0	0	1	1	140	38	0	0	178	0	2	0	0	2	349
04:30 PM	32	127	2	0	161	0	0	0	1	1	149	29	0	0	178	3	4	0	0	7	347
04:45 PM	28	142	2	0	172	0	0	0	1	1	156	38	0	0	194	1	0	0	2	3	370
Total	121	524	8	0	653	0	0	0	3	3	567	141	5	0	713	5	7	0	2	14	1383
05:00 PM	38	138	2	0	178	1	0	0	0	1	160	56	2	0	218	0	1	0	0	1	398
05:15 PM	21	113	1	0	135	1	0	0	0	1	111	55	8	0	174	2	0	0	0	2	312
05:30 PM	38	116	3	0	157	0	0	0	0	0	152	56	0	0	208	2	0	1	0	3	368
05:45 PM	21	146	3	0	170	1	0	0	0	1	112	50	4	0	166	0	2	0	0	2	339
Total	118	513	9	0	640	3	0	0	0	3	535	217	14	0	766	4	3	1	0	8	1417
06:00 PM	21	122	2	0	145	0	0	0	3	3	122	47	6	0	175	0	1	0	0	1	324
06:15 PM	8	128	4	0	140	0	0	0	0	0	103	34	0	0	137	0	1	0	0	1	278
06:30 PM	11	149	3	0	163	0	0	0	0	0	119	38	0	0	157	1	0	0	0	1	321
06:45 PM	4	134	6	0	144	0	0	0	0	0	128	35	0	0	163	2	1	0	0	3	310
Total	44	533	15	0	592	0	0	0	3	3	472	154	6	0	632	3	3	0	0	6	1233
Grand Total	456	2057	37	0	2550	3	0	0	6	9	2153	702	56	1	2912	15	17	1	2	35	5506
Apprch %	17.9	80.7	1.5	0		33.3	0	0	66.7		73.9	24.1	1.9	0		42.9	48.6	2.9	5.7		
Total %	8.3	37.4	0.7	0	46.3	0.1	0	0	0.1	0.2	39.1	12.7	1	0	52.9	0.3	0.3	0	0	0.6	

	Candlers Mountain Rd. Southbound				Mountain View Rd. Westbound				Candlers Mountain Rd. Northbound				Mountain View Rd. Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	**57**	121	**3**	**181**	0	0	0	0	131	37	**15**	183	0	0	0	0	364
03:15 PM	54	102	1	157	0	0	0	0	**178**	**77**	9	**264**	0	**2**	0	2	**423**
03:30 PM	34	**139**	0	173	0	0	0	0	145	35	2	182	1	1	0	2	357
03:45 PM	28	125	1	154	0	0	0	0	125	41	5	171	**2**	1	0	**3**	328
Total Volume	173	487	5	665	0	0	0	0	579	190	31	800	3	4	0	7	1472
% App. Total	26	73.2	0.8		0	0	0		72.4	23.8	3.9		42.9	57.1	0		
PHF	.759	.876	.417	.919	.000	.000	.000	.000	.813	.617	.517	.758	.375	.500	.000	.583	.870

Peggy Malone & Associates, Inc.

File Name : 20 Wards Rd. & Lynchburg Exp SB Ramps_Seminole Ave AM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Car

	Wards Rd. Northbound						Wards Rd. Southbound					Seminole Ave. Southwestbound					
Start Time	Left	Thru	Bear Right	Right	Peds	App. Total	Hard Left	Left	Thru	Peds	App. Total	Hard Left	Bear Left	Hard Right	Peds	App. Total	Int. Total
06:00 AM	0	20	1	19	0	40	1	1	12	0	14	0	1	0	0	1	55
06:15 AM	1	42	1	44	0	88	0	0	27	0	27	0	0	0	0	0	115
06:30 AM	0	23	5	54	0	82	0	4	21	0	25	4	1	3	0	8	115
06:45 AM	0	44	6	73	0	123	1	2	34	0	37	1	3	2	0	6	166
Total	1	129	13	190	0	333	2	7	94	0	103	5	5	5	0	15	451
07:00 AM	0	51	5	60	0	116	0	4	36	0	40	6	8	1	0	15	171
07:15 AM	0	44	8	66	0	118	1	3	41	2	47	8	6	1	0	15	180
07:30 AM	0	81	8	103	0	192	3	5	57	0	65	4	8	3	0	15	272
07:45 AM	0	89	21	82	0	192	2	2	69	0	73	2	7	1	0	10	275
Total	0	265	42	311	0	618	6	14	203	2	225	20	29	6	0	55	898
08:00 AM	0	82	6	67	0	155	0	7	57	0	64	3	8	1	0	12	231
08:15 AM	1	80	4	80	0	165	2	5	53	0	60	4	7	0	0	11	236
08:30 AM	1	64	6	62	0	133	0	3	70	0	73	2	4	1	0	7	213
08:45 AM	0	87	5	66	0	158	1	4	69	0	74	2	4	6	0	12	244
Total	2	313	21	275	0	611	3	19	249	0	271	11	23	8	0	42	924
09:00 AM	0	85	7	35	0	127	4	5	71	0	80	4	4	6	0	14	221
09:15 AM	0	74	5	52	0	131	0	3	95	0	98	5	5	3	0	13	242
09:30 AM	0	97	2	42	0	141	1	5	92	0	98	2	2	1	0	5	244
09:45 AM	0	86	3	48	0	137	1	4	98	0	103	3	7	2	0	12	252
Total	0	342	17	177	0	536	6	17	356	0	379	14	18	12	0	44	959
Grand Total	3	1049	93	953	0	2098	17	57	902	2	978	50	75	31	0	156	3232
Apprch %	0.1	50	4.4	45.4	0		1.7	5.8	92.2	0.2		32.1	48.1	19.9	0		
Total %	0.1	32.5	2.9	29.5	0	64.9	0.5	1.8	27.9	0.1	30.3	1.5	2.3	1	0	4.8	

	Wards Rd. Northbound					Wards Rd. Southbound				Seminole Ave. Southwestbound				
Start Time	Left	Thru	Bear Right	Right	App. Total	Hard Left	Left	Thru	App. Total	Hard Left	Bear Left	Hard Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 07:30 AM														
07:30 AM	0	81	8	**103**	**192**	**3**	5	57	65	**4**	**8**	**3**	**15**	272
07:45 AM	0	**89**	**21**	82	192	2	2	**69**	**73**	2	7	1	10	**275**
08:00 AM	0	82	6	67	155	0	**7**	57	64	3	8	1	12	231
08:15 AM	**1**	80	4	80	165	2	5	53	60	4	7	0	11	236
Total Volume	1	332	39	332	704	7	19	236	262	13	30	5	48	1014
% App. Total	0.1	47.2	5.5	47.2		2.7	7.3	90.1		27.1	62.5	10.4		
PHF	.250	.933	.464	.806	.917	.583	.679	.855	.897	.813	.938	.417	.800	.922

Peggy Malone & Associates, Inc.

File Name : 20 Wards Rd. & Lynchburg Exp SB Ramps_Seminole Ave AM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Truck

	Wards Rd. Northbound						Wards Rd. Southbound					Seminole Ave. Southwestbound					
Start Time	Left	Thru	Bear Right	Right	Peds	App. Total	Hard Left	Left	Thru	Peds	App. Total	Hard Left	Bear Left	Hard Right	Peds	App. Total	Int. Total
06:00 AM	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
06:15 AM	0	1	0	2	0	3	0	0	4	0	4	0	0	0	0	0	7
06:30 AM	0	0	0	5	0	5	1	0	0	0	1	0	0	0	0	0	6
06:45 AM	0	2	0	1	0	3	0	1	2	0	3	0	0	0	0	0	6
Total	0	3	0	8	0	11	1	1	7	0	9	0	0	0	0	0	20
07:00 AM	0	1	0	5	0	6	0	0	0	0	0	0	0	0	0	0	6
07:15 AM	0	3	0	9	0	12	0	0	5	0	5	0	1	0	0	1	18
07:30 AM	0	3	0	5	0	8	0	0	5	0	5	0	0	0	0	0	13
07:45 AM	0	2	1	1	0	4	1	0	1	0	2	0	0	0	0	0	6
Total	0	9	1	20	0	30	1	0	11	0	12	0	1	0	0	1	43
08:00 AM	0	0	0	3	0	3	0	2	0	0	2	0	1	0	0	1	6
08:15 AM	0	6	0	6	0	12	0	0	1	0	1	1	0	0	0	1	14
08:30 AM	0	0	0	11	0	11	0	0	1	0	1	0	0	0	0	0	12
08:45 AM	0	0	0	2	0	2	0	0	1	0	1	0	0	0	0	0	3
Total	0	6	0	22	0	28	0	2	3	0	5	1	1	0	0	2	35
09:00 AM	0	2	1	7	0	10	0	1	4	0	5	0	0	1	0	1	16
09:15 AM	0	3	3	7	0	13	0	7	9	0	16	0	0	0	0	0	29
09:30 AM	0	3	1	9	0	13	0	0	4	0	4	0	0	0	0	0	17
09:45 AM	0	1	1	5	0	7	0	1	3	0	4	0	1	0	0	1	12
Total	0	9	6	28	0	43	0	9	20	0	29	0	1	1	0	2	74
Grand Total	0	27	7	78	0	112	2	12	41	0	55	1	3	1	0	5	172
Apprch %	0	24.1	6.2	69.6	0		3.6	21.8	74.5	0		20	60	20	0		
Total %	0	15.7	4.1	45.3	0	65.1	1.2	7	23.8	0	32	0.6	1.7	0.6	0	2.9	

	Wards Rd. Northbound					Wards Rd. Southbound				Seminole Ave. Southwestbound				
Start Time	Left	Thru	Bear Right	Right	App. Total	Hard Left	Left	Thru	App. Total	Hard Left	Bear Left	Hard Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 09:00 AM														
09:00 AM	0	2	1	7	10	0	1	4	5	0	0	**1**	**1**	16
09:15 AM	0	**3**	**3**	7	**13**	0	**7**	**9**	**16**	0	0	0	0	**29**
09:30 AM	0	3	1	**9**	13	0	0	4	4	0	0	0	0	17
09:45 AM	0	1	1	5	7	0	1	3	4	0	**1**	0	1	12
Total Volume	0	9	6	28	43	0	9	20	29	0	1	1	2	74
% App. Total	0	20.9	14	65.1		0	31	69		0	50	50		
PHF	.000	.750	.500	.778	.827	.000	.321	.556	.453	.000	.250	.250	.500	.638

Peggy Malone & Associates, Inc.

File Name : 20 Wards Rd. & Lynchburg Exp SB Ramps_Seminole Ave AM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Combined

	Wards Rd. Northbound						Wards Rd. Southbound					Seminole Ave. Southwestbound					
Start Time	Left	Thru	Bear Right	Right	Peds	App. Total	Hard Left	Left	Thru	Peds	App. Total	Hard Left	Bear Left	Hard Right	Peds	App. Total	Int. Total
06:00 AM	0	20	1	19	0	40	1	1	13	0	15	0	1	0	0	1	56
06:15 AM	1	43	1	46	0	91	0	0	31	0	31	0	0	0	0	0	122
06:30 AM	0	23	5	59	0	87	1	4	21	0	26	4	1	3	0	8	121
06:45 AM	0	46	6	74	0	126	1	3	36	0	40	1	3	2	0	6	172
Total	1	132	13	198	0	344	3	8	101	0	112	5	5	5	0	15	471
07:00 AM	0	52	5	65	0	122	0	4	36	0	40	6	8	1	0	15	177
07:15 AM	0	47	8	75	0	130	1	3	46	2	52	8	7	1	0	16	198
07:30 AM	0	84	8	108	0	200	3	5	62	0	70	4	8	3	0	15	285
07:45 AM	0	91	22	83	0	196	3	2	70	0	75	2	7	1	0	10	281
Total	0	274	43	331	0	648	7	14	214	2	237	20	30	6	0	56	941
08:00 AM	0	82	6	70	0	158	0	9	57	0	66	3	9	1	0	13	237
08:15 AM	1	86	4	86	0	177	2	5	54	0	61	5	7	0	0	12	250
08:30 AM	1	64	6	73	0	144	0	3	71	0	74	2	4	1	0	7	225
08:45 AM	0	87	5	68	0	160	1	4	70	0	75	2	4	6	0	12	247
Total	2	319	21	297	0	639	3	21	252	0	276	12	24	8	0	44	959
09:00 AM	0	87	8	42	0	137	4	6	75	0	85	4	4	7	0	15	237
09:15 AM	0	77	8	59	0	144	0	10	104	0	114	5	5	3	0	13	271
09:30 AM	0	100	3	51	0	154	1	5	96	0	102	2	2	1	0	5	261
09:45 AM	0	87	4	53	0	144	1	5	101	0	107	3	8	2	0	13	264
Total	0	351	23	205	0	579	6	26	376	0	408	14	19	13	0	46	1033
Grand Total	3	1076	100	1031	0	2210	19	69	943	2	1033	51	78	32	0	161	3404
Apprch %	0.1	48.7	4.5	46.7	0		1.8	6.7	91.3	0.2		31.7	48.4	19.9	0		
Total %	0.1	31.6	2.9	30.3	0	64.9	0.6	2	27.7	0.1	30.3	1.5	2.3	0.9	0	4.7	

	Wards Rd. Northbound					Wards Rd. Southbound				Seminole Ave. Southwestbound				
Start Time	Left	Thru	Bear Right	Right	App. Total	Hard Left	Left	Thru	App. Total	Hard Left	Bear Left	Hard Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 07:30 AM														
07:30 AM	0	84	8	**108**	**200**	**3**	5	62	70	4	8	**3**	**15**	**285**
07:45 AM	0	**91**	**22**	83	196	3	2	**70**	**75**	2	7	1	10	281
08:00 AM	0	82	6	70	158	0	**9**	57	66	3	**9**	1	13	237
08:15 AM	**1**	86	4	86	177	2	5	54	61	**5**	7	0	12	250
Total Volume	1	343	40	347	731	8	21	243	272	14	31	5	50	1053
% App. Total	0.1	46.9	5.5	47.5		2.9	7.7	89.3		28	62	10		
PHF	.250	.942	.455	.803	.914	.667	.583	.868	.907	.700	.861	.417	.833	.924

Peggy Malone & Associates, Inc.

File Name : 20 Wards Rd. & Lynchburg Exp SB Ramps_Seminole Ave PM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Car

	Wards Rd. Northbound						Wards Rd. Southbound					Seminole Ave. Southwestbound					
Start Time	Left	Thru	Bear Right	Right	Peds	App. Total	Hard Left	Left	Thru	Peds	App. Total	Hard Left	Bear Left	Hard Right	Peds	App. Total	Int. Total
03:00 PM	0	129	5	83	0	217	2	10	161	0	173	4	10	4	0	18	408
03:15 PM	0	122	8	83	0	213	3	7	113	0	123	4	7	6	0	17	353
03:30 PM	0	150	5	100	0	255	3	16	152	0	171	4	9	6	0	19	445
03:45 PM	0	159	5	111	0	275	8	10	157	0	175	6	10	6	0	22	472
Total	0	560	23	377	0	960	16	43	583	0	642	18	36	22	0	76	1678
04:00 PM	0	121	3	94	0	218	3	5	169	0	177	5	7	4	0	16	411
04:15 PM	0	128	3	80	0	211	1	7	166	0	174	4	7	5	0	16	401
04:30 PM	0	142	6	82	0	230	3	17	188	0	208	4	10	5	0	19	457
04:45 PM	0	121	7	100	0	228	1	17	146	0	164	6	13	3	0	22	414
Total	0	512	19	356	0	887	8	46	669	0	723	19	37	17	0	73	1683
05:00 PM	1	125	9	118	1	254	5	38	205	0	248	9	8	6	0	23	525
05:15 PM	0	128	5	103	0	236	3	28	196	0	227	15	17	5	0	37	500
05:30 PM	0	134	15	117	0	266	2	23	181	0	206	9	4	4	0	17	489
05:45 PM	0	131	6	69	0	206	4	13	149	0	166	5	9	2	0	16	388
Total	1	518	35	407	1	962	14	102	731	0	847	38	38	17	0	93	1902
06:00 PM	0	119	13	91	0	223	4	16	144	0	164	4	11	2	0	17	404
06:15 PM	0	118	7	91	0	216	5	8	139	0	152	9	8	3	0	20	388
06:30 PM	0	126	6	95	0	227	1	10	121	0	132	3	12	3	0	18	377
06:45 PM	0	114	11	74	0	199	2	8	119	0	129	7	8	6	0	21	349
Total	0	477	37	351	0	865	12	42	523	0	577	23	39	14	0	76	1518
Grand Total	1	2067	114	1491	1	3674	50	233	2506	0	2789	98	150	70	0	318	6781
Apprch %	0	56.3	3.1	40.6	0		1.8	8.4	89.9	0		30.8	47.2	22	0		
Total %	0	30.5	1.7	22	0	54.2	0.7	3.4	37	0	41.1	1.4	2.2	1	0	4.7	

	Wards Rd. Northbound					Wards Rd. Southbound				Seminole Ave. Southwestbound				
Start Time	Left	Thru	Bear Right	Right	App. Total	Hard Left	Left	Thru	App. Total	Hard Left	Bear Left	Hard Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 04:45 PM														
04:45 PM	0	121	7	100	228	1	17	146	164	6	13	3	22	414
05:00 PM	**1**	125	9	**118**	253	**5**	**38**	**205**	**248**	9	8	**6**	23	**524**
05:15 PM	0	128	5	103	236	3	28	196	227	**15**	**17**	5	**37**	500
05:30 PM	0	**134**	**15**	117	**266**	2	23	181	206	9	4	4	17	489
Total Volume	1	508	36	438	983	11	106	728	845	39	42	18	99	1927
% App. Total	0.1	51.7	3.7	44.6		1.3	12.5	86.2		39.4	42.4	18.2		
PHF	.250	.948	.600	.928	.924	.550	.697	.888	.852	.650	.618	.750	.669	.919

Peggy Malone & Associates, Inc.

File Name : 20 Wards Rd. & Lynchburg Exp SB Ramps_Seminole Ave PM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Truck

	Wards Rd. Northbound						Wards Rd. Southbound					Seminole Ave. Southwestbound					
Start Time	Left	Thru	Bear Right	Right	Peds	App. Total	Hard Left	Left	Thru	Peds	App. Total	Hard Left	Bear Left	Hard Right	Peds	App. Total	Int. Total
03:00 PM	0	2	0	6	0	8	0	0	3	0	3	0	0	0	0	0	11
03:15 PM	0	2	0	6	0	8	0	1	1	0	2	0	0	0	0	0	10
03:30 PM	0	3	0	0	0	3	0	0	1	0	1	0	0	0	0	0	4
03:45 PM	0	1	0	2	0	3	0	0	4	0	4	0	0	0	0	0	7
Total	0	8	0	14	0	22	0	1	9	0	10	0	0	0	0	0	32
04:00 PM	0	0	0	3	0	3	0	0	3	0	3	0	0	0	0	0	6
04:15 PM	0	1	0	3	0	4	0	0	3	0	3	0	0	0	0	0	7
04:30 PM	0	0	0	5	0	5	0	0	1	0	1	0	0	0	0	0	6
04:45 PM	0	2	0	6	0	8	0	0	2	0	2	0	0	0	0	0	10
Total	0	3	0	17	0	20	0	0	9	0	9	0	0	0	0	0	29
05:00 PM	0	1	0	2	0	3	0	0	1	0	1	0	0	0	0	0	4
05:15 PM	0	2	0	0	0	2	0	0	3	0	3	0	0	0	0	0	5
05:30 PM	0	3	0	3	0	6	0	0	2	0	2	0	0	1	0	1	9
05:45 PM	0	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	2
Total	0	7	0	5	0	12	0	0	7	0	7	0	0	1	0	1	20
06:00 PM	0	1	0	2	0	3	0	0	2	0	2	0	0	0	0	0	5
06:15 PM	0	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	3
06:30 PM	0	1	0	1	0	2	0	0	1	0	1	0	0	0	0	0	3
06:45 PM	0	2	0	0	0	2	0	0	1	0	1	0	0	0	0	0	3
Total	0	5	0	5	0	10	0	0	4	0	4	0	0	0	0	0	14
Grand Total	0	23	0	41	0	64	0	1	29	0	30	0	0	1	0	1	95
Apprch %	0	35.9	0	64.1	0		0	3.3	96.7	0		0	0	100	0		
Total %	0	24.2	0	43.2	0	67.4	0	1.1	30.5	0	31.6	0	0	1.1	0	1.1	

	Wards Rd. Northbound					Wards Rd. Southbound				Seminole Ave. Southwestbound				
Start Time	Left	Thru	Bear Right	Right	App. Total	Hard Left	Left	Thru	App. Total	Hard Left	Bear Left	Hard Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 03:00 PM														
03:00 PM	0	2	0	**6**	**8**	0	0	3	3	0	0	0	0	**11**
03:15 PM	0	2	0	6	8	0	**1**	1	2	0	0	0	0	10
03:30 PM	0	**3**	0	0	3	0	0	1	1	0	0	0	0	4
03:45 PM	0	1	0	2	3	0	0	**4**	**4**	0	0	0	0	7
Total Volume	0	8	0	14	22	0	1	9	10	0	0	0	0	32
% App. Total	0	36.4	0	63.6		0	10	90		0	0	0		
PHF	.000	.667	.000	.583	.688	.000	.250	.563	.625	.000	.000	.000	.000	.727

Peggy Malone & Associates, Inc.

File Name : 20 Wards Rd. & Lynchburg Exp SB Ramps_Seminole Ave PM
Site Code :
Start Date : 11/14/2013
Page No : 1

Groups Printed- Combined

	Wards Rd. Northbound						Wards Rd. Southbound					Seminole Ave. Southwestbound					
Start Time	Left	Thru	Bear Right	Right	Peds	App. Total	Hard Left	Left	Thru	Peds	App. Total	Hard Left	Bear Left	Hard Right	Peds	App. Total	Int. Total
03:00 PM	0	131	5	89	0	225	2	10	164	0	176	4	10	4	0	18	419
03:15 PM	0	124	8	89	0	221	3	8	114	0	125	4	7	6	0	17	363
03:30 PM	0	153	5	100	0	258	3	16	153	0	172	4	9	6	0	19	449
03:45 PM	0	160	5	113	0	278	8	10	161	0	179	6	10	6	0	22	479
Total	0	568	23	391	0	982	16	44	592	0	652	18	36	22	0	76	1710
04:00 PM	0	121	3	97	0	221	3	5	172	0	180	5	7	4	0	16	417
04:15 PM	0	129	3	83	0	215	1	7	169	0	177	4	7	5	0	16	408
04:30 PM	0	142	6	87	0	235	3	17	189	0	209	4	10	5	0	19	463
04:45 PM	0	123	7	106	0	236	1	17	148	0	166	6	13	3	0	22	424
Total	0	515	19	373	0	907	8	46	678	0	732	19	37	17	0	73	1712
05:00 PM	1	126	9	120	1	257	5	38	206	0	249	9	8	6	0	23	529
05:15 PM	0	130	5	103	0	238	3	28	199	0	230	15	17	5	0	37	505
05:30 PM	0	137	15	120	0	272	2	23	183	0	208	9	4	5	0	18	498
05:45 PM	0	132	6	69	0	207	4	13	150	0	167	5	9	2	0	16	390
Total	1	525	35	412	1	974	14	102	738	0	854	38	38	18	0	94	1922
06:00 PM	0	120	13	93	0	226	4	16	146	0	166	4	11	2	0	17	409
06:15 PM	0	119	7	93	0	219	5	8	139	0	152	9	8	3	0	20	391
06:30 PM	0	127	6	96	0	229	1	10	122	0	133	3	12	3	0	18	380
06:45 PM	0	116	11	74	0	201	2	8	120	0	130	7	8	6	0	21	352
Total	0	482	37	356	0	875	12	42	527	0	581	23	39	14	0	76	1532
Grand Total	1	2090	114	1532	1	3738	50	234	2535	0	2819	98	150	71	0	319	6876
Apprch %	0	55.9	3	41	0		1.8	8.3	89.9	0		30.7	47	22.3	0		
Total %	0	30.4	1.7	22.3	0	54.4	0.7	3.4	36.9	0	41	1.4	2.2	1	0	4.6	

	Wards Rd. Northbound					Wards Rd. Southbound				Seminole Ave. Southwestbound				
Start Time	Left	Thru	Bear Right	Right	App. Total	Hard Left	Left	Thru	App. Total	Hard Left	Bear Left	Hard Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 04:45 PM														
04:45 PM	0	123	7	106	236	1	17	148	166	6	13	3	22	424
05:00 PM	**1**	126	9	**120**	256	**5**	**38**	**206**	**249**	9	8	**6**	23	**528**
05:15 PM	0	130	5	103	238	3	28	199	230	**15**	**17**	5	**37**	505
05:30 PM	0	**137**	**15**	120	**272**	2	23	183	208	9	4	5	18	498
Total Volume	1	516	36	449	1002	11	106	736	853	39	42	19	100	1955
% App. Total	0.1	51.5	3.6	44.8		1.3	12.4	86.3		39	42	19		
PHF	.250	.942	.600	.935	.921	.550	.697	.893	.856	.650	.618	.792	.676	.926

APPENDIX A-3: 48-HOUR VEHICLE CLASSIFICATION COUNT DATA

Site Reference: Site 1 Ramp
Site ID: Ln 1 Out
Location: Lynchburg Ex Mainline, E of Wards Rd
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36326, -79.18521

TIME	1	2	3	Total
00:15	32	0	0	32
00:30	25	0	0	25
00:45	16	2	4	22
01:00	16	1	1	18
Hour Total	89	3	5	97
01:15	20	0	1	21
01:30	7	0	0	7
01:45	6	0	0	6
02:00	6	0	0	6
Hour Total	39	0	1	40
02:15	13	1	2	16
02:30	7	0	0	7
02:45	13	0	0	13
03:00	2	0	0	2
Hour Total	35	1	2	38
03:15	9	1	1	11
03:30	18	0	0	18
03:45	4	1	1	6
04:00	4	2	0	6
Hour Total	35	4	2	41
04:15	8	1	2	11
04:30	21	1	1	23
04:45	29	2	0	31
05:00	34	0	1	35
Hour Total	92	4	4	100
05:15	27	0	1	28
05:30	37	0	0	37
05:45	75	0	6	81
06:00	90	3	0	93
Hour Total	229	3	7	239
06:15	103	0	4	107
06:30	136	1	1	138
06:45	164	1	3	168
07:00	189	2	6	197
Hour Total	592	4	14	610
07:15	195	4	2	201
07:30	234	5	10	249
07:45	279	4	1	284
08:00	216	1	1	218
Hour Total	924	14	14	952
08:15	171	9	2	182
08:30	217	5	5	227
08:45	201	5	6	212
09:00	150	6	9	165

Site Reference: Site 1 Ramp
Site ID: Ln 1 Out
Location: Lynchburg Ex Mainline, E of Wards Rd
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36326, -79.18521

TIME	1	2	3	Total
Hour Total	739	25	22	786
09:15	129	3	7	139
09:30	130	5	6	141
09:45	137	7	5	149
10:00	132	6	4	142
Hour Total	528	21	22	571
10:15	131	8	2	141
10:30	113	8	7	128
10:45	131	7	3	141
11:00	153	5	2	160
Hour Total	528	28	14	570
11:15	172	5	2	179
11:30	165	2	4	171
11:45	136	3	7	146
12:00	160	11	2	173
Hour Total	633	21	15	669
12:15	180	5	8	193
12:30	141	7	5	153
12:45	134	5	7	146
13:00	182	7	1	190
Hour Total	637	24	21	682
13:15	161	4	8	173
13:30	149	4	4	157
13:45	143	4	5	152
14:00	129	3	6	138
Hour Total	582	15	23	620
14:15	149	8	5	162
14:30	152	7	2	161
14:45	163	12	10	185
15:00	194	3	2	199
Hour Total	658	30	19	707
15:15	174	11	6	191
15:30	190	9	3	202
15:45	198	6	4	208
16:00	173	5	2	180
Hour Total	735	31	15	781
16:15	174	5	7	186
16:30	221	7	12	240
16:45	226	1	7	234
17:00	184	3	2	189
Hour Total	805	16	28	849

Site Reference: Site 1 Ramp
Site ID: Ln 1 Out
Location: Lynchburg Ex Mainline, E of Wards Rd
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36326, -79.18521

TIME	1	2	3	Total
17:15	238	1	6	245
17:30	224	6	1	231
17:45	193	3	3	199
18:00	193	4	2	199
Hour Total	848	14	12	874
18:15	174	4	3	181
18:30	167	2	5	174
18:45	138	3	1	142
19:00	120	1	0	121
Hour Total	599	10	9	618
19:15	123	1	3	127
19:30	132	1	2	135
19:45	106	0	5	111
20:00	88	0	2	90
Hour Total	449	2	12	463
20:15	71	0	3	74
20:30	102	1	3	106
20:45	95	0	6	101
21:00	97	0	2	99
Hour Total	365	1	14	380
21:15	82	1	1	84
21:30	85	0	0	85
21:45	91	0	0	91
22:00	63	0	0	63
Hour Total	321	1	1	323
22:15	65	1	2	68
22:30	57	0	1	58
22:45	51	0	3	54
23:00	46	0	0	46
Hour Total	219	1	6	226
23:15	55	0	2	57
23:30	45	0	1	46
23:45	46	1	1	48
24:00	40	0	0	40
Hour Total	186	1	4	191
DAY TOTAL	10867	274	286	11427
PERCENTS	95.1%	2.4%	2.5%	100%

Passenger Vehicles 100.0% Trucks & Buses 0.0%

AM Times	07:15	09:45	08:45	07:15
AM Peaks	924	29	28	952
PM Times	16:45	14:45	16:00	16:30
PM Peaks	872	35	28	908

Site Reference: Site 1 Ramp
Site ID: Ln 1 Out
Location: Lynchburg Ex Mainline, E of Wards Rd
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36326, -79.18521

TIME	1	2	3	Total
00:15	31	0	1	32
00:30	24	0	0	24
00:45	20	0	1	21
01:00	7	2	2	11
Hour Total	82	2	4	88
01:15	16	1	2	19
01:30	11	0	0	11
01:45	12	0	1	13
02:00	9	0	2	11
Hour Total	48	1	5	54
02:15	14	0	0	14
02:30	12	0	0	12
02:45	8	0	1	9
03:00	5	0	2	7
Hour Total	39	0	3	42
03:15	9	0	0	9
03:30	9	0	1	10
03:45	6	0	1	7
04:00	8	1	0	9
Hour Total	32	1	2	35
04:15	11	0	0	11
04:30	26	0	4	30
04:45	32	0	2	34
05:00	27	0	2	29
Hour Total	96	0	8	104
05:15	32	1	1	34
05:30	45	2	3	50
05:45	79	0	5	84
06:00	94	2	2	98
Hour Total	250	5	11	266
06:15	100	0	2	102
06:30	124	1	7	132
06:45	177	2	1	180
07:00	177	2	8	187
Hour Total	578	5	18	601
07:15	193	2	1	196
07:30	247	7	6	260
07:45	241	4	6	251
08:00	201	6	2	209
Hour Total	882	19	15	916
08:15	175	6	3	184
08:30	173	6	3	182
08:45	211	8	11	230
09:00	243	6	4	253

Site Reference: Site 1 Ramp
Site ID: Ln 1 Out
Location: Lynchburg Ex Mainline, E of Wards Rd
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36326, -79.18521

TIME	1	2	3	Total
Hour Total	802	26	21	849
09:15	146	15	5	166
09:30	128	6	5	139
09:45	150	8	4	162
10:00	140	6	8	154
Hour Total	564	35	22	621
10:15	127	3	4	134
10:30	174	6	4	184
10:45	149	9	2	160
11:00	122	5	4	131
Hour Total	572	23	14	609
11:15	103	6	9	118
11:30	122	5	5	132
11:45	136	10	2	148
12:00	167	4	5	176
Hour Total	528	25	21	574
12:15	159	5	4	168
12:30	133	11	2	146
12:45	161	6	7	174
13:00	145	8	3	156
Hour Total	598	30	16	644
13:15	155	13	4	172
13:30	148	5	7	160
13:45	160	9	6	175
14:00	149	7	2	158
Hour Total	612	34	19	665
14:15	152	1	2	155
14:30	135	11	7	153
14:45	170	8	10	188
15:00	185	11	5	201
Hour Total	642	31	24	697
15:15	194	5	3	202
15:30	199	3	6	208
15:45	191	9	5	205
16:00	182	3	3	188
Hour Total	766	20	17	803
16:15	180	12	3	195
16:30	172	5	10	187
16:45	211	2	6	219
17:00	213	7	0	220
Hour Total	776	26	19	821

Site Reference: Site 1 Ramp
Site ID: Ln 1 Out
Location: Lynchburg Ex Mainline, E of Wards Rd
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36326, -79.18521

TIME	1	2	3	Total
17:15	200	6	2	208
17:30	211	4	0	215
17:45	165	5	5	175
18:00	170	6	3	179
Hour Total	746	21	10	777
18:15	159	0	3	162
18:30	174	2	5	181
18:45	157	1	1	159
19:00	136	0	1	137
Hour Total	626	3	10	639
19:15	102	2	1	105
19:30	117	8	3	128
19:45	98	4	4	106
20:00	99	1	3	103
Hour Total	416	15	11	442
20:15	88	2	2	92
20:30	100	0	0	100
20:45	85	0	1	86
21:00	79	0	3	82
Hour Total	352	2	6	360
21:15	89	0	2	91
21:30	78	0	1	79
21:45	78	0	3	81
22:00	69	0	1	70
Hour Total	314	0	7	321
22:15	58	0	0	58
22:30	65	0	0	65
22:45	50	0	1	51
23:00	42	0	2	44
Hour Total	215	0	3	218
23:15	66	0	1	67
23:30	47	0	3	50
23:45	51	0	1	52
24:00	40	0	0	40
Hour Total	204	0	5	209
DAY TOTAL	10740	324	291	11355
PERCENTS	94.6%	2.9%	2.5%	100%

Passenger Vehicles 100.0% Trucks & Buses 0.0%

AM Times	07:15	08:30	08:45	07:15
AM Peaks	882	35	25	916
PM Times	16:45	12:30	14:30	16:45
PM Peaks	835	38	25	862

GRAND TOTAL	21607		577	
		598		22782
PERCENTS	94.9%	2.6%	2.5%	100%

Site Reference: Site 1 Ramp
Site ID: Ln 1 Out
Location: Lynchburg Ex Mainline, E of Wards Rd
Direction: NORTH
Lane: 2

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36326, -79.18521

TIME	1	2	3	Total
00:15	12	0	0	12
00:30	5	0	1	6
00:45	1	0	0	1
01:00	1	0	0	1
Hour Total	19	0	1	20
01:15	2	0	0	2
01:30	2	0	0	2
01:45	3	0	0	3
02:00	2	0	0	2
Hour Total	9	0	0	9
02:15	3	0	0	3
02:30	1	0	0	1
02:45	1	0	0	1
03:00	0	0	0	0
Hour Total	5	0	0	5
03:15	1	0	1	2
03:30	3	0	0	3
03:45	1	0	0	1
04:00	0	0	0	0
Hour Total	5	0	1	6
04:15	1	0	0	1
04:30	2	0	0	2
04:45	7	0	0	7
05:00	9	0	0	9
Hour Total	19	0	0	19
05:15	9	0	0	9
05:30	12	0	0	12
05:45	24	0	0	24
06:00	44	0	0	44
Hour Total	89	0	0	89
06:15	33	0	0	33
06:30	65	1	0	66
06:45	85	0	1	86
07:00	129	0	0	129
Hour Total	312	1	1	314
07:15	142	1	0	143
07:30	196	0	0	196
07:45	234	1	2	237
08:00	303	0	3	306
Hour Total	875	2	5	882
08:15	248	1	1	250
08:30	196	3	0	199
08:45	198	1	1	200
09:00	157	1	0	158

Site Reference: Site 1 Ramp
Site ID: Ln 1 Out
Location: Lynchburg Ex Mainline, E of Wards Rd
Direction: NORTH
Lane: 2

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36326, -79.18521

TIME	1	2	3	Total
Hour Total	799	6	2	807
09:15	95	0	3	98
09:30	98	2	2	102
09:45	101	0	0	101
10:00	96	1	0	97
Hour Total	390	3	5	398
10:15	78	3	1	82
10:30	87	1	1	89
10:45	65	2	2	69
11:00	99	3	1	103
Hour Total	329	9	5	343
11:15	103	4	1	108
11:30	85	2	2	89
11:45	88	2	2	92
12:00	100	5	1	106
Hour Total	376	13	6	395
12:15	102	3	0	105
12:30	99	1	1	101
12:45	87	2	0	89
13:00	129	0	4	133
Hour Total	417	6	5	428
13:15	93	3	1	97
13:30	113	0	0	113
13:45	107	2	0	109
14:00	108	4	0	112
Hour Total	421	9	1	431
14:15	114	3	2	119
14:30	118	3	0	121
14:45	143	2	1	146
15:00	123	1	0	124
Hour Total	498	9	3	510
15:15	150	2	1	153
15:30	150	1	2	153
15:45	180	3	3	186
16:00	127	0	1	128
Hour Total	607	6	7	620
16:15	163	0	2	165
16:30	178	0	0	178
16:45	184	0	0	184
17:00	143	1	0	144
Hour Total	668	1	2	671

Site Reference: Site 1 Ramp
Site ID: Ln 1 Out
Location: Lynchburg Ex Mainline, E of Wards Rd
Direction: NORTH
Lane: 2

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36326, -79.18521

TIME	1	2	3	Total
17:15	218	1	1	220
17:30	193	4	0	197
17:45	164	0	2	166
18:00	109	0	4	113
Hour Total	684	5	7	696
18:15	105	2	1	108
18:30	112	1	1	114
18:45	91	1	1	93
19:00	75	0	0	75
Hour Total	383	4	3	390
19:15	52	1	0	53
19:30	55	1	0	56
19:45	51	3	0	54
20:00	36	0	0	36
Hour Total	194	5	0	199
20:15	27	0	0	27
20:30	32	0	0	32
20:45	35	1	1	37
21:00	47	0	0	47
Hour Total	141	1	1	143
21:15	45	0	1	46
21:30	27	0	1	28
21:45	32	0	0	32
22:00	24	0	0	24
Hour Total	128	0	2	130
22:15	18	0	0	18
22:30	19	0	0	19
22:45	18	0	0	18
23:00	13	1	0	14
Hour Total	68	1	0	69
23:15	9	0	0	9
23:30	18	0	0	18
23:45	12	0	0	12
24:00	8	0	0	8
Hour Total	47	0	0	47
DAY TOTAL	7483	81	57	7621
PERCENTS	98.2%	1.1%	0.7%	100%

Passenger Vehicles 100.0% Trucks & Buses 0.0%

AM Times	07:30	11:15	07:30	07:45
AM Peaks	981	13	6	992
PM Times	16:45	13:45	15:30	16:45
PM Peaks	738	12	8	745

Site Reference: Site 1 Ramp
Site ID: Ln 1 Out
Location: Lynchburg Ex Mainline, E of Wards Rd
Direction: NORTH
Lane: 2

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36326, -79.18521

TIME	1	2	3	Total
00:15	6	0	0	6
00:30	5	0	1	6
00:45	1	0	0	1
01:00	3	0	1	4
Hour Total	15	0	2	17
01:15	2	0	0	2
01:30	2	0	0	2
01:45	3	0	0	3
02:00	0	0	0	0
Hour Total	7	0	0	7
02:15	0	0	0	0
02:30	1	0	0	1
02:45	2	0	0	2
03:00	2	0	0	2
Hour Total	5	0	0	5
03:15	1	0	0	1
03:30	2	0	0	2
03:45	1	0	0	1
04:00	2	1	0	3
Hour Total	6	1	0	7
04:15	3	0	0	3
04:30	3	0	1	4
04:45	4	0	0	4
05:00	7	0	1	8
Hour Total	17	0	2	19
05:15	7	0	0	7
05:30	13	0	0	13
05:45	20	0	1	21
06:00	38	0	0	38
Hour Total	78	0	1	79
06:15	29	0	0	29
06:30	52	2	0	54
06:45	75	1	0	76
07:00	127	0	1	128
Hour Total	283	3	1	287
07:15	118	0	0	118
07:30	199	1	2	202
07:45	276	3	1	280
08:00	321	0	2	323
Hour Total	914	4	5	923
08:15	197	3	0	200
08:30	207	0	1	208
08:45	180	4	3	187
09:00	181	0	0	181

Site Reference: Site 1 Ramp
Site ID: Ln 1 Out
Location: Lynchburg Ex Mainline, E of Wards Rd
Direction: NORTH
Lane: 2

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36326, -79.18521

TIME	1	2	3	Total
Hour Total	765	7	4	776
09:15	133	2	2	137
09:30	90	1	0	91
09:45	101	2	0	103
10:00	111	2	1	114
Hour Total	435	7	3	445
10:15	83	1	0	84
10:30	94	0	0	94
10:45	110	3	0	113
11:00	82	4	0	86
Hour Total	369	8	0	377
11:15	101	4	2	107
11:30	83	1	1	85
11:45	100	2	2	104
12:00	93	3	0	96
Hour Total	377	10	5	392
12:15	117	2	4	123
12:30	103	1	0	104
12:45	100	4	3	107
13:00	124	2	2	128
Hour Total	444	9	9	462
13:15	123	2	0	125
13:30	105	1	0	106
13:45	98	2	0	100
14:00	85	3	2	90
Hour Total	411	8	2	421
14:15	94	0	3	97
14:30	105	2	1	108
14:45	120	1	4	125
15:00	151	1	0	152
Hour Total	470	4	8	482
15:15	166	1	0	167
15:30	146	1	2	149
15:45	148	1	1	150
16:00	140	1	0	141
Hour Total	600	4	3	607
16:15	145	0	1	146
16:30	157	2	2	161
16:45	154	0	1	155
17:00	174	1	1	176
Hour Total	630	3	5	638

Site Reference: Site 1 Ramp
Site ID: Ln 1 Out
Location: Lynchburg Ex Mainline, E of Wards Rd
Direction: NORTH
Lane: 2

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36326, -79.18521

TIME	1	2	3	Total
17:15	176	2	0	178
17:30	191	2	2	195
17:45	157	0	1	158
18:00	146	1	0	147
Hour Total	670	5	3	678
18:15	109	1	2	112
18:30	104	0	0	104
18:45	95	1	2	98
19:00	72	0	1	73
Hour Total	380	2	5	387
19:15	57	1	0	58
19:30	49	0	0	49
19:45	44	1	0	45
20:00	48	0	0	48
Hour Total	198	2	0	200
20:15	56	0	0	56
20:30	48	0	1	49
20:45	40	0	1	41
21:00	36	0	0	36
Hour Total	180	0	2	182
21:15	37	0	0	37
21:30	37	0	1	38
21:45	34	0	0	34
22:00	18	0	0	18
Hour Total	126	0	1	127
22:15	15	0	0	15
22:30	14	0	0	14
22:45	19	0	0	19
23:00	16	0	0	16
Hour Total	64	0	0	64
23:15	28	0	0	28
23:30	12	0	0	12
23:45	14	0	0	14
24:00	9	0	0	9
Hour Total	63	0	0	63
DAY TOTAL	7507	77	61	7645
PERCENTS	98.2%	1.1%	0.7%	100%

Passenger Vehicles 100.0% Trucks & Buses 0.0%

AM Times	07:45	10:45	08:00	07:45
AM Peaks	1001	12	6	1011
PM Times	17:00	12:15	14:00	17:00
PM Peaks	698	9	10	707

GRAND TOTAL	14990	118		
	158	15266		
PERCENTS	98.2%	1.1%	0.7%	100%

Site Reference: Site 1 Lynch
Site ID: Site 1 Lynch
Location: SB/WB Lynchburg, w/o Old Wards Off
Direction: SOUTH
Lane: 1

File: D0219001.prn
City: 1-Car/2-Med/3-Heavy
County: 37.36434, -79.18511

TIME	1	2	3	Total
00:15	42	1	0	43
00:30	23	0	2	25
00:45	14	0	0	14
01:00	23	2	1	26
Hour Total	102	3	3	108
01:15	22	0	3	25
01:30	15	0	1	16
01:45	12	0	2	14
02:00	14	0	3	17
Hour Total	63	0	9	72
02:15	16	0	4	20
02:30	11	0	2	13
02:45	8	3	1	12
03:00	7	0	1	8
Hour Total	42	3	8	53
03:15	10	0	3	13
03:30	6	3	0	9
03:45	10	0	1	11
04:00	9	0	2	11
Hour Total	35	3	6	44
04:15	12	0	3	15
04:30	8	0	2	10
04:45	27	0	2	29
05:00	50	1	2	53
Hour Total	97	1	9	107
05:15	40	2	2	44
05:30	71	0	3	74
05:45	96	4	2	102
06:00	88	1	3	92
Hour Total	295	7	10	312
06:15	86	1	1	88
06:30	128	1	5	134
06:45	164	4	7	175
07:00	175	1	10	186
Hour Total	553	7	23	583
07:15	177	4	14	195
07:30	226	8	9	243
07:45	229	9	6	244
08:00	262	13	8	283
Hour Total	894	34	37	965
08:15	233	8	6	247
08:30	197	8	9	214
08:45	196	10	5	211
09:00	189	7	5	201

Peggy Malone & Associates
CLASSIFICATION SUMMARY
Wed 2/19/2014

Site Reference: Site 1 Lynch
Site ID: Site 1 Lynch
Location: SB/WB Lynchburg, w/o Old Wards Off
Direction: SOUTH
Lane: 1

File: D0219001.prn
City: 1-Car/2-Med/3-Heavy
County: 37.36434, -79.18511

TIME	1	2	3	Total
Hour Total	815	33	25	873
09:15	133	7	10	150
09:30	141	21	6	168
09:45	162	7	6	175
10:00	167	9	4	180
Hour Total	603	44	26	673
10:15	159	4	6	169
10:30	149	5	9	163
10:45	137	6	12	155
11:00	168	5	7	180
Hour Total	613	20	34	667
11:15	168	10	8	186
11:30	152	7	7	166
11:45	167	9	7	183
12:00	204	7	10	221
Hour Total	691	33	32	756
12:15	178	3	6	187
12:30	176	7	6	189
12:45	168	10	7	185
13:00	197	5	5	207
Hour Total	719	25	24	768
13:15	195	4	1	200
13:30	190	7	8	205
13:45	231	4	7	242
14:00	207	7	11	225
Hour Total	823	22	27	872
14:15	179	8	13	200
14:30	201	9	10	220
14:45	212	2	7	221
15:00	196	4	7	207
Hour Total	788	23	37	848
15:15	217	8	6	231
15:30	255	9	7	271
15:45	282	4	6	292
16:00	230	9	9	248
Hour Total	984	30	28	1042
16:15	262	9	1	272
16:30	217	8	3	228
16:45	286	3	5	294
17:00	271	2	7	280
Hour Total	1036	22	16	1074

Site Reference: Site 1 Lynch
Site ID: Site 1 Lynch
Location: SB/WB Lynchburg, w/o Old Wards Off
Direction: SOUTH
Lane: 1

File: D0219001.prn
City: 1-Car/2-Med/3-Heavy
County: 37.36434, -79.18511

TIME	1	2	3	Total
17:15	322	6	2	330
17:30	298	7	6	311
17:45	276	1	5	282
18:00	224	2	4	230
Hour Total	1120	16	17	1153
18:15	205	3	2	210
18:30	199	3	7	209
18:45	203	2	7	212
19:00	194	1	3	198
Hour Total	801	9	19	829
19:15	172	1	3	176
19:30	156	1	3	160
19:45	155	1	1	157
20:00	158	1	5	164
Hour Total	641	4	12	657
20:15	140	3	5	148
20:30	147	3	3	153
20:45	121	3	2	126
21:00	118	2	2	122
Hour Total	526	11	12	549
21:15	139	1	0	140
21:30	135	2	0	137
21:45	125	0	0	125
22:00	87	1	1	89
Hour Total	486	4	1	491
22:15	109	0	2	111
22:30	97	1	1	99
22:45	82	2	3	87
23:00	73	0	3	76
Hour Total	361	3	9	373
23:15	67	0	1	68
23:30	87	0	2	89
23:45	81	0	5	86
24:00	68	0	0	68
Hour Total	303	0	8	311
DAY TOTAL	13391	357	432	14180
PERCENTS	94.5%	2.5%	3.0%	100%

Passenger Vehicles 100.0% Trucks & Buses 0.0%

AM Times 07:30 08:45 06:45 07:30
AM Peaks 950 45 40 1017

PM Times 16:45 15:30 13:45 16:45
PM Peaks 1177 31 41 1215

Site Reference: Site 1 Lynch
Site ID: Site 1 Lynch
Location: SB/WB Lynchburg, w/o Old Wards Off
Direction: SOUTH
Lane: 1

File: D0219001.prn
City: 1-Car/2-Med/3-Heavy
County: 37.36434, -79.18511

TIME	1	2	3	Total
00:15	49	1	0	50
00:30	32	0	1	33
00:45	22	0	2	24
01:00	20	0	0	20
Hour Total	123	1	3	127
01:15	17	0	2	19
01:30	14	2	0	16
01:45	15	1	1	17
02:00	14	0	2	16
Hour Total	60	3	5	68
02:15	18	0	1	19
02:30	4	0	1	5
02:45	10	0	0	10
03:00	4	0	1	5
Hour Total	36	0	3	39
03:15	17	0	3	20
03:30	7	0	2	9
03:45	16	0	2	18
04:00	7	1	5	13
Hour Total	47	1	12	60
04:15	11	0	2	13
04:30	22	1	3	26
04:45	23	0	0	23
05:00	43	1	3	47
Hour Total	99	2	8	109
05:15	42	1	3	46
05:30	53	0	3	56
05:45	99	2	3	104
06:00	95	1	2	98
Hour Total	289	4	11	304
06:15	85	3	2	90
06:30	124	3	7	134
06:45	155	6	10	171
07:00	182	2	12	196
Hour Total	546	14	31	591
07:15	170	12	11	193
07:30	217	11	7	235
07:45	261	4	6	271
08:00	290	4	5	299
Hour Total	938	31	29	998
08:15	209	11	8	228
08:30	202	13	13	228
08:45	184	13	3	200
09:00	165	11	9	185

Site Reference: Site 1 Lynch
Site ID: Site 1 Lynch
Location: SB/WB Lynchburg, w/o Old Wards Off
Direction: SOUTH
Lane: 1

File: D0219001.prn
City: 1-Car/2-Med/3-Heavy
County: 37.36434, -79.18511

TIME	1	2	3	Total
Hour Total	760	48	33	841
09:15	133	10	12	155
09:30	143	14	8	165
09:45	156	12	6	174
10:00	168	7	2	177
Hour Total	600	43	28	671
10:15	145	7	6	158
10:30	158	10	5	173
10:45	146	11	11	168
11:00	151	6	5	162
Hour Total	600	34	27	661
11:15	133	4	8	145
11:30	158	10	7	175
11:45	170	15	7	192
12:00	186	10	11	207
Hour Total	647	39	33	719
12:15	203	4	7	214
12:30	185	9	5	199
12:45	201	12	8	221
13:00	195	8	5	208
Hour Total	784	33	25	842
13:15	218	5	13	236
13:30	206	8	11	225
13:45	193	10	6	209
14:00	184	9	13	206
Hour Total	801	32	43	876
14:15	218	8	10	236
14:30	195	10	13	218
14:45	203	10	6	219
15:00	200	4	10	214
Hour Total	816	32	39	887
15:15	209	7	9	225
15:30	251	7	6	264
15:45	264	9	7	280
16:00	218	8	6	232
Hour Total	942	31	28	1001
16:15	248	4	8	260
16:30	235	8	5	248
16:45	257	4	6	267
17:00	264	4	8	276
Hour Total	1004	20	27	1051

Site Reference: Site 1 Lynch
Site ID: Site 1 Lynch
Location: SB/WB Lynchburg, w/o Old Wards Off
Direction: SOUTH
Lane: 1

File: D0219001.prn
City: 1-Car/2-Med/3-Heavy
County: 37.36434, -79.18511

TIME	1	2	3	Total
17:15	290	6	4	300
17:30	326	0	3	329
17:45	289	6	4	299
18:00	239	2	5	246
Hour Total	1144	14	16	1174
18:15	229	6	2	237
18:30	208	2	4	214
18:45	196	3	5	204
19:00	189	1	4	194
Hour Total	822	12	15	849
19:15	173	0	2	175
19:30	166	4	1	171
19:45	161	0	3	164
20:00	146	1	2	149
Hour Total	646	5	8	659
20:15	153	3	3	159
20:30	147	2	2	151
20:45	152	0	3	155
21:00	157	1	3	161
Hour Total	609	6	11	626
21:15	150	1	2	153
21:30	137	0	2	139
21:45	123	2	0	125
22:00	108	1	2	111
Hour Total	518	4	6	528
22:15	118	0	0	118
22:30	91	0	1	92
22:45	100	1	1	102
23:00	99	0	1	100
Hour Total	408	1	3	412
23:15	7	0	0	7
23:30	91	0	2	93
23:45	76	0	2	78
24:00	61	0	4	65
Hour Total	235	0	8	243
DAY TOTAL	13474	410	452	14336
PERCENTS	94.0%	2.9%	3.1%	100%

Passenger Vehicles 100.0% Trucks & Buses 0.0%

AM Times	07:30	08:15	06:30	07:30
AM Peaks	977	48	40	1033
PM Times	17:00	13:45	13:15	17:00
PM Peaks	1169	37	43	1204

GRAND TOTAL	26865	884		
	767	28516		
PERCENTS	94.3%	2.6%	3.1%	100%

Site Reference: Site 1 Lynch
Site ID: Site 1 Lynch
Location: SB/WB Lynchburg, w/o Old Wards Off
Direction: SOUTH
Lane: 2

File: D0219001.prn
City: 1-Car/2-Med/3-Heavy
County: 37.36434, -79.18511

TIME	1	2	3	Total
00:15	10	0	0	10
00:30	9	0	0	9
00:45	2	0	0	2
01:00	0	0	0	0
Hour Total	21	0	0	21
01:15	2	0	0	2
01:30	2	0	0	2
01:45	1	0	0	1
02:00	2	0	0	2
Hour Total	7	0	0	7
02:15	1	0	0	1
02:30	0	0	1	1
02:45	2	0	0	2
03:00	1	0	0	1
Hour Total	4	0	1	5
03:15	1	0	0	1
03:30	0	0	0	0
03:45	1	0	0	1
04:00	1	0	1	2
Hour Total	3	0	1	4
04:15	0	0	0	0
04:30	1	0	0	1
04:45	1	0	1	2
05:00	3	0	0	3
Hour Total	5	0	1	6
05:15	8	0	0	8
05:30	14	0	0	14
05:45	37	1	0	38
06:00	26	0	0	26
Hour Total	85	1	0	86
06:15	20	0	0	20
06:30	42	0	0	42
06:45	100	0	1	101
07:00	93	0	1	94
Hour Total	255	0	2	257
07:15	100	1	2	103
07:30	149	2	2	153
07:45	174	1	0	175
08:00	188	1	0	189
Hour Total	611	5	4	620
08:15	152	2	2	156
08:30	127	0	2	129
08:45	109	0	1	110
09:00	87	3	0	90

Site Reference: Site 1 Lynch
Site ID: Site 1 Lynch
Location: SB/WB Lynchburg, w/o Old Wards Off
Direction: SOUTH
Lane: 2

File: D0219001.prn
City: 1-Car/2-Med/3-Heavy
County: 37.36434, -79.18511

TIME	1	2	3	Total
Hour Total	475	5	5	485
09:15	69	1	1	71
09:30	66	2	1	69
09:45	61	1	0	62
10:00	66	1	1	68
Hour Total	262	5	3	270
10:15	67	1	0	68
10:30	62	1	0	63
10:45	56	1	0	57
11:00	67	3	3	73
Hour Total	252	6	3	261
11:15	55	0	1	56
11:30	56	1	3	60
11:45	72	0	3	75
12:00	86	1	1	88
Hour Total	269	2	8	279
12:15	78	1	0	79
12:30	78	1	0	79
12:45	85	0	2	87
13:00	80	0	0	80
Hour Total	321	2	2	325
13:15	86	1	2	89
13:30	81	2	2	85
13:45	100	1	2	103
14:00	95	1	3	99
Hour Total	362	5	9	376
14:15	81	1	2	84
14:30	115	0	2	117
14:45	127	1	0	128
15:00	101	0	0	101
Hour Total	424	2	4	430
15:15	131	1	1	133
15:30	136	2	2	140
15:45	191	2	0	193
16:00	169	2	1	172
Hour Total	627	7	4	638
16:15	175	0	5	180
16:30	143	0	1	144
16:45	167	0	3	170
17:00	173	0	1	174
Hour Total	658	0	10	668

Site Reference: Site 1 Lynch
Site ID: Site 1 Lynch
Location: SB/WB Lynchburg, w/o Old Wards Off
Direction: SOUTH
Lane: 2

File: D0219001.prn
City: 1-Car/2-Med/3-Heavy
County: 37.36434, -79.18511

TIME	1	2	3	Total
17:15	252	1	0	253
17:30	245	0	2	247
17:45	227	1	1	229
18:00	136	1	2	139
Hour Total	860	3	5	868
18:15	101	2	1	104
18:30	84	0	0	84
18:45	99	1	1	101
19:00	95	0	1	96
Hour Total	379	3	3	385
19:15	84	2	0	86
19:30	65	0	3	68
19:45	73	0	2	75
20:00	63	0	0	63
Hour Total	285	2	5	292
20:15	45	0	0	45
20:30	51	0	0	51
20:45	43	0	1	44
21:00	35	0	1	36
Hour Total	174	0	2	176
21:15	58	0	1	59
21:30	36	0	1	37
21:45	46	0	0	46
22:00	25	1	0	26
Hour Total	165	1	2	168
22:15	32	0	0	32
22:30	29	0	1	30
22:45	27	0	1	28
23:00	16	0	0	16
Hour Total	104	0	2	106
23:15	20	0	0	20
23:30	33	0	0	33
23:45	21	0	1	22
24:00	13	0	0	13
Hour Total	87	0	1	88
DAY TOTAL	6695	49	77	6821
PERCENTS	98.2%	0.7%	1.1%	100%

Passenger Vehicles 100.0% Trucks & Buses 0.0%

AM Times	07:30	09:00	11:00	07:30
AM Peaks	663	7	10	673
PM Times	17:00	15:15	16:00	17:00
PM Peaks	897	7	10	903

Site Reference: Site 1 Lynch
Site ID: Site 1 Lynch
Location: SB/WB Lynchburg, w/o Old Wards Off
Direction: SOUTH
Lane: 2

File: D0219001.prn
City: 1-Car/2-Med/3-Heavy
County: 37.36434, -79.18511

TIME	1	2	3	Total
00:15	10	0	0	10
00:30	2	0	0	2
00:45	4	0	0	4
01:00	3	0	0	3
Hour Total	19	0	0	19
01:15	4	0	0	4
01:30	1	0	0	1
01:45	1	0	0	1
02:00	0	0	0	0
Hour Total	6	0	0	6
02:15	2	0	0	2
02:30	0	0	0	0
02:45	2	0	0	2
03:00	0	0	0	0
Hour Total	4	0	0	4
03:15	0	0	1	1
03:30	0	0	0	0
03:45	0	0	0	0
04:00	0	0	0	0
Hour Total	0	0	1	1
04:15	0	0	0	0
04:30	1	0	0	1
04:45	1	1	0	2
05:00	4	0	0	4
Hour Total	6	1	0	7
05:15	6	0	0	6
05:30	20	0	0	20
05:45	37	1	0	38
06:00	21	0	1	22
Hour Total	84	1	1	86
06:15	27	0	0	27
06:30	48	0	1	49
06:45	97	1	1	99
07:00	129	1	2	132
Hour Total	301	2	4	307
07:15	118	1	3	122
07:30	152	0	0	152
07:45	177	0	0	177
08:00	196	1	2	199
Hour Total	643	2	5	650
08:15	120	0	0	120
08:30	159	1	0	160
08:45	93	0	3	96
09:00	107	1	3	111

Site Reference: Site 1 Lynch
Site ID: Site 1 Lynch
Location: SB/WB Lynchburg, w/o Old Wards Off
Direction: SOUTH
Lane: 2

File: D0219001.prn
City: 1-Car/2-Med/3-Heavy
County: 37.36434, -79.18511

TIME	1	2	3	Total
Hour Total	479	2	6	487
09:15	74	2	1	77
09:30	63	0	0	63
09:45	54	0	4	58
10:00	61	3	0	64
Hour Total	252	5	5	262
10:15	54	2	1	57
10:30	62	2	2	66
10:45	66	4	2	72
11:00	60	1	1	62
Hour Total	242	9	6	257
11:15	48	3	1	52
11:30	70	0	1	71
11:45	73	0	3	76
12:00	92	4	1	97
Hour Total	283	7	6	296
12:15	82	2	0	84
12:30	87	2	3	92
12:45	103	1	3	107
13:00	76	1	3	80
Hour Total	348	6	9	363
13:15	110	1	1	112
13:30	116	0	3	119
13:45	96	2	1	99
14:00	98	0	2	100
Hour Total	420	3	7	430
14:15	106	2	5	113
14:30	100	0	1	101
14:45	126	2	1	129
15:00	108	0	0	108
Hour Total	440	4	7	451
15:15	94	3	2	99
15:30	133	2	4	139
15:45	143	1	0	144
16:00	171	4	2	177
Hour Total	541	10	8	559
16:15	147	3	0	150
16:30	150	1	2	153
16:45	182	3	0	185
17:00	200	1	2	203
Hour Total	679	8	4	691

Site Reference: Site 1 Lynch
Site ID: Site 1 Lynch
Location: SB/WB Lynchburg, w/o Old Wards Off
Direction: SOUTH
Lane: 2

File: D0219001.prn
City: 1-Car/2-Med/3-Heavy
County: 37.36434, -79.18511

TIME	1	2	3	Total
17:15	224	0	1	225
17:30	225	3	0	228
17:45	192	0	0	192
18:00	148	0	1	149
Hour Total	789	3	2	794
18:15	119	1	1	121
18:30	113	0	1	114
18:45	112	0	1	113
19:00	85	0	1	86
Hour Total	429	1	4	434
19:15	70	1	1	72
19:30	64	1	0	65
19:45	56	0	1	57
20:00	52	1	0	53
Hour Total	242	3	2	247
20:15	48	0	0	48
20:30	68	0	1	69
20:45	50	0	1	51
21:00	62	1	1	64
Hour Total	228	1	3	232
21:15	54	0	0	54
21:30	46	0	0	46
21:45	48	0	0	48
22:00	36	0	0	36
Hour Total	184	0	0	184
22:15	42	0	0	42
22:30	27	0	1	28
22:45	31	0	0	31
23:00	26	0	0	26
Hour Total	126	0	1	127
23:15	101	2	3	106
23:30	17	0	0	17
23:45	17	0	0	17
24:00	20	0	0	20
Hour Total	155	2	3	160
DAY TOTAL	6900	70	84	7054
PERCENTS	97.9%	1.0%	1.1%	100%

Passenger Vehicles 100.0% Trucks & Buses 0.0%

AM Times	07:45	10:00	09:00	07:45
AM Peaks	652	11	8	656
PM Times	17:00	16:00	13:30	17:00
PM Peaks	841	11	11	848

GRAND TOTAL	13595	161		
	119	13875		
PERCENTS	98.0%	0.9%	1.1%	100%

Site Reference: Site 3 Ramp
Site ID:
Location: NB Lynchburg Exp On Ramp from Wards Rd
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36487, -79.18195

TIME	1	2	3	Total
00:15	18	0	0	18
00:30	9	0	0	9
00:45	8	0	1	9
01:00	5	0	0	5
Hour Total	40	0	1	41
01:15	4	0	0	4
01:30	2	0	0	2
01:45	7	1	0	8
02:00	8	0	0	8
Hour Total	21	1	0	22
02:15	4	0	0	4
02:30	3	1	0	4
02:45	4	0	0	4
03:00	2	0	0	2
Hour Total	13	1	0	14
03:15	0	1	1	2
03:30	2	0	1	3
03:45	5	0	0	5
04:00	3	0	0	3
Hour Total	10	1	2	13
04:15	4	0	0	4
04:30	2	0	0	2
04:45	6	0	0	6
05:00	8	0	0	8
Hour Total	20	0	0	20
05:15	6	0	0	6
05:30	13	0	1	14
05:45	11	0	0	11
06:00	18	0	0	18
Hour Total	48	0	1	49
06:15	27	0	2	29
06:30	41	1	2	44
06:45	33	0	0	33
07:00	47	0	1	48
Hour Total	148	1	5	154
07:15	43	3	0	46
07:30	49	4	0	53
07:45	53	4	4	61
08:00	66	3	3	72
Hour Total	211	14	7	232
08:15	81	0	0	81
08:30	42	1	3	46
08:45	46	2	2	50
09:00	41	5	2	48

Site Reference: Site 3 Ramp
Site ID:
Location: NB Lynchburg Exp On Ramp from Wards Rd
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36487, -79.18195

TIME	1	2	3	Total
Hour Total	210	8	7	225
09:15	38	3	1	42
09:30	51	0	2	53
09:45	33	2	0	35
10:00	50	1	0	51
Hour Total	172	6	3	181
10:15	45	3	2	50
10:30	49	1	4	54
10:45	39	0	2	41
11:00	58	1	1	60
Hour Total	191	5	9	205
11:15	42	2	3	47
11:30	46	3	4	53
11:45	60	3	4	67
12:00	65	1	1	67
Hour Total	213	9	12	234
12:15	67	1	2	70
12:30	68	5	6	79
12:45	69	1	0	70
13:00	86	1	0	87
Hour Total	290	8	8	306
13:15	71	1	2	74
13:30	78	2	1	81
13:45	69	3	3	75
14:00	74	1	1	76
Hour Total	292	7	7	306
14:15	107	0	1	108
14:30	70	1	0	71
14:45	70	2	2	74
15:00	91	2	1	94
Hour Total	338	5	4	347
15:15	87	3	2	92
15:30	65	2	0	67
15:45	60	1	1	62
16:00	68	1	1	70
Hour Total	280	7	4	291
16:15	79	0	2	81
16:30	79	1	3	83
16:45	82	1	1	84
17:00	79	1	0	80
Hour Total	319	3	6	328

Site Reference: Site 3 Ramp
Site ID:
Location: NB Lynchburg Exp On Ramp from Wards Rd
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36487, -79.18195

TIME	1	2	3	Total
17:15	85	1	0	86
17:30	73	1	0	74
17:45	79	0	1	80
18:00	71	2	0	73
Hour Total	308	4	1	313
18:15	69	0	1	70
18:30	62	0	0	62
18:45	69	0	0	69
19:00	72	1	0	73
Hour Total	272	1	1	274
19:15	65	1	2	68
19:30	61	0	0	61
19:45	64	0	0	64
20:00	64	0	1	65
Hour Total	254	1	3	258
20:15	55	0	3	58
20:30	59	0	0	59
20:45	64	0	0	64
21:00	46	0	2	48
Hour Total	224	0	5	229
21:15	42	0	0	42
21:30	58	0	2	60
21:45	32	1	2	35
22:00	30	0	0	30
Hour Total	162	1	4	167
22:15	35	0	1	36
22:30	19	0	0	19
22:45	34	0	0	34
23:00	27	0	0	27
Hour Total	115	0	1	116
23:15	25	0	0	25
23:30	24	0	0	24
23:45	15	0	2	17
24:00	25	0	1	26
Hour Total	89	0	3	92
DAY TOTAL	4240	83	94	4417
PERCENTS	96.0%	1.9%	2.1%	100%

Passenger Vehicles 100.0% Trucks & Buses 0.0%

AM Times	07:30	07:15	11:00	07:30
AM Peaks	249	14	12	267
PM Times	14:15	14:45	12:15	14:15
PM Peaks	338	9	8	347

Site Reference: Site 3 Ramp
Site ID:
Location: NB Lynchburg Exp On Ramp from Wards Rd
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36487, -79.18195

TIME	1	2	3	Total
00:15	12	0	0	12
00:30	7	0	0	7
00:45	7	1	1	9
01:00	7	0	0	7
Hour Total	33	1	1	35
01:15	8	0	0	8
01:30	8	0	1	9
01:45	3	0	0	3
02:00	11	0	0	11
Hour Total	30	0	1	31
02:15	6	0	1	7
02:30	10	0	0	10
02:45	0	2	1	3
03:00	5	1	0	6
Hour Total	21	3	2	26
03:15	2	0	0	2
03:30	2	1	0	3
03:45	4	0	0	4
04:00	1	0	1	2
Hour Total	9	1	1	11
04:15	4	0	1	5
04:30	3	1	3	7
04:45	7	0	0	7
05:00	3	0	1	4
Hour Total	17	1	5	23
05:15	6	0	0	6
05:30	13	1	0	14
05:45	9	0	0	9
06:00	18	0	0	18
Hour Total	46	1	0	47
06:15	18	0	3	21
06:30	32	1	0	33
06:45	51	0	1	52
07:00	53	1	3	57
Hour Total	154	2	7	163
07:15	36	4	0	40
07:30	52	0	0	52
07:45	43	1	2	46
08:00	70	2	3	75
Hour Total	201	7	5	213
08:15	73	0	1	74
08:30	52	0	2	54
08:45	51	3	2	56
09:00	40	1	0	41

Site Reference: Site 3 Ramp
Site ID:
Location: NB Lynchburg Exp On Ramp from Wards Rd
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36487, -79.18195

TIME	1	2	3	Total
Hour Total	216	4	5	225
09:15	37	3	0	40
09:30	44	4	1	49
09:45	36	1	1	38
10:00	50	1	1	52
Hour Total	167	9	3	179
10:15	46	0	0	46
10:30	50	2	3	55
10:45	50	0	1	51
11:00	68	1	2	71
Hour Total	214	3	6	223
11:15	55	2	1	58
11:30	47	2	2	51
11:45	66	4	3	73
12:00	55	3	1	59
Hour Total	223	11	7	241
12:15	63	0	0	63
12:30	79	5	1	85
12:45	86	2	2	90
13:00	68	1	2	71
Hour Total	296	8	5	309
13:15	94	3	1	98
13:30	78	2	0	80
13:45	64	1	2	67
14:00	67	2	3	72
Hour Total	303	8	6	317
14:15	73	5	2	80
14:30	84	1	1	86
14:45	75	1	2	78
15:00	77	2	0	79
Hour Total	309	9	5	323
15:15	86	2	1	89
15:30	92	2	1	95
15:45	78	0	0	78
16:00	71	1	1	73
Hour Total	327	5	3	335
16:15	71	1	1	73
16:30	86	3	1	90
16:45	81	1	0	82
17:00	74	0	0	74
Hour Total	312	5	2	319

Site Reference: Site 3 Ramp
Site ID:
Location: NB Lynchburg Exp On Ramp from Wards Rd
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36487, -79.18195

TIME	1	2	3	Total
17:15	66	0	2	68
17:30	78	0	0	78
17:45	88	2	2	92
18:00	69	1	0	70
Hour Total	301	3	4	308
18:15	61	0	3	64
18:30	76	0	0	76
18:45	53	2	1	56
19:00	77	3	1	81
Hour Total	267	5	5	277
19:15	61	0	0	61
19:30	75	0	0	75
19:45	64	0	1	65
20:00	72	0	0	72
Hour Total	272	0	1	273
20:15	61	2	1	64
20:30	74	0	1	75
20:45	58	0	0	58
21:00	40	0	1	41
Hour Total	233	2	3	238
21:15	55	0	0	55
21:30	45	1	1	47
21:45	42	0	1	43
22:00	25	0	0	25
Hour Total	167	1	2	170
22:15	36	0	0	36
22:30	26	0	0	26
22:45	34	0	0	34
23:00	29	0	0	29
Hour Total	125	0	0	125
23:15	33	0	1	34
23:30	15	0	0	15
23:45	21	0	0	21
24:00	19	1	0	20
Hour Total	88	1	1	90
DAY TOTAL	4331	90	80	4501
PERCENTS	96.3%	2.0%	1.7%	100%

Passenger Vehicles 100.0% Trucks & Buses 0.0%

AM Times	08:00	08:45	07:45	08:00
AM Peaks	246	11	8	259
PM Times	15:00	12:30	13:45	12:30
PM Peaks	333	11	8	344

GRAND TOTAL	8571		174	
	173		8918	
PERCENTS	96.2%	1.9%	1.9%	100%

Site Reference: Site 2 Ramp
Site ID:
Location: NB Lynchburg Exp Off to Old Wards Rd
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car 2-Med 3-Hvy
County: 37.36217 -79.18394

TIME	1	2	3	Total
00:15	11	0	1	12
00:30	13	0	0	13
00:45	1	1	0	2
01:00	6	0	1	7
Hour Total	31	1	2	34
01:15	5	0	0	5
01:30	3	0	0	3
01:45	2	0	1	3
02:00	1	0	0	1
Hour Total	11	0	1	12
02:15	1	0	0	1
02:30	3	0	0	3
02:45	2	2	1	5
03:00	3	0	1	4
Hour Total	9	2	2	13
03:15	1	0	1	2
03:30	7	0	1	8
03:45	5	0	4	9
04:00	2	1	0	3
Hour Total	15	1	6	22
04:15	4	1	1	6
04:30	7	0	1	8
04:45	8	0	1	9
05:00	10	0	0	10
Hour Total	29	1	3	33
05:15	9	1	1	11
05:30	9	0	3	12
05:45	13	0	3	16
06:00	24	1	3	28
Hour Total	55	2	10	67
06:15	14	0	4	18
06:30	27	0	4	31
06:45	43	2	4	49
07:00	52	0	3	55
Hour Total	136	2	15	153
07:15	54	3	1	58
07:30	83	6	1	90
07:45	103	4	1	108
08:00	184	1	5	190
Hour Total	424	14	8	446
08:15	102	4	1	107
08:30	64	9	2	75
08:45	113	4	2	119
09:00	115	5	3	123

Site Reference: Site 2 Ramp
Site ID:
Location: NB Lynchburg Exp Off to Old Wards Rd
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car 2-Med 3-Hvy
County: 37.36217 -79.18394

TIME	1	2	3	Total
Hour Total	394	22	8	424
09:15	73	4	4	81
09:30	80	3	1	84
09:45	74	3	3	80
10:00	94	3	2	99
Hour Total	321	13	10	344
10:15	89	4	3	96
10:30	91	2	4	97
10:45	94	1	6	101
11:00	108	7	4	119
Hour Total	382	14	17	413
11:15	102	3	2	107
11:30	86	6	4	96
11:45	95	5	3	103
12:00	137	0	3	140
Hour Total	420	14	12	446
12:15	113	5	2	120
12:30	105	4	3	112
12:45	111	5	2	118
13:00	120	3	3	126
Hour Total	449	17	10	476
13:15	104	4	1	109
13:30	99	5	1	105
13:45	94	4	5	103
14:00	94	7	4	105
Hour Total	391	20	11	422
14:15	88	3	0	91
14:30	77	5	2	84
14:45	102	6	1	109
15:00	89	4	4	97
Hour Total	356	18	7	381
15:15	105	3	1	109
15:30	87	4	3	94
15:45	99	3	1	103
16:00	102	3	2	107
Hour Total	393	13	7	413
16:15	81	1	4	86
16:30	105	4	0	109
16:45	128	2	1	131
17:00	137	1	0	138
Hour Total	451	8	5	464

Site Reference: Site 2 Ramp
Site ID:
Location: NB Lynchburg Exp Off to Old Wards Rd
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car 2-Med 3-Hvy
County: 37.36217 -79.18394

TIME	1	2	3	Total
17:15	139	1	0	140
17:30	133	2	0	135
17:45	142	1	0	143
18:00	124	0	1	125
Hour Total	538	4	1	543
18:15	112	1	0	113
18:30	106	0	2	108
18:45	98	0	1	99
19:00	77	0	0	77
Hour Total	393	1	3	397
19:15	71	1	0	72
19:30	59	0	1	60
19:45	55	0	1	56
20:00	32	1	0	33
Hour Total	217	2	2	221
20:15	35	0	2	37
20:30	36	0	0	36
20:45	41	1	1	43
21:00	45	0	0	45
Hour Total	157	1	3	161
21:15	35	0	1	36
21:30	32	0	1	33
21:45	31	0	2	33
22:00	17	0	0	17
Hour Total	115	0	4	119
22:15	17	1	0	18
22:30	23	0	1	24
22:45	11	0	1	12
23:00	11	1	0	12
Hour Total	62	2	2	66
23:15	19	0	1	20
23:30	17	0	2	19
23:45	14	0	0	14
24:00	13	0	0	13
Hour Total	63	0	3	66
DAY TOTAL	5812	172	152	6136
PERCENTS	94.8%	2.8%	2.4%	100%

Passenger Vehicles 100.0% Trucks & Buses 0.0%

AM Times	07:30	08:15	10:15	07:30
AM Peaks	472	22	17	495
PM Times	17:00	14:00	13:15	17:00
PM Peaks	551	21	11	556

Site Reference: Site 2 Ramp
Site ID:
Location: NB Lynchburg Exp Off to Old Wards Rd
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car 2-Med 3-Hvy
County: 37.36217 -79.18394

TIME	1	2	3	Total
00:15	9	0	1	10
00:30	10	0	0	10
00:45	2	0	1	3
01:00	4	0	0	4
Hour Total	25	0	2	27
01:15	4	0	0	4
01:30	1	0	1	2
01:45	5	0	1	6
02:00	2	0	0	2
Hour Total	12	0	2	14
02:15	3	0	0	3
02:30	4	1	1	6
02:45	2	1	0	3
03:00	0	0	0	0
Hour Total	9	2	1	12
03:15	0	0	0	0
03:30	1	0	0	1
03:45	2	1	1	4
04:00	2	0	2	4
Hour Total	5	1	3	9
04:15	1	0	3	4
04:30	5	2	0	7
04:45	11	0	1	12
05:00	5	0	0	5
Hour Total	22	2	4	28
05:15	7	0	2	9
05:30	9	2	2	13
05:45	18	0	2	20
06:00	34	0	0	34
Hour Total	68	2	6	76
06:15	18	1	3	22
06:30	26	3	4	33
06:45	35	3	3	41
07:00	60	0	1	61
Hour Total	139	7	11	157
07:15	45	2	1	48
07:30	82	1	1	84
07:45	117	3	2	122
08:00	196	5	4	205
Hour Total	440	11	8	459
08:15	107	1	2	110
08:30	83	2	4	89
08:45	64	4	1	69
09:00	116	4	2	122

Site Reference: Site 2 Ramp
Site ID:
Location: NB Lynchburg Exp Off to Old Wards Rd
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car 2-Med 3-Hvy
County: 37.36217 -79.18394

TIME	1	2	3	Total
Hour Total	370	11	9	390
09:15	97	6	0	103
09:30	86	1	3	90
09:45	68	5	3	76
10:00	93	4	3	100
Hour Total	344	16	9	369
10:15	80	3	1	84
10:30	91	2	4	97
10:45	83	4	4	91
11:00	115	9	5	129
Hour Total	369	18	14	401
11:15	75	2	4	81
11:30	100	3	1	104
11:45	99	5	5	109
12:00	117	3	1	121
Hour Total	391	13	11	415
12:15	155	5	2	162
12:30	109	2	2	113
12:45	123	4	2	129
13:00	115	3	3	121
Hour Total	502	14	9	525
13:15	84	2	2	88
13:30	88	3	4	95
13:45	110	4	2	116
14:00	90	4	2	96
Hour Total	372	13	10	395
14:15	95	3	1	99
14:30	75	8	2	85
14:45	87	5	6	98
15:00	99	6	1	106
Hour Total	356	22	10	388
15:15	96	5	0	101
15:30	91	5	0	96
15:45	116	5	1	122
16:00	96	1	4	101
Hour Total	399	16	5	420
16:15	128	0	2	130
16:30	110	0	3	113
16:45	138	1	0	139
17:00	136	1	2	139
Hour Total	512	2	7	521

Site Reference: Site 2 Ramp
Site ID:
Location: NB Lynchburg Exp Off to Old Wards Rd
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car 2-Med 3-Hvy
County: 37.36217 -79.18394

TIME	1	2	3	Total
17:15	149	0	0	149
17:30	144	0	0	144
17:45	115	1	1	117
18:00	135	1	1	137
Hour Total	543	2	2	547
18:15	108	1	0	109
18:30	105	2	0	107
18:45	96	0	1	97
19:00	100	0	2	102
Hour Total	409	3	3	415
19:15	72	1	1	74
19:30	68	0	2	70
19:45	47	1	1	49
20:00	61	1	0	62
Hour Total	248	3	4	255
20:15	36	1	3	40
20:30	60	0	2	62
20:45	38	1	1	40
21:00	27	1	0	28
Hour Total	161	3	6	170
21:15	37	0	1	38
21:30	47	0	1	48
21:45	29	0	2	31
22:00	26	0	1	27
Hour Total	139	0	5	144
22:15	20	0	0	20
22:30	18	1	0	19
22:45	10	0	0	10
23:00	11	0	0	11
Hour Total	59	1	0	60
23:15	23	0	0	23
23:30	20	0	2	22
23:45	22	0	0	22
24:00	19	0	0	19
Hour Total	84	0	2	86
DAY TOTAL	5978	162	143	6283
PERCENTS	95.2%	2.6%	2.2%	100%

Passenger Vehicles 100.0% Trucks & Buses 0.0%

AM Times	07:45	11:00	10:30	07:45
AM Peaks	503	19	17	526
PM Times	16:45	14:30	12:45	16:45
PM Peaks	567	24	11	571

GRAND TOTAL	11790	295		
	334	12419		
PERCENTS	95.0%	2.7%	2.3%	100%

Site Reference: Site 23 Ramp
Site ID:
Location: SB Lynchburg Exp Off to Old Wards Rd
Direction: SOUTH
Lane: 1

File: ADT.prn
City: 1-Car 2-Med 3-Hvy
County: 37.36217 -79318394

TIME	1	2	3	Total
00:15	10	1	0	11
00:30	5	0	1	6
00:45	3	0	0	3
01:00	1	1	0	2
Hour Total	19	2	1	22
01:15	6	0	0	6
01:30	2	0	1	3
01:45	5	0	0	5
02:00	1	0	0	1
Hour Total	14	0	1	15
02:15	1	0	0	1
02:30	2	0	0	2
02:45	2	0	0	2
03:00	0	0	0	0
Hour Total	5	0	0	5
03:15	0	1	0	1
03:30	3	1	0	4
03:45	6	0	0	6
04:00	8	0	2	10
Hour Total	17	2	2	21
04:15	1	2	3	6
04:30	1	0	1	2
04:45	10	1	0	11
05:00	12	1	0	13
Hour Total	24	4	4	32
05:15	7	0	0	7
05:30	17	0	0	17
05:45	13	0	0	13
06:00	16	1	0	17
Hour Total	53	1	0	54
06:15	15	1	0	16
06:30	28	1	0	29
06:45	27	1	0	28
07:00	41	0	1	42
Hour Total	111	3	1	115
07:15	32	1	3	36
07:30	46	2	1	49
07:45	43	1	1	45
08:00	73	1	2	76
Hour Total	194	5	7	206
08:15	56	1	4	61
08:30	57	4	2	63
08:45	74	2	2	78
09:00	74	5	5	84

Site Reference: Site 23 Ramp
Site ID:
Location: SB Lynchburg Exp Off to Old Wards Rd
Direction: SOUTH
Lane: 1

File: ADT.prn
City: 1-Car 2-Med 3-Hvy
County: 37.36217 -79318394

TIME	1	2	3	Total
Hour Total	261	12	13	286
09:15	40	0	2	42
09:30	49	0	3	52
09:45	42	2	0	44
10:00	52	1	3	56
Hour Total	183	3	8	194
10:15	53	2	1	56
10:30	58	3	0	61
10:45	50	2	3	55
11:00	60	0	5	65
Hour Total	221	7	9	237
11:15	51	1	3	55
11:30	71	3	3	77
11:45	64	4	2	70
12:00	60	3	3	66
Hour Total	246	11	11	268
12:15	67	0	1	68
12:30	87	1	2	90
12:45	75	1	1	77
13:00	65	1	5	71
Hour Total	294	3	9	306
13:15	63	5	4	72
13:30	56	2	0	58
13:45	61	5	2	68
14:00	56	6	3	65
Hour Total	236	18	9	263
14:15	70	0	5	75
14:30	58	1	3	62
14:45	55	4	0	59
15:00	54	2	3	59
Hour Total	237	7	11	255
15:15	63	3	6	72
15:30	72	3	3	78
15:45	79	4	1	84
16:00	97	3	1	101
Hour Total	311	13	11	335
16:15	84	0	0	84
16:30	91	4	1	96
16:45	83	0	1	84
17:00	106	2	1	109
Hour Total	364	6	3	373

Site Reference: Site 23 Ramp
Site ID:
Location: SB Lynchburg Exp Off to Old Wards Rd
Direction: SOUTH
Lane: 1

File: ADT.prn
City: 1-Car 2-Med 3-Hvy
County: 37.36217 -79318394

TIME	1	2	3	Total
17:15	100	0	0	100
17:30	134	1	1	136
17:45	101	0	0	101
18:00	83	0	3	86
Hour Total	418	1	4	423
18:15	73	0	1	74
18:30	82	2	2	86
18:45	63	1	0	64
19:00	47	0	1	48
Hour Total	265	3	4	272
19:15	49	1	1	51
19:30	59	0	0	59
19:45	34	1	0	35
20:00	31	2	1	34
Hour Total	173	4	2	179
20:15	35	0	1	36
20:30	34	0	1	35
20:45	44	0	0	44
21:00	23	0	0	23
Hour Total	136	0	2	138
21:15	36	0	1	37
21:30	26	1	0	27
21:45	29	0	1	30
22:00	23	0	2	25
Hour Total	114	1	4	119
22:15	21	0	0	21
22:30	25	0	1	26
22:45	19	0	0	19
23:00	10	0	1	11
Hour Total	75	0	2	77
23:15	16	0	1	17
23:30	14	0	1	15
23:45	21	1	1	23
24:00	12	0	0	12
Hour Total	63	1	3	67
DAY TOTAL	4034	107	121	4262
PERCENTS	94.7%	2.5%	2.8%	100%

Passenger Vehicles 100.0% Trucks & Buses 0.0%

AM Times	08:15	08:15	10:45	08:15
AM Peaks	261	12	14	286
PM Times	17:00	13:15	13:45	17:00
PM Peaks	441	18	13	446

Site Reference: Site 23 Ramp
Site ID:
Location: SB Lynchburg Exp Off to Old Wards Rd
Direction: SOUTH
Lane: 1

File: ADT.prn
City: 1-Car 2-Med 3-Hvy
County: 37.36217 -79318394

TIME	1	2	3	Total
00:15	9	0	2	11
00:30	10	0	0	10
00:45	9	0	0	9
01:00	2	0	0	2
Hour Total	30	0	2	32
01:15	4	0	0	4
01:30	5	0	1	6
01:45	3	0	1	4
02:00	3	0	0	3
Hour Total	15	0	2	17
02:15	2	0	0	2
02:30	1	0	1	2
02:45	0	2	1	3
03:00	4	0	1	5
Hour Total	7	2	3	12
03:15	1	2	0	3
03:30	2	0	0	2
03:45	5	0	1	6
04:00	4	0	0	4
Hour Total	12	2	1	15
04:15	1	0	1	2
04:30	6	0	0	6
04:45	9	1	0	10
05:00	14	1	0	15
Hour Total	30	2	1	33
05:15	9	0	1	10
05:30	15	0	0	15
05:45	8	2	0	10
06:00	16	0	0	16
Hour Total	48	2	1	51
06:15	17	0	0	17
06:30	25	2	3	30
06:45	32	1	0	33
07:00	42	2	0	44
Hour Total	116	5	3	124
07:15	46	2	4	52
07:30	41	0	0	41
07:45	65	1	6	72
08:00	60	1	4	65
Hour Total	212	4	14	230
08:15	49	1	2	52
08:30	42	2	1	45
08:45	51	2	1	54
09:00	53	0	3	56

Site Reference: Site 23 Ramp
Site ID:
Location: SB Lynchburg Exp Off to Old Wards Rd
Direction: SOUTH
Lane: 1

File: ADT.prn
City: 1-Car 2-Med 3-Hvy
County: 37.36217 -79318394

TIME	1	2	3	Total
Hour Total	195	5	7	207
09:15	60	3	3	66
09:30	69	0	1	70
09:45	52	7	1	60
10:00	66	1	2	69
Hour Total	247	11	7	265
10:15	55	6	3	64
10:30	76	0	2	78
10:45	55	1	2	58
11:00	71	4	4	79
Hour Total	257	11	11	279
11:15	70	3	2	75
11:30	75	0	4	79
11:45	75	1	0	76
12:00	72	7	3	82
Hour Total	292	11	9	312
12:15	83	0	2	85
12:30	78	1	0	79
12:45	60	2	3	65
13:00	72	3	3	78
Hour Total	293	6	8	307
13:15	67	2	2	71
13:30	78	4	2	84
13:45	65	1	4	70
14:00	63	1	2	66
Hour Total	273	8	10	291
14:15	53	3	3	59
14:30	55	2	2	59
14:45	73	4	1	78
15:00	67	1	2	70
Hour Total	248	10	8	266
15:15	62	0	0	62
15:30	66	5	1	72
15:45	78	1	3	82
16:00	87	3	0	90
Hour Total	293	9	4	306
16:15	90	0	2	92
16:30	76	1	1	78
16:45	96	1	0	97
17:00	108	0	4	112
Hour Total	370	2	7	379

Site Reference: Site 23 Ramp
Site ID:
Location: SB Lynchburg Exp Off to Old Wards Rd
Direction: SOUTH
Lane: 1

File: ADT.prn
City: 1-Car 2-Med 3-Hvy
County: 37.36217 -79318394

TIME	1	2	3	Total
17:15	142	0	1	143
17:30	140	0	2	142
17:45	99	1	0	100
18:00	74	3	0	77
Hour Total	455	4	3	462
18:15	66	0	0	66
18:30	80	0	1	81
18:45	60	2	0	62
19:00	60	1	0	61
Hour Total	266	3	1	270
19:15	42	0	0	42
19:30	51	0	0	51
19:45	57	0	0	57
20:00	47	0	2	49
Hour Total	197	0	2	199
20:15	66	0	2	68
20:30	42	0	1	43
20:45	29	0	0	29
21:00	30	0	0	30
Hour Total	167	0	3	170
21:15	27	0	3	30
21:30	23	0	2	25
21:45	28	0	2	30
22:00	28	0	1	29
Hour Total	106	0	8	114
22:15	17	0	0	17
22:30	25	0	0	25
22:45	18	0	1	19
23:00	15	0	0	15
Hour Total	75	0	1	76
23:15	25	0	1	26
23:30	27	0	1	28
23:45	19	0	0	19
24:00	15	0	0	15
Hour Total	86	0	2	88
DAY TOTAL	4290	97	118	4505
PERCENTS	95.3%	2.1%	2.6%	100%
AM Times	11:15	09:30	07:15	11:15
AM Peaks	292	14	14	312
PM Times	17:00	12:45	13:00	17:00
PM Peaks	489	11	11	497
GRAND TOTAL	8324	239		
	204	8767		
PERCENTS	95.0%	2.3%	2.7%	100%

Passenger Vehicles 100.0% Trucks & Buses 0.0%

Site Reference: Site 5 Ramp
Site ID:
Location: EB Candlers Mtn to NB Lynchburg Exp
Direction: EAST
Lane: 1

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36757, -79.17772

TIME	1	2	3	Total
00:15	0	0	0	0
00:30	0	0	0	0
00:45	1	0	0	1
01:00	2	0	0	2
Hour Total	3	0	0	3
01:15	1	0	0	1
01:30	0	0	0	0
01:45	0	0	0	0
02:00	1	0	0	1
Hour Total	2	0	0	2
02:15	3	0	0	3
02:30	0	0	0	0
02:45	1	0	0	1
03:00	2	0	0	2
Hour Total	6	0	0	6
03:15	2	0	0	2
03:30	0	0	0	0
03:45	4	0	1	5
04:00	0	0	0	0
Hour Total	6	0	1	7
04:15	1	0	0	1
04:30	1	0	0	1
04:45	1	0	0	1
05:00	3	0	0	3
Hour Total	6	0	0	6
05:15	1	0	0	1
05:30	2	0	0	2
05:45	3	0	0	3
06:00	5	0	0	5
Hour Total	11	0	0	11
06:15	5	0	0	5
06:30	10	0	0	10
06:45	20	0	0	20
07:00	17	0	1	18
Hour Total	52	0	1	53
07:15	13	0	0	13
07:30	15	0	0	15
07:45	19	0	1	20
08:00	22	0	0	22
Hour Total	69	0	1	70
08:15	9	0	0	9
08:30	23	0	0	23
08:45	33	0	0	33
09:00	15	2	0	17

Site Reference: Site 5 Ramp
Site ID:
Location: EB Candlers Mtn to NB Lynchburg Exp
Direction: EAST
Lane: 1

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36757, -79.17772

TIME	1	2	3	Total
Hour Total	80	2	0	82
09:15	17	0	0	17
09:30	25	10	0	35
09:45	25	1	0	26
10:00	19	1	1	21
Hour Total	86	12	1	99
10:15	17	0	0	17
10:30	24	0	0	24
10:45	11	0	2	13
11:00	19	1	0	20
Hour Total	71	1	2	74
11:15	21	1	0	22
11:30	24	0	0	24
11:45	23	0	1	24
12:00	24	0	0	24
Hour Total	92	1	1	94
12:15	27	0	1	28
12:30	28	0	1	29
12:45	49	0	1	50
13:00	45	0	0	45
Hour Total	149	0	3	152
13:15	32	0	1	33
13:30	24	1	0	25
13:45	33	0	1	34
14:00	36	2	1	39
Hour Total	125	3	3	131
14:15	31	0	0	31
14:30	38	0	0	38
14:45	40	2	0	42
15:00	20	0	1	21
Hour Total	129	2	1	132
15:15	20	0	0	20
15:30	25	0	2	27
15:45	44	0	0	44
16:00	38	4	0	42
Hour Total	127	4	2	133
16:15	32	1	0	33
16:30	30	0	0	30
16:45	26	1	0	27
17:00	37	0	0	37
Hour Total	125	2	0	127

Site Reference: Site 5 Ramp
Site ID:
Location: EB Candlers Mtn to NB Lynchburg Exp
Direction: EAST
Lane: 1

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36757, -79.17772

TIME	1	2	3	Total
17:15	39	0	1	40
17:30	35	0	0	35
17:45	30	1	1	32
18:00	31	0	0	31
Hour Total	135	1	2	138
18:15	27	1	1	29
18:30	31	0	2	33
18:45	27	0	0	27
19:00	26	0	0	26
Hour Total	111	1	3	115
19:15	22	0	0	22
19:30	14	0	0	14
19:45	26	0	0	26
20:00	16	1	0	17
Hour Total	78	1	0	79
20:15	15	1	0	16
20:30	20	0	0	20
20:45	18	1	0	19
21:00	19	0	0	19
Hour Total	72	2	0	74
21:15	22	0	0	22
21:30	16	0	0	16
21:45	13	0	0	13
22:00	8	0	0	8
Hour Total	59	0	0	59
22:15	14	0	0	14
22:30	7	0	0	7
22:45	11	0	0	11
23:00	4	0	0	4
Hour Total	36	0	0	36
23:15	6	0	0	6
23:30	4	0	0	4
23:45	3	0	0	3
24:00	10	0	0	10
Hour Total	23	0	0	23
DAY TOTAL	1653	32	21	1706
PERCENTS	96.9%	1.9%	1.2%	100%

Passenger Vehicles 100.0% Trucks & Buses 0.0%

AM Times	11:15	09:00	10:00	08:45
AM Peaks	92	13	3	102
PM Times	12:30	16:00	17:45	12:30
PM Peaks	154	6	4	157

Site Reference: Site 5 Ramp
Site ID:
Location: EB Candlers Mtn to NB Lynchburg Exp
Direction: EAST
Lane: 1

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36757, -79.17772

TIME	1	2	3	Total
00:15	1	0	0	1
00:30	2	0	0	2
00:45	1	0	0	1
01:00	3	0	0	3
Hour Total	7	0	0	7
01:15	0	0	1	1
01:30	0	0	0	0
01:45	1	0	0	1
02:00	3	0	0	3
Hour Total	4	0	1	5
02:15	4	0	0	4
02:30	0	0	0	0
02:45	1	0	0	1
03:00	0	0	0	0
Hour Total	5	0	0	5
03:15	2	0	0	2
03:30	1	0	0	1
03:45	1	0	0	1
04:00	0	0	0	0
Hour Total	4	0	0	4
04:15	1	0	0	1
04:30	0	0	0	0
04:45	1	0	0	1
05:00	3	0	0	3
Hour Total	5	0	0	5
05:15	1	0	0	1
05:30	2	0	0	2
05:45	1	0	0	1
06:00	5	0	1	6
Hour Total	9	0	1	10
06:15	4	0	0	4
06:30	12	0	0	12
06:45	13	0	0	13
07:00	20	0	0	20
Hour Total	49	0	0	49
07:15	11	1	0	12
07:30	18	1	0	19
07:45	24	0	0	24
08:00	29	0	0	29
Hour Total	82	2	0	84
08:15	14	1	0	15
08:30	26	1	0	27
08:45	21	0	0	21
09:00	37	1	1	39

Site Reference: Site 5 Ramp
Site ID:
Location: EB Candlers Mtn to NB Lynchburg Exp
Direction: EAST
Lane: 1

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36757, -79.17772

TIME	1	2	3	Total
Hour Total	98	3	1	102
09:15	20	2	0	22
09:30	14	8	0	22
09:45	18	0	0	18
10:00	20	1	1	22
Hour Total	72	11	1	84
10:15	19	2	0	21
10:30	22	0	0	22
10:45	23	1	1	25
11:00	21	0	0	21
Hour Total	85	3	1	89
11:15	15	0	0	15
11:30	24	0	0	24
11:45	18	0	0	18
12:00	24	0	0	24
Hour Total	81	0	0	81
12:15	31	0	0	31
12:30	44	0	0	44
12:45	33	1	0	34
13:00	37	0	0	37
Hour Total	145	1	0	146
13:15	46	1	0	47
13:30	48	0	1	49
13:45	25	0	0	25
14:00	37	0	1	38
Hour Total	156	1	2	159
14:15	20	0	0	20
14:30	30	0	1	31
14:45	37	1	0	38
15:00	22	0	0	22
Hour Total	109	1	1	111
15:15	43	0	0	43
15:30	30	0	2	32
15:45	44	0	0	44
16:00	26	1	0	27
Hour Total	143	1	2	146
16:15	34	2	0	36
16:30	26	0	0	26
16:45	28	0	0	28
17:00	48	0	1	49
Hour Total	136	2	1	139

Site Reference: Site 5 Ramp
Site ID:
Location: EB Candlers Mtn to NB Lynchburg Exp
Direction: EAST
Lane: 1

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36757, -79.17772

TIME	1	2	3	Total
17:15	37	1	0	38
17:30	41	1	0	42
17:45	32	1	1	34
18:00	30	0	0	30
Hour Total	140	3	1	144
18:15	28	0	1	29
18:30	26	0	0	26
18:45	24	0	0	24
19:00	25	0	1	26
Hour Total	103	0	2	105
19:15	18	0	0	18
19:30	29	0	0	29
19:45	17	0	0	17
20:00	28	0	0	28
Hour Total	92	0	0	92
20:15	16	0	0	16
20:30	22	0	0	22
20:45	8	0	0	8
21:00	16	0	0	16
Hour Total	62	0	0	62
21:15	14	0	0	14
21:30	18	0	0	18
21:45	7	0	0	7
22:00	12	0	0	12
Hour Total	51	0	0	51
22:15	11	0	0	11
22:30	7	0	0	7
22:45	8	0	0	8
23:00	6	0	0	6
Hour Total	32	0	0	32
23:15	9	0	0	9
23:30	8	0	0	8
23:45	5	0	0	5
24:00	6	0	0	6
Hour Total	28	0	0	28
DAY TOTAL	1698	28	14	1740
PERCENTS	97.6%	1.6%	0.8%	100%

Passenger Vehicles 100.0% Trucks & Buses 0.0%

AM Times	08:30	08:45	10:00	08:30
AM Peaks	104	11	2	109
PM Times	12:45	15:30	13:15	12:45
PM Peaks	164	3	2	167

GRAND TOTAL	3351		35	
		60		3446
PERCENTS	97.3%	1.7%	1.0%	100%

Site Reference: Site 4 Ramp
Site ID:
Location: NB Lynchburg Exp to EB Candlers Mtn
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36757, -79.17772

TIME	1	2	3	Total
00:15	18	0	0	18
00:30	10	0	0	10
00:45	4	0	1	5
01:00	14	0	1	15
Hour Total	46	0	2	48
01:15	6	0	1	7
01:30	3	0	0	3
01:45	2	0	0	2
02:00	3	0	0	3
Hour Total	14	0	1	15
02:15	6	0	2	8
02:30	3	0	0	3
02:45	5	0	0	5
03:00	1	0	0	1
Hour Total	15	0	2	17
03:15	3	0	1	4
03:30	6	0	0	6
03:45	5	0	0	5
04:00	0	0	0	0
Hour Total	14	0	1	15
04:15	5	1	1	7
04:30	11	0	0	11
04:45	20	0	0	20
05:00	30	0	1	31
Hour Total	66	1	2	69
05:15	20	0	1	21
05:30	23	0	1	24
05:45	55	0	4	59
06:00	78	0	0	78
Hour Total	176	0	6	182
06:15	74	0	2	76
06:30	108	0	1	109
06:45	131	0	2	133
07:00	154	1	2	157
Hour Total	467	1	7	475
07:15	172	2	1	175
07:30	225	1	2	228
07:45	218	2	1	221
08:00	134	2	0	136
Hour Total	749	7	4	760
08:15	153	0	0	153
08:30	186	3	2	191
08:45	212	3	3	218
09:00	137	4	5	146

Site Reference: Site 4 Ramp
Site ID:
Location: NB Lynchburg Exp to EB Candlers Mtn
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36757, -79.17772

TIME	1	2	3	Total
Hour Total	688	10	10	708
09:15	99	0	6	105
09:30	107	1	3	111
09:45	111	3	4	118
10:00	118	3	0	121
Hour Total	435	7	13	455
10:15	101	3	4	108
10:30	91	6	1	98
10:45	108	3	1	112
11:00	156	2	1	159
Hour Total	456	14	7	477
11:15	159	0	1	160
11:30	148	4	2	154
11:45	113	4	6	123
12:00	146	5	2	153
Hour Total	566	13	11	590
12:15	154	2	5	161
12:30	122	5	5	132
12:45	122	3	4	129
13:00	150	3	0	153
Hour Total	548	13	14	575
13:15	137	2	4	143
13:30	136	0	0	136
13:45	110	3	1	114
14:00	97	0	6	103
Hour Total	480	5	11	496
14:15	110	4	2	116
14:30	111	2	0	113
14:45	145	7	3	155
15:00	172	2	1	175
Hour Total	538	15	6	559
15:15	164	4	3	171
15:30	137	1	4	142
15:45	134	2	3	139
16:00	123	1	2	126
Hour Total	558	8	12	578
16:15	132	4	6	142
16:30	129	6	7	142
16:45	161	3	3	167
17:00	156	2	1	159
Hour Total	578	15	17	610

Site Reference: Site 4 Ramp
Site ID:
Location: NB Lynchburg Exp to EB Candlers Mtn
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36757, -79.17772

TIME	1	2	3	Total
17:15	121	1	3	125
17:30	125	0	1	126
17:45	151	0	3	154
18:00	167	1	0	168
Hour Total	564	2	7	573
18:15	149	2	1	152
18:30	141	1	3	145
18:45	116	1	0	117
19:00	89	0	1	90
Hour Total	495	4	5	504
19:15	93	0	3	96
19:30	104	0	2	106
19:45	89	0	0	89
20:00	62	0	1	63
Hour Total	348	0	6	354
20:15	48	0	2	50
20:30	67	0	2	69
20:45	69	0	5	74
21:00	73	1	1	75
Hour Total	257	1	10	268
21:15	62	1	1	64
21:30	49	0	1	50
21:45	51	0	0	51
22:00	41	0	0	41
Hour Total	203	1	2	206
22:15	32	1	0	33
22:30	42	0	1	43
22:45	28	0	2	30
23:00	26	0	0	26
Hour Total	128	1	3	132
23:15	22	0	0	22
23:30	22	0	1	23
23:45	28	0	1	29
24:00	27	0	0	27
Hour Total	99	0	2	101
DAY TOTAL	8488	118	161	8767
PERCENTS	96.9%	1.3%	1.8%	100%

Passenger Vehicles 100.0% Trucks & Buses 0.0%

AM Times	07:00	09:45	09:00	07:00
AM Peaks	769	15	18	781
PM Times	14:45	14:15	15:45	14:45
PM Peaks	618	15	18	643

Site Reference: Site 4 Ramp
Site ID:
Location: NB Lynchburg Exp to EB Candlers Mtn
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36757, -79.17772

TIME	1	2	3	Total
00:15	15	0	0	15
00:30	4	0	0	4
00:45	5	0	0	5
01:00	5	0	2	7
Hour Total	29	0	2	31
01:15	6	1	1	8
01:30	6	0	0	6
01:45	5	0	0	5
02:00	4	0	1	5
Hour Total	21	1	2	24
02:15	5	0	0	5
02:30	5	0	0	5
02:45	1	0	0	1
03:00	2	0	1	3
Hour Total	13	0	1	14
03:15	5	0	1	6
03:30	2	0	1	3
03:45	2	0	1	3
04:00	5	0	0	5
Hour Total	14	0	3	17
04:15	5	0	0	5
04:30	19	0	2	21
04:45	24	0	1	25
05:00	26	0	3	29
Hour Total	74	0	6	80
05:15	18	0	0	18
05:30	29	0	1	30
05:45	56	0	4	60
06:00	66	0	2	68
Hour Total	169	0	7	176
06:15	72	0	1	73
06:30	90	1	5	96
06:45	132	1	1	134
07:00	158	0	6	164
Hour Total	452	2	13	467
07:15	158	0	1	159
07:30	218	3	2	223
07:45	224	0	2	226
08:00	130	0	3	133
Hour Total	730	3	8	741
08:15	133	1	1	135
08:30	138	1	2	141
08:45	172	5	8	185
09:00	230	4	2	236

Site Reference: Site 4 Ramp
Site ID:
Location: NB Lynchburg Exp to EB Candlers Mtn
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36757, -79.17772

TIME	1	2	3	Total
Hour Total	673	11	13	697
09:15	167	3	4	174
09:30	113	5	2	120
09:45	124	4	4	132
10:00	125	1	3	129
Hour Total	529	13	13	555
10:15	103	1	4	108
10:30	150	3	1	154
10:45	156	4	2	162
11:00	103	2	2	107
Hour Total	512	10	9	531
11:15	82	3	5	90
11:30	107	4	2	113
11:45	110	6	0	116
12:00	141	5	3	149
Hour Total	440	18	10	468
12:15	141	5	1	147
12:30	102	5	0	107
12:45	125	3	6	134
13:00	146	5	4	155
Hour Total	514	18	11	543
13:15	119	6	2	127
13:30	128	2	2	132
13:45	117	7	2	126
14:00	108	7	0	115
Hour Total	472	22	6	500
14:15	93	0	3	96
14:30	94	7	4	105
14:45	149	3	7	159
15:00	151	5	3	159
Hour Total	487	15	17	519
15:15	162	2	0	164
15:30	145	3	3	151
15:45	131	3	3	137
16:00	114	2	1	117
Hour Total	552	10	7	569
16:15	126	6	3	135
16:30	138	1	8	147
16:45	144	0	2	146
17:00	148	3	1	152
Hour Total	556	10	14	580

Site Reference: Site 4 Ramp
Site ID:
Location: NB Lynchburg Exp to EB Candlers Mtn
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car, 2-Med, 3-Hvy
County: 37.36757, -79.17772

TIME	1	2	3	Total
17:15	122	1	1	124
17:30	115	1	0	116
17:45	134	4	2	140
18:00	145	2	1	148
Hour Total	516	8	4	528
18:15	135	1	5	141
18:30	145	2	2	149
18:45	117	0	0	117
19:00	117	1	1	119
Hour Total	514	4	8	526
19:15	80	0	0	80
19:30	74	2	1	77
19:45	67	2	1	70
20:00	77	0	2	79
Hour Total	298	4	4	306
20:15	70	0	0	70
20:30	64	0	1	65
20:45	66	0	0	66
21:00	61	0	2	63
Hour Total	261	0	3	264
21:15	53	0	3	56
21:30	46	0	0	46
21:45	56	1	1	58
22:00	41	0	1	42
Hour Total	196	1	5	202
22:15	36	0	0	36
22:30	46	0	0	46
22:45	28	0	0	28
23:00	24	0	0	24
Hour Total	134	0	0	134
23:15	33	0	0	33
23:30	22	0	0	22
23:45	32	0	2	34
24:00	26	0	0	26
Hour Total	113	0	2	115
DAY TOTAL	8269	150	168	8587
PERCENTS	96.3%	1.8%	1.9%	100%

Passenger Vehicles 100.0% Trucks & Buses 0.0%

AM Times	07:00	11:15	08:30	07:00
AM Peaks	758	18	16	772
PM Times	14:45	13:15	14:15	14:45
PM Peaks	607	22	17	633

GRAND TOTAL	16757	329		
	268		17354	
PERCENTS	96.6%	1.6%	1.8%	100%

Site Reference: Site 7 Ramp
Site ID:
Location: NB Lynchburg Exp On from Candlers Mtn WB
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car 2-Med 3-Hvy
County: 37.36864 -79.17620

TIME	1	2	3	Total
00:15	28	0	0	28
00:30	4	1	0	5
00:45	3	0	1	4
01:00	7	1	0	8
Hour Total	42	2	1	45
01:15	9	0	0	9
01:30	4	1	0	5
01:45	3	0	0	3
02:00	5	0	0	5
Hour Total	21	1	0	22
02:15	12	0	1	13
02:30	2	0	0	2
02:45	2	1	2	5
03:00	1	0	0	1
Hour Total	17	1	3	21
03:15	1	0	0	1
03:30	5	1	0	6
03:45	6	0	0	6
04:00	4	0	0	4
Hour Total	16	1	0	17
04:15	1	0	0	1
04:30	4	0	0	4
04:45	8	0	1	9
05:00	3	0	0	3
Hour Total	16	0	1	17
05:15	9	0	0	9
05:30	14	1	1	16
05:45	17	0	0	17
06:00	16	2	2	20
Hour Total	56	3	3	62
06:15	28	1	1	30
06:30	36	0	2	38
06:45	53	3	0	56
07:00	65	5	3	73
Hour Total	182	9	6	197
07:15	62	2	1	65
07:30	90	4	3	97
07:45	99	2	2	103
08:00	111	2	3	116
Hour Total	362	10	9	381
08:15	97	2	5	104
08:30	109	0	3	112
08:45	75	1	3	79
09:00	66	5	6	77

Site Reference: Site 7 Ramp
Site ID:
Location: NB Lynchburg Exp On from Candlers Mtn WB
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car 2-Med 3-Hvy
County: 37.36864 -79.17620

TIME	1	2	3	Total
Hour Total	347	8	17	372
09:15	50	5	2	57
09:30	54	6	1	61
09:45	46	3	2	51
10:00	49	5	0	54
Hour Total	199	19	5	223
10:15	45	1	3	49
10:30	44	2	5	51
10:45	52	5	2	59
11:00	38	2	4	44
Hour Total	179	10	14	203
11:15	42	2	6	50
11:30	53	2	2	57
11:45	53	1	4	58
12:00	59	2	8	69
Hour Total	207	7	20	234
12:15	38	4	4	46
12:30	48	2	5	55
12:45	59	4	5	68
13:00	61	2	6	69
Hour Total	206	12	20	238
13:15	53	3	8	64
13:30	52	1	5	58
13:45	72	2	5	79
14:00	59	1	5	65
Hour Total	236	7	23	266
14:15	49	2	4	55
14:30	57	0	3	60
14:45	52	1	4	57
15:00	63	2	4	69
Hour Total	221	5	15	241
15:15	66	2	6	74
15:30	62	3	2	67
15:45	108	1	2	111
16:00	86	2	3	91
Hour Total	322	8	13	343
16:15	84	3	4	91
16:30	75	2	4	81
16:45	93	1	4	98
17:00	75	3	4	82
Hour Total	327	9	16	352

Site Reference: Site 7 Ramp
Site ID:
Location: NB Lynchburg Exp On from Candlers Mtn WB
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car 2-Med 3-Hvy
County: 37.36864 -79.17620

TIME	1	2	3	Total
17:15	91	0	4	95
17:30	93	0	2	95
17:45	73	0	5	78
18:00	84	0	5	89
Hour Total	341	0	16	357
18:15	69	1	6	76
18:30	74	2	3	79
18:45	66	2	1	69
19:00	33	0	2	35
Hour Total	242	5	12	259
19:15	49	1	1	51
19:30	35	2	0	37
19:45	52	1	0	53
20:00	39	1	2	42
Hour Total	175	5	3	183
20:15	47	3	0	50
20:30	40	1	1	42
20:45	33	2	0	35
21:00	25	1	0	26
Hour Total	145	7	1	153
21:15	33	2	0	35
21:30	40	0	4	44
21:45	30	0	2	32
22:00	32	0	2	34
Hour Total	135	2	8	145
22:15	37	0	1	38
22:30	27	0	3	30
22:45	21	0	1	22
23:00	20	0	1	21
Hour Total	105	0	6	111
23:15	13	0	0	13
23:30	17	0	0	17
23:45	20	1	1	22
24:00	12	1	1	14
Hour Total	62	2	2	66
DAY TOTAL	4161	133	214	4508
PERCENTS	92.4%	2.9%	4.7%	100%

Passenger Vehicles 100.0% Trucks & Buses 0.0%

AM Times	07:45	09:00	11:15	07:45
AM Peaks	416	19	20	435
PM Times	15:45	12:15	12:30	15:45
PM Peaks	353	12	24	374

Site Reference: Site 7 Ramp
Site ID:
Location: NB Lynchburg Exp On from Candlers Mtn WB
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car 2-Med 3-Hvy
County: 37.36864 -79.17620

TIME	1	2	3	Total
00:15	28	1	0	29
00:30	9	1	0	10
00:45	6	0	1	7
01:00	5	1	0	6
Hour Total	48	3	1	52
01:15	4	0	0	4
01:30	3	1	0	4
01:45	4	0	0	4
02:00	4	1	0	5
Hour Total	15	2	0	17
02:15	6	0	2	8
02:30	2	0	1	3
02:45	0	0	0	0
03:00	4	1	0	5
Hour Total	12	1	3	16
03:15	4	1	1	6
03:30	3	1	0	4
03:45	5	0	1	6
04:00	4	0	2	6
Hour Total	16	2	4	22
04:15	1	0	0	1
04:30	4	0	0	4
04:45	7	1	0	8
05:00	9	0	0	9
Hour Total	21	1	0	22
05:15	7	0	0	7
05:30	10	0	1	11
05:45	14	1	0	15
06:00	16	1	2	19
Hour Total	47	2	3	52
06:15	33	0	0	33
06:30	41	1	3	45
06:45	56	3	3	62
07:00	73	2	1	76
Hour Total	203	6	7	216
07:15	60	2	2	64
07:30	67	2	2	71
07:45	98	4	3	105
08:00	108	1	5	114
Hour Total	333	9	12	354
08:15	115	3	7	125
08:30	101	2	2	105
08:45	67	2	3	72
09:00	61	4	11	76

Site Reference: Site 7 Ramp
Site ID:
Location: NB Lynchburg Exp On from Candlers Mtn WB
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car 2-Med 3-Hvy
County: 37.36864 -79.17620

TIME	1	2	3	Total
Hour Total	344	11	23	378
09:15	61	1	3	65
09:30	58	1	4	63
09:45	57	1	6	64
10:00	65	5	8	78
Hour Total	241	8	21	270
10:15	56	3	4	63
10:30	37	4	5	46
10:45	61	2	3	66
11:00	42	3	3	48
Hour Total	196	12	15	223
11:15	55	8	4	67
11:30	45	4	4	53
11:45	60	3	3	66
12:00	47	5	5	57
Hour Total	207	20	16	243
12:15	52	8	3	63
12:30	57	4	3	64
12:45	60	1	6	67
13:00	72	3	5	80
Hour Total	241	16	17	274
13:15	53	2	4	59
13:30	55	3	4	62
13:45	80	1	3	84
14:00	62	2	5	69
Hour Total	250	8	16	274
14:15	69	5	1	75
14:30	64	0	3	67
14:45	66	2	4	72
15:00	61	4	1	66
Hour Total	260	11	9	280
15:15	66	3	4	73
15:30	81	1	3	85
15:45	94	2	3	99
16:00	84	0	3	87
Hour Total	325	6	13	344
16:15	76	0	4	80
16:30	65	2	2	69
16:45	79	0	2	81
17:00	72	2	2	76
Hour Total	292	4	10	306

Site Reference: Site 7 Ramp
Site ID:
Location: NB Lynchburg Exp On from Candlers Mtn WB
Direction: NORTH
Lane: 1

File: ADT.prn
City: 1-Car 2-Med 3-Hvy
County: 37.36864 -79.17620

TIME	1	2	3	Total
17:15	80	0	0	80
17:30	96	0	0	96
17:45	95	0	0	95
18:00	69	1	0	70
Hour Total	340	1	0	341
18:15	89	0	8	97
18:30	67	2	3	72
18:45	59	1	1	61
19:00	56	0	2	58
Hour Total	271	3	14	288
19:15	46	4	0	50
19:30	37	2	0	39
19:45	49	0	2	51
20:00	36	0	1	37
Hour Total	168	6	3	177
20:15	47	1	2	50
20:30	39	1	1	41
20:45	53	0	1	54
21:00	42	1	1	44
Hour Total	181	3	5	189
21:15	36	3	0	39
21:30	42	1	2	45
21:45	27	1	0	28
22:00	32	2	0	34
Hour Total	137	7	2	146
22:15	26	1	0	27
22:30	29	1	0	30
22:45	11	0	0	11
23:00	23	0	2	25
Hour Total	89	2	2	93
23:15	17	0	0	17
23:30	17	1	0	18
23:45	23	0	0	23
24:00	21	0	0	21
Hour Total	78	1	0	79
DAY TOTAL	4315	145	196	4656
PERCENTS	92.7%	3.1%	4.2%	100%

Passenger Vehicles 100.0% Trucks & Buses 0.0%

AM Times	07:45	11:15	09:00	07:45
AM Peaks	422	20	24	449
PM Times	17:30	12:15	12:45	17:30
PM Peaks	349	16	19	358

GRAND TOTAL	8476		410	
	278		9164	
PERCENTS	92.5%	3.1%	4.4%	100%

Site Reference: Site 6 Ramp
Site ID:
Location: NB Lynchburg Exp Off to Chandler Mtn WB
Direction: SOUTH
Lane: 1

File: ADT.prn
City: 1-Car 2-Med 3-Hvy
County: 37.36864 -79.17620

TIME	1	2	3	Total
00:15	1	0	0	1
00:30	0	0	0	0
00:45	2	0	0	2
01:00	0	1	0	1
Hour Total	3	1	0	4
01:15	1	0	0	1
01:30	0	0	0	0
01:45	0	0	0	0
02:00	0	0	0	0
Hour Total	1	0	0	1
02:15	0	0	0	0
02:30	0	0	0	0
02:45	0	0	0	0
03:00	0	0	0	0
Hour Total	0	0	0	0
03:15	3	0	0	3
03:30	5	0	0	5
03:45	0	0	0	0
04:00	0	0	0	0
Hour Total	8	0	0	8
04:15	0	0	0	0
04:30	1	0	0	1
04:45	0	0	0	0
05:00	1	0	0	1
Hour Total	2	0	0	2
05:15	0	0	0	0
05:30	4	0	0	4
05:45	6	0	0	6
06:00	20	0	0	20
Hour Total	30	0	0	30
06:15	1	0	0	1
06:30	3	0	0	3
06:45	7	0	0	7
07:00	11	0	0	11
Hour Total	22	0	0	22
07:15	11	0	1	12
07:30	16	0	1	17
07:45	33	0	0	33
08:00	78	0	0	78
Hour Total	138	0	2	140
08:15	62	0	0	62
08:30	19	0	0	19
08:45	22	0	0	22
09:00	12	0	0	12

Site Reference: Site 6 Ramp
Site ID:
Location: NB Lynchburg Exp Off to Chandler Mtn WB
Direction: SOUTH
Lane: 1

File: ADT.prn
City: 1-Car 2-Med 3-Hvy
County: 37.36864 -79.17620

TIME	1	2	3	Total
Hour Total	115	0	0	115
09:15	6	1	0	7
09:30	8	1	0	9
09:45	9	1	0	10
10:00	11	1	0	12
Hour Total	34	4	0	38
10:15	11	0	0	11
10:30	11	2	2	15
10:45	6	1	0	7
11:00	9	0	1	10
Hour Total	37	3	3	43
11:15	6	2	0	8
11:30	10	0	1	11
11:45	10	0	1	11
12:00	11	1	0	12
Hour Total	37	3	2	42
12:15	21	0	2	23
12:30	14	1	0	15
12:45	9	0	1	10
13:00	17	1	1	19
Hour Total	61	2	4	67
13:15	21	0	0	21
13:30	14	0	1	15
13:45	11	0	1	12
14:00	14	2	0	16
Hour Total	60	2	2	64
14:15	12	0	0	12
14:30	10	0	0	10
14:45	11	1	0	12
15:00	12	0	0	12
Hour Total	45	1	0	46
15:15	13	1	1	15
15:30	12	1	0	13
15:45	8	2	0	10
16:00	12	1	0	13
Hour Total	45	5	1	51
16:15	14	2	1	17
16:30	11	0	0	11
16:45	9	2	0	11
17:00	7	0	0	7
Hour Total	41	4	1	46

Site Reference: Site 6 Ramp
Site ID:
Location: NB Lynchburg Exp Off to Chandler Mtn WB
Direction: SOUTH
Lane: 1

File: ADT.prn
City: 1-Car 2-Med 3-Hvy
County: 37.36864 -79.17620

TIME	1	2	3	Total
17:15	34	0	0	34
17:30	22	0	0	22
17:45	26	1	0	27
18:00	16	0	1	17
Hour Total	98	1	1	100
18:15	8	3	0	11
18:30	7	0	1	8
18:45	14	1	0	15
19:00	10	0	0	10
Hour Total	39	4	1	44
19:15	8	1	0	9
19:30	8	2	0	10
19:45	12	2	1	15
20:00	3	0	0	3
Hour Total	31	5	1	37
20:15	6	0	1	7
20:30	9	1	0	10
20:45	3	1	0	4
21:00	6	0	0	6
Hour Total	24	2	1	27
21:15	3	0	0	3
21:30	5	0	0	5
21:45	5	0	0	5
22:00	3	0	0	3
Hour Total	16	0	0	16
22:15	3	0	0	3
22:30	4	0	0	4
22:45	6	0	0	6
23:00	2	0	0	2
Hour Total	15	0	0	15
23:15	3	0	1	4
23:30	1	0	0	1
23:45	1	0	0	1
24:00	1	0	0	1
Hour Total	6	0	1	7
DAY TOTAL	908	37	20	965
PERCENTS	94.1%	3.9%	2.0%	100%

Passenger Vehicles 100.0% Trucks & Buses 0.0%

AM Times	07:45	10:30	10:15	07:45
AM Peaks	192	5	3	192
PM Times	17:15	15:30	12:15	17:15
PM Peaks	98	6	4	100

Site Reference: Site 6 Ramp
Site ID:
Location: NB Lynchburg Exp Off to Chandler Mtn WB
Direction: SOUTH
Lane: 1

File: ADT.prn
City: 1-Car 2-Med 3-Hvy
County: 37.36864 -79.17620

TIME	1	2	3	Total
00:15	1	0	0	1
00:30	1	0	0	1
00:45	1	0	0	1
01:00	0	1	0	1
Hour Total	3	1	0	4
01:15	0	0	1	1
01:30	0	0	0	0
01:45	0	0	0	0
02:00	0	0	0	0
Hour Total	0	0	1	1
02:15	1	0	0	1
02:30	0	0	0	0
02:45	0	0	0	0
03:00	0	0	0	0
Hour Total	1	0	0	1
03:15	1	0	0	1
03:30	5	0	0	5
03:45	2	0	0	2
04:00	0	0	0	0
Hour Total	8	0	0	8
04:15	1	0	0	1
04:30	3	0	0	3
04:45	1	0	0	1
05:00	0	0	0	0
Hour Total	5	0	0	5
05:15	2	0	0	2
05:30	5	0	0	5
05:45	5	0	0	5
06:00	22	0	0	22
Hour Total	34	0	0	34
06:15	0	0	0	0
06:30	2	0	0	2
06:45	12	0	0	12
07:00	16	0	0	16
Hour Total	30	0	0	30
07:15	6	0	0	6
07:30	12	0	0	12
07:45	31	1	0	32
08:00	96	0	0	96
Hour Total	145	1	0	146
08:15	34	0	0	34
08:30	16	0	0	16
08:45	20	0	1	21
09:00	21	0	0	21

Site Reference: Site 6 Ramp
Site ID:
Location: NB Lynchburg Exp Off to Chandler Mtn WB
Direction: SOUTH
Lane: 1

File: ADT.prn
City: 1-Car 2-Med 3-Hvy
County: 37.36864 -79.17620

TIME	1	2	3	Total
Hour Total	91	0	1	92
09:15	12	0	0	12
09:30	7	0	0	7
09:45	10	0	0	10
10:00	8	1	0	9
Hour Total	37	1	0	38
10:15	10	0	0	10
10:30	10	0	1	11
10:45	6	0	0	6
11:00	6	0	0	6
Hour Total	32	0	1	33
11:15	10	1	1	12
11:30	12	0	0	12
11:45	17	0	1	18
12:00	16	0	0	16
Hour Total	55	1	2	58
12:15	17	0	0	17
12:30	17	0	0	17
12:45	9	0	0	9
13:00	13	1	0	14
Hour Total	56	1	0	57
13:15	20	0	0	20
13:30	11	0	1	12
13:45	16	0	1	17
14:00	14	0	0	14
Hour Total	61	0	2	63
14:15	10	0	0	10
14:30	12	0	1	13
14:45	15	0	0	15
15:00	12	0	0	12
Hour Total	49	0	1	50
15:15	14	0	0	14
15:30	18	0	0	18
15:45	15	1	0	16
16:00	16	1	1	18
Hour Total	63	2	1	66
16:15	14	0	1	15
16:30	14	1	0	15
16:45	17	0	0	17
17:00	18	1	0	19
Hour Total	63	2	1	66

Site Reference: Site 6 Ramp
Site ID:
Location: NB Lynchburg Exp Off to Chandler Mtn WB
Direction: SOUTH
Lane: 1

File: ADT.prn
City: 1-Car 2-Med 3-Hvy
County: 37.36864 -79.17620

TIME	1	2	3	Total
17:15	16	1	2	19
17:30	24	0	0	24
17:45	15	1	1	17
18:00	18	2	1	21
Hour Total	73	4	4	81
18:15	10	0	0	10
18:30	9	1	0	10
18:45	16	0	1	17
19:00	9	0	0	9
Hour Total	44	1	1	46
19:15	3	1	0	4
19:30	9	3	0	12
19:45	6	2	1	9
20:00	4	1	0	5
Hour Total	22	7	1	30
20:15	10	1	0	11
20:30	9	0	0	9
20:45	8	0	0	8
21:00	1	0	0	1
Hour Total	28	1	0	29
21:15	4	0	0	4
21:30	5	0	0	5
21:45	7	0	0	7
22:00	5	0	0	5
Hour Total	21	0	0	21
22:15	1	0	0	1
22:30	1	0	0	1
22:45	2	0	0	2
23:00	5	1	0	6
Hour Total	9	1	0	10
23:15	3	0	0	3
23:30	3	0	0	3
23:45	1	0	0	1
24:00	0	0	0	0
Hour Total	7	0	0	7
DAY TOTAL	937	23	16	976
PERCENTS	96.1%	2.3%	1.6%	100%

Passenger Vehicles 100.0% Trucks & Buses 0.0%

AM Times	07:45	00:15	10:30	07:45
AM Peaks	177	1	2	178
PM Times	16:45	19:15	17:15	17:15
PM Peaks	75	7	4	81

GRAND TOTAL	1845	36		
	60	1941		
PERCENTS	95.1%	3.1%	1.8%	100%

Station #: Site F
Site ID: 000000000282
Location: US 501/Candlers Mtn Rd EB to Rt. 29 SB
Direction: EAST
Lane: 1

File: SB.prn
City: 15-220 RS Max
County: 37.36239, -79.16795

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
00:15	0	16	1	0	0	0	0	0	1	0	1	0	0	0	0	19
00:30	0	5	2	0	0	0	0	0	0	0	1	0	0	0	0	8
00:45	1	5	2	0	0	0	0	0	0	0	0	0	0	0	0	8
01:00	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	3
Hour Total	1	28	5	0	1	0	0	0	1	0	2	0	0	0	0	38
01:15	0	2	1	0	0	0	0	0	1	0	0	0	0	0	0	4
01:30	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	2
01:45	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	3
02:00	0	0	0	0	0	0	0	1	2	0	1	0	0	0	0	4
Hour Total	0	4	2	0	0	0	0	1	5	0	1	0	0	0	0	13
02:15	0	1	2	0	1	0	0	0	1	0	0	0	0	0	0	5
02:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45	0	2	1	0	0	0	0	0	1	0	0	0	0	0	0	4
03:00	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Hour Total	0	7	3	0	1	0	0	0	2	0	0	0	0	0	0	13
03:15	0	4	0	0	0	0	0	1	1	0	0	0	0	0	0	6
03:30	0	2	2	0	1	0	0	0	0	0	0	0	0	0	0	5
03:45	0	1	1	0	0	0	0	0	2	0	0	0	0	0	0	4
04:00	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Hour Total	0	12	3	0	1	0	0	1	3	0	0	0	0	0	0	20
04:15	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	3
04:30	0	5	0	0	0	0	0	0	1	0	0	0	0	0	0	6
04:45	0	4	0	0	0	0	0	2	0	0	0	0	0	0	0	6
05:00	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	4
Hour Total	0	12	4	0	0	0	0	2	1	0	0	0	0	0	0	19
05:15	0	8	2	0	0	0	0	0	0	0	0	0	0	0	0	10
05:30	0	8	4	0	0	0	0	1	2	0	1	0	0	0	0	16
05:45	0	13	7	0	1	0	0	1	0	0	0	0	0	0	0	22
06:00	0	16	4	0	0	0	0	0	0	0	0	1	0	0	0	21
Hour Total	0	45	17	0	1	0	0	2	2	0	1	1	0	0	0	69
06:15	0	19	4	0	0	0	0	0	3	0	0	0	0	0	0	26
06:30	0	21	5	0	2	0	0	2	3	0	0	0	0	0	0	33
06:45	0	24	10	0	7	0	0	0	2	0	0	0	0	0	0	43
07:00	1	38	14	0	4	3	0	1	2	0	0	0	0	0	0	63
Hour Total	1	102	33	0	13	3	0	3	10	0	0	0	0	0	0	165
07:15	0	49	22	0	2	1	0	0	2	0	0	0	0	0	0	76
07:30	0	41	12	0	1	2	0	1	1	0	0	0	0	0	0	58
07:45	0	62	20	0	3	1	0	0	3	0	0	0	0	0	0	89
08:00	1	94	18	0	3	0	0	0	2	0	1	0	1	0	0	120
Hour Total	1	246	72	0	9	4	0	1	8	0	1	0	1	0	0	343
08:15	1	67	14	0	2	2	0	1	3	0	0	0	0	0	0	90
08:30	0	44	7	0	0	0	0	0	2	0	0	0	0	0	0	53
08:45	0	44	12	1	0	1	0	2	1	0	0	0	0	0	0	61
09:00	0	41	15	0	2	0	2	1	7	0	0	0	0	0	0	68

Peggy Malone & Associates
CLASSIFICATION SUMMARY
Wed 10/14/2015

Station #: Site F
Site ID: 000000000282
Location: US 501/Candlers Mtn Rd EB to Rt. 29 SB
Direction: EAST
Lane: 1

File: SB.prn
City: 15-220 RS Max
County: 37.36239, -79.16795

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
Hour Total	1	196	48	1	4	3	2	4	13	0	0	0	0	0	0	272
09:15	0	46	24	0	0	3	0	3	0	0	0	0	0	0	0	76
09:30	0	38	24	0	1	3	3	2	0	0	0	0	0	0	0	71
09:45	0	30	13	0	1	0	0	1	3	0	0	0	0	0	0	48
10:00	0	31	16	0	4	0	0	1	3	0	0	0	0	0	0	55
Hour Total	0	145	77	0	6	6	3	7	6	0	0	0	0	0	0	250
10:15	1	36	16	0	3	1	0	0	1	0	0	0	0	0	0	58
10:30	0	44	13	0	1	1	0	1	2	0	0	0	0	0	0	62
10:45	0	38	19	0	1	1	0	1	3	0	0	0	0	0	0	63
11:00	0	44	12	1	0	1	0	0	5	2	0	0	0	0	0	65
Hour Total	1	162	60	1	5	4	0	2	11	2	0	0	0	0	0	248
11:15	0	56	18	0	3	2	0	2	6	0	0	0	0	0	0	87
11:30	0	52	13	0	1	0	1	0	3	0	0	0	0	0	0	70
11:45	0	61	22	1	2	4	1	2	6	0	0	0	0	0	0	99
12:00	1	71	12	0	2	1	1	0	4	0	0	0	0	0	0	92
Hour Total	1	240	65	1	8	7	3	4	19	0	0	0	0	0	0	348
12:15	0	78	17	0	0	1	1	0	2	0	0	0	0	0	0	99
12:30	0	73	23	0	7	1	2	0	3	0	0	0	0	0	0	109
12:45	0	72	20	0	2	2	2	1	4	1	0	0	0	0	0	104
13:00	1	68	13	0	1	1	0	0	2	0	0	0	0	0	0	86
Hour Total	1	291	73	0	10	5	5	1	11	1	0	0	0	0	0	398
13:15	1	57	12	0	2	1	0	2	3	0	0	0	1	0	0	79
13:30	0	53	23	0	0	3	0	2	3	0	0	0	0	0	0	84
13:45	1	76	22	0	0	1	0	2	3	0	0	0	0	0	0	105
14:00	1	57	14	0	3	1	0	2	5	0	0	0	0	0	0	83
Hour Total	3	243	71	0	5	6	0	8	14	0	0	0	1	0	0	351
14:15	0	74	16	0	4	2	1	6	1	0	0	0	0	0	0	104
14:30	0	63	17	0	0	1	4	2	1	0	0	0	0	0	0	88
14:45	0	89	20	0	2	1	0	1	4	0	0	0	0	0	0	117
15:00	0	68	24	1	3	1	1	1	3	0	0	0	0	0	0	102
Hour Total	0	294	77	1	9	5	6	10	9	0	0	0	0	0	0	411
15:15	1	91	36	0	2	0	0	1	3	0	0	0	0	0	0	134
15:30	0	93	35	0	6	1	0	2	1	0	1	0	0	0	0	139
15:45	0	134	39	0	2	1	0	1	3	0	0	0	0	0	0	180
16:00	0	104	35	0	3	0	0	2	2	0	2	0	0	0	0	148
Hour Total	1	422	145	0	13	2	0	6	9	0	3	0	0	0	0	601
16:15	1	129	36	1	3	3	0	1	3	0	0	0	0	0	0	177
16:30	0	124	35	0	0	2	0	2	1	0	0	0	0	0	0	164
16:45	0	166	38	0	1	0	0	1	2	0	0	0	0	0	0	208
17:00	1	182	42	0	4	1	0	2	2	0	0	0	0	0	0	234
Hour Total	2	601	151	1	8	6	0	6	8	0	0	0	0	0	0	783

Station #: Site F
Site ID: 000000000282
Location: US 501/Candlers Mtn Rd EB to Rt. 29 SB
Direction: EAST
Lane: 1

File: SB.prn
City: 15-220 RS Max
County: 37.36239, -79.16795

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
17:15	0	205	36	0	1	0	0	0	3	0	0	0	0	0	0	245
17:30	1	187	38	0	0	0	0	1	4	0	0	0	0	0	0	231
17:45	0	149	14	0	2	0	0	2	1	0	0	0	0	0	0	168
18:00	0	146	20	0	0	1	0	2	1	0	0	0	0	0	0	170
Hour Total	1	687	108	0	3	1	0	5	9	0	0	0	0	0	0	814
18:15	1	137	29	0	2	0	0	2	2	0	0	0	1	0	0	174
18:30	0	99	16	0	1	0	0	1	5	0	0	0	0	0	0	122
18:45	1	86	12	0	3	0	0	4	1	0	0	0	0	0	0	107
19:00	2	77	7	0	1	0	0	0	1	0	0	0	0	0	0	88
Hour Total	4	399	64	0	7	0	0	7	9	0	0	0	1	0	0	491
19:15	0	82	9	0	1	1	0	0	1	0	0	0	0	0	0	94
19:30	0	79	15	0	0	0	0	0	2	0	0	0	0	0	0	96
19:45	0	53	7	0	0	0	0	0	2	0	0	0	0	0	0	62
20:00	0	56	8	0	1	1	0	0	0	0	0	0	0	0	0	66
Hour Total	0	270	39	0	2	2	0	0	5	0	0	0	0	0	0	318
20:15	0	61	11	0	0	0	0	2	1	0	0	0	0	0	0	75
20:30	3	45	9	0	0	0	0	1	0	0	0	0	0	0	0	58
20:45	0	49	13	0	0	0	0	0	0	0	1	0	0	0	0	63
21:00	0	56	8	0	1	0	0	0	1	0	0	0	0	0	0	66
Hour Total	3	211	41	0	1	0	0	3	2	0	1	0	0	0	0	262
21:15	0	58	10	0	0	0	0	0	0	0	1	0	0	0	0	69
21:30	0	47	9	0	0	0	0	1	3	0	0	0	0	0	0	60
21:45	0	44	3	0	0	0	0	0	0	0	0	0	0	0	0	47
22:00	0	31	1	0	0	0	0	0	1	0	0	0	0	0	0	33
Hour Total	0	180	23	0	0	0	0	1	4	0	1	0	0	0	0	209
22:15	1	46	7	0	0	0	0	0	0	0	0	0	0	0	0	54
22:30	0	33	3	0	1	0	0	0	0	0	0	0	0	0	0	37
22:45	0	22	3	0	0	0	0	0	2	0	0	0	0	0	0	27
23:00	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	18
Hour Total	1	119	13	0	1	0	0	0	2	0	0	0	0	0	0	136
23:15	0	24	8	0	0	0	0	0	0	0	2	1	0	0	0	35
23:30	0	24	6	0	0	0	0	0	1	0	1	0	0	0	0	32
23:45	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	15
24:00	0	10	3	0	0	0	0	0	0	0	1	0	0	0	0	14
Hour Total	0	73	17	0	0	0	0	0	1	0	4	1	0	0	0	96
DAY TOTAL	22	4989	1211	5	108	54	19	74	164	3	14	2	3	0	0	6668
PERCENTS	0.4%	74.9%	18.2%	0.1%	1.7%	0.8%	0.2%	1.1%	2.4%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	100%

Passenger Vehicles 93.3% Trucks & Buses 6.6%

AM Times	07:30	07:45	09:15	11:00	06:30	07:00	08:45	08:45	11:00	10:15	00:45	05:15	07:15		07:30
AM Peaks	2	267	77	2	15	7	5	8	20	2	2	1	1		357
PM Times	18:15	16:45	16:45	14:15	15:30	12:45	14:15	13:30	13:15	12:15	23:15	22:30	12:30		16:45
PM Peaks	4	740	154	1	14	7	6	12	14	1	4	1	1		918

Station #: Site F
Site ID: 000000000282
Location: US 501/Candlers Mtn Rd EB to Rt. 29 SB
Direction: EAST
Lane: 1

File: SB.prn
City: 15-220 RS Max
County: 37.36239, -79.16795

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
00:15	0	12	2	0	1	0	0	0	1	0	1	0	0	0	0	17
00:30	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	10
00:45	0	5	1	0	0	0	0	0	1	0	0	0	0	0	0	7
01:00	0	7	0	0	0	0	0	0	1	0	0	0	0	0	0	8
Hour Total	0	34	3	0	1	0	0	0	3	0	1	0	0	0	0	42
01:15	0	3	0	0	0	0	0	0	1	0	0	0	0	0	0	4
01:30	0	4	0	0	1	0	0	1	1	0	0	0	0	0	0	7
01:45	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
02:00	0	9	2	0	0	0	0	0	0	0	0	0	0	0	0	11
Hour Total	0	19	2	0	1	0	0	1	2	0	0	0	0	0	0	25
02:15	0	6	0	0	1	0	0	0	1	0	1	0	0	0	0	9
02:30	0	3	0	0	0	0	0	0	1	0	0	0	0	0	0	4
02:45	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
03:00	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	3
Hour Total	0	12	0	0	2	0	0	0	3	0	1	0	0	0	0	18
03:15	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	3
03:30	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	3
03:45	0	1	1	0	0	0	0	0	2	0	0	0	0	0	0	4
04:00	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	4
Hour Total	0	5	5	0	0	0	0	1	2	0	1	0	0	0	0	14
04:15	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	4
04:30	0	5	1	0	0	0	0	1	0	0	0	0	0	0	0	7
04:45	0	4	2	0	0	0	0	2	0	0	0	0	0	0	0	8
05:00	0	3	1	0	0	0	0	1	0	0	0	0	0	0	0	5
Hour Total	0	14	4	0	0	0	0	4	2	0	0	0	0	0	0	24
05:15	0	5	3	0	0	0	0	0	1	0	1	0	0	0	0	10
05:30	0	5	7	0	0	0	0	2	0	0	0	0	0	0	0	14
05:45	0	14	4	0	0	0	0	2	2	0	0	0	0	0	0	22
06:00	0	14	4	0	0	0	0	0	0	0	0	1	0	0	0	19
Hour Total	0	38	18	0	0	0	0	4	3	0	1	1	0	0	0	65
06:15	0	20	6	0	0	0	0	1	4	0	0	0	0	0	0	31
06:30	0	19	9	0	4	2	0	0	1	0	0	0	0	0	0	35
06:45	0	34	8	0	2	2	0	1	2	0	0	0	0	0	0	49
07:00	0	35	13	0	6	0	0	0	2	0	0	0	0	0	0	56
Hour Total	0	108	36	0	12	4	0	2	9	0	0	0	0	0	0	171
07:15	0	52	24	0	4	2	0	0	6	0	1	0	0	0	0	89
07:30	0	54	21	0	2	0	0	1	3	0	0	0	0	0	0	81
07:45	0	65	18	0	0	2	0	1	1	0	0	0	0	0	0	87
08:00	2	90	23	0	6	1	0	2	2	0	0	0	0	0	0	126
Hour Total	2	261	86	0	12	5	0	4	12	0	1	0	0	0	0	383
08:15	3	84	17	0	1	1	0	1	2	0	0	0	0	0	0	109
08:30	0	43	13	1	1	0	0	0	1	0	1	0	0	0	0	60
08:45	0	30	12	1	0	0	0	2	5	0	0	0	0	0	0	50
09:00	0	42	14	0	3	0	0	1	2	0	0	0	0	0	0	62

Station #: Site F
Site ID: 000000000282
Location: US 501/Candlers Mtn Rd EB to Rt. 29 SB
Direction: EAST
Lane: 1

File: SB.prn
City: 15-220 RS Max
County: 37.36239, -79.16795

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
Hour Total	3	199	56	2	5	1	0	4	10	0	1	0	0	0	0	281
09:15	0	42	18	0	3	1	0	1	3	0	0	0	0	0	0	68
09:30	0	40	17	0	2	2	0	0	3	0	0	0	0	0	0	64
09:45	0	34	9	1	2	0	0	1	4	0	0	0	0	0	0	51
10:00	0	43	11	0	3	0	0	0	5	0	0	0	0	0	0	62
Hour Total	0	159	55	1	10	3	0	2	15	0	0	0	0	0	0	245
10:15	0	39	15	0	6	0	0	2	1	0	0	0	0	0	0	63
10:30	0	37	15	0	1	0	0	1	5	1	0	0	0	0	0	60
10:45	0	47	14	0	2	0	0	2	1	0	0	0	0	0	0	66
11:00	0	50	15	1	2	1	0	0	6	0	0	0	0	0	0	75
Hour Total	0	173	59	1	11	1	0	5	13	1	0	0	0	0	0	264
11:15	0	56	19	0	1	0	0	3	1	0	0	0	0	0	0	80
11:30	0	47	21	0	5	1	0	1	1	0	0	0	0	0	0	76
11:45	0	62	19	0	2	0	0	0	2	0	0	0	0	0	0	85
12:00	0	70	18	0	2	2	0	2	3	0	1	0	0	0	0	98
Hour Total	0	235	77	0	10	3	0	6	7	0	1	0	0	0	0	339
12:15	0	71	19	0	0	2	0	2	5	0	0	0	0	0	0	99
12:30	1	64	7	0	1	0	0	0	2	0	0	0	0	0	0	75
12:45	2	80	18	0	4	3	0	2	2	0	0	0	0	0	0	111
13:00	0	67	17	0	3	0	0	1	1	0	0	0	0	0	0	89
Hour Total	3	282	61	0	8	5	0	5	10	0	0	0	0	0	0	374
13:15	0	77	14	0	3	0	1	2	2	0	0	0	0	0	0	99
13:30	0	72	18	0	3	3	0	1	4	0	0	0	0	0	0	101
13:45	0	71	18	0	3	2	0	1	2	0	0	0	0	0	0	97
14:00	0	72	13	0	1	0	0	0	1	0	0	0	0	0	0	87
Hour Total	0	292	63	0	10	5	1	4	9	0	0	0	0	0	0	384
14:15	2	83	21	0	3	1	0	1	1	0	0	0	0	0	0	112
14:30	0	68	17	1	4	1	0	2	4	0	0	0	0	0	0	97
14:45	0	89	24	0	2	0	0	0	3	1	0	0	0	0	0	119
15:00	0	74	22	1	2	1	0	4	5	0	0	0	0	0	0	109
Hour Total	2	314	84	2	11	3	0	7	13	1	0	0	0	0	0	437
15:15	1	104	31	0	4	2	1	2	5	0	0	0	0	0	0	150
15:30	0	90	28	0	4	0	0	3	2	0	0	0	0	0	0	127
15:45	0	124	38	0	0	2	0	3	2	0	0	0	0	0	0	169
16:00	0	112	27	0	3	1	0	0	3	0	0	0	1	0	0	147
Hour Total	1	430	124	0	11	5	1	8	12	0	0	0	1	0	0	593
16:15	1	155	38	0	1	0	1	0	0	0	0	0	0	0	0	196
16:30	0	110	34	1	1	0	1	0	3	0	0	0	0	0	0	150
16:45	0	171	33	0	1	2	1	0	2	0	0	0	0	0	0	210
17:00	1	150	34	0	3	1	0	4	3	0	0	0	0	0	0	196
Hour Total	2	586	139	1	6	3	3	4	8	0	0	0	0	0	0	752

Station #: Site F
Site ID: 000000000282
Location: US 501/Candlers Mtn Rd EB to Rt. 29 SB
Direction: EAST
Lane: 1

File: SB.prn
City: 15-220 RS Max
County: 37.36239, -79.16795

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
17:15	0	207	37	0	2	0	0	0	2	0	0	1	0	0	0	249
17:30	1	206	21	0	1	0	0	6	1	0	0	0	0	0	0	236
17:45	0	140	30	0	0	1	0	0	4	0	0	0	0	0	0	175
18:00	1	132	21	0	3	0	0	0	4	0	0	0	0	0	0	161
Hour Total	2	685	109	0	6	1	0	6	11	0	0	1	0	0	0	821
18:15	0	133	16	0	1	0	0	1	2	0	0	0	0	0	0	153
18:30	0	105	22	0	2	0	0	1	1	0	0	0	0	0	0	131
18:45	1	81	13	0	1	0	0	0	4	0	0	0	0	0	0	100
19:00	0	99	11	1	1	0	0	3	5	0	0	0	0	0	0	120
Hour Total	1	418	62	1	5	0	0	5	12	0	0	0	0	0	0	504
19:15	0	89	14	1	1	0	0	0	0	0	0	0	0	0	0	105
19:30	0	75	12	0	0	0	0	0	0	0	0	0	0	0	0	87
19:45	0	64	10	0	1	0	0	0	1	0	0	0	0	0	0	76
20:00	0	65	9	0	1	0	0	0	0	0	0	0	0	0	0	75
Hour Total	0	293	45	1	3	0	0	0	1	0	0	0	0	0	0	343
20:15	0	56	2	0	0	0	0	1	0	0	0	0	0	0	0	59
20:30	0	52	8	0	0	0	0	1	0	0	0	0	0	0	0	61
20:45	0	58	12	0	0	0	0	0	1	0	1	0	0	0	0	72
21:00	0	54	7	0	1	0	0	0	0	0	0	0	0	0	0	62
Hour Total	0	220	29	0	1	0	0	2	1	0	1	0	0	0	0	254
21:15	0	77	12	0	0	0	0	0	2	0	1	0	0	0	0	92
21:30	0	48	7	0	0	0	0	0	0	0	0	0	0	0	0	55
21:45	0	43	8	0	0	0	0	1	2	0	0	0	0	0	0	54
22:00	1	20	4	0	0	0	0	0	0	0	0	0	0	0	0	25
Hour Total	1	188	31	0	0	0	0	1	4	0	1	0	0	0	0	226
22:15	1	52	11	0	0	0	0	0	0	0	1	0	0	0	0	65
22:30	0	33	6	0	0	0	0	0	0	0	0	0	0	0	0	39
22:45	0	31	3	0	1	0	0	1	1	0	1	0	0	0	0	38
23:00	0	36	0	0	0	0	0	0	1	0	1	0	0	0	0	38
Hour Total	1	152	20	0	1	0	0	1	2	0	3	0	0	0	0	180
23:15	0	37	10	0	0	1	0	0	0	0	0	0	0	0	0	48
23:30	0	38	4	0	1	0	0	0	1	0	0	0	0	0	0	44
23:45	0	15	4	0	0	0	0	0	2	0	0	1	0	0	0	22
24:00	0	23	4	0	0	0	0	0	0	0	0	0	0	0	0	27
Hour Total	0	113	22	0	1	1	0	0	3	0	0	1	0	0	0	141
DAY TOTAL	18	5230	1190	9	127	40	5	76	167	2	12	3	1	0	0	6880
PERCENTS	0.3%	76.1%	17.3%	0.2%	1.9%	0.6%	0.0%	1.1%	2.4%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	100%
Passenger Vehicles	93.5%											Trucks & Buses	6.4%			
AM Times	07:30	07:30	07:15	08:00	06:30	06:30				10:30	09:15	09:45	00:30	05:15		07:30
AM Peaks	5	293	86	2	16	6				6	15	1	1	1		403
PM Times	12:15	16:45	16:15	14:15	12:45	12:45	16:00	15:00	14:30	14:00	22:15	16:30	15:15			16:45
PM Peaks	3	734	139	2	13	6	3	12	17	1	3	1	1			891
GRAND TOTAL	40	10219	2401	14	235	94	24	150	331	5	26	5	4	0	0	13548
PERCENTS	0.3%	75.5%	17.8%	0.2%	1.8%	0.7%	0.1%	1.1%	2.4%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	100%

Station #: Site E
Site ID: 000000020168
Location: US 501/Candlers Mtn Rd EB to Rt. 29 NB
Direction: EAST
Lane: 1

File: NB.prn
City: 15-220 RS Max
County: 37.36239, -79.16795

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
00:15	0	21	3	0	0	0	0	0	0	0	0	0	0	0	0	24
00:30	0	15	1	0	0	0	0	0	0	0	0	0	0	0	0	16
00:45	0	12	1	0	0	0	0	0	0	0	0	0	0	0	0	13
01:00	0	8	1	0	0	0	0	1	0	0	0	0	0	0	0	10
Hour Total	0	56	6	0	0	0	0	1	0	0	0	0	0	0	0	63
01:15	0	8	1	0	0	2	0	0	0	0	0	0	0	0	0	11
01:30	0	3	0	0	1	0	0	1	0	0	0	0	0	0	0	5
01:45	0	4	3	0	0	0	0	0	0	0	0	0	0	0	0	7
02:00	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Hour Total	0	19	4	0	1	2	0	1	0	0	0	0	0	0	0	27
02:15	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	5
02:30	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5
02:45	0	7	0	0	0	0	0	0	0	1	0	0	0	0	0	8
03:00	0	6	0	0	0	1	0	0	1	0	0	0	0	0	0	8
Hour Total	0	22	1	0	0	1	0	0	1	1	0	0	0	0	0	26
03:15	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4
03:30	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	4
03:45	0	5	0	0	1	0	0	0	0	0	0	0	0	0	0	6
04:00	0	3	2	0	0	0	0	0	1	0	0	0	0	0	0	6
Hour Total	0	15	3	0	1	0	0	0	1	0	0	0	0	0	0	20
04:15	0	4	1	0	0	0	0	0	1	0	0	0	0	0	0	6
04:30	0	12	1	0	0	0	0	3	1	0	0	0	0	0	0	17
04:45	0	12	1	0	0	0	0	0	1	0	0	0	0	0	0	14
05:00	0	15	4	0	0	0	0	0	1	0	0	0	0	0	0	20
Hour Total	0	43	7	0	0	0	0	3	4	0	0	0	0	0	0	57
05:15	0	10	4	0	1	0	0	1	1	0	1	0	0	0	0	18
05:30	1	31	7	0	0	0	0	2	2	1	0	0	0	0	0	44
05:45	0	26	8	0	1	0	0	2	1	0	0	0	0	0	0	38
06:00	0	29	8	0	1	0	0	1	1	0	0	0	0	0	0	40
Hour Total	1	96	27	0	3	0	0	6	5	1	1	0	0	0	0	140
06:15	2	49	11	0	0	1	0	1	2	0	0	0	0	0	0	66
06:30	2	50	15	0	1	0	0	1	0	0	0	0	0	0	0	69
06:45	1	74	14	0	1	1	0	0	3	0	0	0	0	0	0	94
07:00	0	71	15	0	2	2	0	0	3	0	0	0	0	0	0	93
Hour Total	5	244	55	0	4	4	0	2	8	0	0	0	0	0	0	322
07:15	0	103	28	1	0	0	0	1	3	0	0	0	0	0	0	136
07:30	2	98	8	0	0	1	0	2	1	0	0	0	0	0	0	112
07:45	0	69	16	0	5	0	0	1	3	0	0	0	0	0	0	94
08:00	0	45	9	0	1	0	0	0	0	0	0	0	0	0	0	55
Hour Total	2	315	61	1	6	1	0	4	7	0	0	0	0	0	0	397
08:15	0	63	17	0	3	3	0	0	4	0	0	0	0	0	0	90
08:30	0	75	20	0	5	2	0	2	3	0	0	0	0	0	0	107
08:45	0	51	14	0	0	1	1	0	3	0	0	0	0	0	0	70
09:00	0	44	10	0	1	0	0	0	5	0	0	0	0	0	0	60

Station #: Site E
Site ID: 000000020168
Location: US 501/Candlers Mtn Rd EB to Rt. 29 NB
Direction: EAST
Lane: 1

File: NB.prn
City: 15-220 RS Max
County: 37.36239, -79.16795

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
Hour Total	0	233	61	0	9	6	1	2	15	0	0	0	0	0	0	327
09:15	0	67	15	0	4	2	0	0	3	0	0	0	0	0	0	91
09:30	0	62	25	0	2	1	0	1	6	0	0	0	0	0	0	97
09:45	0	51	10	0	2	0	0	0	6	1	0	0	0	0	0	70
10:00	0	51	15	0	3	1	0	1	1	0	0	0	0	0	0	72
Hour Total	0	231	65	0	11	4	0	2	16	1	0	0	0	0	0	330
10:15	0	40	17	0	3	0	0	1	4	0	0	0	0	0	0	65
10:30	0	63	15	0	2	1	1	1	3	0	0	0	0	0	0	86
10:45	0	39	16	0	3	1	0	0	5	1	0	0	0	0	0	65
11:00	0	55	13	0	4	1	0	1	3	0	0	0	0	0	0	77
Hour Total	0	197	61	0	12	3	1	3	15	1	0	0	0	0	0	293
11:15	0	68	14	0	6	0	1	0	1	0	0	0	0	0	0	90
11:30	0	58	13	0	3	0	0	2	5	0	0	0	0	0	0	81
11:45	0	60	26	0	1	0	0	1	1	1	0	0	0	0	0	90
12:00	0	65	23	0	0	0	0	1	5	1	0	0	1	0	0	96
Hour Total	0	251	76	0	10	0	1	4	12	2	0	0	1	0	0	357
12:15	0	69	15	0	2	1	0	1	2	0	0	0	0	0	0	90
12:30	0	71	16	0	1	0	1	0	5	0	0	0	0	0	0	94
12:45	0	81	26	0	0	1	0	4	2	0	0	0	0	0	0	114
13:00	0	89	24	0	2	0	0	0	0	0	0	0	0	0	0	115
Hour Total	0	310	81	0	5	2	1	5	9	0	0	0	0	0	0	413
13:15	1	101	22	0	0	1	0	1	0	0	0	0	0	0	0	126
13:30	1	107	15	0	1	1	0	0	3	0	0	0	0	0	0	128
13:45	0	81	20	0	0	3	0	1	0	0	0	0	0	0	0	105
14:00	1	93	19	1	1	0	0	0	4	0	0	0	0	0	0	119
Hour Total	3	382	76	1	2	5	0	2	7	0	0	0	0	0	0	478
14:15	0	93	25	0	1	3	0	0	2	0	0	0	0	0	0	124
14:30	0	91	26	0	0	1	0	1	0	0	0	0	0	0	0	119
14:45	0	94	16	0	2	1	1	2	2	0	0	0	0	0	0	118
15:00	0	114	16	0	6	0	1	0	4	1	0	0	0	0	0	142
Hour Total	0	392	83	0	9	5	2	3	8	1	0	0	0	0	0	503
15:15	0	119	26	0	0	2	0	0	4	0	0	0	0	0	0	151
15:30	0	132	25	0	5	0	0	3	3	0	0	0	0	0	0	168
15:45	0	148	33	0	2	1	0	0	3	0	0	0	0	0	0	187
16:00	0	127	27	0	5	0	0	0	2	0	0	0	0	0	0	161
Hour Total	0	526	111	0	12	3	0	3	12	0	0	0	0	0	0	667
16:15	0	128	29	1	1	0	0	1	0	0	0	1	0	0	0	161
16:30	1	133	37	0	3	1	0	1	3	0	0	0	0	0	0	179
16:45	1	156	34	0	0	0	0	0	1	0	0	1	0	0	0	193
17:00	0	148	34	0	1	0	1	0	0	0	0	0	0	0	0	184
Hour Total	2	565	134	1	5	1	1	2	4	0	0	2	0	0	0	717

Station #: Site E
Site ID: 000000020168
Location: US 501/Candlers Mtn Rd EB to Rt. 29 NB
Direction: EAST
Lane: 1

File: NB.prn
City: 15-220 RS Max
County: 37.36239, -79.16795

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
17:15	0	177	25	0	0	0	0	0	0	0	0	0	0	0	0	202
17:30	0	157	31	0	0	0	0	1	1	0	0	0	0	0	0	190
17:45	1	140	28	0	2	0	0	0	2	0	0	0	0	0	0	173
18:00	0	122	28	0	0	0	0	0	2	1	0	1	0	0	0	154
Hour Total	1	596	112	0	2	0	0	1	5	1	0	1	0	0	0	719
18:15	0	123	16	0	0	0	0	2	1	0	0	0	0	0	0	142
18:30	1	107	23	0	1	0	0	1	3	0	0	1	0	0	0	137
18:45	0	103	24	0	0	0	0	0	1	0	0	0	0	0	0	128
19:00	0	97	18	0	1	0	0	1	2	0	0	0	0	0	0	119
Hour Total	1	430	81	0	2	0	0	4	7	0	0	1	0	0	0	526
19:15	0	94	21	0	0	0	0	0	5	0	0	1	0	0	0	121
19:30	0	77	22	0	0	0	0	1	1	0	0	0	0	0	0	101
19:45	0	107	18	0	0	0	0	0	1	0	0	0	0	0	0	126
20:00	0	61	12	0	0	0	0	1	1	0	0	0	0	0	0	75
Hour Total	0	339	73	0	0	0	0	2	8	0	0	1	0	0	0	423
20:15	0	61	15	0	0	0	0	1	1	0	0	0	0	0	0	78
20:30	0	61	11	0	0	1	0	1	0	0	0	0	1	0	0	75
20:45	0	66	12	0	0	0	0	0	0	0	0	0	0	0	0	78
21:00	0	60	3	0	0	0	0	1	0	0	1	0	0	0	0	65
Hour Total	0	248	41	0	0	1	0	3	1	0	1	0	1	0	0	296
21:15	1	55	11	0	0	0	0	0	0	0	0	0	0	0	0	67
21:30	0	56	10	0	0	0	0	0	1	0	0	0	0	0	0	67
21:45	0	50	10	0	0	0	0	0	1	0	0	0	0	0	0	61
22:00	1	38	4	0	0	0	0	0	1	0	1	0	0	0	0	45
Hour Total	2	199	35	0	0	0	0	0	3	0	1	0	0	0	0	240
22:15	0	54	6	0	0	0	0	0	1	0	0	0	0	0	0	61
22:30	0	43	3	1	0	0	0	0	0	0	0	0	0	0	0	47
22:45	0	25	4	0	0	0	0	0	1	0	0	0	0	0	0	30
23:00	0	24	2	0	0	0	0	0	0	0	0	0	0	0	0	26
Hour Total	0	146	15	1	0	0	0	0	2	0	0	0	0	0	0	164
23:15	0	29	7	0	0	0	0	0	2	0	0	1	0	0	0	39
23:30	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	17
23:45	0	22	0	0	1	0	0	1	0	0	0	0	0	0	0	24
24:00	0	7	2	0	0	0	0	0	0	0	0	1	0	0	0	10
Hour Total	0	75	9	0	1	0	0	1	2	0	1	1	0	0	0	90
DAY TOTAL	17	5930	1278	4	95	38	7	54	152	8	4	6	2	0	0	7595
PERCENTS	0.3%	78.1%	16.9%	0.1%	1.3%	0.5%	0.0%	0.7%	2.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Passenger Vehicles 95.1% Trucks & Buses 4.8%

AM Times	06:00	06:45	11:15	06:30	10:45	08:00	10:30	05:15	09:00	11:15	04:30		11:15		06:45
AM Peaks	5	346	76	1	16	6	2	6	20	2	1		1		435
PM Times	13:15	16:45	16:15	13:15	14:45	13:30	14:15	12:15	15:00	14:15	20:15	16:00	19:45		16:45
PM Peaks	3	638	134	1	13	7	2	5	14	1	1	2	1		769

Station #: Site E
Site ID: 000000020168
Location: US 501/Candlers Mtn Rd EB to Rt. 29 NB
Direction: EAST
Lane: 1

File: NB.prn
City: 15-220 RS Max
County: 37.36239, -79.16795

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
00:15	0	19	7	0	0	0	0	0	1	0	0	0	0	0	0	27
00:30	0	17	2	0	0	0	0	0	0	0	0	0	0	0	0	19
00:45	0	12	2	0	0	0	0	0	0	0	1	0	0	0	0	15
01:00	0	12	2	0	1	0	0	1	0	0	0	0	0	0	0	16
Hour Total	0	60	13	0	1	0	0	1	1	0	1	0	0	0	0	77
01:15	0	5	1	0	0	0	0	0	1	0	0	0	0	0	0	7
01:30	0	7	0	0	0	0	0	0	1	0	0	0	0	0	0	8
01:45	0	5	1	0	0	0	0	0	0	0	0	0	0	0	0	6
02:00	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Hour Total	0	20	2	0	0	0	0	0	2	0	0	0	0	0	0	24
02:15	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4
02:30	0	5	0	0	0	0	0	0	1	0	0	0	0	0	0	6
02:45	0	6	0	0	0	0	0	0	1	0	0	0	0	0	0	7
03:00	0	8	2	0	0	0	0	0	0	0	0	0	0	0	0	10
Hour Total	0	23	2	0	0	0	0	1	1	0	0	0	0	0	0	27
03:15	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	4
03:30	0	9	0	0	0	1	0	0	0	0	0	0	0	0	0	10
03:45	0	7	3	0	0	0	0	0	0	0	0	0	0	0	0	10
04:00	0	5	1	0	1	1	0	0	0	0	0	0	0	0	0	8
Hour Total	0	24	5	0	1	2	0	0	0	0	0	0	0	0	0	32
04:15	0	9	0	0	0	0	0	1	2	1	0	0	0	0	0	13
04:30	0	12	0	0	0	0	0	2	2	0	0	0	0	0	0	16
04:45	0	11	0	0	0	0	0	0	1	0	0	0	0	0	0	12
05:00	0	11	3	0	0	0	0	3	3	0	0	0	0	0	0	20
Hour Total	0	43	3	0	0	0	0	6	8	1	0	0	0	0	0	61
05:15	0	16	3	0	0	0	0	1	0	0	1	0	0	0	0	21
05:30	0	22	7	0	2	1	0	0	3	0	0	0	0	0	0	35
05:45	0	34	8	0	1	0	0	1	3	0	0	0	0	0	0	47
06:00	0	36	16	0	1	0	0	1	2	1	0	0	0	0	0	57
Hour Total	0	108	34	0	4	1	0	3	8	1	1	0	0	0	0	160
06:15	0	46	9	0	1	0	0	1	1	0	0	0	0	0	0	58
06:30	0	56	16	0	1	2	0	0	2	0	0	0	0	0	0	77
06:45	1	78	16	0	0	0	0	4	4	0	0	0	0	0	0	103
07:00	0	62	24	0	1	2	0	1	4	0	0	0	0	0	0	94
Hour Total	1	242	65	0	3	4	0	6	11	0	0	0	0	0	0	332
07:15	0	96	19	0	1	1	0	2	2	0	0	0	0	0	0	121
07:30	0	94	19	1	3	0	1	2	4	0	0	0	0	0	0	124
07:45	0	68	15	0	3	0	0	1	1	0	0	0	0	0	0	87
08:00	0	58	12	0	0	0	0	1	1	2	0	0	0	0	0	74
Hour Total	0	316	65	1	7	1	1	6	7	2	0	0	0	0	0	406
08:15	0	66	20	0	2	2	0	0	0	0	0	0	0	0	0	90
08:30	0	65	15	0	2	1	0	0	3	0	0	0	0	0	0	86
08:45	0	49	16	1	1	0	0	2	2	0	0	0	0	0	0	71
09:00	0	53	20	0	1	1	0	0	3	0	0	0	0	0	0	78

Station #: Site E
Site ID: 000000020168
Location: US 501/Candlers Mtn Rd EB to Rt. 29 NB
Direction: EAST
Lane: 1

File: NB.prn
City: 15-220 RS Max
County: 37.36239, -79.16795

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
Hour Total	0	233	71	1	6	4	0	2	8	0	0	0	0	0	0	325
09:15	0	60	25	0	1	1	0	1	3	0	0	0	0	0	0	91
09:30	0	54	20	0	4	0	0	0	1	0	0	0	0	0	0	79
09:45	0	56	8	1	1	0	1	0	7	1	0	0	0	0	0	75
10:00	0	62	17	0	0	1	1	1	4	0	0	0	0	0	0	86
Hour Total	0	232	70	1	6	2	2	2	15	1	0	0	0	0	0	331
10:15	0	59	14	0	0	1	0	0	4	2	0	0	0	0	0	80
10:30	0	46	11	0	2	0	0	1	3	0	0	0	0	0	0	63
10:45	0	66	17	0	1	1	0	1	1	0	0	0	0	0	0	87
11:00	1	63	25	0	2	1	0	3	5	0	0	0	0	0	0	100
Hour Total	1	234	67	0	5	3	0	5	13	2	0	0	0	0	0	330
11:15	0	52	9	0	4	2	0	0	5	0	0	0	0	0	0	72
11:30	0	62	23	0	1	0	0	0	4	0	0	0	0	0	0	90
11:45	0	59	15	0	3	0	0	0	3	0	0	0	0	0	0	80
12:00	0	66	14	0	1	0	0	1	4	0	0	0	0	0	0	86
Hour Total	0	239	61	0	9	2	0	1	16	0	0	0	0	0	0	328
12:15	0	79	25	0	2	1	0	1	2	0	0	0	0	0	0	110
12:30	0	66	25	0	2	2	0	1	2	0	0	0	0	0	0	98
12:45	1	93	23	0	0	0	0	3	4	0	0	0	0	0	0	124
13:00	1	86	24	0	2	0	0	1	4	0	0	0	0	0	0	118
Hour Total	2	324	97	0	6	3	0	6	12	0	0	0	0	0	0	450
13:15	0	96	21	0	3	0	0	0	2	0	0	0	0	0	0	122
13:30	0	96	16	0	2	0	0	0	3	0	0	0	0	0	0	117
13:45	1	91	23	0	0	1	1	0	4	0	0	0	0	0	0	121
14:00	1	82	20	0	1	1	0	0	0	0	0	0	0	0	0	105
Hour Total	2	365	80	0	6	2	1	0	9	0	0	0	0	0	0	465
14:15	1	105	22	0	1	1	0	1	3	0	0	0	0	0	0	134
14:30	0	107	27	0	0	2	0	0	2	0	0	0	0	0	0	138
14:45	0	116	19	0	3	0	0	0	0	0	0	0	0	0	0	138
15:00	0	89	25	0	3	0	0	3	1	0	0	0	0	0	0	121
Hour Total	1	417	93	0	7	3	0	4	6	0	0	0	0	0	0	531
15:15	0	123	24	0	2	2	0	1	4	0	0	0	0	0	0	156
15:30	0	144	33	0	3	0	0	3	1	0	0	0	0	0	0	184
15:45	1	150	35	0	4	0	0	0	3	0	0	0	0	0	0	193
16:00	0	122	22	0	4	0	0	1	3	0	0	0	0	0	0	152
Hour Total	1	539	114	0	13	2	0	5	11	0	0	0	0	0	0	685
16:15	0	134	24	0	3	1	0	1	3	0	1	0	0	0	0	167
16:30	1	126	30	0	3	0	0	1	2	0	0	0	0	0	0	163
16:45	0	158	28	0	0	1	0	0	1	0	0	0	0	0	0	188
17:00	0	132	29	0	0	0	1	2	2	0	0	0	0	0	0	166
Hour Total	1	550	111	0	6	2	1	4	8	0	1	0	0	0	0	684

Station #: Site E
Site ID: 000000020168
Location: US 501/Candlers Mtn Rd EB to Rt. 29 NB
Direction: EAST
Lane: 1

File: NB.prn
City: 15-220 RS Max
County: 37.36239, -79.16795

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
17:15	0	161	23	0	0	0	0	0	1	0	0	0	0	0	0	185
17:30	0	185	31	0	0	3	0	0	3	0	1	0	0	0	0	223
17:45	0	156	31	0	2	1	0	0	1	0	0	0	0	0	0	191
18:00	0	162	23	0	2	0	0	0	2	0	0	0	0	0	0	189
Hour Total	0	664	108	0	4	4	0	0	7	0	1	0	0	0	0	788
18:15	1	138	25	0	1	2	0	0	0	0	0	0	0	0	0	167
18:30	0	127	22	1	1	0	0	0	1	0	0	0	0	0	0	152
18:45	0	117	18	0	0	0	0	1	1	0	1	0	0	0	0	138
19:00	1	81	25	0	1	0	0	2	2	0	0	1	0	0	0	113
Hour Total	2	463	90	1	3	2	0	3	4	0	1	1	0	0	0	570
19:15	0	86	19	0	0	0	0	0	0	0	0	0	0	0	0	105
19:30	0	90	16	0	0	0	0	1	3	0	0	0	0	0	0	110
19:45	0	64	22	0	0	0	0	0	0	0	0	0	0	0	0	86
20:00	0	80	17	0	0	0	0	1	2	0	0	0	0	0	0	100
Hour Total	0	320	74	0	0	0	0	2	5	0	0	0	0	0	0	401
20:15	0	66	14	0	0	0	0	0	1	0	0	0	0	0	0	81
20:30	0	77	13	0	0	0	0	1	0	0	0	0	0	0	0	91
20:45	0	58	9	0	0	0	0	0	0	0	0	0	0	0	0	67
21:00	0	56	15	0	1	0	0	1	0	0	0	0	0	0	0	73
Hour Total	0	257	51	0	1	0	0	2	1	0	0	0	0	0	0	312
21:15	0	58	5	0	0	0	0	0	3	0	1	0	0	0	0	67
21:30	0	73	13	0	1	0	0	0	1	0	0	0	0	0	0	88
21:45	0	59	6	0	0	0	0	0	1	0	0	0	0	0	0	66
22:00	0	50	6	0	0	0	0	0	1	0	1	0	0	0	0	58
Hour Total	0	240	30	0	1	0	0	0	6	0	2	0	0	0	0	279
22:15	0	54	6	0	0	0	0	0	1	0	0	0	0	0	0	61
22:30	0	38	4	0	0	1	0	0	0	0	0	0	0	0	0	43
22:45	0	36	5	0	1	0	0	1	0	0	0	0	0	0	0	43
23:00	0	20	3	0	0	0	0	0	2	0	1	0	0	0	0	26
Hour Total	0	148	18	0	1	1	0	1	3	0	1	0	0	0	0	173
23:15	0	19	2	0	0	0	0	0	2	0	0	0	0	0	0	23
23:30	0	31	2	0	0	0	0	0	0	0	0	0	0	0	0	33
23:45	0	24	3	0	0	0	0	0	3	0	1	0	0	0	0	31
24:00	0	16	3	0	0	0	0	0	0	0	0	0	0	0	0	19
Hour Total	0	90	10	0	0	0	0	0	5	0	1	0	0	0	0	106
DAY TOTAL	11	6151	1334	4	90	38	5	60	167	7	9	1	0	0	0	7877
PERCENTS	0.2%	78.1%	17.0%	0.1%	1.2%	0.5%	0.0%	0.7%	2.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	100%

Passenger Vehicles 95.1% Trucks & Buses 4.8%

AM Times	06:00	06:45	08:45	06:45	11:00	06:30	09:15	06:45	09:45	09:30						06:45
AM Peaks	1	330	81	1	10	5	2	9	18	3	1					442
PM Times	13:30	17:15	15:00	17:45	15:30	17:30	13:00	14:45	12:45		21:15	18:15				17:15
PM Peaks	3	664	117	1	14	6	1	7	13		2	1				788

GRAND TOTAL	28	12081	2612	8	185	76	12	114	319	15	13	7	2	0	0	15472
PERCENTS	0.2%	78.1%	16.9%	0.1%	1.2%	0.5%	0.1%	0.8%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Station #: Site A
Site ID: 000000009354
Location: Rt. 29 NB to US 501/Candlers Mtn Rd WB
Direction: NORTH
Lane: 1

File: Rd.prn
City: 15-220 RS Max
County: 37.37318, -79.16660

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
00:15	0	13	2	0	0	0	0	0	1	0	0	0	0	0	0	16
00:30	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	12
00:45	0	7	1	0	0	0	0	2	1	0	0	0	0	0	0	11
01:00	0	10	1	0	1	0	0	0	1	0	0	0	0	0	0	13
Hour Total	0	42	4	0	1	0	0	2	3	0	0	0	0	0	0	52
01:15	0	4	0	0	0	0	0	0	1	0	0	0	0	0	0	5
01:30	0	3	1	0	0	0	0	0	1	0	0	0	0	0	0	5
01:45	0	4	0	0	0	0	0	0	0	0	1	0	0	0	0	5
02:00	0	6	1	0	1	0	0	0	0	0	0	0	0	0	0	8
Hour Total	0	17	2	0	1	0	0	0	2	0	1	0	0	0	0	23
02:15	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	4
02:30	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6
02:45	0	9	1	0	0	0	0	1	1	0	0	0	0	0	0	12
03:00	0	10	2	0	0	0	0	0	0	0	1	0	0	0	0	13
Hour Total	0	27	5	0	0	0	0	1	1	0	1	0	0	0	0	35
03:15	0	5	1	0	1	0	0	0	0	0	0	0	0	0	0	7
03:30	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	4
03:45	0	3	3	0	0	0	0	0	1	0	0	0	0	0	0	7
04:00	0	11	2	0	0	0	0	0	0	0	0	0	0	0	0	13
Hour Total	0	22	7	0	1	0	0	0	1	0	0	0	0	0	0	31
04:15	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5
04:30	0	6	2	0	1	0	0	1	1	0	0	0	0	0	0	11
04:45	0	11	6	0	0	0	0	0	0	0	0	0	0	0	0	17
05:00	0	23	9	0	0	0	0	0	0	0	1	0	0	0	0	33
Hour Total	0	45	17	0	1	0	0	1	1	0	1	0	0	0	0	66
05:15	0	16	5	0	1	0	0	0	1	0	0	0	0	0	0	23
05:30	0	27	7	0	0	0	0	0	0	0	0	0	0	0	0	34
05:45	0	47	13	0	1	0	0	0	0	0	0	1	0	0	0	62
06:00	0	64	22	0	1	0	0	0	0	1	0	0	0	0	0	88
Hour Total	0	154	47	0	3	0	0	0	1	1	0	1	0	0	0	207
06:15	0	39	17	0	0	0	0	0	0	0	0	0	0	0	0	56
06:30	0	94	23	0	0	1	0	0	1	0	0	0	0	0	0	119
06:45	0	102	32	0	0	2	2	0	0	0	1	0	0	0	0	139
07:00	1	138	43	0	0	0	1	0	5	0	0	1	0	0	0	189
Hour Total	1	373	115	0	0	3	3	0	6	0	1	1	0	0	0	503
07:15	2	94	38	1	5	0	0	0	0	0	0	0	0	0	0	140
07:30	0	144	43	0	0	1	0	2	1	0	1	0	0	0	0	192
07:45	2	176	28	1	5	0	1	0	1	2	0	0	3	0	0	219
08:00	3	209	31	0	2	0	3	0	2	0	0	0	5	0	0	255
Hour Total	7	623	140	2	12	1	4	2	4	2	1	0	8	0	0	806
08:15	1	172	31	1	0	3	0	1	0	0	1	0	4	0	0	214
08:30	0	159	39	1	2	0	2	1	3	1	0	0	0	0	0	208
08:45	0	155	31	0	2	2	1	0	3	0	0	0	0	0	0	194
09:00	0	113	22	0	0	3	0	1	2	0	0	0	0	0	0	141

Station #: Site A
Site ID: 000000009354
Location: Rt. 29 NB to US 501/Candlers Mtn Rd WB
Direction: NORTH
Lane: 1

File: Rd.prn
City: 15-220 RS Max
County: 37.37318, -79.16660

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
Hour Total	1	599	123	2	4	8	3	3	8	1	1	0	4	0	0	757
09:15	0	72	20	0	4	0	1	1	1	0	0	0	0	0	0	99
09:30	0	84	26	0	4	1	1	0	3	0	0	0	0	0	0	119
09:45	1	73	19	0	1	1	0	0	4	0	0	0	0	0	0	99
10:00	1	65	25	0	2	1	2	0	3	0	0	0	0	0	0	99
Hour Total	2	294	90	0	11	3	4	1	11	0	0	0	0	0	0	416
10:15	1	54	21	0	1	1	0	4	5	0	0	0	0	0	0	87
10:30	0	61	21	0	3	0	1	1	0	0	1	0	0	0	0	88
10:45	0	78	18	0	2	2	0	2	3	0	0	0	0	0	0	105
11:00	0	55	19	0	2	1	0	1	4	0	0	0	0	0	0	82
Hour Total	1	248	79	0	8	4	1	8	12	0	1	0	0	0	0	362
11:15	0	53	9	0	1	3	1	1	2	0	0	0	0	0	0	70
11:30	0	40	20	0	3	4	0	1	2	0	0	0	0	0	0	70
11:45	0	60	15	0	3	0	1	1	3	0	0	0	0	0	0	83
12:00	0	66	19	0	1	3	0	2	3	0	0	0	0	0	0	94
Hour Total	0	219	63	0	8	10	2	5	10	0	0	0	0	0	0	317
12:15	0	60	16	0	1	3	0	3	4	0	0	0	0	0	0	87
12:30	0	75	19	0	4	1	0	1	4	0	0	0	0	0	0	104
12:45	0	70	12	0	3	1	0	0	2	0	0	0	0	0	0	88
13:00	0	85	29	0	2	0	0	2	1	0	0	0	0	0	0	119
Hour Total	0	290	76	0	10	5	0	6	11	0	0	0	0	0	0	398
13:15	1	67	28	0	2	0	0	1	2	0	0	0	0	0	0	101
13:30	0	82	22	0	0	1	0	3	5	0	0	0	0	0	0	113
13:45	0	73	24	1	2	2	0	1	4	0	1	0	0	0	0	108
14:00	0	73	30	0	0	1	0	0	1	0	0	0	0	0	0	105
Hour Total	1	295	104	1	4	4	0	5	12	0	1	0	0	0	0	427
14:15	0	69	21	0	3	6	0	1	3	0	0	0	0	0	0	103
14:30	1	82	22	0	4	3	0	2	0	0	1	0	0	0	0	115
14:45	0	70	24	0	2	4	0	4	1	0	1	0	0	0	0	106
15:00	0	79	20	1	4	0	0	0	2	0	0	0	0	0	0	106
Hour Total	1	300	87	1	13	13	0	7	6	0	2	0	0	0	0	430
15:15	2	73	22	0	0	2	0	2	5	0	0	0	0	0	0	106
15:30	0	77	30	0	3	2	0	2	3	0	0	0	0	0	0	117
15:45	0	77	27	0	3	2	0	0	4	0	0	0	0	0	0	113
16:00	1	100	23	0	2	1	1	0	0	0	0	0	0	0	0	128
Hour Total	3	327	102	0	8	7	1	4	12	0	0	0	0	0	0	464
16:15	1	88	25	0	0	1	0	0	4	0	0	0	0	0	0	119
16:30	0	89	19	1	2	1	0	5	2	0	0	0	0	0	0	119
16:45	1	77	24	0	4	1	0	2	3	0	0	0	0	0	0	112
17:00	0	89	23	0	1	1	0	1	2	0	0	0	0	0	0	117
Hour Total	2	343	91	1	7	4	0	8	11	0	0	0	0	0	0	467

Station #: Site A
Site ID: 000000009354
Location: Rt. 29 NB to US 501/Candlers Mtn Rd WB
Direction: NORTH
Lane: 1

File: Rd.prn
City: 15-220 RS Max
County: 37.37318, -79.16660

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
17:15	0	86	13	1	1	1	0	1	1	0	0	0	0	0	0	104
17:30	0	71	13	0	1	0	0	0	0	0	0	0	0	0	0	85
17:45	0	90	27	0	2	1	0	4	2	0	0	0	0	0	0	126
18:00	0	95	20	0	1	0	0	2	3	0	0	0	0	0	0	121
Hour Total	0	342	73	1	5	2	0	7	6	0	0	0	0	0	0	436
18:15	1	93	15	0	1	1	0	0	0	0	0	0	0	0	0	111
18:30	0	81	22	0	5	0	0	1	1	0	0	0	0	0	0	110
18:45	1	86	17	0	3	0	0	1	2	0	0	0	0	0	0	110
19:00	0	67	6	0	0	0	0	0	2	1	0	0	0	0	0	76
Hour Total	2	327	60	0	9	1	0	2	5	1	0	0	0	0	0	407
19:15	1	54	20	0	2	0	0	3	0	0	0	0	0	0	0	80
19:30	3	56	11	0	0	0	0	1	1	0	0	0	0	0	0	72
19:45	0	52	13	0	0	0	0	1	0	0	0	0	0	0	0	66
20:00	0	41	6	0	0	0	0	0	1	0	0	0	0	0	0	48
Hour Total	4	203	50	0	2	0	0	5	2	0	0	0	0	0	0	266
20:15	0	36	6	0	0	0	0	1	0	0	0	0	0	0	0	43
20:30	0	35	8	0	0	1	0	0	1	0	0	0	0	0	0	45
20:45	0	42	4	0	1	0	0	1	2	0	0	0	0	0	0	50
21:00	0	31	7	0	0	0	0	1	1	0	0	0	0	0	0	40
Hour Total	0	144	25	0	1	1	0	3	4	0	0	0	0	0	0	178
21:15	0	41	7	0	0	0	0	0	1	0	0	0	0	0	0	49
21:30	0	26	2	0	0	0	0	0	1	0	0	0	0	0	0	29
21:45	0	34	8	0	0	0	0	0	1	0	0	0	0	0	0	43
22:00	0	39	7	0	0	0	0	0	0	0	0	0	0	0	0	46
Hour Total	0	140	24	0	0	0	0	0	3	0	0	0	0	0	0	167
22:15	0	21	1	0	0	0	0	0	1	0	1	0	0	0	0	24
22:30	0	38	3	0	0	0	0	0	2	0	1	1	0	0	0	45
22:45	1	28	2	0	1	0	0	1	2	0	0	0	0	0	0	35
23:00	0	22	3	0	0	0	0	0	0	0	0	0	0	0	0	25
Hour Total	1	109	9	0	1	0	0	1	5	0	2	1	0	0	0	129
23:15	0	8	5	0	0	0	0	0	2	0	0	0	0	0	0	15
23:30	0	13	1	0	0	0	0	0	1	0	0	0	0	0	0	15
23:45	0	8	5	0	0	0	0	1	1	0	1	0	0	0	0	16
24:00	0	15	2	0	2	0	0	1	0	0	0	0	0	0	0	20
Hour Total	0	44	13	0	2	0	0	2	4	0	1	0	0	0	0	66
DAY TOTAL	26	5527	1406	8	112	66	18	73	141	5	13	3	12	0	0	7410
PERCENTS	0.4%	74.6%	19.0%	0.2%	1.6%	0.9%	0.3%	0.9%	1.9%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	100%

Passenger Vehicles 93.9% Trucks & Buses 6.0%

AM Times	07:15	07:45	06:45	07:45	07:15	10:45	07:45	10:15	09:30	07:45	06:45	05:00	07:30		07:45
AM Peaks	7	716	156	3	12	10	6	8	15	3	2	1	12		896
PM Times	18:45	17:45	15:30	16:30	14:15	14:00	15:15	16:30	15:00	18:15	13:45	21:45			15:45
PM Peaks	5	359	105	2	13	14	1	9	14	1	2	1			479

Station #: Site A
Site ID: 000000009354
Location: Rt. 29 NB to US 501/Candlers Mtn Rd WB
Direction: NORTH
Lane: 1

File: Rd.prn
City: 15-220 RS Max
County: 37.37318, -79.16660

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
00:15	0	6	0	0	0	0	0	1	3	0	0	0	0	0	0	10
00:30	0	7	2	0	0	0	0	1	1	1	0	0	0	0	0	12
00:45	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
01:00	0	7	1	0	0	0	0	0	0	0	0	0	0	0	0	8
Hour Total	0	23	3	0	0	0	0	2	4	1	0	0	0	0	0	33
01:15	0	3	1	0	0	0	0	0	1	0	0	0	0	0	0	5
01:30	0	4	0	0	0	0	0	0	1	0	0	0	0	0	0	5
01:45	0	2	0	0	0	0	0	0	3	0	1	0	0	0	0	6
02:00	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Hour Total	0	15	1	0	0	0	0	0	5	0	1	0	0	0	0	22
02:15	0	6	2	0	0	0	0	0	0	0	0	0	0	0	0	8
02:30	0	4	0	0	0	0	0	1	0	0	0	0	0	0	0	5
02:45	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0	5
03:00	0	6	0	1	1	0	0	0	1	0	0	0	0	0	0	9
Hour Total	0	16	6	1	1	0	0	1	1	0	1	0	0	0	0	27
03:15	0	5	2	0	0	0	0	0	1	0	1	0	0	0	0	9
03:30	0	6	1	0	0	0	0	0	1	1	0	0	0	0	0	9
03:45	0	6	2	0	1	0	0	1	0	0	0	0	0	0	0	10
04:00	0	4	0	0	0	0	0	2	2	0	0	0	0	0	0	8
Hour Total	0	21	5	0	1	0	0	3	4	1	1	0	0	0	0	36
04:15	0	4	3	0	1	1	0	0	2	0	0	0	0	0	0	11
04:30	0	12	4	0	0	0	0	0	0	0	0	0	0	0	0	16
04:45	0	7	6	0	1	0	0	0	0	0	0	0	0	0	0	14
05:00	0	16	8	0	0	1	0	0	0	0	1	0	0	0	0	26
Hour Total	0	39	21	0	2	2	0	0	2	0	1	0	0	0	0	67
05:15	0	19	4	0	0	0	0	2	1	0	0	0	0	0	0	26
05:30	0	18	5	0	1	0	0	1	0	0	0	0	0	0	0	25
05:45	0	35	13	0	0	1	0	0	0	0	0	0	0	0	0	49
06:00	0	68	23	0	3	0	0	0	1	0	0	0	0	0	0	95
Hour Total	0	140	45	0	4	1	0	3	2	0	0	0	0	0	0	195
06:15	0	40	14	0	0	1	0	1	1	0	0	0	0	0	0	57
06:30	0	72	20	0	0	2	0	0	2	1	0	0	0	0	0	97
06:45	0	105	40	0	1	0	0	2	2	0	2	0	0	0	0	152
07:00	1	139	47	1	1	1	0	0	2	0	0	0	1	0	0	193
Hour Total	1	356	121	1	2	4	0	3	7	1	2	0	1	0	0	499
07:15	0	114	27	1	2	1	0	0	1	0	0	0	0	0	0	146
07:30	1	138	43	0	3	2	0	1	1	0	0	0	0	0	0	189
07:45	0	188	39	1	1	1	1	0	1	0	0	0	0	0	0	232
08:00	2	174	36	0	5	0	1	1	2	1	1	2	5	0	0	230
Hour Total	3	614	145	2	11	4	2	2	5	1	1	2	5	0	0	797
08:15	3	169	40	0	2	0	0	1	5	0	0	2	3	0	0	225
08:30	0	160	47	0	3	2	0	0	4	0	1	0	0	0	0	217
08:45	0	135	21	0	3	1	0	0	0	0	0	1	0	0	0	161
09:00	0	124	31	0	1	0	0	2	7	0	0	0	0	0	0	165

Station #: Site A
Site ID: 000000009354
Location: Rt. 29 NB to US 501/Candlers Mtn Rd WB
Direction: NORTH
Lane: 1

File: Rd.prn
City: 15-220 RS Max
County: 37.37318, -79.16660

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
Hour Total	3	588	139	0	9	3	0	3	16	0	1	3	3	0	0	768
09:15	0	80	14	0	3	4	0	3	1	0	0	0	0	0	0	105
09:30	0	86	21	0	2	0	0	2	0	0	0	0	0	0	0	111
09:45	0	90	16	0	5	0	0	1	3	0	0	0	0	0	0	115
10:00	0	72	21	0	0	1	1	0	2	1	0	0	0	0	0	98
Hour Total	0	328	72	0	10	5	1	6	6	1	0	0	0	0	0	429
10:15	0	61	18	0	2	1	0	2	4	0	0	0	0	0	0	88
10:30	0	65	11	0	4	0	0	3	2	1	0	0	0	0	0	86
10:45	0	60	17	0	2	1	0	2	2	0	0	0	0	0	0	84
11:00	0	66	14	0	2	2	0	4	2	0	0	0	0	0	0	90
Hour Total	0	252	60	0	10	4	0	11	10	1	0	0	0	0	0	348
11:15	0	62	16	0	4	1	0	1	3	0	0	0	0	0	0	87
11:30	0	52	17	1	3	1	0	2	2	0	0	0	0	0	0	78
11:45	0	66	17	0	4	0	0	0	2	0	0	0	0	0	0	89
12:00	0	68	18	0	5	2	0	1	2	0	0	0	0	0	0	96
Hour Total	0	248	68	1	16	4	0	4	9	0	0	0	0	0	0	350
12:15	2	64	23	0	1	4	0	2	2	0	0	0	0	0	0	98
12:30	1	84	21	0	1	1	0	0	2	0	0	0	0	0	0	110
12:45	1	82	22	0	2	1	0	0	2	0	0	0	0	0	0	110
13:00	0	98	20	0	2	0	0	2	3	0	0	0	0	0	0	125
Hour Total	4	328	86	0	6	6	0	4	9	0	0	0	0	0	0	443
13:15	0	67	33	0	1	3	1	3	1	1	0	0	0	0	0	110
13:30	0	79	19	0	3	1	0	2	2	0	0	0	0	0	0	106
13:45	0	81	20	0	4	0	1	3	6	0	0	0	0	0	0	115
14:00	0	85	22	0	5	0	0	1	1	1	0	0	2	0	0	117
Hour Total	0	312	94	0	13	4	2	9	10	2	0	0	2	0	0	448
14:15	0	79	20	0	4	3	0	3	4	0	0	0	0	0	0	113
14:30	0	91	16	0	1	1	0	2	1	0	0	0	0	0	0	112
14:45	2	78	28	1	3	2	0	4	3	0	0	0	0	0	0	121
15:00	0	84	31	0	4	0	0	0	3	0	0	0	0	0	0	122
Hour Total	2	332	95	1	12	6	0	9	11	0	0	0	0	0	0	468
15:15	2	76	18	1	0	1	0	3	2	0	0	0	0	0	0	103
15:30	1	72	25	0	4	1	0	0	4	0	0	0	0	0	0	107
15:45	1	111	22	1	0	1	0	1	2	0	0	0	0	0	0	139
16:00	1	83	24	0	1	0	1	0	2	0	0	0	0	0	0	112
Hour Total	5	342	89	2	5	3	1	4	10	0	0	0	0	0	0	461
16:15	0	79	22	0	1	2	0	2	1	0	0	0	0	0	0	107
16:30	0	79	20	1	1	0	0	2	0	0	0	1	0	0	0	104
16:45	0	97	29	0	3	1	0	1	0	0	0	0	0	0	0	131
17:00	0	106	23	1	1	0	0	0	1	0	0	0	0	0	0	132
Hour Total	0	361	94	2	6	3	0	5	2	0	0	1	0	0	0	474

Station #: Site A
Site ID: 000000009354
Location: Rt. 29 NB to US 501/Candlers Mtn Rd WB
Direction: NORTH
Lane: 1

File: Rd.prn
City: 15-220 RS Max
County: 37.37318, -79.16660

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
17:15	0	92	26	0	0	2	0	1	1	0	0	0	0	0	0	122
17:30	1	96	18	0	1	0	0	0	1	0	0	0	0	0	0	117
17:45	1	101	23	0	1	0	0	1	3	0	0	0	0	0	0	130
18:00	0	96	26	0	1	0	0	3	1	0	0	0	0	0	0	127
Hour Total	2	385	93	0	3	2	0	5	6	0	0	0	0	0	0	496
18:15	2	105	13	0	0	1	0	0	2	0	0	0	0	0	0	123
18:30	0	88	15	0	2	1	0	2	2	0	0	0	0	0	0	110
18:45	2	86	24	0	0	0	0	1	0	0	0	0	0	0	0	113
19:00	1	87	12	0	0	0	0	1	1	0	0	0	0	0	0	102
Hour Total	5	366	64	0	2	2	0	4	5	0	0	0	0	0	0	448
19:15	1	72	22	0	1	0	0	0	2	0	0	0	0	0	0	98
19:30	1	68	11	0	2	0	0	1	0	0	0	0	0	0	0	83
19:45	0	61	15	0	0	0	0	0	1	0	0	0	0	0	0	77
20:00	0	54	14	0	0	2	0	0	0	0	0	0	0	0	0	70
Hour Total	2	255	62	0	3	2	0	1	3	0	0	0	0	0	0	328
20:15	0	60	15	0	1	0	0	1	1	0	0	0	0	0	0	78
20:30	0	44	7	0	1	0	0	0	3	0	0	0	0	0	0	55
20:45	0	61	8	0	0	0	0	0	0	0	0	0	0	0	0	69
21:00	0	60	8	0	0	0	0	0	1	0	0	0	0	0	0	69
Hour Total	0	225	38	0	2	0	0	1	5	0	0	0	0	0	0	271
21:15	0	50	5	0	0	0	0	0	3	0	0	0	0	0	0	58
21:30	0	43	5	0	0	0	0	0	0	0	0	0	0	0	0	48
21:45	0	36	6	0	0	0	0	0	3	0	1	0	0	0	0	46
22:00	0	37	8	1	0	0	0	0	2	0	0	0	0	0	0	48
Hour Total	0	166	24	1	0	0	0	0	8	0	1	0	0	0	0	200
22:15	0	40	2	0	0	0	0	0	1	0	0	0	0	0	0	43
22:30	0	35	9	0	0	0	0	0	1	0	0	0	0	0	0	45
22:45	0	41	5	0	1	0	0	1	0	0	0	0	0	0	0	48
23:00	0	26	4	0	0	0	0	0	0	0	0	0	0	0	0	30
Hour Total	0	142	20	0	1	0	0	1	2	0	0	0	0	0	0	166
23:15	0	16	4	0	0	0	0	1	0	0	0	1	0	0	0	22
23:30	0	12	3	0	0	0	0	0	1	0	1	0	0	0	0	17
23:45	1	22	2	0	1	0	0	1	0	0	0	0	0	0	0	27
24:00	0	19	1	0	0	0	0	1	0	0	0	0	0	0	0	21
Hour Total	1	69	10	0	1	0	0	3	1	0	1	1	0	0	0	87
DAY TOTAL	28	5923	1455	11	120	55	6	84	143	8	10	7	11	0	0	7861
PERCENTS	0.4%	75.4%	18.6%	0.2%	1.6%	0.7%	0.0%	1.0%	1.8%	0.1%	0.1%	0.0%	0.1%	0.0%	0.0%	100%
Passenger Vehicles	94.2%									Trucks & Buses	5.7%					
AM Times	07:30	07:45	07:45	07:00	11:15	08:30	07:15	10:15	08:15	09:45	02:30	08:00	07:30			07:45
AM Peaks	6	691	162	3	16	7	2	11	16	2	2	5	8			904
PM Times	14:45	17:30	14:45	14:30	13:30	12:15	13:00	13:00	13:30	13:15	21:00	15:45	13:15			16:45
PM Peaks	5	398	102	2	16	6	2	10	13	2	1	1	2			502
GRAND TOTAL	54	11450	2861	19	232	121	24	157	284	13	23	10	23	0	0	15271
PERCENTS	0.4%	75.0%	18.8%	0.2%	1.6%	0.8%	0.2%	1.0%	1.8%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	100%

Station #: Site B
Site ID: 000000003808
Location: Rt. 29 SB to US 501/Candlers Mtn Rd WB
Direction: SOUTH
Lane: 1

File: Rd.prn
City: 15-220 RS Max
County: 37.36318, -79.16660

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
00:15	0	11	2	0	0	0	0	0	0	0	0	0	0	0	0	13
00:30	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	5
00:45	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	4
01:00	0	4	0	0	0	0	0	2	0	0	0	0	0	0	0	6
Hour Total	0	21	5	0	0	0	0	2	0	0	0	0	0	0	0	28
01:15	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	6
01:30	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
01:45	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
02:00	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	5
Hour Total	0	8	7	0	0	0	0	0	0	0	0	0	0	0	0	15
02:15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
02:30	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	3
02:45	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4
03:00	0	5	3	0	0	0	0	1	0	0	0	0	0	0	0	9
Hour Total	0	11	3	0	0	0	0	1	1	0	0	1	0	0	0	17
03:15	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
03:30	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	3
03:45	0	0	2	0	0	0	0	1	1	0	1	0	0	0	0	5
04:00	1	3	2	0	0	0	0	0	2	0	0	0	0	0	0	8
Hour Total	1	6	6	0	0	0	0	1	3	0	1	0	0	0	0	18
04:15	0	2	0	0	0	1	0	0	0	0	2	0	0	0	0	5
04:30	0	9	4	0	0	1	0	0	1	0	1	0	0	0	0	16
04:45	1	13	9	0	0	1	0	0	0	0	0	0	0	0	0	24
05:00	1	21	7	0	0	0	0	1	1	0	0	0	0	0	0	31
Hour Total	2	45	20	0	0	3	0	1	2	0	3	0	0	0	0	76
05:15	0	12	3	0	0	0	0	0	0	0	0	0	0	0	0	15
05:30	0	28	12	0	0	0	0	1	3	0	0	1	0	0	0	45
05:45	1	41	20	0	0	3	0	0	0	0	0	0	0	0	0	65
06:00	1	57	27	0	1	0	0	0	0	0	1	1	0	0	0	88
Hour Total	2	138	62	0	1	3	0	1	3	0	1	2	0	0	0	213
06:15	0	59	20	0	0	0	0	2	1	0	1	0	0	0	0	83
06:30	0	80	26	0	0	0	0	0	2	0	0	0	0	0	0	108
06:45	0	95	37	0	2	1	0	1	1	0	0	0	0	0	0	137
07:00	0	107	58	0	3	1	0	0	5	1	1	0	0	0	0	176
Hour Total	0	341	141	0	5	2	0	3	9	1	2	0	0	0	0	504
07:15	1	80	45	0	2	0	0	0	2	0	0	0	0	0	0	130
07:30	2	120	40	0	3	0	0	0	4	0	0	0	0	0	0	169
07:45	3	145	36	1	5	0	0	2	4	0	0	0	0	0	0	196
08:00	3	113	47	0	5	0	1	2	2	0	0	2	0	0	0	175
Hour Total	9	458	168	1	15	0	1	4	12	0	0	2	0	0	0	670
08:15	0	94	38	0	2	0	0	0	3	0	0	0	1	0	0	138
08:30	0	88	30	0	0	1	0	2	4	0	0	0	0	0	0	125
08:45	0	81	31	0	2	1	1	2	1	0	0	0	0	0	0	119
09:00	0	112	31	0	2	1	0	1	5	1	0	0	0	0	0	153

Station #: Site B
Site ID: 000000003808
Location: Rt. 29 SB to US 501/Candlers Mtn Rd WB
Direction: SOUTH
Lane: 1

File: Rd.prn
City: 15-220 RS Max
County: 37.36318, -79.16660

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
Hour Total	0	375	130	0	6	3	1	5	13	1	0	0	1	0	0	535
09:15	0	74	24	0	5	2	0	1	4	0	1	0	0	0	0	111
09:30	0	53	24	1	1	0	0	0	2	1	0	0	0	0	0	82
09:45	1	69	23	1	1	0	0	0	4	0	0	0	0	0	0	99
10:00	0	73	34	1	1	1	0	0	1	0	0	0	0	0	0	111
Hour Total	1	269	105	3	8	3	0	1	11	1	1	0	0	0	0	403
10:15	0	53	19	1	2	1	0	0	4	0	0	0	0	0	0	80
10:30	0	56	22	0	1	1	0	2	3	0	0	0	0	0	0	85
10:45	0	63	24	0	3	1	0	0	9	0	0	0	0	0	0	100
11:00	1	61	15	0	2	1	0	3	6	0	0	0	0	0	0	89
Hour Total	1	233	80	1	8	4	0	5	22	0	0	0	0	0	0	354
11:15	0	54	25	0	3	0	0	2	8	0	0	0	0	0	0	92
11:30	0	60	28	0	4	1	0	1	4	0	0	0	0	0	0	98
11:45	0	51	25	1	0	0	0	1	0	0	0	0	0	0	0	78
12:00	0	68	18	1	2	0	0	1	2	0	0	0	0	0	0	92
Hour Total	0	233	96	2	9	1	0	5	14	0	0	0	0	0	0	360
12:15	0	52	21	0	2	1	0	0	2	1	0	0	0	0	0	79
12:30	0	57	20	1	0	1	0	1	2	0	0	0	0	0	0	82
12:45	0	58	13	0	1	0	0	2	4	0	0	0	0	0	0	78
13:00	0	58	28	0	1	0	0	2	5	0	0	0	0	0	0	94
Hour Total	0	225	82	1	4	2	0	5	13	1	0	0	0	0	0	333
13:15	1	64	18	0	0	0	0	0	2	0	0	0	0	0	0	85
13:30	0	68	25	0	0	0	0	1	3	0	0	0	0	0	0	97
13:45	1	65	30	0	2	1	0	2	4	0	0	0	0	0	0	105
14:00	1	76	24	0	1	0	0	1	3	0	0	0	0	0	0	106
Hour Total	3	273	97	0	3	1	0	4	12	0	0	0	0	0	0	393
14:15	0	64	27	1	5	3	0	3	8	0	0	0	0	0	0	111
14:30	0	67	21	0	1	0	0	2	3	0	0	0	0	0	0	94
14:45	0	60	25	0	3	0	0	1	1	0	1	0	0	0	0	91
15:00	0	73	34	1	4	0	0	0	5	0	0	0	0	0	0	117
Hour Total	0	264	107	2	13	3	0	6	17	0	1	0	0	0	0	413
15:15	0	65	31	0	2	1	0	1	8	0	0	0	0	0	0	108
15:30	1	70	38	1	2	2	0	0	1	1	0	0	0	0	0	116
15:45	1	74	26	0	4	0	0	0	3	1	0	0	0	0	0	109
16:00	0	65	27	0	3	1	1	0	4	0	1	0	0	0	0	102
Hour Total	2	274	122	1	11	4	1	1	16	2	1	0	0	0	0	435
16:15	1	78	27	0	1	2	0	0	3	0	0	0	0	0	0	112
16:30	0	78	22	0	4	0	0	1	1	0	0	0	0	0	0	106
16:45	0	76	25	0	1	0	0	0	5	0	0	0	0	0	0	107
17:00	0	78	37	0	2	1	0	1	4	0	0	0	1	0	0	124
Hour Total	1	310	111	0	8	3	0	2	13	0	0	0	1	0	0	449

Station #: Site B
Site ID: 000000003808
Location: Rt. 29 SB to US 501/Candlers Mtn Rd WB
Direction: SOUTH
Lane: 1

File: Rd.prn
City: 15-220 RS Max
County: 37.36318, -79.16660

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
17:15	0	85	19	0	3	1	0	1	1	0	0	0	0	0	0	110
17:30	1	93	35	2	2	1	0	1	2	0	0	0	0	0	0	137
17:45	1	92	35	0	1	0	2	0	2	0	0	0	0	0	0	133
18:00	0	93	32	0	2	0	0	1	2	0	0	0	0	0	0	130
Hour Total	2	363	121	2	8	2	2	3	7	0	0	0	0	0	0	510
18:15	0	59	14	0	2	0	0	2	1	0	0	0	0	0	0	78
18:30	1	50	22	1	4	0	0	2	1	0	0	0	0	0	0	81
18:45	0	49	13	0	0	1	0	0	2	0	0	0	0	0	0	65
19:00	0	57	13	1	1	0	0	0	1	0	0	0	0	0	0	73
Hour Total	1	215	62	2	7	1	0	4	5	0	0	0	0	0	0	297
19:15	0	54	17	0	0	0	0	0	0	0	0	0	0	0	0	71
19:30	0	68	29	0	0	1	0	1	0	0	0	0	0	0	0	99
19:45	0	42	16	0	0	1	0	1	1	0	0	0	0	0	0	61
20:00	0	26	9	0	1	0	0	0	1	0	0	0	0	0	0	37
Hour Total	0	190	71	0	1	2	0	2	2	0	0	0	0	0	0	268
20:15	0	28	9	0	1	0	0	0	2	0	0	0	0	0	0	40
20:30	0	37	7	0	0	0	0	1	1	0	0	0	0	0	0	46
20:45	0	25	8	0	0	0	0	0	0	0	0	0	0	0	0	33
21:00	0	24	9	0	0	0	0	1	0	0	0	0	0	0	0	34
Hour Total	0	114	33	0	1	0	0	2	3	0	0	0	0	0	0	153
21:15	0	15	7	0	0	0	0	0	2	0	0	0	0	0	0	24
21:30	0	23	6	0	0	0	0	0	0	0	0	0	0	0	0	29
21:45	0	31	6	0	0	0	0	1	0	0	0	0	0	0	0	38
22:00	0	30	6	0	0	0	0	0	2	0	0	0	0	0	0	38
Hour Total	0	99	25	0	0	0	0	1	4	0	0	0	0	0	0	129
22:15	0	25	8	0	0	0	0	0	1	0	0	0	0	0	0	34
22:30	0	17	13	0	0	0	0	2	0	0	0	0	0	0	0	32
22:45	0	28	6	0	0	0	0	1	1	0	0	1	0	0	0	37
23:00	0	19	5	0	0	0	0	0	0	0	0	0	0	0	0	24
Hour Total	0	89	32	0	0	0	0	3	2	0	0	1	0	0	0	127
23:15	0	11	6	0	0	0	0	0	1	0	0	0	0	0	0	18
23:30	0	21	3	0	0	1	0	2	1	0	2	0	0	0	0	30
23:45	0	12	7	0	0	0	0	0	0	0	0	1	0	0	0	20
24:00	0	9	3	0	0	0	0	0	0	0	0	0	0	0	0	12
Hour Total	0	53	19	0	0	1	0	2	2	0	3	0	0	0	0	80
DAY TOTAL	25	4607	1705	15	108	38	5	64	186	6	13	6	2	0	0	6780
PERCENTS	0.4%	68.0%	25.2%	0.3%	1.6%	0.6%	0.1%	1.0%	2.7%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	100%

Passenger Vehicles 93.4% Trucks & Buses 6.5%

AM Times	07:15	07:30	06:45	09:30	07:15	08:30	08:00	10:30	10:45	08:45	03:45	05:15	07:30		07:30
AM Peaks	9	472	180	4	15	5	2	7	27	2	4	2	1		678
PM Times	13:15	17:15	15:00	14:15	14:15	15:30	17:00	13:45	13:30	15:00	23:00	22:00	16:15		17:15
PM Peaks	3	363	129	2	13	5	2	8	18	2	3	1	1		510

Station #: Site B
Site ID: 000000003808
Location: Rt. 29 SB to US 501/Candlers Mtn Rd WB
Direction: SOUTH
Lane: 1

File: Rd.prn
City: 15-220 RS Max
County: 37.36318, -79.16660

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
00:15	0	8	0	0	0	0	0	0	1	0	0	0	0	0	0	9
00:30	0	8	3	0	0	0	0	0	0	0	0	0	0	0	0	11
00:45	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6
01:00	0	3	4	0	0	0	0	2	0	0	0	0	0	0	0	9
Hour Total	0	25	7	0	0	0	0	2	1	0	0	0	0	0	0	35
01:15	0	5	3	0	0	0	0	2	0	0	0	0	0	0	0	10
01:30	0	4	0	0	0	0	0	1	0	0	0	0	0	0	0	5
01:45	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
02:00	0	3	0	0	0	0	0	0	2	0	0	0	0	0	0	5
Hour Total	0	14	3	0	0	0	0	3	2	0	0	0	0	0	0	22
02:15	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
02:30	0	4	2	0	0	1	0	0	1	0	0	0	0	0	0	8
02:45	0	3	0	0	0	0	0	1	1	0	0	0	0	0	0	5
03:00	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	5
Hour Total	0	10	5	0	0	1	0	1	2	0	0	0	0	0	0	19
03:15	0	4	3	0	0	0	0	0	0	0	0	0	0	0	0	7
03:30	0	7	2	0	0	0	0	0	1	0	0	0	0	0	0	10
03:45	0	3	1	0	0	0	0	0	1	0	0	0	0	0	0	5
04:00	0	3	2	0	0	0	0	1	0	0	0	0	0	0	0	6
Hour Total	0	17	8	0	0	0	0	1	2	0	0	0	0	0	0	28
04:15	0	2	3	0	0	1	0	2	1	0	0	0	0	0	0	9
04:30	0	6	2	0	0	1	0	0	1	0	1	0	0	0	0	11
04:45	0	14	9	0	0	0	0	0	0	0	0	1	0	0	0	24
05:00	1	14	6	0	1	1	0	1	2	0	0	0	0	0	0	26
Hour Total	1	36	20	0	1	3	0	3	4	0	1	1	0	0	0	70
05:15	0	12	7	0	0	0	0	0	0	0	0	2	0	0	0	21
05:30	0	29	10	0	0	1	0	1	1	0	0	0	0	0	0	42
05:45	0	40	29	0	0	1	0	0	4	0	0	0	0	0	0	74
06:00	0	62	31	0	1	1	0	0	0	0	1	0	0	0	0	96
Hour Total	0	143	77	0	1	3	0	1	5	0	1	2	0	0	0	233
06:15	0	64	18	0	0	1	0	0	2	0	1	0	0	0	0	86
06:30	0	84	25	0	3	1	0	0	1	0	0	0	0	0	0	114
06:45	1	120	46	0	1	2	0	1	2	0	0	0	0	0	0	173
07:00	1	95	58	0	1	2	0	0	3	0	1	0	0	0	0	161
Hour Total	2	363	147	0	5	6	0	1	8	0	2	0	0	0	0	534
07:15	0	85	31	0	1	2	0	0	0	0	0	0	0	0	0	119
07:30	0	115	35	0	2	0	0	0	2	0	0	0	0	0	0	154
07:45	0	130	43	0	5	0	0	0	2	1	0	0	0	0	0	181
08:00	5	137	46	1	3	1	0	1	5	0	0	1	1	0	0	201
Hour Total	5	467	155	1	11	3	0	3	8	0	0	1	1	0	0	655
08:15	1	67	40	0	2	0	0	1	2	1	0	0	0	0	0	114
08:30	0	91	30	0	2	0	0	0	6	0	0	0	0	0	0	129
08:45	0	86	28	0	3	2	0	0	4	2	0	0	0	0	0	125
09:00	0	88	34	0	1	1	0	0	4	0	0	0	0	0	0	128

Station #: Site B
Site ID: 000000003808
Location: Rt. 29 SB to US 501/Candlers Mtn Rd WB
Direction: SOUTH
Lane: 1

File: Rd.prn
City: 15-220 RS Max
County: 37.36318, -79.16660

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
Hour Total	1	332	132	0	8	3	0	1	16	3	0	0	0	0	0	496
09:15	0	78	33	0	2	0	0	0	3	0	0	0	0	0	0	116
09:30	1	55	22	0	3	2	0	0	6	0	0	0	0	0	0	89
09:45	0	71	16	0	2	1	0	0	4	0	0	0	0	0	0	94
10:00	0	58	28	0	1	1	0	0	3	0	0	0	0	0	0	91
Hour Total	1	262	99	0	8	4	0	0	16	0	0	0	0	0	0	390
10:15	0	62	20	0	1	2	1	0	1	0	0	1	0	0	0	88
10:30	0	75	23	0	4	0	0	1	4	0	0	0	0	0	0	107
10:45	0	68	33	0	1	1	1	0	5	0	0	0	0	0	0	109
11:00	0	62	17	1	5	0	0	1	4	0	1	0	0	0	0	91
Hour Total	0	267	93	1	11	3	2	2	14	0	1	1	0	0	0	395
11:15	0	63	27	1	2	0	0	5	5	0	0	0	0	0	0	103
11:30	0	75	32	0	2	0	0	2	1	0	0	0	0	0	0	112
11:45	0	63	21	1	3	0	1	0	4	0	0	0	0	0	0	93
12:00	0	68	29	0	2	0	0	2	5	0	0	1	0	0	0	107
Hour Total	0	269	109	2	9	0	1	9	15	0	0	1	0	0	0	415
12:15	0	58	23	0	1	1	0	2	3	0	1	0	0	0	0	89
12:30	1	51	17	0	1	1	0	0	4	0	0	0	0	0	0	75
12:45	0	62	21	0	6	0	0	1	3	0	0	0	0	0	0	93
13:00	0	54	23	0	3	0	0	1	8	0	0	0	0	0	0	89
Hour Total	1	225	84	0	11	2	0	4	18	0	1	0	0	0	0	346
13:15	0	56	22	0	1	1	0	2	6	0	0	0	0	0	0	88
13:30	0	70	23	0	0	1	0	0	5	0	0	0	0	0	0	99
13:45	0	66	31	0	1	0	0	0	2	0	0	0	0	0	0	100
14:00	1	81	33	1	2	1	0	3	4	0	0	0	0	0	0	126
Hour Total	1	273	109	1	4	3	0	5	17	0	0	0	0	0	0	413
14:15	0	58	23	0	2	0	0	3	5	0	0	0	0	0	0	91
14:30	0	77	32	2	3	0	0	1	3	0	0	0	0	0	0	118
14:45	1	76	40	0	2	1	0	4	2	0	0	0	0	0	0	126
15:00	0	82	28	0	5	2	0	1	6	1	0	0	0	0	0	125
Hour Total	1	293	123	2	12	3	0	9	16	1	0	0	0	0	0	460
15:15	0	82	31	0	3	0	0	0	5	0	0	0	0	0	0	121
15:30	1	78	21	1	1	0	0	5	2	0	0	0	0	0	0	109
15:45	0	70	38	0	3	1	0	0	3	0	0	0	0	0	0	115
16:00	1	81	25	1	1	1	0	2	4	0	0	0	0	0	0	116
Hour Total	2	311	115	2	8	2	0	7	14	0	0	0	0	0	0	461
16:15	0	72	29	0	0	1	0	0	1	0	0	0	0	0	0	103
16:30	0	73	29	1	1	1	0	0	3	0	0	0	0	0	0	108
16:45	0	76	24	2	2	0	0	1	0	0	0	0	0	0	0	105
17:00	0	84	28	0	2	1	0	1	4	0	0	0	0	0	0	120
Hour Total	0	305	110	3	5	3	0	2	8	0	0	0	0	0	0	436

Station #: Site B
Site ID: 000000003808
Location: Rt. 29 SB to US 501/Candlers Mtn Rd WB
Direction: SOUTH
Lane: 1

File: Rd.prn
City: 15-220 RS Max
County: 37.36318, -79.16660

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
17:15	0	88	24	1	1	0	0	0	0	0	0	0	0	0	0	114
17:30	1	97	32	0	1	0	0	1	2	0	0	0	0	0	0	134
17:45	0	107	27	1	1	0	0	1	1	0	0	0	0	0	0	138
18:00	0	95	33	0	1	0	0	1	1	0	1	0	0	0	0	132
Hour Total	1	387	116	2	4	0	0	3	4	0	1	0	0	0	0	518
18:15	0	62	23	0	2	0	0	0	2	0	0	0	1	0	0	90
18:30	0	61	14	0	2	0	0	1	2	0	0	0	0	0	0	80
18:45	1	66	27	0	1	0	0	0	2	0	0	0	0	0	0	97
19:00	0	42	17	1	1	0	0	0	1	0	0	0	0	0	0	62
Hour Total	1	231	81	1	6	0	0	1	7	0	0	0	1	0	0	329
19:15	0	46	28	1	0	1	0	0	1	0	0	0	0	0	0	77
19:30	1	81	23	0	2	1	0	0	1	0	0	0	0	0	0	109
19:45	0	57	14	0	1	0	0	1	0	0	0	0	0	0	0	73
20:00	0	31	10	0	1	0	0	0	1	0	0	0	0	0	0	43
Hour Total	1	215	75	1	4	2	0	1	3	0	0	0	0	0	0	302
20:15	0	32	11	1	1	0	0	0	1	0	0	0	0	0	0	46
20:30	0	39	12	0	0	0	0	1	2	0	0	0	0	0	0	54
20:45	0	38	9	0	1	0	0	0	3	0	0	0	0	0	0	51
21:00	0	39	11	0	1	0	0	0	0	0	0	0	0	0	0	51
Hour Total	0	148	43	1	3	0	0	1	6	0	0	0	0	0	0	202
21:15	0	28	13	0	2	0	0	1	1	0	0	0	0	0	0	45
21:30	0	32	16	0	2	0	0	0	0	0	0	0	0	0	0	50
21:45	0	39	6	0	4	0	0	0	0	0	0	0	0	0	0	49
22:00	0	41	8	0	0	0	0	0	1	0	0	0	0	0	0	50
Hour Total	0	140	43	0	8	0	0	1	2	0	0	0	0	0	0	194
22:15	0	39	7	0	0	0	0	1	0	0	1	0	0	0	0	48
22:30	0	31	16	0	0	0	0	1	0	0	0	0	0	0	0	48
22:45	0	41	6	0	0	0	0	1	0	0	0	0	0	0	0	48
23:00	0	27	6	0	0	0	0	0	0	0	0	0	0	0	0	33
Hour Total	0	138	35	0	0	0	0	3	0	0	1	0	0	0	0	177
23:15	0	19	7	0	0	0	0	0	0	0	0	0	0	0	0	26
23:30	0	26	4	0	0	0	0	0	1	0	1	0	0	0	0	32
23:45	0	18	5	0	0	0	0	0	0	0	0	0	0	0	0	23
24:00	0	8	2	0	0	1	0	0	1	0	0	1	0	0	0	13
Hour Total	0	71	18	0	0	1	0	0	2	0	1	1	0	0	0	94
DAY TOTAL	18	4942	1807	17	119	42	3	64	190	4	9	7	2	0	0	7224
PERCENTS	0.3%	68.5%	25.1%	0.3%	1.7%	0.6%	0.0%	0.8%	2.6%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	100%
Passenger Vehicles	93.6%								Trucks & Buses	6.3%						
AM Times	07:30	07:15	06:45	11:00	07:30	06:30	10:00	11:15	10:30	08:00	05:30	04:30	07:15			07:15
AM Peaks	6	467	170	3	12	7	2	9	18	3	2	3	1			655
PM Times	14:00	17:15	14:30	16:00	14:30	15:45		14:00	12:45	14:15	12:15	23:15	17:30			17:15
PM Peaks	2	387	131	4	13	4		11	22	1	1	1	1			518
GRAND TOTAL	43	9549	3512	32	227	80	8	128	376	10	22	13	4	0	0	14004
PERCENTS	0.4%	68.2%	25.1%	0.3%	1.7%	0.6%	0.1%	0.9%	2.6%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	100%

Station #: Site D
Site ID: 000000009350
Location: Candlers Mtn to US 501/Candlers Mtn WB
Direction: WEST
Lane: 1

File: WB.prn
City: 15-220 RS Max
County: 37.36298, -77.17058

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
00:15	0	13	3	0	0	0	0	0	0	0	0	0	0	0	0	16
00:30	0	9	1	0	0	0	0	0	0	0	0	0	0	0	0	10
00:45	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7
01:00	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0	4
Hour Total	0	32	4	1	0	0	0	0	0	0	0	0	0	0	0	37
01:15	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7
01:30	0	5	1	0	0	0	0	0	0	0	0	0	0	0	0	6
01:45	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	3
02:00	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0	4
Hour Total	0	17	2	1	0	0	0	0	0	0	0	0	0	0	0	20
02:15	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
02:30	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
02:45	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Hour Total	0	3	1	1	0	0	0	0	0	0	0	0	0	0	0	5
03:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Hour Total	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
04:15	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
04:30	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	4
04:45	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:00	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	4
Hour Total	0	9	2	0	1	0	0	0	0	0	0	0	0	0	0	12
05:15	0	6	1	0	0	1	0	0	0	0	0	0	0	0	0	8
05:30	0	8	2	0	0	0	0	0	0	0	0	0	0	0	0	10
05:45	0	16	2	0	0	0	0	0	0	0	0	0	0	0	0	18
06:00	0	12	6	0	1	0	0	0	0	0	0	0	0	0	0	19
Hour Total	0	42	11	0	1	1	0	0	0	0	0	0	0	0	0	55
06:15	0	11	7	0	1	1	0	0	0	0	0	0	0	0	0	20
06:30	0	18	5	0	0	0	0	0	0	0	0	0	0	0	0	23
06:45	0	31	9	0	0	0	0	0	0	0	0	0	0	0	0	40
07:00	0	22	8	0	0	0	0	0	0	0	0	0	0	0	0	30
Hour Total	0	82	29	0	1	1	0	0	0	0	0	0	0	0	0	113
07:15	0	36	6	0	1	0	0	0	1	0	0	0	0	0	0	44
07:30	0	52	7	0	0	0	0	1	0	0	0	0	0	0	0	60
07:45	0	89	17	0	0	0	0	1	0	0	0	0	0	0	0	107
08:00	0	90	25	0	1	0	0	0	0	0	0	0	0	0	0	116
Hour Total	0	267	55	0	2	0	0	2	1	0	0	0	0	0	0	327
08:15	0	125	21	0	2	0	0	0	0	0	0	0	0	0	0	148
08:30	0	80	15	0	0	0	0	0	0	0	0	0	0	0	0	95
08:45	0	47	11	0	1	0	0	1	0	0	0	0	0	0	0	60
09:00	0	48	18	0	0	0	0	0	0	0	0	0	0	0	0	66

Station #: Site D
Site ID: 000000009350
Location: Candlers Mtn to US 501/Candlers Mtn WB
Direction: WEST
Lane: 1

File: WB.prn
City: 15-220 RS Max
County: 37.36298, -77.17058

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
Hour Total	0	300	65	0	3	0	0	1	0	0	0	0	0	0	0	369
09:15	1	47	11	0	2	0	0	1	0	0	0	0	0	0	0	62
09:30	0	51	10	0	1	0	0	0	0	0	0	0	0	0	0	62
09:45	1	40	7	0	1	0	0	0	0	0	0	0	0	0	0	49
10:00	0	44	13	0	0	1	0	0	0	0	0	0	0	0	0	58
Hour Total	2	182	41	0	4	1	0	1	0	0	0	0	0	0	0	231
10:15	0	48	12	0	3	1	0	1	0	0	0	0	0	0	0	65
10:30	0	94	9	1	1	0	0	0	0	0	0	0	0	0	0	105
10:45	0	65	19	0	1	0	0	0	0	0	0	0	0	0	0	85
11:00	0	59	7	0	1	0	0	0	0	0	0	0	0	0	0	67
Hour Total	0	266	47	1	6	1	0	1	0	0	0	0	0	0	0	322
11:15	0	49	14	0	2	1	0	2	0	0	0	0	0	0	0	68
11:30	0	68	22	0	0	0	0	0	1	0	0	0	0	0	0	91
11:45	1	91	20	0	0	1	0	0	0	0	0	0	0	0	0	113
12:00	0	77	21	0	1	0	0	0	1	0	0	0	0	0	0	100
Hour Total	1	285	77	0	3	2	0	2	2	0	0	0	0	0	0	372
12:15	0	120	22	1	0	0	0	1	0	0	0	0	0	0	0	144
12:30	2	75	24	0	1	0	0	0	0	0	0	0	0	0	0	102
12:45	0	95	15	1	1	0	0	0	0	0	0	0	0	0	0	112
13:00	1	88	22	0	2	0	0	0	0	0	0	0	0	0	0	113
Hour Total	3	378	83	2	4	0	0	1	0	0	0	0	0	0	0	471
13:15	0	72	18	0	1	0	0	1	0	0	0	0	0	0	0	92
13:30	1	72	13	0	0	0	0	0	0	0	0	0	0	0	0	86
13:45	0	71	20	0	4	0	0	1	1	0	0	0	0	0	0	97
14:00	0	83	17	0	1	0	0	0	0	0	0	0	0	0	0	101
Hour Total	1	298	68	0	6	0	0	2	1	0	0	0	0	0	0	376
14:15	1	87	14	0	4	0	0	0	0	0	0	0	0	0	0	106
14:30	0	96	17	0	1	1	0	0	0	0	0	0	0	0	0	115
14:45	1	85	10	0	0	0	0	0	0	0	0	1	0	0	0	97
15:00	0	76	10	1	1	0	0	0	0	0	0	0	0	0	0	88
Hour Total	2	344	51	1	6	1	0	0	0	0	0	1	0	0	0	406
15:15	0	114	11	0	1	0	0	0	0	0	0	0	0	0	0	126
15:30	0	111	14	0	3	4	0	1	0	0	0	1	5	0	0	139
15:45	3	124	25	1	0	1	0	0	0	0	1	2	3	0	0	160
16:00	1	94	21	0	1	0	0	1	0	0	0	0	0	0	0	118
Hour Total	4	443	71	1	5	5	0	2	0	0	1	3	8	0	0	543
16:15	0	119	12	0	1	1	0	0	0	0	0	0	0	0	0	133
16:30	0	120	14	0	1	0	0	0	0	0	0	0	0	0	0	135
16:45	1	142	28	0	1	0	0	0	0	0	0	0	0	0	0	172
17:00	1	90	19	0	2	0	0	0	0	0	1	2	6	0	0	121
Hour Total	2	471	73	0	5	1	0	0	0	0	1	2	6	0	0	561

Station #: Site D
Site ID: 000000009350
Location: Candlers Mtn to US 501/Candlers Mtn WB
Direction: WEST
Lane: 1

File: WB.prn
City: 15-220 RS Max
County: 37.36298, -77.17058

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
17:15	5	64	10	0	1	0	0	1	0	0	1	2	7	0	0	91
17:30	3	124	16	0	0	0	0	1	1	0	0	2	3	0	0	150
17:45	1	136	23	0	0	0	0	0	0	0	0	0	0	0	0	160
18:00	2	103	13	0	0	0	0	0	0	0	0	0	0	0	0	118
Hour Total	11	427	62	0	1	0	0	2	1	0	1	4	10	0	0	519
18:15	1	114	16	0	0	0	0	1	0	0	0	0	0	0	0	132
18:30	0	106	14	0	3	0	0	0	0	0	0	0	0	0	0	123
18:45	1	110	11	1	1	0	0	0	0	0	0	0	0	0	0	124
19:00	1	101	18	0	1	0	0	0	0	0	0	0	0	0	0	121
Hour Total	3	431	59	1	5	0	0	1	0	0	0	0	0	0	0	500
19:15	0	116	11	0	0	0	0	0	0	0	0	0	0	0	0	127
19:30	0	112	14	0	2	0	0	0	0	0	0	0	0	0	0	128
19:45	0	105	15	0	0	0	0	0	0	0	0	0	0	0	0	120
20:00	0	114	10	0	0	0	0	0	0	0	0	0	0	0	0	124
Hour Total	0	447	50	0	2	0	0	0	0	0	0	0	0	0	0	499
20:15	1	78	9	0	0	0	0	0	0	0	0	0	0	0	0	88
20:30	1	70	8	0	2	0	0	0	0	0	0	0	0	0	0	81
20:45	0	62	16	0	0	0	0	0	0	0	0	0	0	0	0	78
21:00	0	74	6	1	0	0	0	0	0	0	0	0	0	0	0	81
Hour Total	2	284	39	1	2	0	0	0	0	0	0	0	0	0	0	328
21:15	1	79	10	0	0	0	0	0	0	0	0	0	0	0	0	90
21:30	1	48	7	0	1	0	0	0	0	0	0	0	0	0	0	57
21:45	0	38	7	0	0	0	0	0	0	0	0	0	0	0	0	45
22:00	0	30	3	1	0	0	0	0	0	0	0	0	0	0	0	34
Hour Total	2	195	27	1	1	0	0	0	0	0	0	0	0	0	0	226
22:15	0	45	2	1	2	0	0	1	0	0	0	0	0	0	0	51
22:30	0	36	0	0	2	0	0	0	0	0	0	0	0	0	0	38
22:45	0	24	2	0	0	0	0	0	0	0	0	0	0	0	0	26
23:00	1	24	4	0	0	0	0	0	0	0	0	0	0	0	0	29
Hour Total	1	129	8	1	4	0	0	1	0	0	0	0	0	0	0	144
23:15	0	21	3	0	0	0	0	0	0	0	0	0	0	0	0	24
23:30	0	17	2	0	0	0	0	0	0	0	0	0	0	0	0	19
23:45	0	18	1	0	0	0	0	0	0	0	0	0	0	0	0	19
24:00	0	11	4	0	0	0	0	0	0	0	0	0	0	0	0	15
Hour Total	0	67	10	0	0	0	0	0	0	0	0	0	0	0	0	77
DAY TOTAL	34	5402	935	12	62	13	0	16	5	0	3	10	24	0	0	6516
PERCENTS	0.6%	83.0%	14.4%	0.2%	1.0%	0.2%	0.0%	0.2%	0.0%	0.0%	0.0%	0.1%	0.3%	0.0%	0.0%	100%

Passenger Vehicles 97.7% Trucks & Buses 2.2%

AM Times	09:00	07:45	07:45	01:45	10:15	09:30		07:00	11:15							07:45
AM Peaks	2	384	78	2	6	2		2	2							466
PM Times	17:15	17:30	12:15	12:15	13:45	15:30		13:00	13:00		16:30	16:45	16:45			16:15
PM Peaks	11	477	83	2	10	6		2	1		2	6	16			561

Station #: Site D
Site ID: 000000009350
Location: Candlers Mtn to US 501/Candlers Mtn WB
Direction: WEST
Lane: 1

File: WB.prn
City: 15-220 RS Max
County: 37.36298, -77.17058

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
00:15	0	11	1	0	0	0	0	0	0	0	0	0	0	0	0	12
00:30	0	8	2	0	0	0	0	0	0	0	0	0	0	0	0	10
00:45	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	5
01:00	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	5
Hour Total	0	27	5	0	0	0	0	0	0	0	0	0	0	0	0	32
01:15	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	5
01:30	0	4	2	0	0	0	0	0	0	0	0	0	0	0	0	6
01:45	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	9
02:00	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Hour Total	0	22	3	0	0	0	0	0	0	0	0	0	0	0	0	25
02:15	0	11	1	0	0	0	0	0	0	0	0	0	0	0	0	12
02:30	0	4	0	1	0	0	0	0	0	0	0	0	0	0	0	5
02:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Hour Total	0	15	2	1	0	0	0	0	0	0	0	0	0	0	0	18
03:15	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
03:30	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	4
03:45	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Hour Total	0	7	0	0	0	2	0	0	0	0	0	0	0	0	0	9
04:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
04:45	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Hour Total	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	5
05:15	0	5	1	0	0	0	0	0	0	0	0	0	0	0	0	6
05:30	0	4	2	0	1	1	0	0	0	0	0	0	0	0	0	8
05:45	0	15	4	0	1	0	0	0	0	0	0	0	0	0	0	20
06:00	0	15	7	0	0	0	0	0	0	0	0	0	0	0	0	22
Hour Total	0	39	14	0	2	1	0	0	0	0	0	0	0	0	0	56
06:15	0	18	2	0	1	1	0	0	0	0	0	0	0	0	0	22
06:30	0	17	7	0	0	1	0	0	0	0	0	0	0	0	0	25
06:45	0	30	10	0	0	0	0	0	1	0	0	0	0	0	0	41
07:00	0	37	8	0	0	0	0	0	0	0	0	0	0	0	0	45
Hour Total	0	102	27	0	1	2	0	0	1	0	0	0	0	0	0	133
07:15	0	30	5	0	1	0	0	1	0	0	0	0	0	0	0	37
07:30	0	49	17	0	2	0	0	0	1	0	0	0	0	0	0	69
07:45	1	81	22	0	0	0	0	0	0	0	0	0	0	0	0	104
08:00	0	71	17	0	0	0	0	0	2	0	0	0	0	0	0	90
Hour Total	1	231	61	0	3	0	0	1	3	0	0	0	0	0	0	300
08:15	0	108	14	0	2	0	0	0	0	0	0	0	0	0	0	124
08:30	0	80	17	0	1	0	0	0	0	0	0	0	0	0	0	98
08:45	0	40	11	1	1	0	0	0	0	0	0	0	1	0	0	54
09:00	0	52	14	0	0	0	0	0	0	0	0	0	0	0	0	66

Station #: Site D
Site ID: 000000009350
Location: Candlers Mtn to US 501/Candlers Mtn WB
Direction: WEST
Lane: 1

File: WB.prn
City: 15-220 RS Max
County: 37.36298, -77.17058

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
Hour Total	0	280	56	1	4	0	0	0	0	0	0	1	0	0	0	342
09:15	0	54	17	0	1	0	0	0	0	0	0	0	0	0	0	72
09:30	0	47	19	0	2	0	0	0	0	0	0	0	0	0	0	68
09:45	0	35	13	0	0	0	0	0	0	1	0	0	0	0	0	49
10:00	0	57	15	0	0	0	0	0	2	0	0	0	0	0	0	74
Hour Total	0	193	64	0	3	0	0	0	2	1	0	0	0	0	0	263
10:15	0	60	10	0	1	1	0	0	0	0	0	0	0	0	0	72
10:30	0	56	13	0	0	1	0	0	0	0	0	0	0	0	0	70
10:45	0	56	15	0	1	0	0	0	0	0	0	0	0	0	0	72
11:00	1	74	19	0	1	0	0	0	0	0	0	0	0	0	0	95
Hour Total	1	246	57	0	3	2	0	0	0	0	0	0	0	0	0	309
11:15	1	72	15	0	3	0	0	0	0	0	0	0	0	0	0	91
11:30	1	90	16	0	2	0	0	2	0	0	0	0	0	0	0	111
11:45	0	89	17	0	0	0	0	0	0	0	0	0	0	0	0	106
12:00	2	103	15	1	1	1	0	0	2	0	0	0	0	0	0	125
Hour Total	4	354	63	1	6	1	0	2	2	0	0	0	0	0	0	433
12:15	1	117	24	0	0	0	0	0	0	0	0	0	0	0	0	142
12:30	0	84	18	0	1	0	0	0	0	0	0	0	0	0	0	103
12:45	0	104	20	0	1	0	0	0	0	0	0	0	0	0	0	125
13:00	0	113	14	1	0	0	0	0	0	0	0	0	0	0	0	128
Hour Total	1	418	76	1	2	0	0	0	0	0	0	0	0	0	0	498
13:15	1	81	17	0	1	0	0	0	0	0	0	0	0	0	0	100
13:30	1	100	12	0	1	0	0	0	0	0	0	0	0	0	0	114
13:45	1	75	11	0	1	1	0	0	0	0	0	0	1	0	0	90
14:00	0	93	14	0	2	0	0	0	0	0	0	0	0	0	0	109
Hour Total	3	349	54	0	5	1	0	0	0	0	0	0	1	0	0	413
14:15	0	101	14	0	0	0	0	0	1	0	0	0	0	0	0	116
14:30	1	111	13	1	1	0	0	0	0	0	0	0	0	0	0	127
14:45	1	85	14	1	2	0	0	0	0	0	0	0	0	0	0	103
15:00	0	86	11	0	0	0	0	0	0	0	0	0	0	0	0	97
Hour Total	2	383	52	2	3	0	0	0	1	0	0	0	0	0	0	443
15:15	0	119	13	0	2	0	0	0	0	0	0	0	0	0	0	134
15:30	0	147	28	0	2	1	0	0	0	0	0	0	1	0	0	179
15:45	0	113	33	0	0	0	0	0	0	0	0	1	1	0	0	148
16:00	3	58	16	0	4	0	0	2	0	1	0	4	3	0	0	91
Hour Total	3	437	90	0	8	1	0	2	0	1	0	5	5	0	0	552
16:15	0	106	11	1	0	0	0	0	0	0	0	0	0	0	0	118
16:30	1	120	21	0	1	0	0	1	1	0	0	0	0	0	0	145
16:45	0	142	14	1	0	0	0	0	0	0	0	1	0	0	0	158
17:00	0	129	17	0	0	0	0	0	0	0	0	0	0	0	0	146
Hour Total	1	497	63	2	1	0	0	1	1	0	0	1	0	0	0	567

Station #: Site D
Site ID: 000000009350
Location: Candlers Mtn to US 501/Candlers Mtn WB
Direction: WEST
Lane: 1

File: WB.prn
City: 15-220 RS Max
County: 37.36298, -77.17058

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
17:15	6	103	18	1	0	0	0	0	0	0	0	0	2	0	0	130
17:30	2	44	12	1	3	1	1	0	0	0	0	1	2	6	0	0	73
17:45	0	95	25	0	0	0	0	0	0	0	0	0	1	6	0	0	127
18:00	3	57	24	1	1	1	0	1	0	1	0	0	2	0	0	91
Hour Total	11	299	79	3	4	2	1	1	0	1	1	3	16	0	0	421
18:15	3	75	12	0	2	0	0	3	0	0	0	4	2	0	0	101
18:30	1	84	17	0	2	0	0	0	0	0	0	0	0	0	0	104
18:45	0	100	21	0	1	0	0	0	0	0	0	0	0	0	0	122
19:00	1	111	18	0	0	0	0	0	1	0	0	0	1	0	0	132
Hour Total	5	370	68	0	5	0	0	3	1	0	0	4	3	0	0	459
19:15	0	112	11	1	1	0	0	1	0	0	0	0	0	0	0	126
19:30	0	95	12	0	0	0	0	1	0	0	0	0	0	0	0	108
19:45	1	83	16	1	0	0	0	0	0	0	0	0	0	0	0	101
20:00	0	74	4	0	0	0	0	0	0	0	0	0	0	0	0	78
Hour Total	1	364	43	2	1	0	0	2	0	0	0	0	0	0	0	413
20:15	0	100	9	0	1	0	0	0	0	0	0	0	0	0	0	110
20:30	0	86	9	0	0	1	0	0	0	0	0	0	0	0	0	96
20:45	0	94	11	1	1	0	0	0	0	0	0	0	0	0	0	107
21:00	0	81	11	0	0	0	0	0	0	0	0	0	0	0	0	92
Hour Total	0	361	40	1	2	1	0	0	0	0	0	0	0	0	0	405
21:15	1	78	6	0	1	0	0	0	0	0	0	0	0	0	0	86
21:30	0	69	5	0	1	0	0	0	0	0	0	1	0	0	0	76
21:45	0	43	5	1	0	0	0	0	0	0	0	0	0	0	0	49
22:00	0	49	6	0	1	1	0	0	0	0	0	0	0	0	0	57
Hour Total	1	239	22	1	3	1	0	0	0	0	0	1	0	0	0	268
22:15	0	55	5	0	2	0	0	0	0	0	0	0	0	0	0	62
22:30	0	60	6	0	2	0	0	0	0	0	0	0	0	0	0	68
22:45	0	45	2	1	0	0	0	0	0	0	0	0	0	0	0	48
23:00	1	27	2	0	0	0	0	0	0	0	0	0	0	0	0	30
Hour Total	1	187	15	1	4	0	0	0	0	0	0	0	0	0	0	208
23:15	0	25	4	1	0	0	0	0	0	0	0	0	0	0	0	30
23:30	0	35	2	0	0	0	0	0	0	0	0	0	0	0	0	37
23:45	0	42	0	0	0	0	0	0	0	0	0	0	0	0	0	42
24:00	0	36	5	0	0	1	0	0	0	0	0	0	0	0	0	42
Hour Total	0	138	11	1	0	1	0	0	0	0	0	0	0	0	0	151
DAY TOTAL	35	5562	966	17	60	15	1	12	11	3	1	15	25	0	0	6723
PERCENTS	0.6%	82.8%	14.4%	0.3%	0.9%	0.3%	0.0%	0.1%	0.1%	0.0%	0.0%	0.2%	0.3%	0.0%	0.0%	100%
Passenger Vehicles	97.6%											Trucks & Buses	2.3%			
AM Times	11:15	11:15	07:30	01:45	10:45	02:45				10:45	07:15	09:00		08:00		11:15
AM Peaks	4	354	70	1	7	2				2	3	1		1		433
PM Times	17:15	16:15	15:15	16:45	15:15	17:15	16:45	17:30	13:30	15:15	16:45	17:30	17:15			16:30
PM Peaks	11	497	90	3	8	2	1	4	1	1	1	7	16			579
GRAND TOTAL	69	10964	1901	29	122	28	1	28	16	3	4	25	49	0	0	13239
PERCENTS	0.6%	82.9%	14.4%	0.3%	0.9%	0.2%	0.0%	0.2%	0.1%	0.0%	0.0%	0.1%	0.3%	0.0%	0.0%	100%

Station #: Site C
Site ID: 000000003610
Location: Candlers Mountain Rd. NB
Direction: NORTH
Lane: 1

File: NB.prn
City: 15-220 RS Max
County: 37.36413, -79.17152

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
00:15	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
00:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00:45	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
01:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Hour Total	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4
01:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
01:45	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Hour Total	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
02:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
02:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hour Total	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
03:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hour Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
04:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
Hour Total	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	4
05:15	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30	0	3	1	0	0	1	0	0	0	0	0	0	0	0	0	5
05:45	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
06:00	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	4
Hour Total	0	9	2	0	0	1	0	0	0	0	0	0	0	0	0	12
06:15	0	4	0	0	1	0	0	0	0	0	0	0	0	0	0	5
06:30	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	4
06:45	0	6	2	0	0	0	0	0	0	0	0	0	0	0	0	8
07:00	1	5	1	0	0	0	0	0	0	0	0	0	0	0	0	7
Hour Total	1	18	4	0	1	0	0	0	0	0	0	0	0	0	0	24
07:15	0	6	2	0	0	0	0	0	0	0	0	0	0	0	0	8
07:30	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	9
07:45	0	8	2	0	1	1	0	0	0	0	0	0	0	0	0	12
08:00	0	20	3	0	0	1	0	0	0	0	0	0	0	0	0	24
Hour Total	0	43	7	0	1	2	0	0	0	0	0	0	0	0	0	53
08:15	0	27	7	0	1	1	0	0	0	0	0	0	0	0	0	36
08:30	0	15	3	0	0	1	0	0	0	1	0	0	0	0	0	20
08:45	0	7	2	0	0	0	0	0	0	0	0	0	0	0	0	9
09:00	0	6	1	0	0	0	0	0	0	0	0	0	0	0	0	7

Station #: Site C
Site ID: 000000003610
Location: Candlers Mountain Rd. NB
Direction: NORTH
Lane: 1

File: NB.prn
City: 15-220 RS Max
County: 37.36413, -79.17152

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
Hour Total	0	55	13	0	1	2	0	0	0	1	0	0	0	0	0	72
09:15	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7
09:30	0	4	2	0	1	0	0	0	0	0	0	0	0	0	0	7
09:45	0	8	4	0	0	1	0	0	0	0	0	0	0	0	0	13
10:00	0	5	3	0	0	0	0	0	0	0	0	0	0	0	0	8
Hour Total	0	24	9	0	1	1	0	0	0	0	0	0	0	0	0	35
10:15	0	8	2	0	0	0	0	0	0	0	0	0	0	0	0	10
10:30	0	11	3	0	0	0	0	0	0	0	0	0	0	0	0	14
10:45	0	11	3	0	0	1	0	0	0	0	0	0	0	0	0	15
11:00	0	5	1	0	0	0	0	0	0	0	0	0	0	0	0	6
Hour Total	0	35	9	0	0	1	0	0	0	0	0	0	0	0	0	45
11:15	0	11	3	0	2	1	0	0	0	0	0	0	0	0	0	17
11:30	0	9	4	0	0	0	0	0	2	0	0	0	0	0	0	15
11:45	0	8	3	0	0	1	0	0	0	0	0	0	0	0	0	12
12:00	0	14	5	0	0	1	0	0	0	0	0	0	0	0	0	20
Hour Total	0	42	15	0	2	3	0	0	2	0	0	0	0	0	0	64
12:15	0	16	2	0	0	0	0	0	0	0	0	0	0	0	0	18
12:30	0	18	6	0	0	0	0	0	0	0	0	0	0	0	0	24
12:45	1	24	7	0	0	0	0	1	0	0	0	0	0	0	0	33
13:00	0	21	4	0	1	0	0	0	0	0	0	0	0	0	0	26
Hour Total	1	79	19	0	1	0	0	1	0	0	0	0	0	0	0	101
13:15	0	18	5	0	0	0	0	0	0	0	0	0	0	0	0	23
13:30	0	26	4	0	0	0	0	0	0	0	0	0	0	0	0	30
13:45	0	21	3	0	0	0	0	0	0	0	0	0	0	0	0	24
14:00	0	29	4	0	0	0	0	0	0	0	0	0	0	0	0	33
Hour Total	0	94	16	0	0	0	0	0	0	0	0	0	0	0	0	110
14:15	0	15	7	0	0	0	0	0	0	0	0	0	0	0	0	22
14:30	0	18	4	0	0	0	0	0	0	0	0	0	0	0	0	22
14:45	0	21	3	0	0	1	0	0	0	0	0	0	0	0	0	25
15:00	0	21	7	0	0	1	0	0	0	0	0	0	0	0	0	29
Hour Total	0	75	21	0	0	2	0	0	0	0	0	0	0	0	0	98
15:15	1	32	4	0	0	0	0	0	0	0	0	0	0	0	0	37
15:30	1	35	8	0	4	0	0	0	0	0	0	0	0	0	0	48
15:45	0	40	7	0	0	0	0	0	0	0	0	0	0	0	0	47
16:00	0	25	6	0	0	0	0	0	0	0	0	0	0	0	0	31
Hour Total	2	132	25	0	4	0	0	0	0	0	0	0	0	0	0	163
16:15	0	36	6	0	0	0	0	0	1	0	0	0	0	0	0	43
16:30	0	31	7	0	1	0	0	0	0	0	0	0	0	0	0	39
16:45	1	39	7	0	0	0	0	0	0	0	0	0	0	0	0	47
17:00	1	45	11	0	0	1	0	0	1	0	0	0	0	0	0	59
Hour Total	2	151	31	0	1	1	0	0	2	0	0	0	0	0	0	188

Station #: Site C
Site ID: 000000003610
Location: Candlers Mountain Rd. NB
Direction: NORTH
Lane: 1

File: NB.prn
City: 15-220 RS Max
County: 37.36413, -79.17152

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
17:15	0	61	13	0	0	0	0	0	0	0	0	0	0	0	0	74
17:30	2	43	10	0	0	2	0	0	1	0	0	0	0	0	0	58
17:45	0	39	2	0	0	3	0	0	0	0	0	0	0	0	0	44
18:00	2	19	6	0	0	0	0	0	0	0	0	0	0	0	0	27
Hour Total	4	162	31	0	0	5	0	0	1	0	0	0	0	0	0	203
18:15	0	24	7	0	0	1	0	0	0	0	0	0	0	0	0	32
18:30	0	24	1	0	0	0	0	0	0	0	0	0	0	0	0	25
18:45	1	18	7	0	0	1	0	0	0	0	0	0	0	0	0	27
19:00	0	22	4	0	0	0	0	0	0	0	0	0	0	0	0	26
Hour Total	1	88	19	0	0	2	0	0	0	0	0	0	0	0	0	110
19:15	1	31	2	0	0	1	0	0	0	0	0	0	0	0	0	35
19:30	0	24	4	0	0	0	1	0	0	0	0	0	0	0	0	29
19:45	0	22	5	0	0	0	0	0	0	0	0	0	0	0	0	27
20:00	0	17	3	0	0	1	0	0	0	0	0	0	0	0	0	21
Hour Total	1	94	14	0	0	2	1	0	0	0	0	0	0	0	0	112
20:15	1	11	2	0	0	0	0	0	0	0	0	0	0	0	0	14
20:30	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	13
20:45	0	10	3	0	0	0	0	0	0	0	0	0	0	0	0	13
21:00	0	11	2	0	0	0	0	0	0	0	0	0	0	0	0	13
Hour Total	1	45	7	0	0	0	0	0	0	0	0	0	0	0	0	53
21:15	0	15	3	0	0	0	0	0	0	0	0	0	1	0	0	19
21:30	0	9	2	0	0	0	0	0	0	0	0	0	0	0	0	11
21:45	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	9
22:00	0	8	1	0	0	0	0	0	0	0	0	0	0	0	0	9
Hour Total	0	41	6	0	0	0	0	0	0	0	0	0	1	0	0	48
22:15	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	6
22:30	0	5	1	0	0	0	0	0	0	0	0	0	0	0	0	6
22:45	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7
23:00	0	8	1	0	0	0	0	0	0	0	0	0	0	0	0	9
Hour Total	1	25	2	0	0	0	0	0	0	0	0	0	0	0	0	28
23:15	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	4
23:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:45	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4
24:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hour Total	0	7	1	0	0	0	0	0	0	0	0	0	0	0	0	8
DAY TOTAL	14	1231	252	0	12	22	1	1	5	1	0	0	1	0	0	1540
PERCENTS	1.0%	80.0%	16.4%	0.0%	0.8%	1.5%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Passenger Vehicles 97.2% Trucks & Buses 2.7%

AM Times	06:15	07:45	07:45		07:30	07:45			10:45	07:45						07:45
AM Peaks	1	70	15		2	4			2	1						92
PM Times	16:45	16:45	16:45		14:45	17:00	18:45	12:15	16:15				20:30			16:45
PM Peaks	4	188	41		4	6	1	1	2				1			238

Station #: Site C
Site ID: 000000003610
Location: Candlers Mountain Rd. NB
Direction: NORTH
Lane: 1

File: NB.prn
City: 15-220 RS Max
County: 37.36413, -79.17152

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
00:15	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
00:30	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4
00:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Hour Total	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	12
01:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
01:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Hour Total	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
02:15	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
02:30	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
02:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hour Total	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
03:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hour Total	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Hour Total	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:15	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
05:45	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	4
06:00	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Hour Total	0	12	3	0	0	0	0	0	0	0	0	0	0	0	0	15
06:15	0	8	1	0	0	0	0	0	0	0	0	0	0	0	0	9
06:30	0	2	1	0	0	0	0	0	1	0	0	0	0	0	0	4
06:45	0	6	3	0	0	1	0	0	1	0	0	0	0	0	0	11
07:00	0	6	1	0	1	0	0	0	0	0	0	0	0	0	0	8
Hour Total	0	22	6	0	1	1	0	0	2	0	0	0	0	0	0	32
07:15	0	8	3	0	0	1	0	0	0	1	0	0	0	0	0	13
07:30	0	8	5	0	0	0	0	0	0	0	0	0	0	0	0	13
07:45	1	7	3	0	0	1	0	0	0	0	0	0	0	0	0	12
08:00	0	27	4	0	0	0	0	0	0	0	0	0	0	0	0	31
Hour Total	1	50	15	0	0	2	0	0	0	1	0	0	0	0	0	69
08:15	1	37	8	0	0	0	0	0	0	0	0	0	0	0	0	46
08:30	0	14	13	0	0	0	0	0	0	0	0	0	0	0	0	27
08:45	0	7	2	1	0	0	0	0	0	0	0	0	0	0	0	10
09:00	2	5	3	0	1	0	0	0	0	0	0	0	0	0	0	11

Station #: Site C
Site ID: 000000003610
Location: Candlers Mountain Rd. NB
Direction: NORTH
Lane: 1

File: NB.prn
City: 15-220 RS Max
County: 37.36413, -79.17152

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
Hour Total	3	63	26	1	1	0	0	0	0	0	0	0	0	0	0	94
09:15	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	5
09:30	0	9	4	0	0	0	0	0	0	0	0	0	0	0	0	13
09:45	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	9
10:00	0	13	1	0	0	1	0	0	0	0	0	0	0	0	0	15
Hour Total	1	35	5	0	0	1	0	0	0	0	0	0	0	0	0	42
10:15	0	12	1	0	0	1	0	0	0	0	0	0	0	0	0	14
10:30	0	8	1	0	0	1	0	0	0	0	0	0	0	0	0	10
10:45	0	15	3	0	0	2	0	0	0	0	0	0	0	0	0	20
11:00	0	14	3	0	0	0	0	0	0	0	0	0	0	0	0	17
Hour Total	0	49	8	0	0	4	0	0	0	0	0	0	0	0	0	61
11:15	0	16	1	0	0	0	0	0	0	0	0	0	0	0	0	17
11:30	0	8	3	0	1	0	0	0	0	0	0	0	0	0	0	12
11:45	0	13	2	0	1	0	0	0	0	0	0	0	0	0	0	16
12:00	1	22	2	0	0	0	0	0	0	0	0	0	0	0	0	25
Hour Total	1	59	8	0	2	0	0	0	0	0	0	0	0	0	0	70
12:15	0	27	8	0	0	0	0	0	0	0	0	0	0	0	0	35
12:30	1	15	6	0	1	0	0	0	0	0	0	0	0	0	0	23
12:45	1	18	5	0	0	1	0	0	0	0	0	0	0	0	0	25
13:00	0	11	4	0	0	0	0	0	0	0	0	0	0	0	0	15
Hour Total	2	71	23	0	1	1	0	0	0	0	0	0	0	0	0	98
13:15	0	22	4	1	0	0	0	0	0	0	0	0	0	0	0	27
13:30	0	21	3	0	0	1	0	0	0	0	0	0	0	0	0	25
13:45	0	21	2	0	0	0	0	0	0	0	0	0	0	0	0	23
14:00	0	30	2	0	0	0	0	0	0	0	0	0	0	0	0	32
Hour Total	0	94	11	1	0	1	0	0	0	0	0	0	0	0	0	107
14:15	0	18	3	0	0	1	0	0	0	0	0	0	0	0	0	22
14:30	0	18	4	0	0	0	0	0	0	0	0	0	0	0	0	22
14:45	0	20	6	0	0	0	0	0	0	0	0	0	0	0	0	26
15:00	0	20	5	0	0	1	0	0	0	0	0	0	0	0	0	26
Hour Total	0	76	18	0	0	2	0	0	0	0	0	0	0	0	0	96
15:15	0	27	4	0	1	0	0	0	0	0	0	0	0	0	0	32
15:30	2	49	13	0	3	2	0	0	0	0	0	0	0	0	0	69
15:45	0	24	5	0	0	1	0	0	1	0	0	1	0	0	0	32
16:00	0	28	7	0	1	0	0	0	0	0	0	0	0	0	0	36
Hour Total	2	128	29	0	5	3	0	0	1	0	0	1	0	0	0	169
16:15	0	28	8	0	0	0	0	0	0	0	0	0	0	0	0	36
16:30	0	31	6	0	0	0	0	0	0	0	0	0	0	0	0	37
16:45	0	23	4	0	0	0	0	0	0	0	0	0	0	0	0	27
17:00	2	31	4	0	0	0	0	0	0	0	0	0	0	0	0	37
Hour Total	2	113	22	0	0	0	0	0	0	0	0	0	0	0	0	137

Station #: Site C
Site ID: 000000003610
Location: Candlers Mountain Rd. NB
Direction: NORTH
Lane: 1

File: NB.prn
City: 15-220 RS Max
County: 37.36413, -79.17152

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
17:15	0	46	5	0	0	0	0	0	0	0	0	0	0	0	0	51
17:30	0	49	8	0	0	0	0	0	0	0	0	0	0	0	0	57
17:45	0	42	6	0	1	0	0	0	0	0	0	0	0	0	0	49
18:00	0	42	5	0	0	0	0	0	0	0	0	0	0	0	0	47
Hour Total	0	179	24	0	1	0	0	0	0	0	0	0	0	0	0	204
18:15	1	38	9	0	0	2	1	0	0	0	0	0	0	0	0	51
18:30	0	26	3	1	0	1	0	0	0	0	0	0	0	0	0	31
18:45	1	27	5	0	0	0	0	0	0	0	0	0	0	0	0	33
19:00	1	25	5	0	0	0	0	0	0	0	0	0	0	0	0	31
Hour Total	3	116	22	1	0	3	1	0	0	0	0	0	0	0	0	146
19:15	0	21	6	1	0	0	0	0	0	0	0	0	0	0	0	28
19:30	1	25	5	0	0	2	0	0	0	0	0	0	0	0	0	33
19:45	1	17	3	0	0	0	0	0	0	0	0	0	0	0	0	21
20:00	0	17	4	0	0	0	0	0	0	0	0	0	0	0	0	21
Hour Total	2	80	18	1	0	2	0	0	0	0	0	0	0	0	0	103
20:15	1	17	0	0	0	1	0	0	0	0	0	0	0	0	0	19
20:30	0	8	2	0	0	0	0	0	0	0	0	0	0	0	0	10
20:45	0	9	1	0	0	0	0	0	0	0	0	0	0	0	0	10
21:00	1	15	2	0	0	0	0	0	0	0	0	0	0	0	0	18
Hour Total	2	49	5	0	0	1	0	0	0	0	0	0	0	0	0	57
21:15	1	8	1	0	0	1	0	0	0	0	0	0	0	0	0	11
21:30	0	15	2	0	0	0	0	0	0	0	0	0	0	0	0	17
21:45	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	4
22:00	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Hour Total	1	29	4	0	0	1	0	0	0	0	0	0	0	0	0	35
22:15	0	6	1	0	0	0	0	0	0	0	0	0	0	0	0	7
22:30	0	7	1	0	0	0	0	0	0	0	0	0	0	0	0	8
22:45	1	8	2	0	0	0	0	0	0	0	0	0	0	0	0	11
23:00	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Hour Total	1	25	4	0	0	0	0	0	0	0	0	0	0	0	0	30
23:15	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4
23:30	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4
23:45	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	3
24:00	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Hour Total	0	15	1	0	0	0	0	0	0	0	0	0	0	0	0	16
DAY TOTAL	21	1283	253	4	11	22	1	0	3	1	0	1	0	0	0	1600
PERCENTS	1.4%	80.2%	15.9%	0.3%	0.7%	1.4%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%
Passenger Vehicles	97.3%								Trucks & Buses	2.6%						
AM Times	08:15	07:45	07:45	08:00	11:00	10:00					06:00	06:30				07:45
AM Peaks	3	85	28	1	2	5					2	1				116
PM Times	18:15	17:15	15:30	18:30	15:15	15:00	17:30			15:00			15:00			17:15
PM Peaks	3	179	33	2	5	4	1			1			1			204
GRAND TOTAL	35		505		23		2		8		0		1		0	
		2514		4		44		1		2		1		0		3140
PERCENTS	1.2%	80.1%	16.1%	0.2%	0.8%	1.4%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

APPENDIX A-4: PEAK HOUR SUMMARY

Comparison of Individual Intersection and Ramp Peak Hours to Overall Study Area Peak Hour

ID	Description	Count Date AM	Count Date PM	AM				PM			
				Column A	Column B	Column C	Column D	Column E	Column F	Column G	Column H
				Observed Peak Hour (Start)	Volume Observed in Column A	Volume from 7:15 AM-8:15 AM	% of Column C to Column B	Observed Peak Hour (Start)	Volume Observed in Column E	Volume from 4:45 PM-5:45 PM	% of Column G to Column F
INTERSECTIONS											
1	Candlers Mountain Road at Wards Road	10/14/2015	10/14/2015	7:30 AM	1,875	1,805	96.3%	4:45 PM	2,835	2,835	100.0%
2	Candlers Mountain Road at Short Street	10/14/2015	10/14/2015	7:30 AM	1,174	1,140	97.1%	4:45 PM	1,685	1,685	100.0%
3	Candlers Mountain Road at Woodall Road	11/14/2013	11/14/2013	7:30 AM	1,273	1,235	97.0%	4:30 PM	2,055	2,014	98.0%
4	Candlers Mountain Road at Seminole Avenue/Southbound Lynchburg Expressway Ramp	11/14/2013	11/14/2013	7:30 AM	1,546	1,518	98.2%	4:30 PM	2,215	2,206	99.6%
5	Candlers Mountain Road at Murray Place	11/14/2013	11/14/2013	7:15 AM	3,096	3,096	100.0%	4:45 PM	3,420	3,420	100.0%
6	Candlers Mountain Road at Murray Place/River Ridge Mall	11/14/2013	11/14/2013	7:15 AM	3,389	3,389	100.0%	4:45 PM	3,966	3,966	100.0%
7	Candlers Mountain Road at Mayflower Drive	10/15/2015	10/15/2015	7:15 AM	3,799	3,799	100.0%	4:30 PM	3,835	3,803	99.2%
8	Candlers Mountain Road at Mountain View Road/Westbound US 501 Ramp	10/15/2015	10/15/2015	7:15 AM	1,612	1,612	100.0%	3:00 PM	1,472	1,445	98.2%
	INTERSECTION TOTALS				*17,764*	*17,594*	*99.0%*		*21,483*	*21,374*	*99.5%*
RAMPS											
A	Southbound Lynchburg Expressway Exit Ramp to Eastbound Candlers Mountain Road (Exit 8B)	Calculated		7:15 AM	378	378	100.0%	4:45 PM	438	438	100.0%
B	Northbound Lynchburg Expressway Entrance Ramp from Eastbound Candlers Mountain Road	11/13/2013 - 11/14/2013		8:15 AM	104	88	84.6%	4:30 PM	155	142	91.6%
C	Northbound Lynchburg Expressway Exit Ramp to Eastbound Candlers Mountain Road (Exit 8B)	11/13/2013 - 11/14/2013		6:30 AM	778	669	86.0%	5:15 PM	600	552	92.0%
D	Northbound Lynchburg Expressway Entrance Ramp from Westbound Candlers Mountain Road	11/13/2013 - 11/14/2013		7:15 AM	445	445	100.0%	3:00 PM	357	351	98.3%
E	Northbound Lynchburg Expressway Exit Ramp to Westbound Candlers Mountain Road (Exit 8A)	11/13/2013 - 11/14/2013		7:15 AM	186	186	100.0%	4:45 PM	92	92	100.0%
F	Southbound Lynchburg Expressway Entrance Ramp from Westbound Candlers Mountain Road	Calculated		7:30 AM	528	514	97.3%	3:15 PM	557	447	80.3%
G	Southbound Lynchburg Expressway Exit Ramp to Westbound Candlers Mountain Road (Exit 8A)	11/14/2013	11/14/2013	8:15 AM	144	116	80.6%	4:30 PM	260	246	94.6%
H	Westbound US 460 Entrance Ramp from Eastbound Candlers Mountain Road	10/14/2015 - 10/15/2015		7:00 AM	382	369	96.6%	4:15 PM	906	820	90.5%
I	Eastbound US 460 Entrance Ramp from Eastbound Candlers Mountain Road	10/14/2015 - 10/15/2015		6:15 AM	441	343	77.8%	4:15 PM	768	755	98.3%
J	Eastbound US 460 Exit Ramp to Westbound Candlers Mountain Road	10/14/2015 - 10/15/2015		7:15 AM	902	902	100.0%	5:15 PM	481	469	97.5%
K	Westbound US 460 Exit Ramp to Westbound Candlers Mountain Road	10/14/2015 - 10/15/2015		7:00 AM	666	632	94.9%	4:45 PM	516	516	100.0%
	RAMP TOTALS				*4,954*	*4,642*	*93.7%*		*5,130*	*4,828*	*94.1%*

APPENDIX A-5: PEAK HOUR FACTOR & HEAVY VEHICLE PERCENTAGE SUMMARY

Peak Hour Factor and Heavy Vehicle Percentage Summary

INTERSECTIONS

ID	Description	Peak	Intersection Peak Hour Factor	Peak Hour Factor (By Approach)				Peak Hour Factor (By Movement)											
								Southbound			Westbound			Northbound			Eastbound		
				Southbound	Westbound	Northbound	Eastbound	L	T	R	L	T	R	L	T	R	L	T	R
1	Candlers Mountain Road/Sheffield Drive at Wards Road	AM	0.79	0.69	0.89	0.85	0.74	0.69	0.72	0.44	0.68	0.81	0.89	0.83	0.80	0.52	0.54	0.72	0.71
		PM	0.93	0.98	0.95	0.98	0.81	0.91	0.93	0.80	0.73	0.80	0.88	0.80	0.96	0.83	0.75	0.84	0.70
2	Candlers Mountain Road at Short Street	AM	0.81	0.25	0.93	0.50	0.71	0.25	0.92	0.92	0.50	0.93	0.92	0.92	0.92	0.50	0.50	0.71	0.25
		PM	0.97	0.75	0.96	0.50	0.93	0.45	0.92	0.50	0.25	0.92	0.63	0.25	0.92	0.92	0.56	0.89	0.25
3	Candlers Mountain Road at Woodall Road	AM	0.79	0.70	0.76	0.36	0.82	0.78	0.92	0.58	0.41	0.85	0.62	0.92	0.92	0.36	0.69	0.82	0.25
		PM	0.90	0.61	0.84	0.45	0.88	0.69	0.92	0.65	0.42	0.89	0.73	0.50	0.25	0.38	0.60	0.90	0.86
4	Candlers Mountain Road at Southbound Lynchburg Expressway Ramp/Seminole Avenue	AM	0.74	0.97	0.70	0.57	0.82	0.42	0.43	0.92	0.59	0.74	--	0.55	--	0.57	--	0.80	0.94
		PM	0.91	0.87	0.78	0.78	0.88	0.55	0.80	0.88	0.81	0.86	--	0.61	--	0.84	--	0.88	0.69
5	Candlers Mountain Road at Murray Place	AM	0.88	0.82	0.88	--	0.85	--	--	0.82	--	0.88	0.50	--	--	--	--	0.85	--
		PM	0.95	0.77	0.83	--	0.89	--	--	0.70	--	0.91	0.25	--	--	--	--	0.94	--
6	Candlers Mountain Road at Murray Place/River Ridge Mall	AM	0.92	0.73	0.88	0.74	0.93	0.58	0.33	0.50	0.73	0.85	0.76	0.72	0.72	0.69	0.82	0.92	0.63
		PM	0.96	0.64	0.89	0.79	0.91	0.64	0.84	0.44	0.84	0.89	0.58	0.85	0.31	0.85	0.77	0.97	0.79
7	Candlers Mountain Road/US 501 at Mayflower Drive	AM	0.92	0.85	0.93	0.55	0.89	0.88	0.72	0.72	0.65	0.96	0.78	--	--	0.55	0.78	0.83	0.83
		PM	0.96	0.76	0.96	0.75	0.92	0.80	0.69	0.67	0.59	0.90	0.81	--	--	0.85	0.75	0.90	0.90
8	Candlers Mountain Road at Westbound US 501 Ramp/Mountain View Road	AM	0.77	0.83	--	0.67	0.92	0.44	0.85	0.73	--	--	--	0.44	0.55	0.76	0.92	0.92	0.92
		PM	0.91	0.95	--	0.88	0.92	0.67	0.90	0.82	--	--	--	0.31	0.91	0.90	0.92	0.92	0.92

ID	Description	Peak	Heavy Vehicle Percentage (By Approach)				Heavy Vehicle Percentage (By Movement)											
							Southbound			Westbound			Northbound			Eastbound		
			Southbound	Westbound	Northbound	Eastbound	L	T	R	L	T	R	L	T	R	L	T	R
1	Candlers Mountain Road/Sheffield Drive at Wards Road	AM	2%	4%	6%	1%	2%	3%	0%	4%	2%	5%	3%	6%	8%	8%	1%	0%
		PM	1%	1%	1%	0%	2%	0%	0%	1%	2%	1%	0%	1%	3%	0%	1%	0%
2	Candlers Mountain Road at Short Street	AM	0%	5%	0%	2%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	2%	0%
		PM	0%	1%	0%	2%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	2%	0%
3	Candlers Mountain Road at Woodall Road	AM	12%	4%	0%	2%	18%	0%	0%	0%	4%	2%	0%	0%	0%	0%	2%	0%
		PM	5%	2%	0%	1%	8%	0%	1%	0%	1%	21%	0%	0%	0%	17%	1%	0%
4	Candlers Mountain Road at Southbound Lynchburg Expressway Ramp/Seminole Avenue	AM	6%	3%	1%	3%	0%	8%	6%	1%	3%	--	3%	--	1%	--	3%	0%
		PM	2%	2%	0%	2%	0%	0%	2%	0%	2%	--	0%	--	0%	--	2%	2%
5	Candlers Mountain Road at Murray Place	AM	3%	4%	--	3%	--	--	3%	--	4%	0%	--	--	--	--	3%	--
		PM	3%	2%	--	2%	--	--	3%	--	2%	0%	--	--	--	--	2%	--
6	Candlers Mountain Road at Murray Place/River Ridge Mall	AM	3%	4%	2%	3%	3%	0%	0%	1%	4%	1%	8%	0%	2%	3%	3%	10%
		PM	2%	2%	1%	2%	3%	0%	0%	1%	2%	7%	1%	0%	1%	1%	2%	1%
7	Candlers Mountain Road/US 501 at Mayflower Drive	AM	17%	4%	1%	3%	28%	8%	15%	3%	3%	6%	--	--	1%	3%	5%	2%
		PM	4%	3%	1%	3%	5%	0%	3%	0%	2%	11%	--	--	1%	7%	3%	2%
8	Candlers Mountain Road at Westbound US 501 Ramp/Mountain View Road	AM	2%	--	1%	0%	14%	4%	0%	--	--	--	0%	0%	1%	0%	0%	0%
		PM	1%	--	1%	0%	0%	2%	0%	--	--	--	0%	0%	1%	0%	0%	0%

RAMPS

ID	Description	Heavy Vehicle Percentage	
		AM	PM
A	Southbound Lynchburg Expressway Exit Ramp to Eastbound Candlers Mountain Road (Exit 8B)	4%	3%
B	Northbound Lynchburg Expressway Entrance Ramp from Eastbound Candlers Mountain Road	3%	3%
C	Northbound Lynchburg Expressway Exit Ramp to Eastbound Candlers Mountain Road (Exit 8B)	2%	2%
D	Northbound Lynchburg Expressway Entrance Ramp from Westbound Candlers Mountain Road	6%	3%
E	Northbound Lynchburg Expressway Exit Ramp to Westbound Candlers Mountain Road (Exit 8A)	1%	7%
F	Southbound Lynchburg Expressway Entrance Ramp from Westbound Candlers Mountain Road	2%	5%
G	Southbound Lynchburg Expressway Exit Ramp to Westbound Candlers Mountain Road (Exit 8A)	6%	2%
H	Westbound US 460 Entrance Ramp from Eastbound Candlers Mountain Road	7%	3%
I	Eastbound US 460 Entrance Ramp from Eastbound Candlers Mountain Road	8%	2%
J	Eastbound US 460 Exit Ramp to Westbound Candlers Mountain Road	5%	4%
K	Westbound US 460 Exit Ramp to Westbound Candlers Mountain Road	6%	4%

LYNCHBURG EXPRESSWAY MAINLINE

Description	Heavy Vehicle Percentage	
	AM	PM
Northbound Lynchburg Expressway (between Wards Road and Candlers Mountain Road)	3%	2%
Southbound Lynchburg Expressway (between Wards Road and Candlers Mountain Road)	4%	2%

APPENDIX A-6: VOLUME BALANCE SUMMARY

VOLUME BALANCE SUMMARY

Methodology

Turning movement counts used in the Candlers Mountain Road Corridor Study were collected on three different days (11/14/2013, 10/14/2015, and 10/15/2015). In addition, 48-hour vehicle classification counts were collected over two different time periods (11/13/2013 to 11/14/2013 and 10/14/2015 to 10/15/2015). Because the count data was collected over different time periods, there were volume variations during the peak hours between adjacent intersections. The peak hour traffic volumes were balanced for used in traffic analyses.

The methodology for balancing the peak hour traffic volumes involved an iterative process of adjusting the volumes of intersection and ramp movements to eliminate volume variations between adjacent intersections.

- Priority was given to balancing volumes on Candlers Mountain Road
  - Some sidestreet volumes were adjusted to help balance Candlers Mountain Road
  - Lynchburg Expressway ramp volumes were adjusted to reflect the balancing on Candlers Mountain Road
  - Mainline Lynchburg Expressway counts were held constant south of the Candlers Mountain Road interchange and adjusted to the north based on balanced ramp volumes
- Candlers Mountain Road between Murray Place/River Ridge Mall and Mayflower Drive was balanced first and the adjustments at this intersection were carried throughout the network
  - Candlers Mountain Road between Murray Place/River Ridge Mall and Mayflower Drive had the largest imbalance in both the AM and PM peak hours (in part due to the counts being collected in two different years)
- Goal of balancing was to keep the volume change for all movements within ±10%
  - Balanced AM peak hour volumes were within ±10% for all movements
  - Balanced PM peak hour volumes were within ±12% for all movements with at least 10 vehicles
    - Only movement with more than 10 vehicles had a volume difference greater than ±10% was the eastbound Candlers Mountain Road thru movement at Murray Place/River Ridge Mall (due to 368 vehicle difference on eastbound Candlers Mountain Drive between Murray Place/River Ridge Mall and Mayflower Drive)

Summary

Table 1 and Table 2 provide a summary of the raw count volumes and final balanced volumes for the AM and PM peak hours, respectively. The tables also summarize the volume adjustment and percent difference between the balanced and raw volumes for all movements.

Table 1 – Existing AM Peak Hour Volume Balancing Summary

ID No.	Intersection	Movement	Street	Existing Volume (AM Peak Hour)											
				Raw Count Volume			Volume Adjustment			% Difference			Balanced Volume		
				L	T	R	L	T	R	L	T	R	L	T	R
INTERSECTIONS															
1	Candlers Mountain Road at Wards Road	SB	Wards Rd	488	335	14				0.0%	0.0%	0.0%	488	335	14
		WB	Candlers Mountain Rd	54	107	336				0.0%	0.0%	0.0%	54	107	336
		NB	Wards Rd	30	268	25				0.0%	0.0%	0.0%	30	268	25
		EB	Sheffield Dr	13	98	37				0.0%	0.0%	0.0%	13	98	37
2	Candlers Mountain Road at Short Street	SB	Short St	1	0	0				0.0%	0.0%	0.0%	5	5	5
		WB	Candlers Mountain Rd	2	507	0		-20		0.0%	-3.9%	0.0%	5	487	5
		NB	Commercial Driveway	0	0	4				0.0%	0.0%	0.0%	5	5	5
		EB	Candlers Mountain Rd	2	623	1		-22		0.0%	-3.5%	0.0%	5	601	5
3	Candlers Mountain Road at Woodall Road	SB	Woodall Rd	28		14			1	0.0%		7.1%	28		15
		WB	Candlers Mountain Rd	18	460	124		17		0.0%	3.7%	0.0%	18	477	124
		NB	Commercial Driveway	0	0	20				0.0%	0.0%	0.0%	5	5	20
		EB	Candlers Mountain Rd	25	545	1	2	34		8.0%	6.2%	0.0%	27	579	5
4	Candlers Mountain Road at Seminole Avenue/ Southbound Lynchburg Expressway Ramp	SB	SB Lynchburg Expressway	5	12	99			3	0.0%	0.0%	3.0%	5	12	102
		WB	Candlers Mountain Rd	138	470			15		0.0%	3.2%		138	485	
		NB	Seminole Ave	31		169	1			3.2%		0.0%	32		169
		EB	Candlers Mountain Rd		549	45		30	3		5.5%	6.7%		579	48
5	Candlers Mountain Road at Murray Place	SB	Murray Pl			59						0.0%			59
		WB	Candlers Mountain Rd		1304	2					0.0%	0.0%		1304	5
		NB													
		EB	Candlers Mountain Rd		1731			-99			-5.7%			1632	
6	Candlers Mountain Road at Murray Place/River Ridge Mall	SB	Murray Pl	30	4	4	-3			-10.0%	0.0%	0.0%	27	5	5
		WB	Candlers Mountain Rd	138	1280	104	-2	-4	-5	-1.4%	-0.3%	-4.8%	136	1276	99
		NB	River Ridge Mall	26	23	195	2		-19	7.7%	0.0%	-9.7%	28	23	176
		EB	Candlers Mountain Rd	92	1483	10	-9	-103	-1	-9.8%	-6.9%	-10.0%	83	1380	9
7	Candlers Mountain Road at Mayflower Drive	SB	Mayflower Dr	95	103	72	-9		2	-9.5%	0.0%	2.8%	86	103	74
		WB	Candlers Mountain Rd	158	1402	396		35	-10	0.0%	2.5%	-2.5%	158	1437	386
		NB	Candlers Mountain Rd			102			-5			-4.9%			97
		EB	Candlers Mountain Rd	87	568	816	8	31	73	9.2%	5.5%	8.9%	95	599	889
8	Candlers Mountain Road at Mountain View Road/Westbound US 501 Ramp	SB	Candlers Mountain Rd	14	565	520	1	25	25	7.1%	4.4%	4.8%	15	590	545
		WB													
		NB	Candlers Mountain Rd	37	107	369		-10	9	0.0%	-9.3%	2.4%	37	97	378
		EB	Mountain View Rd			0						0.0%			5
RAMPS															
A	Southbound Lynchburg Expressway Exit Ramp to Eastbound Candlers Mountain Road (Exit 8B)	NBR	Off Ramp	378			-27			-7.1%			351		
B	Northbound Lynchburg Expressway Entrance Ramp from Eastbound Candlers Mountain Road	WBR	On Ramp	88			6			6.8%			94		
C	Northbound Lynchburg Expressway Exit Ramp to Eastbound Candlers Mountain Road (Exit 8B)	NBR	Off Ramp	669			-47			-7.0%			622		
D	Northbound Lynchburg Expressway Entrance Ramp from Westbound Candlers Mountain Road	WBR	On Ramp	445			-13			-2.9%			432		
E	Northbound Lynchburg Expressway Exit Ramp to Westbound Candlers Mountain Road (Exit 8A)	SBR	Off Ramp	186			5			2.7%			191		
F	Southbound Lynchburg Expressway Entrance Ramp from Westbound Candlers Mountain Road	WBR	On Ramp	514			-15			-2.9%			499		
H	Westbound US 460 Entrance Ramp from Eastbound Candlers Mountain Road	EB	On Ramp	369			36			9.8%			405		
I	Eastbound US 460 Entrance Ramp from Eastbound Candlers Mountain Road	EB	On Ramp	343			34			9.9%			377		
J	Eastbound US 460 Exit Ramp to Westbound Candlers Mountain Road	WB	Off Ramp	902			32			3.5%			934		
K	Westbound US 460 Exit Ramp to Westbound Candlers Mountain Road	WB	Off Ramp	632			22			3.5%			654		
LYNCHBURG EXPRESSWAY MAINLINE															
NB	Northbound Lynchburg Expressway (between Wards Road and Candlers Mountain Road)	NB	Mainline	2177						0.0%			2177		
SB	Southbound Lynchburg Expressway (between Wards Road and Candlers Mountain Road)	SB	Mainline	1547						0.0%			1547		

* Existing volume set to a minimum of five vehicles per hour for all allowable movements

X% % Difference ≥5% & <10%
X% % Difference >10%

Table 2 - Existing PM Peak Hour Volume Balancing Summary

ID No.	Intersection	Movement	Street	Existing Volume (PM Peak Hour)											
				Raw Count Volume			Volume Adjustment			% Difference			Balanced Volume		
				L	T	R	L	T	R	L	T	R	L	T	R
INTERSECTIONS															
1	Candlers Mountain Road at Wards Road	SB	Wards Rd	466	524	32	-27			-5.8%	0.0%	0.0%	439	524	32
		WB	Candlers Mountain Rd	182	148	594	18	14	59	9.9%	9.5%	9.9%	200	162	653
		NB	Wards Rd	67	449	80			-4	0.0%	0.0%	-5.0%	67	449	76
		EB	Sheffield Dr	54	172	67		-10		0.0%	-5.8%	0.0%	54	162	67
2	Candlers Mountain Road at Short Street	SB	Short St	9	0	6			-1	0.0%	0.0%	-16.7%	9	5	5
		WB	Candlers Mountain Rd	2	933	5	1	72	1	20.0%	7.7%	20.0%	6	1005	6
		NB	Commercial Driveway	1	0	0				0.0%	0.0%	0.0%	5	5	5
		EB	Candlers Mountain Rd	9	719	1		-56		0.0%	-7.8%	0.0%	9	663	5
3	Candlers Mountain Road at Woodall Road	SB	Woodall Rd	83		80	-8		-8	-9.6%		-10.0%	75		72
		WB	Candlers Mountain Rd	10	1037	58		-103	5	0.0%	-9.9%	8.6%	10	934	63
		NB	Commercial Driveway	12	1	6	-1			-8.3%	0.0%	0.0%	11	5	6
		EB	Candlers Mountain Rd	12	684	31		-51	1	0.0%	-7.5%	3.2%	12	633	32
4	Candlers Mountain Road at Seminole Avenue/ Southbound Lynchburg Expressway Ramp	SB	SB Lynchburg Expressway	24	35	187	-2		-18	-8.3%	0.0%	-9.6%	22	35	169
		WB	Candlers Mountain Rd	142	874		14	-76		9.9%	-8.7%		156	798	
		NB	Seminole Ave	44		128	-4		-12	-9.1%		-9.4%	40		116
		EB	Candlers Mountain Rd		728	44		-62	4		-8.5%	9.1%		666	48
5	Candlers Mountain Road at Murray Place	SB	Murray Pl			117						0.0%			117
		WB	Candlers Mountain Rd		1614	2		-115			-7.1%	0.0%		1499	5
		NB													
		EB	Candlers Mountain Rd		1687			-128			-7.6%			1559	
6	Candlers Mountain Road at Murray Place/River Ridge Mall	SB	Murray Pl	100	27	16	-10			-10.0%	0.0%	0.0%	90	27	16
		WB	Candlers Mountain Rd	245	1335	46	-15	-69	-3	-6.1%	-5.2%	-6.5%	230	1266	43
		NB	River Ridge Mall	222	10	451			-45	0.0%	0.0%	-10.0%	222	10	406
		EB	Candlers Mountain Rd	80	1361	73	8	-160	7	10.0%	-11.8%	9.6%	88	1201	80
7	Candlers Mountain Road at Mayflower Drive	SB	Mayflower Dr	318	100	141			10	0.0%	0.0%	7.1%	318	100	151
		WB	Candlers Mountain Rd	61	1266	179	4	122	14	6.6%	9.6%	7.8%	65	1388	193
		NB	Candlers Mountain Rd			194			6			3.1%			200
		EB	Candlers Mountain Rd	45	1013	486	4	101	48	8.9%	10.0%	9.9%	49	1114	534
8	Candlers Mountain Road at Mountain View Road/Westbound US 501 Ramp	SB	Candlers Mountain Rd	8	509	125		46	11	0.0%	9.0%	8.8%	8	555	136
		WB													
		NB	Candlers Mountain Rd	10	207	579		-7	10	0.0%	-3.4%	1.7%	10	200	589
		EB	Mountain View Rd			5						0.0%			5
RAMPS															
A	Southbound Lynchburg Expressway Exit Ramp to Eastbound Candlers Mountain Road (Exit 8B)	NBR	Off Ramp	438			-30			-6.8%			408		
B	Northbound Lynchburg Expressway Entrance Ramp from Eastbound Candlers Mountain Road	EBR	On Ramp	142			8			5.6%			150		
C	Northbound Lynchburg Expressway Exit Ramp to Eastbound Candlers Mountain Road (Exit 8B)	NBR	Off Ramp	552			-55			-10.0%			497		
D	Northbound Lynchburg Expressway Entrance Ramp from Westbound Candlers Mountain Road	WBR	On Ramp	351			-15			-4.3%			336		
E	Northbound Lynchburg Expressway Exit Ramp to Westbound Candlers Mountain Road (Exit 8A)	SBR	Off Ramp	92			4			4.3%			96		
F	Southbound Lynchburg Expressway Entrance Ramp from Westbound Candlers Mountain Road	WBR	On Ramp	447			-25			-5.6%			422		
H	Westbound US 460 Entrance Ramp from Eastbound Candlers Mountain Road	EB	On Ramp	820			30			3.7%			850		
I	Eastbound US 460 Entrance Ramp from Eastbound Candlers Mountain Road	EB	On Ramp	755			27			3.6%			782		
J	Eastbound US 460 Exit Ramp to Westbound Candlers Mountain Road	WB	Off Ramp	469			31			6.6%			500		
K	Westbound US 460 Exit Ramp to Westbound Candlers Mountain Road	WB	Off Ramp	516			33			6.4%			549		
LYNCHBURG EXPRESSWAY MAINLINE															
NB	Northbound Lynchburg Expressway (between Wards Road and Candlers Mountain Road)	NB	Mainline	1877						0.0%			1877		
SB	Southbound Lynchburg Expressway (between Wards Road and Candlers Mountain Road)	SB	Mainline	1959						0.0%			1959		

* Existing volume set to a minimum of five vehicles per hour for all allowable movements

X% % Difference ≥5% & <10%
X% % Difference >10%

APPENDIX A-7: CRASH ANALYSIS

Candlers Mountain Road at Wards Road

Legend

Crash Type	Crash Type
Rear End	Injury - Type A
Angle	Injury - Type B
Sideswipe - Same Direction	Injury - Type C
Fixed Object - Off Road	Property Damage Only - PDO
Other	

Crash data for January 1, 2010 to December 31, 2014

0 40 80 160 240 320 Feet

Crash Severity\Crash Type	Rear End	Angle	Sideswipe - Same Direction	Fixed Object - Off Road	Other	Total
Injury - A	0	0	0	0	0	0
Injury - B	1	3	0	1	0	5
Injury - C	1	1	0	0	0	2
Property Damage Only - PDO	8	18	4	2	0	32
Total	10	22	4	3	0	39

VDOT Virginia Department of Transportation

STARS STRATEGICALLY TARGETED AND AFFORDABLE ROADWAY SOLUTIONS

Intersection Crash Diagrams
Candlers Mountain Road Corridor Study
Lynchburg, VA

FIGURE 1

Crash Severity\Crash Type	Rear End	Angle	Sideswipe - Same Direction	Fixed Object - Off Road	Other	Total
Injury - A	0	0	0	0	0	0
Injury - B	0	0	0	0	0	0
Injury - C	1	4	0	0	0	5
Property Damage Only - PDO	1	10	2	0	0	13
Total	2	14	2	0	0	18

VDOT Virginia Department of Transportation

STARS STRATEGICALLY TARGETED AND AFFORDABLE ROADWAY SOLUTIONS

Intersection Crash Diagrams
Candlers Mountain Road Corridor Study
Lynchburg, VA

FIGURE 2

Candlers Mountain Road at Border Street and Seminole Ave/Southbound Lynchburg Expressway Ramp

Legend

Crash Type	Crash Type
Rear End	Injury - Type A
Angle	Injury - Type B
Sideswipe - Same Direction	Injury - Type C
Fixed Object - Off Road	Property Damage Only - PDO
Other	

Crash data for January 1, 2010 to December 31, 2014

0 40 80 160 240 320 Feet

Crash Severity\Crash Type	Rear End	Angle	Sideswipe - Same Direction	Fixed Object - Off Road	Other	Total
Injury - A	0	0	0	0	0	0
Injury - B	4	1	0	0	0	5
Injury - C	3	1	0	1	0	5
Property Damage Only - PDO	3	5	0	0	0	8
Total	10	7	0	1	0	18

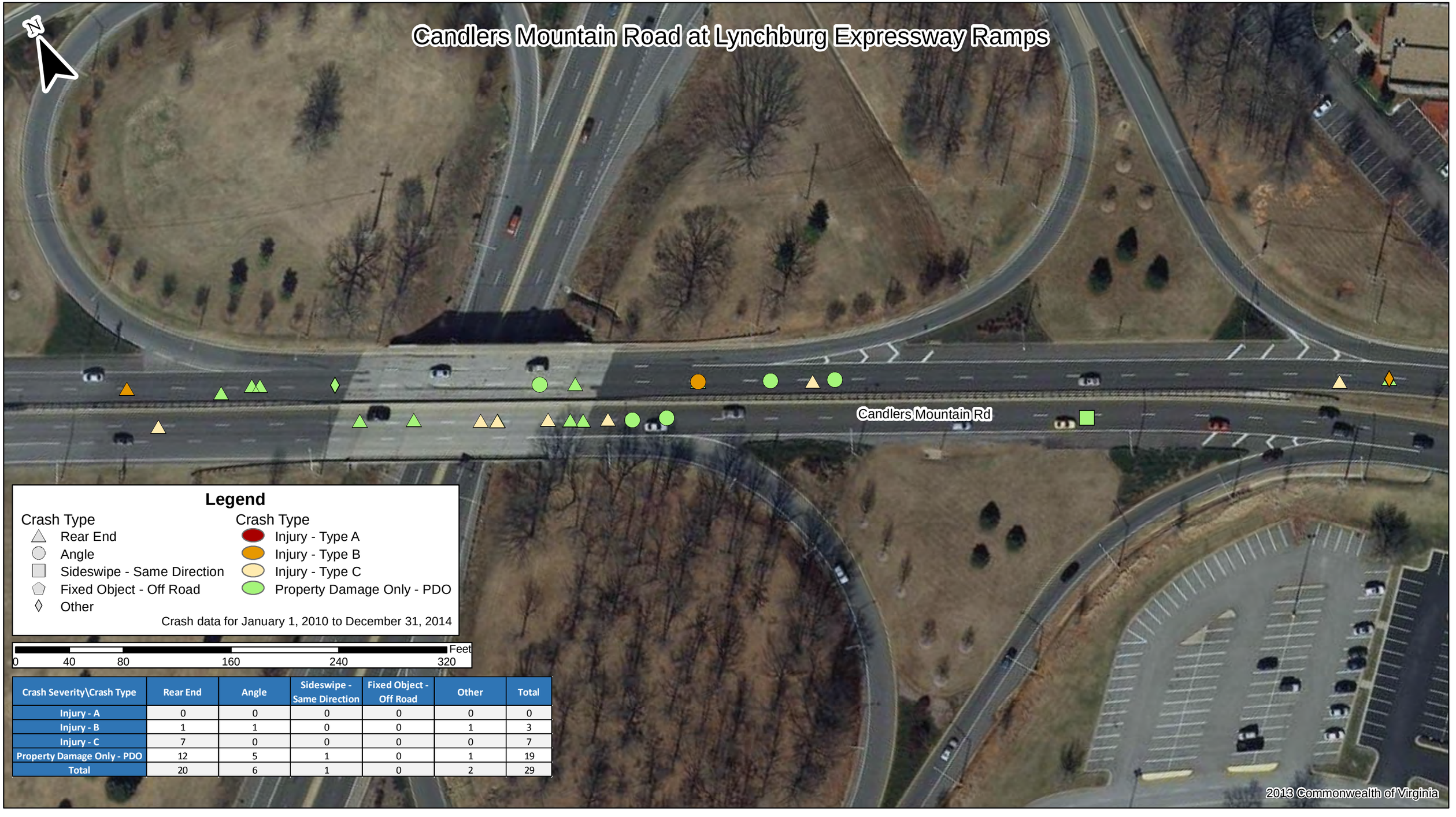
VDOT Virginia Department of Transportation

STARS STRATEGICALLY TARGETED AND AFFORDABLE ROADWAY SOLUTIONS

Intersection Crash Diagrams
Candlers Mountain Road Corridor Study
Lynchburg, VA

FIGURE 3

Candlers Mountain Road at Lynchburg Expressway Ramps



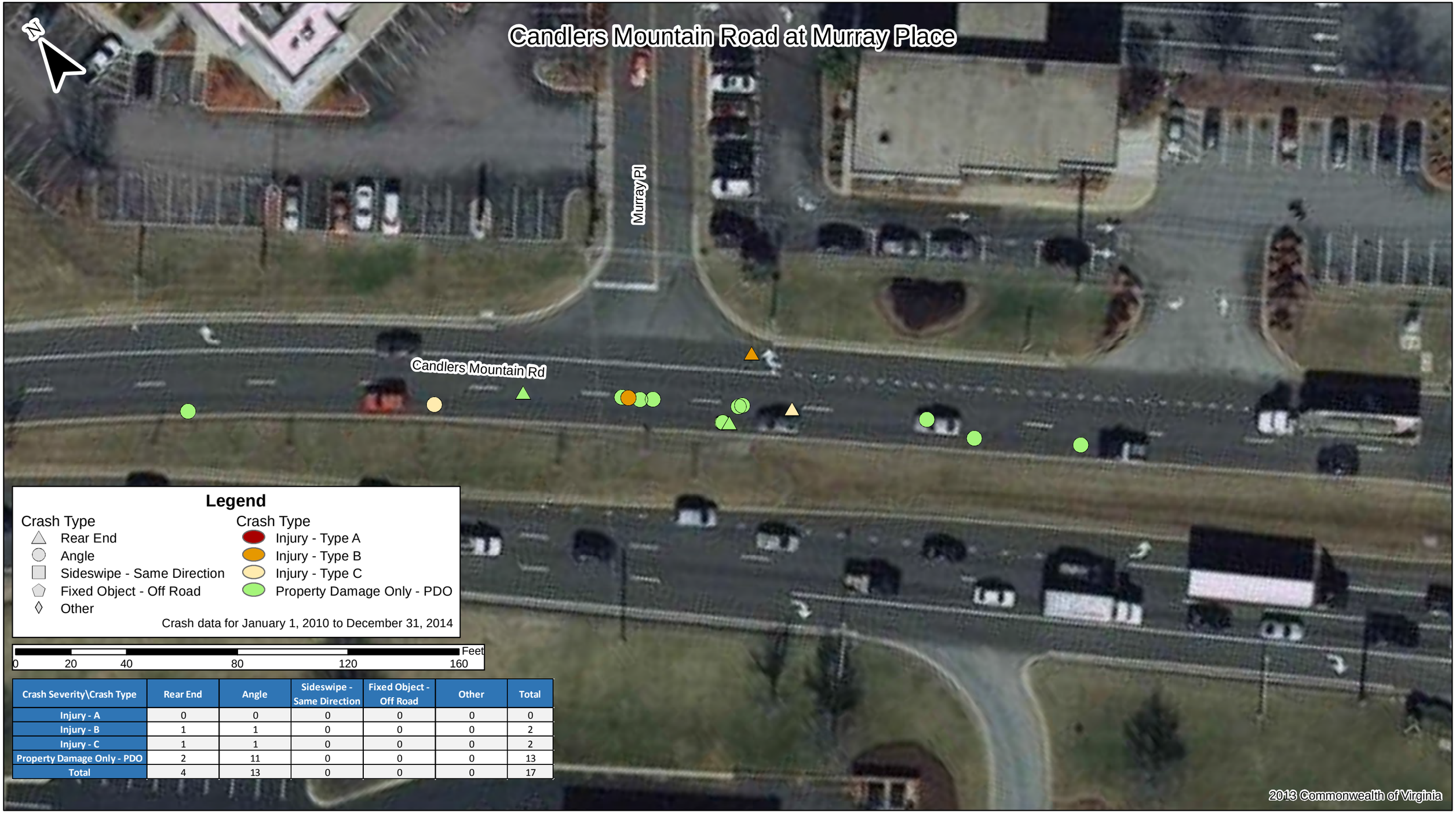
Crash Severity\Crash Type	Rear End	Angle	Sideswipe - Same Direction	Fixed Object - Off Road	Other	Total
Injury - A	0	0	0	0	0	0
Injury - B	1	1	0	0	1	3
Injury - C	7	0	0	0	0	7
Property Damage Only - PDO	12	5	1	0	1	19
Total	20	6	1	0	2	29

VDOT Virginia Department of Transportation

STARS STRATEGICALLY TARGETED AND AFFORDABLE ROADWAY SOLUTIONS

Intersection Crash Diagrams
Candlers Mountain Road Corridor Study
Lynchburg, VA

FIGURE 4



Crash Severity\Crash Type	Rear End	Angle	Sideswipe - Same Direction	Fixed Object - Off Road	Other	Total
Injury - A	0	0	0	0	0	0
Injury - B	1	1	0	0	0	2
Injury - C	1	1	0	0	0	2
Property Damage Only - PDO	2	11	0	0	0	13
Total	4	13	0	0	0	17

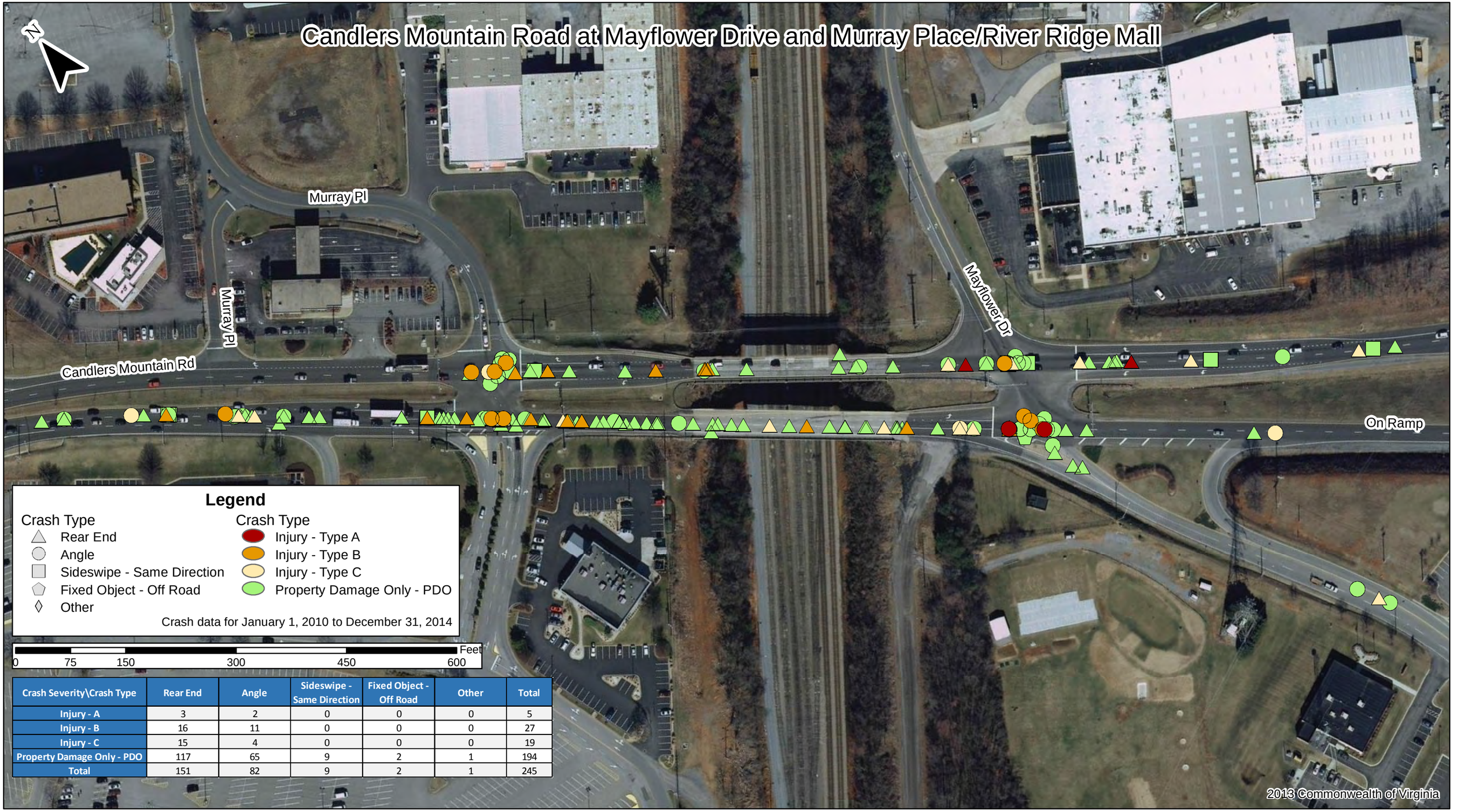
VDOT Virginia Department of Transportation

STARS STRATEGICALLY TARGETED AND AFFORDABLE ROADWAY SOLUTIONS

Intersection Crash Diagrams
Candlers Mountain Road Corridor Study
Lynchburg, VA

FIGURE 5

Candlers Mountain Road at Mayflower Drive and Murray Place/River Ridge Mall



Legend

Crash Type	Crash Type
Rear End	Injury - Type A
Angle	Injury - Type B
Sideswipe - Same Direction	Injury - Type C
Fixed Object - Off Road	Property Damage Only - PDO
Other	

Crash data for January 1, 2010 to December 31, 2014

0 75 150 300 450 600 Feet

Crash Severity\Crash Type	Rear End	Angle	Sideswipe - Same Direction	Fixed Object - Off Road	Other	Total
Injury - A	3	2	0	0	0	5
Injury - B	16	11	0	0	0	27
Injury - C	15	4	0	0	0	19
Property Damage Only - PDO	117	65	9	2	1	194
Total	151	82	9	2	1	245

VDOT Virginia Department of Transportation

STARS STRATEGICALLY TARGETED AND AFFORDABLE ROADWAY SOLUTIONS

Intersection Crash Diagrams
Candlers Mountain Road Corridor Study
Lynchburg, VA

FIGURE 6

Candlers Mountain Road at Mountain View Road/Westbound US 501 Ramp

Legend

Crash Type	Crash Type
Rear End	Injury - Type A
Angle	Injury - Type B
Sideswipe - Same Direction	Injury - Type C
Fixed Object - Off Road	Property Damage Only - PDO
Other	

Crash data for January 1, 2010 to December 31, 2014

0 20 40 80 120 160 Feet

Crash Severity\Crash Type	Rear End	Angle	Sideswipe - Same Direction	Fixed Object - Off Road	Other	Total
Injury - A	0	0	0	0	0	0
Injury - B	0	0	0	0	0	0
Injury - C	1	0	0	0	0	1
Property Damage Only - PDO	3	10	0	0	0	13
Total	4	10	0	0	0	14

VDOT Virginia Department of Transportation

STARS STRATEGICALLY TARGETED AND AFFORDABLE ROADWAY SOLUTIONS

Intersection Crash Diagrams
Candlers Mountain Road Corridor Study
Lynchburg, VA

FIGURE 7

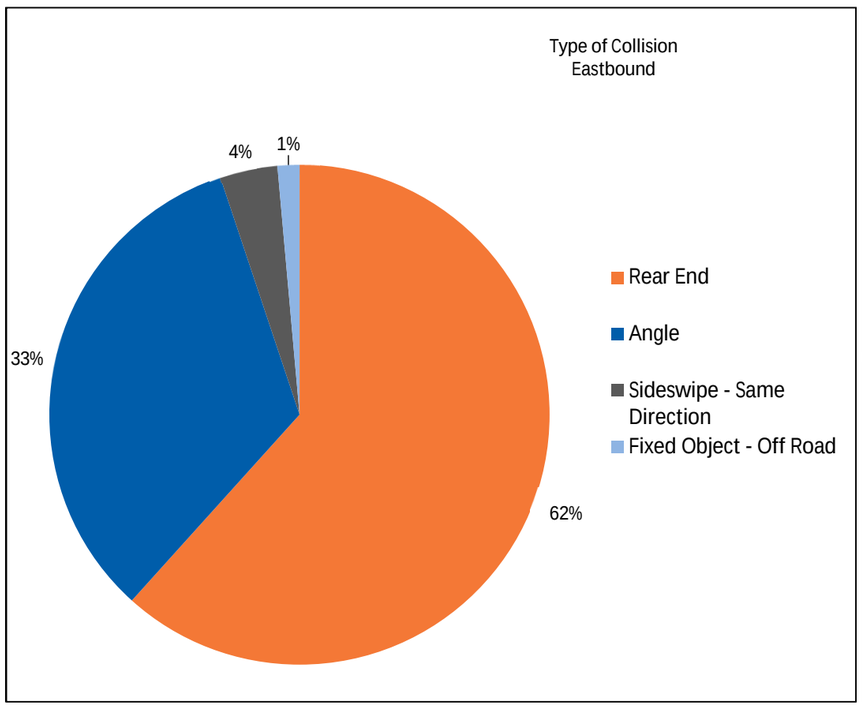
Candlers Mountain Crashes (2010 - 2014)
By Crash Direction

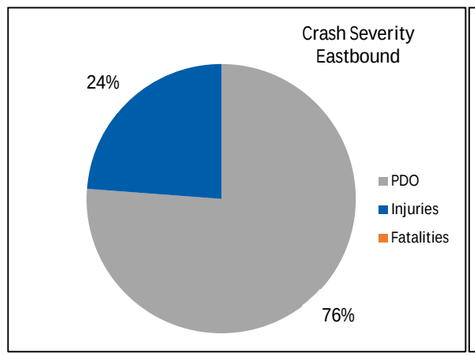
Total Comparison - Eastbound

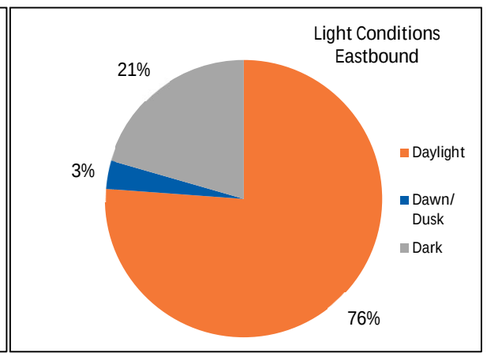
Year	Peak Hour			Light Condition			Weather Condition					Type of Collision								Severity			TOTAL
	AM (6 - 10)	PM (3 - 7)	Off Peak	Day	Dawn / Dusk	Dark	Clear	Fog	Mist	Rain	Snow	Rear End	Angle	Head On	Sideswipe - Same Direction	Non-Collision	Fixed Object - Off Road	Backed Into	Other	Fatalities	Injuries	PDO	
2010	5	23	20	37	2	9	38	0	2	7	1	25	20	0	3	0	0	0	0	0	11	37	48
2011	7	34	20	47	2	12	53	0	3	5	0	38	18	0	3	0	2	0	0	0	13	48	61
2012	8	14	10	21	2	9	28	0	0	4	0	26	5	0	1	0	0	0	0	0	8	24	32
2013	9	15	13	30	0	7	32	0	0	5	0	23	13	0	1	0	0	0	0	0	6	31	37
2014	8	14	14	28	1	7	34	0	0	2	0	20	15	0	0	0	1	0	0	0	13	23	36
TOTAL	37	100	77	163	7	44	185	0	5	23	1	132	71	0	8	0	3	0	0	0	51	163	214

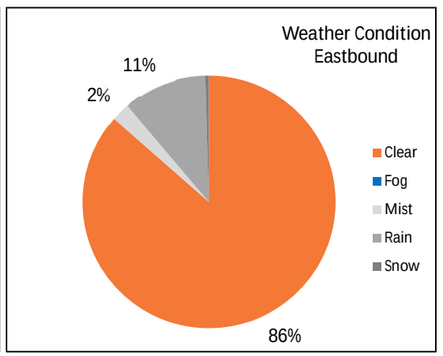
Percentage Comparison

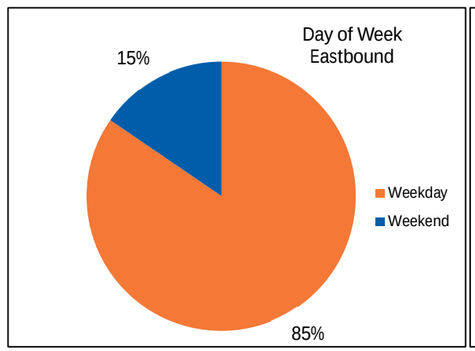
Year	Peak Hour			Light Condition			Weather Condition					Type of Collision								Severity		
	AM (6 - 10)	PM (3 - 7)	Off Peak	Day	Dawn / Dusk	Dark	Clear	Fog	Mist	Rain	Snow	Rear End	Angle	Head On	Sideswipe - Same Direction	Non-Collision	Fixed Object - Off Road	Backed Into	Other	Fatalities	Injuries	PDO
2010	10%	48%	42%	77%	4%	19%	79%	0%	4%	15%	2%	52%	42%	0%	6%	0%	0%	0%	0%	0%	23%	77%
2011	11%	56%	33%	77%	3%	20%	87%	0%	5%	8%	0%	62%	30%	0%	5%	0%	3%	0%	0%	0%	21%	79%
2012	25%	44%	31%	66%	6%	28%	88%	0%	0%	13%	0%	81%	16%	0%	3%	0%	0%	0%	0%	0%	25%	75%
2013	24%	41%	35%	81%	0%	19%	86%	0%	0%	14%	0%	62%	35%	0%	3%	0%	0%	0%	0%	0%	16%	84%
2014	22%	39%	39%	78%	3%	19%	94%	0%	0%	6%	0%	56%	42%	0%	0%	0%	3%	0%	0%	0%	36%	64%
TOTAL	17%	47%	36%	76%	3%	21%	86%	0%	2%	11%	0%	62%	33%	0%	4%	0%	1%	0%	0%	0%	24%	76%

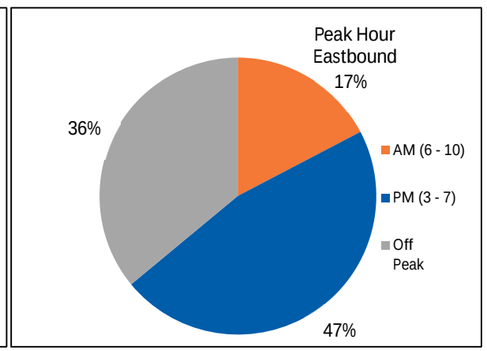












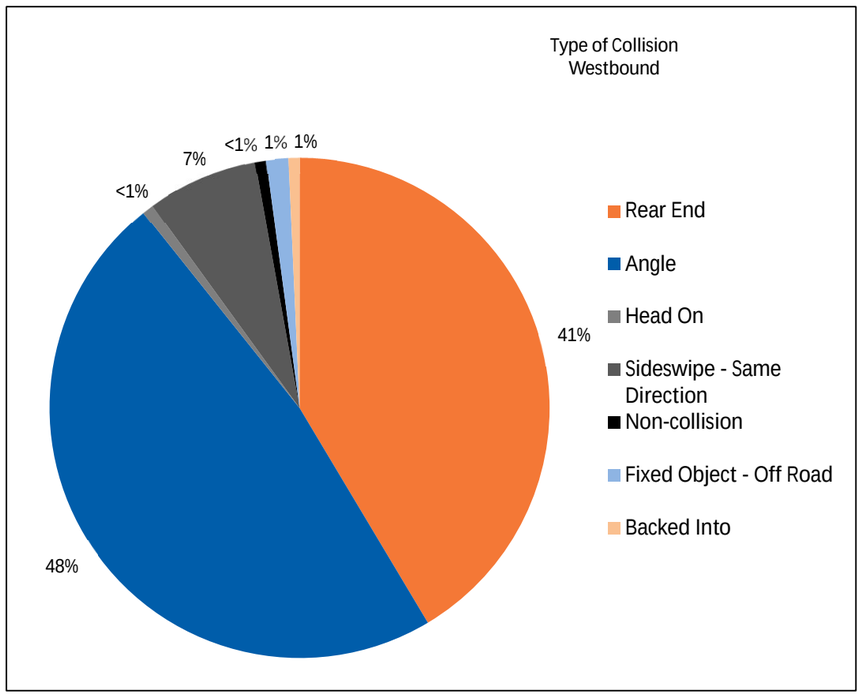
Candlers Mountain Crashes (2010 - 2014)
By Crash Direction

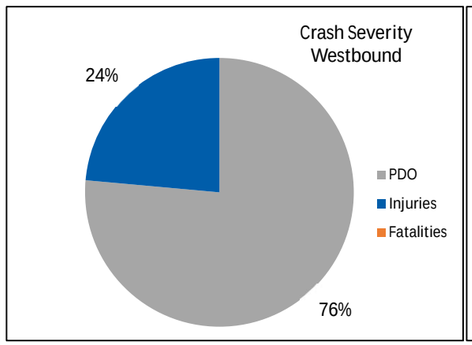
Total Comparison - Westbound

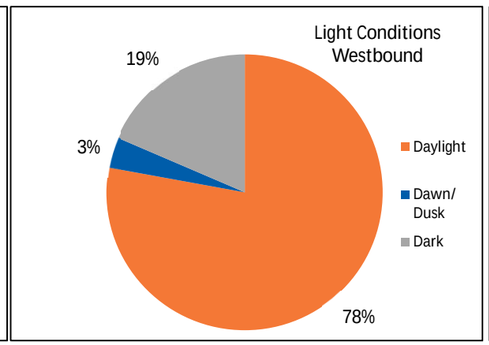
Year	Peak Hour			Light Condition			Weather Condition					Type of Collision								Severity			TOTAL
	AM (6 - 10)	PM (3 - 7)	Off Peak	Day	Dawn / Dusk	Dark	Clear	Fog	Mist	Rain	Snow	Rear End	Angle	Head On	Sideswipe - Same Direction	Non-Collision	Fixed Object - Off Road	Backed Into	Other	Fatalities	Injuries	PDO	
2010	4	2	9	12	1	2	13	0	0	2	0	8	6	0	0	0	1	0	0	0	2	13	15
2011	6	10	10	20	1	5	25	0	0	1	0	12	11	0	3	0	0	0	0	0	8	18	26
2012	2	1	12	8	0	7	15	0	0	0	0	7	7	1	0	0	0	0	0	0	6	9	15
2013	6	10	31	38	1	8	43	0	0	4	0	13	29	0	3	1	1	0	0	0	7	40	47
2014	2	14	21	31	2	4	33	0	0	4	0	18	14	0	4	0	0	1	0	0	10	27	37
TOTAL	20	37	83	109	5	26	129	0	0	11	0	58	67	1	10	1	2	1	0	0	33	107	140

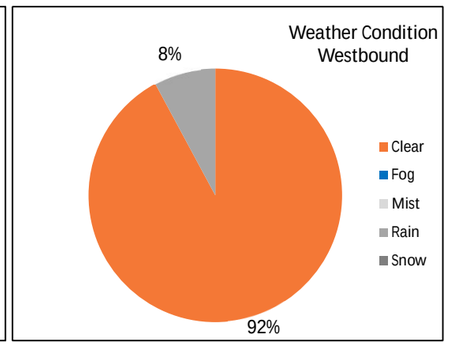
Percentage Comparison

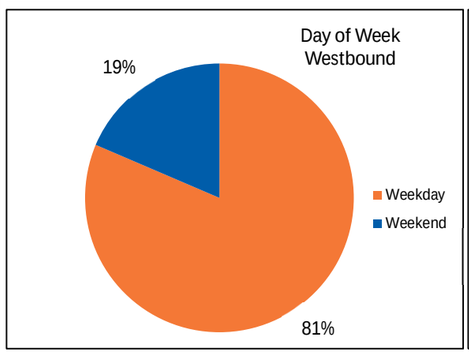
Year	Peak Hour			Light Condition			Weather Condition					Type of Collision								Severity		
	AM (6 - 10)	PM (3 - 7)	Off Peak	Day	Dawn / Dusk	Dark	Clear	Fog	Mist	Rain	Snow	Rear End	Angle	Head On	Sideswipe - Same Direction	Non-Collision	Fixed Object - Off Road	Backed Into	Other	Fatalities	Injuries	PDO
2010	27%	13%	60%	80%	7%	13%	87%	0%	0%	13%	0%	53%	40%	0%	0%	0%	7%	0%	0%	0%	13%	87%
2011	23%	38%	38%	77%	4%	19%	96%	0%	0%	4%	0%	46%	42%	0%	12%	0%	0%	0%	0%	0%	31%	69%
2012	13%	7%	80%	53%	0%	47%	100%	0%	0%	0%	0%	47%	47%	7%	0%	0%	0%	0%	0%	0%	40%	60%
2013	13%	21%	66%	81%	2%	17%	91%	0%	0%	9%	0%	28%	62%	0%	6%	2%	2%	0%	0%	0%	15%	85%
2014	5%	38%	57%	84%	5%	11%	89%	0%	0%	11%	0%	49%	38%	0%	11%	0%	0%	3%	0%	0%	27%	73%
TOTAL	14%	26%	59%	78%	4%	19%	92%	0%	0%	8%	0%	41%	48%	1%	7%	1%	1%	1%	0%	0%	24%	76%

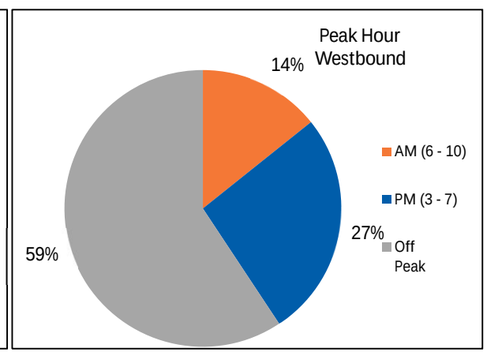












APPENDIX B – EXISTING CONDITIONS

APPENDIX B-1: CORSIM CALIBRATION AND SIMULATION SUMMARY

Candlers Mountain Road Corridor Study - CORSIM Existing (2015) Conditions Modeling Inputs, Assumptions, and Calibration

The existing (2015) AM and PM peak hour CORSIM models were developed based on a combination of collected data and visual observations. The following inputs and assumptions were used in the existing CORSIM models. The inputs and assumptions were used in both the AM and PM peak hour models, unless otherwise noted.

Node Numbering Convention

Node numbering convention used for CORSIM models is summarized in **Table 1.**

Table 1 – Network Node Numbering Convention

Segments	From	To	Description
Freeway Network (FRESIM)			
1000s	1000	1099	Northbound Lynchburg Expressway Mainline
1200s	1200	1299	Northbound Lynchburg Expressway Ramp
3000s	3000	3099	Southbound Lynchburg Expressway Mainline
3200s	3200	3299	Southbound Lynchburg Expressway Ramp
Arterial Network (NETSIM)			
000s	000	099	Candlers Mountain Road/Sheffield Drive
100s	100	199	Wards Road
200s	200	299	Short Street/Driveway
300s	300	399	Border Street/Driveway
400s	400	499	Seminole Avenue
500s	500	599	Lynchburg Expressway Ramps at Candlers Mountain Road
600s	600	699	Murray Place/River Ridge Mall
700s	700	799	Mayflower Drive
800s	800	899	Mountain View Road/Westbound US 501 Ramp
900s	900	999	Lynchburg Expressway Ramps at Wards Road
6000s	6000	6999	Dummy School Crossing Intersection (AM model only)

Lanes

Lane configurations were based on existing geometry.

Freeway Network (FRESIM)

- Two mainline through lanes in both the northbound and southbound directions of the Lynchburg Expressway
- Effective auxiliary lane lengths, equal to the length of the auxiliary lane plus two-thirds of the auxiliary taper length, were input for all freeway network (FRESIM) acceleration, deceleration, and auxiliary lanes. Effective auxiliary lane length inputs are shown in **Table 2**.

Table 2 – Effective Auxiliary Lane Lengths

Auxiliary Lanes	Effective Auxiliary Length	Link	
		Start	End
Northbound Lynchburg Expressway			
NB Lynchburg Expressway Deceleration Lane to Old Wards Rd	65	1010	1015
NB Lynchburg Expressway Auxiliary Lane b/w Entrance Ramp from Wards Rd & Exit Ramp to EB Candlers Mtn Rd	Full Link Length	1030	1035
NB Lynchburg Expressway Acceleration Lane from EB Candlers Mtn Rd	65	1050	1055
NB Lynchburg Expressway Deceleration Lane to WB Candlers Mtn Rd	100	1055	1060
NB Lynchburg Expressway Acceleration Lane from WB Candlers Mtn Rd	340	1065	1070
Southbound Lynchburg Expressway			
SB Lynchburg Expressway Deceleration Lane to EB/WB Candlers Mtn Rd	450	3030	3035
SB Lynchburg Expressway Acceleration Lane from WB Candlers Mtn Rd	65	3040	3045
SB Lynchburg Expressway Deceleration Lane to EB Candlers Mtn Rd	270	3045	3050
SB Lynchburg Expressway Acceleration Lane from Wards Rd	450	3060	3065
SB Lynchburg Expressway Deceleration Lane to Old Wards Rd	270	3060	3065

Arterial Network (NETSIM)

- Lane width of 12 feet was input for all lanes
- Effective storage length, equal to the storage length plus half of the taper length, was input as the storage length for all turn lanes
    - When a turn lane was longer than the link length, the storage bay was coded as a full lane and a node was placed at the end of the storage bay. Diagonal conditional turn movements were used to allow turning vehicles to use the full storage length. This methodology was used at the following locations:
        - Westbound left-turn lane at the intersection of Candlers Mountain Road at Murray Place/River Ridge Mall
- Two-way left-turn lanes (TWLTL) were not coded into CORSIM
    - The intersection of Candlers Mountain Road at Short Street was modeled with 50’ left-turn storage lanes on eastbound and westbound Candlers Mountain Road to account for vehicles queuing in the TWLTL
- Lane alignments were input based on existing geometry, with the following exceptions:
    - The lane alignments from the northbound Lynchburg Expressway exit ramp to eastbound Candlers Mountain Road, northbound Lynchburg Expressway exit ramp to westbound Candlers Mountain Road, and southbound Lynchburg Expressway to eastbound Candlers Mountain Road were adjusted to account for observed motorist behavior. Motorists were observed to immediately merge out of the right most lane; therefore, the lane alignment was adjusted to align the exit ramps with the center lane. This modification also allowed observed peak queue lengths to be replicated.
- In order to replicate the eastbound Candlers Mountain Road vehicles allowing vehicles from the northbound Lynchburg Expressway exit ramp to merge onto Candlers Mountain Road, a lane drop was modeled between the exit ramp and the ramp to River Ridge Mall (dropped to two lanes on link [23, 25]). This modification

allowed observed peak queue lengths to be replicated and also replicated the observation that vehicles from the exit ramp do not use full auxiliary lane between the Lynchburg Expressway exit ramp and the ramp to River Ridge Mall.

- Yield signs were not modeled at the end of any of the Lynchburg Expressway exit ramps to Candlers Mountain Road or at the end of the Westbound US 501 Ramp. This, in combination with the lane drop, permitted vehicles to merge onto Candlers Mountain Road as observed in the field.
- The northbound approach of Candlers Mountain Road at Westbound US 501 Ramp/Mountain View Road was modeled with a 90' left-turn storage lane to prevent extensive queuing in the northbound direction. In the field it was observed that queued southbound vehicles allowed the northbound left-turn vehicles to make the turn and vehicles did not queue back in the northbound direction.
- The eastbound approach of Candlers Mountain Road at Mayflower Drive was modeled with a 25' right-turn storage lane to replicate the additional pavement available at the turn to southbound Candlers Mountain Road.
- Lane channelization was input based on existing lane configurations.

Free-Flow Speed

Mainline freeway free-flow speed was based on INRIX data collected from 10/11/2015 to 10/17/2015. The average speed for each hour of the day over the week-long collection period was calculated and the free-flow speed was taken as the maximum of the hourly average speeds.

Table 3 – Mainline Free-Flow Speeds

From	To	Speed	Nodes	
			Start	End
Northbound Lynchburg Expressway				
Entrance Ramp from Timberlake Rd	Exit Ramp to Old Wards Rd	53	8001	1015
Exit Ramp to Old Wards Rd	Entrance Ramp from Wards Rd	56	1015	1030
Entrance Ramp from Wards Rd	Exit Ramp to EB Candlers Mtn Rd	53	1030	1035
Exit Ramp to EB Candlers Mtn Rd	Entrance Ramp from WB Candlers Mtn Rd	58	1035	1065
Entrance Ramp from WB Candlers Mtn Rd	Exit Ramp to Odd Fellows Rd	59	1065	1095
Southbound Lynchburg Expressway				
Entrance Ramp from Odd Fellows Rd	Exit Ramp to EB/WB Candlers Mtn Rd	57	8003	3035
Exit Ramp to EB/WB Candlers Mtn Rd	Exit Ramp to EB Candlers Mtn Rd	54	3035	3050
Exit Ramp to EB Candlers Mtn Rd	Exit Ramp to Old Wards Rd	55	3050	3080*

*Node 3065 corresponds to the Exit Ramp to Old Wards Road. However, INRIX data was not provided south of the Exit Ramp to Old Wards Road so the free-flow from this segment was assumed to the end of the network

INRIX speed data was not available for most of the study area ramps. For the ramps where INRIX data was available, ramp free flow speed was taken as the maximum of the hourly average speed. For ramps where INRIX data was not available, the ramp free flow speed was taken as ten miles per hour over the posted advisory speed.

Table 4 – Ramp Free-Flow Speeds

Ramp	Posted Advisory Speed	INRIX Speed	Posted Speed +10	Nodes	
				Start	End
Lynchburg Expressway Ramps					
NB Lynchburg Expressway Exit Ramp to Old Wards Rd	30	-	35	1015	910
NB Lynchburg Expressway Entrance Ramp from Wards Rd	25	43	-	920	1030
NB Lynchburg Expressway Exit Ramp to EB Candlers Mtn Rd	25	40	-	1035	22
NB Lynchburg Expressway Entrance Ramp from EB Candlers Mtn Rd	25*	-	35	18	1050
NB Lynchburg Expressway Exit Ramp to WB Candlers Mtn Rd	25	-	35	1060	20
NB Lynchburg Expressway Entrance Ramp from WB Candlers Mtn Rd	30	-	40	24	1065
SB Lynchburg Expressway Exit Ramp to EB/WB Candlers Mtn Rd	30	-	40	3035	12
SB Lynchburg Expressway Entrance Ramp from WB Candlers Mtn Rd	25	-	35	16	3040
SB Lynchburg Expressway Exit Ramp to EB Candlers Mtn Rd	25	-	35	3050	14
SB Lynchburg Expressway Entrance Ramp from Wards Rd	25	-	35	930	3060
SB Lynchburg Expressway Exit Ramp to Old Wards Rd	35	42	-	3065	940
US 460 Ramps					
WB US 460 Entrance Ramp from EB Candlers Mtn Rd	45	-	55	46	50
EB US 460 Entrance Ramp from EB Candlers Mtn Rd	45	52	-	46	54
EB US 460 Exit Ramp to WB Candlers Mtn Rd	35	-	45	60	56
WB US 460 Exit Ramp to Westbound Candlers Mtn Rd	35	45	-	64	56
US 501 Ramp					
WB 501 Ramp	25	-	35	76	44

Arterial free flow speed was based on the posted speed limit. For locations with no posted speed limit, 25 MPH was assumed:

- Candlers Mountain Road = 35 MPH
- Sheffield Drive = 25 MPH
- Wards Road = 35 MPH
- Short Street = 25 MPH (not posted)
- Woodall Road = 25 MPH (not posted)
- Seminole Avenue = 25 MPH (not posted)
- Murray Place = 25 MPH (not posted)
- River Ridge Mall = 25 MPH
- Mayflower Drive = 35 MPH
- Mountain View Road = 25 MPH (not posted)
- All Commercial Driveways = 25 MPH (not posted)

Grade Adjustments

The original Lynchburg Expressway design plans were provided by VDOT and used to identify grades for northbound and southbound mainline travel lanes. The VDOT design plans were also used to identify grades for all southbound Lynchburg Expressway ramps and the northbound Lynchburg Expressway exit ramp to Old Wards Road. The grades on the remaining northbound Lynchburg Expressway ramps were estimated in the field. Arterial network grades were also estimated in the field. CORSIM models were coded with the following grade changes (which correspond to the grade changes used in the Lynchburg Expressway Improvement Study CORSIM models):

Northbound Lynchburg Expressway Mainline Links:

- Node 8001 to Node 1020: 0%
- Node 1020 to Node 1060: +3%
- Node 1060 to Node 1080: -5%
- Node 1080 to Node 1085: -1%
- Node 1085 to Node 1090: 0%
- Node 1090 to Node 1095: -1%

Southbound Lynchburg Expressway Mainline Links:

- Node 8003 to Node 3010: +1%
- Node 3010 to Node 3015: 0%
- Node 3015 to Node 3020: +1%
- Node 3020 to Node 3040: +5%
- Node 3040 to Node 3065: -3%
- Node 3065 to Node 3080: 0%

Northbound Lynchburg Expressway Ramp Links:

- Northbound Lynchburg Expressway Exit Ramp to Old Wards Road
  - Node 1015 to Node 1230: -4%
  - Node 1230 to Node 910: +1%
- Northbound Lynchburg Expressway Entrance Ramp from Wards Road
  - Node 8006 to Node 1030: -4%
- Northbound Lynchburg Expressway Exit Ramp to Eastbound Candlers Mountain Road
  - Node 1035 to Node 22: +2%
- Northbound Lynchburg Expressway Entrance Ramp from Eastbound Candlers Mountain Road
  - Node 18 to Node 1050: -2%
- Northbound Lynchburg Expressway Exit Ramp to Westbound Candlers Mountain Road
  - Node 1060 to Node 20: +3%
- Northbound Lynchburg Expressway Entrance Ramp from Westbound Candlers Mountain Road
  - Node 24 to Node 1065: -3%

Southbound Lynchburg Expressway Ramp Links:

- Southbound Lynchburg Expressway Exit Ramp to Candlers Mountain Road
  - Node 3035 to Node 510: +1%
  - Node 510 to Node 12: -2%
- Southbound Lynchburg Expressway Entrance Ramp from Westbound Candlers Mountain Road
  - Node 16 to Node 3040: -1%
- Southbound Lynchburg Expressway Exit Ramp to Eastbound Candlers Mountain Road
  - Node 3050 to Node 14: +4%
- Southbound Lynchburg Expressway Entrance Ramp from Wards Road
  - Node 8007 to Node 3060: -3%
- Southbound Lynchburg Expressway Exit Ramp to Old Wards Road
  - Node 3065 to Node 940: +1%

Arterial Links:

- Arterial links with grades less than approximately ±2% (based on field observations) were considered level and kept at the CORSIM default value of 0%
- Arterial links with grades greater than approximately ±2% were input into the CORSIM model
- The following arterial links were adjusted from the default value of 0%
  - Seminole Avenue
    - Northbound (Node 8016 to Node 12): +4%
    - Southbound (Node 12 to Node 420): -4%
  - Mayflower Drive
    - Southbound (Node 8021 to Node 40): +3%
    - Northbound (Node 40 to Node 705): -3%
  - Candlers Mountain Road (south of US 501)
    - Northbound (Node 72 to Node 42): -4%
    - Southbound (Node 40 to Node 72): +4%
  - Candlers Mountain Road to US 460 ramps
    - Eastbound Candlers Mountain Road
      - Node 42 to Node 46: +3%
    - Eastbound Candlers Mountain Road to Westbound US 460 Ramp: -3%
      - Node 46 to Node 50: -3%
    - Eastbound Candlers Mountain Road to Eastbound US 460 Ramp:
      - Node 46 to Node 54: -5%
    - Westbound Candlers Mountain Road
      - Node 56 to 44: -3%
    - Westbound Candlers Mountain Road from Eastbound US 460 Ramp
      - Node 8024 to 56: +3%
    - Westbound Candlers Mountain Road from Westbound US 460 Ramp
      - Node 8025 to 58: +3%
      - Node 58 to Node 56: -3%
  - Westbound US 501 Ramp
    - Node 76 to Node 850: -4%

Ramp Metering

Ramp metering was applied at node 3040 (from the Southbound Lynchburg Expressway Entrance Ramp from Westbound Candlers Mountain Road) to model driver behavior and replicate observed peak queue lengths. The clock-time meter was programmed to allow passage of one vehicle at a time onto the freeway every 3.4 seconds. This methodology was also applied at this location in the Lynchburg Expressway Improvement Study.

Signal Timing Inputs

- Signal timing inputs were based on the existing signal timings provided by VDOT and the City of Lynchburg
- Existing AM and PM peak hour scenarios operate under the same signal timings
- The signals at Candlers Mountain Road at Murray Place/River Ridge Mall and Candlers Mountain Road at Mayflower Drive were modified to set the recall mode for the sidestreet and left-turn phases to minimum recall (rather than no recall) in order to replicate queuing observed in the field

- The signal at Candlers Mountain Road at Mayflower Drive was modified to allow the eastbound right-turn movement to have a green indication during all phases. The existing right-turn movement has a slip lane to southbound Candlers Mountain Road and this modification replicated the observed flow of the right-turning vehicles. A separate link for the slip lane was considered but was not used due to constraints with short links.
- The intersections of Candlers Mountain Road at Woodall Road and Candlers Mountain Road at Southbound Lynchburg Expressway/Seminole Avenue were modeled with pre-timed controllers because CORSIM does not have the capability to model two intersections under one controller. Since, pre-timed controllers are limited to 12 intervals in CORSIM, the timings were modified to operate in 12 intervals as shown in **Table 5**.

Table 5 – Candlers Mountain Rd at Woodall Rd & SB Ramps/Seminole Ave Signal Timing

	Existing Signal Phasing (One Controller)		CORSIM Signal Phasing (Two Pretimed Signals)	
	Woodall Rd/ Driveway	SB Ramps/ Seminole Ave	Woodall Rd/ Driveway	SB Ramps/ Seminole Ave
1	↱ ↓	↓	↱ ↓	↓
2	↱ →	→		
3	← →	← →	← →	← →
4	↓ ↑	↓ ↑	↓ ↑	↓ ↑
5	←	↰	←	↰

- In the AM model, a dummy pretimed intersection was modeled on Candlers Mountain Road south of the westbound US 501 ramp/Mountain View Road intersection to replicate traffic during the AM school drop-off time. This intersection was not included in the PM model because school pick-up times did not occur during the PM peak hour.
  - Cycle length = 75 seconds
  - NB/SB split = 25 seconds (3 seconds yellow time, 1 second all red time)
  - EB/WB split = 50 seconds (3 seconds yellow time, 1 second all red time)

Traffic Volume Inputs

- One peak period was analyzed in the Lynchburg Expressway Corridor Study. In order to replicate the observed spike in traffic volumes along the Candlers Mountain Road Corridor, the volumes were input in four 15-minute (900 second) time periods. Traffic volumes were input as vehicle counts at the entry nodes for four 900 second time periods. The 900 second time period volumes were determined by calculating the percent of the peak hour that occurred during each of the four time periods and applying that percent to the balanced hourly volume for each entry node. Time period volumes for AM and PM peaks are shown in **Table 6** and **Table 7**. For low volume approaches (<20 vehicles), the balanced volume was split evenly between the four time periods.

Table 6 – AM Peak Hour Time Period Volumes at Entry Nodes

Entry Node	Description	% Peak Hour Volume in Time Period				Existing Balanced Volume	Time Period Volume			
		TP1	TP2	TP3	TP4		TP1	TP2	TP3	TP4
8001	NB Lynchburg Expressway Mainline	23.3%	26.6%	27.7%	22.4%	2427	565	647	672	543
8003	SB Lynchburg Expressway Mainline	22.7%	24.3%	30.3%	22.7%	1518	344	369	460	345
8006	NB Lynchburg Expressway Ramp from Wards Rd	20.5%	20.8%	28.6%	30.1%	259	53	54	74	78
8007	SB Lynchburg Expressway Ramp from Wards Rd	23.1%	31.5%	23.4%	22.0%	372	86	117	87	82
8009	EB Sheffield D	16.9%	31.8%	33.8%	17.6%	148	25	47	50	26
8010	NB Wards Rd	19.8%	23.5%	27.2%	29.4%	323	64	76	88	95
8011	SB Wards Rd	17.9%	25.2%	36.1%	20.8%	837	150	211	302	174
8012	NB Driveway (south of Short St)	25.0%	25.0%	25.0%	25.0%	15	4	4	4	3
8013	SB Short St	25.0%	25.0%	25.0%	25.0%	15	4	4	4	3
8014	NB Driveway (south of Woodall Rd)	0.0%	5.0%	70.0%	25.0%	30	0	2	21	7
8015	SB Woodall Rd	21.4%	35.7%	16.7%	26.2%	43	9	15	7	12
8016	NB Seminole Ave	16.5%	22.0%	44.0%	17.5%	201	33	44	88	36
8018	SB Murray Pl (right-in, right-out)	15.3%	27.1%	27.1%	30.5%	59	9	16	16	18
8019	NB River Ridge Mall	13.5%	19.7%	33.2%	33.6%	227	31	45	75	76
8020	SB Murray Place (north of River Ridge Mall)	34.2%	18.4%	23.7%	23.7%	37	13	7	9	8
8021	SB Mayflower Dr	25.2%	19.3%	29.3%	26.3%	263	66	51	77	69
8022	EB Mountain View Rd	25.0%	25.0%	25.0%	25.0%	5	1	1	1	2
8023/8029*	NB Candlers Mountain Rd	14.2%	21.1%	27.5%	37.2%	512	73	108	141	190
8024	WB US 460 Ramp to WB Candlers Mountain Rd	29.9%	29.9%	19.9%	20.3%	654	196	196	130	132
8025	EB US 460 Ramp to WB Candlers Mountain Rd	25.1%	26.9%	24.4%	23.6%	934	234	252	228	220

*For the AM model a dummy pretimed intersection was modeled to replicate the AM school drop-off time. The northbound Candlers Mountain Road volume was split between node 8023 (75%) and 8029 (25%).

Table 7 – PM Peak Hour Time Period Volumes at Entry Nodes

Entry Node	Description	% Peak Hour Volume in Time Period				Existing Balanced Volume	Time Period Volume			
		TP1	TP2	TP3	TP4		TP1	TP2	TP3	TP4
8001	NB Lynchburg Expressway Mainline	23.5%	26.8%	26.4%	23.2%	2115	498	567	559	491
8003	SB Lynchburg Expressway Mainline	22.9%	26.0%	28.1%	23.0%	2171	498	564	611	498
8006	NB Lynchburg Expressway Ramp from Wards Rd	24.4%	24.4%	24.1%	27.2%	316	77	77	76	86
8007	SB Lynchburg Expressway Ramp from Wards Rd	21.7%	28.1%	24.6%	25.6%	594	129	167	146	152
8009	EB Sheffield D	17.7%	26.3%	30.7%	25.3%	283	50	74	87	72
8010	NB Wards Rd	25.7%	24.2%	25.0%	25.2%	592	152	143	148	149
8011	SB Wards Rd	24.1%	24.7%	24.9%	26.4%	995	240	245	247	263
8012	NB Driveway (south of Short St)	25.0%	25.0%	25.0%	25.0%	15	4	4	4	3
8013	SB Short St	25.0%	25.0%	25.0%	25.0%	19	5	5	5	4
8014	NB Driveway (south of Woodall Rd)	5.3%	26.3%	57.9%	10.5%	22	1	6	13	2
8015	SB Woodall Rd	12.3%	37.4%	28.8%	21.5%	147	18	55	42	32
8016	NB Seminole Ave	26.2%	27.3%	21.5%	25.0%	156	41	43	34	38
8018	SB Murray Pl (right-in, right-out)	29.1%	35.9%	17.9%	17.1%	117	34	42	21	20
8019	NB River Ridge Mall	26.1%	28.8%	24.9%	20.2%	638	166	184	159	129
8020	SB Murray Place (north of River Ridge Mall)	25.2%	37.8%	18.2%	18.9%	133	33	50	24	26
8021	SB Mayflower Dr	23.4%	30.6%	26.7%	19.3%	569	133	174	152	110
8022	EB Mountain View Rd	25.0%	25.0%	25.0%	25.0%	5	1	1	1	2
8023	NB Candlers Mountain Rd	24.4%	27.5%	22.0%	26.1%	799	195	220	176	208
8024	WB US 460 Ramp to WB Candlers Mountain Rd	21.7%	26.4%	26.4%	25.6%	549	119	145	145	140
8025	EB US 460 Ramp to WB Candlers Mountain Rd	24.3%	21.7%	27.3%	26.7%	500	122	109	136	133

- Relative turn volumes were input for all ramp and intersection movements based on the balanced hourly volumes. The same relative turn volumes were used for all four time periods.
- Conditional turn movements were input for the following scenarios:
  - To prevent vehicles from taking back-to-back loop ramps (getting off the Lynchburg Expressway and then getting immediately back on)
  - When diagonal turn movements were used to preposition upstream turning vehicles
- Existing heavy vehicle percentages were input at all entry nodes.

Origin-Destination

- No origin-destination data was collected for this study. Origin-destination (FRESIM) percentages were applied to override default CORSIM origin-destination calculations to calibrate exit ramp volumes. **Table 8** shows the percentages applied to the model.

Table 8 – Origin-Destination (FRESIM) Percentages

Origin Node Number/Description	Destination Node Number	Percentage of Entering Volume (%)
AM Peak Hour Network		
1000 – Northbound Lynchburg Expressway	1015	22
	1035	20
	1060	7
	1095	51
1050 – Northbound Lynchburg Expressway Entrance Ramp from Eastbound Candlers Mountain Road	1060	0
	1095	100
3005 – Southbound Lynchburg Expressway	3035	8
	3050	23
	3065	9
	3080	60
3040 – Southbound Lynchburg Expressway Entrance Ramp from Westbound Candlers Mountain Road	3050	0
	3065	4
	3080	96
PM Peak Hour Network		
1000 – Northbound Lynchburg Expressway	1015	28
	1035	14
	1060	4
	1095	54
1050 – Northbound Lynchburg Expressway Entrance Ramp from Eastbound Candlers Mountain Road	1060	0
	1095	100
3005 – Southbound Lynchburg Expressway	3035	10
	3050	19
	3065	14
	3080	57
3040 – Southbound Lynchburg Expressway Entrance Ramp from Westbound Candlers Mountain Road	3050	0
	3065	4
	3080	96

Mean Startup Delay and Mean Discharge Headway

The mean startup delay and mean discharge headway were adjusted from the default values of 2.0 and 1.8, respectively, in order to replicate queues observed in the field. The following adjustments were made in both the AM and PM models:

- Eastbound Candlers Mountain Road between the Lynchburg Expressway and Murray Place/River Ridge Mall (Node 14 to Node 34) except for the link after the merge point of the northbound Lynchburg Expressway exit ramp (Node 22 to Node 23)
  - Mean Startup Delay = 3.0

    - Mean Discharge Headway = 2.7
- Eastbound Candlers Mountain Road after the merge point of the northbound Lynchburg Expressway exit ramp (Node 22 to Node 23)
    - Mean Startup Delay = 1.3
- Eastbound Candlers Mountain Road between the Murray Place/River Ridge Mall and Mayflower Drive
    - Mean Startup Delay = 3.0
    - Mean Discharge Headway = 3.1
- Westbound Candlers Mountain Road between east of Mayflower Drive and the Lynchburg Expressway (Node 43 to Node 16)
    - Mean Startup Delay = 3.0
    - Mean Discharge Headway = 2.7
- Southbound Candlers Mountain Road (Node 40 to Node 82)
    - Mean Startup Delay = 2.2
    - Mean Discharge Headway = 2.2
- Southbound Mayflower Drive (Node 710 to Node 40)
    - Mean Discharge Headway = 2.3

NETSIM Setup

For calibration purposes the following global NETSIM settings were adjusted from the default value:

- Percent of drivers who cooperate with a lane changer was increase from the default value of 50% to 90%. This factor was modified to reflect the field observation that drivers tended to let other vehicles merge into their lane.
- Spillback probability for spillback position 1 was decreased from the default value of 80 to zero and the spillback probability for position 2 was decreased from the default value of 40 to zero. This factor was modified to reflect the field observation that drivers tended to let other vehicles in front of them when queued.

Network Properties

- Initialization period was forced to a maximum initialization time of 30 minutes
- Four 900 second periods were simulated
- Vehicle entry headway was set to Erlang distribution with a = 1
- Ten simulation runs were completed (based on the Sample Size Determination Tool)
    - Speed on the southbound Lynchburg Expressway north of Candlers Mountain Road (between Node 3030 and Node 3035) was the input to the Sample Size Determination Tool

Calibration Summary

The existing (2015) AM and PM CORSIM models were calibrated for volume, speed, and queue length.

Volume Calibration

For volume calibration, the percent difference between the actual and simulated volumes was calculated for all links. The calibration goal was to achieve the following thresholds for the top 85% of the network links, based on link traffic volume:

- Within ±20% for <100 vehicles per hour (vph)
- Within ±15% for ≥100 vph to <300 vph
- Within ±10% for ≥300 vph to <1,000 vph
- Within ±5% for ≥1,000 vph

These volume thresholds were met for most of the network links. A summary of the actual and simulated volumes by link is provided in at the end of this appendix.-. The locations where the simulated volumes did not meet the calibration threshold goals are summarized for the AM and PM models in **Table 9** and **Table 10**, respectively. When multiple adjacent links did not meet the calibration volume thresholds, the values for the link with the highest percent difference is shown in the table. The links that did not meet the calibration thresholds were at locations with capacity constraints that prevented full volume throughput.

In the AM peak, volume thresholds were achieved for all freeway and ramp links. On the arterial network, capacity constraints were due to congestion from the school drop-off on southbound Candlers Mountain Road. This congestion resulted in a lower simulated volumes on southbound Candlers Mountain Road, eastbound Candlers Mountain Road, and westbound Mountain View Road.

In addition, due to congestion, vehicles traveling eastbound on Candlers Mountain approaching the intersection of Murray Place/River Ridge Mall often could not merge into the correct lane to make a desired turn. As a result, the simulated right-turn volume to the River Ridge Mall entrance ramp was lower than the actual volume and the simulated left-turn volume to Murray Place was higher than the actual volume.

In the PM peak, volume thresholds were achieved for all freeway link. Two northbound Lynchburg Expressway ramps, the entrance ramp from Wards Road and the exit ramp to eastbound Candlers Mountain Road, did not meet volume calibration thresholds due to congestion in the weave area between the two ramps. On the arterial network, capacity constraints were dud to congestion on Candlers Mountain Road at the Murray Place/River Ridge Mall and Mayflower Drive intersections. This congestion resulted in lower simulated volumes on eastbound Candlers Mountain Road. As was observed in the AM model, vehicles traveling eastbound on Candlers Mountain Road approaching the intersection of Murray Place/River Ridge Mall often could not merge into the correct lane to make a desired turn. As a result, the simulated right-turn volume to the River Ridge Mall entrance ramp was lower than the actual volume.

Table 9 – CORSIM Volume Calibration – Existing (2015) AM Peak Hour

Location	Actual Volume	Simulated Volume	Percent Difference
FREEWAY			
All freeway links meet calibration volume thresholds			
RAMPS			
All ramp links meet calibration volume thresholds			
ARTERIALS			
EB Candlers Mountain Rd between Murray Pl/River Ridge Mall and Mayflower Dr (Node 32 to Node 40)	1583	1407	-11.1%
SB Candlers Mountain Rd (Node 40 to Node 82)	1150	952	-17.2%
WB Mountain View Rd (Node 74 to Node 810)	545	468	-14.1%
NB Murray Pl (Node 32 to Node 640)	205	348	69.8%
SB River Ridge Mall Ramp Entrance (Node 28 to Node 630)	160	93	-41.9%

Table 10 – CORSIM Volume Calibration – Existing (2015) PM Peak Hour

Location	Actual Volume	Simulated Volume	Percent Difference
FREEWAY			
All freeway links meet calibration volume thresholds			
RAMPS			
NB Lynchburg Expressway Ramp from Wards Rd	316	283	-10.4%
NB Lynchburg Expressway Ramp to EB Candlers Mountain Rd (Ramp C)	497	421	-15.3%
ARTERIALS			
EB Candlers Mountain Rd between NB Lynchburg Expressway Exit Ramp and Murray Pl/River Ridge Mall	1559	1400	-10.2%
EB Candlers Mountain Road between Murray Pl/River Ridge Mall and Mayflower Dr (Node 34 to Node 40)	1697	1605	-5.4%
SB River Ridge Mall Ramp Entrance (Node 28 to Node 630)	190	104	-45.3%

Speed Calibration

For speed calibration, the speed difference between the free-flow speed and simulated speed was calculated for all freeway and ramp links. The arterial network was not calibrated for speed due to the presence of signalized and unsignalized intersection along arterial network. The calibration goal was to achieve the following thresholds for the top 85% of the network links, based on link traffic volume:

- Within ±7 mph of average observed speed on arterial

This speed threshold was met for most of the freeway and ramp network links. A summary of the actual and simulated speeds by link is provided at the end of this appendix. The locations where the simulated speeds did not meet the calibration threshold goal are summarized for the AM and PM models in **Table 11**and **Table 12**, respectively.

In the southbound direction for both the AM and PM models the loop ramp from westbound Candlers Mountain Road and the mainline freeway link immediately downstream of this ramp did not meet the calibration speed thresholds due to the use of a ramp meter at the end of this ramp. A ramp meter was modeled on this ramp in order to replicate observed queuing and resulted in slower speeds on these links.

In the northbound direction for both the AM and PM models, the congestion and queuing on the ramp to eastbound Candlers Mountain Road that extended back into the full auxiliary lane of the weave segment between the Wards Road entrance ramp and the eastbound Candlers Mountain Road exit ramp resulted in lower speeds on the ramp and mainline freeway links in the area around the weave. The freeway mainline link immediately downstream of the entrance ramp from eastbound Candlers Mountain Road also did not meet calibration speed thresholds in the AM and PM models. This entrance ramp has a short acceleration lane which resulted in slower speeds.

Table 11 – CORSIM Speed Calibration – Existing (2015) AM Peak Hour

Location	Free-Flow Speed	Simulated Speed	Speed Difference
FREEWAY			
SB Lynchburg Expressway after ramp from WB Candlers Mountain Rd	54	37.7	-16.3
NB Lynchburg Expressway weave between ramp from Wards Rd and ramp to EB Candlers Mountain Rd	53	42.3	-10.7
NB Lynchburg Expressway after ramp from EB Candlers Mountain Rd	58	50.2	-7.8
RAMPS			
SB Lynchburg Expressway Ramp from WB Candlers Mountain Rd	35	5.3	-29.9
NB Lynchburg Expressway Ramp from Wards Rd	43	35	-8.0
NB Lynchburg Expressway Ramp to EB Candlers Mountain Rd	40	21.9	-18.1
NB Lynchburg Expressway Ramp to WB Candlers Mountain Rd	35	46.5	11.5

Table 12 – CORSIM Speed Calibration – Existing (2015) PM Peak Hour

Location	Free-Flow Speed	Simulated Speed	Speed Difference
FREEWAY			
SB Lynchburg Expressway after ramp from WB Candlers Mountain Rd	54	40.1	-13.9
NB Lynchburg Expressway before ramp from Wards Rd	56	44.2	-11.8
NB Lynchburg Expressway weave between ramp from Wards Rd and ramp to EB Candlers Mountain Rd	53	31.8	-21.2
NB Lynchburg Expressway after ramp to EB Candlers Mountain Rd	58	50.6	-7.4
NB Lynchburg Expressway after ramp from EB Candlers Mountain Rd	58	48.1	-9.9
RAMPS			
SB Lynchburg Expressway Ramp from WB Candlers Mountain Rd	35	6.2	-28.8
NB Lynchburg Expressway Ramp from Wards Rd	43	26.8	-16.2
NB Lynchburg Expressway Ramp to EB Candlers Mountain Rd	40	11.3	-28.7

Queue Length Calibration

The AM and PM models were calibrated to observed queue lengths. This calibration was based on visual comparison of field observation and simulation animations. Parameters adjusted to model observed queue lengths were discussed in previous sections.

Existing (2015) AM Peak Hour
Calibration Summary

Route	From Node	To Node	Type	Link Distance	Volume Percentile	Actual Volumes	Simulated Volumes	Percent Difference	Actual Speeds	Simulated Space Mean Speeds	Speed Difference
SB US 29 BUS	3005	3010	Freeway	900	79%	1518	1515	-0.2%	57	56.2	-0.8
	3010	3015	Freeway	877	79%	1518	1516	-0.1%	57	55.9	-1.1
	3015	3020	Freeway	2183	79%	1518	1515	-0.2%	57	55.5	-1.5
	3020	3025	Freeway	936	79%	1518	1514	-0.3%	57	55	-2.0
	3025	3030	Freeway	649	79%	1518	1515	-0.2%	57	54.4	-2.6
	3030	3035	Freeway	851	79%	1518	1515	-0.2%	57	52.8	-4.2
	3035	3210	Ramp	107	18%	119	116	-2.5%	40	39.5	-0.5
	3035	3040	Freeway	500	76%	1399	1400	0.1%	54	49.6	-4.4
	3230	3040	Ramp	195	52%	499	496	-0.6%	35	5.1	-29.9
	3040	3045	Freeway	267	94%	1898	1897	-0.1%	54	37.7	-16.3
	3045	3050	Freeway	349	94%	1898	1896	-0.1%	54	49.3	-4.7
	3050	3240	Ramp	212	39%	351	359	2.3%	35	36.7	1.7
	3050	3055	Freeway	500	82%	1547	1537	-0.6%	55	53.3	-1.7
	3055	3060	Freeway	500	82%	1547	1538	-0.6%	55	53.6	-1.4
	3250	3060	Ramp	114	41%	372	372	0.0%	35	34.9	-0.1
	3060	3065	Freeway	888	97%	1919	1907	-0.6%	55	51.5	-3.5
	3065	3260	Ramp	306	34%	232	222	-4.3%	42	41.2	-0.8
	3065	3070	Freeway	500	89%	1687	1683	-0.2%	55	53.7	-1.3
	3070	3075	Freeway	980	89%	1687	1684	-0.2%	55	53.5	-1.5
	3075	3080	Freeway	1472	89%	1687	1685	-0.1%	55	53.3	-1.7
NB US 29 BUS	1000	1005	Freeway	480	99%	2427	2430	0.1%	53	51.8	-1.2
	1005	1010	Freeway	625	99%	2427	2431	0.2%	53	51.3	-1.7
	1010	1015	Freeway	875	99%	2427	2432	0.2%	53	47.2	-5.8
	1015	1220	Ramp	536	54%	509	497	-2.4%	35	34	-1.0
	1015	1020	Freeway	914	95%	1918	1934	0.8%	56	53.2	-2.8
	1020	1025	Freeway	662	95%	1918	1933	0.8%	56	53.5	-2.5
	1025	1030	Freeway	500	95%	1918	1929	0.6%	56	50.8	-5.2
	1240	1030	Ramp	214	36%	259	251	-3.1%	43	35	-8.0
	1030	1035	Freeway	657	98%	2177	2170	-0.3%	53	42.3	-10.7
	1035	1250	Ramp	268	62%	622	615	-1.1%	40	21.9	-18.1
	1035	1040	Freeway	117	83%	1555	1551	-0.3%	58	51.1	-6.9
	1040	1045	Freeway	383	83%	1555	1550	-0.3%	58	54	-4.0
	1045	1050	Freeway	117	83%	1555	1550	-0.3%	58	54.8	-3.2
	1260	1050	Ramp	231	14%	94	93	-1.1%	35	30.7	-4.3
	1050	1055	Freeway	217	88%	1649	1643	-0.4%	58	50.2	-7.8
	1055	1060	Freeway	224	88%	1649	1642	-0.4%	58	53.8	-4.2
	1060	1270	Ramp	215	28%	191	188	-1.6%	35	46.5	11.5
	1060	1065	Freeway	500	77%	1458	1455	-0.2%	58	55.6	-2.4
	1280	1065	Ramp	270	48%	432	414	-4.2%	40	37.8	-2.2
	1065	1070	Freeway	755	91%	1890	1868	-1.2%	59	54.8	-4.2
	1070	1075	Freeway	745	91%	1890	1868	-1.2%	59	57	-2.0
	1075	1080	Freeway	837	91%	1890	1870	-1.1%	59	57	-2.0
	1080	1085	Freeway	2196	91%	1890	1876	-0.7%	59	56.8	-2.2
	1085	1090	Freeway	852	91%	1890	1878	-0.6%	59	56.6	-2.4
	1090	1095	Freeway	1090	91%	1890	1879	-0.6%	59	56.6	-2.4

NETSIM Links Results

CandlerMRdEB	6	8		520	59%	611	621	1.6%	35	26.6	-8.4
CandlerMRdEB	8	10		328	59%	611	632	3.4%	35	5.5	-29.5
CandlerMRdEB	10	12		183	65%	627	655	4.5%	35	9.7	-25.3
CandlerMRdEB	12	14		278	67%	753	784	4.1%	35	25.2	-9.8
CandlerMRdEB	14	18		562	72%	1104	1136	2.9%	35	26.5	-8.5
CandlerMRdEB	18	22		446	71%	1010	1033	2.3%	35	15.6	-19.4
CandlerMRdEB	22	23		155	86%	1632	1611	-1.3%	35	6	-29.0
CandlerMRdEB	23	25		115	86%	1632	1603	-1.8%	35	7.9	-27.1
CandlerMRdEB	25	28		172	86%	1632	1594	-2.3%	35	7.1	-27.9
CandlerMRdEB	28	30		119	78%	1472	1495	1.6%	35	6.4	-28.6
CandlerMRdEB	30	32		141	77%	1463	1488	1.7%	35	3.8	-31.2
CandlerMRdEB	32	34		105	76%	1407	1273	-9.5%	35	16.3	-18.7
CandlerMRdEB	34	40		617	85%	1583	1407	-11.1%	35	8.6	-26.4
CandlerMRdEB	40	42		347	67%	685	676	-1.3%	35	27.7	-7.3
CandlerMRdEB	42	46		1150	68%	782	773	-1.2%	35	30.4	-4.6
CandlerMRdNB	68	42		106	16%	97	100	3.1%	35	9.3	-25.7
CandlerMRdNB	70	68		101	16%	97	100	3.1%	35	21.2	-13.8
CandlerMRdNB	72	70		327	16%	97	100	3.1%	35	21.5	-13.5
CandlerMRdNB	74	72		222	16%	97	100	3.1%	35	34.1	-0.9
CandlerMRdNB	76	74		102	21%	134	139	3.7%	35	6.5	-28.5
CandlerMRdNB	80	76		624	55%	512	494	-3.5%	35	22.6	-12.4
CandlerMRdNB	82	80		735	43%	384	368	-4.2%	35	9.5	-25.5
CandlerMRdSB	40	70		333	73%	1150	1051	-8.6%	35	17.4	-17.6
CandlerMRdSB	70	72		327	73%	1150	970	-15.7%	35	12.7	-22.3
CandlerMRdSB	72	74		222	73%	1150	952	-17.2%	35	5.6	-29.4
CandlerMRdSB	74	76		102	59%	605	517	-14.5%	35	2.5	-32.5
CandlerMRdSB	76	78		125	58%	590	497	-15.8%	35	3.9	-31.1
CandlerMRdSB	78	80		501	58%	595	494	-17.0%	35	2.7	-32.3
CandlerMRdSB	80	82		735	57%	580	481	-17.1%	35	28.9	-6.1
CandlerMRdWB	8	6		520	51%	497	496	-0.2%	35	12.3	-22.7
CandlerMRdWB	10	8		328	51%	497	510	2.6%	35	28.1	-6.9
CandlerMRdWB	12	10		183	62%	619	618	-0.2%	35	14.9	-20.1
CandlerMRdWB	16	12		449	64%	623	633	1.6%	35	7.3	-27.7
CandlerMRdWB	20	16		424	72%	1122	1110	-1.1%	35	25.5	-9.5
CandlerMRdWB	24	20		437	69%	931	923	-0.9%	35	31.5	-3.5
CandlerMRdWB	26	24		322	75%	1368	1339	-2.1%	35	31.4	-3.6
CandlerMRdWB	32	26		366	74%	1309	1284	-1.9%	35	29.2	-5.8
CandlerMRdWB	40	32		717	78%	1511	1489	-1.5%	35	13.7	-21.3
CandlerMRdWB	43	40		605	97%	1981	1962	-1.0%	35	11.7	-23.3
CandlerMRdWB	44	43		227	97%	1981	1961	-1.0%	35	26.6	-8.4
CandlerMRdWB	56	44		696	86%	1588	1589	0.1%	35	32	-3.0

Existing (2015) AM Peak Hour
Calibration Summary

Driveway	8	230		190	4%	15	14	-6.7%	25	20.9	-4.1
Driveway	10	330		189	9%	23	14	-39.1%	25	19.9	-5.1
Driveway	230	8		190	4%	15	15	0.0%	25	8.8	-16.2
Driveway	230	240		132	4%	15	14	-6.7%	25	26.1	1.1
Driveway	240	230		132	4%	15	15	0.0%	25	38.4	13.4
Driveway	330	10		189	10%	30	30	0.0%	25	4.2	-20.8
Driveway	330	340		110	9%	23	14	-39.1%	25	24.7	-0.3
Driveway	340	330		110	10%	30	30	0.0%	25	42.5	17.5
Mayflower NB	40	720		503	49%	481	473	-1.7%	35	26.8	-8.2
Mayflower NB	710	705		1817	49%	481	473	-1.7%	35	33.1	-1.9
Mayflower NB	720	710		1084	49%	481	474	-1.5%	35	31.8	-3.2
Mayflower SB	705	710		1817	37%	263	264	0.4%	35	29.7	-5.3
Mayflower SB	710	720		1084	37%	263	265	0.8%	35	32.1	-2.9
Mayflower SB	720	40		503	37%	263	267	1.5%	35	5.9	-29.1
MntViewRd EB	810	820		270	1%	5	4	-20.0%	25	30.2	5.2
MntViewRd EB	820	830		527	1%	5	4	-20.0%	25	21.6	-3.4
MntViewRd EB	830	78		104	1%	5	4	-20.0%	25	0.4	-24.6
MntViewRd WB	74	830		160	56%	545	468	-14.1%	25	21.2	-3.8
MntViewRd WB	820	810		270	56%	545	469	-13.9%	25	22.8	-2.2
MntViewRd WB	830	820		527	56%	545	468	-14.1%	25	23.2	-1.8
Murray Pl NB	26	610		242	1%	5	0	-100.0%	25	0	-25.0
Murray Pl NB	32	650		221	32%	205	348	69.8%	25	21.1	-3.9
Murray Pl NB	650	640		181	32%	205	348	69.8%	25	24	-1.0
Murray Pl SB	610	26		242	14%	59	59	0.0%	25	8.6	-16.4
Murray Pl SB	640	650		181	11%	37	37	0.0%	25	33.3	8.3
Murray Pl SB	650	32		221	11%	37	38	2.7%	25	2.7	-22.3
NB Off Ramp	7001	910		202	54%	509	497	-2.4%	35	44.2	9.2
NB On Ramp	920	7003		1212	36%	259	254	-1.9%	43	42.5	-0.5
Ramp A	520	14		225	39%	351	359	2.3%	35	16.1	-18.9
Ramp A	7010	520		225	39%	351	359	2.3%	35	23.5	-11.5
Ramp B	18	530		218	14%	94	94	0.0%	35	16.7	-18.3
Ramp B	530	7005		224	14%	94	93	-1.1%	35	22.6	-12.4
Ramp C	540	545		205	62%	622	599	-3.7%	40	8.4	-31.6
Ramp C	545	22		227	62%	622	591	-5.0%	40	7.4	-32.6
Ramp C	7004	540		195	62%	622	604	-2.9%	40	11.5	-28.5
Ramp D	24	550		141	48%	432	414	-4.2%	40	34	-6.0
Ramp D	550	7007		157	48%	432	414	-4.2%	40	35.7	-4.3
Ramp E	535	20		228	28%	191	187	-2.1%	35	17.4	-17.6
Ramp E	7006	535		183	28%	191	188	-1.6%	35	30	-5.0
Ramp F	16	525		123	52%	499	490	-1.8%	35	14.1	-20.9
Ramp F	525	7009		139	52%	499	491	-1.6%	35	18.8	-16.2
Ramp G	510	515		321	18%	119	116	-2.5%	40	38.9	-1.1
Ramp G	515	12		212	18%	119	116	-2.5%	40	7.8	-32.2
Ramp G	7008	510		276	18%	119	116	-2.5%	40	52.3	12.3
Ramp H	46	48		579	46%	405	398	-1.7%	55	42.8	-12.2
Ramp H	48	50		408	46%	405	398	-1.7%	55	49.7	-5.3
Ramp I	46	52		610	42%	377	375	-0.5%	52	34.4	-17.6
Ramp I	52	54		417	42%	377	375	-0.5%	52	45	-7.0
Ramp J	58	56		624	70%	934	935	0.1%	45	40.8	-4.2
Ramp J	60	58		490	70%	934	935	0.1%	45	49.1	4.1
Ramp K	62	56		627	66%	654	654	0.0%	45	41.6	-3.4
Ramp K	64	62		607	66%	654	653	-0.2%	45	48.1	3.1
RiverRidgeNB	660	32		140	13%	51	57	11.8%	25	1.5	-23.5
RiverRidgeNB	660	34		148	28%	176	159	-9.7%	25	3	-22.0
RiverRidgeNB	670	660		177	33%	227	222	-2.2%	25	10.7	-14.3
RiverRidgeNB	680	670		175	33%	227	225	-0.9%	25	30.2	5.2
RiverRidgeSB	28	620		108	27%	160	93	-41.9%	25	21.9	-3.1
RiverRidgeSB	30	660		181	3%	9	0	-100.0%	25	0	-25.0
RiverRidgeSB	32	660		140	22%	141	156	10.6%	25	21.2	-3.8
RiverRidgeSB	620	630		134	27%	160	93	-41.9%	25	15.5	-9.5
RiverRidgeSB	660	670		177	23%	150	156	4.0%	25	23.7	-1.3
RiverRidgeSB	670	680		175	23%	150	156	4.0%	25	24.5	-0.5
SB Off Ramp	7002	940		236	34%	232	222	-4.3%	42	53.1	11.1
SB On Ramp	930	7011		107	41%	372	372	0.0%	35	64.8	29.8
School	80	6000		197	0%	0	0	-	25	0	-25.0
School	80	6005		243	4%	15	14	-6.7%	25	19.3	-5.7
School	6000	80		197	0%	0	0	-	25	0	-25.0
School	6005	80		243	21%	128	126	-1.6%	25	13	-12.0
Seminole NB	410	12		306	31%	201	200	-0.5%	25	10.3	-14.7
Seminole NB	420	410		195	31%	201	200	-0.5%	25	32.1	7.1
Seminole SB	12	410		306	30%	198	201	1.5%	25	21.6	-3.4
Seminole SB	410	420		195	30%	198	202	2.0%	25	23.8	-1.2
Sheffield EB	2	4		778	22%	148	148	0.0%	25	26	1.0
Sheffield EB	4	6		400	22%	148	148	0.0%	25	6.7	-18.3
Sheffield WB	4	2		778	24%	151	152	0.7%	25	23.5	-1.5
Sheffield WB	6	4		400	24%	151	152	0.7%	25	20.7	-4.3
Short St NB	8	220		208	4%	15	17	13.3%	25	20.5	-4.5
Short St NB	220	210		209	4%	15	17	13.3%	25	24.7	-0.3
Short St SB	210	220		209	4%	15	14	-6.7%	25	31.5	6.5
Short St SB	220	8		208	4%	15	14	-6.7%	25	9.5	-15.5
US501 Ramp	76	840		419	44%	393	372	-5.3%	35	28	-7.0
US501 Ramp	840	850		305	44%	393	372	-5.3%	35	32.1	-2.9
US501 Ramp	850	44		246	44%	393	372	-5.3%	35	28.5	-6.5
Wards Rd NB	6	120		618	61%	617	606	-1.8%	35	27.9	-7.1
Wards Rd NB	120	110		505	61%	617	608	-1.5%	35	33	-2.0
Wards Rd NB	130	6		693	38%	323	319	-1.2%	35	11.1	-23.9
Wards Rd NB	140	130		319	38%	323	322	-0.3%	35	41.4	6.4
Wards Rd SB	6	130		693	47%	426	416	-2.3%	35	29.6	-5.4
Wards Rd SB	110	120		505	68%	837	836	-0.1%	35	37.2	2.2
Wards Rd SB	120	6		618	68%	837	836	-0.1%	35	11.3	-23.7
Wards Rd SB	130	140		319	47%	426	416	-2.3%	35	32.9	-2.1
WoodallRdNB	10	320		378	26%	156	144	-7.7%	25	22.7	-2.3
WoodallRdNB	320	310		311	26%	156	144	-7.7%	25	24.3	-0.7
WoodallRdSB	310	320		311	12%	43	42	-2.3%	25	29.1	4.1
WoodallRdSB	320	10		378	12%	43	43	0.0%	25	5.2	-19.8

Existing (2015) PM Peak Hour
Calibration Summary

Route	From Node	To Node	Type	Link Distance	Volume Percentile	Actual Volumes	Simulated Volumes	Percent Difference	Actual Speeds	Simulated Space Mean Speeds	Speed Difference
SB US 29 BUS	3005	3010	Freeway	900	95%	2171	2168	-0.1%	57	55.8	-1.2
	3010	3015	Freeway	877	95%	2171	2170	0.0%	57	55.2	-1.8
	3015	3020	Freeway	2183	95%	2171	2173	0.1%	57	54.7	-2.3
	3020	3025	Freeway	936	95%	2171	2174	0.1%	57	54.2	-2.8
	3025	3030	Freeway	649	95%	2171	2174	0.1%	57	53.7	-3.3
	3030	3035	Freeway	851	95%	2171	2172	0.0%	57	52.2	-4.8
	3035	3210	Ramp	107	25%	226	215	-4.9%	40	39.3	-0.7
	3035	3040	Freeway	500	90%	1945	1956	0.6%	54	49.3	-4.7
	3230	3040	Ramp	195	40%	422	416	-1.4%	35	6.2	-28.8
	3040	3045	Freeway	267	99%	2367	2372	0.2%	54	40.1	-13.9
	3045	3050	Freeway	349	99%	2367	2374	0.3%	54	49.3	-4.7
	3050	3240	Ramp	212	38%	408	411	0.7%	35	35.1	0.1
	3050	3055	Freeway	500	91%	1959	1963	0.2%	55	52.8	-2.2
	3055	3060	Freeway	500	91%	1959	1964	0.3%	55	53	-2.0
	3250	3060	Ramp	114	53%	594	594	0.0%	35	34.7	-0.3
	3060	3065	Freeway	888	100%	2553	2555	0.1%	55	50.2	-4.8
	3065	3260	Ramp	306	41%	473	491	3.8%	42	40.7	-1.3
	3065	3070	Freeway	500	92%	2080	2064	-0.8%	55	53.3	-1.7
	3070	3075	Freeway	980	92%	2080	2062	-0.9%	55	53	-2.0
	3075	3080	Freeway	1472	92%	2080	2061	-0.9%	55	52.7	-2.3
NB US 29 BUS	1000	1005	Freeway	480	94%	2115	2114	0.0%	53	51.9	-1.1
	1005	1010	Freeway	625	94%	2115	2114	0.0%	53	51.5	-1.5
	1010	1015	Freeway	875	94%	2115	2113	-0.1%	53	46.8	-6.2
	1015	1220	Ramp	536	47%	554	554	0.0%	35	33.9	-1.1
	1015	1020	Freeway	914	82%	1561	1560	-0.1%	56	53.5	-2.5
	1020	1025	Freeway	662	82%	1561	1556	-0.3%	56	50.5	-5.5
	1025	1030	Freeway	500	82%	1561	1546	-1.0%	56	44.2	-11.8
	1240	1030	Ramp	214	34%	316	283	-10.4%	43	26.8	-16.2
	1030	1035	Freeway	657	90%	1877	1806	-3.8%	53	31.8	-21.2
	1035	1250	Ramp	268	43%	497	421	-15.3%	40	11.3	-28.7
	1035	1040	Freeway	117	75%	1380	1376	-0.3%	58	50.6	-7.4
	1040	1045	Freeway	383	75%	1380	1376	-0.3%	58	53.8	-4.2
	1045	1050	Freeway	117	75%	1380	1377	-0.2%	58	55	-3.0
	1260	1050	Ramp	231	18%	150	142	-5.3%	35	30.2	-4.8
	1050	1055	Freeway	217	78%	1530	1518	-0.8%	58	48.1	-9.9
	1055	1060	Freeway	224	78%	1530	1518	-0.8%	58	53.4	-4.6
	1060	1270	Ramp	215	11%	96	96	0.0%	35	47.1	12.1
	1060	1065	Freeway	500	77%	1434	1422	-0.8%	58	55.6	-2.4
	1280	1065	Ramp	270	35%	336	322	-4.2%	40	38.6	-1.4
	1065	1070	Freeway	755	86%	1770	1744	-1.5%	59	55.4	-3.6
	1070	1075	Freeway	745	86%	1770	1742	-1.6%	59	57.2	-1.8
	1075	1080	Freeway	837	86%	1770	1742	-1.6%	59	57.1	-1.9
	1080	1085	Freeway	2196	86%	1770	1748	-1.2%	59	56.9	-2.1
	1085	1090	Freeway	852	86%	1770	1750	-1.1%	59	56.7	-2.3
	1090	1095	Freeway	1090	86%	1770	1749	-1.2%	59	56.7	-2.3

NETSIM Links Results

CandlerMRdEB	6	8		520	57%	677	674	-0.4%	35	24.4	-10.6
CandlerMRdEB	8	10		328	57%	677	687	1.5%	35	4.8	-30.2
CandlerMRdEB	10	12		183	60%	714	723	1.3%	35	7	-28.0
CandlerMRdEB	12	14		278	64%	804	813	1.1%	35	20.6	-14.4
CandlerMRdEB	14	18		562	72%	1212	1202	-0.8%	35	15.9	-19.1
CandlerMRdEB	18	22		446	70%	1062	1034	-2.6%	35	6.1	-28.9
CandlerMRdEB	22	23		155	80%	1559	1410	-9.6%	35	3.2	-31.8
CandlerMRdEB	23	25		115	80%	1559	1405	-9.9%	35	4.5	-30.5
CandlerMRdEB	25	28		172	80%	1559	1400	-10.2%	35	4.1	-30.9
CandlerMRdEB	28	30		119	74%	1369	1300	-5.0%	35	4.9	-30.1
CandlerMRdEB	30	32		141	73%	1289	1235	-4.2%	35	3.5	-31.5
CandlerMRdEB	32	34		105	73%	1291	1239	-4.0%	35	14.1	-20.9
CandlerMRdEB	34	40		617	86%	1697	1605	-5.4%	35	6.7	-28.3
CandlerMRdEB	40	42		347	77%	1432	1382	-3.5%	35	27.1	-7.9
CandlerMRdEB	42	46		1150	84%	1632	1592	-2.5%	35	29	-6.0
CandlerMRdNB	68	42		106	22%	200	207	3.5%	35	3.4	-31.6
CandlerMRdNB	70	68		101	22%	200	207	3.5%	35	16.5	-18.5
CandlerMRdNB	72	70		327	22%	200	206	3.0%	35	21.4	-13.6
CandlerMRdNB	74	72		222	22%	200	206	3.0%	35	33.2	-1.8
CandlerMRdNB	76	74		102	24%	210	218	3.8%	35	25.9	-9.1
CandlerMRdNB	80	76		624	63%	799	798	-0.1%	35	25.1	-9.9
CandlerMRdNB	82	80		735	63%	799	797	-0.3%	35	34.8	-0.2
CandlerMRdSB	40	70		333	59%	699	654	-6.4%	35	25.8	-9.2
CandlerMRdSB	70	72		327	59%	699	654	-6.4%	35	33.1	-1.9
CandlerMRdSB	72	74		222	59%	699	654	-6.4%	35	29.3	-5.7
CandlerMRdSB	74	76		102	50%	563	532	-5.5%	35	27.9	-7.1
CandlerMRdSB	76	78		125	48%	555	523	-5.8%	35	30.5	-4.5
CandlerMRdSB	78	80		501	49%	560	530	-5.4%	35	32.5	-2.5
CandlerMRdSB	80	82		735	49%	560	531	-5.2%	35	33.5	-1.5
CandlerMRdWB	8	6		520	68%	1015	1030	1.5%	35	8.1	-26.9
CandlerMRdWB	10	8		328	69%	1017	1045	2.8%	35	25.7	-9.3
CandlerMRdWB	12	10		183	68%	1007	1038	3.1%	35	14.5	-20.5
CandlerMRdWB	16	12		449	66%	954	1022	7.1%	35	6.9	-28.1
CandlerMRdWB	20	16		424	74%	1376	1409	2.4%	35	27.8	-7.2
CandlerMRdWB	24	20		437	72%	1280	1312	2.5%	35	31.4	-3.6
CandlerMRdWB	26	24		322	84%	1616	1634	1.1%	35	31	-4.0
CandlerMRdWB	32	26		366	78%	1504	1521	1.1%	35	28.1	-6.9
CandlerMRdWB	40	32		717	80%	1539	1524	-1.0%	35	7	-28.0
CandlerMRdWB	43	40		605	85%	1646	1611	-2.1%	35	7.6	-27.4
CandlerMRdWB	44	43		227	85%	1646	1628	-1.1%	35	21.5	-13.5
CandlerMRdWB	56	44		696	69%	1049	1047	-0.2%	35	32.7	-2.3

Existing (2015) PM Peak Hour
Calibration Summary

Driveway	8	230		190	3%	16	14	-12.5%	25	20.1	-4.9
Driveway	10	330		189	8%	42	33	-21.4%	25	22.2	-2.8
Driveway	230	8		190	2%	15	15	0.0%	25	6.8	-18.2
Driveway	230	240		132	3%	16	14	-12.5%	25	24.5	-0.5
Driveway	240	230		132	2%	15	14	-6.7%	25	39.2	14.2
Driveway	330	10		189	7%	22	21	-4.5%	25	2.8	-22.2
Driveway	330	340		110	8%	42	33	-21.4%	25	24.3	-0.7
Driveway	340	330		110	7%	22	22	0.0%	25	44.6	19.6
Mayflower NB	40	720		503	29%	242	222	-8.3%	35	26.7	-8.3
Mayflower NB	710	705		1817	29%	242	223	-7.9%	35	33.5	-1.5
Mayflower NB	720	710		1084	29%	242	223	-7.9%	35	32.8	-2.2
Mayflower SB	705	710		1817	51%	569	572	0.5%	35	26.8	-8.2
Mayflower SB	710	720		1084	51%	569	566	-0.5%	35	7.6	-27.4
Mayflower SB	720	40		503	51%	569	562	-1.2%	35	3.1	-31.9
MntViewRd EB	810	820		270	0%	5	5	0.0%	25	30.3	5.3
MntViewRd EB	820	830		527	0%	5	5	0.0%	25	21.7	-3.3
MntViewRd EB	830	78		104	0%	5	5	0.0%	25	9	-16.0
MntViewRd WB	74	830		160	15%	146	134	-8.2%	25	22	-3.0
MntViewRd WB	820	810		270	15%	146	135	-7.5%	25	24.4	-0.6
MntViewRd WB	830	820		527	15%	146	134	-8.2%	25	24.4	-0.6
Murray Pl NB	26	610		242	0%	5	0	-100.0%	25	0	-25.0
Murray Pl NB	32	650		221	14%	141	124	-12.1%	25	20.5	-4.5
Murray Pl NB	650	640		181	14%	141	124	-12.1%	25	24.3	-0.7
Murray Pl SB	610	26		242	13%	117	116	-0.9%	25	6.1	-18.9
Murray Pl SB	640	650		181	13%	133	133	0.0%	25	30.9	5.9
Murray Pl SB	650	32		221	13%	133	133	0.0%	25	2.4	-22.6
NB Off Ramp	7001	910		202	47%	554	555	0.2%	35	44.3	9.3
NB On Ramp	920	7003		1212	34%	316	291	-7.9%	43	31.8	-11.2
Ramp A	520	14		225	38%	408	410	0.5%	35	13.7	-21.3
Ramp A	7010	520		225	38%	408	410	0.5%	35	20.5	-14.5
Ramp B	18	530		218	18%	150	142	-5.3%	35	16.7	-18.3
Ramp B	530	7005		224	18%	150	142	-5.3%	35	22.6	-12.4
Ramp C	540	545		205	43%	497	399	-19.7%	40	6.4	-33.6
Ramp C	545	22		227	43%	497	390	-21.5%	40	3.4	-36.6
Ramp C	7004	540		195	43%	497	406	-18.3%	40	8.6	-31.4
Ramp D	24	550		141	35%	336	323	-3.9%	40	34.6	-5.4
Ramp D	550	7007		157	35%	336	323	-3.9%	40	36.7	-3.3
Ramp E	535	20		228	11%	96	96	0.0%	35	17.5	-17.5
Ramp E	7006	535		183	11%	96	96	0.0%	35	31	-4.0
Ramp F	16	525		123	40%	422	415	-1.7%	35	14.6	-20.4
Ramp F	525	7009		139	40%	422	414	-1.9%	35	18.7	-16.3
Ramp G	510	515		321	25%	226	215	-4.9%	40	38.2	-1.8
Ramp G	515	12		212	25%	226	213	-5.8%	40	5.2	-34.8
Ramp G	7008	510		276	25%	226	215	-4.9%	40	51.9	11.9
Ramp H	46	48		579	65%	850	833	-2.0%	55	41.6	-13.4
Ramp H	48	50		408	65%	850	834	-1.9%	55	47.5	-7.5
Ramp I	46	52		610	61%	782	765	-2.2%	52	35	-17.0
Ramp I	52	54		417	61%	782	766	-2.0%	52	45.1	-6.9
Ramp J	58	56		624	45%	500	501	0.2%	45	42	-3.0
Ramp J	60	58		490	45%	500	501	0.2%	45	50	5.0
Ramp K	62	56		627	46%	549	547	-0.4%	45	42	-3.0
Ramp K	64	62		607	46%	549	547	-0.4%	45	48.3	3.3
RiverRidgeNB	660	32		140	27%	232	252	8.6%	25	1.6	-23.4
RiverRidgeNB	660	34		148	38%	406	381	-6.2%	25	3.1	-21.9
RiverRidgeNB	670	660		177	56%	638	639	0.2%	25	8.6	-16.4
RiverRidgeNB	680	670		175	56%	638	639	0.2%	25	29.9	4.9
RiverRidgeSB	28	620		108	21%	190	104	-45.3%	25	21.4	-3.6
RiverRidgeSB	30	660		181	9%	80	69	-13.8%	25	22.5	-2.5
RiverRidgeSB	32	660		140	31%	257	251	-2.3%	25	22.7	-2.3
RiverRidgeSB	620	630		134	21%	190	104	-45.3%	25	15.2	-9.8
RiverRidgeSB	660	670		177	36%	337	320	-5.0%	25	24	-1.0
RiverRidgeSB	670	680		175	36%	337	320	-5.0%	25	24.5	-0.5
SB Off Ramp	7002	940		236	41%	473	490	3.6%	42	52.3	10.3
SB On Ramp	930	7011		107	53%	594	594	0.0%	35	64	29.0
Seminole NB	410	12		306	20%	156	155	-0.6%	25	9.1	-15.9
Seminole NB	420	410		195	20%	156	156	0.0%	25	32.4	7.4
Seminole SB	12	410		306	28%	239	253	5.9%	25	21.5	-3.5
Seminole SB	410	420		195	28%	239	253	5.9%	25	23.7	-1.3
Sheffield EB	2	4		778	32%	283	282	-0.4%	25	25.6	0.6
Sheffield EB	4	6		400	32%	283	283	0.0%	25	4.7	-20.3
Sheffield WB	4	2		778	31%	261	278	6.5%	25	22.9	-2.1
Sheffield WB	6	4		400	31%	261	278	6.5%	25	21.4	-3.6
Short St NB	8	220		208	6%	20	18	-10.0%	25	20.8	-4.2
Short St NB	220	210		209	6%	20	18	-10.0%	25	24.7	-0.3
Short St SB	210	220		209	5%	19	19	0.0%	25	31.3	6.3
Short St SB	220	8		208	5%	19	19	0.0%	25	5.9	-19.1
US501 Ramp	76	840		419	55%	597	588	-1.5%	35	27.9	-7.1
US501 Ramp	840	850		305	55%	597	588	-1.5%	35	31.7	-3.3
US501 Ramp	850	44		246	55%	597	588	-1.5%	35	30.1	-4.9
Wards Rd NB	6	120		618	70%	1156	1151	-0.4%	35	28.4	-6.6
Wards Rd NB	120	110		505	70%	1156	1155	-0.1%	35	32.2	-2.8
Wards Rd NB	130	6		693	52%	592	588	-0.7%	35	8.3	-26.7
Wards Rd NB	140	130		319	52%	592	592	0.0%	35	40.8	5.8
Wards Rd SB	6	130		693	62%	791	795	0.5%	35	29.8	-5.2
Wards Rd SB	110	120		505	66%	995	998	0.3%	35	37.2	2.2
Wards Rd SB	120	6		618	66%	995	998	0.3%	35	8	-27.0
Wards Rd SB	130	140		319	62%	791	793	0.3%	35	32.1	-2.9
WoodallRdNB	10	320		378	9%	80	76	-5.0%	25	22.7	-2.3
WoodallRdNB	320	310		311	9%	80	75	-6.3%	25	24.5	-0.5
WoodallRdSB	310	320		311	17%	147	143	-2.7%	25	23.5	-1.5
WoodallRdSB	320	10		378	17%	147	138	-6.1%	25	4.9	-20.1

APPENDIX B-2: VDOT SAMPLE SIZE DETERMINATION TOOL – CORSIM

Sample Size Determination Tool, AM Peak

User Inputs
Constants
Outputs

Sample Size (N) = Number of Model Runs
Sample Mean (X_s) = (1/N) (X_1 + X_2 + X_3 … + X_N)
Sample Standard Deviation (S_s) = √[(Σ(X-X_s)^2)/(N-1)]
Sampling Error = Z (S_s/√N)
Confidence Level = X_s ± Z (S_s/√N)
% of Sample Mean (E) = % Tolerance * X_s
Sample Size Needed = [(Z)^2 * (S_s)^2] / (E)^2

Model Iterations

Measure of Effectiveness (MOE):	Speed
Confidence Interval:	95%
Tolerance Error:	10%
Number of Model Runs:	10

Run Number	*Speed*
1	53.2
2	52.98
3	52.77
4	52.86
5	52.79
6	52.87
7	53.04
8	52.85
9	52.65
10	52.33
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Sample Size Outputs

N	=	10.0
X_s	=	52.8
S_s	=	0.2
E	=	5.3
Z	=	1.96

Sampling Error	=	0.15		
95% Confidence Interval	=	52.7	to	53.0
Percentage of Mean	=	0.27%		**Good**
Sample Size Needed	=	**10**		

Z is the number of standard deviations away from the mean corresponding to the required confidence level in a normal distribution.

Sample Size Determination Tool, PM Peak

User Inputs
Constants
Outputs

Sample Size (N) = Number of Model Runs
Sample Mean (X_s) = (1/N) (X_1 + X_2 + X_3 … + X_N)
Sample Standard Deviation (S_s) = √[(Σ(X-X_s)^2)/(N-1)]
Sampling Error = Z (S_s/√N)
Confidence Level = X_s ± Z (S_s/√N)
% of Sample Mean (E) = % Tolerance * X_s
Sample Size Needed = [(Z)^2 * (S_s)^2] / (E)^2

Model Iterations

Measure of Effectiveness (MOE):	Speed
Confidence Interval:	95%
Tolerance Error:	10%
Number of Model Runs:	10

Run Number	*Speed*
1	52.14
2	52.26
3	52.1
4	52.19
5	52
6	52.08
7	52.43
8	52.19
9	52.29
10	52.3
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

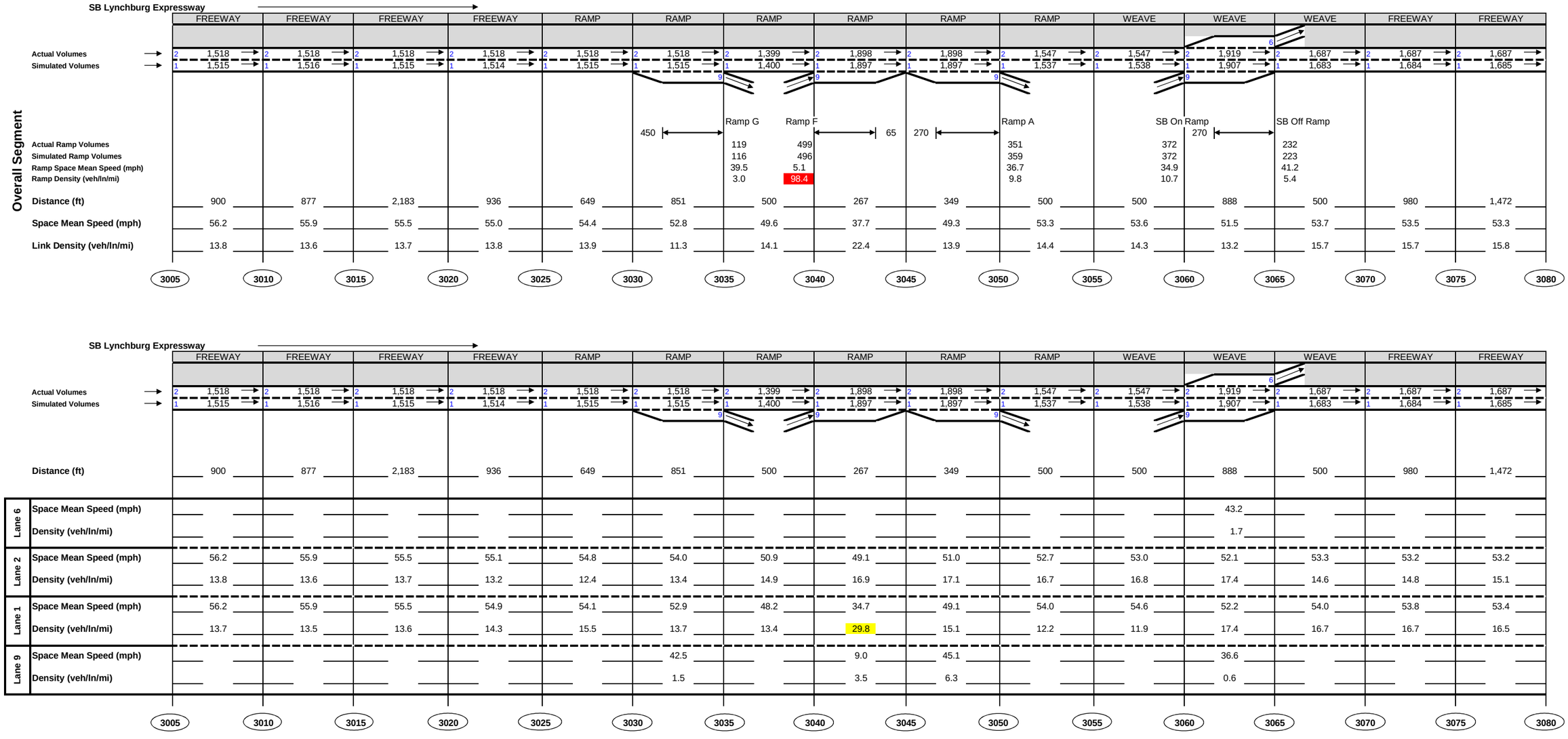
Sample Size Outputs

N	=	10.0
X_s	=	52.2
S_s	=	0.1
E	=	5.2
Z	=	1.96

Sampling Error	=	0.08		
95% Confidence Interval	=	52.1	to	52.3
Percentage of Mean	=	0.15%		**Good**
Sample Size Needed	=	**10**		

Z is the number of standard deviations away from the mean corresponding to the required confidence level in a normal distribution.

APPENDIX B-3: CORSIM SIMULATION RESULTS



NOTE: numbers in chart are provided for illustrative purposes only

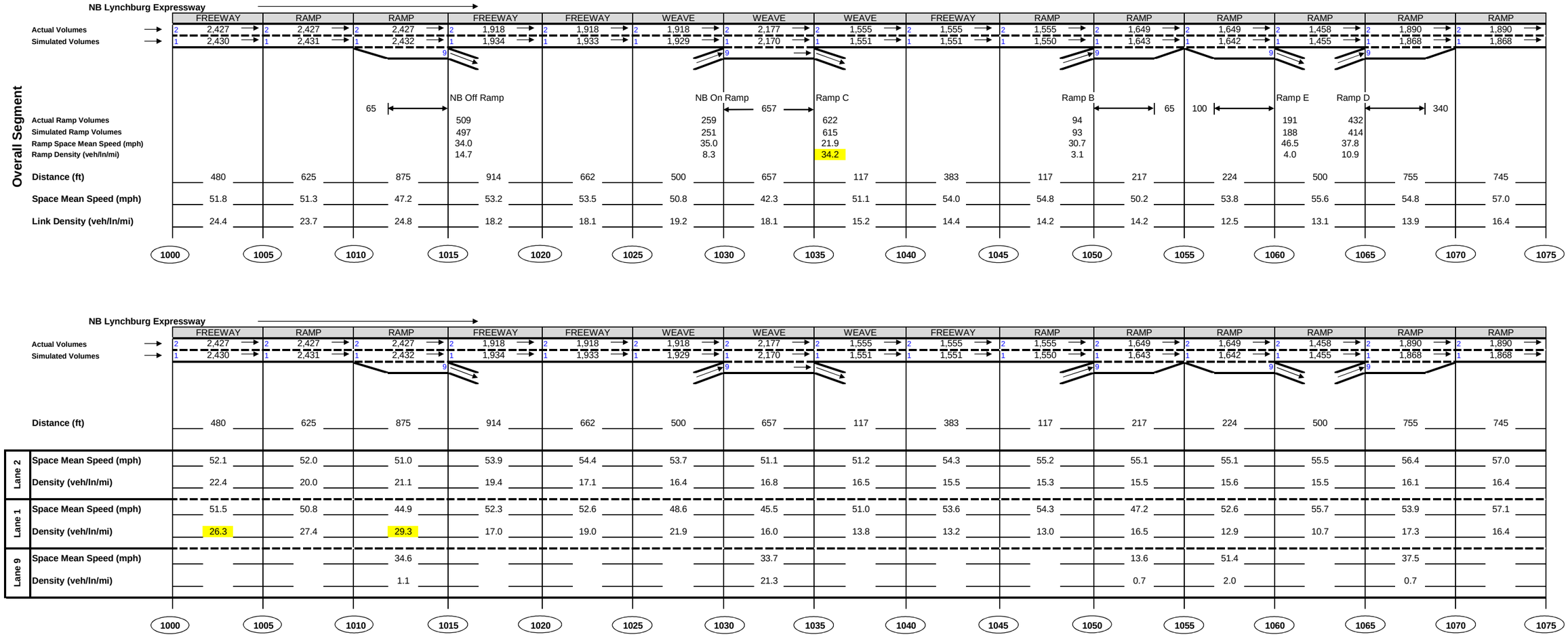
LEGEND

100 Node Number — Auxiliary Lane Length

Freeway Density (veh/ln/mi)	Weave/Ramp Density (veh/ln/mi)	CD Road Weave Density (veh/ln/mi)
45 and above	45 and above	45 and above
35 to 45	35 to 45	36 to 45
26 to 35	28 to 35	32 to 36
0 to 26	0 to 28	0 to 32

***The results shown are the average results across 10 microsimulation runs.**

Figure 1
Candlers Mountain Road Corridor Study
Southbound Lynchburg Expressway
Existing (2015) AM Peak Hour



NOTE: numbers in chart are provided for illustrative purposes only

LEGEND

100 Node Number

Auxiliary Lane Length

Freeway Density (veh/ln/mi)	Weave/Ramp Density (veh/ln/mi)	CD Road Weave Density (veh/ln/mi)
45 and above	45 and above	45 and above
35 to 45	35 to 45	36 to 45
26 to 35	28 to 35	32 to 36
0 to 26	0 to 28	0 to 32

***The results shown are the average results across 10 microsimulation runs.**

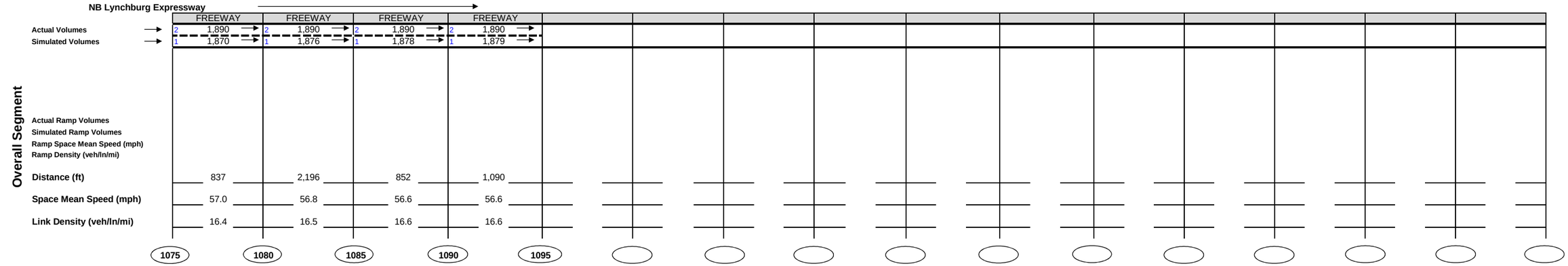
VDOT Virginia Department of Transportation

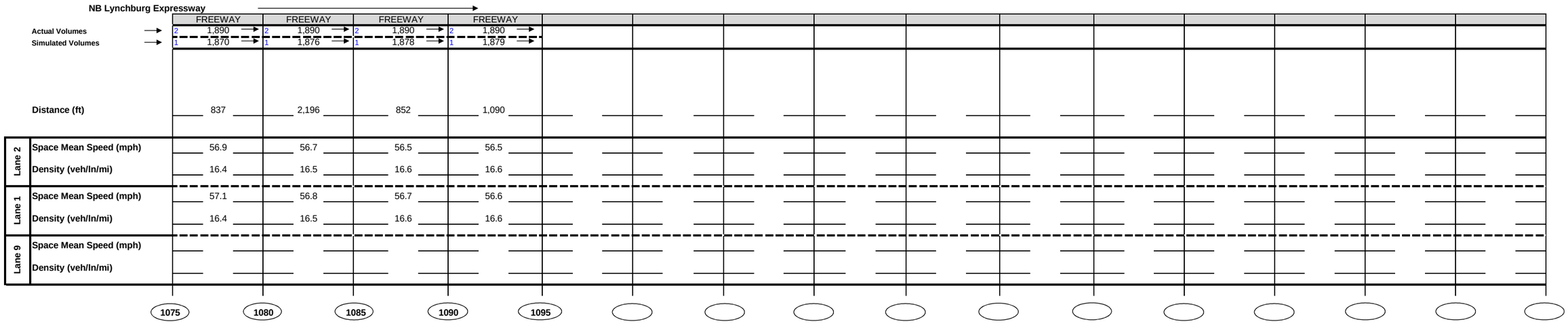
Figure 2

Candlers Mountain Road Corridor Study

Northbound Lynchburg Expressway

Existing (2015) AM Peak Hour





NOTE: numbers in chart are provided for illustrative purposes only

LEGEND

100 Node Number

Auxiliary Lane Length

Freeway Density (veh/ln/mi)
45 and above
35 to 45
26 to 35
0 to 26

Weave/Ramp Density (veh/ln/mi)
45 and above
35 to 45
28 to 35
0 to 28

CD Road Weave Density (veh/ln/mi)
45 and above
36 to 45
32 to 36
0 to 32

***The results shown are the average results across 10 microsimulation runs.**

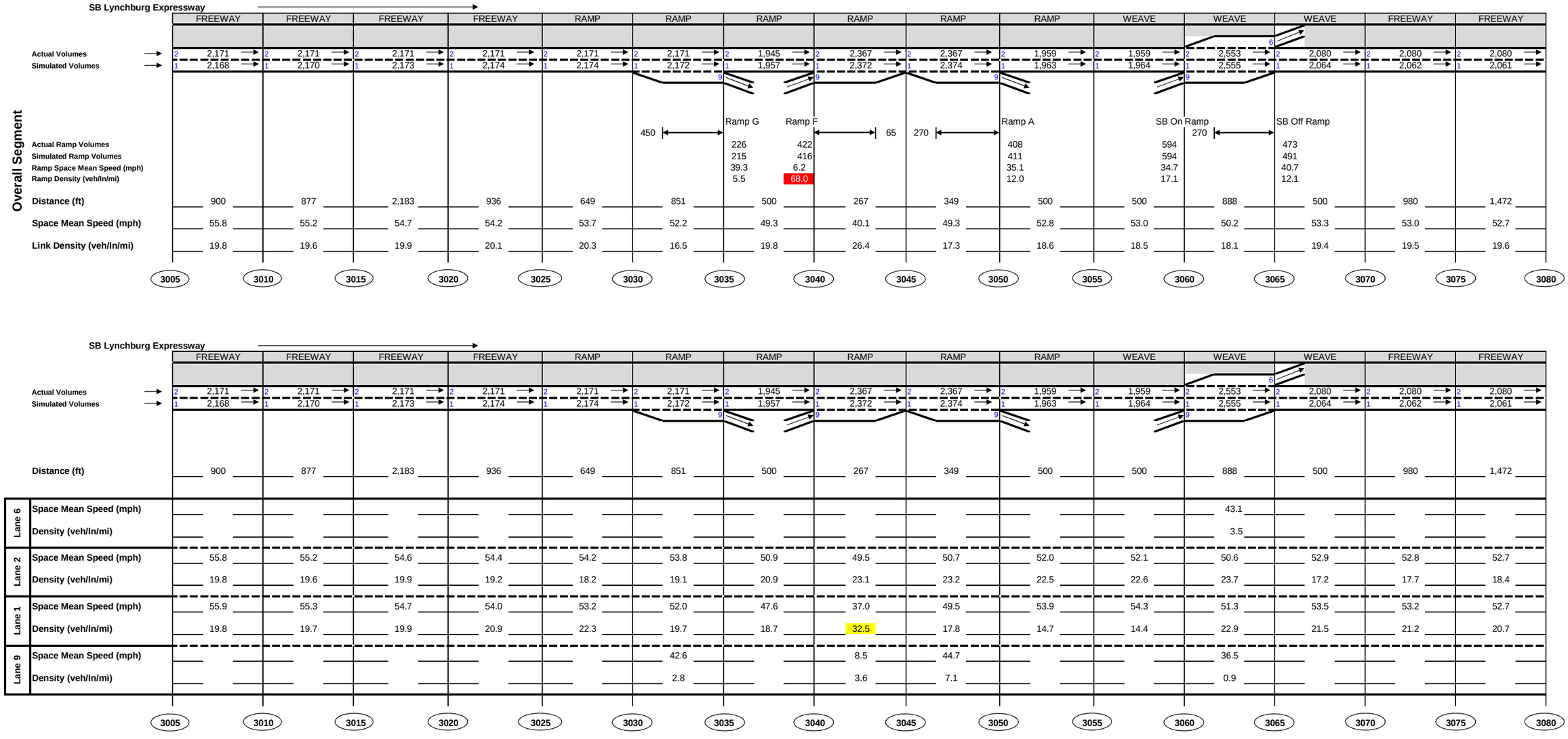
VDOT Virginia Department of Transportation

Figure 3

Candlers Mountain Road Corridor Study

Northbound Lynchburg Expressway

Existing (2015) AM Peak Hour



NOTE: numbers in chart are provided for illustrative purposes only

LEGEND

100 Node Number

Auxiliary Lane Length

Freeway Density (veh/ln/mi)	Weave/Ramp Density (veh/ln/mi)	CD Road Weave Density (veh/ln/mi)
45 and above	45 and above	45 and above
35 to 45	35 to 45	36 to 45
26 to 35	28 to 35	32 to 36
0 to 26	0 to 28	0 to 32

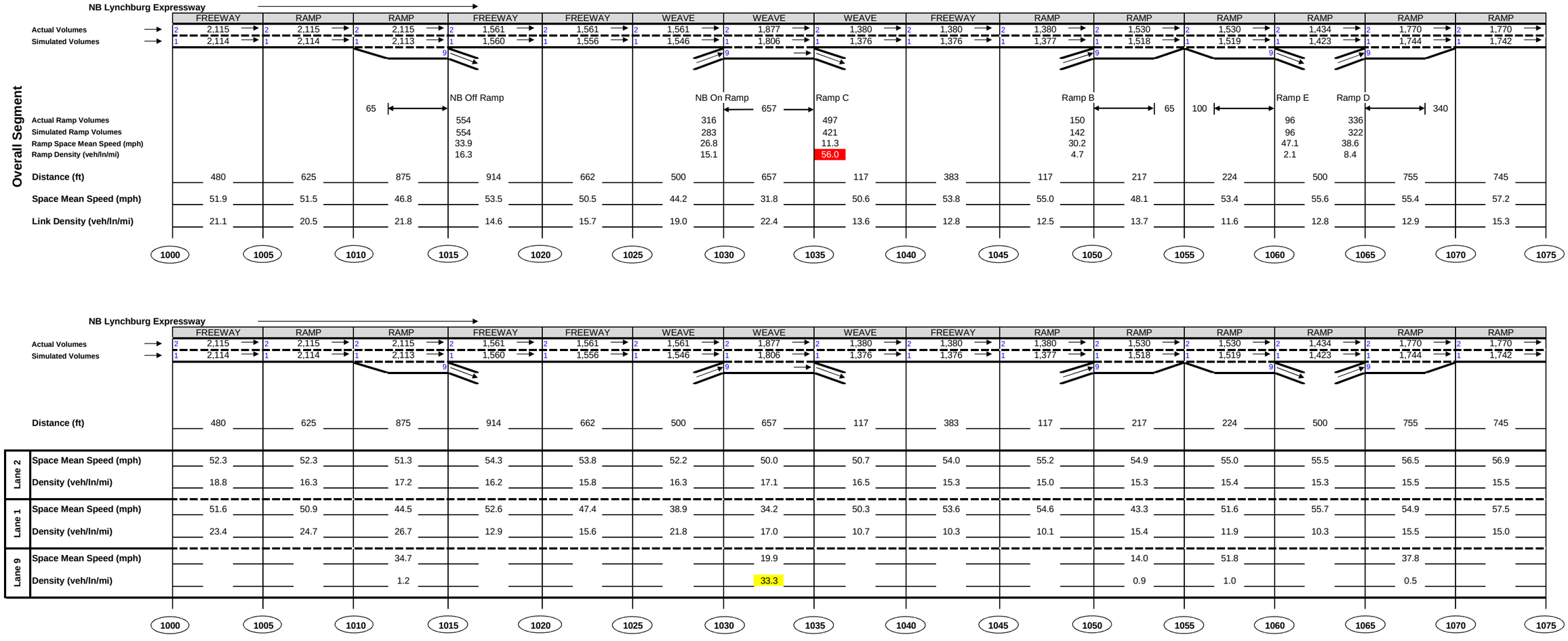
***The results shown are the average results across 10 microsimulation runs.**

Figure 4

Candlers Mountain Road Corridor Study

Southbound Lynchburg Expressway

Existing (2015) PM Peak Hour



NOTE: numbers in chart are provided for illustrative purposes only

LEGEND

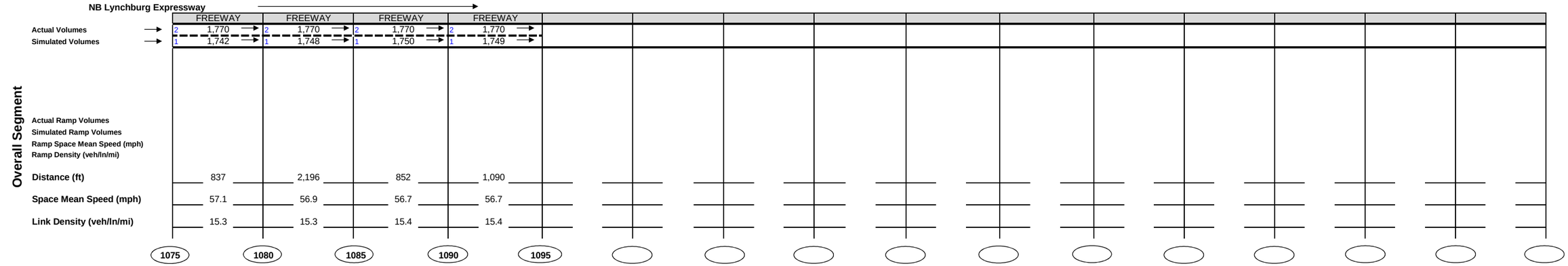
100 Node Number ⟷ Auxiliary Lane Length

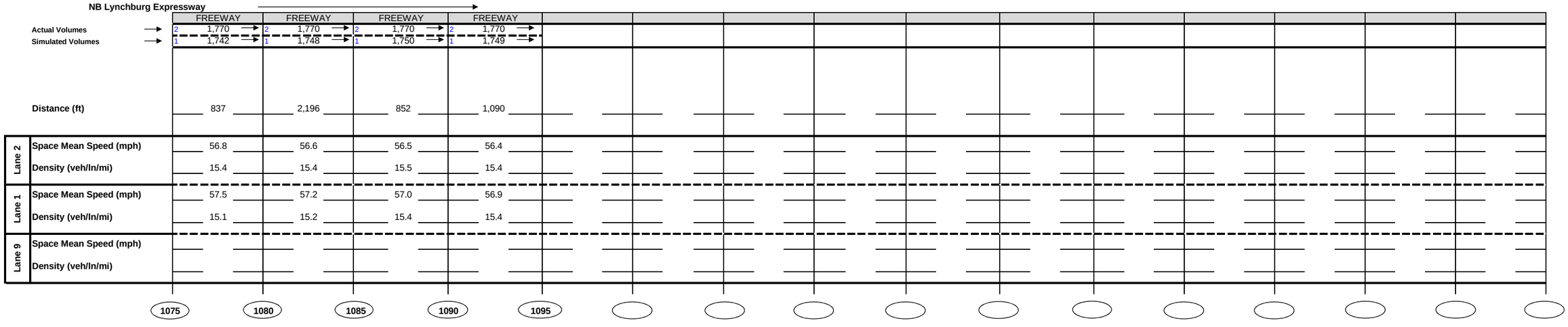
Freeway Density (veh/ln/mi)	Weave/Ramp Density (veh/ln/mi)	CD Road Weave Density (veh/ln/mi)
45 and above	45 and above	45 and above
35 to 45	35 to 45	36 to 45
26 to 35	28 to 35	32 to 36
0 to 26	0 to 28	0 to 32

***The results shown are the average results across 10 microsimulation runs.**

VDOT Virginia Department of Transportation

Figure 5
Candlers Mountain Road Corridor Study
Northbound Lynchburg Expressway
Existing (2015) PM Peak Hour





NOTE: numbers in chart are provided for illustrative purposes only

LEGEND

100 Node Number

Auxiliary Lane Length

Freeway Density (veh/ln/mi)
45 and above
35 to 45
26 to 35
0 to 26

Weave/Ramp Density (veh/ln/mi)
45 and above
35 to 45
28 to 35
0 to 28

CD Road Weave Density (veh/ln/mi)
45 and above
36 to 45
32 to 36
0 to 32

***The results shown are the average results across 10 microsimulation runs.**

VDOT Virginia Department of Transportation

Figure 6

Candlers Mountain Road Corridor Study

Northbound Lynchburg Expressway

Existing (2015) PM Peak Hour

CORSIM Microsimulation Delay Reporting for Intersections

Existing (2015)
AM Peak Hour

Name / ID	Approach	Approach Control Type	Link		Join	Turning Movement Volumes				Microsimulation Delay by Movement (sec)			Microsimulation Delay by Approach (sec)	Microsimulation Delay by Intersection (sec)	Intersection Type
Intersection			From	To		Left	Through	Right	Total	Left	Through	Right			
1 - Candlers Mountain Road/ Sheffield Drive at Wards Road	WB	Signal	8	6	8-6	44	103	319	466	29.03	31.91	13.75	19.21	24.59	Signalized
	EB	Signal	4	6	4-6	17	97	35	149	50.82	34.63	22.01	33.52		
	NB	Signal	130	6	130-6	41	257	19	317	33.29	30.50	19.61	30.21		
	SB	Signal	120	6	120-6	505	329	4	838	25.46	21.53	17.10	23.88		
2 - Candlers Mountain Road at Short Street	WB	Free	10	8	10-8	6	459	2	467	4.40	1.41	3.60	1.46	2.46	Unsignalized Two-Way
	EB	Free	6	8	6-8	5	610	0	615	4.20	2.97	-	2.98		
	SB	Stop	220	8	220-8	5	4	5	14	5.52	9.60	10.92	8.61		
	NB	Stop	230	8	230-8	6	4	5	15	7.90	5.40	5.04	6.28		
3 - Candlers Mountain Road at Woodall Road	WB	Signal	12	10	12-10	16	450	113	579	17.40	3.91	4.85	4.46	20.47	Signalized
	EB	Signal	8	10	8-10	35	590	0	625	36.63	32.78	-	33.00		
	SB	Signal	320	10	320-10	33	0	11	44	61.18	-	8.40	47.99		
	NB	Signal	330	10	330-10	7	5	17	29	43.46	65.28	11.36	28.41		
4 - Candlers Mountain Road at SB Lynchburg Expressway Ramp/ Seminole Avenue	SB	Signal	515	12	515-12	6	16	100	122	24.70	44.40	5.87	11.85	18.14	Signalized
	WB	Signal	16	12	16-12	150	449	0	599	25.96	32.43	-	30.81		
	EB	Signal	10	12	10-12	0	601	40	641	-	9.77	6.33	9.55		
	NB	Signal	410	12	410-12	30	0	171	201	32.86	-	7.81	11.55		
6 - Candlers Mountain Road at Murray Place/ River Ridge Mall	SB	Signal	650	32	650-32	26	5	6	37	68.33	59.04	21.50	59.48	23.14	Signalized
	NB	Signal	660	32	660-32	25	26	0	51	45.53	53.52	-	49.60		
	WB	Signal	40	32	40-32	171	1239	79	1489	41.54	21.37	11.35	23.16		
	EB	Signal	30	32	30-32	251	1214	0	1465	53.45	14.63	-	21.28		
7 - Candlers Mountain Road/US 501 at Mayflower Drive	SB	Signal	720	40	720-40	93	103	64	260	58.55	58.39	32.87	52.17	28.56	Signalized
	WB	Signal	43	40	43-40	156	1428	368	1952	19.97	25.85	8.22	22.06		
	EB	Signal	34	40	34-40	91	566	711	1368	56.03	21.91	39.56	33.35		

CORSIM Microsimulation Delay Reporting for Intersections

Existing (2015)
PM Peak Hour

Name / ID	Approach	Approach Control Type	Link		Join	Turning Movement Volumes				Microsimulation Delay by Movement (sec)			Microsimulation Delay by Approach (sec)	Microsimulation Delay by Intersection (sec)	Intersection Type
Intersection			From	To		Left	Through	Right	Total	Left	Through	Right			
1 - Candlers Mountain Road/ Sheffield Drive at Wards Road	WB	Signal	8	6	8-6	206	160	631	997	54.10	51.74	30.27	38.64	40.78	Signalized
	EB	Signal	4	6	4-6	56	163	65	284	49.48	47.15	36.88	45.26		
	NB	Signal	130	6	130-6	85	455	51	591	44.98	44.65	40.02	44.30		
	SB	Signal	120	6	120-6	444	515	23	982	39.82	39.04	45.39	39.54		
2 - Candlers Mountain Road at Short Street	WB	Free	10	8	10-8	5	996	0	1001	3.96	2.09	-	2.10	2.41	Unsignalized Two-Way
	EB	Free	6	8	6-8	11	647	0	658	3.82	2.22	-	2.24		
	SB	Free	220	8	220-8	9	5	5	19	23.13	15.72	8.76	17.40		
	NB	Free	230	8	230-8	5	4	5	14	15.24	14.85	5.04	11.49		
3 - Candlers Mountain Road at Woodall Road	WB	Signal	12	10	12-10	9	931	68	1008	24.53	4.60	5.36	4.83	18.92	Signalized
	EB	Signal	8	10	8-10	16	642	24	682	32.89	35.89	36.65	35.84		
	SB	Signal	320	10	320-10	76	0	67	143	51.58	-	10.49	32.33		
	NB	Signal	330	10	330-10	12	4	5	21	78.05	48.90	3.12	54.66		
4 - Candlers Mountain Road at SB Lynchburg Expressway Ramp/ Seminole Avenue	SB	Signal	515	12	515-12	26	27	141	194	64.87	57.71	11.69	25.22	23.43	Signalized
	WB	Signal	16	12	16-12	192	836	0	1028	34.45	32.16	-	32.59		
	EB	Signal	10	12	10-12	0	687	36	723	-	12.11	4.85	11.75		
	NB	Signal	410	12	410-12	36	0	120	156	39.83	-	7.50	14.96		
6 - Candlers Mountain Road at Murray Place/ River Ridge Mall	SB	Signal	650	32	650-32	91	25	16	132	68.82	68.35	25.76	63.51	39.3	Signalized
	NB	Signal	660	32	660-32	241	7	0	248	57.90	94.63	-	58.94		
	WB	Signal	40	32	40-32	222	1274	31	1527	88.51	43.58	31.72	49.87		
	EB	Signal	30	32	30-32	69	1221	0	1290	44.37	19.19	-	20.54		
7 - Candlers Mountain Road/US 501 at Mayflower Drive	SB	Signal	720	40	720-40	333	93	139	565	109.37	111.55	53.84	96.07	47.93	Signalized
	WB	Signal	43	40	43-40	61	1379	171	1611	46.53	52.95	16.71	48.86		
	EB	Signal	34	40	34-40	64	1127	489	1680	54.67	27.82	34.67	30.84		

CORSIM Maximum Queue Length Summary
Existing (2015) - AM Peak Hour

Name / ID	Approach	Link		Maximum Queue - Simulated (vehicles per lane)									Maximum Queue - Simulated (vehicles per movement)		
Intersection		From	To	Lane 1	Lane 2	Lane 3	Lane 4	Lane 5	Lane 6	Lane 7	Lane 8	Lane 9	LEFT	THRU	RIGHT
1 - Candlers Mountain Road/ Sheffield Drive at Wards Road	EB	2	4	0	0	0	0	0	0	0	0	0	4.6		
		4	6	4.6	4.4	0	0	0	0	0	0	0			
	WB	8	6	11.6	7.3	0	0	0	0	3.9	0	0	3.9	7.3	11.6
	NB	140	130	0	0	0	0	0	0	0	0	0	2.8	6.6	
		130	6	6.6	6.4	0	0	0	0	2.8	0	0			
	SB	110	120	0	0	0	0	0	0	0	0	0	12.6	12.2	
		120	6	11	12.2	0	0	0	0	12.6	0	0			
2 - Candlers Mountain Road at Short Street	EB	6	8	5.3	5.4	0	0	0	0	0.4	0	0	0.4	5.4	
	WB	10	8	1.4	0.4	0	0	0	0	0.5	0	0	0.5	1.4	
	NB	240	230	0	0	0	0	0	0	0	0	0	1.8		
		230	8	1.8	0	0	0	0	0	0	0	0			
	SB	210	220	0	0	0	0	0	0	0	0	0	1.7		
		220	8	1.7	0	0	0	0	0	0	0	0			
3 - Candlers Mountain Road at Woodall Road	EB	8	10	13.8	14.1	0	0	0	0	2.9	0	0	2.9	14.1	
	WB	12	10	3.4	2.7	1.7	0	0	0	0	0	0	1.7	3.4	
	NB	340	330	0	0	0	0	0	0	0	0	0	2.4		2.2
		330	10	2.2	2.4	0	0	0	0	0	0	0			
	SB	310	320	0	0	0	0	0	0	0	0	0	3.3		1.5
		320	10	1.5	0	0	0	0	0	3.3	0	0			
4 - Candlers Mountain Road at SB Lynchburg Expressway Ramp/ Seminole Avenue	EB	10	12	4	3.9	0	0	0	0	0	0	0	4		
	WB	20	16	2.7	1	0.4	0	0	0	0	0	0	6.8	13	
		16	12	12	9.9	0	0	0	0	6.8	0	0			
	NB	420	410	0	0	0	0	0	0	0	0	0	3.5		6.2
		410	12	6.2	0	0	0	0	0	3.5	0	0			
	SB	510	515	0	0	0	0	0	0	0	0	0	2.4		3.3
		515	12	2.4	0	0	0	0	0	3.3	0	0			
5 - Candlers Mountain Road at Murray Place	WB	32	26	0.2	0	0.1	0	0	0	0	0	0	0.2		
	SB	610	26	3.8	0	0	0	0	0	0	0	0			3.8
6 - Candlers Mountain Road at Murray Place/ River Ridge Mall	EB	12	14	2.9	0.8	0	0	0	0	0	0	0	12	57.6	1.1
		14	18	0.1	5.1	4.5	0	0	0	0	0	0			
		18	22	14.7	13.2	0	0	0	0	0	0	0			
		22	23	7.9	8	7.9	0	0	0	0	0	0			
		23	25	6	6	0	0	0	0	0	0	0			
		25	28	1.1	9.2	8.2	0	0	0	0	0	0			
		28	30	0	5.2	5.1	5	0	0	0	0	0			
		30	32	6.5	6.4	7	0	0	0	0	0	0			
	WB	40	32	15	14.2	0	0	0	2.2	9.3	0	0	9.3	15	2.2
	NB	680	670	1.3	1.2	0	0	0	0	0	0	0	1.9	12.5	5.6
		670	660	6.8	0.4	0	0	0	0	0	0	0			
		660	32	4.4	1.9	0	0	0	0	0	0	0			
		660	34	5.6	0	0	0	0	0	0	0	0			
	SB	640	650	0	0	0	0	0	0	0	0	0	3.7		1.1
		650	32	3.7	0	0	0	0	0	1.1	0	0			
7 - Candlers Mountain Road/US 501 at Mayflower Drive	EB	32	34	4.1	1.9	0	0	0	0	0	0	0	6.8	33.5	2
		34	40	29.4	15.7	0	0	0	2	6.8	0	0			
	WB	44	43	1.8	3.1	2.8	0	0	0	0	0	0	5.6	24.4	4.1
		43	40	22.6	21.3	0	0	0	4.1	5.6	0	0			
	SB	705	710	0.6	0	0	0	0	0	0	0	0	12.5		4.3
		710	720	0.8	0	0	0	0	0	0	0	0			
		720	40	11.7	0	0	0	0	0	4.3	0	0			
8 - Candlers Mountain Road at Westbound US 501 Ramp/Mountain View Road	EB	810	820	0	0	0	0	0	0	0	0	0			1.9
		820	830	0	0	0	0	0	0	0	0	0			
		830	78	1.9	0	0	0	0	0	0	0	0			
	NB	80	76	1.1	0	0	0	0	0	0	0	0	4	0.6	
		76	74	0.6	0	0	0	0	0	4	0	0			
	SB	40	70	10.1	4.5	0	0	0	0	0	0	0	36		2.9
		70	72	14.3	12.3	0	0	0	0	0	0	0			
		72	74	11.6	11.6	0	0	0	0	2.9	0	0			

CORSIM Maximum Queue Length Summary
Existing (2015) - PM Peak Hour

Name / ID	Approach	Link		Maximum Queue - Simulated (vehicles per lane)									Maximum Queue - Simulated		
Intersection		From	To	Lane 1	Lane 2	Lane 3	Lane 4	Lane 5	Lane 6	Lane 7	Lane 8	Lane 9	LEFT	THRU	RIGHT
1 - Candlers Mountain Road/ Sheffield Drive at Wards Road	EB	2	4	0	0	0	0	0	0	0	0	0	8		
		4	6	8	7.8	0	0	0	0	0	0	0			
	WB	8	6	20.3	13.2	0	0	0	0	10.2	0	0	10.2	13.2	20.3
	NB	140	130	0	0	0	0	0	0	0	0	0	4.9	12.6	
		130	6	12.6	12.5	0	0	0	0	4.9	0	0			
	SB	110	120	0	0	0	0	0	0	0	0	0	12.7	14.6	
		120	6	14.6	13.4	0	0	0	0	12.7	0	0			
2 - Candlers Mountain Road at Short Street	EB	6	8	5.8	6.3	0	0	0	0	1	0	0	1	6.3	
	WB	10	8	3.2	1.7	0	0	0	0	0.9	0	0	0.9	3.2	
	NB	240	230	0	0	0	0	0	0	0	0	0	2.3		
		230	8	2.3	0	0	0	0	0	0	0	0			
	SB	210	220	0	0	0	0	0	0	0	0	0	2.5		
		220	8	2.5	0	0	0	0	0	0	0	0			
3 - Candlers Mountain Road at Woodall Road	EB	8	10	13.6	13.6	0	0	0	0	1.5	0	0	1.5	13.6	
	WB	12	10	4.7	4.6	1.4	0	0	0	0	0	0	1.4	4.7	
	NB	340	330	0	0	0	0	0	0	0	0	0	3.1		1.1
		330	10	1.1	3.1	0	0	0	0	0	0	0			
	SB	310	320	2.9	0	0	0	0	0	0	0	0	4.2		9.8
		320	10	6.9	0	0	0	0	0	4.2	0	0			
4 - Candlers Mountain Road at SB Lynchburg Expressway Ramp/ Seminole Avenue	EB	10	12	5.1	5.2	0	0	0	0	0	0	0	5.2		
	WB	20	16	1.2	1.9	0.9	0	0	0	0	0	0	7.4	18.8	
		16	12	16.9	16.3	0	0	0	0	7.4	0	0			
	NB	420	410	0	0	0	0	0	0	0	0	0	3.6		3.7
		410	12	3.7	0	0	0	0	0	3.6	0	0			
	SB	510	515	0	0	0	0	0	0	0	0	0	4.7		6
		515	12	4.7	0	0	0	0	0	6	0	0			
5 - Candlers Mountain Road at Murray Place	WB	32	26	0	0	0.1	0	0	0	0	0	0	0.1		
	SB	610	26	6.8	0	0	0	0	0	0	0	0			6.8
6 - Candlers Mountain Road at Murray Place/ River Ridge Mall	EB	12	14	5.5	4.1	0	0	0	0	0	0	0	6.4	76.6	2.5
		14	18	1.5	16.3	16	0	0	0	0	0	0			
		18	22	20.1	19.8	0	0	0	0	0	0	0			
		22	23	8	8	8	0	0	0	0	0	0			
		23	25	6	6	0	0	0	0	0	0	0			
		25	28	1.4	9.1	7.8	0	0	0	0	0	0			
		28	30	1.1	5.1	5.2	1	0	0	0	0	0			
		30	32	6.5	6.7	5.4	0	0	0	0	0	0			
	WB	40	32	26.2	26.9	0	0	0	1.6	10.8	0	0	10.8	26.9	1.6
	NB	680	670	3.4	1.5	0	0	0	0	0	0	0	6	17.9	9
		670	660	8.5	2.9	3	0	0	0	0	0	0			
		660	32	6	6	0	0	0	0	0	0	0			
		660	34	6	0	0	0	0	0	0	0	0			
	SB	640	650	0.7	0	0	0	0	0	0	0	0	9.8		2
		650	32	9.1	0	0	0	0	0	2	0	0			
7 - Candlers Mountain Road/US 501 at Mayflower Drive	EB	32	34	4.4	3.6	0	0	0	0	0	0	0	4.2	31.9	1.3
		34	40	27.5	26.6	0	0	0	1.3	4.2	0	0			
	WB	56	44	0.7	0.7	0	0	0	0	0	0	0	5.6	31.5	3.1
		44	43	5.6	5.7	5.3	0	0	0	0	0	0			
		43	40	25.8	25.8	0	0	0	3.1	5.6	0	0			
	SB	705	710	6.5	0	0	0	0	0	0	0	0	65.9		5.9
		710	720	42	0	0	0	0	0	0	0	0			
		720	40	23.9	0	0	0	0	0	5.9	0	0			
8 - Candlers Mountain Road at Westbound US 501 Ramp/Mountain View Road	EB	810	820	0	0	0	0	0	0	0	0	0			1.1
		820	830	0	0	0	0	0	0	0	0	0			
		830	78	1.1	0	0	0	0	0	0	0	0			
	NB	80	76	0.2	0	0	0	0	0	0	0	0	1	0.1	
		76	74	0.1	0	0	0	0	0	1	0	0			
	SB	40	70	0.1	0.1	0	0	0	0	0	0	0	0.2		0
		70	72	0	0	0	0	0	0	0	0	0			
		72	74	0	0.2	0	0	0	0	0	0	0			

APPENDIX B-4: SYNCHRO/SIMTRAFFIC CALIBRATION SUMMARY

Candlers Mountain Road Corridor Study – Synchro/SimTraffic Existing (2015) Conditions Modeling Inputs, Assumptions and Calibration

The existing (2015) AM and PM peak hour Synchro/SimTraffic models were developed based on a combination of collected data and visual observations. The following inputs and assumptions were used in the existing Synchro/SimTraffic models. The inputs and assumptions were used in both the AM and PM peak hour models, unless otherwise noted.

Geometric Inputs

- Lane configurations were based on existing geometry, with the following exceptions:
  - Sheffield Drive (westbound approach of the Candlers Mountain Road at Wards Road intersection) was modeled without a two-way left-turn lane (TWLTL) because Synchro does not allow a thru-left movement at the end of a TWLTL
  - The intersection of Candlers Mountain Road at Short Street was modeled as a break in the TWLTL with 50' left-turn storage lanes on eastbound and westbound Candlers Mountain Road because Synchro does not allow a TWLTL to continue through an intersection
  - With the exception of the Southbound Lynchburg Expressway exit ramp that terminates at the signalized intersection of Candlers Mountain Road at Seminole Avenue, the Lynchburg Expressway ramps were not modeled in Synchro. Two dummy ramps, one on eastbound Candlers Mountain Road and one on westbound Candlers Mountain Road were used to add/remove volume from the network in order to maintain volume balance.
  - The right-in ramp from eastbound Candlers Mountain Road to the River Ridge Mall was not modeled in Synchro. Adding the ramp would require the link for the eastbound Candlers Mountain Road approach at the intersection with Murray Place/River Ridge Mall to be split in the middle of the left-turn storage bay. Since the Synchro/SimTraffic models were used to analyze intersection operations and not corridor-wide operations (CORSIM was used for arterial analysis), the right-in ramp was not included in the Synchro/SimTraffic models. This creates a volume imbalance on eastbound Candlers Mountain Road between the Lynchburg Expressway and the Murray Place/River Ridge Mall intersection in the models.
  - The northbound approach of Candlers Mountain Road at Westbound US 501 Ramp/Mountain View Road was modeled with a 25' right-turn storage lane to replicate the additional pavement available at the entrance to the ramp
- Lane width of 12 feet was input for all lanes
- Effective storage length, equal to storage length plus half of the taper length, was input as the storage length for all turn lanes
- Taper length was set to zero for all turn lanes
- Link speed was based on the posted speed limit. For locations with no posted speed limit, 25 MPH was assumed.
  - Candlers Mountain Road = 35 MPH
  - Sheffield Drive = 25 MPH
  - Wards Road = 35 MPH
  - Short Street = 25 MPH (not posted)
  - Woodall Road = 25 MPH (not posted)
  - Seminole Avenue = 25 MPH (not posted)
  - Murray Place = 25 MPH (not posted)
  - River Ridge Mall = 25 MPH
  - Mayflower Drive = 35 MPH
  - Mountain View Road = 25 MPH (not posted)
  - All Commercial Driveways = 25 MPH (not posted)
- Grades were estimated based on field observations. Grades less than approximately ±2% were not input into the Synchro/SimTraffic model (kept default value of 0%). Grades greater than approximately ±2% were approximated and input into the Synchro/SimTraffic model. The following grades were adjusted from the default value (grades shown in the direction of the intersection approach):
  - Intersection 4: Candlers Mountain Road at Southbound Lynchburg Expressway Ramp/Seminole Avenue
    - Northbound approach (Seminole Avenue): +4%
  - Intersection 7: Candlers Mountain Road/US 501 at Mayflower Drive
    - Northbound approach (Candlers Mountain Road): -4%
    - Southbound approach (Mayflower Drive): +3%

Signal Timing Inputs

- Signal timing inputs were based on the existing signal timings provided by VDOT and the City of Lynchburg
- Existing AM and PM peak hour scenarios operate under the same signal timings
- The signals at Candlers Mountain Road at Murray Place/River Ridge Mall and Candlers Mountain Road at Mayflower Drive were modified to set the recall mode for the sidestreet and left-turn phases to minimum recall (rather than no recall) in order to replicate queuing observed in the field
- The intersections of Candlers Mountain Road at Woodall Road and Candlers Mountain Road at Southbound Lynchburg Expressway/Seminole Avenue were clustered to operate under one controller
- The signals at Candlers Mountain Road at Murray Place/River Ridge Mall and Candlers Mountain Road at Mayflower Drive were modeled as actuated-coordinated. All other signals were modeled as actuated-uncoordinated.
- In the AM model, a dummy pretimed intersection was modeled on Candlers Mountain Road south of the westbound US 501 ramp/Mountain View Road intersection to replicate traffic stops during the AM school drop-off time. This intersection was not included in the PM model because school pick-up times did not occur during the PM peak hour.
  - Cycle length = 75 seconds
  - NB/SB split = 25 seconds
  - EB/WB split = 50 seconds

Traffic Volume Inputs

- Balance traffic volumes were input for all movements
- Heavy vehicle percentages were input for all movements
  - Heavy vehicle percentages for the two dummy ramps were calculated to maintain balance as vehicles are added or removed from the network.
- Peak Hour Factors were input for all individual movements. A Peak Hour Factor of 0.92 was assumed for each of the dummy ramps.
- At the dummy pretimed intersection for the school crossing, the following assumptions were made for the volumes:
  - Southbound: 15 vehicles turn left and the remainder go thru
  - Northbound: 75% of the northbound vehicles at the Candlers Mountain Road at Westbound US 501 Ramp/Mountain View Road come from the northbound thru movement at the dummy intersection

    - Westbound: 25% of the northbound vehicles at the Candlers Mountain Road at Westbound US 501 Ramp/Mountain View Road come from the westbound right-turn movement at the dummy intersection

Simulation Settings

- The headway factor was adjusted for some links to replicate queuing observed in the field. Headway factor is not used in any of the capacity calculations in Synchro. The same adjustments to headway factor were made in both the AM and PM models.
    - On westbound Candlers Mountain Road between US 460 and Lynchburg Expressway, the headway factor for WBL and WBT movements was increased from 1.0 to 1.3
    - On eastbound Candlers Mountain Road between the Lynchburg Expressway and Murray Place/River Ridge Mall, the headway factor for EBL and EBT movements was increased from 1.0 to 1.3.
    - On eastbound Candlers Mountain Road between Murray Place/River Ridge Mall and Mayflower Drive, the headway factor for EBL and EBT were increased from 1.0 to 1.5
- Turning speed was kept at the default values of 15 mph for left-turn movements and 9 mph for right-turn movements with the exception of the Candlers Mountain Road eastbound right-turn movement at Mayflower Drive, which was increased to 12 mph to reflect the free-flow operation of this movement. This factor is only used by SimTraffic (not Synchro).

Synchro Analysis Method

The HCM 2000 methodology was used for Synchro analyses due to the limitations of the HCM 2010 methodology to analyze clustered intersections and non-standard traffic signal phasing.

SimTraffic Analysis Inputs

- One 15-minute seeding interval and four 15-minute recording intervals
- PHF Adjust set to “Yes” for the third 15-minute recording interval and set to “No” for the seeding interval and the other three recording intervals
- Anti-PHF Adjust set to “Yes” for the three recording intervals where PHF Adjust is set to “No” and set to “No” for the seeding interval and the recording interval where PHF Adjust is set to “Yes”
- Ten simulation runs were completed (based on the Sample Size Determination Tool)
    - Speed on Candlers Mountain Road in the westbound direction at Intersection 4 (Candlers Mountain Road at Southbound Lynchburg Expressway Ramp/Seminole Avenue) was the input to the Sample Size Determination Tool

APPENDIX B-5: VDOT SAMPLE SIZE DETERMINATION TOOL – SIMTRAFFIC

Sample Size Determination Tool, AM Peak

User Inputs
Constants
Outputs

Sample Size (N) = Number of Model Runs
Sample Mean (X_s) = (1/N) (X_1 + X_2 + X_3 … + X_N)
Sample Standard Deviation (S_s) = √[(Σ(X-X_s)^2)/(N-1)]
Sampling Error = Z (S_s/√N)
Confidence Level = X_s ± Z (S_s/√N)
% of Sample Mean (E) = % Tolerance * X_s
Sample Size Needed = [(Z)^2 * (S_s)^2] / (E)^2

Model Iterations

Measure of Effectiveness (MOE):	Speed
Confidence Interval:	95%
Tolerance Error:	10%
Number of Model Runs:	10

Run Number	*Speed*
1	13
2	11
3	11
4	11
5	12
6	12
7	12
8	13
9	12
10	11
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Sample Size Outputs

N	=	10.0
X_s	=	11.8
S_s	=	0.8
E	=	1.2
Z	=	1.96

Sampling Error	=	0.49		
95% Confidence Interval	=	11.3	to	12.3
Percentage of Mean	=	4.14%		**Good**
Sample Size Needed	=	**10**		

Z is the number of standard deviations away from the mean corresponding to the required confidence level in a normal distribution.

Sample Size Determination Tool, PM Peak

User Inputs
Constants
Outputs

Sample Size (N) = Number of Model Runs
Sample Mean (X_s) = (1/N) (X_1 + X_2 + X_3 … + X_N)
Sample Standard Deviation (S_s) = √[(Σ(X-X_s)^2)/(N-1)]
Sampling Error = Z (S_s/√N)
Confidence Level = X_s ± Z (S_s/√N)
% of Sample Mean (E) = % Tolerance * X_s
Sample Size Needed = [(Z)^2 * (S_s)^2] / (E)^2

Model Iterations

Measure of Effectiveness (MOE):	Speed
Confidence Interval:	95%
Tolerance Error:	10%
Number of Model Runs:	10

Run Number	*Speed*
1	10
2	9
3	11
4	11
5	11
6	11
7	11
8	10
9	11
10	11
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Sample Size Outputs

N	=	10.0
X_s	=	10.6
S_s	=	0.7
E	=	1.1
Z	=	1.96

Sampling Error	=	0.43		
95% Confidence Interval	=	10.2	to	11.0
Percentage of Mean	=	4.09%		**Good**
Sample Size Needed	=	**10**		

Z is the number of standard deviations away from the mean corresponding to the required confidence level in a normal distribution.

APPENDIX B-6: SYNCHRO INTERSECTION LEVEL OF SERVICE SUMMARY

SYNCHRO CAPACITY ANALYSIS - INTERSECTION LEVEL OF SERVICE SUMMARY
Existing (2015) Peak Hour Volumes
Candlers Mountain Road Corridor Study - Lynchburg, Virginia

Intersection Number and Description		Type of Control	Lane Group	Eastbound				Westbound				Northbound				Southbound				Overall	
				AM		PM		AM		PM		AM		PM		AM		PM			
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	AM	PM
1	Candlers Mountain Road / Sheffield Drive at Wards Road			Sheffield Drive				Candlers Mountain Road				Wards Road				Wards Road				Intersection	
		Signal	Left	41.6	D	58.5	E	38.8	D	54.5	D	34.0	C	41.7	D	29.5	C	47.0	D	Delay	Delay
			Through					40.6	D	46.0	D	39.4	D	50.8	D					34.5	52.1
			Right					38.3	D	59.3	E									LOS	LOS
			Approach	41.6	D	58.5	E	38.9	D	56.0	E	38.9	D	49.6	D	29.5	C	47.0	D	C	D
2	Candlers Mountain Road at Short Street			Candlers Mountain Road				Candlers Mountain Road				Commercial Driveway				Short Street				Intersection	
		Two-Way Stop	Left	8.2	A	10.0	A	9.6	A	9.3	A	14.5	B	17.0	C	13.7	B	17.6	C	Delay	Delay
			Through	†	†	†	†	†	†	†	†									--	--
			Right	†	†	†	†	†	†	†	†									LOS	LOS
			Approach	--	--	--	--	--	--	--	--	14.5	B	17.0	C	13.7	B	17.6	C	--	--
3	Candlers Mountain Road at Woodall Road			Candlers Mountain Road				Candlers Mountain Road				Commercial Driveway				Woodall Road				Intersection	
		Signal	Left	14.4	B	19.8	B	4.5	A	6.0	A	41.9	D	47.5	D	43.8	D	54.8	D	Delay	Delay
			Through	20.7	C	26.3	C	2.2	A	3.3	A					--	--	--	--	13.5	17.1
			Right									41.7	D	46.0	D	41.6	D	46.4	D	LOS	LOS
			Approach	20.4	C	26.1	C	2.3	A	3.4	A	41.7	D	47.1	D	42.9	D	50.6	D	B	B
4	Candlers Mountain Road at Southbound Lynchburg Expressway Ramp / Seminole Avenue			Candlers Mountain Road				Candlers Mountain Road				Seminole Avenue				SB Lynchburg Expy Exit Ramp				Intersection	
		Signal	Left	--	--	--	--	16.0	B	21.1	C	37.7	D	39.5	D	43.5	D	49.5	D	Delay	Delay
			Through	5.3	A	10.7	B	17.1	B	23.9	C	--	--	--	--					17.8	23.1
			Right					--	--	--	--	37.4	D	38.5	D	42.0	D	46.9	D	LOS	LOS
			Approach	5.3	A	10.7	B	16.8	B	23.4	C	37.4	D	38.9	D	42.4	D	47.7	D	B	C
5	Candlers Mountain Road at Murray Place			Candlers Mountain Road				Candlers Mountain Road								Murray Place				Intersection	
		One-Way Stop	Left	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Delay	Delay
			Through	†	†	†	†	†	†	†	†	--	--	--	--	--	--	--	--	--	--
			Right	--	--	--	--	--	--	--	--	--	--	--	--	10.2	B	11.3	B	LOS	LOS
			Approach	--	--	--	--	--	--	--	--	--	--	--	--	10.2	B	11.3	B	--	--
6	Candlers Mountain Road at Murray Place / River Ridge Mall			Candlers Mountain Road				Candlers Mountain Road				River Ridge Mall				Murray Place				Intersection	
		Signal	Left	19.4	B	30.7	C	66.4	E	85.4	F	62.8	E	70.1	E	63.3	E	78.8	E	Delay	Delay
			Through	29.5	C	45.3	D	13.7	B	18.0	B	62.2	E	69.4	E					27.5	42.9
			Right	0.0	A	0.1	A	10.8	B	19.0	B	61.2	E	72.4	E	58.8	E	54.2	D	LOS	LOS
			Approach	28.6	C	41.0	D	18.9	B	28.4	C	61.5	E	71.4	E	62.7	E	74.6	E	C	D
7	Candlers Mountain Road / US 501 at Mayflower Drive			Candlers Mountain Road/US 501				Candlers Mountain Road/US 501				Candlers Mountain Road				Mayflower Drive				Intersection	
		Signal	Left	34.8	C	38.3	D	72.0	E	38.0	D	--	--	--	--	64.4	E	157.5*	F*	Delay	Delay
			Through	35.5*	D*	58.0*	E*	27.2	C	34.1	C	--	--	--	--					33.3	55.3*
			Right					18.2	B	18.6	B	0.1	A	0.2	A	45.6	D	41.3	D	LOS	LOS
			Approach	35.4	D	57.4	E	30.1	C	32.4	C	0.1	A	0.2	A	58.7	E	123.5	F	C	E*
8	Candlers Mountain Road at Westbound US 501 Ramp / Mountain View Road			Mountain View Road								Candlers Mountain Road				Candlers Mountain Road				Intersection	
		One-Way Stop	Left	--	--	--	--	--	--	--	--	6.5	A	1.6	A	1.6	A	0.7	A	Delay	Delay
			Through	--	--	--	--	--	--	--	--									--	--
			Right	10.5	B	10.3	B	--	--	--	--					†	†	†	†	LOS	LOS
			Approach	10.5	B	10.3	B	--	--	--	--	6.5	A	1.6	A	--	--	--	--	--	--

HCM 2000 Results
NOTE: Shared lane results are shown as one value that corresponds to all movements in the lane.
† Level of service and delay for movements with no conflicting movements have not been included.
*Volume-to-capacity ratio for this lane group/intersection is greater than 1.

APPENDIX B-7: SYNCHRO OUTPUT SHEETS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	98	37	54	107	336	30	268	25	488	335	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor		0.95		1.00	1.00	1.00	1.00	0.95		0.91	0.91	
Frt		0.96		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.99		0.95	1.00	1.00	0.95	1.00		0.95	0.98	
Satd. Flow (prot)		3405		1736	1863	1538	1752	3334		1610	3290	
Flt Permitted		0.99		0.95	1.00	1.00	0.95	1.00		0.95	0.98	
Satd. Flow (perm)		3405		1736	1863	1538	1752	3334		1610	3290	
Peak-hour factor, PHF	0.54	0.72	0.71	0.68	0.81	0.89	0.83	0.80	0.52	0.69	0.72	0.44
Adj. Flow (vph)	24	136	52	79	132	378	36	335	48	707	465	32
RTOR Reduction (vph)	0	20	0	0	0	324	0	8	0	0	2	0
Lane Group Flow (vph)	0	192	0	79	132	54	36	375	0	396	806	0
Heavy Vehicles (%)	8%	1%	0%	4%	2%	5%	3%	6%	8%	2%	3%	0%
Turn Type	Split	NA		Split	NA	Perm	Split	NA		Split	NA	
Protected Phases	3	3		4	4		2	2		1	1	
Permitted Phases						4						
Actuated Green, G (s)		11.7		14.1	14.1	14.1	17.9	17.9		35.2	35.2	
Effective Green, g (s)		11.7		14.1	14.1	14.1	17.9	17.9		35.2	35.2	
Actuated g/C Ratio		0.12		0.14	0.14	0.14	0.18	0.18		0.36	0.36	
Clearance Time (s)		5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		402		247	265	219	317	603		573	1170	
v/s Ratio Prot		c0.06		0.05	c0.07		0.02	c0.11		c0.25	0.24	
v/s Ratio Perm						0.04						
v/c Ratio		0.48		0.32	0.50	0.25	0.11	0.62		0.69	0.69	
Uniform Delay, d1		40.7		38.1	39.1	37.7	33.9	37.4		27.2	27.2	
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.9		0.8	1.5	0.6	0.2	2.0		3.6	1.7	
Delay (s)		41.6		38.8	40.6	38.3	34.0	39.4		30.8	28.9	
Level of Service		D		D	D	D	C	D		C	C	
Approach Delay (s)		41.6			38.9			38.9			29.5	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	34.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	98.9	Sum of lost time (s)	20.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	54	162	67	200	162	653	67	449	76	439	524	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor		0.95		1.00	1.00	1.00	1.00	0.95		0.91	0.91	
Frt		0.96		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.99		0.95	1.00	1.00	0.95	1.00		0.95	0.99	
Satd. Flow (prot)		3414		1787	1863	1599	1805	3475		1610	3389	
Flt Permitted		0.99		0.95	1.00	1.00	0.95	1.00		0.95	0.99	
Satd. Flow (perm)		3414		1787	1863	1599	1805	3475		1610	3389	
Peak-hour factor, PHF	0.75	0.84	0.70	0.73	0.80	0.88	0.80	0.96	0.83	0.91	0.93	0.80
Adj. Flow (vph)	72	193	96	274	202	742	84	468	92	482	563	40
RTOR Reduction (vph)	0	23	0	0	0	480	0	11	0	0	3	0
Lane Group Flow (vph)	0	338	0	274	202	262	84	549	0	357	725	0
Heavy Vehicles (%)	0%	1%	0%	1%	2%	1%	0%	1%	3%	2%	0%	0%
Turn Type	Split	NA		Split	NA	Perm	Split	NA		Split	NA	
Protected Phases	3	3		4	4		2	2		1	1	
Permitted Phases						4						
Actuated Green, G (s)		17.5		26.8	26.8	26.8	27.4	27.4		36.3	36.3	
Effective Green, g (s)		17.5		26.8	26.8	26.8	27.4	27.4		36.3	36.3	
Actuated g/C Ratio		0.14		0.21	0.21	0.21	0.21	0.21		0.28	0.28	
Clearance Time (s)		5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		466		374	390	334	386	743		456	961	
v/s Ratio Prot		c0.10		0.15	0.11		0.05	c0.16		c0.22	0.21	
v/s Ratio Perm						c0.16						
v/c Ratio		0.72		0.73	0.52	0.78	0.22	0.74		0.78	0.75	
Uniform Delay, d1		52.9		47.3	44.9	47.9	41.5	47.0		42.2	41.8	
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		5.5		7.2	1.2	11.5	0.3	3.9		8.5	3.4	
Delay (s)		58.5		54.5	46.0	59.3	41.7	50.8		50.8	45.2	
Level of Service		E		D	D	E	D	D		D	D	
Approach Delay (s)		58.5			56.0			49.6			47.0	
Approach LOS		E			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	52.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	601	5	5	487	5	5	5	5	5	5	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.50	0.71	0.25	0.50	0.93	0.92	0.92	0.92	0.50	0.25	0.92	0.92
Hourly flow rate (vph)	10	846	20	10	524	5	5	5	10	20	5	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		558			311							
pX, platoon unblocked	0.93						0.93	0.93		0.93	0.93	0.93
vC, conflicting volume	529			866			1166	1426	433	1002	1433	265
vC1, stage 1 conf vol							876	876		546	546	
vC2, stage 2 conf vol							290	549		456	886	
vCu, unblocked vol	354			866			1036	1314	433	861	1322	71
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			98	98	98	95	98	99
cM capacity (veh/h)	1136			786			299	324	576	431	316	919

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	10	564	302	10	349	180	21	31
Volume Left	10	0	0	10	0	0	5	20
Volume Right	0	0	20	0	0	5	10	5
cSH	1136	1700	1700	786	1700	1700	399	444
Volume to Capacity	0.01	0.33	0.18	0.01	0.21	0.11	0.05	0.07
Queue Length 95th (ft)	1	0	0	1	0	0	4	6
Control Delay (s)	8.2	0.0	0.0	9.6	0.0	0.0	14.5	13.7
Lane LOS	A			A			B	B
Approach Delay (s)	0.1			0.2			14.5	13.7
Approach LOS							B	B

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	26.8%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	9	663	5	6	1005	6	5	5	5	9	5	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.56	0.89	0.25	0.25	0.92	0.63	0.25	0.92	0.92	0.45	0.92	0.50
Hourly flow rate (vph)	16	745	20	24	1092	10	20	5	5	20	5	10
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		558			311							
pX, platoon unblocked	0.84						0.84	0.84		0.84	0.84	0.84
vC, conflicting volume	1102			765			1394	1937	382	1558	1942	551
vC1, stage 1 conf vol							787	787		1145	1145	
vC2, stage 2 conf vol							607	1150		413	797	
vCu, unblocked vol	731			765			1080	1729	382	1276	1736	73
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			97			94	98	99	92	98	99
cM capacity (veh/h)	738			857			318	249	621	262	250	821

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	16	497	268	24	728	374	31	35
Volume Left	16	0	0	24	0	0	20	20
Volume Right	0	0	20	0	0	10	5	10
cSH	738	1700	1700	857	1700	1700	330	321
Volume to Capacity	0.02	0.29	0.16	0.03	0.43	0.22	0.09	0.11
Queue Length 95th (ft)	2	0	0	2	0	0	8	9
Control Delay (s)	10.0	0.0	0.0	9.3	0.0	0.0	17.0	17.6
Lane LOS	A			A			C	C
Approach Delay (s)	0.2			0.2			17.0	17.6
Approach LOS							C	C

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	38.0%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	579	5	18	477	124	5	5	20	28	0	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	6.9		6.9	6.9			6.0	6.0	6.0		6.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00		1.00
Frt	1.00	1.00		1.00	0.96			1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95		1.00
Satd. Flow (prot)	1805	3526		1805	3351			1854	1615	1530		1615
Flt Permitted	0.36	1.00		0.27	1.00			0.98	1.00	0.95		1.00
Satd. Flow (perm)	690	3526		519	3351			1854	1615	1530		1615
Peak-hour factor, PHF	0.69	0.82	0.25	0.41	0.85	0.62	0.92	0.92	0.36	0.78	0.92	0.58
Adj. Flow (vph)	39	706	20	44	561	200	5	5	56	36	0	26
RTOR Reduction (vph)	0	1	0	0	25	0	0	0	51	0	0	24
Lane Group Flow (vph)	39	725	0	44	736	0	0	10	5	36	0	2
Heavy Vehicles (%)	0%	2%	0%	0%	4%	2%	0%	0%	0%	18%	0%	0%
Turn Type	pm+pt	NA		custom	NA		Split	NA	Perm	Prot		Perm
Protected Phases	5	2		1	6 4		3	3!		3!		
Permitted Phases	2			6					3			3
Actuated Green, G (s)	45.9	42.0		54.7	60.6			8.0	8.0	8.0		8.0
Effective Green, g (s)	45.9	42.0		54.7	60.6			8.0	8.0	8.0		8.0
Actuated g/C Ratio	0.47	0.43		0.56	0.62			0.08	0.08	0.08		0.08
Clearance Time (s)	6.9	6.9		6.9				6.0	6.0	6.0		6.0
Vehicle Extension (s)	3.0	4.5		3.0				3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	366	1506		397	2065			150	131	124		131
v/s Ratio Prot	0.00	c0.21		c0.01	c0.22			0.01		c0.02		
v/s Ratio Perm	0.05			0.05					0.00			0.00
v/c Ratio	0.11	0.48		0.11	0.36			0.07	0.03	0.29		0.02
Uniform Delay, d1	14.3	20.3		10.8	9.3			41.7	41.6	42.5		41.5
Progression Factor	1.00	1.00		0.41	0.22			1.00	1.00	1.00		1.00
Incremental Delay, d2	0.1	0.4		0.1	0.2			0.2	0.1	1.3		0.0
Delay (s)	14.4	20.7		4.5	2.2			41.9	41.7	43.8		41.6
Level of Service	B	C		A	A			D	D	D		D
Approach Delay (s)		20.4			2.3			41.7			42.9	
Approach LOS		C			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	98.3	Sum of lost time (s)	25.8
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	633	32	10	934	63	11	5	6	75	0	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	6.9		6.9	6.9			6.0	6.0	6.0		6.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00		1.00
Frt	1.00	0.99		1.00	0.99			1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95		1.00
Satd. Flow (prot)	1543	3549		1805	3481			1852	1615	1671		1599
Flt Permitted	0.21	1.00		0.24	1.00			0.97	1.00	0.95		1.00
Satd. Flow (perm)	341	3549		465	3481			1852	1615	1671		1599
Peak-hour factor, PHF	0.60	0.90	0.86	0.42	0.89	0.73	0.50	0.25	0.38	0.69	0.92	0.65
Adj. Flow (vph)	20	703	37	24	1049	86	22	20	16	109	0	111
RTOR Reduction (vph)	0	2	0	0	4	0	0	0	14	0	0	99
Lane Group Flow (vph)	20	738	0	24	1131	0	0	42	2	109	0	12
Heavy Vehicles (%)	17%	1%	0%	0%	1%	21%	0%	0%	0%	8%	0%	1%
Turn Type	pm+pt	NA		custom	NA		Split	NA	Perm	Prot		Perm
Protected Phases	5	2		1	6 4		3	3!		3!		
Permitted Phases	2			6					3			3
Actuated Green, G (s)	49.3	46.8		60.9	74.7			12.5	12.5	12.5		12.5
Effective Green, g (s)	49.3	46.8		60.9	74.7			12.5	12.5	12.5		12.5
Actuated g/C Ratio	0.43	0.41		0.53	0.65			0.11	0.11	0.11		0.11
Clearance Time (s)	6.9	6.9		6.9				6.0	6.0	6.0		6.0
Vehicle Extension (s)	3.0	4.5		3.0				3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	171	1438		341	2251			200	174	180		173
v/s Ratio Prot	0.00	0.21		c0.01	c0.32			0.02		c0.07		
v/s Ratio Perm	0.05			0.03					0.00			0.01
v/c Ratio	0.12	0.51		0.07	0.50			0.21	0.01	0.61		0.07
Uniform Delay, d1	19.5	25.8		14.5	10.7			47.0	46.0	49.1		46.3
Progression Factor	1.00	1.00		0.41	0.29			1.00	1.00	1.00		1.00
Incremental Delay, d2	0.3	0.5		0.1	0.3			0.5	0.0	5.7		0.2
Delay (s)	19.8	26.3		6.0	3.3			47.5	46.0	54.8		46.4
Level of Service	B	C		A	A			D	D	D		D
Approach Delay (s)		26.1			3.4			47.1			50.6	
Approach LOS		C			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	115.5	Sum of lost time (s)	25.8
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	579	48	138	485	0	32	0	169	5	12	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			4%			0%	
Total Lost time (s)		6.9		6.9	6.9		6.0		6.0		6.0	6.0
Lane Util. Factor		0.95		1.00	0.95		1.00		1.00		1.00	1.00
Frt		0.99		1.00	1.00		1.00		0.85		1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95		1.00		0.99	1.00
Satd. Flow (prot)		3477		1787	3505		1717		1567		1773	1524
Flt Permitted		1.00		0.25	1.00		0.95		1.00		0.99	1.00
Satd. Flow (perm)		3477		470	3505		1717		1567		1773	1524
Peak-hour factor, PHF	0.92	0.80	0.94	0.59	0.74	0.92	0.55	0.92	0.57	0.42	0.43	0.92
Adj. Flow (vph)	0	724	51	234	655	0	58	0	296	12	28	111
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	253	0	0	102
Lane Group Flow (vph)	0	772	0	234	655	0	58	0	43	0	40	9
Heavy Vehicles (%)	0%	3%	0%	1%	3%	0%	3%	0%	1%	0%	8%	6%
Turn Type		NA		pm+pt	NA		Prot		Perm	Perm	NA	Perm
Protected Phases		2		1	6		4				3	
Permitted Phases				6					4	3		3
Actuated Green, G (s)		42.0		54.7	46.4		14.2		14.2		8.0	8.0
Effective Green, g (s)		42.0		54.7	46.4		14.2		14.2		8.0	8.0
Actuated g/C Ratio		0.43		0.56	0.47		0.14		0.14		0.08	0.08
Clearance Time (s)		6.9		6.9	6.9		6.0		6.0		6.0	6.0
Vehicle Extension (s)		4.5		3.0	4.5		3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	1485		372	1654		248		226		144		124
v/s Ratio Prot	0.22		c0.05	0.19		c0.03						
v/s Ratio Perm			c0.30					0.03		0.02		0.01
v/c Ratio	0.52		0.63	0.40		0.23		0.19		0.28		0.07
Uniform Delay, d1	20.7		12.7	16.9		37.2		37.0		42.4		41.7
Progression Factor	0.23		1.00	1.00		1.00		1.00		1.00		1.00
Incremental Delay, d2	0.5		3.3	0.3		0.5		0.4		1.1		0.3
Delay (s)	5.3		16.0	17.1		37.7		37.4		43.5		42.0
Level of Service	A		B	B		D		D		D		D
Approach Delay (s)	5.3			16.8			37.4			42.4		
Approach LOS	A			B			D			D		

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	98.3	Sum of lost time (s)	25.8
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	666	48	156	798	0	40	0	116	22	35	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			4%			0%	
Total Lost time (s)		6.9		6.9	6.9		6.0		6.0		6.0	6.0
Lane Util. Factor		0.95		1.00	0.95		1.00		1.00		1.00	1.00
Frt		0.99		1.00	1.00		1.00		0.85		1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95		1.00		0.98	1.00
Satd. Flow (prot)		3494		1805	3539		1769		1583		1856	1583
Flt Permitted		1.00		0.21	1.00		0.95		1.00		0.98	1.00
Satd. Flow (perm)		3494		391	3539		1769		1583		1856	1583
Peak-hour factor, PHF	0.92	0.88	0.69	0.81	0.86	0.92	0.61	0.92	0.84	0.55	0.80	0.88
Adj. Flow (vph)	0	757	70	193	928	0	66	0	138	40	44	192
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	112	0	0	171
Lane Group Flow (vph)	0	822	0	193	928	0	66	0	26	0	84	21
Heavy Vehicles (%)	0%	2%	2%	0%	2%	0%	0%	0%	0%	0%	0%	2%
Turn Type		NA		pm+pt	NA		Prot		Perm	Perm	NA	Perm
Protected Phases		2		1	6		4				3	
Permitted Phases				6					4	3		3
Actuated Green, G (s)		46.8		60.9	52.6		22.1		22.1		12.5	12.5
Effective Green, g (s)		46.8		60.9	52.6		22.1		22.1		12.5	12.5
Actuated g/C Ratio		0.41		0.53	0.46		0.19		0.19		0.11	0.11
Clearance Time (s)		6.9		6.9	6.9		6.0		6.0		6.0	6.0
Vehicle Extension (s)		4.5		3.0	4.5		3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	1415		307	1611		338		302		200		171
v/s Ratio Prot	0.24		c0.05	c0.26		c0.04						
v/s Ratio Perm			c0.29					0.02		0.05		0.01
v/c Ratio	0.58		0.63	0.58		0.20		0.09		0.42		0.12
Uniform Delay, d1	26.7		17.1	23.2		39.2		38.4		48.1		46.5
Progression Factor	0.37		1.00	1.00		1.00		1.00		1.00		1.00
Incremental Delay, d2	0.8		4.0	0.7		0.3		0.1		1.4		0.3
Delay (s)	10.7		21.1	23.9		39.5		38.5		49.5		46.9
Level of Service	B		C	C		D		D		D		D
Approach Delay (s)	10.7			23.4			38.9			47.7		
Approach LOS	B			C			D			D		

Intersection Summary			
HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	115.5	Sum of lost time (s)	25.8
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↱			↱
Volume (veh/h)	0	1632	1304	5	0	59
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.85	0.88	0.50	0.92	0.82
Hourly flow rate (vph)	0	1920	1482	10	0	72
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			358			
pX, platoon unblocked	0.71				0.71	0.71
vC, conflicting volume	1492				2127	499
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	264				1158	0
tC, single (s)	4.1				6.8	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	91
cM capacity (veh/h)	932				137	768

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	640	640	640	593	593	306	72
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	10	72
cSH	1700	1700	1700	1700	1700	1700	768
Volume to Capacity	0.38	0.38	0.38	0.35	0.35	0.18	0.09
Queue Length 95th (ft)	0	0	0	0	0	0	8
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.2
Lane LOS							B
Approach Delay (s)	0.0			0.0			10.2
Approach LOS							B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	35.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↱			↱
Volume (veh/h)	0	1559	1499	5	0	117
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.94	0.91	0.25	0.92	0.70
Hourly flow rate (vph)	0	1659	1647	20	0	167
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			358			
pX, platoon unblocked	0.68				0.68	0.68
vC, conflicting volume	1667				2210	559
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	364				1157	0
tC, single (s)	4.1				6.8	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	77
cM capacity (veh/h)	826				132	740

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	553	553	553	659	659	349	167
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	20	167
cSH	1700	1700	1700	1700	1700	1700	740
Volume to Capacity	0.33	0.33	0.33	0.39	0.39	0.21	0.23
Queue Length 95th (ft)	0	0	0	0	0	0	22
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	11.3
Lane LOS							B
Approach Delay (s)	0.0			0.0			11.3
Approach LOS							B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	83	1380	9	136	1276	99	28	23	176	27	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	6.9	4.0	6.9	6.9	6.9	6.3	6.3	6.3		6.9	6.9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00		0.96	1.00
Satd. Flow (prot)	1752	3505	1468	1787	3471	1599	1588	1779	1583		1790	1615
Flt Permitted	0.09	1.00	1.00	0.07	1.00	1.00	0.95	0.99	1.00		0.96	1.00
Satd. Flow (perm)	173	3505	1468	130	3471	1599	1588	1779	1583		1790	1615
Peak-hour factor, PHF	0.82	0.92	0.63	0.73	0.85	0.76	0.72	0.72	0.69	0.58	0.33	0.50
Adj. Flow (vph)	101	1500	14	186	1501	130	39	32	255	47	15	10
RTOR Reduction (vph)	0	0	0	0	0	55	0	0	235	0	0	9
Lane Group Flow (vph)	101	1500	14	186	1501	75	35	36	20	0	62	1
Heavy Vehicles (%)	3%	3%	10%	1%	4%	1%	8%	0%	2%	3%	0%	0%
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6		Free	2		2			3			4
Actuated Green, G (s)	85.1	75.5	140.0	95.1	80.5	80.5	11.1	11.1	11.1		11.8	11.8
Effective Green, g (s)	85.1	75.5	140.0	95.1	80.5	80.5	11.1	11.1	11.1		11.8	11.8
Actuated g/C Ratio	0.61	0.54	1.00	0.68	0.58	0.58	0.08	0.08	0.08		0.08	0.08
Clearance Time (s)	6.9	6.9		6.9	6.9	6.9	6.3	6.3	6.3		6.9	6.9
Vehicle Extension (s)	3.0	4.0		4.0	4.0	4.0	4.5	4.5	4.5		4.0	4.0
Lane Grp Cap (vph)	213	1890	1468	261	1995	919	125	141	125		150	136
v/s Ratio Prot	0.03	c0.43		c0.07	c0.43		c0.02	0.02			c0.03	
v/s Ratio Perm	0.26		0.01	0.41		0.05			0.01			0.00
v/c Ratio	0.47	0.79	0.01	0.71	0.75	0.08	0.28	0.26	0.16		0.41	0.01
Uniform Delay, d1	17.7	26.0	0.0	33.7	22.3	13.3	60.7	60.6	60.1		60.8	58.7
Progression Factor	1.00	1.00	1.00	1.75	0.53	0.81	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.7	3.5	0.0	7.3	2.0	0.1	2.1	1.7	1.1		2.5	0.0
Delay (s)	19.4	29.5	0.0	66.4	13.7	10.8	62.8	62.2	61.2		63.3	58.8
Level of Service	B	C	A	E	B	B	E	E	E		E	E
Approach Delay (s)		28.6			18.9			61.5			62.7	
Approach LOS		C			B			E			E	

Intersection Summary			
HCM 2000 Control Delay	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	88	1201	80	230	1266	43	222	10	406	90	27	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	6.9	4.0	6.9	6.9	6.9	6.3	6.3	6.3		6.9	6.9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00		0.96	1.00
Satd. Flow (prot)	1787	3539	1599	1787	3539	1509	1698	1724	1599		1782	1615
Flt Permitted	0.08	1.00	1.00	0.06	1.00	1.00	0.95	0.96	1.00		0.96	1.00
Satd. Flow (perm)	148	3539	1599	118	3539	1509	1698	1724	1599		1782	1615
Peak-hour factor, PHF	0.77	0.97	0.79	0.84	0.89	0.58	0.85	0.31	0.85	0.64	0.84	0.44
Adj. Flow (vph)	114	1238	101	274	1422	74	261	32	478	141	32	36
RTOR Reduction (vph)	0	0	0	0	0	38	0	0	337	0	0	32
Lane Group Flow (vph)	114	1238	101	274	1422	36	146	147	141	0	173	4
Heavy Vehicles (%)	1%	2%	1%	1%	2%	7%	1%	0%	1%	3%	0%	0%
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6		Free	2		2			3			4
Actuated Green, G (s)	67.2	56.7	140.0	85.5	68.1	68.1	17.3	17.3	17.3		17.1	17.1
Effective Green, g (s)	67.2	56.7	140.0	85.5	68.1	68.1	17.3	17.3	17.3		17.1	17.1
Actuated g/C Ratio	0.48	0.41	1.00	0.61	0.49	0.49	0.12	0.12	0.12		0.12	0.12
Clearance Time (s)	6.9	6.9		6.9	6.9	6.9	6.3	6.3	6.3		6.9	6.9
Vehicle Extension (s)	3.0	4.0		4.0	4.0	4.0	4.5	4.5	4.5		4.0	4.0
Lane Grp Cap (vph)	193	1433	1599	333	1721	734	209	213	197		217	197
v/s Ratio Prot	0.04	c0.35		c0.13	c0.40		0.09	0.09			c0.10	
v/s Ratio Perm	0.24		0.06	0.37		0.02			c0.09			0.00
v/c Ratio	0.59	0.86	0.06	0.82	0.83	0.05	0.70	0.69	0.72		0.80	0.02
Uniform Delay, d1	25.9	38.1	0.0	42.8	30.9	18.9	58.8	58.8	59.0		59.8	54.1
Progression Factor	1.00	1.00	1.00	1.76	0.49	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	4.8	7.1	0.1	9.8	2.8	0.1	11.2	10.6	13.3		19.0	0.1
Delay (s)	30.7	45.3	0.1	85.4	18.0	19.0	70.1	69.4	72.4		78.8	54.2
Level of Service	C	D	A	F	B	B	E	E	E		E	D
Approach Delay (s)		41.0			28.4			71.4			74.6	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	42.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	95	599	889	158	1437	386	0	0	97	86	103	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-4%			3%	
Total Lost time (s)	7.5	7.5		7.5	7.5	7.5			4.0		8.3	8.3
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00			1.00		1.00	1.00
Frt	1.00	0.91		1.00	1.00	0.85			0.86		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00			1.00		0.98	1.00
Satd. Flow (prot)	1752	3184		1752	3505	1524			1660		1579	1383
Flt Permitted	0.09	1.00		0.05	1.00	1.00			1.00		0.98	1.00
Satd. Flow (perm)	167	3184		95	3505	1524			1660		1579	1383
Peak-hour factor, PHF	0.78	0.83	0.83	0.65	0.96	0.78	0.92	0.92	0.55	0.88	0.72	0.72
Adj. Flow (vph)	122	722	1071	243	1497	495	0	0	176	98	143	103
RTOR Reduction (vph)	0	172	0	0	0	208	0	0	0	0	0	82
Lane Group Flow (vph)	122	1621	0	243	1497	287	0	0	176	0	241	21
Heavy Vehicles (%)	3%	5%	2%	3%	3%	6%	0%	0%	1%	28%	8%	15%
Turn Type	pm+pt	NA		pm+pt	NA	Perm			Free	Split	NA	Perm
Protected Phases	1	6		5	2					4	4	
Permitted Phases	6			2		2			Free			4
Actuated Green, G (s)	81.2	70.4		95.8	77.7	77.7			140.0		28.2	28.2
Effective Green, g (s)	81.2	70.4		95.8	77.7	77.7			140.0		28.2	28.2
Actuated g/C Ratio	0.58	0.50		0.68	0.56	0.56			1.00		0.20	0.20
Clearance Time (s)	7.5	7.5		7.5	7.5	7.5					8.3	8.3
Vehicle Extension (s)	2.5	6.0		2.5	6.0	6.0					5.0	5.0
Lane Grp Cap (vph)	219	1601		279	1945	845			1660		318	278
v/s Ratio Prot	0.04	c0.51		c0.11	c0.43						c0.15	
v/s Ratio Perm	0.28			0.48		0.19			0.11			0.01
v/c Ratio	0.56	1.11dr		0.87	0.77	0.34			0.11		0.76	0.07
Uniform Delay, d1	19.8	34.8		47.9	24.2	17.1			0.0		52.7	45.3
Progression Factor	1.67	0.39		1.00	1.00	1.00			1.00		1.00	1.00
Incremental Delay, d2	1.7	21.9		24.2	3.0	1.1			0.1		11.7	0.2
Delay (s)	34.8	35.5		72.0	27.2	18.2			0.1		64.4	45.6
Level of Service	C	D		E	C	B			A		E	D
Approach Delay (s)		35.4			30.1			0.1			58.7	
Approach LOS		D			C			A			E	

Intersection Summary			
HCM 2000 Control Delay	33.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	49	1114	534	65	1388	193	0	0	200	318	100	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-4%			3%	
Total Lost time (s)	7.5	7.5		7.5	7.5	7.5			4.0		8.3	8.3
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00			1.00		1.00	1.00
Frt	1.00	0.95		1.00	1.00	0.85			0.86		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00			1.00		0.96	1.00
Satd. Flow (prot)	1687	3345		1805	3539	1455			1660		1742	1544
Flt Permitted	0.06	1.00		0.06	1.00	1.00			1.00		0.96	1.00
Satd. Flow (perm)	101	3345		105	3539	1455			1660		1742	1544
Peak-hour factor, PHF	0.75	0.90	0.90	0.59	0.90	0.81	0.92	0.92	0.85	0.80	0.69	0.67
Adj. Flow (vph)	65	1238	593	110	1542	238	0	0	235	398	145	225
RTOR Reduction (vph)	0	37	0	0	0	106	0	0	0	0	0	128
Lane Group Flow (vph)	65	1794	0	110	1542	132	0	0	235	0	543	97
Heavy Vehicles (%)	7%	3%	2%	0%	2%	11%	0%	0%	1%	5%	0%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm			Free	Split	NA	Perm
Protected Phases	1	6		5	2					4	4	
Permitted Phases	6			2		2			Free			4
Actuated Green, G (s)	78.4	70.6		81.6	72.2	72.2			140.0		36.7	36.7
Effective Green, g (s)	78.4	70.6		81.6	72.2	72.2			140.0		36.7	36.7
Actuated g/C Ratio	0.56	0.50		0.58	0.52	0.52			1.00		0.26	0.26
Clearance Time (s)	7.5	7.5		7.5	7.5	7.5					8.3	8.3
Vehicle Extension (s)	2.5	6.0		2.5	6.0	6.0					5.0	5.0
Lane Grp Cap (vph)	144	1686		175	1825	750			1660		456	404
v/s Ratio Prot	0.02	c0.54		c0.04	0.44						c0.31	
v/s Ratio Perm	0.23			0.32		0.09			c0.14			0.06
v/c Ratio	0.45	1.06		0.63	0.84	0.18			0.14		1.19	0.24
Uniform Delay, d1	24.0	34.7		32.0	29.1	18.1			0.0		51.6	40.7
Progression Factor	1.56	0.63		1.00	1.00	1.00			1.00		1.00	1.00
Incremental Delay, d2	0.8	36.2		6.0	5.0	0.5			0.2		105.8	0.6
Delay (s)	38.3	58.0		38.0	34.1	18.6			0.2		157.5	41.3
Level of Service	D	E		D	C	B			A		F	D
Approach Delay (s)		57.4			32.4			0.2			123.5	
Approach LOS		E			C			A			F	

Intersection Summary			
HCM 2000 Control Delay	55.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	5	0	0	0	37	97	378	15	590	545
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.44	0.55	0.76	0.44	0.85	0.73
Hourly flow rate (vph)	0	0	5	0	0	0	84	176	497	34	694	747
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								644			987	
pX, platoon unblocked												
vC, conflicting volume	1107	1604	347	760	1853	176	1441			674		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1107	1604	347	760	1853	176	1441			674		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.4		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	100	100	99	100	100	100	82			96		
cM capacity (veh/h)	140	84	655	248	59	843	477			837		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	5	260	497	265	463	747
Volume Left	0	84	0	34	0	0
Volume Right	5	0	497	0	0	747
cSH	655	477	1700	837	1700	1700
Volume to Capacity	0.01	0.18	0.29	0.04	0.27	0.44
Queue Length 95th (ft)	1	16	0	3	0	0
Control Delay (s)	10.5	6.5	0.0	1.6	0.0	0.0
Lane LOS	B	A		A		
Approach Delay (s)	10.5	2.2		0.3		
Approach LOS	B					

Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	47.6%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	5	0	0	0	10	200	589	8	555	136
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.63	0.92	0.92	0.92	0.31	0.91	0.90	0.67	0.90	0.82
Hourly flow rate (vph)	0	0	8	0	0	0	32	220	654	12	617	166
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											987	
pX, platoon unblocked												
vC, conflicting volume	925	1579	308	617	1091	220	783			874		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	925	1579	308	617	1091	220	783			874		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	100	100	100	96			98		
cM capacity (veh/h)	218	104	694	359	205	790	844			780		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	8	252	654	217	411	166
Volume Left	0	32	0	12	0	0
Volume Right	8	0	654	0	0	166
cSH	694	844	1700	780	1700	1700
Volume to Capacity	0.01	0.04	0.38	0.02	0.24	0.10
Queue Length 95th (ft)	1	3	0	1	0	0
Control Delay (s)	10.3	1.6	0.0	0.7	0.0	0.0
Lane LOS	B	A		A		
Approach Delay (s)	10.3	0.4		0.2		
Approach LOS	B					

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	58.7%	ICU Level of Service		B
Analysis Period (min)	15			

APPENDIX B-8: SIMTRAFFIC MAXIMUM QUEUE LENGTH SUMMARY

SimTraffic CAPACITY ANALYSIS - Maximum Queue Length
2015 Existing Volumes
Candlers Expressway - Lynchburg, Virginia

Intersection Number and Description	Type of Control	Lane Group	Eastbound			Westbound			Northbound			Southbound		
			Storage Bay Length	AM Queue (ft)	PM Queue (ft)	Storage Bay Length	AM Queue (ft)	PM Queue (ft)	Storage Bay Length	AM Queue (ft)	PM Queue (ft)	Storage Bay Length	AM Queue (ft)	PM Queue (ft)
1 Candlers Mountain Road / Sheffield Drive at Wards Road			Sheffield Drive			Candlers Mountain Road			Wards Road			Wards Road		
	Signal	Left	400	161	235	225	118	*(2%)**(2%)	125	**(4%)	**(27%)	415	390	465 L[**(1%)]
		Through					154	350		195	313			
		Right					207	534						
2 Candlers Mountain Road at Short Street			Candlers Mountain Road			Candlers Mountain Road			Commercial Driveway			Short Street		
	Two-Way Stop	Left	50	27	34	50	25	**(<1%)		41	62		46	82
		Through		†	37		†	86						
		Right												
3 Candlers Mountain Road at Woodall Road			Candlers Mountain Road			Candlers Mountain Road			Commercial Driveway			Woodall Road		
	Signal	Left	175	**(1%)	**(2%)		42	38		40	65	90	79	*(5%)**(1%)
		Through		253	^(#2)		^(#4)	^(#4)				--	--	--
		Right								50	32		63	185
4 Candlers Mountain Road at Southbound Lynchburg Expressway Ramp / Seminole Avenue			Candlers Mountain Road			Candlers Mountain Road			Seminole Avenue			SB Lynchburg Expy Exit Ramp		
	Signal	Left	--	--	--	150	*(1%)**(1%)	*(<1%)**(3%)	155	**(<1%)	87		65	134
		Through		^(#3)	^(#3)		250	317		--	--			
		Right				--	--	--	--	185	95	200	82	134
5 Candlers Mountain Road at Murray Place			Candlers Mountain Road			Candlers Mountain Road						Murray Place		
	One-Way Stop	Left	--	--	--	--	--	--	--	--	--	--	--	--
		Through	--	--	--		3	2	--	--	--	--	--	--
		Right	--	--	--				--	--	--		100	160
6 Candlers Mountain Road at Murray Place / River Ridge Mall			Candlers Mountain Road			Candlers Mountain Road			River Ridge Mall			Murray Place		
	Signal	Left	260	*(<1%)**(30%)	*(<1%)**(58%)	205	*(<1%)**(4%)	*(6%)**(14%)		101	226		122	247
		Through		1891	1910		514	460						
		Right		121	56	180	*(<1%)**(31%)	*(<1%)**(34%)		222	374	120	**(<1%)	**(10%)
7 Candlers Mountain Road / US 501 at Mayflower Drive			Candlers Mountain Road/US 501			Candlers Mountain Road/US 501			Candlers Mountain Road			Mayflower Drive		
	Signal	Left	325	**(1%)	**(22%)	275	*(1%)**(16%)	*(<1%)**(23%)	--	--	--		438	1314
		Through		^(#6)	^(#6)		1277	1136	--	--	--			
		Right				375	*(1%)**(15%)	*(1%)**(18%)		†	272	275	*(<1%)**(4%)	*(1%)**(40%)
8 Candlers Mountain Road at Westbound US 501 Ramp / Mountain View Road			Mountain View Road						Candlers Mountain Road			Candlers Mountain Road		
	One-Way Stop	Left	--	--	--	--	--	--		587	187		^(#7)	52
		Through	--	--	--	--	--	--						
		Right		2	†	--	--	--				200	*(5%)**(36%)	11

NOTE: Lane configurations with a shared through lane shown as "through" lane group; with shared left-right lane shown as "left" lane group.
SimTraffic simulation of 60 minutes is reported.
† SYNCHRO does not provide queue length for movements with no conflicting volumes.
*(X%) - Maximum queue extends full length of storage bay for X% of the analysis period.
**(Y%) - Queue in lane adjacent to storage bay extends beyond end of storage bay for Y% of the analysis period.
^(#Z) - Maximum queue extends back to previous intersection #Z.
L/R[] - Left or right turn storage bay of shared lane group.

APPENDIX B-9: SIMTRAFFIC OUTPUT SHEETS

Queuing and Blocking Report
Existing AM Peak

3/30/2016

Intersection: 1: Wards Road & Sheffield Drive/Candlers Mountain Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	TR	L	T	R	L	T	TR	L	LT	TR
Maximum Queue (ft)	128	161	118	154	207	102	195	192	328	390	334
Average Queue (ft)	34	71	32	56	70	20	97	82	144	205	133
95th Queue (ft)	85	132	82	122	144	69	167	157	279	330	278
Link Distance (ft)		890		463	463		1789	1789		1079	1079
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	400		225			125			415		
Storage Blk Time (%)				0		0	4			0	
Queuing Penalty (veh)				0		0	1			0	

Intersection: 2: Commercial Driveway/Short Street & Candlers Mountain Road

Movement	EB	WB	NB	SB
Directions Served	L	L	LTR	LTR
Maximum Queue (ft)	27	25	41	46
Average Queue (ft)	2	2	13	12
95th Queue (ft)	12	12	38	38
Link Distance (ft)			352	342
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	50	50		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Commercial Driveway/Woodall Road & Candlers Mountain Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	R
Maximum Queue (ft)	72	224	253	42	75	100	40	50	79	63
Average Queue (ft)	18	84	109	8	13	32	8	11	27	10
95th Queue (ft)	52	177	205	30	45	80	29	37	68	37
Link Distance (ft)		249	249	100	100	100	363	363		1243
Upstream Blk Time (%)		0	0		0	0				
Queuing Penalty (veh)		0	2		0	1				
Storage Bay Dist (ft)	175								90	
Storage Blk Time (%)		1							1	0
Queuing Penalty (veh)		0							0	0

Queuing and Blocking Report
Existing PM Peak

3/30/2016

Intersection: 1: Wards Road & Sheffield Drive/Candlers Mountain Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	TR	L	T	R	L	T	TR	L	LT	TR
Maximum Queue (ft)	198	235	224	350	534	124	313	298	404	465	372
Average Queue (ft)	104	142	132	123	291	63	192	186	225	289	235
95th Queue (ft)	185	224	224	264	521	147	288	284	352	403	344
Link Distance (ft)		890		463	463		1789	1789		1079	1079
Upstream Blk Time (%)				0	5						
Queuing Penalty (veh)				0	27						
Storage Bay Dist (ft)	400		225			125			415		
Storage Blk Time (%)			2	2		0	27		0	1	
Queuing Penalty (veh)			4	4		1	18		0	1	

Intersection: 2: Commercial Driveway/Short Street & Candlers Mountain Road

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	34	36	37	39	55	86	62	82
Average Queue (ft)	7	2	2	3	2	7	16	18
95th Queue (ft)	27	38	39	19	25	48	49	58
Link Distance (ft)		463	463		249	249	352	342
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	50			50				
Storage Blk Time (%)	1	0		0	0			
Queuing Penalty (veh)	2	0		1	0			

Intersection: 3: Commercial Driveway/Woodall Road & Candlers Mountain Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	R
Maximum Queue (ft)	99	250	279	38	100	121	65	32	88	185
Average Queue (ft)	13	120	148	5	36	57	12	6	47	43
95th Queue (ft)	56	221	256	23	86	109	44	24	92	127
Link Distance (ft)		249	249	100	100	100	363	363		1243
Upstream Blk Time (%)		0	1		0	2				
Queuing Penalty (veh)		1	4		1	6				
Storage Bay Dist (ft)	175								90	
Storage Blk Time (%)	0	2							5	1
Queuing Penalty (veh)	0	0							5	1

Intersection: 4: Seminole Avenue/SB Lynchburg Expressway Exit Ramp & Candlers Mountain Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	T	TR	L	T	T	L	R	LT	R
Maximum Queue (ft)	95	104	146	212	250	91	185	65	82
Average Queue (ft)	30	33	62	58	100	24	57	15	29
95th Queue (ft)	75	81	124	153	198	63	116	49	62
Link Distance (ft)	100	100		241	241		801	709	
Upstream Blk Time (%)	0	1		0	0				
Queuing Penalty (veh)	1	3		0	1				
Storage Bay Dist (ft)			150			155			200
Storage Blk Time (%)			1	1		0	0		
Queuing Penalty (veh)			3	1		0	0		

Intersection: 5: Candlers Mountain Road & Murray Place

Movement	EB	EB	EB	WB	SB
Directions Served	T	T	T	TR	R
Maximum Queue (ft)	308	303	209	3	100
Average Queue (ft)	180	195	35	0	42
95th Queue (ft)	379	375	141	4	84
Link Distance (ft)	208	208	208	297	702
Upstream Blk Time (%)	29	40	1		
Queuing Penalty (veh)	162	221	5		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: Seminole Avenue/SB Lynchburg Expressway Exit Ramp & Candlers Mountain Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	T	TR	L	T	T	L	R	LT	R
Maximum Queue (ft)	96	112	149	287	315	87	95	134	134
Average Queue (ft)	43	48	78	113	154	29	41	40	46
95th Queue (ft)	89	101	140	230	272	69	80	108	97
Link Distance (ft)	100	100		241	241		801	709	
Upstream Blk Time (%)	1	3		1	2				
Queuing Penalty (veh)	5	11		4	9				
Storage Bay Dist (ft)			150			155			200
Storage Blk Time (%)			0	3			0	1	0
Queuing Penalty (veh)			1	4			0	2	0

Intersection: 5: Candlers Mountain Road & Murray Place

Movement	EB	EB	EB	WB	WB	SB
Directions Served	T	T	T	T	TR	R
Maximum Queue (ft)	306	309	234	2	2	160
Average Queue (ft)	245	250	62	0	0	66
95th Queue (ft)	377	371	201	2	2	126
Link Distance (ft)	208	208	208	297	297	702
Upstream Blk Time (%)	56	65	2			
Queuing Penalty (veh)	292	339	11			
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: River Ridge Mall/Murray Place & Candlers Mountain Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	LT	R	LT
Maximum Queue (ft)	260	392	399	121	199	379	514	180	47	101	222	122
Average Queue (ft)	113	342	359	8	99	155	295	60	10	38	73	29
95th Queue (ft)	267	427	411	91	173	305	447	177	35	82	182	83
Link Distance (ft)		297	297	297		611	611		1947	1947	1947	552
Upstream Blk Time (%)		33	47	0			0					
Queuing Penalty (veh)		182	262	2			0					
Storage Bay Dist (ft)	260				205			180				
Storage Blk Time (%)	0	30			0	4	31	0				1
Queuing Penalty (veh)	1	25			3	6	31	2				0

Intersection: 6: River Ridge Mall/Murray Place & Candlers Mountain Road

Movement	SB
Directions Served	R
Maximum Queue (ft)	43
Average Queue (ft)	4
95th Queue (ft)	26
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	120
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 7: Candlers Mountain Road & Mayflower Drive

Movement	EB	EB	EB	WB	WB	WB	WB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LT	R
Maximum Queue (ft)	202	620	684	275	1246	1277	375	438	275
Average Queue (ft)	35	183	280	111	637	707	233	188	78
95th Queue (ft)	119	541	719	286	1453	1497	518	362	207
Link Distance (ft)		611	611		1568	1568		3312	
Upstream Blk Time (%)		1	8		1	1			
Queuing Penalty (veh)		5	71		6	13			
Storage Bay Dist (ft)	325			275			375		275
Storage Blk Time (%)	0	1		1	16	15	1	4	0
Queuing Penalty (veh)	0	1		9	27	62	9	4	0

Intersection: 6: River Ridge Mall/Murray Place & Candlers Mountain Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	LT	R	LT
Maximum Queue (ft)	260	395	394	56	205	397	460	180	169	226	374	247
Average Queue (ft)	152	364	367	2	159	222	281	35	81	120	189	100
95th Queue (ft)	326	400	398	41	237	371	429	139	143	196	328	194
Link Distance (ft)		297	297	297		610	610		1947	1947	1947	552
Upstream Blk Time (%)		59	65	0								
Queuing Penalty (veh)		309	340	1								
Storage Bay Dist (ft)	260				205			180				
Storage Blk Time (%)	0	58			6	14	34	0				10
Queuing Penalty (veh)	2	51			36	33	16	1				2

Intersection: 6: River Ridge Mall/Murray Place & Candlers Mountain Road

Movement	SB
Directions Served	R
Maximum Queue (ft)	110
Average Queue (ft)	18
95th Queue (ft)	73
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	120
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 7: Candlers Mountain Road & Mayflower Drive

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	R	LT	R
Maximum Queue (ft)	324	642	673	275	1086	1136	375	272	1314	275
Average Queue (ft)	68	433	489	80	515	542	177	36	643	185
95th Queue (ft)	280	659	726	262	1079	1118	479	176	1298	357
Link Distance (ft)		610	610		1568	1568		868	3312	
Upstream Blk Time (%)		1	9							
Queuing Penalty (veh)		7	78							
Storage Bay Dist (ft)	325			275			375			275
Storage Blk Time (%)	0	22		0	23	18	1		40	1
Queuing Penalty (veh)	1	12		1	17	36	5		61	4

Intersection: 8: Candlers Mountain Road & Mountain View Road/US 501 Entrance Ramp

Movement	EB	NB	NB	SB	SB	SB
Directions Served	R	LT	R	LT	T	R
Maximum Queue (ft)	2	587	53	922	1042	200
Average Queue (ft)	0	189	30	488	593	145
95th Queue (ft)	3	518	41	1108	1275	290
Link Distance (ft)	282	591		868	868	
Upstream Blk Time (%)		3		5	21	
Queuing Penalty (veh)		17		34	129	
Storage Bay Dist (ft)			25			200
Storage Blk Time (%)		22	11		36	5
Queuing Penalty (veh)		92	17		206	15

Intersection: 9: Lynchburg Expressway Ramp & Candlers Mountain Road

Movement	EB	EB	NB
Directions Served	T	T	R
Maximum Queue (ft)	143	146	465
Average Queue (ft)	16	19	117
95th Queue (ft)	99	111	502
Link Distance (ft)	241	241	576
Upstream Blk Time (%)	0	0	16
Queuing Penalty (veh)	0	1	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Candlers Mountain Road & Lynchburg Expressway Ramp

Movement	EB	EB	EB
Directions Served	T	T	T
Maximum Queue (ft)	1038	1029	1009
Average Queue (ft)	347	384	316
95th Queue (ft)	1035	1096	1047
Link Distance (ft)	910	910	910
Upstream Blk Time (%)	12	17	14
Queuing Penalty (veh)	62	90	75
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Candlers Mountain Road & Mountain View Road/US 501 Entrance Ramp

Movement	NB	NB	SB	SB
Directions Served	LT	R	LT	R
Maximum Queue (ft)	187	62	52	11
Average Queue (ft)	59	33	6	0
95th Queue (ft)	134	48	30	6
Link Distance (ft)	2807		868	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		25		200
Storage Blk Time (%)	1	15		
Queuing Penalty (veh)	7	32		

Intersection: 9: Lynchburg Expressway Ramp & Candlers Mountain Road

Movement	EB	EB	WB	WB	NB
Directions Served	T	T	T	T	R
Maximum Queue (ft)	166	183	1	2	527
Average Queue (ft)	25	29	0	0	134
95th Queue (ft)	138	145	1	2	524
Link Distance (ft)	241	241	910	910	576
Upstream Blk Time (%)	1	1			15
Queuing Penalty (veh)	3	5			0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 10: Candlers Mountain Road & Lynchburg Expressway Ramp

Movement	EB	EB	EB
Directions Served	T	T	T
Maximum Queue (ft)	1002	1008	1023
Average Queue (ft)	497	528	463
95th Queue (ft)	1136	1172	1180
Link Distance (ft)	910	910	910
Upstream Blk Time (%)	16	22	19
Queuing Penalty (veh)	84	114	98
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Candlers Mountain Road & School

Movement	WB	NB	SB	SB
Directions Served	LTR	T	L	T
Maximum Queue (ft)	107	507	641	644
Average Queue (ft)	37	223	481	598
95th Queue (ft)	90	505	846	692
Link Distance (ft)	599	2157	591	591
Upstream Blk Time (%)			17	59
Queuing Penalty (veh)			51	177
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: Candlers Mountain Road

Movement	SE	NW	NW
Directions Served	R	T	T
Maximum Queue (ft)	675	292	300
Average Queue (ft)	24	58	62
95th Queue (ft)	348	362	378
Link Distance (ft)	1568	3653	3653
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	1		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 2089

Intersection: 14: Candlers Mountain Road

Movement	SE	SE	NW
Directions Served	T	R	T
Maximum Queue (ft)	4	86	3
Average Queue (ft)	0	4	0
95th Queue (ft)	0	36	3
Link Distance (ft)	1568	1568	3653
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 2107

APPENDIX C – TRAFFIC FORECASTING

APPENDIX C-1: CANDLERS MOUNTAIN ROAD TRAFFIC VOLUME GROWTH RATES

Kimley»Horn

MEMORANDUM

To: Gerry Harter, P.E., PTOE
Rick Youngblood, GISP
Virginia Department of Transportation

From: Tim White, P.E., PTOE
Jeff Feeney, P.E.
Amanda Harmon, P.E.
Kimley-Horn and Associates, Inc.

Date: May 27, 2014

Subject: Candlers Mountain Road Traffic Volume Growth Rates

There are currently two transportation planning studies being conducted and third in the scoping phase in the vicinity of Liberty University, all of which include segments of Candlers Mountain Road within the study area. The purpose of this memorandum is to review the traffic volume growth rates being applied to Candlers Mountain Road in the following studies:

- Lynchburg Expressway Improvement Study (STARS Task 13)
- Addendum Traffic Study to the Candlers Mountain Road Ramp Study (TED Task 34)
- Addendum to the Lynchburg Expressway Improvement Study (scoping phase)

A study area map showing each of the aforementioned study areas is provided in Attachment A.

The available Lynchburg Regional Travel Demand Model along with demographic (population, employment, and automobile) data provided by the Central Virginia Metropolitan Planning Organization (CVMPO) was used in the development of growth rates for the subject studies. Information used to develop projected growth rates is provided in Attachment B for the Lynchburg Expressway Improvement Study (as documented in the Technical Traffic Committee Conference Call #1 Discussion Outline) and Attachment C for the Addendum Traffic Study to the Candlers Mountain Road Ramp Study. The agreed upon growth rates being used in each study are provided below:

- Lynchburg Expressway Improvement Study:
  - 1% linear growth rate for the Lynchburg Expressway mainline, Main Street (west of Lynchburg Expressway), Wards Road, Candlers Mountain Road, and Odd Fellows Road.
  - 0.5% linear growth rate for all other corridors within the study area.
- Addendum Traffic Study to the Candlers Mountain Road Ramp Study
  - 1.25% linear growth rate for US Route 460.

  - 2% linear growth rate for Candlers Mountain Road, University Boulevard, Liberty Mountain Drive, and Liberty University Drive.
- Addendum to the Lynchburg Expressway Improvement Study
  - Anticipated 1% linear growth rate for Candlers Mountain Road

As shown on the study area map (Attachment A), Candlers Mountain Road is the common roadway between the three studies. Candlers Mountain Road is projected to grow at a 2% growth rate south of Mayflower Drive and at 1% north of Mayflower Drive. The differing growth rate along Candlers Mountain Road is consistent with the traffic projections in the Lynchburg Travel Demand Model (see Attachments B and C), which indicates the roadways immediately adjacent to Liberty University are projected to grow at a higher rate than the other roadways within the project study areas. The higher growth projected near Liberty University is also documented with the University's Master Plan and consistent with their expansion activities to date.

Attachment A

Study Area Locations

Legend

- Lynchburg Expressway Improvement Study
- Addendum to the Lynchburg Expressway Improvement Study
- Addendum Traffic Study to the Candlers Mountain Road Ramp Study

Lynchburg College
Liberty University
Falwell Airport
Downtown

Amherst County
Bedford County
Appomattox County
Campbell County

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

VDOT Virginia Department of Transportation

Study Area Locations
Lynchburg, VA

ATTACHMENT
A

Attachment B

Lynchburg Expressway Improvement Study
Growth Rate Information

STARS Lynchburg Expressway Improvement Study

Technical Traffic Committee Conference Call #1

January 30, 2014 - 9:00 a.m.

Discussion Outline

1. **Synchro Analysis Assumptions**

   Use HCM 2000 report output
   - Limitations with HCM 2010 for intersections without NEMA phasing and for clustered intersections

   MOEs
   - Intersection level of service (LOS)
   - Average vehicle delay (sec/veh) by approach and by intersection
   - Queue length (ft) estimation

   Modeling assumptions
   - Adaptive controllers were modeled by optimizing the intersection's signal timing based on existing traffic data
   - Wards Road at Harvard signal timing was adjusted to model observed queues

2. **CORSIM Analysis Assumptions**

   One hour of analysis

   MOEs
   - Vehicle throughput on freeway links (vph)
   - Vehicle density on freeway links (veh/ln/mi)
   - Vehicle speeds on freeway links (mph)
   - Travel time results (min:sec)

   Calibration based on:
   - Existing traffic volume data
   - Travel time runs performed during field review
   - INRIX speed data
   - Field review observations of existing queue length and corridor operation

Modeling assumptions

- CORSIM density output will be converted to an equivalent HCM output based on guidance from the *Traffic Operations Analysis Tool Guidebook*, *Ver 1.1*
- Wards Road at Harvard Street signal timing manipulated to model observed queues (input from Synchro)
- Candlers Mountain Road at River Ridge Mall Entrance signal timing manipulated to model observed queues
- Southbound Lynchburg Expressway On-Ramp from Westbound Candlers Mountain Road modeled with ramp metering to model observed queues

3. Growth Rate Development

Methodology – Linear growth rate calculations to be used (no compounding)

Truck traffic– Use same truck percentages for future year analyses?

Historical growth rates based on VDOT Traffic Counts (see Table 1, Attachment A)

- Post US 29 Bypass construction

Lynchburg Regional Travel Model (prepared by the Central Virginia MPO, 2013) growth rates (see Table 1, Attachment B)

- Base Year = 2008; Interim Year = 2016; Forecast Year = 2035
- Model influences
  - Liberty University Expansion
    - Odd Fellows Road Interchange
    - Top Ridge Road
    - US 460
- Other studies – Are there any other studies to consider?
  - Main Street Interchange Memo – September 2013 → 1%
  - Liberty University Study – not available yet

Table 1 provides a summary of calculated and proposed rates; see Attachments A and B for more details.

Table 1: Summary of Growth Rate by Segments

Roadway	Annual Growth Rate Source: Historic AADT Data (2007–2012)		Annual Growth Rate Source: Regional Travel Demand Model (2008-2035)		Proposed Rate for Lynchburg Expressway Study
	Average	Range	Average	Range	
Expressway (US 29/US 501)	-1.53%	-3.56% to - 0.50%	0.50%	0.33% to 0.62%	**1.00%**
Wards Road	-3.16%	--	0.70%	0.58% to 0.79%	**1.00%**
Candlers Mountain Road	-0.53%	0.00% to -1.05%	0.60%	0.45% to 0.79%	**1.00%**
Odd Fellows Road	-1.95%	--	0.85%	0.16% to 1.36%	**1.00%**
James Street	-3.16%	--	0.03%	-0.30% to 0.38%	**0.50%**
Stadium Drive	0.00%	--	0.13%	0.06% to 0.25%	**0.50%**
Kemper Street	-1.23%	-1.67% to -0.80%	0.33%	0.14% to 0.64%	**0.50%**
Grace Street	-0.59%	--	0.03%	-0.16% to 0.18%	**0.50%**
Robin Street	--	--	0.20%	*	**0.50%**
Main Street (west of US 29)	0.00%	--	1.21%	*	**1.00%**
Main Street (east of US 29)	-1.60%	--	0.31%	*	**0.50%**

-- AADT Data not available

* No range of growth rates because only one segment in Travel Demand Model

TAZ Data Summary

- Tables below summarize projected growth documented by MPO with the City of Lynchburg growth highlighted (see Tables 2 – Table 4)
- CVMPO Population and Employment maps should density of projected growth. Significant portion of growth is concentrated at Liberty University along the city limits to the southeast (see Figure 1 – Figure 2)

Table 2: Projected MPO Population Change 2010 - 2040

	% of Total Growth in MPO	MPO Absolute Change	2010 MPO Population	2040 MPO Population	% Change
Amherst	75	2,240	23,107	25,347	10%
Bedford	62	13,052	23,801	36,853	54%
Campbell	84	6,706	30,825	37,531	22%
Lynchburg	100	11,569	75,568	87,137	15%
TOTAL	**77**	**33,569**	**153,301**	**186,868**	**22%**

Source: 2013 Traffic Analysis Zone Update for the Central Virginia MPO

Table 3: Projected MPO Employment Change

	2010	2040	Abs. Change	% Change
Amherst	7,184	8,493	1,309	18%
Bedford	8,696	18,378	9,682	111%
Campbell	10,598	13,427	2,829	27%
Lynchburg	55,995	68,019	12,024	21%

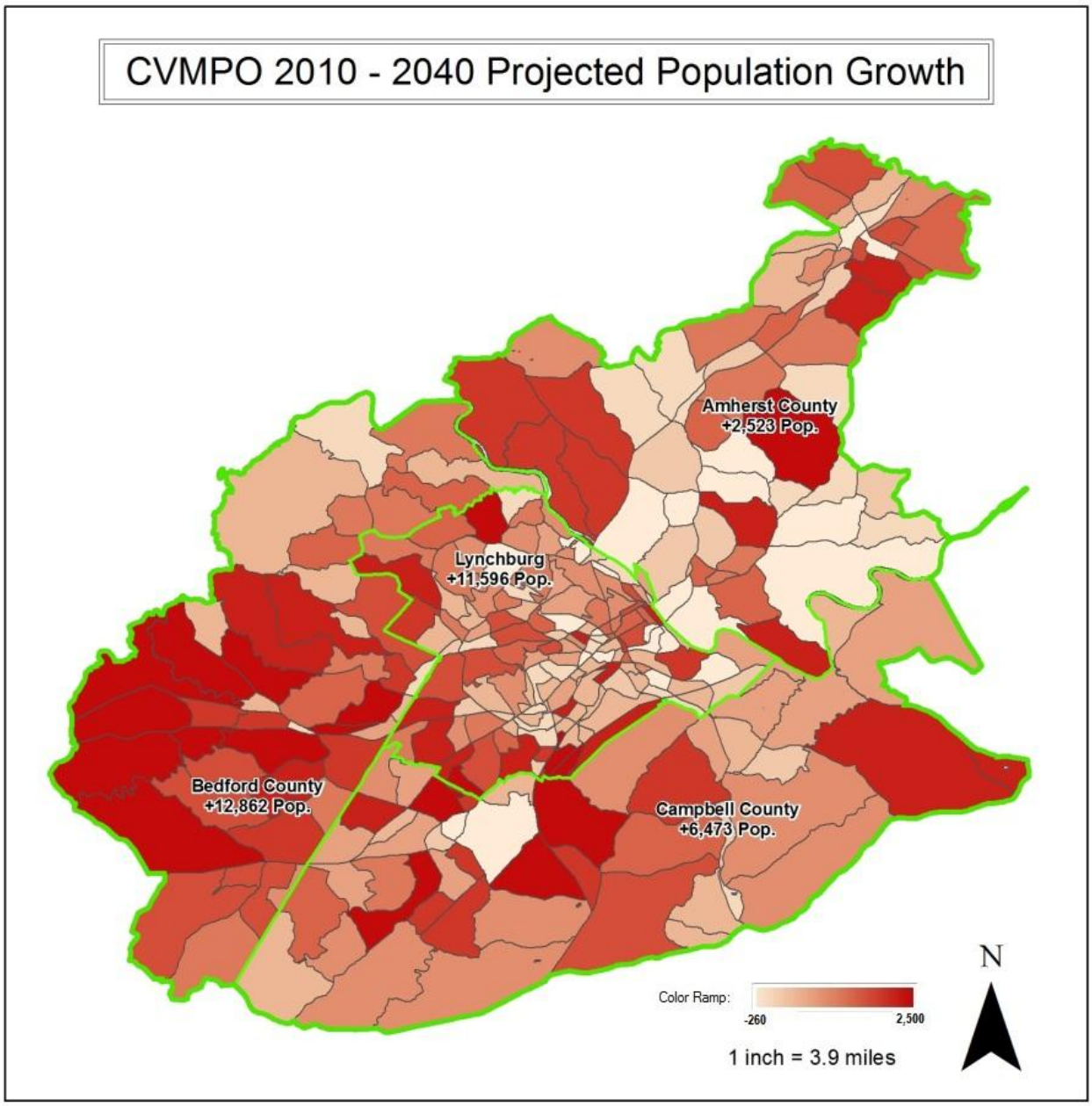
Source: 2013 Traffic Analysis Zone Update for the Central Virginia MPO

Table 4: Projected MPO Number of Automobiles Change

	2010	2040	Abs. Change	% Change
Amherst	17,957	20,051	2,094	12%
Bedford	19,335	29,614	10,279	53%
Campbell	25,074	30,551	5,477	22%
Lynchburg	49,811	57,934	8,123	16%

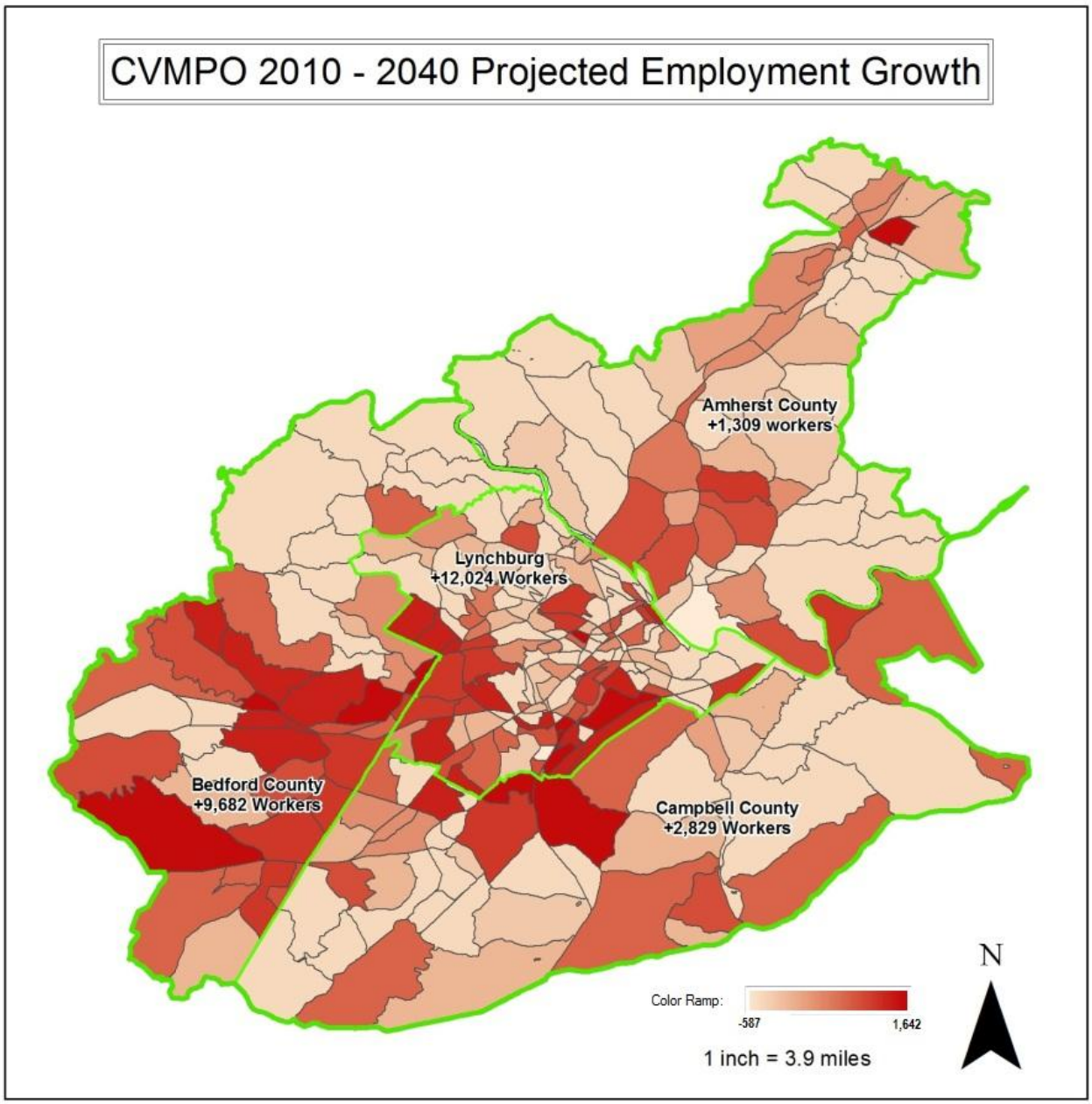
Source: 2013 Traffic Analysis Zone Update for the Central Virginia MPO

Figure 1: Projected Population Growth



Source: 2013 Traffic Analysis Zone Update for the Central Virginia MPO

Figure 2: Projected Employment Growth



Source: 2013 Traffic Analysis Zone Update for the Central Virginia MPO

Attachment A

STARS Lynchburg Expressway Improvement Study

Growth Rate Development - VDOT Published Historic AADT Data

Segment Type	Road	From	To	Historic Annual Average Daily Traffic (AADT)												Growth Rate Simple	
				2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Overall (2001 - 2012)	Post-Bypass (2007 - 2012)
Mainline	US 29 - Wards Rd	S. City Limits	Lynchburg Expy	37,000	37,000	39,000	34,000	35,000	36,000	37,000	35,000	36,000	40,000	39,000	40,000	0.74%	1.62%
	US 29 - Lynchburg Expy	Wards Rd	Candler Mt Rd	43,000	43,000	46,000	43,000	45,000	46,000	40,000	39,000	40,000	39,000	39,000	39,000	-0.85%	-0.50%
	US 29 - Lynchburg Expy	Candler Mt Rd	Odd Fellows Rd	43,000	43,000	46,000	43,000	45,000	46,000	40,000	39,000	40,000	39,000	39,000	39,000	-0.85%	-0.50%
	US 29 - Lynchburg Expy	Odd Fellows Rd	Kemper St	42,000	42,000	45,000	43,000	45,000	46,000	45,000	44,000	44,000	37,000	37,000	37,000	-1.08%	-3.56%
	US 29 - Lynchburg Expy	Kemper St	Main St	42,000	42,000	45,000	44,000	45,000	47,000	40,000	39,000	39,000	37,000	36,000	37,000	-1.08%	-1.50%
	US 29 - Lynchburg Expy	Main St	Amherst County Line	32,000	32,000	34,000	33,000	34,000	35,000	25,000	25,000	25,000	23,000	23,000	23,000	-2.56%	-1.60%
Arterials	Wards Rd (VA 163, US 29 Bus pre-2005)	Lynchburg Expy	Candler Mt Rd	17,000	17,000	17,000	17,000	17,000	17,000	19,000	19,000	18,000	17,000	16,000	16,000	-0.53%	-3.16%
	Candler Mt Rd	Wards Rd	Lynchburg Expy	19,000	19,000	19,000	18,000	18,000	18,000	19,000	20,000	19,000	18,000	18,000	18,000	-0.48%	-1.05%
	Candler Mt Rd	Lynchburg Expy	Mayflower Dr	36,000	36,000	36,000	35,000	35,000	36,000	35,000	41,000	41,000	36,000	35,000	35,000	-0.25%	0.00%
	Odd Fellows Rd	Lynchburg Expy	Mayflower Dr	8,700	8,800	8,700	7,900	7,900	-	8,200	8,500	8,000	7,600	7,400	7,400	-1.36%	-1.95%
	James St	Stadium Rd	Lynchburg Expy	4,000	4,000	4,000	3,500	3,500	-	3,800	3,900	3,700	3,300	3,200	3,200	-1.82%	-3.16%
	James St	Lynchburg Expy	Carroll Ave	4,000	4,000	4,000	3,500	3,500	-	3,800	3,900	3,700	3,300	3,200	3,200	-1.82%	-3.16%
	Stadium Dr	Wythe St	Lynchburg Expy	4,700	4,800	4,700	4,400	4,400	-	4,400	4,600	4,300	4,500	4,400	4,400	-0.58%	0.00%
	Stadium Dr	Lynchburg Expy	Carroll Ave	4,700	4,800	4,700	4,400	4,400	-	4,400	4,600	4,300	4,500	4,400	4,400	-0.58%	0.00%
	Kemper St	12th St	Lynchburg Expy	11,000	11,000	11,000	11,000	11,000	-	12,000	12,000	11,000	11,000	11,000	11,000	0.00%	-1.67%
	Kemper St	Lynchburg Expy	Campbell Ave	12,000	12,000	12,000	13,000	12,000	-	10,000	11,000	10,000	9,800	9,600	9,600	-1.82%	-0.80%
	Grace St	12th St	Lynchburg Expy	4,800	4,800	4,800	3,200	3,200	-	3,400	3,600	3,400	3,400	3,300	3,300	-2.84%	-0.59%
	Grace St	Lynchburg Expy	Florida Ave	4,800	4,800	4,800	3,200	3,200	-	3,400	3,600	3,400	3,400	3,300	3,300	-2.84%	-0.59%
	Main St	12th St	Lynchburg Expy	9,400	9,400	9,400	6,300	6,300	-	6,400	7,400	7,300	6,500	6,400	6,400	-2.90%	0.00%
	Main St	Lynchburg Expy	Florida Ave	3,400	3,400	3,400	2,800	2,800	-	2,500	2,700	2,500	2,400	2,300	2,300	-2.94%	-1.60%

Notes:

No 2006 data for individual jurisdictions - only primary arterials available.

New Lynchburg Bypass opened in 3 phases between December 2004 and October 2005

Separate data points on both sides of Lynchburg Expy not available for James St, Stadium Dr, and Grace St.

Attachment B

STARS Lynchburg Expressway Improvement Study

Growth Rate Development - Regional Travel Demand Model

Segment Type	Roadway	From	To	Annual Average Daily Traffic (AADT)		Annual Growth Rate	Proposed Growth Rate for Lynchburg Expressway Study
				2008	2035		
US 29 Mainline and Ramp	US 29 Mainline	Concord Turnpike	Amherst County Line	38,836	44,797	0.57%	1.00%
	US 29 Mainline	Main Street	Concord Turnpike	38,836	44,797	0.57%	1.00%
	US 29 Mainline	Gum Street	Main Street	40,931	47,358	0.58%	1.00%
	US 29 Mainline	Robins Street	Gum Street	45,439	52,796	0.60%	1.00%
	US 29 Mainline	Miller Street	Robins Street	43,531	50,803	0.62%	1.00%
	US 29 Mainline	Kemper Street	Miller Street	53,159	60,517	0.51%	1.00%
	US 29 Mainline	Stadium Road	Kemper Street	63,107	68,659	0.33%	1.00%
	US 29 Mainline	James Street	Stadium Road	53,988	59,493	0.38%	1.00%
	US 29 Mainline	Odd Fellows Road	James Street	59,093	65,442	0.40%	1.00%
	US 29 Mainline	Candlers Mt Road	Odd Fellows Road	53,126	58,873	0.40%	1.00%
	US 29 Mainline	Wards Road	Candlers Mt Road	51,583	57,796	0.45%	1.00%
	US 501 Mainline	South of Study Area	Wards Road	54,876	64,129	0.62%	1.00%
Arterial Segments	Wards Rd (29)	Harvard Street	Old Wards Road	42,411	49,017	0.58%	1.00%
	Wards Rd (29)	Old Wards Road	River Ridge Mall	33,684	40,894	0.79%	1.00%
	Wards Rd (29)	River Ridge Mall	Lynchburg Expy	30,497	36,306	0.71%	1.00%
	Wards Rd (29)	Lynchburg Expy	Seminole Ave	24,007	28,959	0.76%	1.00%
	Wards Rd (29)	Seminole Ave	Wards Road Direction	18,157	21,375	0.66%	1.00%
	Candlers Mt Rd	Wards Rd	Lynchburg Expy	23,745	26,650	0.45%	1.00%
	Candlers Mt Rd	Lynchburg Expy	Railroad Tracks	47,572	54,540	0.54%	1.00%
	Candlers Mt Rd	Railroad Tracks	Mayflower Dr	39,026	47,359	0.79%	1.00%
	Odd Fellows Rd	Lynchburg Expy	Albert Lankford Dr	16,319	17,036	0.16%	1.00%
	Odd Fellows Rd	Albert Lankford Dr	Railroad Tracks	10,784	13,731	1.01%	1.00%
	Odd Fellows Rd	Railroad Tracks	Mayflower Dr	9,598	13,132	1.36%	1.00%
	James St	Stadium Rd	Lynchburg Expy	9,476	10,445	0.38%	0.50%
	James St	Lynchburg Expy	Lynchburg Expy	8,097	8,106	0.00%	0.50%
	James St	Lynchburg Expy	Carroll Ave	5,161	4,743	-0.30%	0.50%
	Stadium Dr	Lynchburg Expy	Gordon St	5,235	5,313	0.06%	0.50%
	Stadium Dr	Gordon St	James Street	6,320	6,440	0.07%	0.50%
	Stadium Dr	James Street	Whyte St	13,934	14,893	0.25%	0.50%
	Kemper St	12th St	Lynchburg Expy	21,817	22,974	0.20%	0.50%
	Kemper St	12th St	Lynchburg Expy	17,274	17,942	0.14%	0.50%
	Kemper St	Lynchburg Expy	Campbell Ave	14,442	16,939	0.64%	0.50%
	Grace St	12th St	Lynchburg Expy	7,598	7,968	0.18%	0.50%
	Grace St	Lynchburg Expy	Florida Ave	7,236	6,933	-0.16%	0.50%
	Robin Street	Grace Street	Lynchburg Expy	6,645	7,009	0.20%	0.50%
	Main St	Concord Turnpike	Lynchburg Expy	7,969	10,581	1.21%	1.00%
	Main St	Lynchburg Expy	Florida Ave	4,717	5,114	0.31%	0.50%
Segments Outside Study Area	Candlers Moutain Rd	Lynchburg Expy	Mayflower Drive	39,026	47,359	0.79%	N/A
	Mayflower Dr	Odd Fellows Rd	Candlers Mt Rd	12,583	19,361	2.00%	N/A
	US 460	Candlers Mt Rd	Odd Fellows Rd	32,173	47,598	1.78%	N/A
	US 29 Bypass	N/O US 460	US 460	14,199	19,780	1.46%	N/A

Attachment C

Addendum Traffic Study to the Candlers Mountain Road Ramp Study
Growth Rate Information

GROWTH RATES FROM VDOT COUNTS

Study Area Link	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**Growth Rate**
US 29/460 between SCL Lynchburg and CMR	42000	42000	41000	42000	44000	46000	43000	0.4%
US 29/460 between CMR and US 501	36000	36000	35000	36000	34000	35000	33000	-1.4%
University Blvd between Liberty U and CMR	10000	10000	11000	10000	12000	12000	11000	1.6%
CMR south of ramp from US 460	2900	3200	3400	3200	3100	3000	3000	0.6%
CMR between US 460 and SR 128 / Mayflower Dr	12000	12000	13000	12000	11000	11000	11000	-1.4%
Average	102900						101000	-0.3%

GROWTH RATES FROM NEARBY CONTINUOUS COUNT STATION

US 29/460 between US 501 and Business US 501 (CC station)	35000	36000	35000	36000	36000	36000	35000	0.0%
(Prior to By-Pass - 2005: 29,000; 2004: 25,000; 2003: 25,000)								

GROWTH RATES FROM LYNCHBURG TRAVEL DEMAND MODELS	Base	TR Model		ODF Model		CLRP Model	
Study Area Link	**2008**	**2035 (TR)**	**TR Rate**	**2035 (ODF)**	**ODF Rate**	**2035 (CLRP)**	**CLRP Rate**
US 29/460 NB/EB between SCL Lynchburg and CMR	19638	28465	1.38%	29118	1.47%	28809	1.43%
US 29/460 NB/EB between CMR and US 501	14144	20414	1.37%	20107	1.31%	19741	1.24%
US 29/460 SB/WB between US 501 and CMR/Liberty	15463	21613	1.25%	23386	1.54%	22410	1.38%
US 29/460 SB/WB between CMR/Liberty and SCL Lynchburg	16156	24481	1.55%	25204	1.66%	24738	1.59%
US 29/460 NB/EB off-ramp to CMR	5494	8050	1.42%	9012	1.85%	9069	1.87%
University Blvd between CMR and Evans (1-Way)	11903	14026	0.61%	16346	1.18%	16921	1.31%
University Blvd between Evans and Liberty U Dr (1-Way)	4361	8576	2.54%	8367	2.44%	8358	2.44%
Liberty University Dr (1-Way)	1594	5461	4.67%	5564	4.74%	5571	4.74%
Liberty Mtn Dr between Liberty U Dr and CMR (1-Way)	1124	2506	3.01%	3063	3.78%	3098	3.83%
Candlers Mtn Rd between US 460 off-ramp and University (1-Way)	8022	8464	0.20%	13045	1.82%	13168	1.85%
Candlers Mtn Rd south of US 460 off-ramp	4320	2921	-1.44%	9201	2.84%	9311	2.89%
Average	*102219*	*144977*	*1.30%*	*162413*	*1.73%*	*161194*	*1.70%*

TR Model - includes Top Ridge development
ODF Model - includes Odd Fellows Road interchange with US 29/460
CLRP Model - Constrained Long Range Plan model

APPENDIX C-2: REGIONAL TRAVEL DEMAND MODEL COMPARISON

Growth Rate Development - Regional Travel Demand Model				Revised Model 2015 (PB)				Initial Model (RKK)		
Segment Type	Roadway	From	To	Annual Average Daily Traffic (AADT)			Annual Growth Rate (2040)	Annual Average Daily Traffic (AADT)	Annual Growth Rate (2035)	Proposed Growth Rate for Lynchburg Expressway Study
				2008	2040	2035		2035		
US 29 Mainline and Ramp	US 29 Mainline	Odd Fellows Road	James Street	59,093	61,279	65,442	0.12%	65,442	0.40%	1.00%
	US 29 Mainline	Candlers Mt Road	Odd Fellows Road	53,126	55,823	58,873	0.16%	58,873	0.40%	1.00%
	US 29 Mainline	Wards Road	Candlers Mt Road	51,583	53,709	57,796	0.13%	57,796	0.45%	1.00%
	US 501 Mainline	South of Study Area	Wards Road	54,876	58,418	64,129	0.20%	64,129	0.62%	1.00%
Arterial Segments	Wards Rd (29)	Harvard Street	Old Wards Road	42,411	47,423	49,017	0.37%	49,017	0.58%	1.00%
	Wards Rd (29)	Lynchburg Expy	Seminole Ave	24,007	27,391	28,959	0.44%	28,959	0.76%	1.00%
	Candlers Mt Rd	Wards Rd	Lynchburg Expy	23,745	25,053	26,650	0.17%	26,650	0.45%	1.00%
	Candlers Mt Rd	Lynchburg Expy	Railroad Tracks	47,572	51,852	54,540	0.28%	54,540	0.54%	1.00%
	Candlers Mt Rd	Railroad Tracks	Mayflower Dr	39,026	43,884	47,359	0.39%	47,359	0.79%	1.00%
	Odd Fellows Rd	Railroad Tracks	Mayflower Dr	9,598	11,202	13,132	0.52%	13,132	1.36%	1.00%
Segments Outside Study Area	Candlers Moutain Rd	Lynchburg Expy	Mayflower Drive	39,026	43,884	47,359	0.39%	47,359	0.79%	N/A
	Mayflower Dr	Odd Fellows Rd	Candlers Mt Rd	12,483	10,979	12,123	-0.38%	19,361	2.00%	N/A
	US 460	Candlers Mt Rd	Odd Fellows Rd	32,173	40,232	47,598	0.78%	47,598	1.78%	N/A
	US 29 Bypass	N/O US 460	US 460	14,199	17,546	19,780	0.74%	19,780	1.46%	N/A

APPENDIX D – NO-BUILD CONDITIONS

APPENDIX D-1: CORSIM ASSUMPTIONS & SIMULATION SUMMARY

Candlers Mountain Road Corridor Study - CORSIM No-Build 2040 Conditions Modeling Inputs, Assumptions, and Simulation Summary

The no-build 2040 AM and PM peak hour CORSIM models were developed using the existing AM and PM peak hour CORSIM models as a starting point. Geometric inputs to the no-build 2040 AM and PM peak hour CORSIM models were kept consistent with the inputs to the existing (2016) AM and PM peak hour CORSIM models. Projected no-build 2040 traffic volumes and optimized signal timing splits were used in the no-build CORSIM models. The same inputs and assumptions were used in both the AM and PM peak hour models, unless otherwise noted.

Node Numbering Convention

Same node numbering convention used in existing CORSIM models were used in no-build models.

Lanes

Lane configurations were based on existing geometry. Same assumptions used in existing CORSIM models were used in no-build models.

Free-Flow Speed

Same mainline, ramp, and arterial free-flow speeds used in existing CORSIM models were used in no-build models.

Grade Adjustments

Same mainline, ramp, and arterial grades coded on links in existing CORSIM models were used in no-build models.

Ramp Metering

As in the existing CORSIM models, ramp metering was applied at node 3040 (from the Southbound Lynchburg Expressway Entrance Ramp from Westbound Candlers Mountain Road) with the same clock-time meter programming.

Signal Timing Inputs

- Signal timing inputs were based on the optimized signal timing developed in the 2040 no-build Synchro models. Cycle lengths were kept consistent with existing signal timing plans and the splits were optimized. Different optimized splits were used in the AM and PM no-build CORSIM models.
- As in the existing CORSIM models, the signals at Candlers Mountain Road at Murray Place/River Ridge Mall and Candlers Mountain Road at Mayflower Drive were modified to set the recall mode for the sidestreet and left-turn phases to minimum recall (rather than no recall)
- As in the existing CORSIM models, the signal at Candlers Mountain Road at Mayflower Drive was modified to allow the eastbound right-turn movement to have a green indication during all phases. The existing right-turn movement has a slip lane to southbound Candlers Mountain Road.
- As in the existing CORSIM models, the intersections of Candlers Mountain Road at Woodall Road and Candlers Mountain Road at Southbound Lynchburg Expressway/Seminole Avenue were modeled with pre-timed controllers and the timings were modified to fit within the maximum allowed 12 intervals in CORSIM.
- As in the existing AM CORSIM model, a dummy pretimed intersection was modeled on Candlers Mountain Road south of the westbound US 501 ramp/Mountain View Road intersection to replicate traffic during the AM school drop-off time. The same timings used at this intersection in the existing AM CORSIM model were used in the no-build AM CORSIM model. This intersection was not included in the PM model because school pick-up times did not occur during the PM peak hour.

Traffic Volume Inputs

- One peak period was analyzed. Traffic volumes were input as vehicle counts at the entry nodes for four 900 second time periods. The 900 second time period volumes were determined by calculating the percent of the peak hour that occurred during each of the four time periods (from the existing counts) and applying that percent to the balanced no-build 2040 hourly volumes for each entry node. Time period volumes for AM and PM peaks are shown in Table 1 and Table 2. For low volume approaches (<20 vehicles), the balanced volume was split evenly between the four time periods.

Table 1 – No-Build 2040 AM Peak Hour Time Period Volumes at Entry Nodes

Entry Node	Description	% Peak Hour Volume in Time Period				No-Build 2040 Balanced Volume	Time Period Volume			
		TP1	TP2	TP3	TP4		TP1	TP2	TP3	TP4
8001	NB Lynchburg Expressway Mainline	23.3%	26.6%	27.7%	22.4%	3033	706	808	840	679
8003	SB Lynchburg Expressway Mainline	22.7%	24.3%	30.3%	22.7%	1898	431	461	575	431
8006	NB Lynchburg Expressway Ramp from Wards Rd	20.5%	20.8%	28.6%	30.1%	324	66	68	93	97
8007	SB Lynchburg Expressway Ramp from Wards Rd	23.1%	31.5%	23.4%	22.0%	465	108	146	109	102
8009	EB Sheffield D	16.9%	31.8%	33.8%	17.6%	185	31	59	63	32
8010	NB Wards Rd	19.8%	23.5%	27.2%	29.4%	404	80	95	110	119
8011	SB Wards Rd	17.9%	25.2%	36.1%	20.8%	1047	188	264	378	217
8012	NB Driveway (south of Short St)	25.0%	25.0%	25.0%	25.0%	18	5	5	5	3
8013	SB Short St	25.0%	25.0%	25.0%	25.0%	18	5	5	5	3
8014	NB Driveway (south of Woodall Rd)	0.0%	5.0%	70.0%	25.0%	37	0	2	26	9
8015	SB Woodall Rd	21.4%	35.7%	16.7%	26.2%	54	12	19	9	14
8016	NB Seminole Ave	16.5%	22.0%	44.0%	17.5%	251	41	55	110	45
8018	SB Murray Pl (right-in, right-out)	15.3%	27.1%	27.1%	30.5%	74	11	20	20	23
8019	NB River Ridge Mall	13.5%	19.7%	33.2%	33.6%	284	38	56	94	96
8020	SB Murray Place (north of River Ridge Mall)	34.2%	18.4%	23.7%	23.7%	46	16	8	11	11
8021	SB Mayflower Dr	25.2%	19.3%	29.3%	26.3%	330	83	64	97	86
8022	EB Mountain View Rd	25.0%	25.0%	25.0%	25.0%	6	2	2	2	0
8023/8029*	NB Candlers Mountain Rd	14.2%	21.1%	27.5%	37.2%	640	91	135	176	238
8024	WB US 460 Ramp to WB Candlers Mountain Rd	29.9%	29.9%	19.9%	20.3%	817	244	244	163	166
8025	EB US 460 Ramp to WB Candlers Mountain Rd	25.1%	26.9%	24.4%	23.6%	1168	293	315	285	275

*For the AM model a dummy pretimed intersection was modeled to replicate the AM school drop-off time. The northbound Candlers Mountain Road volume was split between node 8023 (75%) and 8029 (25%).

Table 2 – No-Build 2040 PM Peak Hour Time Period Volumes at Entry Nodes

Entry Node	Description	% Peak Hour Volume in Time Period				No-Build 2040 Balanced Volume	Time Period Volume			
		TP1	TP2	TP3	TP4		TP1	TP2	TP3	TP4
8001	NB Lynchburg Expressway Mainline	23.5%	26.8%	26.4%	23.2%	2644	623	709	699	613
8003	SB Lynchburg Expressway Mainline	22.9%	26.0%	28.1%	23.0%	2714	622	705	763	624
8006	NB Lynchburg Expressway Ramp from Wards Rd	24.4%	24.4%	24.1%	27.2%	395	96	96	95	108
8007	SB Lynchburg Expressway Ramp from Wards Rd	21.7%	28.1%	24.6%	25.6%	743	161	209	183	190
8009	EB Sheffield D	17.7%	26.3%	30.7%	25.3%	355	63	93	109	90
8010	NB Wards Rd	25.7%	24.2%	25.0%	25.2%	740	190	179	185	186
8011	SB Wards Rd	24.1%	24.7%	24.9%	26.4%	1243	299	306	309	329
8012	NB Driveway (south of Short St)	25.0%	25.0%	25.0%	25.0%	18	5	5	5	3
8013	SB Short St	25.0%	25.0%	25.0%	25.0%	23	6	6	6	5
8014	NB Driveway (south of Woodall Rd)	5.3%	26.3%	57.9%	10.5%	28	1	7	16	4
8015	SB Woodall Rd	12.3%	37.4%	28.8%	21.5%	184	23	69	53	39
8016	NB Seminole Ave	26.2%	27.3%	21.5%	25.0%	195	51	53	42	49
8018	SB Murray Pl (right-in, right-out)	29.1%	35.9%	17.9%	17.1%	146	42	52	26	26
8019	NB River Ridge Mall	26.1%	28.8%	24.9%	20.2%	799	208	230	199	162
8020	SB Murray Place (north of River Ridge Mall)	25.2%	37.8%	18.2%	18.9%	167	42	63	30	32
8021	SB Mayflower Dr	23.4%	30.6%	26.7%	19.3%	712	167	218	190	137
8022	EB Mountain View Rd	25.0%	25.0%	25.0%	25.0%	6	2	2	2	0
8023	NB Candlers Mountain Rd	24.4%	27.5%	22.0%	26.1%	999	243	275	220	261
8024	WB US 460 Ramp to WB Candlers Mountain Rd	21.7%	26.4%	26.4%	25.6%	686	149	181	181	175
8025	EB US 460 Ramp to WB Candlers Mountain Rd	24.3%	21.7%	27.3%	26.7%	625	152	136	171	166

- As in the existing CORSIM models, relative turn volumes were input for all ramp and intersection movements based on the balanced hourly volumes. The same relative turn volumes were used for all four time periods.
- Conditional turn movements in the no-build CORSIM models were used at the same locations as in the existing models.
- The same heavy vehicle percentages used in existing CORSIM models were used in no-build models.

Origin-Destination

- Since no traffic pattern changes were assumed between existing and no-build conditions, the same origin-destination (FRESIM) percentages applied in existing CORSIM models were applied in no-build models.

Mean Startup Delay and Mean Discharge Headway

Same modifications to mean startup delay and mean discharge headway used in existing CORSIM models were used in no-build models.

NETSIM Setup

Same global NETSIM settings adjusted in existing CORSIM models were used in no-build models.

Network Properties

- As for the existing CORSIM simulations, the initialization period was forced to a maximum initialization time of 30 minutes, four 900 second periods were simulated, and vehicle entry headway was set to Erlang distribution with a = 1.
- Thirty simulation runs were completed for both the AM and PM no-build CORSIM models (based on the Sample Size Determination Tool)
    - Speed on the southbound Lynchburg Expressway north of Candlers Mountain Road (between Node 3030 and Node 3035) was the input to the Sample Size Determination Tool

Simulation Summary

Simulated volumes from the no-build (2040) AM and PM CORSIM models were reviewed and compared to the projected 2040 no-build volumes. The percent difference between the projected volumes and simulated volumes was calculated for all links. The link volume on the top 85% of network links, based on traffic volume, were reviewed according to the following thresholds:

- Within ±20% for <100 vehicles per hour (vph)
- Within ±15% for ≥100 vph to <300 vph
- Within ±10% for ≥300 vph to <1,000 vph
- Within ±5% for ≥1,000 vph

A summary of the actual and simulated volumes by link is provided in at the end of this appendix. The locations where the simulated volumes did not meet the above thresholds are summarized for the AM and PM models in Table 3 and Table 4, respectively. When multiple adjacent links did not meet the volume thresholds, the values for the link with the highest percent difference is shown in the table. The links that did not meet the volume thresholds were at locations with capacity constraints that prevented full volume throughput.

As was observed in existing conditions, in the no-build AM model, there were capacity constraints due to congestion from the school drop-off on southbound Candlers Mountain Road. The congestion from the school caused a ripple effect throughout the entire network. Because of the higher projected volumes under no-build conditions, the school congestion caused more extensive queuing and a greater percent difference between projected and simulated volumes over a larger portion of the study area than was observed in existing conditions. Queuing from the school backed up along the entire stretch of eastbound Candlers Mountain Road in the study area and caused queuing on the Lynchburg Expressway mainline and ramps.

In the no-build PM model, there were capacity constraints due to congestion on Candlers Mountain at the Murray Place/River Ridge Mall and Mayflower Drive intersections. The congestion in this area caused queuing throughout the entire network. As in the no-build AM model, more extensive queuing and a greater percent difference between projected and simulated volumes over a larger portion of the study area was observed in the no-build PM model than in existing conditions. Queues extended along the entire stretch of Candlers Mountain Road in the study area and on the Lynchburg Expressway mainline and ramps.

Table 3 – CORSIM Volume Calibration – No-Build 2040 AM Peak Hour

Location	Actual Volume	Simulated Volume	Percent Difference
FREEWAY			
SB Lynchburg Expressway between ramp from WB Candlers Mountain Rd and ramp to EB Candlers Mountain Rd	2373	2172	-8.5%
SB Lynchburg Expressway between ramp to EB Candlers Mountain Rd and ramp from Wards Rd	1934	1776	-8.2%
SB Lynchburg Expressway weave between ramp from Wards Rd and ramp to Old Wards Rd	2399	2240	-6.6%
SB Lynchburg Expressway south of ramp to Old Wards Rd	2109	1954	-7.3%
NB Lynchburg Expressway south of ramp to Old Wards Rd	3033	2112	-30.4%
NB Lynchburg Expressway between ramp to Old Wards Rd and ramp from Wards Rd	2397	1564	-34.8%
NB Lynchburg Expressway weave between ramp from Wards Rd and ramp to EB Candlers Mountain Rd	2721	1650	-39.4%
NB Lynchburg Expressway between ramp to EB Candlers Mountain Rd and ramp from EB Candlers Mountain Rd	1943	1252	-35.6%
NB Lynchburg Expressway between ramp from EB Candlers Mountain Rd and ramp to WB Candlers Mountain Rd	2061	1348	-34.6%
NB Lynchburg Expressway between ramp to WB Candlers Mountain Rd and ramp from WB Candlers Mountain Rd	1822	1185	-35.0%
NB Lynchburg Expressway north of ramp from WB Candlers Mountain Rd	2362	1722	-27.1%
RAMPS			
SB Lynchburg Expressway ramp from WB Candlers Mountain Rd (Ramp F)	624	504	-19.2%
SB Lynchburg Expressway ramp to EB Candlers Mountain Rd (Ramp A)	439	388	-11.6%
NB Lynchburg Expressway ramp to Old Wards Rd	636	436	-31.4%
NB Lynchburg Expressway ramp from Wards Rd	324	124	-61.7%
NB Lynchburg Expressway ramp to EB Candlers Mountain Rd (Ramp C)	778	388	-50.1%
NB Lynchburg Expressway ramp to WB Candlers Mountain Rd (Ramp E)	239	165	-31.0%
ARTERIALS			
EB Candlers Mountain Rd between Wards Rd and Short St (Node 6 to Node 8)	764	642	-16.0%
EB Candlers Mountain Rd between Short St and Woodall Rd (Node 8 to Node 10)	764	635	-16.9%
EB Candlers Mountain Rd between Woodall Rd and Seminole Ave/SB Lynchburg Expressway exit ramp (Node 10 to Node 12)	784	633	-19.3%
EB Candlers Mountain Rd between Seminole Ave and SB Lynchburg Expressway exit ramp (Node 12 to Node 14)	941	787	-16.4%
EB Candlers Mountain Rd between SB Lynchburg Expressway exit ramp and NB Lynchburg Expressway entrance ramp (Node 14 to Node 18)	1380	1107	-19.8%
EB Candlers Mountain Rd between NB Lynchburg Expressway entrance ramp and NB Lynchburg Expressway exit ramp (Node 18 to Node 22)	1262	982	-22.2%
EB Candlers Mountain Rd between NB Lynchburg Expressway exit ramp and River Ridge Mall ramp (Node 22 to Node 28)	2040	1314	-35.6%
EB Candlers Mountain Rd between River Ridge Mall ramp and Murray Pl/River Ridge Mall (Node 28 to Node 32)	1840	1256	-31.7%
EB Candlers Mountain Rd between Murray Pl/River Ridge Mall and Mayflower Dr (Node 32 to Node 40)	1979	1275	-35.6%
SB Candlers Mountain Rd (Node 40 to Node 82)	1438	750	-47.8%
WB Mountain View Rd (Node 74 to Node 810)	681	296	-56.5%
NB Murray Pl (Node 32 to Node 640)	257	319	24.1%
SB River Ridge Mall Ramp Entrance (Node 28 to Node 630)	200	54	-73.0%

Table 4 – CORSIM Volume Calibration – No-Build 2040 PM Peak Hour

Location	Actual Volume	Simulated Volume	Percent Difference
FREEWAY			
SB Lynchburg Expressway between ramp from WB Candlers Mountain Rd and ramp to EB Candlers Mountain Rd	2959	2734	-7.6%
SB Lynchburg Expressway between ramp to EB Candlers Mountain Rd and ramp from Wards Rd	2449	2274	-7.1%
SB Lynchburg Expressway weave between ramp from Wards Rd and ramp to Old Wards Rd	3192	3016	-5.5%
SB Lynchburg Expressway south of ramp to Old Wards Rd	2601	2414	-7.2%
NB Lynchburg Expressway south of ramp to Old Wards Rd	2644	2205	-16.6%
NB Lynchburg Expressway between ramp to Old Wards Rd and ramp from Wards Rd	1951	1530	-21.6%
NB Lynchburg Expressway weave between ramp from Wards Rd and ramp to EB Candlers Mountain Rd	2346	1589	-32.3%
NB Lynchburg Expressway between ramp to EB Candlers Mountain Rd and ramp from EB Candlers Mountain Rd	1725	1288	-25.3%
NB Lynchburg Expressway between ramp from EB Candlers Mountain Rd and ramp to WB Candlers Mountain Rd	1913	1420	-25.8%
NB Lynchburg Expressway between ramp to WB Candlers Mountain Rd and ramp from WB Candlers Mountain Rd	1793	1315	-26.7%
NB Lynchburg Expressway north of ramp from WB Candlers Mountain Rd	2213	1683	-23.9%
RAMPS			
SB Lynchburg Expressway ramp from WB Candlers Mountain Rd (Ramp F)	528	432	-18.2%
SB Lynchburg Expressway ramp to EB Candlers Mountain Rd (Ramp A)	510	450	-11.8%
NB Lynchburg Expressway ramp to Old Wards Rd	693	583	-15.9%
NB Lynchburg Expressway ramp from Wards Rd	395	70	-82.3%
NB Lynchburg Expressway ramp to EB Candlers Mountain Rd (Ramp C)	621	301	-51.5%
NB Lynchburg Expressway ramp from EB Candlers Mountain Rd (Ramp B)	188	132	-29.8%
NB Lynchburg Expressway ramp from WB Candlers Mountain Rd (Ramp D)	420	367	-12.6%
ARTERIALS			
EB Candlers Mountain Rd between Wards Rd and Short St (Node 6 to Node 8)	846	636	-24.8%
EB Candlers Mountain Rd between Short St and Woodall Rd (Node 8 to Node 10)	846	623	-26.4%
EB Candlers Mountain Rd between Woodall Rd and Seminole Ave/SB Lynchburg Expressway exit ramp (Node 10 to Node 12)	893	613	-31.4%
EB Candlers Mountain Rd between Seminole Ave and SB Lynchburg Expressway exit ramp (Node 12 to Node 14)	1006	730	-27.4%
EB Candlers Mountain Rd between SB Lynchburg Expressway exit ramp and NB Lynchburg Expressway entrance ramp (Node 14 to Node 18)	1516	1137	-25.0%
EB Candlers Mountain Rd between NB Lynchburg Expressway entrance ramp and NB Lynchburg Expressway exit ramp (Node 18 to Node 22)	1328	1004	-24.4%
EB Candlers Mountain Rd between NB Lynchburg Expressway exit ramp and River Ridge Mall ramp (Node 22 to Node 28)	1949	1303	-33.1%
EB Candlers Mountain Rd between River Ridge Mall ramp and Murray Pl/River Ridge Mall (Node 28 to Node 32)	1711	1225	-28.4%
EB Candlers Mountain Rd between Murray Pl/River Ridge Mall and Mayflower Dr (Node 32 to Node 40)	2122	1620	-23.7%
EB Candlers Mountain Rd between Mayflower Dr and US 460 ramps (Node 40 to Node 46)	2041	1608	-21.2%
WB Candlers Mountain Rd between US 460 ramps and US 501 ramp (Node 56 to Node 44)	1311	1103	-15.9%
WB Candlers Mountain Rd between US 501 ramp and Mayflower Dr (Node 44 to Node 40)	2057	1670	-18.8%
WB Candlers Mountain Rd between Mayflower Dr and Murray Pl/River Ridge Mall (Node 40 to Node 32)	1924	1591	-17.3%
WB Candlers Mountain Rd between Murray Pl/River Ridge Mall and Murray Place (Node 32 to Node 26)	1880	1687	-10.3%
WB Candlers Mountain Rd between Murray Place and NB Lynchburg Expressway entrance ramp (Node 26 to Node 24)	2020	1835	-9.2%
WB Candlers Mountain Rd between NB Lynchburg Expressway entrance ramp and NB Lynchburg Expressway exit ramp (Node 24 to Node 20)	1600	1470	-8.1%
WB Candlers Mountain Rd between NB Lynchburg Expressway exit ramp and SB Lynchburg Expressway entrance ramp (Node 20 to Node 16)	1720	1571	-8.7%
WB Candlers Mountain Rd between Seminole Ave/SB Lynchburg Expressway exit ramp and Woodall Rd (Node 12 to Node 10)	1259	1193	-5.2%
WB Candlers Mountain Rd between Woodall Rd and Short St (Node 10 to Node 8)	1272	1148	-9.7%
WB Candlers Mountain Rd between Short St and Wards Rd (Node 8 to Node 6)	1268	1134	-10.6%
NB Candlers Mountain Rd south of Mountain View Rd/US 501 ramp (Node 82 to Node 76)	999	792	-20.7%
NB Candlers Mountain Rd north of Mountain View Rd/US 501 ramp (Node 76 to Node 42)	250	203	-18.8%
SB Candlers Mountain Rd (Node 40 to Node 82)	874	668	-23.6%
SB Mayflower Dr (Node 705 to Node 40)	712	577	-19.0%
NB Mayflower Dr (Node 40 to Node 705)	302	231	-23.5%
NB Murray Pl (Node 32 to Node 640)	177	123	-30.5%
SB River Ridge Mall Ramp Entrance (Node 28 to Node 630)	238	90	-62.2%
SB River Ridge Mall Signalized Entrance (Node 30 to Node 680)	422	334	-20.9%
EB Sheffield Dr (Node 4 to Node 6)	355	296	-16.6%
US 501 Ramp (Node 76 to Node 44)	746	571	-23.5%
NB Wards Rd north of Candlers Mountain Rd (Node 6 to Node 110)	1444	1324	-8.3%
SB Wards Rd north of Candlers Mountain Rd (Node 110 to Node 6)	1243	1012	-18.6%
SB Wards Rd south of Candlers Mountain Rd (Node 6 to Node 140)	989	869	-12.1%
SB Woodall Rd (Node 310 to Node 10)	184	63	-65.8%

No Build (2040) AM Peak Hour
Calibration Summary

Route	From Node	To Node	Type	Link Distance	Volume Percentile	Actual Volumes	Simulated Volumes	Percent Difference	Actual Speeds	Simulated Space Mean Speeds	Speed Difference
SB US 29 BUS	3005	3010	Freeway	900	79%	1898	1895	-0.2%	57	56	-1.0
	3010	3015	Freeway	877	79%	1898	1895	-0.2%	57	55.3	-1.7
	3015	3020	Freeway	2183	79%	1898	1882	-0.8%	57	52.7	-4.3
	3020	3025	Freeway	936	79%	1898	1874	-1.3%	57	49.7	-7.3
	3025	3030	Freeway	649	79%	1898	1866	-1.7%	57	47.2	-9.8
	3030	3035	Freeway	851	79%	1898	1849	-2.6%	57	42.4	-14.6
	3035	3210	Ramp	107	18%	149	148	-0.7%	40	39.1	-0.9
	3035	3040	Freeway	500	76%	1749	1688	-3.5%	54	34.4	-19.6
	3230	3040	Ramp	195	52%	624	504	-19.2%	35	3.3	-31.7
	3040	3045	Freeway	267	94%	2373	2184	-8.0%	54	26.5	-27.5
	3045	3050	Freeway	349	94%	2373	2172	-8.5%	54	30	-24.0
	3050	3240	Ramp	212	39%	439	388	-11.6%	35	11	-24.0
	3050	3055	Freeway	500	82%	1934	1776	-8.2%	55	52.7	-2.3
	3055	3060	Freeway	500	82%	1934	1776	-8.2%	55	53.4	-1.6
	3250	3060	Ramp	114	41%	465	463	-0.4%	35	34.8	-0.2
	3060	3065	Freeway	888	97%	2399	2240	-6.6%	55	51	-4.0
	3065	3260	Ramp	306	34%	290	285	-1.7%	42	41.2	-0.8
	3065	3070	Freeway	500	89%	2109	1954	-7.3%	55	53.4	-1.6
	3070	3075	Freeway	980	89%	2109	1955	-7.3%	55	53.2	-1.8
	3075	3080	Freeway	1472	89%	2109	1956	-7.3%	55	52.9	-2.1
NB US 29 BUS	1000	1005	Freeway	480	99%	3033	2191	-27.8%	53	26.4	-26.6
	1005	1010	Freeway	625	99%	3033	2156	-28.9%	53	25.8	-27.2
	1010	1015	Freeway	875	99%	3033	2112	-30.4%	53	25.1	-27.9
	1015	1220	Ramp	536	54%	636	436	-31.4%	35	33.5	-1.5
	1015	1020	Freeway	914	95%	2397	1626	-32.2%	56	24.1	-31.9
	1020	1025	Freeway	662	95%	2397	1589	-33.7%	56	23.9	-32.1
	1025	1030	Freeway	500	95%	2397	1564	-34.8%	56	24.9	-31.1
	1240	1030	Ramp	214	36%	324	124	-61.7%	43	7.4	-35.6
	1030	1035	Freeway	657	98%	2721	1650	-39.4%	53	15.6	-37.4
	1035	1250	Ramp	268	62%	778	388	-50.1%	40	4	-36.0
	1035	1040	Freeway	117	83%	1943	1252	-35.6%	58	45.3	-12.7
	1040	1045	Freeway	383	83%	1943	1253	-35.5%	58	50.1	-7.9
	1045	1050	Freeway	117	83%	1943	1254	-35.5%	58	52.4	-5.6
	1260	1050	Ramp	231	14%	118	93	-21.2%	35	31.1	-3.9
	1050	1055	Freeway	217	88%	2061	1348	-34.6%	58	48.2	-9.8
	1055	1060	Freeway	224	88%	2061	1349	-34.5%	58	52.5	-5.5
	1060	1270	Ramp	215	28%	239	165	-31.0%	35	46	11.0
	1060	1065	Freeway	500	77%	1822	1185	-35.0%	58	54.9	-3.1
	1280	1065	Ramp	270	48%	540	534	-1.1%	40	37.6	-2.4
	1065	1070	Freeway	755	91%	2362	1722	-27.1%	59	53.8	-5.2
	1070	1075	Freeway	745	91%	2362	1723	-27.1%	59	56.8	-2.2
	1075	1080	Freeway	837	91%	2362	1727	-26.9%	59	56.8	-2.2
	1080	1085	Freeway	2196	91%	2362	1738	-26.4%	59	56.6	-2.4
	1085	1090	Freeway	852	91%	2362	1742	-26.2%	59	56.5	-2.5
	1090	1095	Freeway	1090	91%	2362	1744	-26.2%	59	56.4	-2.6

NETSIM Links Results

CandlerMRdEB	6	8		520	59%	764	642	-16.0%	35	4.4	-30.6
CandlerMRdEB	8	10		328	59%	764	635	-16.9%	35	2.9	-32.1
CandlerMRdEB	10	12		183	65%	784	633	-19.3%	35	3.6	-31.4
CandlerMRdEB	12	14		278	67%	941	787	-16.4%	35	5.1	-29.9
CandlerMRdEB	14	18		562	72%	1380	1107	-19.8%	35	4.8	-30.2
CandlerMRdEB	18	22		446	71%	1262	982	-22.2%	35	3.4	-31.6
CandlerMRdEB	22	23		155	86%	2040	1325	-35.0%	35	2.5	-32.5
CandlerMRdEB	23	25		115	86%	2040	1320	-35.3%	35	3.7	-31.3
CandlerMRdEB	25	28		172	86%	2040	1314	-35.6%	35	3.4	-31.6
CandlerMRdEB	28	30		119	78%	1840	1256	-31.7%	35	2.8	-32.2
CandlerMRdEB	30	32		141	77%	1829	1255	-31.4%	35	2.2	-32.8
CandlerMRdEB	32	34		105	76%	1759	1126	-36.0%	35	9.5	-25.5
CandlerMRdEB	34	40		617	85%	1979	1275	-35.6%	35	4	-31.0
CandlerMRdEB	40	42		347	67%	857	845	-1.4%	35	26.6	-8.4
CandlerMRdEB	42	46		1150	68%	978	954	-2.5%	35	30.4	-4.6
CandlerMRdNB	68	42		106	16%	121	111	-8.3%	35	8.4	-26.6
CandlerMRdNB	70	68		101	16%	121	113	-6.6%	35	21.3	-13.7
CandlerMRdNB	72	70		327	16%	121	113	-6.6%	35	21.6	-13.4
CandlerMRdNB	74	72		222	16%	121	113	-6.6%	35	34	-1.0
CandlerMRdNB	76	74		102	21%	167	158	-5.4%	35	5.1	-29.9
CandlerMRdNB	80	76		624	55%	640	590	-7.8%	35	22.3	-12.7
CandlerMRdNB	82	80		735	43%	480	431	-10.2%	35	6.7	-28.3
CandlerMRdSB	40	70		333	73%	1438	782	-45.6%	35	3.4	-31.6
CandlerMRdSB	70	72		327	73%	1438	752	-47.7%	35	2	-33.0
CandlerMRdSB	72	74		222	73%	1438	750	-47.8%	35	1.6	-33.4
CandlerMRdSB	74	76		102	59%	757	499	-34.1%	35	1.3	-33.7
CandlerMRdSB	76	78		125	58%	738	483	-34.6%	35	2.8	-32.2
CandlerMRdSB	78	80		501	58%	744	490	-34.1%	35	2.4	-32.6
CandlerMRdSB	80	82		735	57%	725	476	-34.3%	35	28.8	-6.2
CandlerMRdWB	8	6		520	51%	621	655	5.5%	35	10.3	-24.7
CandlerMRdWB	10	8		328	51%	621	661	6.4%	35	28.4	-6.6
CandlerMRdWB	12	10		183	62%	774	808	4.4%	35	16.1	-18.9
CandlerMRdWB	16	12		449	64%	779	832	6.8%	35	10	-25.0
CandlerMRdWB	20	16		424	72%	1403	1335	-4.8%	35	14.2	-20.8
CandlerMRdWB	24	20		437	69%	1164	1177	1.1%	35	31.3	-3.7
CandlerMRdWB	26	24		322	75%	1704	1710	0.4%	35	31.3	-3.7
CandlerMRdWB	32	26		366	74%	1636	1641	0.3%	35	28.4	-6.6
CandlerMRdWB	40	32		717	78%	1889	1860	-1.5%	35	10.5	-24.5
CandlerMRdWB	43	40		605	97%	2477	2417	-2.4%	35	9.4	-25.6
CandlerMRdWB	44	43		227	97%	2477	2424	-2.1%	35	16.5	-18.5
CandlerMRdWB	56	44		696	86%	1985	1982	-0.2%	35	26.5	-8.5

No Build (2040) AM Peak Hour
Calibration Summary

Driveway	8	230		190	4%	18	12	-33.3%	25	19.3	-5.7
Driveway	10	330		189	9%	29	19	-34.5%	25	20	-5.0
Driveway	230	8		190	4%	18	15	-16.7%	25	3.9	-21.1
Driveway	230	240		132	4%	18	12	-33.3%	25	25.4	0.4
Driveway	240	230		132	4%	18	18	0.0%	25	38.6	13.6
Driveway	330	10		189	10%	37	27	-27.0%	25	1	-24.0
Driveway	330	340		110	9%	29	19	-34.5%	25	23.9	-1.1
Driveway	340	330		110	10%	37	36	-2.7%	25	15.2	-9.8
Mayflower NB	40	720		503	49%	602	543	-9.8%	35	26.8	-8.2
Mayflower NB	710	705		1817	49%	602	544	-9.6%	35	33	-2.0
Mayflower NB	720	710		1084	49%	602	545	-9.5%	35	31.4	-3.6
Mayflower SB	705	710		1817	37%	330	329	-0.3%	35	29.1	-5.9
Mayflower SB	710	720		1084	37%	330	323	-2.1%	35	22.4	-12.6
Mayflower SB	720	40		503	37%	330	318	-3.6%	35	3	-32.0
MntViewRd EB	810	820		270	1%	6	6	0.0%	25	30.8	5.8
MntViewRd EB	820	830		527	1%	6	6	0.0%	25	20.2	-4.8
MntViewRd EB	830	78		104	1%	6	6	0.0%	25	0.3	-24.7
MntViewRd WB	74	830		160	56%	681	296	-56.5%	25	21	-4.0
MntViewRd WB	820	810		270	56%	681	296	-56.5%	25	22.9	-2.1
MntViewRd WB	830	820		527	56%	681	296	-56.5%	25	23.3	-1.7
Murray Pl NB	26	610		242	1%	6	0	-100.0%	25	0	-25.0
Murray Pl NB	32	650		221	32%	257	318	23.7%	25	20.6	-4.4
Murray Pl NB	650	640		181	32%	257	319	24.1%	25	24	-1.0
Murray Pl SB	610	26		242	14%	74	72	-2.7%	25	6.5	-18.5
Murray Pl SB	640	650		181	11%	46	46	0.0%	25	33.2	8.2
Murray Pl SB	650	32		221	11%	46	47	2.2%	25	2	-23.0
NB Off Ramp	7001	910		202	54%	636	438	-31.1%	35	44.3	9.3
NB On Ramp	920	7003		1212	36%	324	140	-56.8%	43	5.2	-37.8
Ramp A	520	14		225	39%	439	366	-16.6%	35	3.9	-31.1
Ramp A	7010	520		225	39%	439	373	-15.0%	35	4.8	-30.2
Ramp B	18	530		218	14%	118	93	-21.2%	35	16.7	-18.3
Ramp B	530	7005		224	14%	118	93	-21.2%	35	22.7	-12.3
Ramp C	540	545		205	62%	778	364	-53.2%	40	2.1	-37.9
Ramp C	545	22		227	62%	778	356	-54.2%	40	2	-38.0
Ramp C	7004	540		195	62%	778	371	-52.3%	40	2.4	-37.6
Ramp D	24	550		141	48%	540	533	-1.3%	40	33.7	-6.3
Ramp D	550	7007		157	48%	540	533	-1.3%	40	35.3	-4.7
Ramp E	535	20		228	28%	239	165	-31.0%	35	17.2	-17.8
Ramp E	7006	535		183	28%	239	165	-31.0%	35	29.4	-5.6
Ramp F	16	525		123	52%	624	513	-17.8%	35	4.2	-30.8
Ramp F	525	7009		139	52%	624	511	-18.1%	35	4.2	-30.8
Ramp G	510	515		321	18%	149	147	-1.3%	40	38.7	-1.3
Ramp G	515	12		212	18%	149	147	-1.3%	40	6.4	-33.6
Ramp G	7008	510		276	18%	149	147	-1.3%	40	51.9	11.9
Ramp H	46	48		579	46%	507	489	-3.6%	55	42.7	-12.3
Ramp H	48	50		408	46%	507	489	-3.6%	55	49.3	-5.7
Ramp I	46	52		610	42%	471	465	-1.3%	52	34.7	-17.3
Ramp I	52	54		417	42%	471	466	-1.1%	52	45.6	-6.4
Ramp J	58	56		624	70%	1168	1167	-0.1%	45	37.8	-7.2
Ramp J	60	58		490	70%	1168	1168	0.0%	45	47.3	2.3
Ramp K	62	56		627	66%	817	817	0.0%	45	39.4	-5.6
Ramp K	64	62		607	66%	817	816	-0.1%	45	47.7	2.7
RiverRidgeNB	660	32		140	13%	64	111	73.4%	25	1.5	-23.5
RiverRidgeNB	660	34		148	28%	220	157	-28.6%	25	1.1	-23.9
RiverRidgeNB	670	660		177	33%	284	276	-2.8%	25	2.4	-22.6
RiverRidgeNB	680	670		175	33%	284	282	-0.7%	25	15.3	-9.7
RiverRidgeSB	28	620		108	27%	200	54	-73.0%	25	21.5	-3.5
RiverRidgeSB	30	660		181	3%	11	0	-100.0%	25	0	-25.0
RiverRidgeSB	32	660		140	22%	176	178	1.1%	25	21.2	-3.8
RiverRidgeSB	620	630		134	27%	200	54	-73.0%	25	15.3	-9.7
RiverRidgeSB	660	670		177	23%	187	178	-4.8%	25	23.8	-1.2
RiverRidgeSB	670	680		175	23%	187	178	-4.8%	25	24.8	-0.2
SB Off Ramp	7002	940		236	34%	290	285	-1.7%	42	53.1	11.1
SB On Ramp	930	7011		107	41%	465	463	-0.4%	35	64.5	29.5
School	80	6000		197	0%	0	0	#DIV/0!	25	0	-25.0
School	80	6005		243	8%	19	14	-26.3%	25	19.2	-5.8
School	6000	80		197	0%	0	0	#DIV/0!	25	0	-25.0
School	6005	80		243	21%	160	160	0.0%	25	12.6	-12.4
Seminole NB	410	12		306	31%	251	248	-1.2%	25	5.6	-19.4
Seminole NB	420	410		195	31%	251	250	-0.4%	25	26.6	1.6
Seminole SB	12	410		306	30%	248	244	-1.6%	25	21.7	-3.3
Seminole SB	410	420		195	30%	248	245	-1.2%	25	24	-1.0
Sheffield EB	2	4		778	22%	185	184	-0.5%	25	25.7	0.7
Sheffield EB	4	6		400	22%	185	181	-2.2%	25	4.2	-20.8
Sheffield WB	4	2		778	24%	190	194	2.1%	25	23.2	-1.8
Sheffield WB	6	4		400	24%	190	194	2.1%	25	21.1	-3.9
Short St NB	8	220		208	4%	18	11	-38.9%	25	20.1	-4.9
Short St NB	220	210		209	4%	18	11	-38.9%	25	25.4	0.4
Short St SB	210	220		209	4%	18	18	0.0%	25	32.1	7.1
Short St SB	220	8		208	4%	18	17	-5.6%	25	5.3	-19.7
US501 Ramp	76	840		419	44%	492	447	-9.1%	35	27.9	-7.1
US501 Ramp	840	850		305	44%	492	446	-9.3%	35	31.7	-3.3
US501 Ramp	850	44		246	44%	492	445	-9.6%	35	23.6	-11.4
Wards Rd NB	6	120		618	61%	770	782	1.6%	35	28	-7.0
Wards Rd NB	120	110		505	61%	770	782	1.6%	35	32.6	-2.4
Wards Rd NB	130	6		693	38%	404	394	-2.5%	35	8.1	-26.9
Wards Rd NB	140	130		319	38%	404	402	-0.5%	35	41.3	6.3
Wards Rd SB	6	130		693	47%	533	579	8.6%	35	30	-5.0
Wards Rd SB	110	120		505	68%	1047	1041	-0.6%	35	23.3	-11.7
Wards Rd SB	120	6		618	68%	1047	1000	-4.5%	35	4.9	-30.1
Wards Rd SB	130	140		319	47%	533	578	8.4%	35	33	-2.0
WoodallRdNB	10	320		378	26%	195	188	-3.6%	25	22.8	-2.2
WoodallRdNB	320	310		311	26%	195	187	-4.1%	25	24.3	-0.7
WoodallRdSB	310	320		311	12%	54	53	-1.9%	25	28.5	3.5
WoodallRdSB	320	10		378	12%	54	43	-20.4%	25	2.5	-22.5

No Build (2040) PM Peak Hour
Calibration Summary

Route	From Node	To Node	Type	Link Distance	Volume Percentile	Actual Volumes	Simulated Volumes	Percent Difference	Actual Speeds	Simulated Space Mean Speeds	Speed Difference
SB US 29 BUS	3005	3010	Freeway	900	95%	2714	2707	-0.3%	57	53.2	-3.8
	3010	3015	Freeway	877	95%	2714	2701	-0.5%	57	51	-6.0
	3015	3020	Freeway	2183	95%	2714	2662	-1.9%	57	42.5	-14.5
	3020	3025	Freeway	936	95%	2714	2636	-2.9%	57	36.1	-20.9
	3025	3030	Freeway	649	95%	2714	2619	-3.5%	57	32.8	-24.2
	3030	3035	Freeway	851	95%	2714	2596	-4.3%	57	28.9	-28.1
	3035	3210	Ramp	107	25%	283	256	-9.5%	40	38.8	-1.2
	3035	3040	Freeway	500	90%	2431	2323	-4.4%	54	23.2	-30.8
	3230	3040	Ramp	195	40%	528	432	-18.2%	35	3.7	-31.3
	3040	3045	Freeway	267	99%	2959	2747	-7.2%	54	21	-33.0
	3045	3050	Freeway	349	99%	2959	2734	-7.6%	54	23.1	-30.9
	3050	3240	Ramp	212	38%	510	450	-11.8%	35	6.1	-28.9
	3050	3055	Freeway	500	91%	2449	2274	-7.1%	55	51.9	-3.1
	3055	3060	Freeway	500	91%	2449	2275	-7.1%	55	53	-2.0
	3250	3060	Ramp	114	53%	743	742	-0.1%	35	34.7	-0.3
	3060	3065	Freeway	888	100%	3192	3016	-5.5%	55	49.6	-5.4
	3065	3260	Ramp	306	41%	591	598	1.2%	42	40.6	-1.4
	3065	3070	Freeway	500	92%	2601	2418	-7.0%	55	53	-2.0
	3070	3075	Freeway	980	92%	2601	2416	-7.1%	55	52.8	-2.2
	3075	3080	Freeway	1472	92%	2601	2414	-7.2%	55	52.4	-2.6
NB US 29 BUS	1000	1005	Freeway	480	94%	2644	2274	-14.0%	53	26.4	-26.6
	1005	1010	Freeway	625	94%	2644	2243	-15.2%	53	24.8	-28.2
	1010	1015	Freeway	875	94%	2644	2205	-16.6%	53	23.5	-29.5
	1015	1220	Ramp	536	47%	693	583	-15.9%	35	33.1	-1.9
	1015	1020	Freeway	914	82%	1951	1579	-19.1%	56	20.1	-35.9
	1020	1025	Freeway	662	82%	1951	1548	-20.7%	56	18.7	-37.3
	1025	1030	Freeway	500	82%	1951	1530	-21.6%	56	19.9	-36.1
	1240	1030	Ramp	214	34%	395	70	-82.3%	43	2.8	-40.2
	1030	1035	Freeway	657	90%	2346	1589	-32.3%	53	11.8	-41.2
	1035	1250	Ramp	268	43%	621	301	-51.5%	40	2.4	-37.6
	1035	1040	Freeway	117	75%	1725	1288	-25.3%	58	44.1	-13.9
	1040	1045	Freeway	383	75%	1725	1288	-25.3%	58	49.1	-8.9
	1045	1050	Freeway	117	75%	1725	1288	-25.3%	58	52	-6.0
	1260	1050	Ramp	231	18%	188	132	-29.8%	35	31.1	-3.9
	1050	1055	Freeway	217	78%	1913	1420	-25.8%	58	47.1	-10.9
	1055	1060	Freeway	224	78%	1913	1420	-25.8%	58	52.2	-5.8
	1060	1270	Ramp	215	11%	120	105	-12.5%	35	46.4	11.4
	1060	1065	Freeway	500	77%	1793	1315	-26.7%	58	55	-3.0
	1280	1065	Ramp	270	35%	420	367	-12.6%	40	38.6	-1.4
	1065	1070	Freeway	755	86%	2213	1683	-23.9%	59	55	-4.0
	1070	1075	Freeway	745	86%	2213	1685	-23.9%	59	57.1	-1.9
	1075	1080	Freeway	837	86%	2213	1686	-23.8%	59	57	-2.0
	1080	1085	Freeway	2196	86%	2213	1691	-23.6%	59	56.9	-2.1
	1085	1090	Freeway	852	86%	2213	1693	-23.5%	59	56.7	-2.3
	1090	1095	Freeway	1090	86%	2213	1693	-23.5%	59	56.6	-2.4

NETSIM Links Results

CandlerMRdEB	6	8		520	57%	846	636	-24.8%	35	2.6	-32.4
CandlerMRdEB	8	10		328	57%	846	623	-26.4%	35	1.9	-33.1
CandlerMRdEB	10	12		183	60%	893	613	-31.4%	35	2.3	-32.7
CandlerMRdEB	12	14		278	64%	1006	730	-27.4%	35	2.8	-32.2
CandlerMRdEB	14	18		562	72%	1516	1137	-25.0%	35	2.9	-32.1
CandlerMRdEB	18	22		446	70%	1328	1004	-24.4%	35	2.4	-32.6
CandlerMRdEB	22	23		155	80%	1949	1303	-33.1%	35	2	-33.0
CandlerMRdEB	23	25		115	80%	1949	1304	-33.1%	35	3.3	-31.7
CandlerMRdEB	25	28		172	80%	1949	1309	-32.8%	35	3.1	-31.9
CandlerMRdEB	28	30		119	74%	1711	1225	-28.4%	35	4	-31.0
CandlerMRdEB	30	32		141	73%	1611	1171	-27.3%	35	3	-32.0
CandlerMRdEB	32	34		105	73%	1614	1203	-25.5%	35	11.5	-23.5
CandlerMRdEB	34	40		617	86%	2122	1620	-23.7%	35	5.6	-29.4
CandlerMRdEB	40	42		347	77%	1791	1396	-22.1%	35	27	-8.0
CandlerMRdEB	42	46		1150	84%	2041	1608	-21.2%	35	29.1	-5.9
CandlerMRdNB	68	42		106	22%	250	205	-18.0%	35	3.8	-31.2
CandlerMRdNB	70	68		101	22%	250	204	-18.4%	35	16.4	-18.6
CandlerMRdNB	72	70		327	22%	250	203	-18.8%	35	21	-14.0
CandlerMRdNB	74	72		222	22%	250	203	-18.8%	35	32	-3.0
CandlerMRdNB	76	74		102	24%	263	213	-19.0%	35	20.6	-14.4
CandlerMRdNB	80	76		624	63%	999	792	-20.7%	35	4.3	-30.7
CandlerMRdNB	82	80		735	63%	999	808	-19.1%	35	4.7	-30.3
CandlerMRdSB	40	70		333	59%	874	668	-23.6%	35	25.8	-9.2
CandlerMRdSB	70	72		327	59%	874	668	-23.6%	35	33	-2.0
CandlerMRdSB	72	74		222	59%	874	668	-23.6%	35	29	-6.0
CandlerMRdSB	74	76		102	50%	704	541	-23.2%	35	23.3	-11.7
CandlerMRdSB	76	78		125	48%	694	532	-23.3%	35	27.4	-7.6
CandlerMRdSB	78	80		501	49%	700	538	-23.1%	35	32.4	-2.6
CandlerMRdSB	80	82		735	49%	700	541	-22.7%	35	33.3	-1.7
CandlerMRdWB	8	6		520	68%	1268	1134	-10.6%	35	7	-28.0
CandlerMRdWB	10	8		328	69%	1272	1148	-9.7%	35	25.9	-9.1
CandlerMRdWB	12	10		183	68%	1259	1193	-5.2%	35	13.8	-21.2
CandlerMRdWB	16	12		449	66%	1192	1146	-3.9%	35	9.7	-25.3
CandlerMRdWB	20	16		424	74%	1720	1571	-8.7%	35	21.3	-13.7
CandlerMRdWB	24	20		437	72%	1600	1470	-8.1%	35	31.4	-3.6
CandlerMRdWB	26	24		322	84%	2020	1835	-9.2%	35	30.9	-4.1
CandlerMRdWB	32	26		366	78%	1880	1687	-10.3%	35	28	-7.0
CandlerMRdWB	40	32		717	80%	1924	1591	-17.3%	35	6.3	-28.7
CandlerMRdWB	43	40		605	85%	2057	1673	-18.7%	35	4.2	-30.8
CandlerMRdWB	44	43		227	85%	2057	1670	-18.8%	35	2.8	-32.2
CandlerMRdWB	56	44		696	69%	1311	1103	-15.9%	35	3	-32.0

No Build (2040) PM Peak Hour
Calibration Summary

Driveway	8	230		190	3%	20	16	-20.0%	25	19.7	-5.3
Driveway	10	330		189	8%	53	46	-13.2%	25	21.9	-3.1
Driveway	230	8		190	2%	18	12	-33.3%	25	2.8	-22.2
Driveway	230	240		132	3%	20	16	-20.0%	25	24.8	-0.2
Driveway	240	230		132	2%	18	18	0.0%	25	34.3	9.3
Driveway	330	10		189	7%	28	27	-3.6%	25	1.2	-23.8
Driveway	330	340		110	8%	53	46	-13.2%	25	24.4	-0.6
Driveway	340	330		110	7%	28	28	0.0%	25	42.8	17.8
Mayflower NB	40	720		503	29%	302	231	-23.5%	35	27	-8.0
Mayflower NB	710	705		1817	29%	302	232	-23.2%	35	33.4	-1.6
Mayflower NB	720	710		1084	29%	302	233	-22.8%	35	32.6	-2.4
Mayflower SB	705	710		1817	51%	712	583	-18.1%	35	3.7	-31.3
Mayflower SB	710	720		1084	51%	712	578	-18.8%	35	2.8	-32.2
Mayflower SB	720	40		503	51%	712	577	-19.0%	35	2.6	-32.4
MntViewRd EB	810	820		270	0%	6	6	0.0%	25	30.5	5.5
MntViewRd EB	820	830		527	0%	6	6	0.0%	25	21.3	-3.7
MntViewRd EB	830	78		104	0%	6	6	0.0%	25	8.7	-16.3
MntViewRd WB	74	830		160	14%	170	138	-18.8%	25	21.9	-3.1
MntViewRd WB	820	810		270	14%	170	138	-18.8%	25	24.3	-0.7
MntViewRd WB	830	820		527	14%	170	138	-18.8%	25	24.3	-0.7
Murray Pl NB	26	610		242	0%	6	0	-100.0%	25	0	-25.0
Murray Pl NB	32	650		221	16%	177	123	-30.5%	25	20.5	-4.5
Murray Pl NB	650	640		181	16%	177	123	-30.5%	25	24.4	-0.6
Murray Pl SB	610	26		242	13%	146	147	0.7%	25	5.2	-19.8
Murray Pl SB	640	650		181	13%	167	166	-0.6%	25	24.8	-0.2
Murray Pl SB	650	32		221	13%	167	168	0.6%	25	2.2	-22.8
NB Off Ramp	7001	910		202	47%	693	582	-16.0%	35	44.1	9.1
NB On Ramp	920	7003		1212	34%	395	80	-79.7%	43	0.9	-42.1
Ramp A	520	14		225	38%	510	430	-15.7%	35	2.6	-32.4
Ramp A	7010	520		225	38%	510	437	-14.3%	35	3	-32.0
Ramp B	18	530		218	18%	188	132	-29.8%	35	16.7	-18.3
Ramp B	530	7005		224	18%	188	132	-29.8%	35	22.7	-12.3
Ramp C	540	545		205	43%	621	300	-51.7%	40	1.3	-38.7
Ramp C	545	22		227	43%	621	299	-51.9%	40	1.3	-38.7
Ramp C	7004	540		195	43%	621	300	-51.7%	40	1.5	-38.5
Ramp D	24	550		141	35%	420	367	-12.6%	40	34.8	-5.2
Ramp D	550	7007		157	35%	420	367	-12.6%	40	36.9	-3.1
Ramp E	535	20		228	11%	120	106	-11.7%	35	17.3	-17.7
Ramp E	7006	535		183	11%	120	105	-12.5%	35	30.4	-4.6
Ramp F	16	525		123	40%	528	445	-15.7%	35	7.5	-27.5
Ramp F	525	7009		139	40%	528	443	-16.1%	35	7.9	-27.1
Ramp G	510	515		321	25%	283	256	-9.5%	40	37.5	-2.5
Ramp G	515	12		212	25%	283	254	-10.2%	40	4.8	-35.2
Ramp G	7008	510		276	25%	283	256	-9.5%	40	51.3	11.3
Ramp H	46	48		579	65%	1063	839	-21.1%	55	41.7	-13.3
Ramp H	48	50		408	65%	1063	840	-21.0%	55	47.7	-7.3
Ramp I	46	52		610	61%	978	771	-21.2%	52	35	-17.0
Ramp I	52	54		417	61%	978	772	-21.1%	52	45.2	-6.8
Ramp J	58	56		624	45%	625	579	-7.4%	45	6.1	-38.9
Ramp J	60	58		490	45%	625	605	-3.2%	45	19.2	-25.8
Ramp K	62	56		627	46%	686	558	-18.7%	45	4.3	-40.7
Ramp K	64	62		607	46%	686	584	-14.9%	45	5.8	-39.2
RiverRidgeNB	660	32		140	27%	291	366	25.8%	25	1.6	-23.4
RiverRidgeNB	660	34		148	38%	508	430	-15.4%	25	2.6	-22.4
RiverRidgeNB	670	660		177	56%	799	801	0.3%	25	4.1	-20.9
RiverRidgeNB	680	670		175	56%	799	798	-0.1%	25	18	-7.0
RiverRidgeSB	28	620		108	21%	238	90	-62.2%	25	21.5	-3.5
RiverRidgeSB	30	660		181	10%	100	60	-40.0%	25	22.3	-2.7
RiverRidgeSB	32	660		140	31%	322	275	-14.6%	25	22.9	-2.1
RiverRidgeSB	620	630		134	21%	238	90	-62.2%	25	15.2	-9.8
RiverRidgeSB	660	670		177	36%	422	335	-20.6%	25	24.1	-0.9
RiverRidgeSB	670	680		175	36%	422	334	-20.9%	25	24.5	-0.5
SB Off Ramp	7002	940		236	41%	591	597	1.0%	42	52.5	10.5
SB On Ramp	930	7011		107	53%	743	742	-0.1%	35	63.2	28.2
Seminole NB	410	12		306	20%	195	193	-1.0%	25	4.7	-20.3
Seminole NB	420	410		195	20%	195	194	-0.5%	25	30.8	5.8
Seminole SB	12	410		306	28%	298	266	-10.7%	25	21.7	-3.3
Seminole SB	410	420		195	28%	298	267	-10.4%	25	23.8	-1.2
Sheffield EB	2	4		778	32%	355	327	-7.9%	25	9.8	-15.2
Sheffield EB	4	6		400	32%	355	296	-16.6%	25	1.5	-23.5
Sheffield WB	4	2		778	31%	327	301	-8.0%	25	22.9	-2.1
Sheffield WB	6	4		400	31%	327	299	-8.6%	25	21.6	-3.4
Short St NB	8	220		208	6%	25	17	-32.0%	25	20.6	-4.4
Short St NB	220	210		209	6%	25	17	-32.0%	25	24.9	-0.1
Short St SB	210	220		209	5%	23	22	-4.3%	25	27.1	2.1
Short St SB	220	8		208	5%	23	16	-30.4%	25	1.4	-23.6
US501 Ramp	76	840		419	55%	746	580	-22.3%	35	3.1	-31.9
US501 Ramp	840	850		305	55%	746	574	-23.1%	35	2.7	-32.3
US501 Ramp	850	44		246	55%	746	571	-23.5%	35	2.7	-32.3
Wards Rd NB	6	120		618	70%	1444	1324	-8.3%	35	28.5	-6.5
Wards Rd NB	120	110		505	70%	1444	1328	-8.0%	35	32	-3.0
Wards Rd NB	130	6		693	52%	740	713	-3.6%	35	4.7	-30.3
Wards Rd NB	140	130		319	52%	740	738	-0.3%	35	38.7	3.7
Wards Rd SB	6	130		693	62%	989	869	-12.1%	35	30.1	-4.9
Wards Rd SB	110	120		505	66%	1243	1051	-15.4%	35	6.3	-28.7
Wards Rd SB	120	6		618	66%	1243	1012	-18.6%	35	2.9	-32.1
Wards Rd SB	130	140		319	62%	989	869	-12.1%	35	32.4	-2.6
WoodallRdNB	10	320		378	9%	99	86	-13.1%	25	22.8	-2.2
WoodallRdNB	320	310		311	9%	99	86	-13.1%	25	24.6	-0.4
WoodallRdSB	310	320		311	17%	184	80	-56.5%	25	1.1	-23.9
WoodallRdSB	320	10		378	17%	184	63	-65.8%	25	0.7	-24.3

APPENDIX D-2: VDOT SAMPLE SIZE DETERMINATION TOOL – CORSIM

Sample Size Determination Tool, AM Peak

User Inputs	Sample Size (N) = Number of Model Runs
Constants	Sample Mean (X_s) = (1/N) ($X_1 + X_2 + X_3 \ldots + X_N$)
Outputs	Sample Standard Deviation (S_s) = $\sqrt{[(\Sigma(X-X_s)^2)/(N-1)]}$
	Sampling Error = $Z\ (S_s/\sqrt{N})$
	Confidence Level = $X_s \pm Z\ (S_s/\sqrt{N})$
	% of Sample Mean (E) = % Tolerance * X_s
	Sample Size Needed = $[(Z)^2 * (S_s)^2] / (E)^2$

Model Iterations

Measure of Effectiveness (MOE):	Speed
Confidence Interval:	95%
Tolerance Error:	10%
Number of Model Runs:	30

Run Number	*Speed*
1	37.13
2	31.27
3	52.01
4	39.89
5	51.82
6	27.17
7	51.96
8	51.41
9	43.06
10	51.86
11	21.18
12	52.34
13	52.34
14	52.16
15	49.4
16	23.53
17	52.39
18	31.67
19	52.56
20	51.84
21	50.89
22	23.24
23	50.75
24	22.37
25	50.55
26	31.7
27	51.8
28	51.11
29	18.59
30	44.64

Sample Size Outputs

N	=	30.0
X_s	=	42.4
S_s	=	12.1
E	=	4.2
Z	=	1.96

Sampling Error	=	4.31		
95% Confidence Interval	=	38.1	to	46.7
Percentage of Mean	=	10.17%		**Too High**
Sample Size Needed	=	**30**		

Z is the number of standard deviations away from the mean corresponding to the required confidence level in a normal distribution.

Sample Size Determination Tool, PM Peak

User Inputs	Sample Size (N) = Number of Model Runs
Constants	Sample Mean (X_s) = (1/N) ($X_1 + X_2 + X_3 \ldots + X_N$)
Outputs	Sample Standard Deviation (S_s) = $\sqrt{[(\Sigma(X-X_s)^2)/(N-1)]}$
	Sampling Error = $Z\ (S_s/\sqrt{N})$
	Confidence Level = $X_s \pm Z\ (S_s/\sqrt{N})$
	% of Sample Mean (E) = % Tolerance * X_s
	Sample Size Needed = $[(Z)^2 * (S_s)^2] / (E)^2$

Model Iterations

Measure of Effectiveness (MOE):	Speed
Confidence Interval:	95%
Tolerance Error:	10%
Number of Model Runs:	30

Run Number	*Speed*
1	51.06
2	17.84
3	12.83
4	22.42
5	22.61
6	12.77
7	22.79
8	29.83
9	15.74
10	15.35
11	50.75
12	22.96
13	50.85
14	19.68
15	15.77
16	48.46
17	20.24
18	21.44
19	49.74
20	51.12
21	51.28
22	28.37
23	15.81
24	26.31
25	48.82
26	12.24
27	51.06
28	16.61
29	24.66
30	18.62

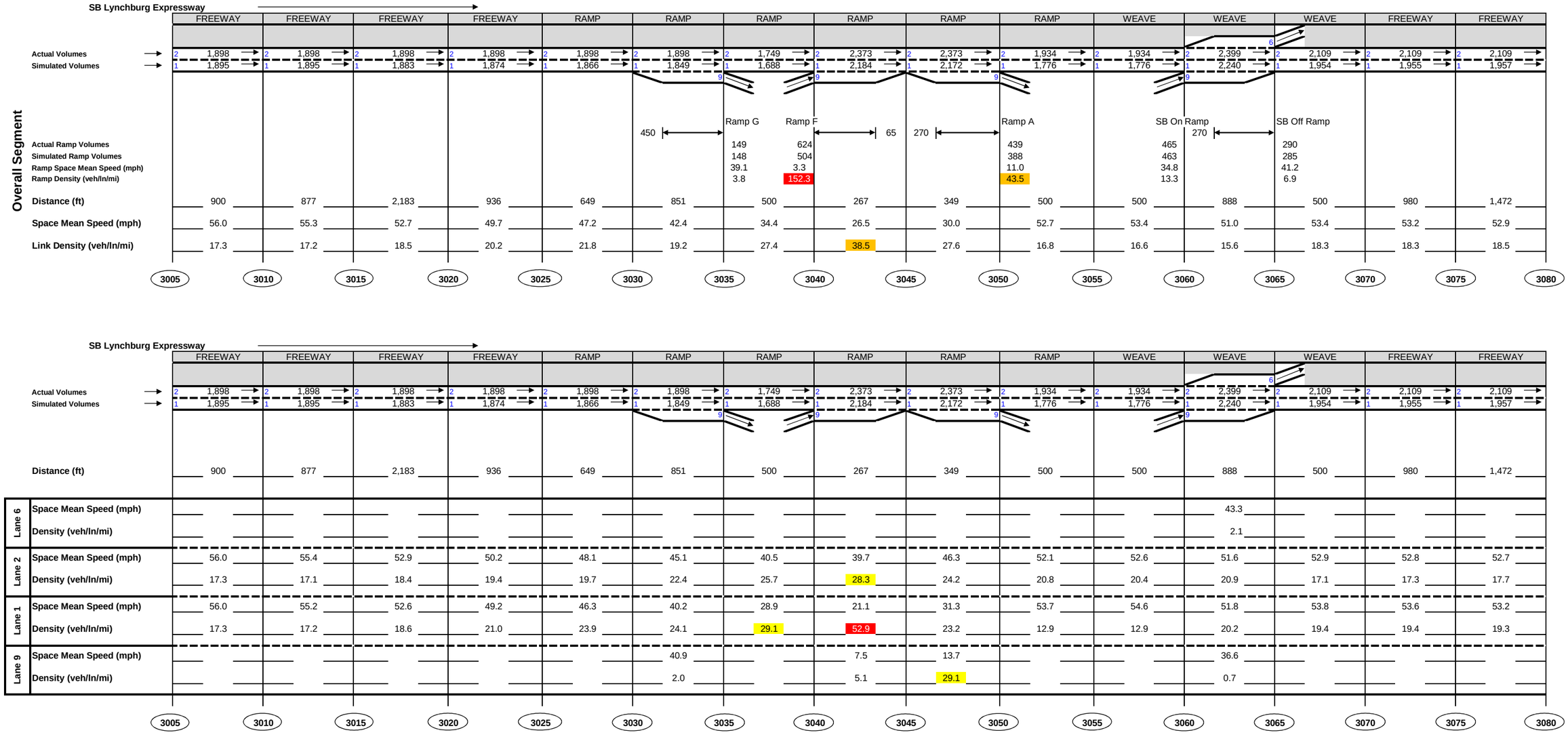
Sample Size Outputs

N	=	30.0
X_s	=	28.9
S_s	=	14.9
E	=	2.9
Z	=	1.96

Sampling Error	=	5.32		
95% Confidence Interval	=	23.6	to	34.3
Percentage of Mean	=	18.40%		**Too High**
Sample Size Needed	=	**30**		

Z is the number of standard deviations away from the mean corresponding to the required confidence level in a normal distribution.

APPENDIX D-3: CORSIM SIMULATION RESULTS



NOTE: numbers in chart are provided for illustrative purposes only

LEGEND

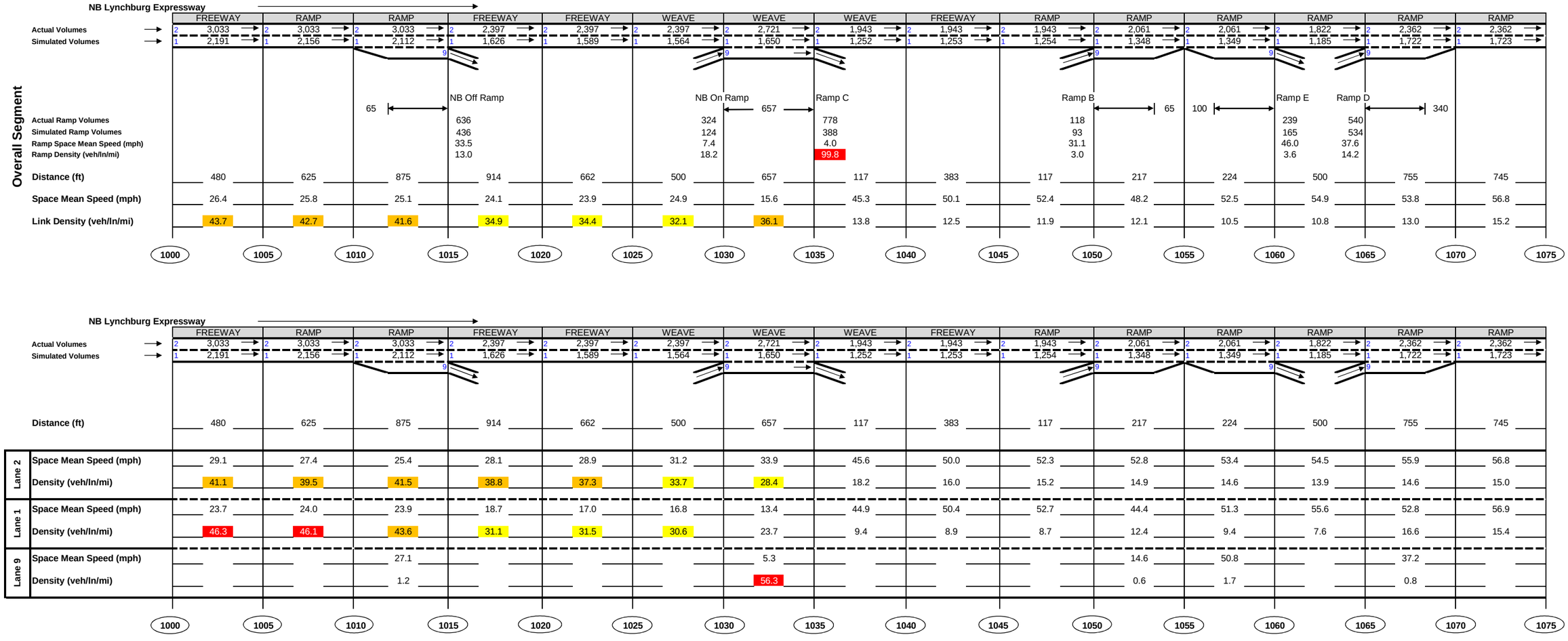
100 Node Number — Auxiliary Lane Length

Freeway Density (veh/ln/mi)	Weave/Ramp Density (veh/ln/mi)	CD Road Weave Density (veh/ln/mi)
45 and above	45 and above	45 and above
35 to 45	35 to 45	36 to 45
26 to 35	28 to 35	32 to 36
0 to 26	0 to 28	0 to 32

***The results shown are the average results across "X" microsimulation runs.**

VDOT Virginia Department of Transportation

Figure 1
Candlers Mountain Road Corridor Study
Southbound Lynchburg Expressway
No Build (2040) AM Peak Hour



NOTE: numbers in chart are provided for illustrative purposes only

LEGEND

100 Node Number

Auxiliary Lane Length

Freeway Density (veh/ln/mi)	Weave/Ramp Density (veh/ln/mi)	CD Road Weave Density (veh/ln/mi)
45 and above	45 and above	45 and above
35 to 45	35 to 45	36 to 45
26 to 35	28 to 35	32 to 36
0 to 26	0 to 28	0 to 32

***The results shown are the average results across "X" microsimulation runs.**

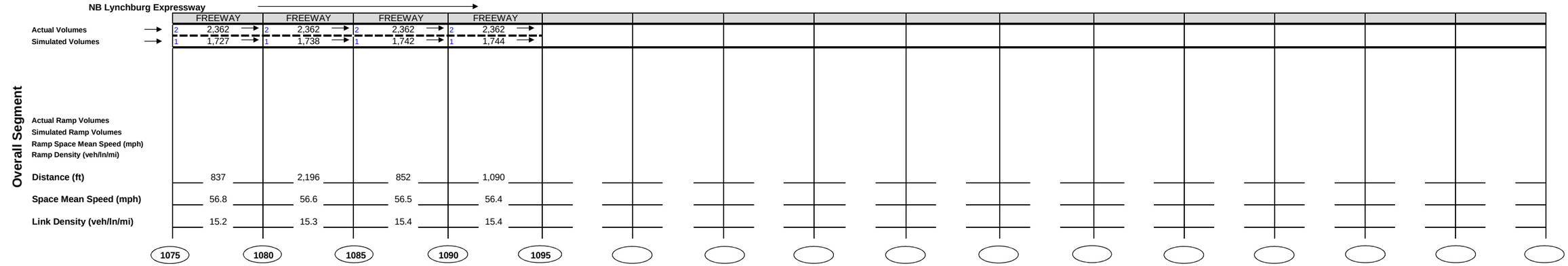
VDOT Virginia Department of Transportation

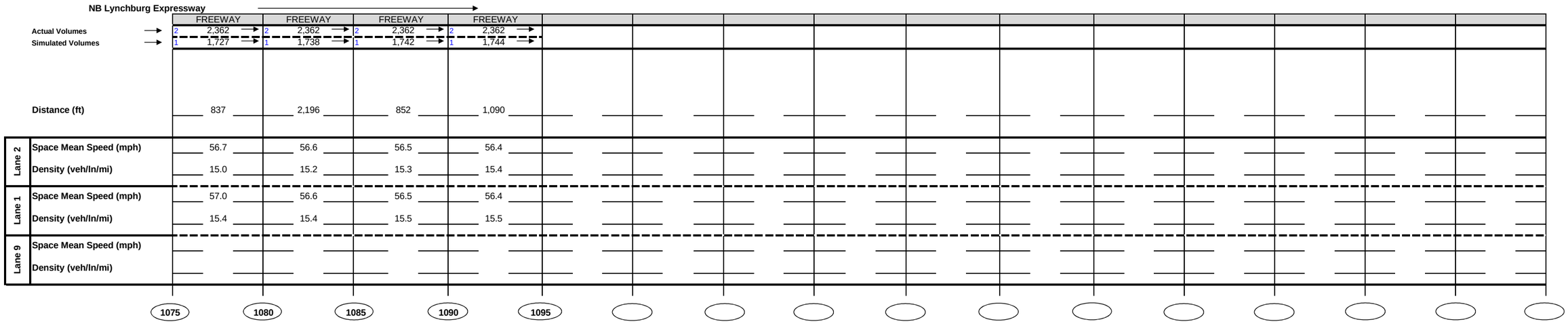
Figure 2

Candlers Mountain Road Corridor Study

Northbound Lynchburg Expressway

No Build (2040) AM Peak Hour





NOTE: numbers in chart are provided for illustrative purposes only

LEGEND

100 Node Number

Auxiliary Lane Length

Freeway Density (veh/ln/mi)	Weave/Ramp Density (veh/ln/mi)	CD Road Weave Density (veh/ln/mi)
45 and above	45 and above	45 and above
35 to 45	35 to 45	36 to 45
26 to 35	28 to 35	32 to 36
0 to 26	0 to 28	0 to 32

***The results shown are the average results across "X" microsimulation runs.**

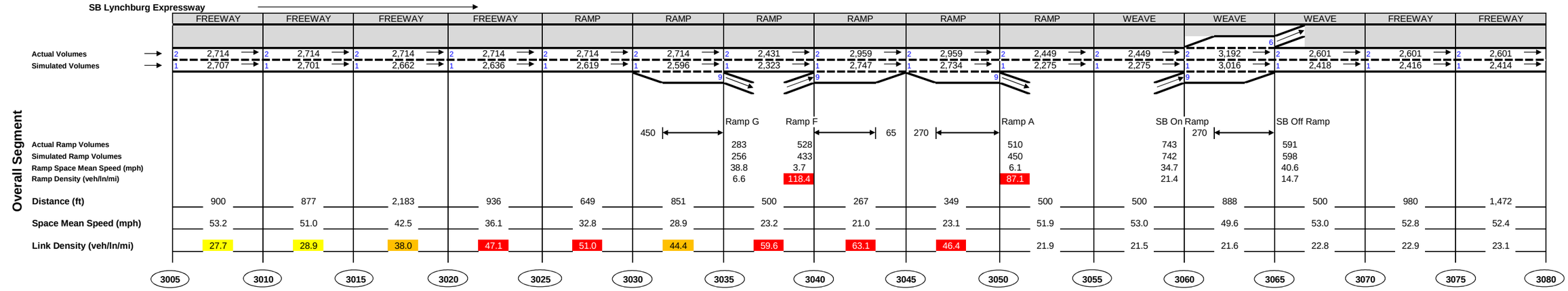
VDOT Virginia Department of Transportation

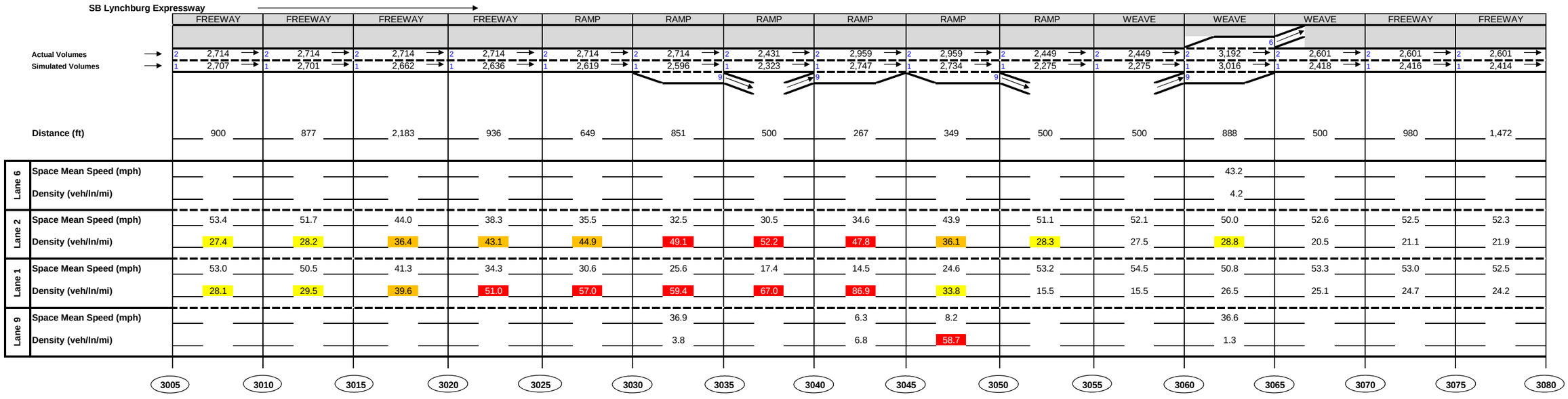
Figure 3

Candlers Mountain Road Corridor Study

Northbound Lynchburg Expressway

No Build (2040) AM Peak Hour





NOTE: numbers in chart are provided for illustrative purposes only

LEGEND

100 Node Number

Auxiliary Lane Length

Freeway Density (veh/ln/mi)	Weave/Ramp Density (veh/ln/mi)	CD Road Weave Density (veh/ln/mi)
45 and above	45 and above	45 and above
35 to 45	35 to 45	36 to 45
26 to 35	28 to 35	32 to 36
0 to 26	0 to 28	0 to 32

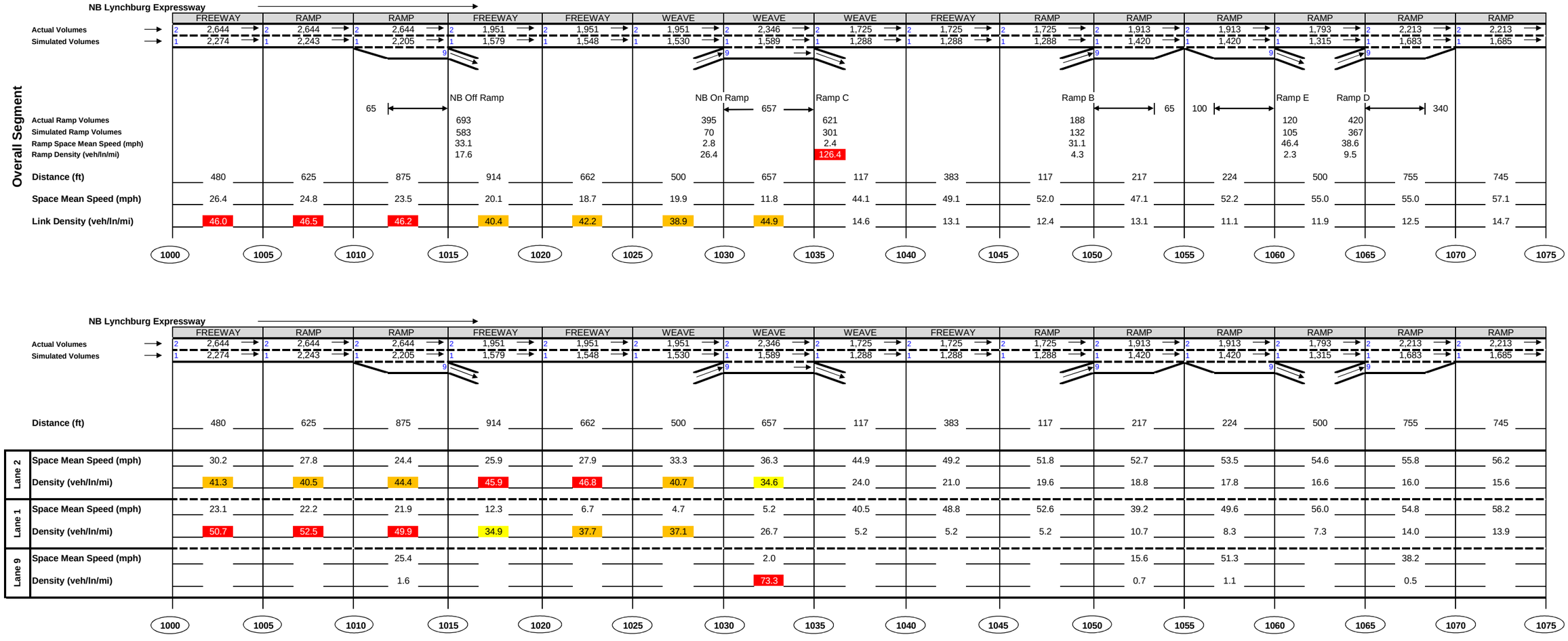
***The results shown are the average results across "X" microsimulation runs.**

Figure 4

Candlers Mountain Road Corridor Study

SB Lynchburg Expressway

No Build (2040) PM Peak Hour



NOTE: numbers in chart are provided for illustrative purposes only

LEGEND

100 Node Number

Auxiliary Lane Length

Freeway Density (veh/ln/mi)
45 and above
35 to 45
26 to 35
0 to 26

Weave/Ramp Density (veh/ln/mi)
45 and above
35 to 45
28 to 35
0 to 28

CD Road Weave Density (veh/ln/mi)
45 and above
36 to 45
32 to 36
0 to 32

***The results shown are the average results across "X" microsimulation runs.**

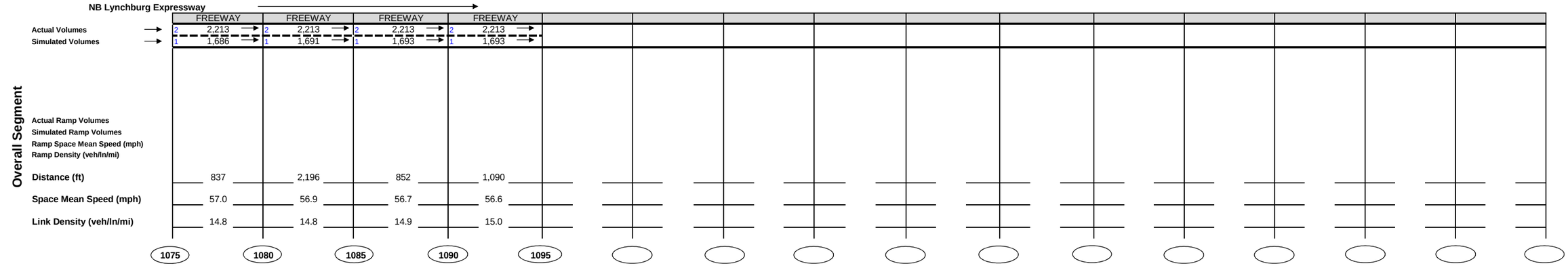
VDOT Virginia Department of Transportation

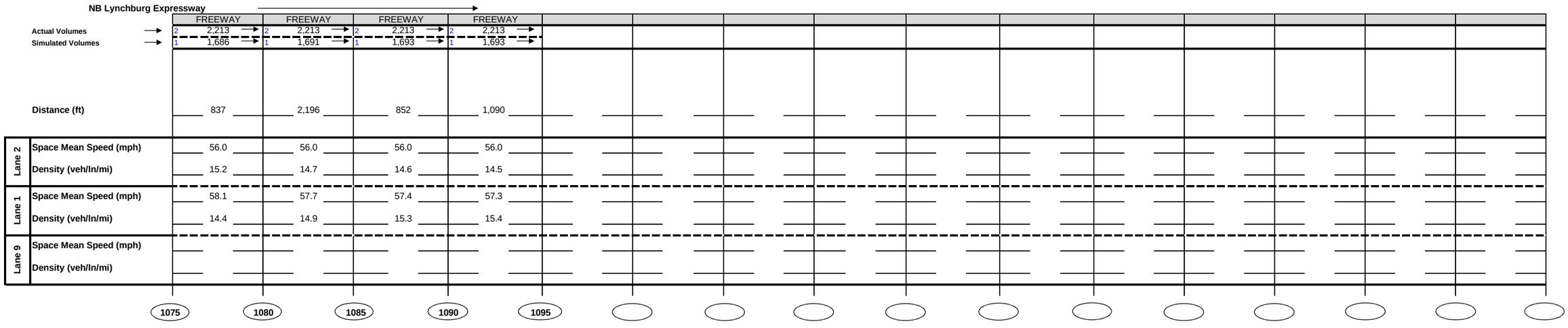
Figure 5

Candlers Mountain Road Corridor Study

NB Lynchburg Expressway

No Build (2040) PM Peak Hour





NOTE: numbers in chart are provided for illustrative purposes only

LEGEND

100 Node Number

Auxiliary Lane Length

Freeway Density (veh/ln/mi)
45 and above
35 to 45
26 to 35
0 to 26

Weave/Ramp Density (veh/ln/mi)
45 and above
35 to 45
28 to 35
0 to 28

CD Road Weave Density (veh/ln/mi)
45 and above
36 to 45
32 to 36
0 to 32

***The results shown are the average results across "X" microsimulation runs.**

VDOT Virginia Department of Transportation

Figure 6

Candlers Mountain Road Corridor Study

NB Lynchburg Expressway

No Build (2040) PM Peak Hour

CORSIM Microsimulation Delay Reporting for Intersections

No Build 2040
AM Peak Hour

Name / ID	Approach	Approach Control Type	Link		Join	Turning Movement Volumes				Microsimulation Delay by Movement (sec)			Microsimulation Delay by Approach (sec)	Microsimulation Delay by Intersection (sec)	Intersection Type
Intersection			From	To		Left	Through	Right	Total	Left	Through	Right			
1 - Candlers Mountain Road/ Sheffield Drive at Wards Road	WB	Signal	8	6	8-6	63	128	434	625	32.70	41.91	16.75	23.51	56.04	Signalized
	EB	Signal	4	6	4-6	17	124	44	185	52.55	48.54	63.29	52.41		
	NB	Signal	130	6	130-6	45	324	23	392	47.91	39.89	34.88	40.52		
	SB	Signal	120	6	120-6	534	473	6	1013	110.71	51.61	53.20	82.77		
2 - Candlers Mountain Road at Short Street	WB	Free	10	8	10-8	5	625	0	630	16.32	1.25	-	1.37	39.66	Unsignalized Two-Way
	EB	Free	6	8	6-8	4	647	0	651	53.10	76.22	-	76.08		
	SB	Stop	220	8	220-8	5	6	5	16	45.72	5.20	5.16	17.85		
	NB	Stop	230	8	230-8	5	4	5	14	33.72	23.55	211.44	94.29		
3 - Candlers Mountain Road at Woodall Road	WB	Signal	12	10	12-10	21	608	152	781	14.66	3.32	4.50	3.85	38.56	Signalized
	EB	Signal	8	10	8-10	38	605	0	643	38.49	73.75	-	71.67		
	SB	Signal	320	10	320-10	28	0	14	42	167.42	-	5.70	113.51		
	NB	Signal	330	10	330-10	12	6	7	25	84.25	107.60	282.43	145.34		
4 - Candlers Mountain Road at SB Lynchburg Expressway Ramp/ Seminole Avenue	SB	Signal	515	12	515-12	8	15	101	124	86.55	61.40	11.33	22.24	25.77	Signalized
	WB	Signal	16	12	16-12	201	648	0	849	19.00	22.15	-	21.41		
	EB	Signal	10	12	10-12	0	592	36	628	-	31.48	29.30	31.36		
	NB	Signal	410	12	410-12	35	0	213	248	43.90	-	25.74	28.30		
6 - Candlers Mountain Road at Murray Place/ River Ridge Mall	SB	Signal	650	32	650-32	33	5	6	44	70.42	52.20	35.40	63.57	39.86	Signalized
	NB	Signal	660	32	660-32	70	58	0	128	53.39	52.33	-	52.91		
	WB	Signal	40	32	40-32	197	1585	103	1885	65.95	34.73	26.26	37.53		
	EB	Signal	30	32	30-32	158	1149	0	1307	151.98	25.90	-	41.14		
7 - Candlers Mountain Road/US 501 at Mayflower Drive	SB	Signal	720	40	720-40	109	119	91	319	148.24	152.36	61.82	125.13	57.3	Signalized
	WB	Signal	43	40	43-40	192	1767	442	2401	36.32	30.81	12.26	27.83		
	EB	Signal	34	40	34-40	89	742	459	1290	76.38	38.94	190.25	95.36		

CORSIM Microsimulation Delay Reporting for Intersections

No Build 2040
PM Peak Hour

Name / ID	Approach	Approach Control Type	Link		Join	Turning Movement Volumes				Microsimulation Delay by Movement (sec)			Microsimulation Delay by Approach (sec)	Microsimulation Delay by Intersection (sec)	Intersection Type
Intersection			From	To		Left	Through	Right	Total	Left	Through	Right			
1 - Candlers Mountain Road/ Sheffield Drive at Wards Road	WB	Signal	8	6	8-6	223	188	734	1145	46.35	52.34	28.82	36.10	102.18	Signalized
	EB	Signal	4	6	4-6	56	163	68	287	240.30	226.60	198.35	222.58		
	NB	Signal	130	6	130-6	84	536	75	695	98.27	106.40	134.36	108.43		
	SB	Signal	120	6	120-6	399	555	24	978	198.24	100.23	82.13	139.77		
2 - Candlers Mountain Road at Short Street	WB	Free	10	8	10-8	5	1146	0	1151	6.12	2.22	-	2.24	43.27	Unsignalized Two-Way
	EB	Free	6	8	6-8	10	598	0	608	37.92	120.08	-	118.73		
	SB	Free	220	8	220-8	6	4	5	15	172.70	229.20	83.76	158.12		
	NB	Free	230	8	230-8	5	4	4	13	9.72	31.05	5.10	14.86		
3 - Candlers Mountain Road at Woodall Road	WB	Signal	12	10	12-10	20	1103	72	1195	14.22	4.53	5.32	4.74	49.28	Signalized
	EB	Signal	8	10	8-10	12	558	24	594	50.50	102.39	106.35	101.50		
	SB	Signal	320	10	320-10	33	0	34	67	378.05	-	238.08	307.02		
	NB	Signal	330	10	330-10	17	7	6	30	59.01	50.74	841.90	213.66		
4 - Candlers Mountain Road at SB Lynchburg Expressway Ramp/ Seminole Avenue	SB	Signal	515	12	515-12	32	34	183	249	44.85	49.50	18.66	26.24	31.48	Signalized
	WB	Signal	16	12	16-12	219	966	0	1185	23.22	23.71	-	23.62		
	EB	Signal	10	12	10-12	0	560	30	590	-	50.15	61.42	50.72		
	NB	Signal	410	12	410-12	46	0	149	195	56.03	-	18.94	27.69		
6 - Candlers Mountain Road at Murray Place/ River Ridge Mall	SB	Signal	650	32	650-32	108	38	21	167	56.43	60.16	33.26	54.36	50.53	Signalized
	NB	Signal	660	32	660-32	342	10	0	352	56.22	45.60	-	55.92		
	WB	Signal	40	32	40-32	232	1365	30	1627	132.61	54.09	31.98	64.88		
	EB	Signal	30	32	30-32	79	1116	0	1195	57.29	26.86	-	28.88		
7 - Candlers Mountain Road/US 501 at Mayflower Drive	SB	Signal	720	40	720-40	334	98	141	573	132.08	143.63	68.33	118.37	78.65	Signalized
	WB	Signal	43	40	43-40	75	1478	175	1728	102.43	85.87	37.28	81.67		
	EB	Signal	34	40	34-40	58	1106	481	1645	70.25	59.35	65.90	61.65		

CORSIM Maximum Queue Length Summary
No Build (2040) - AM Peak Hour

Name / ID Intersection	Approach	Link From	Link To	Maximum Queue - Simulated (vehicles per lane) Lane 1	Lane 2	Lane 3	Lane 4	Lane 5	Lane 6	Lane 7	Lane 8	Lane 9	Maximum Queue - Simulated LEFT	THRU	RIGHT
1 - Candlers Mountain Road/ Sheffield Drive at Wards Road	EB	2	4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		7.6	
		4	6	7.6	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	WB	8	6	14.7	10.0	0.0	0.0	0.0	0.0	5.6	0.0	0.0	5.6	10.0	14.7
	NB	140	130	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	10.5	
		130	6	10.5	10.2	0.0	0.0	0.0	0.0	3.7	0.0	0.0			
	SB	110	120	12.3	13.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.9	45.5	
		120	6	27.9	31.8	0.0	0.0	0.0	0.0	18.9	0.0	0.0			
2 - Candlers Mountain Road at Short Street	EB	6	8	22.9	23.2	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.7	23.2	
	WB	10	8	1.3	0.6	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.7	1.3	
	NB	240	230	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2		
		230	8	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	SB	210	220	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6		
		220	8	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
3 - Candlers Mountain Road at Woodall Road	EB	8	10	14.6	14.8	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	14.8	
	WB	12	10	3.9	3.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	1.6	3.9	
	NB	340	330	1.7	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2		10.7
		330	10	9.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	SB	310	320	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2		7.5
		320	10	7.3	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0			
4 - Candlers Mountain Road at SB Lynchburg Expressway Ramp/ Seminole Avenue	EB	10	12	7.0	7.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0		7.3	
	WB	20	16	17.0	2.3	0.9	0.0	0.0	0.0	0.0	0.0	0.0	6.3	16.4	
		16	12	14.1	12.0	0.0	0.0	0.0	0.0	6.3	0.0	0.0			
	NB	420	410	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3		16.3
		410	12	12.9	0.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0			
	SB	510	515	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2		5.0
		515	12	3.2	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0			
5 - Candlers Mountain Road at Murray Place	WB	32	26	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0		0.2	
	SB	610	26	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			4.7
6 - Candlers Mountain Road at Murray Place/ River Ridge Mall	EB	12	14	11.4	11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.0	95.1	1.2
		14	18	2.9	26.8	26.6	0.0	0.0	0.0	0.0	0.0	0.0			
		18	22	21.8	21.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		22	23	3.0	8.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0			
		23	25	6.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		25	28	1.2	9.2	8.9	0.0	0.0	0.0	0.0	0.0	0.0			
		28	30	0.0	5.3	5.3	5.0	0.0	0.0	0.0	0.0	0.0			
		30	32	6.7	6.7	7.0	0.0	0.0	0.0	0.0	0.0	0.0			
	WB	40	32	22.4	20.7	0.0	0.0	0.0	3.1	9.0	0.0	0.0	9.0	22.4	3.1
	NB	680	670	4.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		670	660	9.0	2.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	4.1	19.0	6.9
		660	32	6.0	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		660	34	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	SB	640	650	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3		1.3
		650	32	5.3	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0			
7 - Candlers Mountain Road/US 501 at Mayflower Drive	EB	32	34	4.5	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	36.2	2.0
		34	40	31.7	23.1	0.0	0.0	0.0	2.0	8.0	0.0	0.0			
	WB	56	44	10.1	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.4	46.1	6.5
		44	43	9.0	8.7	7.3	0.0	0.0	0.0	0.0	0.0	0.0			
		43	40	26.9	26.7	0.0	0.0	0.0	6.5	8.4	0.0	0.0			
	SB	705	710	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35.0		5.3
		710	720	13.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		720	40	20.4	0.0	0.0	0.0	0.0	0.0	5.3	0.0	0.0			
8 - Candlers Mountain Road at Westbound US 501 Ramp/Mountain View Road	EB	810	820	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			2.7
		820	830	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		830	78	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	NB	80	76	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.8	
		76	74	0.8	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0			
	SB	40	70	12.4	11.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.4		3.6
		70	72	16.0	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		72	74	12.0	12.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0			

CORSIM Maximum Queue Length Summary
No-Build (2040) - PM Peak Hour

Name / ID Intersection	Approach	Link From	Link To	Maximum Queue - Simulated (vehicles per lane) Lane 1	Lane 2	Lane 3	Lane 4	Lane 5	Lane 6	Lane 7	Lane 8	Lane 9	Maximum Queue - Simulated LEFT	THRU	RIGHT
1 - Candlers Mountain Road/ Sheffield Drive at Wards Road	EB	2	4	28.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		47.6	
		4	6	18.9	18.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	WB	8	6	21.6	14.7	0.0	0.0	0.0	0.0	10.7	0.0	0.0	10.7	14.7	21.6
	NB	140	130	1.4	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	27.2	
		130	6	25.3	25.7	0.0	0.0	0.0	0.0	4.5	0.0	0.0			
	SB	110	120	25.7	25.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.1	57.5	
		120	6	30.6	31.7	0.0	0.0	0.0	0.0	19.1	0.0	0.0			
2 - Candlers Mountain Road at Short Street	EB	6	8	23.7	24.8	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.2	24.8	
	WB	10	8	4.9	2.3	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.1	4.9	
	NB	240	230	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.6		
		230	8	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	SB	210	220	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.9		
		220	8	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
3 - Candlers Mountain Road at Woodall Road	EB	8	10	15.2	15.1	0.0	0.0	0.0	0.0	1.9	0.0	0.0	1.9	15.2	
	WB	12	10	4.6	5.2	1.9	0.0	0.0	0.0	0.0	0.0	0.0	1.9	5.2	
	NB	340	330	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6		3.2
		330	10	3.2	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	SB	310	320	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0		30.9
		320	10	15.9	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0			
4 - Candlers Mountain Road at SB Lynchburg Expressway Ramp/ Seminole Avenue	EB	10	12	7.1	7.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0		7.3	
	WB	26	24	0.1	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	6.6	18.3	
		24	20	1.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		20	16	10.8	1.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0			
		16	12	16.5	15.3	0.0	0.0	0.0	0.0	6.6	0.0	0.0			
	NB	420	410	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6		9.5
		410	12	9.0	0.0	0.0	0.0	0.0	0.0	4.6	0.0	0.0			
	SB	510	515	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2		7.5
		515	12	5.7	0.0	0.0	0.0	0.0	0.0	7.5	0.0	0.0			
5 - Candlers Mountain Road at Murray Place	WB	32	26	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.1	
	SB	610	26	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			7.7
6 - Candlers Mountain Road at Murray Place/ River Ridge Mall	EB	12	14	11.6	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.6	95.7	2.4
		14	18	8.066667	27.2	27.5	0.0	0.0	0.0	0.0	0.0	0.0			
		18	22	22.0	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		22	23	8.066667	8.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0			
		23	25	6.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		25	28	1.4	9.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0			
		28	30	1.1	5.2	5.3	1.1	0.0	0.0	0.0	0.0	0.0			
		30	32	6.8	6.9	5.5	0.0	0.0	0.0	0.0	0.0	0.0			
	WB	40	32	28.2	28.8	0.0	0.0	0.0	1.6	11.2	0.0	0.0	11.2	28.8	1.6
	NB	680	670	6.4	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.2	21.5	12.9
		670	660	9.1	6.1	6.8	0.0	0.0	0.0	0.0	0.0	0.0			
		660	32	6.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		660	34	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	SB	640	650	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.9		1.8
		650	32	10.1	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0			
7 - Candlers Mountain Road/US 501 at Mayflower Drive	EB	32	34	4.7	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	32.1	1.5
		34	40	27.3	27.3	0.0	0.0	0.0	1.5	4.8	0.0	0.0			
	WB	56	44	34.3	34.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.7	40.9	4.3
		44	43	11.1	11.8	12	0.0	0.0	0.0	0.0	0.0	0.0			
		43	40	29.7	29.0	0.0	0.0	0.0	4.3	6.7	0.0	0.0			
	SB	705	710	80.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	153.4		5.2
		710	720	48.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		720	40	24.1	0.0	0.0	0.0	0.0	0.0	5.2	0.0	0.0			
8 - Candlers Mountain Road at Westbound US 501 Ramp/Mountain View Road	EB	810	820	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			1.4
		820	830	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		830	78	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	NB	82	80	34.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	63.1	
		80	76	28.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		76	74	0.1	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0			
	SB	40	70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2		0.0
		70	72	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		72	74	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0			

APPENDIX D-4: SYNCHRO/SIMTRAFFIC ASSUMPTION SUMMARY

Candlers Mountain Road Corridor Study – Synchro/SimTraffic No Build Conditions Modeling Inputs, Assumptions and Calibration

The no build AM and PM peak hour Synchro/SimTraffic models were developed based on the calibrated existing (2015) Synchro/SimTraffic Models. The following inputs and assumptions were used in both the AM and PM peak hour no build Synchro/SimTraffic models. Only inputs and assumptions that differ from the existing (2015) models are listed here.

Geometric Inputs

- Woodall Road was extended in the No Build 2040 PM Peak model to prevent vehicles from queuing out of the network in SimTraffic; the alignment of Woodall Road at Candlers Mountain Road was not changed
- Sheffield Road and both the northbound and southbound approaches of Wards Road were extended to one mile in the No Build 2040 PM Peak model to prevent vehicles from queuing out of the network in Sim Traffic

Signal Timing Inputs

- Because periodic adjustments to signal timings are expected as volumes increase, splits were optimized for every signalized intersection except the dummy pretimed intersection on Candlers Mountain Road south of the westbound US 501 ramp/Mountain View Road intersection; cycle lengths were held fixed

Traffic Volume Inputs

- Heavy vehicle percentages were kept the same as the existing (2015) models
- Peak hour factors were kept the same as the existing (2015) models

Simulation Settings

- The setting for Entering Vehicles May Block Intersection was changed from “Yes” to “2 veh” in the eastbound through lane at Candlers Mountain Road at Short Street to prevent westbound, left-turning vehicles from stacking beyond the left-turn lane, blocking westbound through vehicles prepositioning into the inside westbound lane from the outside westbound lane
- The setting for Entering Vehicles May Block Intersection was changed from “Yes” to “1 veh” in the southbound left-turn lane at Candlers Mountain Road at Woodall Road to make sure at least one vehicle is able to make that movement in each cycle

Synchro Analysis Method

The HCM 2000 methodology was used for Synchro analyses due to the limitations of the HCM 2010 methodology to analyze clustered intersections and non-standard traffic signal phasing. This is the same method used in the existing (2015) models.

SimTraffic Analysis Inputs

- No changes to SimTraffic analysis inputs from existing (2015) models

APPENDIX D-5: VDOT SAMPLE SIZE DETERMINATION TOOL – SIMTRAFFIC

Sample Size Determination Tool, No Build 2025 AM Peak

User Inputs
Constants
Outputs

Sample Size (N) = Number of Model Runs
Sample Mean (X_s) = (1/N) ($X_1 + X_2 + X_3 \ldots + X_N$)
Sample Standard Deviation (S_s) = $\sqrt{[(\Sigma(X-X_s)^2)/(N-1)]}$
Sampling Error = $Z\ (S_s/\sqrt{N})$
Confidence Level = $X_s \pm Z\ (S_s/\sqrt{N})$
% of Sample Mean (E) = % Tolerance * X_s
Sample Size Needed = $[(Z)^2 * (S_s)^2] / (E)^2$

Model Iterations

Measure of Effectiveness (MOE):	Speed
Confidence Interval:	95%
Tolerance Error:	10%
Number of Model Runs:	10

Run Number	*Speed*
1	12
2	12
3	11
4	12
5	11
6	13
7	13
8	12
9	11
10	13
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Sample Size Outputs

N	=	10.0
X_s	=	12.0
S_s	=	0.8
E	=	1.2
Z	=	1.96

Sampling Error	=	0.51		
95% Confidence Interval	=	11.5	to	12.5
Percentage of Mean	=	4.22%		Good
Sample Size Needed	=	10		

Z is the number of standard deviations away from the mean corresponding to the required confidence level in a normal distribution.

Sample Size Determination Tool, No Build 2025 PM Peak

User Inputs
Constants
Outputs

Sample Size (N) = Number of Model Runs
Sample Mean (X_s) = (1/N) ($X_1 + X_2 + X_3 \ldots + X_N$)
Sample Standard Deviation (S_s) = $\sqrt{[(\Sigma(X-X_s)^2)/(N-1)]}$
Sampling Error = $Z\ (S_s/\sqrt{N})$
Confidence Level = $X_s \pm Z\ (S_s/\sqrt{N})$
% of Sample Mean (E) = % Tolerance * X_s
Sample Size Needed = $[(Z)^2 * (S_s)^2] / (E)^2$

Model Iterations

Measure of Effectiveness (MOE):	Speed
Confidence Interval:	95%
Tolerance Error:	10%
Number of Model Runs:	10

Run Number	*Speed*
1	10
2	10
3	10
4	10
5	11
6	11
7	10
8	10
9	10
10	10
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Sample Size Outputs

N	=	10.0
X_s	=	10.2
S_s	=	0.4
E	=	1.0
Z	=	1.96

Sampling Error	=	0.26		
95% Confidence Interval	=	9.9	to	10.5
Percentage of Mean	=	2.56%		Good
Sample Size Needed	=	10		

Z is the number of standard deviations away from the mean corresponding to the required confidence level in a normal distribution.

Sample Size Determination Tool, No Build 2040 AM Peak

User Inputs
Constants
Outputs

Sample Size (N) = Number of Model Runs
Sample Mean (X_s) = (1/N) (X_1 + X_2 + X_3 ... + X_N)
Sample Standard Deviation (S_s) = √[(Σ(X-X_s)^2)/(N-1)]
Sampling Error = Z (S_s/√N)
Confidence Level = X_s ± Z (S_s/√N)
% of Sample Mean (E) = % Tolerance * X_s
Sample Size Needed = [(Z)^2 * (S_s)^2] / (E)^2

Model Iterations

Measure of Effectiveness (MOE):	Speed
Confidence Interval:	95%
Tolerance Error:	10%
Number of Model Runs:	10

Run Number	*Speed*
1	11
2	11
3	12
4	12
5	11
6	12
7	10
8	9
9	11
10	11
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Sample Size Outputs

N	=	10.0
X_s	=	11.0
S_s	=	0.9
E	=	1.1
Z	=	1.96

Sampling Error	=	0.58		
95% Confidence Interval	=	10.4	to	11.6
Percentage of Mean	=	5.31%		Good
Sample Size Needed	=	10		

Z is the number of standard deviations away from the mean corresponding to the required confidence level in a normal distribution.

Sample Size Determination Tool, No Build 2040 PM Peak

User Inputs
Constants
Outputs

Sample Size (N) = Number of Model Runs
Sample Mean (X_s) = (1/N) (X_1 + X_2 + X_3 ... + X_N)
Sample Standard Deviation (S_s) = √[(Σ(X-X_s)^2)/(N-1)]
Sampling Error = Z (S_s/√N)
Confidence Level = X_s ± Z (S_s/√N)
% of Sample Mean (E) = % Tolerance * X_s
Sample Size Needed = [(Z)^2 * (S_s)^2] / (E)^2

Model Iterations

Measure of Effectiveness (MOE):	Speed
Confidence Interval:	95%
Tolerance Error:	10%
Number of Model Runs:	10

Run Number	*Speed*
1	10
2	10
3	8
4	9
5	10
6	9
7	10
8	9
9	9
10	9
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Sample Size Outputs

N	=	10.0
X_s	=	9.3
S_s	=	0.7
E	=	0.9
Z	=	1.96

Sampling Error	=	0.42		
95% Confidence Interval	=	8.9	to	9.7
Percentage of Mean	=	4.50%		Good
Sample Size Needed	=	10		

Z is the number of standard deviations away from the mean corresponding to the required confidence level in a normal distribution.

APPENDIX D-6: SYNCHRO INTERSECTION LEVEL OF SERVICE SUMMARY

SYNCHRO CAPACITY ANALYSIS - INTERSECTION LEVEL OF SERVICE SUMMARY
2025 No-Build Peak Hour Volumes
Candlers Mountain Road Corridor Study - Lynchburg, Virginia

Intersection Number and Description		Type of Control	Lane Group	Eastbound				Westbound				Northbound				Southbound				Overall	
				AM		PM		AM		PM		AM		PM		AM		PM			
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	AM	PM
1	Candlers Mountain Road / Sheffield Drive at Wards Road			Sheffield Drive				Candlers Mountain Road				Wards Road				Wards Road				Intersection	
		Signal	Left	48.6	D	84.0	F	43.6	D	48.8	D	37.9	D	48.4	D	32.3	C	62.1	E	Delay	Delay
			Through					46.1	D	44.2	D	45.0	D	66.8	E					38.6	64.4
			Right					43.0	D	69.7	E									LOS	LOS
			Approach	48.6	D	84.0	F	43.8	D	60.8	E	44.4	D	64.4	E	32.3	C	62.1	E	D	E
2	Candlers Mountain Road at Short Street			Candlers Mountain Road				Candlers Mountain Road				Commercial Driveway				Short Street				Intersection	
		Two-Way Stop	Left	8.3	A	10.5	B	10.0	B	9.7	A	15.7	C	19.0	C	14.8	B	19.7	C	Delay	Delay
			Through	†	†	†	†	†	†	†	†									--	--
			Right	†	†	†	†	†	†	†	†									LOS	LOS
			Approach	--	--	--	--	--	--	--	--	15.7	C	19.0	C	14.8	B	19.7	C	--	--
3	Candlers Mountain Road at Woodall Road			Candlers Mountain Road				Candlers Mountain Road				Commercial Driveway				Woodall Road				Intersection	
		Signal	Left	16.5	B	18.6	B	4.1	A	5.1	A	46.5	D	50.5	D	48.9	D	58.1	E	Delay	Delay
			Through	24.1	C	25.3	C	1.8	A	3.1	A					--	--	--	--	15.2	17.1
			Right									46.1	D	48.8	D	46.0	D	49.3	D	LOS	LOS
			Approach	23.7	C	25.2	C	1.9	A	3.1	A	46.2	D	50.1	D	47.7	D	53.7	D	B	B
4	Candlers Mountain Road at Southbound Lynchburg Expressway Ramp / Seminole Avenue			Candlers Mountain Road				Candlers Mountain Road				Seminole Avenue				SB Lynchburg Expy Exit Ramp				Intersection	
		Signal	Left	--	--	--	--	16.6	B	17.9	B	41.4	D	50.0	D	48.5	D	52.6	D	Delay	Delay
			Through	6.0	A	11.0	B	16.8	B	20.5	C	--	--	--	--					19.0	22.9
			Right					--	--	--	--	41.0	D	48.0	D	46.4	D	49.8	D	LOS	LOS
			Approach	6.0	A	11.0	B	16.8	B	20.1	C	41.1	D	48.7	D	47.0	D	50.7	D	B	C
5	Candlers Mountain Road at Murray Place			Candlers Mountain Road				Candlers Mountain Road								Murray Place				Intersection	
		One-Way Stop	Left	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Delay	Delay
			Through	†	†	†	†	†	†	†	†	--	--	--	--	--	--	--	--	--	--
			Right	--	--	--	--	--	--	--	--	--	--	--	--	10.2	B	11.4	B	LOS	LOS
			Approach	--	--	--	--	--	--	--	--	--	--	--	--	10.2	B	11.4	B	--	--
6	Candlers Mountain Road at Murray Place / River Ridge Mall			Candlers Mountain Road				Candlers Mountain Road				River Ridge Mall				Murray Place				Intersection	
		Signal	Left	37.5	D	83.3	F	89.9	F	137.8*	F*	59.8	E	50.9	D	63.5	E	105.7	F	Delay	Delay
			Through	40.8	D	86.0*	F*	13.9	B	41.0	D	59.5	E	50.7	D					34.4	77.9*
			Right	0.0	A	0.1	A	1.8	A	96.1	F	77.9	E	153.3*	F*	58.4	E	55.1	E	LOS	LOS
			Approach	40.3	D	79.8	E	20.8	C	58.2	E	73.9	E	114.4	F	62.7	E	96.7	F	C	E*
7	Candlers Mountain Road / US 501 at Mayflower Drive			Candlers Mountain Road/US 501				Candlers Mountain Road/US 501				Candlers Mountain Road				Mayflower Drive				Intersection	
		Signal	Left	32.9	C	48.1	D	114.5*	F*	69.1	E	--	--	--	--	121.8*	F*	149.5*	F*	Delay	Delay
			Through	50.6*	D*	110.3*	F*	23.3	C	50.6	D	--	--	--	--					42.7*	80.6*
			Right					14.9	B	20.6	C	0.1	A	0.2	A	50.0	D	40.7	D	LOS	LOS
			Approach	49.4	D	108.2	F	31.4	C	47.9	D	0.1	A	0.2	A	100.4	F	117.6	F	D*	F*
8	Candlers Mountain Road at Westbound US 501 Ramp / Mountain View Road			Mountain View Road								Candlers Mountain Road				Candlers Mountain Road				Intersection	
		One-Way Stop	Left	--	--	--	--	--	--	--	--	1.1	A	0.2	A	1.8	A	0.8	A	Delay	Delay
			Through	--	--	--	--	--	--	--	--									--	--
			Right	10.8	B	10.5	B	--	--	--	--					†	†	†	†	LOS	LOS
			Approach	10.8	B	10.5	B	--	--	--	--	1.1	A	0.2	A	--	--	--	--	--	--

HCM 2000 Results
NOTE: Shared lane results are shown as one value that corresponds to all movements in the lane.
† Level of service and delay for movements with no conflicting movements have not been included.
*Volume-to-capacity ratio for this lane group/intersection is greater than 1.

SYNCHRO CAPACITY ANALYSIS - INTERSECTION LEVEL OF SERVICE SUMMARY
2040 No-Build Peak Hour Volumes
Candlers Mountain Road Corridor Study - Lynchburg, Virginia

Intersection Number and Description		Type of Control	Lane Group	Eastbound				Westbound				Northbound				Southbound				Overall	
				AM		PM		AM		PM		AM		PM		AM		PM			
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	AM	PM
1	Candlers Mountain Road / Sheffield Drive at Wards Road			Sheffield Drive				Candlers Mountain Road				Wards Road				Wards Road				Intersection	
		Signal	Left	58.5	E	138.0*	F*	49.3	D	50.1	D	42.7	D	54.0	D	37.7	D	98.0*	F*	Delay	Delay
			Through					53.3	D	45.0	D	53.1	D	103.2*	F*					44.9	99.6*
			Right					48.5	D	119.0*	F*									LOS	LOS
			Approach	58.5	E	138.0	F	49.7	D	91.2	F	52.2	D	96.8	F	37.7	D	98.0	F	D	F*
2	Candlers Mountain Road at Short Street			Candlers Mountain Road				Candlers Mountain Road				Commercial Driveway				Short Street				Intersection	
		Two-Way Stop	Left	8.5	A	11.3	B	10.6	B	10.0	B	17.4	C	20.7	C	13.4	B	19.4	C	Delay	Delay
			Through	†	†	†	†	†	†	†	†									--	--
			Right	†	†	†	†	†	†	†	†									LOS	LOS
			Approach	--	--	--	--	--	--	--	--	17.4	C	20.7	C	16.0	C	23.1	C	--	--
3	Candlers Mountain Road at Woodall Road			Candlers Mountain Road				Candlers Mountain Road				Commercial Driveway				Woodall Road				Intersection	
		Signal	Left	18.0	B	19.3	B	4.8	A	5.8	A	52.4	D	52.2	D	56.2	E	62.5	E	Delay	Delay
			Through	27.1	C	26.7	C	1.7	A	3.3	A					--	--	--	--	16.9	18.0
			Right									51.9	D	50.3	D	51.8	D	50.9	D	LOS	LOS
			Approach	26.6	C	26.5	C	1.9	A	3.4	A	52.0	D	51.6	D	54.3	D	56.7	E	B	B
4	Candlers Mountain Road at Southbound Lynchburg Expressway Ramp / Seminole Avenue			Candlers Mountain Road				Candlers Mountain Road				Seminole Avenue				SB Lynchburg Expy Exit Ramp				Intersection	
		Signal	Left	--	--	--	--	23.7	C	22.8	C	45.6	D	56.1	E	55.4	E	54.7	D	Delay	Delay
			Through	6.7	A	11.7	B	17.1	B	20.4	C	--	--	--	--					21.2	24.3
			Right					--	--	--	--	45.1	D	52.9	D	52.3	D	53.9	D	LOS	LOS
			Approach	6.7	A	11.7	B	18.8	B	20.8	C	45.2	D	53.9	D	53.1	D	54.2	D	C	C
5	Candlers Mountain Road at Murray Place			Candlers Mountain Road				Candlers Mountain Road								Murray Place				Intersection	
		One-Way Stop	Left	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Delay	Delay
			Through	†	†	†	†	†	†	†	†	--	--	--	--	--	--	--	--	--	--
			Right	--	--	--	--	--	--	--	--	--	--	--	--	13.1	B	13.5	B	LOS	LOS
			Approach	--	--	--	--	--	--	--	--	--	--	--	--	11.2	B	12.5	B	--	--
6	Candlers Mountain Road at Murray Place / River Ridge Mall			Candlers Mountain Road				Candlers Mountain Road				River Ridge Mall				Murray Place				Intersection	
		Signal	Left	51.8	D	142.3*	F*	100.2	F	195.5*	F*	58.1	E	51.9	D	63.6	E	142.8*	F*	Delay	Delay
			Through	85.2*	F*	141.4*	F*	32.5*	C*	89.5*	F*	57.7	E	51.9	D					61.8	126.2*
			Right	0.0	A	0.1	A	6.3	A	43.6	D	104.1	F	237.1*	F*	58.0	E	55.1	E	LOS	LOS
			Approach	82.4	F	131.6	F	37.6	D	104.0	F	94.0	F	166.4	F	62.9	E	127.8	F	E	F*
7	Candlers Mountain Road / US 501 at Mayflower Drive			Candlers Mountain Road/US 501				Candlers Mountain Road/US 501				Candlers Mountain Road				Mayflower Drive				Intersection	
		Signal	Left	65.2	E	49.3	D	164.2*	F*	98.9	F	--	--	--	--	153.2*	F*	216.4*	F*	Delay	Delay
			Through	121.2*	F*	186.0*	F*	30.2	C	92.1*	F*	--	--	--	--					77.2*	131.3*
			Right					16.2	B	21.3	C	0.2	A	0.2	A	49.4	D	42.3	D	LOS	LOS
			Approach	117.7	F	181.4	F	41.7	D	83.5	F	0.2	A	0.2	A	122.2	F	165.3	F	E*	F*
8	Candlers Mountain Road at Westbound US 501 Ramp / Mountain View Road			Mountain View Road								Candlers Mountain Road				Candlers Mountain Road				Intersection	
		One-Way Stop	Left	--	--	--	--	--	--	--	--	3.5	A	0.6	A	20.0	A	0.9	A	Delay	Delay
			Through	--	--	--	--	--	--	--	--									--	--
			Right	11.3	B	10.9	B	--	--	--	--					†	†	†	†	LOS	LOS
			Approach	11.3	B	10.9	B	--	--	--	--	3.5	A	0.6	A	--	--	--	--	--	--

HCM 2000 Results
NOTE: Shared lane results are shown as one value that corresponds to all movements in the lane.
† Level of service and delay for movements with no conflicting movements have not been included.
*Volume-to-capacity ratio for this lane group/intersection is greater than 1.

APPENDIX D-7: SYNCHRO OUTPUT SHEETS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	108	41	59	118	370	33	295	28	537	369	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor		0.95		1.00	1.00	1.00	1.00	0.95		0.91	0.91	
Frt		0.96		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.99		0.95	1.00	1.00	0.95	1.00		0.95	0.98	
Satd. Flow (prot)		3404		1736	1863	1538	1752	3332		1610	3291	
Flt Permitted		0.99		0.95	1.00	1.00	0.95	1.00		0.95	0.98	
Satd. Flow (perm)		3404		1736	1863	1538	1752	3332		1610	3291	
Peak-hour factor, PHF	0.54	0.72	0.71	0.68	0.81	0.89	0.83	0.80	0.52	0.69	0.72	0.44
Adj. Flow (vph)	26	150	58	87	146	416	40	369	54	778	512	34
RTOR Reduction (vph)	0	20	0	0	0	355	0	7	0	0	2	0
Lane Group Flow (vph)	0	214	0	87	146	61	40	416	0	436	886	0
Heavy Vehicles (%)	8%	1%	0%	4%	2%	5%	3%	6%	8%	2%	3%	0%
Turn Type	Split	NA		Split	NA	Perm	Split	NA		Split	NA	
Protected Phases	3	3		4	4		2	2		1	1	
Permitted Phases						4						
Actuated Green, G (s)		12.5		16.2	16.2	16.2	20.7	20.7		41.9	41.9	
Effective Green, g (s)		12.5		16.2	16.2	16.2	20.7	20.7		41.9	41.9	
Actuated g/C Ratio		0.11		0.15	0.15	0.15	0.19	0.19		0.38	0.38	
Clearance Time (s)		5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	382		252	271	223	325	619		606	1238		
v/s Ratio Prot	c0.06		0.05	c0.08		0.02	c0.12		c0.27	0.27		
v/s Ratio Perm					0.04							
v/c Ratio	0.56		0.35	0.54	0.27	0.12	0.67		0.72	0.72		
Uniform Delay, d1	46.8		42.8	44.1	42.3	37.7	42.1		29.7	29.6		
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	1.8		0.8	2.1	0.7	0.2	2.9		4.1	2.0		
Delay (s)	48.6		43.6	46.1	43.0	37.9	45.0		33.8	31.6		
Level of Service	D		D	D	D	D	D		C	C		
Approach Delay (s)	48.6			43.8			44.4			32.3		
Approach LOS	D			D			D			C		

Intersection Summary			
HCM 2000 Control Delay	38.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	111.3	Sum of lost time (s)	20.0
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	178	74	220	178	718	74	494	84	483	576	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor		0.95		1.00	1.00	1.00	1.00	0.95		0.91	0.91	
Frt		0.96		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.99		0.95	1.00	1.00	0.95	1.00		0.95	0.99	
Satd. Flow (prot)		3413		1787	1863	1599	1805	3475		1610	3388	
Flt Permitted		0.99		0.95	1.00	1.00	0.95	1.00		0.95	0.99	
Satd. Flow (perm)		3413		1787	1863	1599	1805	3475		1610	3388	
Peak-hour factor, PHF	0.75	0.84	0.70	0.73	0.80	0.88	0.80	0.96	0.83	0.91	0.93	0.80
Adj. Flow (vph)	79	212	106	301	222	816	92	515	101	531	619	44
RTOR Reduction (vph)	0	24	0	0	0	438	0	10	0	0	2	0
Lane Group Flow (vph)	0	373	0	301	222	378	92	606	0	388	804	0
Heavy Vehicles (%)	0%	1%	0%	1%	2%	1%	0%	1%	3%	2%	0%	0%
Turn Type	Split	NA		Split	NA	Perm	Split	NA		Split	NA	
Protected Phases	3	3		4	4		2	2		1	1	
Permitted Phases						4						
Actuated Green, G (s)		17.3		38.0	38.0	38.0	28.5	28.5		38.7	38.7	
Effective Green, g (s)		17.3		38.0	38.0	38.0	28.5	28.5		38.7	38.7	
Actuated g/C Ratio		0.12		0.27	0.27	0.27	0.20	0.20		0.27	0.27	
Clearance Time (s)		5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	414		476	496	426	361	695		437	920		
v/s Ratio Prot	c0.11		0.17	0.12		0.05	c0.17		c0.24	0.24		
v/s Ratio Perm					c0.24							
v/c Ratio	0.90		0.63	0.45	0.89	0.25	0.87		0.89	0.87		
Uniform Delay, d1	61.8		46.1	43.5	50.2	48.0	55.2		49.8	49.6		
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	22.3		2.7	0.6	19.5	0.4	11.6		19.1	9.2		
Delay (s)	84.0		48.8	44.2	69.7	48.4	66.8		68.9	58.8		
Level of Service	F		D	D	E	D	E		E	E		
Approach Delay (s)	84.0			60.8			64.4			62.1		
Approach LOS	F			E			E			E		

Intersection Summary			
HCM 2000 Control Delay	64.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	142.5	Sum of lost time (s)	20.0
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	6	661	6	6	535	6	6	6	6	6	6	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.50	0.71	0.25	0.50	0.93	0.92	0.92	0.92	0.50	0.25	0.92	0.92
Hourly flow rate (vph)	12	931	24	12	575	7	7	7	12	24	7	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		558			311							
pX, platoon unblocked	0.93						0.93	0.93		0.93	0.93	0.93
vC, conflicting volume	582			955			1288	1573	477	1107	1582	291
vC1, stage 1 conf vol							967	967		603	603	
vC2, stage 2 conf vol							321	606		505	979	
vCu, unblocked vol	387			955			1151	1458	477	955	1467	73
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			98			98	98	98	94	98	99
cM capacity (veh/h)	1094			728			263	292	539	393	283	908

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	12	621	334	12	384	198	25	37
Volume Left	12	0	0	12	0	0	7	24
Volume Right	0	0	24	0	0	7	12	7
cSH	1094	1700	1700	728	1700	1700	361	406
Volume to Capacity	0.01	0.37	0.20	0.02	0.23	0.12	0.07	0.09
Queue Length 95th (ft)	1	0	0	1	0	0	6	7
Control Delay (s)	8.3	0.0	0.0	10.0	0.0	0.0	15.7	14.8
Lane LOS	A			B			C	B
Approach Delay (s)	0.1			0.2			15.7	14.8
Approach LOS							C	B

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	28.5%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	729	6	7	1104	7	6	6	6	10	6	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.56	0.89	0.25	0.25	0.92	0.63	0.25	0.92	0.92	0.45	0.92	0.50
Hourly flow rate (vph)	18	819	24	28	1200	11	24	7	7	22	7	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		558			311							
pX, platoon unblocked	0.81						0.81	0.81		0.81	0.81	0.81
vC, conflicting volume	1211			843			1538	2134	422	1717	2140	606
vC1, stage 1 conf vol							867	867		1262	1262	
vC2, stage 2 conf vol							671	1267		455	879	
vCu, unblocked vol	798			843			1201	1934	422	1420	1942	53
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			97			92	97	99	90	97	99
cM capacity (veh/h)	677			802			283	218	586	227	219	821

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	18	546	297	28	800	411	37	41
Volume Left	18	0	0	28	0	0	24	22
Volume Right	0	0	24	0	0	11	7	12
cSH	677	1700	1700	802	1700	1700	294	286
Volume to Capacity	0.03	0.32	0.17	0.03	0.47	0.24	0.13	0.14
Queue Length 95th (ft)	2	0	0	3	0	0	11	12
Control Delay (s)	10.5	0.0	0.0	9.7	0.0	0.0	19.0	19.7
Lane LOS	B			A			C	C
Approach Delay (s)	0.2			0.2			19.0	19.7
Approach LOS							C	C

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	40.7%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	637	6	20	524	136	6	6	22	31	0	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	6.9		6.9	6.9			6.0	6.0	6.0		6.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00		1.00
Frt	1.00	1.00		1.00	0.96			1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95		1.00
Satd. Flow (prot)	1805	3525		1805	3351			1854	1615	1530		1615
Flt Permitted	0.34	1.00		0.22	1.00			0.98	1.00	0.95		1.00
Satd. Flow (perm)	641	3525		418	3351			1854	1615	1530		1615
Peak-hour factor, PHF	0.69	0.82	0.25	0.41	0.85	0.62	0.92	0.92	0.36	0.78	0.92	0.58
Adj. Flow (vph)	43	777	24	49	616	219	7	7	61	40	0	29
RTOR Reduction (vph)	0	1	0	0	30	0	0	0	56	0	0	27
Lane Group Flow (vph)	43	800	0	49	805	0	0	14	5	40	0	2
Heavy Vehicles (%)	0%	2%	0%	0%	4%	2%	0%	0%	0%	18%	0%	0%
Turn Type	pm+pt	NA		custom	NA		Split	NA	Perm	Prot		Perm
Protected Phases	5	2		1	6 4		3	3!		3!		
Permitted Phases	2			6					3			3
Actuated Green, G (s)	48.7	44.7		64.9	69.3			8.0	8.0	8.0		8.0
Effective Green, g (s)	48.7	44.7		64.9	69.3			8.0	8.0	8.0		8.0
Actuated g/C Ratio	0.45	0.42		0.61	0.65			0.07	0.07	0.07		0.07
Clearance Time (s)	6.9	6.9		6.9				6.0	6.0	6.0		6.0
Vehicle Extension (s)	3.0	4.5		3.0				3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	334	1471		425	2168			138	120	114		120
v/s Ratio Prot	0.00	c0.23		c0.01	c0.24			0.01		c0.03		
v/s Ratio Perm	0.05			0.06					0.00			0.00
v/c Ratio	0.13	0.54		0.12	0.37			0.10	0.04	0.35		0.02
Uniform Delay, d1	16.3	23.5		10.4	8.8			46.2	46.0	47.1		45.9
Progression Factor	1.00	1.00		0.39	0.18			1.00	1.00	1.00		1.00
Incremental Delay, d2	0.2	0.6		0.1	0.2			0.3	0.1	1.9		0.1
Delay (s)	16.5	24.1		4.1	1.8			46.5	46.1	48.9		46.0
Level of Service	B	C		A	A			D	D	D		D
Approach Delay (s)		23.7			1.9			46.2			47.7	
Approach LOS		C			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	107.1	Sum of lost time (s)	25.8
Intersection Capacity Utilization	42.9%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	696	35	11	1027	69	12	6	7	83	0	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	6.9		6.9	6.9			6.0	6.0	6.0		6.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00		1.00
Frt	1.00	0.99		1.00	0.99			1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95		1.00
Satd. Flow (prot)	1543	3549		1805	3481			1854	1615	1671		1599
Flt Permitted	0.19	1.00		0.23	1.00			0.98	1.00	0.95		1.00
Satd. Flow (perm)	308	3549		429	3481			1854	1615	1671		1599
Peak-hour factor, PHF	0.60	0.90	0.86	0.42	0.89	0.73	0.50	0.25	0.38	0.69	0.92	0.65
Adj. Flow (vph)	23	773	41	26	1154	95	24	24	18	120	0	122
RTOR Reduction (vph)	0	3	0	0	4	0	0	0	16	0	0	108
Lane Group Flow (vph)	23	811	0	26	1245	0	0	48	2	120	0	14
Heavy Vehicles (%)	17%	1%	0%	0%	1%	21%	0%	0%	0%	8%	0%	1%
Turn Type	pm+pt	NA		custom	NA		Split	NA	Perm	Prot		Perm
Protected Phases	5	2		1	6 4		3	3!		3!		
Permitted Phases	2			6					3			3
Actuated Green, G (s)	58.6	55.8		75.1	81.8			14.7	14.7	14.7		14.7
Effective Green, g (s)	58.6	55.8		75.1	81.8			14.7	14.7	14.7		14.7
Actuated g/C Ratio	0.47	0.45		0.60	0.65			0.12	0.12	0.12		0.12
Clearance Time (s)	6.9	6.9		6.9				6.0	6.0	6.0		6.0
Vehicle Extension (s)	3.0	4.5		3.0				3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	171	1583		393	2276			217	189	196		187
v/s Ratio Prot	0.00	0.23		c0.01	c0.36			0.03		c0.07		
v/s Ratio Perm	0.06			0.03					0.00			0.01
v/c Ratio	0.13	0.51		0.07	0.55			0.22	0.01	0.61		0.08
Uniform Delay, d1	18.2	24.9		12.1	11.7			50.0	48.8	52.5		49.2
Progression Factor	1.00	1.00		0.42	0.23			1.00	1.00	1.00		1.00
Incremental Delay, d2	0.4	0.5		0.1	0.4			0.5	0.0	5.6		0.2
Delay (s)	18.6	25.3		5.1	3.1			50.5	48.8	58.1		49.3
Level of Service	B	C		A	A			D	D	E		D
Approach Delay (s)		25.2			3.1			50.1			53.7	
Approach LOS		C			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	125.1	Sum of lost time (s)	25.8
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	637	53	152	533	0	35	0	186	6	13	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			4%			0%	
Total Lost time (s)		6.9		6.9	6.9		6.0		6.0		6.0	6.0
Lane Util. Factor		0.95		1.00	0.95		1.00		1.00		1.00	1.00
Frt		0.99		1.00	1.00		1.00		0.85		1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95		1.00		0.98	1.00
Satd. Flow (prot)		3477		1787	3505		1717		1567		1774	1524
Flt Permitted		1.00		0.20	1.00		0.95		1.00		0.98	1.00
Satd. Flow (perm)		3477		374	3505		1717		1567		1774	1524
Peak-hour factor, PHF	0.92	0.80	0.94	0.59	0.74	0.92	0.55	0.92	0.57	0.42	0.43	0.92
Adj. Flow (vph)	0	796	56	258	720	0	64	0	326	14	30	122
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	279	0	0	113
Lane Group Flow (vph)	0	849	0	258	720	0	64	0	47	0	44	9
Heavy Vehicles (%)	0%	3%	0%	1%	3%	0%	3%	0%	1%	0%	8%	6%
Turn Type		NA		pm+pt	NA		Prot		Perm	Perm	NA	Perm
Protected Phases		2		1	6		4				3	
Permitted Phases				6					4	3		3
Actuated Green, G (s)		44.7		64.9	54.0		15.3		15.3		8.0	8.0
Effective Green, g (s)		44.7		64.9	54.0		15.3		15.3		8.0	8.0
Actuated g/C Ratio		0.42		0.61	0.50		0.14		0.14		0.07	0.07
Clearance Time (s)		6.9		6.9	6.9		6.0		6.0		6.0	6.0
Vehicle Extension (s)		4.5		3.0	4.5		3.0		3.0		3.0	3.0
Lane Grp Cap (vph)		1451		402	1767		245		223		132	113
v/s Ratio Prot		0.24		c0.08	0.21		c0.04					
v/s Ratio Perm				c0.31					0.03		0.02	0.01
v/c Ratio		0.58		0.64	0.41		0.26		0.21		0.33	0.08
Uniform Delay, d1		24.0		13.1	16.6		40.9		40.6		47.0	46.1
Progression Factor		0.22		1.00	1.00		1.00		1.00		1.00	1.00
Incremental Delay, d2		0.7		3.5	0.3		0.6		0.5		1.5	0.3
Delay (s)		6.0		16.6	16.8		41.4		41.0		48.5	46.4
Level of Service		A		B	B		D		D		D	D
Approach Delay (s)		6.0			16.8			41.1			47.0	
Approach LOS		A			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	107.1	Sum of lost time (s)	25.8
Intersection Capacity Utilization	51.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	733	53	172	878	0	44	0	128	24	39	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			4%			0%	
Total Lost time (s)		6.9		6.9	6.9		6.0		6.0		6.0	6.0
Lane Util. Factor		0.95		1.00	0.95		1.00		1.00		1.00	1.00
Frt		0.99		1.00	1.00		1.00		0.85		1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95		1.00		0.98	1.00
Satd. Flow (prot)		3494		1805	3539		1769		1583		1856	1583
Flt Permitted		1.00		0.19	1.00		0.95		1.00		0.98	1.00
Satd. Flow (perm)		3494		357	3539		1769		1583		1856	1583
Peak-hour factor, PHF	0.92	0.88	0.69	0.81	0.86	0.92	0.61	0.92	0.84	0.55	0.80	0.88
Adj. Flow (vph)	0	833	77	212	1021	0	72	0	152	44	49	210
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	132	0	0	185
Lane Group Flow (vph)	0	906	0	212	1021	0	72	0	20	0	93	25
Heavy Vehicles (%)	0%	2%	2%	0%	2%	0%	0%	0%	0%	0%	0%	2%
Turn Type		NA		pm+pt	NA		Prot		Perm	Perm	NA	Perm
Protected Phases		2		1	6		4				3	
Permitted Phases				6					4	3		3
Actuated Green, G (s)		55.8		75.1	65.4		16.4		16.4		14.7	14.7
Effective Green, g (s)		55.8		75.1	65.4		16.4		16.4		14.7	14.7
Actuated g/C Ratio		0.45		0.60	0.52		0.13		0.13		0.12	0.12
Clearance Time (s)		6.9		6.9	6.9		6.0		6.0		6.0	6.0
Vehicle Extension (s)		4.5		3.0	4.5		3.0		3.0		3.0	3.0
Lane Grp Cap (vph)		1558		357	1850		231		207		218	186
v/s Ratio Prot		0.26		c0.06	c0.29		c0.04					
v/s Ratio Perm				c0.30					0.01		0.05	0.02
v/c Ratio		0.58		0.59	0.55		0.31		0.10		0.43	0.13
Uniform Delay, d1		25.9		15.2	20.0		49.2		47.8		51.3	49.5
Progression Factor		0.40		1.00	1.00		1.00		1.00		1.00	1.00
Incremental Delay, d2		0.7		2.6	0.5		0.8		0.2		1.3	0.3
Delay (s)		11.0		17.9	20.5		50.0		48.0		52.6	49.8
Level of Service		B		B	C		D		D		D	D
Approach Delay (s)		11.0			20.1			48.7			50.7	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	125.1	Sum of lost time (s)	25.8
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↱			↱
Volume (veh/h)	0	1796	1434	6	0	65
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.85	0.88	0.50	0.92	0.82
Hourly flow rate (vph)	0	2113	1630	12	0	79
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			358			
pX, platoon unblocked	0.64				0.64	0.64
vC, conflicting volume	1642				2340	549
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4				1102	0
tC, single (s)	4.1				6.8	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	88
cM capacity (veh/h)	1037				133	687

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	704	704	704	652	652	338	79
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	12	79
cSH	1700	1700	1700	1700	1700	1700	687
Volume to Capacity	0.41	0.41	0.41	0.38	0.38	0.20	0.12
Queue Length 95th (ft)	0	0	0	0	0	0	10
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.9
Lane LOS							B
Approach Delay (s)	0.0			0.0			10.9
Approach LOS							B

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	38.5%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↱			↱
Volume (veh/h)	0	1716	1649	6	0	129
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.94	0.91	0.25	0.92	0.70
Hourly flow rate (vph)	0	1826	1812	24	0	184
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			358			
pX, platoon unblocked	0.59				0.59	0.59
vC, conflicting volume	1836				2433	616
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				995	0
tC, single (s)	4.1				6.8	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	71
cM capacity (veh/h)	965				145	638

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	609	609	609	725	725	386	184
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	24	184
cSH	1700	1700	1700	1700	1700	1700	638
Volume to Capacity	0.36	0.36	0.36	0.43	0.43	0.23	0.29
Queue Length 95th (ft)	0	0	0	0	0	0	30
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	12.9
Lane LOS							B
Approach Delay (s)	0.0			0.0			12.9
Approach LOS							B

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	46.6%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	91	1518	10	150	1403	109	31	25	194	30	6	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	6.9	4.0	6.9	6.9	6.9	6.3	6.3	6.3		6.9	6.9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00		0.96	1.00
Satd. Flow (prot)	1752	3505	1468	1787	3471	1599	1588	1776	1583		1792	1615
Flt Permitted	0.06	1.00	1.00	0.05	1.00	1.00	0.95	0.99	1.00		0.96	1.00
Satd. Flow (perm)	108	3505	1468	96	3471	1599	1588	1776	1583		1792	1615
Peak-hour factor, PHF	0.82	0.92	0.63	0.73	0.85	0.76	0.72	0.72	0.69	0.58	0.33	0.50
Adj. Flow (vph)	111	1650	16	205	1651	143	43	35	281	52	18	12
RTOR Reduction (vph)	0	0	0	0	0	58	0	0	171	0	0	11
Lane Group Flow (vph)	111	1650	16	205	1651	85	38	40	110	0	70	1
Heavy Vehicles (%)	3%	3%	10%	1%	4%	1%	8%	0%	2%	3%	0%	0%
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6		Free	2		2			3			4
Actuated Green, G (s)	80.1	71.6	140.0	94.0	78.6	78.6	13.7	13.7	13.7		12.2	12.2
Effective Green, g (s)	80.1	71.6	140.0	94.0	78.6	78.6	13.7	13.7	13.7		12.2	12.2
Actuated g/C Ratio	0.57	0.51	1.00	0.67	0.56	0.56	0.10	0.10	0.10		0.09	0.09
Clearance Time (s)	6.9	6.9		6.9	6.9	6.9	6.3	6.3	6.3		6.9	6.9
Vehicle Extension (s)	3.0	4.0		4.0	4.0	4.0	4.5	4.5	4.5		4.0	4.0
Lane Grp Cap (vph)	161	1792	1468	251	1948	897	155	173	154		156	140
v/s Ratio Prot	0.04	c0.47		c0.09	c0.48		0.02	0.02			c0.04	
v/s Ratio Perm	0.35		0.01	0.46		0.05			c0.07			0.00
v/c Ratio	0.69	0.92	0.01	0.82	0.85	0.09	0.25	0.23	0.72		0.45	0.01
Uniform Delay, d1	25.9	31.6	0.0	44.9	25.7	14.2	58.4	58.3	61.3		60.7	58.4
Progression Factor	1.00	1.00	1.00	1.67	0.40	0.12	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	11.6	9.3	0.0	14.9	3.6	0.2	1.4	1.2	16.6		2.8	0.0
Delay (s)	37.5	40.8	0.0	89.9	13.9	1.8	59.8	59.5	77.9		63.5	58.4
Level of Service	D	D	A	F	B	A	E	E	E		E	E
Approach Delay (s)		40.3			20.8			73.9			62.7	
Approach LOS		D			C			E			E	

Intersection Summary				
HCM 2000 Control Delay	34.4	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.84			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	27.0	
Intersection Capacity Utilization	79.1%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	97	1321	88	253	1393	47	244	11	447	99	30	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	6.9	4.0	6.9	6.9	6.9	6.3	6.3	6.3		6.9	6.9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00		0.96	1.00
Satd. Flow (prot)	1787	3539	1599	1787	3539	1509	1698	1724	1599		1783	1615
Flt Permitted	0.08	1.00	1.00	0.07	1.00	1.00	0.95	0.96	1.00		0.96	1.00
Satd. Flow (perm)	148	3539	1599	130	3539	1509	1698	1724	1599		1783	1615
Peak-hour factor, PHF	0.77	0.97	0.79	0.84	0.89	0.58	0.85	0.31	0.85	0.64	0.84	0.44
Adj. Flow (vph)	126	1362	111	301	1565	81	287	35	526	155	36	41
RTOR Reduction (vph)	0	0	0	0	0	45	0	0	153	0	0	36
Lane Group Flow (vph)	126	1362	111	301	1565	36	161	161	373	0	191	5
Heavy Vehicles (%)	1%	2%	1%	1%	2%	7%	1%	0%	1%	3%	0%	0%
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6		Free	2		2			3			4
Actuated Green, G (s)	57.7	51.0	140.0	75.4	61.8	61.8	28.4	28.4	28.4		16.1	16.1
Effective Green, g (s)	57.7	51.0	140.0	75.4	61.8	61.8	28.4	28.4	28.4		16.1	16.1
Actuated g/C Ratio	0.41	0.36	1.00	0.54	0.44	0.44	0.20	0.20	0.20		0.12	0.12
Clearance Time (s)	6.9	6.9		6.9	6.9	6.9	6.3	6.3	6.3		6.9	6.9
Vehicle Extension (s)	3.0	4.0		4.0	4.0	4.0	4.5	4.5	4.5		4.0	4.0
Lane Grp Cap (vph)	139	1289	1599	277	1562	666	344	349	324		205	185
v/s Ratio Prot	0.04	0.38		c0.14	c0.44		0.09	0.09			c0.11	
v/s Ratio Perm	0.33		0.07	c0.45		0.02			c0.23			0.00
v/c Ratio	0.91	1.06	0.07	1.09	1.00	0.05	0.47	0.46	1.15		0.93	0.03
Uniform Delay, d1	34.5	44.5	0.0	46.6	39.1	22.4	49.1	49.1	55.8		61.4	55.0
Progression Factor	1.00	1.00	1.00	1.67	0.67	4.29	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	48.8	41.5	0.1	60.1	14.9	0.1	1.7	1.7	97.5		44.3	0.1
Delay (s)	83.3	86.0	0.1	137.8	41.0	96.1	50.9	50.7	153.3		105.7	55.1
Level of Service	F	F	A	F	D	F	D	D	F		F	E
Approach Delay (s)		79.8			58.2			114.4			96.7	
Approach LOS		E			E			F			F	

Intersection Summary				
HCM 2000 Control Delay	77.9	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.12			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	27.0	
Intersection Capacity Utilization	89.3%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	105	659	978	174	1581	425	0	0	107	95	113	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-4%			3%	
Total Lost time (s)	7.5	7.5		7.5	7.5	7.5			4.0		8.3	8.3
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00			1.00		1.00	1.00
Frt	1.00	0.91		1.00	1.00	0.85			0.86		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00			1.00		0.98	1.00
Satd. Flow (prot)	1752	3184		1752	3505	1524			1660		1579	1383
Flt Permitted	0.08	1.00		0.05	1.00	1.00			1.00		0.98	1.00
Satd. Flow (perm)	147	3184		87	3505	1524			1660		1579	1383
Peak-hour factor, PHF	0.78	0.83	0.83	0.65	0.96	0.78	0.92	0.92	0.55	0.88	0.72	0.72
Adj. Flow (vph)	135	794	1178	268	1647	545	0	0	195	108	157	112
RTOR Reduction (vph)	0	111	0	0	0	214	0	0	0	0	0	94
Lane Group Flow (vph)	135	1861	0	268	1647	331	0	0	195	0	265	18
Heavy Vehicles (%)	3%	5%	2%	3%	3%	6%	0%	0%	1%	28%	8%	15%
Turn Type	pm+pt	NA		pm+pt	NA	Perm			Free	Split	NA	Perm
Protected Phases	1	6		5	2					4	4	
Permitted Phases	6			2		2			Free			4
Actuated Green, G (s)	86.0	77.1		101.3	84.9	84.9			140.0		22.9	22.9
Effective Green, g (s)	86.0	77.1		101.3	84.9	84.9			140.0		22.9	22.9
Actuated g/C Ratio	0.61	0.55		0.72	0.61	0.61			1.00		0.16	0.16
Clearance Time (s)	7.5	7.5		7.5	7.5	7.5					8.3	8.3
Vehicle Extension (s)	2.5	6.0		2.5	6.0	6.0					5.0	5.0
Lane Grp Cap (vph)	192	1753		261	2125	924			1660		258	226
v/s Ratio Prot	0.04	c0.58		c0.12	c0.47						c0.17	
v/s Ratio Perm	0.39			0.62		0.22			0.12			0.01
v/c Ratio	0.70	1.20dr		1.03	0.78	0.36			0.12		1.03	0.08
Uniform Delay, d1	20.3	31.5		51.7	20.5	13.8			0.0		58.5	49.6
Progression Factor	1.35	0.50		1.00	1.00	1.00			1.00		1.00	1.00
Incremental Delay, d2	5.5	34.9		62.8	2.8	1.1			0.1		63.2	0.3
Delay (s)	32.9	50.6		114.5	23.3	14.9			0.1		121.8	50.0
Level of Service	C	D		F	C	B			A		F	D
Approach Delay (s)		49.4			31.4			0.1			100.4	
Approach LOS		D			C			A			F	

Intersection Summary			
HCM 2000 Control Delay	42.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	54	1225	588	72	1527	212	0	0	220	350	110	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-4%			3%	
Total Lost time (s)	7.5	7.5		7.5	7.5	7.5			4.0		8.3	8.3
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00			1.00		1.00	1.00
Frt	1.00	0.95		1.00	1.00	0.85			0.86		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00			1.00		0.96	1.00
Satd. Flow (prot)	1687	3345		1805	3539	1455			1660		1741	1544
Flt Permitted	0.06	1.00		0.06	1.00	1.00			1.00		0.96	1.00
Satd. Flow (perm)	103	3345		110	3539	1455			1660		1741	1544
Peak-hour factor, PHF	0.75	0.90	0.90	0.59	0.90	0.81	0.92	0.92	0.85	0.80	0.69	0.67
Adj. Flow (vph)	72	1361	653	122	1697	262	0	0	259	438	159	248
RTOR Reduction (vph)	0	41	0	0	0	121	0	0	0	0	0	77
Lane Group Flow (vph)	72	1973	0	122	1697	141	0	0	259	0	597	171
Heavy Vehicles (%)	7%	3%	2%	0%	2%	11%	0%	0%	1%	5%	0%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm			Free	Split	NA	Perm
Protected Phases	1	6		5	2					4	4	
Permitted Phases	6			2		2			Free			4
Actuated Green, G (s)	76.0	69.0		76.0	69.0	69.0			140.0		40.7	40.7
Effective Green, g (s)	76.0	69.0		76.0	69.0	69.0			140.0		40.7	40.7
Actuated g/C Ratio	0.54	0.49		0.54	0.49	0.49			1.00		0.29	0.29
Clearance Time (s)	7.5	7.5		7.5	7.5	7.5					8.3	8.3
Vehicle Extension (s)	2.5	6.0		2.5	6.0	6.0					5.0	5.0
Lane Grp Cap (vph)	135	1648		144	1744	717			1660		506	448
v/s Ratio Prot	0.03	c0.59		c0.04	0.48						c0.34	
v/s Ratio Perm	0.26			0.42		0.10			0.16			0.11
v/c Ratio	0.53	1.20		0.85	0.97	0.20			0.16		1.18	0.38
Uniform Delay, d1	30.2	35.5		35.1	34.6	19.9			0.0		49.6	39.6
Progression Factor	1.58	0.59		1.00	1.00	1.00			1.00		1.00	1.00
Incremental Delay, d2	0.3	89.3		34.0	16.0	0.6			0.2		99.8	1.1
Delay (s)	48.1	110.3		69.1	50.6	20.6			0.2		149.5	40.7
Level of Service	D	F		E	D	C			A		F	D
Approach Delay (s)		108.2			47.9			0.2			117.6	
Approach LOS		F			D			A			F	

Intersection Summary			
HCM 2000 Control Delay	80.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	98.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	6	0	0	0	41	107	416	17	648	600
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.44	0.55	0.76	0.44	0.85	0.73
Hourly flow rate (vph)	0	0	7	0	0	0	93	195	547	39	762	822
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								644			987	
pX, platoon unblocked												
vC, conflicting volume	1221	1768	381	839	2042	195	1584			742		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1221	1768	381	839	2042	195	1584			742		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.4		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	100	100	99	100	100	100	78			95		
cM capacity (veh/h)	110	63	623	207	42	820	420			786		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	7	288	547	293	508	822
Volume Left	0	93	0	39	0	0
Volume Right	7	0	547	0	0	822
cSH	623	420	1700	786	1700	1700
Volume to Capacity	0.01	0.22	0.32	0.05	0.30	0.48
Queue Length 95th (ft)	1	21	0	4	0	0
Control Delay (s)	10.8	7.9	0.0	1.8	0.0	0.0
Lane LOS	B	A		A		
Approach Delay (s)	10.8	2.7		0.3		
Approach LOS	B					

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	51.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	6	0	0	0	11	220	648	9	611	150
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.63	0.92	0.92	0.92	0.31	0.91	0.90	0.67	0.90	0.82
Hourly flow rate (vph)	0	0	10	0	0	0	35	242	720	13	679	183
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											987	
pX, platoon unblocked												
vC, conflicting volume	1018	1738	339	679	1201	242	862			962		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1018	1738	339	679	1201	242	862			962		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	100	100	100	96			98		
cM capacity (veh/h)	185	83	662	320	175	765	789			724		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	10	277	720	240	453	183
Volume Left	0	35	0	13	0	0
Volume Right	10	0	720	0	0	183
cSH	662	789	1700	724	1700	1700
Volume to Capacity	0.01	0.04	0.42	0.02	0.27	0.11
Queue Length 95th (ft)	1	4	0	1	0	0
Control Delay (s)	10.5	1.7	0.0	0.8	0.0	0.0
Lane LOS	B	A		A		
Approach Delay (s)	10.5	0.5		0.2		
Approach LOS	B					

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	63.9%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	123	46	68	134	419	38	335	31	610	419	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor		0.95		1.00	1.00	1.00	1.00	0.95		0.91	0.91	
Frt		0.96		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.99		0.95	1.00	1.00	0.95	1.00		0.95	0.98	
Satd. Flow (prot)		3406		1736	1863	1538	1752	3334		1610	3290	
Flt Permitted		0.99		0.95	1.00	1.00	0.95	1.00		0.95	0.98	
Satd. Flow (perm)		3406		1736	1863	1538	1752	3334		1610	3290	
Peak-hour factor, PHF	0.54	0.72	0.71	0.68	0.81	0.89	0.83	0.80	0.52	0.69	0.72	0.44
Adj. Flow (vph)	30	171	65	100	165	471	46	419	60	884	582	41
RTOR Reduction (vph)	0	20	0	0	0	400	0	7	0	0	2	0
Lane Group Flow (vph)	0	246	0	100	165	71	46	472	0	495	1010	0
Heavy Vehicles (%)	8%	1%	0%	4%	2%	5%	3%	6%	8%	2%	3%	0%
Turn Type	Split	NA		Split	NA	Perm	Split	NA		Split	NA	
Protected Phases	3	3		4	4		2	2		1	1	
Permitted Phases						4						
Actuated Green, G (s)		13.7		18.9	18.9	18.9	23.9	23.9		49.6	49.6	
Effective Green, g (s)		13.7		18.9	18.9	18.9	23.9	23.9		49.6	49.6	
Actuated g/C Ratio		0.11		0.15	0.15	0.15	0.19	0.19		0.39	0.39	
Clearance Time (s)		5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	370		260	279	230	332	631		633	1294		
v/s Ratio Prot	c0.07		0.06	c0.09		0.03	c0.14		c0.31	0.31		
v/s Ratio Perm					0.05							
v/c Ratio	0.67		0.38	0.59	0.31	0.14	0.75		0.78	0.78		
Uniform Delay, d1	54.0		48.4	50.0	47.8	42.5	48.3		33.5	33.5		
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	4.5		0.9	3.3	0.8	0.2	4.8		6.3	3.1		
Delay (s)	58.5		49.3	53.3	48.5	42.7	53.1		39.8	36.6		
Level of Service	E		D	D	D	D	D		D	D		
Approach Delay (s)	58.5			49.7			52.2			37.7		
Approach LOS	E			D			D			D		

Intersection Summary			
HCM 2000 Control Delay	44.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	126.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	68	203	84	250	203	815	84	561	95	548	655	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor		0.95		1.00	1.00	1.00	1.00	0.95		0.91	0.91	
Frt		0.96		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.99		0.95	1.00	1.00	0.95	1.00		0.95	0.99	
Satd. Flow (prot)		3414		1787	1863	1599	1805	3475		1610	3389	
Flt Permitted		0.99		0.95	1.00	1.00	0.95	1.00		0.95	0.99	
Satd. Flow (perm)		3414		1787	1863	1599	1805	3475		1610	3389	
Peak-hour factor, PHF	0.75	0.84	0.70	0.73	0.80	0.88	0.80	0.96	0.83	0.91	0.93	0.80
Adj. Flow (vph)	91	242	120	342	254	926	105	584	114	602	704	50
RTOR Reduction (vph)	0	24	0	0	0	414	0	10	0	0	3	0
Lane Group Flow (vph)	0	429	0	342	254	512	105	688	0	445	908	0
Heavy Vehicles (%)	0%	1%	0%	1%	2%	1%	0%	1%	3%	2%	0%	0%
Turn Type	Split	NA		Split	NA	Perm	Split	NA		Split	NA	
Protected Phases	3	3		4	4		2	2		1	1	
Permitted Phases						4						
Actuated Green, G (s)		18.0		46.0	46.0	46.0	30.0	30.0		41.0	41.0	
Effective Green, g (s)		18.0		46.0	46.0	46.0	30.0	30.0		41.0	41.0	
Actuated g/C Ratio		0.12		0.30	0.30	0.30	0.19	0.19		0.26	0.26	
Clearance Time (s)		5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	396		530	552	474	349	672		425	896		
v/s Ratio Prot	c0.13		0.19	0.14		0.06	c0.20		c0.28	0.27		
v/s Ratio Perm					c0.32							
v/c Ratio	1.08		0.65	0.46	1.08	0.30	1.02		1.05	1.01		
Uniform Delay, d1	68.5		47.4	44.4	54.5	53.5	62.5		57.0	57.0		
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	69.5		2.7	0.6	64.5	0.5	40.7		56.5	33.4		
Delay (s)	138.0		50.1	45.0	119.0	54.0	103.2		113.5	90.4		
Level of Service	F		D	D	F	D	F		F	F		
Approach Delay (s)	138.0			91.2			96.8			98.0		
Approach LOS	F			F			F			F		

Intersection Summary			
HCM 2000 Control Delay	99.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	155.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	91.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	6	752	6	6	609	6	6	6	6	6	6	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.50	0.71	0.25	0.50	0.93	0.92	0.92	0.92	0.50	0.25	0.92	0.92
Hourly flow rate (vph)	12	1059	24	12	655	7	7	7	12	24	7	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		558			311							
pX, platoon unblocked	0.91			1.00			0.91	0.91	1.00	0.91	0.91	0.91
vC, conflicting volume	661			1083			1456	1781	542	1251	1789	331
vC1, stage 1 conf vol							1095	1095		682	682	
vC2, stage 2 conf vol							361	685		569	1107	
vCu, unblocked vol	437			1080			1302	1657	538	1077	1666	74
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			98			97	97	98	93	97	99
cM capacity (veh/h)	1035			652			220	255	492	353	245	893

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	12	706	377	12	437	225	25	37
Volume Left	12	0	0	12	0	0	7	24
Volume Right	0	0	24	0	0	7	12	7
cSH	1035	1700	1700	652	1700	1700	315	363
Volume to Capacity	0.01	0.42	0.22	0.02	0.26	0.13	0.08	0.10
Queue Length 95th (ft)	1	0	0	1	0	0	6	8
Control Delay (s)	8.5	0.0	0.0	10.6	0.0	0.0	17.4	16.0
Lane LOS	A			B			C	C
Approach Delay (s)	0.1			0.2			17.4	16.0
Approach LOS							C	C

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	31.0%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	11	829	6	8	1256	8	6	6	6	11	6	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.56	0.89	0.25	0.25	0.92	0.63	0.25	0.92	0.92	0.45	0.92	0.50
Hourly flow rate (vph)	20	931	24	32	1365	13	24	7	7	24	7	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		558			311							
pX, platoon unblocked	0.77			0.97			0.79	0.79	0.97	0.79	0.79	0.77
vC, conflicting volume	1378			955			1745	2425	478	1950	2430	689
vC1, stage 1 conf vol							983	983		1436	1436	
vC2, stage 2 conf vol							762	1442		515	995	
vCu, unblocked vol	889			885			1210	2076	391	1472	2083	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			96			91	96	99	87	97	99
cM capacity (veh/h)	592			747			258	184	593	189	187	838

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	20	621	334	32	910	468	37	43
Volume Left	20	0	0	32	0	0	24	24
Volume Right	0	0	24	0	0	13	7	12
cSH	592	1700	1700	747	1700	1700	266	241
Volume to Capacity	0.03	0.37	0.20	0.04	0.54	0.28	0.14	0.18
Queue Length 95th (ft)	3	0	0	3	0	0	12	16
Control Delay (s)	11.3	0.0	0.0	10.0	0.0	0.0	20.7	23.1
Lane LOS	B			B			C	C
Approach Delay (s)	0.2			0.2			20.7	23.1
Approach LOS							C	C

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	45.0%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	724	6	23	596	155	6	6	25	35	0	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	6.9		6.9	6.9			6.0	6.0	6.0		6.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00		1.00
Frt	1.00	1.00		1.00	0.96			1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95		1.00
Satd. Flow (prot)	1805	3527		1805	3351			1854	1615	1530		1615
Flt Permitted	0.30	1.00		0.18	1.00			0.98	1.00	0.95		1.00
Satd. Flow (perm)	572	3527		343	3351			1854	1615	1530		1615
Peak-hour factor, PHF	0.69	0.82	0.25	0.41	0.85	0.62	0.92	0.92	0.36	0.78	0.92	0.58
Adj. Flow (vph)	49	883	24	56	701	250	7	7	69	45	0	33
RTOR Reduction (vph)	0	1	0	0	28	0	0	0	64	0	0	31
Lane Group Flow (vph)	49	906	0	56	923	0	0	14	5	45	0	2
Heavy Vehicles (%)	0%	2%	0%	0%	4%	2%	0%	0%	0%	18%	0%	0%
Turn Type	pm+pt	NA		custom	NA		Split	NA	Perm	Prot		Perm
Protected Phases	5	2		1	6 4		3	3!		3!		
Permitted Phases	2			6					3			3
Actuated Green, G (s)	54.6	50.6		74.2	80.8			7.9	7.9	7.9		7.9
Effective Green, g (s)	54.6	50.6		74.2	80.8			7.9	7.9	7.9		7.9
Actuated g/C Ratio	0.46	0.43		0.63	0.68			0.07	0.07	0.07		0.07
Clearance Time (s)	6.9	6.9		6.9				6.0	6.0	6.0		6.0
Vehicle Extension (s)	3.0	4.5		3.0				3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	305	1506		420	2284			123	107	102		107
v/s Ratio Prot	0.01	c0.26		c0.02	c0.28			0.01		c0.03		
v/s Ratio Perm	0.07			0.06					0.00			0.00
v/c Ratio	0.16	0.60		0.13	0.40			0.11	0.04	0.44		0.02
Uniform Delay, d1	17.7	26.2		11.3	8.3			52.0	51.8	53.2		51.7
Progression Factor	1.00	1.00		0.41	0.19			1.00	1.00	1.00		1.00
Incremental Delay, d2	0.2	0.9		0.1	0.2			0.4	0.2	3.0		0.1
Delay (s)	18.0	27.1		4.8	1.7			52.4	51.9	56.2		51.8
Level of Service	B	C		A	A			D	D	E		D
Approach Delay (s)		26.6			1.9			52.0			54.3	
Approach LOS		C			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	118.5	Sum of lost time (s)	25.8
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	791	40	13	1168	78	14	6	8	94	0	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	6.9		6.9	6.9			6.0	6.0	6.0		6.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00		1.00
Frt	1.00	0.99		1.00	0.99			1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95		1.00
Satd. Flow (prot)	1543	3549		1805	3482			1850	1615	1671		1599
Flt Permitted	0.15	1.00		0.19	1.00			0.97	1.00	0.95		1.00
Satd. Flow (perm)	240	3549		354	3482			1850	1615	1671		1599
Peak-hour factor, PHF	0.60	0.90	0.86	0.42	0.89	0.73	0.50	0.25	0.38	0.69	0.92	0.65
Adj. Flow (vph)	25	879	47	31	1312	107	28	24	21	136	0	138
RTOR Reduction (vph)	0	3	0	0	4	0	0	0	18	0	0	121
Lane Group Flow (vph)	25	923	0	31	1415	0	0	52	3	136	0	17
Heavy Vehicles (%)	17%	1%	0%	0%	1%	21%	0%	0%	0%	8%	0%	1%
Turn Type	pm+pt	NA		custom	NA		Split	NA	Perm	Prot		Perm
Protected Phases	5	2		1	6 4		3	3!		3!		
Permitted Phases	2			6					3			3
Actuated Green, G (s)	62.6	59.7		81.5	85.8			16.1	16.1	16.1		16.1
Effective Green, g (s)	62.6	59.7		81.5	85.8			16.1	16.1	16.1		16.1
Actuated g/C Ratio	0.48	0.46		0.62	0.66			0.12	0.12	0.12		0.12
Clearance Time (s)	6.9	6.9		6.9				6.0	6.0	6.0		6.0
Vehicle Extension (s)	3.0	4.5		3.0				3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	143	1622		386	2287			228	199	205		197
v/s Ratio Prot	0.00	0.26		c0.01	c0.41			0.03		c0.08		
v/s Ratio Perm	0.08			0.04					0.00			0.01
v/c Ratio	0.17	0.57		0.08	0.62			0.23	0.01	0.66		0.09
Uniform Delay, d1	18.7	26.0		12.2	12.9			51.6	50.3	54.7		50.7
Progression Factor	1.00	1.00		0.47	0.22			1.00	1.00	1.00		1.00
Incremental Delay, d2	0.6	0.7		0.1	0.5			0.5	0.0	7.8		0.2
Delay (s)	19.3	26.7		5.8	3.3			52.2	50.3	62.5		50.9
Level of Service	B	C		A	A			D	D	E		D
Approach Delay (s)		26.5			3.4			51.6			56.7	
Approach LOS		C			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	130.6	Sum of lost time (s)	25.8
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	724	60	173	606	0	40	0	211	6	15	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			4%			0%	
Total Lost time (s)		6.9		6.9	6.9		6.0		6.0		6.0	6.0
Lane Util. Factor		0.95		1.00	0.95		1.00		1.00		1.00	1.00
Frt		0.99		1.00	1.00		1.00		0.85		1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95		1.00		0.99	1.00
Satd. Flow (prot)		3477		1787	3505		1717		1567		1772	1524
Flt Permitted		1.00		0.16	1.00		0.95		1.00		0.99	1.00
Satd. Flow (perm)		3477		296	3505		1717		1567		1772	1524
Peak-hour factor, PHF	0.92	0.80	0.94	0.59	0.74	0.92	0.55	0.92	0.57	0.42	0.43	0.92
Adj. Flow (vph)	0	905	64	293	819	0	73	0	370	14	35	139
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	315	0	0	130
Lane Group Flow (vph)	0	966	0	293	819	0	73	0	55	0	49	9
Heavy Vehicles (%)	0%	3%	0%	1%	3%	0%	3%	0%	1%	0%	8%	6%
Turn Type		NA		pm+pt	NA		Prot		Perm	Perm	NA	Perm
Protected Phases		2		1	6		4				3	
Permitted Phases				6					4	3		3
Actuated Green, G (s)		50.6		74.2	63.3		17.5		17.5		7.9	7.9
Effective Green, g (s)		50.6		74.2	63.3		17.5		17.5		7.9	7.9
Actuated g/C Ratio		0.43		0.63	0.53		0.15		0.15		0.07	0.07
Clearance Time (s)		6.9		6.9	6.9		6.0		6.0		6.0	6.0
Vehicle Extension (s)		4.5		3.0	4.5		3.0		3.0		3.0	3.0
Lane Grp Cap (vph)		1484		395	1872		253		231		118	101
v/s Ratio Prot		0.28		c0.10	0.23		c0.04					
v/s Ratio Perm				c0.36					0.03		0.03	0.01
v/c Ratio		0.65		0.74	0.44		0.29		0.24		0.42	0.09
Uniform Delay, d1		26.9		16.3	16.8		45.0		44.6		53.1	51.9
Progression Factor		0.21		1.00	1.00		1.00		1.00		1.00	1.00
Incremental Delay, d2		1.1		7.3	0.3		0.6		0.5		2.4	0.4
Delay (s)		6.7		23.7	17.1		45.6		45.1		55.4	52.3
Level of Service		A		C	B		D		D		E	D
Approach Delay (s)		6.7			18.8			45.2			53.1	
Approach LOS		A			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	118.5	Sum of lost time (s)	25.8
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	833	60	194	998	0	50	0	145	28	44	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			4%			0%	
Total Lost time (s)		6.9		6.9	6.9		6.0		6.0		6.0	6.0
Lane Util. Factor		0.95		1.00	0.95		1.00		1.00		1.00	1.00
Frt		0.99		1.00	1.00		1.00		0.85		1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95		1.00		0.98	1.00
Satd. Flow (prot)		3495		1805	3539		1769		1583		1855	1583
Flt Permitted		1.00		0.15	1.00		0.95		1.00		0.98	1.00
Satd. Flow (perm)		3495		284	3539		1769		1583		1855	1583
Peak-hour factor, PHF	0.92	0.88	0.69	0.81	0.86	0.92	0.61	0.92	0.84	0.55	0.80	0.88
Adj. Flow (vph)	0	947	87	240	1160	0	82	0	173	51	55	240
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	154	0	0	166
Lane Group Flow (vph)	0	1030	0	240	1160	0	82	0	19	0	106	74
Heavy Vehicles (%)	0%	2%	2%	0%	2%	0%	0%	0%	0%	0%	0%	2%
Turn Type		NA		pm+pt	NA		Prot		Perm	Perm	NA	Perm
Protected Phases		2		1	6		4				3	
Permitted Phases				6					4	3		3
Actuated Green, G (s)		59.7		81.5	71.7		14.1		14.1		16.1	16.1
Effective Green, g (s)		59.7		81.5	71.7		14.1		14.1		16.1	16.1
Actuated g/C Ratio		0.46		0.62	0.55		0.11		0.11		0.12	0.12
Clearance Time (s)		6.9		6.9	6.9		6.0		6.0		6.0	6.0
Vehicle Extension (s)		4.5		3.0	4.5		3.0		3.0		3.0	3.0
Lane Grp Cap (vph)		1597		350	1942		190		170		228	195
v/s Ratio Prot		0.29		c0.08	0.33		c0.05					
v/s Ratio Perm				c0.35					0.01		0.06	0.05
v/c Ratio		0.64		0.69	0.60		0.43		0.11		0.46	0.38
Uniform Delay, d1		27.3		17.3	19.8		54.5		52.6		53.2	52.7
Progression Factor		0.40		1.00	1.00		1.00		1.00		1.00	1.00
Incremental Delay, d2		0.9		5.5	0.7		1.6		0.3		1.5	1.2
Delay (s)		11.7		22.8	20.4		56.1		52.9		54.7	53.9
Level of Service		B		C	C		E		D		D	D
Approach Delay (s)		11.7			20.8			53.9			54.2	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	24.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	130.6	Sum of lost time (s)	25.8
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↱			↱
Volume (veh/h)	0	2040	1630	6	0	74
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.85	0.88	0.50	0.92	0.82
Hourly flow rate (vph)	0	2400	1852	12	0	90
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			358			
pX, platoon unblocked	0.50				0.50	0.50
vC, conflicting volume	1864				2658	623
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				793	0
tC, single (s)	4.1				6.8	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	83
cM capacity (veh/h)	813				164	537

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	800	800	800	741	741	382	90
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	12	90
cSH	1700	1700	1700	1700	1700	1700	537
Volume to Capacity	0.47	0.47	0.47	0.44	0.44	0.22	0.17
Queue Length 95th (ft)	0	0	0	0	0	0	15
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	13.1
Lane LOS							B
Approach Delay (s)	0.0			0.0			13.1
Approach LOS							B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	42.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↱			↱
Volume (veh/h)	0	1949	1874	6	0	146
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.94	0.91	0.25	0.92	0.70
Hourly flow rate (vph)	0	2073	2059	24	0	209
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			358			
pX, platoon unblocked	0.58				0.58	0.58
vC, conflicting volume	2083				2762	698
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	364				1527	0
tC, single (s)	4.1				6.8	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	67
cM capacity (veh/h)	704				65	632

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	691	691	691	824	824	436	209
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	24	209
cSH	1700	1700	1700	1700	1700	1700	632
Volume to Capacity	0.41	0.41	0.41	0.48	0.48	0.26	0.33
Queue Length 95th (ft)	0	0	0	0	0	0	36
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	13.5
Lane LOS							B
Approach Delay (s)	0.0			0.0			13.5
Approach LOS							B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	104	1725	11	170	1595	124	35	29	220	34	6	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	6.9	4.0	6.9	6.9	6.9	6.3	6.3	6.3		6.9	6.9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00		0.96	1.00
Satd. Flow (prot)	1752	3505	1468	1787	3471	1599	1588	1779	1583		1789	1615
Flt Permitted	0.06	1.00	1.00	0.05	1.00	1.00	0.95	0.99	1.00		0.96	1.00
Satd. Flow (perm)	107	3505	1468	100	3471	1599	1588	1779	1583		1789	1615
Peak-hour factor, PHF	0.82	0.92	0.63	0.73	0.85	0.76	0.72	0.72	0.69	0.58	0.33	0.50
Adj. Flow (vph)	127	1875	17	233	1876	163	49	40	319	59	18	12
RTOR Reduction (vph)	0	0	0	0	0	61	0	0	160	0	0	11
Lane Group Flow (vph)	127	1875	17	233	1876	102	44	45	159	0	77	1
Heavy Vehicles (%)	3%	3%	10%	1%	4%	1%	8%	0%	2%	3%	0%	0%
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6		Free	2		2			3			4
Actuated Green, G (s)	78.4	68.9	140.0	91.2	75.3	75.3	15.6	15.6	15.6		12.6	12.6
Effective Green, g (s)	78.4	68.9	140.0	91.2	75.3	75.3	15.6	15.6	15.6		12.6	12.6
Actuated g/C Ratio	0.56	0.49	1.00	0.65	0.54	0.54	0.11	0.11	0.11		0.09	0.09
Clearance Time (s)	6.9	6.9		6.9	6.9	6.9	6.3	6.3	6.3		6.9	6.9
Vehicle Extension (s)	3.0	4.0		4.0	4.0	4.0	4.5	4.5	4.5		4.0	4.0
Lane Grp Cap (vph)	171	1724	1468	256	1866	860	176	198	176		161	145
v/s Ratio Prot	0.05	c0.53		c0.10	c0.54		0.03	0.03			c0.04	
v/s Ratio Perm	0.36		0.01	0.49		0.06			c0.10			0.00
v/c Ratio	0.74	1.09	0.01	0.91	1.01	0.12	0.25	0.23	0.90		0.48	0.01
Uniform Delay, d1	35.9	35.5	0.0	47.8	32.4	16.0	56.9	56.7	61.5		60.6	58.0
Progression Factor	1.00	1.00	1.00	1.58	0.45	0.38	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	15.9	49.7	0.0	24.6	17.9	0.2	1.3	1.0	42.6		3.0	0.0
Delay (s)	51.8	85.2	0.0	100.2	32.5	6.3	58.1	57.7	104.1		63.6	58.0
Level of Service	D	F	A	F	C	A	E	E	F		E	E
Approach Delay (s)		82.4			37.6			94.0			62.9	
Approach LOS		F			D			F			E	

Intersection Summary			
HCM 2000 Control Delay	61.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	86.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	110	1501	100	288	1582	54	278	13	508	113	34	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	6.9	4.0	6.9	6.9	6.9	6.3	6.3	6.3		6.9	6.9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00		0.96	1.00
Satd. Flow (prot)	1787	3539	1599	1787	3539	1509	1698	1724	1599		1782	1615
Flt Permitted	0.08	1.00	1.00	0.07	1.00	1.00	0.95	0.96	1.00		0.96	1.00
Satd. Flow (perm)	147	3539	1599	130	3539	1509	1698	1724	1599		1782	1615
Peak-hour factor, PHF	0.77	0.97	0.79	0.84	0.89	0.58	0.85	0.31	0.85	0.64	0.84	0.44
Adj. Flow (vph)	143	1547	127	343	1778	93	327	42	598	177	40	45
RTOR Reduction (vph)	0	0	0	0	0	52	0	0	153	0	0	40
Lane Group Flow (vph)	143	1547	127	343	1778	41	183	186	445	0	217	5
Heavy Vehicles (%)	1%	2%	1%	1%	2%	7%	1%	0%	1%	3%	0%	0%
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6		Free	2		2			3			4
Actuated Green, G (s)	57.2	51.1	140.0	75.1	62.1	62.1	28.7	28.7	28.7		16.1	16.1
Effective Green, g (s)	57.2	51.1	140.0	75.1	62.1	62.1	28.7	28.7	28.7		16.1	16.1
Actuated g/C Ratio	0.41	0.37	1.00	0.54	0.44	0.44	0.20	0.20	0.20		0.12	0.12
Clearance Time (s)	6.9	6.9		6.9	6.9	6.9	6.3	6.3	6.3		6.9	6.9
Vehicle Extension (s)	3.0	4.0		4.0	4.0	4.0	4.5	4.5	4.5		4.0	4.0
Lane Grp Cap (vph)	131	1291	1599	272	1569	669	348	353	327		204	185
v/s Ratio Prot	0.05	0.44		c0.15	c0.50		0.11	0.11			c0.12	
v/s Ratio Perm	0.40		0.08	c0.52		0.03			c0.28			0.00
v/c Ratio	1.09	1.20	0.08	1.26	1.13	0.06	0.53	0.53	1.36		1.06	0.03
Uniform Delay, d1	37.0	44.5	0.0	46.5	39.0	22.3	49.6	49.6	55.6		62.0	55.0
Progression Factor	1.00	1.00	1.00	1.62	0.74	1.96	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	105.3	97.0	0.1	120.3	60.8	0.0	2.3	2.3	181.5		80.9	0.1
Delay (s)	142.3	141.4	0.1	195.5	89.5	43.6	51.9	51.9	237.1		142.8	55.1
Level of Service	F	F	A	F	F	D	D	D	F		F	E
Approach Delay (s)		131.6			104.0			166.4			127.8	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	126.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	98.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	749	1111	198	1796	483	0	0	121	108	129	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-4%			3%	
Total Lost time (s)	7.5	7.5		7.5	7.5	7.5			4.0		8.3	8.3
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00			1.00		1.00	1.00
Frt	1.00	0.91		1.00	1.00	0.85			0.86		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00			1.00		0.98	1.00
Satd. Flow (prot)	1752	3184		1752	3505	1524			1660		1579	1383
Flt Permitted	0.05	1.00		0.05	1.00	1.00			1.00		0.98	1.00
Satd. Flow (perm)	96	3184		88	3505	1524			1660		1579	1383
Peak-hour factor, PHF	0.78	0.83	0.83	0.65	0.96	0.78	0.92	0.92	0.55	0.88	0.72	0.72
Adj. Flow (vph)	153	902	1339	305	1871	619	0	0	220	123	179	129
RTOR Reduction (vph)	0	99	0	0	0	248	0	0	0	0	0	107
Lane Group Flow (vph)	153	2142	0	305	1871	371	0	0	220	0	302	22
Heavy Vehicles (%)	3%	5%	2%	3%	3%	6%	0%	0%	1%	28%	8%	15%
Turn Type	pm+pt	NA		pm+pt	NA	Perm			Free	Split	NA	Perm
Protected Phases	1	6		5	2					4	4	
Permitted Phases	6			2		2			Free			4
Actuated Green, G (s)	85.5	76.5		100.5	84.0	84.0			140.0		23.7	23.7
Effective Green, g (s)	85.5	76.5		100.5	84.0	84.0			140.0		23.7	23.7
Actuated g/C Ratio	0.61	0.55		0.72	0.60	0.60			1.00		0.17	0.17
Clearance Time (s)	7.5	7.5		7.5	7.5	7.5					8.3	8.3
Vehicle Extension (s)	2.5	6.0		2.5	6.0	6.0					5.0	5.0
Lane Grp Cap (vph)	165	1739		259	2103	914			1660		267	234
v/s Ratio Prot	0.06	c0.67		c0.14	c0.53						c0.19	
v/s Ratio Perm	0.50			0.71		0.24			0.13			0.02
v/c Ratio	0.93	1.39dr		1.18	0.89	0.41			0.13		1.13	0.09
Uniform Delay, d1	40.7	31.8		51.6	24.0	14.8			0.0		58.1	49.1
Progression Factor	1.13	0.49		1.00	1.00	1.00			1.00		1.00	1.00
Incremental Delay, d2	19.3	105.6		112.6	6.1	1.3			0.2		95.1	0.4
Delay (s)	65.2	121.2		164.2	30.2	16.2			0.2		153.2	49.4
Level of Service	E	F		F	C	B			A		F	D
Approach Delay (s)		117.7			41.7			0.2			122.2	
Approach LOS		F			D			A			F	

Intersection Summary			
HCM 2000 Control Delay	77.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	99.6%	ICU Level of Service	F
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	1393	668	81	1735	241	0	0	250	398	125	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-4%			3%	
Total Lost time (s)	7.5	7.5		7.5	7.5	7.5			4.0		8.3	8.3
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00			1.00		1.00	1.00
Frt	1.00	0.95		1.00	1.00	0.85			0.86		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00			1.00		0.96	1.00
Satd. Flow (prot)	1687	3345		1805	3539	1455			1660		1741	1544
Flt Permitted	0.06	1.00		0.06	1.00	1.00			1.00		0.96	1.00
Satd. Flow (perm)	103	3345		110	3539	1455			1660		1741	1544
Peak-hour factor, PHF	0.75	0.90	0.90	0.59	0.90	0.81	0.92	0.92	0.85	0.80	0.69	0.67
Adj. Flow (vph)	81	1548	742	137	1928	298	0	0	294	498	181	282
RTOR Reduction (vph)	0	41	0	0	0	121	0	0	0	0	0	74
Lane Group Flow (vph)	81	2249	0	137	1928	177	0	0	294	0	679	208
Heavy Vehicles (%)	7%	3%	2%	0%	2%	11%	0%	0%	1%	5%	0%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm			Free	Split	NA	Perm
Protected Phases	1	6		5	2					4	4	
Permitted Phases	6			2		2			Free			4
Actuated Green, G (s)	76.0	69.0		76.0	69.0	69.0			140.0		40.7	40.7
Effective Green, g (s)	76.0	69.0		76.0	69.0	69.0			140.0		40.7	40.7
Actuated g/C Ratio	0.54	0.49		0.54	0.49	0.49			1.00		0.29	0.29
Clearance Time (s)	7.5	7.5		7.5	7.5	7.5					8.3	8.3
Vehicle Extension (s)	2.5	6.0		2.5	6.0	6.0					5.0	5.0
Lane Grp Cap (vph)	135	1648		144	1744	717			1660		506	448
v/s Ratio Prot	0.03	c0.67		c0.05	0.54						c0.39	
v/s Ratio Perm	0.30			0.47		0.12			0.18			0.13
v/c Ratio	0.60	1.36		0.95	1.11	0.25			0.18		1.34	0.46
Uniform Delay, d1	31.2	35.5		38.8	35.5	20.5			0.0		49.6	40.7
Progression Factor	1.56	0.61		1.00	1.00	1.00			1.00		1.00	1.00
Incremental Delay, d2	0.5	164.5		60.1	56.6	0.8			0.2		166.7	1.6
Delay (s)	49.3	186.0		98.9	92.1	21.3			0.2		216.4	42.3
Level of Service	D	F		F	F	C			A		F	D
Approach Delay (s)		181.4			83.5			0.2			165.3	
Approach LOS		F			F			A			F	

Intersection Summary			
HCM 2000 Control Delay	131.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	109.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	6	0	0	0	46	121	473	19	738	681
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.44	0.55	0.76	0.44	0.85	0.73
Hourly flow rate (vph)	0	0	7	0	0	0	105	220	622	43	868	933
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								644			987	
pX, platoon unblocked												
vC, conflicting volume	1384	2006	434	950	2317	220	1801			842		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1384	2006	434	950	2317	220	1801			842		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.4		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	100	100	99	100	100	100	70			94		
cM capacity (veh/h)	77	39	575	158	25	790	347			717		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	7	325	622	333	579	933
Volume Left	0	105	0	43	0	0
Volume Right	7	0	622	0	0	933
cSH	575	347	1700	717	1700	1700
Volume to Capacity	0.01	0.30	0.37	0.06	0.34	0.55
Queue Length 95th (ft)	1	31	0	5	0	0
Control Delay (s)	11.3	11.0	0.0	2.0	0.0	0.0
Lane LOS	B	B		A		
Approach Delay (s)	11.3	3.8		0.4		
Approach LOS	B					

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	57.7%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	6	0	0	0	13	250	736	10	694	170
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.63	0.92	0.92	0.92	0.31	0.91	0.90	0.67	0.90	0.82
Hourly flow rate (vph)	0	0	10	0	0	0	42	275	818	15	771	207
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											987	
pX, platoon unblocked												
vC, conflicting volume	1160	1977	386	774	1367	275	978			1093		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1160	1977	386	774	1367	275	978			1093		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	100	100	100	94			98		
cM capacity (veh/h)	144	58	619	270	136	729	713			646		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	10	317	818	272	514	207
Volume Left	0	42	0	15	0	0
Volume Right	10	0	818	0	0	207
cSH	619	713	1700	646	1700	1700
Volume to Capacity	0.02	0.06	0.48	0.02	0.30	0.12
Queue Length 95th (ft)	1	5	0	2	0	0
Control Delay (s)	10.9	2.0	0.0	0.9	0.0	0.0
Lane LOS	B	A		A		
Approach Delay (s)	10.9	0.6		0.2		
Approach LOS	B					

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	71.7%	ICU Level of Service	C	
Analysis Period (min)	15			

APPENDIX D-8: SIMTRAFFIC MAXIMUM QUEUE LENGTH SUMMARY

SimTraffic CAPACITY ANALYSIS - Maximum Queue Length
2025 No Build Volumes
Candlers Expressway - Lynchburg, Virginia

Intersection Number and Description	Type of Control	Lane Group	Eastbound			Westbound			Northbound			Southbound		
			Storage Bay Length	AM Queue (ft)	PM Queue (ft)	Storage Bay Length	AM Queue (ft)	PM Queue (ft)	Storage Bay Length	AM Queue (ft)	PM Queue (ft)	Storage Bay Length	AM Queue (ft)	PM Queue (ft)
1 Candlers Mountain Road / Sheffield Drive at Wards Road			Sheffield Drive			Candlers Mountain Road			Wards Road			Wards Road		
	Signal	Left	400	203	385	225	118	*(2%)**(1%)	125	**(8%)	*(<1%)**(27%)	415	412	538 L[*(<1%)**(3%)]
		Through					158	306		249	379			
		Right					183	^(#2)						
2 Candlers Mountain Road at Short Street			Candlers Mountain Road			Candlers Mountain Road			Commercial Driveway			Short Street		
	Signal	Left	50	**(5%)	*(<1%)**(17%)	50	26	**(<1%)		61	118		53	116
		Through		127	378		6	94						
		Right												
3 Candlers Mountain Road at Woodall Road			Candlers Mountain Road			Candlers Mountain Road			Commercial Driveway			Woodall Road		
	Signal	Left	175	**(9%)	*(<1%)**(27%)		53	35		50	76	90	**(4%)	*(22)**(13%)
		Through		^(#2)	^(#2)		89	^(#4)				--	--	--
		Right								62	38		109	185
4 Candlers Mountain Road at Southbound Lynchburg Expressway Ramp / Seminole Avenue			Candlers Mountain Road			Candlers Mountain Road			Seminole Avenue			SB Lynchburg Expy Exit Ramp		
	Signal	Left	--	--	--	150	*(1%)**(1%)	*(2%)**(4%)	155	**(5%)	**(1%)		71	211
		Through		^(#3)	^(#3)		262	354		--	--			
		Right				--	--	--	--	283	191	200	86	*(1%)**(2%)
5 Candlers Mountain Road at Murray Place			Candlers Mountain Road			Candlers Mountain Road						Murray Place		
	One-Way Stop	Left	--	--	--	--	--	--	--	--	--	--	--	--
		Through	--	--	--		25	10	--	--	--	--	--	--
		Right	--	--	--				--	--	--		128	176
6 Candlers Mountain Road at Murray Place / River Ridge Mall			Candlers Mountain Road			Candlers Mountain Road			River Ridge Mall			Murray Place		
	Signal	Left	260	*(<1%)**(40%)	*(<1%)**(66%)	205	*(1%)**(5%)	*(9%)**(28%)		108	248		117	294
		Through		2051	2124		591	558						
		Right		136	289	180	*(<1%)**(35%)	*(<1%)**(46%)		228	362	120	**(1%)	**(<1%)**(15%)
7 Candlers Mountain Road / US 501 at Mayflower Drive			Candlers Mountain Road/US 501			Candlers Mountain Road/US 501			Candlers Mountain Road			Mayflower Drive		
	Signal	Left	325	**(1%)	*(<1%)**(22%)	275	*(<1%)**(20%)	*(<1%)**(47%)	--	--	--		1093	1672
		Through		^(#6)	^(#6)		2232	2958	--	--	--			
		Right				375	*(2%)**(22%)	*(2%)**(46%)		21	304	275	*(<1%)**(34%)	*(1%)**(40%)
8 Candlers Mountain Road at Westbound US 501 Ramp / Mountain View Road			Mountain View Road						Candlers Mountain Road			Candlers Mountain Road		
	One-Way Stop	Left	--	--	--	--	--	--		586	215		^(#7)	48
		Through	--	--	--	--	--	--						
		Right		†	†	--	--	--				200	*(6%)**(43%)	12

NOTE: Lane configurations with a shared through lane shown as "through" lane group; with shared left-right lane shown as "left" lane group.
SimTraffic simulation of 60 minutes is reported.
† SYNCHRO does not provide queue length for movements with no conflicting volumes.
*(X%) - Maximum queue extends full length of storage bay for X% of the analysis period.
**(Y%) - Queue in lane adjacent to storage bay extends beyond end of storage bay for Y% of the analysis period.
^(#Z) - Maximum queue extends back to previous intersection #Z.

SimTraffic CAPACITY ANALYSIS - Maximum Queue Length
2040 No Build Volumes
Candlers Expressway - Lynchburg, Virginia

Intersection Number and Description	Type of Control	Lane Group	Eastbound			Westbound			Northbound			Southbound		
			Storage Bay Length	AM Queue (ft)	PM Queue (ft)	Storage Bay Length	AM Queue (ft)	PM Queue (ft)	Storage Bay Length	AM Queue (ft)	PM Queue (ft)	Storage Bay Length	AM Queue (ft)	PM Queue (ft)
1 Candlers Mountain Road / Sheffield Drive at Wards Road			Sheffield Drive			Candlers Mountain Road			Wards Road			Wards Road		
	Signal	Left	400	260	*(3%)**(29%)	225	163	*(1%)**(1%)	125	*(<1%)**(13%)	*(<1%)**(72%)	415	658 L[*(<1%)**(4%)]	2446 L[*(5%)**(31%)]
		Through					206	349		279	1426			
		Right					225	^(#2)						
2 Candlers Mountain Road at Short Street			Candlers Mountain Road			Candlers Mountain Road			Commercial Driveway			Short Street		
	Signal	Left	50	**(18%)	*(<1%)**(54%)	50	30	*(<1%)**(<1%)		112	282		113	314
		Through		380	496		36	236						
		Right												
3 Candlers Mountain Road at Woodall Road			Candlers Mountain Road			Candlers Mountain Road			Commercial Driveway			Woodall Road		
	Signal	Left	175	*(<1%)**(25%)	*(<1%)**(64%)		45	40		53	79	90	**(4%)	*(46)**(37%)
		Through		^(#2)	^(#2)		^(#4)	^(#4)				--	--	--
		Right								137	107		109	1229
4 Candlers Mountain Road at Southbound Lynchburg Expressway Ramp / Seminole Avenue			Candlers Mountain Road			Candlers Mountain Road			Seminole Avenue			SB Lynchburg Expy Exit Ramp		
	Signal	Left	--	--	--	150	*(2%)**(1%)	*(1%)**(6%)	155	*(<1%)**(12%)	*(<1%)**(10%)		96	359
		Through		^(#3)	^(#3)		273	384		--	--			
		Right				--	--	--	--	472	307	200	112	*(6%)**(3%)
5 Candlers Mountain Road at Murray Place			Candlers Mountain Road			Candlers Mountain Road						Murray Place		
	One-Way Stop	Left	--	--	--	--	--	--	--	--	--	--	--	--
		Through	--	--	--		†	2	--	--	--	--	--	--
		Right	--	--	--				--	--	--		130	182
6 Candlers Mountain Road at Murray Place / River Ridge Mall			Candlers Mountain Road			Candlers Mountain Road			River Ridge Mall			Murray Place		
	Signal	Left	260	*(<1%)**(41%)	*(<1%)**(69%)	205	*(1%)**(7%)	*(7%)**(31%)		118	266		125	290
		Through		2123	^(#4)		560	580						
		Right		146	211	180	*(<1%)**(36%)	*(<1%)**(48%)		266	464	120	**(1%)	**(<1%)**(17%)
7 Candlers Mountain Road / US 501 at Mayflower Drive			Candlers Mountain Road/US 501			Candlers Mountain Road/US 501			Candlers Mountain Road			Mayflower Drive		
	Signal	Left	325	**(1%)	*(<1%)**(30%)	275	*(<1%)**(25%)	*(<1%)**(50%)	--	--	--		1755	3194
		Through		^(#6)	^(#6)		^	^	--	--	--			
		Right				375	*(2%)**(27%)	*(1%)**(49%)		†	385	275	*(1%)**(48%)	*(1%)**(55%)
8 Candlers Mountain Road at Westbound US 501 Ramp / Mountain View Road			Mountain View Road						Candlers Mountain Road			Candlers Mountain Road		
	One-Way Stop	Left	--	--	--	--	--	--		604	331		^(#7)	67
		Through	--	--	--	--	--	--						
		Right		3	†	--	--	--				200	*(6%)**(48%)	4

NOTE: Lane configurations with a shared through lane shown as "through" lane group; with shared left-right lane shown as "left" lane group.
SimTraffic simulation of 60 minutes is reported.
† SYNCHRO does not provide queue length for movements with no conflicting volumes.
*(X%) - Maximum queue extends full length of storage bay for X% of the analysis period.
**(Y%) - Queue in lane adjacent to storage bay extends beyond end of storage bay for Y% of the analysis period.
^/^(#Z) - Maximum queue extends out of network or back to previous intersection #Z.

APPENDIX D-9: SIMTRAFFIC OUTPUT SHEETS

Queuing and Blocking Report
No Build 2025 AM Peak

5/11/2016

Intersection: 1: Wards Road & Sheffield Drive/Candlers Mountain Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	TR	L	T	R	L	T	TR	L	LT	TR
Maximum Queue (ft)	157	203	118	158	183	110	249	244	342	412	313
Average Queue (ft)	46	90	31	62	70	27	114	101	148	211	136
95th Queue (ft)	120	168	80	126	139	84	201	192	274	329	260
Link Distance (ft)		890		463	463		1789	1789		1079	1079
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	400		225			125			415		
Storage Blk Time (%)				0		0	8		0	0	
Queuing Penalty (veh)				0		0	3		0	1	

Intersection: 2: Commercial Driveway/Short Street & Candlers Mountain Road

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	TR	L	TR	LTR	LTR
Maximum Queue (ft)	31	111	127	26	6	61	53
Average Queue (ft)	2	20	22	2	0	19	15
95th Queue (ft)	15	153	159	15	3	64	45
Link Distance (ft)		463	463		249	352	342
Upstream Blk Time (%)		0	1				
Queuing Penalty (veh)		1	2				
Storage Bay Dist (ft)	50			50			
Storage Blk Time (%)	0	5		0			
Queuing Penalty (veh)	0	0		0			

Intersection: 3: Commercial Driveway/Woodall Road & Candlers Mountain Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	R
Maximum Queue (ft)	140	302	310	53	65	89	50	62	83	109
Average Queue (ft)	26	120	136	11	11	30	11	14	29	26
95th Queue (ft)	91	278	294	36	40	75	38	42	74	136
Link Distance (ft)		249	249	100	100	100	363	363		1243
Upstream Blk Time (%)		6	7		0	0				
Queuing Penalty (veh)		21	25		0	0				
Storage Bay Dist (ft)	175								90	
Storage Blk Time (%)	0	9							5	4
Queuing Penalty (veh)	0	3							1	1

Queuing and Blocking Report
No Build 2025 PM Peak

5/11/2016

Intersection: 1: Wards Road & Sheffield Drive/Candlers Mountain Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	TR	L	T	R	L	T	TR	L	LT	TR
Maximum Queue (ft)	328	385	224	306	531	124	393	379	414	538	486
Average Queue (ft)	146	186	136	114	289	63	249	240	297	369	307
95th Queue (ft)	275	325	233	238	510	145	369	363	426	500	437
Link Distance (ft)		890		463	463		1789	1789		1079	1079
Upstream Blk Time (%)					4						
Queuing Penalty (veh)					22						
Storage Bay Dist (ft)	400		225			125			415		
Storage Blk Time (%)	0	1	2	1		0	41		0	3	
Queuing Penalty (veh)	0	1	3	2		1	31		1	8	

Intersection: 2: Commercial Driveway/Short Street & Candlers Mountain Road

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	45	378	373	36	49	94	118	116
Average Queue (ft)	8	82	85	4	3	7	34	31
95th Queue (ft)	32	336	343	20	44	56	112	92
Link Distance (ft)		463	463		249	249	352	342
Upstream Blk Time (%)		1	2		0	0		
Queuing Penalty (veh)		5	7		0	0		
Storage Bay Dist (ft)	50			50				
Storage Blk Time (%)	0	17		0	0			
Queuing Penalty (veh)	1	2		2	0			

Intersection: 3: Commercial Driveway/Woodall Road & Candlers Mountain Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	R
Maximum Queue (ft)	174	324	320	35	102	116	76	38	89	434
Average Queue (ft)	26	184	200	5	37	59	14	7	63	119
95th Queue (ft)	108	347	350	24	91	114	47	28	107	439
Link Distance (ft)		249	249	100	100	100	363	363		1243
Upstream Blk Time (%)		22	25		1	2				
Queuing Penalty (veh)		83	93		3	9				
Storage Bay Dist (ft)	175								90	
Storage Blk Time (%)	0	27							22	13
Queuing Penalty (veh)	0	4							18	11

Intersection: 4: Seminole Avenue/SB Lynchburg Expressway Exit Ramp & Candlers Mountain Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	T	TR	L	T	T	L	R	LT	R
Maximum Queue (ft)	111	122	147	206	262	133	283	71	86
Average Queue (ft)	39	47	66	55	97	29	86	15	31
95th Queue (ft)	100	112	132	143	209	88	278	49	60
Link Distance (ft)	100	100		241	241		801	709	
Upstream Blk Time (%)	6	8		0	0		1		
Queuing Penalty (veh)	19	30		0	2		0		
Storage Bay Dist (ft)			150			155			200
Storage Blk Time (%)			1	1		0	5		
Queuing Penalty (veh)			2	1		0	2		

Intersection: 5: Candlers Mountain Road & Murray Place

Movement	EB	EB	EB	WB	WB	SB
Directions Served	T	T	T	T	TR	R
Maximum Queue (ft)	315	311	238	6	25	128
Average Queue (ft)	255	260	49	0	1	49
95th Queue (ft)	371	359	171	6	17	100
Link Distance (ft)	208	208	208	297	297	702
Upstream Blk Time (%)	47	64	2			
Queuing Penalty (veh)	284	382	12			
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 4: Seminole Avenue/SB Lynchburg Expressway Exit Ramp & Candlers Mountain Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	T	TR	L	T	T	L	R	LT	R
Maximum Queue (ft)	147	153	150	315	329	126	191	211	159
Average Queue (ft)	83	85	86	130	161	36	62	63	59
95th Queue (ft)	160	163	157	270	294	92	136	191	129
Link Distance (ft)	100	100		241	241		801	709	
Upstream Blk Time (%)	26	29		2	2			0	
Queuing Penalty (veh)	103	116		9	13			0	
Storage Bay Dist (ft)			150			155			200
Storage Blk Time (%)			2	4		0	1	2	1
Queuing Penalty (veh)			8	8		0	1	3	0

Intersection: 5: Candlers Mountain Road & Murray Place

Movement	EB	EB	EB	WB	SB
Directions Served	T	T	T	TR	R
Maximum Queue (ft)	302	311	256	10	176
Average Queue (ft)	277	278	79	0	77
95th Queue (ft)	302	308	225	7	145
Link Distance (ft)	208	208	208	297	702
Upstream Blk Time (%)	75	83	3		
Queuing Penalty (veh)	431	476	19		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 6: River Ridge Mall/Murray Place & Candlers Mountain Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	LT	R	LT
Maximum Queue (ft)	260	397	402	136	204	511	591	180	57	108	228	117
Average Queue (ft)	132	364	368	9	103	196	348	75	11	44	83	35
95th Queue (ft)	297	413	402	87	188	373	513	204	40	89	186	91
Link Distance (ft)		297	297	297		611	611		1947	1947	1947	552
Upstream Blk Time (%)		44	59	0		0	0					
Queuing Penalty (veh)		269	355	1		0	0					
Storage Bay Dist (ft)	260				205			180				
Storage Blk Time (%)	0	40			1	5	35	0				1
Queuing Penalty (veh)	2	37			9	9	39	3				0

Intersection: 6: River Ridge Mall/Murray Place & Candlers Mountain Road

Movement	SB
Directions Served	R
Maximum Queue (ft)	71
Average Queue (ft)	7
95th Queue (ft)	36
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	120
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 7: Candlers Mountain Road & Mayflower Drive

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	R	LT	R
Maximum Queue (ft)	196	636	682	275	1594	1594	375	21	1093	275
Average Queue (ft)	39	257	368	145	919	973	318	2	460	127
95th Queue (ft)	131	646	779	332	1740	1751	530	36	1112	307
Link Distance (ft)		611	611		1568	1568		868	3312	
Upstream Blk Time (%)		1	11		1	2				
Queuing Penalty (veh)		12	98		11	21				
Storage Bay Dist (ft)	325			275			375			275
Storage Blk Time (%)	0	1		0	20	22	2		34	0
Queuing Penalty (veh)	0	1		2	35	96	16		30	1

Intersection: 6: River Ridge Mall/Murray Place & Candlers Mountain Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	LT	R	LT
Maximum Queue (ft)	260	385	403	289	205	551	558	180	163	248	362	294
Average Queue (ft)	154	368	370	24	176	327	374	42	84	129	190	116
95th Queue (ft)	332	380	388	159	245	475	499	154	147	209	325	223
Link Distance (ft)		297	297	297		610	610		1947	1947	1947	552
Upstream Blk Time (%)		68	73	1		0	0					
Queuing Penalty (veh)		392	421	6		0	1					
Storage Bay Dist (ft)	260				205			180				
Storage Blk Time (%)	0	66			9	28	46	0				15
Queuing Penalty (veh)	2	64			64	71	23	1				4

Intersection: 6: River Ridge Mall/Murray Place & Candlers Mountain Road

Movement	SB
Directions Served	R
Maximum Queue (ft)	114
Average Queue (ft)	17
95th Queue (ft)	71
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	120
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 7: Candlers Mountain Road & Mayflower Drive

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	R	LT	R
Maximum Queue (ft)	324	639	680	275	1610	1610	375	304	1672	275
Average Queue (ft)	66	444	513	110	1269	1289	314	62	764	195
95th Queue (ft)	274	672	757	312	1873	1863	536	240	1673	364
Link Distance (ft)		610	610		1568	1568		868	3312	
Upstream Blk Time (%)		1	10		6	9				
Queuing Penalty (veh)		7	92		60	79				
Storage Bay Dist (ft)	325			275			375			275
Storage Blk Time (%)	0	24		0	47	46	2		40	1
Queuing Penalty (veh)	1	13		1	35	99	12		70	5

Intersection: 8: Candlers Mountain Road & Mountain View Road/US 501 Entrance Ramp

Movement	NB	NB	SB	SB	SB
Directions Served	LT	R	LT	T	R
Maximum Queue (ft)	586	59	926	1047	200
Average Queue (ft)	237	31	627	748	161
95th Queue (ft)	585	45	1221	1396	290
Link Distance (ft)	591		868	868	
Upstream Blk Time (%)	5		10	37	
Queuing Penalty (veh)	29		65	242	
Storage Bay Dist (ft)		25			200
Storage Blk Time (%)	28	12		43	6
Queuing Penalty (veh)	127	20		265	20

Intersection: 9: Lynchburg Expressway Ramp & Candlers Mountain Road

Movement	EB	EB	NB
Directions Served	T	T	R
Maximum Queue (ft)	240	262	618
Average Queue (ft)	57	64	232
95th Queue (ft)	229	238	705
Link Distance (ft)	241	241	576
Upstream Blk Time (%)	4	7	33
Queuing Penalty (veh)	16	28	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Candlers Mountain Road & Lynchburg Expressway Ramp

Movement	EB	EB	EB
Directions Served	T	T	T
Maximum Queue (ft)	1071	1061	1072
Average Queue (ft)	635	660	575
95th Queue (ft)	1307	1318	1349
Link Distance (ft)	910	910	910
Upstream Blk Time (%)	28	36	30
Queuing Penalty (veh)	168	220	182
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Candlers Mountain Road & Mountain View Road/US 501 Entrance Ramp

Movement	NB	NB	SB	SB	SB
Directions Served	LT	R	LT	T	R
Maximum Queue (ft)	215	66	48	7	12
Average Queue (ft)	69	33	6	0	1
95th Queue (ft)	152	49	29	7	6
Link Distance (ft)	2807		868	868	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		25			200
Storage Blk Time (%)	2	17			
Queuing Penalty (veh)	11	40			

Intersection: 9: Lynchburg Expressway Ramp & Candlers Mountain Road

Movement	EB	EB	WB	WB	NB
Directions Served	T	T	T	T	R
Maximum Queue (ft)	326	327	16	25	633
Average Queue (ft)	158	164	1	1	442
95th Queue (ft)	361	358	11	18	864
Link Distance (ft)	241	241	910	910	576
Upstream Blk Time (%)	12	18			69
Queuing Penalty (veh)	55	83			0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 10: Candlers Mountain Road & Lynchburg Expressway Ramp

Movement	EB	EB	EB
Directions Served	T	T	T
Maximum Queue (ft)	1069	1061	1083
Average Queue (ft)	943	954	933
95th Queue (ft)	1307	1306	1380
Link Distance (ft)	910	910	910
Upstream Blk Time (%)	64	74	63
Queuing Penalty (veh)	372	428	363
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Candlers Mountain Road & School

Movement	WB	NB	SB	SB
Directions Served	LTR	T	L	T
Maximum Queue (ft)	119	866	647	641
Average Queue (ft)	40	334	487	599
95th Queue (ft)	96	920	846	707
Link Distance (ft)	599	2157	591	591
Upstream Blk Time (%)		0	17	63
Queuing Penalty (veh)		0	57	208
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: Candlers Mountain Road

Movement	SE	SE	NW	NW
Directions Served	T	R	T	T
Maximum Queue (ft)	3	658	616	638
Average Queue (ft)	0	24	130	140
95th Queue (ft)	3	344	656	678
Link Distance (ft)	1568	1568	3653	3653
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 3481

Intersection: 14: Candlers Mountain Road

Movement	SE	SE	NW	NW
Directions Served	T	R	T	T
Maximum Queue (ft)	17	52	1326	1348
Average Queue (ft)	0	2	373	384
95th Queue (ft)	9	21	1255	1280
Link Distance (ft)	1568	1568	3653	3653
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 4367

Queuing and Blocking Report
No Build 2040 AM Peak

5/11/2016

Intersection: 1: Wards Road & Sheffield Drive/Candlers Mountain Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	TR	L	T	R	L	T	TR	L	LT	TR
Maximum Queue (ft)	200	260	163	206	225	124	279	261	410	658	507
Average Queue (ft)	61	110	43	78	91	34	138	123	222	298	217
95th Queue (ft)	171	248	110	159	179	105	237	224	403	561	459
Link Distance (ft)		890		463	463		1789	1789		1079	1079
Upstream Blk Time (%)										0	0
Queuing Penalty (veh)										0	0
Storage Bay Dist (ft)	400		225			125			415		
Storage Blk Time (%)	0	1	0	0		0	13		0	4	
Queuing Penalty (veh)	0	1	0	0		0	5		2	11	

Intersection: 2: Commercial Driveway/Short Street & Candlers Mountain Road

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	36	363	380	30	36	8	112	113
Average Queue (ft)	3	92	96	3	2	0	31	29
95th Queue (ft)	19	374	376	18	31	8	97	103
Link Distance (ft)		463	463		249	249	352	342
Upstream Blk Time (%)		4	5					
Queuing Penalty (veh)		14	18					
Storage Bay Dist (ft)	50			50				
Storage Blk Time (%)	0	18		0	0			
Queuing Penalty (veh)	0	1		1	0			

Intersection: 3: Commercial Driveway/Woodall Road & Candlers Mountain Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	R
Maximum Queue (ft)	174	326	318	45	79	108	53	137	85	80
Average Queue (ft)	41	164	180	12	16	35	13	43	32	12
95th Queue (ft)	135	346	349	37	52	85	40	170	76	46
Link Distance (ft)		249	249	100	100	100	363	363		1243
Upstream Blk Time (%)		22	25		0	0		3		
Queuing Penalty (veh)		84	95		0	1		0		
Storage Bay Dist (ft)	175								90	
Storage Blk Time (%)	0	25							4	0
Queuing Penalty (veh)	0	9							1	0

Queuing and Blocking Report
No Build 2040 PM Peak

5/11/2016

Intersection: 1: Wards Road & Sheffield Drive/Candlers Mountain Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	TR	L	T	R	L	T	TR	L	LT	TR
Maximum Queue (ft)	400	905	224	400	550	124	1338	1307	415	1117	1106
Average Queue (ft)	250	446	137	123	353	63	647	635	372	691	637
95th Queue (ft)	448	970	230	278	600	149	1298	1276	485	1208	1199
Link Distance (ft)		890		463	463		1789	1789		1079	1079
Upstream Blk Time (%)		25		0	11		1	1		29	19
Queuing Penalty (veh)		0		1	73		0	0		0	0
Storage Bay Dist (ft)	400		225			125			415		
Storage Blk Time (%)	4	30	2	1		1	70		4	38	
Queuing Penalty (veh)	9	51	4	4		3	59		22	105	

Intersection: 2: Commercial Driveway/Short Street & Candlers Mountain Road

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	49	494	494	38	134	199	279	332
Average Queue (ft)	10	281	284	5	13	30	112	129
95th Queue (ft)	40	628	622	25	102	153	297	340
Link Distance (ft)		463	463		249	249	352	342
Upstream Blk Time (%)		18	21		1	1	3	13
Queuing Penalty (veh)		77	91		4	6	0	0
Storage Bay Dist (ft)	50			50				
Storage Blk Time (%)	1	56		1	0			
Queuing Penalty (veh)	5	7		9	0			

Intersection: 3: Commercial Driveway/Woodall Road & Candlers Mountain Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	R
Maximum Queue (ft)	174	346	341	31	115	133	72	120	90	1495
Average Queue (ft)	33	269	275	6	48	73	16	38	76	596
95th Queue (ft)	133	386	372	23	108	136	53	122	112	1529
Link Distance (ft)		249	249	100	100	100	363	363		2541
Upstream Blk Time (%)		63	67		2	6				
Queuing Penalty (veh)		270	288		9	27				
Storage Bay Dist (ft)	175								90	
Storage Blk Time (%)	0	67							59	48
Queuing Penalty (veh)	0	11							57	49

Intersection: 4: Seminole Avenue/SB Lynchburg Expressway Exit Ramp & Candlers Mountain Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	T	TR	L	T	T	L	R	LT	R
Maximum Queue (ft)	153	152	149	264	256	154	472	96	112
Average Queue (ft)	66	72	77	74	109	42	137	20	39
95th Queue (ft)	149	149	139	195	217	120	413	65	82
Link Distance (ft)	100	100		241	241		801	709	
Upstream Blk Time (%)	19	26		1	0		2		
Queuing Penalty (veh)	76	102		4	2		0		
Storage Bay Dist (ft)			150			155			200
Storage Blk Time (%)			2	1		0	12	0	0
Queuing Penalty (veh)			7	3		0	7	0	0

Intersection: 5: Candlers Mountain Road & Murray Place

Movement	EB	EB	EB	SB
Directions Served	T	T	T	R
Maximum Queue (ft)	306	311	237	130
Average Queue (ft)	279	279	68	54
95th Queue (ft)	296	298	201	102
Link Distance (ft)	208	208	208	702
Upstream Blk Time (%)	59	77	2	
Queuing Penalty (veh)	403	522	13	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Seminole Avenue/SB Lynchburg Expressway Exit Ramp & Candlers Mountain Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	T	TR	L	T	T	L	R	LT	R
Maximum Queue (ft)	157	164	149	344	359	150	355	449	199
Average Queue (ft)	120	123	91	155	192	55	115	112	89
95th Queue (ft)	174	177	164	310	335	132	281	356	187
Link Distance (ft)	100	100		241	241		801	709	
Upstream Blk Time (%)	56	64		3	5			1	
Queuing Penalty (veh)	254	291		18	30			0	
Storage Bay Dist (ft)			150			155			200
Storage Blk Time (%)			2	6		1	10	7	5
Queuing Penalty (veh)			10	13		1	6	16	4

Intersection: 5: Candlers Mountain Road & Murray Place

Movement	EB	EB	EB	WB	WB	SB
Directions Served	T	T	T	T	TR	R
Maximum Queue (ft)	307	304	261	9	11	190
Average Queue (ft)	278	277	81	0	1	81
95th Queue (ft)	293	294	237	9	10	152
Link Distance (ft)	208	208	208	297	297	702
Upstream Blk Time (%)	82	90	5			
Queuing Penalty (veh)	536	585	29			
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: River Ridge Mall/Murray Place & Candlers Mountain Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	LT	R	LT
Maximum Queue (ft)	260	399	408	146	200	457	560	180	55	118	266	125
Average Queue (ft)	133	367	371	9	110	214	350	81	12	48	109	38
95th Queue (ft)	302	389	390	89	197	391	490	212	42	100	237	94
Link Distance (ft)		297	297	297		611	611		1947	1947	1947	552
Upstream Blk Time (%)		49	66	0		0	0					
Queuing Penalty (veh)		336	450	2		1	0					
Storage Bay Dist (ft)	260				205			180				
Storage Blk Time (%)	0	41			1	7	36	0				1
Queuing Penalty (veh)	2	43			5	14	45	4				0

Intersection: 6: River Ridge Mall/Murray Place & Candlers Mountain Road

Movement	SB
Directions Served	R
Maximum Queue (ft)	39
Average Queue (ft)	6
95th Queue (ft)	27
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	120
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Candlers Mountain Road & Mayflower Drive

Movement	EB	EB	EB	WB	WB	WB	WB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LT	R
Maximum Queue (ft)	253	640	690	275	1624	1613	375	1755	275
Average Queue (ft)	43	294	404	157	1537	1558	353	754	155
95th Queue (ft)	144	687	824	341	1785	1696	485	1837	341
Link Distance (ft)		611	611		1568	1568		3312	
Upstream Blk Time (%)		1	17		4	7			
Queuing Penalty (veh)		11	176		51	90			
Storage Bay Dist (ft)	325			275			375		275
Storage Blk Time (%)	0	1		0	25	27	2	48	1
Queuing Penalty (veh)	0	1		3	51	130	21	47	2

Intersection: 6: River Ridge Mall/Murray Place & Candlers Mountain Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	LT	R	LT
Maximum Queue (ft)	260	398	396	183	205	543	567	180	174	308	450	366
Average Queue (ft)	166	368	369	10	171	335	380	40	95	147	226	148
95th Queue (ft)	346	381	383	95	248	482	508	154	154	238	391	304
Link Distance (ft)		297	297	297		610	610		1947	1947	1947	552
Upstream Blk Time (%)		75	80	0		0	0					0
Queuing Penalty (veh)		488	518	2		0	1					0
Storage Bay Dist (ft)	260				205			180				
Storage Blk Time (%)	0	71			6	33	49	0				21
Queuing Penalty (veh)	2	79			49	95	27	1				6

Intersection: 6: River Ridge Mall/Murray Place & Candlers Mountain Road

Movement	SB
Directions Served	R
Maximum Queue (ft)	119
Average Queue (ft)	25
95th Queue (ft)	90
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	120
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 7: Candlers Mountain Road & Mayflower Drive

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	B34
Directions Served	L	T	TR	L	T	T	R	R	LT	R	T
Maximum Queue (ft)	324	653	685	275	1613	1618	375	367	2860	275	160
Average Queue (ft)	66	513	572	113	1579	1581	321	97	1559	209	29
95th Queue (ft)	275	710	781	320	1608	1604	534	313	3083	372	227
Link Distance (ft)		610	610		1568	1568		868	3312		1431
Upstream Blk Time (%)		2	17		15	20			7		
Queuing Penalty (veh)		17	188		159	204			0		
Storage Bay Dist (ft)	325			275			375			275	
Storage Blk Time (%)	0	31		0	50	49	2		60	1	
Queuing Penalty (veh)	1	19		2	41	120	14		112	6	

Intersection: 8: Candlers Mountain Road & Mountain View Road/US 501 Entrance Ramp

Movement	EB	NB	NB	SB	SB	SB
Directions Served	R	LT	R	LT	T	R
Maximum Queue (ft)	3	604	56	930	1052	200
Average Queue (ft)	0	286	31	677	810	182
95th Queue (ft)	3	651	44	1190	1353	273
Link Distance (ft)	282	591		868	868	
Upstream Blk Time (%)		7		10	41	
Queuing Penalty (veh)		45		78	301	
Storage Bay Dist (ft)			25			200
Storage Blk Time (%)		30	15		48	6
Queuing Penalty (veh)		149	25		332	23

Intersection: 9: Lynchburg Expressway Ramp & Candlers Mountain Road

Movement	EB	EB	WB	NB
Directions Served	T	T	T	R
Maximum Queue (ft)	316	320	9	634
Average Queue (ft)	142	155	0	505
95th Queue (ft)	341	348	7	855
Link Distance (ft)	241	241	910	576
Upstream Blk Time (%)	10	17		77
Queuing Penalty (veh)	48	81		0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Candlers Mountain Road & Lynchburg Expressway Ramp

Movement	EB	EB	EB
Directions Served	T	T	T
Maximum Queue (ft)	1079	1080	1084
Average Queue (ft)	982	1002	996
95th Queue (ft)	1230	1217	1300
Link Distance (ft)	910	910	910
Upstream Blk Time (%)	62	77	62
Queuing Penalty (veh)	423	528	426
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Candlers Mountain Road & Mountain View Road/US 501 Entrance Ramp

Movement	NB	NB	SB	SB
Directions Served	LT	R	LT	R
Maximum Queue (ft)	330	64	46	10
Average Queue (ft)	104	34	7	0
95th Queue (ft)	236	49	29	5
Link Distance (ft)	2807		868	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		25		200
Storage Blk Time (%)	2	23		
Queuing Penalty (veh)	19	61		

Intersection: 9: Lynchburg Expressway Ramp & Candlers Mountain Road

Movement	EB	EB	WB	WB	NB
Directions Served	T	T	T	T	R
Maximum Queue (ft)	331	333	21	27	629
Average Queue (ft)	246	247	1	1	562
95th Queue (ft)	372	365	12	13	784
Link Distance (ft)	241	241	910	910	576
Upstream Blk Time (%)	26	38			90
Queuing Penalty (veh)	134	193			0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 10: Candlers Mountain Road & Lynchburg Expressway Ramp

Movement	EB	EB	EB
Directions Served	T	T	T
Maximum Queue (ft)	1076	1053	1079
Average Queue (ft)	1037	1036	1038
95th Queue (ft)	1134	1124	1152
Link Distance (ft)	910	910	910
Upstream Blk Time (%)	88	93	80
Queuing Penalty (veh)	570	606	523
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Candlers Mountain Road & School

Movement	WB	NB	SB	SB
Directions Served	LTR	T	L	T
Maximum Queue (ft)	169	1420	648	638
Average Queue (ft)	51	583	526	609
95th Queue (ft)	121	1517	831	673
Link Distance (ft)	599	2157	591	591
Upstream Blk Time (%)		4	19	68
Queuing Penalty (veh)		0	72	255
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: Candlers Mountain Road

Movement	SE	SE	NW	NW
Directions Served	T	R	T	T
Maximum Queue (ft)	5	830	3706	3704
Average Queue (ft)	0	36	2452	2463
95th Queue (ft)	5	430	4414	4398
Link Distance (ft)	1568	1568	3653	3653
Upstream Blk Time (%)		0	31	30
Queuing Penalty (veh)		1	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 5655

Intersection: 14: Candlers Mountain Road

Movement	SE	SE	NW	NW
Directions Served	T	R	T	T
Maximum Queue (ft)	11	62	3706	3706
Average Queue (ft)	0	3	2580	2587
95th Queue (ft)	8	29	4619	4608
Link Distance (ft)	1568	1568	3653	3653
Upstream Blk Time (%)			44	43
Queuing Penalty (veh)			0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 7294

APPENDIX E – IMPROVEMENT SCREENING

APPENDIX E-1: IMPROVEMENT MATRIX

Candlers Mountain Road Corridor Study
Improvement Matrix

Potential Improvement	Description	Concept Development Notes/Discussion	Operational Analysis Screening Performed?	Selected Improvement Project?	Included in Build Model?	Project Selection Notes*
West of Lynchburg Expressway Improvement Concepts (Wards Road, Woodall Road, and Seminole Avenue Intersections)						
A Turn lane improvements at Wards Road intersection	■ Construct dual SB left-turn lanes and dual WB right-turn lanes ■ Replace the bridge over railroad tracks (on SB approach) to accommodate additional lanes	■ ROW impacts to adjacent properties ■ Replacement of railroad bridge required (existing bridge rated in good condition)	Yes	Yes	Yes	Overall intersection operations were worse for turn lane improvements (A) than dual lane roundabout (B). Project was selected because there were fewer property impacts and improvement would be less challenging to construct and maintain traffic. Included in Project #1.
B Dual lane roundabout at Wards Road intersection	■ Construct roundabout with two circulating lanes ■ Include WB right-turn bypass lane	■ ROW impacts to adjacent properties ■ Potential to construct without replacing bridge over railroad tracks (on SB approach) but would require design waivers ■ Challenging to construct and maintain traffic	Yes	No	No	Overall intersection operations were better for dual lane roundabout (B) than turn lane improvements (A). Project was eliminated because there were greater property impacts and improvement would be challenging to construct and maintain traffic.
C Align Woodall Road and Seminole Avenue	■ Realign Woodall Road and/or Seminole Avenue to create a standard 4-leg intersection	■ Significant ROW impacts to several commercial properties	No	No	No	Project was eliminated because of significant property impacts.
D Median between Wards Road and Woodall Road	■ Eliminate two-way left-turn lane ■ Construct a median on Candlers Mountain Road between Wards Road and Woodall Road with one median opening at Short Street intersection	■ Improves safety by restricting most driveways to right-in right-out movements ■ Improves intersection spacing but still does not meet standard. Converts full access entrances to partial access, right-in right-out entrances.	Yes	Yes	Yes	Project was selected because of safety and access management improvements. Included in Project #1.
E Sidewalk on Candlers Mountain Road between Wards Road and Lynchburg Expressway	■ Finish sidewalk network along Candlers Mountain Road between Wards Road and the Lynchburg Expressway	■ Short-Term recommendation from *Candlers Mountain Road Bike/Pedestrian Study*	No	Yes	No	Pedestrian facilities were incorporated into design of Project #1.
F Pedestrian accommodations at Woodall Road intersection	■ Construct pedestrian crosswalks and signals on north and west approaches of Woodall Road intersection	■ Mid-Term Recommendation from *Candlers Mountain Road Bike/Pedestrian Study*	No	Yes	No	Pedestrian facilities were incorporated into design of Project #1.
Lynchburg Expressway Interchange Improvement Concepts						
G Diamond interchange with loop in NE quadrant	■ Construct diamond interchange with loop in the NE quadrant ■ Construct new signal for NB Lynchburg Expressway ramps ■ Relocate SB Lynchburg Expressway exit ramp and signal to the east to align with new SB Lynchburg Expressway entrance ramp ■ Convert Seminole Avenue to right-in, right-out, stop-controlled intersection ■ No bridge replacement	■ Phase 1 recommendation from *Candlers Mountain Road Corridor Study* (PB, 1999) ■ Safety improved for entrance ramp to SB Lynchburg Expressway with removal of loop in NW quadrant and conversion to diamond. Existing NW loop has no acceleration lane. ■ Adds one signal to corridor	Yes	No	No	Project was not selected because operations were better for the partial cloverleaf concept (H).
H Partial cloverleaf interchange with loops in NE and NW quadrants	■ Construct diamond interchange with loops in the NE and NW quadrants ■ Construct new signal for NB Lynchburg Expressway ramps ■ Relocate SB Lynchburg Expressway exit ramp and signal to the east to align with new SB Lynchburg Expressway entrance ramp ■ Convert Seminole Avenue to right-in, right-out, stop-controlled intersection ■ Replace bridge to provide acceleration lane for loop ramp in NW quadrant and deceleration lane for loop in NE quadrant	■ Phase 2 recommendation from *Candlers Mountain Road Corridor Study* (PB, 1999) ■ Acceleration and deceleration lanes for loop ramps meet design standards ■ Adds one signal to corridor ■ Existing bridge rated in poor condition and has low vertical clearance	Yes	Yes	Yes	Project was selected because operations were better for this concept than the diamond interchange with a loop in the NE quadrant (G). Included in Project #2.

Candlers Mountain Road Corridor Study
Improvement Matrix

Potential Improvement	Description	Concept Development Notes/Discussion	Operational Analysis Screening Performed?	Selected Improvement Project?	Included in Build Model?	Project Selection Notes*
I Dual lane NB Lynchburg Expressway exit ramp to EB Candlers Mountain Road	■ Construct second lane on NB Lynchburg Expressway exit ramp ■ One lane exit from Lynchburg Expressway transitions to two lanes before merge onto Candlers Mountain Road	■ Recommendation from *Candlers Mountain Road Corridor Study* (PB, 1999) ■ Provides additional capacity on ramp to reduce queuing ■ Intersection of ramp with Candlers Mountain Road would need to be signalized and/or an additional receiving lane would need to be constructed on Candlers Mountain Road	No	No	No	Project was not selected because other selected improvement projects downstream of the exit ramp improved operations of the ramp and a second lane was not needed. This project could be added if warranted in the future.
J Realign NB Lynchburg Expressway entrance ramp from WB Candlers Mountain Road	■ Realign entrance ramp to increase radius and provide acceleration and taper lengths that meet VDOT standards	■ Recommendation from *Lynchburg Expressway Improvement Study*	No	Yes	Yes	Project was added to the partial cloverleaf concept (H) as part of Project #2.
K Lynchburg Expressway auxiliary lanes	■ Construct NB and SB auxiliary lanes on the Lynchburg Expressway between both the NB and SB loop ramps ■ Replace bridge to accommodate auxiliary lanes	■ Recommendation from *Lynchburg Expressway Improvement Study* ■ Auxiliary lanes provide additional acceleration/deceleration length but do not meet full design standards ■ Existing bridge rated in poor condition and has low vertical clearance	No	No	No	Project was not selected because partial cloverleaf concept (H) provided acceleration and deceleration lane lengths that meet full design standards.
L Sidewalk and warning signs over Lynchburg Expressway	■ Construct sidewalk on south side of Candlers Mountain Road between Seminole Avenue and River Ridge Mall ■ 3 feet wide sidewalk over bridge ■ 5-6 feet wide sidewalk on either side of bridge ■ Advance warning signs with rapid rectangular flashing beacon (RRFB) at ramp crossing locations	■ Mid-Term Recommendation from *Candlers Mountain Road Bike/Pedestrian Study* ■ When bridge is reconstructed, incorporate pedestrian facilities into design	No	Yes	No	Pedestrian facilities were incorporated into design of Project #2.
East of Lynchburg Expressway Improvement Concepts (Murray Place/River Ridge Mall and Mayflower Drive Intersections)						
M Dual lane roundabout at Murray Place/River Ridge Mall intersection	■ Construct a roundabout with two circulating lanes ■ Include WB right-turn bypass lane and NB right-turn bypass lane	■ Potential ROW impacts	Yes	No	No	Project was not selected because overall intersection, NB approach, and WB approach operated at LOS F in 2040 PM screening analysis.
N Dual lane roundabout at Mayflower Drive intersection	■ Construct a roundabout with two circulating lanes ■ Include right-turn bypass lane for all approaches	■ Large footprint due to bypass lanes on all approaches	Yes	No	No	Project was not selected because NB approach operates at LOS F under 2040 PM conditions and project footprint is very impactful to adjacent properties.
O Turn lane improvements at Murray Place/River Ridge Mall intersection (no bridge widening)	■ Construct dual WB left-turn lanes and third receiving lane at entrance to the ramp to accommodate dual WB lefts ■ Construct dual signalized NB right-turn lanes (add approach lane) ■ Construct a free-flow, channelized SB right-turn into existing receiving lane ■ No bridge replacement	■ Potential property impacts for additional entry and exit lanes on River Ridge Mall approach	Yes	No	No	Project was not selected because overall intersection v/c>1 and NB approach operated at LOS F in 2040 PM screening analysis.
P Turn lane improvements at Mayflower Drive intersection (no bridge widening)	■ Construct a SB left-turn lane (in addition to existing SB left-through lane) ■ Extend EB right-turn lane back to bridge ■ No bridge replacement	■ Potential ROW impacts for SB left-turn lane	Yes	Yes	Yes	Project was selected because overall intersection operated at LOS C in 2040 PM screening analysis and does not require replacement of railroad bridge. Included in Project #4.

Candlers Mountain Road Corridor Study
Improvement Matrix

	Potential Improvement	Description	Concept Development Notes/Discussion	Operational Analysis Screening Performed?	Selected Improvement Project?	Included in Build Model?	Project Selection Notes*
Q	Turn lane improvements at Murray Place/River Ridge Mall intersection (with railroad bridge widening)	■ Widen Candlers Mountain Road to three through lanes in EB and WB directions ■ Construct dual WB left-turn lanes and third receiving lane at entrance to the ramp to accommodate dual WB lefts ■ Construct dual signalized NB right-turn lanes (add approach lane) ■ Construct a channelized SB right-turn (yield controlled) ■ Replace bridge over railroad track to accommodate third through lane in EB and WB directions	■ Begin third through lane on EB Candlers Mountain Road at NB Lynchburg Expressway exit ramp ■ Terminate third through lane on WB Candlers Mountain Road at NB Lynchburg Expressway entrance ramp ■ Existing bridge rated in good condition	Yes	No	No	Project was not selected because double continuous Green-Ts concept (S) provided better operations and because bridge reconstruction was determined to be a constraint (cost) by SWG.
R	Turn lane improvements at Mayflower Drive intersection (with railroad bridge widening)	■ Widen Candlers Mountain Road to three through lanes in EB and WB directions ■ Construct SB left-turn lane (in addition to existing SB left-through lane) ■ Continuous EB right-turn lane from Murray Place/River Ridge Mall intersection (third lane in EB direction) ■ Replace bridge over railroad track to accommodate third through lane in EB and WB directions	■ Begin third through lane on WB Candlers Mountain Road after US 460 on ramps ■ Drop third through lane on EB Candlers Mountain Road at Mayflower Drive intersection (continuous right-turn lane) ■ Existing bridge rated in good condition	Yes	No	No	Project was not selected because bridge reconstruction was determined to be a constraint by SWG. Widening can be completed at a later date if funding becomes available.
S	Double continuous Green-Ts at Murray Place/River Ridge Mall intersections (no bridge widening)	■ Construct a continuous Green-T at River Ridge Mall Entrance (convert Murray Place at existing signal to right-in, right-out) ■ Construct a continuous Green-T at Murray Place (at existing right-in, right-out intersection)	■ EB through traffic continuous at west Green-T intersection ■ WB through traffic continuous at east Green-T intersection ■ Merge lanes points for NB and SB left-turn movements extend through downstream intersections ■ One signal added to corridor	Yes	Yes	Yes	Project was selected because both intersections operated at LOS C in 2040 PM screening analysis and project does not require replacement of railroad bridge. Included in Project #3.
T	Continuous Green-T at Mayflower Drive intersection (no bridge widening)	■ Continuous Green-T configuration at Mayflower Drive ■ Eliminate WB left turn and reroute to U-turn at Murray Place ■ Eliminate SB thru and reroute to U-turn at Murray Place	■ EB through traffic continuous at intersection	Yes	No	No	Project was not selected because overall intersection v/c>1 in 2040 PM screening analysis.
U	Double continuous Green-Ts at Murray Place/River Ridge Mall intersections (with railroad bridge widening)	■ Widen Candlers Mountain Road to three through lanes in EB and WB directions ■ Construct a continuous Green-T at River Ridge Mall Entrance (convert Murray Place at existing signal to right-in, right-out) ■ Construct a continuous Green-T at Murray Place (at existing right-in, right-out intersection) ■ Replace bridge over railroad track to accommodate third through lane in EB and WB directions	■ EB through traffic continuous at west Green-T intersection ■ WB through traffic continuous at east Green-T intersection ■ Merge lanes points for NB and SB left-turn movements extend through downstream intersections ■ One signal added to corridor ■ Existing bridge rated in good condition	Yes	No	No	Project was not selected because bridge reconstruction was determined to be a constraint by SWG. Widening can be completed at a later date if funding becomes available.

Candlers Mountain Road Corridor Study
Improvement Matrix

Potential Improvement	Description	Concept Development Notes/Discussion	Operational Analysis Screening Performed?	Selected Improvement Project?	Included in Build Model?	Project Selection Notes*
V Continuous Green-T at Mayflower Drive intersection (with railroad bridge widening)	■ Widen Candlers Mountain Road to three through lanes in EB and WB directions ■ Continuous Green-T configuration at Mayflower Drive ■ Eliminate WB left turn and reroute to U-turn at Murray Place ■ Eliminate SB thru and reroute to U-turn at Murray Place ■ Replace bridge over railroad track to accommodate third through lane in EB and WB directions	■ EB through traffic continuous at intersection ■ Existing bridge rated in good condition	Yes	No	No	Project was not selected because bridge reconstruction was determined to be a constraint (cost) by SWG. Widening can be completed at a later date if funding becomes available.
W Close River Ridge Mall free-flow right entrance ramp	■ Close free-flow right-in entrance to River Ridge Mall ■ Reroute volume to channelized right at Murray Place/River Ridge Mall signalized intersection	■ Allows for greater spacing between Lynchburg Expressway Ramp and Murray Place/River Ridge Mall intersection	Yes	Yes	Yes	Project was selected because it provided a greater distance for merging from Lynchburg Expressway exit ramp and right-turn mall volumes could be accommodated at signal. Included in Project #3.
X Eliminate Murray Place intersection	■ Eliminate right-in, right-out Murray Place intersection ■ Reroute volume to signalized Murray Place/River Ridge Mall intersection	■ Included as a recommendation in the *Lynchburg Expressway Improvement Study*	Yes	No	No	Project was not selected because double continuous Green-Ts concept (S) was selected and Murray Place was a component of that project.
Y Sidewalk on Candlers Mountain Road between Murray Place/River Ridge Mall and Mayflower Drive	■ Construct sidewalk on south side of Candlers Mountain Road between Murray Place/River Ridge Mall and Mayflower Drive ■ 3 feet wide sidewalk over railroad bridge ■ 5-6 feet wide sidewalk on either side of bridge	■ Mid-Term Recommendation from *Candlers Mountain Road Bike/Pedestrian Study*	No	No	No	Project was not selected because bridge reconstruction was determined to be a constraint by SWG. If bridge is replaced, pedestrian accommodations should be incorporated into the design.
Corridor-Wide Improvement Concepts						
Z Signal retiming	■ Retime the Candlers Mountain Road corridor signals	■ District has already made timing adjustments along this corridor	No	No	Yes	Stand-alone signal timing project was not selected, however signal timing improvements were incorporated into all build projects.
AA Signal communication infrastructure	■ Install infrastructure for signal communication	■ Communication infrastructure will align with VDOT's plans for centralized software system and allow TOC to make quick adjustments in the field	No	Yes	No	Communication infrastructure should be incorporated into build project designs in alignment with VDOT's plans for centralized software system.
BB Adaptive controllers	■ Install adaptive controllers on Candlers Mountain Road corridor	■ District has not found adaptive controllers to be effective in congested corridors	No	No	No	Project was not selected based on feedback from District.
CC Protected left-turn phasing	■ Convert protected/permissive phasing to protected phasing at locations with safety concerns	■ Protected-only phasing improves safety of left-turning vehicles ■ Protected-only phasing will worsen corridor operations	No	No	No	Project was not selected because of impact on corridor operations
Further Study						
DD Perform study to improve traffic flow during drop-off at Liberty Christian Academy	■ Identify alternative drop off plans that don't queue back onto Candlers Mountain Road	■ Outside the scope of this study and would require additional data collection. Recommended as an additional study.	No	Yes - Study	Yes	Dummy intersection was removed from build models to understand corridor operations without queue from school drop-off
EE Perform addition study on opportunities to consolidate driveways on Candlers Mountain Road west of the Lynchburg Expressway interchange	■ Consolidate driveways to improve access spacing	■ Would require coordination with businesses and public input. Should be considered, but will not be looked at in this study. City of Lynchburg has more restricted access management standards.	No	Yes - Study	No	
FF Pedestrian crossing at Murray Place/River Ridge Mall	■ Evaluate alternatives for a pedestrian crossing at Murray Place/River Ridge Mall if double continuous Green-Ts are constructed	■ Project #3 does not provide a pedestrian crossing ■ Potential crossing alternatives should be studied if the volume of pedestrians becomes significant	No	Yes - Study	No	

* Screening analysis results (Synchro, 2040 PM peak hour) are summarized in Appendix E-2.

APPENDIX E-2: SCREENING ANALYSIS RESULTS

CANDLERS MOUNTAIN ROAD CORRIDOR STUDY

BETWEEN US 460 AND WARDS ROAD

STARS

CONCEPT SCREENING – AUGUST 10, 2016

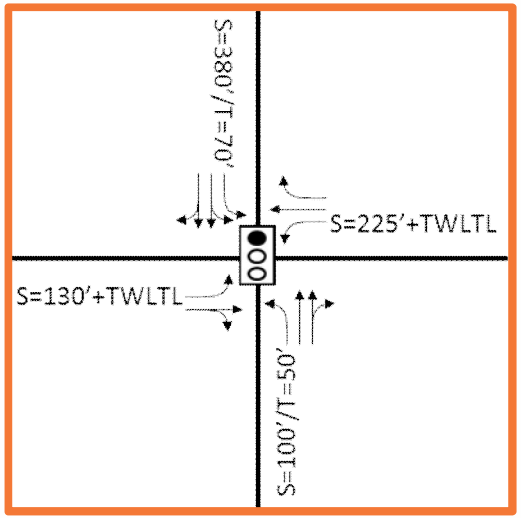
VDOT

Kimley»Horn

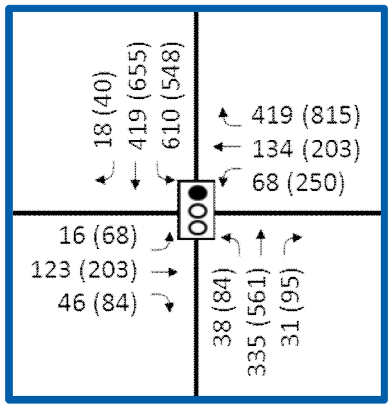
POTENTIAL IMPROVEMENTS
West of Lynchburg Expressway

- Wards Road

Existing Geometry

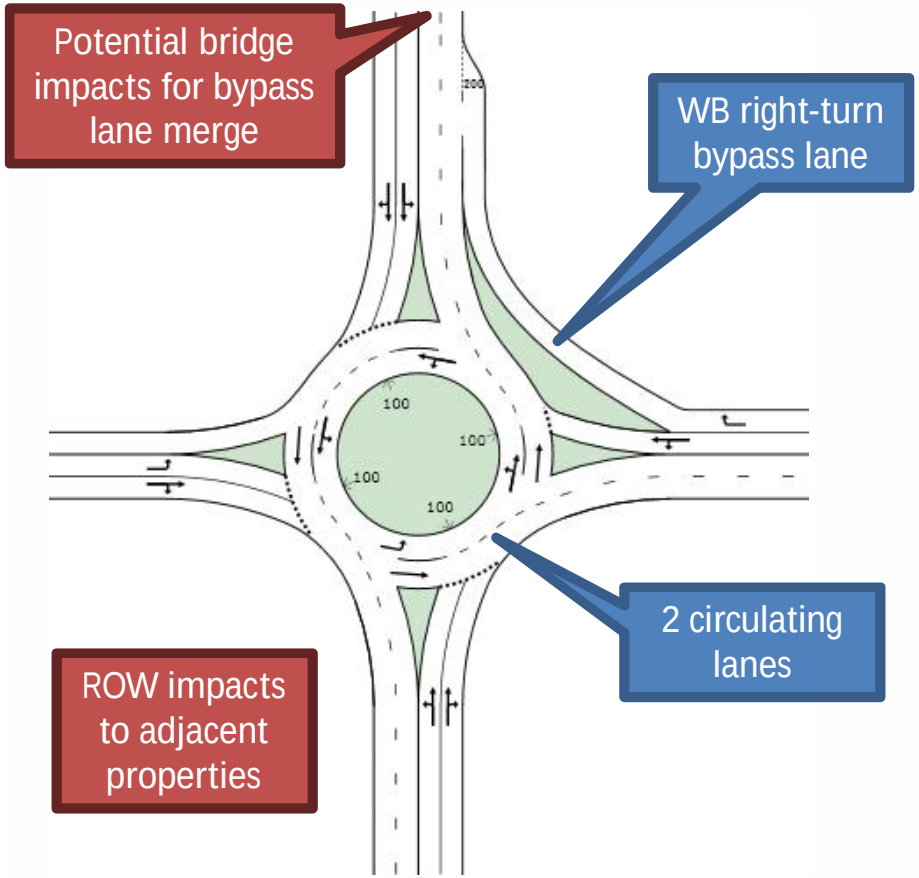


2040 No-Build Volumes

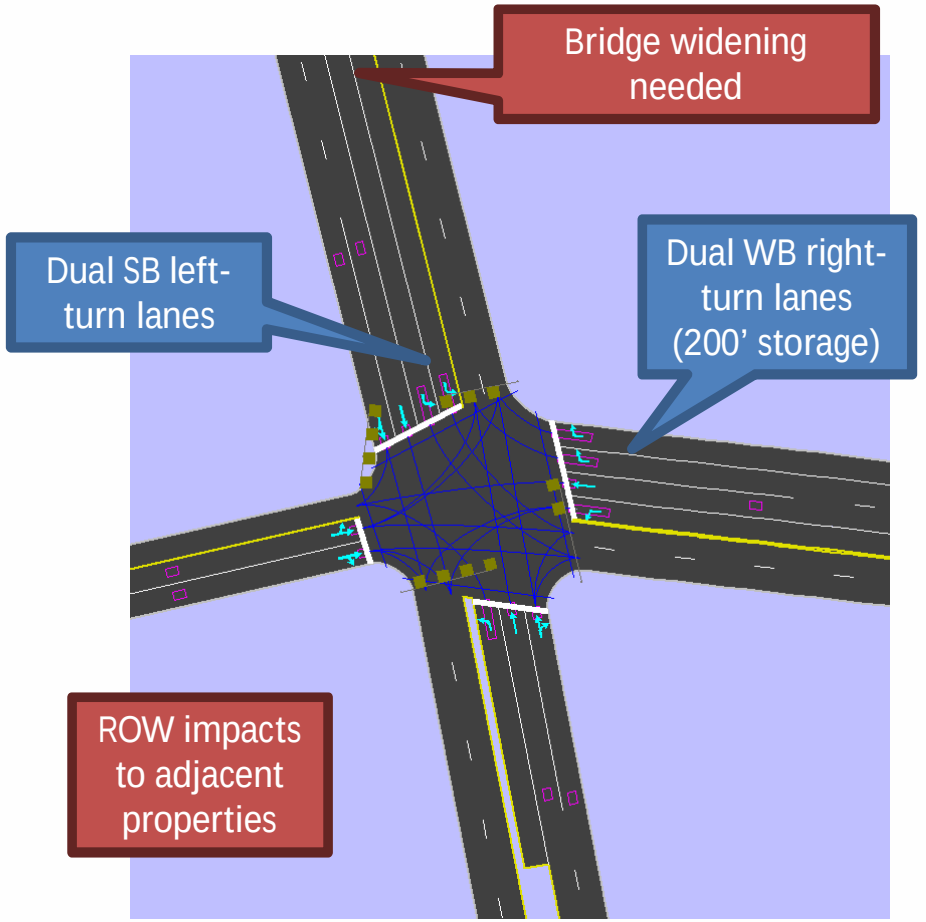


POTENTIAL IMPROVEMENTS
West of Lynchburg Expressway

ROUNDABOUT

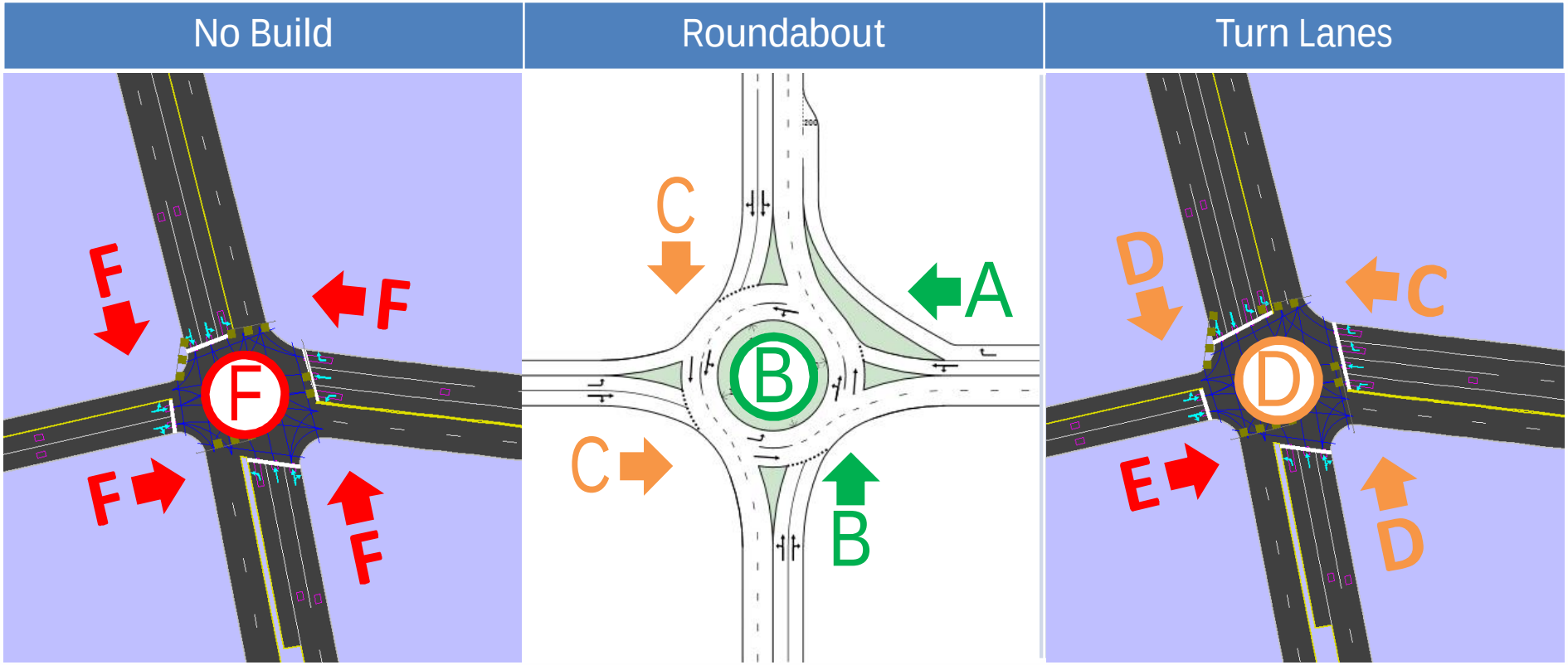


ADDITIONAL TURN LANES



POTENTIAL IMPROVEMENTS
West of Lynchburg Expressway

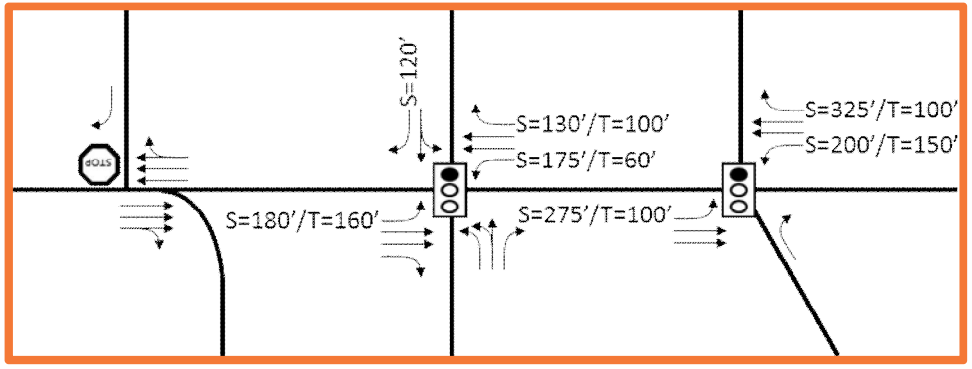
- Wards Road Intersection Improvements
  - 2040 PM LOS Results



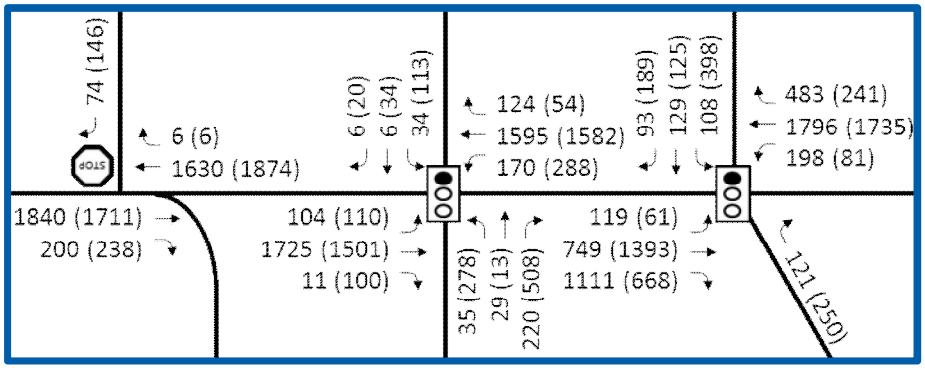
POTENTIAL IMPROVEMENTS
East of Lynchburg Expressway

- Murray Place/River Ridge Road & Mayflower Drive

Existing Geometry

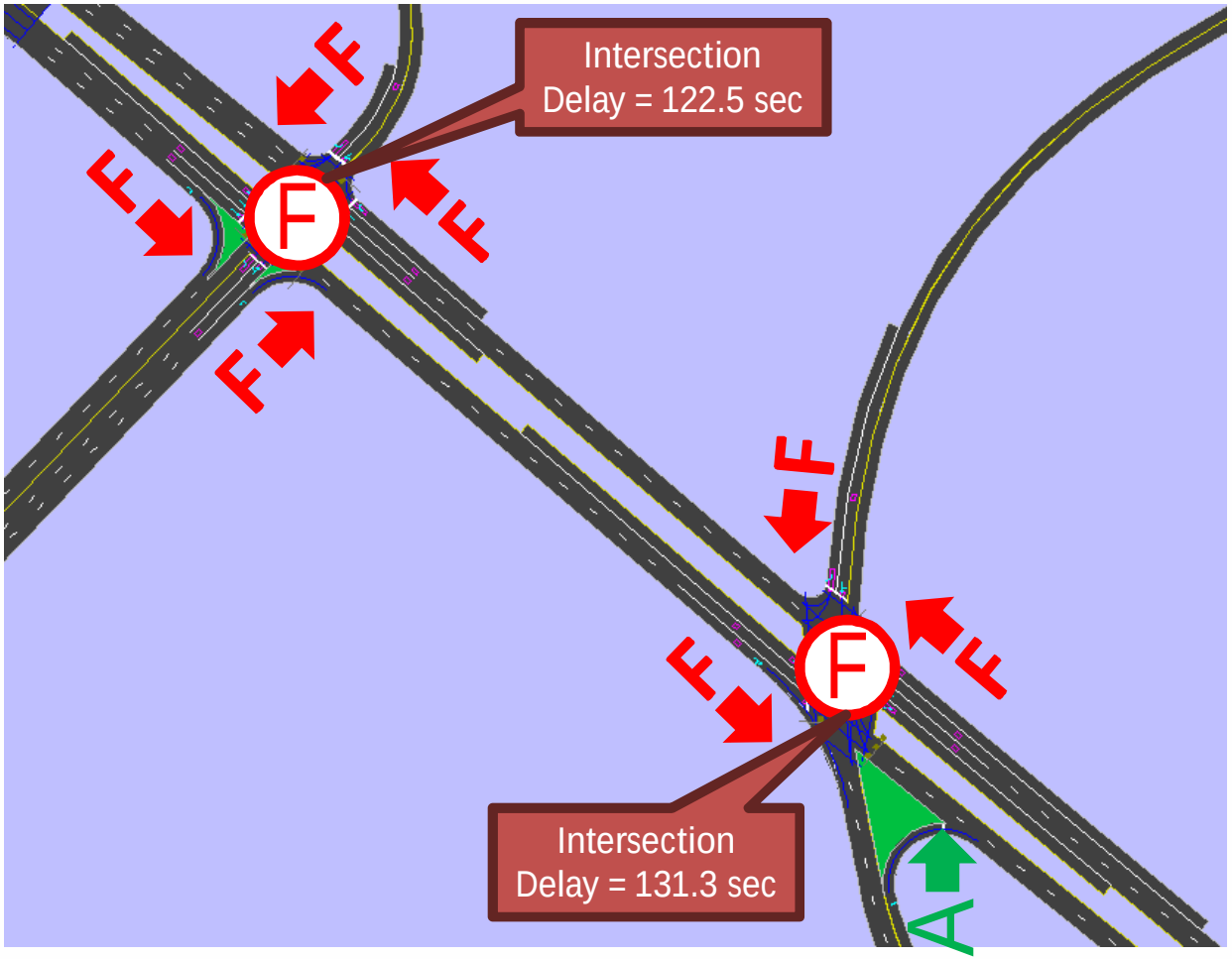


2040 No-Build Volumes



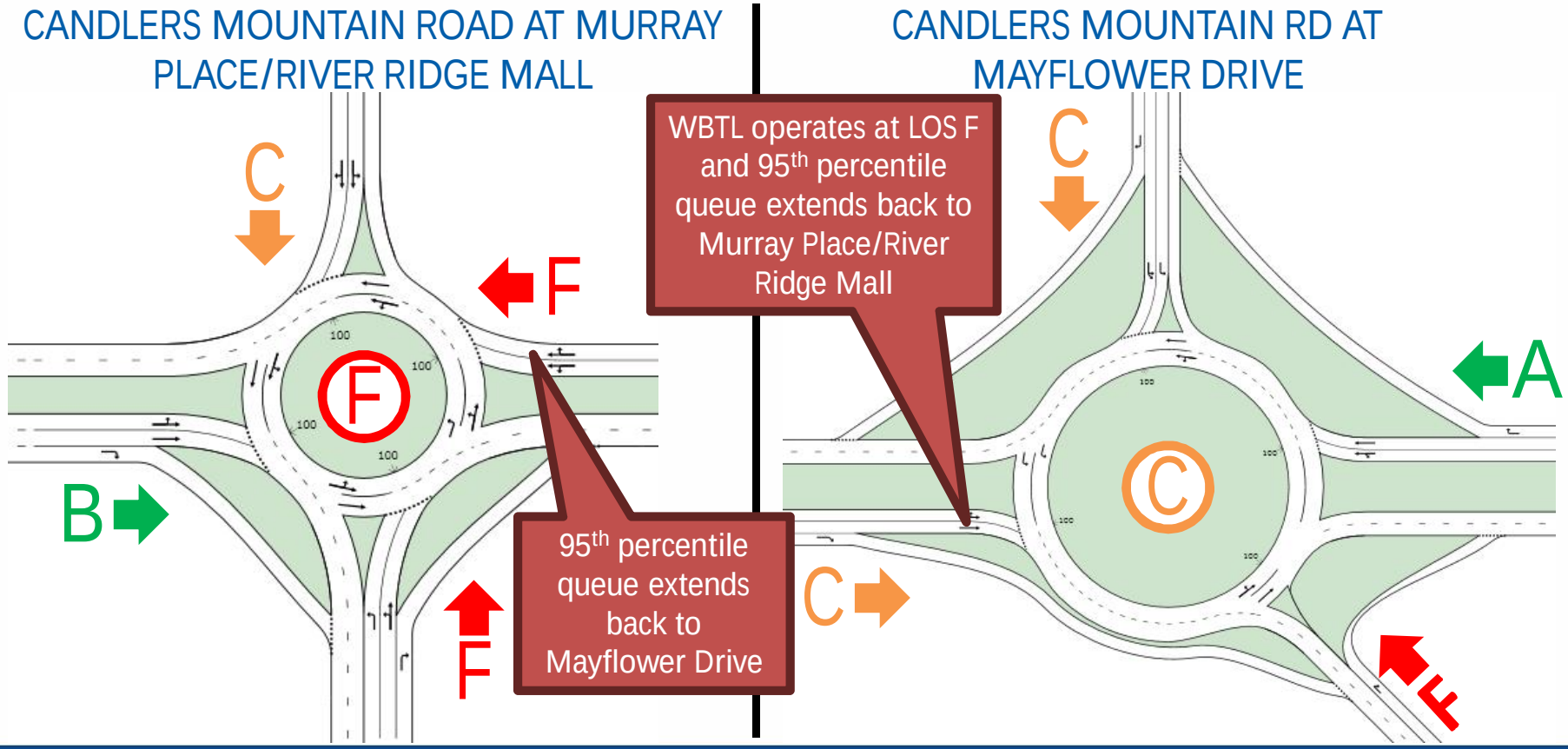
POTENTIAL IMPROVEMENTS
East of Lynchburg Expressway

- 2040 PM No-Build LOS Results
  (Includes closing right-in, right-out Murray Place intersection and free-flow right to River Ridge Mall)



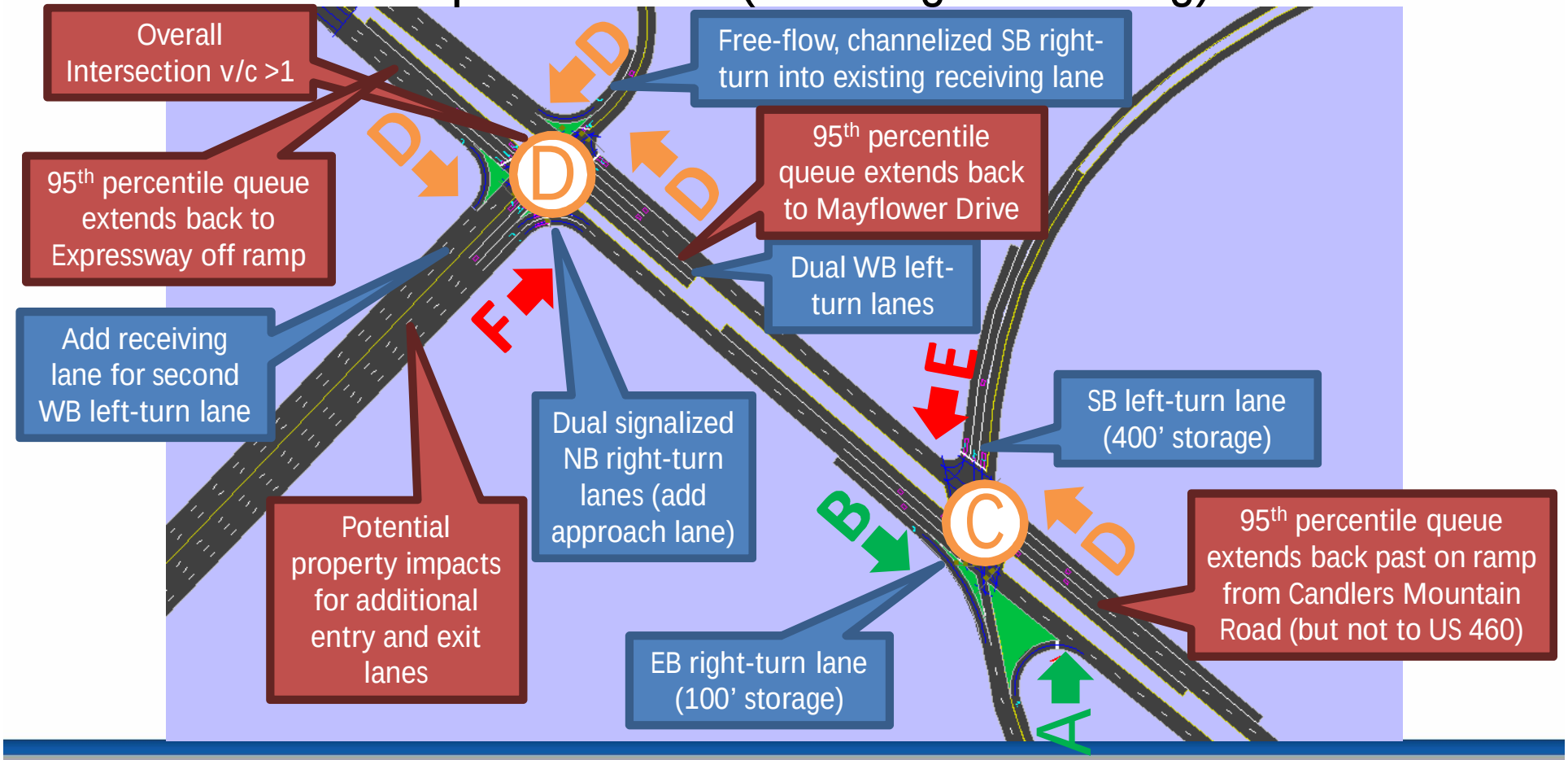
POTENTIAL IMPROVEMENTS
East of Lynchburg Expressway

› Dual-Lane Roundabouts



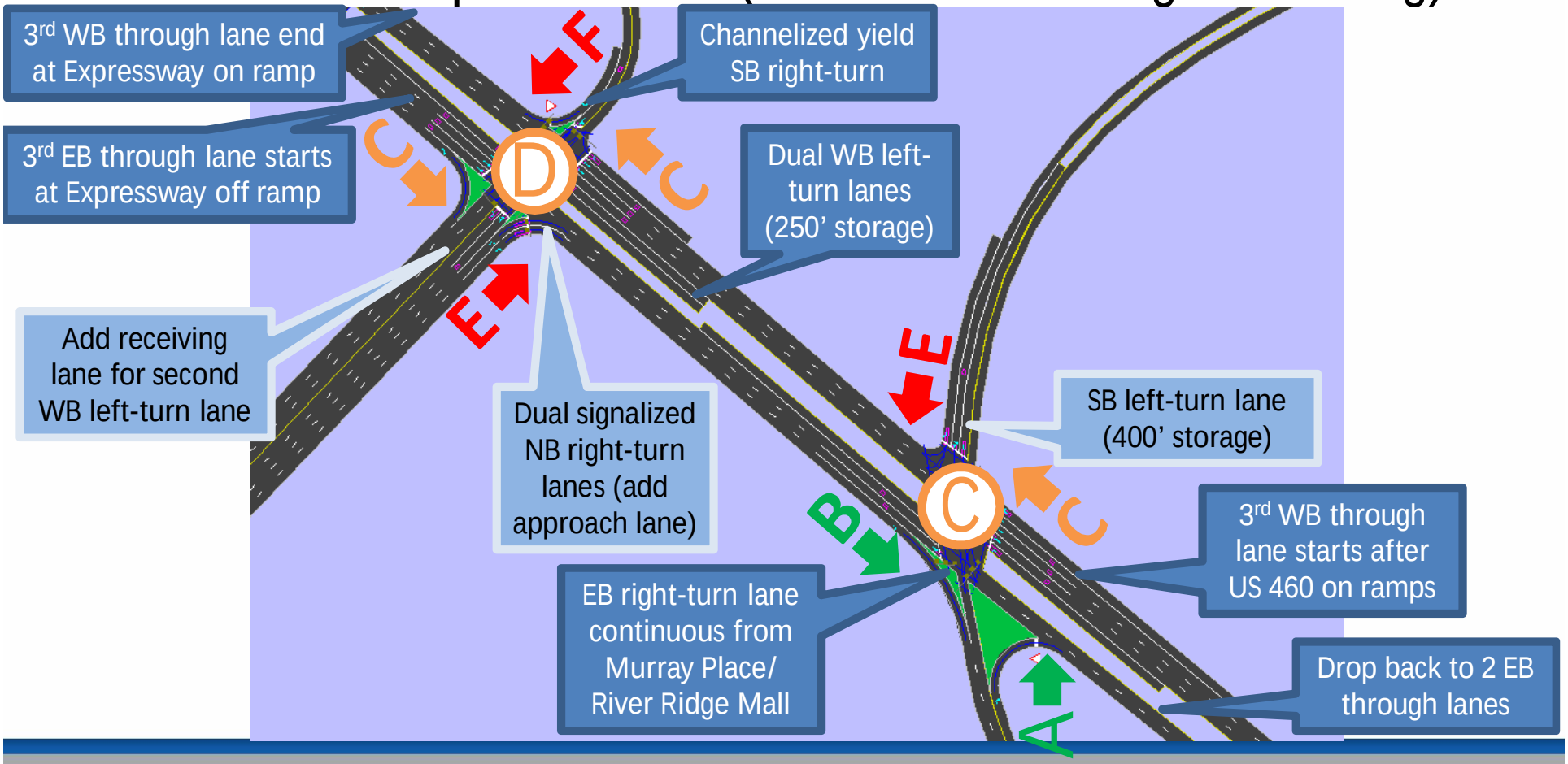
POTENTIAL IMPROVEMENTS
East of Lynchburg Expressway

› Turn Lane Improvements (no bridge widening)



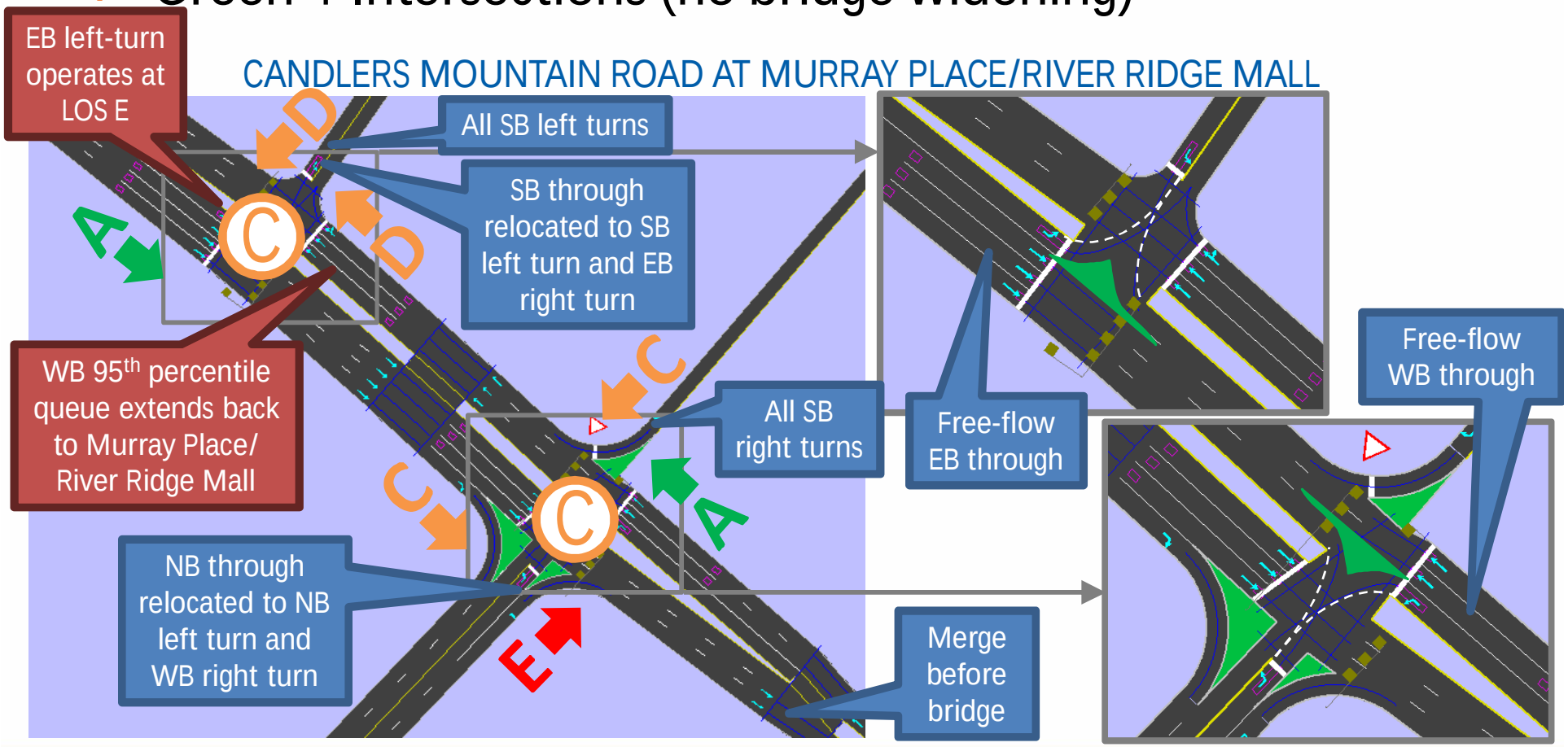
POTENTIAL IMPROVEMENTS
East of Lynchburg Expressway

› Turn Lane Improvements (with railroad bridge widening)



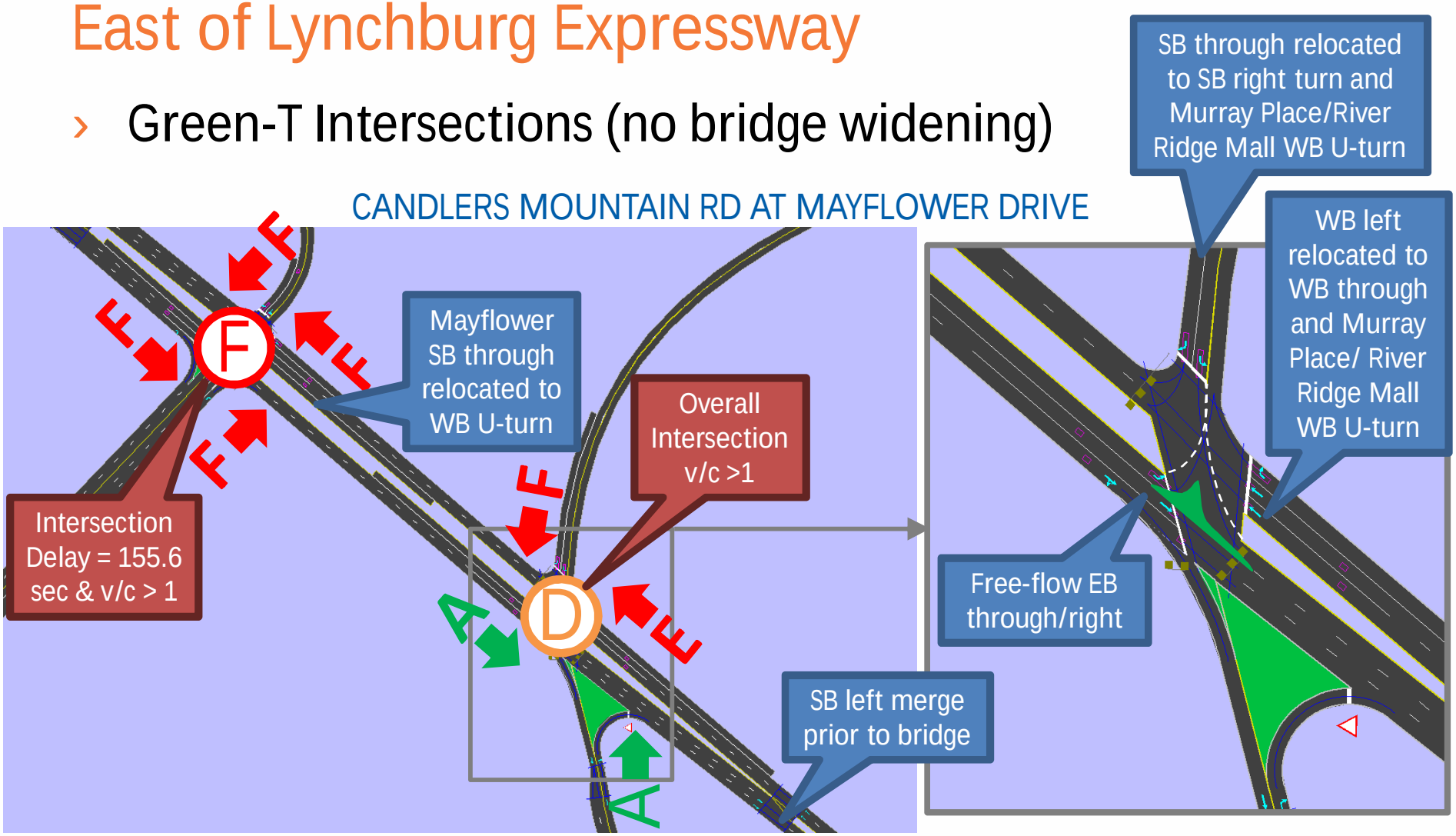
POTENTIAL IMPROVEMENTS
East of Lynchburg Expressway

› Green-T Intersections (no bridge widening)



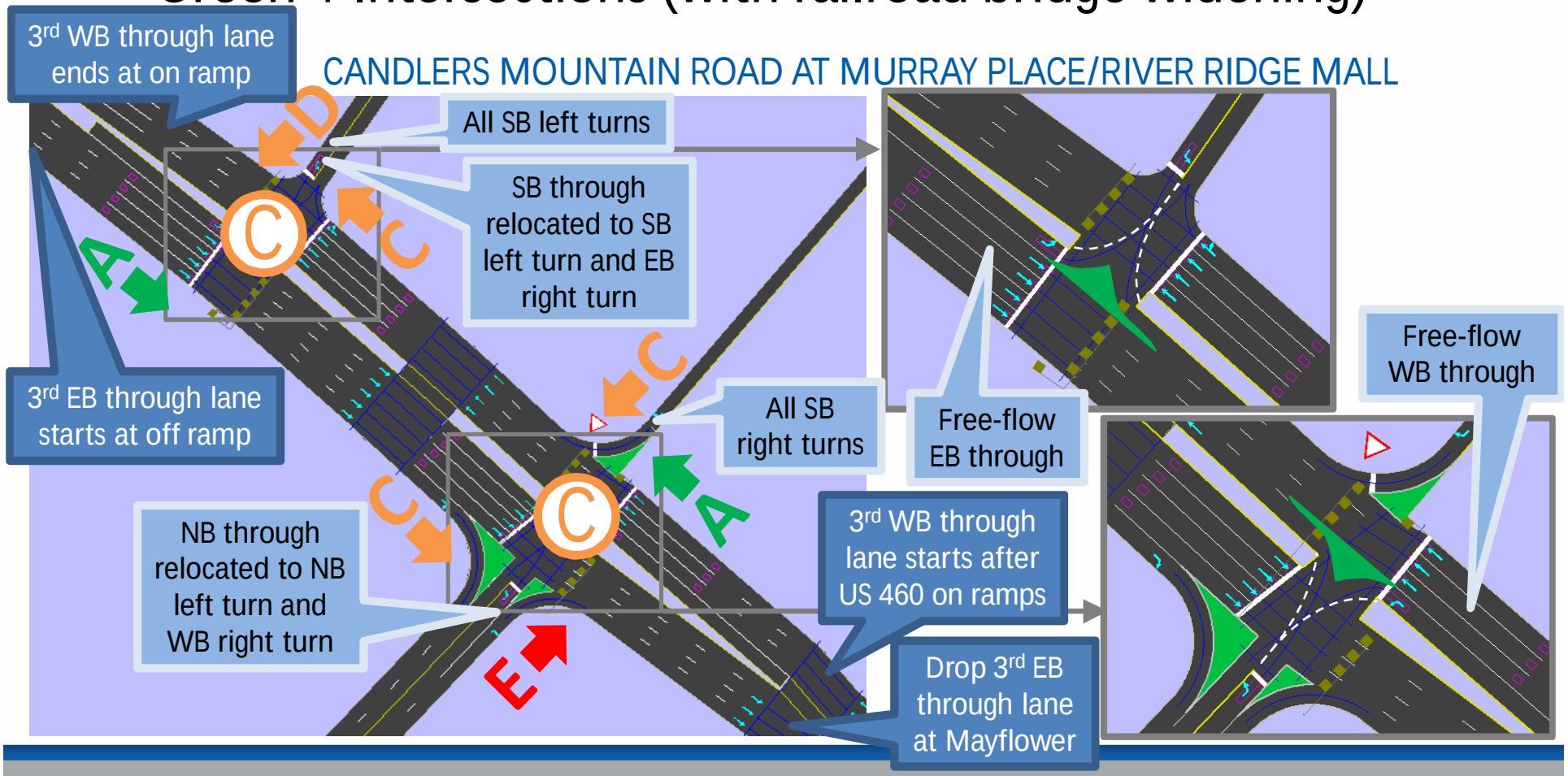
POTENTIAL IMPROVEMENTS
East of Lynchburg Expressway

- Green-T Intersections (no bridge widening)



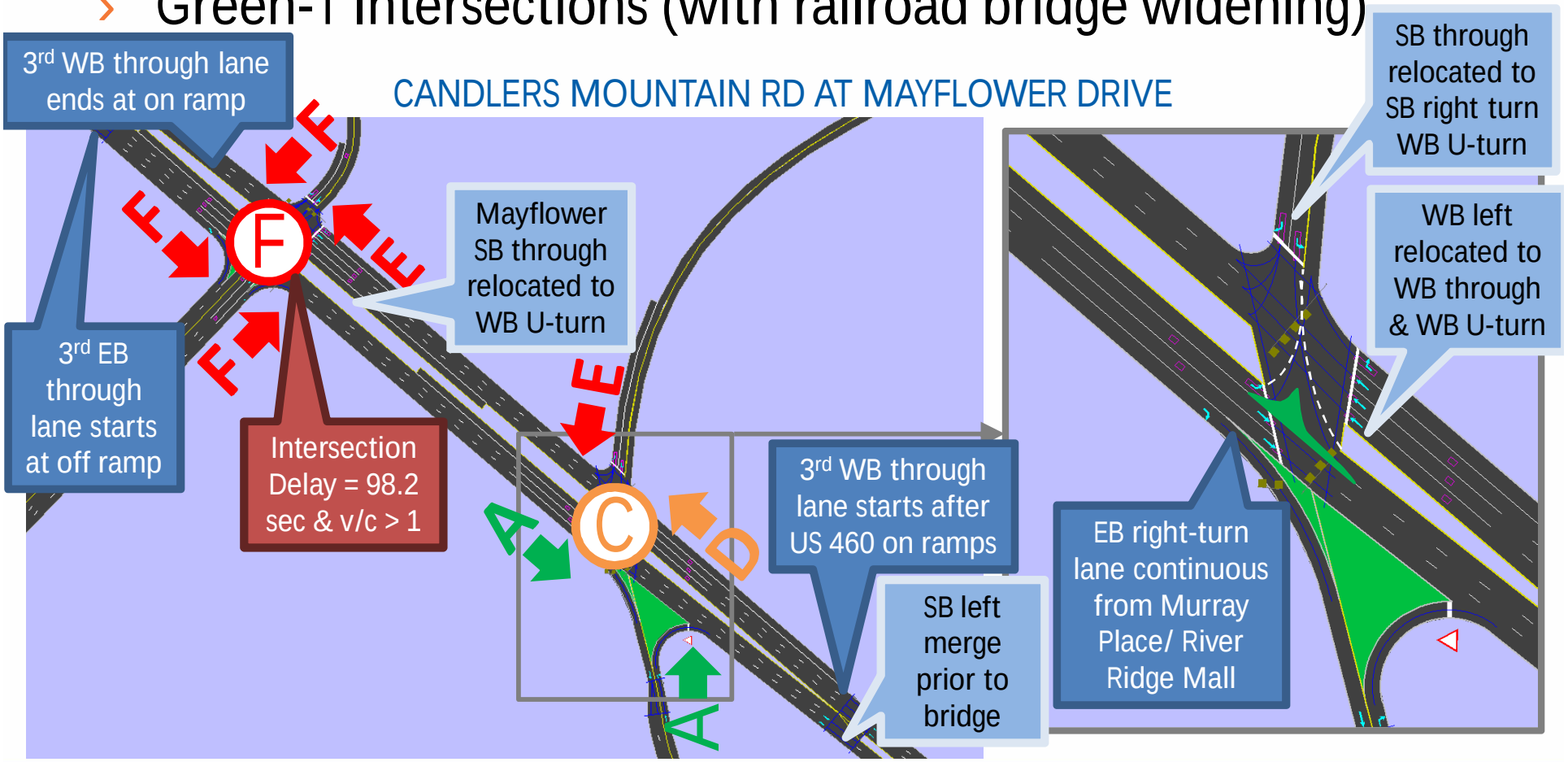
POTENTIAL IMPROVEMENTS
East of Lynchburg Expressway

- Green-T Intersections (with railroad bridge widening)



POTENTIAL IMPROVEMENTS
East of Lynchburg Expressway

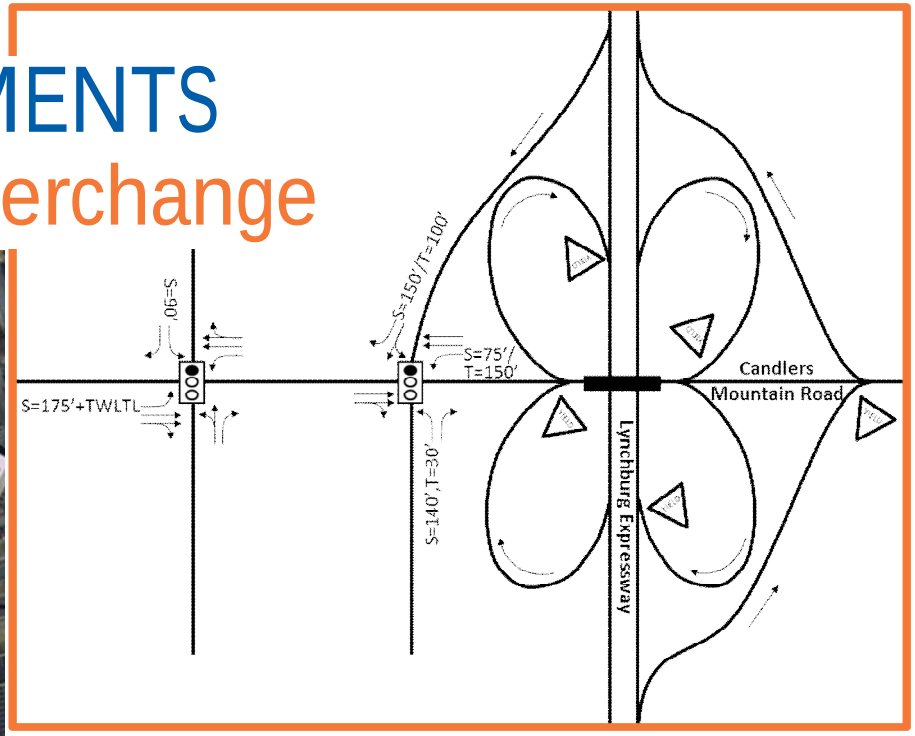
› Green-T Intersections (with railroad bridge widening)



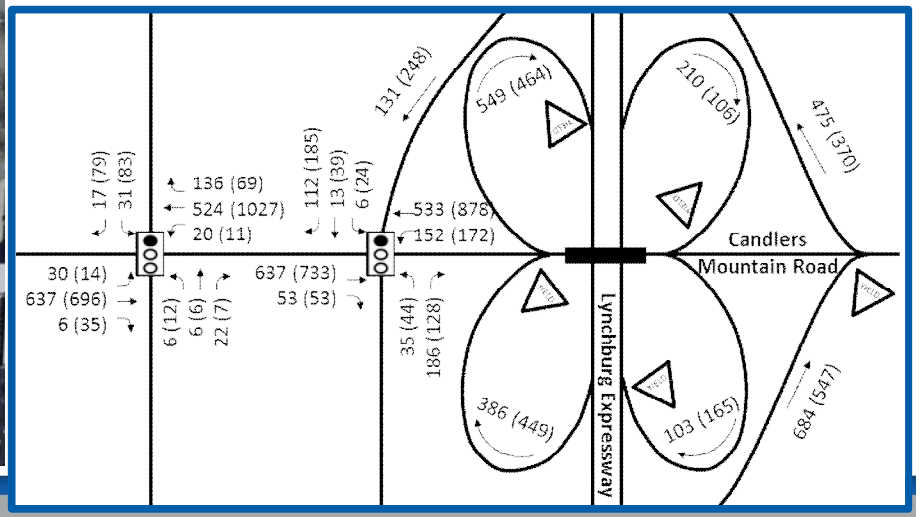
POTENTIAL IMPROVEMENTS

Lynchburg Expressway Interchange

Existing Geometry

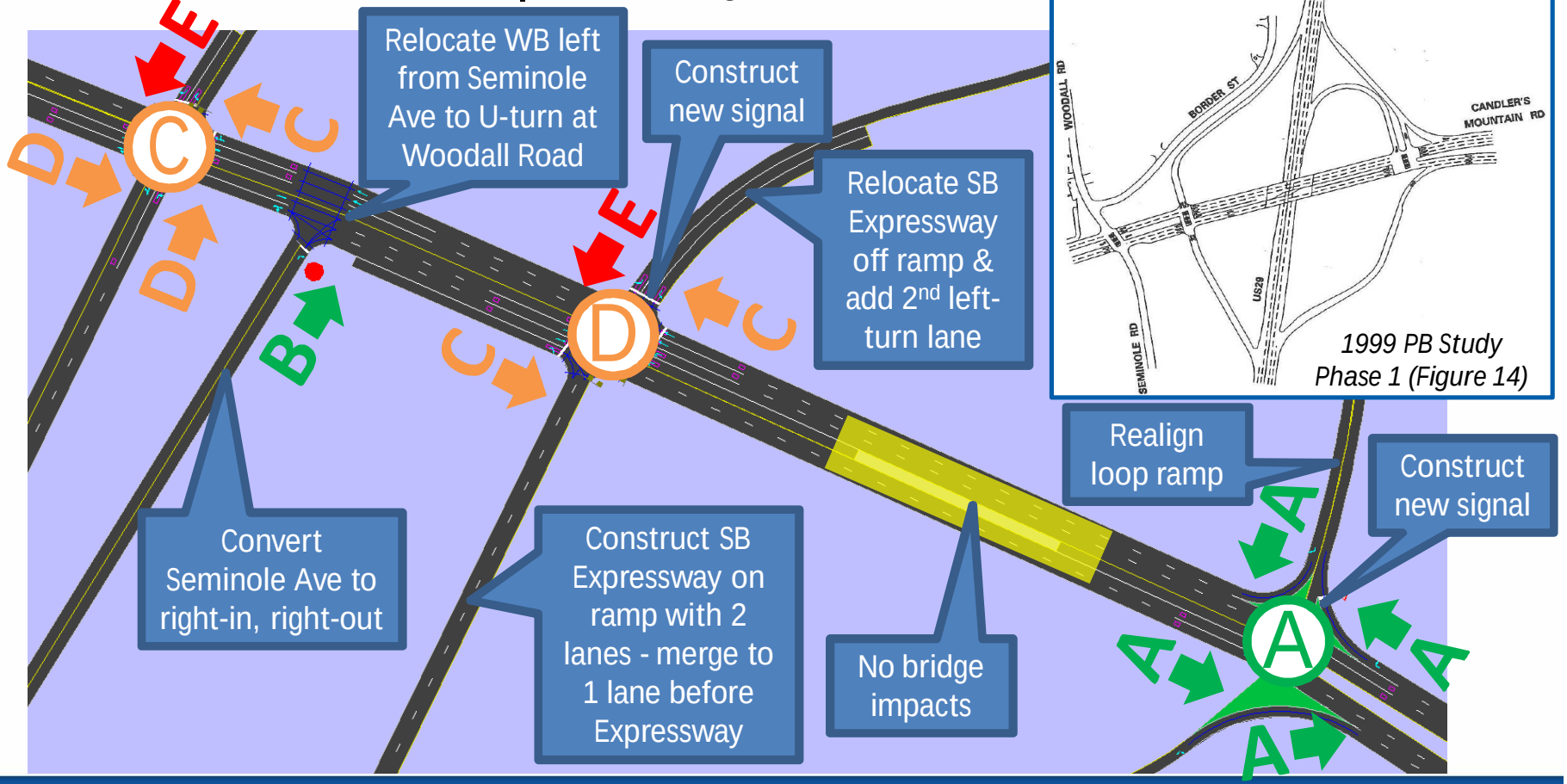


2040 No-Build Volumes



POTENTIAL IMPROVEMENTS
Lynchburg Expressway Interchange

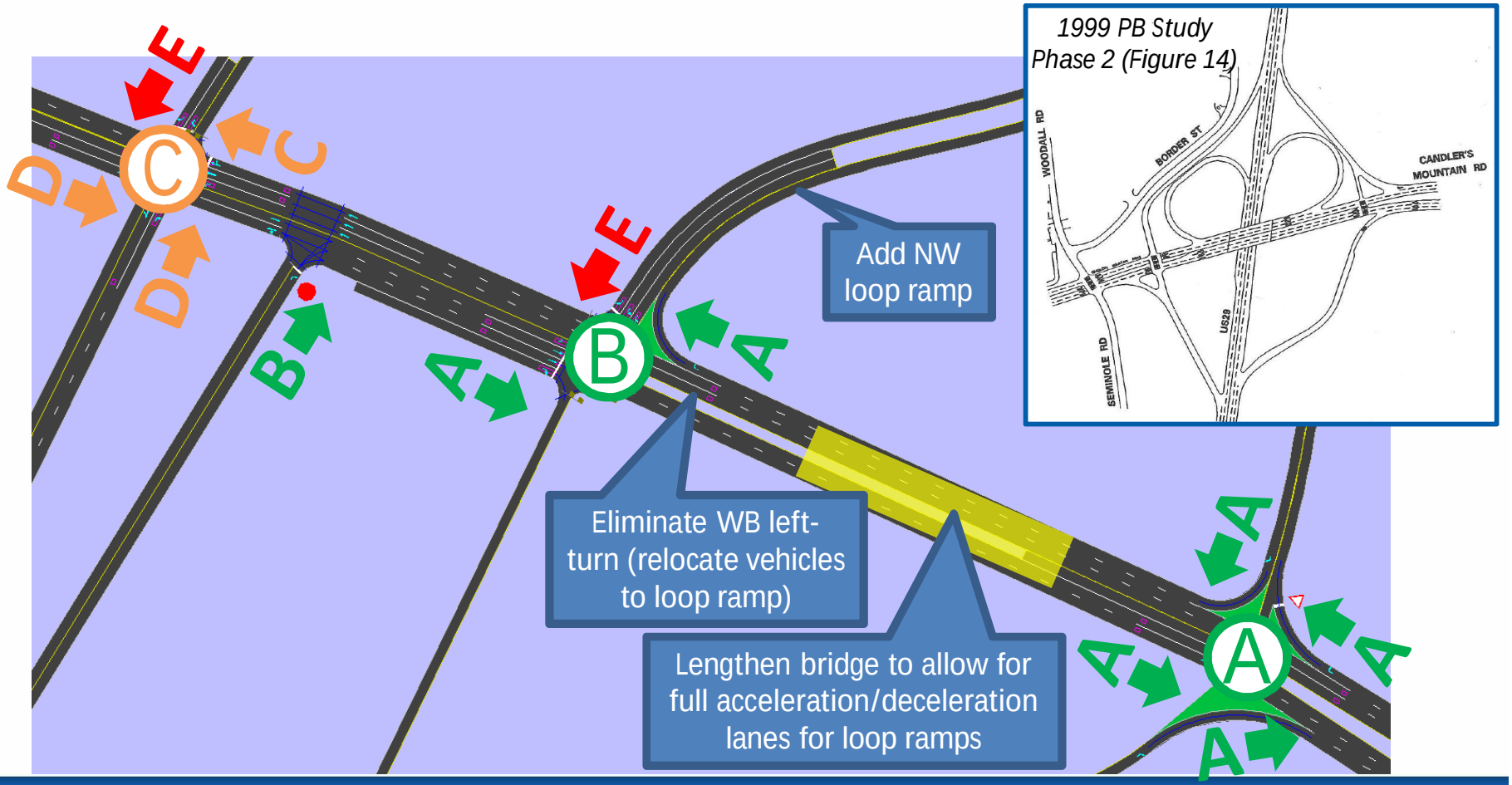
› Diamond with Loop in NE Quadrant



POTENTIAL IMPROVEMENTS

Lynchburg Expressway Interchange

› Partial Cloverleaf with Loops in NW & NE Quadrants



APPENDIX F – BUILD CONDITIONS

APPENDIX F-1: CORSIM ASSUMPTIONS & SIMULATION SUMMARY

Candlers Mountain Road Corridor Study - CORSIM Build 2040 Conditions Modeling Inputs, Assumptions, and Simulation Summary

The build 2040 AM and PM peak hour CORSIM models were developed using the no-build 2040 AM and PM peak hour CORSIM models as a starting point. Geometric inputs to the build 2040 AM and PM peak hour CORSIM models were modified from the no-build 2040 AM and PM peak hour CORSIM models to match the proposed build design. Projected build 2040 traffic volumes and optimized signal timing splits from Synchro were used in the build CORSIM models. The same inputs and assumptions were used in both the AM and PM peak hour models, unless otherwise noted.

Node Numbering Convention

Same node numbering convention used in existing CORSIM models were used in no-build models. Nodes that were added in the build model were numbered using the same convention. Modifications were made to the positions of some nodes to model build geometry.

Lanes

Lane configurations were based on proposed build geometry.

Freeway Network (FRESIM)

- Two mainline through lanes in both the northbound and southbound directions of the Lynchburg Expressway
- Effective auxiliary lane lengths, equal to the length of the auxiliary lane plus two-thirds of the auxiliary taper length, were input for all freeway network (FRESIM) acceleration, deceleration, and auxiliary lanes. Effective auxiliary lane length inputs are shown in Table 1. Acceleration, deceleration, and auxiliary lane lengths under build conditions that were different than the existing lengths are shown in red.

Table 1 – Effective Auxiliary Lane Lengths

Auxiliary Lanes	Effective Auxiliary Length	Link	
		Start	End
Northbound Lynchburg Expressway			
NB Lynchburg Expressway Deceleration Lane to Old Wards Rd	65	1010	1015
NB Lynchburg Expressway Auxiliary Lane b/w Entrance Ramp from Wards Rd & Exit Ramp to EB Candlers Mtn Rd	Full Link Length	1030	1035
NB Lynchburg Expressway Acceleration Lane from EB Candlers Mtn Rd	RAMP REMOVED IN BUILD		
NB Lynchburg Expressway Deceleration Lane to WB Candlers Mtn Rd	627	1035	1060
NB Lynchburg Expressway Acceleration Lane from WB Candlers Mtn Rd	380	1065	1070
Southbound Lynchburg Expressway			
SB Lynchburg Expressway Deceleration Lane to EB/WB Candlers Mtn Rd	450	3030	3035
SB Lynchburg Expressway Acceleration Lane from WB Candlers Mtn Rd	860	3040	3055
SB Lynchburg Expressway Deceleration Lane to EB Candlers Mtn Rd	RAMP REMOVED IN BUILD		
SB Lynchburg Expressway Acceleration Lane from Wards Rd*	180	3067	3070
SB Lynchburg Expressway Deceleration Lane to Old Wards Rd	270	3060	3065

*SB Lynchburg Expressway Entrance Ramp from Wards Road was reconfigured in the build models to restrict merging until after the diverge point for the exit ramp to Old Wards Road per Concept B from the Lynchburg Expressway Improvement Study. Effective auxiliary length for this ramp was modeled using the same methodology from the Lynchburg Expressway Improvement Study.

Arterial Network (NETSIM)

- Lane width of 12 feet was input for all lanes
- Effective storage length, equal to the storage length plus half of the taper length, was input as the storage length for all turn lanes, with the following exception:
  - At the Seminole Avenue intersection, the eastbound right-turn storage bay was modeled with an effective storage of 120 feet rather than 150 feet as designed. The taper of the turn bay in the proposed design extends into the upstream intersection, which is not possible to model in CORSIM.
- The eastbound approach of Candlers Mountain Road at Mayflower Drive was modeled with a separate link to channelize the right-turn movement. In existing and no-build conditions, the channelized movement was not modeled because the right-turn lane was very short and frequently blocked by queuing through vehicles. Under build conditions, the right-turn lane was extended to allow for greater access to the free-flow channelized movement; as a result, the channelization was included in the CORSIM build models.
- To calibrate throughput for left-turn movements at continuous Green-T-intersections and intersections with both left-turn lanes and channelized right-turn lanes, the following approaches were used:
  - T-intersection approaches with continuous free-flow lanes were modeled with separate links for the through movements and the left-turn movements so continuous movements were not controlled by the signal. A 20-foot left-turn storage bay was modeled on the link immediately upstream of the split to the separate through movement and left-turn movement links. The separate left-turn link was modeled as 20 feet less than the total effective storage length. This methodology was used at the following locations:
    - Eastbound left-turn lane at the northbound Lynchburg Expressway entrance ramps
    - Eastbound left-turn lane at Murray Place
    - Westbound dual left-turn lanes at River Ridge Mall
  - At locations where there was a channelized right-turn lane that was shorter than the left-turn lane, the left-turn lane was modeled as a separate link and the link immediately upstream of the split was modeled with a left-turn storage bay which a length that when added to the separate downstream link reached the total effective length of the storage bay. This methodology was used at the following locations:
    - Eastbound left-turn lane at Mayflower Drive
- Lane alignments were input based on build geometry, with the following exceptions:
  - As in the existing and no-build CORSIM models, the lane alignments from the northbound Lynchburg Expressway exit ramp to westbound Candlers Mountain Road was adjusted to align with the center lane because under existing conditions motorists were observed to immediately merge out of the right-most lane. No changes were made to this merge under build conditions, and, as a result, the existing alignments were maintained.
  - To reduce the number of vehicles using the entire length of the Green-T merge lane in order to reflect more realistic merging conditions, the following lane alignments were adjusted:
    - At node 30, the left-most lane from the upstream link (28,30) was aligned with the second lane from the left on the downstream link (30,32)
    - At node 32, the left-most lane from the upstream link (30,32) was aligned with the second lane from the left on the downstream link (32,34)
    - At node 26, the left-most lane from the upstream link (31,26) was aligned with the second lane from the left on the downstream link (26,25)
- As in existing and no-build CORSIM models, in the build CORSIM models yield signs were not modeled at the end of any of the Lynchburg Expressway exit ramps to Candlers Mountain Road or at the end of the

Westbound US 501 Ramp. This modification permitted vehicles to merge onto Candlers Mountain Road as observed in the field.

- As in existing and no-build CORSIM models, in the build CORSIM models, the northbound approach of Candlers Mountain Road at Westbound US 501 Ramp/Mountain View Road was modeled with a 90-foot left-turn storage lane to prevent extensive queuing in the northbound direction. In the field, it was observed that queued southbound vehicles allowed the northbound left-turn vehicles to make the turn and vehicles did not queue back in the northbound direction.
- Lane channelization was input based on build lane configurations.

Free-Flow Speed

Since changes to the Lynchburg Expressway under build conditions were limited to acceleration/deceleration lane extensions, the mainline free-flow speeds were not expected to change and the same free-flow speeds used in existing and no-build CORSIM models were used in the build models. In addition, for ramps with no proposed improvements under build conditions, the same ramp free-flow speeds using in existing and no-build CORSIM models were used in the build models. Under build conditions, Lynchburg Expressway ramps at the Candlers Mountain Road interchange were reconfigured and, as a result, the free-flow speeds on these ramps were adjusted to be ten miles per hour over the design speed. The free-flow speeds for ramps that were reconfigured under build conditions are summarized in Table 2.

Table 2 – Ramp Free-Flow Speeds

Ramp	Design Speed	Design Speed +10	Nodes	
			Start	End
Lynchburg Expressway Ramps				
NB Lynchburg Expressway Exit Ramp to EB Candlers Mtn Rd	30	40	1035	22
NB Lynchburg Expressway Exit Ramp to WB Candlers Mtn Rd	30	40	1060	18
NB Lynchburg Expressway Entrance Ramp from EB/WB Candlers Mtn Rd	50	60	550	1065
SB Lynchburg Expressway Exit Ramp to EB/WB Candlers Mtn Rd	30	40	3035	14
SB Lynchburg Expressway Entrance Ramp from WB Candlers Mtn Rd	20	30	16	3040

Changes to posted speed limits on the arterial streets are not anticipated under build conditions. As a result, the same arterial free-flow speeds used in existing and no-build CORSIM models were used in the build models.

Grade Adjustments

Same mainline, ramp, and arterial grades coded on links in existing and no-build CORSIM models were used in build models. None of the proposed build improvements are anticipated to significantly change the grade of the roadway.

Ramp Metering

Ramp metering was removed from node 3040 (from the Southbound Lynchburg Expressway Entrance Ramp from Westbound Candlers Mountain Road) because a full acceleration lane was added to the build model at this ramp to enable vehicles to free flow onto the expressway.

Signal Timing Inputs

- Signal timing inputs were based on the signal timings developed in the 2040 build Synchro models, with the following exceptions:
  - Continuous Green-Ts on Candlers Mountain Road at Murray Place and River Ridge Road
    - In Synchro, the two continuous green-T intersections were modeled as actuated-coordinated, clustered intersections; however, in CORSIM it is not possible to cluster intersection. In CORSIM, the two intersections were modeled as standalone actuated-coordinated intersections and the offsets were adjusted to best replicate clustered intersections.
  - Candlers Mountain Road and Mayflower
    - Maximum green time was adjusted at this intersection to better replicate the queues observed in the SimTraffic simulations. In the 2040 AM build CORSIM model, the green time for phases 1 was increased by 3 seconds and the green time for phase 2 was decreased by 3 seconds. In the 2040 PM build CORSIM model, the green time for phases 2 and 6 was increased by 3 seconds and the green time for phase 4 was decreased by 3 seconds.
- The dummy pretimed intersection in AM existing and no-build CORSIM models on Candlers Mountain Road south of the westbound US 501 ramp/Mountain View Road intersection was removed from the AM build CORSIM model. The dummy intersection was used in existing and no-build conditions to replicate queuing from the school drop-off. Under build conditions, it is assumed that the school drop-off will be reconfigured to move queuing off Candlers Mountain Road.

Traffic Volume Inputs

- One peak period was analyzed. Traffic volumes were input as vehicle counts at the entry nodes for four 900 second time periods. The 900 second time period volumes were determined by calculating the percent of the peak hour that occurred during each of the four time periods (from the existing counts) and applying that percent to the balanced build 2040 hourly volumes for each entry node. Time period volumes for AM and PM peaks are shown in Table 3 and Table 4.
- As in the existing and no-build CORSIM models, relative turn volumes were input for all ramp and intersection movements based on the balanced 2040 build hourly volumes. The same relative turn volumes were used for all four time periods.
- The same heavy vehicle percentages used in existing and no-build CORSIM models were used in the build models except for entry node 8018 (southbound Murray Place – west intersection) and entry node 8020 (southbound Murray Place – east intersection). Entry volumes at these nodes were modified based on the build design configuration and allowable movements for each of these approaches. Heavy vehicle percentages were calculated based on the rerouting:
  - Node 8018 – Existing: AM = 3%, PM = 3%; Build: AM = 3%, PM = 2%
  - Node 8020 – Existing: AM = 3%, PM = 2%; Build: AM = 3%, PM = 3%
- There are two locations where U-turns were modeled under build conditions to account for re-routed volumes. At these locations U-turns were coded as left-turn movements and left-turns were modeled as diagonal movements. This methodology was used at the following locations:
  - Westbound Candlers Mountain Road at Woodall Road (Node 10)
  - Eastbound Candlers Mountain Road at the northbound Lynchburg Expressway entrance ramp (Node 20)
- Conditional turn movements were input for the following scenarios:
  - To prevent vehicles from taking back-to-back loop ramps (getting off the Lynchburg Expressway and then immediately getting back on)
  - When diagonal turn movements were used to preposition upstream turning vehicles

Table 3 – Build 2040 AM Peak Hour Time Period Volumes at Entry Nodes

Entry Node	Description	% Peak Hour Volume in Time Period				Build 2040 Balanced Volume	Time Period Volume			
		TP1	TP2	TP3	TP4		TP1	TP2	TP3	TP4
8001	NB Lynchburg Expressway Mainline	23.3%	26.6%	27.7%	22.4%	3033	706	808	840	679
8003	SB Lynchburg Expressway Mainline	22.7%	24.3%	30.3%	22.7%	1898	431	461	575	431
8006	NB Lynchburg Expressway Ramp from Wards Rd	20.5%	20.8%	28.6%	30.1%	324	66	68	93	97
8007	SB Lynchburg Expressway Ramp from Wards Rd	23.1%	31.5%	23.4%	22.0%	465	108	146	109	102
8009	EB Sheffield D	16.9%	31.8%	33.8%	17.6%	185	31	59	63	32
8010	NB Wards Rd	19.8%	23.5%	27.2%	29.4%	404	80	95	110	119
8011	SB Wards Rd	17.9%	25.2%	36.1%	20.8%	1047	188	264	378	217
8012	NB Driveway (south of Short St)	25.0%	25.0%	25.0%	25.0%	18	5	5	5	3
8013	SB Short St	25.0%	25.0%	25.0%	25.0%	18	5	5	5	3
8014	NB Driveway (south of Woodall Rd)	0.0%	5.0%	70.0%	25.0%	37	0	2	26	9
8015	SB Woodall Rd	21.4%	35.7%	16.7%	26.2%	54	12	19	9	14
8016	NB Seminole Ave	16.5%	22.0%	44.0%	17.5%	251	41	55	110	45
8018	SB Murray Pl (west intersection)	15.3%	27.1%	27.1%	30.5%	40	6	11	11	12
8019	NB River Ridge Mall	13.5%	19.7%	33.2%	33.6%	284	38	56	94	96
8020	SB Murray Place (east intersection)	34.2%	18.4%	23.7%	23.7%	80	27	15	19	19
8021	SB Mayflower Dr	25.2%	19.3%	29.3%	26.3%	330	83	64	97	86
8022	EB Mountain View Rd	25.0%	25.0%	25.0%	25.0%	6	2	2	2	0
8023	NB Candlers Mountain Rd	14.2%	21.1%	27.5%	37.2%	640	91	135	176	238
8024	WB US 460 Ramp to WB Candlers Mountain Rd	29.9%	29.9%	19.9%	20.3%	817	244	244	163	166
8025	EB US 460 Ramp to WB Candlers Mountain Rd	25.1%	26.9%	24.4%	23.6%	1168	293	315	285	275

Table 4 – Build 2040 PM Peak Hour Time Period Volumes at Entry Nodes

Entry Node	Description	% Peak Hour Volume in Time Period				Build 2040 Balanced Volume	Time Period Volume			
		TP1	TP2	TP3	TP4		TP1	TP2	TP3	TP4
8001	NB Lynchburg Expressway Mainline	23.5%	26.8%	26.4%	23.2%	2644	623	709	699	613
8003	SB Lynchburg Expressway Mainline	22.9%	26.0%	28.1%	23.0%	2714	622	705	763	624
8006	NB Lynchburg Expressway Ramp from Wards Rd	24.4%	24.4%	24.1%	27.2%	395	96	96	95	108
8007	SB Lynchburg Expressway Ramp from Wards Rd	21.7%	28.1%	24.6%	25.6%	743	161	209	183	190
8009	EB Sheffield D	17.7%	26.3%	30.7%	25.3%	355	63	93	109	90
8010	NB Wards Rd	25.7%	24.2%	25.0%	25.2%	740	190	179	185	186
8011	SB Wards Rd	24.1%	24.7%	24.9%	26.4%	1243	299	306	309	329
8012	NB Driveway (south of Short St)	25.0%	25.0%	25.0%	25.0%	18	5	5	5	3
8013	SB Short St	25.0%	25.0%	25.0%	25.0%	23	6	6	6	5
8014	NB Driveway (south of Woodall Rd)	5.3%	26.3%	57.9%	10.5%	28	1	7	16	4
8015	SB Woodall Rd	12.3%	37.4%	28.8%	21.5%	184	23	69	53	39
8016	NB Seminole Ave	26.2%	27.3%	21.5%	25.0%	195	51	53	42	49
8018	SB Murray Pl (west intersection)	29.1%	35.9%	17.9%	17.1%	147	43	53	26	25
8019	NB River Ridge Mall	26.1%	28.8%	24.9%	20.2%	799	208	230	199	162
8020	SB Murray Place (east intersection)	25.2%	37.8%	18.2%	18.9%	166	42	63	30	31
8021	SB Mayflower Dr	23.4%	30.6%	26.7%	19.3%	712	167	218	190	137
8022	EB Mountain View Rd	25.0%	25.0%	25.0%	25.0%	6	2	2	2	0
8023	NB Candlers Mountain Rd	24.4%	27.5%	22.0%	26.1%	999	243	275	220	261
8024	WB US 460 Ramp to WB Candlers Mountain Rd	21.7%	26.4%	26.4%	25.6%	686	149	181	181	175
8025	EB US 460 Ramp to WB Candlers Mountain Rd	24.3%	21.7%	27.3%	26.7%	625	152	136	171	166

Origin-Destination

- Origin-destination (FRESIM) percentages for the build CORSIM models were adjusted from the existing and no-build CORSIM models to reflect the changes in travel patterns due to the new geometry.
- No origin-destination data was collected for this study. Origin-destination (FRESIM) percentages were applied to override default CORSIM origin-destination calculations to calibrate exit ramp volumes. Table 5 shows the percentages applied to the model.

Table 5 – Origin-Destination (FRESIM) Percentages

Origin Node Number/Description	Destination Node Number	Percentage of Entering Volume (%)
AM Peak Hour Network		
1000 – Northbound Lynchburg Expressway	1015	22
	1035	19
	1060	7
	1095	52
3005 – Southbound Lynchburg Expressway	3035	31
	3065	13
	3080	56
3040 – Southbound Lynchburg Expressway Entrance Ramp from Westbound Candlers Mountain Road	3065	5
	3080	95
PM Peak Hour Network		
1000 – Northbound Lynchburg Expressway	1015	28
	1035	14
	1060	4
	1095	54
3005 – Southbound Lynchburg Expressway	3035	29
	3065	21
	3080	50
3040 – Southbound Lynchburg Expressway Entrance Ramp from Westbound Candlers Mountain Road	3065	4
	3080	96

Mean Startup Delay and Mean Discharge Headway

In the existing and no-build CORSIM models, the mean startup delay and mean discharge headway were adjusted from the default values of 2.0 and 1.8, respectively, to replicate queues observed in the field. The same modifications to mean startup delay and mean discharge headway used in existing and no-build CORSIM models were used in build models, with the following exceptions:

- Eastbound Candlers Mountain Road between the Murray Place/River Ridge Mall and Mayflower Drive
  - Mean discharge headway was modified to match the upstream headways (modeled as 2.7 in existing and no-build models) on eastbound Candlers Mountain Road. The modification was made to reflect the lengthened eastbound right-turn lane at this location, which was assumed to improve the flow of traffic at this location by reducing the number of right-turning vehicles queuing in the through lanes. Similar modifications were made at this location in the Synchro/SimTraffic models.
    - Mean Startup Delay = 3.0 (same as existing and no-build)
    - Mean Discharge Headway = 2.7 (was 3.1 in existing and no-build)

NETSIM Setup

Same global NETSIM settings adjusted in existing and no-build CORSIM models were used in build models.

Network Properties

- As for the existing and no-build CORSIM simulations, the initialization period was forced to a maximum initialization time of 30 minutes, four 900 second periods were simulated, and vehicle entry headway was set to Erlang distribution with a = 1.
- Ten simulation runs were completed for both the AM and PM build CORSIM models (based on the Sample Size Determination Tool)
  - Speed on the southbound Lynchburg Expressway north of Candlers Mountain Road (between Node 3030 and Node 3035) was the input to the Sample Size Determination Tool

Simulation Summary

Simulated volumes from the build (2040) AM and PM CORSIM models were reviewed and compared to the projected 2040 build volumes. The percent difference between the projected volumes and simulated volumes was calculated for all links. The link volume on the top 85% of network links, based on traffic volume, were reviewed according to the following thresholds:

- Within ±20% for <100 vehicles per hour (vph)
- Within ±15% for ≥100 vph to <300 vph
- Within ±10% for ≥300 vph to <1,000 vph
- Within ±5% for ≥1,000 vph

These volumes thresholds were met for all the network links. A summary of the actual and simulated volumes by link is provided in at the end of this appendix.

Build (2040) AM Peak Hour
Calibration Summary

Route	From Node	To Node	Type	Link Distance	Volume Percentile	Actual Volumes	Simulated Volumes	Percent Difference	Actual Speeds	Simulated Space Mean Speeds	Speed Difference
SB US 29 BUS	3005	3010	Freeway	900	79%	1898	1894	-0.2%	57	56	-1.0
	3010	3015	Freeway	877	79%	1898	1895	-0.2%	57	55.5	-1.5
	3015	3020	Freeway	2183	79%	1898	1893	-0.3%	57	55.1	-1.9
	3020	3025	Freeway	936	79%	1898	1891	-0.4%	57	54.4	-2.6
	3025	3030	Freeway	649	79%	1898	1893	-0.3%	57	53.3	-3.7
	3030	3035	Freeway	851	79%	1898	1895	-0.2%	57	50.5	-6.5
	3035	3210	Ramp	107	43%	588	592	0.7%	40	37.6	-2.4
	3035	3040	Freeway	500	72%	1310	1304	-0.5%	54	51.4	-2.6
	3230	3040	Ramp	195	48%	624	606	-2.9%	30	29	-1.0
	3040	3050	Freeway	616	83%	1934	1909	-1.3%	54	47.8	-6.2
	3050	3055	Freeway	500	83%	1934	1909	-1.3%	55	52.2	-2.8
	3055	3058	Freeway	384	83%	1934	1909	-1.3%	55	53	-2.0
	3058	3060	Freeway	116	83%	1934	1909	-1.3%	55	53	-2.0
	3060	3065	Freeway	888	83%	1934	1910	-1.2%	55	52.1	-2.9
	3065	3260	Ramp	306	29%	290	272	-6.2%	42	41.2	-0.8
	3065	3067	Freeway	120	75%	1644	1640	-0.2%	55	52.4	-2.6
	3255	3067	Ramp	142	36%	465	464	-0.2%	55	47.7	-7.3
	3067	3070	Freeway	380	89%	2109	2104	-0.2%	55	46.6	-8.4
	3070	3075	Freeway	980	89%	2109	2106	-0.1%	55	52.6	-2.4
	3075	3077	Freeway	140	89%	2109	2106	-0.1%	55	53.1	-1.9
	3077	3080	Freeway	1332	89%	2109	2107	-0.1%	55	52.9	-2.1
NB US 29 BUS	1000	1005	Freeway	480	99%	3033	3031	-0.1%	53	51.5	-1.5
	1005	1010	Freeway	625	99%	3033	3031	-0.1%	53	50.7	-2.3
	1010	1015	Freeway	875	99%	3033	3030	-0.1%	53	46.3	-6.7
	1015	1220	Ramp	536	49%	636	615	-3.3%	35	33.9	-1.1
	1015	1020	Freeway	914	95%	2397	2415	0.8%	56	52.4	-3.6
	1020	1025	Freeway	662	95%	2397	2413	0.7%	56	53.3	-2.7
	1025	1030	Freeway	500	95%	2397	2412	0.6%	56	52.7	-3.3
	1240	1030	Ramp	214	31%	324	323	-0.3%	43	42.3	-0.7
	1030	1032	Freeway	215	98%	2721	2735	0.5%	53	50.6	-2.4
	1032	1035	Freeway	442	98%	2721	2737	0.6%	53	48.4	-4.6
	1035	1250	Ramp	268	59%	778	761	-2.2%	40	38.2	-1.8
	1035	1060	Freeway	1057	86%	1943	1974	1.6%	58	53.5	-4.5
	1060	1270	Ramp	215	24%	239	246	2.9%	40	39	-1.0
	1060	1065	Freeway	500	76%	1704	1728	1.4%	58	55.6	-2.4
	1280	1065	Ramp	270	52%	658	668	1.5%	60	47.9	-12.1
	1065	1070	Freeway	755	92%	2362	2396	1.4%	59	55	-4.0
	1070	1075	Freeway	745	92%	2362	2394	1.4%	59	56.3	-2.7
	1075	1080	Freeway	837	92%	2362	2392	1.3%	59	56.5	-2.5
	1080	1085	Freeway	2196	92%	2362	2390	1.2%	59	56.1	-2.9
	1085	1090	Freeway	852	92%	2362	2390	1.2%	59	55.9	-3.1
	1090	1095	Freeway	1090	92%	2362	2394	1.4%	59	55.8	-3.2

NETSIM Links Results

CandlerMRdEB	6	8		520	57%	764	768	0.5%	35	28.4	-6.6
CandlerMRdEB	8	10		328	57%	764	773	1.2%	35	17.5	-17.5
CandlerMRdEB	10	12		183	65%	972	990	1.9%	35	23.1	-11.9
CandlerMRdEB	12	14		317	66%	975	1001	2.7%	35	15.9	-19.1
CandlerMRdEB	14	19		636	72%	1420	1446	1.8%	35	28.7	-6.3
CandlerMRdEB	19	20		230	18%	158	169	7.0%	35	11.5	-23.5
CandlerMRdEB	19	22		334	71%	1262	1282	1.6%	35	29	-6.0
CandlerMRdEB	22	23		155	89%	2040	2044	0.2%	35	24.3	-10.7
CandlerMRdEB	23	26		180	12%	104	111	6.7%	35	1.9	-33.1
CandlerMRdEB	23	28		277	86%	1936	1933	-0.2%	35	22.9	-12.1
CandlerMRdEB	26	28		100	8%	40	39	-2.5%	35	16.3	-18.7
CandlerMRdEB	28	30		129	87%	1976	1973	-0.2%	35	14.7	-20.3
CandlerMRdEB	30	32		141	78%	1759	1769	0.6%	35	8.6	-26.4
CandlerMRdEB	32	34		113	87%	1979	1991	0.6%	35	19.5	-15.5
CandlerMRdEB	34	37		368	87%	1979	1984	0.3%	35	14.7	-20.3
CandlerMRdEB	37	38		141	78%	1860	1843	-0.9%	35	10.7	-24.3
CandlerMRdEB	37	40		240	13%	119	135	13.4%	35	2.9	-32.1
CandlerMRdEB	38	40		105	55%	749	759	1.3%	35	6.1	-28.9
CandlerMRdEB	40	42		347	63%	857	871	1.6%	35	27.4	-7.6
CandlerMRdEB	42	45		300	66%	978	994	1.6%	35	26.5	-8.5
CandlerMRdEB	45	46		850	66%	978	1001	2.4%	35	28.4	-6.6
CandlerMRdNB	68	42		106	14%	121	124	2.5%	35	9.8	-25.2
CandlerMRdNB	70	68		101	14%	121	124	2.5%	35	21.3	-13.7
CandlerMRdNB	72	70		327	14%	121	124	2.5%	35	21.7	-13.3
CandlerMRdNB	74	72		222	14%	121	124	2.5%	35	34.1	-0.9
CandlerMRdNB	76	74		102	18%	167	175	4.8%	35	8.7	-26.3
CandlerMRdNB	80	76		624	51%	640	634	-0.9%	35	25.5	-9.5
CandlerMRdNB	82	80		735	51%	640	638	-0.3%	35	35	0.0
CandlerMRdSB	38	70		397	68%	1111	1078	-3.0%	35	27.7	-7.3
CandlerMRdSB	40	70		333	32%	327	329	0.6%	35	29.1	-5.9
CandlerMRdSB	70	72		327	73%	1438	1407	-2.2%	35	31.5	-3.5
CandlerMRdSB	72	74		222	73%	1438	1405	-2.3%	35	23.4	-11.6
CandlerMRdSB	74	76		102	56%	757	750	-0.9%	35	24.8	-10.2
CandlerMRdSB	76	78		125	54%	738	729	-1.2%	35	29.6	-5.4
CandlerMRdSB	78	80		501	56%	763	732	-4.1%	35	32.1	-2.9
CandlerMRdSB	80	82		735	56%	763	729	-4.5%	35	33.1	-1.9
CandlerMRdWB	8	6		520	47%	621	652	5.0%	35	12.9	-22.1
CandlerMRdWB	10	8		328	47%	621	646	4.0%	35	28.7	-6.3
CandlerMRdWB	11	10		148	64%	962	992	3.1%	35	12.7	-22.3
CandlerMRdWB	14	11		352	64%	962	997	3.6%	35	26.9	-8.1
CandlerMRdWB	16	14		133	63%	819	860	5.0%	35	18.2	-16.8
CandlerMRdWB	18	16		424	74%	1443	1468	1.7%	35	25.3	-9.7
CandlerMRdWB	20	18		310	71%	1204	1221	1.4%	35	29.9	-5.1
CandlerMRdWB	24	20		130	69%	1164	1174	0.9%	35	30	-5.0
CandlerMRdWB	25	24		209	76%	1704	1715	0.6%	35	29.5	-5.5
CandlerMRdWB	26	25		113	76%	1704	1712	0.5%	35	26.9	-8.1
CandlerMRdWB	31	26		267	77%	1739	1743	0.2%	35	23.9	-11.1
CandlerMRdWB	32	31		100	11%	64	57	-10.9%	35	20.2	-14.8
CandlerMRdWB	36	31		229	74%	1595	1603	0.5%	35	30.2	-4.8
CandlerMRdWB	36	32		130	19%	170	163	-4.1%	35	1.1	-33.9
CandlerMRdWB	36	650		161	16%	124	110	-11.3%	35	15.5	-19.5
CandlerMRdWB	40	36		591	79%	1889	1876	-0.7%	35	26.4	-8.6
CandlerMRdWB	43	40		605	97%	2477	2444	-1.3%	35	10.7	-24.3
CandlerMRdWB	44	43		227	97%	2477	2461	-0.6%	35	18.6	-16.4
CandlerMRdWB	56	44		696	88%	1985	1984	-0.1%	35	30.1	-4.9

Build (2040) AM Peak Hour
Calibration Summary

Driveway	8	230		190	2%	18	13	-27.8%	25	19.8	-5.2
Driveway	10	330		189	6%	29	22	-24.1%	25	22	-3.0
Driveway	230	8		190	2%	18	18	0.0%	25	9	-16.0
Driveway	230	240		132	2%	18	13	-27.8%	25	25.1	0.1
Driveway	240	230		132	2%	18	18	0.0%	25	38.6	13.6
Driveway	330	10		189	7%	37	36	-2.7%	25	4.3	-20.7
Driveway	330	340		110	6%	29	22	-24.1%	25	24.5	-0.5
Driveway	340	330		110	7%	37	36	-2.7%	25	44.2	19.2
Mayflower NB	40	720		503	45%	602	597	-0.8%	35	26.9	-8.1
Mayflower NB	710	705		1817	45%	602	597	-0.8%	35	29.6	-5.4
Mayflower NB	720	710		1084	45%	602	594	-1.3%	35	31.2	-3.8
Mayflower SB	705	710		1817	32%	330	330	0.0%	35	34.3	-0.7
Mayflower SB	710	720		1084	32%	330	331	0.3%	35	31.7	-3.3
Mayflower SB	720	40		503	32%	330	334	1.2%	35	5.3	-29.7
MntViewRd EB	810	820		270	0%	6	6	0.0%	25	30.7	5.7
MntViewRd EB	820	830		527	0%	6	6	0.0%	25	21.7	-3.3
MntViewRd EB	830	78		104	0%	6	6	0.0%	25	8.7	-16.3
MntViewRd WB	74	830		160	53%	727	704	-3.2%	25	21.2	-3.8
MntViewRd WB	820	810		270	53%	727	702	-3.4%	25	22.5	-2.5
MntViewRd WB	830	820		527	53%	727	702	-3.4%	25	22.8	-2.2
Murray Pl NB	26	610		270	17%	139	142	2.2%	25	21.5	-3.5
Murray Pl NB	650	640		178	16%	124	110	-11.3%	25	20.5	-4.5
Murray Pl SB	610	26		270	8%	40	39	-2.5%	25	2.6	-22.4
Murray Pl SB	640	650		178	11%	80	80	0.0%	25	34.1	9.1
Murray Pl SB	650	31		126	11%	80	80	0.0%	25	16.6	-8.4
NB Off Ramp	7001	910		202	49%	636	613	-3.6%	35	44.1	9.1
NB On Ramp	920	7003		1212	31%	324	323	-0.3%	43	43.1	0.1
Ramp C	540	545		205	59%	778	762	-2.1%	40	33.9	-6.1
Ramp C	545	22		227	59%	778	761	-2.2%	40	22.4	-17.6
Ramp C	7004	540		195	59%	778	761	-2.2%	40	44.7	4.7
Ramp D	20	550		213	13%	118	125	5.9%	35	22.6	-12.4
Ramp D	24	550		222	42%	540	543	0.6%	35	14.2	-20.8
Ramp D	550	7007		141	52%	658	669	1.7%	60	21	-39.0
Ramp E	535	18		228	24%	239	247	3.3%	40	17.5	-22.5
Ramp E	7006	535		183	24%	239	247	3.3%	40	33.6	-6.4
Ramp F	16	525		123	48%	624	611	-2.1%	30	14	-16.0
Ramp F	525	7009		139	48%	624	610	-2.2%	30	18.8	-11.2
Ramp G	510	515		183	43%	588	592	0.7%	40	34.5	-5.5
Ramp G	515	14		306	43%	588	579	-1.5%	40	4	-36.0
Ramp G	7008	510		145	43%	588	592	0.7%	40	38.5	-1.5
Ramp H	46	48		579	40%	507	506	-0.2%	55	41.9	-13.1
Ramp H	48	50		408	40%	507	505	-0.4%	55	48.6	-6.4
Ramp I	46	52		610	37%	471	497	5.5%	52	34.1	-17.9
Ramp I	52	54		417	37%	471	497	5.5%	52	44.9	-7.1
Ramp J	58	56		624	69%	1168	1164	-0.3%	45	39.8	-5.2
Ramp J	60	58		490	69%	1168	1165	-0.3%	45	48.6	3.6
Ramp K	62	56		627	62%	817	817	0.0%	45	41.1	-3.9
Ramp K	64	62		607	62%	817	817	0.0%	45	47.7	2.7
RiverRidgeNB	660	32		140	28%	284	277	-2.5%	25	1.6	-23.4
RiverRidgeNB	670	660		177	28%	284	282	-0.7%	25	20.6	-4.4
RiverRidgeNB	680	670		175	28%	284	282	-0.7%	25	34.5	9.5
RiverRidgeSB	30	660		181	23%	217	206	-5.1%	25	27.8	2.8
RiverRidgeSB	32	660		140	19%	170	163	-4.1%	25	18.8	-6.2
RiverRidgeSB	660	670		177	34%	387	369	-4.7%	25	22.4	-2.6
RiverRidgeSB	670	680		175	34%	387	369	-4.7%	25	23.9	-1.1
SB Off Ramp	7002	940		236	29%	290	270	-6.9%	42	52.6	10.6
SB On Ramp	930	7011		107	36%	465	464	-0.2%	35	63.7	28.7
Seminole NB	410	12		306	27%	251	250	-0.4%	25	8.5	-16.5
Seminole NB	420	410		195	27%	251	250	-0.4%	25	31.7	6.7
Seminole SB	12	410		306	26%	248	246	-0.8%	25	23.1	-1.9
Seminole SB	410	420		195	26%	248	246	-0.8%	25	24.5	-0.5
Sheffield EB	2	4		778	20%	185	184	-0.5%	25	25.9	0.9
Sheffield EB	4	6		400	20%	185	184	-0.5%	25	6.5	-18.5
Sheffield WB	4	2		778	21%	190	203	6.8%	25	23.3	-1.7
Sheffield WB	6	4		400	21%	190	204	7.4%	25	20.8	-4.2
Short St NB	8	220		208	2%	18	13	-27.8%	25	20.2	-4.8
Short St NB	220	210		209	2%	18	13	-27.8%	25	24.8	-0.2
Short St SB	210	220		209	2%	18	18	0.0%	25	32.1	7.1
Short St SB	220	8		208	2%	18	18	0.0%	25	9.1	-15.9
US501 Ramp	76	840		419	38%	492	478	-2.8%	35	27.9	-7.1
US501 Ramp	840	850		305	38%	492	477	-3.0%	35	32	-3.0
US501 Ramp	850	44		246	38%	492	476	-3.3%	35	29.3	-5.7
Wards Rd NB	6	120		618	58%	770	776	0.8%	35	28	-7.0
Wards Rd NB	120	110		505	58%	770	776	0.8%	35	32.8	-2.2
Wards Rd NB	130	6		693	35%	424	402	-5.2%	35	12.2	-22.8
Wards Rd NB	140	130		319	35%	424	402	-5.2%	35	41.4	6.4
Wards Rd SB	6	130		693	41%	533	528	-0.9%	35	29.4	-5.6
Wards Rd SB	110	120		505	67%	1047	1047	0.0%	35	36.9	1.9
Wards Rd SB	120	6		618	67%	1047	1042	-0.5%	35	11.6	-23.4
Wards Rd SB	130	140		319	41%	533	528	-0.9%	35	32.7	-2.3
WoodallRdNB	10	320		378	22%	195	199	2.1%	25	23.6	-1.4
WoodallRdNB	320	310		311	22%	195	200	2.6%	25	24.5	-0.5
WoodallRdSB	310	320		311	9%	54	54	0.0%	25	29.1	4.1
WoodallRdSB	320	10		378	9%	54	54	0.0%	25	4.5	-20.5

Build (2040) PM Peak Hour
Calibration Summary

Route	From Node	To Node	Type	Link Distance	Volume Percentile	Actual Volumes	Simulated Volumes	Percent Difference	Actual Speeds	Simulated Space Mean Speeds	Speed Difference
SB US 29 BUS	3005	3010	Freeway	900	97%	2714	2712	-0.1%	57	55.6	-1.4
	3010	3015	Freeway	877	97%	2714	2710	-0.1%	57	54.7	-2.3
	3015	3020	Freeway	2183	97%	2714	2709	-0.2%	57	54.1	-2.9
	3020	3025	Freeway	936	97%	2714	2710	-0.1%	57	53.4	-3.6
	3025	3030	Freeway	649	97%	2714	2709	-0.2%	57	52.1	-4.9
	3030	3035	Freeway	851	97%	2714	2709	-0.2%	57	50.1	-6.9
	3035	3210	Ramp	107	52%	793	775	-2.3%	40	37.3	-2.7
	3035	3040	Freeway	500	77%	1921	1934	0.7%	54	51.2	-2.8
	3230	3040	Ramp	195	33%	528	520	-1.5%	30	29.1	-0.9
	3040	3050	Freeway	616	91%	2449	2450	0.0%	54	48.2	-5.8
	3050	3055	Freeway	500	91%	2449	2450	0.0%	55	51.1	-3.9
	3055	3058	Freeway	384	91%	2449	2449	0.0%	55	52.1	-2.9
	3058	3060	Freeway	116	91%	2449	2449	0.0%	55	52.2	-2.8
	3060	3065	Freeway	888	91%	2449	2447	-0.1%	55	50.9	-4.1
	3065	3260	Ramp	306	35%	591	594	0.5%	42	40.2	-1.8
	3065	3067	Freeway	120	76%	1858	1854	-0.2%	55	51.4	-3.6
	3255	3067	Ramp	142	49%	743	741	-0.3%	55	47	-8.0
	3067	3070	Freeway	380	93%	2601	2595	-0.2%	55	43.9	-11.1
	3070	3075	Freeway	980	93%	2601	2592	-0.3%	55	52.1	-2.9
	3075	3077	Freeway	140	93%	2601	2592	-0.3%	55	52.9	-2.1
	3077	3080	Freeway	1332	93%	2601	2588	-0.5%	55	52.5	-2.5
NB US 29 BUS	1000	1005	Freeway	480	96%	2644	2642	-0.1%	53	51.7	-1.3
	1005	1010	Freeway	625	96%	2644	2643	0.0%	53	50.9	-2.1
	1010	1015	Freeway	875	96%	2644	2645	0.0%	53	46.1	-6.9
	1015	1220	Ramp	536	43%	693	687	-0.9%	35	33.7	-1.3
	1015	1020	Freeway	914	78%	1951	1957	0.3%	56	53.1	-2.9
	1020	1025	Freeway	662	78%	1951	1957	0.3%	56	54.1	-1.9
	1025	1030	Freeway	500	78%	1951	1958	0.4%	56	53.8	-2.2
	1240	1030	Ramp	214	32%	395	394	-0.3%	43	42	-1.0
	1030	1032	Freeway	215	89%	2346	2351	0.2%	53	50.8	-2.2
	1032	1035	Freeway	442	89%	2346	2351	0.2%	53	48.9	-4.1
	1035	1250	Ramp	268	37%	621	598	-3.7%	40	38.7	-1.3
	1035	1060	Freeway	1057	74%	1725	1753	1.6%	58	54.5	-3.5
	1060	1270	Ramp	215	12%	120	128	6.7%	40	39.7	-0.3
	1060	1065	Freeway	500	72%	1605	1623	1.1%	58	56.1	-1.9
	1280	1065	Ramp	270	36%	608	630	3.6%	60	48.9	-11.1
	1065	1070	Freeway	755	86%	2213	2254	1.9%	59	55.5	-3.5
	1070	1075	Freeway	745	86%	2213	2252	1.8%	59	56.6	-2.4
	1075	1080	Freeway	837	86%	2213	2250	1.7%	59	56.7	-2.3
	1080	1085	Freeway	2196	86%	2213	2249	1.6%	59	56.3	-2.7
	1085	1090	Freeway	852	86%	2213	2248	1.6%	59	56.1	-2.9
	1090	1095	Freeway	1090	86%	2213	2246	1.5%	59	56.1	-2.9

NETSIM Links Results

CandlerMRdEB	6	8		520	56%	846	831	-1.8%	35	28.3	-6.7
CandlerMRdEB	8	10		328	56%	846	828	-2.1%	35	13.8	-21.2
CandlerMRdEB	10	12		183	63%	1131	1130	-0.1%	35	22.6	-12.4
CandlerMRdEB	12	14		317	62%	1028	1032	0.4%	35	16.4	-18.6
CandlerMRdEB	14	19		636	71%	1566	1554	-0.8%	35	28.6	-6.4
CandlerMRdEB	19	20		230	21%	238	245	2.9%	35	4.9	-30.1
CandlerMRdEB	19	22		334	67%	1328	1311	-1.3%	35	30.3	-4.7
CandlerMRdEB	22	23		155	78%	1949	1910	-2.0%	35	27	-8.0
CandlerMRdEB	23	26		180	11%	110	110	0.0%	35	1.8	-33.2
CandlerMRdEB	23	28		277	76%	1839	1807	-1.7%	35	24.9	-10.1
CandlerMRdEB	26	28		100	14%	147	154	4.8%	35	19.1	-15.9
CandlerMRdEB	28	30		129	80%	1986	1969	-0.9%	35	11.9	-23.1
CandlerMRdEB	30	32		141	73%	1614	1634	1.2%	35	5.4	-29.6
CandlerMRdEB	32	34		113	85%	2122	2183	2.9%	35	19.9	-15.1
CandlerMRdEB	34	37		368	85%	2122	2185	3.0%	35	16.5	-18.5
CandlerMRdEB	37	38		141	84%	2061	2113	2.5%	35	10.9	-24.1
CandlerMRdEB	37	40		240	9%	61	65	6.6%	35	3.7	-31.3
CandlerMRdEB	38	40		105	68%	1393	1414	1.5%	35	8	-27.0
CandlerMRdEB	40	42		347	75%	1791	1823	1.8%	35	28.5	-6.5
CandlerMRdEB	42	45		304	82%	2041	2080	1.9%	35	25.5	-9.5
CandlerMRdEB	45	46		846	82%	2041	2080	1.9%	35	27.5	-7.5
CandlerMRdNB	68	42		106	22%	250	256	2.4%	35	2.7	-32.3
CandlerMRdNB	70	68		101	22%	250	256	2.4%	35	10.7	-24.3
CandlerMRdNB	72	70		327	22%	250	256	2.4%	35	20.1	-14.9
CandlerMRdNB	74	72		222	22%	250	256	2.4%	35	33.4	-1.6
CandlerMRdNB	76	74		102	24%	263	269	2.3%	35	25.9	-9.1
CandlerMRdNB	80	76		624	61%	999	999	0.0%	35	24.4	-10.6
CandlerMRdNB	82	80		735	61%	999	998	-0.1%	35	34.4	-0.6
CandlerMRdSB	38	70		397	42%	668	693	3.7%	35	28.3	-6.7
CandlerMRdSB	40	70		333	21%	206	210	1.9%	35	29.3	-5.7
CandlerMRdSB	70	72		327	57%	874	903	3.3%	35	32.2	-2.8
CandlerMRdSB	72	74		222	57%	874	902	3.2%	35	28.3	-6.7
CandlerMRdSB	74	76		102	46%	704	724	2.8%	35	23.5	-11.5
CandlerMRdSB	76	78		125	44%	694	710	2.3%	35	29	-6.0
CandlerMRdSB	78	80		501	45%	700	717	2.4%	35	32.1	-2.9
CandlerMRdSB	80	82		735	45%	700	713	1.9%	35	33.2	-1.8
CandlerMRdWB	8	6		520	66%	1268	1282	1.1%	35	10.3	-24.7
CandlerMRdWB	10	8		328	66%	1272	1280	0.6%	35	27.3	-7.7
CandlerMRdWB	11	10		148	69%	1497	1504	0.5%	35	10.8	-24.2
CandlerMRdWB	14	11		352	69%	1497	1512	1.0%	35	22.8	-12.2
CandlerMRdWB	16	14		133	64%	1242	1261	1.5%	35	19.6	-15.4
CandlerMRdWB	18	16		424	74%	1770	1780	0.6%	35	26.7	-8.3
CandlerMRdWB	20	18		310	73%	1650	1642	-0.5%	35	29.5	-5.5
CandlerMRdWB	24	20		130	72%	1600	1581	-1.2%	35	27.8	-7.2
CandlerMRdWB	25	24		209	81%	2020	2017	-0.1%	35	28.3	-6.7
CandlerMRdWB	26	25		113	81%	2020	2014	-0.3%	35	22.1	-12.9
CandlerMRdWB	31	26		267	82%	2039	2013	-1.3%	35	9.1	-25.9
CandlerMRdWB	32	31		100	26%	291	264	-9.3%	35	16.2	-18.8
CandlerMRdWB	36	31		229	71%	1582	1608	1.6%	35	29.7	-5.3
CandlerMRdWB	36	32		130	24%	288	277	-3.8%	35	1.3	-33.7
CandlerMRdWB	36	650		161	8%	54	39	-27.8%	35	15.5	-19.5
CandlerMRdWB	40	36		591	77%	1924	1928	0.2%	35	22.9	-12.1
CandlerMRdWB	43	40		605	83%	2057	2036	-1.0%	35	10.9	-24.1
CandlerMRdWB	44	43		227	83%	2057	2049	-0.4%	35	21.7	-13.3
CandlerMRdWB	56	44		696	67%	1311	1307	-0.3%	35	32.4	-2.6

Build (2040) PM Peak Hour
Calibration Summary

Driveway	8	230		190	3%	20	19	-5.0%	25	20.5	-4.5
Driveway	10	330		189	7%	53	43	-18.9%	25	23.2	-1.8
Driveway	230	8		190	2%	18	18	0.0%	25	6.7	-18.3
Driveway	230	240		132	3%	20	19	-5.0%	25	24.8	-0.2
Driveway	240	230		132	2%	18	18	0.0%	25	38.8	13.8
Driveway	330	10		189	6%	28	29	3.6%	25	3.1	-21.9
Driveway	330	340		110	7%	53	43	-18.9%	25	25.7	0.7
Driveway	340	330		110	6%	28	28	0.0%	25	42.8	17.8
Mayflower NB	40	720		503	27%	302	285	-5.6%	35	26.8	-8.2
Mayflower NB	710	705		1817	27%	302	286	-5.3%	35	31.1	-3.9
Mayflower NB	720	710		1084	27%	302	286	-5.3%	35	32.3	-2.7
Mayflower SB	705	710		1817	47%	712	714	0.3%	35	32.2	-2.8
Mayflower SB	710	720		1084	47%	712	714	0.3%	35	28.9	-6.1
Mayflower SB	720	40		503	47%	712	722	1.4%	35	4.4	-30.6
MntViewRd EB	810	820		270	0%	6	6	0.0%	25	31.1	6.1
MntViewRd EB	820	830		527	0%	6	6	0.0%	25	21.3	-3.7
MntViewRd EB	830	78		104	0%	6	6	0.0%	25	8.7	-16.3
MntViewRd WB	74	830		160	16%	183	190	3.8%	25	21.8	-3.2
MntViewRd WB	820	810		270	16%	183	189	3.3%	25	24	-1.0
MntViewRd WB	830	820		527	16%	183	189	3.3%	25	24.2	-0.8
Murray Pl NB	26	610		270	13%	129	110	-14.7%	25	21	-4.0
Murray Pl NB	650	640		178	8%	54	39	-27.8%	25	20.5	-4.5
Murray Pl SB	610	26		270	14%	147	154	4.8%	25	1	-24.0
Murray Pl SB	640	650		178	15%	166	164	-1.2%	25	33.6	8.6
Murray Pl SB	650	31		126	15%	166	164	-1.2%	25	16.4	-8.6
NB Off Ramp	7001	910		202	43%	693	686	-1.0%	35	44.3	9.3
NB On Ramp	920	7003		1212	32%	395	394	-0.3%	43	42.9	-0.1
Ramp C	540	545		205	37%	621	599	-3.5%	40	36.7	-3.3
Ramp C	545	22		227	37%	621	599	-3.5%	40	29.5	-10.5
Ramp C	7004	540		195	37%	621	600	-3.4%	40	45.5	5.5
Ramp D	20	550		213	19%	188	189	0.5%	35	23.4	-11.6
Ramp D	24	550		222	33%	420	439	4.5%	35	16.2	-18.8
Ramp D	550	7007		141	36%	608	629	3.5%	60	22.7	-37.3
Ramp E	535	18		228	12%	120	128	6.7%	40	18.4	-21.6
Ramp E	7006	535		183	12%	120	128	6.7%	40	36.2	-3.8
Ramp F	16	525		123	33%	528	521	-1.3%	30	14.3	-15.7
Ramp F	525	7009		139	33%	528	522	-1.1%	30	18.8	-11.2
Ramp G	510	515		183	52%	793	775	-2.3%	40	33	-7.0
Ramp G	515	14		306	52%	793	768	-3.2%	40	4.1	-35.9
Ramp G	7008	510		145	52%	793	774	-2.4%	40	38	-2.0
Ramp H	46	48		579	62%	1063	1076	1.2%	55	41.4	-13.6
Ramp H	48	50		408	62%	1063	1076	1.2%	55	47.3	-7.7
Ramp I	46	52		610	58%	978	1002	2.5%	52	34.7	-17.3
Ramp I	52	54		417	58%	978	1002	2.5%	52	45	-7.0
Ramp J	58	56		624	39%	625	623	-0.3%	45	41.5	-3.5
Ramp J	60	58		490	39%	625	623	-0.3%	45	49.6	4.6
Ramp K	62	56		627	42%	686	685	-0.1%	45	41.6	-3.4
Ramp K	64	62		607	42%	686	685	-0.1%	45	48	3.0
RiverRidgeNB	660	32		140	54%	799	810	1.4%	25	2	-23.0
RiverRidgeNB	670	660		177	54%	799	799	0.0%	25	9.9	-15.1
RiverRidgeNB	680	670		175	54%	799	798	-0.1%	25	33.1	8.1
RiverRidgeSB	30	660		181	31%	372	336	-9.7%	25	26.4	1.4
RiverRidgeSB	32	660		140	24%	288	277	-3.8%	25	18.9	-6.1
RiverRidgeSB	660	670		177	41%	660	613	-7.1%	25	20.7	-4.3
RiverRidgeSB	670	680		175	41%	660	614	-7.0%	25	23.5	-1.5
SB Off Ramp	7002	940		236	35%	591	594	0.5%	42	52.6	10.6
SB On Ramp	930	7011		107	49%	743	741	-0.3%	35	62.6	27.6
Seminole NB	410	12		306	19%	195	196	0.5%	25	12.1	-12.9
Seminole NB	420	410		195	19%	195	195	0.0%	25	32.2	7.2
Seminole SB	12	410		306	26%	298	295	-1.0%	25	23.1	-1.9
Seminole SB	410	420		195	26%	298	296	-0.7%	25	24.3	-0.7
Sheffield EB	2	4		778	30%	355	354	-0.3%	25	25.4	0.4
Sheffield EB	4	6		400	30%	355	351	-1.1%	25	5.5	-19.5
Sheffield WB	4	2		778	29%	327	327	0.0%	25	22.7	-2.3
Sheffield WB	6	4		400	29%	327	328	0.3%	25	21.1	-3.9
Short St NB	8	220		208	5%	25	22	-12.0%	25	21.2	-3.8
Short St NB	220	210		209	5%	25	22	-12.0%	25	24.8	-0.2
Short St SB	210	220		209	4%	23	23	0.0%	25	31.8	6.8
Short St SB	220	8		208	4%	23	23	0.0%	25	6.2	-18.8
US501 Ramp	76	840		419	51%	746	742	-0.5%	35	27.9	-7.1
US501 Ramp	840	850		305	51%	746	741	-0.7%	35	31.6	-3.4
US501 Ramp	850	44		246	51%	746	741	-0.7%	35	30.2	-4.8
Wards Rd NB	6	120		618	68%	1444	1458	1.0%	35	28.1	-6.9
Wards Rd NB	120	110		505	68%	1444	1456	0.8%	35	31.7	-3.3
Wards Rd NB	130	6		693	48%	740	739	-0.1%	35	10.1	-24.9
Wards Rd NB	140	130		319	48%	740	742	0.3%	35	40.5	5.5
Wards Rd SB	6	130		693	59%	989	989	0.0%	35	29.6	-5.4
Wards Rd SB	110	120		505	64%	1243	1240	-0.2%	35	36.8	1.8
Wards Rd SB	120	6		618	64%	1243	1238	-0.4%	35	9.6	-25.4
Wards Rd SB	130	140		319	59%	989	988	-0.1%	35	31.9	-3.1
WoodallRdNB	10	320		378	10%	99	98	-1.0%	25	23.6	-1.4
WoodallRdNB	320	310		311	10%	99	98	-1.0%	25	24.7	-0.3
WoodallRdSB	310	320		311	18%	184	184	0.0%	25	28.8	3.8
WoodallRdSB	320	10		378	18%	184	184	0.0%	25	5.2	-19.8

APPENDIX F-2: VDOT SAMPLE SIZE DETERMINATION TOOL – CORSIM

Sample Size Determination Tool, AM Peak

User Inputs
Constants
Outputs

Sample Size (N) = Number of Model Runs
Sample Mean (X_s) = (1/N) (X_1 + X_2 + X_3 ... + X_N)
Sample Standard Deviation (S_s) = √[(Σ(X-X_s)^2)/(N-1)]
Sampling Error = Z (S_s/√N)
Confidence Level = X_s ± Z (S_s/√N)
% of Sample Mean (E) = % Tolerance * X_s
Sample Size Needed = [(Z)^2 * (S_s)^2] / (E)^2

Model Iterations

Measure of Effectiveness (MOE):	Speed
Confidence Interval:	95%
Tolerance Error:	10%
Number of Model Runs:	10

Run Number	*Speed*
1	50.34
2	50.57
3	50.3
4	50.11
5	50.69
6	50.55
7	50.18
8	50.88
9	50.54
10	50.68
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Sample Size Outputs

N	=	10.0
X_s	=	50.5
S_s	=	0.2
E	=	5.0
Z	=	1.96

Sampling Error	=	0.15		
95% Confidence Interval	=	50.3	to	50.6
Percentage of Mean	=	0.30%		Good
Sample Size Needed	=	10		

Z is the number of standard deviations away from the mean corresponding to the required confidence level in a normal distribution.

Sample Size Determination Tool, PM Peak

User Inputs
Constants
Outputs

Sample Size (N) = Number of Model Runs
Sample Mean (X_s) = (1/N) (X_1 + X_2 + X_3 ... + X_N)
Sample Standard Deviation (S_s) = √[(Σ(X-X_s)^2)/(N-1)]
Sampling Error = Z (S_s/√N)
Confidence Level = X_s ± Z (S_s/√N)
% of Sample Mean (E) = % Tolerance * X_s
Sample Size Needed = [(Z)^2 * (S_s)^2] / (E)^2

Model Iterations

Measure of Effectiveness (MOE):	Speed
Confidence Interval:	95%
Tolerance Error:	10%
Number of Model Runs:	10

Run Number	*Speed*
1	50.32
2	50.06
3	50.06
4	49.98
5	50.13
6	50.53
7	49.86
8	50.2
9	49.92
10	50.11
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

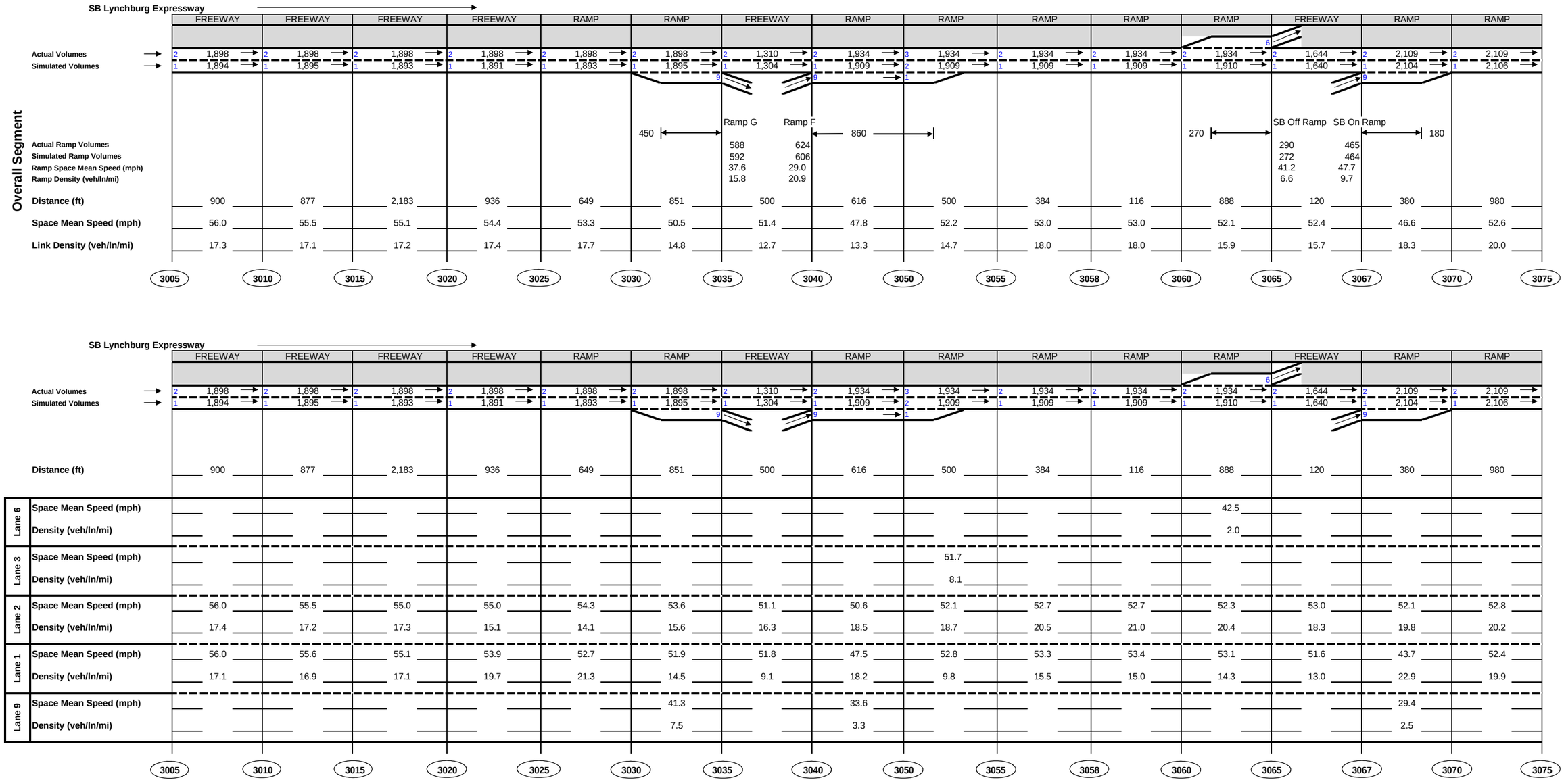
Sample Size Outputs

N	=	10.0
X_s	=	50.1
S_s	=	0.2
E	=	5.0
Z	=	1.96

Sampling Error	=	0.12		
95% Confidence Interval	=	50.0	to	50.2
Percentage of Mean	=	0.24%		Good
Sample Size Needed	=	10		

Z is the number of standard deviations away from the mean corresponding to the required confidence level in a normal distribution.

APPENDIX F-3: CORSIM SIMULATION RESULTS



NOTE: numbers in chart are provided for illustrative purposes only

LEGEND

100 Node Number

Auxiliary Lane Length

Freeway Density (veh/ln/mi)	Weave/Ramp Density (veh/ln/mi)	CD Road Weave Density (veh/ln/mi)
45 and above	45 and above	45 and above
35 to 45	35 to 45	36 to 45
26 to 35	28 to 35	32 to 36
0 to 26	0 to 28	0 to 32

***The results shown are the average results across 10 microsimulation runs.**

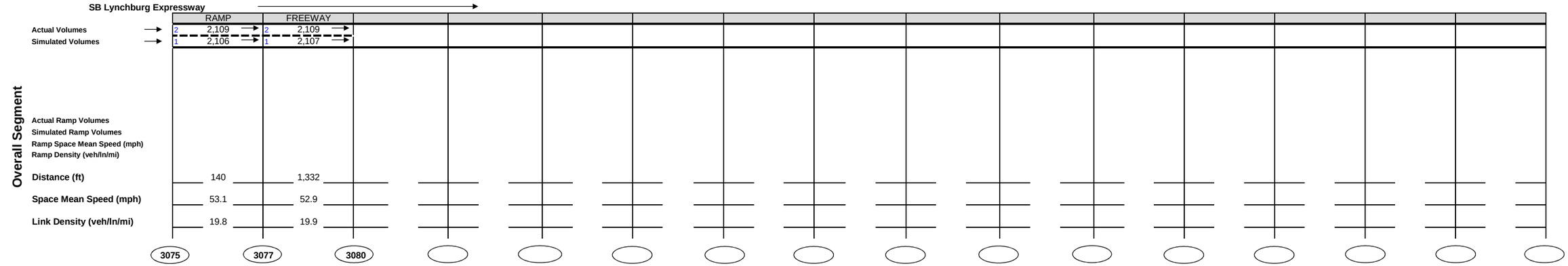
VDOT Virginia Department of Transportation

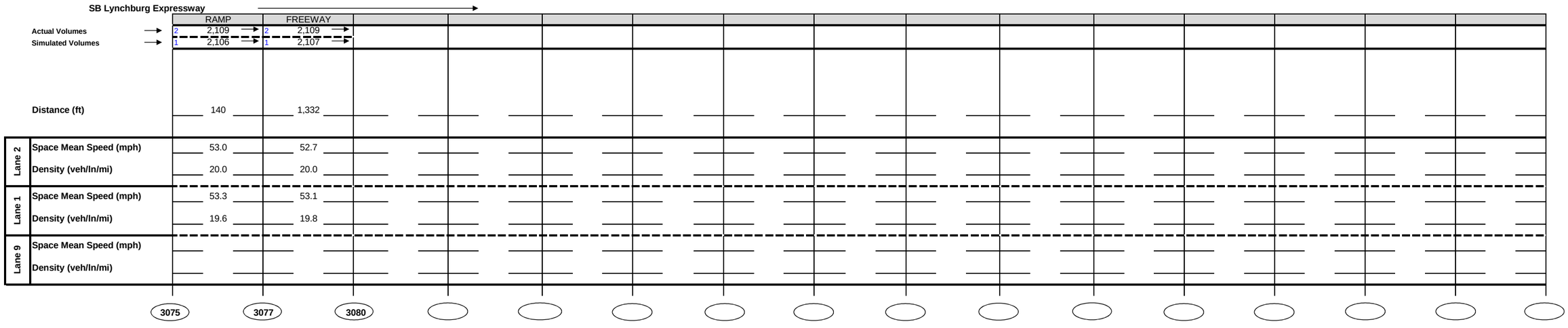
Figure 1

Candlers Mountain Road Corridor Study

Southbound Lynchburg Expressway

Build (2040) AM Peak Hour





NOTE: numbers in chart are provided for illustrative purposes only

LEGEND

100 Node Number

Auxiliary Lane Length

Freeway Density (veh/ln/mi)
45 and above
35 to 45
26 to 35
0 to 26

Weave/Ramp Density (veh/ln/mi)
45 and above
35 to 45
28 to 35
0 to 28

CD Road Weave Density (veh/ln/mi)
45 and above
36 to 45
32 to 36
0 to 32

***The results shown are the average results across 10 microsimulation runs.**

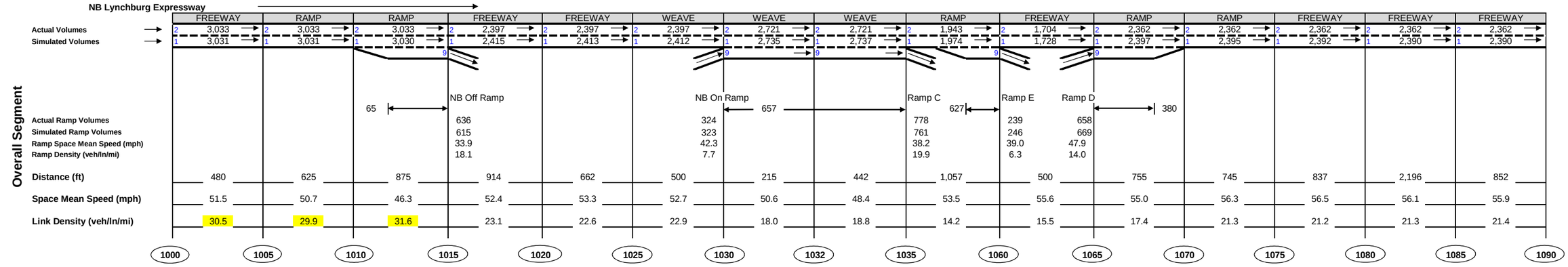
VDOT Virginia Department of Transportation

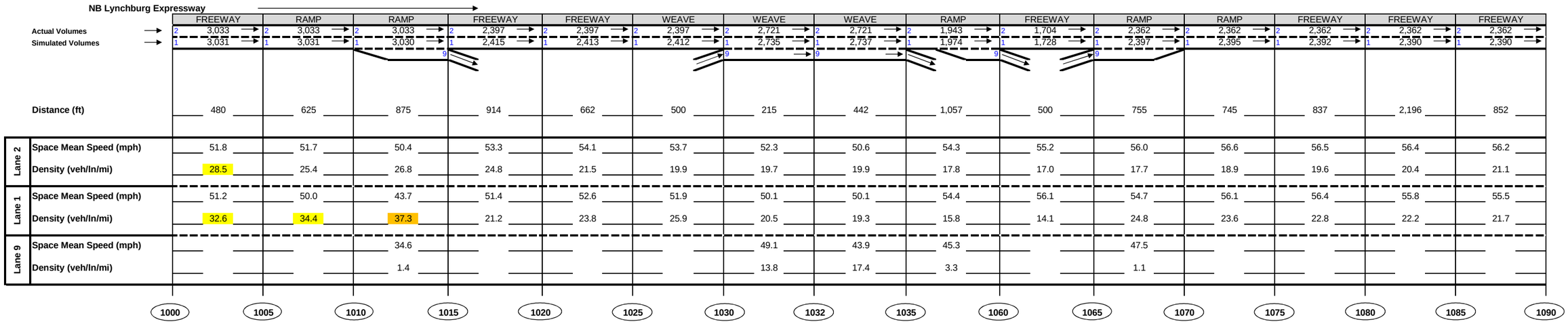
Figure 2

Candlers Mountain Road Corridor Study

Southbound Lynchburg Expressway

Build (2040) AM Peak Hour





NOTE: numbers in chart are provided for illustrative purposes only

LEGEND

100 Node Number

Auxiliary Lane Length

Freeway Density (veh/ln/mi)	Weave/Ramp Density (veh/ln/mi)	CD Road Weave Density (veh/ln/mi)
45 and above	45 and above	45 and above
35 to 45	35 to 45	36 to 45
26 to 35	28 to 35	32 to 36
0 to 26	0 to 28	0 to 32

***The results shown are the average results across 10 microsimulation runs.**

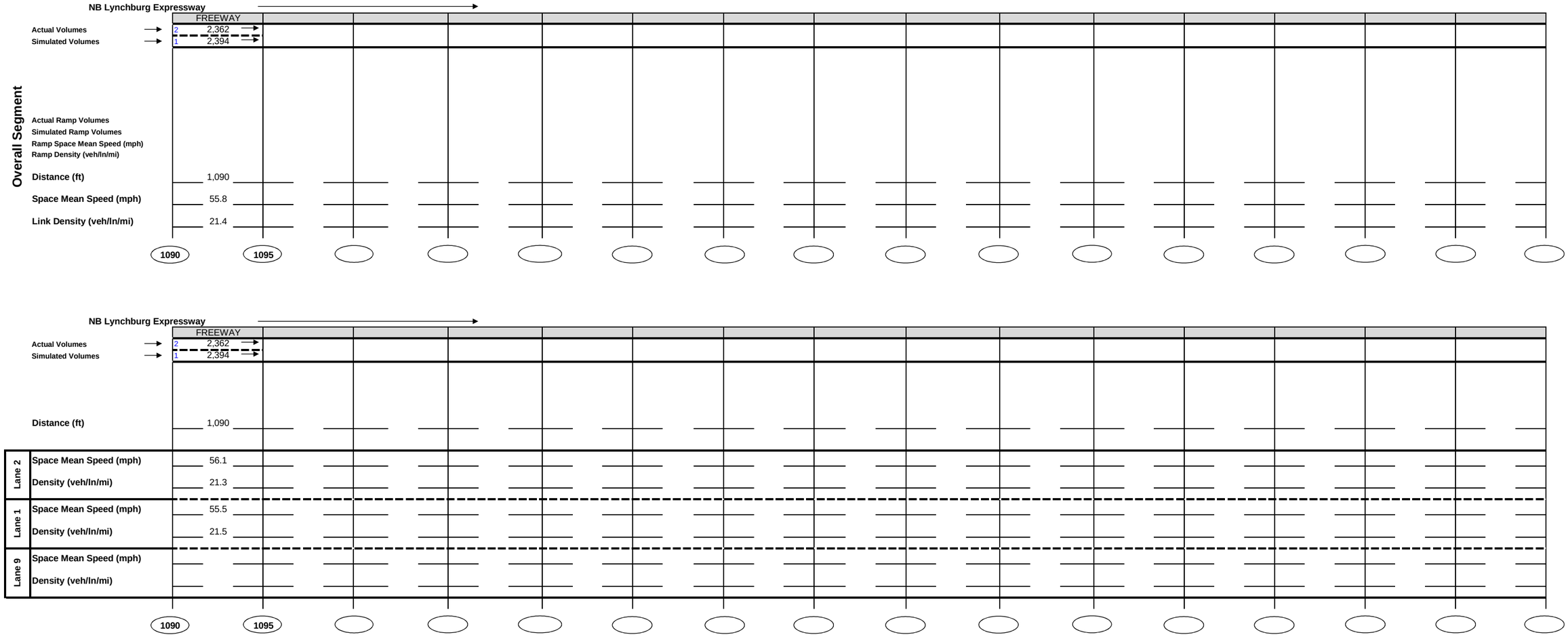
VDOT Virginia Department of Transportation

Figure 3

Candlers Mountain Road Corridor Study

Northbound Lynchburg Expressway

Build (2040) AM Peak Hour



NOTE: numbers in chart are provided for illustrative purposes only

LEGEND

100 Node Number

Auxiliary Lane Length

Freeway Density (veh/ln/mi)
45 and above
35 to 45
26 to 35
0 to 26

Weave/Ramp Density (veh/ln/mi)
45 and above
35 to 45
28 to 35
0 to 28

CD Road Weave Density (veh/ln/mi)
45 and above
36 to 45
32 to 36
0 to 32

***The results shown are the average results across 10 microsimulation runs.**

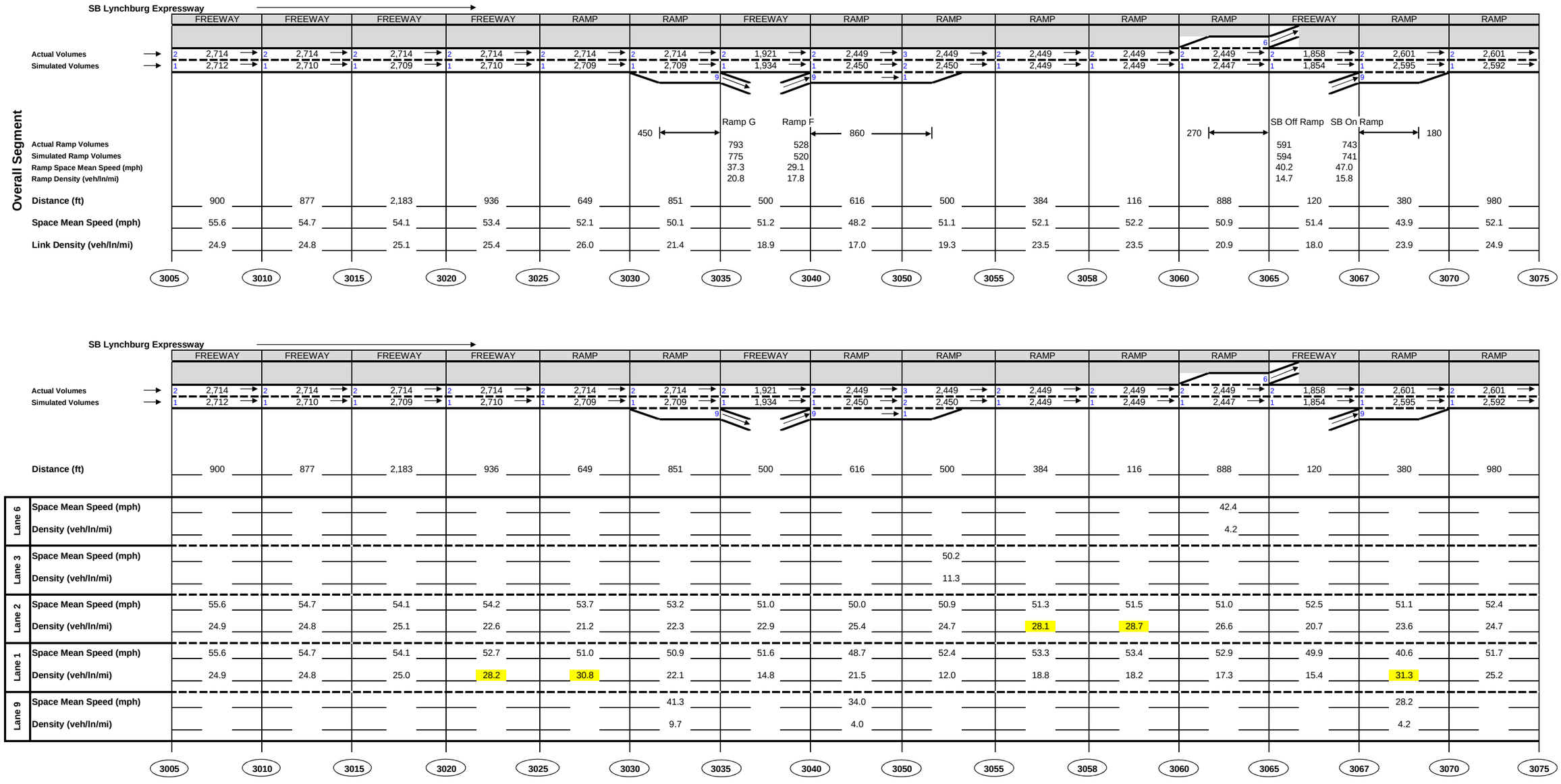
VDOT Virginia Department of Transportation

Figure 4

Candlers Mountain Road Corridor Study

Northbound Lynchburg Expressway

Build (2040) AM Peak Hour



NOTE: numbers in chart are provided for illustrative purposes only

LEGEND

100 Node Number

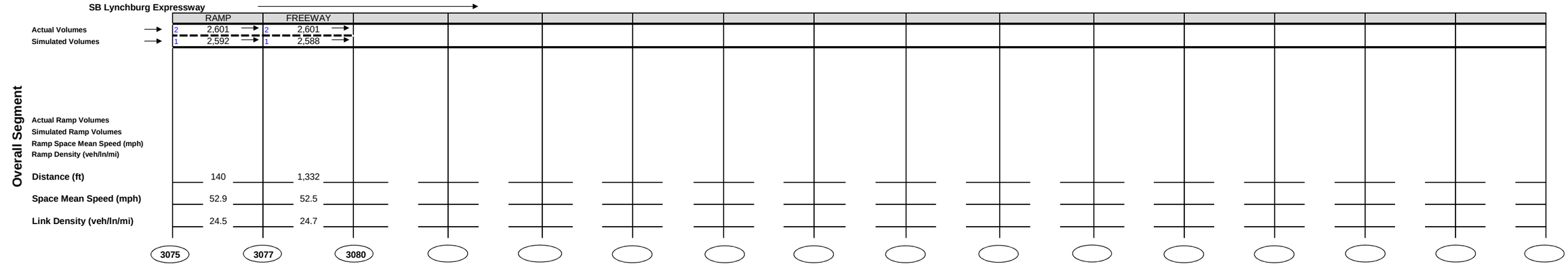
Auxiliary Lane Length

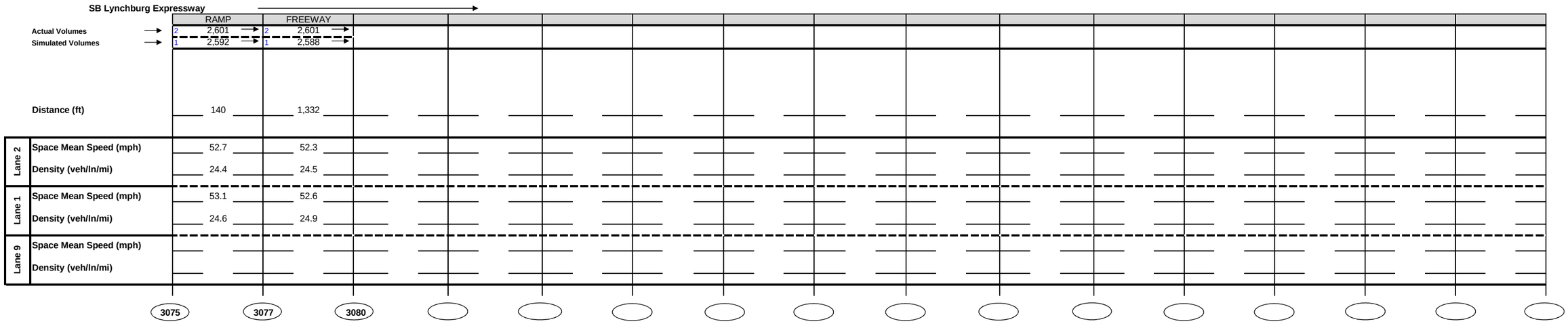
Freeway Density (veh/ln/mi)	Weave/Ramp Density (veh/ln/mi)	CD Road Weave Density (veh/ln/mi)
45 and above	45 and above	45 and above
35 to 45	35 to 45	36 to 45
26 to 35	28 to 35	32 to 36
0 to 26	0 to 28	0 to 32

***The results shown are the average results across 10 microsimulation runs.**

VDOT Virginia Department of Transportation

Figure 5
Candlers Mountain Road Corridor Study
Southbound Lynchburg Expressway
Build (2040) PM Peak Hour





NOTE: numbers in chart are provided for illustrative purposes only

LEGEND

100 Node Number

Auxiliary Lane Length

Freeway Density (veh/ln/mi)
45 and above
35 to 45
26 to 35
0 to 26

Weave/Ramp Density (veh/ln/mi)
45 and above
35 to 45
28 to 35
0 to 28

CD Road Weave Density (veh/ln/mi)
45 and above
36 to 45
32 to 36
0 to 32

***The results shown are the average results across 10 microsimulation runs.**

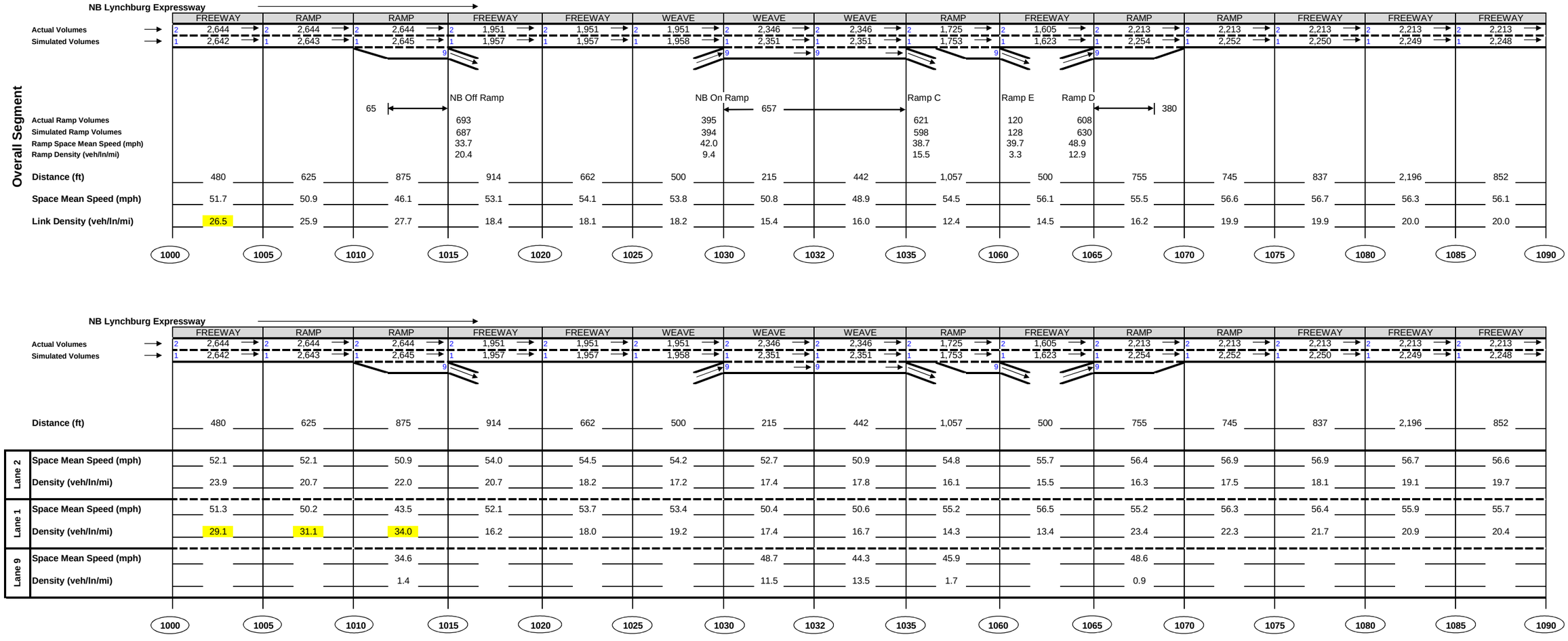
VDOT Virginia Department of Transportation

Figure 6

Candlers Mountain Road Corridor Study

Southbound Lynchburg Expressway

Build (2040) PM Peak Hour



NOTE: numbers in chart are provided for illustrative purposes only

LEGEND

100 Node Number

Auxiliary Lane Length

Freeway Density (veh/ln/mi)	Weave/Ramp Density (veh/ln/mi)	CD Road Weave Density (veh/ln/mi)
45 and above	45 and above	45 and above
35 to 45	35 to 45	36 to 45
26 to 35	28 to 35	32 to 36
0 to 26	0 to 28	0 to 32

***The results shown are the average results across 10 microsimulation runs.**

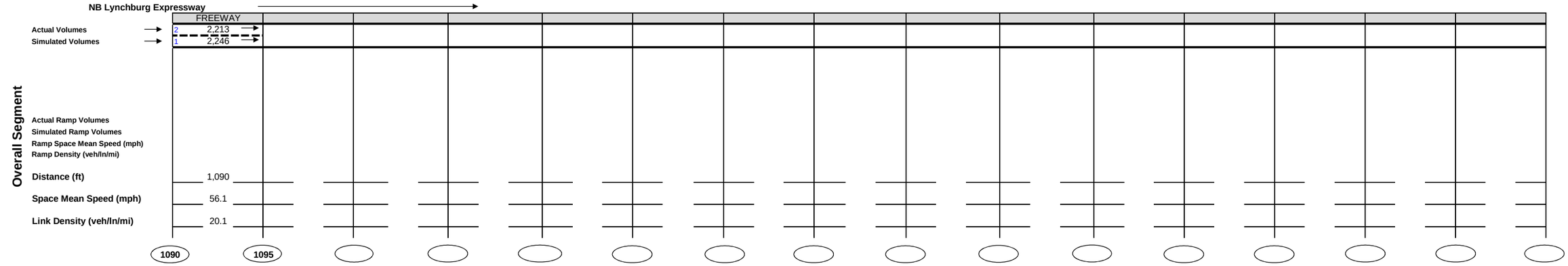
VDOT Virginia Department of Transportation

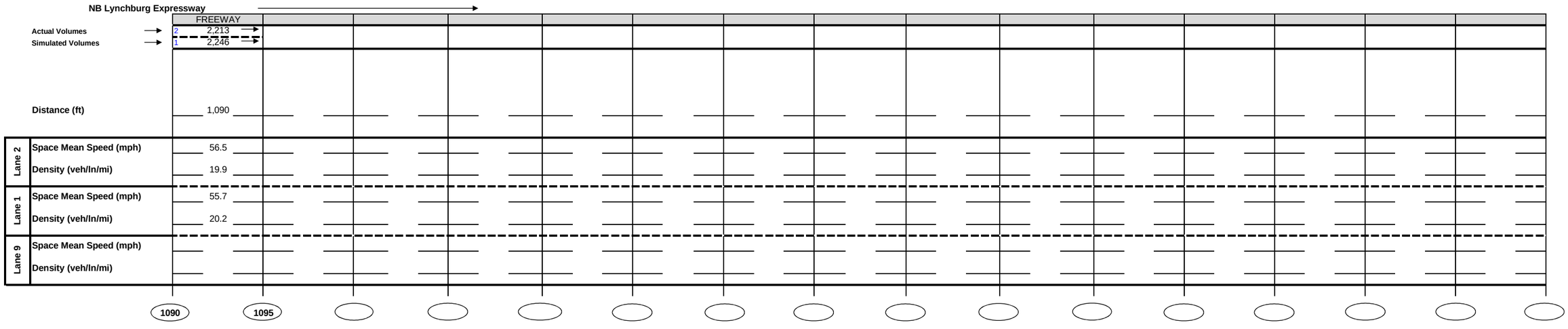
Figure 7

Candlers Mountain Road Corridor Study

Northbound Lynchburg Expressway

Build (2040) PM Peak Hour





NOTE: numbers in chart are provided for illustrative purposes only

LEGEND

100 Node Number

Auxiliary Lane Length

Freeway Density (veh/ln/mi)	Weave/Ramp Density (veh/ln/mi)	CD Road Weave Density (veh/ln/mi)
45 and above	45 and above	45 and above
35 to 45	35 to 45	36 to 45
26 to 35	28 to 35	32 to 36
0 to 26	0 to 28	0 to 32

***The results shown are the average results across 10 microsimulation runs.**

VDOT Virginia Department of Transportation

Figure 8

Candlers Mountain Road Corridor Study

Northbound Lynchburg Expressway

Build (2040) PM Peak Hour

CORSIM Microsimulation Delay Reporting for Intersections

Build 2040
AM Peak Hour

Name / ID	Approach	Approach Control Type	Link		Join	Turning Movement Volumes				Microsimulation Delay by Movement (sec)			Microsimulation Delay by Approach (sec)	Microsimulation Delay by Intersection (sec)	Intersection Type
Intersection			From	To		Left	Through	Right	Total	Left	Through	Right			
1 - Candlers Mountain Road/ Sheffield Drive at Wards Road	WB	Signal	8	6	8-6	89	150	471	710	25.14	30.97	8.57	15.38	21.53	Signalized
	EB	Signal	4	6	4-6	17	120	46	183	35.61	30.16	17.26	27.42		
	NB	Signal	130	6	130-6	45	327	29	401	27.92	23.68	17.75	23.73		
	SB	Signal	120	6	120-6	617	417	6	1040	28.04	17.61	25.00	23.84		
2 - Candlers Mountain Road at Short Street	WB	Free	10	8	10-8	7	690	0	697	4.54	1.35	-	1.39	2.08	Unsignalized Two-Way
	EB	Free	6	8	6-8	6	754	0	760	6.80	2.26	-	2.30		
	SB	Stop	220	8	220-8	6	4	8	18	14.50	8.70	7.28	10.00		
	NB	Stop	230	8	230-8	6	6	5	17	10.90	20.90	3.24	12.18		
3 - Candlers Mountain Road at Woodall Road	EB	Signal	8	10	8-10	43	722	0	765	5.99	4.34	-	4.44	6.24	Signalized
	SB	Signal	320	10	320-10	37	0	17	54	61.67	-	4.80	43.77		
	NB	Signal	330	10	330-10	8	5	23	36	48.68	70.32	7.80	25.57		
	WB	Signal	11	10	11-10	192	667	158	1017	7.71	4.05	5.24	4.92		
4 - Candlers Mountain Road at Seminole Avenue	WB	Free	10	12	10-12	0	718	256	974	-	1.04	3.65	1.72	4.47	Unsignalized Two-Way
	NB	Stop	410	12	410-12	0	0	250	250	-	-	15.20	15.20		
5 - Candlers Mountain Road at Murray Place	WB	Signal	31	26	31-26	0	1713	33	1746	-	2.73	3.07	2.74	7.08	Signalized
	SB	Signal	610	26	610-26	39	0	0	39	59.22	-	-	59.22		
	EB	Signal	23	26	23-26	106	0	0	106	59.46	-	-	59.46		
6 - Candlers Mountain Road at Murray Place/ River Ridge Mall	NB	Signal	660	32	660-32	63	0	215	278	110.70	-	37.29	53.92	19.44	Signalized
	WB	Signal	36	32	36-32	182	0	0	182	76.80	-	-	76.80		
	EB	Signal	30	32	30-32	0	1800	0	1800	-	8.31	-	8.31		
7 - Candlers Mountain Road / US 501 at Mayflower Drive	SB	Signal	720	40	720-40	118	128	93	339	57.68	64.09	41.07	55.55	29.02	Signalized
	WB	Signal	43	40	43-40	192	1791	448	2431	25.89	33.07	12.52	28.71		
	EBT	Signal	38	40	38-40	0	755	0	755	-	9.35	-	9.35		
	EBL	Signal	37	40	37-40	130	0	0	130	79.88	-	-	79.88		
9 - Candlers Mountain Road at Southbound Lynchburg Expressway Ramps	WB	Signal	16	14	16-14	0	906	0	906	-	2.29	-	2.29	14.46	Signalized
	EB	Signal	12	14	12-14	0	976	0	976	-	7.22	-	7.22		
	SB	Signal	515	14	515-14	440	0	132	572	56.53	-	11.30	46.09		
10 - Candlers Mountain Road at Northbound Lynchburg Expressway Ramps	WB	Signal	24	20	24-20	0	1183	0	1183	-	0.39	-	0.39	0.73	Signalized
	EB	Signal	19	20	19-20	42	0	0	42	10.27	-	-	10.27		

CORSIM Microsimulation Delay Reporting for Intersections

Build 2040
PM Peak Hour

Name / ID	Approach	Approach Control Type	Link		Join	Turning Movement Volumes				Microsimulation Delay by Movement (sec)			Microsimulation Delay by Approach (sec)	Microsimulation Delay by Intersection (sec)	Intersection Type
Intersection			From	To		Left	Through	Right	Total	Left	Through	Right			
1 - Candlers Mountain Road/ Sheffield Drive at Wards Road	WB	Signal	8	6	8-6	285	171	839	1295	43.21	41.07	16.42	25.57	30.46	Signalized
	EB	Signal	4	6	4-6	72	204	85	361	40.99	40.10	29.26	37.73		
	NB	Signal	130	6	130-6	86	570	74	730	43.10	32.21	33.29	33.60		
	SB	Signal	120	6	120-6	563	642	32	1237	40.26	24.42	23.06	31.60		
2 - Candlers Mountain Road at Short Street	WB	Signal	10	8	10-8	7	1280	0	1287	3.60	1.67	-	1.68	2.27	Signalized
	EB	Signal	6	8	6-8	13	826	0	839	4.11	2.29	-	2.31		
	SB	Signal	220	8	220-8	11	6	6	23	19.09	22.40	27.20	22.07		
	NB	Signal	230	8	230-8	6	6	6	18	18.90	29.50	4.90	17.77		
3 - Candlers Mountain Road at Woodall Road	EB	Signal	8	10	8-10	19	793	25	837	7.89	10.79	12.12	10.76	10.92	Signalized
	SB	Signal	320	10	320-10	97	0	87	184	62.75	-	17.32	41.27		
	NB	Signal	330	10	330-10	22	5	4	31	59.70	65.52	10.95	54.35		
	WB	Signal	11	10	11-10	214	1176	63	1453	9.50	5.67	5.92	6.25		
4 - Candlers Mountain Road at Seminole Avenue	WB	Free	10	12	10-12	0	816	294	1110	-	1.16	4.02	1.92	2.82	Unsignalized Two-Way
	NB	Stop	410	12	410-12	0	0	194	194	-	-	7.99	7.99		
5 - Candlers Mountain Road at Murray Place	WB	Signal	31	26	31-26	0	2032	0	2032	-	13.77	-	13.77	26.72	Signalized
	SB	Signal	610	26	610-26	152	0	0	152	165.02	-	-	165.02		
	EB	Signal	23	26	23-26	125	0	0	125	68.97	-	-	68.97		
6 - Candlers Mountain Road at Murray Place/ River Ridge Mall	NB	Signal	660	32	660-32	269	0	534	803	68.29	-	30.84	43.39	28.84	Signalized
	WB	Signal	36	32	36-32	269	0	0	269	65.04	-	-	65.04		
	EB	Signal	30	32	30-32	0	1590	0	1590	-	15.38	-	15.38		
7 - Candlers Mountain Road / US 501 at Mayflower Drive	SB	Signal	720	40	720-40	405	119	194	718	71.96	82.19	50.68	67.91	24.84	Signalized
	WB	Signal	43	40	43-40	90	1741	212	2043	40.84	22.34	7.66	21.63		
	EBT	Signal	38	40	38-40	0	1391	0	1391	-	6.72	-	6.72		
	EBL	Signal	37	40	37-40	52	0	0	52	40.43	-	-	40.43		
9 - Candlers Mountain Road at Southbound Lynchburg Expressway Ramps	WB	Signal	16	14	16-14	0	1224	0	1224	-	2.39	-	2.39	15.45	Signalized
	EB	Signal	12	14	12-14	0	1006	0	1006	-	7.76	-	7.76		
	SB	Signal	515	14	515-14	527	0	252	779	57.11	-	22.41	45.88		
10 - Candlers Mountain Road at Northbound Lynchburg Expressway Ramps	WB	Signal	24	20	24-20	0	1560	0	1560	-	0.33	-	0.33	1.50	Signalized
	EB	Signal	19	20	19-20	60	0	0	60	31.94	-	-	31.94		

CORSIM Maximum Queue Length Summary
Build (2040) - AM Peak Hour

Name / ID	Approach	Link		Maximum Queue - Simulated (vehicles per lane)									Maximum Queue - Simulated		
Intersection		From	To	Lane 1	Lane 2	Lane 3	Lane 4	Lane 5	Lane 6	Lane 7	Lane 8	Lane 9	LEFT	THRU	RIGHT
1 - Candlers Mountain Road/ Sheffield Drive at Wards Road	EB	2	4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5		
		4	6	5.5	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	WB	8	6	4.9	7.5	0.0	0.0	0.0	5.0	4.4	0.0	0.0	4.4	7.5	5.0
	NB	140	130	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	7.4	
		130	6	7.4	7.1	0.0	0.0	0.0	0.0	3.4	0.0	0.0			
	SB	110	120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.3	9.5	
		120	6	7.3	9.5	0.0	0.0	0.0	8.8	12.3	0.0	0.0			
2 - Candlers Mountain Road at Short Street	EB	6	8	1.5	1.1	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.6	1.5	
	WB	10	8	1.2	0.3	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.6	1.2	
	NB	240	230	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9		
		230	8	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	SB	210	220	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0		
		220	8	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
3 - Candlers Mountain Road at Woodall Road	EB	8	10	11.1	10.3	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	11.1	
	WB	14	11	5.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	12.0	
		11	10	7.0	3.7	5.8	0.0	0.0	0.0	0.0	0.0	0.0			
	NB	340	330	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3		2.5
		330	10	2.5	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	SB	310	320	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6		1.5
		320	10	1.5	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0			
4 - Candlers Mountain Road at Seminole Avenue	EB	10	12	1.8	2.1	0.0	0.0	0.0	0.0	0.8	0.0	0.0		2.1	0.8
	NB	420	410	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			11.2
		410	12	10.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
5 - Candlers Mountain Road at Murray Place	EB	22	23	0.9	3.2	3.5	0.0	0.0	0.0	0.9	0.0	0.0	7.1		
		23	26	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	WB	40	36	1.0	3.2	0.0	0.0	0.0	0.0	0.9	0.0	0.0		6.2	
		36	31	0.6	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		31	26	4.7	5.5	5.7	3.9	0.0	0.0	0.0	0.0	0.0			
	SB	610	26	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7		
6 - Candlers Mountain Road at Murray Place/ River Ridge Mall	EB	19	22	2.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		28.3	0.6
		22	23	0.9	3.2	3.5	0.0	0.0	0.0	0.9	0.0	0.0			
		23	28	0.5	8.9	7.8	0.0	0.0	0.0	0.0	0.0	0.0			
		28	30	0.6	6.0	6.3	4.3	0.0	0.0	0.0	0.0	0.0			
		30	32	7.3	7.9	3.9	0.0	0.0	0.0	0.0	0.0	0.0			
	WB	40	36	1.0	3.3	0.0	0.0	0.0	0.0	0.9	0.0	0.0	5.7		
		36	32	4.8	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	NB	670	660	1.0	0.8	1.8	0.0	0.0	0.0	0.0	0.0	0.0	8.7		8.4
		660	32	7.4	5.5	6.9	0.0	0.0	0.0	0.0	0.0	0.0			
	SB	640	650	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0
		650	31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
7 - Candlers Mountain Road/US 501 at Mayflower Drive	EB	32	34	3.8	2.8	1.3	0.0	0.0	0.0	0.0	0.0	0.0			
		34	37	17.4	15.4	0.0	0.0	0.0	0.0	1.4	0.0	0.0			
		37	38	6.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1	31.2	0.0
		38	40	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		37	40	8.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	WB	56	44	3.1	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		44	43	7.5	8.7	6.8	0.0	0.0	0.0	0.0	0.0	0.0	6.3	39.0	7.3
		43	40	26.0	26.6	0.0	0.0	0.0	7.3	6.3	0.0	0.0			
	SB	710	720	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		720	40	8.8	0.0	0.0	0.0	0.0	5.5	6.6	0.0	0.0	6.6	9.9	5.5
8 - Candlers Mountain Road at Westbound US 501 Ramp/Mountain View Road	EB	810	820	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		820	830	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			1.4
		830	78	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	NB	76	74	0.3	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.6	0.3	
	SB	72	74	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1		0.0
		74	76	1.4	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
9 - Candlers Mountain Road at Southbound Lynchburg Expressway Ramps	EB	12	14	11.4	11.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0		11.9	
	WB	18	16	3.1	1.6	1.0	0.0	0.0	0.0	0.0	0.0	0.0		7.9	
		16	14	4.8	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	SB	510	515	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.2		4.6
		515	14	12.3	0.0	0.0	0.0	0.0	4.6	12.1	0.0	0.0			
10 - Candlers Mountain Road at Northbound Lynchburg Expressway Ramps	EB	14	19	0.7	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9		
		19	20	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	WB	25	24	1.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2		1.1
		24	20	2.8	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0			

CORSIM Maximum Queue Length Summary
Build (2040) - PM Peak Hour

Name / ID	Approach	Link		Maximum Queue - Simulated (vehicles per lane)									Maximum Queue - Simulated		
Intersection		From	To	Lane 1	Lane 2	Lane 3	Lane 4	Lane 5	Lane 6	Lane 7	Lane 8	Lane 9	LEFT	THRU	RIGHT
1 - Candlers Mountain Road/ Sheffield Drive at Wards Road	EB	2	4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.1		
		4	6	8.1	7.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	WB	8	6	9.8	10.5	0.0	0.0	0.0	9.7	12.0	0.0	0.0	12.0	10.5	9.8
	NB	140	130	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	11.3	
		130	6	10.9	11.3	0.0	0.0	0.0	0.0	6.0	0.0	0.0			
	SB	110	120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.1	12.3	
		120	6	11.0	12.3	0.0	0.0	0.0	8.6	12.1	0.0	0.0			
2 - Candlers Mountain Road at Short Street	EB	6	8	1.7	1.2	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	1.7	
	WB	10	8	2.2	1.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.8	2.2	
	NB	240	230	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1		
		230	8	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	SB	210	220	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4		
		220	8	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
3 - Candlers Mountain Road at Woodall Road	EB	8	10	11.6	10.9	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.2	11.6	
	WB	14	11	9.2	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2	16.2	
		11	10	7.0	5.1	6.2	0.0	0.0	0.0	0.0	0.0	0.0			
	NB	340	330	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5		1.3
		330	10	1.3	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	SB	310	320	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7		6.1
		320	10	6.1	0.0	0.0	0.0	0.0	0.0	4.7	0.0	0.0			
4 - Candlers Mountain Road at Seminole Avenue	EB	10	12	1.5	0.5	0.0	0.0	0.0	0.0	1.3	0.0	0.0		1.5	1.3
	NB	420	410	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			4.9
		410	12	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
5 - Candlers Mountain Road at Murray Place	EB	22	23	0.3	2.5	2.1	0.0	0.0	0.0	0.9	0.0	0.0	7.2		
		23	26	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	WB	40	36	5.5	12.7	0.0	0.0	0.0	0.0	1.0	0.0	0.0		26.4	
		36	31	2.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		31	26	10.4	11.6	11.6	11.9	0.0	0.0	0.0	0.0	0.0			
	SB	610	26	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.0		
6 - Candlers Mountain Road at Murray Place/ River Ridge Mall	EB	19	22	2.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0		25.2	1.0
		22	23	0.3	2.5	2.1	0.0	0.0	0.0	0.9	0.0	0.0			
		23	28	0.9	7.0	6.7	0.0	0.0	0.0	0.0	0.0	0.0			
		28	30	1.0	6.1	6.2	4.5	0.0	0.0	0.0	0.0	0.0			
		30	32	7.6	8.0	5.3	0.0	0.0	0.0	0.0	0.0	0.0			
	WB	40	36	0.3	12.7	0.0	0.0	0.0	0.0	1.0	0.0	0.0	6.3		
		36	32	5.3	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	NB	670	660	4.9	6.3	7.1	0.0	0.0	0.0	0.0	0.0	0.0	15.1		14.1
		660	32	7.9	7.8	8.0	0.0	0.0	0.0	0.0	0.0	0.0			
	SB	640	650	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.2
		650	31	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
7 - Candlers Mountain Road/US 501 at Mayflower Drive	EB	32	34	1.8	3.4	1.1	0.0	0.0	0.0	0.0	0.0	0.0			
		34	37	11.3	17.9	0.0	0.0	0.0	0.0	0.1	0.0	0.0			
		37	38	6.1	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	31.5	0.0
		38	40	4.1	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		37	40	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	WB	56	44	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		44	43	2.5	4.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0	6.6	27.7	3.2
		43	40	21.9	23.0	0.0	0.0	0.0	3.2	6.6	0.0	0.0			
	SB	710	720	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		720	40	20.8	0.0	0.0	0.0	0.0	10.3	17.6	0.0	0.0	17.6	24.6	10.3
8 - Candlers Mountain Road at Westbound US 501 Ramp/Mountain View Road	EB	810	820	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		820	830	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			1.3
		830	78	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	NB	76	74	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.1	0.0	
	SB	72	74	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5		0.0
		74	76	1.4	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
9 - Candlers Mountain Road at Southbound Lynchburg Expressway Ramps	EB	12	14	9.3	9.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0		9.6	
	WB	18	16	2.1	3.4	2.5	0.0	0.0	0.0	0.0	0.0	0.0		8.3	
		16	14	5.1	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	SB	510	515	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.3		9.1
		515	14	13.6	0.0	0.0	0.0	0.0	9.1	12.8	0.0	0.0			
10 - Candlers Mountain Road at Northbound Lynchburg Expressway Ramps	EB	14	19	0.7	1.4	0.0	0.0	0.0	0.0	0.7	0.0	0.0	10.9		
		19	20	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	WB	25	24	0.3	3.2	3.1	0.0	0.0	0.0	0.0	0.0	0.0	8		0.3
		24	20	4.8	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0			

APPENDIX F-4: SYNCHRO/SIMTRAFFIC ASSUMPTION SUMMARY

Candlers Mountain Road Corridor Study – Synchro/SimTraffic Build Conditions Modeling Inputs, Assumptions and Calibration

The build 2025 and 2040 AM and PM peak hour Synchro/SimTraffic models were developed using the no-build 2025 and 2040 AM and PM peak hour Synchro/SimTraffic models as a starting point. Geometric inputs to the build 2025 and 2040 AM and PM peak hour Synchro/SimTraffic models were modified from the no-build models to match the proposed build design. Projected build 2025 and 2040 traffic volumes and optimized signal timing splits were used in the build Synchro/SimTraffic models. The following inputs and assumptions were used in both the AM and PM peak hour build Synchro/SimTraffic models. Only inputs and assumptions that differ from the no build models are listed here.

Geometric Inputs

Lane configurations were based on the proposed build geometry, with the following exceptions:

- The two loop ramps, northbound Lynchburg Expressway exit ramp to westbound Candlers Mountain Road and southbound Lynchburg Expressway entrance ramp from westbound Candlers Mountain Road, were modeled as free-flow right-turn lanes at the two new signalized intersections for the Lynchburg Expressway ramps.

Signal Timing Inputs

Signal timing inputs were modified based on the build geometry. Splits were adjusted to give priority to eastbound and westbound Candlers Mountain Road over the side streets.

- Signalized intersections were modeled with a 140 second cycle length except the Wards Road intersection, which was modeled with a 100 second cycle length
- All signalized intersections were modeled as actuated-coordinated except the Wards Road intersection, which was modeled as actuated-uncoordinated as it was in the existing and no-build models
- The two green-T intersections, Candlers Mountain Road at Murray Place and Candlers Mountain Road at River Ridge Mall were modeled as clustered intersections
    - The westbound through movement at the intersection of Candlers Mountain Road and Murray Place was set to max recall to prevent any extra time from being allocated to the southbound movement.
- Detectors were removed from the continuous through movements at the intersection of Candlers Mountain Road and Murray Place (eastbound) and at the intersection of Candlers Mountain Road and Mountain Road (westbound)
- The dummy pretimed intersection in the AM existing and no-build models on Candlers Mountain Road south of the westbound US 501 ramp/Mountain View Road intersection was removed from the AM build Synchro/SimTraffic models. The dummy intersection was used in existing and no-build conditions to replicate queuing from the school drop-off. Under build conditions, it is assumed that the school drop-off will be reconfigured to move queuing off Candlers Mountain Road.

Traffic Volume Inputs

- Balanced build traffic volumes were input for all movements
- Heavy vehicle percentages were kept the same as the no build models except for both southbound Murray Place approaches. Build traffic volumes at these nodes were modified based on the design configuration and allowable movements for each of these approaches. Heavy vehicle percentages were calculated based on the rerouting:
    - Southbound Murray Place (Intersection 5):
        - Existing: AM = 3%, PM = 3%
        - Build: AM = 3%, PM = 2%
    - Southbound Murray Place (Intersection 6):
        - Existing: AM = 3%, PM = 2%
        - Build: AM = 3%, PM =3%
- Peak hour factors were kept the same as the no build models

Simulation Settings

The headway factor was kept the same for all link except for the following:

- On eastbound Candlers Mountain Road between Murray Place/River Ridge Mall and Mayflower Drive, the headway factor was decreased from 1.5 in no-build to 1.3 in build (default is 1.0)
    - This headway factor was modified to match the upstream headways of 1.3 on eastbound Candlers Mountain Road
    - The modification was made to reflect the lengthened eastbound right-turn lane at this location, which was assumed to improve the flow of traffic on this approach by reducing the number of right-turning vehicles queuing in the through lanes
    - Similar modifications were made at this location in CORSIM models

Synchro Analysis Method

The HCM 2000 methodology was used for Synchro analyses due to the limitations of the HCM 2010 methodology to analyze clustered intersections and non-standard traffic signal phasing. This is the same method used in the existing (2015) and no build models.

SimTraffic Analysis Inputs

- No changes to SimTraffic analysis inputs from no build models
- Ten simulation runs were completed (based on the Sample Size Determination Tool)
    - Speed on Candlers Mountain Road in the westbound direction at Intersection 4 (Candlers Mountain Road at Southbound Lynchburg Expressway Ramp/Seminole Avenue) was the input to the Sample Size Determination Tool

APPENDIX F-5: VDOT SAMPLE SIZE DETERMINATION TOOL – SIMTRAFFIC

Sample Size Determination Tool, Build 2025 AM Peak

User Inputs
Constants
Outputs

Sample Size (N) = Number of Model Runs
Sample Mean (X_s) = (1/N) ($X_1 + X_2 + X_3 \ldots + X_N$)
Sample Standard Deviation (S_s) = $\sqrt{[(\Sigma(X-X_s)^2)/(N-1)]}$
Sampling Error = $Z\ (S_s/\sqrt{N})$
Confidence Level = $X_s \pm Z\ (S_s/\sqrt{N})$
% of Sample Mean (E) = % Tolerance * X_s
Sample Size Needed = $[(Z)^2 * (S_s)^2] / (E)^2$

Model Iterations

Measure of Effectiveness (MOE):	Speed
Confidence Interval:	95%
Tolerance Error:	10%
Number of Model Runs:	10

Run Number	*Speed*
1	26
2	25
3	26
4	26
5	26
6	25
7	25
8	26
9	26
10	25
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Sample Size Outputs

N	=	10.0
X_s	=	25.6
S_s	=	0.5
E	=	2.6
Z	=	1.96

Sampling Error	=	0.32		
95% Confidence Interval	=	25.3	to	25.9
Percentage of Mean	=	1.25%		Good
Sample Size Needed	=	10		

Z is the number of standard deviations away from the mean corresponding to the required confidence level in a normal distribution.

Sample Size Determination Tool, Build 2025 PM Peak

User Inputs
Constants
Outputs

Sample Size (N) = Number of Model Runs
Sample Mean (X_s) = (1/N) ($X_1 + X_2 + X_3 \ldots + X_N$)
Sample Standard Deviation (S_s) = $\sqrt{[(\Sigma(X-X_s)^2)/(N-1)]}$
Sampling Error = $Z\ (S_s/\sqrt{N})$
Confidence Level = $X_s \pm Z\ (S_s/\sqrt{N})$
% of Sample Mean (E) = % Tolerance * X_s
Sample Size Needed = $[(Z)^2 * (S_s)^2] / (E)^2$

Model Iterations

Measure of Effectiveness (MOE):	Speed
Confidence Interval:	95%
Tolerance Error:	10%
Number of Model Runs:	10

Run Number	*Speed*
1	25
2	23
3	23
4	22
5	24
6	24
7	23
8	24
9	24
10	21
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Sample Size Outputs

N	=	10.0
X_s	=	23.3
S_s	=	1.2
E	=	2.3
Z	=	1.96

Sampling Error	=	0.72		
95% Confidence Interval	=	22.6	to	24.0
Percentage of Mean	=	3.08%		Good
Sample Size Needed	=	10		

Z is the number of standard deviations away from the mean corresponding to the required confidence level in a normal distribution.

Sample Size Determination Tool, Build 2040 AM Peak

User Inputs
Constants
Outputs

Sample Size (N) = Number of Model Runs
Sample Mean (X_s) = (1/N) (X_1 + X_2 + X_3 ... + X_N)
Sample Standard Deviation (S_s) = √[(Σ(X-X_s)^2)/(N-1)]
Sampling Error = Z (S_s/√N)
Confidence Level = X_s ± Z (S_s/√N)
% of Sample Mean (E) = % Tolerance * X_s
Sample Size Needed = [(Z)^2 * (S_s)^2] / (E)^2

Model Iterations

Measure of Effectiveness (MOE):	Speed
Confidence Interval:	95%
Tolerance Error:	10%
Number of Model Runs:	10

Run Number	*Speed*
1	25
2	23
3	24
4	25
5	24
6	24
7	25
8	25
9	25
10	24
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Sample Size Outputs

N	=	10.0
X_s	=	24.4
S_s	=	0.7
E	=	2.4
Z	=	1.96

Sampling Error	=	0.43		
95% Confidence Interval	=	24.0	to	24.8
Percentage of Mean	=	1.78%		Good
Sample Size Needed	=	10		

Z is the number of standard deviations away from the mean corresponding to the required confidence level in a normal distribution.

Sample Size Determination Tool, Build 2040 PM Peak

User Inputs
Constants
Outputs

Sample Size (N) = Number of Model Runs
Sample Mean (X_s) = (1/N) (X_1 + X_2 + X_3 ... + X_N)
Sample Standard Deviation (S_s) = √[(Σ(X-X_s)^2)/(N-1)]
Sampling Error = Z (S_s/√N)
Confidence Level = X_s ± Z (S_s/√N)
% of Sample Mean (E) = % Tolerance * X_s
Sample Size Needed = [(Z)^2 * (S_s)^2] / (E)^2

Model Iterations

Measure of Effectiveness (MOE):	Speed
Confidence Interval:	95%
Tolerance Error:	10%
Number of Model Runs:	10

Run Number	*Speed*
1	21
2	22
3	20
4	22
5	21
6	21
7	20
8	21
9	21
10	17
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Sample Size Outputs

N	=	10.0
X_s	=	20.6
S_s	=	1.4
E	=	2.1
Z	=	1.96

Sampling Error	=	0.89		
95% Confidence Interval	=	19.7	to	21.5
Percentage of Mean	=	4.30%		Good
Sample Size Needed	=	10		

Z is the number of standard deviations away from the mean corresponding to the required confidence level in a normal distribution.

APPENDIX F-6: SYNCHRO INTERSECTION LEVEL OF SERVICE SUMMARY

SYNCHRO CAPACITY ANALYSIS - INTERSECTION LEVEL OF SERVICE SUMMARY
2025 Build Peak Hour Volumes
Candlers Mountain Road Corridor Study - Lynchburg, Virginia

Intersection Number and Description	Type of Control	Lane Group	Eastbound				Westbound				Northbound				Southbound				Overall	
			AM		PM		AM		PM		AM		PM		AM		PM			
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	AM	PM
1 Candlers Mountain Road / Sheffield Drive at Wards Road			Sheffield Drive				Candlers Mountain Road				Wards Road				Wards Road				Intersection	
	Signal	Left	30.7	C	42.9	D	26.2	C	47.0	D	30.4	C	42.6	D	25.2	C	40.2	D	Delay	Delay
		Through					27.8	C	35.0	D	28.1	C	37.6	D	18.0	B	26.0	C	22.2	32.6
		Right					9.5	A	17.0	B									LOS	LOS
		Approach	30.7	C	42.9	D	15.8	B	26.8	C	28.3	C	38.2	D	22.2	C	32.3	C	C	C
2 Candlers Mountain Road at Short Street			Candlers Mountain Road				Candlers Mountain Road				Commercial Driveway				Short Street				Intersection	
	Two-Way Stop	Left	8.4	A	10.6	B	9.3	A	9.7	A	28.9	D	66.5	F	21.3	C	82.7	F	Delay	Delay
		Through	†	†	†	†	†	†	†	†									--	--
		Right	†	†	†	†	†	†	†	†									LOS	LOS
		Approach	--	--	--	--	--	--	--	--	28.9	D	66.5	F	21.3	C	82.7	F	--	--
3 Candlers Mountain Road at Woodall Road			Candlers Mountain Road				Candlers Mountain Road				Commercial Driveway				Woodall Road				Intersection	
	Signal	Left	5.4	A	10.0	B	3.9	A	4.3	A	62.4	E	53.6	D	67.4	E	67.7	E	Delay	Delay
		Through	8.6	A	14.7	B	4.8	A	5.5	A					--	--	--	--	11.1	14.4
		Right									60.0	E	51.7	D	59.8	E	52.4	D	LOS	LOS
		Approach	8.4	A	14.5	B	4.6	A	5.3	A	60.9	E	53.1	D	64.6	E	60.0	E	B	B
4 Candlers Mountain Road at Seminole Avenue			Candlers Mountain Road				Candlers Mountain Road				Seminole Avenue								Intersection	
	One-Way Stop	Left	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Delay	Delay
		Through	†	†	†	†	†	†	†	†	--	--	--	--	--	--	--	--	--	--
		Right	†	†	†	†	--	--	--	--	11.9	B	10.9	B	--	--	--	--	LOS	LOS
		Approach	--	--	--	--	--	--	--	--	11.9	B	10.9	B	--	--	--	--	--	--
5 Candlers Mountain Road at Murray Place			Candlers Mountain Road				Candlers Mountain Road								Murray Place				Intersection	
	Signal	Left	70.3	E	75.2	E	--	--	--	--	--	--	--	--	67.4	E	88.5	F	Delay	Delay
		Through	†	†	†	†	2.9	A	6.5	A	--	--	--	--	--	--	--	--	4.0	8.5
		Right	--	--	--	--					--	--	--	--	--	--	--	--	LOS	LOS
		Approach	3.8	A	4.5	A	2.9	A	6.5	A	--	--	--	--	67.4	E	88.5	F	A	A
6 Candlers Mountain Road at Murray Place / River Ridge Mall			Candlers Mountain Road				Candlers Mountain Road				River Ridge Mall				Murray Place				Intersection	
	Signal	Left	--	--	--	--	80.8	F	68.4	E	63.5	E	153.6*	F*	--	--	--	--	Delay	Delay
		Through	13.7	B	18.5	B	†	†	†	†	--	--	--	--	--	--	--	--	13.5	26.3
		Right	0.2	A	0.4	A	†	†	†	†	58.8	E	55.8	E	8.1	A	13.1	B	LOS	LOS
		Approach	11.9	B	14.5	B	7.9	A	10.9	B	59.9	E	91.3	F	8.1	A	13.1	B	B	C
7 Candlers Mountain Road / US 501 at Mayflower Drive			Candlers Mountain Road/US 501				Candlers Mountain Road/US 501				Candlers Mountain Road				Mayflower Drive				Intersection	
	Signal	Left	40.2	D	39.1	D	8.1	A	18.8	B	--	--	--	--	60.3	E	67.7	E	Delay	Delay
		Through	16.1	B	15.4	B	22.0	C	27.9	C	--	--	--	--	74.2	E	67.6	E	18.5	24.8
		Right	2.3	A	0.7	A	13.5	B	14.3	B	0.1	A	0.2	A	53.7	D	50.3	D	LOS	LOS
		Approach	10.1	B	11.6	B	18.6	B	25.7	C	0.1	A	0.2	A	64.4	E	62.5	E	B	C
8 Candlers Mountain Road at Westbound US 501 Ramp / Mountain View Road			Mountain View Road								Candlers Mountain Road				Candlers Mountain Road				Intersection	
	One-Way Stop	Left	--	--	--	--	--	--	--	--	15.6	C	9.8	A	1.1	A	0.8	A	Delay	Delay
		Through	--	--	--	--	--	--	--	--									--	--
		Right	10.7	B	10.5	B	--	--	--	--					†	†	†	†	LOS	LOS
		Approach	10.7	B	10.5	B	--	--	--	--	15.6	C	9.8	A	--	--	--	--	--	--
9 Candlers Mountain Road at Southbound Lynchburg Expressway Ramps			Candlers Mountain Road				Candlers Mountain Road								SB Lynchburg Expy Exit Ramp				Intersection	
	Signal	Left	--	--	--	--	--	--	--	--	--	--	--	--	60.8	E	58.3	E	Delay	Delay
		Through	4.8	A	5.0	A	4.6	A	5.0	A	--	--	--	--	--	--	--	--	14.4	16.1
		Right	--	--	--	--	0.7	A	0.5	A	--	--	--	--	50.7	D	58.9	E	LOS	LOS
		Approach	4.8	A	5.0	A	2.9	A	3.6	A	--	--	--	--	58.4	E	58.5	E	B	B
10 Candlers Mountain Road at Northbound Lynchburg Expressway Ramps			Candlers Mountain Road				Candlers Mountain Road												Intersection	
	Signal	Left	1.0	A	10.5	B	--	--	--	--	--	--	--	--	--	--	--	--	Delay	Delay
		Through	†	†	†	†	3.4	A	6.6	A	--	--	--	--	--	--	--	--	3.1	3.9
		Right	--	--	--	--	14.1	B	7.0	A	--	--	--	--	--	--	--	--	LOS	LOS
		Approach	0.3	A	1.8	A	6.8	A	6.7	A	--	--	--	--	--	--	--	--	A	A

HCM 2000 Results
NOTE: Shared lane results are shown as one value that corresponds to all movements in the lane.
† Level of service and delay for movements with no conflicting movements have not been included.
*Volume-to-capacity ratio for this lane group/intersection is greater than 1.

SYNCHRO CAPACITY ANALYSIS - INTERSECTION LEVEL OF SERVICE SUMMARY
2040 Build Peak Hour Volumes
Candlers Mountain Road Corridor Study - Lynchburg, Virginia

Intersection Number and Description	Type of Control	Lane Group	Eastbound				Westbound				Northbound				Southbound				Overall	
			AM		PM		AM		PM		AM		PM		AM		PM			
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	AM	PM
1 Candlers Mountain Road / Sheffield Drive at Wards Road			Sheffield Drive				Candlers Mountain Road				Wards Road				Wards Road				Intersection	
	Signal	Left	35.0	C	50.5	D	28.4	C	67.0	E	33.9	C	48.6	D	27.1	C	48.2	D	Delay	Delay
		Through					30.4	C	39.6	D	30.6	C	42.4	D	17.7	B	27.2	C	23.8	38.2
		Right					9.8	A	19.5	B									LOS	LOS
		Approach	35.0	C	50.5	D	16.9	B	33.5	C	31.0	C	43.2	D	23.3	C	36.5	D	C	D
2 Candlers Mountain Road at Short Street			Candlers Mountain Road				Candlers Mountain Road				Commercial Driveway				Short Street				Intersection	
	Two-Way Stop	Left	8.6	A	11.4	B	9.7	A	10.2	B	36.8	E	132.8	F	25.7	D	209.4	F	Delay	Delay
		Through	†	†	†	†	†	†	†	†									--	--
		Right	†	†	†	†	†	†	†	†									LOS	LOS
		Approach	--	--	--	--	--	--	--	--	36.8	E	132.8	F	25.7	D	209.4	F	--	--
3 Candlers Mountain Road at Woodall Road			Candlers Mountain Road				Candlers Mountain Road				Commercial Driveway				Woodall Road				Intersection	
	Signal	Left	6.8	A	12.7	B	6.8	A	16.8	B	61.9	E	52.1	D	68.0	E	68.1	E	Delay	Delay
		Through	10.9	B	18.9	B	5.8	A	8.0	A					--	--	--	--	12.5	18.0
		Right									59.7	E	50.3	D	59.4	E	51.1	D	LOS	LOS
		Approach	10.6	B	18.8	B	6.0	A	9.5	A	60.4	E	51.6	D	64.9	E	59.5	E	B	B
4 Candlers Mountain Road at Seminole Avenue			Candlers Mountain Road				Candlers Mountain Road				Seminole Avenue								Intersection	
	One-Way Stop	Left	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Delay	Delay
		Through	†	†	†	†	†	†	†	†	--	--	--	--	--	--	--	--	--	--
		Right	†	†	†	†	--	--	--	--	12.4	B	10.9	B	--	--	--	--	LOS	LOS
		Approach	--	--	--	--	--	--	--	--	12.4	B	10.9	B	--	--	--	--	--	--
5 Candlers Mountain Road at Murray Place			Candlers Mountain Road				Candlers Mountain Road								Murray Place				Intersection	
	Signal	Left	73.9	E	76.4	E	--	--	--	--	--	--	--	--	67.0	E	193.6*	F*	Delay	Delay
		Through	†	†	†	†	3.0	A	8.7	A	--	--	--	--	--	--	--	--	4.2	13.4
		Right	--	--	--	--					--	--	--	--	--	--	--	--	LOS	LOS
		Approach	4.1	A	4.6	A	3.0	A	8.7	A	--	--	--	--	67.0	E	193.6*	F*	A	B
6 Candlers Mountain Road at Murray Place / River Ridge Mall			Candlers Mountain Road				Candlers Mountain Road				River Ridge Mall				Murray Place				Intersection	
	Signal	Left	--	--	--	--	80.4	F	61.9	E	64.4	E	239.8*	F*	--	--	--	--	Delay	Delay
		Through	13.5	B	19.5	B	†	†	†	†	--	--	--	--	--	--	--	--	13.4	32.5
		Right	0.2	A	0.4	A	†	†	†	†	58.8	E	63.6	E	8.5	A	13.1	B	LOS	LOS
		Approach	11.8	B	15.3	B	7.8	A	9.9	A	60.1	E	127.7	F	8.5	A	13.1	B	B	C
7 Candlers Mountain Road / US 501 at Mayflower Drive			Candlers Mountain Road/US 501				Candlers Mountain Road/US 501				Candlers Mountain Road				Mayflower Drive				Intersection	
	Signal	Left	67.0	E	57.0	E	11.2	B	53.8	D	--	--	--	--	61.0	E	92.5	F	Delay	Delay
		Through	20.2	C	14.0	B	30.4	C	36.4	D	--	--	--	--	82.7	F	92.3	F	23.7	31.3
		Right	3.5	A	0.8	A	15.0	B	14.5	B	0.1	A	0.2	A	53.2	D	55.8	E	LOS	LOS
		Approach	14.3	B	11.3	B	25.1	C	34.7	C	0.1	A	0.2	A	68.1	E	81.6	F	C	C
8 Candlers Mountain Road at Westbound US 501 Ramp / Mountain View Road			Mountain View Road								Candlers Mountain Road				Candlers Mountain Road				Intersection	
	One-Way Stop	Left	--	--	--	--	--	--	--	--	19.4	C	10.4	B	1.1	A	0.9	A	Delay	Delay
		Through	--	--	--	--	--	--	--	--									--	--
		Right	11.1	B	10.9	B	--	--	--	--					†	†	†	†	LOS	LOS
		Approach	11.1	B	10.9	B	--	--	--	--	19.4	C	10.4	B	--	--	--	--	--	--
9 Candlers Mountain Road at Southbound Lynchburg Expressway Ramps			Candlers Mountain Road				Candlers Mountain Road								SB Lynchburg Expy Exit Ramp				Intersection	
	Signal	Left	--	--	--	--	--	--	--	--	--	--	--	--	59.5	E	55.9	E	Delay	Delay
		Through	6.0	A	5.9	A	4.1	A	3.8	A	--	--	--	--	--	--	--	--	14.4	15.7
		Right	--	--	--	--	0.8	A	0.5	A	--	--	--	--	50.2	D	59.1	E	LOS	LOS
		Approach	6.0	A	5.9	A	2.7	A	2.8	A	--	--	--	--	57.3	E	56.9	E	B	B
10 Candlers Mountain Road at Northbound Lynchburg Expressway Ramps			Candlers Mountain Road				Candlers Mountain Road												Intersection	
	Signal	Left	2.9	A	35.9	D	--	--	--	--	--	--	--	--	--	--	--	--	Delay	Delay
		Through	†	†	†	†	3.5	A	8.8	A	--	--	--	--	--	--	--	--	4.1	6.0
		Right	--	--	--	--	21.0	C	6.0	A	--	--	--	--	--	--	--	--	LOS	LOS
		Approach	0.6	A	5.7	A	9.0	A	8.2	A	--	--	--	--	--	--	--	--	A	A

HCM 2000 Results
NOTE: Shared lane results are shown as one value that corresponds to all movements in the lane.
† Level of service and delay for movements with no conflicting movements have not been included.
*Volume-to-capacity ratio for this lane group/intersection is greater than 1.

APPENDIX F-7: SYNCHRO OUTPUT SHEETS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	108	41	59	118	370	33	295	28	537	369	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor		0.95		1.00	1.00	0.88	1.00	0.95		0.97	0.95	
Frt		0.96		1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3419		1787	1863	2814	1805	3514		3433	3585	
Flt Permitted		1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		3419		1787	1863	2814	1805	3514		3433	3585	
Peak-hour factor, PHF	0.75	0.84	0.70	0.73	0.80	0.88	0.80	0.96	0.83	0.91	0.93	0.80
Adj. Flow (vph)	19	129	59	81	148	420	41	307	34	590	397	19
RTOR Reduction (vph)	0	41	0	0	0	207	0	9	0	0	4	0
Lane Group Flow (vph)	0	166	0	81	148	213	41	332	0	590	412	0
Heavy Vehicles (%)	0%	1%	0%	1%	2%	1%	0%	1%	3%	2%	0%	0%
Turn Type	Split	NA		Split	NA	pt+ov	Prot	NA		Prot	NA	
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		8.0		12.4	12.4	36.4	7.2	12.5		19.0	24.3	
Effective Green, g (s)		8.0		12.4	12.4	36.4	7.2	12.5		19.0	24.3	
Actuated g/C Ratio		0.11		0.17	0.17	0.51	0.10	0.17		0.26	0.34	
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	380		308	321	1424	180	610		907	1211		
v/s Ratio Prot	c0.05		0.05	c0.08	0.08	0.02	c0.09		c0.17	0.11		
v/s Ratio Perm												
v/c Ratio	0.44		0.26	0.46	0.15	0.23	0.54		0.65	0.34		
Uniform Delay, d1	29.8		25.8	26.7	9.5	29.8	27.1		23.5	17.8		
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	0.8		0.5	1.1	0.0	0.6	1.0		1.7	0.2		
Delay (s)	30.7		26.2	27.8	9.5	30.4	28.1		25.2	18.0		
Level of Service	C		C	C	A	C	C		C	B		
Approach Delay (s)	30.7			15.8			28.3			22.2		
Approach LOS	C			B			C			C		

Intersection Summary			
HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	71.9	Sum of lost time (s)	20.0
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	178	74	220	178	718	74	494	84	483	576	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor		0.95		1.00	1.00	0.88	1.00	0.95		0.97	0.95	
Frt		0.96		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.99		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3413		1787	1863	2814	1805	3475		3433	3574	
Flt Permitted		0.99		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		3413		1787	1863	2814	1805	3475		3433	3574	
Peak-hour factor, PHF	0.75	0.84	0.70	0.73	0.80	0.88	0.80	0.96	0.83	0.91	0.93	0.80
Adj. Flow (vph)	79	212	106	301	222	816	92	515	101	531	619	44
RTOR Reduction (vph)	0	38	0	0	0	237	0	17	0	0	5	0
Lane Group Flow (vph)	0	359	0	301	222	579	92	599	0	531	658	0
Heavy Vehicles (%)	0%	1%	0%	1%	2%	1%	0%	1%	3%	2%	0%	0%
Turn Type	Split	NA		Split	NA	pt+ov	Prot	NA		Prot	NA	
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		13.6		19.4	19.4	43.1	9.1	21.2		18.7	30.8	
Effective Green, g (s)		13.6		19.4	19.4	43.1	9.1	21.2		18.7	30.8	
Actuated g/C Ratio		0.15		0.21	0.21	0.46	0.10	0.23		0.20	0.33	
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	499		373	389	1305	176	793		691	1184		
v/s Ratio Prot	c0.11		c0.17	0.12	0.21	0.05	c0.17		c0.15	0.18		
v/s Ratio Perm												
v/c Ratio	0.72		0.81	0.57	0.44	0.52	0.76		0.77	0.56		
Uniform Delay, d1	37.8		35.0	33.0	16.8	39.8	33.4		35.1	25.4		
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	5.1		12.0	2.0	0.2	2.8	4.1		5.1	0.6		
Delay (s)	42.9		47.0	35.0	17.0	42.6	37.6		40.2	26.0		
Level of Service	D		D	D	B	D	D		D	C		
Approach Delay (s)	42.9			26.8			38.2			32.3		
Approach LOS	D			C			D			C		

Intersection Summary			
HCM 2000 Control Delay	32.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	92.9	Sum of lost time (s)	20.0
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	6	661	6	6	535	6	6	6	6	6	6	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.56	0.89	0.25	0.25	0.92	0.63	0.25	0.92	0.92	0.45	0.92	0.50
Hourly flow rate (vph)	11	743	24	24	582	10	24	7	7	13	7	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		558			311							
pX, platoon unblocked	0.94						0.94	0.94		0.94	0.94	0.94
vC, conflicting volume	591			767			1130	1415	383	1037	1422	296
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	446			767			1018	1320	383	919	1327	133
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			97			86	95	99	93	95	99
cM capacity (veh/h)	1061			856			169	144	621	201	142	847

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	11	495	272	24	388	203	37	32
Volume Left	11	0	0	24	0	0	24	13
Volume Right	0	0	24	0	0	10	7	12
cSH	1061	1700	1700	856	1700	1700	188	252
Volume to Capacity	0.01	0.29	0.16	0.03	0.23	0.12	0.20	0.13
Queue Length 95th (ft)	1	0	0	2	0	0	18	11
Control Delay (s)	8.4	0.0	0.0	9.3	0.0	0.0	28.9	21.3
Lane LOS	A			A			D	C
Approach Delay (s)	0.1			0.4			28.9	21.3
Approach LOS							D	C

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	28.5%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	729	6	7	1104	7	6	6	6	10	6	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.56	0.89	0.25	0.25	0.92	0.63	0.25	0.92	0.92	0.45	0.92	0.50
Hourly flow rate (vph)	18	819	24	28	1200	11	24	7	7	22	7	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		558			311							
pX, platoon unblocked	0.83						0.83	0.83		0.83	0.83	0.83
vC, conflicting volume	1211			843			1538	2134	422	1717	2140	606
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	841			843			1235	1955	422	1451	1962	110
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			97			75	87	99	66	87	98
cM capacity (veh/h)	666			802			94	50	586	66	50	770

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	18	546	297	28	800	411	37	41
Volume Left	18	0	0	28	0	0	24	22
Volume Right	0	0	24	0	0	11	7	12
cSH	666	1700	1700	802	1700	1700	94	84
Volume to Capacity	0.03	0.32	0.17	0.03	0.47	0.24	0.39	0.48
Queue Length 95th (ft)	2	0	0	3	0	0	40	51
Control Delay (s)	10.6	0.0	0.0	9.7	0.0	0.0	66.5	82.7
Lane LOS	B			A			F	F
Approach Delay (s)	0.2			0.2			66.5	82.7
Approach LOS							F	F

Intersection Summary				
Average Delay	2.9			
Intersection Capacity Utilization	40.7%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	30	637	6	165	20	524	136	6	6	22	31	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	6.9			6.9	6.9			6.9	6.9	6.9	
Lane Util. Factor	1.00	0.95			1.00	0.95			1.00	1.00	1.00	
Frt	1.00	1.00			1.00	0.96			1.00	0.85	1.00	
Flt Protected	0.95	1.00			0.95	1.00			0.98	1.00	0.95	
Satd. Flow (prot)	1543	3569			1777	3289			1869	1615	1671	
Flt Permitted	0.36	1.00			0.34	1.00			0.98	1.00	0.73	
Satd. Flow (perm)	581	3569			636	3289			1869	1615	1291	
Peak-hour factor, PHF	0.60	0.90	0.86	0.92	0.42	0.89	0.73	0.50	0.25	0.38	0.69	0.92
Adj. Flow (vph)	50	708	7	179	48	589	186	12	24	58	45	0
RTOR Reduction (vph)	0	0	0	0	0	15	0	0	0	54	0	0
Lane Group Flow (vph)	50	715	0	0	227	760	0	0	36	4	45	0
Heavy Vehicles (%)	17%	1%	0%	2%	0%	1%	21%	0%	0%	0%	8%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA		Perm	NA	Perm	Perm	
Protected Phases	5	2		1	1	6			8			
Permitted Phases	2			6	6			8		8	4	
Actuated Green, G (s)	102.2	96.9			114.8	103.2			10.8	10.8	10.8	
Effective Green, g (s)	102.2	96.9			114.8	103.2			10.8	10.8	10.8	
Actuated g/C Ratio	0.73	0.69			0.82	0.74			0.08	0.08	0.08	
Clearance Time (s)	6.9	6.9			6.9	6.9			6.9	6.9	6.9	
Vehicle Extension (s)	3.0	4.5			3.0	4.5			4.5	4.5	4.5	
Lane Grp Cap (vph)	460	2470			616	2424			144	124	99	
v/s Ratio Prot	0.00	0.20			c0.03	0.23						
v/s Ratio Perm	0.08				c0.27				0.02	0.00	c0.03	
v/c Ratio	0.11	0.29			0.37	0.31			0.25	0.04	0.45	
Uniform Delay, d1	5.3	8.3			3.2	6.3			60.8	59.8	61.8	
Progression Factor	1.00	1.00			1.10	0.71			1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.3			0.4	0.3			1.6	0.2	5.6	
Delay (s)	5.4	8.6			3.9	4.8			62.4	60.0	67.4	
Level of Service	A	A			A	A			E	E	E	
Approach Delay (s)		8.4				4.6			60.9			64.6
Approach LOS		A				A			E			E

Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	14	696	35	211	11	1027	69	12	6	7	83	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	6.9			6.9	6.9			6.9	6.9	6.9	
Lane Util. Factor	1.00	0.95			1.00	0.95			1.00	1.00	1.00	
Frt	1.00	0.99			1.00	0.99			1.00	0.85	1.00	
Flt Protected	0.95	1.00			0.95	1.00			0.98	1.00	0.95	
Satd. Flow (prot)	1543	3549			1773	3481			1854	1615	1671	
Flt Permitted	0.20	1.00			0.28	1.00			0.98	1.00	0.73	
Satd. Flow (perm)	330	3549			522	3481			1854	1615	1277	
Peak-hour factor, PHF	0.60	0.90	0.86	0.92	0.42	0.89	0.73	0.50	0.25	0.38	0.69	0.92
Adj. Flow (vph)	23	773	41	229	26	1154	95	24	24	18	120	0
RTOR Reduction (vph)	0	2	0	0	0	3	0	0	0	15	0	0
Lane Group Flow (vph)	23	812	0	0	255	1246	0	0	48	3	120	0
Heavy Vehicles (%)	17%	1%	0%	2%	0%	1%	21%	0%	0%	0%	8%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA		Perm	NA	Perm	Perm	
Protected Phases	5	2		1	1	6			8			
Permitted Phases	2			6	6			8		8	4	
Actuated Green, G (s)	88.5	84.7			106.4	95.7			19.8	19.8	19.8	
Effective Green, g (s)	88.5	84.7			106.4	95.7			19.8	19.8	19.8	
Actuated g/C Ratio	0.63	0.61			0.76	0.68			0.14	0.14	0.14	
Clearance Time (s)	6.9	6.9			6.9	6.9			6.9	6.9	6.9	
Vehicle Extension (s)	3.0	4.5			3.0	4.5			4.5	4.5	4.5	
Lane Grp Cap (vph)	241	2147			528	2379			262	228	180	
v/s Ratio Prot	0.00	0.23			c0.05	c0.36						
v/s Ratio Perm	0.06				0.32				0.03	0.00	c0.09	
v/c Ratio	0.10	0.38			0.48	0.52			0.18	0.01	0.67	
Uniform Delay, d1	9.8	14.2			6.5	10.9			53.0	51.7	57.0	
Progression Factor	1.00	1.00			0.57	0.44			1.00	1.00	1.00	
Incremental Delay, d2	0.2	0.5			0.6	0.8			0.6	0.0	10.7	
Delay (s)	10.0	14.7			4.3	5.5			53.6	51.7	67.7	
Level of Service	B	B			A	A			D	D	E	
Approach Delay (s)		14.5				5.3			53.1			60.0
Approach LOS		B				A			D			E

Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	17
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.9
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1599
Flt Permitted	1.00
Satd. Flow (perm)	1599
Peak-hour factor, PHF	0.65
Adj. Flow (vph)	26
RTOR Reduction (vph)	24
Lane Group Flow (vph)	2
Heavy Vehicles (%)	1%
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	10.8
Effective Green, g (s)	10.8
Actuated g/C Ratio	0.08
Clearance Time (s)	6.9
Vehicle Extension (s)	4.5
Lane Grp Cap (vph)	123
v/s Ratio Prot	
v/s Ratio Perm	0.00
v/c Ratio	0.02
Uniform Delay, d1	59.7
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	59.8
Level of Service	E
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	SBR
Lane Configurations	
Volume (vph)	79
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.9
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1599
Flt Permitted	1.00
Satd. Flow (perm)	1599
Peak-hour factor, PHF	0.65
Adj. Flow (vph)	122
RTOR Reduction (vph)	105
Lane Group Flow (vph)	17
Heavy Vehicles (%)	1%
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	19.8
Effective Green, g (s)	19.8
Actuated g/C Ratio	0.14
Clearance Time (s)	6.9
Vehicle Extension (s)	4.5
Lane Grp Cap (vph)	226
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.08
Uniform Delay, d1	52.2
Progression Factor	1.00
Incremental Delay, d2	0.3
Delay (s)	52.4
Level of Service	D
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	637	218	0	845	0	221
Sign Control	Free			Free	Stop	
Grade	0%			0%	4%	
Peak Hour Factor	0.88	0.69	0.81	0.86	0.61	0.84
Hourly flow rate (vph)	724	316	0	983	0	263
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	188			359		
pX, platoon unblocked			0.94		0.96	0.94
vC, conflicting volume			1040		1215	362
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			908		842	185
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	66
cM capacity (veh/h)			710		294	780

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	362	362	316	491	491	263
Volume Left	0	0	0	0	0	0
Volume Right	0	0	316	0	0	263
cSH	1700	1700	1700	1700	1700	780
Volume to Capacity	0.21	0.21	0.19	0.29	0.29	0.34
Queue Length 95th (ft)	0	0	0	0	0	37
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.9
Lane LOS						B
Approach Delay (s)	0.0			0.0		11.9
Approach LOS						B

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	38.0%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	733	264	0	1318	0	172
Sign Control	Free			Free	Stop	
Grade	0%			0%	4%	
Peak Hour Factor	0.88	0.69	0.81	0.86	0.61	0.84
Hourly flow rate (vph)	833	383	0	1533	0	205
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	188			359		
pX, platoon unblocked			0.90		0.90	0.90
vC, conflicting volume			1216		1599	416
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1019		946	131
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	75
cM capacity (veh/h)			621		236	811

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	416	416	383	766	766	205
Volume Left	0	0	0	0	0	0
Volume Right	0	0	383	0	0	205
cSH	1700	1700	1700	1700	1700	811
Volume to Capacity	0.24	0.24	0.23	0.45	0.45	0.25
Queue Length 95th (ft)	0	0	0	0	0	25
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	10.9
Lane LOS						B
Approach Delay (s)	0.0			0.0		10.9
Approach LOS						B

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	39.8%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	91	1705	1499	31	36	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	4.0	7.0		7.0	
Lane Util. Factor	1.00	0.91	0.86		1.00	
Frt	1.00	1.00	0.99		1.00	
Flt Protected	0.95	1.00	1.00		0.95	
Satd. Flow (prot)	1805	5085	6349		1752	
Flt Permitted	0.95	1.00	1.00		0.95	
Satd. Flow (perm)	1805	5085	6349		1752	
Peak-hour factor, PHF	0.92	0.94	0.91	0.25	0.92	0.70
Adj. Flow (vph)	99	1814	1647	124	39	0
RTOR Reduction (vph)	0	0	7	0	0	0
Lane Group Flow (vph)	99	1814	1764	0	39	0
Heavy Vehicles (%)	0%	2%	2%	0%	3%	3%
Turn Type	Prot	NA	NA		Prot	
Protected Phases	1	Free!	2		4!	
Permitted Phases						
Actuated Green, G (s)	13.0	140.0	98.6		7.4	
Effective Green, g (s)	13.0	140.0	98.6		7.4	
Actuated g/C Ratio	0.09	1.00	0.70		0.05	
Clearance Time (s)	7.0		7.0		7.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	167	5085	4471		92	
v/s Ratio Prot	c0.05	0.36	c0.28		0.02	
v/s Ratio Perm						
v/c Ratio	0.59	0.36	0.39		0.42	
Uniform Delay, d1	61.0	0.0	8.5		64.2	
Progression Factor	1.07	1.00	0.31		1.00	
Incremental Delay, d2	5.2	0.2	0.2		3.1	
Delay (s)	70.3	0.2	2.9		67.4	
Level of Service	E	A	A		E	
Approach Delay (s)		3.8	2.9		67.4	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	4.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	97	1619	1778	17	129	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	4.0	7.0		7.0	
Lane Util. Factor	1.00	0.91	0.86		1.00	
Frt	1.00	1.00	0.99		1.00	
Flt Protected	0.95	1.00	1.00		0.95	
Satd. Flow (prot)	1805	5085	6380		1770	
Flt Permitted	0.95	1.00	1.00		0.95	
Satd. Flow (perm)	1805	5085	6380		1770	
Peak-hour factor, PHF	0.92	0.94	0.91	0.25	0.92	0.70
Adj. Flow (vph)	105	1722	1954	68	140	0
RTOR Reduction (vph)	0	0	3	0	0	0
Lane Group Flow (vph)	105	1722	2019	0	140	0
Heavy Vehicles (%)	0%	2%	2%	0%	2%	0%
Turn Type	Prot	NA	NA		Prot	
Protected Phases	1	Free!	2		4!	
Permitted Phases						
Actuated Green, G (s)	12.9	140.0	92.6		13.5	
Effective Green, g (s)	12.9	140.0	92.6		13.5	
Actuated g/C Ratio	0.09	1.00	0.66		0.10	
Clearance Time (s)	7.0		7.0		7.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	166	5085	4219		170	
v/s Ratio Prot	c0.06	0.34	c0.32		c0.08	
v/s Ratio Perm						
v/c Ratio	0.63	0.34	0.48		0.82	
Uniform Delay, d1	61.3	0.0	11.7		62.1	
Progression Factor	1.11	1.00	0.52		1.00	
Incremental Delay, d2	7.3	0.2	0.3		26.4	
Delay (s)	75.2	0.2	6.5		88.5	
Level of Service	E	A	A		F	
Approach Delay (s)		4.5	6.5		88.5	
Approach LOS		A	A		F	

Intersection Summary			
HCM 2000 Control Delay	8.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	NBR2	SWL	SWR
Lane Configurations											
Volume (vph)	0	1548	193	150	1403	109	56	0	194	0	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.9	4.0	6.9	4.0	4.0	6.3		6.3		6.9
Lane Util. Factor		0.91	1.00	0.97	0.95	1.00	1.00		0.88		1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00		0.85		0.86
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95		1.00		1.00
Satd. Flow (prot)		5085	1599	3467	3539	1583	1787		2814		1611
Flt Permitted		1.00	1.00	0.95	1.00	1.00	0.95		1.00		1.00
Satd. Flow (perm)		5085	1599	3467	3539	1583	1787		2814		1611
Peak-hour factor, PHF	0.92	0.97	0.79	0.84	0.89	0.92	0.85	0.92	0.85	0.92	0.92
Adj. Flow (vph)	0	1596	244	179	1576	118	66	0	228	0	77
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	208	0	26
Lane Group Flow (vph)	0	1596	244	179	1576	118	66	0	20	0	51
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%	1%	2%	1%	2%	2%
Turn Type		NA	Free	Prot	NA	Perm	Prot		Prot		Perm
Protected Phases		6		5	Free!		3!		3		
Permitted Phases			Free			Free					6
Actuated Green, G (s)		93.5	140.0	14.0	140.0	140.0	12.4		12.4		93.5
Effective Green, g (s)		93.5	140.0	14.0	140.0	140.0	12.4		12.4		93.5
Actuated g/C Ratio		0.67	1.00	0.10	1.00	1.00	0.09		0.09		0.67
Clearance Time (s)		6.9		6.9			6.3		6.3		6.9
Vehicle Extension (s)		4.0		4.5			4.5		4.5		4.0
Lane Grp Cap (vph)	3396	1599	346	3539	1583	158	249		1075		
v/s Ratio Prot	c0.31		0.05	0.45		0.04	0.01				
v/s Ratio Perm		0.15			0.07				0.03		
v/c Ratio	0.47	0.15	0.52	0.45	0.07	0.42	0.08		0.05		
Uniform Delay, d1	11.3	0.0	59.8	0.0	0.0	60.4	58.6		8.0		
Progression Factor	1.18	1.00	1.33	1.00	1.00	1.00	1.00		1.00		
Incremental Delay, d2	0.4	0.2	1.4	0.3	0.1	3.1	0.2		0.1		
Delay (s)	13.7	0.2	80.8	0.3	0.1	63.5	58.8		8.1		
Level of Service	B	A	F	A	A	E	E		A		
Approach Delay (s)	11.9			7.9		59.9		8.1			
Approach LOS	B			A		E		A			

Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	NBR2	SWL	SWR
Lane Configurations											
Volume (vph)	0	1420	328	253	1393	47	255	0	447	0	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.9	4.0	6.9	4.0	4.0	6.3		6.3		6.9
Lane Util. Factor		0.91	1.00	0.97	0.95	1.00	1.00		0.88		1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00		0.85		0.86
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95		1.00		1.00
Satd. Flow (prot)		5085	1599	3467	3539	1583	1787		2814		1596
Flt Permitted		1.00	1.00	0.95	1.00	1.00	0.95		1.00		1.00
Satd. Flow (perm)		5085	1599	3467	3539	1583	1787		2814		1596
Peak-hour factor, PHF	0.92	0.97	0.79	0.84	0.89	0.92	0.85	0.92	0.85	0.92	0.92
Adj. Flow (vph)	0	1464	415	301	1565	51	300	0	526	0	160
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	333	0	33
Lane Group Flow (vph)	0	1464	415	301	1565	51	300	0	193	0	127
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%	1%	2%	1%	2%	3%
Turn Type		NA	Free	Prot	NA	Perm	Prot		Prot		Perm
Protected Phases		6		5	Free!		3!		3		
Permitted Phases			Free			Free					6
Actuated Green, G (s)		82.5	140.0	16.5	140.0	140.0	20.9		20.9		82.5
Effective Green, g (s)		82.5	140.0	16.5	140.0	140.0	20.9		20.9		82.5
Actuated g/C Ratio		0.59	1.00	0.12	1.00	1.00	0.15		0.15		0.59
Clearance Time (s)		6.9		6.9			6.3		6.3		6.9
Vehicle Extension (s)		4.0		4.5			4.5		4.5		4.0
Lane Grp Cap (vph)	2996	1599	408	3539	1583	266	420		940		
v/s Ratio Prot	c0.29		c0.09	0.44		c0.17	0.07				
v/s Ratio Perm		0.26			0.03				0.08		
v/c Ratio	0.49	0.26	0.74	0.44	0.03	1.13	0.46		0.14		
Uniform Delay, d1	16.6	0.0	59.7	0.0	0.0	59.5	54.4		12.8		
Progression Factor	1.08	1.00	1.07	1.00	1.00	1.00	1.00		1.00		
Incremental Delay, d2	0.5	0.4	4.7	0.2	0.0	94.0	1.4		0.3		
Delay (s)	18.5	0.4	68.4	0.2	0.0	153.6	55.8		13.1		
Level of Service	B	A	E	A	A	F	E		B		
Approach Delay (s)	14.5			10.9		91.3		13.1			
Approach LOS	B			B		F		B			

Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

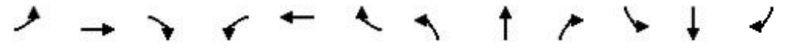
! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	105	659	978	174	1581	425	0	0	107	95	113	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-4%			3%	
Total Lost time (s)	7.5	7.5	4.0	7.5	7.5	7.5			4.0	8.3	8.3	8.3
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00			1.00	*0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85			0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00			1.00	0.95	1.00	1.00
Satd. Flow (prot)	1687	3505	1583	1805	3539	1455			1660	1642	1766	1544
Flt Permitted	0.06	1.00	1.00	0.34	1.00	1.00			1.00	0.95	1.00	1.00
Satd. Flow (perm)	112	3505	1583	639	3539	1455			1660	1642	1766	1544
Peak-hour factor, PHF	0.75	0.90	0.90	0.59	0.90	0.81	0.92	0.92	0.85	0.80	0.69	0.67
Adj. Flow (vph)	140	732	1087	295	1757	525	0	0	126	119	164	121
RTOR Reduction (vph)	0	0	0	0	0	194	0	0	0	0	0	105
Lane Group Flow (vph)	140	732	1087	295	1757	331	0	0	126	107	176	16
Heavy Vehicles (%)	7%	3%	2%	0%	2%	11%	0%	0%	1%	5%	0%	3%
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm			Free	Split	NA	Perm
Protected Phases	1	6		5	2					4	4	
Permitted Phases	6		Free	2		2			Free			4
Actuated Green, G (s)	96.6	86.5	140.0	100.0	88.2	88.2			140.0	18.4	18.4	18.4
Effective Green, g (s)	96.6	86.5	140.0	100.0	88.2	88.2			140.0	18.4	18.4	18.4
Actuated g/C Ratio	0.69	0.62	1.00	0.71	0.63	0.63			1.00	0.13	0.13	0.13
Clearance Time (s)	7.5	7.5		7.5	7.5	7.5				8.3	8.3	8.3
Vehicle Extension (s)	2.5	6.0		2.5	6.0	6.0				5.0	5.0	5.0
Lane Grp Cap (vph)	190	2165	1583	554	2229	916			1660	215	232	202
v/s Ratio Prot	0.05	0.21		0.04	c0.50					0.07	0.10	
v/s Ratio Perm	0.45		c0.69	0.33		0.23			0.08			0.01
v/c Ratio	0.74	0.34	0.69	0.53	0.79	0.36			0.08	0.50	0.76	0.08
Uniform Delay, d1	29.8	12.9	0.0	7.3	19.0	12.4			0.0	56.5	58.7	53.4
Progression Factor	0.94	1.21	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00
Incremental Delay, d2	12.1	0.4	2.3	0.8	2.9	1.1			0.1	3.8	15.6	0.3
Delay (s)	40.2	16.1	2.3	8.1	22.0	13.5			0.1	60.3	74.2	53.7
Level of Service	D	B	A	A	C	B			A	E	E	D
Approach Delay (s)		10.1			18.6			0.1			64.4	
Approach LOS		B			B			A			E	

Intersection Summary			
HCM 2000 Control Delay	18.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	54	1225	588	72	1527	212	0	0	220	350	110	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-4%			3%	
Total Lost time (s)	7.5	7.5	4.0	7.5	7.5	7.5			4.0	8.3	8.3	8.3
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00			1.00	*0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85			0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00			1.00	0.95	0.98	1.00
Satd. Flow (prot)	1687	3505	1583	1805	3539	1455			1660	1642	1696	1544
Flt Permitted	0.06	1.00	1.00	0.11	1.00	1.00			1.00	0.95	0.98	1.00
Satd. Flow (perm)	99	3505	1583	205	3539	1455			1660	1642	1696	1544
Peak-hour factor, PHF	0.75	0.90	0.90	0.59	0.90	0.81	0.92	0.92	0.85	0.80	0.69	0.67
Adj. Flow (vph)	72	1361	653	122	1697	262	0	0	259	438	159	248
RTOR Reduction (vph)	0	0	0	0	0	110	0	0	0	0	0	83
Lane Group Flow (vph)	72	1361	653	122	1697	152	0	0	259	293	304	165
Heavy Vehicles (%)	7%	3%	2%	0%	2%	11%	0%	0%	1%	5%	0%	3%
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm			Free	Split	NA	Perm
Protected Phases	1	6		5	2					4	4	
Permitted Phases	6		Free	2		2			Free			4
Actuated Green, G (s)	82.7	77.5	140.0	89.7	81.0	81.0			140.0	30.5	30.5	30.5
Effective Green, g (s)	82.7	77.5	140.0	89.7	81.0	81.0			140.0	30.5	30.5	30.5
Actuated g/C Ratio	0.59	0.55	1.00	0.64	0.58	0.58			1.00	0.22	0.22	0.22
Clearance Time (s)	7.5	7.5		7.5	7.5	7.5				8.3	8.3	8.3
Vehicle Extension (s)	2.5	6.0		2.5	6.0	6.0				5.0	5.0	5.0
Lane Grp Cap (vph)	117	1940	1583	230	2047	841			1660	357	369	336
v/s Ratio Prot	0.02	0.39		0.03	c0.48					0.18	c0.18	
v/s Ratio Perm	0.34		c0.41	0.31		0.10			0.16			0.11
v/c Ratio	0.62	0.70	0.41	0.53	0.83	0.18			0.16	0.82	0.82	0.49
Uniform Delay, d1	23.3	22.8	0.0	17.0	23.9	13.9			0.0	52.1	52.2	48.0
Progression Factor	1.38	0.59	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00
Incremental Delay, d2	6.9	1.9	0.7	1.8	4.1	0.5			0.2	15.6	15.4	2.4
Delay (s)	39.1	15.4	0.7	18.8	27.9	14.3			0.2	67.7	67.6	50.3
Level of Service	D	B	A	B	C	B			A	E	E	D
Approach Delay (s)		11.6			25.7			0.2			62.5	
Approach LOS		B			C			A			E	

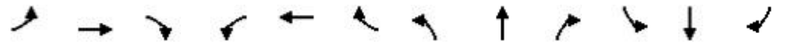
Intersection Summary			
HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	6	0	0	0	41	107	416	17	648	600
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.63	0.92	0.92	0.92	0.31	0.91	0.90	0.67	0.90	0.82
Hourly flow rate (vph)	0	0	10	0	0	0	132	118	462	25	720	732
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											987	
pX, platoon unblocked												
vC, conflicting volume	1153	1615	360	1024	2116	349	1452			580		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1153	1615	360	1024	2116	349	1452			580		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	100	100	100	72			97		
cM capacity (veh/h)	119	74	642	146	36	653	472			1004		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	10	132	580	265	480	732
Volume Left	0	132	0	25	0	0
Volume Right	10	0	462	0	0	732
cSH	642	472	1700	1004	1700	1700
Volume to Capacity	0.01	0.28	0.34	0.03	0.28	0.43
Queue Length 95th (ft)	1	28	0	2	0	0
Control Delay (s)	10.7	15.6	0.0	1.1	0.0	0.0
Lane LOS	B	C		A		
Approach Delay (s)	10.7	2.9		0.2		
Approach LOS	B					

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	75.1%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	6	0	0	0	11	220	648	9	611	150
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.63	0.92	0.92	0.92	0.31	0.91	0.90	0.67	0.90	0.82
Hourly flow rate (vph)	0	0	10	0	0	0	35	242	720	13	679	183
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											987	
pX, platoon unblocked												
vC, conflicting volume	1018	1738	339	1039	1561	602	862			962		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1018	1738	339	1039	1561	602	862			962		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	100	100	100	96			98		
cM capacity (veh/h)	185	83	662	176	106	448	789			724		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	10	35	962	240	453	183
Volume Left	0	35	0	13	0	0
Volume Right	10	0	720	0	0	183
cSH	662	789	1700	724	1700	1700
Volume to Capacity	0.01	0.04	0.57	0.02	0.27	0.11
Queue Length 95th (ft)	1	4	0	1	0	0
Control Delay (s)	10.5	9.8	0.0	0.8	0.0	0.0
Lane LOS	B	A		A		
Approach Delay (s)	10.5	0.3		0.2		
Approach LOS	B					

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	67.4%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	0	858	720	549	392	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.9	6.9	4.0	6.0	6.0
Lane Util. Factor		0.95	0.95	1.00	0.97	1.00
Frt		1.00	1.00	0.85	1.00	0.85
Flt Protected		1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)		3574	3539	1583	3433	1583
Flt Permitted		1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)		3574	3539	1583	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	933	783	597	426	136
RTOR Reduction (vph)	0	0	0	0	0	84
Lane Group Flow (vph)	0	933	783	597	426	52
Heavy Vehicles (%)	2%	1%	2%	2%	2%	2%
Turn Type		NA	NA	Free	Prot	Perm
Protected Phases		6	2		4	
Permitted Phases				Free		4
Actuated Green, G (s)		103.8	103.8	140.0	23.3	23.3
Effective Green, g (s)		103.8	103.8	140.0	23.3	23.3
Actuated g/C Ratio		0.74	0.74	1.00	0.17	0.17
Clearance Time (s)		6.9	6.9		6.0	6.0
Vehicle Extension (s)		4.5	4.5		3.0	3.0
Lane Grp Cap (vph)		2649	2623	1583	571	263
v/s Ratio Prot		0.26	0.22		c0.12	
v/s Ratio Perm				c0.38		0.03
v/c Ratio		0.35	0.30	0.38	0.75	0.20
Uniform Delay, d1		6.3	6.0	0.0	55.5	50.3
Progression Factor		0.70	0.73	1.00	1.00	1.00
Incremental Delay, d2		0.4	0.3	0.7	5.3	0.4
Delay (s)		4.8	4.6	0.7	60.8	50.7
Level of Service		A	A	A	E	D
Approach Delay (s)		4.8	2.9		58.4	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	0	905	1094	464	473	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.9	6.9	4.0	6.0	6.0
Lane Util. Factor		0.95	0.95	1.00	0.97	1.00
Frt		1.00	1.00	0.85	1.00	0.85
Flt Protected		1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)		3574	3539	1583	3433	1583
Flt Permitted		1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)		3574	3539	1583	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	984	1189	504	514	243
RTOR Reduction (vph)	0	0	0	0	0	28
Lane Group Flow (vph)	0	984	1189	504	514	215
Heavy Vehicles (%)	2%	1%	2%	2%	2%	2%
Turn Type		NA	NA	Free	Prot	Perm
Protected Phases		6	2		4	
Permitted Phases				Free		4
Actuated Green, G (s)		99.6	99.6	140.0	27.5	27.5
Effective Green, g (s)		99.6	99.6	140.0	27.5	27.5
Actuated g/C Ratio		0.71	0.71	1.00	0.20	0.20
Clearance Time (s)		6.9	6.9		6.0	6.0
Vehicle Extension (s)		4.5	4.5		3.0	3.0
Lane Grp Cap (vph)		2542	2517	1583	674	310
v/s Ratio Prot		0.28	c0.34		c0.15	
v/s Ratio Perm				0.32		0.14
v/c Ratio		0.39	0.47	0.32	0.76	0.69
Uniform Delay, d1		8.0	8.8	0.0	53.2	52.3
Progression Factor		0.57	0.50	1.00	1.00	1.00
Incremental Delay, d2		0.4	0.6	0.5	5.1	6.6
Delay (s)		5.0	5.0	0.5	58.3	58.9
Level of Service		A	A	A	E	E
Approach Delay (s)		5.0	3.6		58.5	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	35	103	1112	0	0	1024	475	0	0	684	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	4.0			7.5	7.5			4.0		
Lane Util. Factor		1.00	0.95			0.95	1.00			1.00		
Frt		1.00	1.00			1.00	0.85			0.86		
Flt Protected		0.95	1.00			1.00	1.00			1.00		
Satd. Flow (prot)		1796	3539			3539	1568			1611		
Flt Permitted		0.25	1.00			1.00	1.00			1.00		
Satd. Flow (perm)		465	3539			3539	1568			1611		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	112	1209	0	0	1113	516	0	0	743	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	92	0	0	0	0	0
Lane Group Flow (vph)	0	150	1209	0	0	1113	424	0	0	743	0	0
Heavy Vehicles (%)	2%	0%	2%	2%	2%	2%	3%	2%	2%	2%	0%	2%
Turn Type	D.P+P	D.P+P	NA			NA	Perm			Free		
Protected Phases	1	1	Free			2						
Permitted Phases	2	2					2			Free		
Actuated Green, G (s)		125.5	140.0			115.1	115.1			140.0		
Effective Green, g (s)		125.5	140.0			115.1	115.1			140.0		
Actuated g/C Ratio		0.90	1.00			0.82	0.82			1.00		
Clearance Time (s)		7.0				7.5	7.5					
Vehicle Extension (s)		3.0				3.0	3.0					
Lane Grp Cap (vph)	515	3539			2909	1289				1611		
v/s Ratio Prot	0.02	0.34			0.31							
v/s Ratio Perm	0.24						0.27			c0.46		
v/c Ratio	0.29	0.34			0.38	0.33				0.46		
Uniform Delay, d1	0.9	0.0			3.2	3.0				0.0		
Progression Factor	0.76	1.00			0.94	4.43				1.00		
Incremental Delay, d2	0.3	0.3			0.4	0.6				1.0		
Delay (s)	1.0	0.3			3.4	14.1				1.0		
Level of Service	A	A			A	B				A		
Approach Delay (s)		0.3			6.8			1.0			0.2	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	3.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	49.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	44	165	1169	0	0	1408	370	0	0	547	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	4.0			7.5	7.5			4.0		
Lane Util. Factor		1.00	0.95			0.95	1.00			1.00		
Frt		1.00	1.00			1.00	0.85			0.86		
Flt Protected		0.95	1.00			1.00	1.00			1.00		
Satd. Flow (prot)		1797	3539			3539	1568			1611		
Flt Permitted		0.14	1.00			1.00	1.00			1.00		
Satd. Flow (perm)		267	3539			3539	1568			1611		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	179	1271	0	0	1530	402	0	0	595	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	70	0	0	0	0	0
Lane Group Flow (vph)	0	227	1271	0	0	1530	332	0	0	595	0	0
Heavy Vehicles (%)	2%	0%	2%	2%	2%	2%	3%	2%	2%	2%	0%	2%
Turn Type	D.P+P	D.P+P	NA			NA	Perm			Free		
Protected Phases	1	1	Free			2						
Permitted Phases	2	2					2			Free		
Actuated Green, G (s)		125.5	140.0			109.0	109.0			140.0		
Effective Green, g (s)		125.5	140.0			109.0	109.0			140.0		
Actuated g/C Ratio		0.90	1.00			0.78	0.78			1.00		
Clearance Time (s)		7.0				7.5	7.5					
Vehicle Extension (s)		3.0				3.0	3.0					
Lane Grp Cap (vph)	419	3539			2755	1220				1611		
v/s Ratio Prot	c0.06	0.36			c0.43							
v/s Ratio Perm	0.42						0.21			0.37		
v/c Ratio	0.54	0.36			0.56	0.27				0.37		
Uniform Delay, d1	4.7	0.0			6.0	4.4				0.0		
Progression Factor	1.94	1.00			0.98	1.50				1.00		
Incremental Delay, d2	1.4	0.3			0.7	0.5				0.7		
Delay (s)	10.5	0.3			6.6	7.0				0.7		
Level of Service	B	A			A	A				A		
Approach Delay (s)		1.8			6.7			0.7			0.1	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	3.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	210
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.86
Flt Protected	1.00
Satd. Flow (prot)	1644
Flt Permitted	1.00
Satd. Flow (perm)	1644
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	228
RTOR Reduction (vph)	0
Lane Group Flow (vph)	228
Heavy Vehicles (%)	0%
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	140.0
Effective Green, g (s)	140.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1644
v/s Ratio Prot	
v/s Ratio Perm	0.14
v/c Ratio	0.14
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	0.2
Level of Service	A
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	SBR
Lane Configurations	
Volume (vph)	106
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.86
Flt Protected	1.00
Satd. Flow (prot)	1644
Flt Permitted	1.00
Satd. Flow (perm)	1644
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	115
RTOR Reduction (vph)	0
Lane Group Flow (vph)	115
Heavy Vehicles (%)	0%
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	140.0
Effective Green, g (s)	140.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1644
v/s Ratio Prot	
v/s Ratio Perm	0.07
v/c Ratio	0.07
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	0.1
Level of Service	A
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	123	46	68	134	419	38	335	31	610	406	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor		0.95		1.00	1.00	0.88	1.00	0.95		0.97	0.95	
Frt		0.96		1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3420		1787	1863	2814	1805	3516		3433	3584	
Flt Permitted		1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		3420		1787	1863	2814	1805	3516		3433	3584	
Peak-hour factor, PHF	0.75	0.84	0.70	0.73	0.80	0.88	0.80	0.96	0.83	0.91	0.93	0.80
Adj. Flow (vph)	21	146	66	93	168	476	48	349	37	670	437	22
RTOR Reduction (vph)	0	40	0	0	0	227	0	8	0	0	4	0
Lane Group Flow (vph)	0	193	0	93	168	249	48	378	0	670	455	0
Heavy Vehicles (%)	0%	1%	0%	1%	2%	1%	0%	1%	3%	2%	0%	0%
Turn Type	Split	NA		Split	NA	pt+ov	Prot	NA		Prot	NA	
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		8.0		13.7	13.7	40.7	7.2	14.2		22.0	29.0	
Effective Green, g (s)		8.0		13.7	13.7	40.7	7.2	14.2		22.0	29.0	
Actuated g/C Ratio		0.10		0.18	0.18	0.52	0.09	0.18		0.28	0.37	
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		351		314	327	1470	166	640		969	1334	
v/s Ratio Prot		c0.06		0.05	c0.09	0.09	0.03	c0.11		c0.20	0.13	
v/s Ratio Perm												
v/c Ratio		0.55		0.30	0.51	0.17	0.29	0.59		0.69	0.34	
Uniform Delay, d1		33.2		27.9	29.1	9.7	33.0	29.2		24.9	17.6	
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.8		0.5	1.4	0.1	1.0	1.5		2.1	0.2	
Delay (s)		35.0		28.4	30.4	9.8	33.9	30.6		27.1	17.7	
Level of Service		C		C	C	A	C	C		C	B	
Approach Delay (s)		35.0			16.9			31.0			23.3	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	77.9	Sum of lost time (s)	20.0
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	68	203	84	250	203	815	84	561	95	548	655	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor		0.95		1.00	1.00	0.88	1.00	0.95		0.97	0.95	
Frt		0.96		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.99		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3414		1787	1863	2814	1805	3475		3433	3574	
Flt Permitted		0.99		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		3414		1787	1863	2814	1805	3475		3433	3574	
Peak-hour factor, PHF	0.75	0.84	0.70	0.73	0.80	0.88	0.80	0.96	0.83	0.91	0.93	0.80
Adj. Flow (vph)	91	242	120	342	254	926	105	584	114	602	704	50
RTOR Reduction (vph)	0	37	0	0	0	206	0	17	0	0	5	0
Lane Group Flow (vph)	0	416	0	342	254	720	105	681	0	602	749	0
Heavy Vehicles (%)	0%	1%	0%	1%	2%	1%	0%	1%	3%	2%	0%	0%
Turn Type	Split	NA		Split	NA	pt+ov	Prot	NA		Prot	NA	
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		14.4		20.0	20.0	44.7	9.2	22.9		19.7	33.4	
Effective Green, g (s)		14.4		20.0	20.0	44.7	9.2	22.9		19.7	33.4	
Actuated g/C Ratio		0.15		0.21	0.21	0.46	0.09	0.24		0.20	0.34	
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		506		368	384	1296	171	820		697	1230	
v/s Ratio Prot		c0.12		c0.19	0.14	0.26	0.06	c0.20		c0.18	0.21	
v/s Ratio Perm												
v/c Ratio		0.82		0.93	0.66	0.56	0.61	0.83		0.86	0.61	
Uniform Delay, d1		40.1		37.8	35.4	19.0	42.2	35.2		37.4	26.4	
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		10.4		29.2	4.2	0.5	6.4	7.2		10.8	0.9	
Delay (s)		50.5		67.0	39.6	19.5	48.6	42.4		48.2	27.2	
Level of Service		D		E	D	B	D	D		D	C	
Approach Delay (s)		50.5			33.5			43.2			36.5	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	38.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	97.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	6	752	6	6	609	6	6	6	6	6	6	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.56	0.89	0.25	0.25	0.92	0.63	0.25	0.92	0.92	0.45	0.92	0.50
Hourly flow rate (vph)	11	845	24	24	662	10	24	7	7	13	7	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		558			311							
pX, platoon unblocked	0.93						0.93	0.93		0.93	0.93	0.93
vC, conflicting volume	671			869			1273	1598	434	1168	1605	336
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	486			869			1135	1486	434	1023	1494	124
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			97			82	94	99	92	94	99
cM capacity (veh/h)	1007			784			135	112	575	163	110	843

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	11	563	306	24	441	230	37	32
Volume Left	11	0	0	24	0	0	24	13
Volume Right	0	0	24	0	0	10	7	12
cSH	1007	1700	1700	784	1700	1700	149	206
Volume to Capacity	0.01	0.33	0.18	0.03	0.26	0.14	0.25	0.15
Queue Length 95th (ft)	1	0	0	2	0	0	23	13
Control Delay (s)	8.6	0.0	0.0	9.7	0.0	0.0	36.8	25.7
Lane LOS	A			A			E	D
Approach Delay (s)	0.1			0.3			36.8	25.7
Approach LOS							E	D

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	31.0%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	11	829	6	8	1256	8	6	6	6	11	6	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.56	0.89	0.25	0.25	0.92	0.63	0.25	0.92	0.92	0.45	0.92	0.50
Hourly flow rate (vph)	20	931	24	32	1365	13	24	7	7	24	7	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		558			311							
pX, platoon unblocked	0.78						0.78	0.78		0.78	0.78	0.78
vC, conflicting volume	1378			955			1745	2425	478	1950	2430	689
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	915			955			1386	2261	478	1651	2268	30
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			96			62	78	99	39	78	99
cM capacity (veh/h)	586			728			63	30	539	40	30	813

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	20	621	334	32	910	468	37	43
Volume Left	20	0	0	32	0	0	24	24
Volume Right	0	0	24	0	0	13	7	12
cSH	586	1700	1700	728	1700	1700	60	51
Volume to Capacity	0.03	0.37	0.20	0.04	0.54	0.28	0.61	0.85
Queue Length 95th (ft)	3	0	0	3	0	0	64	89
Control Delay (s)	11.4	0.0	0.0	10.2	0.0	0.0	132.8	209.4
Lane LOS	B			B			F	F
Approach Delay (s)	0.2			0.2			132.8	209.4
Approach LOS							F	F

Intersection Summary				
Average Delay	5.9			
Intersection Capacity Utilization	45.0%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	34	724	6	188	23	596	155	6	6	25	35	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	6.9			6.9	6.9			6.9	6.9	6.9	
Lane Util. Factor	1.00	0.95			1.00	0.95			1.00	1.00	1.00	
Frt	1.00	1.00			1.00	0.96			1.00	0.85	1.00	
Flt Protected	0.95	1.00			0.95	1.00			0.98	1.00	0.95	
Satd. Flow (prot)	1543	3570			1777	3289			1869	1615	1671	
Flt Permitted	0.32	1.00			0.29	1.00			0.98	1.00	0.73	
Satd. Flow (perm)	523	3570			550	3289			1869	1615	1291	
Peak-hour factor, PHF	0.60	0.90	0.86	0.92	0.42	0.89	0.73	0.50	0.25	0.38	0.69	0.92
Adj. Flow (vph)	57	804	7	204	55	670	212	12	24	66	51	0
RTOR Reduction (vph)	0	0	0	0	0	15	0	0	0	61	0	0
Lane Group Flow (vph)	57	811	0	0	259	867	0	0	36	5	51	0
Heavy Vehicles (%)	17%	1%	0%	2%	0%	1%	21%	0%	0%	0%	8%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA		Perm	NA	Perm	Perm	
Protected Phases	5	2		1	1	6			8			
Permitted Phases	2			6	6			8		8	4	
Actuated Green, G (s)	97.7	92.3			115.0	102.7			11.2	11.2	11.2	
Effective Green, g (s)	97.7	92.3			115.0	102.7			11.2	11.2	11.2	
Actuated g/C Ratio	0.70	0.66			0.82	0.73			0.08	0.08	0.08	
Clearance Time (s)	6.9	6.9			6.9	6.9			6.9	6.9	6.9	
Vehicle Extension (s)	3.0	4.5			3.0	4.5			4.5	4.5	4.5	
Lane Grp Cap (vph)	404	2353			590	2412			149	129	103	
v/s Ratio Prot	0.01	0.23			c0.05	0.26						
v/s Ratio Perm	0.09				c0.31				0.02	0.00	c0.04	
v/c Ratio	0.14	0.34			0.44	0.36			0.24	0.04	0.50	
Uniform Delay, d1	6.6	10.5			3.9	6.7			60.4	59.4	61.7	
Progression Factor	1.00	1.00			1.60	0.79			1.00	1.00	1.00	
Incremental Delay, d2	0.2	0.4			0.5	0.4			1.5	0.2	6.3	
Delay (s)	6.8	10.9			6.8	5.8			61.9	59.7	68.0	
Level of Service	A	B			A	A			E	E	E	
Approach Delay (s)		10.6				6.0			60.4			64.9
Approach LOS		B				A			E			E

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	15	791	40	238	13	1168	78	14	6	8	94	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	6.9			6.9	6.9			6.9	6.9	6.9	
Lane Util. Factor	1.00	0.95			1.00	0.95			1.00	1.00	1.00	
Frt	1.00	0.99			1.00	0.99			1.00	0.85	1.00	
Flt Protected	0.95	1.00			0.95	1.00			0.97	1.00	0.95	
Satd. Flow (prot)	1543	3549			1773	3482			1850	1615	1671	
Flt Permitted	0.16	1.00			0.23	1.00			0.97	1.00	0.72	
Satd. Flow (perm)	265	3549			423	3482			1850	1615	1272	
Peak-hour factor, PHF	0.60	0.90	0.86	0.92	0.42	0.89	0.73	0.50	0.25	0.38	0.69	0.92
Adj. Flow (vph)	25	879	47	259	31	1312	107	28	24	21	136	0
RTOR Reduction (vph)	0	2	0	0	0	4	0	0	0	18	0	0
Lane Group Flow (vph)	25	924	0	0	290	1415	0	0	52	3	136	0
Heavy Vehicles (%)	17%	1%	0%	2%	0%	1%	21%	0%	0%	0%	8%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA		Perm	NA	Perm	Perm	
Protected Phases	5	2		1	1	6			8			
Permitted Phases	2			6	6			8		8	4	
Actuated Green, G (s)	82.5	78.7			104.7	94.0			21.5	21.5	21.5	
Effective Green, g (s)	82.5	78.7			104.7	94.0			21.5	21.5	21.5	
Actuated g/C Ratio	0.59	0.56			0.75	0.67			0.15	0.15	0.15	
Clearance Time (s)	6.9	6.9			6.9	6.9			6.9	6.9	6.9	
Vehicle Extension (s)	3.0	4.5			3.0	4.5			4.5	4.5	4.5	
Lane Grp Cap (vph)	190	1995			500	2337			284	248	195	
v/s Ratio Prot	0.00	0.26			c0.08	c0.41						
v/s Ratio Perm	0.07				0.35				0.03	0.00	c0.11	
v/c Ratio	0.13	0.46			0.58	0.61			0.18	0.01	0.70	
Uniform Delay, d1	12.4	18.1			9.0	12.7			51.6	50.3	56.2	
Progression Factor	1.00	1.00			1.69	0.55			1.00	1.00	1.00	
Incremental Delay, d2	0.3	0.8			1.4	1.0			0.5	0.0	11.9	
Delay (s)	12.7	18.9			16.8	8.0			52.1	50.3	68.1	
Level of Service	B	B			B	A			D	D	E	
Approach Delay (s)		18.8				9.5			51.6			59.5
Approach LOS		B				A			D			E

Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	19
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.9
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1599
Flt Permitted	1.00
Satd. Flow (perm)	1599
Peak-hour factor, PHF	0.65
Adj. Flow (vph)	29
RTOR Reduction (vph)	27
Lane Group Flow (vph)	2
Heavy Vehicles (%)	1%
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	11.2
Effective Green, g (s)	11.2
Actuated g/C Ratio	0.08
Clearance Time (s)	6.9
Vehicle Extension (s)	4.5
Lane Grp Cap (vph)	127
v/s Ratio Prot	
v/s Ratio Perm	0.00
v/c Ratio	0.02
Uniform Delay, d1	59.3
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	59.4
Level of Service	E
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	SBR
Lane Configurations	
Volume (vph)	90
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.9
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1599
Flt Permitted	1.00
Satd. Flow (perm)	1599
Peak-hour factor, PHF	0.65
Adj. Flow (vph)	138
RTOR Reduction (vph)	117
Lane Group Flow (vph)	21
Heavy Vehicles (%)	1%
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	21.5
Effective Green, g (s)	21.5
Actuated g/C Ratio	0.15
Clearance Time (s)	6.9
Vehicle Extension (s)	4.5
Lane Grp Cap (vph)	245
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.09
Uniform Delay, d1	50.8
Progression Factor	1.00
Incremental Delay, d2	0.3
Delay (s)	51.1
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	724	248	0	962	0	251
Sign Control	Free			Free	Stop	
Grade	0%			0%	4%	
Peak Hour Factor	0.88	0.69	0.81	0.86	0.61	0.84
Hourly flow rate (vph)	823	359	0	1119	0	299
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	188			359		
pX, platoon unblocked			0.91		0.95	0.91
vC, conflicting volume			1182		1382	411
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1011		887	167
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	62
cM capacity (veh/h)			634		272	780

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	411	411	359	559	559	299
Volume Left	0	0	0	0	0	0
Volume Right	0	0	359	0	0	299
cSH	1700	1700	1700	1700	1700	780
Volume to Capacity	0.24	0.24	0.21	0.33	0.33	0.38
Queue Length 95th (ft)	0	0	0	0	0	45
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.4
Lane LOS						B
Approach Delay (s)	0.0			0.0		12.4
Approach LOS						B

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	42.2%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	833	298	0	1497	0	195
Sign Control	Free			Free	Stop	
Grade	0%			0%	4%	
Peak Hour Factor	0.88	0.69	0.81	0.86	0.61	0.84
Hourly flow rate (vph)	947	432	0	1741	0	232
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	188			359		
pX, platoon unblocked			0.86		0.87	0.86
vC, conflicting volume			1378		1817	473
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1122		930	73
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	73
cM capacity (veh/h)			544		234	846

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	473	473	432	870	870	232
Volume Left	0	0	0	0	0	0
Volume Right	0	0	432	0	0	232
cSH	1700	1700	1700	1700	1700	846
Volume to Capacity	0.28	0.28	0.25	0.51	0.51	0.27
Queue Length 95th (ft)	0	0	0	0	0	28
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	10.9
Lane LOS						B
Approach Delay (s)	0.0			0.0		10.9
Approach LOS						B

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	44.7%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	104	1936	1704	35	40	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	4.0	7.0		7.0	
Lane Util. Factor	1.00	0.91	0.86		1.00	
Frt	1.00	1.00	0.99		1.00	
Flt Protected	0.95	1.00	1.00		0.95	
Satd. Flow (prot)	1805	5085	6350		1752	
Flt Permitted	0.95	1.00	1.00		0.95	
Satd. Flow (perm)	1805	5085	6350		1752	
Peak-hour factor, PHF	0.92	0.94	0.91	0.25	0.92	0.70
Adj. Flow (vph)	113	2060	1873	140	43	0
RTOR Reduction (vph)	0	0	6	0	0	0
Lane Group Flow (vph)	113	2060	2007	0	43	0
Heavy Vehicles (%)	0%	2%	2%	0%	3%	3%
Turn Type	Prot	NA	NA		Prot	
Protected Phases	1	Free!	2		4!	
Permitted Phases						
Actuated Green, G (s)	14.0	140.0	97.1		7.9	
Effective Green, g (s)	14.0	140.0	97.1		7.9	
Actuated g/C Ratio	0.10	1.00	0.69		0.06	
Clearance Time (s)	7.0		7.0		7.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	180	5085	4404		98	
v/s Ratio Prot	c0.06	0.41	c0.32		0.02	
v/s Ratio Perm						
v/c Ratio	0.63	0.41	0.46		0.44	
Uniform Delay, d1	60.5	0.0	9.6		63.9	
Progression Factor	1.12	1.00	0.28		1.00	
Incremental Delay, d2	6.1	0.2	0.3		3.1	
Delay (s)	73.9	0.2	3.0		67.0	
Level of Service	E	A	A		E	
Approach Delay (s)		4.1	3.0		67.0	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	4.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	110	1839	2020	19	147	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	4.0	7.0		7.0	
Lane Util. Factor	1.00	0.91	0.86		1.00	
Frt	1.00	1.00	1.00		1.00	
Flt Protected	0.95	1.00	1.00		0.95	
Satd. Flow (prot)	1805	5085	6380		1752	
Flt Permitted	0.95	1.00	1.00		0.95	
Satd. Flow (perm)	1805	5085	6380		1752	
Peak-hour factor, PHF	0.92	0.94	0.91	0.25	0.92	0.70
Adj. Flow (vph)	120	1956	2220	76	160	0
RTOR Reduction (vph)	0	0	3	0	0	0
Lane Group Flow (vph)	120	1956	2293	0	160	0
Heavy Vehicles (%)	0%	2%	2%	0%	3%	0%
Turn Type	Prot	NA	NA		Prot	
Protected Phases	1	Free!	2		4!	
Permitted Phases						
Actuated Green, G (s)	13.6	140.0	94.4		11.0	
Effective Green, g (s)	13.6	140.0	94.4		11.0	
Actuated g/C Ratio	0.10	1.00	0.67		0.08	
Clearance Time (s)	7.0		7.0		7.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	175	5085	4301		137	
v/s Ratio Prot	c0.07	0.38	c0.36		c0.09	
v/s Ratio Perm						
v/c Ratio	0.69	0.38	0.53		1.17	
Uniform Delay, d1	61.1	0.0	11.6		64.5	
Progression Factor	1.09	1.00	0.72		1.00	
Incremental Delay, d2	9.9	0.2	0.4		129.1	
Delay (s)	76.4	0.2	8.7		193.6	
Level of Service	E	A	A		F	
Approach Delay (s)		4.6	8.7		193.6	
Approach LOS		A	A		F	

Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	NBR2	SWL	SWR
Lane Configurations											
Volume (vph)	0	1759	217	170	1595	124	64	0	220	0	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.9	4.0	6.9	4.0	4.0	6.3		6.3		6.9
Lane Util. Factor		0.91	1.00	0.97	0.95	1.00	1.00		0.88		1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00		0.85		0.86
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95		1.00		1.00
Satd. Flow (prot)		5085	1599	3467	3539	1583	1787		2814		1611
Flt Permitted		1.00	1.00	0.95	1.00	1.00	0.95		1.00		1.00
Satd. Flow (perm)		5085	1599	3467	3539	1583	1787		2814		1611
Peak-hour factor, PHF	0.92	0.97	0.79	0.84	0.89	0.92	0.85	0.92	0.85	0.92	0.92
Adj. Flow (vph)	0	1813	275	202	1792	135	75	0	259	0	87
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	236	0	28
Lane Group Flow (vph)	0	1813	275	202	1792	135	75	0	23	0	59
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%	1%	2%	1%	2%	2%
Turn Type		NA	Free	Prot	NA	Perm	Prot		Prot		Perm
Protected Phases		6		5	Free!		3!		3		
Permitted Phases			Free			Free					6
Actuated Green, G (s)		92.5	140.0	14.9	140.0	140.0	12.5		12.5		92.5
Effective Green, g (s)		92.5	140.0	14.9	140.0	140.0	12.5		12.5		92.5
Actuated g/C Ratio		0.66	1.00	0.11	1.00	1.00	0.09		0.09		0.66
Clearance Time (s)		6.9		6.9			6.3		6.3		6.9
Vehicle Extension (s)		4.0		4.5			4.5		4.5		4.0
Lane Grp Cap (vph)	3359	1599	368	3539	1583	159	251		1064		
v/s Ratio Prot	c0.36		0.06	0.51		0.04	0.01				
v/s Ratio Perm		0.17			0.09				0.04		
v/c Ratio	0.54	0.17	0.55	0.51	0.09	0.47	0.09		0.06		
Uniform Delay, d1	12.5	0.0	59.4	0.0	0.0	60.6	58.5		8.4		
Progression Factor	1.03	1.00	1.34	1.00	1.00	1.00	1.00		1.00		
Incremental Delay, d2	0.6	0.2	1.1	0.2	0.0	3.8	0.3		0.1		
Delay (s)	13.5	0.2	80.4	0.2	0.0	64.4	58.8		8.5		
Level of Service	B	A	F	A	A	E	E		A		
Approach Delay (s)	11.8			7.8		60.1		8.5			
Approach LOS	B			A		E		A			

Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	NBR2	SWL	SWR
Lane Configurations											
Volume (vph)	0	1614	372	288	1582	54	291	0	508	0	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.9	4.0	6.9	4.0	4.0	6.3		6.3		6.9
Lane Util. Factor		0.91	1.00	0.97	0.95	1.00	1.00		0.88		1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00		0.85		0.86
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95		1.00		1.00
Satd. Flow (prot)		5085	1599	3467	3539	1583	1787		2814		1596
Flt Permitted		1.00	1.00	0.95	1.00	1.00	0.95		1.00		1.00
Satd. Flow (perm)		5085	1599	3467	3539	1583	1787		2814		1596
Peak-hour factor, PHF	0.92	0.97	0.79	0.84	0.89	0.92	0.85	0.92	0.85	0.92	0.92
Adj. Flow (vph)	0	1664	471	343	1778	59	342	0	598	0	180
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	317	0	33
Lane Group Flow (vph)	0	1664	471	343	1778	59	342	0	281	0	147
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%	1%	2%	1%	2%	3%
Turn Type		NA	Free	Prot	NA	Perm	Prot		Prot		Perm
Protected Phases		6		5	Free!		3!		3		
Permitted Phases			Free			Free					6
Actuated Green, G (s)		83.1	140.0	16.9	140.0	140.0	19.9		19.9		83.1
Effective Green, g (s)		83.1	140.0	16.9	140.0	140.0	19.9		19.9		83.1
Actuated g/C Ratio		0.59	1.00	0.12	1.00	1.00	0.14		0.14		0.59
Clearance Time (s)		6.9		6.9			6.3		6.3		6.9
Vehicle Extension (s)		4.0		4.5			4.5		4.5		4.0
Lane Grp Cap (vph)	3018	1599	418	3539	1583	254	399		947		
v/s Ratio Prot	c0.33		c0.10	0.50		c0.19	0.10				
v/s Ratio Perm		0.29			0.04				0.09		
v/c Ratio	0.55	0.29	0.82	0.50	0.04	1.35	0.71		0.16		
Uniform Delay, d1	17.2	0.0	60.1	0.0	0.0	60.0	57.3		12.7		
Progression Factor	1.10	1.00	0.93	1.00	1.00	1.00	1.00		1.00		
Incremental Delay, d2	0.7	0.4	5.8	0.2	0.0	179.8	6.4		0.4		
Delay (s)	19.5	0.4	61.9	0.2	0.0	239.8	63.6		13.1		
Level of Service	B	A	E	A	A	F	E		B		
Approach Delay (s)	15.3			9.9		127.7		13.1			
Approach LOS	B			A		F		B			

Intersection Summary			
HCM 2000 Control Delay	32.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	749	1111	198	1796	483	0	0	121	108	129	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-4%			3%	
Total Lost time (s)	7.5	7.5	4.0	7.5	7.5	7.5			4.0	8.3	8.3	8.3
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00			1.00	*0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85			0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00			1.00	0.95	1.00	1.00
Satd. Flow (prot)	1687	3505	1583	1805	3539	1455			1660	1642	1766	1544
Flt Permitted	0.05	1.00	1.00	0.29	1.00	1.00			1.00	0.95	1.00	1.00
Satd. Flow (perm)	84	3505	1583	550	3539	1455			1660	1642	1766	1544
Peak-hour factor, PHF	0.75	0.90	0.90	0.59	0.90	0.81	0.92	0.92	0.85	0.80	0.69	0.67
Adj. Flow (vph)	159	832	1234	336	1996	596	0	0	142	135	187	139
RTOR Reduction (vph)	0	0	0	0	0	227	0	0	0	0	0	120
Lane Group Flow (vph)	159	832	1234	336	1996	369	0	0	142	121	201	19
Heavy Vehicles (%)	7%	3%	2%	0%	2%	11%	0%	0%	1%	5%	0%	3%
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm			Free	Split	NA	Perm
Protected Phases	1	6		5	2					4	4	
Permitted Phases	6		Free	2		2			Free			4
Actuated Green, G (s)	95.4	84.5	140.0	99.8	86.7	86.7			140.0	19.1	19.1	19.1
Effective Green, g (s)	95.4	84.5	140.0	99.8	86.7	86.7			140.0	19.1	19.1	19.1
Actuated g/C Ratio	0.68	0.60	1.00	0.71	0.62	0.62			1.00	0.14	0.14	0.14
Clearance Time (s)	7.5	7.5		7.5	7.5	7.5				8.3	8.3	8.3
Vehicle Extension (s)	2.5	6.0		2.5	6.0	6.0				5.0	5.0	5.0
Lane Grp Cap (vph)	182	2115	1583	509	2191	901			1660	224	240	210
v/s Ratio Prot	0.07	0.24		0.06	c0.56					0.07	0.11	
v/s Ratio Perm	0.53		c0.78	0.41		0.25			0.09			0.01
v/c Ratio	0.87	0.39	0.78	0.66	0.91	0.41			0.09	0.54	0.84	0.09
Uniform Delay, d1	44.8	14.4	0.0	8.3	23.3	13.6			0.0	56.4	58.9	52.9
Progression Factor	0.80	1.37	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00
Incremental Delay, d2	30.9	0.5	3.5	2.9	7.1	1.4			0.1	4.6	23.8	0.4
Delay (s)	67.0	20.2	3.5	11.2	30.4	15.0			0.1	61.0	82.7	53.2
Level of Service	E	C	A	B	C	B			A	E	F	D
Approach Delay (s)		14.3			25.1			0.1			68.1	
Approach LOS		B			C			A			E	

Intersection Summary			
HCM 2000 Control Delay	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	1393	668	81	1735	241	0	0	250	398	125	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-4%			3%	
Total Lost time (s)	7.5	7.5	4.0	7.5	7.5	7.5			4.0	8.3	8.3	8.3
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00			1.00	*0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85			0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00			1.00	0.95	0.98	1.00
Satd. Flow (prot)	1687	3505	1583	1805	3539	1455			1660	1642	1696	1544
Flt Permitted	0.05	1.00	1.00	0.08	1.00	1.00			1.00	0.95	0.98	1.00
Satd. Flow (perm)	87	3505	1583	156	3539	1455			1660	1642	1696	1544
Peak-hour factor, PHF	0.75	0.90	0.90	0.59	0.90	0.81	0.92	0.92	0.85	0.80	0.69	0.67
Adj. Flow (vph)	81	1548	742	137	1928	298	0	0	294	498	181	282
RTOR Reduction (vph)	0	0	0	0	0	121	0	0	0	0	0	74
Lane Group Flow (vph)	81	1548	742	137	1928	177	0	0	294	334	345	208
Heavy Vehicles (%)	7%	3%	2%	0%	2%	11%	0%	0%	1%	5%	0%	3%
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm			Free	Split	NA	Perm
Protected Phases	1	6		5	2					4	4	
Permitted Phases	6		Free	2		2			Free			4
Actuated Green, G (s)	87.0	81.5	140.0	87.0	81.5	81.5			140.0	29.7	29.7	29.7
Effective Green, g (s)	87.0	81.5	140.0	87.0	81.5	81.5			140.0	29.7	29.7	29.7
Actuated g/C Ratio	0.62	0.58	1.00	0.62	0.58	0.58			1.00	0.21	0.21	0.21
Clearance Time (s)	7.5	7.5		7.5	7.5	7.5				8.3	8.3	8.3
Vehicle Extension (s)	2.5	6.0		2.5	6.0	6.0				5.0	5.0	5.0
Lane Grp Cap (vph)	116	2040	1583	161	2060	847			1660	348	359	327
v/s Ratio Prot	0.03	0.44		0.03	c0.54					0.20	c0.20	
v/s Ratio Perm	0.40		c0.47	0.49		0.12			0.18			0.13
v/c Ratio	0.70	0.76	0.47	0.85	0.94	0.21			0.18	0.96	0.96	0.64
Uniform Delay, d1	30.1	21.9	0.0	21.4	26.9	13.9			0.0	54.6	54.6	50.2
Progression Factor	1.47	0.54	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00
Incremental Delay, d2	12.7	2.2	0.8	32.3	9.6	0.6			0.2	37.9	37.7	5.5
Delay (s)	57.0	14.0	0.8	53.8	36.4	14.5			0.2	92.5	92.3	55.8
Level of Service	E	B	A	D	D	B			A	F	F	E
Approach Delay (s)		11.3			34.7			0.2			81.6	
Approach LOS		B			C			A			F	

Intersection Summary			
HCM 2000 Control Delay	31.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	6	0	0	0	46	121	473	19	738	681
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.63	0.92	0.92	0.92	0.31	0.91	0.90	0.67	0.90	0.82
Hourly flow rate (vph)	0	0	10	0	0	0	148	133	526	28	820	830
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											987	
pX, platoon unblocked												
vC, conflicting volume	1306	1832	410	1159	2400	396	1650			659		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1306	1832	410	1159	2400	396	1650			659		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	100	100	100	63			97		
cM capacity (veh/h)	83	47	596	105	21	609	397			939		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	10	148	659	302	547	830
Volume Left	0	148	0	28	0	0
Volume Right	10	0	526	0	0	830
cSH	596	397	1700	939	1700	1700
Volume to Capacity	0.02	0.37	0.39	0.03	0.32	0.49
Queue Length 95th (ft)	1	43	0	2	0	0
Control Delay (s)	11.1	19.4	0.0	1.1	0.0	0.0
Lane LOS	B	C		A		
Approach Delay (s)	11.1	3.6		0.2		
Approach LOS	B					

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	84.3%	ICU Level of Service		E
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	6	0	0	0	13	250	736	10	694	170
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.63	0.92	0.92	0.92	0.31	0.91	0.90	0.67	0.90	0.82
Hourly flow rate (vph)	0	0	10	0	0	0	42	275	818	15	771	207
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											987	
pX, platoon unblocked												
vC, conflicting volume	1160	1977	386	1183	1776	684	978			1093		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1160	1977	386	1183	1776	684	978			1093		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	100	100	100	94			98		
cM capacity (veh/h)	144	58	619	136	77	396	713			646		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	10	42	1093	272	514	207
Volume Left	0	42	0	15	0	0
Volume Right	10	0	818	0	0	207
cSH	619	713	1700	646	1700	1700
Volume to Capacity	0.02	0.06	0.64	0.02	0.30	0.12
Queue Length 95th (ft)	1	5	0	2	0	0
Control Delay (s)	10.9	10.4	0.0	0.9	0.0	0.0
Lane LOS	B	B		A		
Approach Delay (s)	10.9	0.4		0.2		
Approach LOS	B					

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	75.6%	ICU Level of Service		D
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	0	975	819	624	445	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.9	6.9	4.0	6.0	6.0
Lane Util. Factor		0.95	0.95	1.00	0.97	1.00
Frt		1.00	1.00	0.85	1.00	0.85
Flt Protected		1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)		3574	3539	1583	3433	1583
Flt Permitted		1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)		3574	3539	1583	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1060	890	678	484	155
RTOR Reduction (vph)	0	0	0	0	0	59
Lane Group Flow (vph)	0	1060	890	678	484	96
Heavy Vehicles (%)	2%	1%	2%	2%	2%	2%
Turn Type		NA	NA	Free	Prot	Perm
Protected Phases		6	2		4	
Permitted Phases				Free		4
Actuated Green, G (s)		101.2	101.2	140.0	25.9	25.9
Effective Green, g (s)		101.2	101.2	140.0	25.9	25.9
Actuated g/C Ratio		0.72	0.72	1.00	0.18	0.18
Clearance Time (s)		6.9	6.9		6.0	6.0
Vehicle Extension (s)		4.5	4.5		3.0	3.0
Lane Grp Cap (vph)		2583	2558	1583	635	292
v/s Ratio Prot		0.30	0.25		c0.14	
v/s Ratio Perm				c0.43		0.06
v/c Ratio		0.41	0.35	0.43	0.76	0.33
Uniform Delay, d1		7.6	7.2	0.0	54.1	49.5
Progression Factor		0.72	0.52	1.00	1.00	1.00
Incremental Delay, d2		0.5	0.4	0.8	5.4	0.7
Delay (s)		6.0	4.1	0.8	59.5	50.2
Level of Service		A	A	A	E	D
Approach Delay (s)		6.0	2.7		57.3	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	0	1028	1242	528	538	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.9	6.9	4.0	6.0	6.0
Lane Util. Factor		0.95	0.95	1.00	0.97	1.00
Frt		1.00	1.00	0.85	1.00	0.85
Flt Protected		1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)		3574	3539	1583	3433	1583
Flt Permitted		1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)		3574	3539	1583	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1117	1350	574	585	277
RTOR Reduction (vph)	0	0	0	0	0	16
Lane Group Flow (vph)	0	1117	1350	574	585	261
Heavy Vehicles (%)	2%	1%	2%	2%	2%	2%
Turn Type		NA	NA	Free	Prot	Perm
Protected Phases		6	2		4	
Permitted Phases				Free		4
Actuated Green, G (s)		96.1	96.1	140.0	31.0	31.0
Effective Green, g (s)		96.1	96.1	140.0	31.0	31.0
Actuated g/C Ratio		0.69	0.69	1.00	0.22	0.22
Clearance Time (s)		6.9	6.9		6.0	6.0
Vehicle Extension (s)		4.5	4.5		3.0	3.0
Lane Grp Cap (vph)		2453	2429	1583	760	350
v/s Ratio Prot		0.31	c0.38		c0.17	
v/s Ratio Perm				0.36		0.16
v/c Ratio		0.46	0.56	0.36	0.77	0.74
Uniform Delay, d1		10.0	11.1	0.0	51.2	50.8
Progression Factor		0.53	0.27	1.00	1.00	1.00
Incremental Delay, d2		0.6	0.8	0.5	4.7	8.3
Delay (s)		5.9	3.8	0.5	55.9	59.1
Level of Service		A	A	A	E	E
Approach Delay (s)		5.9	2.8		56.9	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	40	118	1262	0	0	1164	540	0	0	778	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	4.0			7.5	7.5			4.0		
Lane Util. Factor		1.00	0.95			0.95	1.00			1.00		
Frt		1.00	1.00			1.00	0.85			0.86		
Flt Protected		0.95	1.00			1.00	1.00			1.00		
Satd. Flow (prot)		1796	3539			3539	1568			1611		
Flt Permitted		0.20	1.00			1.00	1.00			1.00		
Satd. Flow (perm)		387	3539			3539	1568			1611		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	128	1372	0	0	1265	587	0	0	846	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	110	0	0	0	0	0
Lane Group Flow (vph)	0	171	1372	0	0	1265	477	0	0	846	0	0
Heavy Vehicles (%)	2%	0%	2%	2%	2%	2%	3%	2%	2%	2%	0%	2%
Turn Type	D.P+P	D.P+P	NA			NA	Perm			Free		
Protected Phases	1	1	Free			2						
Permitted Phases	2	2					2			Free		
Actuated Green, G (s)		125.5	140.0			113.7	113.7			140.0		
Effective Green, g (s)		125.5	140.0			113.7	113.7			140.0		
Actuated g/C Ratio		0.90	1.00			0.81	0.81			1.00		
Clearance Time (s)		7.0				7.5	7.5					
Vehicle Extension (s)		3.0				3.0	3.0					
Lane Grp Cap (vph)	465	3539				2874	1273			1611		
v/s Ratio Prot	0.03	0.39				0.36						
v/s Ratio Perm	0.30						0.30			c0.53		
v/c Ratio	0.37	0.39				0.44	0.37			0.53		
Uniform Delay, d1	1.2	0.0				3.8	3.6			0.0		
Progression Factor	1.98	1.00				0.78	5.69			1.00		
Incremental Delay, d2	0.5	0.3				0.4	0.8			1.2		
Delay (s)	2.9	0.3				3.5	21.0			1.2		
Level of Service	A	A				A	C			A		
Approach Delay (s)		0.6				9.0			1.2			0.2
Approach LOS		A				A			A			A

Intersection Summary			
HCM 2000 Control Delay	4.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	50	188	1328	0	0	1600	420	0	0	621	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	4.0			7.5	7.5			4.0		
Lane Util. Factor		1.00	0.95			0.95	1.00			1.00		
Frt		1.00	1.00			1.00	0.85			0.86		
Flt Protected		0.95	1.00			1.00	1.00			1.00		
Satd. Flow (prot)		1797	3539			3539	1568			1611		
Flt Permitted		0.10	1.00			1.00	1.00			1.00		
Satd. Flow (perm)		194	3539			3539	1568			1611		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	204	1443	0	0	1739	457	0	0	675	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	45	0	0	0	0	0
Lane Group Flow (vph)	0	258	1443	0	0	1739	412	0	0	675	0	0
Heavy Vehicles (%)	2%	0%	2%	2%	2%	2%	3%	2%	2%	2%	0%	2%
Turn Type	D.P+P	D.P+P	NA			NA	Perm			Free		
Protected Phases	1	1	Free			2						
Permitted Phases	2	2					2			Free		
Actuated Green, G (s)		125.5	140.0			107.3	107.3			140.0		
Effective Green, g (s)		125.5	140.0			107.3	107.3			140.0		
Actuated g/C Ratio		0.90	1.00			0.77	0.77			1.00		
Clearance Time (s)		7.0				7.5	7.5					
Vehicle Extension (s)		3.0				3.0	3.0					
Lane Grp Cap (vph)	382	3539				2712	1201			1611		
v/s Ratio Prot	c0.09	0.41				0.49						
v/s Ratio Perm	c0.52						0.26			0.42		
v/c Ratio	0.68	0.41				0.64	0.34			0.42		
Uniform Delay, d1	22.3	0.0				7.5	5.2			0.0		
Progression Factor	1.42	1.00				1.03	1.03			1.00		
Incremental Delay, d2	4.3	0.3				1.0	0.7			0.8		
Delay (s)	35.9	0.3				8.8	6.0			0.8		
Level of Service	D	A				A	A			A		
Approach Delay (s)		5.7				8.2			0.8			0.1
Approach LOS		A				A			A			A

Intersection Summary			
HCM 2000 Control Delay	6.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	239
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.86
Flt Protected	1.00
Satd. Flow (prot)	1644
Flt Permitted	1.00
Satd. Flow (perm)	1644
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	260
RTOR Reduction (vph)	0
Lane Group Flow (vph)	260
Heavy Vehicles (%)	0%
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	140.0
Effective Green, g (s)	140.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1644
v/s Ratio Prot	
v/s Ratio Perm	0.16
v/c Ratio	0.16
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	0.2
Level of Service	A
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	SBR
Lane Configurations	
Volume (vph)	120
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.86
Flt Protected	1.00
Satd. Flow (prot)	1644
Flt Permitted	1.00
Satd. Flow (perm)	1644
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	130
RTOR Reduction (vph)	0
Lane Group Flow (vph)	130
Heavy Vehicles (%)	0%
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	140.0
Effective Green, g (s)	140.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1644
v/s Ratio Prot	
v/s Ratio Perm	0.08
v/c Ratio	0.08
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	0.1
Level of Service	A
Approach Delay (s)	
Approach LOS	
Intersection Summary	

APPENDIX F-8: SIMTRAFFIC MAXIMUM QUEUE LENGTH SUMMARY

SimTraffic CAPACITY ANALYSIS - Maximum Queue Length
2025 Build Volumes
Candlers Expressway - Lynchburg, Virginia

Intersection Number and Description	Type of Control	Lane Group	Eastbound			Westbound			Northbound			Southbound		
			Storage Bay Length	AM Queue (ft)	PM Queue (ft)	Storage Bay Length	AM Queue (ft)	PM Queue (ft)	Storage Bay Length	AM Queue (ft)	PM Queue (ft)	Storage Bay Length	AM Queue (ft)	PM Queue (ft)
1 Candlers Mountain Road / Sheffield Drive at Wards Road			Sheffield Drive			Candlers Mountain Road			Wards Road			Wards Road		
	Signal	Left	400	127	222	300	84	267	175	68	**(3%)	275	205	254
		Through					142	219		153	266		124	234
		Right				275	98	216						
2 Candlers Mountain Road at Short Street			Candlers Mountain Road			Candlers Mountain Road			Commercial Driveway			Short Street		
	Two-Way Stop	Left	150	24	33	135	34	30		50	55		48	69
		Through		†	†		†	7						
		Right												
3 Candlers Mountain Road at Woodall Road			Candlers Mountain Road			Candlers Mountain Road			Commercial Driveway			Woodall Road		
	Signal	Left	150	99	**(1%)	145	**(1%)	*(2%)**(5%)		59	81	90	80	*(12%)**(1%)
		Through		210	^(#2)		^(#4)	^(#4)				--	--	--
		Right								54	35		55	237
4 Candlers Mountain Road at Seminole Avenue			Candlers Mountain Road			Candlers Mountain Road			Seminole Avenue					
	One-Way Stop	Left	--	--	--	--	--	--	--	--	--	--	--	--
		Through		20	29		42	159	--	--	--	--	--	--
		Right	150	6	6	--	--	--		108	93	--	--	--
5 Candlers Mountain Road at Murray Place			Candlers Mountain Road			Candlers Mountain Road						Murray Place		
	Signal	Left	200	**(1%)	**(2%)	--	--	--	--	--	--		99	244
		Through		317	279		221	236	--	--	--	--	--	--
		Right	--	--	--				--	--	--	--	--	--
6 Candlers Mountain Road at Murray Place / River Ridge Mall			Candlers Mountain Road			Candlers Mountain Road			River Ridge Mall			Murray Place		
	Signal	Left	--	--	--	150	130	*(5%)**(5%)		123	680	--	--	--
		Through		^(#5)	^(#5)		90	408	--	--	--	--	--	--
		Right		^(#5)	^(#5)	180	†	†		166	257		†	†
7 Candlers Mountain Road / US 501 at Mayflower Drive			Candlers Mountain Road/US 501			Candlers Mountain Road/US 501			Candlers Mountain Road			Mayflower Drive		
	Signal	Left	325	128	**(7%)	275	**(5%)	**(7%)	--	--	--	470	209	461
		Through		278	^(#6)		723	633	--	--	--			
		Right	125	*(<1%)**(1%)	*(1%)**(14%)	375	**(3%)	**(3%)		†	†	270	146	*(1%)**(3%)
8 Candlers Mountain Road at Westbound US 501 Ramp / Mountain View Road			Mountain View Road						Candlers Mountain Road			Candlers Mountain Road		
	One-Way Stop	Left	--	--	--	--	--	--		380	48		52	50
		Through	--	--	--	--	--	--						
		Right		8	3	--	--	--				150	50	12
9 Candlers Mountain Road at Southbound Lynchburg Expressway Ramps			Candlers Mountain Road			Candlers Mountain Road						SB Lynchburg Expy Exit Ramp		
	Signal	Left	--	--	--	--	--	--	--	--	--	300	339 **(1%)	404 **(2%)
		Through		256	259		197	259	--	--	--	--	--	--
		Right	--	--	--		†	†	--	--	--	300	**(1%)	**(2%)
10 Candlers Mountain Road at Northbound Lynchburg Expressway Ramps			Candlers Mountain Road			Candlers Mountain Road								
	Signal	Left	250	120	210	--	--	--	--	--	--	--	--	--
		Through		10	164		^(#5)	^(#5)	--	--	--	--	--	--
		Right	--	--	--		^(#5)	349	--	--	--	--	--	--

NOTE: Lane configurations with a shared through lane shown as "through" lane group; with shared left-right lane shown as "left" lane group.
SimTraffic simulation of 60 minutes is reported.
† SYNCHRO does not provide queue length for movements with no conflicting volumes.
*(X%) - Maximum queue extends full length of storage bay for X% of the analysis period.
**(Y%) - Queue in lane adjacent to storage bay extends beyond end of storage bay for Y% of the analysis period.
^/^(#Z) - Maximum queue extends out of network or back to previous intersection #Z.

SimTraffic CAPACITY ANALYSIS - Maximum Queue Length
2040 Build Volumes
Candlers Expressway - Lynchburg, Virginia

Intersection Number and Description	Type of Control	Lane Group	Eastbound			Westbound			Northbound			Southbound		
			Storage Bay Length	AM Queue (ft)	PM Queue (ft)	Storage Bay Length	AM Queue (ft)	PM Queue (ft)	Storage Bay Length	AM Queue (ft)	PM Queue (ft)	Storage Bay Length	AM Queue (ft)	PM Queue (ft)
1 Candlers Mountain Road / Sheffield Drive at Wards Road			Sheffield Drive			Candlers Mountain Road			Wards Road			Wards Road		
	Signal	Left	400	143	237	300	96	269	175	72	**(6%)	275	241	263
		Through					154	252		179	292		144	301
		Right				275	130	271						
2 Candlers Mountain Road at Short Street			Candlers Mountain Road			Candlers Mountain Road			Commercial Driveway			Short Street		
	Two-Way Stop	Left	150	27	36	135	27	30		48	69		50	80
		Through		65	45		†	5						
		Right												
3 Candlers Mountain Road at Woodall Road			Candlers Mountain Road			Candlers Mountain Road			Commercial Driveway			Woodall Road		
	Signal	Left	150	**(1%)	**(4%)	145	**(2%)	**(10%)		69	84	90	86	*(15%)**(2%)
		Through		248	^(#2)		^(#4)	^(#4)				--	--	--
		Right								54	39		64	314
4 Candlers Mountain Road at Seminole Avenue			Candlers Mountain Road			Candlers Mountain Road			Seminole Avenue					
	One-Way Stop	Left	--	--	--	--	--	--	--	--	--	--	--	--
		Through		38	69		110	288	--	--	--	--	--	--
		Right	150	28	48	--	--	--		148	122	--	--	--
5 Candlers Mountain Road at Murray Place			Candlers Mountain Road			Candlers Mountain Road						Murray Place		
	Signal	Left	200	**(9%)	**(16%)	--	--	--	--	--	--		105	516
		Through		^(#10)	^(#10)		264	^(#6)	--	--	--	--	--	--
		Right	--	--	--				--	--	--	--	--	--
6 Candlers Mountain Road at Murray Place / River Ridge Mall			Candlers Mountain Road			Candlers Mountain Road			River Ridge Mall			Murray Place		
	Signal	Left	--	--	--	150	**(1%)	*(9%)**(5%)		135	1460	--	--	--
		Through		^(#5)	^(#5)		147	501	--	--	--	--	--	--
		Right		^(#5)	^(#5)	180	†	†		189	1307		†	†
7 Candlers Mountain Road / US 501 at Mayflower Drive			Candlers Mountain Road/US 501			Candlers Mountain Road/US 501			Candlers Mountain Road			Mayflower Drive		
	Signal	Left	325	198	**(12%)	275	*(<1%)**(17%)	*(<1%)**(21%)	--	--	--	470	308	671 L[**(9%)]
		Through		500	^(#6)		1491	1450	--	--	--			
		Right	125	*(<1%)**(1%)	*(2%)**(17%)	375	*(2%)**(14%)	*(1%)**(18%)		†	†	270	**(2%)	*(1%)**(9%)
8 Candlers Mountain Road at Westbound US 501 Ramp / Mountain View Road			Mountain View Road						Candlers Mountain Road			Candlers Mountain Road		
	One-Way Stop	Left	--	--	--	--	--	--		1014	46		84	80
		Through	--	--	--	--	--	--						
		Right		3	0	--	--	--				150	48	15
9 Candlers Mountain Road at Southbound Lynchburg Expressway Ramps			Candlers Mountain Road			Candlers Mountain Road						SB Lynchburg Expy Exit Ramp		
	Signal	Left	--	--	--	--	--	--	--	--	--	300	438 *(<1%)**(2%)	536 *(<1%)**(3%)
		Through		^(#4)	^(#4)		223	330	--	--	--	--	--	--
		Right	--	--	--		†	†	--	--	--	300	**(2%)	*(<1%)**(3%)
10 Candlers Mountain Road at Northbound Lynchburg Expressway Ramps			Candlers Mountain Road			Candlers Mountain Road								
	Signal	Left	250	**(5%)	**(2%)	--	--	--	--	--	--	--	--	--
		Through		499	436		^(#5)	^(#5)	--	--	--	--	--	--
		Right	--	--	--		^(#5)	^(#5)	--	--	--	--	--	--

NOTE: Lane configurations with a shared through lane shown as "through" lane group; with shared left-right lane shown as "left" lane group.
SimTraffic simulation of 60 minutes is reported.
† SYNCHRO does not provide queue length for movements with no conflicting volumes.
*(X%) - Maximum queue extends full length of storage bay for X% of the analysis period.
**(Y%) - Queue in lane adjacent to storage bay extends beyond end of storage bay for Y% of the analysis period.
^/^(#Z) - Maximum queue extends out of network or back to previous intersection #Z.
L/R[] - Left or right turn storage bay of shared lane group.

APPENDIX F-9: SIMTRAFFIC OUTPUT SHEETS

Queuing and Blocking Report
Build 2025 AM Peak

1/3/2017

Intersection: 1: Wards Road & Sheffield Drive/Candlers Mountain Road

Movement	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	TR	L	T	R	R	L	T	TR	L	L	T
Maximum Queue (ft)	88	127	84	142	91	98	68	132	153	179	205	101
Average Queue (ft)	34	63	28	51	33	36	17	67	79	90	122	45
95th Queue (ft)	73	110	65	108	73	81	48	112	126	153	181	86
Link Distance (ft)		5228		464	464			5218	5218			5238
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	400		300			275	175			275	275	
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 1: Wards Road & Sheffield Drive/Candlers Mountain Road

Movement	SB
Directions Served	TR
Maximum Queue (ft)	124
Average Queue (ft)	64
95th Queue (ft)	107
Link Distance (ft)	5238
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Commercial Driveway/Short Street & Candlers Mountain Road

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	L	LTR	LTR
Maximum Queue (ft)	24	3	34	50	48
Average Queue (ft)	2	0	3	15	16
95th Queue (ft)	13	3	17	43	44
Link Distance (ft)		464		352	342
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	150		135		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Queuing and Blocking Report
Build 2025 PM Peak

1/2/2017

Intersection: 1: Wards Road & Sheffield Drive/Candlers Mountain Road

Movement	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	TR	L	T	R	R	L	T	TR	L	L	T
Maximum Queue (ft)	170	222	267	202	219	216	174	241	266	241	254	234
Average Queue (ft)	78	108	116	88	115	115	57	132	154	116	148	104
95th Queue (ft)	143	181	219	168	196	188	128	214	230	196	221	184
Link Distance (ft)		5228		464	464			5218	5218			5238
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	400		300			275	175			275	275	
Storage Blk Time (%)			0	0	0	0	0	3		0	0	0
Queuing Penalty (veh)			0	0	0	0	0	2		0	0	0

Intersection: 1: Wards Road & Sheffield Drive/Candlers Mountain Road

Movement	SB
Directions Served	TR
Maximum Queue (ft)	206
Average Queue (ft)	121
95th Queue (ft)	185
Link Distance (ft)	5238
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Commercial Driveway/Short Street & Candlers Mountain Road

Movement	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	33	5	30	3	6	55	69
Average Queue (ft)	5	0	4	0	0	17	19
95th Queue (ft)	25	5	19	3	6	46	55
Link Distance (ft)		464		249	249	352	342
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150		135				
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: Commercial Driveway/Woodall Road & Candlers Mountain Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	UL	T	TR	LT	R	L	R
Maximum Queue (ft)	99	176	210	104	156	182	59	54	80	55
Average Queue (ft)	21	50	75	57	43	67	11	13	30	10
95th Queue (ft)	65	136	179	99	121	161	41	41	70	35
Link Distance (ft)		249	249		106	106	363	363		2542
Upstream Blk Time (%)		0	0	0	1	3				
Queuing Penalty (veh)		0	0	0	4	13				
Storage Bay Dist (ft)	150			145					90	
Storage Blk Time (%)	0	0		0	1				2	0
Queuing Penalty (veh)	0	0		1	2				0	0

Intersection: 4: Seminole Avenue & Candlers Mountain Road

Movement	EB	EB	EB	WB	WB	NB
Directions Served	T	T	R	T	T	R
Maximum Queue (ft)	6	20	6	13	42	108
Average Queue (ft)	0	1	0	1	2	52
95th Queue (ft)	4	9	6	10	20	88
Link Distance (ft)	106	106		294	294	785
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			150			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: Candlers Mountain Road & Murray Place

Movement	EB	EB	EB	EB	B39	B39	B39	WB	WB	WB	WB	SB
Directions Served	L	T	T	T	T	T	T	T	T	T	TR	L
Maximum Queue (ft)	144	211	209	187	76	108	73	153	203	221	180	99
Average Queue (ft)	76	42	63	47	6	10	5	21	53	71	56	38
95th Queue (ft)	127	156	184	167	47	63	47	90	142	172	147	83
Link Distance (ft)		154	154	154	166	166	166	282	282	282	282	690
Upstream Blk Time (%)	0	1	4	3	0	0	0		0	0		
Queuing Penalty (veh)	0	9	21	15	0	1	1		0	0		
Storage Bay Dist (ft)	200											
Storage Blk Time (%)	0	1										
Queuing Penalty (veh)	2	1										

Intersection: 3: Commercial Driveway/Woodall Road & Candlers Mountain Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	UL	T	TR	LT	R	L	R
Maximum Queue (ft)	68	217	257	106	186	194	81	35	89	237
Average Queue (ft)	11	74	107	70	82	99	16	5	63	59
95th Queue (ft)	40	172	222	112	186	208	55	24	103	163
Link Distance (ft)		249	249		106	106	363	363		2542
Upstream Blk Time (%)		0	0	2	5	7				
Queuing Penalty (veh)		1	2	0	34	46				
Storage Bay Dist (ft)	150			145					90	
Storage Blk Time (%)		1		2	5				12	1
Queuing Penalty (veh)		0		9	11				10	1

Intersection: 4: Seminole Avenue & Candlers Mountain Road

Movement	EB	EB	EB	WB	WB	NB
Directions Served	T	T	R	T	T	R
Maximum Queue (ft)	7	29	6	151	159	93
Average Queue (ft)	0	1	0	15	17	43
95th Queue (ft)	7	15	6	88	87	74
Link Distance (ft)	106	106		294	294	785
Upstream Blk Time (%)		0		0		
Queuing Penalty (veh)		0		0		
Storage Bay Dist (ft)			150			
Storage Blk Time (%)		0				
Queuing Penalty (veh)		0				

Intersection: 5: Candlers Mountain Road & Murray Place

Movement	EB	EB	EB	EB	B39	B39	B39	WB	WB	WB	WB	SB
Directions Served	L	T	T	T	T	T	T	T	T	T	TR	L
Maximum Queue (ft)	143	197	170	131	82	78	50	225	223	236	235	244
Average Queue (ft)	81	34	30	12	5	4	2	64	103	124	107	123
95th Queue (ft)	133	140	114	71	44	42	39	172	194	215	196	217
Link Distance (ft)		154	154	154	166	166	166	282	282	282	282	690
Upstream Blk Time (%)	0	2	1	1	0	0	0	0	0	0	0	
Queuing Penalty (veh)	0	10	4	4	1	1	0	0	0	0	0	
Storage Bay Dist (ft)	200											
Storage Blk Time (%)	0	2										
Queuing Penalty (veh)	1	2										

Intersection: 6: River Ridge Mall & Candlers Mountain Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	B16	NB	NB	NB
Directions Served	T	T	T	R	L	L	T	T	T	L	>	>
Maximum Queue (ft)	270	333	368	354	128	130	90	60	2	123	89	166
Average Queue (ft)	90	215	305	248	58	78	4	2	0	52	21	71
95th Queue (ft)	231	351	415	421	122	123	52	29	2	105	73	136
Link Distance (ft)	282	282	282	282			193	193	361	1934	1934	1934
Upstream Blk Time (%)	0	1	28	11			0	0				
Queuing Penalty (veh)	0	6	123	46			1	0				
Storage Bay Dist (ft)					150	150						
Storage Blk Time (%)					0	0	0	0				
Queuing Penalty (veh)					0	1	0	0				

Intersection: 7: Candlers Mountain Road & Mayflower Drive

Movement	EB	EB	EB	EB	B16	B16	B16	WB	WB	WB	WB	B18
Directions Served	L	T	T	R		T	T	L	T	T	R	T
Maximum Queue (ft)	128	212	278	125	36	77	39	274	456	475	375	181
Average Queue (ft)	29	66	61	20	1	7	2	79	246	271	101	23
95th Queue (ft)	92	164	185	93	16	40	22	250	447	462	341	183
Link Distance (ft)		361	361		193	193	193		392	392		1110
Upstream Blk Time (%)			0			0			3	3	0	
Queuing Penalty (veh)			1			0			30	32	0	
Storage Bay Dist (ft)	325			125				275			375	
Storage Blk Time (%)			1	0				0	5	3	0	
Queuing Penalty (veh)			6	1				1	11	12	3	

Intersection: 7: Candlers Mountain Road & Mayflower Drive

Movement	B18	SB	SB	SB
Directions Served	T	L	LT	R
Maximum Queue (ft)	248	126	209	146
Average Queue (ft)	31	40	107	52
95th Queue (ft)	224	94	181	110
Link Distance (ft)	1110		3309	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		470		270
Storage Blk Time (%)			0	0
Queuing Penalty (veh)			0	0

Intersection: 6: River Ridge Mall & Candlers Mountain Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	B16	B16	NB
Directions Served	T	T	T	R	L	L	T	T	R	T	T	L
Maximum Queue (ft)	289	342	358	346	143	150	264	226	18	153	182	680
Average Queue (ft)	158	234	282	235	109	119	80	27	1	13	11	406
95th Queue (ft)	294	340	383	390	167	165	251	141	18	89	98	740
Link Distance (ft)	282	282	282	282			193	193		361	361	1934
Upstream Blk Time (%)	0	2	12	6			5	1	0	0	0	
Queuing Penalty (veh)	1	11	54	27			46	8	0	0	2	
Storage Bay Dist (ft)					150	150			180			
Storage Blk Time (%)					1	5	5	1	0			
Queuing Penalty (veh)					4	37	12	0	0			

Intersection: 6: River Ridge Mall & Candlers Mountain Road

Movement	NB	NB
Directions Served	>	>
Maximum Queue (ft)	247	257
Average Queue (ft)	98	134
95th Queue (ft)	193	220
Link Distance (ft)	1934	1934
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: Candlers Mountain Road & Mountain View Road/US 501 Entrance Ramp

Movement	EB	NB	NB	SB	SB	SB
Directions Served	R	L	TR	LT	T	R
Maximum Queue (ft)	8	49	380	52	4	50
Average Queue (ft)	0	18	39	6	0	8
95th Queue (ft)	0	51	202	29	3	34
Link Distance (ft)	277		2806	861	861	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		50				150
Storage Blk Time (%)		7	1			
Queuing Penalty (veh)		39	1			

Intersection: 9: Candlers Mountain Road & SB Lynchburg Expressway

Movement	EB	EB	WB	WB	B29	B29	SB	SB	SB
Directions Served	T	T	T	T	T	T	L	L	R
Maximum Queue (ft)	237	256	159	197	2	21	282	339	216
Average Queue (ft)	91	111	52	73	0	1	150	194	52
95th Queue (ft)	190	211	121	157	2	22	255	296	136
Link Distance (ft)	294	294	432	432	258	258		692	
Upstream Blk Time (%)	0	0							
Queuing Penalty (veh)	0	0							
Storage Bay Dist (ft)							300		300
Storage Blk Time (%)							0	1	0
Queuing Penalty (veh)							0	2	0

Intersection: 10: Candlers Mountain Road & NB Lynchburg Expressway

Movement	EB	EB	EB	WB	WB	WB	B39	B39	B39	B39
Directions Served	UL	T	T	T	T	R		T	T	T
Maximum Queue (ft)	120	7	10	225	259	256	100	172	200	179
Average Queue (ft)	47	0	0	49	132	92	6	25	39	25
95th Queue (ft)	98	7	10	179	302	257	52	100	131	104
Link Distance (ft)		258	258	166	166	166	154	154	154	154
Upstream Blk Time (%)				1	9	6	0	0	1	0
Queuing Penalty (veh)				6	46	29	0	2	4	2
Storage Bay Dist (ft)	250									
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 7: Candlers Mountain Road & Mayflower Drive

Movement	EB	EB	EB	EB	B16	B16	B16	WB	WB	WB	WB	B18
Directions Served	L	T	T	R		T	T	L	T	T	R	T
Maximum Queue (ft)	296	437	436	125	200	279	242	274	468	466	375	131
Average Queue (ft)	24	235	246	84	23	71	56	45	253	267	57	7
95th Queue (ft)	148	449	468	179	124	236	215	186	443	452	270	51
Link Distance (ft)		361	361		193	193	193		392	392		1110
Upstream Blk Time (%)		5	7		0	2	1		3	3	0	
Queuing Penalty (veh)		51	68		3	15	9		27	30	0	
Storage Bay Dist (ft)	325			125				275			375	
Storage Blk Time (%)	0	7	14	1				0	7	3	0	
Queuing Penalty (veh)	0	4	82	9				0	6	8	2	

Intersection: 7: Candlers Mountain Road & Mayflower Drive

Movement	B18	SB	SB	SB
Directions Served	T	L	LT	R
Maximum Queue (ft)	167	362	461	270
Average Queue (ft)	10	162	193	119
95th Queue (ft)	74	289	350	252
Link Distance (ft)	1110		3309	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		470		270
Storage Blk Time (%)		0	3	1
Queuing Penalty (veh)		0	14	4

Intersection: 8: Candlers Mountain Road & Mountain View Road/US 501 Entrance Ramp

Movement	EB	NB	NB	SB	SB
Directions Served	R	L	TR	LT	R
Maximum Queue (ft)	3	36	48	50	12
Average Queue (ft)	0	7	2	5	0
95th Queue (ft)	3	28	20	27	5
Link Distance (ft)	277		2806	861	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		50			150
Storage Blk Time (%)		0	0		
Queuing Penalty (veh)		1	0		

Intersection: 14: Candlers Mountain Road

Movement	SE	SE	B18	B18	NW
Directions Served	T	R	T	T	T
Maximum Queue (ft)	5	39	27	33	6
Average Queue (ft)	0	2	1	1	0
95th Queue (ft)	5	19	28	26	6
Link Distance (ft)	1110	1110	392	392	3659
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 479

Intersection: 9: Candlers Mountain Road & SB Lynchburg Expressway

Movement	EB	EB	WB	WB	B29	B29	SB	SB	SB
Directions Served	T	T	T	T	T	T	L	L	R
Maximum Queue (ft)	258	259	230	259	55	22	297	404	298
Average Queue (ft)	108	111	77	88	2	1	174	224	119
95th Queue (ft)	213	213	187	208	41	23	282	340	247
Link Distance (ft)	294	294	432	432	258	258		692	
Upstream Blk Time (%)	0	0			0				
Queuing Penalty (veh)	0	0			0				
Storage Bay Dist (ft)							300		300
Storage Blk Time (%)							0	2	0
Queuing Penalty (veh)							0	7	1

Intersection: 10: Candlers Mountain Road & NB Lynchburg Expressway

Movement	EB	EB	EB	WB	WB	WB	B39	B39	B39	B39
Directions Served	UL	T	T	T	T	R		T	T	T
Maximum Queue (ft)	210	164	85	231	256	229	146	183	177	120
Average Queue (ft)	106	11	4	58	107	41	11	39	35	14
95th Queue (ft)	184	84	46	192	275	165	75	133	118	72
Link Distance (ft)		258	258	166	166	166	154	154	154	154
Upstream Blk Time (%)	0			1	6	1	0	1	0	0
Queuing Penalty (veh)	0			6	36	9	1	4	2	0
Storage Bay Dist (ft)	250									
Storage Blk Time (%)	0	0								
Queuing Penalty (veh)	1	0								

Intersection: 14: Candlers Mountain Road

Movement	SE	SE	B18	B18	B18	NW
Directions Served	T	R	T	T		T
Maximum Queue (ft)	15	111	27	84	5	4
Average Queue (ft)	1	5	1	3	0	0
95th Queue (ft)	9	60	28	47	5	4
Link Distance (ft)	1110	1110	392	392	392	3659
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 745

Intersection: 1: Wards Road & Sheffield Drive/Candlers Mountain Road

Movement	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	TR	L	T	R	R	L	T	TR	L	L	T
Maximum Queue (ft)	84	143	96	154	130	116	72	154	179	238	241	142
Average Queue (ft)	38	74	35	58	48	48	23	78	93	116	143	50
95th Queue (ft)	78	122	79	120	102	99	56	129	148	191	210	105
Link Distance (ft)		5228		464	464			5218	5218			5238
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	400		300			275	175			275	275	
Storage Blk Time (%)								0		0	0	0
Queuing Penalty (veh)								0		0	0	0

Intersection: 1: Wards Road & Sheffield Drive/Candlers Mountain Road

Movement	SB
Directions Served	TR
Maximum Queue (ft)	144
Average Queue (ft)	72
95th Queue (ft)	123
Link Distance (ft)	5238
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Commercial Driveway/Short Street & Candlers Mountain Road

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	L	LTR	LTR
Maximum Queue (ft)	27	65	27	48	50
Average Queue (ft)	2	2	3	15	15
95th Queue (ft)	14	60	17	43	44
Link Distance (ft)		464		352	342
Upstream Blk Time (%)		0			
Queuing Penalty (veh)		0			
Storage Bay Dist (ft)	150		135		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 1: Wards Road & Sheffield Drive/Candlers Mountain Road

Movement	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	TR	L	T	R	R	L	T	TR	L	L	T
Maximum Queue (ft)	206	237	269	252	271	256	172	275	292	257	263	301
Average Queue (ft)	92	123	139	109	141	139	67	157	181	146	174	124
95th Queue (ft)	168	206	241	205	238	228	151	240	261	239	252	209
Link Distance (ft)		5228		464	464			5218	5218			5238
Upstream Blk Time (%)				0								
Queuing Penalty (veh)				0								
Storage Bay Dist (ft)	400		300			275	175			275	275	
Storage Blk Time (%)			0	0	0	0	0	6		0	0	0
Queuing Penalty (veh)			0	0	1	0	0	5		0	1	1

Intersection: 1: Wards Road & Sheffield Drive/Candlers Mountain Road

Movement	SB
Directions Served	TR
Maximum Queue (ft)	240
Average Queue (ft)	141
95th Queue (ft)	209
Link Distance (ft)	5238
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Commercial Driveway/Short Street & Candlers Mountain Road

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	TR	L	TR	LTR	LTR
Maximum Queue (ft)	36	3	45	30	5	69	80
Average Queue (ft)	7	0	2	3	0	17	25
95th Queue (ft)	29	3	21	18	4	54	63
Link Distance (ft)		464	464		249	352	342
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150			135			
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: Commercial Driveway/Woodall Road & Candlers Mountain Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	UL	T	TR	LT	R	L	R
Maximum Queue (ft)	107	220	248	105	178	186	69	54	86	64
Average Queue (ft)	22	61	98	64	57	86	12	16	31	12
95th Queue (ft)	67	165	220	107	147	192	44	44	72	41
Link Distance (ft)		249	249		106	106	363	363		2542
Upstream Blk Time (%)		0	1	1	2	5				
Queuing Penalty (veh)		1	2	0	10	26				
Storage Bay Dist (ft)	150			145					90	
Storage Blk Time (%)	0	1		1	2				2	0
Queuing Penalty (veh)	0	0		3	5				0	0

Intersection: 4: Seminole Avenue & Candlers Mountain Road

Movement	EB	EB	EB	WB	WB	NB
Directions Served	T	T	R	T	T	R
Maximum Queue (ft)	15	38	28	40	110	148
Average Queue (ft)	1	3	1	2	8	64
95th Queue (ft)	12	20	15	23	54	115
Link Distance (ft)	106	106		294	294	785
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			150			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: Candlers Mountain Road & Murray Place

Movement	EB	EB	EB	EB	B39	B39	B39	WB	WB	WB	WB	SB
Directions Served	L	T	T	T	T	T	T	T	T	T	TR	L
Maximum Queue (ft)	153	233	258	252	232	266	325	155	206	264	192	105
Average Queue (ft)	88	136	201	195	115	163	186	17	49	74	57	39
95th Queue (ft)	149	271	305	302	275	334	402	93	138	182	150	85
Link Distance (ft)		154	154	154	166	166	166	282	282	282	282	690
Upstream Blk Time (%)	1	9	63	51	8	42	36	0	0	0	0	
Queuing Penalty (veh)	0	63	427	349	57	285	244	0	1	2	1	
Storage Bay Dist (ft)	200											
Storage Blk Time (%)	1	9										
Queuing Penalty (veh)	3	10										

Intersection: 3: Commercial Driveway/Woodall Road & Candlers Mountain Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	UL	T	TR	LT	R	L	R
Maximum Queue (ft)	111	266	297	106	194	200	84	39	89	314
Average Queue (ft)	18	103	138	78	113	126	19	6	64	86
95th Queue (ft)	68	216	271	117	218	230	58	26	104	228
Link Distance (ft)		249	249		106	106	363	363		2542
Upstream Blk Time (%)		0	2	2	10	11				
Queuing Penalty (veh)		1	9	0	77	83				
Storage Bay Dist (ft)	150			145					90	
Storage Blk Time (%)	0	4		2	10				15	2
Queuing Penalty (veh)	0	1		14	26				15	3

Intersection: 4: Seminole Avenue & Candlers Mountain Road

Movement	EB	EB	EB	WB	WB	NB
Directions Served	T	T	R	T	T	R
Maximum Queue (ft)	49	69	48	288	279	122
Average Queue (ft)	3	6	2	33	38	51
95th Queue (ft)	25	34	24	156	161	91
Link Distance (ft)	106	106		294	294	785
Upstream Blk Time (%)	0	0	0	1	0	
Queuing Penalty (veh)	0	0	0	6	3	
Storage Bay Dist (ft)			150			
Storage Blk Time (%)		0	0			
Queuing Penalty (veh)		0	0			

Intersection: 5: Candlers Mountain Road & Murray Place

Movement	EB	EB	EB	EB	B39	B39	B39	WB	WB	WB	WB	SB
Directions Served	L	T	T	T	T	T	T	T	T	T	TR	L
Maximum Queue (ft)	154	252	247	239	234	260	307	283	274	303	253	516
Average Queue (ft)	103	116	122	104	61	72	74	116	161	183	165	278
95th Queue (ft)	167	281	274	266	213	242	265	226	251	273	255	538
Link Distance (ft)		154	154	154	166	166	166	282	282	282	282	690
Upstream Blk Time (%)	1	16	24	21	8	13	11	0	0	1	0	3
Queuing Penalty (veh)	0	106	159	139	51	85	67	0	1	3	0	0
Storage Bay Dist (ft)	200											
Storage Blk Time (%)	1	16										
Queuing Penalty (veh)	9	18										

Intersection: 6: River Ridge Mall & Candlers Mountain Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	B16	B16	NB	NB
Directions Served	T	T	T	R	L	L	T	T	T	T	L	>
Maximum Queue (ft)	291	352	387	381	131	134	147	104	39	44	135	135
Average Queue (ft)	168	286	348	337	66	81	7	6	3	3	59	32
95th Queue (ft)	342	369	382	398	128	124	68	59	55	55	118	97
Link Distance (ft)	282	282	282	282			193	193	361	361	1934	1934
Upstream Blk Time (%)	1	6	75	43			0	0	0	0		
Queuing Penalty (veh)	3	31	372	213			4	3	1	1		
Storage Bay Dist (ft)					150	150						
Storage Blk Time (%)					0	0	1	0				
Queuing Penalty (veh)					0	2	1	0				

Intersection: 6: River Ridge Mall & Candlers Mountain Road

Movement	NB
Directions Served	>
Maximum Queue (ft)	189
Average Queue (ft)	94
95th Queue (ft)	167
Link Distance (ft)	1934
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: River Ridge Mall & Candlers Mountain Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	B16	B16	NB
Directions Served	T	T	T	R	L	L	T	T	R	T	T	L
Maximum Queue (ft)	340	369	378	367	144	149	280	261	18	221	215	1460
Average Queue (ft)	237	301	328	304	121	129	134	58	1	37	24	881
95th Queue (ft)	360	395	397	415	168	168	330	215	18	155	133	1597
Link Distance (ft)	282	282	282	282			193	193		361	361	1934
Upstream Blk Time (%)	4	19	44	29			9	1		0		2
Queuing Penalty (veh)	20	97	219	145			84	14		0		0
Storage Bay Dist (ft)					150	150			180			
Storage Blk Time (%)					1	9	5	1				
Queuing Penalty (veh)					8	68	16	1				

Intersection: 6: River Ridge Mall & Candlers Mountain Road

Movement	NB	NB
Directions Served	>	>
Maximum Queue (ft)	1307	922
Average Queue (ft)	425	303
95th Queue (ft)	1310	815
Link Distance (ft)	1934	1934
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Candlers Mountain Road & Mayflower Drive

Movement	EB	EB	EB	EB	B16	B16	B16	WB	WB	WB	WB	B18
Directions Served	L	T	T	R		T	T	L	T	T	R	T
Maximum Queue (ft)	198	274	375	125	40	140	125	275	472	488	375	956
Average Queue (ft)	51	84	94	31	2	14	9	136	399	410	262	357
95th Queue (ft)	155	206	275	118	25	81	75	335	559	560	526	1039
Link Distance (ft)		361	361		193	193	193		392	392		1110
Upstream Blk Time (%)		0	1			0	0		15	15	0	0
Queuing Penalty (veh)		1	8			0	0		190	189	0	3
Storage Bay Dist (ft)	325			125				275			375	
Storage Blk Time (%)	0	0	1	0				0	17	14	2	
Queuing Penalty (veh)	0	0	14	2				2	35	67	14	

Intersection: 7: Candlers Mountain Road & Mayflower Drive

Movement	B18	SB	SB	SB
Directions Served	T	L	LT	R
Maximum Queue (ft)	1003	207	308	229
Average Queue (ft)	398	63	135	78
95th Queue (ft)	1108	163	264	180
Link Distance (ft)	1110		3309	
Upstream Blk Time (%)	1			
Queuing Penalty (veh)	10			
Storage Bay Dist (ft)		470		270
Storage Blk Time (%)		0	2	0
Queuing Penalty (veh)		0	3	0

Intersection: 8: Candlers Mountain Road & Mountain View Road/US 501 Entrance Ramp

Movement	EB	NB	NB	SB	SB	SB
Directions Served	R	L	TR	LT	T	R
Maximum Queue (ft)	3	49	1014	84	33	48
Average Queue (ft)	0	21	188	13	2	10
95th Queue (ft)	4	56	821	53	27	36
Link Distance (ft)	277		2806	861	861	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		50				150
Storage Blk Time (%)		16	8		0	
Queuing Penalty (veh)		99	8		0	

Intersection: 7: Candlers Mountain Road & Mayflower Drive

Movement	EB	EB	EB	EB	B16	B16	B16	WB	WB	WB	WB	B18
Directions Served	L	T	T	R		T	T	L	T	T	R	T
Maximum Queue (ft)	324	440	440	125	257	284	277	275	484	490	375	943
Average Queue (ft)	54	300	315	101	75	159	127	83	387	392	198	267
95th Queue (ft)	237	511	522	181	240	359	324	264	568	572	501	867
Link Distance (ft)		361	361		193	193	193		392	392		1110
Upstream Blk Time (%)		10	13		2	8	4		18	18	0	0
Queuing Penalty (veh)		111	141		17	60	30		192	192	0	2
Storage Bay Dist (ft)	325			125				275			375	
Storage Blk Time (%)	0	12	17	2				0	21	18	1	
Queuing Penalty (veh)	0	8	116	13				1	18	44	8	

Intersection: 7: Candlers Mountain Road & Mayflower Drive

Movement	B18	SB	SB	SB
Directions Served	T	L	LT	R
Maximum Queue (ft)	960	415	671	270
Average Queue (ft)	283	205	260	158
95th Queue (ft)	894	372	583	291
Link Distance (ft)	1110		3309	
Upstream Blk Time (%)	1			
Queuing Penalty (veh)	5			
Storage Bay Dist (ft)		470		270
Storage Blk Time (%)		0	9	1
Queuing Penalty (veh)		1	40	6

Intersection: 8: Candlers Mountain Road & Mountain View Road/US 501 Entrance Ramp

Movement	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	T	R
Maximum Queue (ft)	36	46	80	55	15
Average Queue (ft)	7	4	11	3	1
95th Queue (ft)	28	25	48	29	6
Link Distance (ft)		2806	861	861	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	50				150
Storage Blk Time (%)	0	0			
Queuing Penalty (veh)	2	0			

Intersection: 9: Candlers Mountain Road & SB Lynchburg Expressway

Movement	EB	EB	WB	WB	B29	B29	SB	SB	SB
Directions Served	T	T	T	T	T	T	L	L	R
Maximum Queue (ft)	273	296	185	223	26	28	300	438	282
Average Queue (ft)	126	144	64	86	1	1	171	225	67
95th Queue (ft)	243	267	147	181	26	29	284	343	180
Link Distance (ft)	294	294	432	432	258	258		692	
Upstream Blk Time (%)	0	0			0	0			
Queuing Penalty (veh)	1	2			0	0			
Storage Bay Dist (ft)							300		300
Storage Blk Time (%)							0	2	0
Queuing Penalty (veh)							0	7	1

Intersection: 10: Candlers Mountain Road & NB Lynchburg Expressway

Movement	EB	EB	EB	B29	B29	WB	WB	WB	B39	B39	B39	B39
Directions Served	UL	T	T	T	T	T	T	R		T	T	T
Maximum Queue (ft)	196	236	292	194	207	245	266	250	130	175	206	177
Average Queue (ft)	75	92	128	49	62	76	164	119	11	36	57	35
95th Queue (ft)	177	308	367	254	280	231	333	292	70	124	162	121
Link Distance (ft)		258	258	432	432	166	166	166	154	154	154	154
Upstream Blk Time (%)	0	5	20	1	2	3	14	9	0	1	2	1
Queuing Penalty (veh)	0	35	145	9	14	16	81	54	1	3	7	2
Storage Bay Dist (ft)	250											
Storage Blk Time (%)	0	5										
Queuing Penalty (veh)	0	8										

Intersection: 10: Candlers Mountain Road & NB Lynchburg Expressway

Movement	NB
Directions Served	R
Maximum Queue (ft)	656
Average Queue (ft)	275
95th Queue (ft)	902
Link Distance (ft)	965
Upstream Blk Time (%)	11
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Candlers Mountain Road & SB Lynchburg Expressway

Movement	EB	EB	WB	WB	B29	B29	B29	SB	SB	SB
Directions Served	T	T	T	T	T	T	T	L	L	R
Maximum Queue (ft)	296	303	330	327	30	29	44	299	536	300
Average Queue (ft)	138	145	108	120	1	1	2	195	254	151
95th Queue (ft)	262	270	248	257	28	27	32	301	412	293
Link Distance (ft)	294	294	432	432	258	258	258		692	
Upstream Blk Time (%)	0	1	0	0	0				0	
Queuing Penalty (veh)	2	3	0	0	0				0	
Storage Bay Dist (ft)								300		300
Storage Blk Time (%)								0	3	0
Queuing Penalty (veh)								1	14	2

Intersection: 10: Candlers Mountain Road & NB Lynchburg Expressway

Movement	EB	EB	EB	B29	B29	WB	WB	WB	B39	B39	B39	B39
Directions Served	UL	T	T	T	T	T	T	R		T	T	T
Maximum Queue (ft)	244	297	271	139	139	233	258	240	195	222	212	169
Average Queue (ft)	147	58	45	11	12	76	151	71	31	81	75	33
95th Queue (ft)	239	229	203	105	109	227	325	220	131	212	183	121
Link Distance (ft)		258	258	432	432	166	166	166	154	154	154	154
Upstream Blk Time (%)	0	2	3	0	0	1	10	2	1	3	1	0
Queuing Penalty (veh)	0	17	26	1	1	10	66	13	4	15	7	1
Storage Bay Dist (ft)	250											
Storage Blk Time (%)	1	2										
Queuing Penalty (veh)	4	5										

Intersection: 10: Candlers Mountain Road & NB Lynchburg Expressway

Movement	NB
Directions Served	R
Maximum Queue (ft)	279
Average Queue (ft)	35
95th Queue (ft)	221
Link Distance (ft)	965
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 14: Candlers Mountain Road

Movement	SE	SE	B18	B18	NW	NW
Directions Served	T	R	T	T	T	T
Maximum Queue (ft)	6	33	6	5	452	748
Average Queue (ft)	0	2	0	0	97	116
95th Queue (ft)	6	19	6	4	582	690
Link Distance (ft)	1110	1110	392	392	3659	3659
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 3154

Intersection: 14: Candlers Mountain Road

Movement	SE	SE	B18	B18	B18	NW	NW
Directions Served	T	R	T	T		T	T
Maximum Queue (ft)	9	51	116	220	3	119	146
Average Queue (ft)	0	3	5	9	0	11	13
95th Queue (ft)	9	27	67	86	3	103	113
Link Distance (ft)	1110	1110	392	392	392	3659	3659
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Network Summary

Network wide Queuing Penalty: 2757

APPENDIX G – PLANNING LEVEL COST ESTIMATES

APPENDIX G-1: COST OPINION SUMMARY

Candlers Mountain Road Corridor Study
Lynchburg, Virginia
Cost Opinion Summary

Project	Assumptions	Costs in 2016 Dollars: Preliminary Engineering % of CN	R/W Acquisition	Utilities	Total R/W & Utility Relocation	CEI % of CN	Mobilization & Construction Surveying	Construction CN	Total Construction	Total Cost Opinion
Project 1		$ 2,157,560	$ 2,403,187	$ 2,697,000	$ 5,100,187	$ 2,157,560	$ 639,000	$ 10,148,800	$ 12,945,360	$ 20,203,107
Project 2		$ 3,165,660	$ 32,160	$ 270,000	$ 302,160	$ 3,165,660	$ 925,000	$ 14,903,300	$ 18,993,960	$ 22,461,780
Project 3		$ 1,000,000	$ 95,155	$ 875,500	$ 970,655	$ 700,115	$ 227,000	$ 3,273,575	$ 4,200,690	$ 6,171,345
Project 4		$ 700,000	$ 21,141	$ 264,000	$ 285,141	$ 263,750	$ 88,000	$ 967,000	$ 1,318,750	$ 2,303,891
	Totals	$ 7,023,220	$ 2,551,642	$ 4,106,500	$ 6,658,142	$ 6,287,085	$ 1,879,000	$ 29,292,675	$ 37,458,760	$ 51,140,122

Project Description

Project 1: Wards Road Intersection and Access Management Improvements

Project 2: Lynchburg Expressway Ramps and Ramp Terminal Improvements

Project 3: Murry Place and River Ridge Mall CGT Intersection Improvements

Project 4: Mayflower Drive Intersection Improvements