Appendix C – Traffic Analysis Report

Traffic Report

SC Highway 41 Corridor Improvements Project
Charleston and Berkeley Counties, South Carolina

September 2022

Prepared for
HDR Engineering Inc. of the Carolinas

Prepared by

Stantec

Table of Contents

Figures

Tables

Appendices

1 Introduction & Background

1.1 Project Description

The purpose of this report is to present the results of the traffic analysis for the proposed SC Highway 41 (SC 41) Corridor Improvements Project. The project traffic study corridors, illustrated in **Figure 1**, have been defined as:

- A corridor of SC 41 from US Highway 17 (US 17) in Mount Pleasant across the new Wando River Bridge to Clements Ferry Road in Berkeley County.
- A route formed by Bessemer Road, along with portions of Park West Boulevard and Dunes West Boulevard, forming a route around the east side of the historic Phillips Community.
- Park West Boulevard from Bessemer Road to US 17.
- US 17 from Six Mile Road to Park West Boulevard.
- Six Mile Road, Hamlin Road and Porchers Bluff Road between US 17 and Billy Swails Boulevard.
- Billy Swails Boulevard from Porchers Bluff Road and Six Mile Road.

These corridors were included in the detailed study and included in a microsimulation model discussed in more detail later in this report. While the focus of the project is to improve the capacity of SC 41 from US 17 to the Wando River, the following components were included to allow the dynamic traffic assignment capability of the microsimulation model to assign trips to alternative parallel routes (this was intended to take full advantage of the overall roadway network and also inform project stakeholders on the project's traffic impacts on other roads in the network):

- Dunes West Boulevard, Bessemer Road and Park West Boulevard segments between SC 41 and US 17, as a parallel alternative to SC 41.
- Billy Swails Boulevard from Porchers Bluff Road to Six Mile Road, as a parallel alternative to US 17.

This study identified the intersection of US Highway 17 and SC Highway 41 as a system bottleneck. If the capacity of SC 41 is increased, latent demand (that is, demand that cannot get through the study area network due to the currently constrained capacity) will further overload this intersection. In response, this study includes improvements to US 17 within an area of influence of this major intersection.

1.2 Purpose and Need

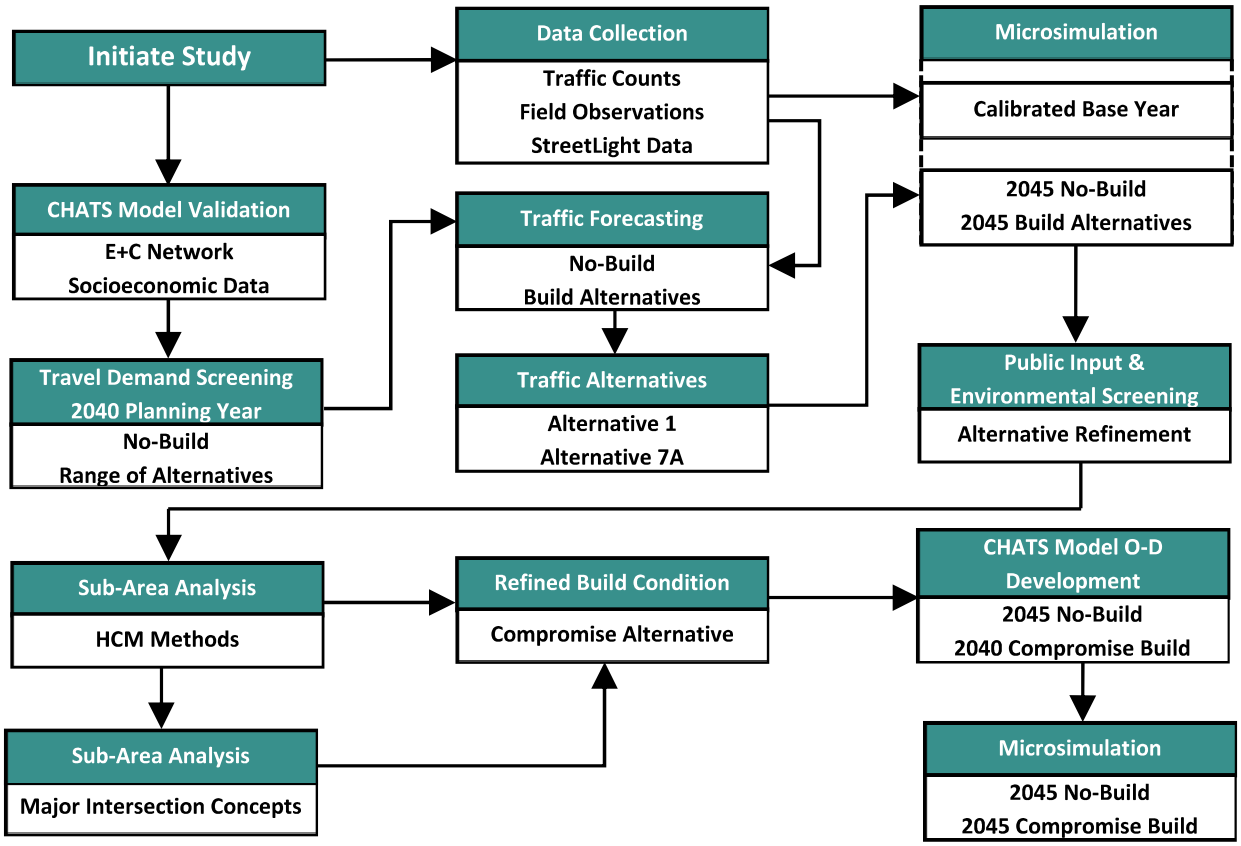
The primary purpose of the proposed SC 41 Corridor Improvements Project is to reduce traffic congestion within the SC 41 corridor to accommodate future traffic projections. The secondary purposes of the proposed SC 41 Corridor Improvements Project are to enhance safety throughout the corridor, improve transportation system and community connections, and provide bicycle and pedestrian accommodations, while minimizing community and environmental impacts. The proposed project is needed to address anticipated local and regional growth, increased traffic congestion, safety and emergency response concerns, and inadequate interconnections of transportation modes, including pedestrian and bicycle facilities.

Figure 1: Traffic Analysis Study Network

1.3 Traffic Analysis and Study Process

The process for completing the traffic study for the project is illustrated in **Figure 2**. The Charleston Area Transportation Study (CHATS) Travel Demand Model (CHATS Model), developed and maintained by the Berkeley Charleston Dorchester Council of Governments (BCDCOG), was validated for use in forecasting future traffic volumes in the project area.

Figure 2: Traffic Study Process



This study provides a description of existing conditions, the screening of a range of alternatives and factors affecting growth and distribution of traffic through the design year of 2045. These factors include planned future development and transportation improvements. These factors are captured in the process of Travel Demand Modeling, using the regional CHATS model, which performs trip generation, trip distribution, modal split and traffic assignments. The BCDCOG authorized Stantec Consulting Services Inc. use of the model for the purposes of this study.

Trip generation is the process of determining how many trips are created by a particular land use, present or future. Trip distribution is the determination of their origins and destinations. Modal split is the anticipated choice of mode (walk, ride, drive, etc.) that will be used for the trip. Traffic assignment is the determination of the route the trip will use.

2 Growth & Traffic Forecasting

2.1 Traffic Forecasting Considerations

Forecasting design year traffic for the primary corridors of SC 41 and US 17, and the parallel or connecting corridors shown in **Figure 1** involved a process that took several important factors into considerations, including:

- The SC 41 corridor connects to areas of current and potential future high growth.
- Two roadways connecting to SC 41, US 17 and Clements Ferry Road, are also areas of future high growth.
- Other planned and committed roadway projects in the area will have an effect on the distribution of traffic and consequently, on the future forecast under both build and no-build conditions.
- The traffic forecast for the corridors in this network may vary among the alternatives being considered.

2.1.1 Travel Demand Modeling Preparation

The version of the CHATS Model utilized for travel demand modeling was obtained from BCDCOG in June 2017. This version had recently been updated, and included the updated road network reflecting committed projects, and updated socioeconomic (SE) data reflecting certain mega development projects in the BCDCOG region.

Stantec evaluated the roadway network within the immediate vicinity of the SC 41 corridor including the committed projects for future forecasts. In addition, a review was completed of the socioeconomic data within traffic analysis zones (TAZ) that border or were assumed to contribute traffic to SC 41, US 17 and Clements Ferry Road. The CHATS model did not yet include all of the growth projections made by the Town of Mount Pleasant or Berkeley County Planning Departments. Stantec obtained the SE data forecasts by TAZ through 2040 from the Town of Mount Pleasant and updated the CHATS model SE data accordingly. A meeting was also held with Berkeley County and City of Charleston planners to obtain input on growth along Clements Ferry Road and on that portion of SC 41 north of the Wando River.

A major development identified in these coordination meetings was the Cainhoy Plantation, which is planned to be located on either side of Clements Ferry Road and comprised of 9,325 acres of future mixed-use development including residences, public schools, retail shops, restaurants and office space. The development plan approved by the City of Charleston originally included up to 18,000 residential units in this development. During the process of travel demand modeling, the developer provided notice that the intensity of the development would be reduced by approximately fifty percent (50%). This was also updated in the corresponding TAZs in the CHATS model.

Stantec also reviewed the location of TAZ centroid connectors, which determine where the trips generated within that TAZ are loaded onto the network. With developments the size of Cainhoy Plantation, this was found to have a substantial effect on how the generated trips are split between SC 41 (toward US 17) and Clements Ferry Road (toward I-526). The connectors for the TAZ's on each side of Clements Ferry Road were adjusted to approximate a combination of the entrances in the Cainhoy Plantation master development plan, resulting in approximately 24% of the trips contributing to growth on SC 41, and 76% contributing to trips west of the connectors on Clements Ferry Road.

Another major development related generator for the SC 41 study area is Mount Pleasant's largest subdivision, Carolina Park. Through June 2015, the TAZ containing Carolina Park indicated that 355 residential units were completed. Full buildout is forecast by 2040, with 2,049 residential units. School enrollment and commercial space is expected to grow accordingly. This will have a greater impact on the volume along US 17 through the intersection with SC 41. The daily traffic volume on US 17 north of SC 41 was approximately 30,000 vehicles per day in 2015, and is forecast to double by the year 2040, according to the CHATS model.

Finally, the TAZ that includes the Liberty Hill development along the east side of Rifle Range Road is expected to add 979 housing units between 2015 and 2040. This growth is significant to capacity of intersections along US 17, including Porchers Bluff Road, SC 41, Hamlin Road, Long Point Road and Six Mile Road.

Figure 3 shows the number of housing units within each zone as of June 2015, and the forecasted number of housing units in 2040. The source areas of potential future growth are also shown in **Table 1**. There are other land uses that are accounted for within the CHATS model's trip generation process, but the values shown in **Figure 3** reflect the relative magnitude of potential growth in trips for the study area.

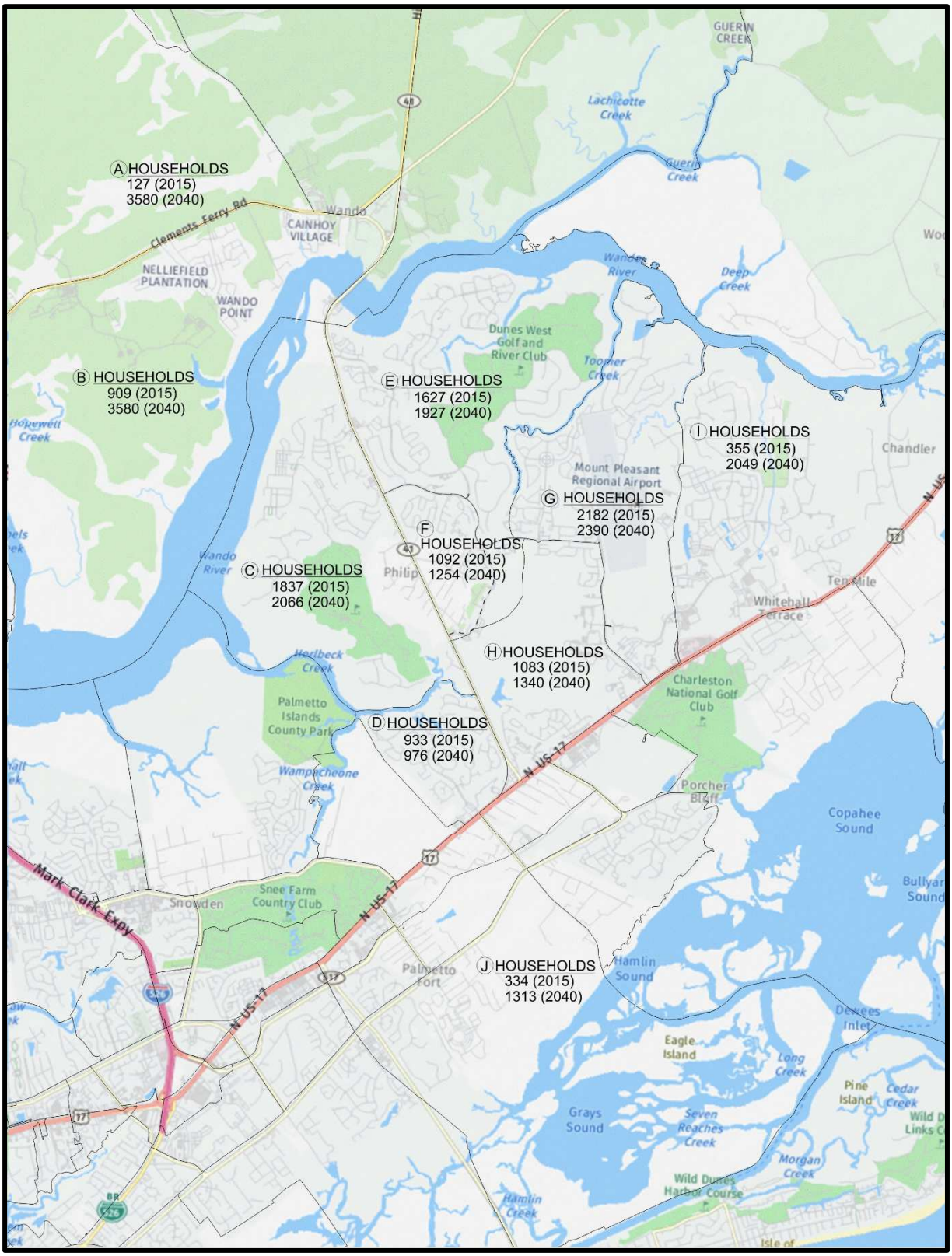
Table 1: Source Areas of Potential Housing Growth in the Study Area

Map #	TAZ #	Community	Year 2015 Units	Year 2040 Units	Increase	% of Increase**
A	1157	Cainhoy Plantation	127	3,580*	3,453	34.5%
B	1156	Cainhoy Plantation	909	3,580*	2,671	26.7%
C	548	Planters Pointe	1,837	2,066	229	2.3%
		Rivertowne				
		Phillips Community (West)				
D	549	Horlbeck Creek	933	976	43	0.4%
		Brickyard Plantation				
E	561	Dunes West	1,627	1,927	300	3.0%
F	560	Phillips Community (East)	1,092	1,254	162	1.6%
G	558	Park West	2,182	2,390	208	2.1%
H	559	Gregorie Ferry	1,083	1,340	257	2.6%
I	557	Carolina Park	355	2,049	1,694	16.9%
J	503	Liberty Hill	334	1,313	979	9.8%
TOTALS					**9,996**	**100.0%**

**Future housing estimates provided by the Daniel Island Company and exclude areas dedicated for a conservation easement. Total forecast for Cainhoy Plantation was split evenly between TAZ 1156 and 1157.*

*** Represents the percentage of the total projected study area growth that will occur within this TAZ. For example, the projected growth in housing units within TAZ 1157 represents 34.5% of the total projected study area growth.*

Figure 3: Source Areas of Potential Housing Growth in the Study Area



2.1.2 Committed Projects for Travel Demand Forecasting

Future committed projects must be considered in the development of future traffic forecasts. Projects that add capacity to the network by virtue of a widened or new roadway will affect the growth of traffic in the study corridors. The following projects were considered completed in the 2045 design year:

- **Billy Swails Boulevard from Six Mile Road to Hamlin Road** – This is the final section of the Hungryneck Boulevard corridor from the eastern terminus of I-526 to Porchers Bluff Road, north of SC 41. This long-planned facility was designed to provide a parallel alternative to US 17.
- **US 17 to Rifle Range Connector –** This new alignment is roughly aligned with Long Point Road at US 17 and extends to Rifle Range Road on a path that is generally parallel to Six Mile Road, crossing the proposed Billy Swails Boulevard (currently under construction).
- **Park West Boulevard Widening -** The existing two-lane roadway will be widened to four lanes from Bessemer Road to Queensgate Way. This project has been completed.
- **Clements Ferry Road from Jack Primus Road to Clements Ferry Road –** This will complete the widening between SC 41 and I-526 (currently under construction).
- **526 Lowcountry Corridor –** The western portion of the 526 Lowcountry Corridor is committed, and the eastern portion, from Virginia Avenue to US 17 in Mount Pleasant is under a corridor study at this time. The prioritization of segments within the combined corridor is yet to be fully decided. The portion of the route from I-26 to Clements Ferry Road was assumed to be widened for forecasting traffic on SC 41.

2.1.3 Traffic Growth Analysis

Various segments throughout the study network were analyzed to compare the volumes among the three different sources (SCDOT, Stantec Counts, CHATS). The segments are identified by a CHATS link identification. The CHATS links were compared to the nearest SCDOT count station and Stantec count location. **Table 2** shows the SC 41 corridor analysis segments.

Table 2: SC 41 Corridor Analysis Segments

Facility	CHATS Link ID	SCDOT Station	Stantec Location	Segment Description
SC 41	4232	193	1	US 17 to Joe Rouse Road
	4620	198	2	Joe Rouse Road to Dunes West Boulevard
	4260	198	3	Dunes West Boulevard to Wando River
Bessemer Rd	2620	-	-	SC 41 to Park West Boulevard (E-W)
Park West Blvd	3477	-	-	Bessemer Road to Park West Boulevard (N-S)
Dunes West Boulevard	3503	-	-	Park West Boulevard to SC 41

A comparison of the 2015 Average Annual Daily Traffic (AADT) from the model to 2015 SCDOT and 2015 Stantec count stations reveals some significant differences for the SC 41 corridor. The magnitude of these differences varies, as shown in **Table 3**.

Table 4 shows a similar comparison for the US 17 corridor. The 2015 AADT data is from SCDOT count stations where available and supplemented by Stantec counts where it is not. SCDOT count data was not available on US 17 between Long Point Road and SC 41.

Table 3: Comparison of 2015 AADT Data in the SC 41 Corridor

Facility	Segment	CHATS 2015	SCDOT 2015	Difference from CHATS	Stantec Counts 2015	Difference from CHATS
SC 41	US 17 to Joe Rouse Rd	21,400	22,400	4.53%	26,800	24.83%
	Joe Rouse Rd to Dunes West Blvd	15,400	13,100	-17.80%	17,800	15.74%
	Dunes West Blvd to Wando River	13,100	13,100	0.26%	14,500	11.17%
Bessemer Rd	SC 41 to Park West Blvd (E-W)	4,300	-	-	-	-
Park West Blvd	Bessemer Rd to Park West Blvd (N-S)	4,200	-	-	-	-
Dunes West Blvd	Park West Blvd to SC 41	7,900	-	-	-	-

Table 4: Comparison of 2015 AADT Data Along US 17

Facility	Segment	CHATS 2015	SCDOT 2015	Difference from CHATS	Stantec Counts 2015	Difference from CHATS
US 17	South of Six Mile Rd	43,911	44,500	1.34%	55,770	27.01%
	South of Brickyard/Hamlin Rd	58,966	-	-	70,347	19.30%
	North of SC 41	41,803	37,300	-10.77%	44,320	6.02%

The magnitude of differences in Base Year AADTs indicates the need for certain assumptions to be made about the CHATS forecast for the horizon year. Stantec has made the following basic assumptions:

- SCDOT traffic counts are collected and processed in accordance with the "Traffic Monitoring Guide" published by the Federal Highway Administration (FHWA). The resulting AADT is accurate (to the relevant standard) in the vicinity of the count station.
- The CHATS model is very complex, and its calibration based on Base Year traffic volumes may result in inaccuracies for limited segments of certain roadways.
- Horizon year AADTs in the CHATS model are produced by adding new trips generated as a result of anticipated land use, capacity limitations and changes in the road network that influence travel demand in the project area.

Stantec obtained 2017 counts for comparison. **Table 5** compares the 2015 and 2017 Stantec counts.

Table 5: Comparison of 2015 and 2017 Count Data

Facility	Segment	2015 Counts	2017 Counts	Growth Rate
SC 41	US 17 to Joe Rouse Rd	26,800	26,700	-0.10%
	Joe Rouse Rd to Dunes West	17,800	18,800	2.72%
	Dunes West Blvd to Wando	14,500	15,700	4.09%

** growth is average annual linear rate.*

To capture the traffic growth generated by future development, the new trips (difference between 2015 and 2040 AADT in the CHATS model) were added to the counts taken in 2015. This is referred to as the adjusted 2040 CHATS AADT (2040 AADT***adj***), determined as follows:

2040 AADT$_{adj}$ = 2015 COUNT AADT + (2040 CHATS AADT – 2015 CHATS AADT)

The CHATS 2040 AADT$_{adj}$ for each roadway segment along SC 41 and US 17 is shown in **Table 6**.

Table 6: Adjusted CHATS 2040 AADT

Facility	Segment	CHATS		COUNTS	CHATS (adjusted)	
		2015	2040	2015	2040	Growth*
SC 41	US 17 to Joe Rouse Rd	21,400	35,000	26,752	40,300	2.02%
	Joe Rouse Rd to Dunes West Blvd	15,400	26,900	17,795	29,400	2.60%
	Dunes West Blvd to Wando River	13,100	29,400	14,525	30,900	4.51%
Bessemer Rd	SC 41 to Park West Blvd (E-W)	4,200	6,500	-	-	-
Park West Blvd	Bessemer Rd to Park West Blvd	4,200	12,000	-	-	-
Dunes West Blvd	Park West Blvd to SC 41	7,900	17,800	-	-	-
US 17	South of Six Mile Rd	43,911	65,559	55,770	77,418	1.55%
	South of Brickyard/Hamlin Rd	58,966	77,996	70,347	89,377	1.08%
	North of SC 41	41,803	63,990	44,320	66,507	2.00%

** growth is average annual linear rate.*

THIS SPACE IS INTENTIONALLY BLANK.

3 Existing Conditions & Operations

3.1 Existing Conditions

3.1.1 Existing Conditions Along SC 41

South Carolina Highway 41 (SC 41) is a two-lane suburban roadway between US Highway 17 (US 17) and Clements Ferry Road (S-8-33), with some exceptions. Near the US 17 intersection at the south end of the corridor, SC 41has up to five lanes for dedicated turning movements. Other widened areas include:

- A northbound left turn lane at Colonnade Drive
- A northbound left turn lane at Tradewind Drive
- A northbound left turn lane at Cardinal Hill Drive
- Northbound and southbound turn lanes at Joe Rouse Road
- A second southbound through lane extending approximately 1,000 feet south from Joe Rouse Road
- A northbound right turn lane at Nehemiah Road
- Northbound and southbound turn lanes at Rivertowne Parkway/Dunes West Boulevard
- Northbound and southbound turn lanes at Planters Pointe Boulevard/Wood Park Drive
- Northbound and southbound turn lanes at Harpers Ferry Way
- Northbound and southbound left and southbound right turn lanes at Shipyard Park at the Wando River

The bridge over the Wando River, south of the intersection with Clements Ferry Road, has been widened to accommodate a future four lanes. The corridor has a posted speed limits of 45 mph between US 17 and Dunes West Boulevard, 55 mph between Dunes West Boulevard and Harpers Ferry Way, and 35 mph between Harpers Ferry Way and the Wando River bridge.

3.1.2 Existing Conditions Along US 17

US Highway 17 (US 17) is a Principal Urban Arterial that is part of the Strategic Highway Network (STRAHNET). The STRAHNET is a “network of highways which are important to the United States’ strategic defense policy and which provide defense access, continuity and emergency capabilities for defense purposes. US 17 has a posted speed limit of 45 miles per hour.

The US 17 corridor was widened within the past ten years from four-lane divided to a six-lane divided with raised medians. US 17 and SC 41 are both generally north-south routes, with the intersection of US 17 and SC 41 being the southern terminus of SC 41. This is the south end of the SC 41 corridor. The fourth leg of the intersection is a minor street, Dingle Road.

At the US 17 & SC 41 intersection, the US 17 northbound approach includes three through lanes and two dedicated left turn lanes. The southbound US 17 approach includes three through lanes, a right turn lane and a left turn lane. The southbound SC 41 approach includes a dedicated left turn lane, a through/left turn lane, and a free flow right turn lane. The free-flow rights lead to a fourth southbound lane on US 17 which drops approximately 700 feet south of the intersection.

3.2 Base Year Traffic Conditions

3.2.1 Traffic Data Collection

Continuous 48-hour directional (through) volumes and peak hour turning movement counts were collected in September of 2017. Through counts and turning movement counts were performed in 15-minute increments and were classified by vehicle type. Both sets of counts were collected when school was in session to capture a typical peak weekday.

48-Hour Continuous Counts

Directional counts were collected for 48-hours on Tuesday, September 19, 2017 and Wednesday, September 20, 2017 at eight (8) locations. The eight (8) tube count locations include:

US 17: S. of 6 Mile Rd
US 17: S. of Hamlin Rd/Brickyard Pkwy
US 17: N. of Winnowing Way/Porchers Bluff
SC 41: S. of Colonnade Dr
SC 41: S. of Canyon Ln/Parkers Island Rd
SC 41: S. of Clements Ferry Rd
SC 41: N. of Planters Pointe Blvd
Clements Ferry Rd: W. of Cainhoy Rd

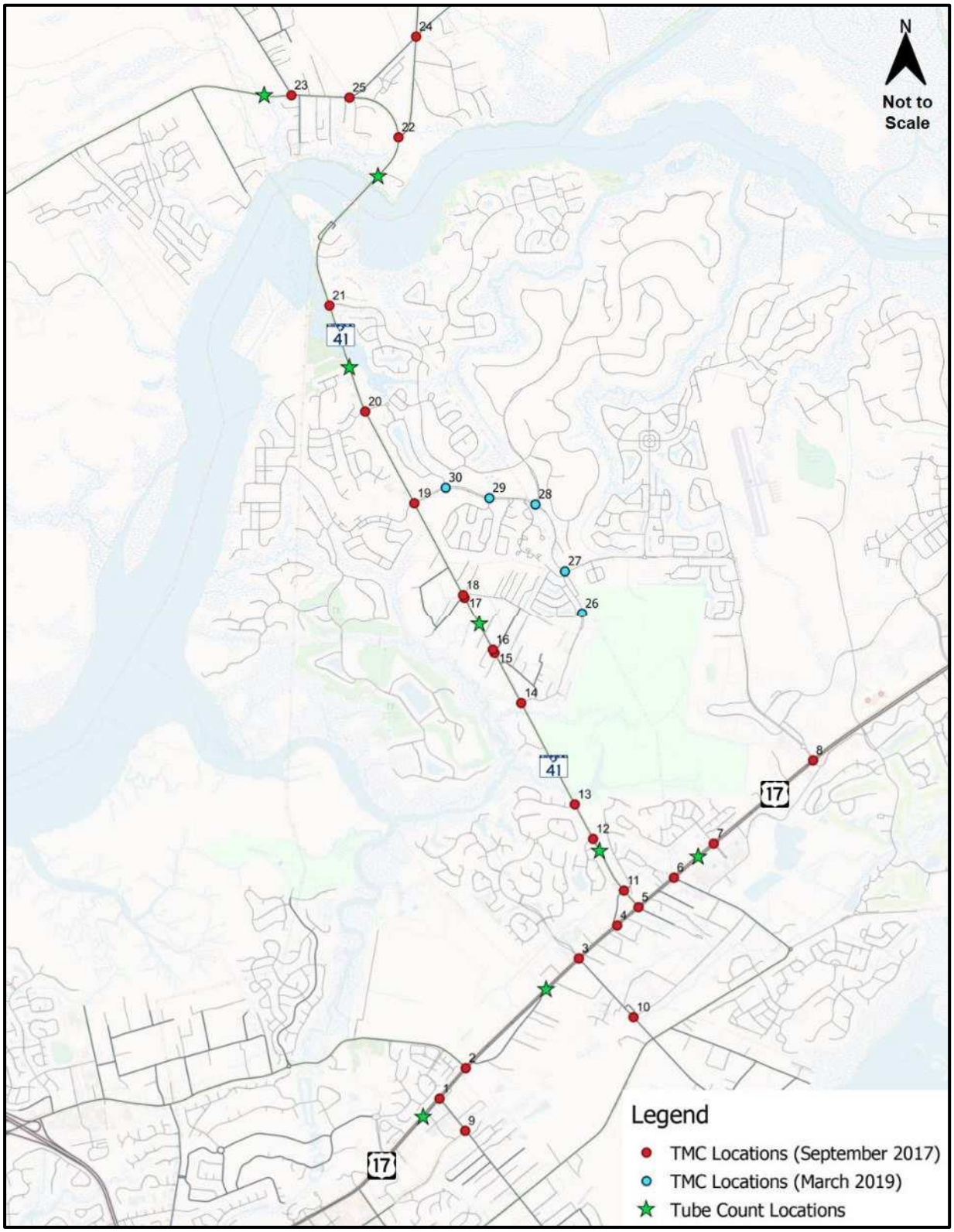
Peak Hour Intersection Counts

Turning movement counts were collected from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM on Tuesday, September 19, 2017 at thirty (30) intersections. Later, it was determined that the study area would expand to the east and include an additional five (5) intersections along Bessemer Road/Park West Boulevard. Turning movement counts for these intersections were collected from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM on Tuesday, March 12, 2019. The thirty (30) existing intersections counted include:

US 17 & Six Mile Rd
US 17 & Long Point Rd
US 17 & Brickyard Pkwy/Hamlin Rd
US 17 & SC 41 Access Rd
US 17 & SC 41
US 17 & Winnowing Way/Porchers Bluff Rd
US 17 & Lexington Dr/Oakland Market Dr
US 17 & Park West Blvd/S. Morgan's Point Rd
Six Mile Rd & Sweetgrass Basket Pkwy
Hamlin Rd & Billy Swails Blvd
SC 41 & Old SC 41/Gregorie Ferry Rd
SC 41 & Colonnade Dr
SC 41 & Tradewind Dr
SC 41 & Joe Rouse Rd
SC 41 & Bennett Charles Rd
SC 41 & Sunchaser Ln
SC 41 & Parkers Island Rd
SC 41 & Canyon Ln
SC 41 & Rivertowne Pkwy/Dunes West Blvd
SC 41 & Planters Point Blvd/Wood Park Dr
SC 41 & Harpers Ferry Way
SC 41 & Clements Ferry Rd
Clements Ferry Rd & Cainhoy Rd
SC 41 & Reflectance Rd/Halfway Creek Rd
Clements Ferry Rd & Reflectance Rd
Bessemer Rd & Dumont Dr
Bessemer Rd & Park West Blvd
Park West Blvd & Wando Plantation Way
Park West Blvd & Palmetto Hall Blvd
Park West Blvd & Kings Gate Ln.

The count locations are illustrated in **Figure 4**, and the raw count data is included in **Appendix A**.

Figure 4: Count Locations



The Base Year AM and PM peak hour volumes were developed from the counts previously described and illustrated in **Figure 5** for SC 41 and in **Figure 6** for US 17. The calculated peak hour factors for the intersections along the SC 41 and US 17 corridors are listed in **Table 7**.

Heavy vehicle percentages at intersections throughout these corridors were based on the turning movement counts collected. Base Year heavy vehicle percentages were utilized in the analysis, with a minimum percentage of 2%.

Table 7: Base Year – AM and PM Intersection Peak Hour Factors

Intersection	AM	PM
SC 41 & US 17	0.97	0.96
SC 41 & Hwy 41 Access Road	0.98	0.98
SC 41 & Colonnade Drive	0.98	0.98
SC 41 & Tradewind Street	0.94	0.98
SC 41 & Bessemer Road	0.95	0.96
SC 41 & Bennett Charles Road/Sunchaser Lane	0.97	0.95
SC 41 & Canyon Lane/Parkers Island Road	0.92	0.97
SC 41 & Dunes West Blvd	0.91	0.98
SC 41 & Wood Park Drive	0.94	0.95
SC 41 & Harpers Ferry Way	0.91	0.91
SC 41 & Clements Ferry Road	0.93	0.97
SC 41 & Reflectance Road	0.95	0.88
Northbound Street & Clements Ferry Road	0.94	0.94
Northbound Street & Clements Ferry Road	0.91	0.95
SC 41 & Westbound Street	0.96	0.98
Kings Gate Lane & Dunes West Blvd	0.91	0.95
Palmetto Hall Blvd & Dunes West Blvd	0.92	0.96
Wando Plantation Way & Dunes West Blvd	0.93	0.97
Bessemer Road & Park West Blvd	0.93	0.97
Bessemer Road & Dumont Drive	0.96	0.92
Hamlin Road & US 17	0.96	0.95
SC 41 Access Rd & US 17	0.95	0.98
SC 41 & US 17	0.97	0.96
Porchers Bluff Road & US 17	0.93	0.98
Oakland Market Drive & US 17	0.95	0.97
Park West Blvd & US 17	0.98	0.96
Six Mile Road & US 17	0.94	0.95
Six Mile Road & Sweetgrass Basket Parkway	0.92	0.89
Long Point Road & US 17	0.97	0.95
Hamlin & Billy Swails Parkway	0.71	0.96

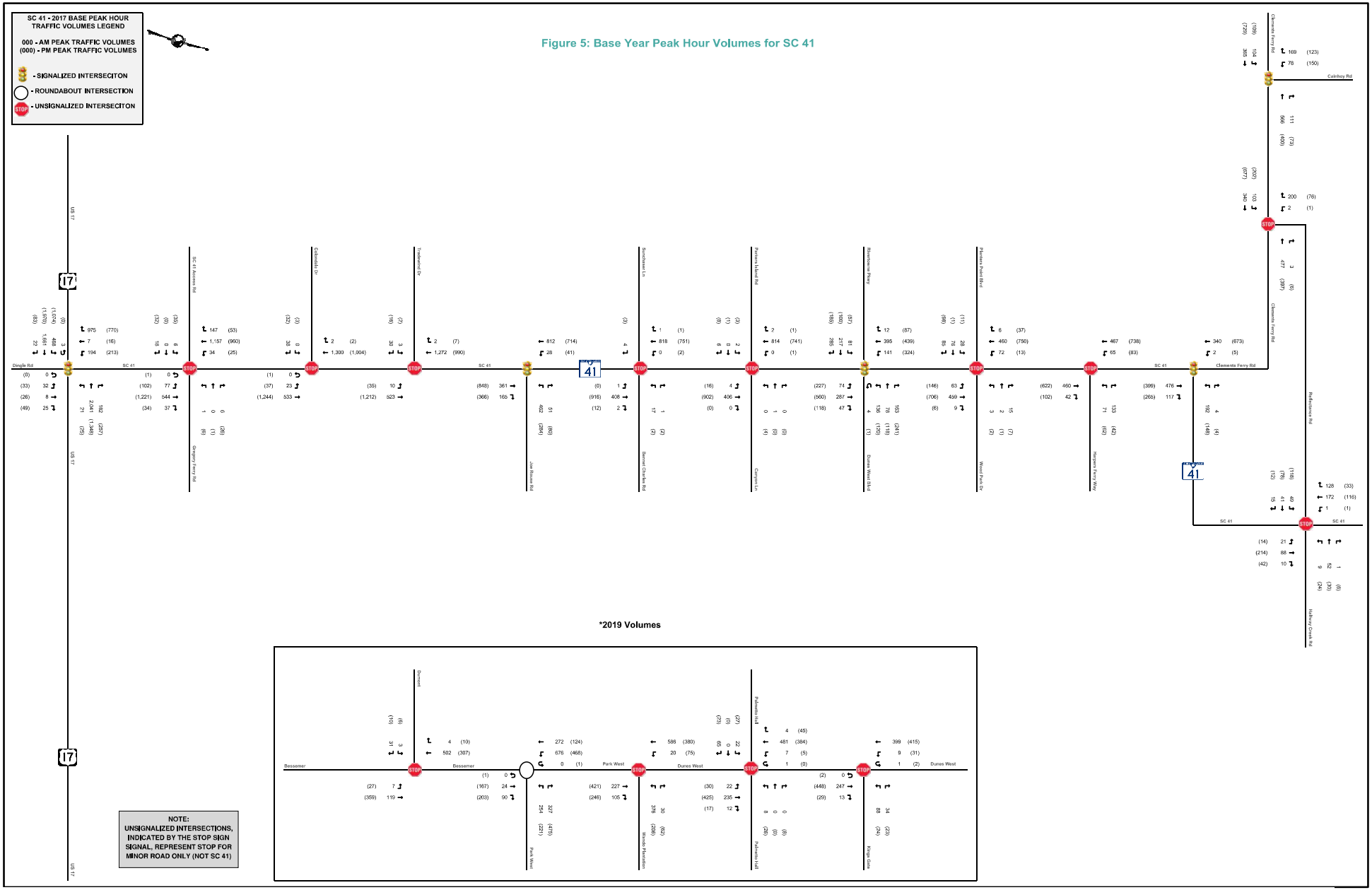
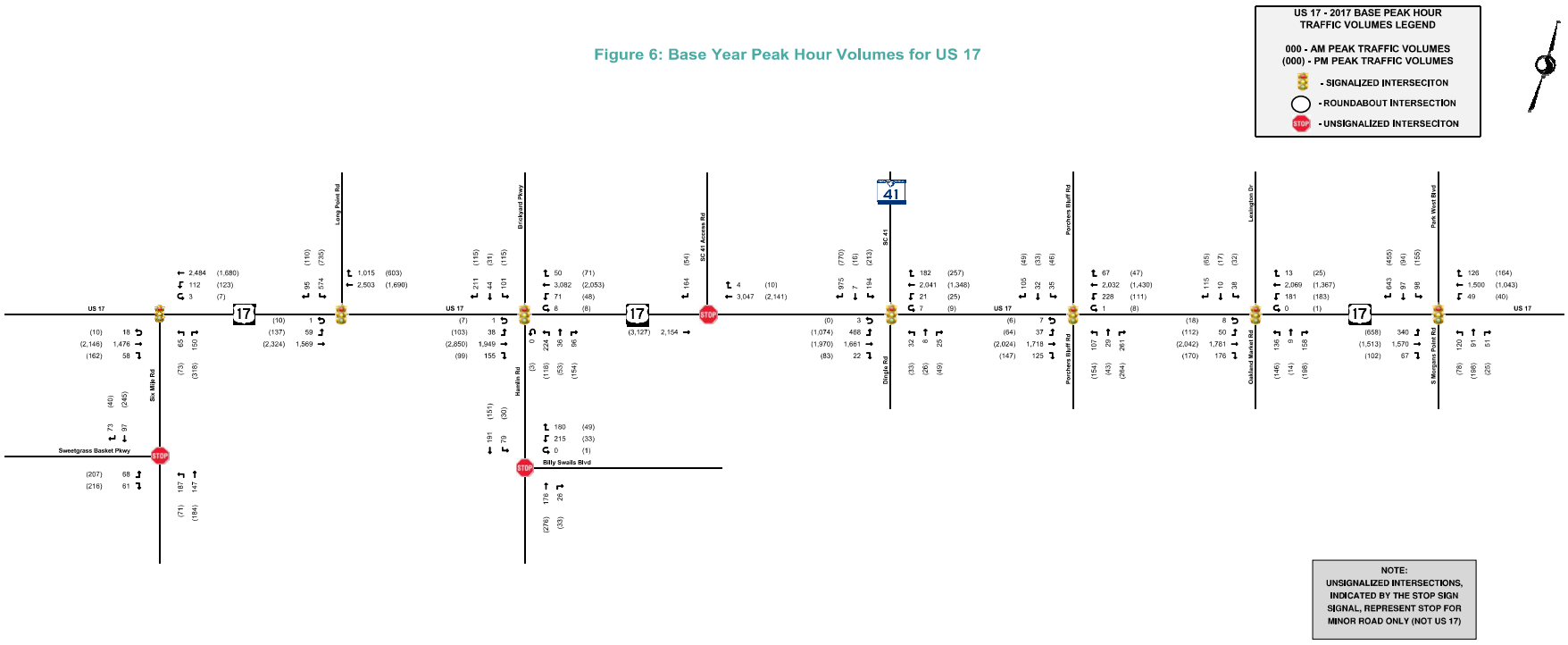

SC 41 - 2017 BASE PEAK HOUR TRAFFIC VOLUMES LEGEND
000 - AM PEAK TRAFFIC VOLUMES
(000) - PM PEAK TRAFFIC VOLUMES
- SIGNALIZED INTERSECITON
- ROUNDABOUT INTERSECTION
- UNSIGNALIZED INTERSECITON
Figure 5: Base Year Peak Hour Volumes for SC 41
*2019 Volumes
NOTE:
UNSIGNALIZED INTERSECTIONS, INDICATED BY THE STOP SIGN SIGNAL, REPRESENT STOP FOR MINOR ROAD ONLY (NOT SC 41)
US 17
SC 41
Dingle Rd
Cainhoy Rd
Clements Ferry Rd
Hollifield Rd
Hollifield Creek Rd
Bessemer
Park West
Dunes West
Wando Plantation
Rifle Hall
Rifle Hall Creek
Rivers Glen

Figure 6: Base Year Peak Hour Volumes for US 17



3.2.2 Field Observations

Team members made field visits to observe traffic operations and collect field data in August 2018 and in March of 2019. The following summarizes the observations made.

August 2018: Field observations were made during the AM and PM peak periods. Observations included general driver behavior, intersection queues and signal phasing and timing.

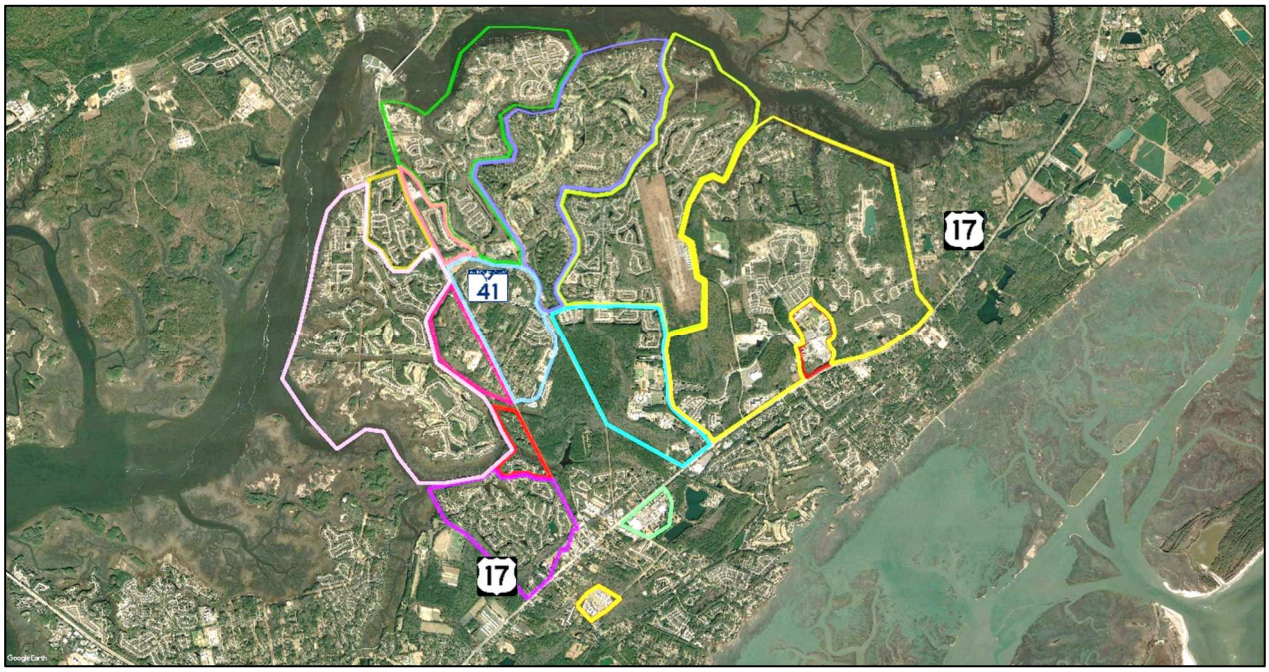
Observations noted consistent occurrences of queues extending from US 17, north along SC 41 beyond the SC 41 intersection with Joe Rouse Road. It was also observed that while the southbound lane drop south of Joe Rouse Road contributed to this queueing as vehicles attempted to merge back into the single continuing southbound lane of the intersection, the problem was enhanced by the effects of the US 17/SC 41 intersection causing intermittent stopping and starting from the lane drop to US 17.

March 14 & 18, 2019: Additional field visits were made to collect additional travel times for the study area. Travel times were collected using the floating car method, defined as traveling with traffic such that the data collection vehicle maintains the average speed of those vehicles around it. Travel time runs were performed from 6:30 AM to 9:30 AM and from 3:30 PM to 6:30 PM. A summary of the notes from those field visits are included in the **Appendix B**.

StreetLight Data

Cell phone signal data (from March, April, September, and October of 2019) purchased from *StreetLight Data, Inc*. was used to inform the project team on existing origin-destination travel patterns in the study network and to enhance the existing peak hour travel time, both for improving the accuracy of a calibrated existing conditions microsimulation model. The more accurate the existing conditions model, the more reliable the prediction of future traffic patterns and the effectiveness of system improvements. The zones shown in **Figure 7**, in combination with a series of "gates" along major roadways through which vehicles pass, were established for data collection.

Figure 7: StreetLight O-D Zones



The origin gate and the destination gate collect the signal from the drivers' phone. The time registered at each of these gates provides the travel time for that trip. While not every driver will have a signal, relative volumes can be estimated to confirm the origin-destination matrix. Following are highlights of patterns pulled from StreetLight Data:

AM Peak Hour

- Of all southbound SC 41 traffic crossing the Wando River;
  - 21% turns left onto Dunes West Boulevard, 67% of which follows Park West Boulevard toward US 17.
  - 41% travels directly south on SC 41 reaching US 17. Over 80% of this turns south on US 17.

- Of all southbound SC 41 traffic approaching US 17;
  - 14% enters from SC 41 north of the Wando River.
  - 34% enters SC 41 from Joe Rouse Road.
  - 31% enters SC 41 from Rivertowne
  - 68% continues to US 17 southbound
  - 13% continues to US 17 northbound
  - 11% continues to Porchers Bluff Road
  - 10% continues to Hamlin Road

PM Peak Hour

- Of all northbound SC 41 traffic crossing the Wando River;
  - 43% enters from US 17.
  - 16% enters from Dunes West Boulevard
  - 11% enters from Rivertowne.
  - 11% enters from Dunes West.

- Of all northbound SC 41 traffic just north of US 17;
  - 54% enters from northbound US 17.
  - 41% enters from southbound US 17.
  - 32% exits at Joe Rouse Road.
  - 14% exits at Dunes West Boulevard.
  - 24% exits to Rivertowne.
  - 15% exits at Harpers Ferry Way.

- Of all northbound US 17 traffic approaching SC 41;
  - 22% enters from Long Point Road.
  - 54% continues northbound on US 17 beyond SC 41.
  - 25% exits to SC 41 northbound.

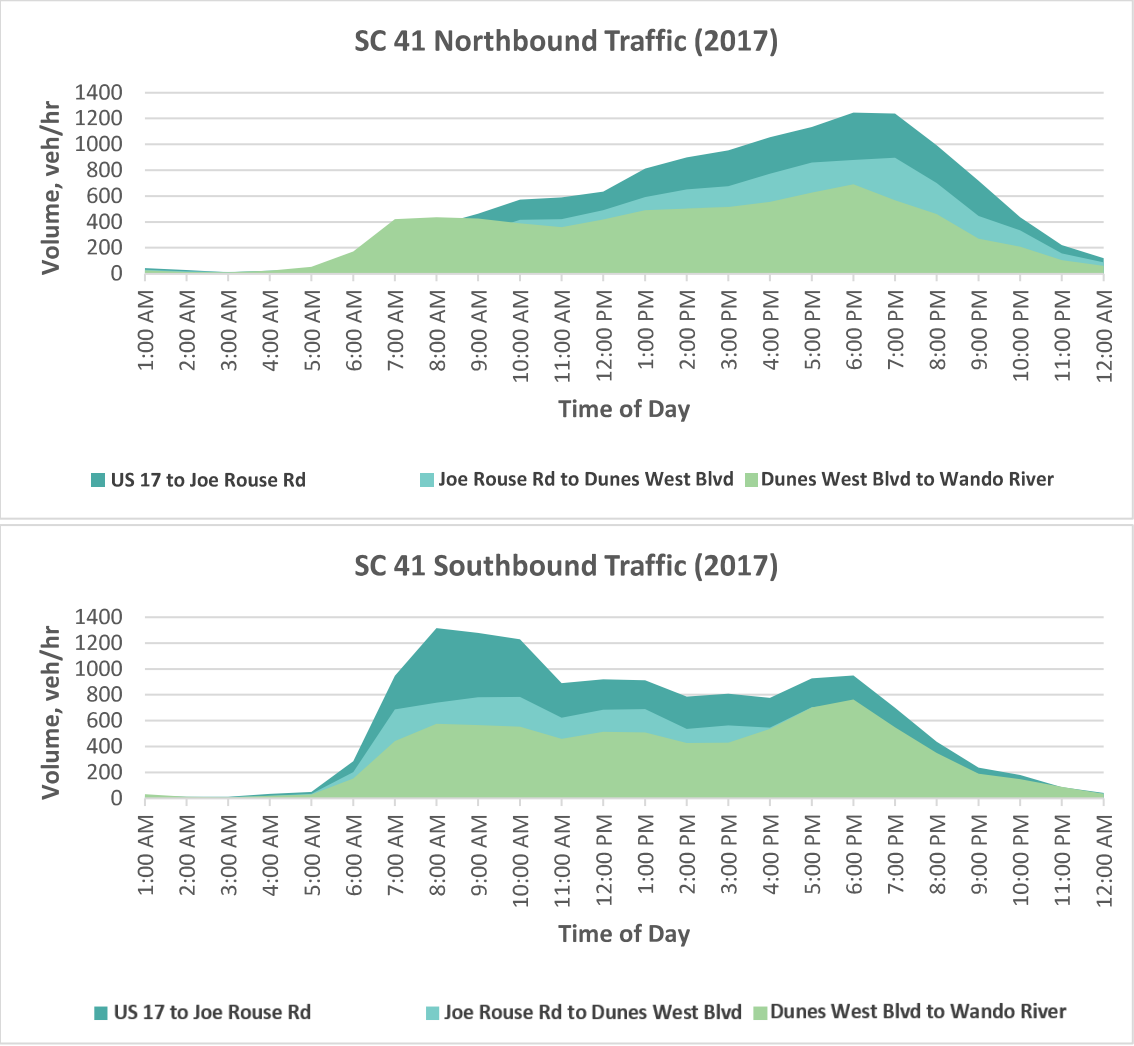
Exhibits summarizing the travel patterns as determined by StreetLight Data are included in **Appendix B**.

Traffic Patterns – SC 41

SC 41 is a commuter route with the dominant travel direction being southbound in the AM peak period, and northbound in the PM peak period. The directional split is more prominent in the segment between US 17 and Joe Rouse Road. Northbound and southbound hourly traffic volumes are shown in Figure 8 below for the three major segments of SC 41, being:

- South of Colonnade Drive: This represents the segment between US 17 and Joe Rouse Road
- North of Joe Rouse Road: This represents the segment between Joe Rouse Road and Dunes West Boulevard, referred to within this document as the Phillips Community.
- North of Planters Point Boulevard: This represents the segment between Dunes West Boulevard and the Wando River. Counts taken between the Wando River and Clements Ferry Road show very similar volumes to this section.

Figure 8: Base Year Directional Hourly Volumes for SC 41

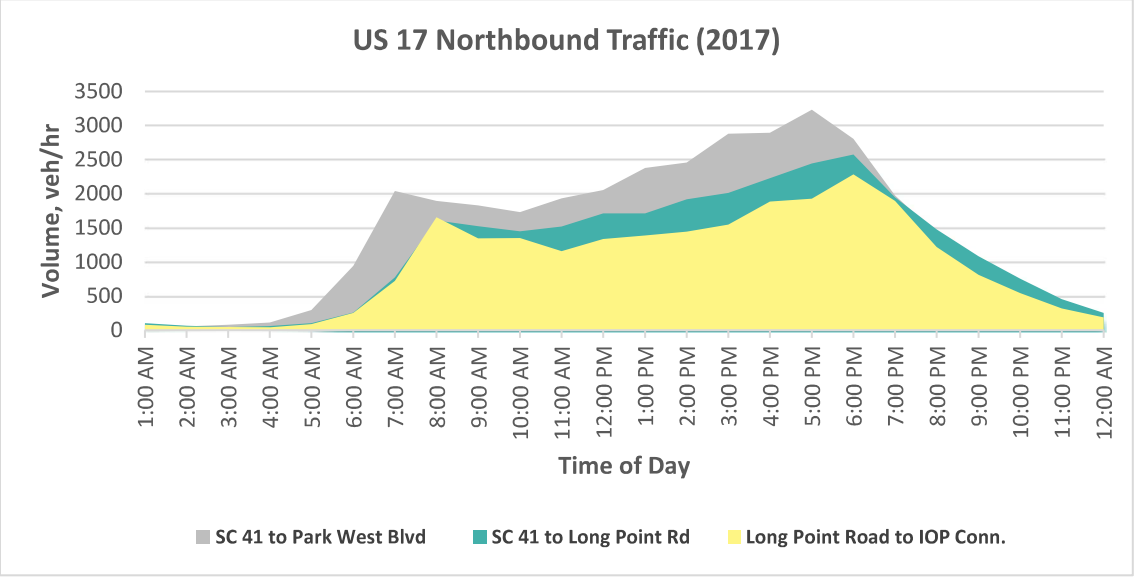


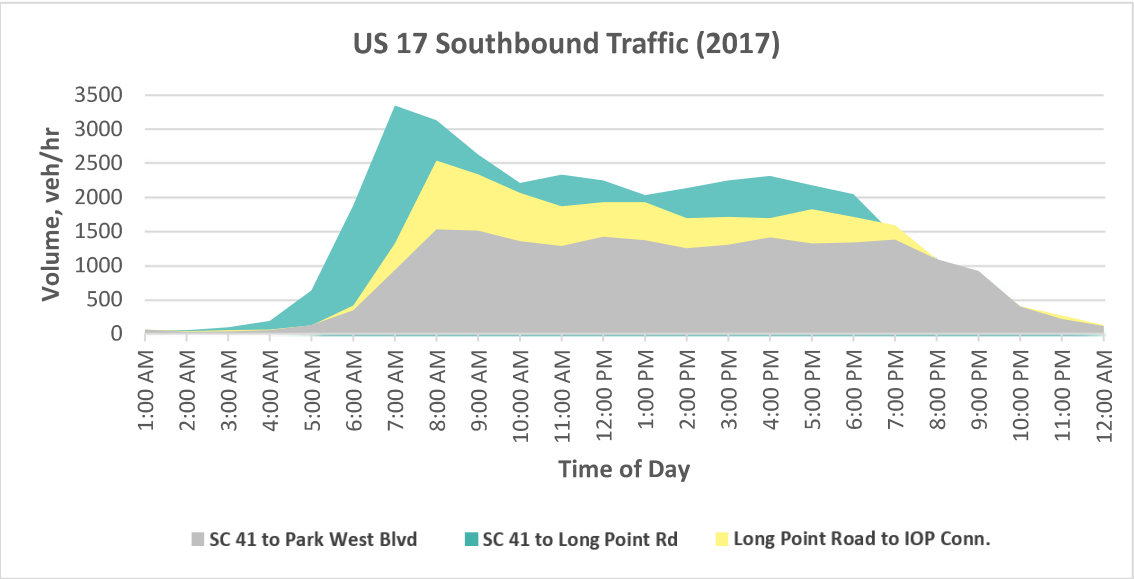
Traffic Patterns – US 17

A detailed review of the base year peak hour profile for US 17 within the study area reveals a pattern between the intersections of US 17/Long Point Road and US 17/SC 41. **Figure 9** provides directional hourly traffic volumes for the northbound and southbound directions of US 17 in the study area. The counts are correlated to the following segments:

- South of Lexington Drive: This represents the segment of US 17 between SC 41 and Park West Boulevard. SCDOT has AADT count station 10-0135 in this segment for comparison.
- South of Hamlin Road: This represents the segment of US 17 between SC 41 and Long Point Road.
- South of Six Mile Road: This represents the segment of US 17 between Long Point Road and SC 517 (Isle of Palms Connector). SCDOT has count station 10-0133 in this segment for comparison.

Figure 9: Base Year Directional Hourly Volumes for US 17





The hourly directional volumes, when supplemented with the peak hour turning movement counts at intersections along US 17, indicate the following:

- The AM northbound US 17 volume increases by 24% at Long Point Road. This coincides with the turning movements at this intersection. Approximately 85% of the traffic approaching US 17 from Long Point Road turns left, or north on US 17 toward SC 41.
- The AM northbound US 17 volume decreases by 28% north of SC 41. This coincides with heavy AM peak northbound lefts to SC 41.
- The majority of AM peak traffic from Brickyard Parkway and Hamlin Road enters US 17 in the southbound direction.
- The AM southbound US 17 volume increases by 36% at SC 41. This is indicative of the heavy right turns from southbound SC 41 to southbound US 17. It also points to the potential growth in southbound US 17 traffic that will result from increasing the capacity of SC 41.
- The AM southbound volume drops by 27% at Long Point Road. This is an indication of traffic using Long Point Road to access I-526.
- AM peak hour volumes are higher than PM Peaks. This is a result of concurrent school and commute traffic in the AM, while peak PM school traffic occurs before the commuter PM peak.

3.2.3 Intersection Level of Service

Base Year traffic volumes were collected for the study area intersections for both AM and PM peak hours. Using the Base Year traffic volumes, intersection analyses were conducted for these intersections using the Transportation Research Board's *Highway Capacity Manual 2010 (HCM 2010)* methodologies of the Synchro, Version 10 software. The calibrated base year microsimulation model was also developed for the study corridors using VISSIM 8.0 software for the AM and PM peak hour periods.

The level of service (LOS) for intersections is based on the average control delay per vehicle. For two-way-stop-controlled unsignalized intersections, major street traffic generally will experience virtually no delay. Most of the delay will be encountered by traffic on approaches controlled by stop or yield signs. For signalized intersections, delay per vehicle is controlled by signal operations, and the LOS can be identified for the entire intersection, individual intersection approaches, and each movement/lane-group. **Table 8** shows the HCM 2010 LOS criteria for unsignalized and signalized intersections. While SCDOT design criteria typically target LOS C for arterials, LOS D is generally considered acceptable for urban intersections.

Table 8: Intersection HCM 2010 Level of Service Criteria

LOS	Control Delay (sec/veh)	
	Unsignalized Intersections (worst leg of intersection)	Signalized Intersections (entire intersection)
A	≤ 10	≤ 10
B	>10-15	>10-20
C	>15-25	>20-35
D	>25-35	>35-55
E	>35-50	>55-80
F	> 50	> 80

The differences between the LOS and delay results produced by these two methods can be attributed to the static (Synchro) vs dynamic (VISSIM) nature of the models. Synchro per HCM methodologies utilizes demand volumes for all approaches and movements at the intersection. This is true even if upstream bottlenecks do not allow that volume to reach the intersection. VISSIM measures the delay experienced by vehicles that can actually reach the intersection during the simulation period. Traffic is therefore affected by conditions upstream and downstream of the intersection. The results of the level of service (LOS) analysis of the SC 41 intersections tabulated from the microsimulation model are listed in **Table 9**.

Table 9: 2017 Base Year Intersection Level of Service

Intersection	Control	AM Peak Hour		PM Peak Hour	
		Avg. Delay (sec/veh)	LOS	Avg. Delay (sec/veh)	LOS
US 17 & Six Mile Rd	Signal	4.5	A	8.6	A
Sweetgrass Basket Pkwy & 6 Mile Rd	Unsig	9.0	A	10.5	B
US 17 & Long Point Rd	Signal	23.2	C	25.7	C
US 17 & Hamlin Rd/Brickyard Pkwy	Signal	18.8	B	16.0	B
US 17 & SC 41	Signal	30.7	C	34.5	C
US 17 & Porchers Bluff Rd	Signal	12.9	B	12.5	B
Hamlin Rd & Billy Swails Blvd	Unsig	8.5	A	6.9	A
Porchers Bluff Rd & Billy Swails Blvd	Unsig	9.2	A	7.6	A
US 17 & Lexington Dr	Signal	10.0	B	14.0	B
US 17 & Park West Blvd /South Morgan's Point Rd	Signal	28.9	C	45.7	D
SC 41 & SC 41 Access Rd	Unsig	71.1	F	43.8	E
SC 41 & Colonnade Dr	Unsig	105.5	F	39.1	E
SC 41 & Tradewind Dr	Unsig	29.2	D	30.5	D
SC 41 & Joe Rouse Rd	Signal	22.1	C	16.8	B
SC 41 & Bennett Charles Rd	Unsig	14.6	B	19.8	C
SC 41 & Sunchaser Ln	Unsig	11.3	B	13.3	B
SC 41 & Parkers Island Rd	Unsig	10.4	B	16.1	C
SC 41 & Canyon Ln	Unsig	17.1	C	21.0	C
SC 41 & Dunes West Blvd	Signal	18.8	B	22.5	C
SC 41 & Planters Point Blvd /Wood Park Dr	Unsig	10.4	B	12.5	B
SC 41 & Harpers Ferry Way	Unsig	10.3	B	12.0	B
Dunes West Blvd & Kings Gate	Unsig	3.7	A	3.6	A
Dunes West Blvd & Palmetto Hall	Unsig	9.4	A	9.7	A
Dunes West Blvd & Ellington Woods	Unsig	9.3	A	9.3	A
Dunes West Blvd & Wando Plantation Way	Unsig	29.0	D	11.6	B
Park West & Bessemer Roundabout	Rdbt	9.2	A	43.1	E
Bessemer Rd & Dumont Dr	Unsig	6.5	A	6.4	A
Park West Blvd & Grey Marsh Rd	Unsig	7.2	A	3.3	A
Park West Blvd & Stockdale St	Unsig	13.0	B	19.1	C
SC 41 & Larch Ln	Unsig	10.6	B	6.5	A

Intersection (LOS) grades range from LOS A to LOS F, which are directly related to the level of control delay at the intersection and characterize the operational conditions of the intersection traffic flow. LOS A operations typically represent ideal, free-flow conditions where vehicles experience little to no delays, and LOS F operations typically represent poor, forced-flow (bumper-to-bumper) conditions with high vehicular delays, and are generally considered undesirable.

For the signalized intersections, the overall intersection LOS and delay results were evaluated, while for the unsignalized intersections with one-way or two-way stop control, the LOS and delay results are evaluated for the worst-case minor-street approaches only, as based upon *HCM 2010* methodologies for two-way unsignalized intersections.

According to the Calibrated Base Year VISSIM analysis, all intersections within the SC 41 corridor currently operate at LOS D or better, except for the intersections of SC 41 & SC 41 Access Road, SC 41 & Colonnade Drive, and Bessemer Road and Park West Boulevard.

3.2.4 Travel Time

The dynamic characteristics of the VISSIM microsimulation model produce measures of effectiveness (MOE) not available from traditional HCM methods. One of these that it is particularly useful in demonstrating the effect of congestion is travel time. Travel time was measured in the AM and PM peak hours as described in the data collection section of this report.

SC 41 travel times are measured between end points just north of Harpers Ferry Way and just north of Gregorie Ferry Road. Another high-volume commuting pattern exists along Bessemer Road and SC 41 between the roundabout at Park West Boulevard and US 17. Travel times along US 17 are measured between a point just south of Six Mile Road and just north of Park West Boulevard.

These travel time segments, used for all microsimulation analysis, are illustrated in **Figure 10**. The peak hour travel times are shown in **Figure 11** and **Figure 12** for AM peak and PM peak periods, respectively. These figures provide the travel time simulated by the microsimulation model, compared to StreetLight Data representing cell phone probe data from actual drivers during the commute. The VISSIM model calibration process involves adjustments to volumes, driver behavior and other model inputs to reflect these travel times. The VISSIM model calibration report is included for reference in **Appendix D**.

In the AM peak hour, travel times in the southbound direction of SC 41 are much higher with significant congestion building throughout the peak period. Field observations confirmed this condition. Congestion on SC 41 southbound extends from the US 17 intersection to Rivertowne Parkway/Dunes West Boulevard.

Figure 10: SC 41 Travel Time Segments Map

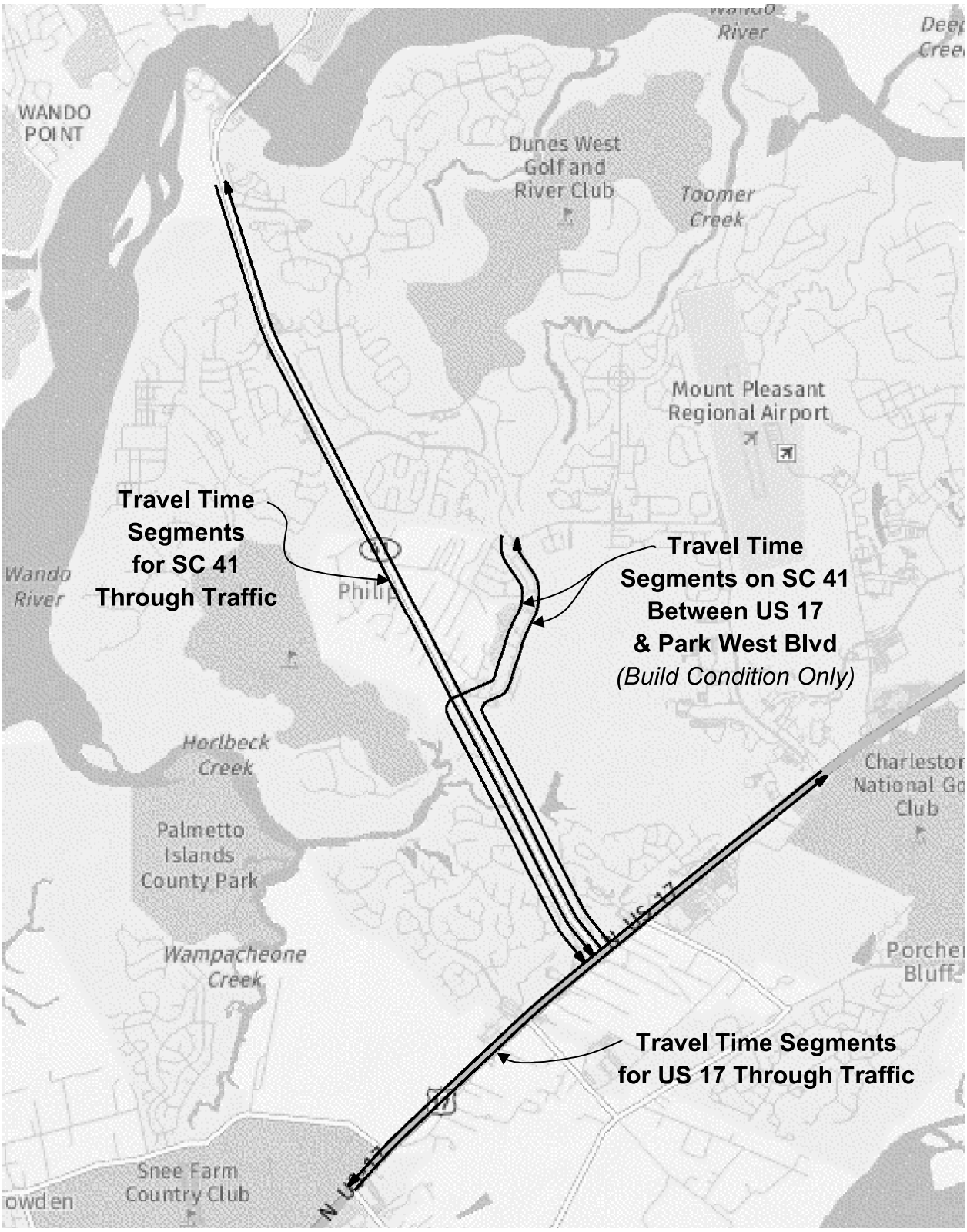


Figure 11: SC 41 & US 17 for AM Peak (Existing)

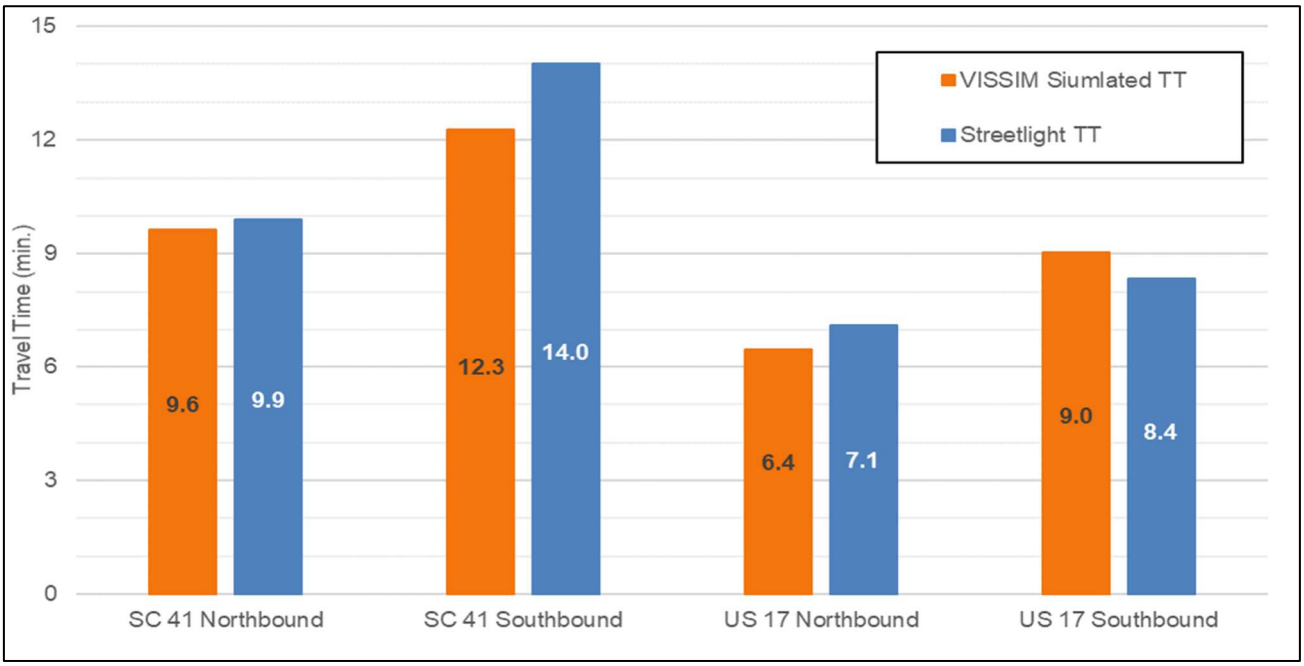
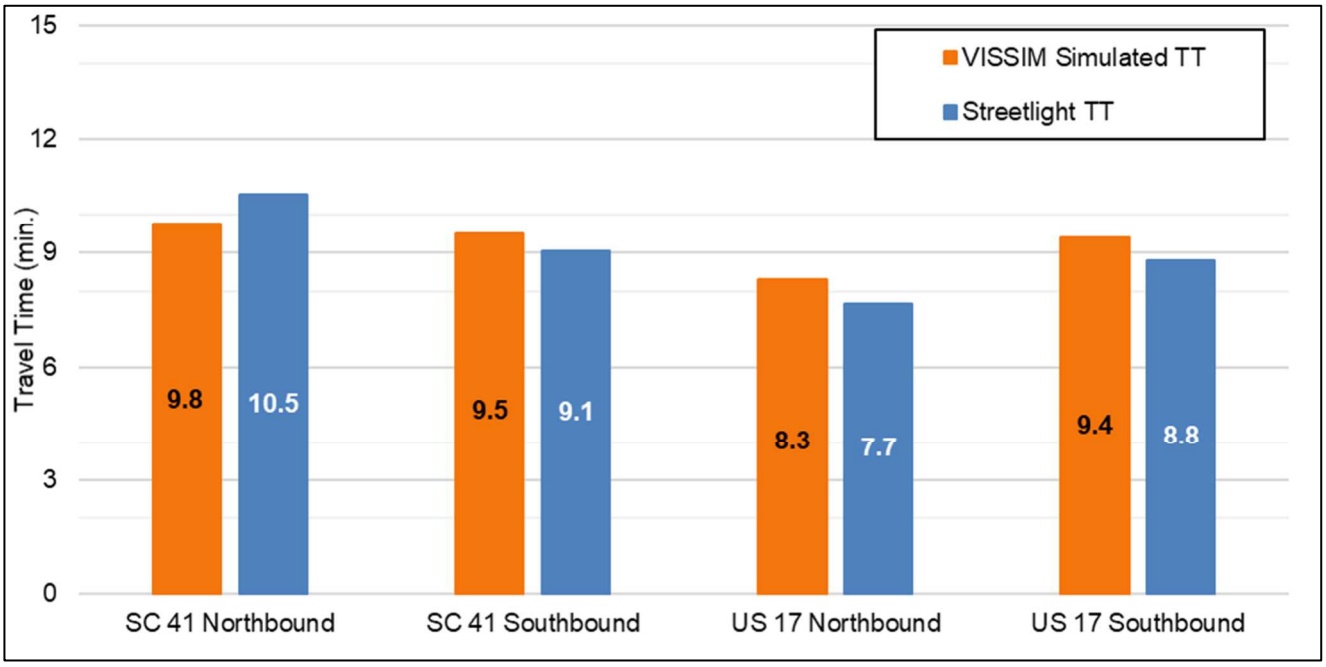


Figure 12: SC 41 & US 17 for PM Peak (Existing)



4 Preliminary Alternatives Screening

4.1 Alternative Screening Process

4.1.1 Methodology

Basic alignments were established by the project design team, and each of these alignments were tested individually within the CHATS Model to determine whether they would provide either the capacity needed in the SC 41 corridor, or in the case of new alignments, would attract enough traffic from the existing facility to adequately reduce congestion along SC 41.

4.1.2 Preliminary Range of Alternatives

The CHATS travel demand model distributes trips in part according to the capacity of the links (roads) within the network. By adding lanes (capacity) to a link, more traffic may be drawn to that link. Similarly, if a new link (roadway on new alignment) is placed in the model, connecting two existing links, some of the existing or forecasted traffic on those adjoining links may be drawn to the new connecting link (road). A wide variety of alternatives were modeled in this manner, by either adding capacity directly to SC 41, or by adding connecting or parallel roadways in an attempt to distribute the traffic demand, relieve congestion and reduce travel times. Twelve different build alternatives and a no-build alternative were analyzed in the CHATS Travel Demand Model. Each of the alternatives is described below:

No Build (See Figure 13): Assumes no change to SC 41 from the existing 2017 conditions.

Build Alternative 1 (See Figure 14):

- Widen SC 41 to four lanes, from US 17 to Wando River.

Build Alternative 2 (See Figure 15):

- Widen SC 41 from US 17 to Joe Rouse Road to four lanes.
- Widen SC 41 to three lanes (2 general purpose lanes + 1 two-way left turn lane) from Joe Rouse Road to Dunes West Boulevard.
- Widen SC 41 to four lanes north of Dunes West Boulevard to the Wando River bridge.

Build Alternative 2A (See Figure 16):

- Widen SC 41 from US 17 to Joe Rouse Road to four lanes.
- Widen SC 41 to three lanes (2 general purpose lanes + 1 two-way left turn lane) from Joe Rouse Road to Dunes West Boulevard.
- Widen Joe Rouse Road, Bessemer Road, and Dunes West Boulevard to three lanes (2 general purpose lanes + 1 two-way left turn lane).
- Widen SC 41 to four lanes north of Dunes West Boulevard to the Wando River bridge.

Build Alternative 2A-7 – "Compromise Alternative" (See Figure 17):

- Widen SC 41 from US 17 to Joe Rouse Road to four lanes.
- Widen SC 41 to three lanes (2 general purpose lanes + 1 two-way left turn lane) from Joe Rouse Road to Dunes West Boulevard.
- Construct new two-lane limited access roadway parallel and south of Bessemer Road, connecting SC 41 at the Cardinal Hill Drive intersection to the roundabout at Bessemer Road and Park West Boulevard.
- Widen SC 41 to four lanes north of Dunes West Boulevard to the Wando River bridge.

Build Alternative 3 (See Figure 18):

- Widen SC 41 from US 17 to Joe Rouse Road to four lanes.
- Convert Joe Rouse Road, Bessemer Road, and Dunes West Boulevard to two lanes one-way northbound from the intersection of SC 41 and Joe Rouse Road to the intersection of SC 41 and Dunes West Boulevard.
- Convert SC 41 to two lanes one-way southbound from Joe Rouse Road to Dunes West Boulevard.
- Widen SC 41 to four lanes north of Dunes West Boulevard to the Wando River bridge.

Build Alternative 4 (See Figure 19):

- Maintain two lanes on SC 41.
- New two-lane (two-way) roadway on new parallel alignment extending diagonally from the intersection of US 17 and Winnowing Way, where it begins to parallel to SC 41, tying back into Dunes West Boulevard.
- Widen SC 41 from Dunes West Boulevard to the Wando River bridge.

Build Alternative 5 (See Figure 20):

- Maintain two lanes on SC 41.
- New two-lane (two-way) roadway on new parallel alignment extending diagonally from the intersection of US 17 and Winnowing Way, where it begins to parallel to SC 41, tying back into Dunes West Boulevard.
- New two-lane (two-way) extending from Dunes West Boulevard until connecting to Harpers Ferry Way (SC 41 Parallel).
- Widen SC 41 from Harpers Ferry Way to the Wando River bridge.

Build Alternative 5A:

- Maintain two lanes on SC 41.
- New four-lane (two-way) roadway on new parallel alignment extending diagonally from the intersection of US 17 and Winnowing Way, where it begins to parallel to SC 41, tying back into Dunes West Boulevard.
- New two-lane (two-way) extending from Dunes West Boulevard until connecting to Harpers Ferry Way (SC 41 Parallel).
- Widen SC 41 from Harpers Ferry Way to the Wando River bridge.

Build Alternative 6 (See Figure 21):

- Maintain two lanes on SC 41.
- New four-lane roadway on new parallel alignment extending diagonally from the intersection of US 17 and Winnowing Way, then it begins to parallel to SC 41 tying back into Dunes West Boulevard (SC 41 Parallel).
- Widen SC 41 from Dunes West Boulevard to the Wando River bridge.

Build Alternative 7 (See Figure 22):

- Widen SC 41 to four lanes from US 17 to Joe Rouse Road.
- Widen Joe Rouse Road, Bessemer Road, Park West Boulevard and Dunes West Boulevard to four lanes from SC 41 to SC 41.
- Widen SC 41 to four lanes from Dunes West Boulevard to the Wando River bridge.
- Widen SC 41 to three lanes (2 general purpose lanes/1 two-way left turn lane) from Joe Rouse Road to Dunes West Boulevard.

Build Alternative 8 (See Figure 23):

- Widen SC 41 to six lanes from US 17 to Joe Rouse Road.
- Widen Joe Rouse Road, Bessemer Road, Park West Boulevard and Dunes West Boulevard to six lanes from SC 41 to SC 41.
- Widen SC 41 to six lanes from Dunes West Boulevard to the Wando River bridge.
- Widen SC 41 to three lanes (2 general purpose/1 two-way left turn lane) from Joe Rouse Road to Dunes West Boulevard.

Build Alternative 9 (See Figure 24):

- Widen SC 41 to six lanes from US 17 to Joe Rouse Road.
- Widen Joe Rouse Road, Bessemer, Park West Boulevard and Dunes West Boulevard to four lanes from SC 41 to SC 41.
- Widen SC 41 to four lanes from Dunes West Boulevard to the Wando River bridge.
- Widen SC 41 to three lanes (2 general purpose/1 two-way left turn lane) from Joe Rouse Road to Dunes West Boulevard.

Build Alternative 10 (See Figure 25):

- Widen SC 41 to six lanes from US 17 to Wando River.

Build Alternative 11 (See Figure 26):

- Widen SC 41 from US 17 to Joe Rouse to six lanes.
- Widen SC 41 to four lanes from Joe Rouse Road to the Wando River bridge.

Build Alternative 12 (See Figure 27):

- Widen SC 41 from US 17 to Dunes West Boulevard to six lanes.
- Widen SC 41 to four lanes from Dunes West Boulevard to the Wando River bridge.

Table 10 lists the AADT for the respective network segments for the fourteen (14) alternatives as determined by the CHATS travel demand model. The AADT represents the total daily volume assigned to each road segment based on the number of lanes, speed and length of trip resulting that incorporates that road segment.

THIS SECTION IS INTENTIONALLY BLANK

Table 10: 2040 CHATS Model AADT for Range of Alternatives

Facility		2015 AADT	2040 AADT (# of Lanes)															
			No Build	Alt 1	Alt 2	Alt 2A	Alt 2A-7	Alt 3	Alt 4	Alt 5	Alt 5A	Alt 6	Alt 7	Alt 8	Alt 9	Alt 10	Alt 11	Alt 12
SC 41																		
	US 17 to Joe Rouse Rd	21,400	32,300	49,400	42,600	42,800	44,000	39,900	27,100	26,200	22,400	24,100	43,800	45,600	44,900	51,300	50,400	51,000
			(2)	(4)	(4)	(4)	(4)	(4)	(2)	(2)	(2)	(2)	(4)	(6)	(6)	(6)	(6)	(6)
	Joe Rouse Rd to Dunes West Blvd	15,400	26,800	42,700	35,000	35,500	33,000	29,500*	27,000	26,300	22,400	23,800	30,000	29,900	30,300	45,400	43,600	45,200
			(2)	(4)	(3)	(3)	(3)	(2SB)	(2)	(2)	(2)	(2)	(3)	(3)	(3)	(6)	(4)	(6)
	Dunes West Blvd to Wando River[1]	13,100	26,200	33,600	29,700	29,500	31,200	25,900	29,700	14,600	9,700	32,500	32,300	33,300	32,500	34,700	33,900	34,100
			(2)	(4)	(4)	(4)	(4)	(4)	(4)	(2)	(2)	(4)	(4)	(6)	(4)	(6)	(4)	(4)
Bessemer Rd																		
	SC 41 to Park West Blvd (E-W)	4,200	6,400	7,600	8,000	8,100	1,600	22,300*	600	800	700	300	14,500	16,200	15,300	6,800	7,700	6,800
			(2)	(2)	(2)	(3)	(2)	(2NB)	(2)	(2)	(2)	(2)	(4)	(6)	(4)	(2)	(2)	(2)
Park West Blvd																		
	Bessemer Rd to Park West Blvd (N-S)	4,100	13,700	5,900	7,200	6,600	8,060	8,300	9,000	9,000	4,600	4,300	10,900	11,800	11,200	5,800	5,800	5,800
			(4)	(4)	(4)	(4)	(4)	(4)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Dunes West Blvd																		
	Park West Blvd to SC 41	7,800	14,100	12,000	16,100	16,100	12,400	28,500*	21,300	22,000	31,700	29,000	23,800	25,000	24,000	11,600	12,500	11,600
			(2)	(2)	(2)	(3)	(2)	(2NB)	(2)	(2)	(4)	(4)	(4)	(6)	(4)	(2)	(2)	(2)
SC 41 Parallel																		
	North of US 17	-							30,500	31,000	31,000	41,300						
									(2)	(2)	(4)	(4)						
SC 41 Parallel																		
	North of Dunes West Blvd	-								14,900	24,200							
										(2)	(4)							
SC 41																		
	Harpers Ferry Way to Wando River	-								14,900	24,200							
										(2)	(4)							
Parkway (Parallel to Bessemer)																		
	SC 41 & Cardinal Hill Dr to Park West Blvd	-					10,300											
							(2)											

*These are one-way volumes.

[1] This segment represents Dunes West Blvd to Harpers Ferry Way in Alternative 5.

*The volumes in this table do not correlate to LOS. LOS can be found in Tables 8 and 9 on the following pages.

4.1.3 Planning Level Capacity Methodology

Florida Department of Transportation (FDOT)'s Generalized Annual Average Daily Volumes for Florida's Urbanized Areas table obtained from the Florida Department of Transportation's 2013 Quality/Level of Service Handbook was utilized to assign a planning Level of Service (LOS) to each of the projected alternative volumes. Although SCDOT has published a planning LOS table for use in travel demand modeling, the FDOT publication is much more comprehensive, as it provides separate values for high speed and low speed facilities, and adjustment factors for certain roadway characteristics such as exclusive turn lanes at intersections.

Based on the functional road classification and number of lanes, along with other actual (existing) or assumed (build alternates) roadway characteristics, the planning LOS for each road segment was determined. LOS A operations typically represent ideal, free-flow conditions where vehicles experience little to no delays, and LOS F operations typically represent poor, forced-flow (bumper-to-bumper) conditions with high vehicular delays, and are generally considered undesirable. **Table 11** shows the FDOT's volume thresholds for each Level of Service (LOS) for Uninterrupted Flow Highways and for Interrupted Flow Arterials-State Signalized Arterials-Class 1 (40 mph or higher posted speed limit).

Table 11: Urbanized Area Uninterrupted Flow Highways & Signalized Arterials

Level of Service									
# of Lanes	Uninterrupted Flow Highways				State Signalized Arterials - Class I				
	B	C	D	E	# Lanes	B	C	D	E
2	8,600	17,000	24,200	33,300	2	*	16,800	17,700	**
3[a]	9,030	17,850	25,410	34,965	3[c]	*	17,640	18,585	**
4[b]	36,700	51,800	65,600	72,600	4[d]	*	37,900	39,800	**
6[b]	55,000	77,700	98,300	108,800	6[d]	*	58,400	59,900	**
					One-Way Adjustments***				
					2	*	10,080	10,620	**

[a] The 3 lane scenario was analyzed a 2-lane divided with exclusive left turn lanes. This adjustment was +5% of the undivided volumes.
[b] The 4 and 6 lane segments were assumed to have divided medians.
[c] The 3 lane scenario was analyzed a 2 lane divided with exclusive left turn lanes. This adjustment was +5% of the undivided volumes.
[d] The 4 and 6 lane scenarios were assumed to have divided medians.
*Cannot be achieved using table input value defaults.
**For the automobile mode, volumes greater than Level of Service D become F because intersection capacities have been reached.
***One-Way Facility Adjustment was calculated by multiplying the corresponding two-directional volumes by 0.6

Uninterrupted flow facilities are roadways that have no fixed causes of periodic delay or interruption to the traffic stream, such as signals or stop signs. Interrupted flow facilities are roadways that have fixed causes of periodic delay or interruption to the traffic stream, such as signals or stop signs, with average spacing less than or equal to 2.0 miles. LOS A is not considered a responsible target for planning purposes, so it is not shown in these tables. Anything exceeding LOS E volumes is considered LOS F (there is no upper limit for LOS F).

The screening level capacity expressed as Level of Service (LOS) for the study segments as uninterrupted or interrupted facilities is listed in **Table 12**.

Table 12: FDOT Planning LOS - Multi-lane Divided Highways

Facility	Segment	Parameter	2040 AADT															
			No Build	Alt 1	Alt 2	Alt 2A	Alt 2A-7	Alt 3	Alt 4	Alt 5	Alt 5A	Alt 6	Alt 7	Alt 8	Alt 9	Alt 10	Alt 11	Alt 12
SC 41	US 17 to Joe Rouse Rd	LOS_U	E	C	C	C	C	C	E	E	D	D	C	C	C	C	C	C
		LOS_I	F	F	F	F	F	D	F	F	F	F	F	C	C	C	C	C
		% Over	82%	24%	7%	8%	11%		53%	48%	27%	36%	10%					
		Lanes	(2)	(4)	(4)	(4)	(4)	(4)	(2)	(2)	(2)	(2)	(4)	(6)	(6)	(6)	(6)	(6)
	Joe Rouse Rd to Dunes West Blvd	LOS_U	E	C	F	F	E	E	E	E	D	D	E	E	E	B	C	B
		LOS_I	F	F	F	F	F	F	F	F	F	F	F	F	F	C	F	C
		% Over	51%	7%	88%	91%	78%	67%	52%	49%	26%	34%	61%	61%	63%		10%	
		Lanes	(2)	(4)	(3)	(3)	(3)	(2SB)	(2)	(2)	(2)	(2)	(3)	(3)	(3)	(6)	(4)	(6)
	Dunes West Blvd to Wando River1	LOS_U	E	B	B	B	B	B	B	C	C	B	B	B	B	B	B	B
		LOS_I	F	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
		% Over	48%															
		Lanes	(2)	(4)	(4)	(4)	(4)	(4)	(4)	(2)	(2)	(4)	(4)	(6)	(4)	(6)	(4)	(4)
Bessemer Road	SC 41 to Park West Blvd (E-W)	LOS_U	B	B	B	B	B	D	B	B	B	B	B	B	B	B	B	B
		LOS_I	C	C	C	C	C	F	C	C	C	C	C	C	C	C	C	C
		% Over						26%										
		Lanes	(2)	(2)	(2)	(3)	(2)	(2NB)	(2)	(2)	(2)	(2)	(4)	(6)	(4)	(2)	(2)	(2)
Park West Blvd	Bessemer Rd to Park West Blvd (N-S)	LOS_U	C	B	B	B	B	B	C	C	B	B	C	C	C	B	B	B
		LOS_I	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
		% Over																
		Lanes	(4)	(4)	(4)	(4)	(4)	2	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Dunes West Blvd	Park West Blvd to SC 41	LOS_U	C	C	C	C	C	E	D	D	B	B	B	B	B	C	C	C
		LOS_I	C	C	C	C	C	F	F	F	C	C	C	C	C	C	C	C
		% Over						61%	20%	24%								
		Lanes	(2)	(2)	(2)	(3)	(2)	(2NB)	(2)	(2)	(4)	(4)	(4)	(6)	(4)	(2)	(2)	(2)
SC 41 Parallel	North of US 17	LOS_U							C	C	B	B						
		LOS_I							C	C	C	C						
		% Over																
		Lanes							(2)	(2)	(4)	(4)						
SC 41 Parallel	North of Dunes West Blvd	LOS_U								C	B							
		LOS_I								C	C							
		% Over																
		Lanes								(2)	(4)							
SC 41	Harpers Ferry Way to Wando River	LOS_U								B	B							
		LOS_I								C	C							
		% Over																
		Lanes								(4)	(4)							
Parkway (Parallel to Bessemer)	SC 41/Cardinal Hill Dr to Park West Blvd	LOS_U					B											
		LOS_I					C											
		% Over																
		Lanes					(2)											

LOS

C

D

E

F

Table Notes

LOS_U = Level of Service for Uninterrupted Conditions

LOS_I = Level of Service for Interrupted Flow Conditions

C = LOS indicated a C or better

Volumes greater than LOS D become LOS F because intersection capacities have been reached.

Figure 13: 2040 No-Build LOS

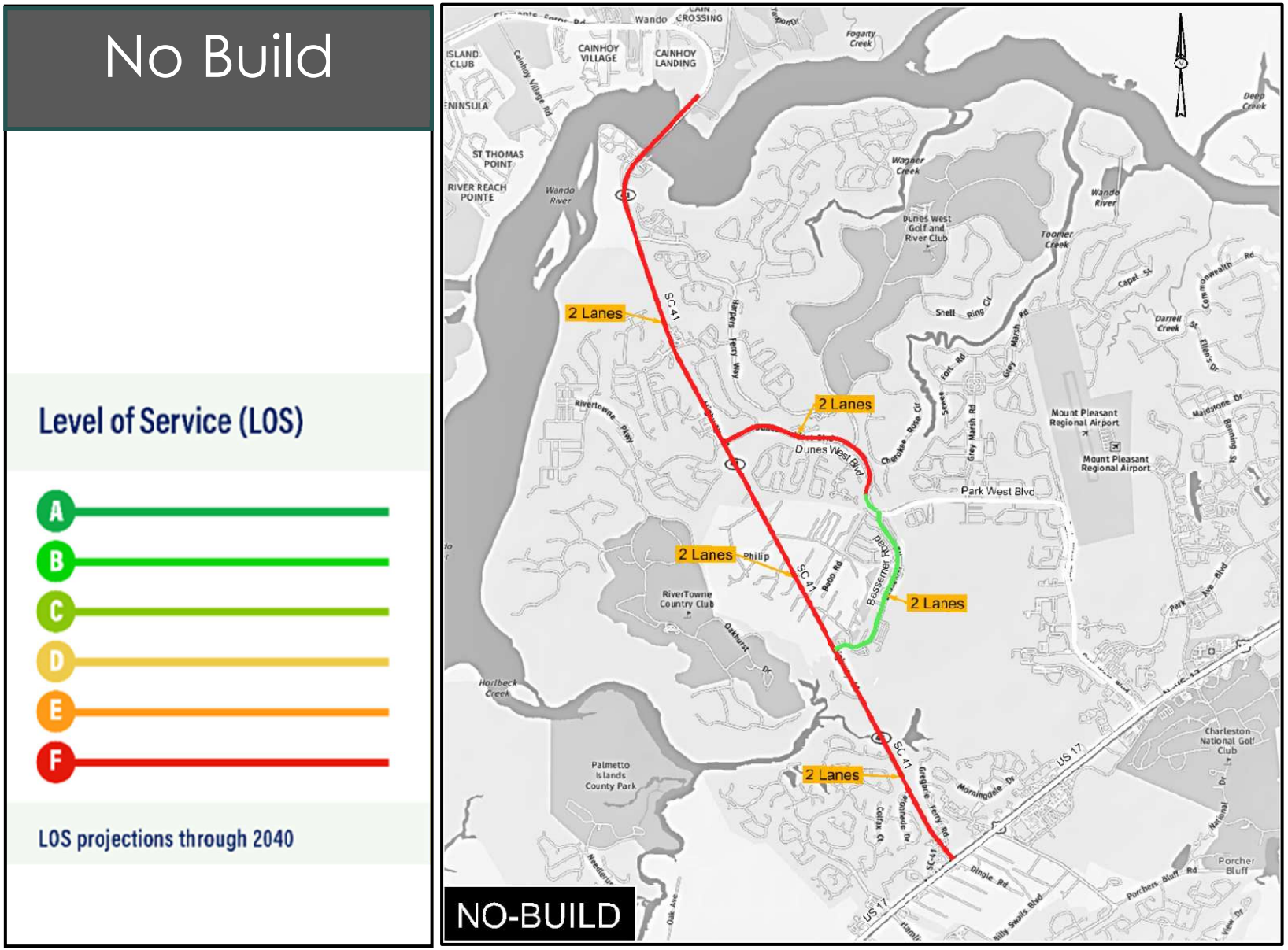


Figure 14: 2040 Alternative 1 LOS

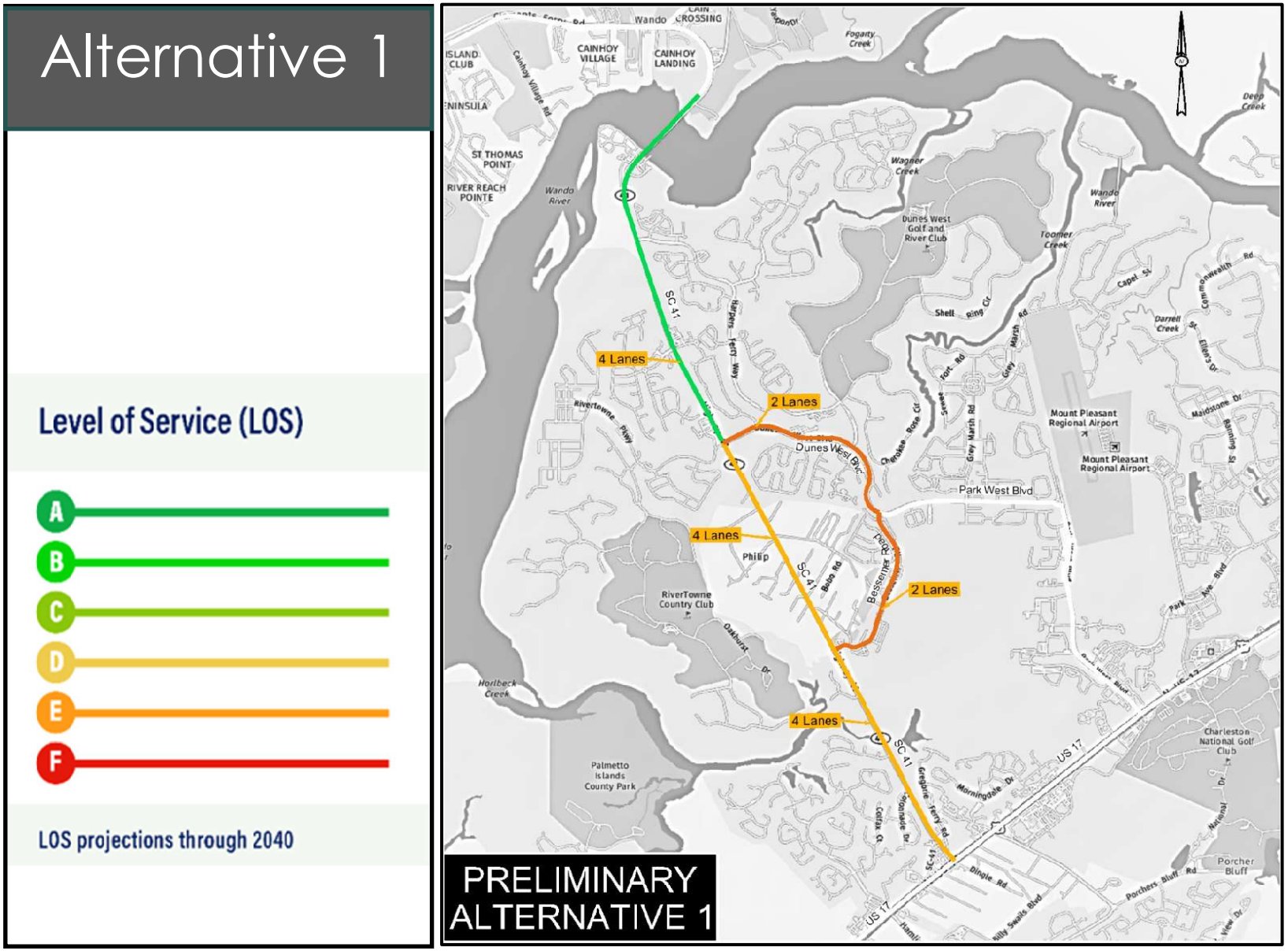


Figure 15: 2040 Alternative 2 LOS

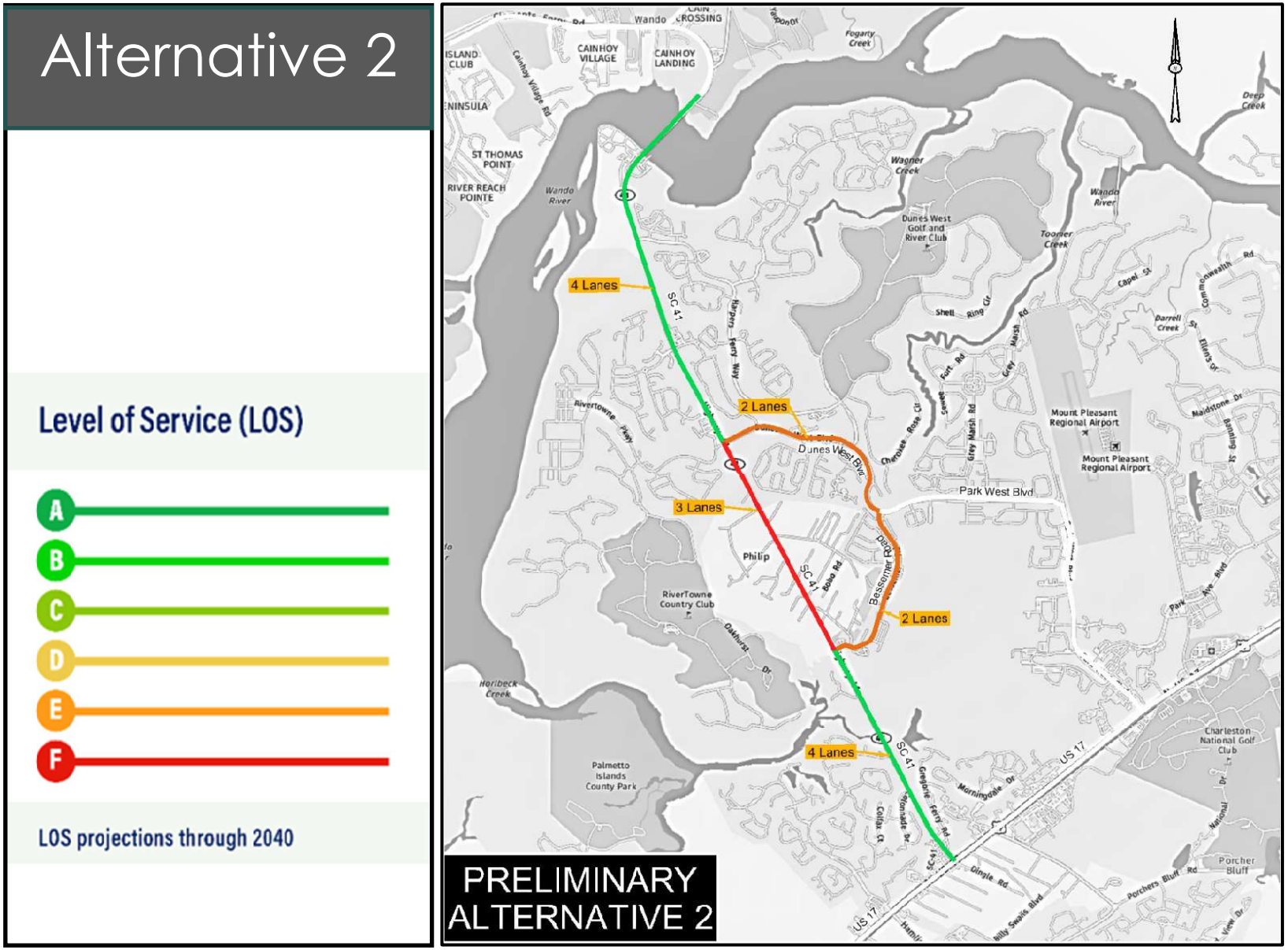


Figure 16: 2040 Alternative 2A LOS

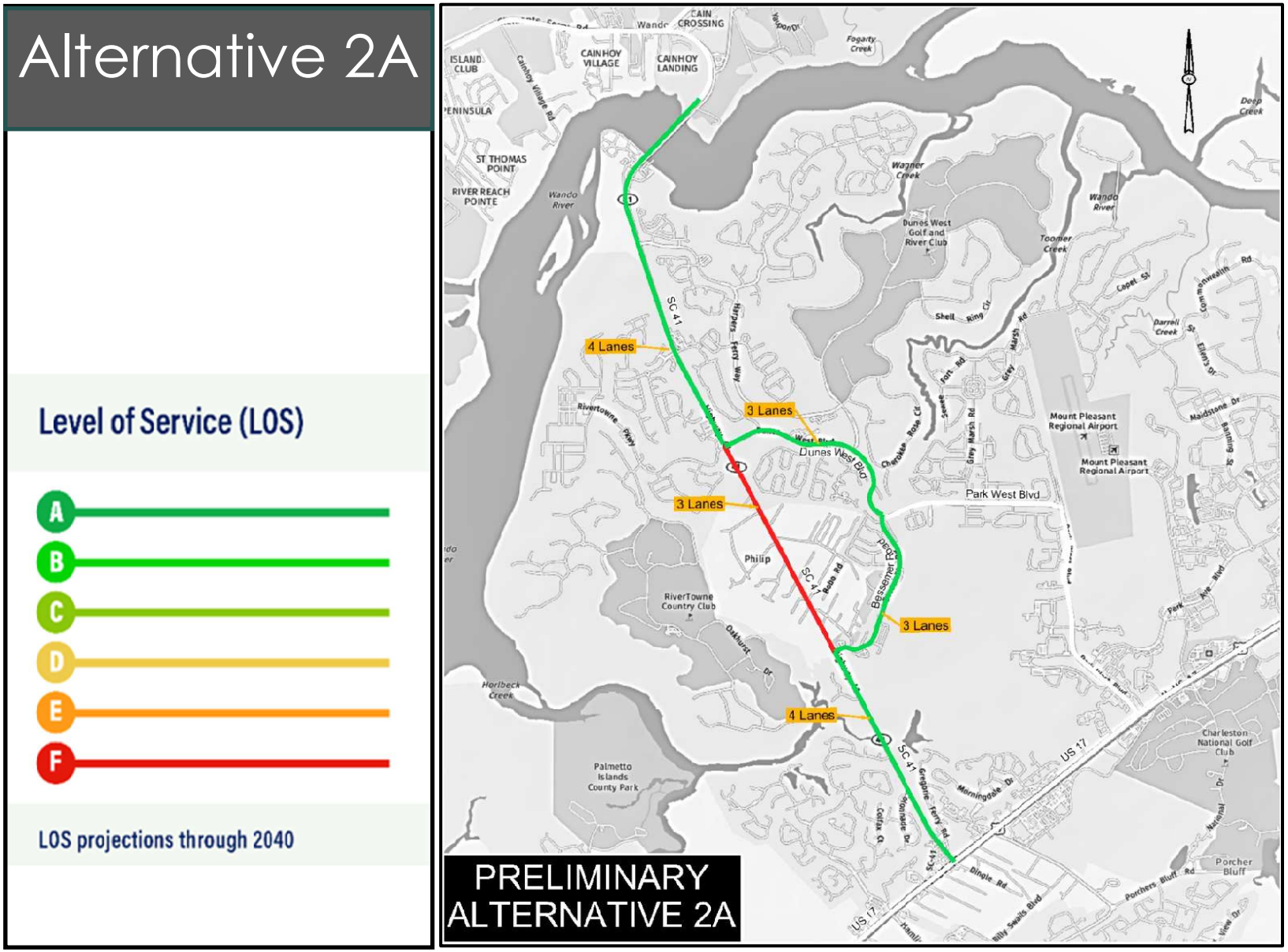


Figure 17: 2040 Alternative 2A-7 LOS

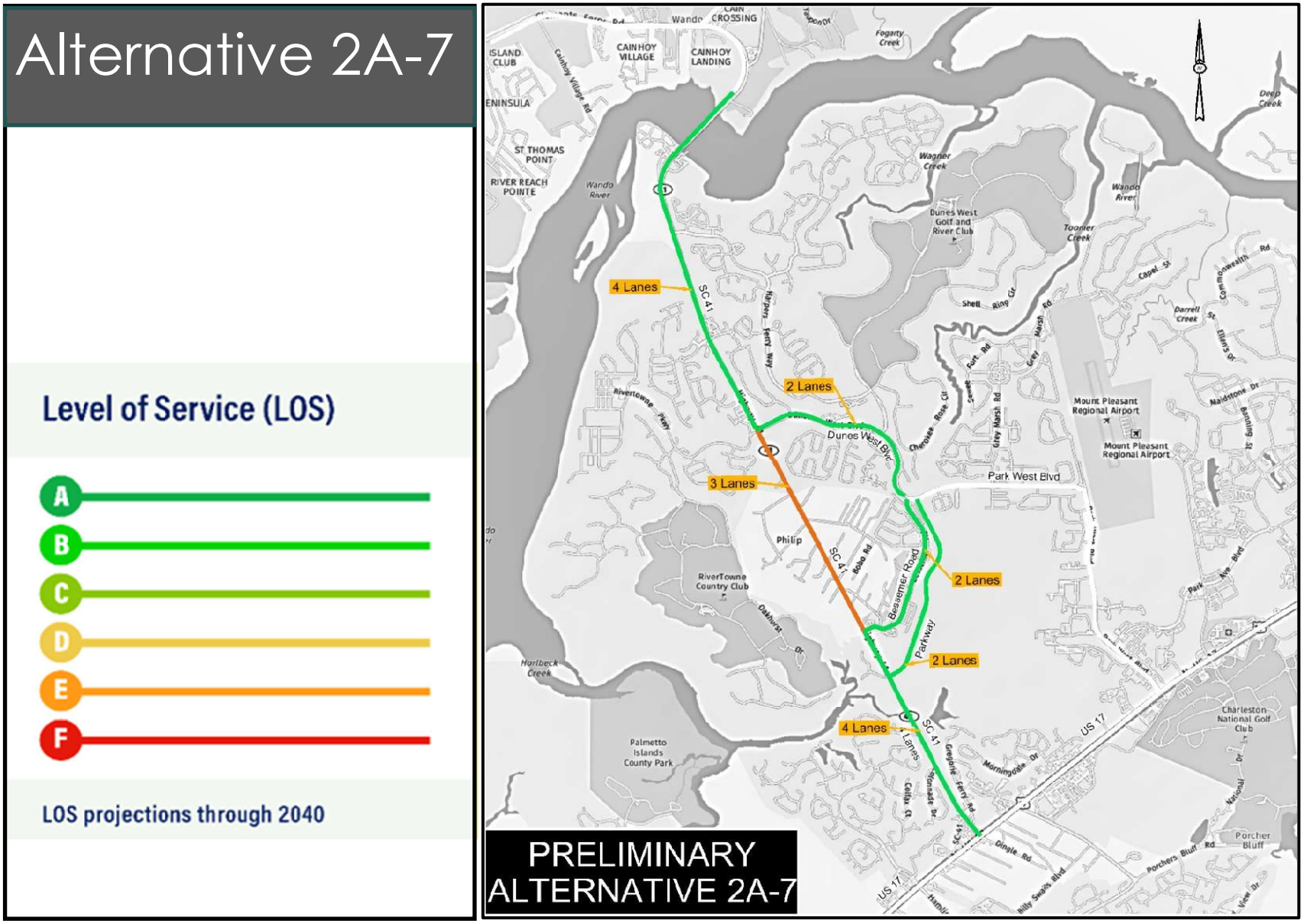


Figure 18: 2040 Alternative 3 LOS

Alternative 3

Level of Service (LOS)

A
B
C
D
E
F

LOS projections through 2040

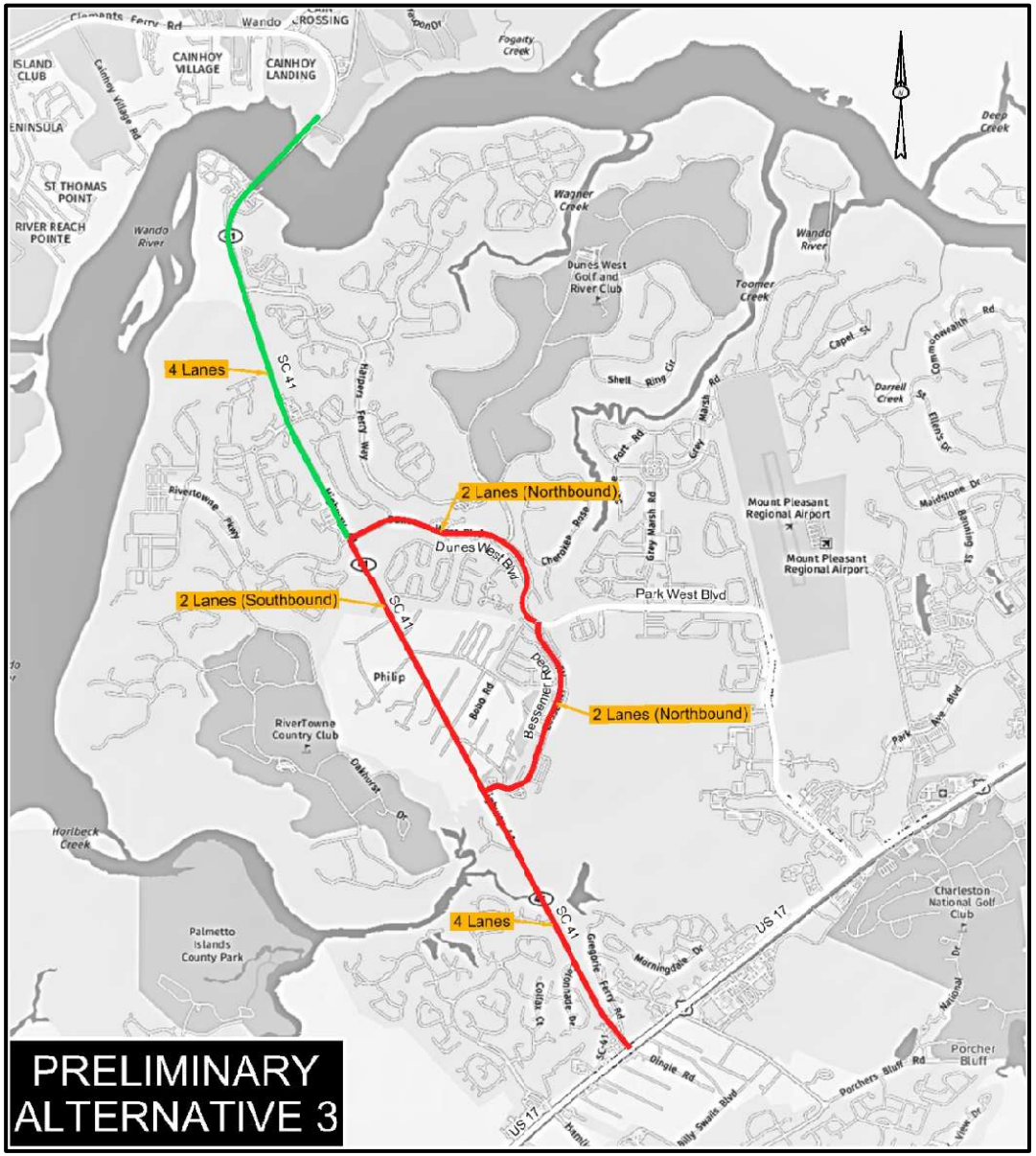


Figure 19: 2040 Alternative 4 LOS

Alternative 4

Level of Service (LOS)

A
B
C
D
E
F

LOS projections through 2040

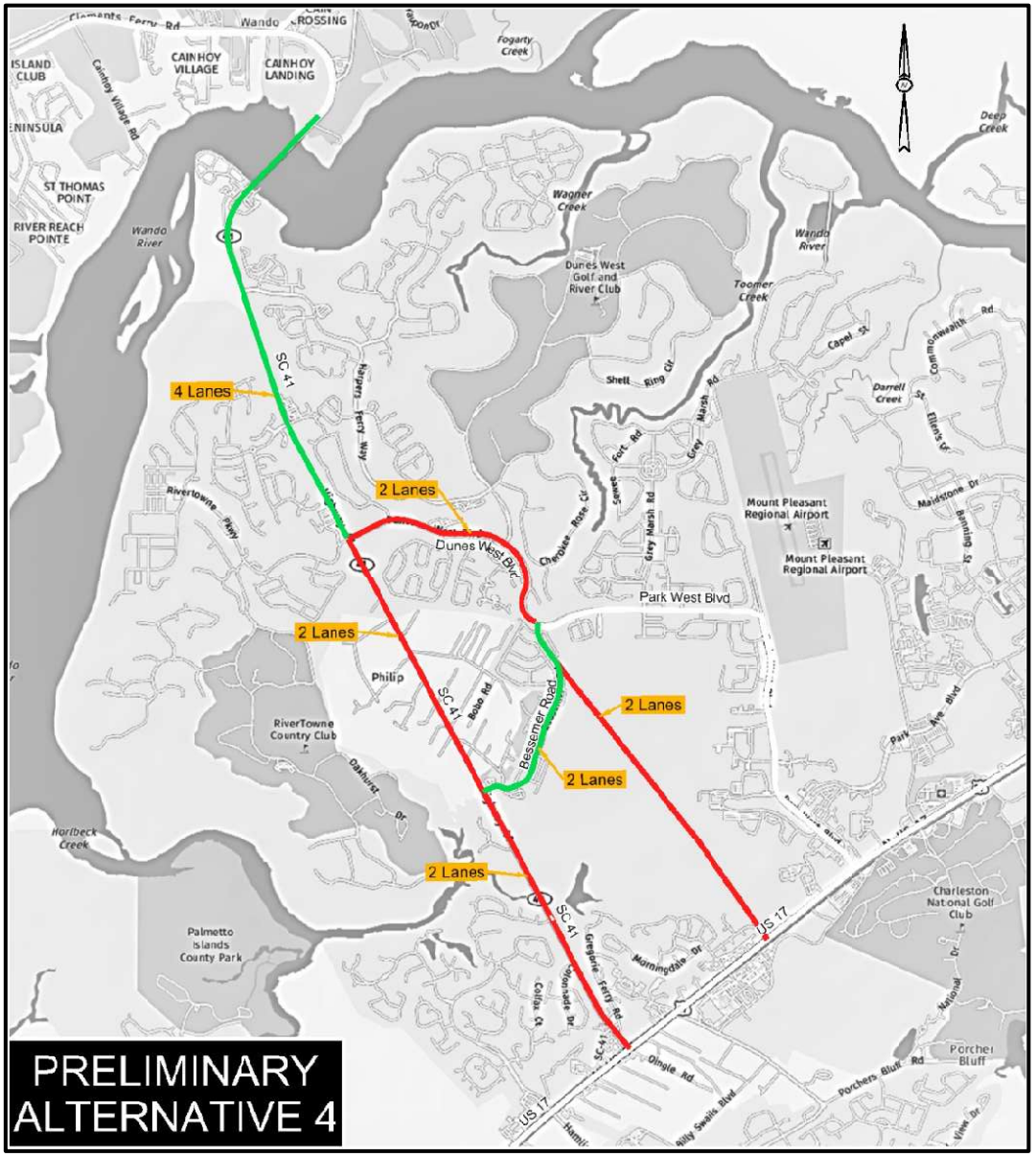


Figure 20: 2040 Alternative 5 LOS

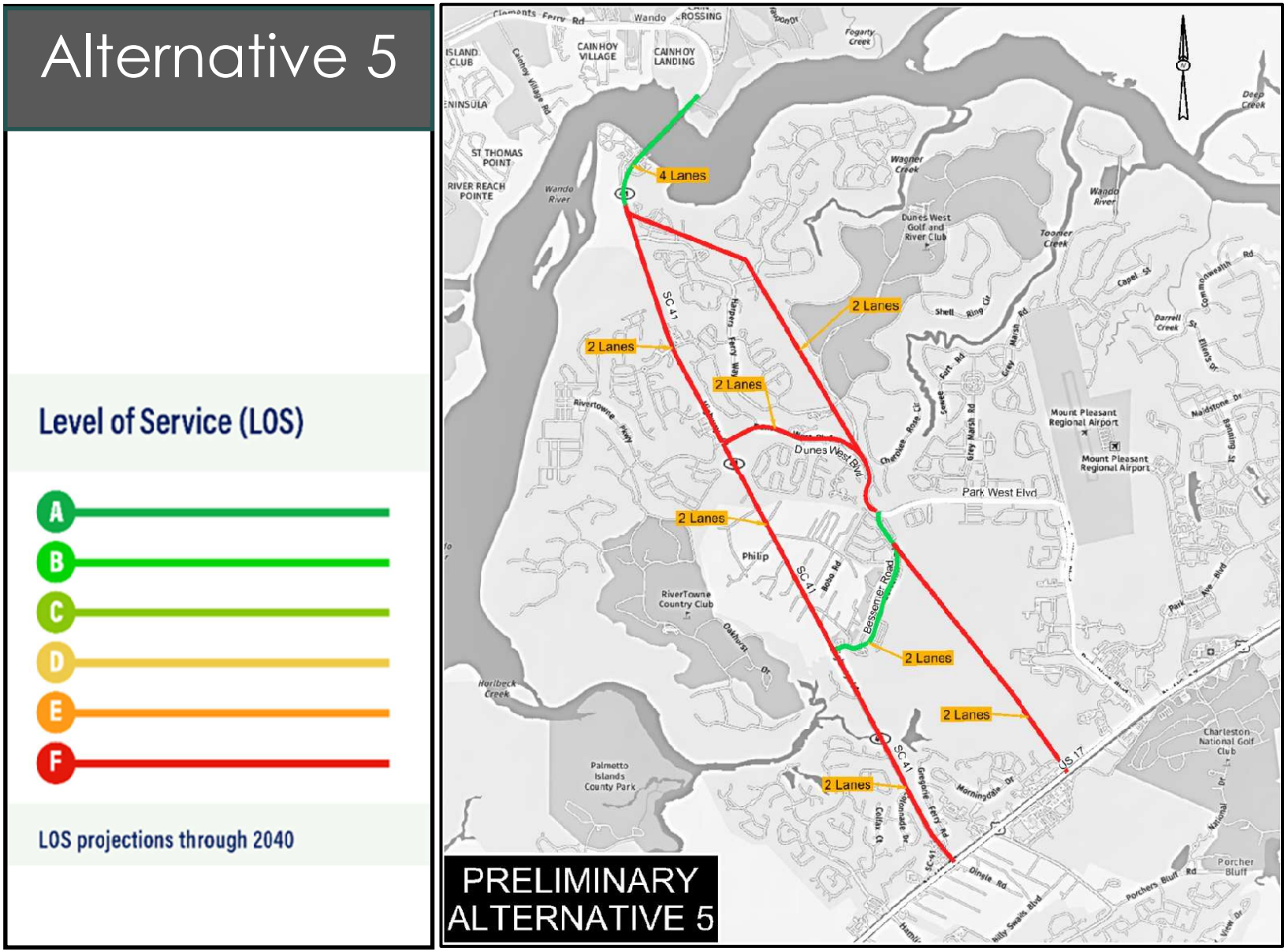


Figure 21: 2040 Alternative 6 LOS

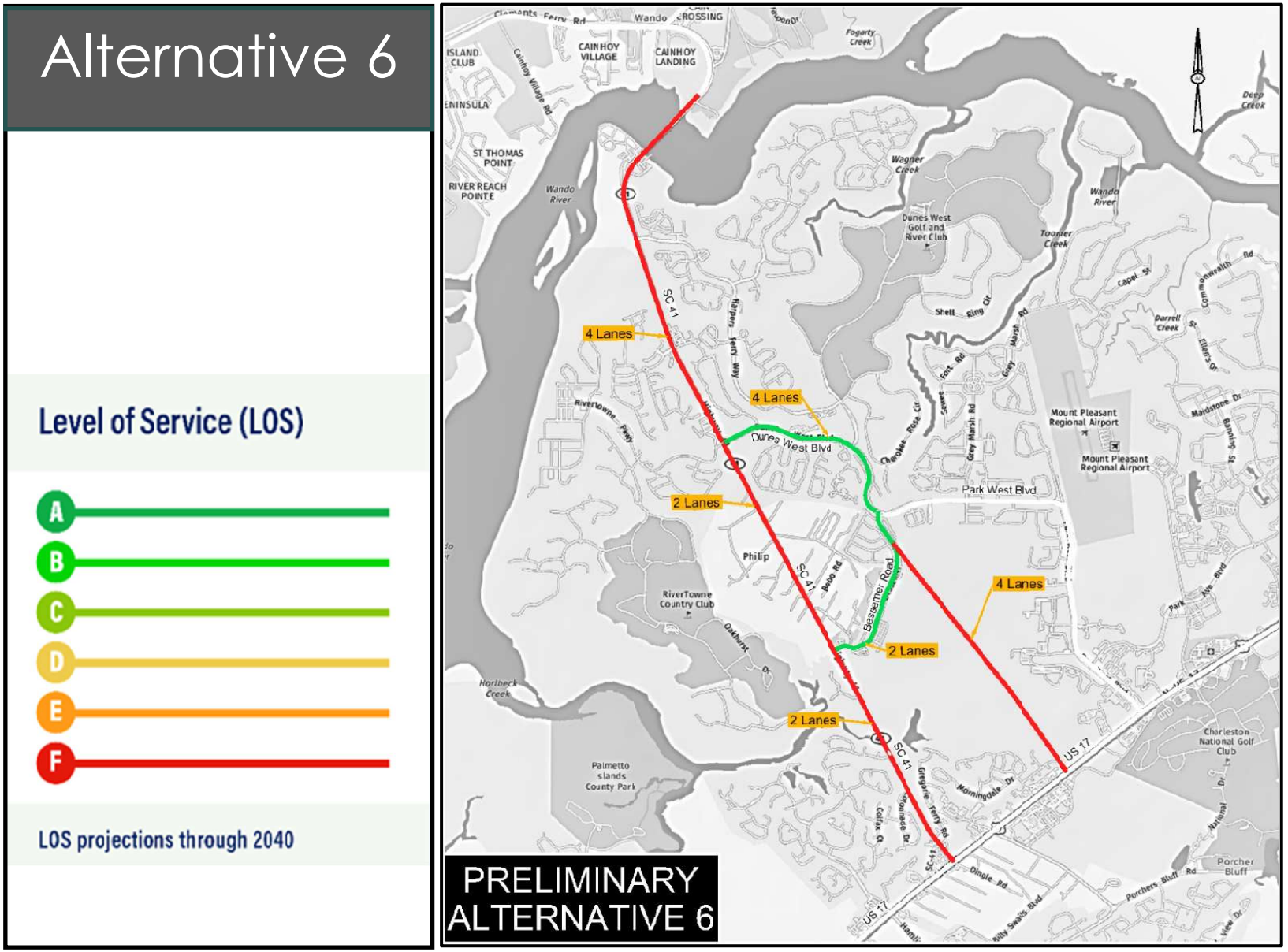


Figure 22: 2040 Alternative 7 LOS

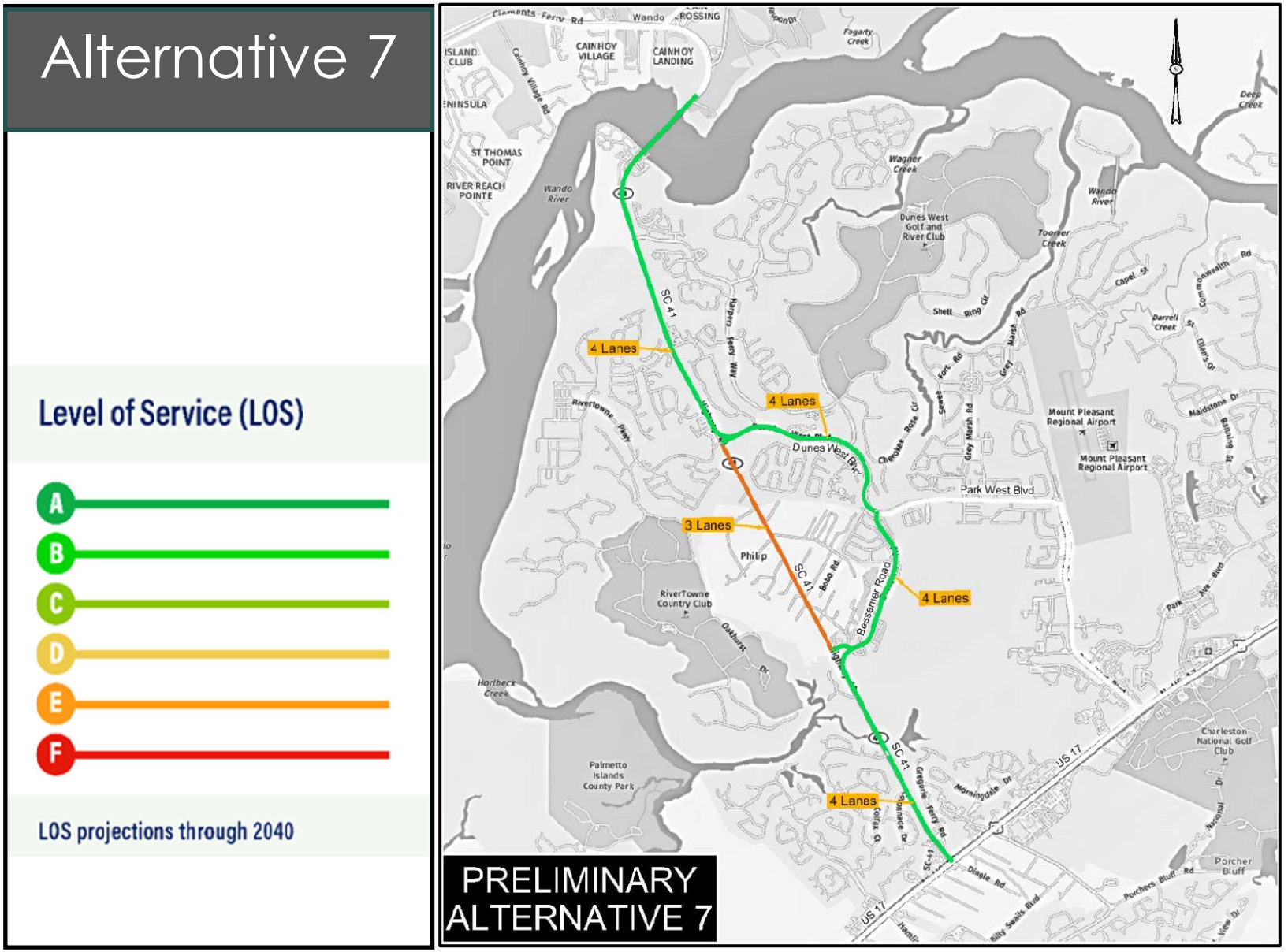


Figure 23: 2040 Alternative 8 LOS

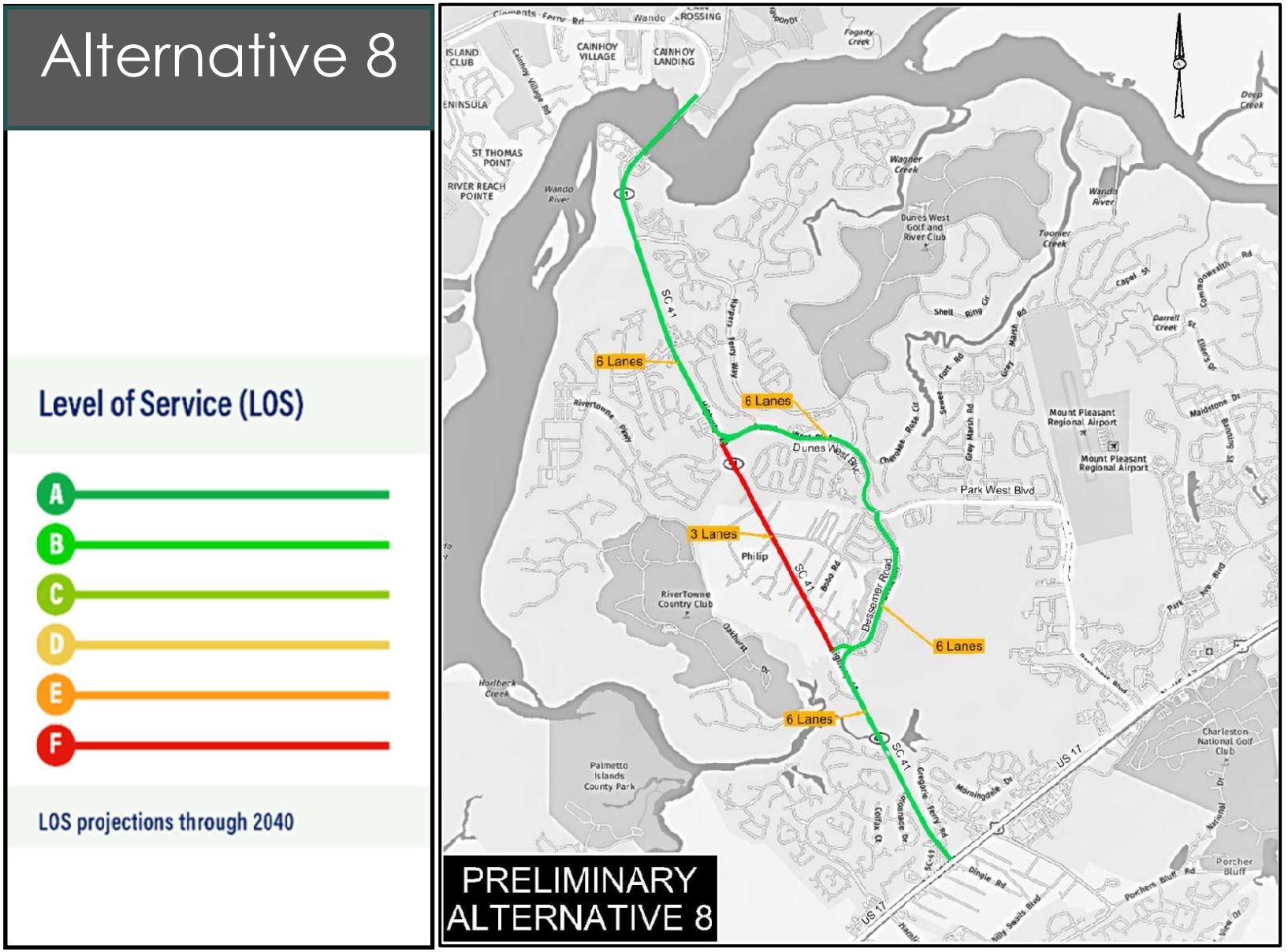
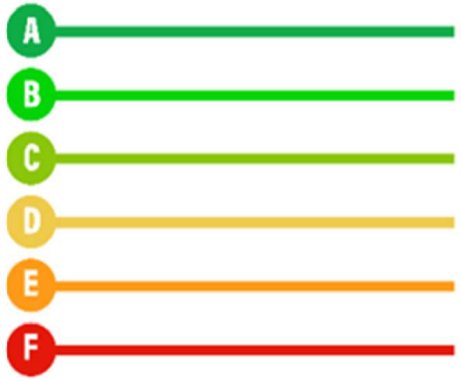


Figure 24: 2040 Alternative 9 LOS

Alternative 9

Level of Service (LOS)



LOS projections through 2040

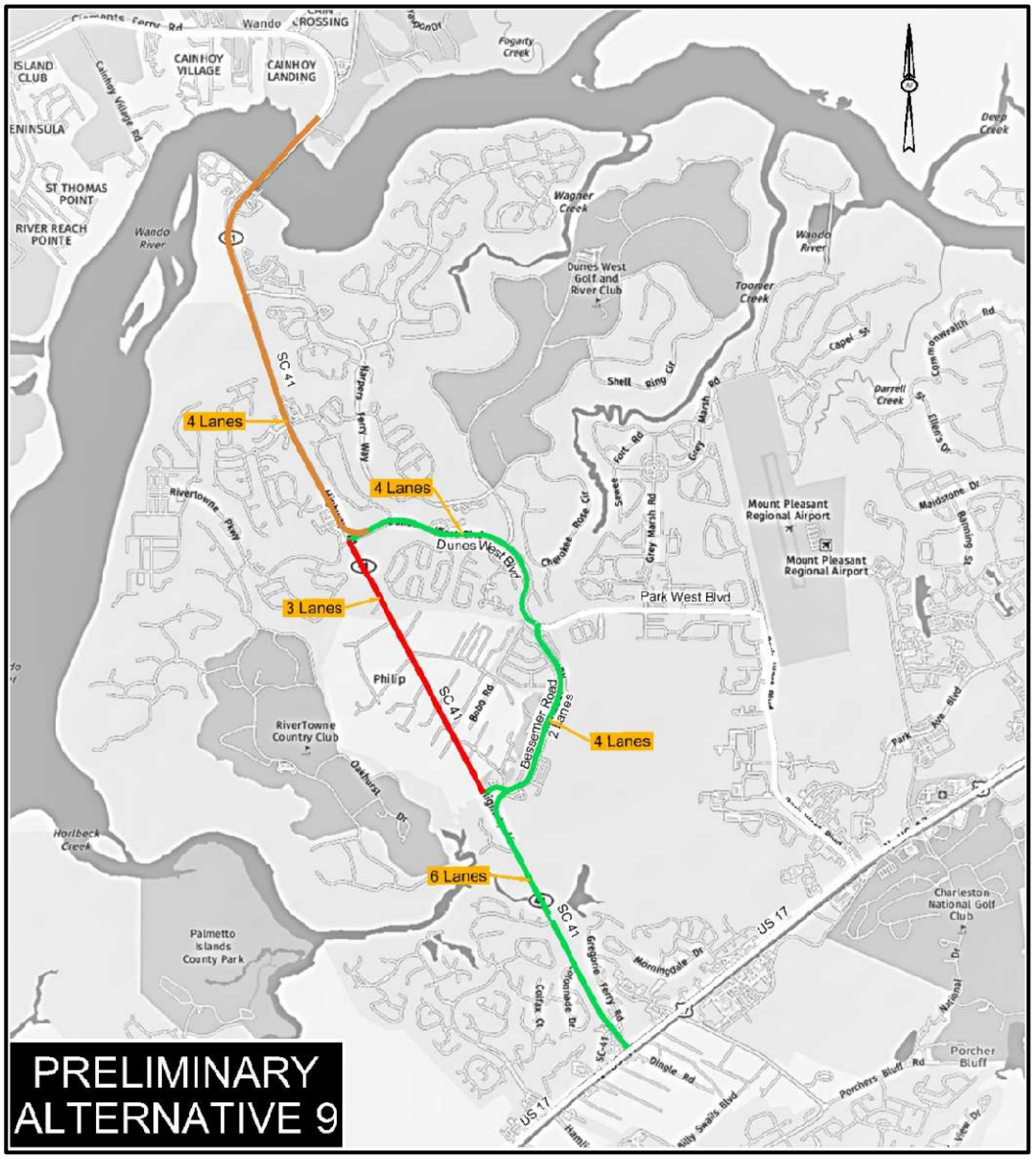


Figure 25: 2040 Alternative 10 LOS

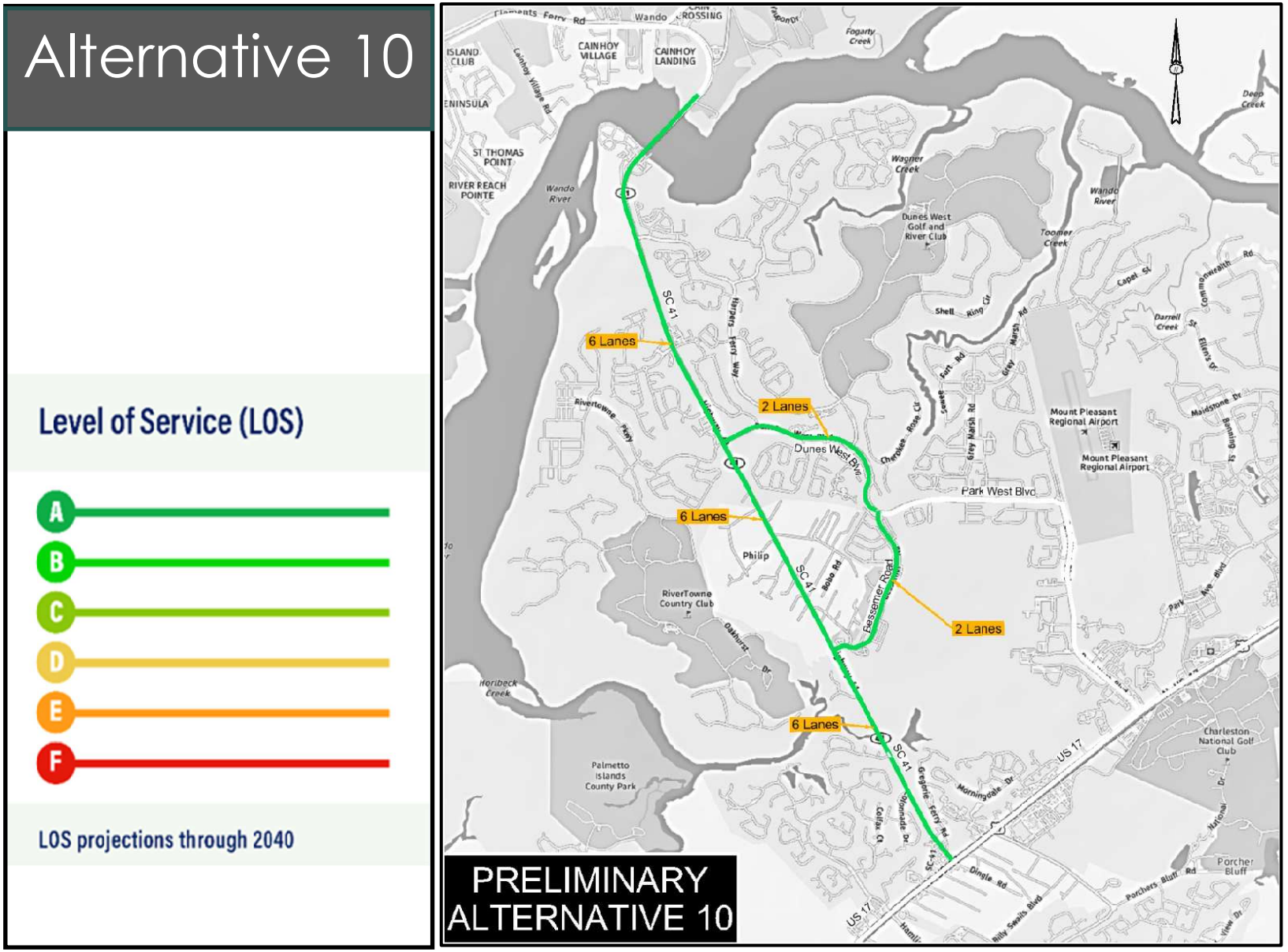


Figure 26: 2040 Alternative 11 LOS

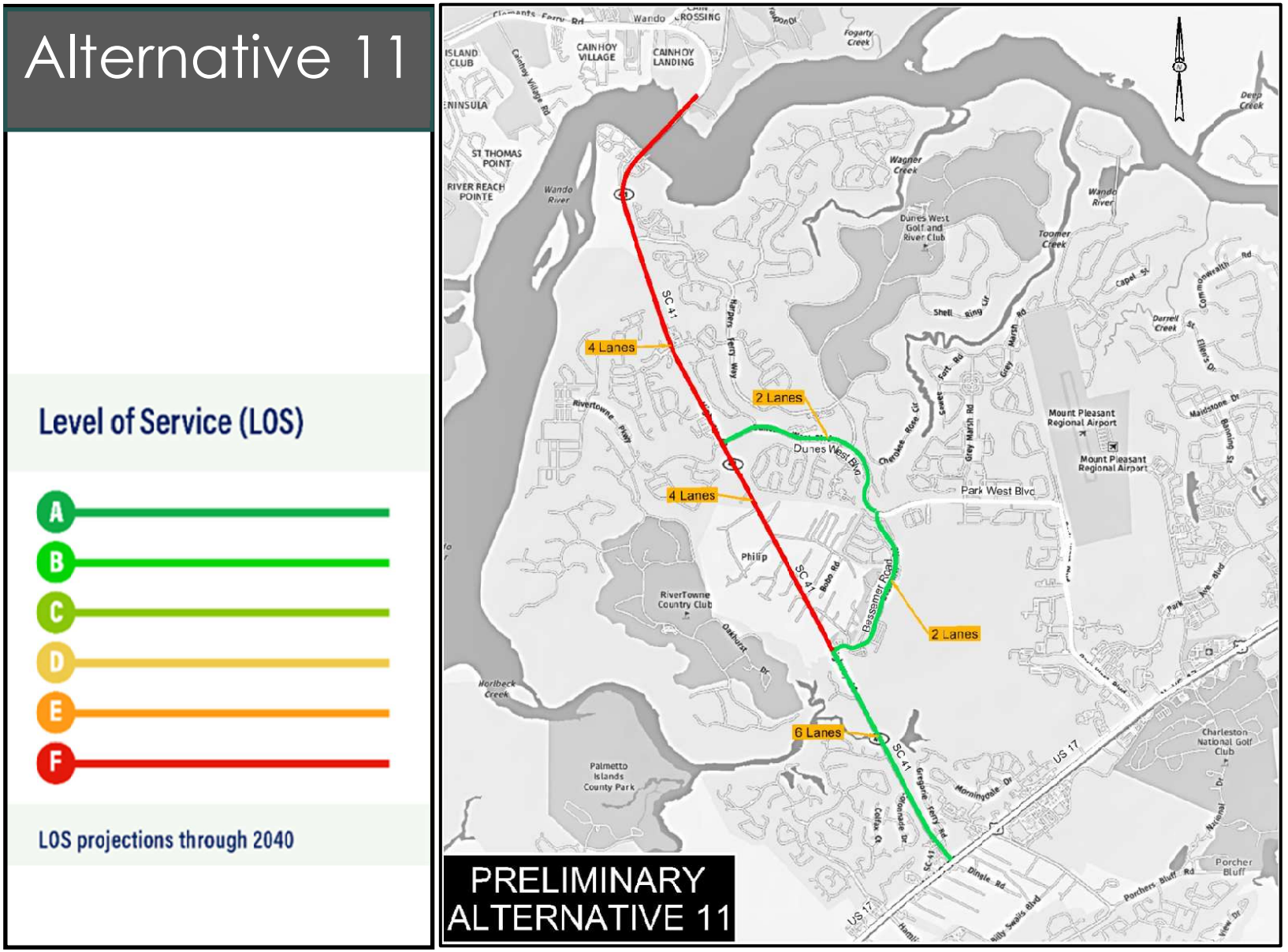
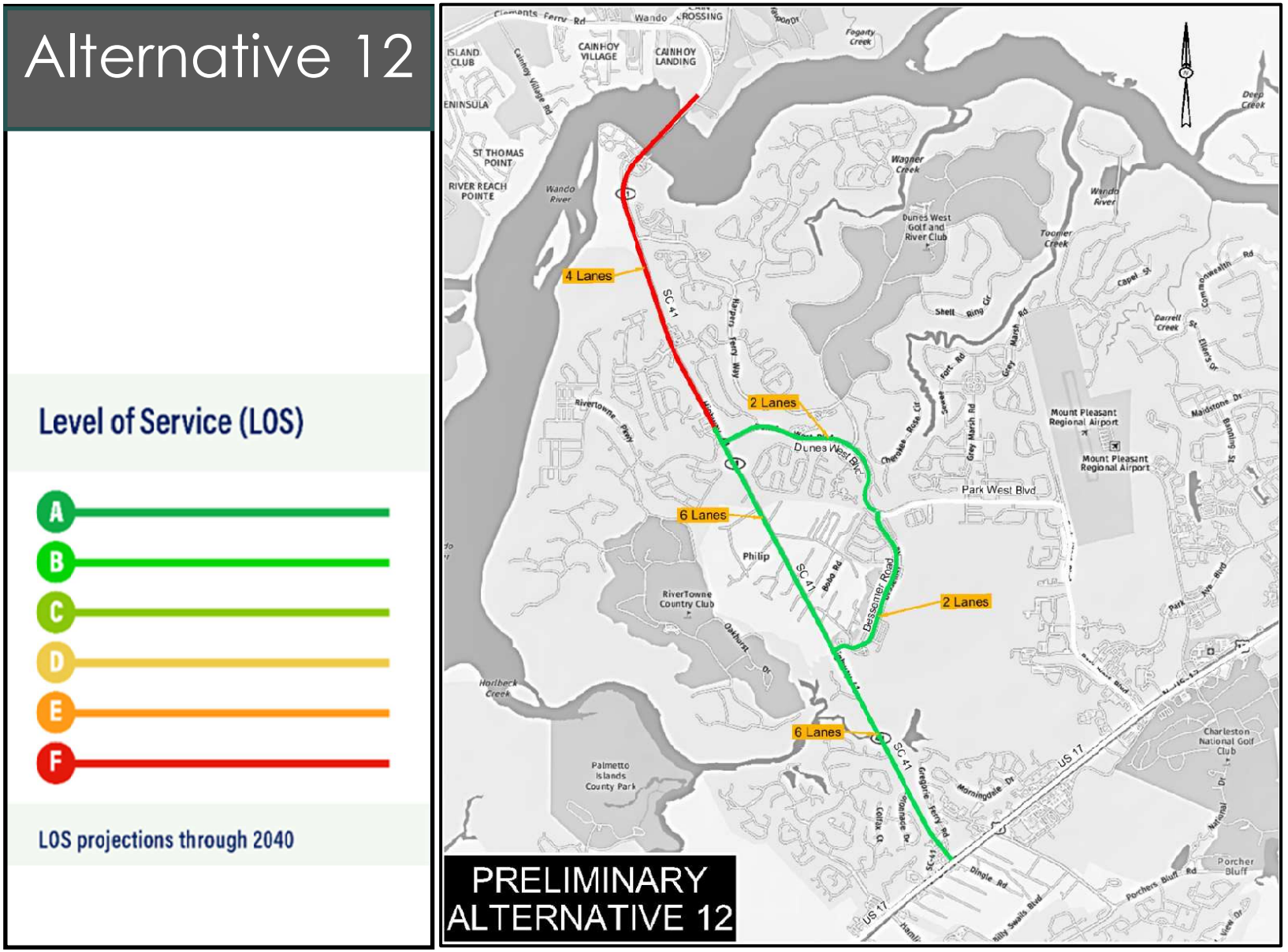


Figure 27: 2040 Alternative 12 LOS



Following the initial planning level screening analysis, the alternatives were refined, and more detailed analysis was performed for Alternatives 1, 2, and 7. The refinement included an update of growth forecasts in the project area to correspond to changes in development plans for Cainhoy Plantation.

Corridor LOS analysis was conducted for these selected alternatives using the Transportation Research Board's Highway Capacity Manual 2010 (HCM 2010) methodologies of the HCS 7 and HCS 2010 software. LOS grades range from A to F, which correspond to the traffic density in passenger cars per mile per lane (pc/mi/ln) for multilane highways, and the percentage of free-flow speed (PFFS%) or the percent-time-spent following (PTSF%) for two-lane highways, depending on classification.

Traffic flow conditions corresponding to LOS A to F by HCM methods are the same as previously described for the planning level screening. **Table 13** summarizes the HCM 2010 thresholds associated with each LOS grade for two-lane and multilane highways.

Table 13: HCM 2010 Automobile LOS for Two-Lane and Multilane Highways

Class I Highways		Class III Highways	Multilane Highways	
LOS	PTSF* (%)	PFFS** (%)	LOS	Density(pc/mi/ln)
A	≤ 35	> 91.7	A	> 0 - 11
B	> 35 – 50	> 83.3 – 91.7	B	> 11 - 18
C	> 50 – 65	> 75.0 – 83.3	C	> 18 – 26
D	> 65 – 80	> 66.7 – 75.0	D	> 26 – 35
E	> 80	≤ 66.7	E	> 35 – 45
			F	> 45

** Percent Time Spent Following*
*** Percent Free Flow Speed*

The results of the HCM analysis for Alternatives 1, 2, and 7 are shown in **Table 14**. For each alternative, the results are presented with the same level of development (growth in travel demand) as the planning level screening analysis. The results of this preliminary analysis indicate that Alternatives 1 and 7 merited further analysis. Each of these alternatives was developed in greater detail, including completed microsimulation models and the results were reported in a traffic report dated August 2020.

Table 14: SC 41 HCS Peak Hour Corridor Analysis Results

Roadway	Segment		Levels of Service/Density (pc/mi/ln) or PTSF (%) or PFFS (%)*							
			No Build		Alt 1		Alt 2		Alt 7	
			NB	SB	NB	SB	NB	SB	NB	SB
SC 41	US 17 to Joe Rouse	LOS	F	F	D / 31.5	D / 31.5	C / 25.8	C / 25.8	C / 22.9	C / 22.9
		Lanes	2		4		4		4	
	Joe Rouse to Dunes West ***	LOS	E / 93.0%	E / 93.0%	D / 26.5	D / 27.6	F	F	E / 92.3%	E / 92.3%
		Lanes	2		4		3		3	
	Dunes West to Wando River	LOS	E / 94.3%	E / 94.3%	C / 22.5	C / 22.5	C / 18.1	C / 18.1	C / 19.6	C / 19.6
		Lanes	2		4		4		4	
			EB	WB	EB	WB	EB	WB	EB	WB
Bessemer ***	SC 41 to Park West (E-W)	LOS	B / 85.3%	B / 85.5%	C / 83.3%	B / 83.5%	C / 82.8%	C / 82.9%	A / 8.8	A / 8.8
		Lanes	2		2		2		4	
Dunes West ***	Park West to SC 41 (E-W)	LOS	E / 65.8%	E / 65.8%	D / 74.8%	D / 74.8%	D / 71.6%	D / 71.6%	B / 14.2	B / 14.1
		Lanes	2		2		2		4	

**LOS based on HCS 7 for Multilane Highways and HCS 2010 for Two-Lane Highways. Volumes determined by assuming 10% of the AADT and a 50/50 directional split.*
*** This segment of SC 41 analyzed as Class I Highway (40 mph or higher posted speed). The 2 & 3 lane LOS determined based on percent time spent following (PTSF %). However, if volume exceeds capacity for this segment, that metric ultimately determines LOS.*
****The Class III 2 lane roadway LOS is determined based off the percent free-flow speed (PFFS %). These segments were analyzed as Class III Highways.*

5 Detailed Evaluation of Alternatives

5.1 Microsimulation Modeling Detail

Stantec conducted traffic analyses using VISSIM 8.0 microsimulation software to evaluate the calibrated Base Year, Design Year (2045) No Build, Design Year (2045) Alt 1 Build, and Design Year (2045) Alt 7A Build traffic conditions in the SC 41 study area. The study area was expanded to include all of Park West Boulevard between Bessemer Road and US 17, and Billy Swails Boulevard between Porchers Bluff Road and SC 517. These were added to the models after improvement alternatives were extended outside of the SC 41 and US 17 corridors, and to provide alternate, parallel routes for more accurate route assignments. The recommended build alternative is known as the Compromise Alternative, or Alternative 2A-7.

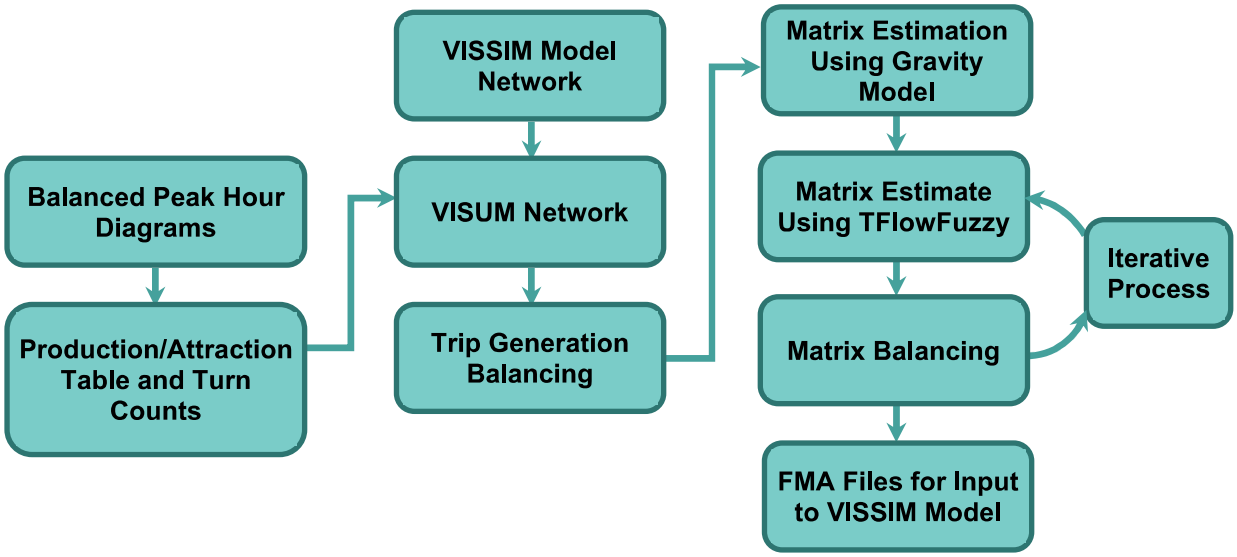
The calibrated Base Year VISSIM microsimulation model uses Base Year traffic volumes and is calibrated to match the travel conditions through the study area network. This model provides a dynamic view of capacity constraints within the system. Another version of the VISSIM model is then run using the Design Year (2045) traffic volumes. The base and design year conditions models effectively illustrate the progressive breakdowns in traffic flow in the network and help initiate the prioritization of improvement alternatives.

The process of developing and calibrating a model to the Base Year is documented in **Appendix D**.

5.1.1 OD Matrix Development

The design year model development began by estimating the travel demand in an origin-destination (OD) matrix format. The OD estimation was performed using the TFlowFuzzy module in VISUM. The TFlowFuzzy process requires three input data – a network, a seed OD trip table, and demand traffic count data. The coverage of the network and the zone structure are the same as in VISSIM. The OD estimation process involved a series of trip assignment and OD trip table adjustments performed by the TFlowFuzzy module. A graphical depiction of the general OD matrix estimation process and necessary data is shown in **Figure 28.**

Figure 28: OD Matrix Estimation Process



5.1.2 Future Model Data Collection

5.1.2.1 Geometric Data

Geometric data such as link distance, number of lanes, turn lane length, lane width, and curvature were obtained using a combination of aerial photography collected in 2015, Bing© maps, and preliminary roadway design files for the committed projects with designs available. Grade data was gathered and implemented into the Design Year (2045) Build models for the proposed bridge along US 17 Northbound over the US 17 and Winnowing Way/Porchers Bluff intersection.

5.1.2.2 Traffic Control Data

The No-Build and Build networks were modeled in Synchro using the projected turning movement volumes for 2045. Signals were optimized in Synchro to determine the optimal cycle length, splits, and offsets for each signal in the network. Existing signal phasing was used in locations where the geometry was not being modified and phasing changes were not necessary. Signal phasing was modified in locations where the geometry and/or projected traffic volumes required it. Additionally, the timings that Synchro provided are used as a starting point for the VISSIM model, but do not always best accommodate the simulated traffic. Therefore, some of the signal timing was modified in VISSIM and may not match the Synchro files. This was performed to maximize efficiency at the signals and accommodate all movements, particularly the coordinated phases and/or ramp approaches.

5.1.3 Model Adjustments and Quality Control

The Base Year calibrated model included adjustments to various model parameters, including, but not limited to, the following:

- Driver behavior types & link behaviors; Lane change distances; OD matrices; Desired speed distributions; and Vehicle route closures.

These parameter adjustments ensured that the Base Year model reasonably matched existing conditions. However, as demand increased with future year projected growth, some areas which operated properly in the Base Year became problematic in the future years. Some of the issues observed in the simulation included, but were not limited to, the following:

- Vehicles waiting too long to change lanes in advance of a turn or lane-drop, particularly on arterials;
- Vehicles getting to the end of a merge lane and stopping, rather than working their way into the mainline lanes within the assigned acceleration lane distance; and
- Vehicles using an unreasonable path that was not present in the Base Year model.

To ensure that the future year models did not show unrealistic conditions, some parameters were modified in the No Build and Build networks. The following is a list of some of the parameters changed during this process:

- Adjustments to OD matrices;
- Increasing of lane change distance on connectors;
- Addition of route closures for unreasonable or illogical paths;
- Adjustment of traffic control parameters at intersections that changed from the Base Year to the future year No-Build conditions;
- Adjustments to reduced speed areas; and
- Modification of link behavior types.

Stantec acquired StreetLight cell phone data to supplement observed travel times in the SC 41 and US 17 corridors. This data was valuable in updating the calibrated base year model and for enhancing the origin-destination matrices to seed the VISSIM model.

5.2 Microsimulation Modeling of Alternatives

5.2.1 Development and Progression of Alternatives

The preliminary screening process produced Alternatives 1 and 7, and these alternatives, along with the No-Build Alternative, were modeled using PTV Vissim, a microsimulation modeling software. Throughout the process of analysis, variant of Alternative 7, referred to as 7A, was developed. Alternative 7A included a bypass around the south end of the Phillips Community from SC 41 to Park West Boulevard but followed the Dunes West Boulevard alignment between Park West Boulevard and SC 41 on the north side of the Phillips Community.

The network for the initial calibrated base year, and the design year no-build, Alternative 1 and Alternative 7A models was limited to the SC 41 alignment from US 17 to Clement Ferry Road, and US 17 from Six Mile Road to Park West Boulevard. In this network, the connecting streets were treated as "sinks" or "parking lots" from/to which traffic entered or exited the network. This network was used because, when the modeling process began, there was no indication that off-line alternatives would be considered. In other words, it was believed that the only alternatives would be varying widening concepts along SC 41 itself.

5.2.2 Alternatives 1 and 7A Measures of Effectiveness

The results of this analysis are summarized in **Table 15**. These are the overall network Measures of Effectiveness, or MOE's, based on the basic network described above. Both of these build alternatives indicate significant improvement over the no-build alternative.

Table 15: Measures of Effectiveness – Initial Alternatives 1 and 7A

		AM PEAK HOUR					PM PEAK HOUR				
Parameter	**Unit**	**No Build**	**Alt 1**		**Alt 7A**		**No Build**	**Alt 1**		**Alt 7A**	
Average Delay/Vehicle	minutes	10.0	3.5	-65%	3.9	-61%	11.6	4.0	-65%	4.2	-63%
Average Speed/Vehicle	mph	10.3	22.9	+123%	22.0	+113%	9.1	21.7	139%	20.9	130%
Total Travel Time (All Vehicles)	hours	3,310	2,421	-27%	2,671	-19%	3,486	2,611	-25%	2,801	-20%
Total Delay (All Vehicles)	hours	2,564	1,129	-56%	1,273	-50%	2,757	1,302	-53%	1,403	-49%
Volume Served	vehicles	11,396	16,504	+45%	16,758	+47%	10,094	16,658	65%	16,978	68%
Latent Delay (All Vehicles)	hours	2,425	1,506	-38%	1,278	-47%	3,360	2,156	-36%	1,860	-45%
Latent Demand	vehicles	4,555	2,390	-48%	2,032	-55%	6,065	3,497	-42%	3,076	-49%

Green highlighted cells indicate the improved condition.

Peak Hour Volumes for 2045 no-build conditions and build Alternatives 1 and 7A are illustrated in **Figures 29, 30 and 31**, respectively. These volumes reflect the demand volumes developed by growing existing counts at these intersections by the growth factors determined through the CHATS travel demand modeling process.

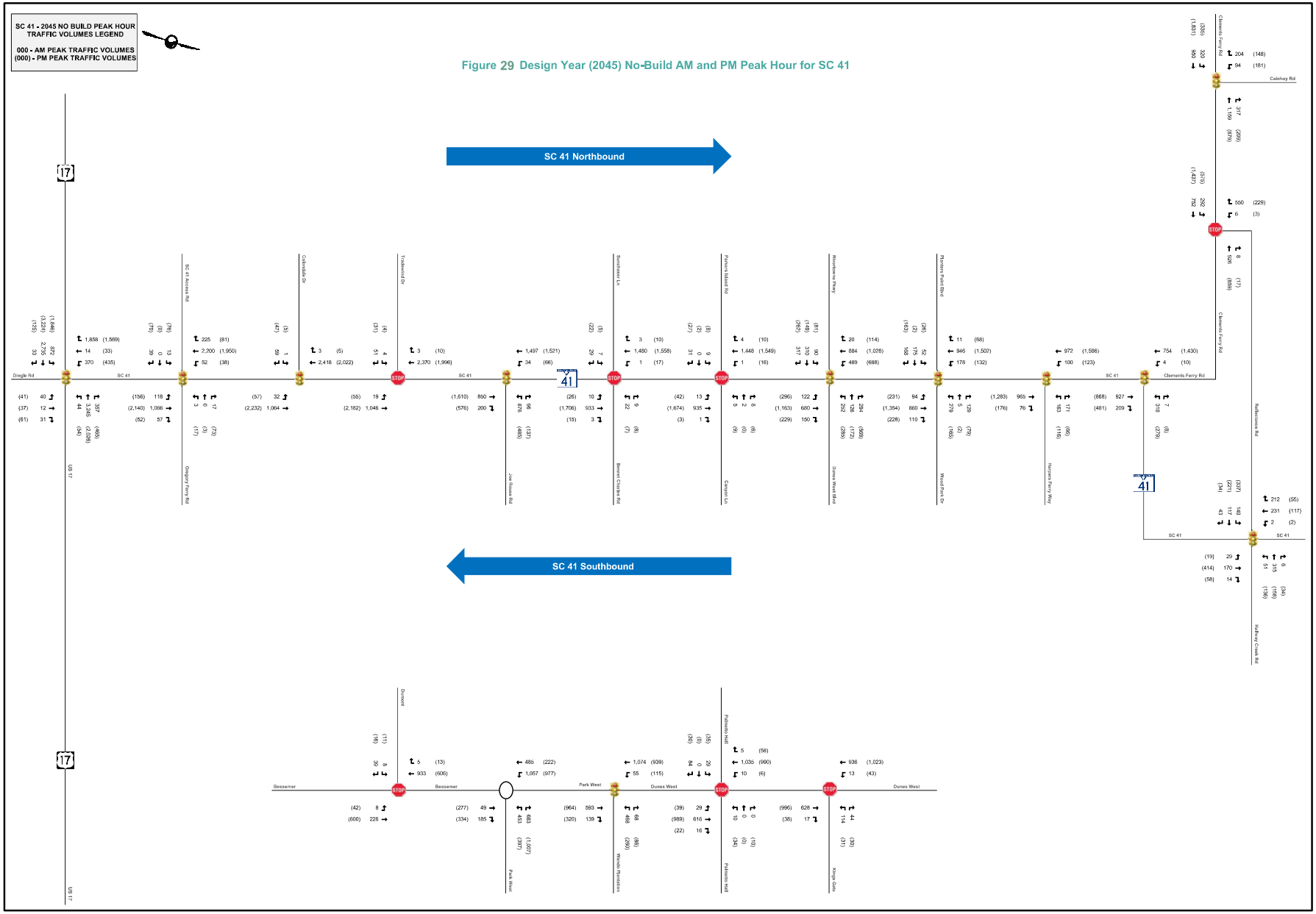


Figure 29 Design Year (2045) No-Build AM and PM Peak Hour for SC 41

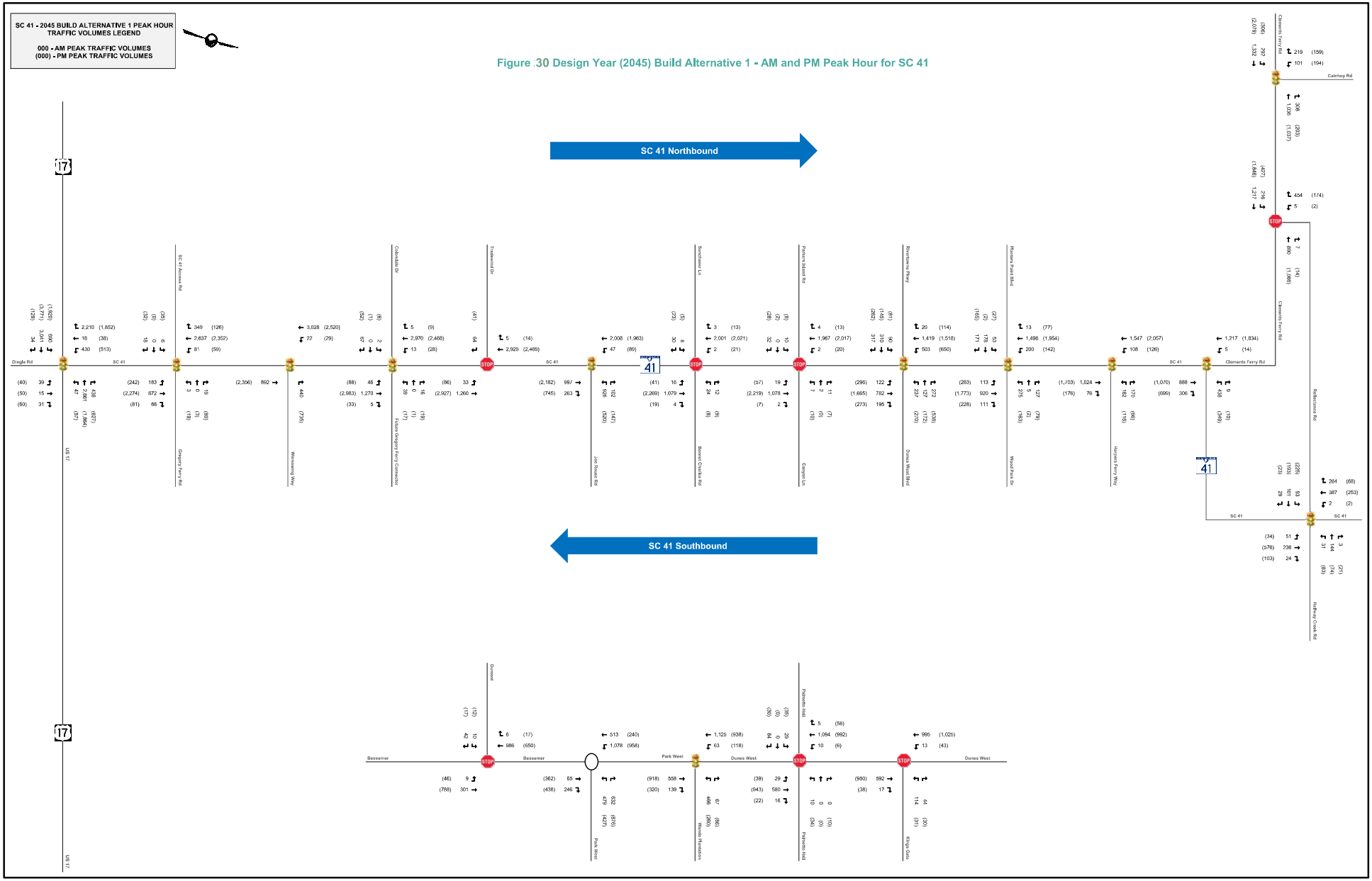


Figure 30 Design Year (2045) Build Alternative 1 - AM and PM Peak Hour for SC 41

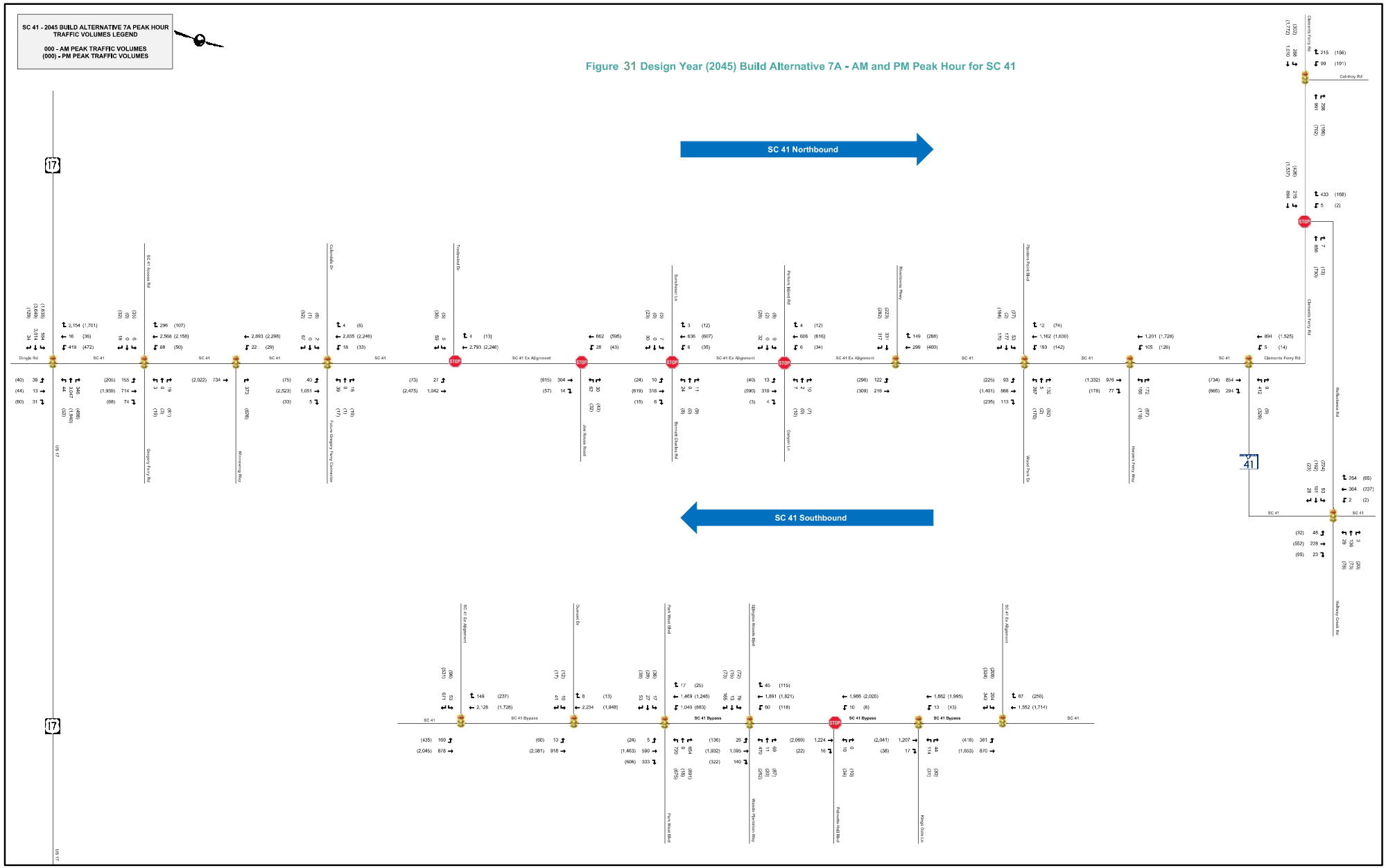


Figure 31 Design Year (2045) Build Alternative 7A - AM and PM Peak Hour for SC 41

5.2.3 Compromise Alternative (2A-7)

Following the presentation of the results of these models to the public, significant public and stakeholder input was received, and Alternatives 1 and 7A were ultimately eliminated due to community impacts and concerns. The design team was directed to develop a refined alternative, "Compromise Alternative (2A-7) based on the following conditions:

- The segment of SC 41 between Joe Rouse Road and Dunes West Boulevard, approximately 1.44 miles in length, is limited to a total width of three (3) lanes to stay within the existing 75' right-of-way. This limitation is based on minimizing impacts to the historical Phillips Community and is the key factor in eliminating Alternative 1.

- Dunes West Boulevard and Bessemer Road would not be widened, except for potential intersection improvements that would improve traffic flow between SC 41 and the two bookend intersections of the Phillips Community.

- The intersection of SC 41 and Joe Rouse Road (Bessemer Road) is a significant node in the network, in that one-third of the traffic between US 17 and Joe Rouse Road enters SC 41 from Joe Rouse Road in the AM peak and exits from SC 41 to Joe Rouse Road in the PM peak.

- The projected traffic growth in the SC 41 corridor is dominated by anticipated growth north of Dunes West Boulevard, and in particular north of the Wando River.

Due to the three-lane constraint through the Phillips Community combined with the traffic growth north of the Wando River, redirecting more traffic from the Dunes West and Park West neighborhoods to access SC 41 at the south end of the Phillips Community became the strategy to meeting the project purpose and need. Currently, much of the traffic originating in the Dunes West community turns right from Wando Plantation Way to Dunes West Boulevard, then left on southbound SC 41. Within Dunes West, traffic can also access southbound SC 41 directly via Harpers Ferry Way. By improving the route around the south side of the Phillips Community, the Compromise Alternative was developed through an iterative process of travel demand modeling and ultimately, microsimulation modeling. The Compromise Alternative serves as the build alternative for which results are provided herein. The Compromise Alternative, hereinafter referred to as Alternative 2A-7, includes the following:

- Widen SC 41 to a divided four-lane roadway from US 17 to Joe Rouse Road. Convert the intersection of SC 41 & Joe Rouse to a green-T intersection.
- Widen SC 41 to a three-lane roadway from Joe Rouse Road to Dunes West Boulevard.
- Widen SC 41 from Dunes West Boulevard to the Wando River Bridge to a divided four-lane roadway.
- Construct a two-lane parkway on new alignment from the intersection of SC 41 & Cardinal Hill Drive to the intersection of Bessemer Road & Park West Boulevard.
- At the intersection of SC 41 & US 17:
    - Extend Winnowing Way from its current intersection with Gregorie Ferry Road to intersect SC 41. Widen Winnowing Way to a divided three-lane (1 NB & 2 SB) roadway.
    - Modify SC 41 & US 17 intersection to prohibit southbound SC 41 to northbound US 17 left turns, and to prohibit southbound through movements to Dingle Road.
    - Modify SC 41 & Winnowing Way intersection with added turn lanes to accommodate additional traffic.

5.2.3.1 SC 41 & US 17 Concept Development

Alternative Development Considerations

The development of concepts for the intersection of US 17 and SC 41 was based on the following principals:

- US 17 south of SC 41 was near capacity in the Base Year and the growth, added capacity and resulting volumes of traffic to/from SC 41 would exceed that capacity.
- Increased traffic at the intersection would need to be dispersed to the greatest extent possible among the roads in the network parallel to US 17. This focused on the US 17 parallel route, Billy Swails Boulevard.
- High volumes of northbound US 17 to northbound SC 41 traffic conflicted with high volumes of southbound US 17 through traffic, which necessitates some grade separated movements.
- A typical grade-separated solution for a T-intersection might include a partial diamond or directional ramps. These may adversely affect local access to both US 17 and SC 41 given the existing land use and access conditions.
- Separation of high-volume critical movements might be accomplished by innovative intersection designs such as displaced lefts or limited grade separations.

Range of Alternatives Considered

The conditions listed above led to the development of the following range of alternatives for improvements along US 17 which would accommodate the selected alternative in the SC 41 corridor:

- Grade separate all intersections (Hamlin/41/Porchers) on US 17 at second level and lefts from 17 to 41 at third level.
- Grade separated interchanges along US 17 at Brickyard-Hamlin, SC 41, and Porchers Bluff Road. US 17 at the second level, and all left turns from US 17 at third level.
- Diverging Diamond Interchange at SC 41/US 17 with wide ramps. Tight diamond interchange at US 17/Brickyard-Hamlin Road.
    - Variation: Diverging Diamond Interchange at SC 41/US 17 with wide ramps. US 17/Brickyard-Hamlin remains at-grade with roundabouts on Brickyard Parkway and on Hamlin Road to accommodate traffic diverted from left turn restrictions on US 17.
- Diverging Diamond Interchange at SC 41/US 17 with tight ramps. Tight diamond interchange at US 17/Brickyard-Hamlin Road.
- Echelon Interchange at SC 41/US 17. US 17/Brickyard-Hamlin remains at-grade with roundabouts.
- Three Level Interchange at US 17/Porchers Bluff Road. US 17/Brickyard-Hamlin remains at-grade with roundabouts.
- Diverging Diamond Interchange at US 17/Porchers Bluff-Winnowing Way. US 17/Brickyard-Hamlin remains at-grade with roundabouts.
- Echelon Interchange at US 17/Porchers Bluff-Winnowing Way. US 17/Brickyard-Hamlin remains at-grade with roundabouts.

- US 17 overpass from west of Brickyard-Hamlin to east of Porchers Bluff-Winnowing Way.
- Triple lefts at US 17/SC 41. Overpass at Porchers Bluff-Winnowing Way. US 17/Porchers Bluff-Winnowing Way. US 17/Brickyard-Hamlin remains at-grade with roundabouts.
    - Variation: Triple lefts at US 17/SC 41. Overpass at Porchers Bluff-Winnowing Way. US 17/Brickyard-Hamlin remains at-grade with no southbound left turns to Hamlin.
- Loop ramp at Porchers Bluff Road. Brickyard-Hamlin remain at-grade with roundabouts.
- Separation of conflicting, high-volume (critical) movements at the SC 41 & US 17 intersection by utilizing Winnowing Way, extended to SC 41, as the path for southbound SC 41 traffic to access US 17 north. Prohibit southbound SC 41 through and lefts at the existing SC 41 & US 17 intersection.

Some or all of these alternatives may have satisfied the future traffic needs for the project, but they were reduced to the following recommended alternative, based on appropriate distribution of traffic to the network and reduced impacts:

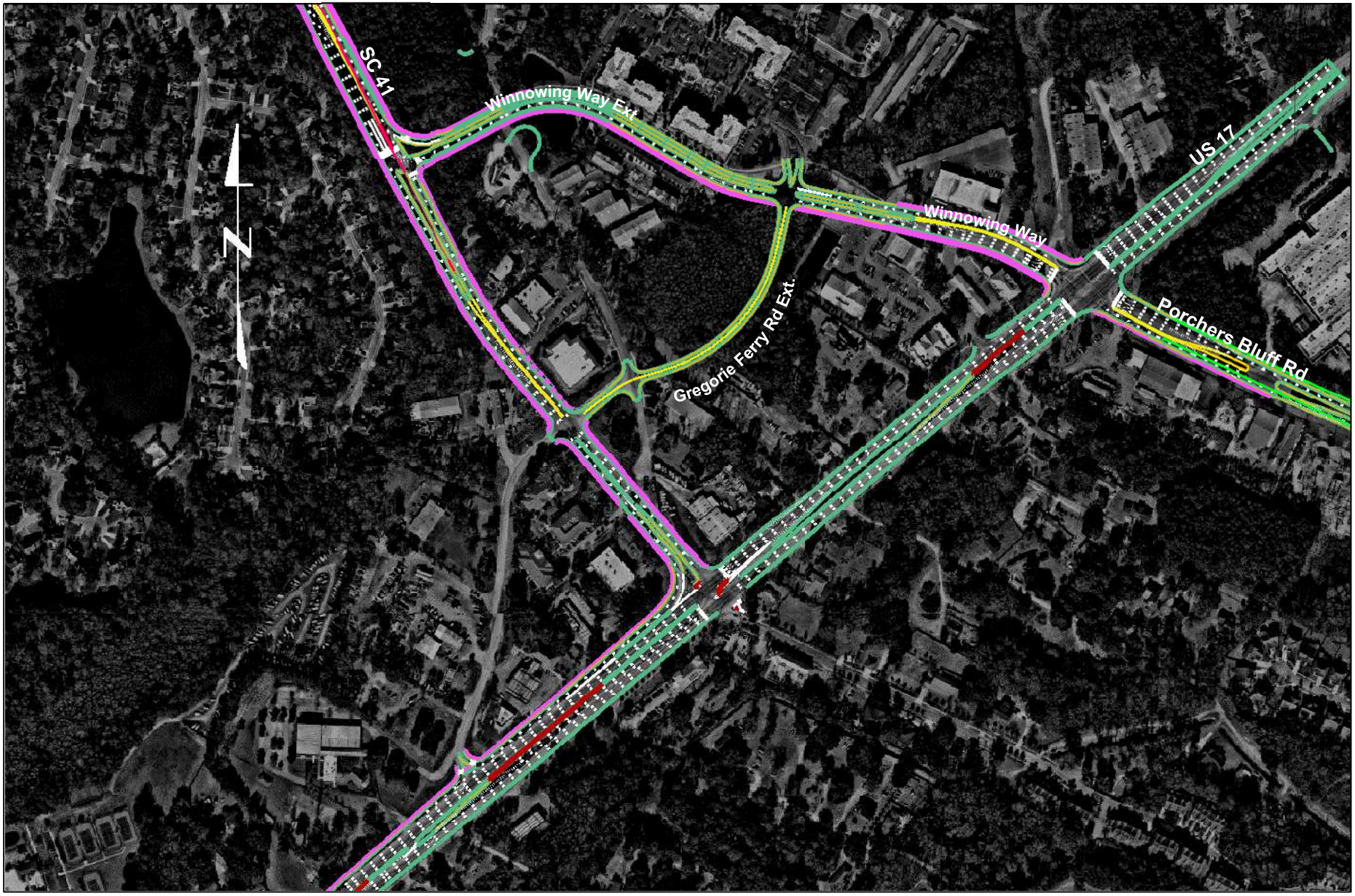
- Extend Winnowing Way to SC 41. The T-intersection will be located along SC 41 midway between the existing access road (Old 41) and Colonnade Drive. All southbound SC 41 traffic bound for northbound US 17 or for Dingle Road will use this extended Winnowing Way. This new intersection will include dual signalized right turns from Winnowing Way to SC 41 northbound.
- Southbound SC 41 southbound US 17 right turns will be provided three signalized turn lanes at the existing SC 41 & US 17 intersection. These lanes will be directed into the existing three southbound through lanes. This avoids the need for additional US 17 widening and may be better coordinated with the Brickyard Parkway signal downstream.
- Provide dual northbound left turn lanes from US 17 to Winnowing Way, and dual southbound left turn lanes from US 17 to Porchers Bluff Road.
- Provide dual left turn lanes from Winnowing Way to US 17 northbound, and from Porchers Bluff Road to US 17 southbound.
- Widen Porchers Bluff Road to Billy Swails Road.
- Restripe the Hamlin Road and Brickyard Parkway approaches to US 17 to provide dual left turns on both approaches.
- No other widening of US 17 is required.

This intersection concept was initially developed using Synchro with SimTraffic simulations and manually redistributed turning movement volumes, and then modeled with the rest of the 2A-7 build alternative to evaluate its performance.

This alternative, considered a component of Alternative 2A-7, improves the operation of the SC 41 & US 17 intersection (particularly given the additional volume form SC 41 after widening) by removing the southbound SC 41 through and left phases from the intersection. The simulations also distribute more southbound SC 41 traffic and southbound US 17 traffic to the Billy Swails Boulevard corridor.

The concept is illustrated in **Figure 32**.

Figure 32: SC 41 & US 17 Intersection Concept



Traffic Signal Warrants

Stantec performed signal warrant analysis using opening year analysis at locations where a new signal is proposed or where traffic patterns are being altered by the proposed concept. Opening year intersection turning movement volumes were extrapolated from a combination of the base year peak hour turning movement counts, 24-hour counts on the intersecting streets where possible, and the growth rate determined in this study. In addition to the existing signal locations, the following locations met the opening year signal warrants required by SCDOT.

- Dunes West Boulevard and Wando Plantation Way
- Porchers Bluff Road and Billy Swails Boulevard
- SC 41 & Parkway/Cardinal Hill Drive
- SC 41 & Winnowing Way

The intersection of SC 41 & Colonnade Drive/Emma Road did not meet the minimum warrants for a traffic signal.

SCDOT will normally require an update as the opening year approaches. Dunes West Boulevard and Wando Plantation Way will require approval by the Town of Mount Pleasant, as this is not a state road.

The signal warrant analysis is included in **Appendix F**.

The network of the microsimulation model was expanded to include parallel routes to SC 41 and US 17. This would produce a more accurate assignment of routes for any given origin-destination pair (trip) by utilizing the dynamic traffic assignment capabilities of VISSIM. More specifically, with a parallel alternative, VISSIM will assign traffic based on the congestion and travel time of each route. For example, a driver leaving Park West may choose to reach US 17 South by taking Bessemer Road or Dunes West Boulevard to SC 41. But if that route is too congested, the driver may choose to take Park West Boulevard through Park West to US 17. Today's navigation apps promote this type of choice.

The expanded model therefore includes all of Park West Boulevard as an alternative to SC 41 between Dunes West and US 17 and includes the Billy Swails Boulevard and Sweetgrass Basket Parkway corridor between Porchers Bluff Road and SC 517 (IOP Connector). The results of the microsimulation modeling of No-Build conditions and Alternative 2A-7 are summarized in **Table 16**.

Table 16: Measures of Effectiveness – Alternative 2A-7 (Compromise Alternative)

Parameter	Unit	AM PEAK HOUR			PM PEAK HOUR		
		No Build	Alt 2A-7		No Build	Alt 2A-7	
Average Delay/Vehicle	minutes	11.1	8.7	-22%	8.5	3.5	-58%
Average Speed/Vehicle	mph	8.9	12.2	+37%	11.6	20.4	+76%
Total Travel Time (all Vehicles)	Hours	4,084	3,921	-4%	3,656	2,810	-23%
Total Delay (All Vehicles)	Hours	2,938	2,479	-16%	2,278	1,091	-52%
Volume Served	vehicles	11,245	12,751	+13%	11,553	15,590	+35%
Latent Delay (All Vehicles)	Hours	4,037	3,852	-5%	2,999	2,523	-16%
Latent Demand	vehicles	7,768	6,795	-13%	5,101	4,004	-22%

Green highlighted cells indicate the improved condition.

The results indicate that Alternative 2A-7 provides a significant improvement over the no-build conditions, particularly in the PM peak hour. It should be noted that with the anticipated growth conditions, particularly with future development in Berkeley County, the directional characteristics of the PM peak hour traffic on SC 41 are likely to change. The dominant northbound movement that exists today will continue to grow, but the southbound traffic will grow at a higher rate, making the PM peak hour more critical.

As noted previously, projected 2045 demand volumes are illustrated in **Figure 29**, **Figure 30**, and **Figure 31**. However, in order to compare output from the microsimulation analysis between the no-build and Alternative 2A-7 (build condition), the simulated volumes for each were collected, as illustrated in **Figure 33** for the AM peak hour and **Figure 34** for the PM peak hour. These simulated volumes represent the volume of traffic that was actually processed through the network during the microsimulation analysis. These volumes were prepared to readily compare no-build and build conditions on the same figure and provide an indication of the ability for each alternative (no-build versus build) to process the projected demand volumes.

5.2.4 Comparison of Model Networks

A comparison of the original VISSIM model network, which was limited to the SC 41 and US 17 alignments, and the expanded network that included parallel alternatives, is provided in **Table 17**. While there are varying degrees of differences among the MOEs, the most significant are in latent delay and latent demand. Latent demand is traffic demand that is held outside the network due to capacity constraints (and latent delay is the delay associated with this latent demand). These volumes will not contribute to operational findings within the network (thereby causing intersections and roadways internal to the network to appear to function better, since less volume is reaching them) - however, latent demand and delay are no less important to operational analysis as they indicate capacity issues at the limits of the study area.

In these cases, the expanded network illustrates the effect of bottlenecks that exist outside of the project limits. Observations made during the simulations indicate that the network is "starved" by congestion at US 17 and Park West Boulevard, and that the intersection of US 17 and Long Point Road is a bottleneck that causes traffic to back up into the US 17 intersections of Six Mile Road, Brickyard Parkway, and SC 41 in the future condition.

The identification of bottlenecks in the network was significant to the development of the intersection concept at SC 41 and US 17, as part of Alternative 2A-7 (Compromise Alternative). Including parallel routes dynamically within the microsimulation model also helps demonstrate the utilization of the network and avoid overbuilding beyond the forecasted needs for the improvement.

Table 17: Comparison of Microsimulation Networks Under No-Build Conditions

Parameter	Unit	AM No-Build			PM No-Build		
		Original Network	Expanded Network		Original Network	Expanded Network	
Average Delay/Vehicle	minutes	10.0	11.1	10%	11.6	8.5	27%
Average Speed/Vehicle	mph	10.3	8.9	14%	9.1	11.6	-27%
Total Travel Time (All Vehicles)	hours	3,310	4,084	-23%	3,486	3,656	-5%
Total Delay (All Vehicles)	Hours	2,564	2,938	-15%	2,757	2,278	17%
Volume Served	vehicles	11,396	11,245	1%	10,094	11,553	-14%
Latent Delay (All Vehicles)	Hours	2,425	4,037	-66%	3,360	2,999	11%
Latent Demand	vehicles	4,555	7,768	-71%	6,065	5,101	16%

5.2.5 Effects of Bottlenecks Under No-Build Conditions

For each alternative, including the no-build condition, an AM and PM peak hour microsimulation model was developed in VISSIM. Within each model, data collection points are placed at key locations to measure traffic speed and volume during the simulation. For these models, Stantec allows traffic to build for the first 30 minutes of the simulation. The results of that first 30 minutes are normally not reported as the traffic has not reached "peak conditions." This is also commonly referred to as a "warm-up period".

In the initial model output, the 2045 no-build volumes at certain locations were lower than those in the base year (2017-2018). Observations of the running simulations indicated why this was occurring. Bottlenecks in the system were preventing demand volumes from entering the model network. As previously noted, this occurred on US 17 at Long Point Road and at Park West Boulevard, due to existing system constraints. Note that all committed projects were included in the future no-build and all build models.

In some cases, agencies may choose to release these constraints to test the improvements in case the bottleneck is removed in the future. However, this approach may produce two undesirable results; 1) over-building the improvement to match a level of demand that cannot realistically reach the project limits, and 2) mask or prevent a potential alternative that could eliminate the need for another project. In short, the solution should have independent utility, and not require a yet-to-be programmed project to provide benefit.

The effects of the bottlenecks are illustrated in the following figures comparing speed and processed volume for 2045 no-build and build conditions:

Figure 35: SC 41 Northbound AM Peak Hour

Figure 36: SC 41 Southbound AM Peak Hour

Figure 37: SC 41 Northbound PM Peak Hour

Figure 38: SC 41 Southbound PM Peak Hour

Figure 39: US 17 Northbound AM Peak Hour

Figure 40: US 17 Southbound AM Peak Hour

Figure 41: US 17 Northbound PM Peak Hour

Figure 42: US 17 Southbound PM Peak Hour

Figure 33 Design Year (2045) Simulated No-Build and Build (2A-7) Volumes - AM Peak Hour

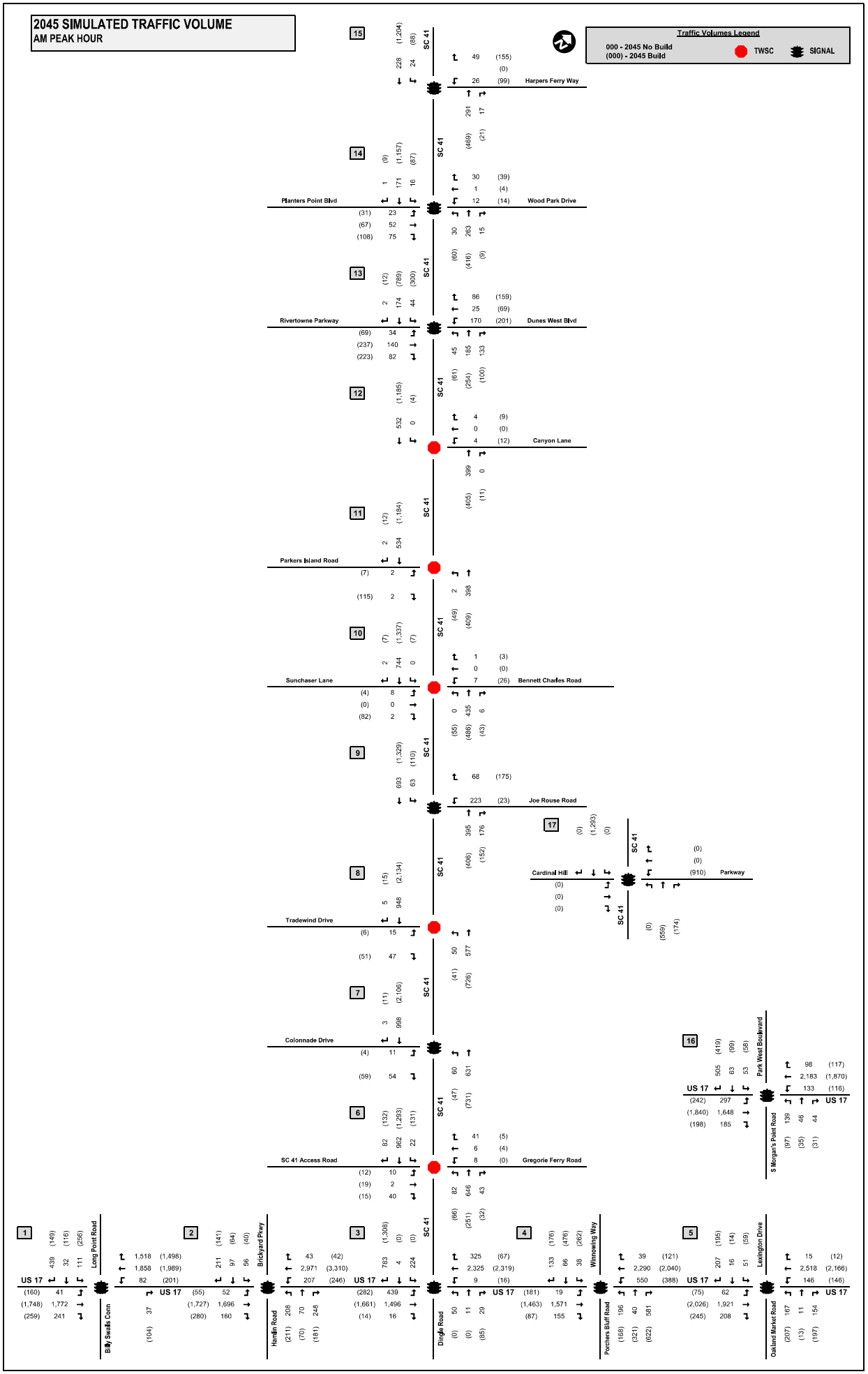


Figure 34 Design Year (2045) Simulated No-Build and Build Volumes - PM Peak Hour

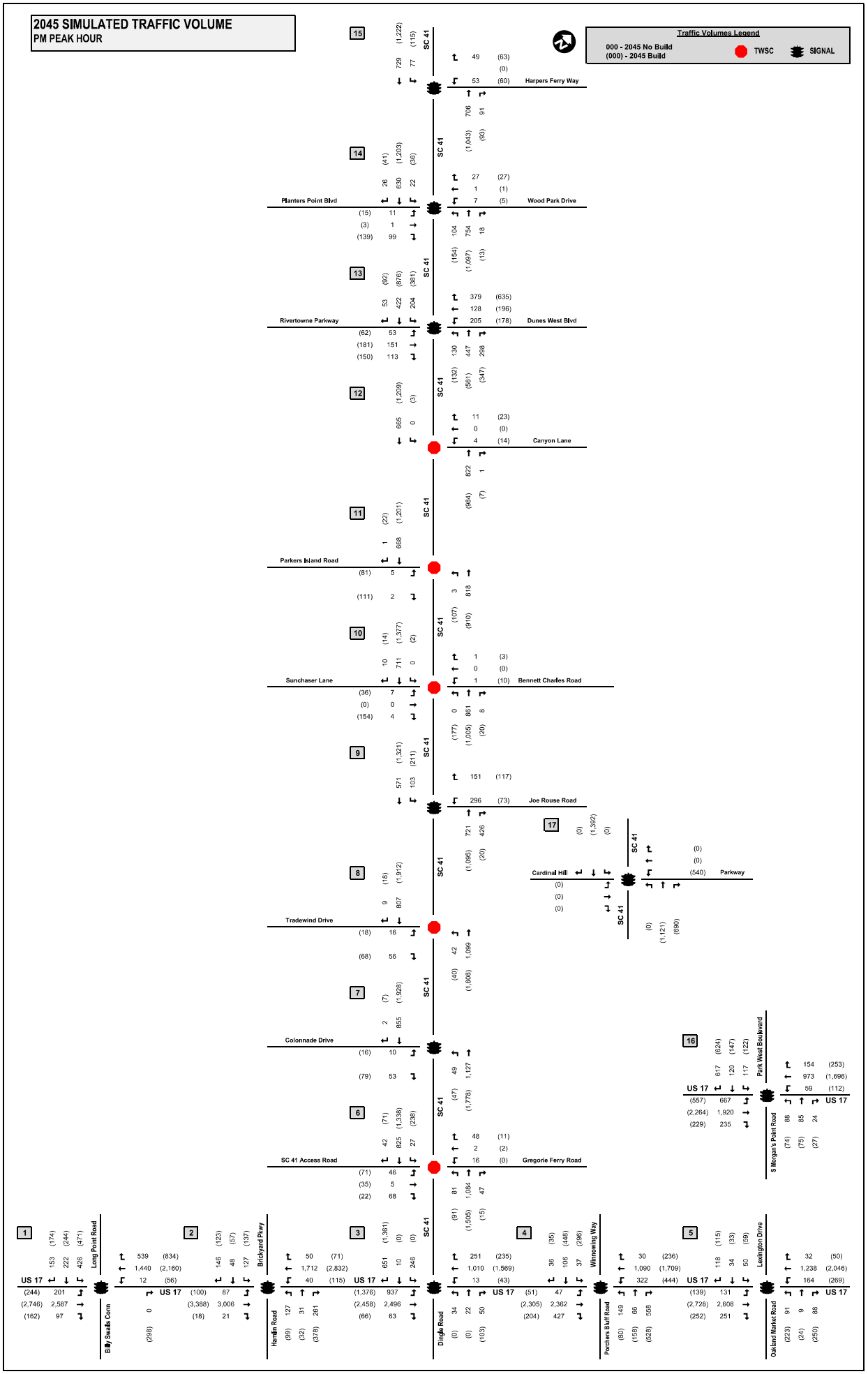
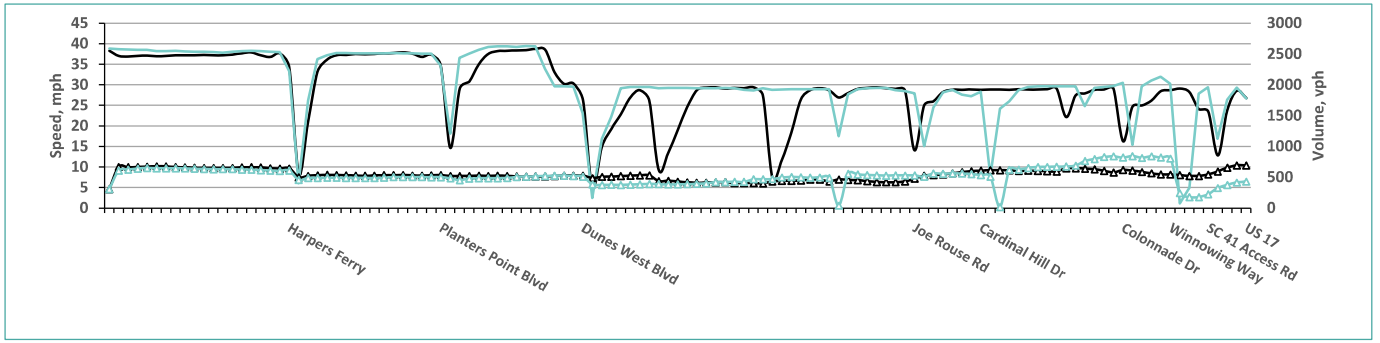
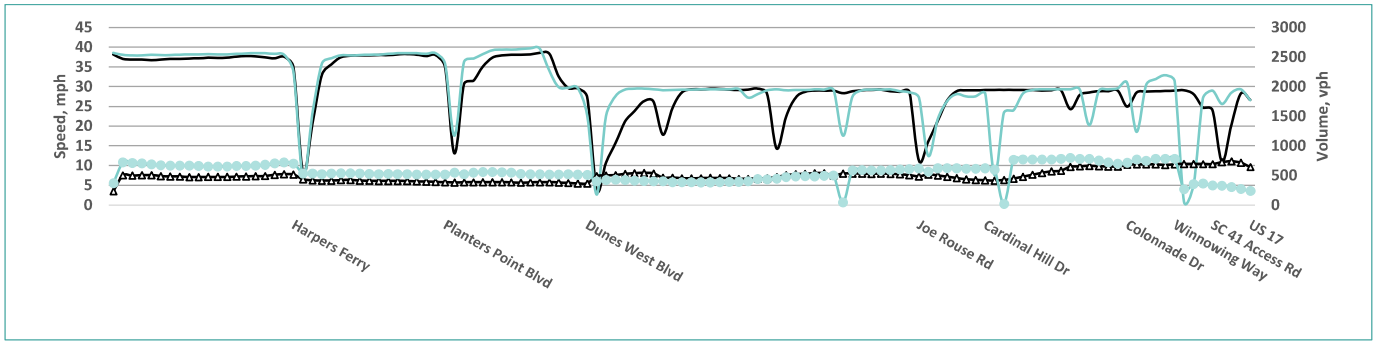


Figure 35: Design Year (2045) Speed and Volume Comparison – SC 41 Northbound AM Peak Hour

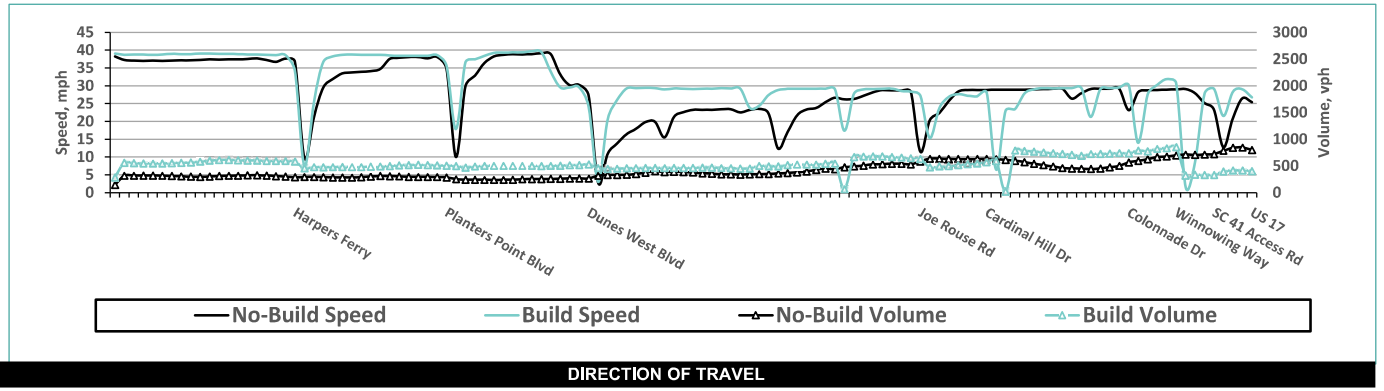
SC 41 NORTHBOUND AM PEAK HOUR



SIMULATION AT 20 MINUTES			
		NO-BUILD	BUILD
VOLUME	MIN	312	18
	MAX	695	844



SIMULATION AT 40 MINUTES			
		NO-BUILD	BUILD
VOLUME	MIN	234	22
	MAX	741	796

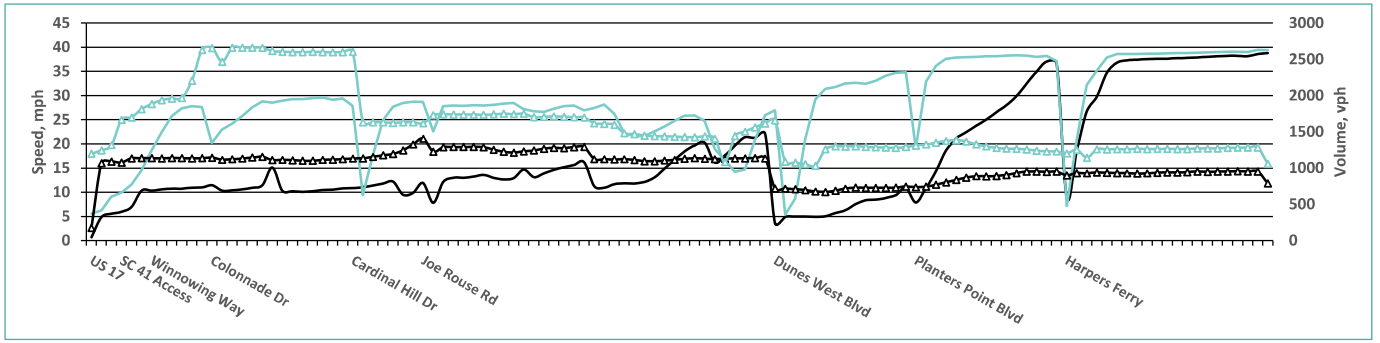


SIMULATION AT 60 MINUTES			
		NO-BUILD	BUILD
VOLUME	MIN	148	22
	MAX	847	852

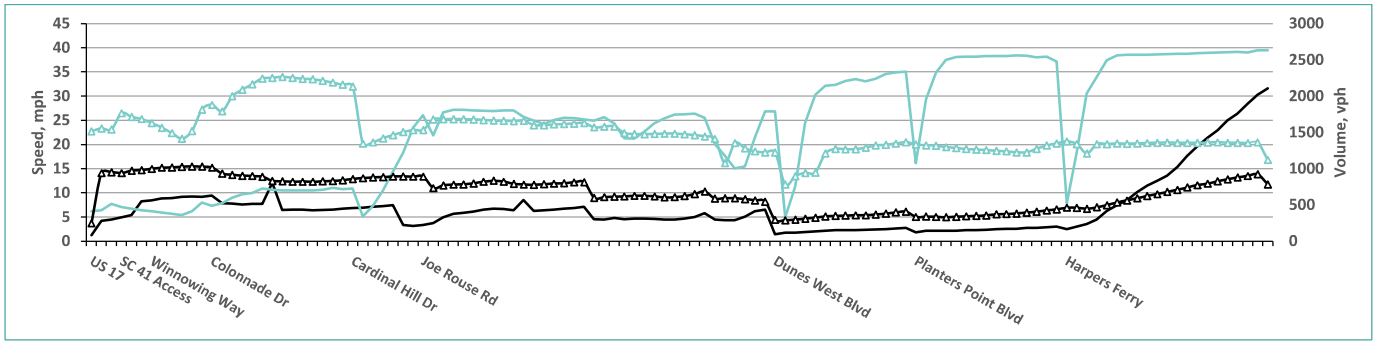
DIRECTION OF TRAVEL

Figure 36: Design Year (2045) Speed and Volume Comparison – SC 41 Southbound AM Peak Hour

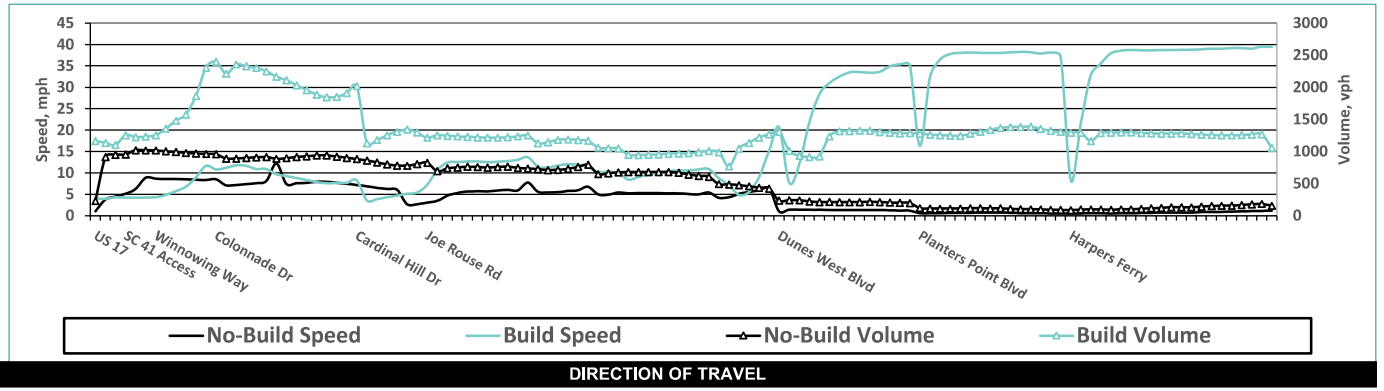
SC 41 SOUTHBOUND AM PEAK HOUR



SIMULATION AT 20 MINUTES			
		NO-BUILD	BUILD
VOLUME	MIN	77	1033
	MAX	1408	2664



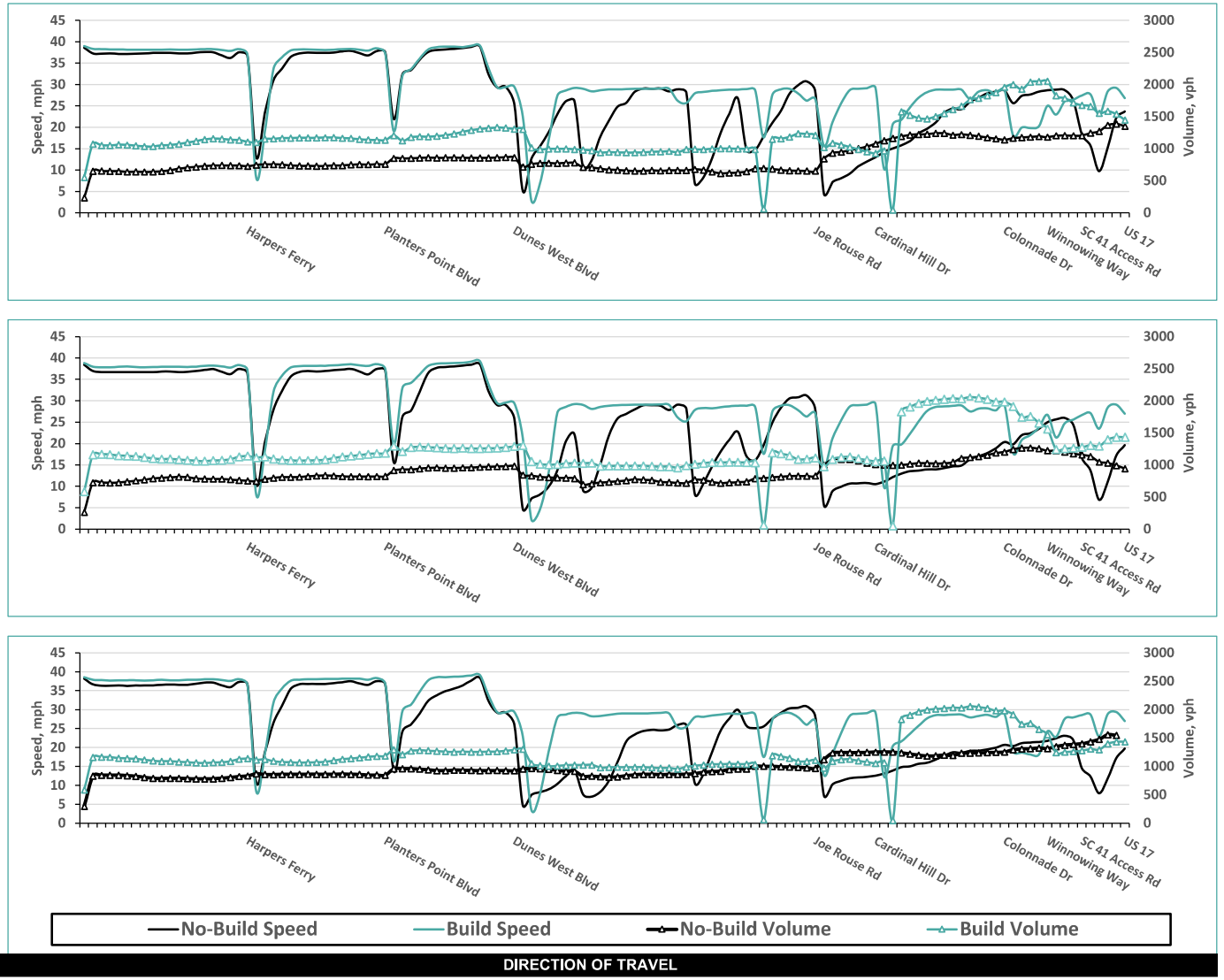
SIMULATION AT 40 MINUTES			
		NO-BUILD	BUILD
VOLUME	MIN	247	784
	MAX	1033	2266



SIMULATION AT 60 MINUTES			
		NO-BUILD	BUILD
VOLUME	MIN	89	763
	MAX	1021	2402

Figure 37: Design Year (2045) Speed and Volume Comparison – SC 41 Northbound PM Peak Hour

SC 41 NORTHBOUND PM PEAK HOUR



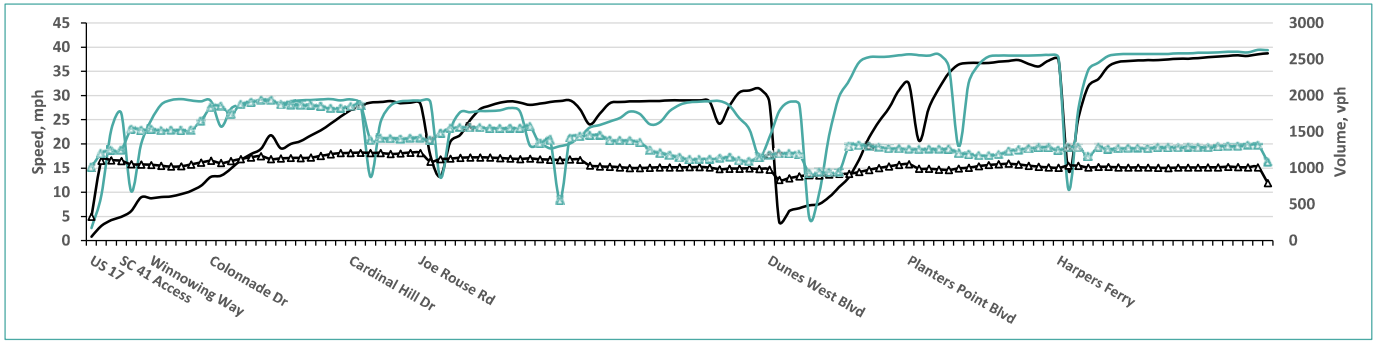
SIMULATION AT 20 MINUTES			
		NO-BUILD	BUILD
VOLUME	MIN	236	45
	MAX	1387	2051

SIMULATION AT 40 MINUTES			
		NO-BUILD	BUILD
VOLUME	MIN	262	54
	MAX	1267	1877

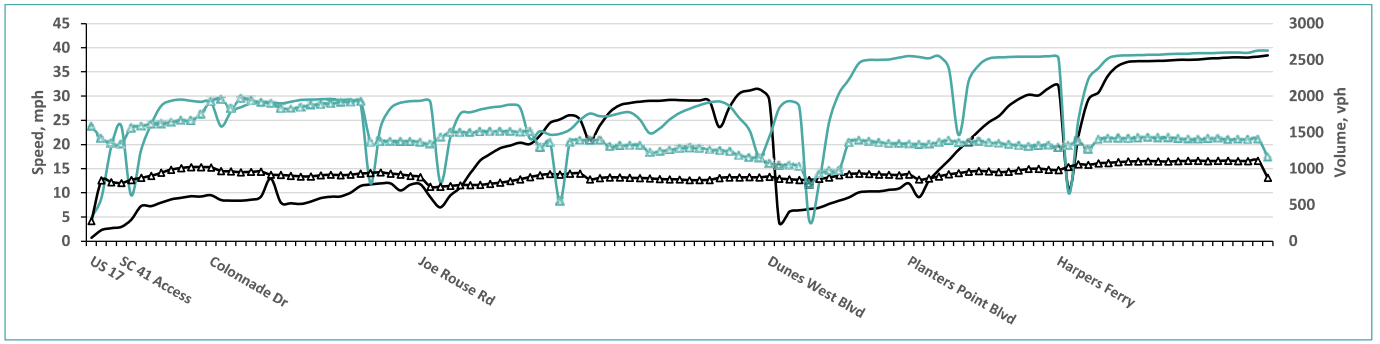
SIMULATION AT 60 MINUTES			
		NO-BUILD	BUILD
VOLUME	MIN	297	51
	MAX	1559	2058

Figure 38: Design Year (2045) Speed and Volume Comparison – SC 41 Southbound PM Peak Hour

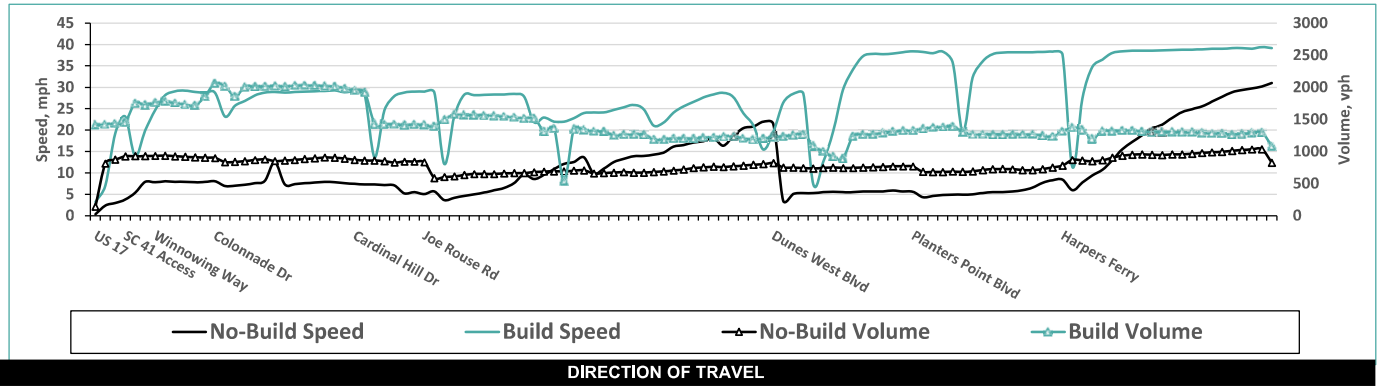
SC 41 SOUTHBOUND PM PEAK HOUR



SIMULATION AT 20 MINUTES			
		NO-BUILD	BUILD
VOLUME	MIN	334	567
	MAX	1214	1943



SIMULATION AT 40 MINUTES			
		NO-BUILD	BUILD
VOLUME	MIN	278	551
	MAX	1111	1972

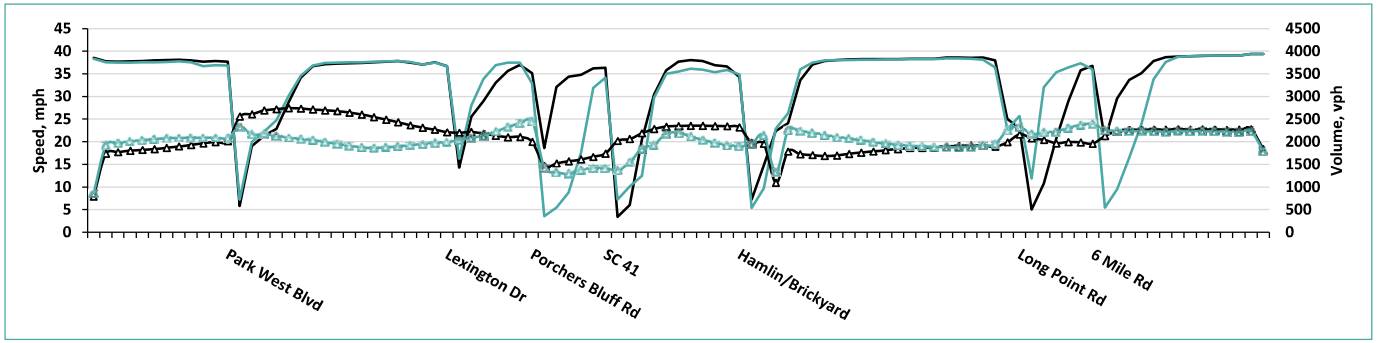


SIMULATION AT 60 MINUTES			
		NO-BUILD	BUILD
VOLUME	MIN	144	550
	MAX	1036	2074

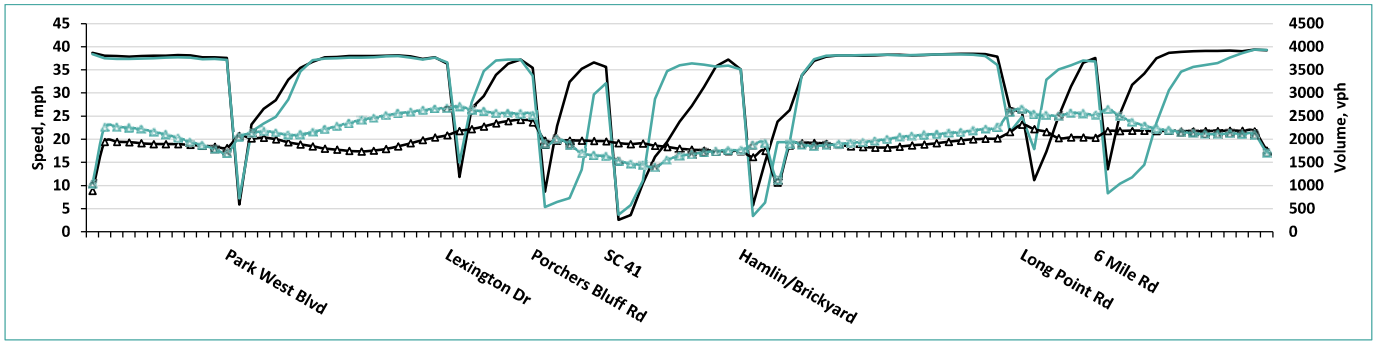
DIRECTION OF TRAVEL

Figure 39: Design Year (2045) Speed and Volume Comparison – US 17 Northbound AM Peak Hour

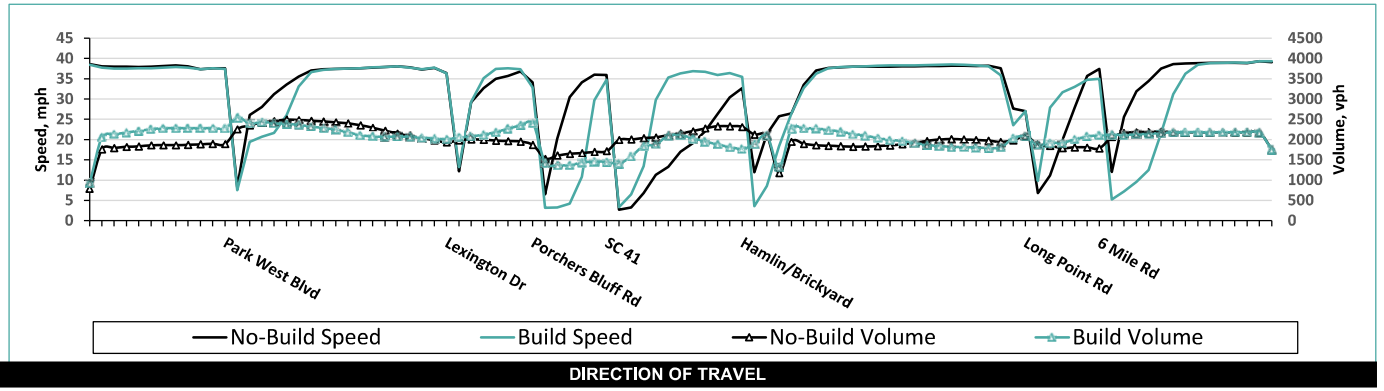
US 17 NORTHBOUND AM PEAK HOUR



SIMULATION AT 20 MINUTES			
		NO-BUILD	BUILD
VOLUME	MIN	788	112
	MAX	2744	2140



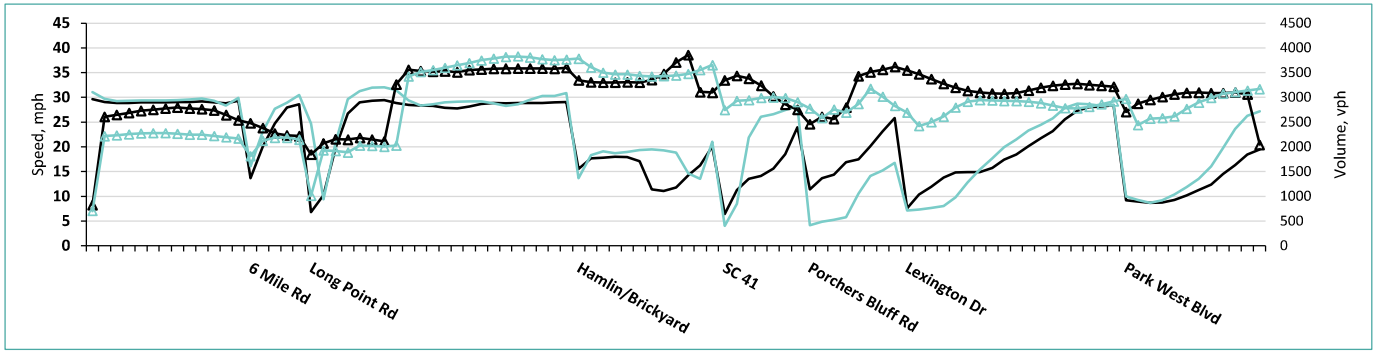
SIMULATION AT 40 MINUTES			
		NO-BUILD	BUILD
VOLUME	MIN	887	1038
	MAX	2422	2713



SIMULATION AT 60 MINUTES			
		NO-BUILD	BUILD
VOLUME	MIN	794	923
	MAX	2493	2548

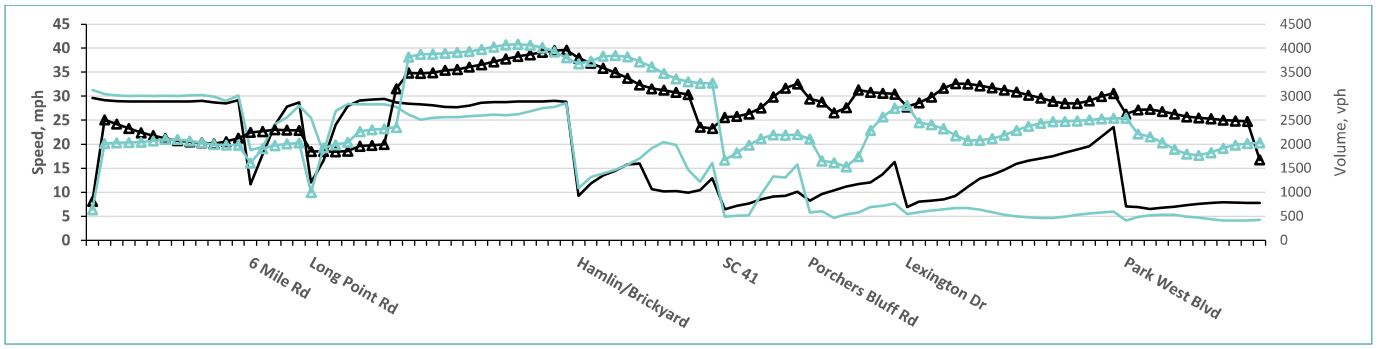
Figure 40: Design Year (2045) Speed and Volume Comparison – US 17 Southbound AM Peak Hour

US 17 SOUTHBOUND AM PEAK HOUR



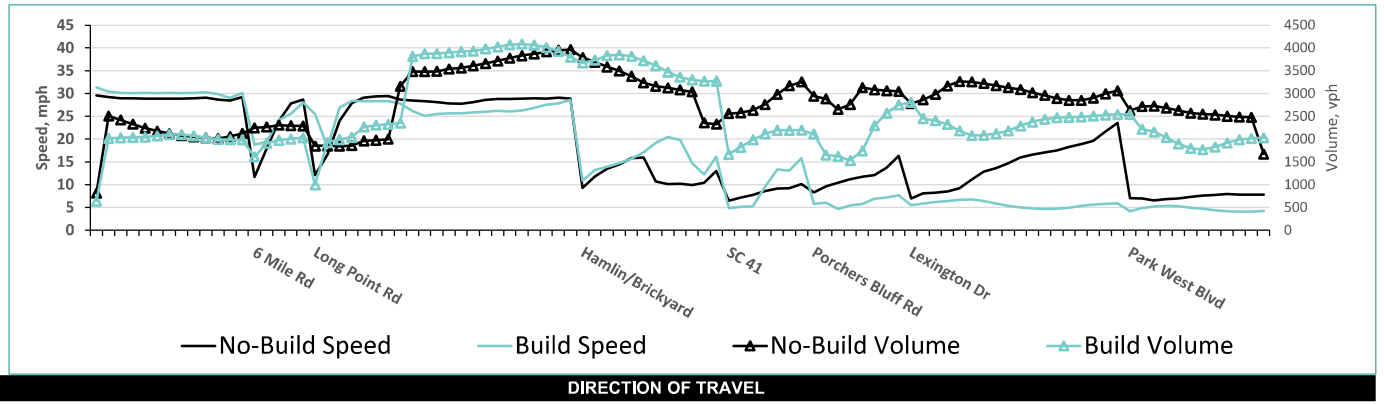
SIMULATION AT 20 MINUTES

		NO-BUILD	BUILD
VOLUME	MIN	822	706
	MAX	3860	3828



SIMULATION AT 40 MINUTES

		NO-BUILD	BUILD
VOLUME	MIN	682	670
	MAX	4012	4128



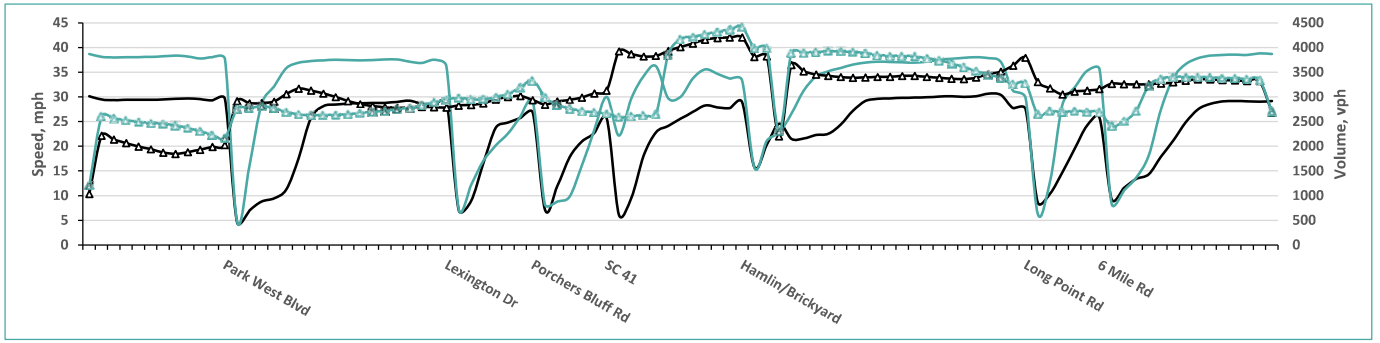
SIMULATION AT 60 MINUTES

		NO-BUILD	BUILD
VOLUME	MIN	812	640
	MAX	3966	4086

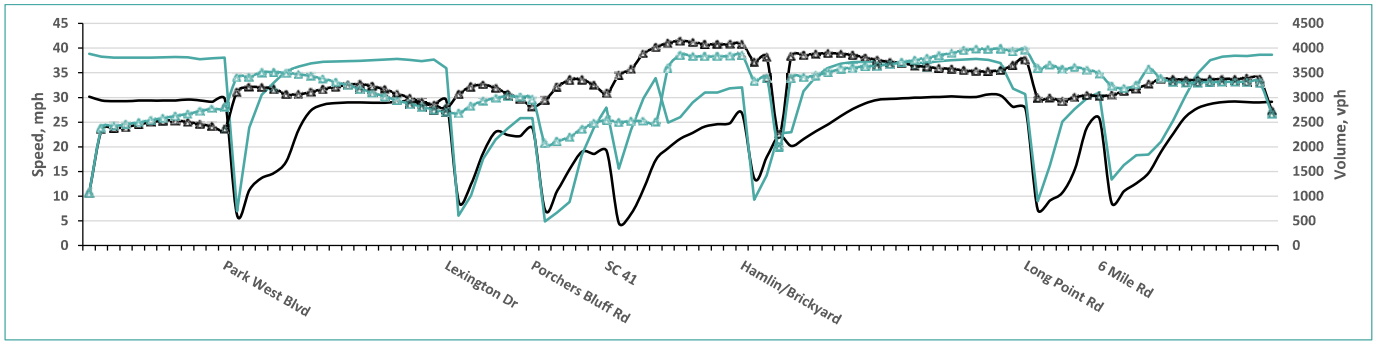
DIRECTION OF TRAVEL

Figure 41: Design Year (2045) Speed and Volume Comparison – US 17 Northbound PM Peak Hour

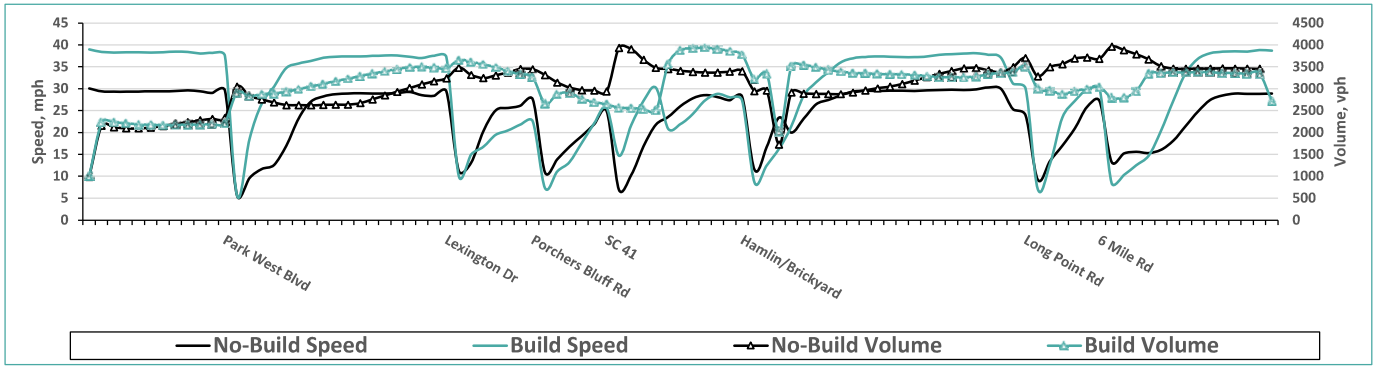
US 17 NORTHBOUND PM PEAK HOUR



SIMULATION AT 20 MINUTES			
		NO-BUILD	BUILD
VOLUME	MIN	1034	1202
	MAX	4208	4414



SIMULATION AT 40 MINUTES			
		NO-BUILD	BUILD
VOLUME	MIN	1072	1072
	MAX	4146	3993

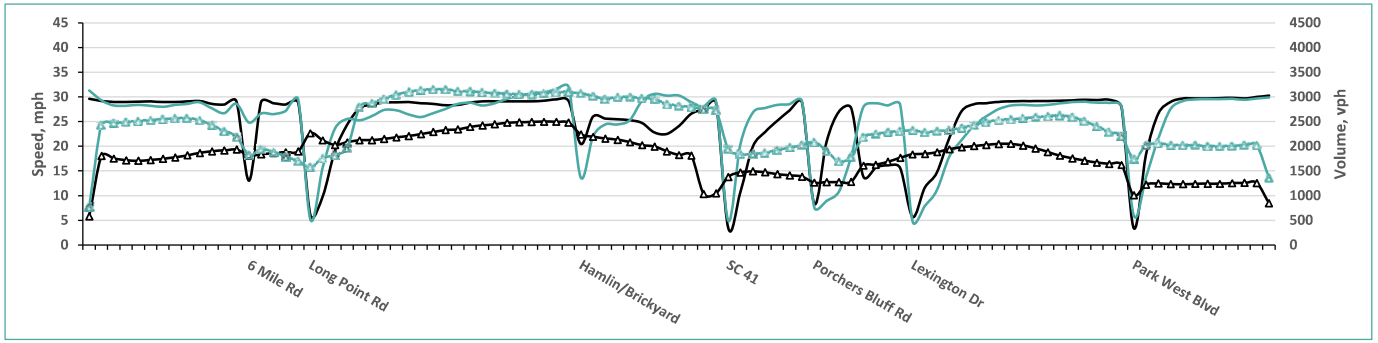


SIMULATION AT 60 MINUTES			
		NO-BUILD	BUILD
VOLUME	MIN	992	1010
	MAX	3965	3941

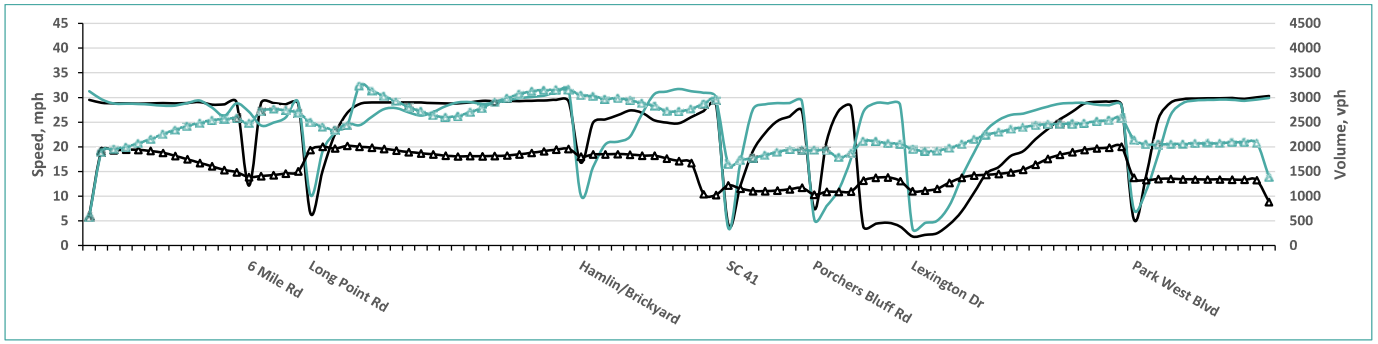
DIRECTION OF TRAVEL

Figure 42: Design Year (2045) Speed and Volume Comparison – US 17 Southbound PM Peak Hour

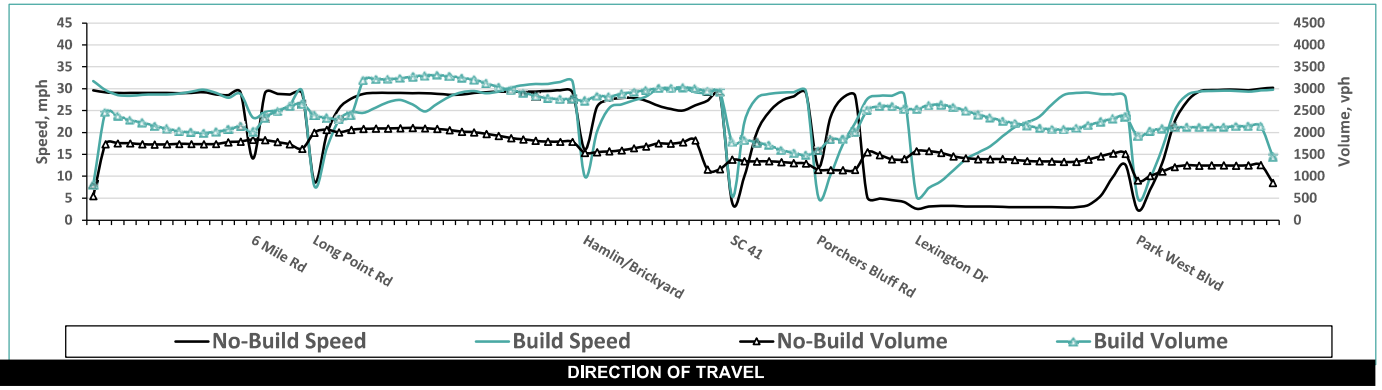
US 17 SOUTHBOUND PM PEAK HOUR



SIMULATION AT 20 MINUTES			
		NO-BUILD	BUILD
VOLUME	MIN	585	776
	MAX	2501	3159



SIMULATION AT 40 MINUTES			
		NO-BUILD	BUILD
VOLUME	MIN	607	588
	MAX	2020	3243



SIMULATION AT 60 MINUTES			
		NO-BUILD	BUILD
VOLUME	MIN	547	800
	MAX	2108	3311

The speed and volume output illustrated in the figures above indicate the following:

SC 41 Northbound

AM Peak Hour: There is little difference between the volume and speed for the build condition and the no-build condition for northbound SC 41 in the AM peak. Since speed is relatively high, this is an indication that this is the off-peak direction in the AM peak hour. The condition remains constant through the peak hour.

PM Peak Hour: In the PM peak hour, speeds remain consistent between no-build and build conditions, while a moderate increase in processed volume is observed. The largest volume increase resulting from the build is south of Joe Rouse Road, possibly indicating that SC 41 is being chosen over Park West Boulevard for reaching neighborhoods within Park West and Dunes West.

SC 41 Southbound

AM Peak Hour: Through the Phillips Community, between Joe Rouse Road and Dunes West Boulevard, AM peak hour southbound speeds increase from 5 mph in no-build to 25 mph in the build condition. Volumes processed increase by approximately 100 percent as a result of the build.

Speeds remain consistent between the no-build and build conditions approaching US 17 on SC 41. However, volumes increase by approximately 135 percent. This demonstrates the effectiveness of the build concept for the SC 41 & US 17 intersection and its ability to process traffic.

PM Peak Hour: Future southbound volumes grow on SC 41 in the PM due primarily to growth in Berkeley County. The microsimulation model output illustrates that the build alternative improves speeds from less than 10 mph south of Joe Rouse Road to nearly 30 mph. Similarly significant volume and speed improvements can be seen north of Dunes West Boulevard as a result of the build alternative.

US 17 Northbound

AM Peak Hour: There is little difference between the volume and speed for the build condition and the no-build condition for northbound US 17 in the AM peak. Since speed is relatively high, this is an indication that this is the off-peak direction in the AM peak hour. The condition remains constant through the peak hour.

PM Peak: The simulations indicate that speeds improved from between 5 and 10 mph throughout the study limits on northbound US 17. Changes in processed volumes were negligible.

US 17 Southbound

AM Peak Hour: Speed and volume simulated by the model are relatively consistent, with speeds hampered by relatively closely spaced signals between Park West Boulevard and Hamlin Road/Brickyard Parkway. Volumes decrease in the build between SC 41 and Porchers Bluff Road. Since the build alternative includes an extension of Winnowing Way to SC 41, southbound US 17 to northbound SC 41 left turns are diverting southbound volume away from the segment between Porchers Bluff Road and SC 41. In addition, the increase in processed southbound volume in the south segment of SC 41 illustrates the attraction of traffic from the Park West and Dunes West communities as a result of the improved capacity, in lieu of taking Park West Boulevard directly to southbound US 17.

PM Peak: The simulations indicate that speeds remained relatively consistent between no-build and build conditions. Volumes improved significantly, due to the improvements at the US 17 intersection improvements at SC 41 and at Porchers Bluff Road.

Table 18 is a comparison of the maximum traffic flow rate, in vehicles per hour, that occurs within a five-minute period ending at 20 minutes, 40 minutes, and 60 minutes into the simulation.

Table 18: No-Build vs Build Peak Hour Maximum Flow Rate by Peak Hour and Direction

		Time from Beginning of Simulation								
		20 Minutes			40 Minutes			60 Minutes		
Peak	Road / Direction	No Build (veh/hr)	2A-7 Build (veh/hr)	% Diff	No Build (veh/hr)	2A-7 Build (veh/hr)	% Diff	No Build (veh/hr)	2A-7 Build (veh/hr)	% Diff
AM	Northbound SC 41	695	844	21%	741	796	7%	847	852	1%
	Southbound SC 41	1408	2664	89%	1033	2266	119%	1021	2402	135%
	Northbound US 17	2744	2140	-22%	2422	2713	12%	2493	2548	2%
	Southbound US 17	3860	3828	-1%	4012	4128	3%	3966	4086	3%
PM	Northbound SC 41	1387	2051	48%	1267	1877	48%	1559	2058	32%
	Southbound SC 41	1214	1943	60%	1111	1972	77%	1036	2074	100%
	Northbound US 17	4208	4414	5%	4146	3993	-4%	3965	3941	-1%
	Southbound US 17	2501	3159	26%	2020	3243	61%	2108	3311	57%

Along SC 41, volumes processed in the AM and PM peak hours in both directions are projected to either be comparable or significantly improved with Alternative 2A-7, with improvements in the rate of traffic flow of more than 1,000 vehicles/hour (more than twice that of the no-build) in the southbound direction in both peak hours and an improvement of almost 500 veh/hour (more than 30%) in the northbound direction in the PM peak hour.

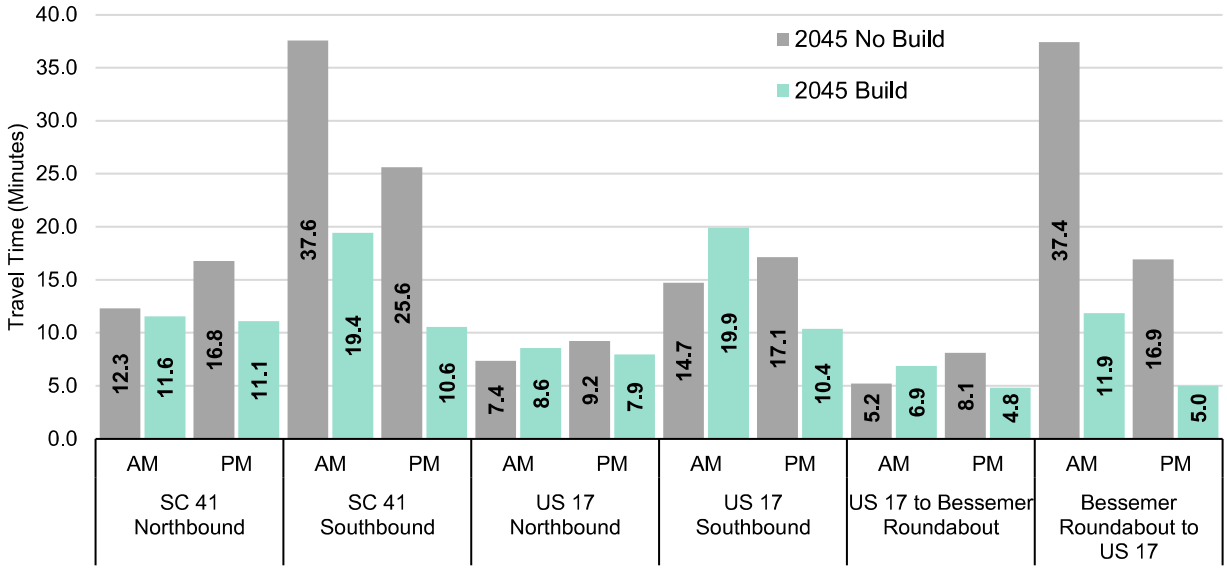
Along US 17, volumes processed are projected to be comparable in both directions in the AM peak hour and in the northbound direction in the PM peak hour, while a significant improvement (of more than 1,000 veh/hour - or almost 60%) is projected in the southbound direction in the PM peak hour.

5.2.6 Travel Time Comparison

Travel Time was measured between data collection points within the AM and PM peak hour VISSIM models for no-build and build conditions. The SC 41 and US 17 northbound and southbound routes as well as the routes between US 17 and the intersection of Park West Boulevard and Bessemer Road were shown on **Figure 10**. The no-build and build travel times for the AM and PM peak hour are shown on the graph in **Figure 43**.

There are travel time paths that experience minor to moderate increases in travel time due to the build condition. The one significant increase in travel time is the southbound US 17 through travel time. The no-build conditions for the southbound SC 41 to southbound US 17 movement consists of a single free-flow right turn and subsequent merge. This is the most dominant turning movement in the AM peak hour for this intersection, and it requires more capacity. Attempts to implement a second free flow right turn lane created failing lane drops/merges downstream before and after the intersection with Brickyard Parkway.

Figure 43: No-Build vs 2A-7 Build Comparison of Design Year Travel Times



The build alternative includes a signalized triple right from southbound SC 41 to southbound US 17. This provides the best opportunity to balance the demand between the conflicting southbound right turning SC 41 and southbound US 17 through movements. The modeling was done with optimized signal timing and produced a 48 percent reduction in travel time for SC 41 southbound and a 16 percent increase in travel time for US 17 southbound in the AM peak hour. **Table 19** illustrates the change in weighted delay resulting from the build condition on these two conflicting movements. The change in delay for these movements is the product of the volume and the change in travel time between the no-build and build condition.

Table 19: Net Change in AM Peak the Hour Total Delay Between Critical Conflicting Movements

From	To	Direction	Volume (veh/hour)	Travel Time		Total Change in Delay Increase/(Decrease)
				No-Build	Build	
Southbound SC 41	Southbound US 17	Right Turn	1,308	37.6 minutes	19.4 minutes	(397 hours)
Southbound US 17	Southbound US 17	Through	2,319	14.7 minutes	19.9 minutes	201 hours
Net Increase (Decrease) in Total Delay						(196 hours)

5.2.7 Intersection Level of Service

Intersection level of service (LOS) and delay was determined using the VISSIM microsimulation model. This was done using simulated volumes, and as a reminder, these volumes are based on a network that is constrained by existing bottlenecks, or by bottlenecks that will remain after committed projects are completed. The LOS and delay are tabulated in **Table 20** for 2018, 2045 No-Build and 2045 Alternative 2A-7 Build conditions.

The LOS results indicate that in both the no-build and build conditions, intersections along SC 41 within the Phillips Community between Joe Rouse Road and Dunes West Boulevard all experience increased delay. It is important to note that the LOS of these stop-controlled intersections reflect the delay on the sidestreet. This will not be improved without signalization, which is not likely warranted due to low sidestreet volumes.

Signalized intersections that will see a greater delay as a result of Alternative 2A-7 compared to the no-build condition include the following:

In the AM Peak:

- US 17 & Park West Boulevard: This is a slight increase in delay of 8 seconds/vehicle, and both no-build and build conditions remain at LOS E.
- US 17 & Porchers Bluff Road: The delay at this intersection doubles in the build condition over the no-build condition. The intersection goes from LOS C to LOS E in 2045. It is important to understand that the role of this intersection is changing to better disperse the increase in traffic on SC 41, and to promote the use of the Billy Swails Boulevard parallel route to relieve US 17.
- US 17 & Lexington Drive: This is an increase of approximately 8 seconds/vehicle, lowering the LOS from C to D.
- Hamlin Road & Billy Swails Boulevard: This intersection experiences a 5 second increase in delay as a result of the build condition, and drops from LOS C to LOS D.

In the PM Peak:

- US 17 & Porchers Bluff Road: The delay at this intersection experiences an increase in delay of approximately 22 seconds/vehicle, lowering the LOS from D to E. As noted in the AM, the role of this intersection is changing to better disperse the increase in traffic on SC 41, and to promote the use of the Billy Swails Boulevard parallel route to relieve US 17.

In evaluating the significance of any increases in delay in the build conditions, compared to no-build, refer to the comparative network MOE's shown in **Table 16**, and note that bottlenecks in the no-build condition are causing some of the intersections within the interior of the model network to appear to function better because they are not experiencing their full demand.

Table 20: 2045 No-Build vs 2A-7 Build Level of Service

Intersection	Intersection Control	AM Peak Hour LOS/Delay			PM Peak Hour LOS/Delay		
		2018 Existing	2045 No Build	2045 Alt 2A-7 Build	2018 Existing	2045 No Build	2045 Alt 2A-7 Build
US 17 & 6 Mile Road	Signalized	A/4.5	C/20.8	C/32.7	A/8.6	C/23.0	C/21.3
6 Mile & Sweetgrass Basket Parkway	Unsignalized #*	A/9.0	F/107.9	E/75.5	B/10.5	F/99.6	D/40.6
US 17 & Long Point Road	Signalized	C/23.2	C/27.0	C/31.7	C/25.7	C/33.4	C/31.0
US 17 & Hamlin Road/Brickyard Parkway	Signalized	B/18.8	D/35.2	D/37.1	B/16.0	C/28.2	C/21.2
US 17 & SC 41	Signalized	C/30.7	D/53.7	D/54.5	C/34.5	D/44.0	C/25.1
US 17 & Porchers Bluff Road	Signalized	B/12.9	C/34.1	E/68.8	B/12.5	D/35.6	E/57.2
Hamlin Road & Billy Swails Boulevard	Unsignalized #*	A/8.5	C/33.2	D/38.7	A/6.9	D/48.4	B/10.1
Porchers Bluff Road & Billy Swails Boulevard	Unsignalized *	A/9.2	F/1401.2	D/44.6	A/7.6	F/1754.4	D/46.4
US 17 & Lexington Drive	Signalized	B/10.0	C/30.9	D/38.5	B/14.0	D/52.2	C/34.8
US 17 & Park West Boulevard/South Morgan's Point Road	Signalized	C/28.9	E/60.8	E/68.3	D/45.7	E/61.7	D/45.3
SC 41 & SC 41 Access Road	Unsignalized	F/71.1	F/64.4	E/48.8	E/43.8	F/308.0	E/48.1
SC 41 & Colonnade Drive	Signalized	F/105.5	F/395.8	B/19.3	E/39.1	F/765.2	A/5.2
SC 41 & Tradewind Drive	Unsignalized	D/29.2	E/43.4	F/103.1	D/30.5	F/504.6	E/38.4
SC 41 & Joe Rouse Road	Signalized	C/22.1	E/77.6	A/8.9	B/16.8	E/63.5	A/7.7
SC 41 & Bennett Charles Road	Unsignalized	B/14.6	F/1582.7	F/583.2	C/19.8	F/354.5	F/203.9
SC 41 & Sunchaser Lane	Unsignalized	B/11.3	D/32.6	F/583.2	B/13.3	E/43.2	F/203.9
SC 41 & Parkers Island Road	Unsignalized	B/10.4	C/16.8	B/13.9	C/16.1	D/26.2	A/6.1
SC 41 & Canyon Lane	Unsignalized	C/17.1	F/986.0	F/535.0	C/21.0	F/225.3	F/108.3
SC 41 & Dunes West Boulevard	Signalized	B/18.8	F/139.4	E/79.4	C/22.5	E/55.1	D/41.6
SC 41 & Planters Point Boulevard/Wood Park Drive	Unsignalized #*	B/10.4	F/95.4	A/9.7	B/12.5	C/28.4	A/5.6
SC 41 & Harpers Ferry Way	Unsignalized #*	B/10.3	F/87.9	B/10.7	B/12.0	C/28.2	A/7.3
Dunes West Blvd & Kings Gate	Unsignalized	A/3.7	F/121.6	C/23.4	A/3.6	F/63.3	C/17.5
Dunes West Blvd & Palmetto Hall	Unsignalized	A/9.4	F/75.4	C/16.5	A/9.7	E/40.9	C/20.5
Dunes West Blvd & Ellington Woods	Unsignalized	A/9.3	F/74.7	D/26.2	A/9.3	F/224.1	D/28.8
Dunes West Blvd & Wando Plantation Way	Unsignalized #*	D/29.0	E/69.8	B/15.7	B/11.6	C/31.0	B/11.3
Park West Roundabout	Roundabout	A/9.2	F/240.6	B/14.4	E/43.1	C/17.1	B/11.3
Bessemer Rd & Dumont Dr	Unsignalized	A/6.5	F/837.5	B/11.2	A/6.4	C/21.6	C/15.6
Park West Blvd & Grey Marsh Rd	Roundabout	A/7.2	A/9.8	B/11.4	A/3.3	A/5.7	A/8.8
Park West Blvd & Stockdale St	Roundabout	B/13.0	F/241.5	F/107.9	C/19.1	C/15.1	B/12.2
Bessemer Road & Larch Lane	Unsignalized	B/10.6	F/157.5	A/6.7	A/6.5	E/45.9	A/7.4
Winnowing Way & Gregorie Ferry	Unsignalized	-	-	E/42.7	-	-	C/21.7
SC 41 & Winnowing Way	Signalized	-	-	D/35.0	-	-	B/11.7
SC 41 & Laurel Hill Parkway/Cardinal Hill Drive	Signalized	-	-	D/54.0	-	-	B/11.6
Laurel Hill Parkway & Dumont Drive	Unsignalized	-	-	A/9.7	-	-	D/28.9

*Intersections that have been signalized in Build design | #Intersections that have been signalized in No Build design

6 Summary and Recommendations

The Build Alternative 2A-7 significantly reduces delay and increases travel speeds over the no-build condition in the 2045 design year. The measures of effectiveness comparing the no-build and build for AM and PM peak hours are recapped below.

Table 21: 2045 Design Year Measures of Effectiveness – Alternative 2A-7 (Compromise Alternative)

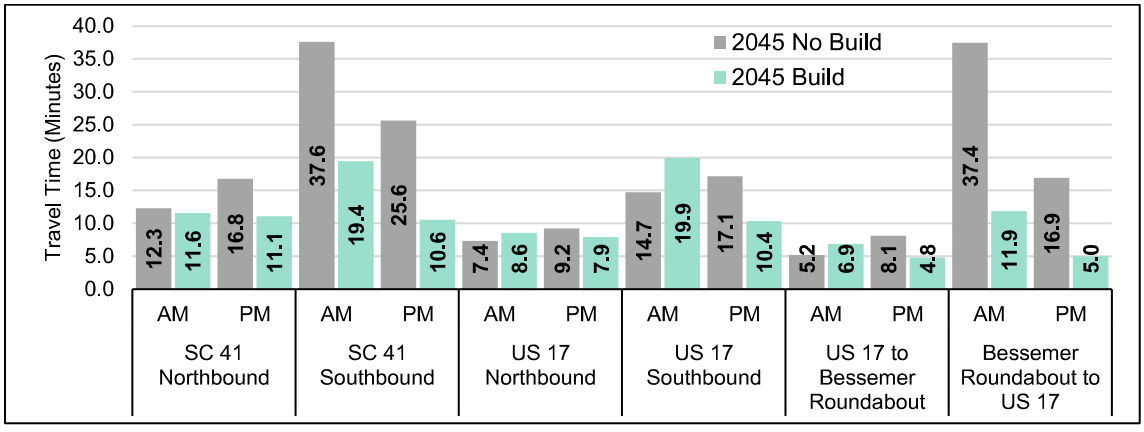
Parameter	Unit	AM PEAK HOUR			PM PEAK HOUR		
		No Build	Alt 2A-7		No Build	Alt 2A-7	
Average Delay/Vehicle	minutes	11.1	8.7	-22%	8.5	3.5	-58%
Average Speed/Vehicle	mph	8.9	12.2	37%	11.6	20.4	76%
Total Travel Time (all Vehicles)	Hours	4,084	3,921	-4%	3,656	2,810	-23%
Total Delay (All Vehicles)	Hours	2,938	2,479	-16%	2,278	1,091	-52%
Volume Served	vehicles	11,245	12,751	13%	11,553	15,590	35%
Latent Delay (All Vehicles)	Hours	4,037	3,852	-5%	2,999	2,523	-16%
Latent Demand	vehicles	7,768	6,795	-13%	5,101	4,004	-22%

According to the National Center for Educational Statistics, there are 181 days in a typical school year in South Carolina. Traffic data and observations indicate that traffic is heavier on the days when school is in session. If it was assumed that the study area only experienced peak traffic flows and the corresponding delays during the days schools is in session, Build Alternative 2A-7 would save approximately 298,000 vehicle hours of delay in a year. Of this total delay, approximately 62 percent is stopped delay, or idling. The Build Alternative 2A-7 results in a reduction of approximately 185,000 hours of idling time, representing a significant savings in fuel cost and greenhouse gas emissions.

It is important to note that these annual reductions in delay are based on AM and PM peak hours. The PM peak hour used in these studies does not coincide with typical afternoon school dismissals, and therefore underestimates the potential for annual time savings or reduction in delays. However, there may be other peak periods where delay is experienced due to lack of capacity, which are not accounted for in this estimate of total delay.

Travel time within the SC 41 and US 17 corridors is significantly improved for most conditions, with some moderate increases for SC 41 northbound in the PM and US 17 southbound in the AM, as shown below.

Figure 44: No-Build vs Build Comparative Travel Times



6.1 Intersection Geometry and Control

6.1.1 Intersection Auxiliary Lane Storage

The number of through and auxiliary lanes for each intersection in the network are shown in **Table 22**. Intersections where no widening or changes in the lane configuration were made on the sidestreet approaches are not listed. The type of operational control is also listed. These reflect the geometry and operational control that were modeled for the Compromise Alternative Build condition.

6.1.2 Traffic Signal Warrants

Stantec performed signal warrant analysis using opening year analysis at locations where a new signal is proposed or where traffic patterns are being altered by the proposed concept. Opening year intersection turning movement volumes were extrapolated from a combination of the base year peak hour turning movement counts, 24-hour counts on the intersecting streets where possible, and the growth rate determined in this study. In addition to the existing signal locations, the following locations met the opening year signal warrants required by SCDOT.

- Dunes West Boulevard and Wando Plantation Way
- Porchers Bluff Road and Billy Swails Boulevard
- SC 41 & Parkway/Cardinal Hill Drive
- SC 41 & Winnowing Way

The intersection of SC 41 & Colonnade Drive/Emma Road did not meet the minimum warrants for a traffic signal.

SCDOT will normally require an update as the opening year approaches. Dunes West Boulevard and Wando Plantation Way will require approval by the Town of Mount Pleasant, as this is not a state road.

The signal warrant analysis is included in **Appendix F**.

Table 22: Recommended Lane Configuration for Approaches at Improved Intersections (Compromise Alternative)

Intersection	Control	Approach	Exclusive Left Turn		Through	Exclusive Right Turn	
			Lanes	Storage (ft)	Lanes	Lanes	Storage (ft)
Six Mile Rd & Sweetgrass Basket Pkwy	Signalized	All	Per Plans for Billy Swails Blvd-4B		Per Plans for Billy Swails Blvd-4B	Per Plans for Billy Swails Blvd-4B	
US 17 & Hamlin Rd/Brickyard Pkwy	Signalized	US 17 Northbound	Existing		Existing	Existing	
		US 17 Southbound	1	310’	Existing	1	200’
		Brickyard Pkwy	2	1 @ 170’ 1 @ 240’	1	2	1-170’ 1-240’
		Hamlin Rd	2	1 @ 160’ 1 @ 310’	1	1	160’
US 17 & SC 41	Signalized	US 17 NB	2	775’	Existing	Existing	
		US 17 SB	1	154’	Existing	1	194’
		SC 41 SB	Existing lanes restriped as 3 right turn lanes				
		Dingle Road	Existing				
US 17 & Porchers Bluff Rd	Signalized	US 17 NB	2	250’	Existing	Existing	
		US 17 SB	2	1 @ 545’ 1 @ 413’	Existing	Existing	
		Winnowing Way	2	325’	2	-	-
		Porchers Bluff	2	200’	2 (Thru + Thru/Rt)	1	200’
Hamlin Rd & Billy Swails Blvd	Signalized	All	Per Plans for Billy Swails Blvd-4B		Per Plans for Billy Swails Blvd-4B	Per Plans for Billy Swails Blvd-4B	
Porchers Bluff Rd & Billy Swails Blvd	Signalized	Porchers Bluff Rd WB	Existing				
		Porchers Bluff Rd EB	Extend second lane to Billy Swails Blvd – becomes right turn lane				
		Billy Swails Blvd NB	Existing				
SC 41 & Colonnade Dr \ Emma Ln	Unsignalized	SC 41 NB	Existing				
		SC 41 SB	1	200’	2	-	-
		Colonnade Dr	Existing				
		Emma Ln	1	150’	1	-	-

Table 22, continued

Intersection	Control	Approach	Left Turn		Through	Exclusive Right Turn	
			Lanes	Storage (ft)	Lanes	Lanes	Storage (ft)
SC 41 & Tradewind Dr	Unsignalized	SC 41 Northbound	Existing		2	-	-
		SC 41 Southbound	-	-	2	-	-
		Tradewind Dr	Existing			-	-
SC 41 & Joe Rouse Rd	Signalized	SC 41 Northbound	-	-	1	1	Lane drops to this RT
		SC 41 Southbound	1	150’	1	-	-
		Joe Rouse Rd	-	425	-	1	Existing
SC 41 & Bennett Charles Rd/ Sunchaser Ln	Unsignalized	SC 41 NB	1	TWLTL	-	-	-
		SC 41 SB	1	TWLTL	-	-	-
		Sunchaser Ln	Existing/Realigned		1	Existing/Realigned	
		Bennett Charles Rd	Existing/Realigned		1	Existing/Realigned	
SC 41 & Dunes West Blvd/ Rivertowne Pkwy	Signalized	SC 41 NB	2	1 @ 125’ 1@400’	2	1	400’
		SC 41 SB	2	1 @ 441’ 1@ 631’	2	-	-
		Rivertowne Pkwy	Existing		2	-	-
		Dunes West Blvd	1	285	Existing	2	1 @ 250’ 1@525’
SC 41 & Planters Point Blvd/Wood Park Dr	Signalized	SC 41 NB	1	200’	2	1	250’
		SC 41 SB	1	180’	2	1	268’
		Planters Pointe Blvd	Existing		Existing	Existing	
		Wood Park Dr	Existing		1	-	-
SC 41 & Harpers Ferry Way	Signalized	SC 41 NB	-	-	2	1	275’
		SC 41 SB	1	275’	2	-	-
		Harpers Ferry Way	Existing		Existing	Existing	

Table 22, continued

Intersection	Control	Approach	Left Turn		Through	Exclusive Right Turn	
			Lanes	Storage (ft)	Lanes	Lanes	Storage (ft)
Dunes West Blvd & Kings Gate	Unsignalized	Dunes West Blvd EB	Extend second EB lane from SC 41 through Kings Gate Ln intersection				
		Dunes West Blvd WB	Existing		Existing	Existing	
		Kings Gate Ln	Existing		Existing	Existing	
Dunes West Blvd & Wando Plantation Way	Signalized	All Approaches	Existing		Existing	Existing	
Park West Roundabout	Roundabout	Dunes West Blvd	-	-	1	1	350’
		Park West Blvd	-	-	2	-	-
		Parkway	-	-	1	1	325’
Winnowing Way & Gregorie Ferry	Unsignalized	Winnowing Way NB	1	175’	1	1	
		Winnowing Way SB	1	152’	2	-	-
		Gregorie Ferry Rd	-	-	1	-	-
		Access Drive (South)	Existing		Existing	Existing	
SC 41 & Winnowing Way	Signalized	SC 41 NB	-	-	2	-	-
		SC 41 SB	2	400’	2	-	-
		Winnowing Way	-	-	2	-	-
SC 41 & Laurel Hill Pkwy/ Cardinal Hill Dr	Signalized	SC 41 NB	1	150’-	2	-	-
		SC 41 SB	-	-	2	-	-
		Parkway	1	1@ 596’ 1@150’	1 (Thru/Right)	-	-
		Cardinal Hill Dr	Existing		Existing	Existing	

Appendix A

March 2019 Field Visit Notes

Thursday, March 14, 2019 – SC 41 Travel Time Measurements

AM Peak Hour Travel Times & Observations:

- 1 northbound: 6:38 AM start (5:24)
- 1 southbound: 6:45 AM start (6:47)
- 2 southbound: 7:28 AM start (15:46)
    - Observations:
        - Came to complete stop at Dunes West Blvd (stop and go from 0-20mph).
        - After Joe Rouse - speed was 25-35.
- 3 northbound: 7:47 AM start (6:24)
- 3 southbound: 7:58 AM start (13:30)
    - Observations:
        - 55 mph to Dunes West and then came complete stop at Nehemiah Road intersection.
        - 20 cars turned left from dual lefts at Joe Rouse (only these lefts using the outer right lane).

PM Peak Hour Travel Times & Observations:

- 1 northbound: 3:35:00 PM start (6:49)
- 1 southbound: 4:01:00 PM start (7:45)
- 2 northbound: 4:17:00 PM start (7:07)
- 2 southbound: 4:25:00 PM start (6:16)
- 3 northbound: 4:37:00 PM start (8:01)
- 3 southbound: 4:47:00 PM start (6:43)
- 4 northbound: 4:56:00 PM start (5:45)
- 4 southbound: 5:03:00 PM start (7:39)
- 5 northbound: 5:14:00 PM start (7:15)
- 6 northbound: 5:35:00 PM start (6:35)
- 6 southbound: 5:43:00 PM start (6:53)

Tuesday, March 18, 2019 – US 17 Travel Time Measurements

AM Peak Hour Travel Times & Observations:

- 1 eastbound: 6:58:00 AM start (5:56)
- 1 westbound: 7:05:00 AM start (5:47)
- 2 eastbound: 7:12:00 AM start (6:18)
- 2 westbound: 7:20:00 AM start (6:23)
- 3 eastbound: 7:27:00 AM start (5:07)
- 3 westbound: 7:34:00 AM start (8:19)
- 4 eastbound: 7:44:00 AM start (6:10)
- 4 westbound: 7:51:00 AM start (6:02)
- 5 eastbound: 7:59:00 AM start (5:41)
- 5 westbound: 8:07:00 AM start (5:12)

PM Peak Hour Travel Times & Observations:

- 1 eastbound: 4:17:00 PM start (5:33)
- 1 westbound: 4:25:00 PM start (11:42)
- 2 eastbound: 4:37:00 PM start (5:58)
- 2 westbound: 4:45:00 PM start (12:00)
    - Observations:
        - Westbound queue from SC 41 to Porchers Bluff Road intersection.
        - 70 second green time for the eastbound left phase at the US 17 & SC 41 intersection.
- 3 eastbound: 4:58:00 PM start (6:32)
- 3 westbound: 5:07:00 PM start (13:06)
- 4 eastbound: 5:22:00 PM start (12:13)
- 4 westbound: 5:43:00 PM start (7:38)

Appendix B

Traffic Control Data

STATE	COUNTY	D&F PROJECT NO.	CTC PROJECT NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	31450.05	816-0-20-12			TS01

SIGNAL HEAD DISPLAY CHART

HEAD #	1, 2F	2	4F	4	4,5conc	5, 6F	6	7, 8F	8	8,1conc	2P/6P	4P/8P
DISPLAY	←R ←Y ←FY ←G	R Y G	←R ←Y ←FY	R Y G	R Y Y→ G G→	←R ←Y ←FY ←G	R Y G	←R ←Y ←FY ←G	R Y G	R Y Y→ G G→		
PHASE	1, OLA	2	OLB	4	4,5	5, OLC	6	7, OLD	8	8,1	2P/6P	4P/8P
SIZE	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"	16"	16"
QUANTITY	1	2	1	1	1	1	2	1	1	1	4	4

EQUIPMENT INFORMATION	
CONTROLLER	CONTRACTOR SUPPLIED 2070L
CABINET	CONTRACTOR SUPPLIED 332
SOFTWARE	APOGEE STREETWISE
CABINET MOUNT	CONCRETE BASE
PHASES USED	1,2,4,5,6,7,8,2P,4P,6P,8P
OVERLAPS	OLA=Ø1+Ø2, OLB=Ø4, ØLC=O5+Ø6, ØLD=O7+Ø8 /

INSTALL PEDESTRIAN PUSH BUTTON SIGNS

NEMA PHASING

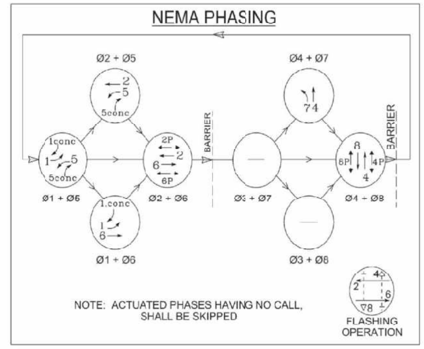
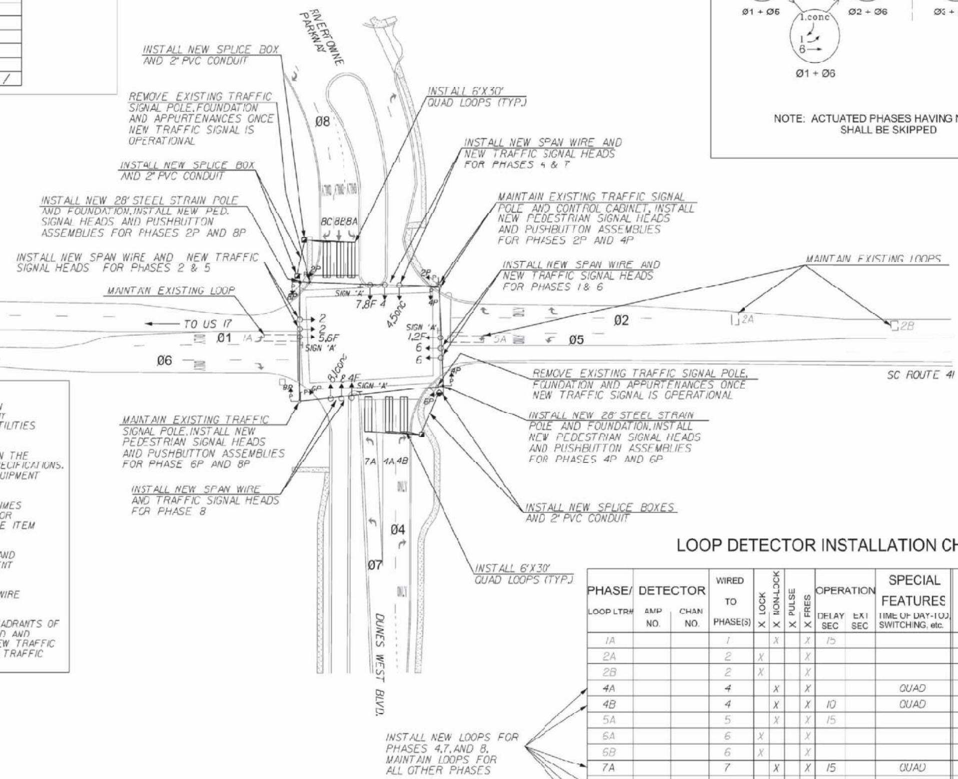


TABLE OF OPERATION SIGNAL HEAD #	Ø1 + Ø5	Ø1 + Ø6	Ø2 + Ø5	Ø2 + Ø6	Ø3 + Ø7	Ø3 + Ø8	Ø4 + Ø7	Ø4 + Ø8	FLASH
1,2F	←G	←G	←FY	←FY			←R	←R	←Y
2	R	R	G	G			R	R	Y
4F	←R	←R	←R	←R			←FY	←FY	←R
4	R	R	R	R			G	G	R
4,5conc	R/G→	R	R/G→	R			G	G	R
5,6F	←G	←FY	←G	←FY			←R	←R	←Y
6	R	G	R	G			R	R	Y
7,8F	←R	←R	←R	←R			←G	←FY	←R
8	R	R	R	R			R	G	R
8,1conc	R/G→	R/G→	R	R			R	G	R
2P	DW	DW	DW	W			DW	DW	DRK
4P	DW	DW	DW	DW			DW	W	DRK
6P	DW	DW	DW	W			DW	DW	DRK
8P	DW	DW	DW	DW			DW	W	DRK



STANDARD DRAWINGS FOR TRAFFIC SIGNAL

See sheets D1-D32 for SCDOT Standard Drawings.

DRAWING NO.	DRAWING DESCRIPTION
675-105-01	SIGNAL LOCATION DETAIL
675-105-02	SIGNAL HEADS
675-105-03	PED.HEADS PED.PEDESTAL POLE FOUNDATION
675-110-00	TYPICAL WIRE AND CABLE USAGE (FOR 8 PHASE CABINETS)
675-115-01	WOOD POLE / SPANWIRE SERVICE,GROUNDING,AND BONDING
675-115-02	POLES
675-120-00	DETECTORS
675-130-01	CABINET
675-130-03	CABINET

Copies of SCDOT Standard Drawings are available at the following web address http://www.scdot.org/doing/sd_Disclaimer.aspx

NOTES:

1. THE LOCATION OF CONDUIT,JUNCTION BOXES,CABINETS,AND TRAFFIC SIGNAL POLES SHOWN ON THE PLAN ARE APPROXIMATE.THE CONTRACTOR SHALL CONTACT "PUPS" AT "811" AND ANY OTHER UTILITY COMPANIES NECESSARY TO VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES BEFORE DIGGING.

2. ALL EQUIPMENT,MATERIALS,AND WORKMANSHIP SHALL MEET THE STANDARDS OUTLINED IN THE MUTCD (LATEST EDITION),SCDOT STANDARD DRAWINGS,AND THE SCDOT TRAFFIC SIGNAL SPECIFICATIONS. ALL TRAFFIC SIGNAL HEADS SHALL HAVE REFLECTIVE BACKPLATES.ALL TRAFFIC SIGNAL EQUIPMENT REMOVED DURING THIS PROJECT SHALL BE RETURNED TO THE SCDOT.

3. THE CONTRACTOR IS REQUIRED TO MAINTAIN THE TRAFFIC SIGNAL OPERATION AT ALL TIMES DURING CONSTRUCTION OF THIS PROJECT.ALL COSTS FOR TEMPORARY SIGNAL HEADS AND OR TEMPORARY ADJUSTMENT OF TRAFFIC SIGNAL EQUIPMENT SHALL BE INCLUDED IN THE LINE ITEM BID FOR "TEMPORARY ADJUSTMENT OF TRAFFIC SIGNAL EQUIPMENT".

4. THE CONTRACTOR SHALL MAINTAIN THE EXISTING DETECTOR LOOPS FOR PHASES 1,2,5,AND 6. CONTRACTOR SHALL COORDINATION THE INSTALLATION OF NEW LOOPS WITH THE PAVEMENT MARKING PLANS.

5. NEW TRAFFIC SIGNAL HEADS FOR ALL PHASES SHALL BE INSTALLED WHEN NEW SPAN WIRE IS INSTALLED.(EXISTING SIGNAL HEADS ARE NOT SHOWN FOR CLARITY).

7. CONTRACTOR SHALL INSTALL TWO NEW 28' STEEL STRAIN POLES ON THE NE AND SW QUADRANTS OF THE INTERSECTION AS SHOWN ON THIS PLAN.NEW SIGNAL SPAN WIRE SHALL BE INSTALLED AND CONNECTED TO THE EXISTING TRAFFIC SIGNAL POLES ON THE NW AND SE QUADRANTS.NEW TRAFFIC SIGNAL HEADS AND ASSOCIATED WIRING SHALL BE INSTALLED AND TIED TO THE EXISTING TRAFFIC SIGNAL CONTROL CABINET.

SIGNAL TIMINGS

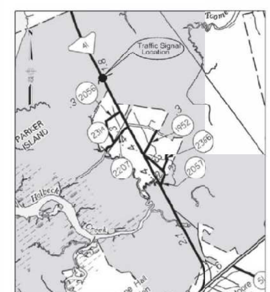
INTERVAL	PHASE 1	2	3	4	5	6	7	8
WALK	-----	7	-----	7	-----	7	-----	7
DON'T WALK	-----	33	-----	22	-----	32	-----	23
MIN GREEN	8	15	-----	8	8	15	8	8
MAX INITIAL	-----	30	-----	-----	-----	30	-----	-----
ADDED INIT (SEC/ACT)	-----	1.1	-----	-----	-----	1.1	-----	-----
PASSAGE	2.5	6.0	-----	2.5	2.5	6.0	2.5	2.5
TIME BEFORE REDUCE	-----	20	-----	-----	-----	20	-----	-----
TIME TO REDUCE	-----	15	-----	-----	-----	15	-----	-----
MIN GAP	-----	2.3	-----	-----	-----	2.3	-----	-----
MAX LIMIT	25	90	-----	25	25	90	25	25
MAXIMUM 2	-----	-----	-----	-----	-----	-----	-----	-----
YELLOW	3.0	4.7	-----	3.6	3.0	4.7	3.0	3.6
RED CLEAR	3.6	2.1	-----	2.9	3.8	2.1	3.3	2.9
RECALL	OFF	MIN	-----	OFF	OFF	MIN	OFF	OFF

LOOP DETECTOR INSTALLATION CHART

PHASE/ LOOP LTR#	DETECTOR AMP NO.	DETECTOR CHAN NO.	WIRED TO PHASE(S)	X LOCK	X NON-LOCK	X PULSE	X PRES	OPERATION DELAY SEC	OPERATION EXT SEC	SPECIAL FEATURES TIME OF DAY-TOD, SWITCHING, etc.	LOOP DESIGN SIZE X	NO.OF TURNS	DIST. FROM ℄
1A			1		X		X	15			6'X30'*	2-4-2*	-2'*
2A			2	X			X				*	*	255'*
2B			2	X			X				*	*	385'*
4A			4		X		X			QUAD	6'X30'	2-4-2	2'
4B			4		X		X	10		QUAD	6'X30'	2-4-2	-2'
5A			5		X		X	15			*	*	*
6A			6	X			X				*	*	255'*
6B			6	X			X				*	*	385'*
7A			7		X		X	15		QUAD	6'X30'	2-4-2	2'
8A			8		X		X			QUAD	6'X30'	2-4-2	-2'
8B			8		X		X			QUAD	6'X30'	2-4-2	-2'
8C			8		X		X	10		QUAD	6'X30'	2-4-2	2'

*EXISTING LOOP INFORMATION TAKEN FROM EXISTING SIGNAL PLAN DATED 10/28/2011.

0 50 100 150 200



ROUTE NUMBER	SC 41		DUNES WEST BLVD	RIVERTOWNE PKWY
APPROACH DIRECTION	NB	SB	WB	EB
SIGNAL DESIGN SPEED*	50	50	35	25
GRADE (%)*	0.0±	0.0±	0.0±	0.0±

* BASED ON SIGNAL PLAN DATED 10/28/2011

SOUTH CAROLINA DAVIS & FLOYD, INC. No. C00538 CERTIFICATE OF AUTHORIZATION

Bryan D. Wall 4/13/15

No. 20544

DAVIS & FLOYD
SINCE 1954
WWW.DAVISFLOYD.COM

3229 W. MONTAGUE AVENUE CHARLESTON, SC 29418 (843) 554-8602

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
2			
1			

DGN. LRE DATE
R/W DATE
CHK. BDW DATE

CHARLESTON COUNTY
CTC PROGRAM

RIVERTOWNE PKWY. AND DUNES WEST BLVD.
RIGHT TURN LANE ADDITIONS

TRAFFIC SIGNAL PLAN

PLOTTED: 4/9/2015 3:4?? PM FILE NAME: \\CHS-FS\Data\Jobs\Even\31450\05\CV_dgn\pln_sff\3145005-ts01_rev per DOT comments_4-8-2015.dgn

3145005-ts01 rev per DOT comments 4-8-2015.dgn 4/9/2015 3:41:58 PM

PLOTTED: 4/9/2015 3:46 PM FILE NAME: \\CHS-FS\Data\Jobs\Even\31450\05\Civil_dgn\pln_sht\31450005-ts01_rev per DOT comments_4-8-2015.dgn

STATE	COUNTY	D&F PROJECT NO.	CTC PROJECT NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	31450.05	816-0-20-12			TS01

SIGNAL HEAD DISPLAY CHART

HEAD #	1, 2F	2	4F	4	4,5conc	5, 6F	6	7, 8F	8	8,1conc	2P/6P	4P/8P
DISPLAY	←R ←Y ←FY ←G	R Y G	←R ←Y ←FY	R Y G	R Y ←Y G ←G	←R ←Y ←FY ←G	R Y G	←R ←Y ←FY ←G	R Y G	R Y ←Y G ←G		
PHASE	1, OLA	2	OLB	4	4,5	5, OLC	6	7, OLD	8	8,1	2P/6P	4P/8P
SIZE	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"	16"	16"
QUANTITY	1	2	1	1	1	1	2	1	1	1	4	4

EQUIPMENT INFORMATION	
CONTROLLER	CONTRACTOR SUPPLIED 2070L
CABINET	CONTRACTOR SUPPLIED 332
SOFTWARE	APOGEE STREETWISE
CABINET MOUNT	CONCRETE BASE
PHASES USED	1,2,4,5,6,7,8,2P,4P,6P,8P
OVERLAPS	OLA=Ø1+Ø2, OLB=Ø4, ØLC=O5+Ø6, ØLD=O7+Ø8 /

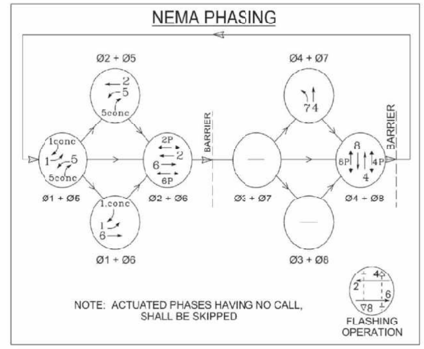
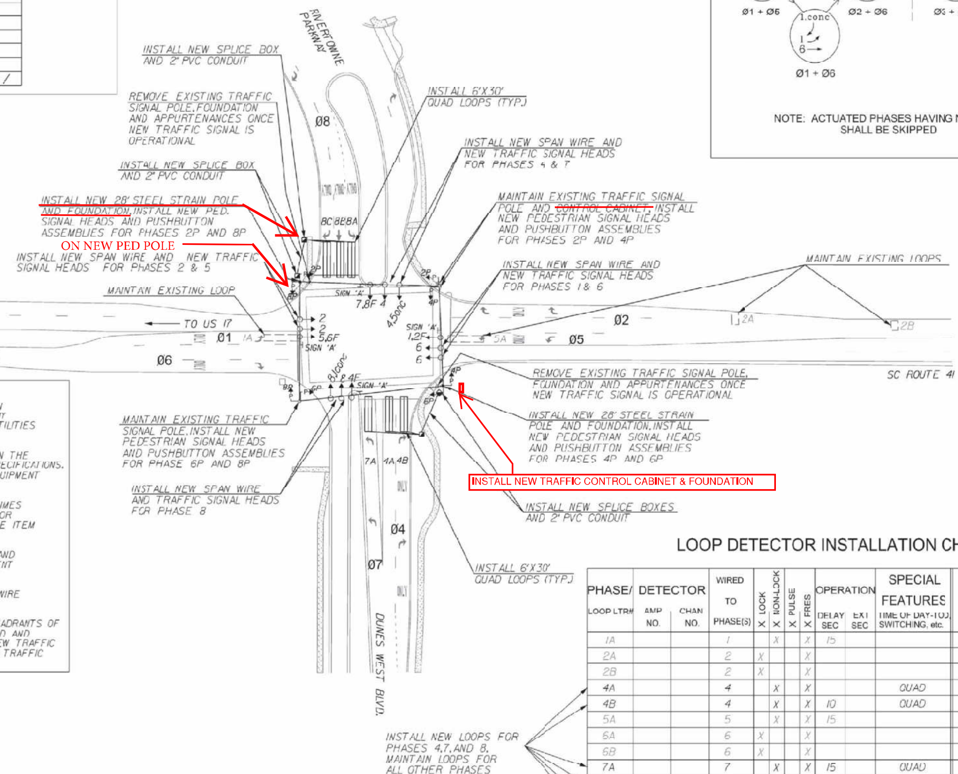


TABLE OF OPERATION SIGNAL HEAD #	Ø1 + Ø5	Ø1 + Ø6	Ø2 + Ø5	Ø2 + Ø6	Ø3 + Ø7	Ø3 + Ø8	Ø4 + Ø7	Ø4 + Ø8	FLASH
1,2F	←G	←G	←FY	←FY			←R	←R	←Y
2	R	R	G	G			R	R	Y
4F	←R	←R	←R	←R			←FY	←FY	←R
4	R	R	R	R			G	G	R
4,5conc	R/←G	R	R/←G	R			G	G	R
5,6F	←G	←FY	←G	←FY			←R	←R	←Y
6	R	G	R	G			R	R	Y
7,8F	←R	←R	←R	←R			←G	←FY	←R
8	R	R	R	R			R	G	R
8,1conc	R/←G	R/←G	R	R			R	G	R
2P	DW	DW	DW	W			DW	DW	DRK
4P	DW	DW	DW	DW			DW	W	DRK
6P	DW	DW	DW	W			DW	DW	DRK
8P	DW	DW	DW	DW			DW	W	DRK



STANDARD DRAWINGS FOR TRAFFIC SIGNAL

See sheets D-D32 for SCDOT Standard Drawings.

DRAWING NO.	DRAWING DESCRIPTION
675-105-01	SIGNAL LOCATION DETAIL
675-105-02	SIGNAL HEADS
675-105-03	PED.HEADS PED.PEDESTAL POLE FOUNDATION
675-110-00	TYPICAL WIRE AND CABLE USAGE (FOR 8 PHASE CABINETS)
675-115-01	WOOD POLE / SPANWIRE SERVICE,GROUNDING,AND BONDING
675-115-02	POLES
675-120-00	DETECTORS
675-130-01	CABINET
675-130-03	CABINET

Copies of SCDOT Standard Drawings are available at the following web address http://www.scdot.org/doing/sd_Disclaimer.aspx

NOTES:

1.THE LOCATION OF CONDUIT,JUNCTION BOXES,CABINETS,AND TRAFFIC SIGNAL POLES SHOWN ON THE PLAN ARE APPROXIMATE.THE CONTRACTOR SHALL CONTACT "PUPS" AT "811" AND ANY OTHER UTILITY COMPANIES NECESSARY TO VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES BEFORE DIGGING.

2.ALL EQUIPMENT,MATERIALS,AND WORKMANSHIP SHALL MEET THE STANDARDS OUTLINED IN THE MUTCD (LATEST EDITION),SCDOT STANDARD DRAWINGS,AND THE SCDOT TRAFFIC SIGNAL SPECIFICATIONS. ALL TRAFFIC SIGNAL HEADS SHALL HAVE REFLECTIVE BACKPLATES.ALL TRAFFIC SIGNAL EQUIPMENT REMOVED DURING THIS PROJECT SHALL BE RETURNED TO THE SCDOT.

3.THE CONTRACTOR IS REQUIRED TO MAINTAIN THE TRAFFIC SIGNAL OPERATION AT ALL TIMES DURING CONSTRUCTION OF THIS PROJECT.ALL COSTS FOR TEMPORARY SIGNAL HEADS AND OR TEMPORARY ADJUSTMENT OF TRAFFIC SIGNAL EQUIPMENT SHALL BE INCLUDED IN THE LINE ITEM BID FOR "TEMPORARY ADJUSTMENT OF TRAFFIC SIGNAL EQUIPMENT".

4.THE CONTRACTOR SHALL MAINTAIN THE EXISTING DETECTOR LOOPS FOR PHASES 1,2,5,AND 6.CONTRACTOR SHALL COORDINATION THE INSTALLATION OF NEW LOOPS WITH THE PAVEMENT MARKING PLANS.

5.NEW TRAFFIC SIGNAL HEADS FOR ALL PHASES SHALL BE INSTALLED WHEN NEW SPAN WIRE IS INSTALLED.(EXISTING SIGNAL HEADS ARE NOT SHOWN FOR CLARITY).

7.CONTRACTOR SHALL INSTALL TWO NEW 28' STEEL STRAIN POLES ON THE NE AND SW QUADRANTS OF THE INTERSECTION AS SHOWN ON THIS PLAN.NEW SIGNAL SPAN WIRE SHALL BE INSTALLED AND CONNECTED TO THE EXISTING TRAFFIC SIGNAL POLES ON THE NW AND SE QUADRANTS.NEW TRAFFIC SIGNAL HEADS AND ASSOCIATED WIRING SHALL BE INSTALLED AND TIED TO THE EXISTING TRAFFIC SIGNAL CONTROL CABINET.

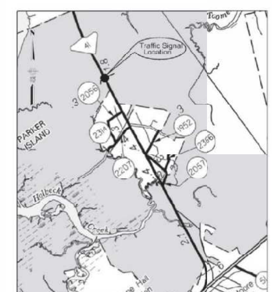
SIGNAL TIMINGS

INTERVAL	PHASE 1	2	3	4	5	6	7	8
WALK	-----	7	-----	7	-----	7	-----	7
DON'T WALK	-----	33	-----	22	-----	32	-----	23
MIN GREEN	8	15	-----	8	8	15	8	8
MAX INITIAL	-----	30	-----	-----	-----	30	-----	-----
ADDED INIT (SEC/ACT)	-----	1.1	-----	-----	-----	1.1	-----	-----
PASSAGE	2.5	6.0	-----	2.5	2.5	6.0	2.5	2.5
TIME BEFORE REDUCE	-----	20	-----	-----	-----	20	-----	-----
TIME TO REDUCE	-----	15	-----	-----	-----	15	-----	-----
MIN GAP	-----	2.3	-----	-----	-----	2.3	-----	-----
MAX LIMIT	25	90	-----	25	25	90	25	25
MAXIMUM 2	-----	-----	-----	-----	-----	-----	-----	-----
YELLOW	3.0	4.7	-----	3.6	3.0	4.7	3.0	3.6
RED CLEAR	3.6	2.1	-----	2.9	3.8	2.1	3.3	2.9
RECALL	OFF	MIN	-----	OFF	OFF	MIN	OFF	OFF

LOOP DETECTOR INSTALLATION CHART

PHASE/ LOOP LTR#	DETECTOR AMP NO.	CHAN NO.	WIRED TO PHASE(S)	X LOCK	X NON-LOCK	X PULSE	X PRES	OPERATION DELAY SEC	EXT SEC	SPECIAL FEATURES TIME OF DAY-TOD, SWITCHING, etc.	LOOP DESIGN SIZE X	NO.OF TURNS	DIST. FROM ℄
1A			1		X		X	15			6'X30'*	2-4-2*	-2'*
2A			2	X			X				*	*	255'*
2B			2	X			X				*	*	385'*
4A			4		X		X			QUAD	6'X30'	2-4-2	2'
4B			4		X		X	10		QUAD	6'X30'	2-4-2	-2'
5A			5		X		X	15			*	*	*
6A			6	X			X				*	*	255'*
6B			6	X			X				*	*	385'*
7A			7		X		X	15		QUAD	6'X30'	2-4-2	2'
8A			8		X		X			QUAD	6'X30'	2-4-2	-2'
8B			8		X		X			QUAD	6'X30'	2-4-2	-2'
8C			8		X		X	10		QUAD	6'X30'	2-4-2	2'

*EXISTING LOOP INFORMATION TAKEN FROM EXISTING SIGNAL PLAN DATED 10/28/2011.



ROUTE NUMBER	SC 41		DUNES WEST BLVD	RIVERTOWNE PKWY
APPROACH DIRECTION	NB	SB	WB	EB
SIGNAL DESIGN SPEED*	50	50	35	25
GRADE (%)*	0.0±	0.0±	0.0±	0.0±

* BASED ON SIGNAL PLAN DATED 10/28/2011

0 50 100 150 200

SOUTH CAROLINA DAVIS & FLOYD, INC. No. C00538 CERTIFICATE OF AUTHORIZATION

Bryan D. Wall 4/13/15

DAVIS & FLOYD

SINCE 1954

WWW.DAVISFLOYD.COM

3229 W. MONTAGUE AVENUE CHARLESTON, SC 29418 (843) 554-8602

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
2			
1			

DGN. LRE DATE
R/W DATE
CHK. BDW DATE

CHARLESTON COUNTY
CTC PROGRAM

RIVERTOWNE PKWY. AND DUNES WEST BLVD.
RIGHT TURN LANE ADDITIONS

AS-BUILT TRAFFIC SIGNAL PLAN

31450005-ts01 rev per DOT comments 4-8-2015.dgn 4/9/2015 3:41:58 PM

2P = 130
4P = 14
6P = 15
8 = 16

COUNTY	ROUTE NAME	ROUTE NO.	SHEET NO.
CHARLESTON	HIGHWAY 41	SC 41	TS1

SIGNAL EQUIPMENT

ONE (1) EXISTING 8-PHASE FULLY ACTUATED STANDARD 2070 CONTROLLER WITH FLASHER, SIGNAL MONITOR UNIT, AND BASE-MOUNTED 332A CABINET. EXT. / PROP.

ONE (1) NEW AND THREE (3) EXISTING MODEL 222, 2-CHANNEL VEHICLE DETECTOR UNITS

PEDESTRIAN SIGNALS: EXT. P — PROP. P W/ACT. &SIGN

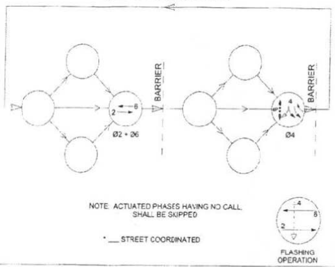
VEHICLE SIGNALS: EXT. — PROP.

HEAD NUMBER	2	4A	4B	6	6,4conc	4P
LENS	R Y G	R ◄Y ◄G	R Y G ◄G	R Y G	R Y Y► G G►	
PHASE	2	4	4	6	6,4	4P
SIZE	12"	12"	12"	12"	12"	16"
QUANTITY	2	1	1	1	1	2

CLA: CLB: OLC: OLD:

METAL POLES W/O MAST ARMS:	EXT.	PROP.
METAL POLES W/ MAST ARMS:	EXT.	PROP.
WOOD POLES AS NECESSARY:	EXT.	PROP.
SPLICE BOXES AS NECESSARY:	EXT.	PROP.
INDUCTANCE LOOPS AS NECESSARY:	EXT.	PROP.
GUYS AS NECESSARY:	EXT.	PROP.
WIRELESS DETECTORS AS NECESSARY:	EXT.	PROP.

NEMA PHASING



NOTE: ACTUATED PHASES HAVING NO CALL SHALL BE SKIPPED

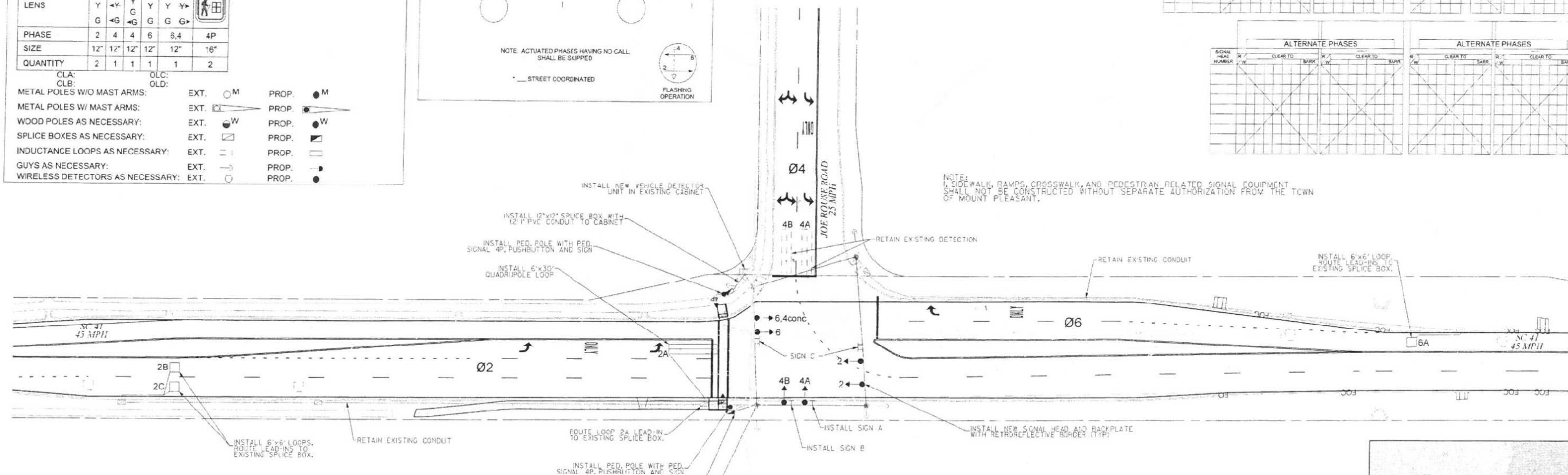
* ___ STREET COORDINATED

SIGNAL DISPLAY SEQUENCE (PREFERENTIAL PHASING)

FLASH	SIGNAL HEAD NUMBER	Ø2—Ø6 R/W	CLEAR TO	BARR.	BARRIER	Ø4 R/W	CLEAR TO	BARR.
Y	2	G	Y	R		R	R	R
R	4A	R	R	R		-G	-Y	R
R	4B	R	R	R		G/-G	Y	R
Y	6	G	Y	R		R	R	R
Y	6,4conc	G	Y	R		R/-G-	R/-Y-	R
DARK	4P	DW	DW	DW		W	DW	DW

ALTERNATE PHASES

ALTERNATE PHASES



NOTE:
1. SIDEWALK, RAMPS, CROSSWALK, AND PEDESTRIAN RELATED SIGNAL EQUIPMENT SHALL NOT BE CONSTRUCTED WITHOUT SEPARATE AUTHORIZATION FROM THE TOWN OF MOUNT PLEASANT.

SIGNAL TIMINGS

INTERVAL	PHASE 2	PHASE 4	PHASE 6
WALK	-	7	-
DON'T WALK	-	16	-
MIN INITIAL	20	8	20
MAX INITIAL	37	-	37
ADD/VEH	1.5	-	2.5
VEH EXT	6.0	3.0	6.0
TIME BFR REDUCE	30	-	30
TIME TO REDUCE	15	-	15
MIN GAP	2.5	-	2.5
MAX LIMIT	75	30	75
MAXIMUM 2	-	-	-
YELLOW	4.4	3.0	4.4
RED CLEAR	1.6	3.5	1.6

DETECTOR INSTALLATION CHART

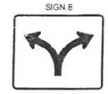
PHASE/ LOOP LTR#	DETECTOR AMP NO.	DETECTOR CHAN NO.	WIRED TO PHASE(S)	X LOCK	X NON-LOCK	X PULSE	X PRES	OPERATION DELAY SEC	OPERATION EXT SEC	SPECIAL FEATURES TIME OF DAY-TOD, SWITCHING, etc.	LOOP DESIGN SIZE _X_	NO.OF TURNS	DIST. FROM ℄
2A	1	—	2	-	X	-	X	—	—	QUADRUPOLE	6'x30'	2-4-2	-3'
2B	2	—	2	X	-	-	X	—	—	—	6'x6'	4	330'
2C	2	—	2	X	-	-	X	—	—	—	6'x6'	4	330'
4A	3	—	4	-	X	-	X	—	—	RETAIN EXISTING	6'x30'	2-4-2	-2'
4B	3	—	4	-	X	-	X	—	—	RETAIN EXISTING	6'x30'	2-4-2	-2'
6A	4	—	6	X	-	-	X	—	—	—	6'x6'	4	330'

NOTES:
1. CONTRACTOR SHALL COORDINATE WITH EXISTING UTILITIES FOR CONDUIT PLACEMENT.
2. RETURN EXISTING SIGNAL EQUIPMENT TO THE SCDOT DISTRICT SIX SIGNAL SHOP.
3. PROVIDE A CONTINUOUS RUN OF 4 CONDUCTOR GRAY TO EACH LOOP. 4 CONDUCTOR GRAY SHALL NOT BE SPLICED FROM THE CABINET TO THE LOOP LEAD INS.
4. INSTALL BACKPLATES WITH RETROREFLECTIVE BORDERS ON ALL VEHICULAR SIGNAL HEADS.
5. SET LOOP DETECTOR DELAY TO ZERO FOR LOOP 4B.

SIGN A

R3-05L-30

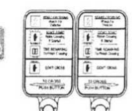
SIGN B



R3-6.6-42

SIGN C (RETAIN/RELOCATE EXISTING)

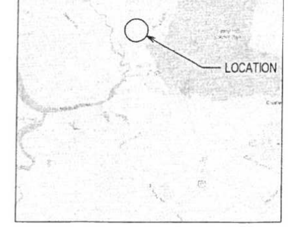
D3-1



INSTALL SIGNS (R10-3e) AND PUSHBUTTONS AS SHOWN ABOVE

ROUTE NUMBER	SC 41		JOE ROUSE ROAD
APPROACH DIRECTION	NB	SB	WB
SIGNAL DESIGN SPEED	45	45	25
GRADE (%)	0.0%*	0.0%*	0.0%*

* ESTIMATED



SCALE IN FEET

0 30 60 120

THE TOWN OF Mount Pleasant SOUTH CAROLINA

PLANS PREPARED BY:

Stantec

Stantec Consulting Services Inc.
4961 Centre Pointe Drive Suite 200
North Charleston, SC 29418
www.stantec.com

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION — STANTEC CONSULTING SERVICES, INC. No. C00310

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 25214 JAMES A. FISHER

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
1			
2			
3			
4			

TOPO. ___ DATE ___ PLAN SCALE 1" = ___ HORIZ
DWG. ___ DATE ___ PROF SCALE 1" = ___
R/W ___ DATE ___ SCALE 1" = ___ VERT

TOWN OF MOUNT PLEASANT
SOUTH CAROLINA

SC HIGHWAY 41 &
JOE ROUSE ROAD
TRAFFIC SIGNAL PLAN

SCALE: 1"=30' RTE. SC 41

User: sebaker
U:\1710\active\171001683\Design\DGN\Plan_Sheets\171001683_2L_tsl.dgn
5/3/2017

SHEET NO.	TOTAL SHEETS
1	4

INDEX OF SHEETS		
SHEET NO.	DESCRIPTION	SHEET SUBTOTALS
1	TITLE SHEET	1
2	SUMMARY OF ESTIMATED QUANTITIES	1
PM1	PAVEMENT MARKING & SIGNING PLAN	1
TS1	TRAFFIC SIGNAL PLAN	1
TOTAL		4

THE TOWN OF Mount Pleasant
SOUTH CAROLINA

PROPOSED PLANS FOR

SC HIGHWAY 41 & HARPERS FERRY WAY TRAFFIC SIGNAL INSTALLATION (MAST ARM)

Hydraulic Design Reference for these plans is the:
2009
Edition of SCDOT's "Requirements for Hydraulic Design Studies"

Design Reference for these plans is the:
2001
AASHTO "A Policy on Geometric Design of Highways and Streets"

NPDES PERMIT INFORMATION

Disturbed Area = N/A Acre(s)

Permitted Area = N/A Acre(s)

Approximate Location of Roadway is

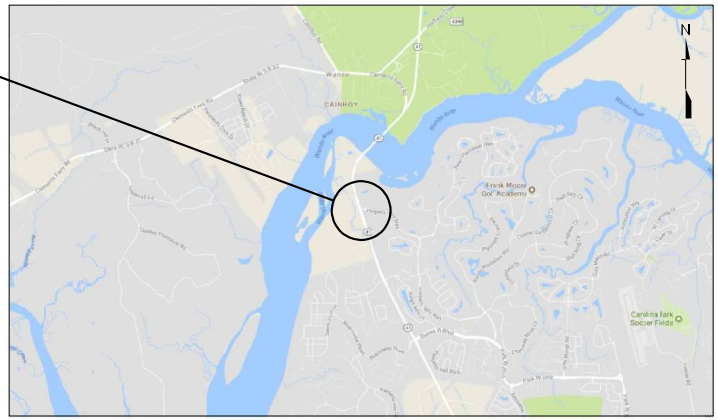
Begin
Latitude 32°54'52"
Longitude 79°49'40"

End
Latitude 32°54'52"
Longitude 79°49'40"

Hydraulic and NPDES Design provided by:
N/A

Designs may be obtained from the SCDOT Regional Production Group

SC 41 & HARPERS FERRY WAY INTERSECTION



TOWN OF MOUNT PLEASANT

LAYOUT
SCALE 1 INCH = N.T.S. FEET

	SC 41 (HIGHWAY 41)	HARPERS FERRY WAY	TOTAL
NET LENGTH OF ROADWAY	-	-	- MILES
NET LENGTH OF BRIDGES	-	-	- MILES
NET LENGTH OF PROJECT	-	-	- MILES
LENGTH OF EXCEPTIONS	-	-	- MILES
GROSS LENGTH OF PROJECT	-	-	- MILES

LAYOUT
EQUALITIES IN STATIONING
SCALE 1 INCH = N.T.S. FEET

NOTE: EXCEPT AS MAY OTHERWISE BE SPECIFIED ON THE PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIALS AND WORKMANSHIP ON THIS PROJECT SHALL CONFORM TO THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2007 EDITION) AND THE STANDARD DRAWINGS FOR ROAD CONSTRUCTION IN EFFECT AT THE TIME OF LETTING.

TRAFFIC DATA SC 41

2016 ADT 22,625

2036 ADT 27,805

TRUCKS 2 %

3 DAYS BEFORE DIGGING IN SOUTH CAROLINA
CALL 811
SOUTH CAROLINA 811 (SC811)
www.SC811.COM
ALL UTILITIES MAY NOT BE A MEMBER OF SC811

CONSULTING ENGINEERING FIRM

Stantec
Stantec Consulting Services
4969 Centre Pointe Drive, Suite 200
North Charleston, SC 29418
Tel: 843.740.7700
Fax: 843.740.7707
www.stantec.com

ENGINEER OF RECORD

SOUTH CAROLINA STANTEC CONSULTING SERVICES, INC. No. C03310 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 37068 STUART W. DAY

FOR CONSTRUCTION: 10-9-17

User: degan
U:\TIO\active\TI001925\Design\DGN\Plan Sheets\TI001925_01_ tsh.dgn
10/9/2017

COUNTY	PROJECT ID	ROUTE NO.	ROUTE NAME	SHEET NO.
CHARLESTON	—	SC 41	HIGHWAY 41	2

SUMMARY OF ESTIMATED QUANTITIES

SECTION	ITEM	QUANTITY	UNIT
1031000	MOBILIZATION	1.000	LS
1032010	BONDS AND INSURANCE	1.000	LS
1071100	TRAFFIC CONTROL	1.000	LS
6271010	4" WHITE SOLID LINES (PVT. EDGE LINES) THERMO.- 90 MIL.	80.000	LF
6271025	24" WHITE SOLID LINES (STOP/DIAG LINES)-THERMO.-125 MIL	76.000	LF
6271030	WHITE SINGLE ARROWS (LT, STRGHT, RT) THERMO.-125 MIL	3.000	EA
6271035	WHITE WORD MESSAGE "ONLY" -THERMOPLASTIC - 125 MIL	5.000	EA
6319505	REMOVAL OF PAVEMENT MARKINGS	85.000	LF
6319515	REMOVAL OF PAVEMENT MARKINGS	2.000	EA
6531210	U-SECTION POST FOR SIGN SUPPORTS -3P	52.000	LF
6510105	FLAT SHEET,TYPE III,FIXED SIZE	40.000	SF
6750275	F&I 1" SCHEDULE 80 PVC CONDUIT	40.000	LF
6750278	FURNISH & INSTALL 2.0" SCHEDULE 80 PVC CONDUIT	60.000	LF
675027C	FURNISH & INSTALL 3.0" SCHEDULE 80 PVC CONDUIT	20.000	LF
6770393	NO. 14 COPPER WIRE, 8 CONDUCTOR (BLACK)	425.000	LF
6800499	F&I ELECTRICAL SERVICE FOR TRAFFIC SIGNAL	1.000	EA
6800528	17"X30"X18"D. ELEC. FLUSH UNDGRD.ENCLOS-(STR.POLY.CONC.)HD	1.000	EA
6845511	F&I - CONTR 332/336 CABINET ASSEMBLY - BASE MOUNTED	1.000	EA
6865731	F&I - 12" 1-WAY-3 SECTION (R,Y,G,) VEHICLE TRAFFIC SIGNAL	6.000	EA
6865834	BACKPLATE W/ RETROREFL. BORDERS FOR TRAFF. SIG.	6.000	EA
6886040	FURNISH & INSTALL VIDEO DETECTION SYSTEM W/HARDWARE & LEAD-IN	1.000	EA
6886042	FURNISH & INSTALL ADD'L CAMERAS W/HARDWARE & LEAD-IN	2.000	EA
6888179	DESIGN, FURNISH & INSTALL STEEL POLE WITH MAST ARM INCLUDING FOUNDATION	1.000	EA

THE FOLLOWING QUANTITIES ARE NOT SHOWN IN DETAIL ON THE PLANS BUT ARE INCLUDED IN THE SUMMARY OF ESTIMATED QUANTITIES AND MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER.

GENERAL INCLUSIONS

ITEM	QUANTITY	UNIT	COMMENTS
SILT FENCE	100.000	LF	AS NEEDED

PROJECT NOTES

1. TRAFFIC CONTROL
   PERFORM TRAFFIC CONTROL FOR SIGNAL IMPROVEMENTS IN ACCORDANCE WITH SCDOT STANDARDS AND TRAFFIC SIGNAL SPECIAL PROVISIONS - TRAFFIC CONTROL, FOR TRAFFIC SIGNAL PROJECTS. REFER TO THIS SPECIAL PROVISION FOR LANE CLOSURE RESTRICTIONS AND CONSTRUCTION RESTRICTIONS.

2. SCDOT STANDARD DRAWINGS
   PERFORM ALL WORK IN ACCORDANCE WITH CURRENT SCDOT STANDARD DRAWINGS (MOST RECENTLY REVISED JANUARY 2013) AND TRAFFIC SIGNAL SPECIAL PROVISIONS - TRAFFIC CONTROL, FOR TRAFFIC SIGNAL PROJECTS.

3. HOURLY LANE CLOSURE RESTRICTIONS
   FOR SC 41, LANE CLOSURES ARE PROHIBITED MONDAY-FRIDAY BETWEEN THE HOURS OF 6AM-7PM, SATURDAY AND SUNDAY BETWEEN THE HOURS OF 6AM-7PM,

4. TRAFFIC SIGNAL VEHICLE DETECTORS
   PAY ITEMS 6886040 AND 6886042 WILL USE THERMAL VIDEO DETECTION AS DIRECTED BY THE TOWN OF MOUNT PLEASANT.

PLANS PREPARED BY:
Stantec
Stantec Consulting Services
4969 Centre Pointe Drive, Suite 200
North Charleston, SC 29418
Tel: 843.740.7700
Fax: 843.740.7707
www.stantec.com

10-9-17

REV.NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
2			
1			

TOPO. _____ DATE _____
DWG. _____ DATE _____
R/W _____ DATE _____
GROUP ____ - ____

TOWN OF MOUNT PLEASANT
SOUTH CAROLINA

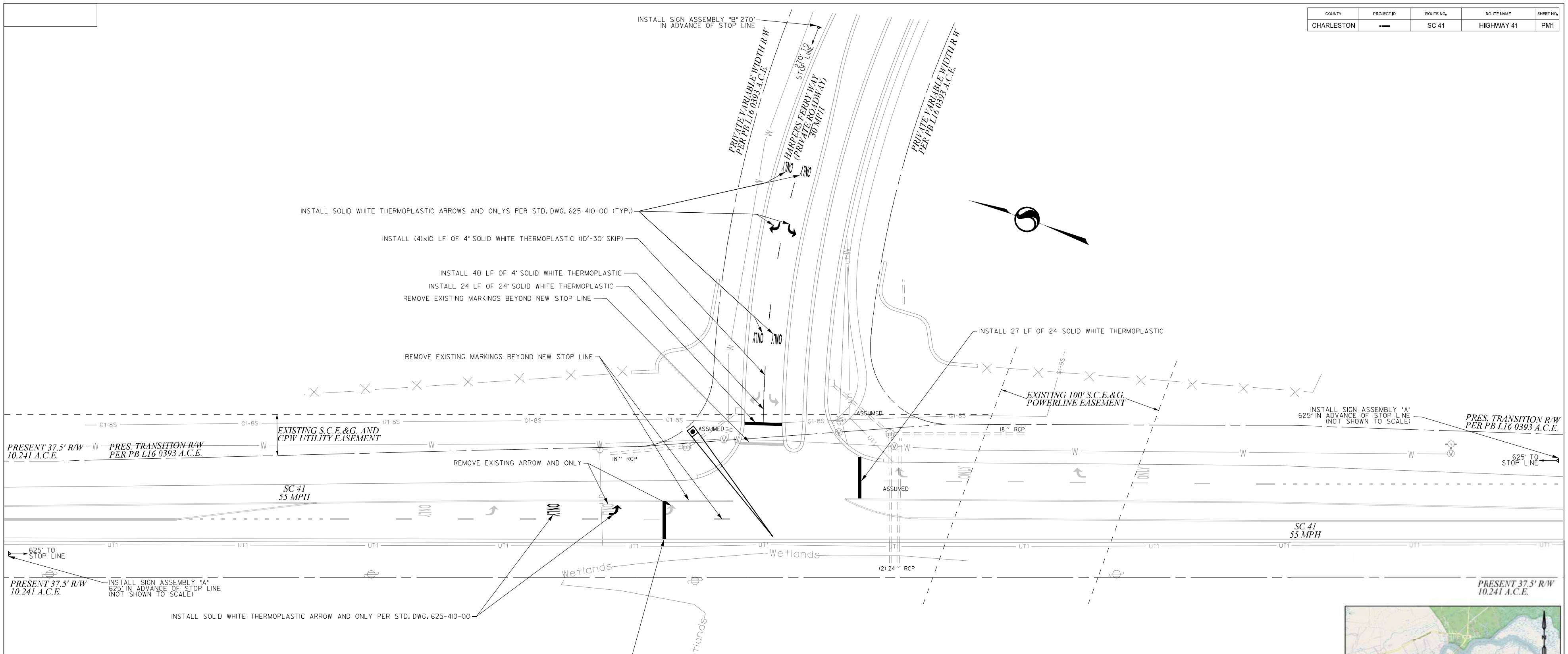
SC 41 (HIGHWAY 41) &
HARPERS FERRY WAY
SUMMARY OF ESTIMATED QUANTITIES

SCALE: 1" = 30' RTE. SC 41

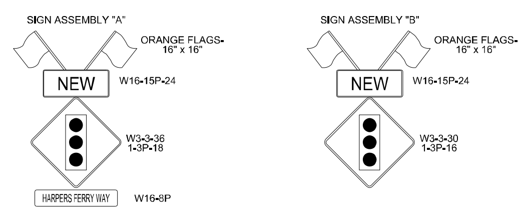
User:cegan
U:\170\active\170109925\Design\DGN\Plan Sheets\170109925_02_soeq.dgn
10/9/2017

User: aegan
U:\1710\active\171001925\Design\DGN\Plan Sheets\171001925_03_pml.dgn
10/9/2017

COUNTY	PROJECT ID	ROUTE NO.	ROUTE NAME	SHEET NO.
CHARLESTON	----	SC 41	HIGHWAY 41	PM1

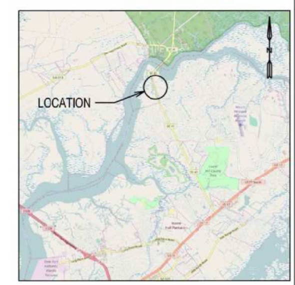


NOTES:
1. UTILITIES SHOWN ARE FOR REFERENCE ONLY.
2. INSTALL ONE SIGN ASSEMBLY "A" FOR EACH DIRECTION OF TRAVEL ALONG SC 41 AT 625' IN ADVANCE OF THE STOP LINE AND ONE SIGN ASSEMBLY "B" FOR HARPERS FERRY WAY AT 270' IN ADVANCE OF THE STOP LINE.



INSTALL ONE SIGN ASSEMBLY "A" FOR EACH DIRECTION OF TRAVEL ALONG SC 41 AT 625' IN ADVANCE OF THE STOP LINE.

INSTALL ONE SIGN ASSEMBLY "B" ALONG HARPERS FERRY WAY AT 270' IN ADVANCE OF THE STOP LINE.



SCALE IN FEET
0 30 60 120

PLANS PREPARED BY:

Stantec
Stantec Consulting Services
4969 Centre Pointe Drive, Suite 200
North Charleston, SC 29418
Tel: 843.740.7700
Fax: 843.740.7707
www.stantec.com

SOUTH CAROLINA · STANTEC CONSULTING SERVICES, INC. · No. C00370 · CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA · LICENSED PROFESSIONAL ENGINEER · No. 32968

10-9-17

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
2			
1			

TOPO. ______ DATE ______
DWG. ______ DATE ______ GROUP ____ - ____
R/W ______ DATE ______

TOWN OF MOUNT PLEASANT
SOUTH CAROLINA

SC 41 (HIGHWAY 41) &
HARPERS FERRY WAY
SIGNING AND MARKING PLAN

SCALE: 1" = 30' RTE. SC 41

COUNTY	PROJECT ID	ROUTE NO.	ROUTE NAME	SHEET NO.
CHARLESTON	----	SC 41	HIGHWAY 41	TS1

SIGNAL EQUIPMENT

ONE (1) NEW 8-PHASE FULLY ACTUATED STANDARD 2070 CONTROLLER WITH FLASHER, SIGNAL MONITOR UNIT, AND BASE-MOUNTED 332A CABINET.

EXT. / PROP.

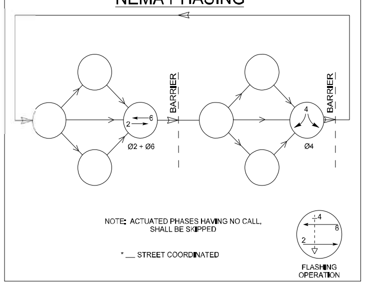
VEHICLE SIGNALS: EXT. PROP.

HEAD NUMBER	2	4	6
LENS	R	R	R
	Y	Y	Y
	G	G	G
PHASE	2	4	6
SIZE	12"	12"	12"
QUANTITY	2	2	2

OLA: OLC:
OLB: OLD:

METAL POLES W/ MAST ARMS: EXT. PROP.
SPLICE BOXES AS NECESSARY: EXT. PROP.
VIDEO DETECTOR UNITS AS NECESSARY: EXT. PROP.
GUYS AS NECESSARY: EXT. PROP.

NEMA PHASING

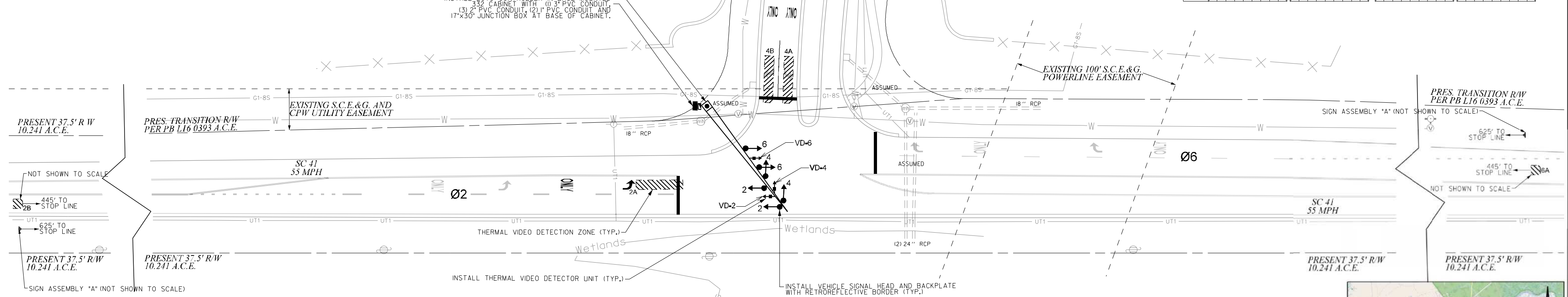


SIGNAL DISPLAY SEQUENCE (PREFERENTIAL PHASING)

FLASH	SIGNAL HEAD NUMBER	Ø2 + Ø6			ALTERNATE / Ø4	
Y	2	G	Y	R	R	R
R	4	R	R	R	G	Y
Y	6	G	Y	R	R	R

ALTERNATE PHASES

ALTERNATE PHASES



NOTES:

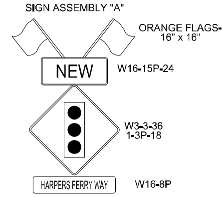
1. REFER TO THE MOST CURRENT EDITION OF THE SCDOT STANDARD DRAWINGS FOR ALL WORK WITHIN SCDOT RIGHT OF WAY.
2. REFER TO SCDOT STANDARD DRAWING SECTION 675-000 FOR ALL WORK RELATING TO TRAFFIC SIGNALS.
3. UTILITIES SHOWN ARE FOR REFERENCE ONLY.
4. CONTRACTOR SHALL COORDINATE WITH EXISTING UTILITIES FOR POLE PLACEMENT.
5. VIDEO DETECTION ZONES, EQUIPMENT AND ASSOCIATED SYSTEM OPERATING PARAMETERS WILL BE DEPLOYED BY SIGNAL SUB CONTRACTOR (RHYTHM ENGINEERING).
6. INSTALL ONE SIGN ASSEMBLY "A" FOR EACH DIRECTION OF TRAVEL ALONG SC 41 AT 625' IN ADVANCE OF THE STOP LINE AND ONE SIGN ASSEMBLY "B" ALONG HARPERS FERRY WAY AT 270' IN ADVANCE OF THE STOP LINE.
7. REMOVE "NEW" PLAQUES AND FLAGS FROM SIGN ASSEMBLIES "A" AND "B" A MINIMUM OF TWO MONTHS AND MAXIMUM OF SIX MONTHS AFTER SIGNAL ACTIVATION.

SIGNAL TIMINGS

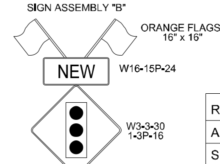
INTERVAL	PHASE 2	PHASE 4	PHASE 6
WALK	-	-	-
DON'T WALK	-	-	-
MIN INITIAL	15	6	15
MAX INITIAL	49	-	49
ADD/VEH	2.5	-	2.5
VEH EXT	6.0	3.0	6.0
TIME BFR REDUCE	20	-	20
TIME TO REDUCE	15	-	15
MIN GAP	3.0	-	3.0
MAX LIMIT	60	30	60
MAXIMUM 2	-	-	-
YELLOW	5.1	3.0	5.1
RED CLEAR	1.3	3.1	1.3

DETECTOR INSTALLATION CHART

PHASE/ LOOP LTR#	DETECTOR AMP NO.	DETECTOR CHAN NO.	WIRED TO PHASE(S)	X LOCK	X NON-LOCK	X PULSE	X PRES	OPERATION DELAY SEC	OPERATION EXT SEC	SPECIAL FEATURES TIME OF DAY-TOD, SWITCHING, etc.	LOOP DESIGN SIZE _X_	NO. OF TURNS	DIST. FROM ℄
2A	---	---	2	-	X	-	X	—	---	THERMAL VIDEO	6'x30'	---	-3'
2B	---	---	2	X	-	-	X	—	---	THERMAL VIDEO	6'x6'	---	445'
4A	---	---	4	-	X	-	X	---	---	THERMAL VIDEO	6'x30'	---	-3'
4B	---	---	4	-	X	-	X	10	---	THERMAL VIDEO	6'x30'	---	-3'
6A	---	---	6	X	-	-	X	---	---	THERMAL VIDEO	6'x6'	---	445'



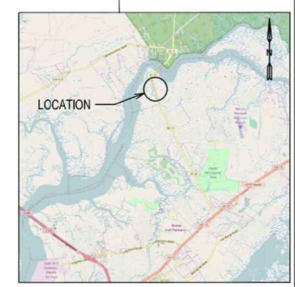
INSTALL ONE SIGN ASSEMBLY "A" FOR EACH DIRECTION OF TRAVEL ALONG SC 41 AT 625' IN ADVANCE OF THE STOP LINE.



INSTALL ONE SIGN ASSEMBLY "B" ALONG HARPERS FERRY WAY AT 270' IN ADVANCE OF THE STOP LINE.

ROUTE NUMBER	SC 41		HARPERS FERRY WAY
APPROACH DIRECTION	NB	SB	WB
SIGNAL DESIGN SPEED	55	55	30
GRADE (%)	*0%	*0%	*0%

* ESTIMATED



SCALE IN FEET
0 30 60 120

PLANS PREPARED BY:

Stantec
Stantec Consulting Services
4969 Centre Pointe Drive, Suite 200
North Charleston, SC 29418
Tel: 843.740.7700
Fax: 843.740.7707
www.stantec.com

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION — STANTEC CONSULTING SERVICES, INC. No. C00370

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 32968
10-9-17

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
1			
2			
3			
4			

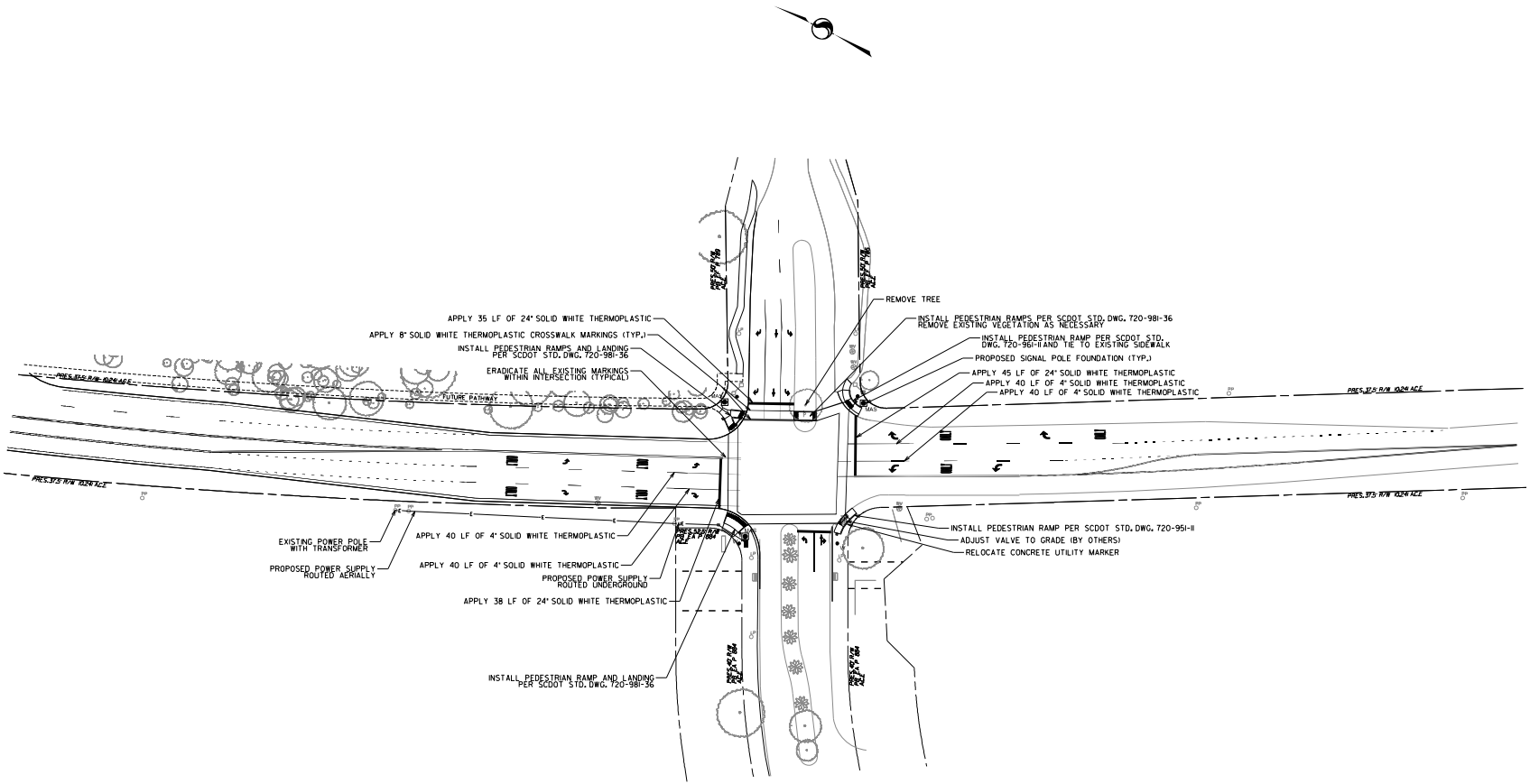
TOPO. ______ DATE ______
DWG. ______ DATE ______ GROUP ____ - ____
R/W ______ DATE ______

TOWN OF MOUNT PLEASANT
SOUTH CAROLINA

SC 41 (HIGHWAY 41) &
HARPERS FERRY WAY
TRAFFIC SIGNAL PLAN

SCALE: 1" = 30' RTE. SC 41

FED. ROAD DIV. NO.	STATE	COUNTY	FILE NO.	PROJECT NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	–	–	SC 41	PM1	3



SCALE IN FEET

0 40 80 160

PLANS PREPARED BY:

Stantec

Stantec Consulting Services
4969 Centre Pointe Drive, Suite 200
North Charleston, SC 29418
Tel: 843.740.7700
Fax: 843.740.7707
www.stantec.com

3-8-19

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
2			
1			

TOPO. _____ DATE _____
DWG. _____ DATE _____
R/W _____ DATE _____
GROUP ____ - ____

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

TOWN OF MOUNT PLEASANT
SC 41 & PLANTERS POINT BOULEVARD
& WOODPARK DRIVE
PAVEMENT MARKING PLAN

SCALE: 1" = 40' RTE. SC 41

User: cegan
L:\170023\transportation\roadway\drawings\plan_sheets\170023i_01_pm1.dgn
3/8/2019

User: aegan
U:\171002131\transportation\roadway\drawings\plan_sheets\171002131_02_tsl.dgn
3/8/2019

FED. ROAD DIV. NO.	STATE	COUNTY	FILE NO.	PROJECT NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	--	--	SC 41	TS1	3

SIGNAL EQUIPMENT

ONE (1) NEW 8-PHASE FULLY ACTUATED STANDARD 2070 CONTROLLER WITH FLASHER, SIGNAL MONITOR UNIT, AND BASE-MOUNTED 332 CABINET.

FOUR (4) NEW HAWKEYE RADAR VEHICLE DETECTOR UNITS

EXT. / PROP.

PEDESTRIAN SIGNALS: EXT. P — PROP. P W/ACT. &SIGN

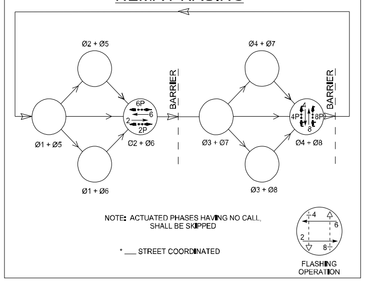
VEHICLE SIGNALS: EXT. — PROP.

HEAD NUMBER	2	4	6	8	2P	4P	6P	8P
LENS	R Y G	R Y G	R Y G	R Y G				
PHASE	2	4	6	8	2P	4P	6P	8P
SIZE	12"	12"	12"	12"	16"	16"	16"	16"
QUANTITY	2	2	2	2	2	2	2	2

OLA: OLB: OLC: OLD:

METAL POLES W/ MAST ARMS: EXT. MAS — PROP. MAS
WOOD POLES AS NECESSARY: EXT. W — PROP. W
SPLICE BOXES AS NECESSARY: EXT. — PROP.
INDUCTANCE LOOPS AS NECESSARY: EXT. — PROP.
RADAR DETECTION UNITS: EXT. — PROP.
RADAR DETECTION ZONES: EXT. — PROP.
BACKGUYS AS NECESSARY: EXT. — PROP.

NEMA PHASING



NOTE: ACTUATED PHASES HAVING NO CALL, SHALL BE SKIPPED

* ___ STREET COORDINATED

SIGNAL TIMINGS

INTERVAL	PHASE 2	4	6	8
WALK	7	7	7	7
DON'T WALK	23	20	24	26
MIN INITIAL	15	8	15	8
MAX INITIAL	49	-	49	-
ADD/VEH	2.5	-	2.5	-
VEH EXT	6.0	2.5	6.0	2.5
TIME BFR REDUCE	20	-	20	-
TIME TO REDUCE	15	-	15	-
MIN GAP	3.0	-	3.0	-
MAX LIMIT	60	45	60	45
MAXIMUM 2	-	-	-	-
YELLOW	5.1	3.0	5.1	3.0
RED CLEAR	1.5	3.3	1.5	3.3

SIGNAL DISPLAY SEQUENCE CHART

PHASE ON (A)	NON-CONFLICTION PHASE (B)	CONFLICTING PHASE *
2	6,2P,6P	4,8,4P,8P
4	8,4P,8P	2,6,2P,6P
6	2,2P,6P	4,8,4P,8P
8	4,4P,8P	2,6,2P,6P

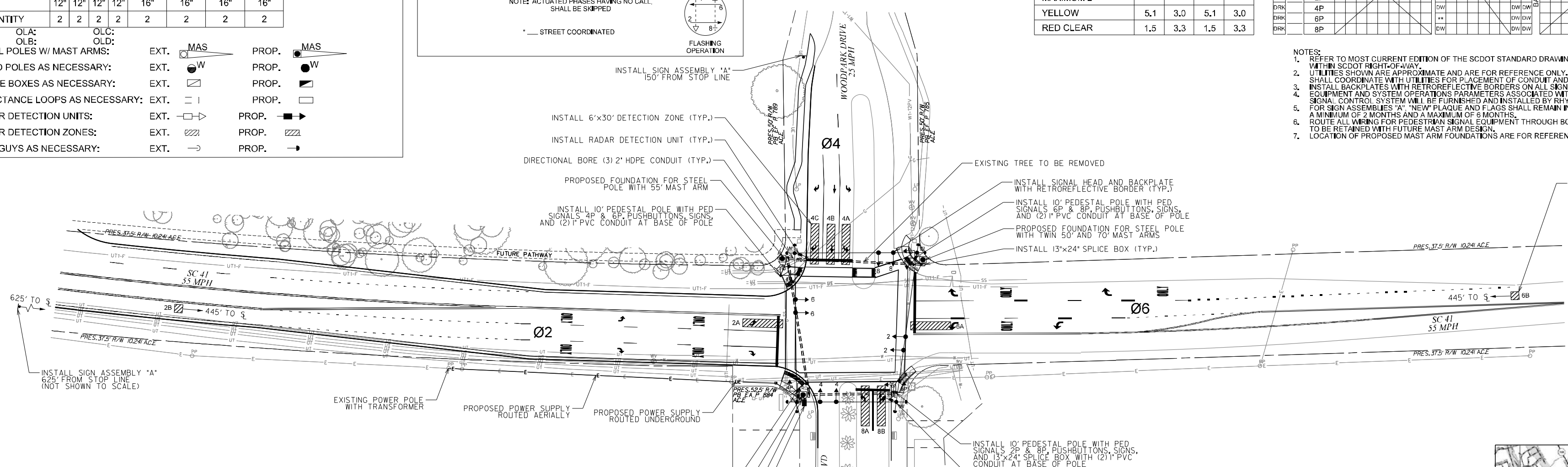
NOTE A: ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE OMITTED.
NOTE B: WHEN ONE PHASE IS ON ALONE, ANY/NON-CONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL (SEE CHART).
* CONFLICTING PHASES REQUIRE A CLEARANCE INTERVAL.

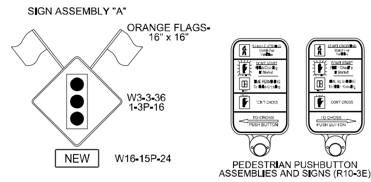
SIGNAL DISPLAY SEQUENCE (PREFERENTIAL PHASING)

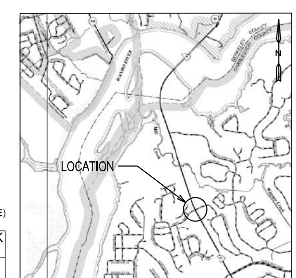
** WHEN CALLED, TIMES WALK, THEN CLEARANCE TIME FLASHING DON'T WALK, THEN GOES STEADY DON'T WALK

FLASH	SIGNAL HEAD NUMBER	Ø1—Ø5	Ø2—Ø6 R/W	Ø2—Ø6 BARR.		BARRIER	Ø3—Ø7	Ø4—Ø8 R/W	Ø4—Ø8 BARR.	
Y	2		G	Y	R			R	R	R
R	4		R	R	R			G	Y	R
Y	6		G	Y	R			R	R	R
R	8		R	R	R			G	Y	R
DRK	2P		**	DW	DW			DW	DW	DW
DRK	4P		DW	DW	DW			**	DW	DW
DRK	6P		**	DW	DW			DW	DW	DW
DRK	8P		DW	DW	DW			**	DW	DW

NOTES:
1. REFER TO MOST CURRENT EDITION OF THE SCDOT STANDARD DRAWINGS FOR ALL WORK WITHIN SCDOT RIGHT-OF-WAY.
2. UTILITIES SHOWN ARE APPROXIMATE AND ARE FOR REFERENCE ONLY. CONTRACTOR SHALL COORDINATE WITH UTILITIES FOR PLACEMENT OF CONDUIT AND POLES.
3. INSTALL BACKPLATES WITH RETROREFLECTIVE BORDERS ON ALL SIGNAL HEADS.
4. EQUIPMENT AND SYSTEM OPERATIONS PARAMETERS ASSOCIATED WITH INSYNC ADAPTIVE SIGNAL CONTROL SYSTEM WILL BE FURNISHED AND INSTALLED BY RHYTHM ENGINEERING.
5. FOR SIGN ASSEMBLIES "A", "NEW" PLAQUE AND FLAGS SHALL REMAIN IN PLACE FOR A MINIMUM OF 2 MONTHS AND A MAXIMUM OF 6 MONTHS.
6. ROUTE ALL WIRING FOR PEDESTRIAN SIGNAL EQUIPMENT THROUGH BORED CONDUITS TO BE RETAINED WITH FUTURE MAST ARM DESIGN.
7. LOCATION OF PROPOSED MAST ARM FOUNDATIONS ARE FOR REFERENCE ONLY.







SCALE IN FEET
0 40 80 160

ROUTE NUMBER	SC 41		PLANTERS POINTE BLVD	WOODPARK DRIVE
APPROACH DIRECTION	NB	SB	EB	WB
SIGNAL DESIGN SPEED	55	55	25	25
GRADE (%)	*0%	*0%	*0%	*0%

*ESTIMATED

DETECTOR INSTALLATION CHART

PHASE/ LOOP LTR#	DETECTOR AMP NO.	DETECTOR CHAN NO.	WIRED TO PHASE(S)	X LOCK	X NON-LOCK	X PULSE	X PRES	OPERATION DELAY SEC	OPERATION EXT SEC	SPECIAL FEATURES TIME OF DAY-TOD, SWITCHING, etc.	LOOP DESIGN SIZE X	NO.OF TURNS	DIST. FROM ℄
2A	--	--	2	-	X	-	X	--	--	RADAR	6'x30'	--	-3'
2B	--	--	2	X	-	-	X	--	--	RADAR	6'x6'	--	445'
4A	--	--	4	-	X	-	X	--	--	RADAR	6'x30'	--	-3'
4B	--	--	4	-	X	-	X	--	--	RADAR	6'x30'	--	-3'
4C	--	--	4	-	X	-	X	10	--	RADAR	6'x30'	--	-3'
6A	--	--	6	-	X	-	X	--	--	RADAR	6'x30'	--	-3'
6B	--	--	6	X	-	-	X	--	--	RADAR	6'x6'	--	445'
8A	--	--	8	-	X	-	X	--	--	RADAR	6'x30'	--	-3'
8B	--	--	8	-	X	-	X	8	--	RADAR	6'x30'	--	-3'

PLANS PREPARED BY:
Stantec
Stantec Consulting Services
4969 Centre Pointe Drive, Suite 200
North Charleston, SC 29418
Tel: 843.740.7700
Fax: 843.740.7707
www.stantec.com

SOUTH CAROLINA STANTEC CONSULTING SERVICES, INC. No. C02390 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 32096 STUART W. ...
3-8-19

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
1			
2			
3			
4			

TOPO. ____ DATE ____
DWG. ____ DATE ____ GROUP ____ - ____
R/W ____ DATE ____

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

TOWN OF MOUNT PLEASANT
SC 41 & PLANTERS POINT BOULEVARD
& WOODPARK DRIVE
(SIGNAL ID ______)
INTERIM TRAFFIC SIGNAL PLAN

SCALE: 1" = 40'   RTE. SC 41

User: aegan
U:\171002131\transportation\roadway\drawings\plan_sheets\171002131_03_ts2.dgn
3/8/2019

FED. ROAD DIV. NO.	STATE	COUNTY	FILE NO.	PROJECT NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	--	--	SC 41	TS2	3

SIGNAL EQUIPMENT

ONE (1) EXISTING 8-PHASE FULLY ACTUATED STANDARD 2070 CONTROLLER WITH FLASHER, SIGNAL MONITOR UNIT, AND BASE-MOUNTED 332 CABINET. EXT. PROP.

FOUR (4) EXISTING HAWKEYE RADAR VEHICLE DETECTOR UNITS

PEDESTRIAN SIGNALS: EXT. PROP. W/ACT. &SIGN

VEHICLE SIGNALS: EXT. PROP.

HEAD NUMBER	2	4	6	8	2P	4P	6P	8P
LENS	R Y G	R Y G	R Y G	R Y G				
PHASE	2	4	6	8	2P	4P	6P	8P
SIZE	12"	12"	12"	12"	16"	16"	16"	16"
QUANTITY	2	2	2	2	2	2	2	2

OLA: OLB: OLC: OLD:

METAL POLES W/ MAST ARMS: EXT. MAS PROP. MAS

WOOD POLES AS NECESSARY: EXT. W PROP. W

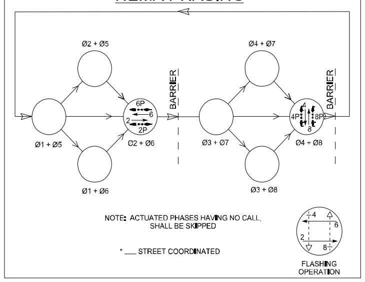
SPLICE BOXES AS NECESSARY: EXT. PROP.

INDUCTANCE LOOPS AS NECESSARY: EXT. PROP.

RADAR DETECTION UNITS: EXT. PROP.

RADAR DETECTION ZONES: EXT. PROP.

NEMA PHASING



NOTE: ACTUATED PHASES HAVING NO CALL SHALL BE SKIPPED

* ___ STREET COORDINATED

SIGNAL TIMINGS

INTERVAL	PHASE 2	4	6	8
WALK	7	7	7	7
DON'T WALK	23	20	24	26
MIN INITIAL	15	8	15	8
MAX INITIAL	49	-	49	-
ADD/VEH	2.5	-	2.5	-
VEH EXT	6.0	2.5	6.0	2.5
TIME BFR REDUCE	20	-	20	-
TIME TO REDUCE	15	-	15	-
MIN GAP	3.0	-	3.0	-
MAX LIMIT	60	45	60	45
MAXIMUM 2	-	-	-	-
YELLOW	5.1	3.0	5.1	3.0
RED CLEAR	1.5	3.3	1.5	3.3

SIGNAL DISPLAY SEQUENCE CHART

PHASE ON (A)	NON-CONFLICTION PHASE (B)	CONFLICTING PHASE *
2	6,2P,6P	4,8,4P,8P
4	8,4P,8P	2,6,2P,6P
6	2,2P,6P	4,8,4P,8P
8	4,4P,8P	2,6,2P,6P

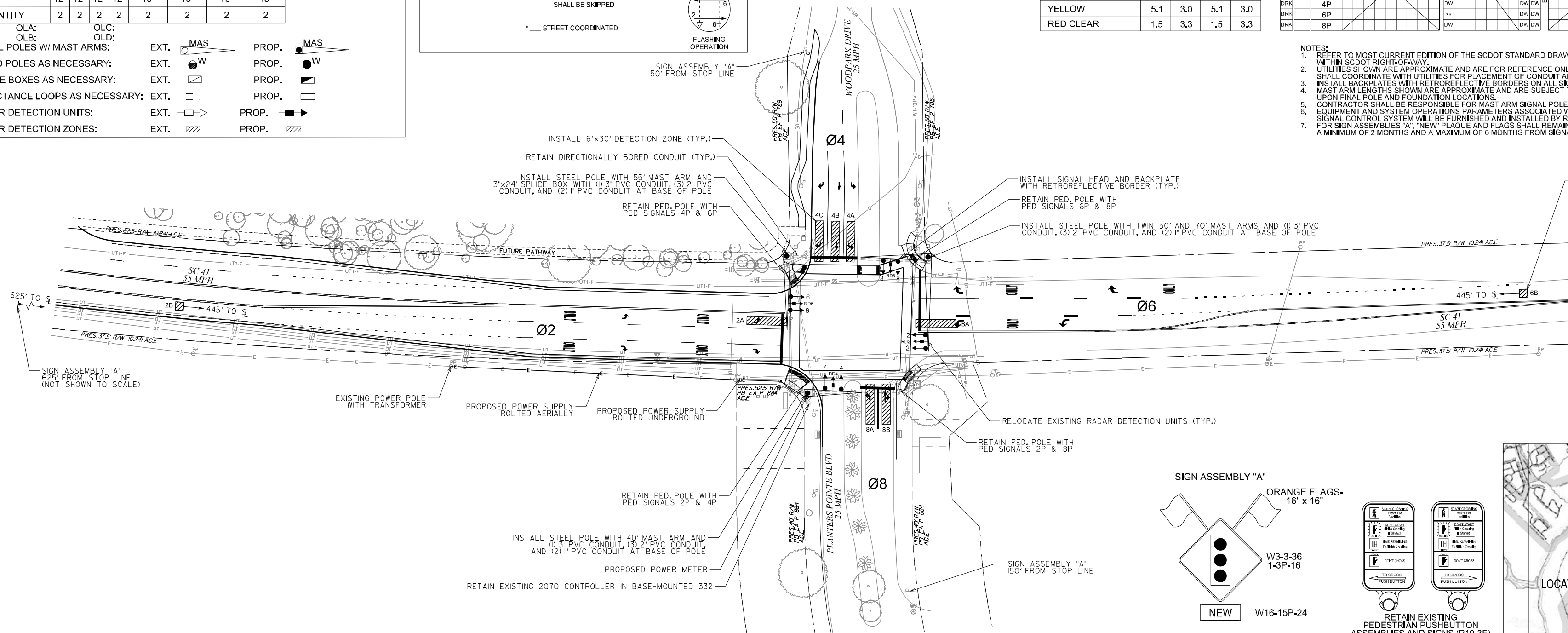
NOTE A: ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE OMITTED.
NOTE B: WHEN ONE PHASE IS ON ALONE, ANY/NON-CONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL (SEE CHART).
* CONFLICTING PHASES REQUIRE A CLEARANCE INTERVAL.

SIGNAL DISPLAY SEQUENCE (PREFERENTIAL PHASING)

** WHEN CALLED, TIMES WALK, THEN CLEARANCE TIME FLASHING DON'T WALK, THEN GOES STEADY DON'T WALK

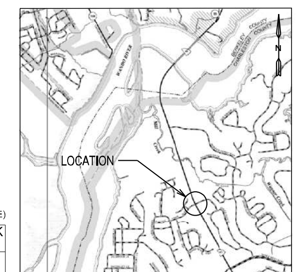
FLASH	SIGNAL HEAD NUMBER	Ø1—Ø5	Ø2—Ø6 R/W	Ø2—Ø6 CLEAR TO (Y)	Ø2—Ø6 BARR.	Ø3—Ø7	Ø4—Ø8 R/W	Ø4—Ø8 CLEAR TO	Ø4—Ø8 BARR.
Y	2		G	Y	R		R	R	R
R	4		R	R	R		G	Y	R
Y	6		G	Y	R		R	R	R
R	8		R	R	R		G	Y	R
DRK	2P		**	DW	DW		DW	DW	DW
DRK	4P		DW	DW	DW		**	DW	DW
DRK	6P		**	DW	DW		DW	DW	DW
DRK	8P		DW	DW	DW		**	DW	DW

NOTES:
1. REFER TO MOST CURRENT EDITION OF THE SCDOT STANDARD DRAWINGS FOR ALL WORK WITHIN SCDOT RIGHT-OF-WAY.
2. UTILITIES SHOWN ARE APPROXIMATE AND ARE FOR REFERENCE ONLY. CONTRACTOR SHALL COORDINATE WITH UTILITIES FOR PLACEMENT OF CONDUIT AND POLES.
3. INSTALL BACKPLATES WITH RETROREFLECTIVE BORDERS ON ALL SIGNAL HEADS.
4. MAST ARM LENGTHS SHOWN ARE APPROXIMATE AND ARE SUBJECT TO CHANGE BASED UPON FINAL POLE AND FOUNDATION LOCATIONS.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR MAST ARM SIGNAL POLE FOUNDATION DESIGN.
6. EQUIPMENT AND SYSTEM OPERATIONS PARAMETERS ASSOCIATED WITH INSYNC ADAPTIVE SIGNAL CONTROL SYSTEM WILL BE FURNISHED AND INSTALLED BY RHYTHM ENGINEERING.
7. FOR SIGN ASSEMBLIES "A", "NEW" PLAQUE AND FLAGS SHALL REMAIN IN PLACE FOR A MINIMUM OF 2 MONTHS AND A MAXIMUM OF 6 MONTHS FROM SIGNAL ACTIVATION.



ROUTE NUMBER	SC 41		PLANTERS POINTE BLVD	WOODPARK DRIVE
APPROACH DIRECTION	NB	SB	EB	WB
SIGNAL DESIGN SPEED	55	55	25	25
GRADE (%)	*0%	*0%	*0%	*0%

*ESTIMATED



SCALE IN FEET
0 40 80 160

DETECTOR INSTALLATION CHART

PHASE/ LOOP LTR#	DETECTOR AMP NO.	DETECTOR CHAN NO.	WIRED TO PHASE(S)	X LOCK	X NON-LOCK	X PULSE	X PRES	OPERATION DELAY SEC	OPERATION EXT SEC	SPECIAL FEATURES TIME OF DAY-TOD, SWITCHING, etc.	LOOP DESIGN SIZE X	NO.OF TURNS	DIST. FROM ℄
2A	--	--	2	-	X	-	X	--	--	RADAR	6'x30'	--	-3'
2B	--	--	2	X	-	-	X	--	--	RADAR	6'x6'	--	445'
4A	--	--	4	-	X	-	X	--	--	RADAR	6'x30'	--	-3'
4B	--	--	4	-	X	-	X	--	--	RADAR	6'x30'	--	-3'
4C	--	--	4	-	X	-	X	10	--	RADAR	6'x30'	--	-3'
6A	--	--	6	-	X	-	X	--	--	RADAR	6'x30'	--	-3'
6B	--	--	6	X	-	-	X	--	--	RADAR	6'x6'	--	445'
8A	--	--	8	-	X	-	X	--	--	RADAR	6'x30'	--	-3'
8B	--	--	8	-	X	-	X	8	--	RADAR	6'x30'	--	-3'

PLANS PREPARED BY:
Stantec
Stantec Consulting Services
4969 Centre Pointe Drive, Suite 200
North Charleston, SC 29418
Tel: 843.740.7700
Fax: 843.740.7707
www.stantec.com

SOUTH CAROLINA · STANTEC CONSULTING SERVICES, INC. No. C02030 · CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA · PROFESSIONAL ENGINEER · No. 32099 · STUART W. ...

3-8-19

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
2			
1			

TOPO. ______ DATE ______
DWG. ______ DATE ______ GROUP ______ - ______
R/W ______ DATE ______

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

TOWN OF MOUNT PLEASANT
SC 41 & PLANTERS POINT BOULEVARD
& WOODPARK DRIVE
(SIGNAL ID ______)
MAST ARM TRAFFIC SIGNAL PLAN

SCALE: 1" = 40' RTE. SC 41

STATE	COUNTY	D&F PROJECT NO.	CTC PROJECT NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	31450.05	816-0-20-12			TS01

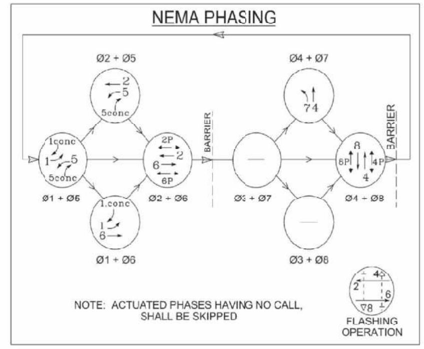
SIGNAL HEAD DISPLAY CHART

HEAD #	1, 2F	2	4F	4	4,5conc	5, 6F	6	7, 8F	8	8,1conc	2P/6P	4P/8P
DISPLAY	←R ←Y ←FY ←G	R Y G	←R ←Y ←FY	R Y G	R Y Y→ G G→	←R ←Y ←FY ←G	R Y G	←R ←Y ←FY ←G	R Y G	R Y Y→ G G→		
PHASE	1, OLA	2	OLB	4	4,5	5, OLC	6	7, OLD	8	8,1	2P/6P	4P/8P
SIZE	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"	16"	16"
QUANTITY	1	2	1	1	1	1	2	1	1	1	4	4

EQUIPMENT INFORMATION

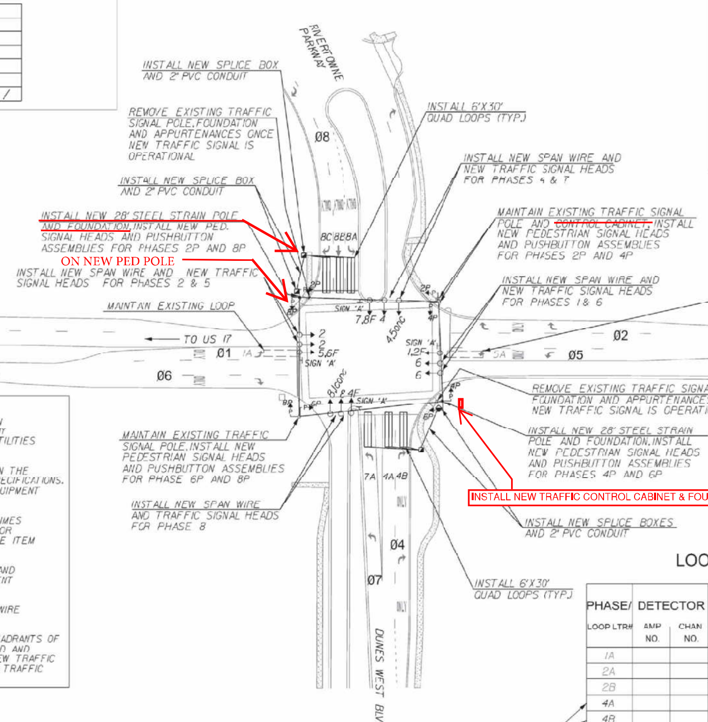
CONTROLLER	CONTRACTOR SUPPLIED 2070L
CABINET	CONTRACTOR SUPPLIED 332
SOFTWARE	APOGEE STREETWISE
CABINET MOUNT	CONCRETE BASE
PHASES USED	1,2,4,5,6,7,8,2P,4P,6P,8P
OVERLAPS	OLA=Ø1+Ø2, OLB=Ø4, ØLC=O5+Ø6, ØLD=O7+Ø8 /

NEMA PHASING



NOTE: ACTUATED PHASES HAVING NO CALL, SHALL BE SKIPPED

TABLE OF OPERATION SIGNAL HEAD #	Ø1 + Ø5	Ø1 + Ø6	Ø2 + Ø5	Ø2 + Ø6	Ø3 + Ø7	Ø3 + Ø8	Ø4 + Ø7	Ø4 + Ø8	FLASH
1,2F	←G	←G	←FY	←FY			←R	←R	←Y
2	R	R	G	G			R	R	Y
4F	←R	←R	←R	←R			←FY	←FY	←R
4	R	R	R	R			G	G	R
4,5conc	R/G→	R	R/G→	R			G	G	R
5,6F	←G	←FY	←G	←FY			←R	←R	←Y
6	R	G	R	G			R	R	Y
7,8F	←R	←R	←R	←R			←G	←FY	←R
8	R	R	R	R			R	G	R
8,1conc	R/G→	R/G→	R	R			R	G	R
2P	DW	DW	DW	W			DW	DW	DRK
4P	DW	DW	DW	DW			DW	W	DRK
6P	DW	DW	DW	W			DW	DW	DRK
8P	DW	DW	DW	DW			DW	W	DRK



STANDARD DRAWINGS FOR TRAFFIC SIGNAL

See sheets D1-D32 for SCDOT Standard Drawings.

DRAWING NO.	DRAWING DESCRIPTION
675-105-01	SIGNAL LOCATION DETAIL
675-105-02	SIGNAL HEADS
675-105-03	PED.HEADS PED.PEDESTAL POLE FOUNDATION
675-110-00	TYPICAL WIRE AND CABLE USAGE (FOR 8 PHASE CABINETS)
675-115-01	WOOD POLE / SPANWIRE SERVICE,GROUNDING,AND BONDING
675-115-02	POLES
675-120-00	DETECTORS
675-130-01	CABINET
675-130-03	CABINET

Copies of SCDOT Standard Drawings are available at the following web address http://www.scdot.org/doing/sd_Disclaimer.aspx

NOTES:

1. THE LOCATION OF CONDUIT,JUNCTION BOXES,CABINETS,AND TRAFFIC SIGNAL POLES SHOWN ON THE PLAN ARE APPROXIMATE.THE CONTRACTOR SHALL CONTACT "PUPS" AT "811" AND ANY OTHER UTILITY COMPANIES NECESSARY TO VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES BEFORE DIGGING.

2. ALL EQUIPMENT,MATERIALS,AND WORKMANSHIP SHALL MEET THE STANDARDS OUTLINED IN THE MUTCD (LATEST EDITION),SCDOT STANDARD DRAWINGS,AND THE SCDOT TRAFFIC SIGNAL SPECIFICATIONS. ALL TRAFFIC SIGNAL HEADS SHALL HAVE REFLECTIVE BACKPLATES.ALL TRAFFIC SIGNAL EQUIPMENT REMOVED DURING THIS PROJECT SHALL BE RETURNED TO THE SCDOT.

3. THE CONTRACTOR IS REQUIRED TO MAINTAIN THE TRAFFIC SIGNAL OPERATION AT ALL TIMES DURING CONSTRUCTION OF THIS PROJECT.ALL COSTS FOR TEMPORARY SIGNAL HEADS AND OR TEMPORARY ADJUSTMENT OF TRAFFIC SIGNAL EQUIPMENT SHALL BE INCLUDED IN THE LINE ITEM BID FOR "TEMPORARY ADJUSTMENT OF TRAFFIC SIGNAL EQUIPMENT".

4. THE CONTRACTOR SHALL MAINTAIN THE EXISTING DETECTOR LOOPS FOR PHASES 1,2,5,AND 6.CONTRACTOR SHALL COORDINATION THE INSTALLATION OF NEW LOOPS WITH THE PAVEMENT MARKING PLANS.

5. NEW TRAFFIC SIGNAL HEADS FOR ALL PHASES SHALL BE INSTALLED WHEN NEW SPAN WIRE IS INSTALLED.(EXISTING SIGNAL HEADS ARE NOT SHOWN FOR CLARITY).

7. CONTRACTOR SHALL INSTALL TWO NEW 28' STEEL STRAIN POLES ON THE NE AND SW QUADRANTS OF THE INTERSECTION AS SHOWN ON THIS PLAN.NEW SIGNAL SPAN WIRE SHALL BE INSTALLED AND CONNECTED TO THE EXISTING TRAFFIC SIGNAL POLES ON THE NW AND SE QUADRANTS.NEW TRAFFIC SIGNAL HEADS AND ASSOCIATED WIRING SHALL BE INSTALLED AND TIED TO THE EXISTING TRAFFIC SIGNAL CONTROL CABINET.

LOOP DETECTOR INSTALLATION CHART

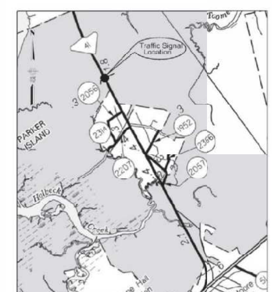
PHASE/ LOOP LTR#	DETECTOR AMP NO.	DETECTOR CHAN NO.	WIRED TO PHASE(S)	LOCK	NON-LOCK	PULSE	PRES	OPERATION DELAY SEC	OPERATION EXT SEC	SPECIAL FEATURES TIME OF DAY-TOD, SWITCHING, etc.	LOOP DESIGN SIZE X	NO.OF TURNS	DIST. FROM ℄
1A			1		X		X	15			6'X30'*	2-4-2*	-2'*
2A			2	X			X				*	*	255'*
2B			2	X			X				*	*	385'*
4A			4		X		X			QUAD	6'X30'	2-4-2	2'
4B			4		X		X	10		QUAD	6'X30'	2-4-2	-2'
5A			5		X		X	15			*	*	*
6A			6	X			X				*	*	255'*
6B			6	X			X				*	*	385'*
7A			7		X		X	15		QUAD	6'X30'	2-4-2	2'
8A			8		X		X			QUAD	6'X30'	2-4-2	-2'
8B			8		X		X			QUAD	6'X30'	2-4-2	-2'
8C			8		X		X	10		QUAD	6'X30'	2-4-2	2'

*EXISTING LOOP INFORMATION TAKEN FROM EXISTING SIGNAL PLAN DATED 10/28/2011.

SIGNAL TIMINGS

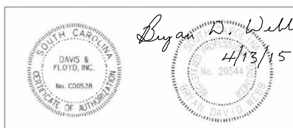
INTERVAL	PHASE 1	2	3	4	5	6	7	8
WALK	-----	7	-----	7	-----	7	-----	7
DON'T WALK	-----	33	-----	22	-----	32	-----	23
MIN GREEN	8	15	-----	8	8	15	8	8
MAX INITIAL	-----	30	-----	-----	-----	30	-----	-----
ADDED INIT (SEC/ACT)	-----	1.1	-----	-----	-----	1.1	-----	-----
PASSAGE	2.5	6.0	-----	2.5	2.5	6.0	2.5	2.5
TIME BEFORE REDUCE	-----	20	-----	-----	-----	20	-----	-----
TIME TO REDUCE	-----	15	-----	-----	-----	15	-----	-----
MIN GAP	-----	2.3	-----	-----	-----	2.3	-----	-----
MAX LIMIT	25	90	-----	25	25	90	25	25
MAXIMUM 2	-----	-----	-----	-----	-----	-----	-----	-----
YELLOW	3.0	4.7	-----	3.6	3.0	4.7	3.0	3.6
RED CLEAR	3.6	2.1	-----	2.9	3.8	2.1	3.3	2.9
RECALL	OFF	MIN	-----	OFF	OFF	MIN	OFF	OFF

0 50 100 150 200



ROUTE NUMBER	SC 41		DUNES WEST BLVD	RIVERTOWNE PKWY
APPROACH DIRECTION	NB	SB	WB	EB
SIGNAL DESIGN SPEED*	50	50	35	25
GRADE (%)*	0.0±	0.0±	0.0±	0.0±

* BASED ON SIGNAL PLAN DATED 10/28/2011



Bryan D. Wall 4/13/15

DAVIS & FLOYD
SINCE 1954
WWW.DAVISFLOYD.COM

3229 W. MONTAGUE AVENUE CHARLESTON, SC 29410 (843) 554-8602

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
2			
1			

DGN. LRE DATE
R/W DATE
CHK. BDW DATE

CHARLESTON COUNTY
CTC PROGRAM

RIVERTOWNE PKWY. AND DUNES WEST BLVD.
RIGHT TURN LANE ADDITIONS

AS-BUILT TRAFFIC SIGNAL PLAN

PLOTTED: 4/9/2015 3:46 PM FILE NAME: \\CHS-FS\Data\Jobs\Even\31450\05\CV_dgn\pln_sht\3145005-ts01_rev per DOT comments_4-8-2015.dgn

3145005-ts01 rev per DOT comments 4-8-2015.dgn 4/9/2015 3:41:58 PM

TUNNELESS 100sec

Current Weekly Events

Day of Week	Priority	From - To
Sunday	1	12:00 AM - 8:00 AM
Sunday	1	10:00 PM - 12:00 AM
Monday	1	12:00 AM - 6:00 AM
Monday	1	10:00 PM - 12:00 AM
Tuesday	1	12:00 AM - 6:00 AM
Tuesday	1	10:00 PM - 12:00 AM
Wednesday	1	12:00 AM - 6:00 AM
Wednesday	1	10:00 PM - 12:00 AM
Thursday	1	12:00 AM - 6:00 AM
Thursday	1	10:00 PM - 12:00 AM
Friday	1	12:00 AM - 6:00 AM
Friday	1	10:00 PM - 12:00 AM
Saturday	1	12:00 AM - 8:00 AM
Saturday	1	10:00 PM - 12:00 AM

AM 180sec

Current Weekly Events

Day of Week	Priority	From - To
Monday	1	6:00 AM - 7:05 AM
Monday	1	7:30 AM - 9:00 AM
Tuesday	1	6:00 AM - 7:05 AM
Tuesday	1	7:30 AM - 9:00 AM
Wednesday	1	6:00 AM - 7:05 AM
Wednesday	1	7:30 AM - 9:00 AM
Thursday	1	6:00 AM - 7:05 AM
Thursday	1	7:30 AM - 9:00 AM
Friday	1	6:00 AM - 7:05 AM
Friday	1	7:30 AM - 9:00 AM

AM 180sec HAMLIN PROTECTED LEFT

Current Weekly Events

Day of Week	Priority	From - To
Monday	1	7:05 AM 7:30 AM
Tuesday	1	7:05 AM - 7:30 AM
Wednesday	1	7:05 AM - 7:30 AM
Thursday	1	7:05 AM - 7:30 AM
Friday	1	7:05 AM - 7:30 AM

MIDDAY 160sec

Current Weekly Events

Day of Week	Priority	From - To
Monday	1	9:00 AM - 2:30 PM
Tuesday	1	9:00 AM - 2:30 PM
Wednesday	1	9:00 AM - 2:30 PM
Thursday	1	9:00 AM - 2:30 PM
Friday	1	9:00 AM - 2:30 PM

OFF PEAK 135sec

Current Weekly Events

Day of Week	Priority	From - To
Sunday	1	8:00 AM - 10:00 PM
Monday	1	6:45 PM - 10:00 PM
Tuesday	1	6:45 PM - 10:00 PM
Wednesday	1	6:45 PM - 10:00 PM
Thursday	1	6:45 PM - 10:00 PM
Friday	1	6:45 PM - 10:00 PM
Saturday	1	8:00 AM - 10:00 PM

PM 180sec

Current Weekly Events

Day of Week	Priority	From - To
Monday	1	2:30 PM - 6:45 PM
Tuesday	1	2:30 PM - 6:45 PM
Wednesday	1	2:30 PM - 6:45 PM
Thursday	1	2:30 PM - 6:45 PM
Friday	1	2:30 PM 6:45 PM

Appendix C

Traffic Count Data

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

SC 41 s/o Colonnade Dr

Day: Wednesday
Date: 4/29/2015

City: Charleston
Project #: SC15_9159_003

DAILY TOTALS	NB	SB	EB	WB	Total
	12,882	13,870	0	0	26,752

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	14		12		0	0	26		12:00	206		243		0	0	449	
00:15	20		8		0	0	28		12:15	209		248		0	0	457	
00:30	12		3		0	0	15		12:30	277		214		0	0	491	
00:45	10	56	4	27	0	0	14	83	12:45	229	921	210	915	0	0	439	1836
01:00	4		7		0	0	11		13:00	215		218		0	0	433	
01:15	9		2		0	0	11		13:15	232		197		0	0	429	
01:30	3		5		0	0	8		13:30	247		178		0	0	425	
01:45	5	21	2	16	0	0	7	37	13:45	215	909	210	803	0	0	425	1712
02:00	4		1		0	0	5		14:00	239		199		0	0	438	
02:15	11		2		0	0	13		14:15	275		217		0	0	492	
02:30	4		3		0	0	7		14:30	212		210		0	0	422	
02:45	2	21	0	6	0	0	2	27	14:45	269	995	192	818	0	0	461	1813
03:00	3		4		0	0	7		15:00	251		189		0	0	440	
03:15	7		3		0	0	10		15:15	290		192		0	0	482	
03:30	3		9		0	0	12		15:30	276		235		0	0	511	
03:45	5	18	8	24	0	0	13	42	15:45	262	1079	208	824	0	0	470	1903
04:00	1		5		0	0	6		16:00	312		168		0	0	480	
04:15	10		5		0	0	15		16:15	307		216		0	0	523	
04:30	13		14		0	0	27		16:30	291		179		0	0	470	
04:45	7	31	22	46	0	0	29	77	16:45	330	1240	203	766	0	0	533	2006
05:00	16		31		0	0	47		17:00	302		180		0	0	482	
05:15	7		42		0	0	49		17:15	248		236		0	0	484	
05:30	19		66		0	0	85		17:30	332		239		0	0	571	
05:45	20	62	85	224	0	0	105	286	17:45	308	1190	207	862	0	0	515	2052
06:00	35		104		0	0	139		18:00	281		236		0	0	517	
06:15	52		166		0	0	218		18:15	321		251		0	0	572	
06:30	45		208		0	0	253		18:30	306		177		0	0	483	
06:45	59	191	333	811	0	0	392	1002	18:45	248	1156	192	856	0	0	440	2012
07:00	50		395		0	0	445		19:00	225		129		0	0	354	
07:15	87		384		0	0	471		19:15	227		99		0	0	326	
07:30	108		363		0	0	471		19:30	183		90		0	0	273	
07:45	110	355	336	1478	0	0	446	1833	19:45	170	805	95	413	0	0	265	1218
08:00	122		346		0	0	468		20:00	180		84		0	0	264	
08:15	131		347		0	0	478		20:15	169		76		0	0	245	
08:30	108		327		0	0	435		20:30	154		78		0	0	232	
08:45	101	462	355	1375	0	0	456	1837	20:45	156	659	35	273	0	0	191	932
09:00	147		307		0	0	454		21:00	126		52		0	0	178	
09:15	140		282		0	0	422		21:15	135		37		0	0	172	
09:30	135		257		0	0	392		21:30	83		29		0	0	112	
09:45	155	577	283	1129	0	0	438	1706	21:45	87	431	37	155	0	0	124	586
10:00	183		225		0	0	408		22:00	83		24		0	0	107	
10:15	155		242		0	0	397		22:15	61		17		0	0	78	
10:30	164		251		0	0	415		22:30	61		19		0	0	80	
10:45	163	665	231	949	0	0	394	1614	22:45	41	246	19	79	0	0	60	325
11:00	163		226		0	0	389		23:00	33		18		0	0	51	
11:15	139		233		0	0	372		23:15	31		14		0	0	45	
11:30	166		265		0	0	431		23:30	31		11		0	0	42	
11:45	210	678	247	971	0	0	457	1649	23:45	19	114	7	50	0	0	26	164
TOTALS		3137		7056				**10193**	**TOTALS**		9745		6814				**16559**
SPLIT %		30.8%		69.2%				**38.1%**	**SPLIT %**		58.9%		41.1%				**61.9%**

DAILY TOTALS	NB	SB	EB	WB	Total
	12,882	13,870	0	0	26,752

AM Peak Hour	11:45	07:00					**07:30**		**PM Peak Hour**	18:00	18:00					**18:00**		
AM Pk Volume	902	1478					**1863**		**PM Pk Volume**	1242	933					**2175**		
Pk Hr Factor	0.814	0.935					**0.974**		**Pk Hr Factor**	0.900	0.853					**0.879**		
7 - 9 Volume	817	2853	0	0			**3670**		**4 - 6 Volume**	2430	1628	0	0			**4058**		
7 - 9 Peak Hour	07:30	07:00					**07:30**		**4 - 6 Peak Hour**	16:00	17:00					**16:45**		
7 - 9 Pk Volume	471	1478	0	0			**1863**		**4 - 6 Pk Volume**	1240	862	0	0			**2070**		
Pk Hr Factor	0.899	0.935	0.000	0.000			**0.974**		**Pk Hr Factor**	0.939	0.902	0.000	0.000			**0.906**		

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

SC 41 n/o Planters Pointe Blvd

Day: Wednesday
Date: 4/29/2015

City: Charleston
Project #: SC15_9159_001

DAILY TOTALS	NB	SB	EB	WB	Total
	7,026	7,499	0	0	14,525

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	5		7		0	0	12		12:00	94		99		0	0	193	
00:15	3		9		0	0	12		12:15	88		126		0	0	214	
00:30	5		7		0	0	12		12:30	121		134		0	0	255	
00:45	3	16	7	30	0	0	10	46	12:45	111	414	109	468	0	0	220	882
01:00	4		2		0	0	6		13:00	97		163		0	0	260	
01:15	1		0		0	0	1		13:15	92		169		0	0	261	
01:30	0		3		0	0	3		13:30	97		162		0	0	259	
01:45	6	11	0	5	0	0	6	16	13:45	93	379	173	667	0	0	266	1046
02:00	2		0		0	0	2		14:00	98		152		0	0	250	
02:15	1		2		0	0	3		14:15	127		157		0	0	284	
02:30	1		2		0	0	3		14:30	110		176		0	0	286	
02:45	1	5	0	4	0	0	1	9	14:45	118	453	108	593	0	0	226	1046
03:00	3		0		0	0	3		15:00	116		104		0	0	220	
03:15	1		4		0	0	5		15:15	129		119		0	0	248	
03:30	1		3		0	0	4		15:30	156		97		0	0	253	
03:45	7	12	5	12	0	0	12	24	15:45	128	529	140	460	0	0	268	989
04:00	2		0		0	0	2		16:00	112		116		0	0	228	
04:15	9		1		0	0	10		16:15	150		120		0	0	270	
04:30	11		9		0	0	20		16:30	140		151		0	0	291	
04:45	12	34	6	16	0	0	18	50	16:45	131	533	181	568	0	0	312	1101
05:00	24		5		0	0	29		17:00	124		187		0	0	311	
05:15	23		19		0	0	42		17:15	135		215		0	0	350	
05:30	40		26		0	0	66		17:30	141		174		0	0	315	
05:45	58	145	55	105	0	0	113	250	17:45	132	532	181	757	0	0	313	1289
06:00	75		41		0	0	116		18:00	143		144		0	0	287	
06:15	92		61		0	0	153		18:15	126		149		0	0	275	
06:30	116		109		0	0	225		18:30	121		144		0	0	265	
06:45	138	421	137	348	0	0	275	769	18:45	119	509	105	542	0	0	224	1051
07:00	110		130		0	0	240		19:00	99		85		0	0	184	
07:15	102		114		0	0	216		19:15	98		97		0	0	195	
07:30	109		123		0	0	232		19:30	112		68		0	0	180	
07:45	116	437	110	477	0	0	226	914	19:45	83	392	80	330	0	0	163	722
08:00	118		111		0	0	229		20:00	89		67		0	0	156	
08:15	121		116		0	0	237		20:15	79		53		0	0	132	
08:30	116		144		0	0	260		20:30	73		44		0	0	117	
08:45	98	453	109	480	0	0	207	933	20:45	68	309	54	218	0	0	122	527
09:00	94		108		0	0	202		21:00	53		40		0	0	93	
09:15	92		95		0	0	187		21:15	59		44		0	0	103	
09:30	73		107		0	0	180		21:30	61		34		0	0	95	
09:45	103	362	105	415	0	0	208	777	21:45	41	214	26	144	0	0	67	358
10:00	82		87		0	0	169		22:00	33		37		0	0	70	
10:15	104		79		0	0	183		22:15	28		20		0	0	48	
10:30	95		93		0	0	188		22:30	26		22		0	0	48	
10:45	74	355	84	343	0	0	158	698	22:45	16	103	18	97	0	0	34	200
11:00	90		91		0	0	181		23:00	22		6		0	0	28	
11:15	83		103		0	0	186		23:15	10		9		0	0	19	
11:30	88		96		0	0	184		23:30	7		16		0	0	23	
11:45	101	362	88	378	0	0	189	740	23:45	7	46	11	42	0	0	18	88
TOTALS		2613		2613				5226	TOTALS		4413		4886				9299
SPLIT %		50.0%		50.0%				36.0%	SPLIT %		47.5%		52.5%				64.0%

DAILY TOTALS	NB	SB	EB	WB	Total
	7,026	7,499	0	0	14,525

AM Peak Hour	07:45	06:45					06:45		PM Peak Hour	17:45	17:15					17:30		
AM Pk Volume	471	504					963		PM Pk Volume	551	757					1289		
Pk Hr Factor	0.973	0.920					0.875		Pk Hr Factor	0.913	0.830					0.944		
7 - 9 Volume	890	957	0	0			1847		4 - 6 Volume	1065	1325	0	0			2390		
7 - 9 Peak Hour	07:45	07:45					07:45		4 - 6 Peak Hour	16:15	16:45					17:00		
7 - 9 Pk Volume	471	481	0	0			952		4 - 6 Pk Volume	545	757	0	0			1289		
Pk Hr Factor	0.973	0.835	0.000	0.000			0.915		Pk Hr Factor	0.908	0.880	0.000	0.000			0.921		

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

SC 41 s/o Dunes West Blvd

Day: Wednesday
Date: 4/29/2015

City: Charleston
Project #: SC15_9159_002

DAILY TOTALS	NB	SB	EB	WB	Total
	8,681	9,114	0	0	17,795

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	11		8		0	0	19		12:00	166		126		0	0	292	
00:15	8		5		0	0	13		12:15	164		175		0	0	339	
00:30	5		7		0	0	12		12:30	197		150		0	0	347	
00:45	7	31	7	27	0	0	14	58	12:45	198	725	149	600	0	0	347	1325
01:00	3		3		0	0	6		13:00	156		166		0	0	322	
01:15	4		2		0	0	6		13:15	175		199		0	0	374	
01:30	3		2		0	0	5		13:30	181		193		0	0	374	
01:45	1	11	0	7	0	0	1	18	13:45	165	677	206	764	0	0	371	1441
02:00	3		1		0	0	4		14:00	185		192		0	0	377	
02:15	8		1		0	0	9		14:15	149		194		0	0	343	
02:30	2		2		0	0	4		14:30	149		178		0	0	327	
02:45	0	13	0	4	0	0		17	14:45	136	619	140	704	0	0	276	1323
03:00	3		0		0	0	3		15:00	121		91		0	0	212	
03:15	4		2		0	0	6		15:15	121		130		0	0	251	
03:30	0		6		0	0	6		15:30	140		101		0	0	241	
03:45	4	11	4	12	0	0	8	23	15:45	124	506	113	435	0	0	237	941
04:00	1		3		0	0	4		16:00	194		111		0	0	305	
04:15	4		2		0	0	6		16:15	210		140		0	0	350	
04:30	12		12		0	0	24		16:30	225		134		0	0	359	
04:45	7	24	14	31	0	0	21	55	16:45	217	846	145	530	0	0	362	1376
05:00	13		13		0	0	26		17:00	216		138		0	0	354	
05:15	9		28		0	0	37		17:15	230		178		0	0	408	
05:30	18		43		0	0	61		17:30	212		167		0	0	379	
05:45	17	57	64	148	0	0	81	205	17:45	220	878	153	636	0	0	373	1514
06:00	35		63		0	0	98		18:00	136		131		0	0	267	
06:15	46		90		0	0	136		18:15	136		128		0	0	264	
06:30	42		147		0	0	189		18:30	136		120		0	0	256	
06:45	54	177	209	509	0	0	263	686	18:45	125	533	104	483	0	0	229	1016
07:00	39		277		0	0	316		19:00	114		75		0	0	189	
07:15	78		222		0	0	300		19:15	125		83		0	0	208	
07:30	75		221		0	0	296		19:30	129		77		0	0	206	
07:45	77	269	181	901	0	0	258	1170	19:45	107	475	84	319	0	0	191	794
08:00	100		203		0	0	303		20:00	124		68		0	0	192	
08:15	99		192		0	0	291		20:15	113		68		0	0	181	
08:30	94		223		0	0	317		20:30	112		40		0	0	152	
08:45	78	371	216	834	0	0	294	1205	20:45	105	454	41	217	0	0	146	671
09:00	119		166		0	0	285		21:00	92		38		0	0	130	
09:15	104		158		0	0	262		21:15	93		34		0	0	127	
09:30	92		130		0	0	222		21:30	69		20		0	0	89	
09:45	112	427	166	620	0	0	278	1047	21:45	58	312	25	117	0	0	83	429
10:00	126		131		0	0	257		22:00	61		31		0	0	92	
10:15	136		151		0	0	287		22:15	47		15		0	0	62	
10:30	125		130		0	0	255		22:30	40		10		0	0	50	
10:45	123	510	118	530	0	0	241	1040	22:45	29	177	17	73	0	0	46	250
11:00	119		151		0	0	270		23:00	22		8		0	0	30	
11:15	106		161		0	0	267		23:15	25		13		0	0	38	
11:30	116		136		0	0	252		23:30	18		7		0	0	25	
11:45	156	497	131	579	0	0	287	1076	23:45	16	81	6	34	0	0	22	115
TOTALS		2398		4202				6600	TOTALS		6283		4912				11195
SPLIT %		36.3%		63.7%				37.1%	SPLIT %		56.1%		43.9%				62.9%

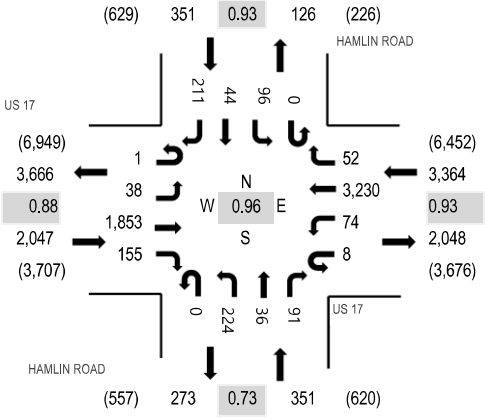
DAILY TOTALS	NB	SB	EB	WB	Total
	8,681	9,114	0	0	17,795

AM Peak Hour	11:45	06:45						11:45	PM Peak Hour	17:00	13:45						17:30
AM Pk Volume	683	929						1265	PM Pk Volume	888	790						1514
Pk Hr Factor	0.867	0.838						0.496	Pk Hr Factor	0.954	0.934						0.846
7 - 9 Volume	640	1735	0	0				2375	4 - 6 Volume	1724	1166	0	0				2890
7 - 9 Peak Hour	08:00	07:00						08:00	4 - 6 Peak Hour	16:30	17:00						17:00
7 - 9 Pk Volume	371	901	0	0				1205	4 - 6 Pk Volume	888	636	0	0				1514
Pk Hr Factor	0.928	0.813	0.000	0.000				0.950	Pk Hr Factor	0.965	0.893	0.000	0.000				0.928

All Traffic Data
Services Inc.
(303) 216-2439
www.alltrafficdata.net

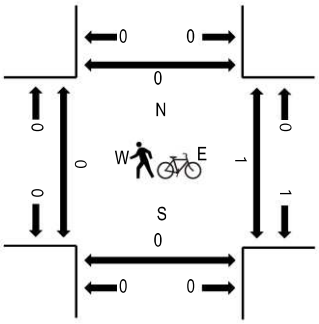
Location: A HAMLIN ROAD & US 17 AM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	US 17 Eastbound				US 17 Westbound				HAMLIN ROAD Northbound				HAMLIN ROAD Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	7	332	74	0	36	735	5	0	52	14	14	0	17	43	38	1,367	5,989	0	0	0	0
7:15 AM	0	8	407	40	0	16	787	10	0	78	18	25	0	20	8	66	1,483	6,113	0	1	0	0
7:30 AM	0	5	472	18	1	14	865	26	0	44	8	31	0	26	13	63	1,586	5,932	0	0	0	0
7:45 AM	1	12	523	46	4	12	813	8	0	32	2	16	0	32	9	43	1,553	5,656	0	0	0	0
8:00 AM	0	13	451	51	3	32	765	8	0	70	8	19	0	18	14	39	1,491	5,419	0	0	0	0
8:15 AM	0	12	355	29	3	23	687	8	0	72	6	37	0	17	10	43	1,302		2	2	0	0
8:30 AM	0	14	400	20	5	14	749	11	0	27	1	14	0	13	5	37	1,310		0	0	0	0
8:45 AM	0	11	386	20	4	10	788	10	0	6	1	25	0	6	0	49	1,316		0	0	0	0

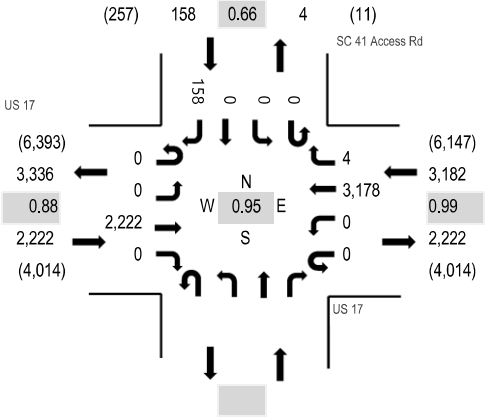
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	40	0	0	0	35	0	0	2	0	0	0	0	0	0	77
Lights	1	37	1,745	146	8	72	3,141	50	0	213	34	84	0	94	44	209	5,878
Mediums	0	1	68	9	0	2	54	2	0	9	2	7	0	2	0	2	158
Total	1	38	1,853	155	8	74	3,230	52	0	224	36	91	0	96	44	211	6,113

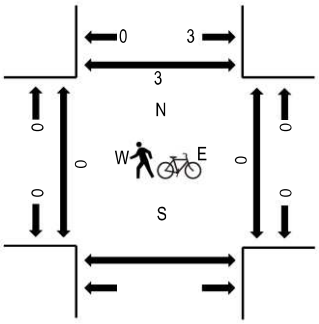
All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

Location: B SC 41 Access Rd & US 17 AM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	US 17 Eastbound				US 17 Westbound				Northbound				SC 41 Access Rd Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	332	0	0	0	789	4					0	0	0	4	1,129	5,355	0	0		0
7:15 AM	0	0	473	0	0	0	809	0					0	0	0	42	1,324	5,562	0	0		1
7:30 AM	0	0	568	0	0	0	809	0					0	0	0	60	1,437	5,486	0	0		0
7:45 AM	0	0	639	0	0	0	781	0					0	0	0	45	1,465	5,313	0	0		2
8:00 AM	0	0	542	0	0	0	779	4					0	0	0	11	1,336	5,063	0	0		0
8:15 AM	0	0	499	0	0	0	721	2					0	0	0	26	1,248		0	0		0
8:30 AM	0	0	502	0	0	0	717	0					0	0	0	45	1,264		0	0		0
8:45 AM	0	0	459	0	0	0	731	1					0	0	0	24	1,215		0	0		0

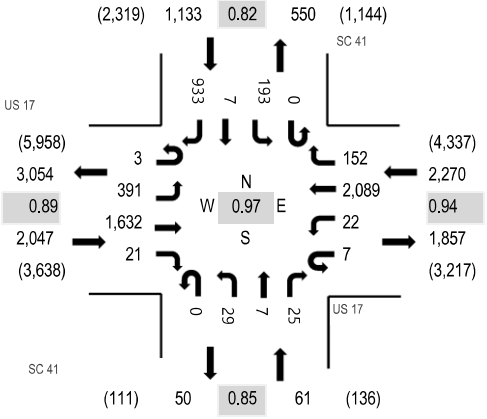
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	83	0	0	0	34	0					0	0	0	1	118
Lights	0	0	2,119	0	0	0	3,077	4					0	0	0	154	5,354
Mediums	0	0	20	0	0	0	67	0					0	0	0	3	90
Total	0	0	2,222	0	0	0	3,178	4					0	0	0	158	5,562

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

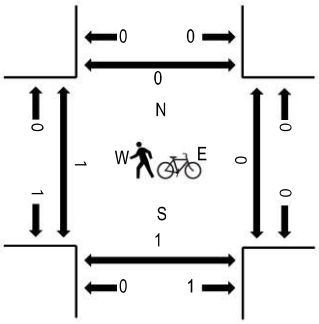
Location: C SC 41 & US 17 AM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	US 17 Eastbound				US 17 Westbound				SC 41 Northbound				SC 41 Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	2	64	291	3	0	3	475	32	0	15	1	3	0	62	3	301	1,255	5,397	0	0	0	0
7:15 AM	3	81	360	9	0	2	549	38	0	9	2	8	0	39	2	235	1,337	5,511	1	0	1	0
7:30 AM	0	91	422	5	2	8	558	39	0	11	2	8	0	38	0	194	1,378	5,446	0	0	0	0
7:45 AM	0	109	462	3	5	6	520	43	0	8	2	2	0	48	3	216	1,427	5,291	0	0	0	0
8:00 AM	0	110	388	4	0	6	462	32	0	1	1	7	0	68	2	288	1,369	5,033	0	0	0	0
8:15 AM	1	94	303	10	2	11	491	43	0	15	6	7	0	48	2	239	1,272		0	0	0	0
8:30 AM	0	128	302	5	0	4	478	54	0	9	4	5	0	34	2	198	1,223		0	0	0	0
8:45 AM	0	122	258	8	2	5	425	42	0	3	3	4	1	39	5	252	1,169		0	0	0	0

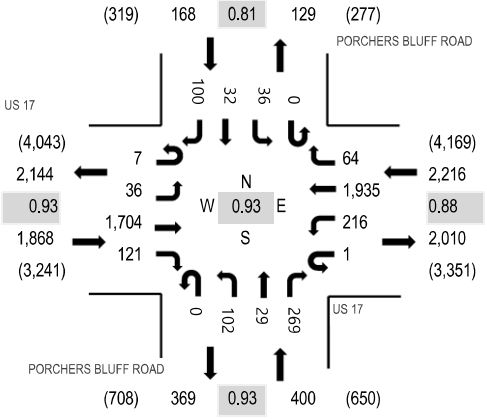
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	5	33	0	0	0	33	1	0	0	0	0	0	0	0	4	76
Lights	3	374	1,532	21	7	22	2,016	145	0	29	6	25	0	185	7	907	5,279
Mediums	0	12	67	0	0	0	40	6	0	0	1	0	0	8	0	22	156
Total	3	391	1,632	21	7	22	2,089	152	0	29	7	25	0	193	7	933	5,511

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

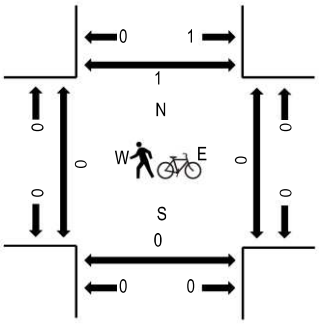
Location: D PORCHERS BLUFF ROAD & US 17 AM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	US 17 Eastbound				US 17 Westbound				PORCHERS BLUFF ROAD Northbound				PORCHERS BLUFF ROAD Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	2	4	291	54	0	49	451	16	0	27	8	34	0	10	11	13	970	4,487	0	0	0	0
7:15 AM	2	11	349	28	0	53	560	22	0	26	9	71	0	15	8	20	1,174	4,652	0	0	0	0
7:30 AM	0	9	446	23	1	62	552	17	0	28	5	65	0	4	11	23	1,246	4,479	0	0	0	0
7:45 AM	3	4	462	30	0	43	401	13	0	15	2	72	0	15	10	27	1,097	4,149	0	0	0	0
8:00 AM	2	12	447	40	0	58	422	12	0	33	13	61	0	2	3	30	1,135	3,892	0	0	0	1
8:15 AM	0	14	317	38	0	44	463	21	0	22	6	39	0	5	7	25	1,001		0	1	0	0
8:30 AM	4	11	291	26	0	32	428	19	0	25	10	27	0	11	5	27	916		0	0	0	0
8:45 AM	3	11	272	35	0	32	376	22	0	17	6	29	0	15	6	16	840		0	1	0	0

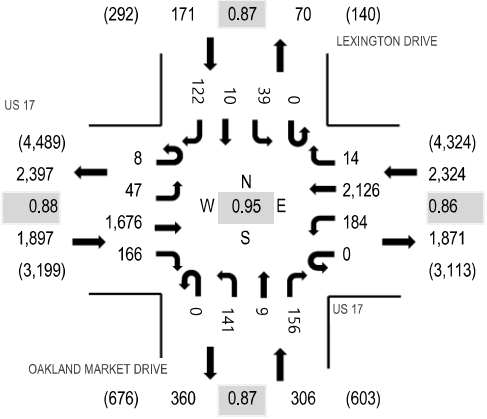
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	31	3	0	1	36	0	0	1	0	0	0	0	0	0	72
Lights	7	35	1,604	111	1	215	1,863	62	0	96	27	262	0	34	32	100	4,449
Mediums	0	1	69	7	0	0	36	2	0	5	2	7	0	2	0	0	131
Total	7	36	1,704	121	1	216	1,935	64	0	102	29	269	0	36	32	100	4,652

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

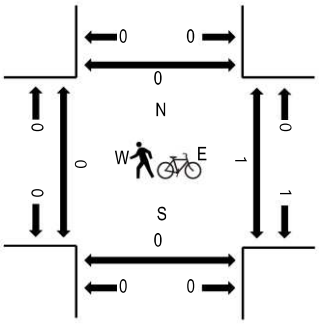
Location: E OAKLAND MARKET DRIVE & US 17 AM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:15 AM - 07:30 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	US 17 Eastbound				US 17 Westbound				OAKLAND MARKET DRIVE Northbound				LEXINGTON DRIVE Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	7	298	34	0	37	510	3	0	34	1	25	0	4	2	34	989	4,620	0	0	0	0
7:15 AM	4	18	355	52	0	44	635	2	0	38	2	31	0	9	3	39	1,232	4,698	0	0	0	0
7:30 AM	0	14	434	37	0	45	539	1	0	38	3	49	0	7	4	31	1,202	4,482	0	0	0	0
7:45 AM	4	11	481	42	0	40	490	8	0	39	0	37	0	18	2	25	1,197	4,183	0	1	0	0
8:00 AM	0	4	406	35	0	55	462	3	0	26	4	39	0	5	1	27	1,067	3,798	0	0	0	0
8:15 AM	4	6	279	45	1	52	510	4	0	43	4	34	0	7	4	23	1,016		1	0	0	0
8:30 AM	5	13	279	31	0	38	415	4	0	52	5	34	0	5	1	21	903		0	0	1	0
8:45 AM	2	13	249	37	0	35	384	7	0	38	3	24	0	3	0	17	812		0	0	0	0

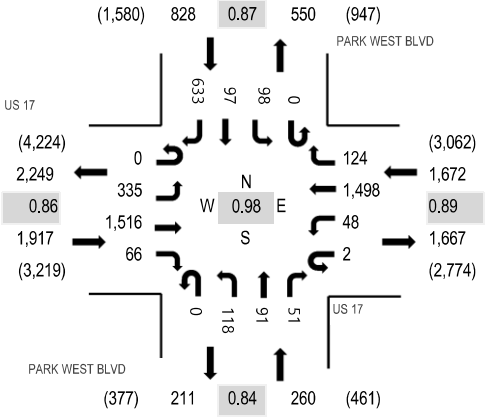
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	31	0	0	0	35	0	0	0	0	0	0	0	0	0	66
Lights	8	45	1,577	166	0	184	2,046	13	0	141	9	155	0	38	10	120	4,512
Mediums	0	2	68	0	0	0	45	1	0	0	0	1	0	1	0	2	120
Total	8	47	1,676	166	0	184	2,126	14	0	141	9	156	0	39	10	122	4,698

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

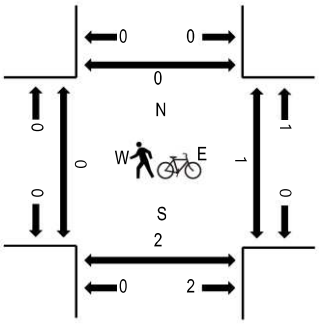
Location: F PARK WEST BLVD & US 17 AM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	US 17 Eastbound				US 17 Westbound				PARK WEST BLVD Northbound				PARK WEST BLVD Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	67	244	10	0	8	309	32	0	32	17	5	0	18	15	164	921	4,450	0	0	0	0
7:15 AM	0	85	281	14	1	11	431	27	0	25	22	9	0	19	37	191	1,153	4,677	0	0	0	0
7:30 AM	0	79	378	19	1	10	385	22	0	37	20	6	0	20	33	179	1,189	4,598	0	0	2	0
7:45 AM	0	97	442	17	0	13	340	33	0	26	23	15	0	30	17	134	1,187	4,262	0	0	0	0
8:00 AM	0	74	415	16	0	14	342	42	0	30	26	21	0	29	10	129	1,148	3,872	0	0	0	0
8:15 AM	1	63	283	16	0	14	383	22	0	21	19	6	0	36	31	179	1,074		0	0	0	0
8:30 AM	0	68	256	15	2	7	309	7	0	33	12	7	0	16	9	112	853		0	0	0	1
8:45 AM	0	53	210	16	1	6	269	21	0	31	16	2	0	21	19	132	797		0	0	0	0

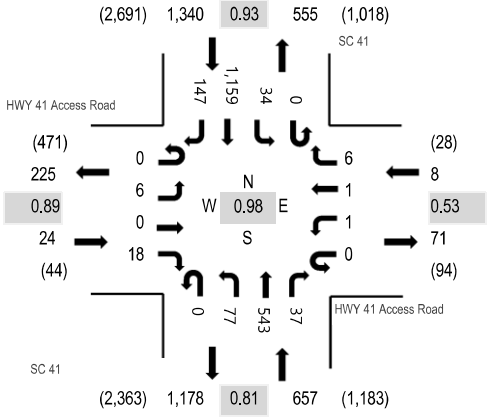
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	2	29	0	0	0	32	0	0	2	0	0	0	0	0	0	65
Lights	0	323	1,430	63	2	48	1,431	118	0	112	91	51	0	97	96	627	4,489
Mediums	0	10	57	3	0	0	35	6	0	4	0	0	0	1	1	6	123
Total	0	335	1,516	66	2	48	1,498	124	0	118	91	51	0	98	97	633	4,677

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

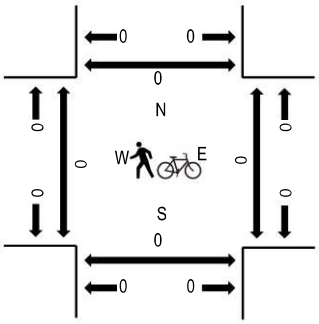
Location: G SC 41 & HWY 41 Access Road AM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 08:00 AM - 09:00 AM
Peak 15-Minutes: 08:15 AM - 08:30 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	HWY 41 Access Road Eastbound				HWY 41 Access Road Westbound				SC 41 Northbound				SC 41 Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	1	0	0	0	1	0	1	1	12	91	1	0	0	376	11	495	1,917	0	0	0	0
7:15 AM	0	2	0	5	0	0	0	2	1	14	105	3	0	3	279	43	457	1,930	0	0	0	0
7:30 AM	0	3	1	3	0	2	0	8	0	27	105	5	0	3	233	70	460	1,991	0	0	0	0
7:45 AM	0	1	0	4	0	0	1	5	0	17	139	5	0	2	280	51	505	2,022	0	0	0	0
8:00 AM	0	2	0	4	0	1	0	2	0	8	120	5	0	4	346	16	508	2,029	0	0	0	0
8:15 AM	0	2	0	3	0	0	0	0	0	23	127	10	0	6	302	45	518		0	0	0	0
8:30 AM	0	2	0	6	0	0	0	1	0	29	165	9	0	4	226	49	491		0	0	0	0
8:45 AM	0	0	0	5	0	0	1	3	0	17	131	13	0	20	285	37	512		0	0	0	0

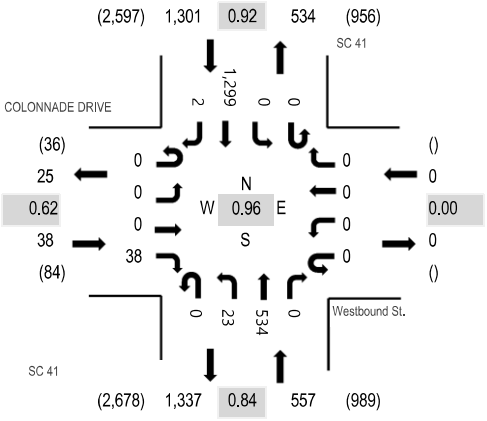
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	6	0	0	0	3	1	10
Lights	0	6	0	17	0	1	1	6	0	76	511	37	0	34	1,137	138	1,964
Mediums	0	0	0	1	0	0	0	0	0	1	26	0	0	0	19	8	55
Total	0	6	0	18	0	1	1	6	0	77	543	37	0	34	1,159	147	2,029

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

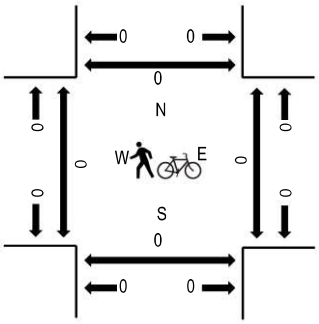
Location: H SC 41 & Westbound St. AM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 07:45 AM - 08:45 AM
Peak 15-Minutes: 08:15 AM - 08:30 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	COLONNADE DRIVE Eastbound				Westbound St. Westbound				SC 41 Northbound				SC 41 Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	0	21	0	0	0	0	0	1	75	0	0	0	361	1	459	1,787	0	0	0	0
7:15 AM	0	0	0	11	0	0	0	0	0	3	107	0	0	0	329	0	450	1,807	0	0	0	0
7:30 AM	0	0	0	12	0	0	0	0	0	4	112	0	0	0	284	0	412	1,852	0	0	0	0
7:45 AM	0	0	0	8	0	0	0	0	0	5	138	0	0	0	315	0	466	1,896	0	0	0	0
8:00 AM	0	0	0	14	0	0	0	0	0	4	107	0	0	0	354	0	479	1,883	0	0	0	0
8:15 AM	0	0	0	7	0	0	0	0	0	5	133	0	0	0	349	1	495		0	0	0	0
8:30 AM	0	0	0	9	0	0	0	0	0	9	156	0	0	0	281	1	456		0	0	0	0
8:45 AM	0	0	0	2	0	0	0	0	0	2	128	0	0	0	321	0	453		0	0	0	0

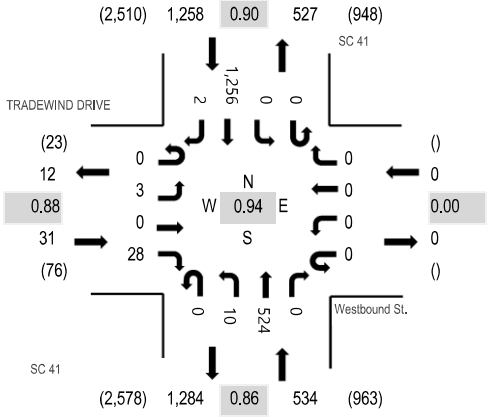
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	6	0	0	0	4	0	10
Lights	0	0	0	37	0	0	0	0	0	21	509	0	0	0	1,270	2	1,839
Mediums	0	0	0	1	0	0	0	0	0	2	19	0	0	0	25	0	47
Total	0	0	0	38	0	0	0	0	0	23	534	0	0	0	1,299	2	1,896

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

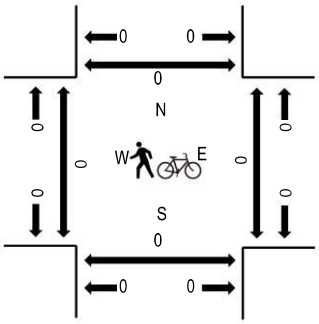
Location: I SC 41 & Westbound St. AM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 07:45 AM - 08:45 AM
Peak 15-Minutes: 08:15 AM - 08:30 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	TRADEWIND DRIVE Eastbound				Westbound St. Westbound				SC 41 Northbound				SC 41 Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	0	13	0	0	0	0	0	1	76	0	0	0	350	1	441	1,733	0	0	0	0
7:15 AM	0	0	0	13	0	0	0	0	0	2	107	0	0	0	332	0	454	1,748	0	0	0	0
7:30 AM	0	2	0	12	0	0	0	0	0	6	106	0	0	0	267	0	393	1,778	0	0	0	0
7:45 AM	0	1	0	8	0	0	0	0	0	3	131	0	0	0	302	0	445	1,823	0	0	0	0
8:00 AM	0	0	0	10	0	0	0	0	0	1	112	0	0	0	332	1	456	1,816	0	0	0	0
8:15 AM	0	1	0	4	0	0	0	0	0	3	128	0	0	0	348	0	484		0	0	0	0
8:30 AM	0	1	0	6	0	0	0	0	0	3	153	0	0	0	274	1	438		0	0	0	0
8:45 AM	0	0	0	5	0	0	0	0	0	1	130	0	0	0	302	0	438		0	0	0	0

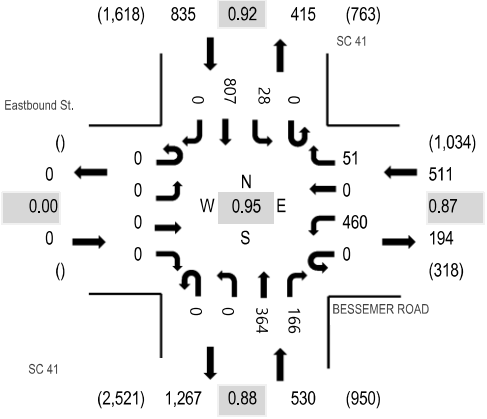
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	1	0	0	0	0	0	1	6	0	0	0	21	0	29
Lights	0	3	0	27	0	0	0	0	0	9	500	0	0	0	1,227	2	1,768
Mediums	0	0	0	0	0	0	0	0	0	0	18	0	0	0	8	0	26
Total	0	3	0	28	0	0	0	0	0	10	524	0	0	0	1,256	2	1,823

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

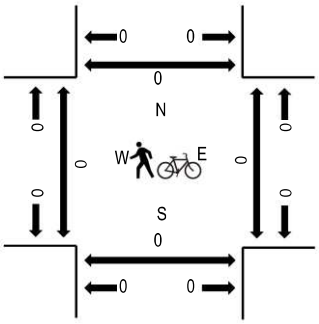
Location: J SC 41 & BESSEMER ROAD AM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 07:45 AM - 08:45 AM
Peak 15-Minutes: 08:15 AM - 08:30 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Eastbound St. Eastbound				BESSEMER ROAD Westbound				SC 41 Northbound				SC 41 Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	0	0	0	129	0	6	0	0	67	22	0	4	223	0	451	1,735	0	0	0	0
7:15 AM	0	0	0	0	0	141	0	6	0	0	74	27	0	3	196	0	447	1,740	0	0	0	0
7:30 AM	0	0	0	0	0	103	0	7	0	0	81	22	0	4	161	0	378	1,788	0	0	0	0
7:45 AM	0	0	0	0	0	107	0	18	0	0	89	49	0	7	189	0	459	1,876	0	0	0	0
8:00 AM	0	0	0	0	0	141	0	12	0	0	75	32	0	5	191	0	456	1,867	0	0	0	0
8:15 AM	0	0	0	0	0	129	0	5	0	0	101	34	0	3	223	0	495		0	0	0	0
8:30 AM	0	0	0	0	0	83	0	16	0	0	99	51	0	13	204	0	466		0	0	0	0
8:45 AM	0	0	0	0	0	117	0	14	0	0	93	34	0	8	184	0	450		0	0	0	0

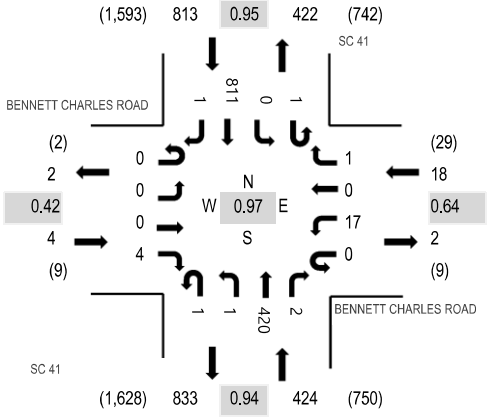
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	2	0	0	0	0	4	1	0	0	3	0	10
Lights	0	0	0	0	0	455	0	51	0	0	349	159	0	25	783	0	1,822
Mediums	0	0	0	0	0	3	0	0	0	0	11	6	0	3	21	0	44
Total	0	0	0	0	0	460	0	51	0	0	364	166	0	28	807	0	1,876

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

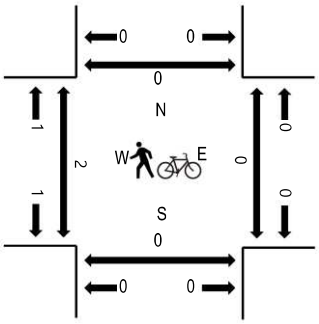
Location: K SC 41 & BENNETT CHARLES ROAD AM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 08:00 AM - 09:00 AM
Peak 15-Minutes: 08:30 AM - 08:45 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	BENNETT CHARLES ROAD Eastbound				BENNETT CHARLES ROAD Westbound				SC 41 Northbound				SC 41 Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	0	3	0	6	0	1	0	0	52	0	0	0	212	0	274	1,122	0	0	0	0
7:15 AM	0	0	0	2	0	0	0	0	0	0	98	1	0	0	216	0	317	1,154	0	0	0	0
7:30 AM	0	0	0	0	0	1	0	0	0	0	91	6	0	0	173	0	271	1,154	0	0	0	0
7:45 AM	0	0	0	0	0	3	0	0	0	0	78	0	0	0	179	0	260	1,208	0	0	0	0
8:00 AM	0	0	0	0	0	5	0	1	1	0	102	0	0	0	197	0	306	1,259	0	0	0	0
8:15 AM	0	0	0	3	0	2	0	0	0	1	104	0	0	0	207	0	317		0	0	0	0
8:30 AM	0	0	0	1	0	7	0	0	0	0	103	0	1	0	212	1	325		0	0	0	0
8:45 AM	0	0	0	0	0	3	0	0	0	0	111	2	0	0	195	0	311		0	0	0	0

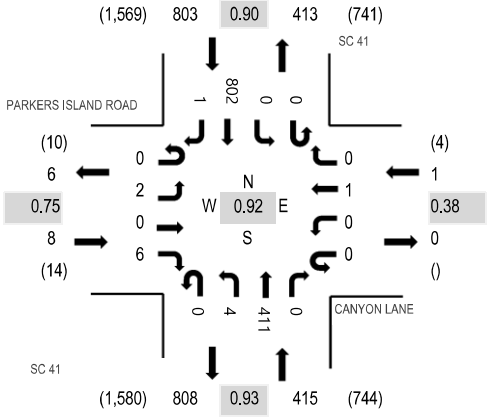
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	5	0	0	0	3	0	8
Lights	0	0	0	4	0	17	0	1	1	1	399	2	1	0	786	1	1,213
Mediums	0	0	0	0	0	0	0	0	0	0	16	0	0	0	22	0	38
Total	0	0	0	4	0	17	0	1	1	1	420	2	1	0	811	1	1,259

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

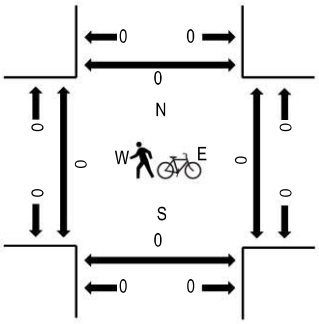
Location: L SC 41 & CANYON LANE AM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 08:00 AM - 09:00 AM
Peak 15-Minutes: 08:30 AM - 08:45 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	PARKERS ISLAND ROAD Eastbound				CANYON LANE Westbound				SC 41 Northbound				SC 41 Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	0	1	0	0	0	1	0	0	57	0	0	0	209	0	268	1,104	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	97	0	0	0	212	0	309	1,130	0	0	0	0
7:30 AM	0	2	0	1	0	0	0	0	0	1	84	0	0	0	173	0	261	1,122	0	2	0	0
7:45 AM	0	0	0	2	0	2	0	0	0	3	87	0	0	0	172	0	266	1,196	0	0	0	0
8:00 AM	0	1	0	1	0	0	0	0	0	1	98	0	0	0	193	0	294	1,227	0	0	0	0
8:15 AM	0	0	0	2	0	0	0	0	0	1	95	0	0	0	203	0	301		0	0	0	0
8:30 AM	0	0	0	1	0	0	1	0	0	0	111	0	0	0	221	1	335		0	0	0	0
8:45 AM	0	1	0	2	0	0	0	0	0	2	107	0	0	0	185	0	297		0	0	0	0

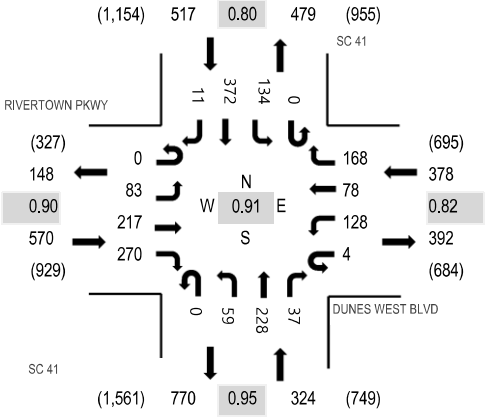
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	5	0	0	0	4	0	9
Lights	0	1	0	6	0	0	1	0	0	4	388	0	0	0	780	1	1,181
Mediums	0	1	0	0	0	0	0	0	0	0	18	0	0	0	18	0	37
Total	0	2	0	6	0	0	1	0	0	4	411	0	0	0	802	1	1,227

All Traffic Data
Services Inc.
(303) 216-2439
www.alltrafficdata.net

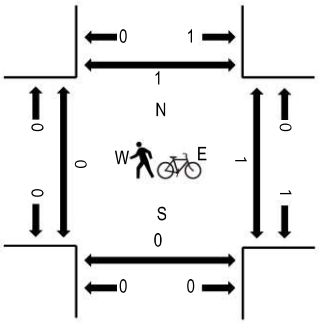
Location: M SC 41 & DUNES WEST BLVD AM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:15 AM - 07:30 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	RIVERTOWN PKWY Eastbound				DUNES WEST BLVD Westbound				SC 41 Northbound				SC 41 Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	22	58	79	0	31	11	33	0	4	44	8	0	41	96	3	430	1,789	0	1	0	0
7:15 AM	0	24	54	79	1	44	29	52	0	21	59	10	0	25	90	1	489	1,771	0	0	0	0
7:30 AM	0	19	64	56	0	25	19	48	0	21	60	6	0	33	101	3	455	1,707	0	0	0	0
7:45 AM	0	18	41	56	3	28	19	35	0	13	65	13	0	35	85	4	415	1,728	0	0	0	0
8:00 AM	0	22	29	50	0	50	8	50	0	29	56	15	0	20	83	0	412	1,738	0	0	0	0
8:15 AM	0	15	20	47	0	16	15	43	0	27	65	14	0	30	121	12	425		0	0	0	0
8:30 AM	0	18	15	58	1	25	19	34	0	24	69	14	0	51	142	6	476		0	0	0	0
8:45 AM	0	6	20	59	1	20	6	29	0	20	69	23	0	39	120	13	425		0	0	0	1

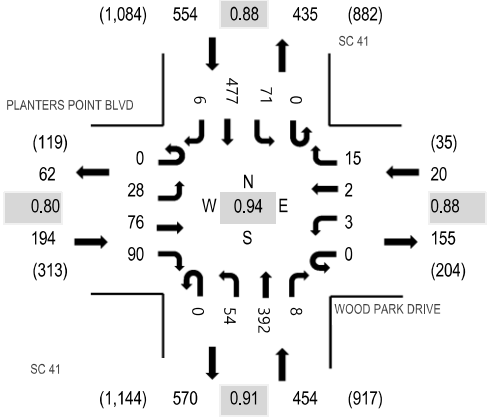
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	1	0	0	0	0	0	0	3	0	0	1	1	0	6
Lights	0	82	212	265	4	127	73	164	0	57	219	36	0	122	362	8	1,731
Mediums	0	1	5	4	0	1	5	4	0	2	6	1	0	11	9	3	52
Total	0	83	217	270	4	128	78	168	0	59	228	37	0	134	372	11	1,789

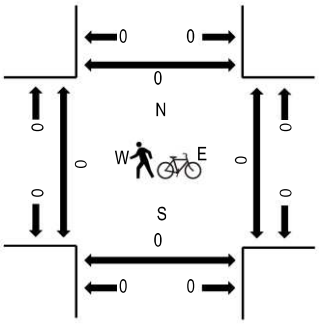
All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

Location: N SC 41 & WOOD PARK DRIVE AM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:00 AM - 07:15 AM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	PLANTERS POINT BLVD Eastbound				WOOD PARK DRIVE Westbound				SC 41 Northbound				SC 41 Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	7	16	38	0	1	0	4	0	4	96	2	0	13	142	3	326	1,222	0	0	0	0
7:15 AM	0	13	19	18	0	0	0	6	0	26	99	4	0	22	101	1	309	1,170	0	0	0	0
7:30 AM	0	5	18	22	0	2	2	1	0	17	99	1	0	24	126	0	317	1,175	0	0	0	0
7:45 AM	0	3	23	12	0	0	0	4	0	7	98	1	0	12	108	2	270	1,129	0	0	0	0
8:00 AM	0	9	13	10	0	1	0	5	1	15	116	1	1	17	84	1	274	1,127	0	0	0	0
8:15 AM	0	7	7	22	0	2	0	2	0	12	113	1	0	7	141	0	314		0	0	0	0
8:30 AM	0	2	0	21	0	0	1	1	0	15	93	1	0	1	133	3	271		0	0	1	0
8:45 AM	0	8	0	20	0	1	0	2	0	7	88	0	0	1	138	3	268		0	0	0	0

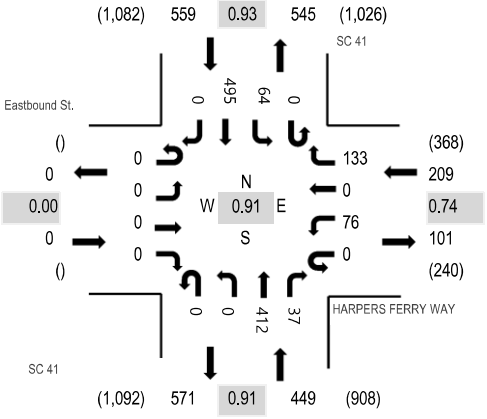
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Lights	0	28	71	88	0	3	1	15	0	50	386	7	0	71	448	4	1,172
Mediums	0	0	5	2	0	0	1	0	0	4	5	1	0	0	29	2	49
Total	0	28	76	90	0	3	2	15	0	54	392	8	0	71	477	6	1,222

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

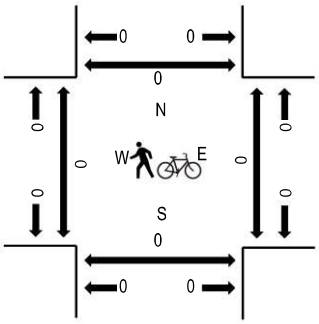
Location: 0 SC 41 & HARPERS FERRY WAY AM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:00 AM - 07:15 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Eastbound St. Eastbound				HARPERS FERRY WAY Westbound				SC 41 Northbound				SC 41 Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	0	0	0	28	0	43	0	0	107	9	0	13	135	0	335	1,217	0	0	0	0
7:15 AM	0	0	0	0	0	20	0	24	0	0	112	8	0	11	104	0	279	1,162	0	0	0	0
7:30 AM	0	0	0	0	0	18	0	34	0	0	99	9	0	18	127	0	305	1,185	0	0	0	0
7:45 AM	0	0	0	0	0	10	0	32	0	0	94	11	0	22	129	0	298	1,167	0	0	0	0
8:00 AM	0	0	0	0	2	10	0	25	0	0	109	18	0	12	104	0	280	1,141	0	0	0	0
8:15 AM	0	0	0	0	0	15	0	28	0	0	111	17	0	22	109	0	302		0	0	0	0
8:30 AM	0	0	0	0	0	19	0	23	0	0	80	12	0	29	124	0	287		0	0	0	0
8:45 AM	0	0	0	0	0	28	0	9	0	0	96	16	0	11	112	0	272		0	0	0	0

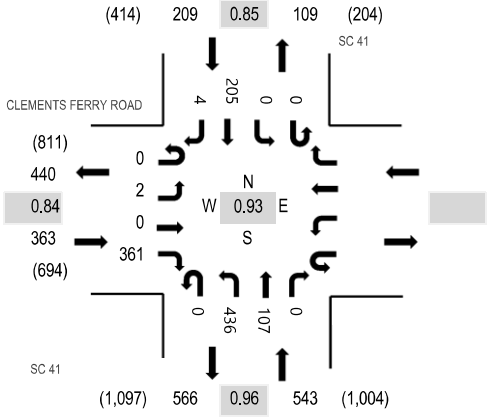
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	1	0	0	0	0	0	2	0	2	0	0	5
Lights	0	0	0	0	0	72	0	123	0	0	408	30	0	37	467	0	1,137
Mediums	0	0	0	0	0	3	0	10	0	0	4	5	0	25	28	0	75
Total	0	0	0	0	0	76	0	133	0	0	412	37	0	64	495	0	1,217

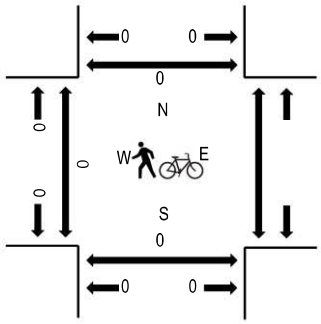
All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

Location: P SC 41 & CLEMENTS FERRY ROAD AM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	CLEMENTS FERRY ROAD Eastbound				Westbound				SC 41 Northbound				SC 41 Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	0	66					0	108	19	0	0	0	50	1	244	1,085	0		0	0
7:15 AM	0	1	0	96					0	114	27	0	0	0	59	1	298	1,115	0		0	0
7:30 AM	0	0	0	108					0	118	24	0	0	0	49	2	301	1,090	0		0	0
7:45 AM	0	0	0	85					0	89	30	0	0	0	38	0	242	1,038	0		0	0
8:00 AM	0	1	0	72					0	115	26	0	0	0	59	1	274	1,027	0		0	0
8:15 AM	0	0	0	85					0	98	27	0	0	0	62	1	273		0		0	0
8:30 AM	0	2	0	89					0	95	21	0	0	0	42	0	249		0		0	0
8:45 AM	0	1	0	88					0	68	25	0	0	0	49	0	231		0		0	0

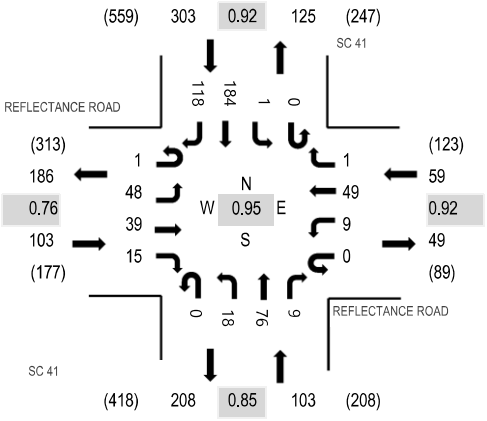
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	3					0	0	1	0	0	0	4	1	9
Lights	0	2	0	345					0	432	85	0	0	0	169	3	1,036
Mediums	0	0	0	13					0	4	21	0	0	0	32	0	70
Total	0	2	0	361					0	436	107	0	0	0	205	4	1,115

All Traffic Data
Services Inc.
(303) 216-2439
www.alltrafficdata.net

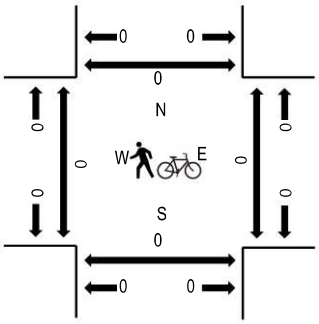
Location: Q SC 41 & REFLECTANCE ROAD AM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	REFLECTANCE ROAD Eastbound				REFLECTANCE ROAD Westbound				SC 41 Northbound				SC 41 Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	1	11	9	4	0	1	18	0	0	6	16	0	0	0	45	37	148	568	0	0	0	0
7:15 AM	0	7	11	3	0	3	8	0	0	1	20	3	0	0	44	20	120	531	0	0	0	0
7:30 AM	0	18	11	5	0	3	10	0	0	6	17	1	0	0	47	32	150	565	0	0	0	0
7:45 AM	0	12	8	3	0	2	13	1	0	5	23	5	0	1	48	29	150	528	0	0	0	0
8:00 AM	0	7	9	1	0	6	9	0	0	3	16	5	0	0	35	20	111	499	0	0	0	0
8:15 AM	0	12	5	1	0	6	11	1	0	4	27	3	0	0	63	21	154		0	0	0	0
8:30 AM	0	9	4	4	0	7	10	0	0	3	15	5	0	2	31	23	113		0	0	0	0
8:45 AM	0	16	4	2	0	7	7	0	0	2	19	3	0	0	47	14	121		0	0	0	0

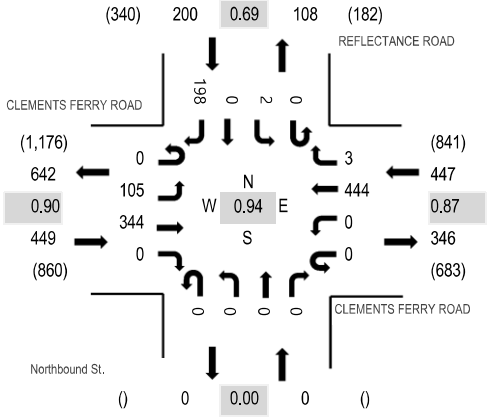
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	1	17	1	0	0	0	3	0	0	0	1	0	0	0	3	20	46
Lights	0	31	37	12	0	9	42	1	0	12	64	8	0	1	146	87	450
Mediums	0	0	1	3	0	0	4	0	0	6	11	1	0	0	35	11	72
Total	1	48	39	15	0	9	49	1	0	18	76	9	0	1	184	118	568

All Traffic Data
Services Inc.
(303) 216-2439
www.alltrafficdata.net

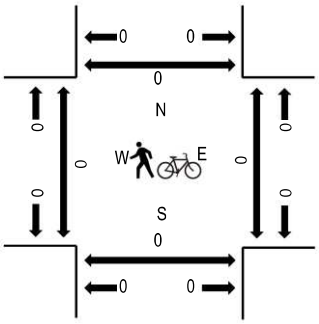
Location: R Northbound St. & CLEMENTS FERRY ROAD AM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:00 AM - 07:15 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	CLEMENTS FERRY ROAD Eastbound				CLEMENTS FERRY ROAD Westbound				Northbound St. Northbound				REFLECTANCE ROAD Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	23	85	0	0	0	110	1	0	0	0	0	0	0	0	72	291	1,096	0	0	0	0
7:15 AM	0	26	71	0	0	0	130	0	0	0	0	0	0	1	0	39	267	1,061	0	0	0	0
7:30 AM	0	33	92	0	0	0	113	2	0	0	0	0	0	0	0	40	280	1,044	0	0	0	0
7:45 AM	0	23	96	0	0	0	91	0	0	0	0	0	0	1	0	47	258	991	0	0	0	0
8:00 AM	0	19	86	0	0	0	117	0	0	0	0	0	0	0	0	34	256	945	0	0	0	0
8:15 AM	0	21	77	0	0	0	108	0	0	0	0	0	0	0	0	44	250		0	0	0	0
8:30 AM	0	15	89	0	0	0	89	0	0	0	0	0	0	0	0	34	227		0	0	0	0
8:45 AM	0	19	85	0	0	0	80	0	0	0	0	0	0	0	0	28	212		0	0	0	0

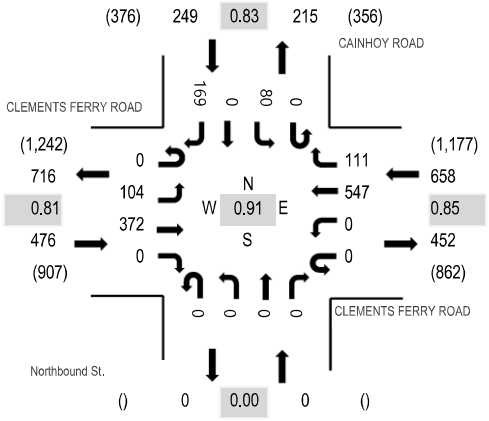
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	19	3	0	0	0	1	0	0	0	0	0	0	0	0	23	46
Lights	0	81	324	0	0	0	442	3	0	0	0	0	0	2	0	150	1,002
Mediums	0	5	17	0	0	0	1	0	0	0	0	0	0	0	0	25	48
Total	0	105	344	0	0	0	444	3	0	0	0	0	0	2	0	198	1,096

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

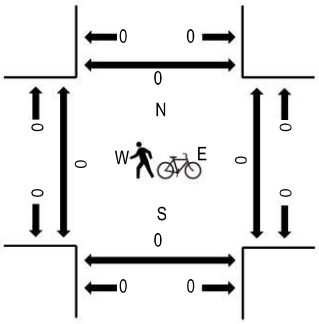
Location: S Northbound St. & CLEMENTS FERRY ROAD AM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:15 AM - 07:30 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	CLEMENTS FERRY ROAD Eastbound				CLEMENTS FERRY ROAD Westbound				Northbound St. Northbound				CAINHOY ROAD Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	25	69	0	0	0	171	23	0	0	0	0	0	20	0	48	356	1,383	0	0	0	0
7:15 AM	0	35	92	0	0	0	149	29	0	0	0	0	0	16	0	59	380	1,317	0	0	0	0
7:30 AM	0	26	123	0	0	0	111	31	0	0	0	0	0	17	0	33	341	1,213	0	0	0	0
7:45 AM	0	18	88	0	0	0	116	28	0	0	0	0	0	27	0	29	306	1,147	0	0	0	0
8:00 AM	0	22	79	0	0	0	129	23	0	0	0	0	0	12	0	25	290	1,077	0	0	0	0
8:15 AM	0	18	88	0	0	0	120	13	0	0	0	0	0	15	0	22	276		0	0	0	0
8:30 AM	0	19	110	0	0	0	115	15	0	0	0	0	0	6	0	10	275		0	0	0	0
8:45 AM	0	10	85	0	0	0	83	21	0	0	0	0	0	15	0	22	236		0	0	0	0

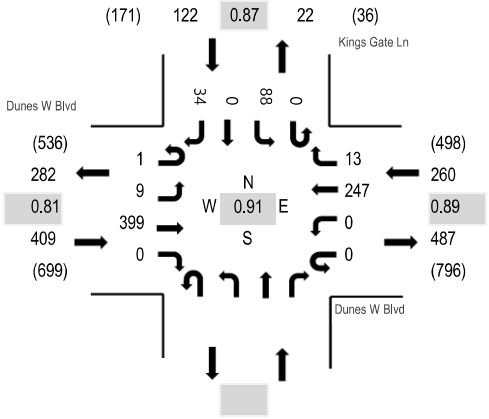
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	17	15	0	0	0	11	13	0	0	0	0	0	7	0	15	78
Lights	0	84	341	0	0	0	517	91	0	0	0	0	0	69	0	144	1,246
Mediums	0	3	16	0	0	0	19	7	0	0	0	0	0	4	0	10	59
Total	0	104	372	0	0	0	547	111	0	0	0	0	0	80	0	169	1,383

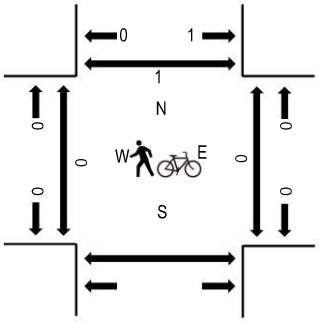
All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

Location: #1 Kings Gate Ln & Dunes W Blvd AM
Date and Start Time: Tuesday, March 12, 2019
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	Dunes W Blvd Eastbound				Dunes W Blvd Westbound				Northbound				Kings Gate Ln Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	3	97	0	0	0	57	3					0	32	0	3	195	791	0	0		0
7:15 AM	1	3	75	0	0	0	68	5					0	25	0	10	187	747	0	0		0
7:30 AM	0	1	103	0	0	0	66	3					0	9	0	10	192	688	0	0		0
7:45 AM	0	2	124	0	0	0	56	2					0	22	0	11	217	649	0	0		1
8:00 AM	0	2	88	0	0	0	44	2					0	7	0	8	151	577	0	0		0
8:15 AM	0	0	65	0	0	0	56	0					0	7	0	0	128		0	0		0
8:30 AM	0	2	58	0	0	0	77	2					0	5	0	9	153		0	0		0
8:45 AM	0	3	72	0	1	0	53	3					0	6	0	7	145		0	0		0

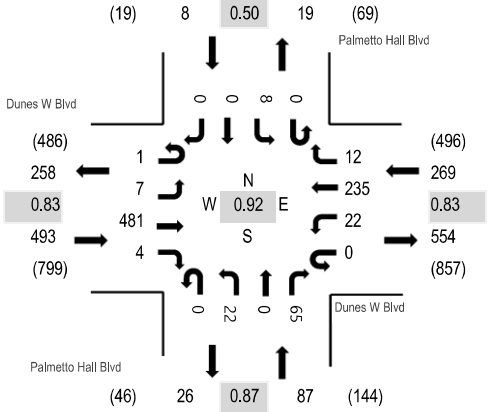
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0					0	0	0	0	0
Lights	1	9	381	0	0	0	236	11					0	87	0	32	757
Mediums	0	0	18	0	0	0	11	2					0	1	0	2	34
Total	1	9	399	0	0	0	247	13					0	88	0	34	791

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

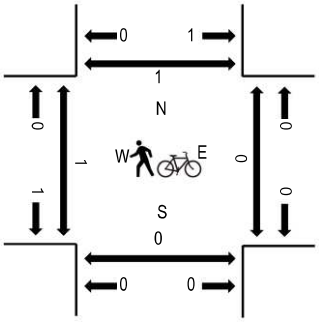
Location: #2 Palmetto Hall Blvd & Dunes W Blvd AM
Date and Start Time: Tuesday, March 12, 2019
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Dunes W Blvd Eastbound				Dunes W Blvd Westbound				Palmetto Hall Blvd Northbound				Palmetto Hall Blvd Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	1	2	128	1	0	2	49	2	0	8	0	12	0	4	0	0	209	857	0	0	0	0
7:15 AM	0	1	98	1	0	6	75	0	0	2	0	18	0	0	0	0	201	802	0	0	0	0
7:30 AM	0	2	111	0	0	9	64	4	0	5	0	17	0	2	0	0	214	751	0	0	0	0
7:45 AM	0	2	144	2	0	5	47	6	0	7	0	18	0	2	0	0	233	688	0	0	0	1
8:00 AM	0	6	87	2	0	2	39	2	0	5	0	10	0	1	0	0	154	601	0	0	0	0
8:15 AM	0	8	56	6	0	3	48	11	0	4	0	8	0	6	0	0	150		0	0	2	0
8:30 AM	0	6	55	2	0	1	60	5	0	12	0	7	0	3	0	0	151		0	0	0	0
8:45 AM	0	10	65	3	0	1	53	2	0	7	0	4	0	1	0	0	146		0	2	0	1

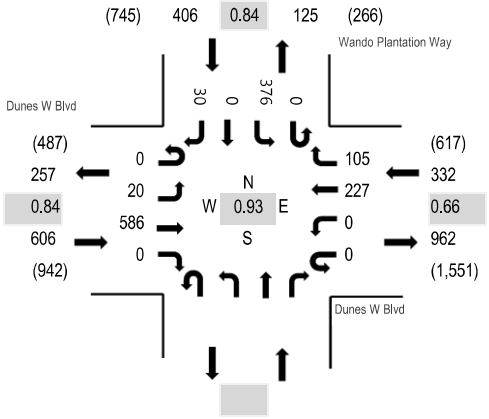
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	1	7	461	4	0	21	219	11	0	22	0	64	0	7	0	0	817
Mediums	0	0	20	0	0	1	16	1	0	0	0	1	0	1	0	0	40
Total	1	7	481	4	0	22	235	12	0	22	0	65	0	8	0	0	857

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

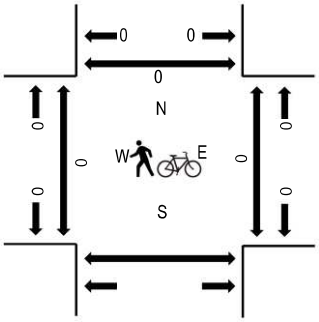
Location: #3 Wando Plantation Way & Dunes W Blvd AM
Date and Start Time: Tuesday, March 12, 2019
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Dunes W Blvd Eastbound				Dunes W Blvd Westbound				Northbound				Wando Plantation Way Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	7	152	0	0	0	34	19					0	93	0	13	318	1,344	0	0		0
7:15 AM	0	3	124	0	0	0	75	55					0	80	0	4	341	1,316	0	0		0
7:30 AM	0	6	134	0	0	0	74	19					0	90	0	2	325	1,223	0	0		0
7:45 AM	0	4	176	0	0	0	44	12					0	113	0	11	360	1,132	0	0		0
8:00 AM	0	5	105	0	0	0	36	29					0	106	0	9	290	960	0	0		0
8:15 AM	0	5	70	0	0	0	55	36					0	71	0	11	248		0	0		0
8:30 AM	0	11	68	0	0	0	50	31					1	57	0	16	234		0	0		0
8:45 AM	0	11	61	0	0	0	36	12					0	51	0	17	188		0	0		0

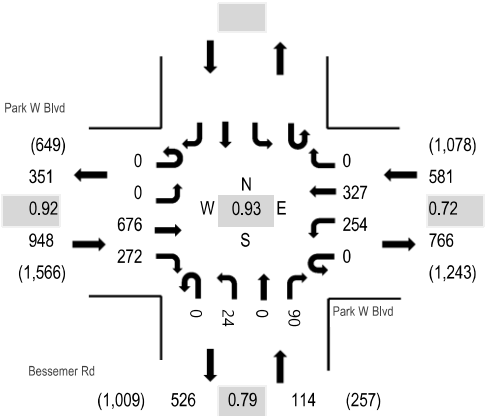
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	1	0	0	0	0	0					0	0	0	0	1
Lights	0	20	564	0	0	0	213	103					0	373	0	28	1,301
Mediums	0	0	21	0	0	0	14	2					0	3	0	2	42
Total	0	20	586	0	0	0	227	105					0	376	0	30	1,344

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

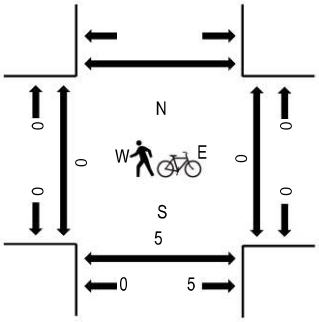
Location: #4 Bessemer Rd & Park W Blvd AM
Date and Start Time: Tuesday, March 12, 2019
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:15 AM - 07:30 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Park W Blvd Eastbound				Park W Blvd Westbound				Bessemer Rd Northbound				Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	180	77	0	91	59	0	0	4	0	21					432	1,643	0	0	0	
7:15 AM	0	0	117	88	0	74	129	0	0	12	0	21					441	1,590	0	0	0	
7:30 AM	0	0	180	51	0	43	88	0	0	4	0	26					392	1,464	0	0	1	
7:45 AM	0	0	199	56	0	46	51	0	0	4	0	22					378	1,357	0	0	0	
8:00 AM	0	0	145	78	0	63	63	0	0	9	0	21					379	1,258	0	0	0	
8:15 AM	0	0	92	55	0	52	80	0	0	13	0	23					315		0	0	2	
8:30 AM	0	0	60	61	0	61	71	0	0	7	0	25					285		0	0	0	
8:45 AM	0	0	77	50	0	63	44	0	0	11	0	34					279		0	0	1	

Peak Rolling Hour Flow Rates

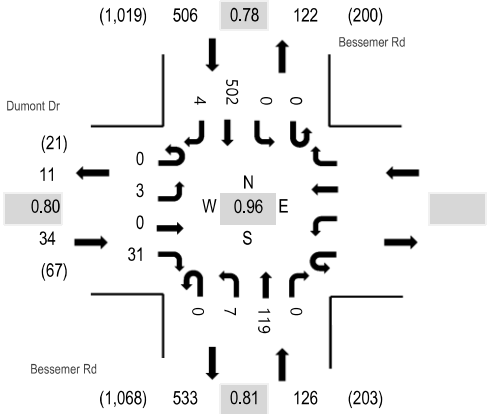
Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	2	0	0	0	0	0	0	0	0	0					2
Lights	0	0	653	268	0	253	310	0	0	22	0	86					1,592
Mediums	0	0	21	4	0	1	17	0	0	2	0	4					49
Total	0	0	676	272	0	254	327	0	0	24	0	90					1,643

All Traffic Data Services Inc.

(303) 216-2439
www.alltrafficdata.net

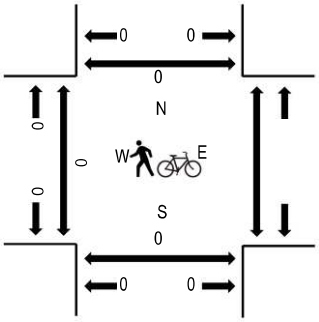
Location: #5 Bessemer Rd & Dumont Dr AM
Date and Start Time: Tuesday, March 12, 2019
Peak Hour: 08:00 AM - 09:00 AM
Peak 15-Minutes: 08:45 AM - 09:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Dumont Dr Eastbound				Westbound				Bessemer Rd Northbound				Bessemer Rd Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	1	0	11					0	2	12	0	0	0	165	0	191	623	0		0	0
7:15 AM	0	1	0	4					0	1	28	0	0	0	155	2	191	603	0		0	0
7:30 AM	0	1	0	5					0	1	17	0	0	0	84	2	110	568	0		0	0
7:45 AM	0	3	0	7					0	1	15	0	0	0	104	1	131	623	0		0	1
8:00 AM	0	2	0	8					0	1	22	0	0	0	135	3	171	666	0		0	0
8:15 AM	0	0	0	4					0	2	29	0	0	0	120	1	156		0		0	0
8:30 AM	0	0	0	11					0	2	31	0	0	0	121	0	165		0		0	0
8:45 AM	0	1	0	8					0	2	37	0	0	0	126	0	174		0		0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0					0	0	0	0	0	0	0	0	0
Lights	0	3	0	31					0	7	116	0	0	0	499	4	660
Mediums	0	0	0	0					0	0	3	0	0	0	3	0	6
Total	0	3	0	31					0	7	119	0	0	0	502	4	666

All Traffic Data Services

1 SIX MILE ROAD & US 17 AM
Tuesday, September 19, 2017

Peak Hour
07:15 AM - 08:15 AM
Peak 15-Minutes
07:45 AM - 08:00 AM

Traffic Counts - All Vehicles

	US 17					US 17					SIX MILE ROAD					Southbound St.						
	Eastbound					Westbound					Northbound					Southbound						
Time	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total	Rolling Hour
7:00 AM	3	0	316	16	0	0	31	569	0	0	0	10	0	21	0	0	0	0	0	0	966	4,347
7:15 AM	2	0	373	18	0	0	19	614	0	0	0	26	0	25	0	0	0	0	0	0	1,077	4,445
7:30 AM	6	0	378	16	0	0	33	640	0	0	0	19	0	35	0	0	0	0	0	0	1,127	4,345
7:45 AM	4	0	425	12	0	1	32	658	0	0	0	9	0	36	0	0	0	0	0	0	1,177	4,232
8:00 AM	6	0	375	15	0	2	35	591	0	0	0	17	0	23	0	0	0	0	0	0	1,064	4,092
8:15 AM	6	0	320	12	0	0	29	570	0	0	0	15	0	25	0	0	0	0	0	0	977	0
8:30 AM	9	0	343	14	0	2	38	559	0	0	0	10	0	39	0	0	0	0	0	0	1,014	0
8:45 AM	6	0	342	13	0	2	42	580	0	0	0	13	0	39	0	0	0	0	0	0	1,037	0

Peak Rolling Hour Flow Rates

	Eastbound					Westbound					Northbound					Southbound					
Vehicle Type	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total
Articulated Trucks	0	0	41	3	0	0	1	38	0	0	0	0	0	1	0	0	0	0	0	0	84
Lights	18	0	1,446	55	0	3	112	2,418	0	0	0	59	0	109	0	0	0	0	0	0	4,220
Mediums	0	0	64	3	0	0	6	47	0	0	0	12	0	9	0	0	0	0	0	0	141
Total	18	0	1,551	61	0	3	119	2,503	0	0	0	71	0	119	0	0	0	0	0	0	4,445

All Traffic Data Services

2 SIX MILE ROAD & Westbound St. AM

Tuesday, September 19, 2017

Peak Hour
07:15 AM - 08:15 AM
Peak 15-Minutes
07:15 AM - 07:30 AM

Traffic Counts - All Vehicles

	SWEETGRASS BASKET PKWY					Westbound St.					SIX MILE ROAD					SIX MILE ROAD						
	Eastbound					Westbound					Northbound					Southbound						
Time	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total	Rolling Hour
7:00 AM	0	7	0	12	0	0	0	0	0	0	0	32	32	0	0	0	0	21	14	0	118	596
7:15 AM	0	20	0	18	0	0	0	0	0	0	0	67	28	0	0	0	0	24	11	0	168	618
7:30 AM	0	9	0	13	0	0	0	0	0	0	0	56	41	0	0	0	0	23	19	0	161	558
7:45 AM	0	13	0	15	0	0	0	0	0	0	0	44	34	0	0	0	0	21	22	0	149	530
8:00 AM	0	12	0	15	0	0	0	0	0	0	0	48	25	0	0	0	0	23	17	0	140	523
8:15 AM	0	14	0	11	0	0	0	0	0	0	0	24	24	0	0	0	0	27	8	0	108	0
8:30 AM	0	13	0	5	0	0	0	0	0	0	0	42	37	0	0	0	0	24	12	0	133	0
8:45 AM	0	11	0	15	0	0	0	0	0	0	0	34	41	0	0	0	0	23	18	0	142	0

Peak Rolling Hour Flow Rates

	Eastbound					Westbound					Northbound					Southbound					
Vehicle Type	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total
Articulated Trucks	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	5
Lights	0	37	0	52	0	0	0	0	0	0	0	212	125	0	0	0	0	84	65	0	575
Mediums	0	15	0	9	0	0	0	0	0	0	0	3	3	0	0	0	0	5	3	0	38
Total	0	54	0	61	0	0	0	0	0	0	0	215	128	0	0	0	0	91	69	0	618

All Traffic Data Services

3 SIX MILE ROAD & RIFLE RANGE ROAD AM

Tuesday, September 19, 2017

Peak Hour
07:15 AM - 08:15 AM
Peak 15-Minutes
07:45 AM - 08:00 AM

Traffic Counts - All Vehicles

	RIFLE RANGE ROAD					RIFLE RANGE ROAD					SIX MILE ROAD					SIX MILE ROAD						
	Eastbound					Westbound					Northbound					Southbound						
Time	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total	Rolling Hour
7:00 AM	0	8	62	15	0	0	1	107	25	0	0	22	16	7	0	0	20	15	11	0	309	1,578
7:15 AM	0	6	78	16	0	0	5	145	56	0	0	19	20	6	0	0	19	17	7	0	394	1,679
7:30 AM	0	7	99	13	0	0	5	171	46	0	0	18	17	4	0	0	13	14	7	0	414	1,606
7:45 AM	0	10	137	16	0	0	7	185	22	0	0	18	16	9	0	0	16	10	15	0	461	1,503
8:00 AM	0	7	104	10	0	0	3	176	34	0	0	21	13	6	0	0	11	16	9	0	410	1,342
8:15 AM	0	10	75	12	0	0	5	143	18	0	0	13	8	4	0	0	8	18	7	0	321	0
8:30 AM	0	11	58	9	0	0	2	133	31	0	0	13	20	5	0	0	2	12	15	0	311	0
8:45 AM	0	14	58	13	0	0	1	117	26	0	1	17	19	3	0	0	8	10	13	0	300	0

Peak Rolling Hour Flow Rates

	Eastbound					Westbound					Northbound					Southbound					
Vehicle Type	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total
Articulated Trucks	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	1	0	0	5
Lights	0	30	402	53	0	0	20	668	155	0	0	76	64	22	0	0	49	51	38	0	1,628
Mediums	0	0	16	2	0	0	0	7	3	0	0	0	2	3	0	0	8	5	0	0	46
Total	0	30	418	55	0	0	20	677	158	0	0	76	66	25	0	0	59	57	38	0	1,679

All Traffic Data Services

4 HAMLIN ROAD & RIFLE RANGE ROAD AM

Tuesday, September 19, 2017

Peak Hour
07:15 AM - 08:15 AM
Peak 15-Minutes
08:00 AM - 08:15 AM

Traffic Counts - All Vehicles

	RIFLE RANGE ROAD					RIFLE RANGE ROAD					HAMLIN ROAD					HAMLIN ROAD						
	Eastbound					Westbound					Northbound					Southbound						
Time	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total	Rolling Hour
7:00 AM	0	45	39	0	0	0	0	99	27	0	0	1	6	0	0	0	7	4	39	0	267	1,367
7:15 AM	0	32	63	3	0	0	2	122	18	0	0	6	3	0	0	0	9	1	95	0	354	1,487
7:30 AM	0	23	81	2	0	0	0	181	11	0	0	3	4	1	0	0	13	1	57	0	377	1,426
7:45 AM	0	41	107	5	0	0	0	156	16	0	0	1	4	0	0	0	2	1	36	0	369	1,297
8:00 AM	0	55	89	1	0	0	0	124	21	0	0	3	0	0	0	0	11	1	82	0	387	1,160
8:15 AM	0	33	47	1	0	0	0	104	13	0	0	4	2	1	0	0	10	2	76	0	293	0
8:30 AM	0	11	50	2	0	0	0	120	14	0	0	4	5	1	0	0	6	3	32	0	248	0
8:45 AM	0	11	63	0	0	0	2	99	13	0	0	4	1	2	0	0	12	1	24	0	232	0

Peak Rolling Hour Flow Rates

	Eastbound					Westbound					Northbound					Southbound					
Vehicle Type	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total
Articulated Trucks	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Lights	0	144	329	10	0	0	2	579	62	0	0	13	9	0	0	0	30	4	266	0	1,448
Mediums	0	7	11	1	0	0	0	3	4	0	0	0	2	1	0	0	5	0	4	0	38
Total	0	151	340	11	0	0	2	583	66	0	0	13	11	1	0	0	35	4	270	0	1,487

All Traffic Data Services

6 Northbound St. & US 17 AM
Tuesday, September 19, 2017

Peak Hour
07:15 AM - 08:15 AM
Peak 15-Minutes
07:45 AM - 08:00 AM

Traffic Counts - All Vehicles

	US 17					US 17					Northbound St.					LONG POINT ROAD						
	Eastbound					Westbound					Northbound					Southbound						
Time	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total	Rolling Hour
7:00 AM	0	9	321	0	0	0	0	603	227	0	0	0	0	0	0	0	117	0	14	0	1,291	5,741
7:15 AM	1	12	378	0	0	0	0	642	266	0	0	0	0	0	0	0	126	0	22	0	1,447	5,925
7:30 AM	0	16	380	0	0	0	0	652	267	0	0	0	0	0	0	0	140	0	27	0	1,482	5,722
7:45 AM	0	14	433	0	0	0	0	656	242	0	0	0	0	0	0	0	152	0	24	0	1,521	5,526
8:00 AM	0	17	399	0	0	0	0	619	262	0	0	0	0	0	0	0	156	0	22	0	1,475	5,296
8:15 AM	0	18	339	0	0	0	0	566	222	0	0	0	0	0	0	0	78	0	21	0	1,244	0
8:30 AM	0	15	346	0	0	0	0	585	236	0	0	0	0	0	0	0	82	0	22	0	1,286	0
8:45 AM	0	25	333	0	0	0	0	602	222	0	0	0	0	0	0	0	84	0	25	0	1,291	0

Peak Rolling Hour Flow Rates

	Eastbound					Westbound					Northbound					Southbound					
Vehicle Type	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total
Articulated Trucks	0	0	42	0	0	0	0	39	0	0	0	0	0	0	0	0	0	0	0	0	81
Lights	1	57	1,484	0	0	0	0	2,474	1,030	0	0	0	0	0	0	0	560	0	92	0	5,698
Mediums	0	2	64	0	0	0	0	56	7	0	0	0	0	0	0	0	14	0	3	0	146
Total	1	59	1,590	0	0	0	0	2,569	1,037	0	0	0	0	0	0	0	574	0	95	0	5,925

All Traffic Data Services

7 HAMLIN ROAD & Westbound St. AM

Tuesday, September 19, 2017

Peak Hour
07:15 AM - 08:15 AM
Peak 15-Minutes
07:15 AM - 07:30 AM

Traffic Counts - All Vehicles

	BILLY SWAILS					Westbound St.					HAMLIN ROAD					HAMLIN ROAD						
	Eastbound					Westbound					Northbound					Southbound						
Time	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total	Rolling Hour
7:00 AM	0	0	0	0	0	0	44	0	78	0	0	0	55	18	0	0	40	9	0	0	244	798
7:15 AM	0	0	0	0	0	0	89	0	88	0	0	0	43	9	0	0	32	24	0	0	285	804
7:30 AM	0	0	0	0	0	0	28	0	28	0	0	0	45	3	0	0	3	29	0	0	136	709
7:45 AM	0	0	0	0	0	0	25	0	26	0	0	0	54	9	0	0	2	17	0	0	133	658
8:00 AM	0	0	0	0	0	0	73	0	76	0	0	0	70	4	0	0	2	25	0	0	250	601
8:15 AM	0	0	0	0	0	0	48	0	63	0	0	0	44	1	0	0	0	34	0	0	190	0
8:30 AM	0	0	0	0	0	0	10	0	7	0	0	0	31	1	0	0	3	33	0	0	85	0
8:45 AM	0	0	0	0	0	0	9	0	8	0	0	0	21	2	0	0	1	35	0	0	76	0

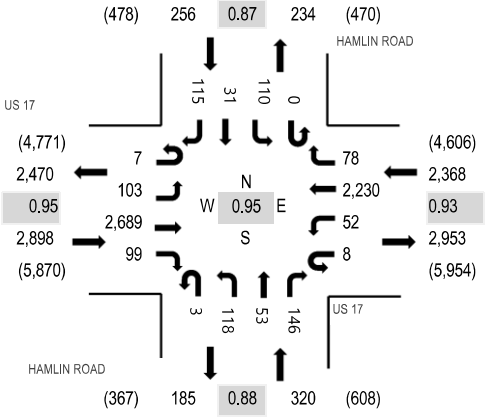
Peak Rolling Hour Flow Rates

	Eastbound					Westbound					Northbound					Southbound					
Vehicle Type	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total
Articulated Trucks	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2
Lights	0	0	0	0	0	0	213	0	216	0	0	0	197	25	0	0	39	89	0	0	779
Mediums	0	0	0	0	0	0	2	0	1	0	0	0	14	0	0	0	0	6	0	0	23
Total	0	0	0	0	0	0	215	0	218	0	0	0	212	25	0	0	39	95	0	0	804

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

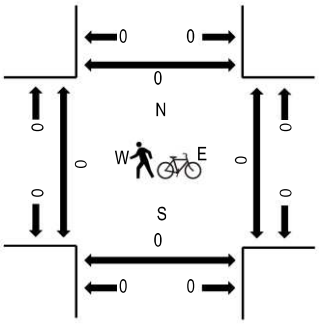
Location: A HAMLIN ROAD & US 17 PM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:15 PM - 04:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	US 17 Eastbound				US 17 Westbound				HAMLIN ROAD Northbound				HAMLIN ROAD Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	2	34	692	25	3	17	596	22	0	32	17	33	0	22	7	23	1,525	5,842	0	0	0	0
4:15 PM	2	28	739	21	2	7	552	20	0	40	16	35	0	30	5	33	1,530	5,764	0	0	0	0
4:30 PM	3	23	498	26	1	16	557	18	3	21	8	36	0	36	9	31	1,286	5,724	0	0	0	0
4:45 PM	0	18	760	27	2	12	525	18	0	25	12	42	0	22	10	28	1,501	5,835	0	0	0	0
5:00 PM	0	32	688	34	1	10	524	24	0	23	13	38	0	33	6	21	1,447	5,720	0	0	0	0
5:15 PM	0	18	693	34	3	5	585	20	0	24	8	35	0	23	6	36	1,490		0	0	0	0
5:30 PM	1	29	688	26	1	13	505	19	0	19	9	40	0	21	0	26	1,397		0	0	0	0
5:45 PM	0	30	671	28	1	13	493	21	0	22	13	44	0	21	7	22	1,386		0	0	1	0

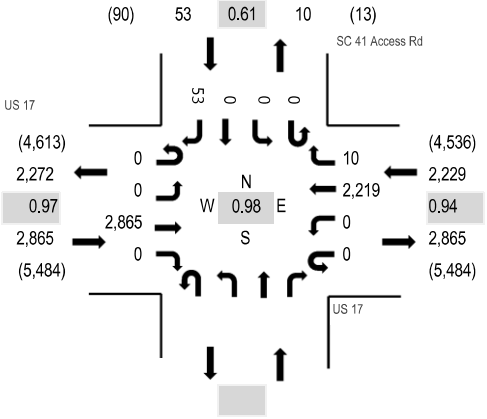
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	1	23	0	0	0	20	0	0	0	0	0	0	0	0	1	45
Lights	7	101	2,621	99	8	49	2,128	76	3	118	53	142	0	108	29	112	5,654
Mediums	0	1	45	0	0	3	82	2	0	0	0	4	0	2	2	2	143
Total	7	103	2,689	99	8	52	2,230	78	3	118	53	146	0	110	31	115	5,842

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

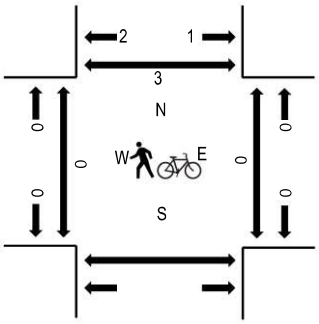
Location: B SC 41 Access Rd & US 17 PM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	US 17 Eastbound				US 17 Westbound				Northbound				SC 41 Access Rd Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	610	0	0	0	617	0					0	0	0	10	1,237	5,002	0	0		0
4:15 PM	0	0	700	0	0	0	567	2					0	0	0	10	1,279	5,078	0	0		2
4:30 PM	0	0	637	0	0	0	598	1					0	0	0	7	1,243	5,112	0	0		1
4:45 PM	0	0	694	0	0	0	539	3					0	0	0	7	1,243	5,147	0	0		0
5:00 PM	0	0	732	0	0	0	572	1					0	0	0	8	1,313	5,108	0	0		1
5:15 PM	0	0	699	0	0	0	597	2					0	0	0	15	1,313		0	0		0
5:30 PM	0	0	740	0	0	0	511	4					0	0	0	23	1,278		0	0		1
5:45 PM	0	0	672	0	0	0	522	0					0	0	0	10	1,204		0	0		0

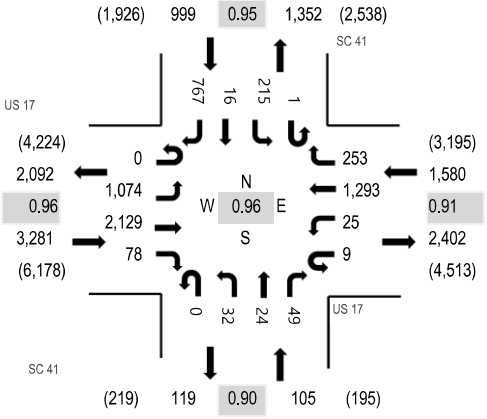
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	18	0	0	0	12	0					0	0	0	0	30
Lights	0	0	2,810	0	0	0	2,167	10					0	0	0	51	5,038
Mediums	0	0	37	0	0	0	40	0					0	0	0	2	79
Total	0	0	2,865	0	0	0	2,219	10					0	0	0	53	5,147

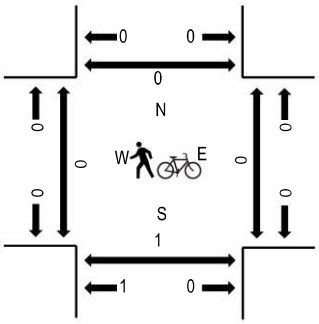
All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

Location: C SC 41 & US 17 PM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	US 17 Eastbound				US 17 Westbound				SC 41 Northbound				SC 41 Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	1	233	457	17	5	10	400	30	0	6	4	8	0	33	4	159	1,367	5,529	0	0	0	0
4:15 PM	1	260	530	14	2	4	349	50	0	6	5	11	1	52	3	175	1,463	5,713	0	0	0	0
4:30 PM	2	210	365	14	0	10	360	67	0	6	6	10	0	49	2	185	1,286	5,755	0	0	0	0
4:45 PM	1	262	514	16	0	3	275	50	0	8	7	13	1	62	3	198	1,413	5,950	0	0	1	0
5:00 PM	0	271	535	18	4	6	374	62	0	7	4	10	1	62	8	189	1,551	5,965	0	0	0	0
5:15 PM	0	276	511	25	0	5	343	73	0	8	6	15	0	49	0	194	1,505		0	0	0	0
5:30 PM	0	273	562	16	4	9	294	66	0	10	8	12	0	48	3	176	1,481		0	0	0	0
5:45 PM	0	254	521	19	1	5	282	52	0	7	6	12	0	56	5	208	1,428		0	0	0	0

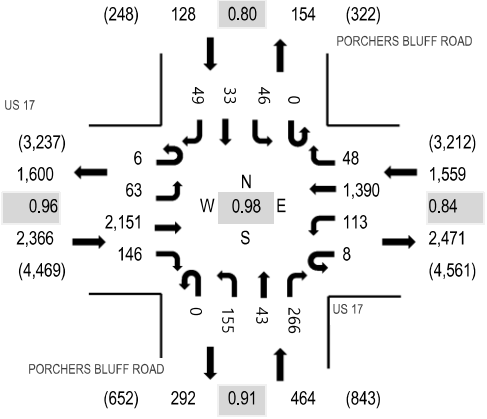
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	1	11	0	0	0	15	1	0	0	0	0	0	0	0	0	28
Lights	0	1,065	2,100	77	9	25	1,260	249	0	29	24	49	1	213	15	760	5,876
Mediums	0	8	18	1	0	0	18	3	0	3	0	0	0	2	1	7	61
Total	0	1,074	2,129	78	9	25	1,293	253	0	32	24	49	1	215	16	767	5,965

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

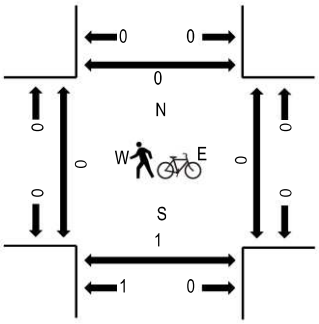
Location: D PORCHERS BLUFF ROAD & US 17 PM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	US 17 Eastbound				US 17 Westbound				PORCHERS BLUFF ROAD Northbound				PORCHERS BLUFF ROAD Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	2	15	423	47	0	44	430	17	0	22	13	45	0	10	7	13	1,088	4,255	0	0	0	0
4:15 PM	2	17	515	54	1	35	366	14	0	34	14	56	0	15	5	14	1,142	4,297	0	0	0	0
4:30 PM	2	23	405	35	1	46	335	9	0	38	9	42	0	13	10	8	976	4,309	0	0	0	0
4:45 PM	1	16	497	49	0	25	317	13	0	42	8	56	0	11	3	11	1,049	4,474	0	0	1	0
5:00 PM	1	10	523	40	3	25	380	13	0	28	10	64	0	10	9	14	1,130	4,517	0	0	0	0
5:15 PM	2	12	534	34	1	25	386	12	0	38	11	65	0	15	5	14	1,154		0	0	0	0
5:30 PM	1	18	560	40	1	34	335	10	0	46	10	65	0	8	5	8	1,141		0	0	0	0
5:45 PM	2	23	534	32	3	29	289	13	0	43	12	72	0	13	14	13	1,092		0	0	0	0

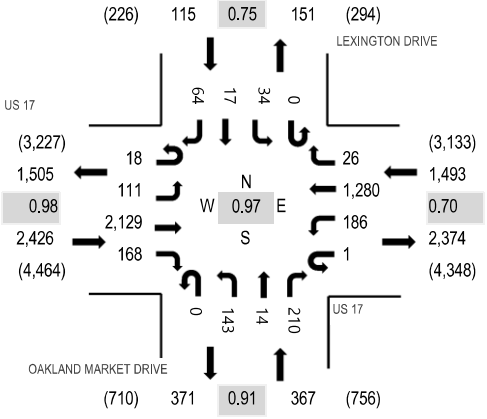
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	12	0	0	0	11	0	0	1	0	0	0	0	0	0	24
Lights	6	63	2,122	145	8	112	1,360	48	0	151	43	265	0	46	33	49	4,451
Mediums	0	0	17	1	0	1	19	0	0	3	0	1	0	0	0	0	42
Total	6	63	2,151	146	8	113	1,390	48	0	155	43	266	0	46	33	49	4,517

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

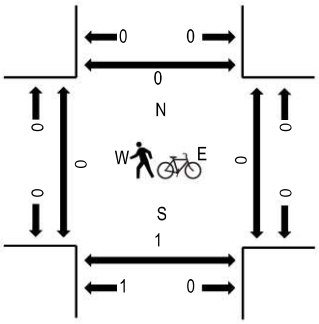
Location: E OAKLAND MARKET DRIVE & US 17 PM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	US 17 Eastbound				US 17 Westbound				OAKLAND MARKET DRIVE Northbound				LEXINGTON DRIVE Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	3	21	425	34	0	51	527	6	0	35	6	45	0	9	2	16	1,180	4,178	0	0	0	0
4:15 PM	3	25	482	55	0	29	305	8	0	55	5	48	0	8	4	23	1,050	4,109	0	0	0	0
4:30 PM	2	20	364	33	0	39	322	5	0	51	7	47	0	7	3	11	911	4,190	0	0	0	0
4:45 PM	5	29	483	54	1	30	312	5	0	42	6	42	0	13	5	10	1,037	4,396	0	0	0	0
5:00 PM	6	32	527	42	1	38	325	6	0	44	3	45	0	15	7	20	1,111	4,401	0	0	0	0
5:15 PM	3	22	522	47	0	54	360	4	0	38	3	55	0	5	5	13	1,131		0	0	0	0
5:30 PM	3	36	540	41	0	45	322	6	0	34	4	61	0	7	1	17	1,117		0	0	0	0
5:45 PM	6	21	540	38	0	49	273	10	0	27	4	49	0	7	4	14	1,042		0	0	1	0

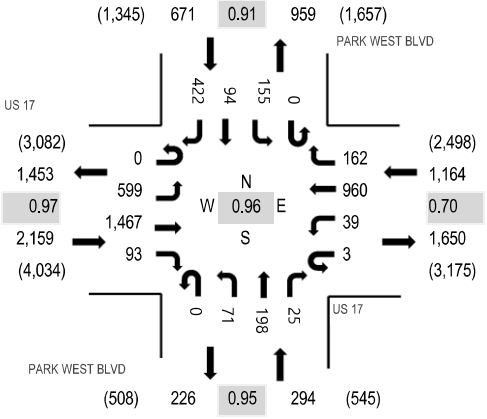
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	11	0	0	0	10	0	0	0	0	0	0	0	0	0	21
Lights	18	111	2,100	168	1	184	1,249	26	0	142	14	209	0	34	17	64	4,337
Mediums	0	0	18	0	0	2	21	0	0	1	0	1	0	0	0	0	43
Total	18	111	2,129	168	1	186	1,280	26	0	143	14	210	0	34	17	64	4,401

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

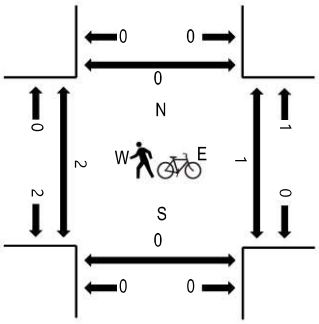
Location: F PARK WEST BLVD & US 17 PM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	US 17 Eastbound				US 17 Westbound				PARK WEST BLVD Northbound				PARK WEST BLVD Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	99	308	19	0	29	411	38	0	25	35	8	0	42	36	121	1,171	4,134	1	0	0	0
4:15 PM	0	126	387	23	0	17	268	30	0	16	26	14	0	25	26	94	1,052	4,009	0	0	0	1
4:30 PM	0	97	328	24	0	8	236	29	0	13	31	14	0	39	30	106	955	4,076	0	1	0	1
4:45 PM	0	125	317	22	2	18	223	25	0	17	37	15	0	26	30	99	956	4,205	0	0	0	1
5:00 PM	0	135	369	19	0	12	240	29	0	16	49	10	0	38	22	107	1,046	4,288	1	0	0	0
5:15 PM	0	158	358	33	2	4	270	48	0	24	48	6	0	41	26	101	1,119		0	0	0	0
5:30 PM	0	152	353	26	1	7	239	45	0	15	56	3	0	43	22	122	1,084		0	1	0	0
5:45 PM	0	154	387	15	0	16	211	40	0	16	45	6	0	33	24	92	1,039		0	0	0	0

Peak Rolling Hour Flow Rates

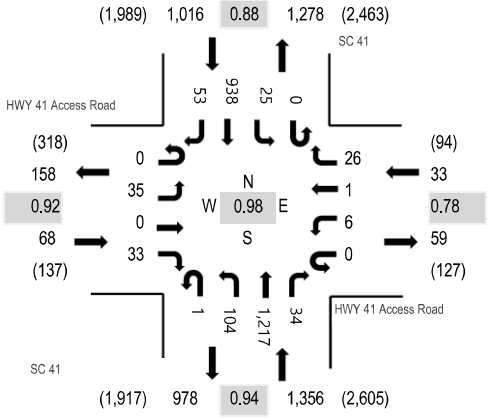
Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	1	8	0	0	0	10	0	0	0	0	0	0	0	0	0	19
Lights	0	596	1,440	92	3	39	936	159	0	70	198	25	0	155	94	419	4,226
Mediums	0	2	19	1	0	0	14	3	0	1	0	0	0	0	0	3	43
Total	0	599	1,467	93	3	39	960	162	0	71	198	25	0	155	94	422	4,288

All Traffic Data Services Inc.

(303) 216-2439
www.alltrafficdata.net

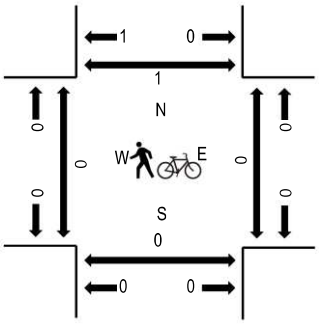
Location: G SC 41 & HWY 41 Access Road PM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 04:45 PM - 05:00 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	HWY 41 Access Road Eastbound				HWY 41 Access Road Westbound				SC 41 Northbound				SC 41 Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	16	0	4	0	4	0	16	0	22	257	5	0	3	194	11	532	2,357	0	0	0	0
4:15 PM	0	4	1	11	0	3	2	15	0	34	298	19	0	7	225	10	629	2,441	0	0	0	0
4:30 PM	0	9	0	5	0	3	0	7	0	28	265	7	0	6	222	12	564	2,444	0	2	0	1
4:45 PM	0	8	0	9	0	3	1	8	1	31	271	9	0	12	261	18	632	2,473	0	0	0	1
5:00 PM	0	12	0	7	0	3	0	8	0	24	302	11	0	5	230	14	616	2,468	0	0	0	0
5:15 PM	0	10	0	8	0	0	0	6	0	20	334	7	0	2	230	15	632		0	0	0	0
5:30 PM	0	5	0	9	0	0	0	4	0	29	310	7	0	6	217	6	593		0	0	0	0
5:45 PM	0	8	0	11	0	1	0	10	1	26	280	7	0	13	255	15	627		0	0	0	0

Peak Rolling Hour Flow Rates

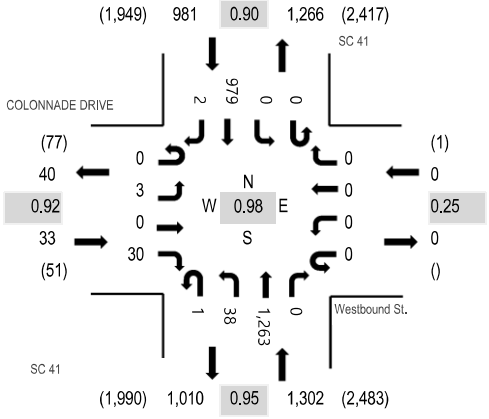
Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	2	6
Lights	0	35	0	33	0	6	1	26	1	103	1,203	34	0	25	925	50	2,442
Mediums	0	0	0	0	0	0	0	0	0	1	10	0	0	0	13	1	25
Total	0	35	0	33	0	6	1	26	1	104	1,217	34	0	25	938	53	2,473

All Traffic Data Services Inc.

(303) 216-2439
www.alltrafficdata.net

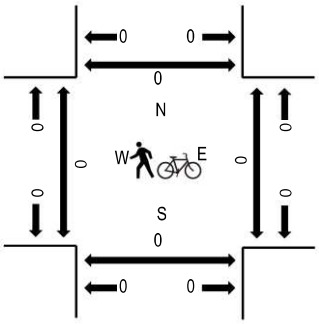
Location: H SC 41 & Westbound St. PM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	COLONNADE DRIVE Eastbound				Westbound St. Westbound				SC 41 Northbound				SC 41 Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	0	5	0	0	0	0	0	9	276	0	0	0	201	2	493	2,168	0	0	0	0
4:15 PM	0	1	0	2	0	0	0	0	0	6	319	0	0	0	237	0	565	2,251	0	0	0	0
4:30 PM	0	0	0	4	0	1	0	0	0	6	272	0	0	0	244	1	528	2,277	0	0	0	0
4:45 PM	0	0	0	6	0	0	0	0	0	11	282	0	1	0	280	2	582	2,310	0	0	0	0
5:00 PM	0	0	0	8	0	0	0	0	0	9	315	0	0	0	244	0	576	2,316	0	0	0	0
5:15 PM	0	1	0	6	0	0	0	0	0	7	335	0	0	0	241	1	591		0	0	0	0
5:30 PM	0	2	0	7	0	0	0	0	1	11	319	0	0	0	220	1	561		0	0	0	0
5:45 PM	0	0	0	9	0	0	0	0	0	11	294	0	0	0	274	0	588		0	0	0	0

Peak Rolling Hour Flow Rates

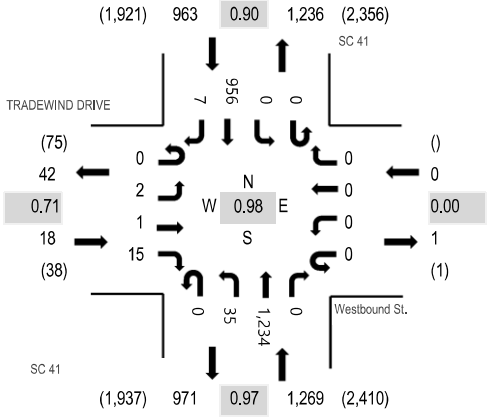
Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	4
Lights	0	3	0	30	0	0	0	0	1	38	1,252	0	0	0	966	2	2,292
Mediums	0	0	0	0	0	0	0	0	0	0	9	0	0	0	11	0	20
Total	0	3	0	30	0	0	0	0	1	38	1,263	0	0	0	979	2	2,316

All Traffic Data Services Inc.

(303) 216-2439
www.alltrafficdata.net

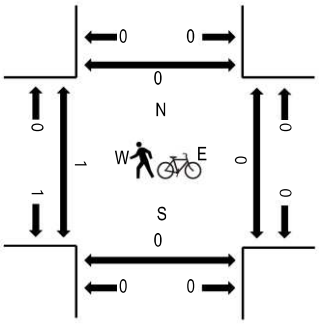
Location: I SC 41 & Westbound St. PM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	TRADEWIND DRIVE Eastbound				Westbound St. Westbound				SC 41 Northbound				SC 41 Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	1	0	5	0	0	0	0	0	9	264	0	0	0	205	4	488	2,119	0	0	0	0
4:15 PM	0	1	0	3	0	0	0	0	1	7	317	0	0	0	225	2	556	2,186	0	0	0	0
4:30 PM	0	0	0	3	0	0	0	0	0	2	264	0	0	0	239	3	511	2,204	0	0	0	0
4:45 PM	0	0	0	7	0	0	0	0	0	4	273	0	0	0	278	2	564	2,243	0	0	0	0
5:00 PM	0	0	0	2	0	0	0	0	0	11	304	0	0	0	238	0	555	2,250	0	0	0	0
5:15 PM	0	1	0	2	0	0	0	0	0	10	317	0	0	0	243	1	574		0	0	0	0
5:30 PM	0	1	1	5	0	0	0	0	0	6	320	0	0	0	215	2	550		0	0	0	0
5:45 PM	0	0	0	6	0	0	0	0	0	8	293	0	0	0	260	4	571		0	0	0	0

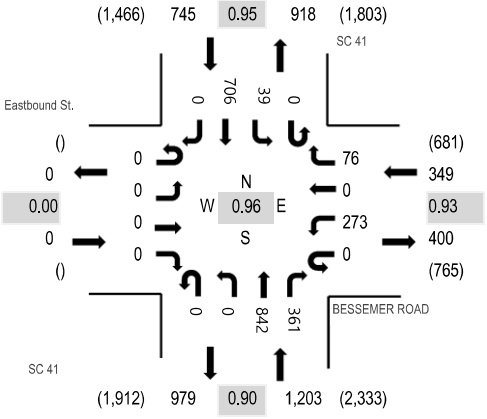
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	2	0	0	0	11	0	13
Lights	0	2	1	15	0	0	0	0	0	35	1,223	0	0	0	942	7	2,225
Mediums	0	0	0	0	0	0	0	0	0	0	9	0	0	0	3	0	12
Total	0	2	1	15	0	0	0	0	0	35	1,234	0	0	0	956	7	2,250

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

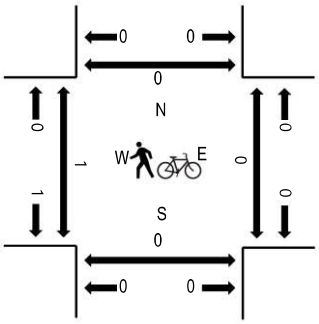
Location: J SC 41 & BESSEMER ROAD PM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:30 PM - 05:45 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Eastbound St. Eastbound				BESSEMER ROAD Westbound				SC 41 Northbound				SC 41 Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	0	0	0	50	0	20	0	0	181	77	0	13	173	0	514	2,193	0	0	0	0
4:15 PM	0	0	0	0	0	71	0	23	0	0	228	87	0	9	152	0	570	2,247	1	0	0	0
4:30 PM	0	0	0	0	0	63	0	20	0	0	207	77	0	5	181	0	553	2,251	0	0	0	0
4:45 PM	0	0	0	0	0	74	0	11	0	0	190	84	0	8	189	0	556	2,297	0	0	0	0
5:00 PM	0	0	0	0	0	71	0	17	0	0	203	97	0	5	175	0	568	2,287	1	0	0	0
5:15 PM	0	0	0	0	0	69	0	23	0	0	219	77	0	14	172	0	574		0	0	0	0
5:30 PM	0	0	0	0	0	59	0	25	0	0	230	103	0	12	170	0	599		0	0	0	0
5:45 PM	0	0	0	0	0	63	0	22	0	0	184	89	0	8	180	0	546		0	0	0	0

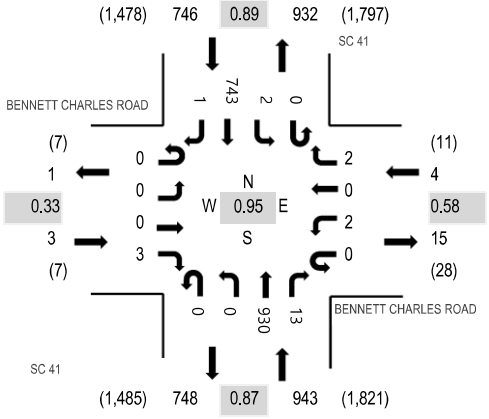
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	4
Lights	0	0	0	0	0	266	0	76	0	0	831	359	0	37	699	0	2,268
Mediums	0	0	0	0	0	7	0	0	0	0	8	2	0	2	6	0	25
Total	0	0	0	0	0	273	0	76	0	0	842	361	0	39	706	0	2,297

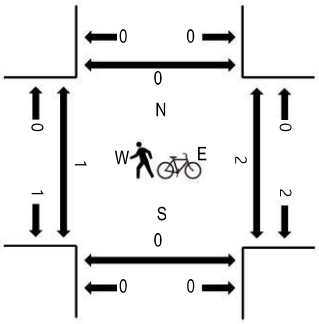
All Traffic Data
Services Inc.
(303) 216-2439
www.alltrafficdata.net

Location: K SC 41 & BENNETT CHARLES ROAD PM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:30 PM - 05:45 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	BENNETT CHARLES ROAD Eastbound				BENNETT CHARLES ROAD Westbound				SC 41 Northbound				SC 41 Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	1	0	2	0	1	0	0	0	1	193	2	0	1	178	0	379	1,621	1	0	0	0
4:15 PM	0	0	0	0	0	1	0	0	0	2	257	2	0	0	162	0	424	1,644	0	0	0	0
4:30 PM	0	0	0	0	0	2	0	1	0	1	233	3	0	3	174	0	417	1,637	0	1	0	0
4:45 PM	0	0	0	1	0	2	0	0	0	2	180	2	0	0	214	0	401	1,667	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	1	0	0	218	1	0	0	182	0	402	1,696	1	0	0	0
5:15 PM	0	0	0	1	0	0	0	0	0	0	221	4	0	1	190	0	417		0	0	0	0
5:30 PM	0	0	0	0	0	0	0	1	0	0	267	4	0	0	175	0	447		0	0	0	0
5:45 PM	0	0	0	2	0	2	0	0	0	0	224	4	0	1	196	1	430		0	0	0	0

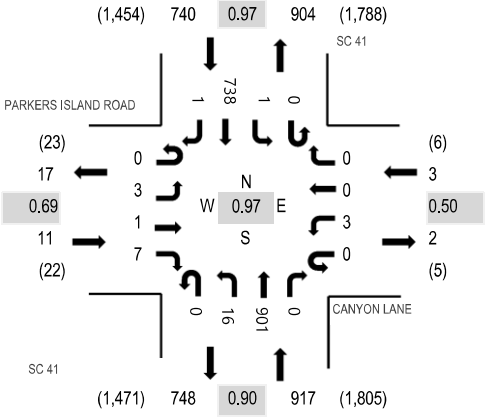
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3
Lights	0	0	0	3	0	2	0	2	0	0	923	12	0	2	734	1	1,679
Mediums	0	0	0	0	0	0	0	0	0	0	5	1	0	0	8	0	14
Total	0	0	0	3	0	2	0	2	0	0	930	13	0	2	743	1	1,696

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

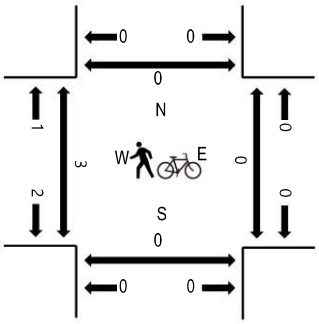
Location: L SC 41 & CANYON LANE PM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:30 PM - 05:45 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	PARKERS ISLAND ROAD Eastbound				CANYON LANE Westbound				SC 41 Northbound				SC 41 Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	0	4	0	0	0	0	1	2	201	1	0	1	172	1	383	1,616	0	0	0	0
4:15 PM	0	0	0	1	0	1	0	0	0	0	261	0	0	0	156	0	419	1,634	0	0	0	0
4:30 PM	0	1	0	2	0	1	0	1	0	0	225	0	0	0	188	1	419	1,639	0	0	0	0
4:45 PM	0	0	0	3	0	0	0	0	0	1	195	1	0	0	194	1	395	1,649	0	0	0	0
5:00 PM	0	0	0	2	0	1	0	0	0	2	215	0	0	1	180	0	401	1,671	2	0	0	0
5:15 PM	0	1	0	0	0	1	0	0	0	2	226	0	0	0	193	1	424		1	0	0	0
5:30 PM	0	1	1	2	0	1	0	0	0	6	248	0	0	0	170	0	429		0	0	0	0
5:45 PM	0	1	0	3	0	0	0	0	0	6	212	0	0	0	195	0	417		0	0	0	0

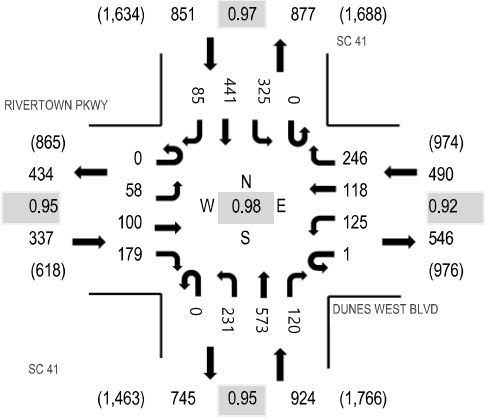
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
Lights	0	3	1	7	0	3	0	0	0	16	890	0	0	1	730	1	1,652
Mediums	0	0	0	0	0	0	0	0	0	0	9	0	0	0	8	0	17
Total	0	3	1	7	0	3	0	0	0	16	901	0	0	1	738	1	1,671

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

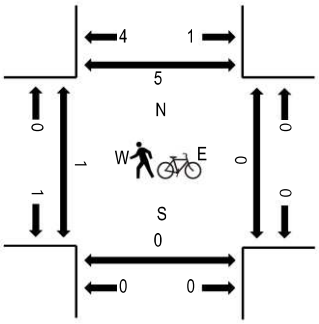
Location: M SC 41 & DUNES WEST BLVD PM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	RIVERTOWN PKWY Eastbound				DUNES WEST BLVD Westbound				SC 41 Northbound				SC 41 Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	19	22	31	1	29	40	49	0	59	97	23	0	64	112	26	572	2,390	0	0	0	1
4:15 PM	0	11	16	33	0	28	48	73	0	65	154	30	0	62	104	16	640	2,448	0	0	0	0
4:30 PM	0	9	16	52	0	32	17	57	0	46	151	33	0	74	105	26	618	2,469	0	0	0	0
4:45 PM	0	14	19	39	0	33	24	53	0	42	124	18	0	52	120	22	560	2,509	0	0	1	0
5:00 PM	0	14	19	49	0	37	26	60	0	54	133	26	0	75	113	24	630	2,602	0	0	0	1
5:15 PM	0	18	25	44	1	39	25	68	0	64	140	27	0	85	110	15	661		1	0	0	0
5:30 PM	0	12	27	50	0	21	34	69	0	59	143	34	0	91	100	18	658		0	0	0	0
5:45 PM	0	14	29	36	0	28	33	49	0	54	157	33	0	74	118	28	653		0	0	0	2

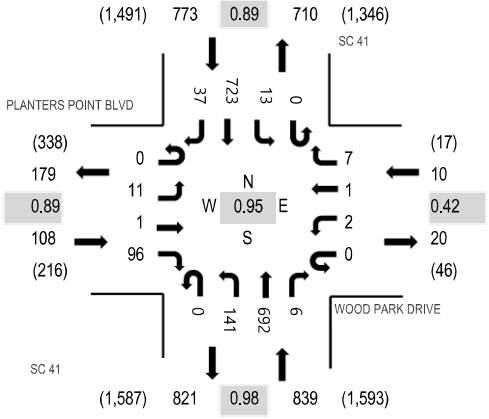
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	3
Lights	0	56	100	179	1	125	117	244	0	231	562	120	0	325	433	85	2,578
Mediums	0	2	0	0	0	0	1	1	0	0	9	0	0	0	8	0	21
Total	0	58	100	179	1	125	118	246	0	231	573	120	0	325	441	85	2,602

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

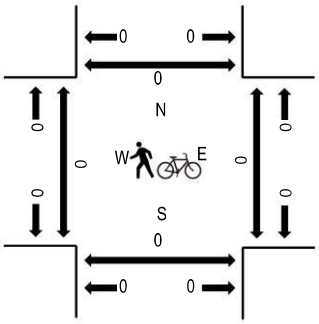
Location: N SC 41 & WOOD PARK DRIVE PM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	PLANTERS POINT BLVD Eastbound				WOOD PARK DRIVE Westbound				SC 41 Northbound				SC 41 Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	2	0	21	0	0	0	0	0	30	106	4	0	4	181	6	354	1,587	0	3	0	0
4:15 PM	0	0	0	22	0	2	0	0	0	30	185	2	0	4	163	9	417	1,645	0	0	0	0
4:30 PM	0	4	0	24	0	1	0	3	0	43	176	1	0	4	154	11	421	1,681	0	0	0	0
4:45 PM	0	7	0	28	0	1	0	0	0	22	153	2	0	5	169	8	395	1,705	0	0	0	0
5:00 PM	0	2	0	30	0	1	1	0	0	31	169	2	0	4	162	10	412	1,730	0	0	0	0
5:15 PM	0	7	0	17	0	0	0	1	0	28	181	2	0	3	205	9	453		0	0	0	0
5:30 PM	0	2	1	31	0	1	0	5	0	34	179	1	0	5	177	9	445		0	0	0	0
5:45 PM	0	0	0	18	0	0	0	1	0	48	163	1	0	1	179	9	420		0	0	0	0

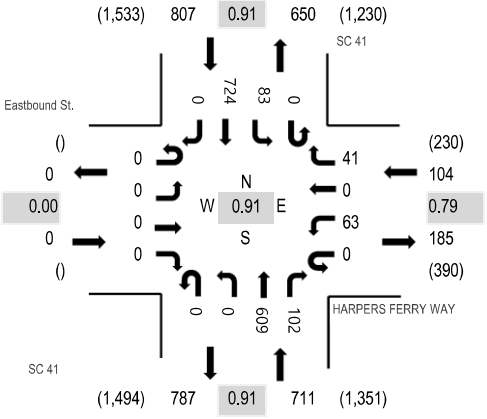
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	5
Lights	0	11	1	96	0	2	1	7	0	141	678	6	0	13	714	37	1,707
Mediums	0	0	0	0	0	0	0	0	0	0	9	0	0	0	9	0	18
Total	0	11	1	96	0	2	1	7	0	141	692	6	0	13	723	37	1,730

All Traffic Data
Services Inc.
(303) 216-2439
www.alltrafficdata.net

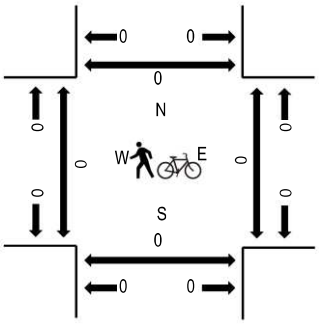
Location: 0 SC 41 & HARPERS FERRY WAY PM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Eastbound St. Eastbound				HARPERS FERRY WAY Westbound				SC 41 Northbound				SC 41 Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	0	0	0	20	0	16	0	0	96	29	0	27	162	0	350	1,492	0	0	0	0
4:15 PM	0	0	0	0	0	21	0	6	0	0	146	24	0	20	159	0	376	1,527	0	0	0	0
4:30 PM	0	0	0	0	0	17	0	6	0	0	155	29	0	25	154	0	386	1,598	0	0	0	0
4:45 PM	0	0	0	0	0	20	0	20	0	0	135	26	0	25	154	0	380	1,614	0	0	0	0
5:00 PM	0	0	0	0	0	14	0	10	0	0	145	22	0	27	167	0	385	1,622	0	0	0	0
5:15 PM	0	0	0	0	0	15	0	15	0	0	167	29	0	15	206	0	447		0	0	0	0
5:30 PM	0	0	0	0	0	10	0	9	0	0	160	25	0	14	184	0	402		0	0	0	0
5:45 PM	0	0	0	0	0	24	0	7	0	0	137	26	0	27	167	0	388		0	0	0	0

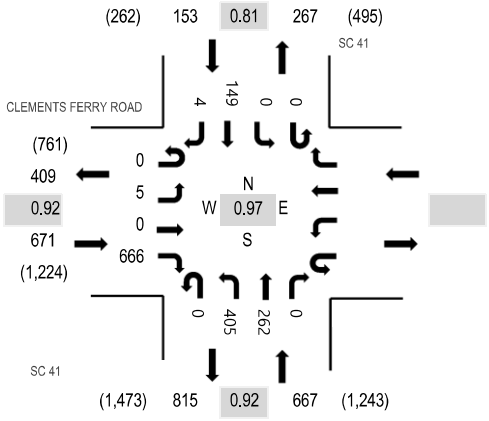
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4
Lights	0	0	0	0	0	62	0	40	0	0	596	101	0	83	716	0	1,598
Mediums	0	0	0	0	0	1	0	1	0	0	9	1	0	0	8	0	20
Total	0	0	0	0	0	63	0	41	0	0	609	102	0	83	724	0	1,622

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

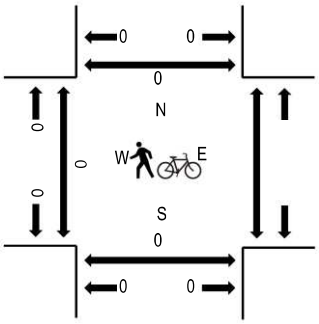
Location: P SC 41 & CLEMENTS FERRY ROAD PM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:30 PM - 05:45 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	CLEMENTS FERRY ROAD Eastbound				Westbound				SC 41 Northbound				SC 41 Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	0	143					0	66	34	0	0	0	23	0	266	1,342	0		0	0
4:15 PM	0	0	0	148					0	96	86	0	0	0	37	0	367	1,439	0		0	0
4:30 PM	0	0	0	152					0	99	61	0	0	0	24	2	338	1,446	0		0	0
4:45 PM	0	1	0	182					0	98	62	0	0	0	25	3	371	1,491	0		0	0
5:00 PM	0	1	0	158					0	98	69	0	0	0	36	1	363	1,387	0		0	0
5:15 PM	0	1	0	150					0	112	70	0	0	0	41	0	374		0		0	0
5:30 PM	0	2	0	176					0	97	61	0	0	0	47	0	383		0		0	0
5:45 PM	0	1	0	109					0	88	46	0	0	0	22	1	267		0		0	0

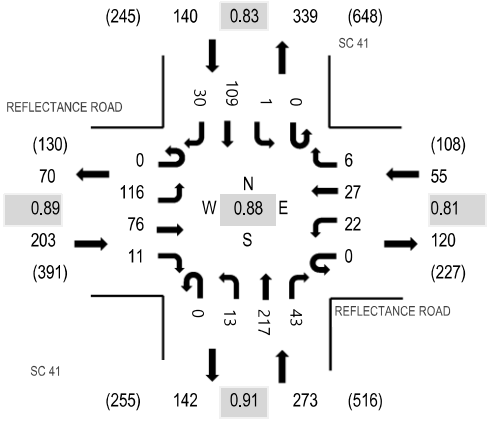
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	1					0	2	3	0	0	0	0	1	7
Lights	0	5	0	660					0	398	253	0	0	0	147	2	1,465
Mediums	0	0	0	5					0	5	6	0	0	0	2	1	19
Total	0	5	0	666					0	405	262	0	0	0	149	4	1,491

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

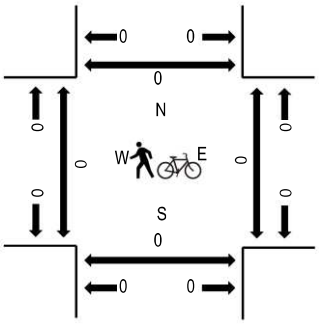
Location: Q SC 41 & REFLECTANCE ROAD PM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	REFLECTANCE ROAD Eastbound				REFLECTANCE ROAD Westbound				SC 41 Northbound				SC 41 Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	33	16	2	0	7	6	2	0	2	40	6	0	0	19	11	144	603	0	0	0	0
4:15 PM	0	31	22	5	0	5	6	0	0	3	54	7	0	0	26	4	163	639	0	0	0	0
4:30 PM	0	23	17	4	0	6	8	1	0	2	60	10	0	1	14	5	151	666	0	0	0	0
4:45 PM	0	24	18	1	0	4	6	1	0	7	43	11	0	0	23	7	145	671	0	0	0	0
5:00 PM	0	29	26	1	0	8	4	2	0	4	61	12	0	1	21	11	180	657	0	0	0	0
5:15 PM	0	31	19	7	0	6	10	2	0	2	65	13	0	0	27	8	190		0	0	0	0
5:30 PM	0	32	13	2	0	4	7	1	0	0	48	7	0	0	38	4	156		0	0	0	0
5:45 PM	0	19	16	0	0	5	7	0	0	1	46	12	0	0	20	5	131		0	0	0	0

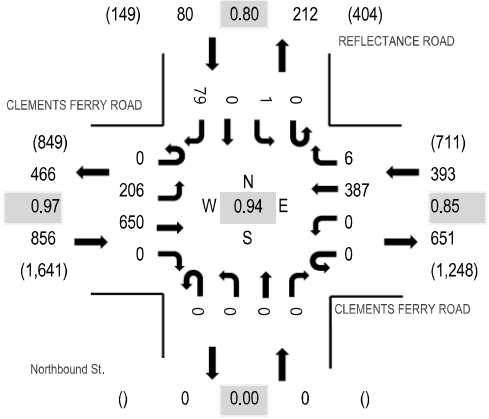
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	21	3	0	0	0	1	0	0	1	2	0	0	0	1	12	41
Lights	0	93	71	11	0	20	23	6	0	12	210	42	0	1	106	18	613
Mediums	0	2	2	0	0	2	3	0	0	0	5	1	0	0	2	0	17
Total	0	116	76	11	0	22	27	6	0	13	217	43	0	1	109	30	671

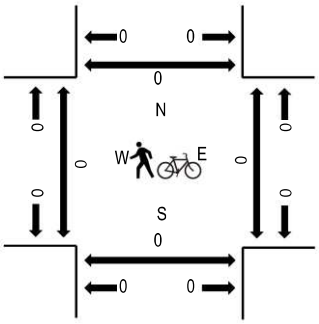
All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

Location: R Northbound St. & CLEMENTS FERRY ROAD PM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	CLEMENTS FERRY ROAD Eastbound				CLEMENTS FERRY ROAD Westbound				Northbound St. Northbound				REFLECTANCE ROAD Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	50	148	0	0	0	73	0	0	0	0	0	0	0	0	20	291	1,232	0	0	0	0
4:15 PM	0	55	143	0	0	0	76	0	0	0	0	0	0	2	0	15	291	1,268	0	0	0	0
4:30 PM	0	47	156	0	0	0	97	1	0	0	0	0	0	0	0	14	315	1,329	0	0	0	0
4:45 PM	0	48	172	0	0	0	94	1	0	0	0	0	0	0	0	20	335	1,314	0	0	0	0
5:00 PM	0	59	162	0	0	0	83	2	0	0	0	0	0	0	0	21	327	1,269	0	0	0	0
5:15 PM	0	52	160	0	0	0	113	2	0	0	0	0	0	1	0	24	352		0	0	0	0
5:30 PM	0	43	158	0	0	0	86	0	0	0	0	0	0	0	0	13	300		0	0	0	0
5:45 PM	0	43	145	0	0	0	82	1	0	0	0	0	0	1	0	18	290		0	0	0	0

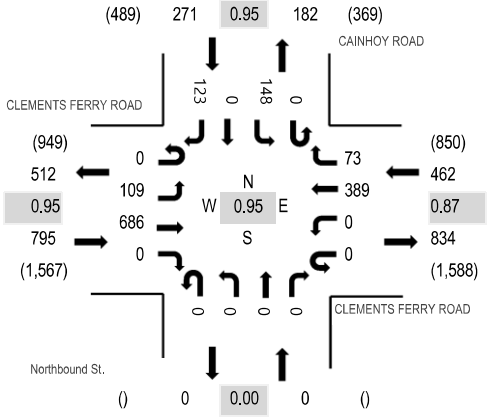
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	23	1	0	0	0	2	0	0	0	0	0	0	0	0	14	40
Lights	0	178	644	0	0	0	371	6	0	0	0	0	0	1	0	60	1,260
Mediums	0	5	5	0	0	0	14	0	0	0	0	0	0	0	0	5	29
Total	0	206	650	0	0	0	387	6	0	0	0	0	0	1	0	79	1,329

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

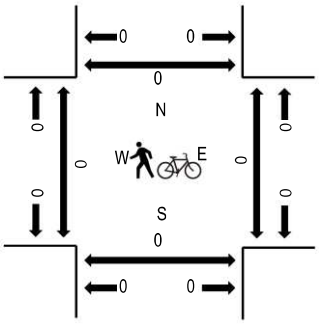
Location: S Northbound St. & CLEMENTS FERRY ROAD PM
Date and Start Time: Tuesday, September 19, 2017
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 04:45 PM - 05:00 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	CLEMENTS FERRY ROAD Eastbound				CLEMENTS FERRY ROAD Westbound				Northbound St. Northbound				CAINHOY ROAD Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	33	165	0	0	0	86	5	0	0	0	0	0	24	0	22	335	1,464	0	0	0	0
4:15 PM	0	31	162	0	0	0	78	19	0	0	0	0	0	37	0	34	361	1,511	0	0	0	0
4:30 PM	0	24	165	0	0	0	95	15	0	0	0	0	0	34	0	34	367	1,528	0	0	0	0
4:45 PM	0	28	184	0	0	0	92	24	0	0	0	0	0	38	0	35	401	1,507	0	0	0	0
5:00 PM	0	38	175	0	0	0	83	20	0	0	0	0	0	40	0	26	382	1,442	0	0	0	0
5:15 PM	0	19	162	0	0	0	119	14	0	0	0	0	0	36	0	28	378		0	0	0	0
5:30 PM	0	28	172	0	0	0	73	19	0	0	0	0	0	26	0	28	346		0	0	0	0
5:45 PM	0	29	152	0	0	0	85	23	0	0	0	0	0	16	0	31	336		0	0	0	0

Peak Rolling Hour Flow Rates

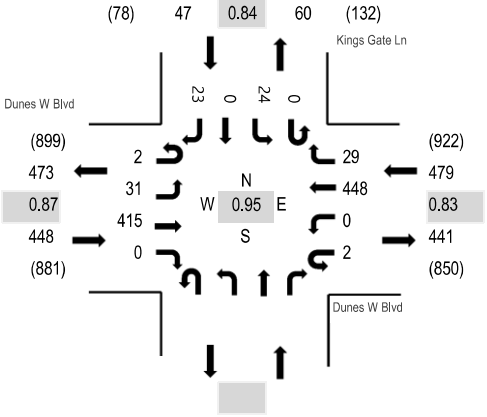
Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	12	19	0	0	0	8	9	0	0	0	0	0	7	0	18	73
Lights	0	93	658	0	0	0	366	62	0	0	0	0	0	141	0	100	1,420
Mediums	0	4	9	0	0	0	15	2	0	0	0	0	0	0	0	5	35
Total	0	109	686	0	0	0	389	73	0	0	0	0	0	148	0	123	1,528

All Traffic Data Services Inc.

(303) 216-2439
www.alltrafficdata.net

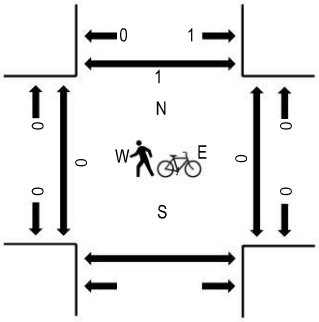
Location: #1 Kings Gate Ln & Dunes W Blvd PM
Date and Start Time: Tuesday, March 12, 2019
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 04:45 PM - 05:00 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Dunes W Blvd Eastbound				Dunes W Blvd Westbound				Northbound				Kings Gate Ln Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	12	84	0	1	0	95	9					0	1	0	6	208	954	0	0		0
4:15 PM	0	4	94	0	0	0	138	6					0	2	0	6	250	974	0	0		0
4:30 PM	0	6	103	0	1	0	109	8					0	9	0	3	239	958	0	0		0
4:45 PM	2	13	120	0	0	0	100	9					0	6	0	7	257	956	0	0		0
5:00 PM	0	8	98	0	1	0	101	6					0	7	0	7	228	927	0	0		1
5:15 PM	1	6	107	0	0	0	104	8					0	6	0	2	234		0	0		0
5:30 PM	0	11	105	0	1	0	105	6					0	5	0	4	237		0	0		1
5:45 PM	0	12	95	0	0	0	106	8					0	4	0	3	228		0	0		1

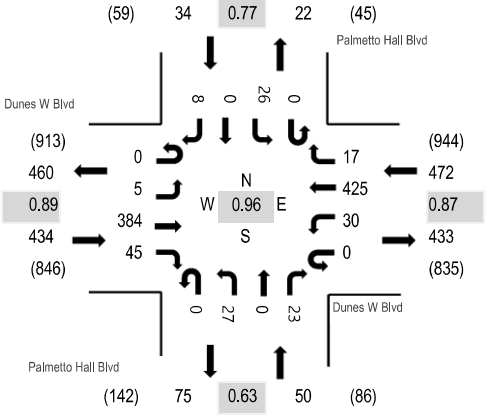
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0					0	0	0	0	0
Lights	2	31	407	0	2	0	439	27					0	21	0	23	952
Mediums	0	0	8	0	0	0	9	2					0	3	0	0	22
Total	2	31	415	0	2	0	448	29					0	24	0	23	974

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

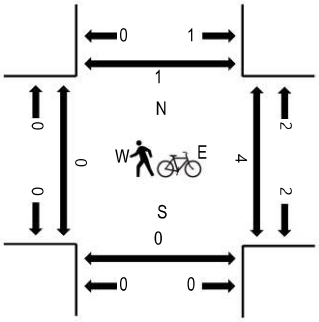
Location: #2 Palmetto Hall Blvd & Dunes W Blvd PM
Date and Start Time: Tuesday, March 12, 2019
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 04:45 PM - 05:00 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Dunes W Blvd Eastbound				Dunes W Blvd Westbound				Palmetto Hall Blvd Northbound				Palmetto Hall Blvd Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	2	79	8	0	8	104	2	0	0	0	7	0	3	0	5	218	974	0	0	0	0
4:15 PM	0	4	80	11	0	9	125	5	0	1	0	5	0	6	0	4	250	990	0	0	0	0
4:30 PM	0	1	101	9	0	9	109	5	0	7	0	3	0	4	0	1	249	985	0	2	0	0
4:45 PM	0	0	109	18	0	9	98	3	0	7	0	5	0	6	0	2	257	983	0	0	0	0
5:00 PM	0	0	94	7	0	3	93	4	0	12	0	10	0	10	0	1	234	961	0	2	0	1
5:15 PM	0	1	98	12	0	8	105	2	0	2	0	9	0	3	0	5	245		0	0	0	0
5:30 PM	0	2	103	9	0	6	112	3	0	6	0	3	0	2	0	1	247		0	0	2	0
5:45 PM	0	6	85	7	0	9	108	5	0	4	0	5	0	5	0	1	235		0	0	2	0

Peak Rolling Hour Flow Rates

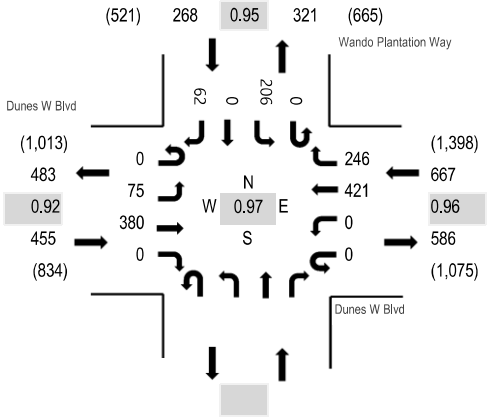
Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Lights	0	5	373	45	0	30	415	17	0	27	0	23	0	26	0	8	969
Mediums	0	0	11	0	0	0	9	0	0	0	0	0	0	0	0	0	20
Total	0	5	384	45	0	30	425	17	0	27	0	23	0	26	0	8	990

All Traffic Data Services Inc.

(303) 216-2439
www.alltrafficdata.net

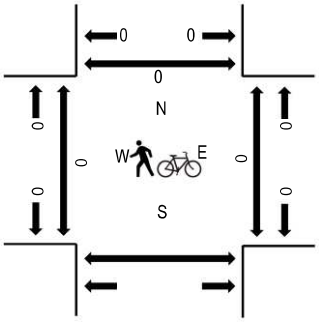
Location: #3 Wando Plantation Way & Dunes W Blvd PM
Date and Start Time: Tuesday, March 12, 2019
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:30 PM - 05:45 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Dunes W Blvd Eastbound				Dunes W Blvd Westbound				Northbound				Wando Plantation Way Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	18	66	0	0	0	110	83					0	43	0	16	336	1,372	0	0		0
4:15 PM	0	16	83	0	0	0	124	77					0	43	0	25	368	1,378	0	0		0
4:30 PM	0	13	91	0	0	0	97	58					0	39	0	27	325	1,358	0	0		0
4:45 PM	0	25	98	0	0	0	102	46					0	56	0	16	343	1,390	0	0		0
5:00 PM	0	25	89	0	0	0	93	68					0	53	0	14	342	1,381	0	0		0
5:15 PM	0	17	85	0	0	0	111	67					0	52	0	16	348		0	0		0
5:30 PM	0	8	108	0	0	0	115	65					0	45	0	16	357		0	0		0
5:45 PM	0	18	74	0	0	0	121	61					0	50	0	10	334		0	0		0

Peak Rolling Hour Flow Rates

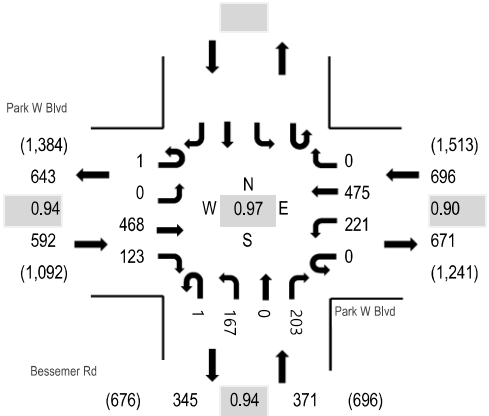
Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0					0	0	0	0	0
Lights	0	75	377	0	0	0	416	245					0	205	0	59	1,377
Mediums	0	0	3	0	0	0	5	1					0	1	0	3	13
Total	0	75	380	0	0	0	421	246					0	206	0	62	1,390

All Traffic Data Services Inc.

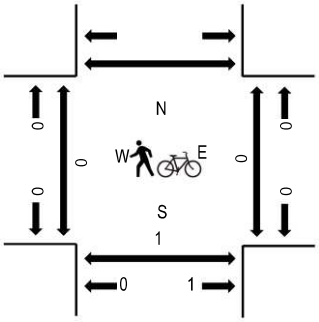
(303) 216-2439
www.alltrafficdata.net

Location: #4 Bessemer Rd & Park W Blvd PM
Date and Start Time: Tuesday, March 12, 2019
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	Park W Blvd Eastbound				Park W Blvd Westbound				Bessemer Rd Northbound				Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	1	0	89	24	0	57	160	0	1	39	0	44					415	1,648	0	0	1	
4:15 PM	0	0	103	29	1	58	165	0	0	35	0	43					434	1,635	0	0	0	
4:30 PM	0	0	99	24	1	61	126	0	0	31	0	46					388	1,627	0	0	0	
4:45 PM	1	0	121	35	0	64	112	0	0	30	0	48					411	1,659	0	0	0	
5:00 PM	0	0	113	30	0	54	104	0	1	57	0	43					402	1,653	0	0	0	
5:15 PM	0	0	119	24	0	51	134	0	0	38	0	60					426		0	0	1	
5:30 PM	0	0	115	34	0	52	125	0	0	42	0	52					420		0	0	0	
5:45 PM	0	0	98	33	0	44	144	0	0	40	0	46					405		0	0	0	

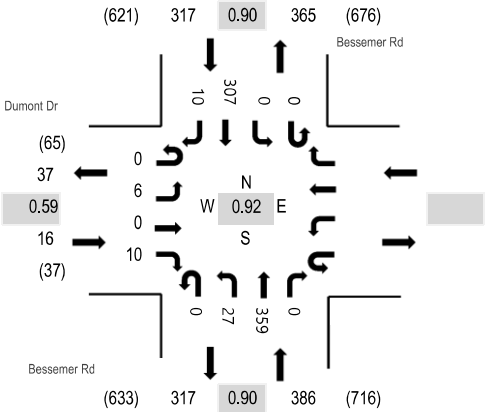
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0					0
Lights	1	0	465	122	0	219	472	0	1	166	0	202					1,648
Mediums	0	0	3	1	0	2	3	0	0	1	0	1					11
Total	1	0	468	123	0	221	475	0	1	167	0	203					1,659

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

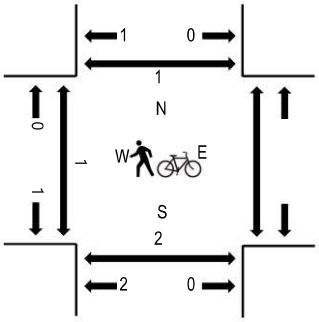
Location: #5 Bessemer Rd & Dumont Dr PM
Date and Start Time: Tuesday, March 12, 2019
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Dumont Dr Eastbound				Westbound				Bessemer Rd Northbound				Bessemer Rd Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	0	1					0	2	84	0	0	0	76	2	165	669	0		0	0
4:15 PM	0	3	0	8					0	6	70	0	0	0	79	2	168	699	0		0	0
4:30 PM	0	1	0	5					0	10	75	0	0	0	74	0	165	699	0		0	0
4:45 PM	0	1	0	2					0	7	70	0	0	0	88	3	171	719	0		0	0
5:00 PM	0	1	0	5					0	8	101	0	0	0	78	2	195	705	0		0	0
5:15 PM	0	3	0	2					0	3	89	0	0	0	69	2	168		1		0	1
5:30 PM	0	1	0	1					0	9	99	0	0	0	72	3	185		0		0	0
5:45 PM	0	1	0	2					0	6	77	0	0	0	71	0	157		0		0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0					0	0	0	0	0	0	0	0	0
Lights	0	6	0	10					0	27	356	0	0	0	304	10	713
Mediums	0	0	0	0					0	0	3	0	0	0	3	0	6
Total	0	6	0	10					0	27	359	0	0	0	307	10	719

All Traffic Data Services

1 SIX MILE ROAD & US 17 PM
Tuesday, September 19, 2017

Peak Hour
05:00 PM - 06:00 PM
Peak 15-Minutes
05:00 PM - 05:15 PM

Traffic Counts - All Vehicles

	US 17					US 17					SIX MILE ROAD					Southbound St.						
	Eastbound					Westbound					Northbound					Southbound						
Time	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total	Rolling Hour
4:00 PM	2	0	590	19	0	1	34	485	0	0	0	20	0	55	0	0	0	0	0	0	1,206	4,681
4:15 PM	4	0	581	22	0	0	44	423	0	0	0	19	0	51	0	0	0	0	0	0	1,144	4,747
4:30 PM	7	0	603	24	0	2	29	428	0	0	0	33	0	66	0	0	0	0	0	0	1,192	4,828
4:45 PM	3	0	552	34	0	0	44	420	0	0	0	22	0	64	0	0	0	0	0	0	1,139	4,830
5:00 PM	2	0	661	41	0	2	43	439	0	0	0	23	0	61	0	0	0	0	0	0	1,272	4,835
5:15 PM	1	0	635	31	0	0	33	421	0	0	0	22	0	82	0	0	0	0	0	0	1,225	0
5:30 PM	1	0	604	45	0	2	29	420	0	0	0	14	0	79	0	0	0	0	0	0	1,194	0
5:45 PM	6	0	605	30	0	3	22	383	0	0	0	26	0	69	0	0	0	0	0	0	1,144	0

Peak Rolling Hour Flow Rates

	Eastbound					Westbound					Northbound					Southbound					
Vehicle Type	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total
Articulated Trucks	0	0	10	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	22
Lights	10	0	2,474	146	0	7	125	1,618	0	0	0	83	0	287	0	0	0	0	0	0	4,750
Mediums	0	0	21	1	0	0	2	33	0	0	0	2	0	4	0	0	0	0	0	0	63
Total	10	0	2,505	147	0	7	127	1,663	0	0	0	85	0	291	0	0	0	0	0	0	4,835

All Traffic Data Services

2 SIX MILE ROAD & Westbound St. PM

Tuesday, September 19, 2017

Peak Hour
04:45 PM - 05:45 PM
Peak 15-Minutes
05:30 PM - 05:45 PM

Traffic Counts - All Vehicles

	SWEETGRASS BASKET PKWY					Westbound St.					SIX MILE ROAD					SIX MILE ROAD						
	Eastbound					Westbound					Northbound					Southbound						
Time	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total	Rolling Hour
4:00 PM	0	24	0	34	0	0	0	0	0	0	0	30	22	0	0	0	0	40	9	0	159	671
4:15 PM	0	25	0	31	0	0	0	0	0	0	0	25	32	0	0	0	0	34	12	0	159	747
4:30 PM	0	25	0	32	0	0	0	0	0	0	1	16	35	0	0	0	0	29	16	0	154	803
4:45 PM	0	31	0	49	0	0	0	0	0	0	0	17	23	0	0	0	0	64	15	0	199	904
5:00 PM	0	33	0	65	0	0	0	0	0	0	0	26	25	0	0	0	0	79	7	0	235	883
5:15 PM	0	41	0	46	0	0	0	0	0	0	0	20	38	0	0	0	0	61	9	0	215	0
5:30 PM	0	38	0	77	0	0	0	0	0	0	0	11	37	0	0	0	0	77	15	0	255	0
5:45 PM	0	32	0	55	0	0	0	0	0	0	0	18	29	0	0	0	0	36	8	0	178	0

Peak Rolling Hour Flow Rates

	Eastbound					Westbound					Northbound					Southbound					
Vehicle Type	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Lights	0	141	0	235	0	0	0	0	0	0	0	73	119	0	0	0	0	278	44	0	890
Mediums	0	2	0	2	0	0	0	0	0	0	0	1	4	0	0	0	0	2	2	0	13
Total	0	143	0	237	0	0	0	0	0	0	0	74	123	0	0	0	0	281	46	0	904

All Traffic Data Services

3 SIX MILE ROAD & RIFLE RANGE ROAD PM

Tuesday, September 19, 2017

Peak Hour
04:45 PM - 05:45 PM
Peak 15-Minutes
05:15 PM - 05:30 PM

Traffic Counts - All Vehicles

	RIFLE RANGE ROAD					RIFLE RANGE ROAD					SIX MILE ROAD					SIX MILE ROAD						
	Eastbound					Westbound					Northbound					Southbound						
Time	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total	Rolling Hour
4:00 PM	0	7	129	16	0	0	6	111	24	0	0	8	14	2	0	0	25	15	14	0	371	1,622
4:15 PM	0	13	127	18	0	0	9	133	26	0	0	20	12	3	0	0	30	14	11	0	416	1,707
4:30 PM	0	15	149	14	0	0	4	104	22	0	0	12	8	6	0	0	33	10	15	0	392	1,760
4:45 PM	0	20	165	31	0	0	8	91	12	0	0	7	11	5	0	0	61	19	13	0	443	1,833
5:00 PM	0	13	170	15	0	0	1	92	23	0	0	16	9	2	0	0	77	13	25	0	456	1,789
5:15 PM	0	16	196	20	0	0	1	93	20	0	0	16	16	5	0	0	56	15	15	0	469	0
5:30 PM	0	14	171	15	0	0	5	79	15	0	0	14	11	8	0	0	101	18	14	0	465	0
5:45 PM	0	16	170	16	0	0	0	73	14	0	0	8	11	10	0	0	61	13	7	0	399	0

Peak Rolling Hour Flow Rates

	Eastbound					Westbound					Northbound					Southbound					
Vehicle Type	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Lights	0	62	699	80	0	0	15	355	68	0	0	52	46	20	0	0	294	65	64	0	1,820
Mediums	0	1	3	1	0	0	0	0	2	0	0	1	1	0	0	0	1	0	2	0	12
Total	0	63	702	81	0	0	15	355	70	0	0	53	47	20	0	0	295	65	67	0	1,833

All Traffic Data Services

4 HAMLIN ROAD & RIFLE RANGE ROAD PM

Tuesday, September 19, 2017

Peak Hour
05:00 PM - 06:00 PM
Peak 15-Minutes
05:15 PM - 05:30 PM

Traffic Counts - All Vehicles

	RIFLE RANGE ROAD					RIFLE RANGE ROAD					HAMLIN ROAD					HAMLIN ROAD						
	Eastbound					Westbound					Northbound					Southbound						
Time	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total	Rolling Hour
4:00 PM	0	33	112	5	0	0	0	113	20	0	0	5	1	1	0	0	11	1	46	0	348	1,361
4:15 PM	0	29	122	5	0	0	0	107	10	0	0	3	2	0	0	0	12	2	19	0	311	1,368
4:30 PM	0	38	128	3	0	0	1	91	15	0	0	3	3	0	0	0	12	2	31	0	327	1,465
4:45 PM	0	53	161	9	0	0	2	85	16	0	0	4	1	1	0	0	14	3	26	0	375	1,539
5:00 PM	0	59	156	8	0	0	1	76	9	0	0	3	0	0	0	0	16	1	26	0	355	1,546
5:15 PM	0	50	210	4	0	0	2	69	17	0	0	5	2	2	0	0	15	1	31	0	408	0
5:30 PM	0	56	211	3	0	0	5	68	12	0	0	0	3	1	0	0	15	1	26	0	401	0
5:45 PM	0	55	194	3	0	0	0	68	19	0	0	3	6	0	0	0	9	8	17	0	382	0

Peak Rolling Hour Flow Rates

	Eastbound					Westbound					Northbound					Southbound					
Vehicle Type	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	220	770	18	0	0	8	281	56	0	0	11	11	3	0	0	55	10	98	0	1,541
Mediums	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	2	0	5
Total	0	220	771	18	0	0	8	281	57	0	0	11	11	3	0	0	55	11	100	0	1,546

All Traffic Data Services

6 Northbound St. & US 17 PM
Tuesday, September 19, 2017

Peak Hour
04:45 PM - 05:45 PM
Peak 15-Minutes
05:00 PM - 05:15 PM

Traffic Counts - All Vehicles

	US 17					US 17					Northbound St.					LONG POINT ROAD						
	Eastbound					Westbound					Northbound					Southbound						
Time	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total	Rolling Hour
4:00 PM	0	34	607	0	0	0	0	491	165	0	0	0	0	0	0	0	185	0	15	0	1,497	5,811
4:15 PM	1	37	588	0	0	0	0	462	175	0	0	0	0	0	0	0	195	0	30	0	1,488	5,825
4:30 PM	1	33	599	0	0	0	0	435	154	0	0	0	0	0	0	0	183	0	25	0	1,430	5,841
4:45 PM	1	26	544	0	0	0	0	443	158	0	0	0	0	0	0	0	186	0	38	0	1,396	5,908
5:00 PM	2	35	677	0	0	0	0	448	143	0	0	0	0	0	0	0	182	0	24	0	1,511	5,905
5:15 PM	5	38	644	0	0	0	0	449	180	0	0	0	0	0	0	0	159	0	29	0	1,504	0
5:30 PM	2	35	672	0	0	0	0	419	142	0	0	0	0	0	0	0	208	0	19	0	1,497	0
5:45 PM	0	36	609	0	0	0	0	379	161	0	0	0	0	0	0	0	185	0	23	0	1,393	0

Peak Rolling Hour Flow Rates

	Eastbound					Westbound					Northbound					Southbound					
Vehicle Type	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total
Articulated Trucks	0	0	13	0	0	0	0	10	1	0	0	0	0	0	0	0	0	0	0	0	24
Lights	10	132	2,501	0	0	0	0	1,705	615	0	0	0	0	0	0	0	731	0	110	0	5,804
Mediums	0	2	23	0	0	0	0	44	7	0	0	0	0	0	0	0	4	0	0	0	80
Total	10	134	2,537	0	0	0	0	1,759	623	0	0	0	0	0	0	0	735	0	110	0	5,908

All Traffic Data Services

7 HAMLIN ROAD & Westbound St. PM

Tuesday, September 19, 2017

Peak Hour
04:30 PM - 05:30 PM
Peak 15-Minutes
04:45 PM - 05:00 PM

Traffic Counts - All Vehicles

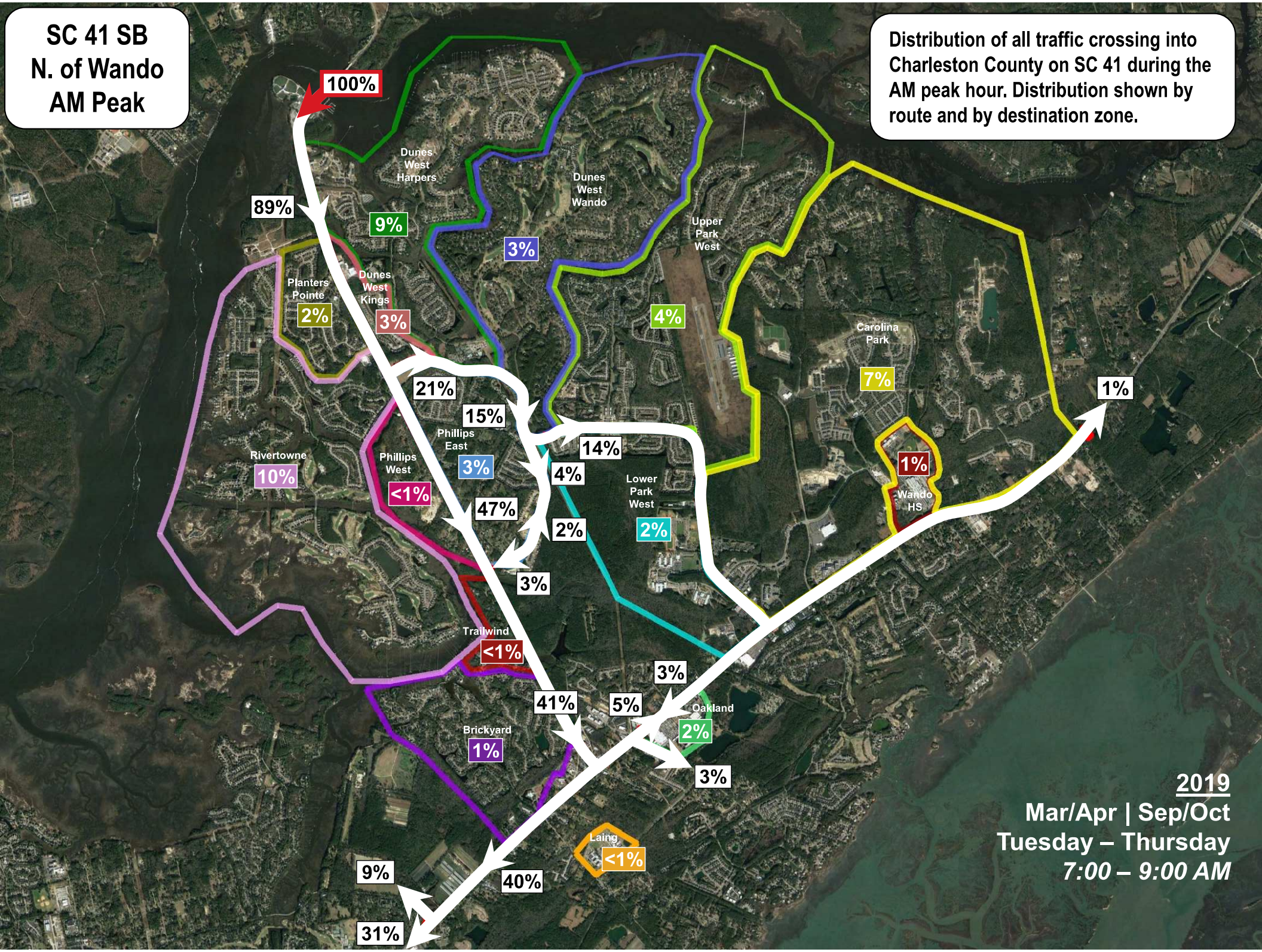
	BILLY SWAILS					Westbound St.					HAMLIN ROAD					HAMLIN ROAD						
	Eastbound					Westbound					Northbound					Southbound						
Time	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total	Rolling Hour
4:00 PM	0	0	0	0	0	0	15	0	30	0	0	0	55	2	0	0	9	36	0	0	147	508
4:15 PM	0	0	0	0	0	0	6	0	20	0	0	0	39	1	0	0	4	29	0	0	99	488
4:30 PM	0	0	0	0	0	1	10	0	15	0	0	0	54	2	0	0	9	37	0	0	128	512
4:45 PM	0	0	0	0	0	0	5	0	9	0	0	0	62	9	0	0	12	37	0	0	134	511
5:00 PM	0	0	0	0	0	0	8	0	9	0	0	0	56	12	0	0	4	38	0	0	127	504
5:15 PM	0	0	0	0	0	0	11	0	8	0	0	0	59	7	0	0	3	35	0	0	123	0
5:30 PM	0	0	0	0	0	0	6	0	9	0	0	0	70	5	0	0	5	32	0	0	127	0
5:45 PM	0	0	0	0	0	0	6	0	9	0	0	0	67	9	0	0	4	32	0	0	127	0

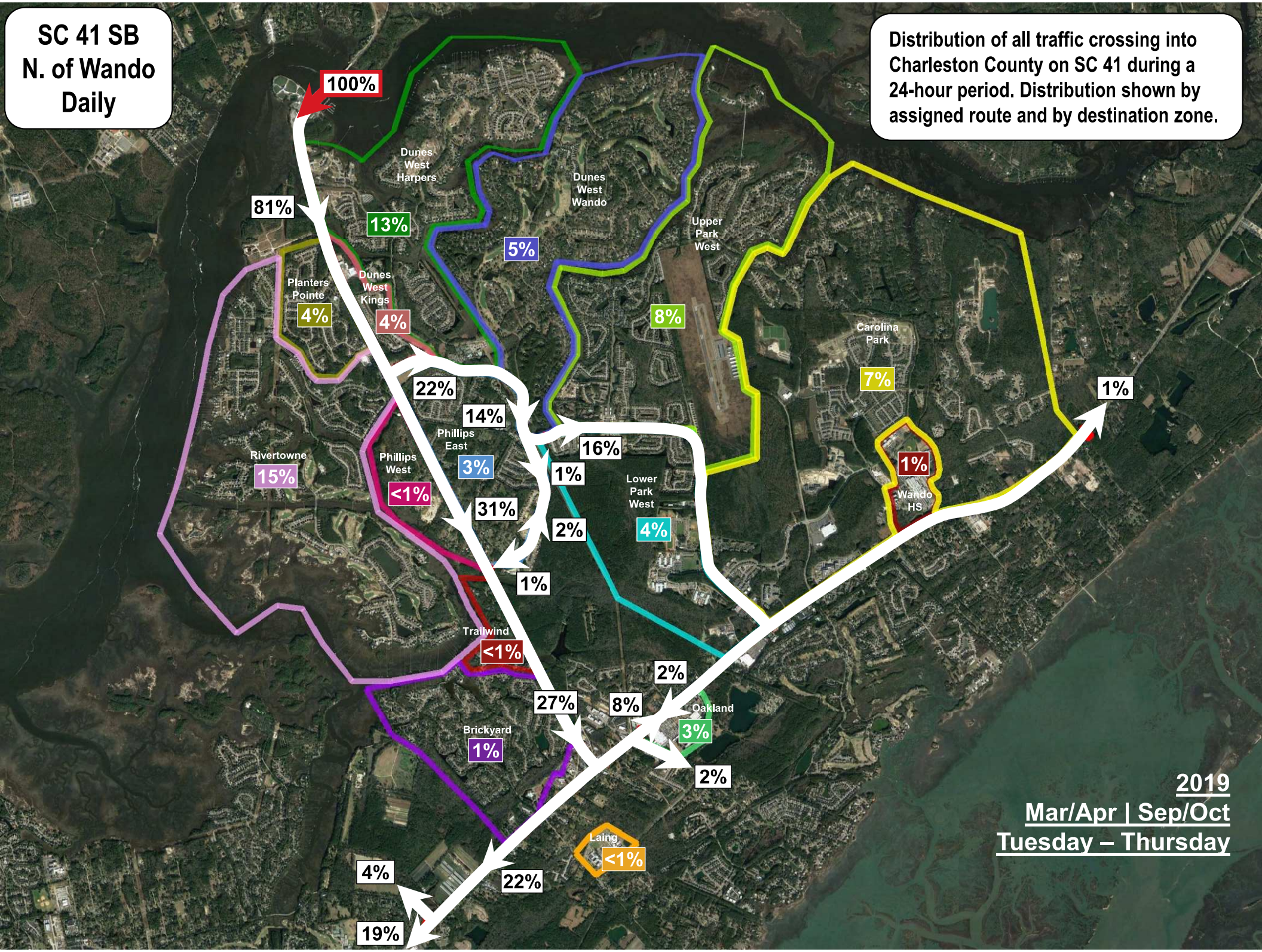
Peak Rolling Hour Flow Rates

	Eastbound					Westbound					Northbound					Southbound					
Vehicle Type	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	0	0	0	0	1	34	0	41	0	0	0	231	30	0	0	28	146	0	0	511
Mediums	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Total	0	0	0	0	0	1	34	0	41	0	0	0	231	30	0	0	28	147	0	0	512

Appendix D

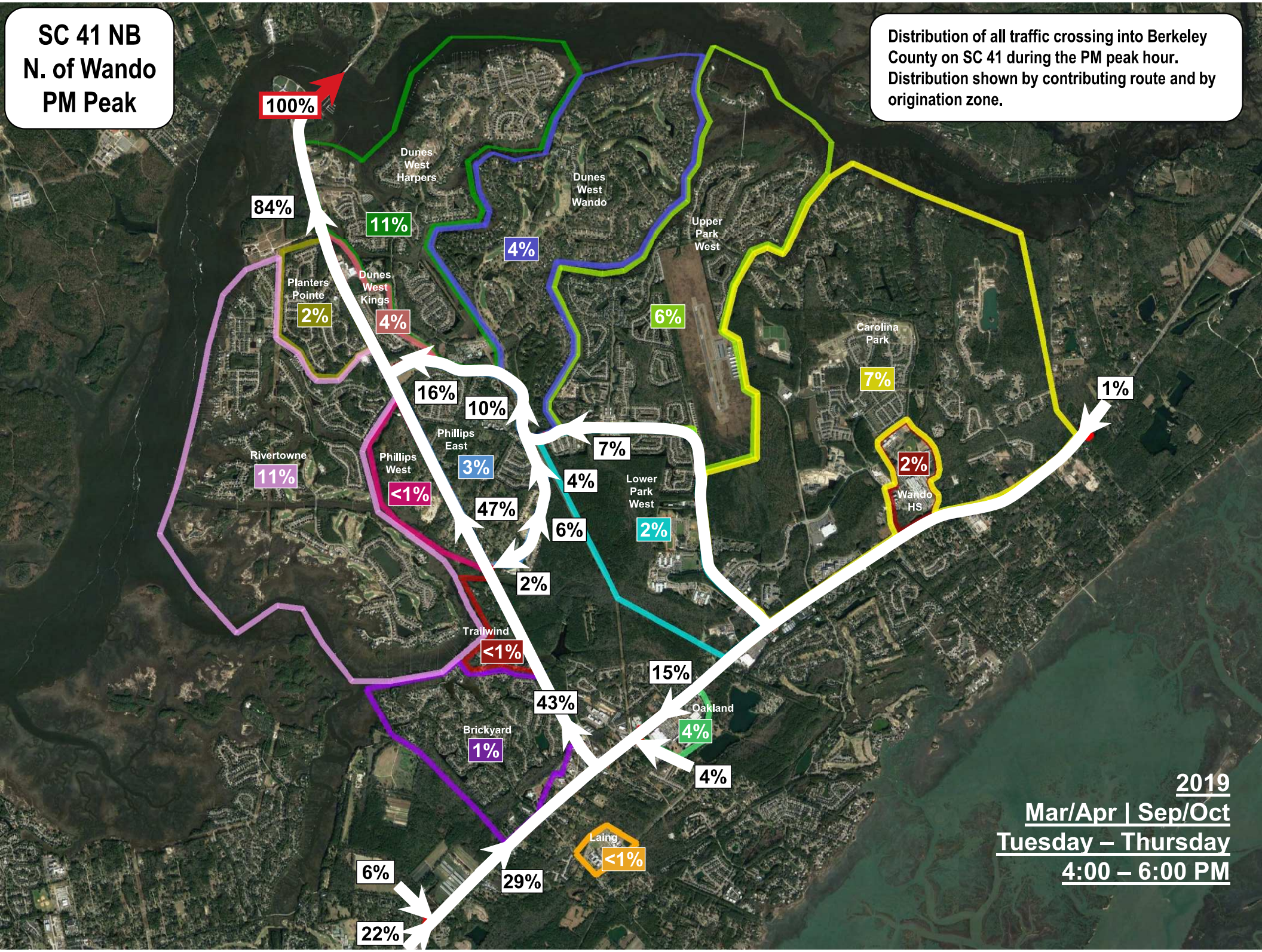
StreetLight Data Summary


SC 41 SB
N. of Wando
AM Peak
Distribution of all traffic crossing into Charleston County on SC 41 during the AM peak hour. Distribution shown by route and by destination zone.
100%
89%
9%
3%
4%
1%
21%
15%
14%
4%
47%
2%
3%
41%
5%
3%
3%
9%
40%
31%
Dunes West Harpers
Dunes West Wando
Upper Park West
Planters Pointe
2%
Dunes West Kings
3%
Carolina Park
7%
Rivertowne
10%
Phillips East
3%
Phillips West
<1%
Lower Park West
2%
1%
Wando HS
Trailwind
<1%
Oakland
2%
Brickyard
1%
Laing
<1%
2019
Mar/Apr | Sep/Oct
Tuesday – Thursday
7:00 – 9:00 AM

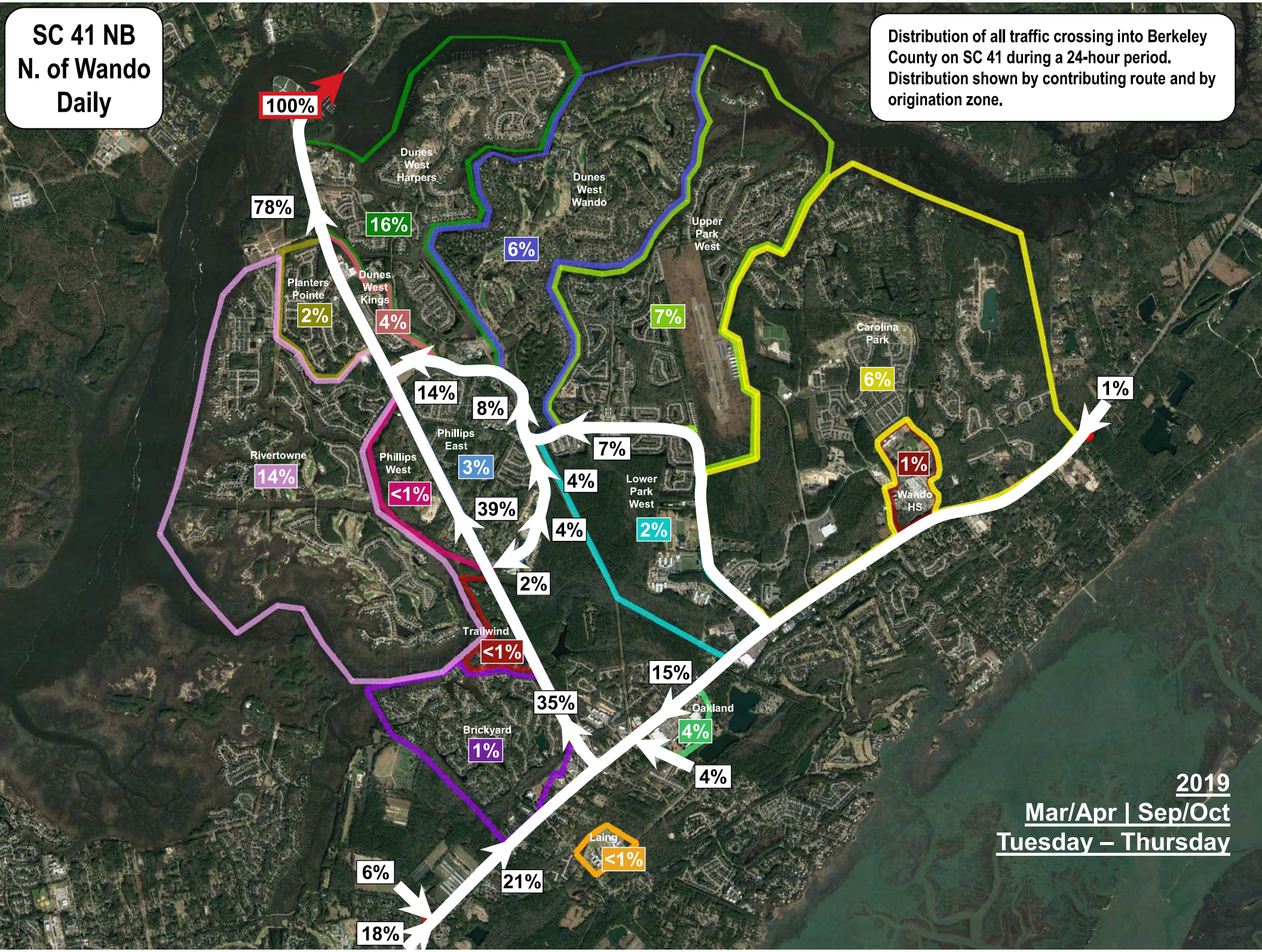

SC 41 SB
N. of Wando
Daily
Distribution of all traffic crossing into Charleston County on SC 41 during a 24-hour period. Distribution shown by assigned route and by destination zone.
100%
81%
13%
5%
Dunes West Harpers
Dunes West Wando
Upper Park West
Planters Pointe
4%
Dunes West Kings
4%
8%
Carolina Park
7%
1%
22%
14%
Phillips East
3%
16%
1%
Rivertowne
15%
Phillips West
<1%
Lower Park West
4%
1%
Wando HS
31%
2%
1%
Trailwind
<1%
2%
27%
8%
Oakland
3%
Brickyard
1%
2%
Laing
<1%
4%
22%
19%
2019
Mar/Apr | Sep/Oct
Tuesday – Thursday

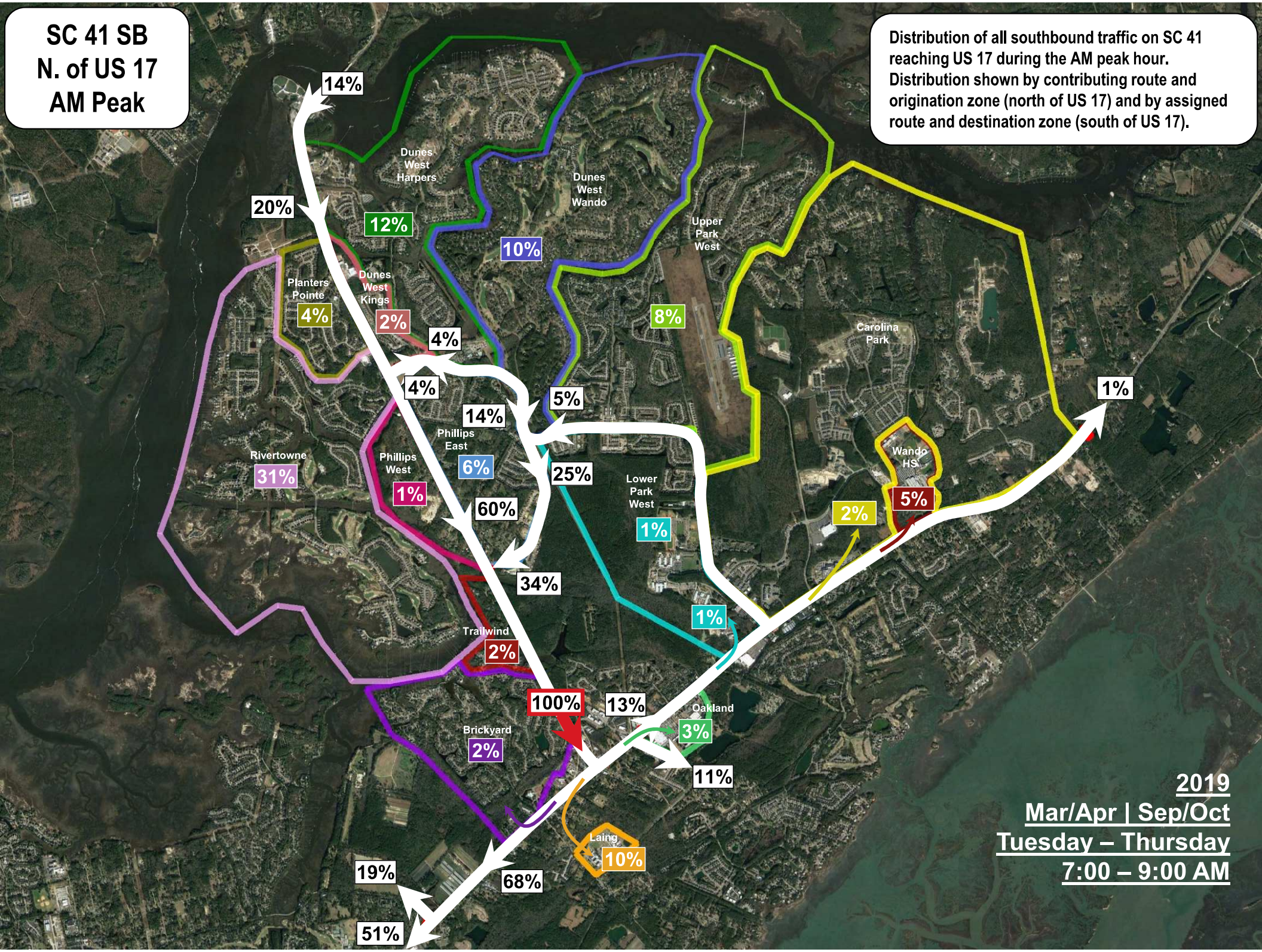
SC 41 NB
N. of Wando
PM Peak

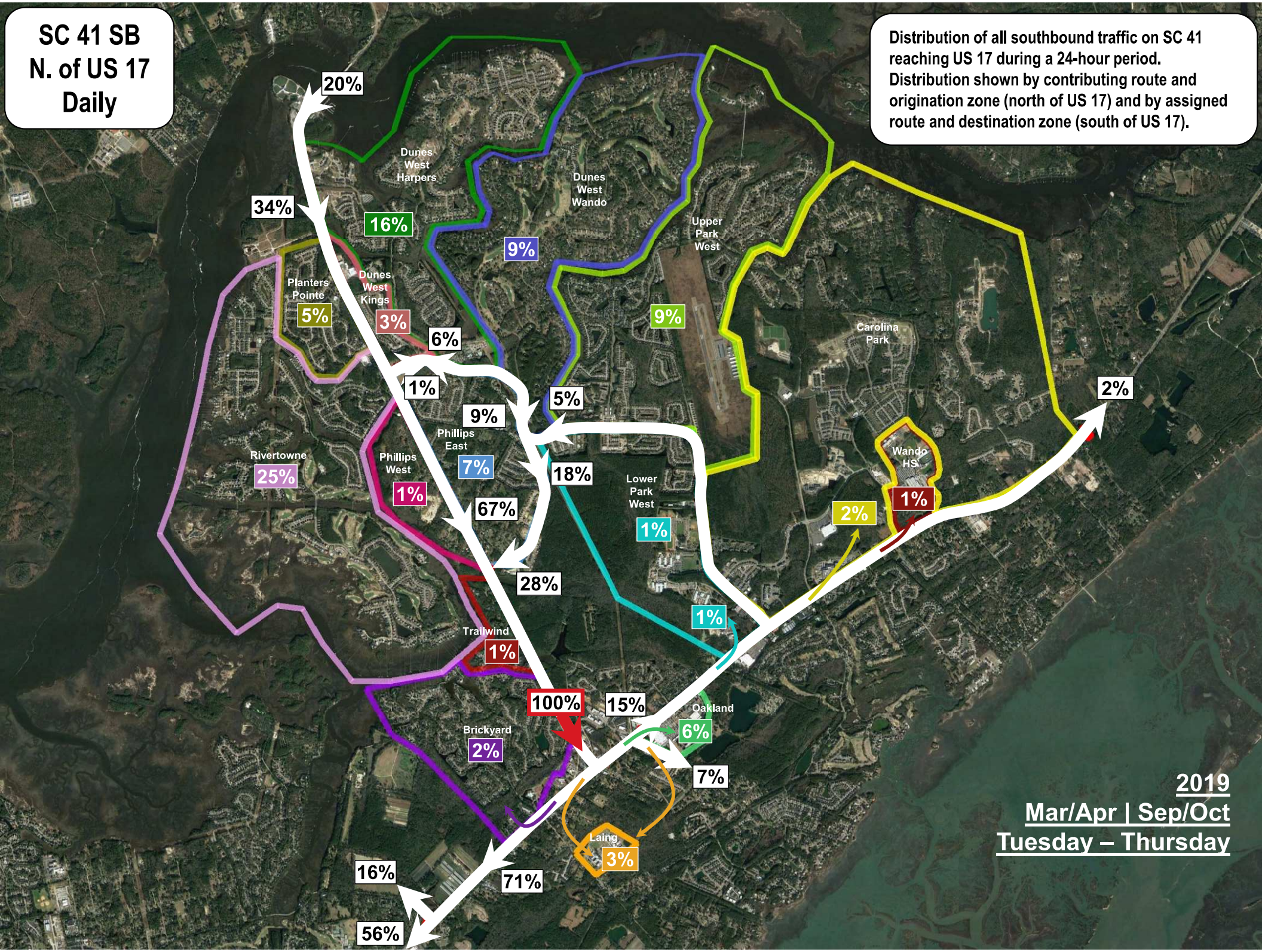
Distribution of all traffic crossing into Berkeley County on SC 41 during the PM peak hour. Distribution shown by contributing route and by origination zone.

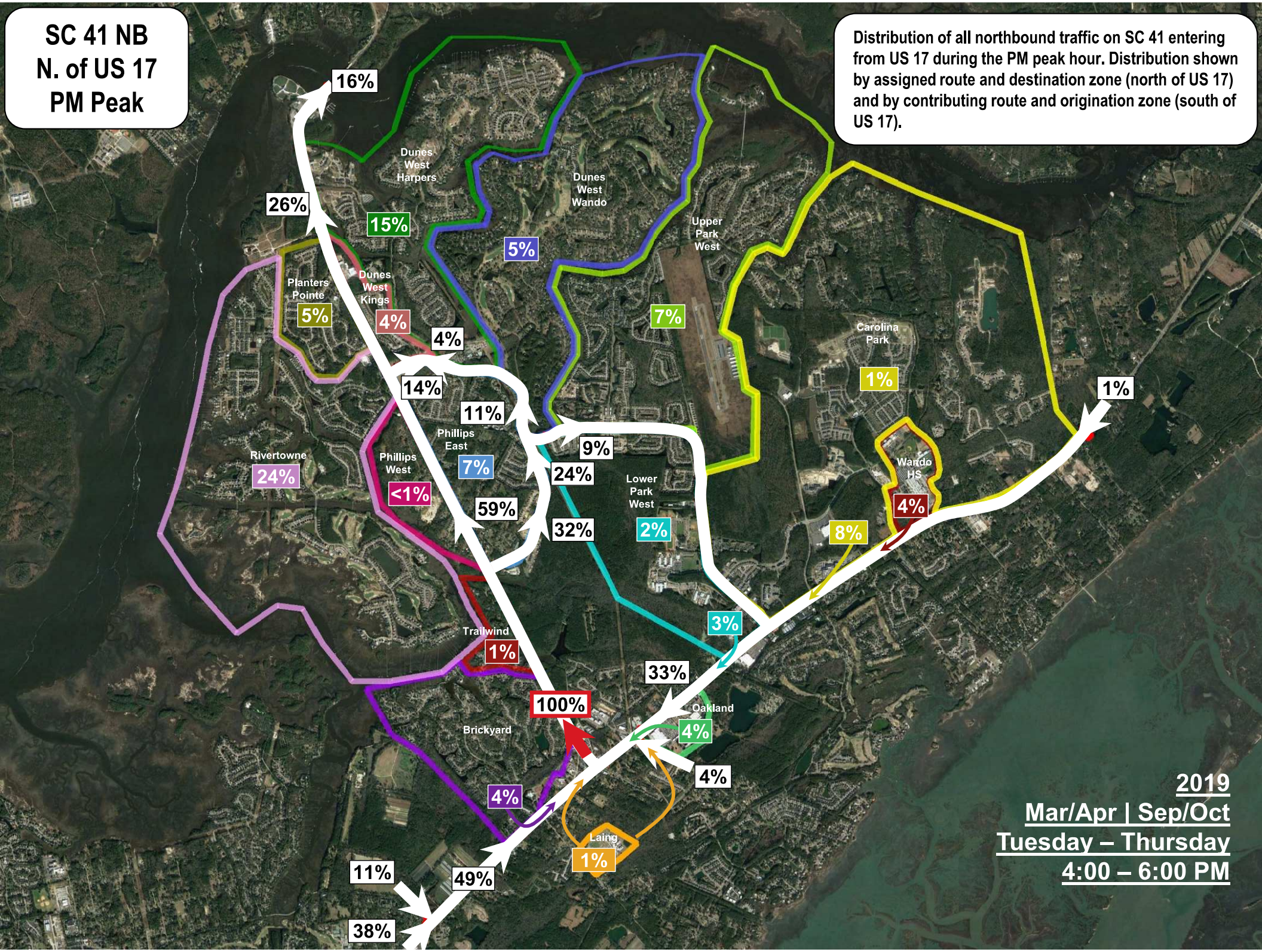


2019
Mar/Apr | Sep/Oct
Tuesday – Thursday
4:00 – 6:00 PM


SC 41 NB
N. of Wando
Daily
Distribution of all traffic crossing into Berkeley County on SC 41 during a 24-hour period. Distribution shown by contributing route and by origination zone.
100%
78%
16%
6%
Dunes West Harpers
Dunes West Wando
Upper Park West
Planters Pointe
2%
Dunes West Kings
4%
7%
Carolina Park
6%
1%
14%
8%
Phillips East
3%
7%
Rivertowne
14%
Phillips West
<1%
4%
Lower Park West
2%
1%
Wando HS
39%
4%
2%
Trailwind
<1%
15%
35%
Oakland
4%
Brickyard
1%
4%
Laing
<1%
6%
21%
18%
2019
Mar/Apr | Sep/Oct
Tuesday – Thursday

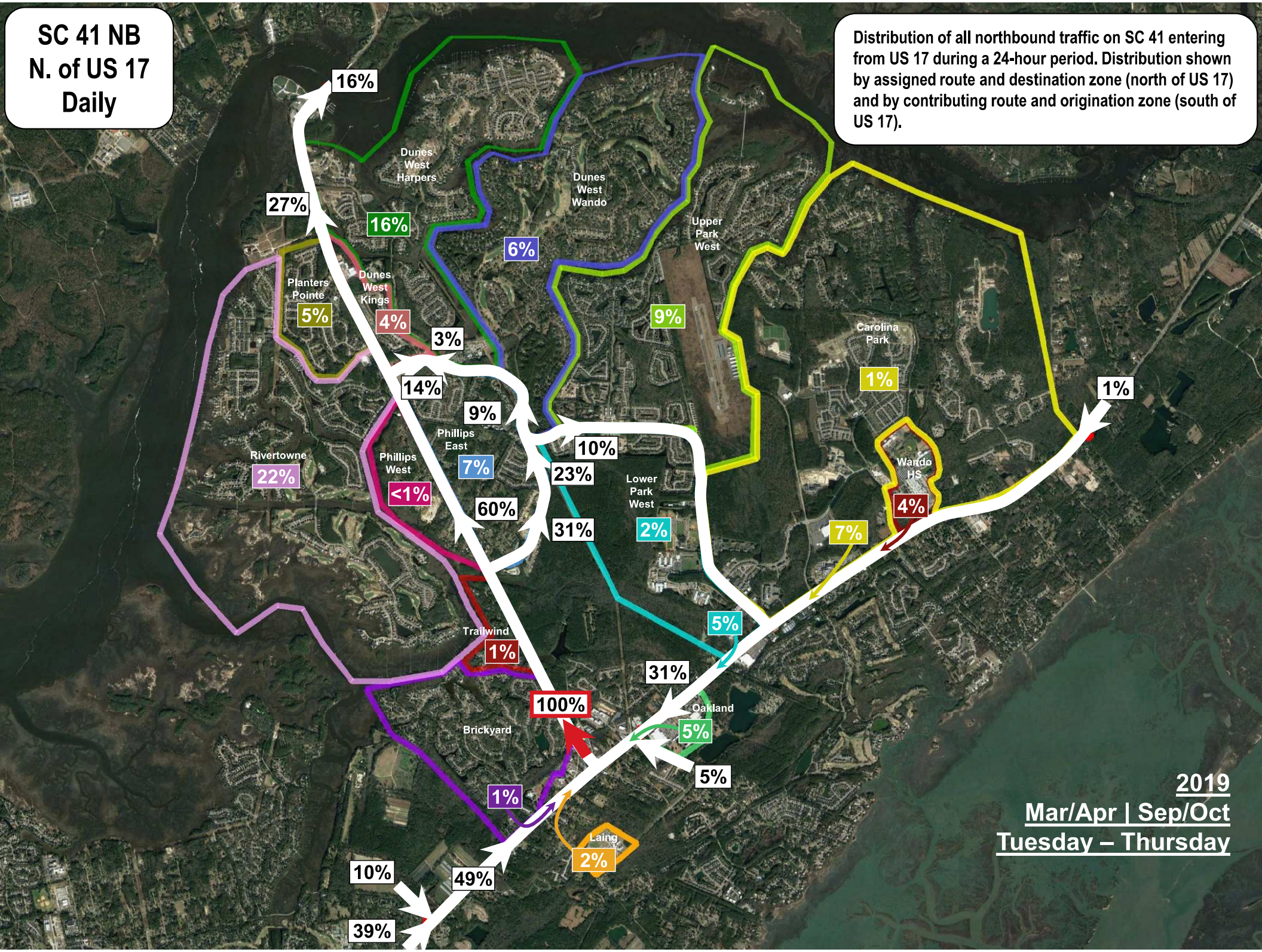

SC 41 SB
N. of US 17
AM Peak
Distribution of all southbound traffic on SC 41 reaching US 17 during the AM peak hour. Distribution shown by contributing route and origination zone (north of US 17) and by assigned route and destination zone (south of US 17).
14%
20%
12%
10%
Dunes West Harpers
Dunes West Wando
Upper Park West
8%
Planters Pointe
4%
Dunes West Kings
2%
4%
4%
5%
14%
Phillips East
6%
Phillips West
1%
Rivertowne
31%
25%
60%
Lower Park West
1%
Carolina Park
1%
Wando HS
5%
2%
34%
1%
Trailwind
2%
100%
13%
Oakland
3%
11%
Brickyard
2%
Laing
10%
19%
68%
51%
2019
Mar/Apr | Sep/Oct
Tuesday – Thursday
7:00 – 9:00 AM

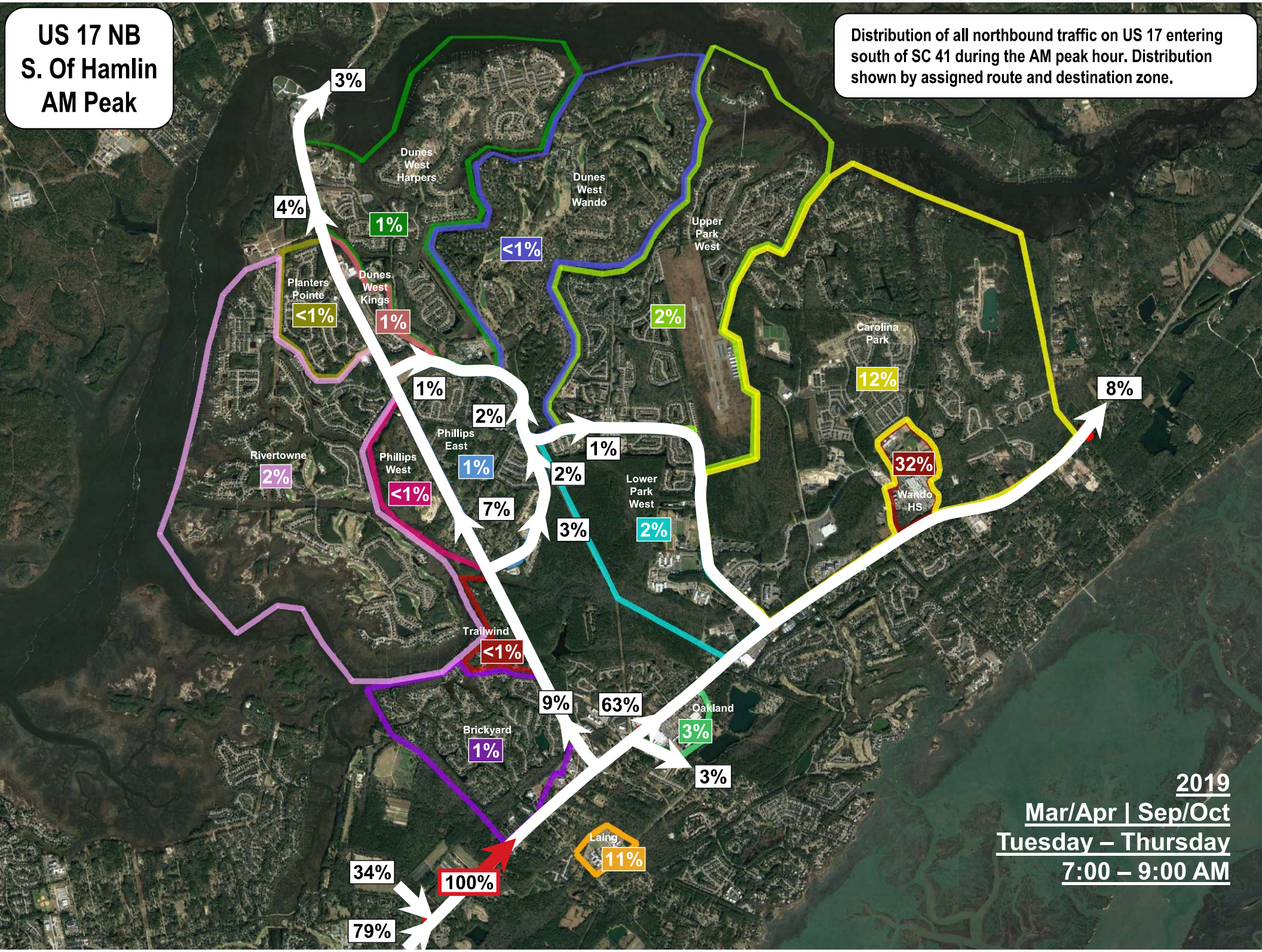

SC 41 SB
N. of US 17
Daily
Distribution of all southbound traffic on SC 41 reaching US 17 during a 24-hour period. Distribution shown by contributing route and origination zone (north of US 17) and by assigned route and destination zone (south of US 17).
20%
34%
16%
9%
Dunes West Harpers
Dunes West Wando
Upper Park West
Planters Pointe
5%
Dunes West Kings
3%
6%
9%
Carolina Park
1%
5%
2%
9%
Phillips East
7%
Rivertowne
25%
Phillips West
1%
18%
Lower Park West
1%
67%
Wando HS
1%
2%
28%
1%
Trailwind
1%
100%
15%
Oakland
6%
Brickyard
2%
7%
Laing
3%
16%
71%
56%
2019
Mar/Apr | Sep/Oct
Tuesday – Thursday

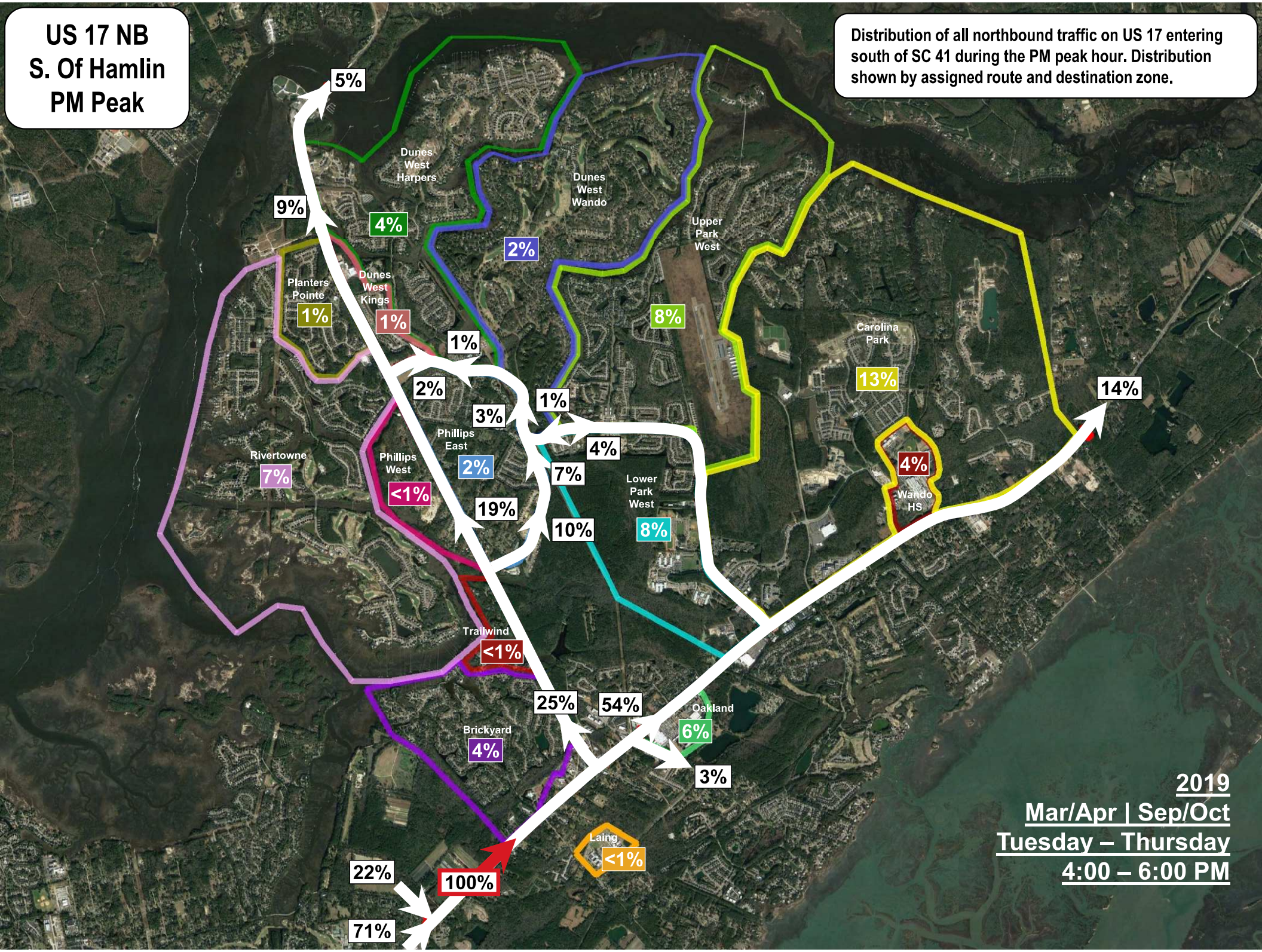

SC 41 NB
N. of US 17
PM Peak
Distribution of all northbound traffic on SC 41 entering from US 17 during the PM peak hour. Distribution shown by assigned route and destination zone (north of US 17) and by contributing route and origination zone (south of US 17).
16%
26%
15%
5%
Dunes West Harpers
Dunes West Wando
Upper Park West
Planters Pointe
5%
Dunes West Kings
4%
4%
7%
Carolina Park
1%
1%
14%
11%
Phillips East
7%
9%
24%
Rivertowne
24%
Phillips West
<1%
59%
32%
Lower Park West
2%
Wando HS
4%
8%
3%
Trailwind
1%
33%
100%
Oakland
4%
Brickyard
4%
4%
Laing
1%
11%
49%
38%
2019
Mar/Apr | Sep/Oct
Tuesday – Thursday
4:00 – 6:00 PM

SC 41 NB
N. of US 17
Daily

Distribution of all northbound traffic on SC 41 entering from US 17 during a 24-hour period. Distribution shown by assigned route and destination zone (north of US 17) and by contributing route and origination zone (south of US 17).




US 17 NB
S. Of Hamlin
AM Peak
Distribution of all northbound traffic on US 17 entering south of SC 41 during the AM peak hour. Distribution shown by assigned route and destination zone.
3%
4%
1%
<1%
Dunes West Harpers
Dunes West Wando
Upper Park West
Planters Pointe
<1%
Dunes West Kings
1%
2%
Carolina Park
12%
8%
1%
2%
Phillips East
1%
Rivertowne
2%
Phillips West
<1%
1%
2%
7%
3%
Lower Park West
2%
32%
Wando HS
Trailwind
<1%
9%
63%
Oakland
3%
Brickyard
1%
3%
Laing
11%
34%
100%
79%
2019
Mar/Apr | Sep/Oct
Tuesday – Thursday
7:00 – 9:00 AM


US 17 NB
S. Of Hamlin
PM Peak
Distribution of all northbound traffic on US 17 entering south of SC 41 during the PM peak hour. Distribution shown by assigned route and destination zone.
5%
9%
4%
2%
Dunes West Harpers
Dunes West Wando
Upper Park West
8%
Planters Pointe
1%
Dunes West Kings
1%
1%
2%
3%
1%
4%
7%
19%
10%
Phillips East
2%
Phillips West
<1%
Rivertowne
7%
Lower Park West
8%
Carolina Park
13%
14%
4%
Wando HS
Trailwind
<1%
25%
54%
Oakland
6%
3%
Brickyard
4%
Laing
<1%
22%
100%
71%
2019
Mar/Apr | Sep/Oct
Tuesday – Thursday
4:00 – 6:00 PM

Appendix E

Calibration Report

SC 41 Microsimulation Model Development and Calibration Report

SC 41 from Harpers Ferry Way to US 17 and US 17 from Six Mile Road to Park West Boulevard
Mount Pleasant, South Carolina

Prepared for:
Charleston County

Prepared by:
Stantec Consulting Services Inc.
4969 Centre Pointe Drive
Suite 200
North Charleston, SC 29418-6952

August 25, 2021

Table of Contents

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

Abbreviations

FHWA	Federal Highway Administration
GEH	Geoffrey E. Haver's volume tolerance formula
HCM	Highway Capacity Manual
MM	Mile Marker
mph	miles per hour
OD	Origin-Destination
WisDOT	Wisconsin Department of Transportation

SC 41 MICROSIMULATION MODEL DEVELOPMENT AND CALIBRATION REPORT

Executive Summary

Stantec conducted a traffic analysis using VISSIM microsimulation software to evaluate the existing traffic conditions along nearly 4-mile sections of US 17 and SC 41 in Mount Pleasant, South Carolina. The study area includes seven (7) intersections along US 17 from 6 Mile Road to Park West Boulevard, eleven (11) intersections along SC 41 from US 17 to Harpers Ferry Way, and six (6) intersections along Bessemer Road/Dunes West Boulevard.

This report discusses the calibration of the traffic model used in the analysis of the existing traffic operations along SC 41, US 17, and Park West Boulevard. For this project, VISSIM 8.0 was used.

The existing turning movement counts were used to generate an origin-destination (OD) matrix that was entered into the VISSIM model and calibrated to closely match the real-world field operations (including volume, travel time, and speed) of the network.

Calibration guidelines were used based on guidelines from the Federal Highway Administration (*Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software. June 2004*) and documentation from the Wisconsin Department of Transportation (*WisDOT Microsimulation Guidelines, September 2019*). These guidelines were set to ensure that the modeled traffic volumes matched the observed (real-world) volumes within the acceptance thresholds, that the modeled travel times and speeds are similar to the field conditions, and that the modeled travel patterns throughout the network were realistic.

The model was successfully calibrated to meet all of the calibration criteria (or guidelines) described above. The calibration results compared with the calibration targets are shown below in **Table ES-1**.

Table ES-1: Calibration Target Summary

Test	Criteria	Target	Modeled – AM Peak	Modeled – PM Peak
1	Critical Hourly Flows, Model Versus Observed Individual Link Flows: Within 15%, for 700 veh/h < Flow < 2700 veh/h	> 85% of cases	85.3%	100%
2	Critical Hourly Flows, Model Versus Observed Individual Link Flows: Within 100 veh/h, for Flow < 700 veh/h	> 85% of cases	100%	100%
3	Critical Hourly Flows, Model Versus Observed Individual Link Flows: Within 400 veh/h, for Flow > 2700 veh/h	> 85% of cases	100%	N/A
4	Sum of All Link Flows	Within 5% of sum of all link counts	1.1%	0.7%
5	GEH Statistic < 5 for Individual Link Flows	> 85% of cases	93.4%	100%
6	GEH Statistic for Sum of All Link Flows	GEH < 4 for sum of all link counts	3.0	1.3
7	Travel Times, Model Versus Observed	Within ± 15% for >85% of routes	100%	100%

SC 41 MICROSIMULATION MODEL DEVELOPMENT AND CALIBRATION REPORT

1.0 INTRODUCTION

This report evaluates the existing traffic conditions along nearly 4-mile sections of US 17 and SC 41 in Mount Pleasant, South Carolina. The study area includes seven (7) intersections along US 17 from 6 Mile Road to Park West Boulevard, eleven (11) intersections along SC 41 from US 17 to Harpers Ferry Way, and six (6) intersections along Bessemer Road/Dunes West Boulevard.

This area has mostly urban residential land uses with some commercial land uses along US 17. SC 41 is a heavily traveled road in Mount Pleasant, South Carolina, connecting US 17 to residential communities and to I-526. These sections of US 17 and SC 41 have some truck traffic generated by industrial land uses north of the study area. Nucor Steel and BP Chemical are the two main industrial businesses north of this area.

1.1 OBJECTIVE

The intent of this study is to evaluate the existing and future conditions along SC 41 and US 17 and its cross streets to determine what improvements will be required now and in the future in order to mitigate the additional traffic demand resulting from the growth in the area. This report serves as the documentation for the development and calibration of the existing conditions model for the AM and PM peak hours.

1.2 STUDY AREA

The following twenty-four (24) intersections are included in this existing year analysis: US 17 & 6 Mile Road;

1) US 17 & Long Point Road;
2) US 17 & Brickyard Parkway/Hamlin Road;
3) US 17 & SC 41;
4) US 17 & Winnowing Way/Porchers Bluff;
5) US 17 & Lexington Drive/Oakland Market Drive;
6) US 17 & Park West Boulevard/South Morgan's Point Road;
7) SC 41 & Old SC 41/Gregorie Ferry Road;
8) SC 41 & Colonnade Drive;
9) SC 41 & Tradewind Drive;
10) SC 41 & Joe Rouse Road;
11) SC 41 & Bennett Charles Road;
12) SC 41 & Sunchaser Lane;
13) SC 41 & Parkers Island Road;
14) SC 41 & Canyon Lane;
15) SC 41 & Rivertowne Parkway/Dunes West Boulevard;
16) SC 41 & Planters Point Boulevard/Wood Park Drive;
17) SC 41 & Harpers Ferry Way;
18) Dunes West Boulevard & Kings Gate Lane;
19) Dunes West Boulevard & Palmetto Hall Boulevard;
20) Dunes West Boulevard & Ellington Wood Boulevard;
21) Dunes West Boulevard & Wando Plantation Way;
22) Parkwest Boulevard & Bessemer Road; and
23) Bessemer Road & Dumont Drive;

2.0 STUDY METHODOLOGY

The following sections outline the study methodology for the existing year microsimulation analysis. Study methodology includes the data collection and measures of effectiveness.

2.1 MODELING APPROACH

The base year OD matrix was generated from the travel demand model. The base year OD estimation was performed using the TFlowFuzzy module in VISUM. The TFlowFuzzy process requires three input data – a network, a seed OD trip table, and observed traffic count data. The coverage of the network and the zone structure are the same as in the VISSIM model.

The main sources of data used in the development of the OD matrix were the statewide travel demand model, and hourly turning movement counts. The link volumes obtained from the statewide model were used as an independent source to assess the reasonableness of the VISUM assigned volumes for the OD matrix.

The observed traffic count data includes the AM and PM turning movement count data collected at all the intersections in the network. The observed traffic count data were checked and balanced against each other for consistency before being entered into VISUM.

The OD estimation process involved a series of trip assignment and OD trip table adjustments performed by the TFlowFuzzy module. After trips were assigned to the network, the assigned volumes were compared against the observed traffic count data. The estimated OD matrices were adjusted to provide simulated volumes similar to the counted volumes while maintaining an accurate level of congestion along US 17 and SC 41.

The comparisons of the observed and estimated traffic volumes are shown in **Figures 1** and **2**, in Section 3.2.

2.2 NETWORK ELEMENTS

2.2.1 Geometric Data

Geometric data such as link length, number of lanes, turning length storage, lane width, and curvature were obtained using aerial imagery provided by Bing© maps within the VISSIM 8.0 software.

Grades were not expected to have a significant impact on traffic operations in the area and were therefore left at zero throughout the model.

2.2.2 Traffic Control Data

Intersection signal timing information was obtained from the Town of Mount Pleasant and was coded into the network such that simulated timings should match the existing field timings. However, the signals along US 17 operate as part of an adaptive signal system; therefore, the timings in use on the day(s) data

collection was performed may not perfectly match the timings entered into VISSIM. Signal design plans were either obtained using SCDOT's TEAMS or provided by the Town of Mount Pleasant. Though adaptive the adaptive signal system wasn't modeled, the timings are a representative average of the timings.

2.2.3 Demand Data

Turning movement counts were collected from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM on Tuesday, September 19, 2017 at eighteen (18) intersections. Later, it was determined that the study area would expand to the east and include an additional six (6) intersections along Bessemer Road/Park West Boulevard. Turning movement counts for these intersections were collected from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM on Tuesday, March 12, 2019.

The Stantec-collected traffic count data is presented in **Appendix A.** The 2018 Existing AM and PM peak hour volumes that were utilized in the VISSIM models are included in **Appendix B.**

3.0 CALIBRATION

The goal of calibration is to develop a model that can reproduce, within a reasonable margin, actual field-collected data. For this calibration effort, FHWA's model calibration guidelines were used. According to the acceptance criteria, the model must conform in the following ways:

1. The modeled traffic volumes match the observed (real-world) volumes within the acceptance thresholds; and
2. The modeled travel times match the observed (real-world) travel times within the acceptance thresholds.

For the results shown in this section, 10 simulation runs were performed per peak hour. The average of these 10 simulation runs was used for all results presented in the subsequent sections.

The following sections describe the adjustments made in the model during the calibration process and how well the model meets the calibration targets.

3.1 2021 EXISITNG MODEL PARAMETER ADJUSTMENTS

Default VISSIM parameters were pre-loaded into the 2018 Existing VISSIM model as a starting point for calibration. Parameter adjustments were made during the initial calibration efforts from the default parameters to achieve the criteria listed in **Sections 3.2-3.3**.

3.1.1 Desired Speed Adjustment

The speed limits on SC 41, through the study area is 55 and 45 miles per hour (mph). The speed limit on US 17, through the study, is 45 mph. However, streetlight data suggests lower speeds in the AM and PM

peak hours. Both peak hours use an adjusted desired speed distribution of 45 and 55 mph in order to accurately replicate the observed travel times. The 45 mph desired speed distribution was adjusted by changing the lower bound to 28 mph and upper bound to 32 mph. The 55 mph desired speed distribution was adjusted by changing the lower bound to 35 mph and upper bound to 45 mph. A new distribution was created for the SC 41 southbound direction. The 45 mph – SC 41 SB desired speed distribution was created with a lower bound of 21 mph and upper bound of 30 mph. **Table 1** shows a summary of desired speeds decision parameters for the AM and PM peak hours.

Table 1 – Desired Speed Distribution Parameter Adjustment

Desired Speed Distributions	AM Peak Hour		PM Peak Hour	
	Lower Bound	Upper Bound	Lower Bound	Upper Bound
45 mph – SC 41 SB	21.00	30.00	-	-
45 mph	28.00	32.00	28.00	32.00
55 mph	35.00	45.00	35.00	45.00

3.2 CALIBRATION TARGETS

Due to the size of this model, hourly flows were compared at critical[1] locations. Guidance from *WisDOT's Draft Microsimulation Guidelines*, dated September 2019, recommends focusing on the mainline segments, where these locations are likely to have an impact on traffic operations. Per *WisDOT Microsimulation Guidelines September 2019*, for model volume calibration, critical hourly flows were compared along SC 41 and US 17.

In addition to guidance from WisDOT, the guidelines set in the Federal Highway Administration's (FHWA's) *Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software,* dated July 2004, were used as a general guide for what targets and criteria to establish. The following data-driven criteria from the toolbox were established for this model:

Critical hourly flows, model versus observed:

1. Individual link flows within 15% for Flow ≤700 vehicles per hour (vph), for ≥85% of cases
2. Individual link flows within 100 vph for 700 vph < Flow ≤ 2700 vph, for ≥85% of cases
3. Individual link flows within 400 vph for Flow > 2700 vph, for ≥85% of cases
4. Sum of all links simulated volumes within 5% of sum of all links counted volumes
5. GEH Statistic <5 for individual link flows, ≥85% of cases
6. GEH Statistic for sum of all link flows: <4 for sum of all link counts

[1] *WisDOT's guidance suggests that this is a location likely to have an impact on operations to the project study area (e.g., locations with higher traffic volumes, existing or projected level of service is at or approaching unstable flow, queues block or impede travel, weaving areas, merge/diverge locations, etc.)*

Two of the criteria use the GEH statistic, an empirical formula developed in the 1970's. The GEH statistic is calculated using the following formula, where M is the simulated hourly traffic volume from the model and C is the real-world hourly traffic count:

$$GEH = \sqrt{\left(\frac{2(M-C)^2}{M+C}\right)}$$

The GEH statistic is intended to help normalize acceptable variation between count and model volumes for various sized roadways. **Table 2**, on the following page, shows the results of these comparisons for the VISSIM 2018 Existing AM and PM models.

Table 2 – Calibration Volume Target Summary

Test	Criteria	Target	Modeled – AM Peak	Modeled – PM Peak
1	Critical Hourly Flows, Model Versus Observed Individual Link Flows: Within 15%, for 700 veh/h < Flow < 2700 veh/h	> 85% of cases	85.3%	100%
2	Critical Hourly Flows, Model Versus Observed Individual Link Flows: Within 100 veh/h, for Flow < 700 veh/h	> 85% of cases	100%	100%
3	Critical Hourly Flows, Model Versus Observed Individual Link Flows: Within 400 veh/h, for Flow > 2700 veh/h	> 85% of cases	100%	N/A
4	Sum of All Link Flows	Within 5% of sum of all link counts	1.1%	0.7%
5	GEH Statistic < 5 for Individual Link Flows	> 85% of cases	93.4%	100%
6	GEH Statistic for Sum of All Link Flows	GEH < 4 for sum of all link counts	3.0	1.3

In both the AM and PM peak hours, all calibration targets for the individual and network-wide link flows were met.

Figures 1 and 2 show the modeled link flows vs. the observed link flows. The R^2 values, a statistical measure that measure variability in the data set, are very close to 1.0, showing little variability in the volumes on the network links between the modeled and field volumes. The R^2 values are shown on the following figures.

Figure 1 – AM Peak Hour Link Flows

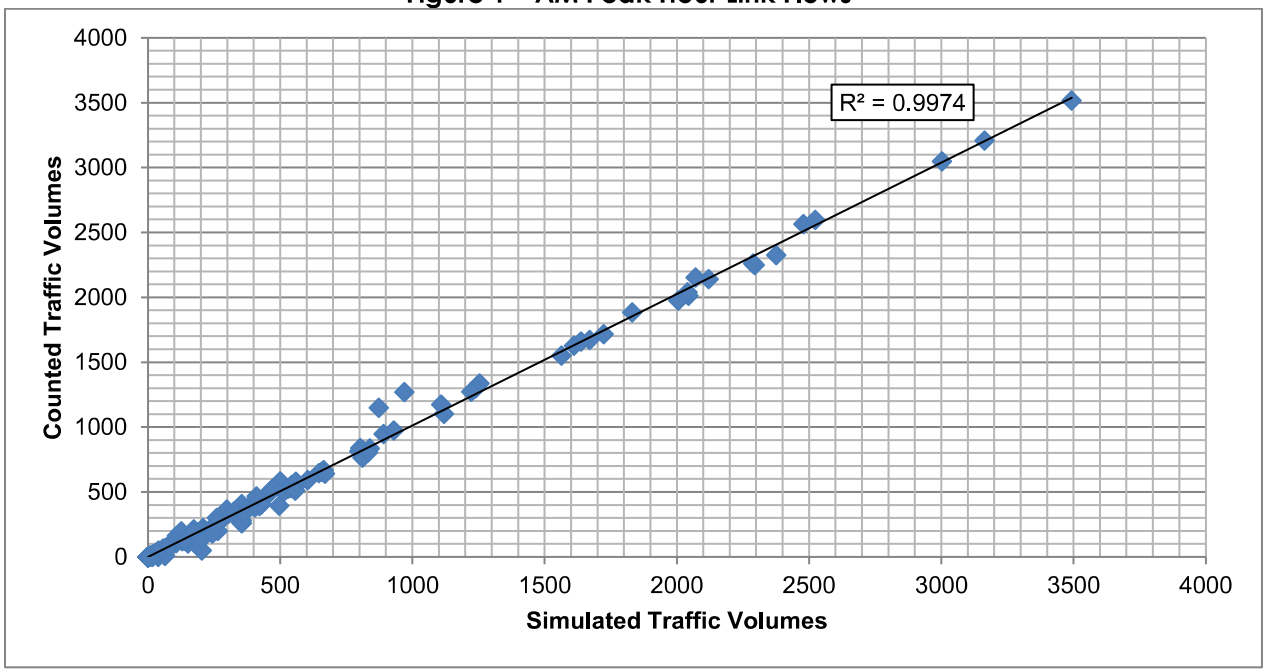
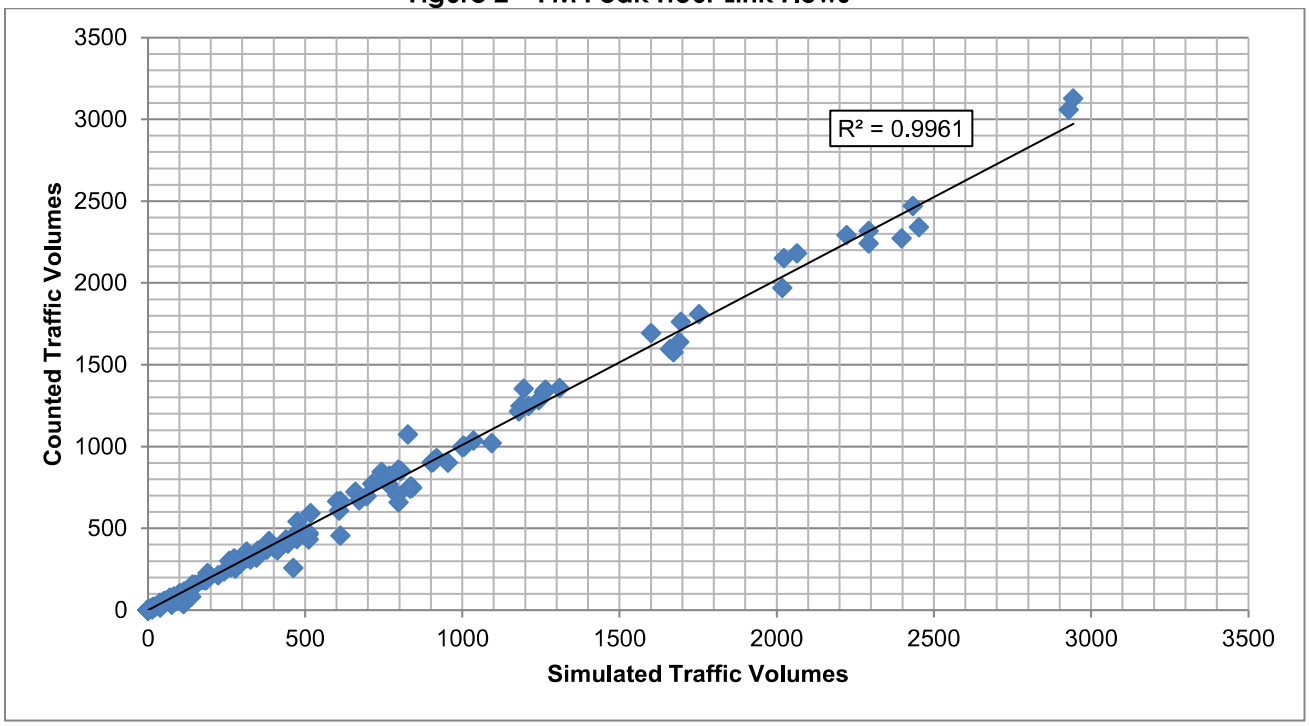


Figure 2 – PM Peak Hour Link Flows



3.3 TRAVEL TIMES

Streetlight travel time data was gathered in 2017 for weekdays, Tuesday through Thursday, from 7 AM to 9 AM and 4 PM to 6 PM. Streetlight data was averaged for the year, for each peak period, and used to compare to VISSIM simulated travel times.

In contrast with critical hourly flows, travel times are not required to meet a specific set of calibration criteria. The criteria suggests that travel speeds should be visually checked, and the calibration target is "to analyst's satisfaction". However, for the purposes of this study, travel times were calibrated within a threshold of 15%, for more than 85% of cases. The following criteria was used to determine if the modeled travel times are reasonable.

7. Travel Times, Model Versus Observed: Within ± 15% for >85% of routes; and

Streetlight travel time data gathered from the online database is available for various segments along the study corridor. In order to ensure the model was properly calibrated, the same segments were used to collected model results. These segments are presented in **Table 3**, on the following page.

Table 3 – Streetlight segments along the study corridor

Segment Name	Segment Description
SC 41 Northbound	South of Long Point Road to north of Park West Boulevard
SC 41 Southbound	North of Park West Boulevard to south of Long Point Road
US 17 Northbound	North of Gregory Ferry Road to Wando River Bridge
US 17 Southbound	Wando River Bridge to north of Gregory Ferry Road

An acceptable number of network travel times fell within the acceptable travel time ranges. **Figures 3 and 4**, on this page and the next, show the comparison of Streetlight travel times and the VISSIM simulated travel times for the AM and PM peak hours, respectively.

Table 4 – Calibration Travel Time and Speed Target Summary

Test	Criteria	Target	Modeled – AM Peak	Modeled – PM Peak
7	Travel Times, Model Versus Observed	Within ± 15% for >85% of routes	100%	100%

The volume targets were met, and the travel times target was met; therefore, the model was determined to be calibrated. In summary, the calibration criteria results show that both the AM and PM models are both acceptably calibrated.

Figure 3 – AM Peak Hour Travel Time Comparison

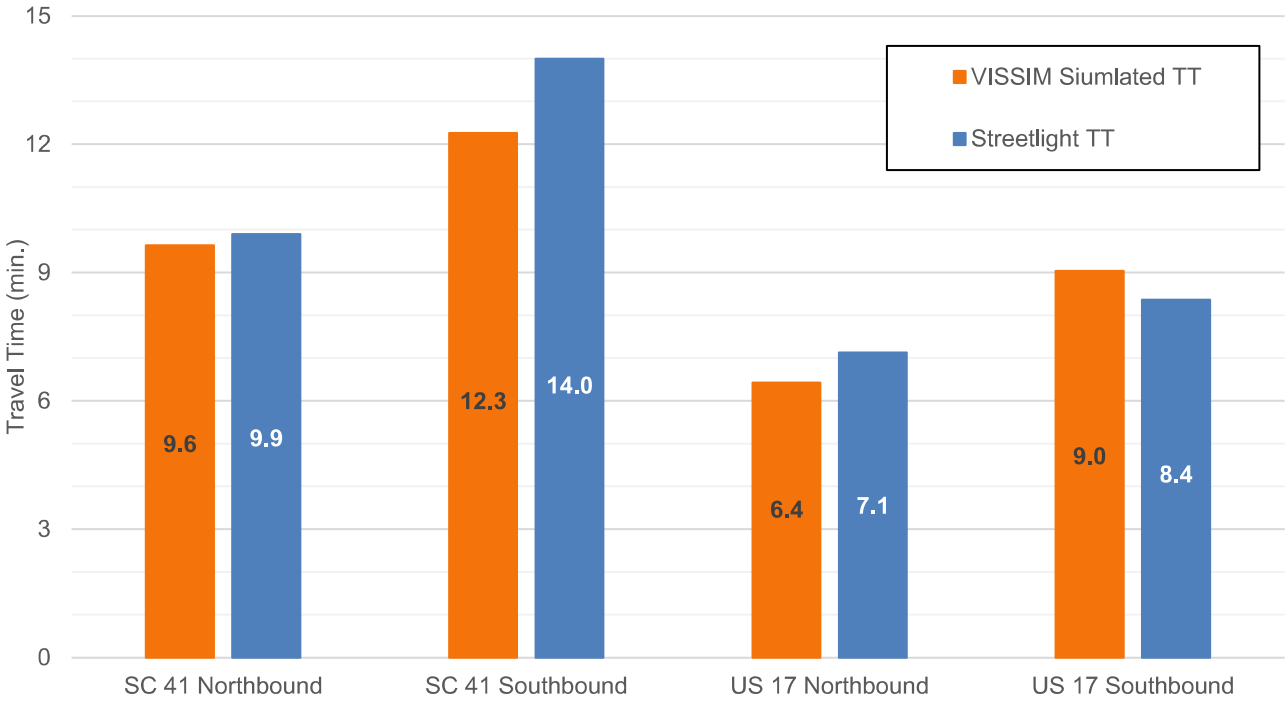


Figure 4 – PM Peak Hour Travel Time Comparison

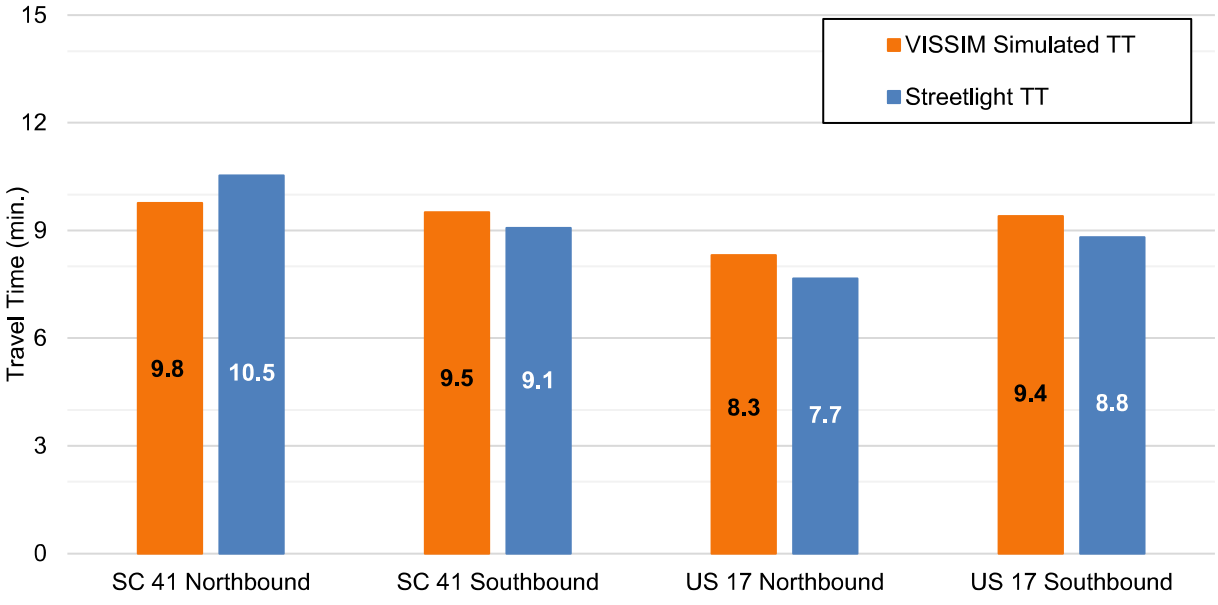


Table 4 shows that the VISSIM model closely matches the Streetlight data travel times.

4.0 2018 EXISTING TRAFFIC CONDITIONS

The following sections include the VISSIM simulation results for the 2018 Existing AM and PM peak hours.

Level of service (LOS) grades range from LOS A to LOS F, which are directly related to the level of control delay at the intersection and characterize the operational conditions of the intersection traffic flow. LOS A operations typically represent ideal, free-flow conditions where vehicles experience little to no delay; LOS F operations typically represent poor, forced-flow (bumper-to-bumper) conditions with high vehicular delays, and are generally considered undesirable. **Table 5** summarizes the HCM 6th Edition control delay thresholds associated with each LOS grade.

Table 5 – HCM 6th Edition Intersection LOS Criteria

LOS	Interstate LOS - Density (pc/mi/ln)	
	Unsignalized	Signalized
A	≤ 10	≤ 10
B	> 10-15	>10-20
C	> 15-25	>20-35
D	> 25-35	>35-55
E	> 35-50	>55-80
F	> 50	>80

4.1 2018 EXISITNG AM PEAK HOUR

4.1.1 Travel Times

Table 6 shows the simulated VISSIM travel times from beginning to end of the SC 41 and US 17 corridors, during the AM peak hour. The travel time comparisons in **Figure 4** (Section 3.2) represent these results graphically.

Table 6 – 2018 Existing AM Peak Hour Travel Times

Segment #	Simulated VISSIM Travel Times (min)
SC 41 Northbound	9.6
SC 41 Southbound	12.3
US 17 Northbound	6.4
US 17 Southbound	9.0

4.1.2 Intersection Operations

Table 7 summarizes the intersection operations throughout the study area.

Table 7 – 2018 Existing AM Peak Hour Intersection Delay and LOS

Intersection	Control	Avg. Delay	LOS
US 17 & 6 Mile Road	Signal	4.5	A
US 17 & Long Point Road	Signal	23.2	C
US 17 & Hamlin Road/Brickyard Parkway	Signal	18.8	B
US 17 & SC 41	Signal	30.7	C
US 17 & Porchers Bluff Road	Signal	12.9	B
US 17 & Lexington Drive	Signal	10.0	B
US 17 & Park West Boulevard/South Morgan's Point Road	Signal	28.9	C
SC 41 & SC 41 Access Road	Unsig	71.1	F
SC 41 & Colonnade Drive	Unsig	105.5	F
SC 41 & Tradewind Drive	Unsig	29.2	D
SC 41 & Joe Rouse Road	Signal	22.1	C
SC 41 & Bennett Charles Road	Unsig	14.6	B
SC 41 & Sunchaser Lane	Unsig	11.3	B
SC 41 & Parkers Island Road	Unsig	10.4	B
SC 41 & Canyon Lane	Unsig	17.1	C
SC 41 & Dunes West Boulevard	Signal	18.8	B
SC 41 & Planters Point Boulevard/Wood Park Drive	Unsig	10.4	B
SC 41 & Harpers Ferry Way	Unsig	10.3	B
Dunes West Blvd & Kings Gate Lane	Unsig	3.7	A
Dunes West Blvd & Palmetto Hall Boulevard	Unsig	9.4	A
Dunes West Blvd & Ellington Woods Boulevard	Unsig	9.3	A
Dunes West Blvd & Wando Plantation Way	Unsig	29.0	D
Park West and Bessemer Road Roundabout	Rdbt	9.2	A
Bessemer Roadd & Dumont Drive	Unsig	6.5	A

Note: LOS/Delay is shown for the worst-case minor-street approach of the unsignalized intersections.

4.1.3 AM Peak Hour Operations Summary

As the sections above show, the mainline operations during the AM peak hour are mostly free flow along SC 41 and US 17. However, travel times in the southbound direction of SC 41 direction and US 17 are much higher with significant congestion building throughout the peak period. Field conditions reflect this condition as well. Congestion on SC 41 southbound extends from the US 17 intersection to Rivertowne Parkway/Dunes West Boulevard. This is mainly due to commuter traffic traveling into Charleston. On US 17 southbound, congestion occurs between Long Point Road SC 41/Dingle Road.

All intersections within the study area currently operate at LOS D or better, except for the intersections of SC 41 & SC 41 Access Road and SC 41 & Colonnade Drive.

4.2 2018 EXISITNG PM PEAK HOUR

4.2.1 Travel Times

Tables 8 shows the VISSIM simulated travel times from beginning to end of the SC 41 and US 17 corridors, during the PM peak hour. The travel time comparisons in **Figure 5** (Section 3.2) represents these results graphically.

Table 8 – 2018 Existing PM Peak Hour Travel Times

Segment Name	Simulated VISSIM Travel Times (min)
SC 41 Northbound	10.5
SC 41 Southbound	9.1
US 17 Northbound	7.7
US 17 Southbound	8.8

4.2.2 Intersection Operations

Table 9 summarizes the intersection operations throughout the study area.

Table 9 – 2018 Existing PM Peak Hour Intersection Delay and LOS

Intersection	Control	Avg. Delay	LOS
US 17 & 6 Mile Road	Signal	8.6	A
US 17 & Long Point Road	Signal	25.7	C
US 17 & Hamlin Road/Brickyard Parkway	Signal	16.0	B
US 17 & SC 41	Signal	34.5	C
US 17 & Porchers Bluff Road	Signal	12.5	B
US 17 & Lexington Drive	Signal	14.0	B
US 17 & Park West Boulevard/South Morgan's Point Road	Signal	45.7	D
SC 41 & SC 41 Access Road	Unsig	43.8	E
SC 41 & Colonnade Drive	Unsig	39.1	E
SC 41 & Tradewind Drive	Unsig	30.5	D
SC 41 & Joe Rouse Road	Signal	16.8	B
SC 41 & Bennett Charles Road	Unsig	19.8	C
SC 41 & Sunchaser Lane	Unsig	13.3	B
SC 41 & Parkers Island Road	Unsig	16.1	C
SC 41 & Canyon Lane	Unsig	21.0	C
SC 41 & Dunes West Boulevard	Signal	22.5	C
SC 41 & Planters Point Boulevard/Wood Park Drive	Unsig	12.5	B
SC 41 & Harpers Ferry Way	Unsig	12.0	B
Dunes West Blvd & Kings Gate Lane	Unsig	3.6	A
Dunes West Blvd & Palmetto Hall Boulevard	Unsig	9.7	A
Dunes West Blvd & Ellington Woods Boulevard	Unsig	9.3	A
Dunes West Blvd & Wando Plantation Way	Unsig	11.6	B
Park West and Bessemer Road Roundabout	Rdbt	43.1	E
Bessemer Rd & Dumont Drive	Unsig	6.4	A

Note: LOS/Delay is shown for the worst-case minor-street approach of the unsignalized intersections.

4.2.3 PM Peak Hour Operations Summary

As the sections above show, the mainline operations during the PM peak hour are mostly free-flow along SC 41. However, travel times in the US 17 northbound and southbound directions on US 17 are much higher with significant congestion building throughout the peak period. Field conditions also reflect this condition as well. Congestion on US 17 northbound extends from the SC 41/Dingle Road intersection back to the intersection of Long Point Road. Congestion on US 17 southbound extends from SC 41/Dingle Road to Lexington Drive/Oakland Market.

All intersections within the study area currently operate at LOS D or better, except for the intersections of SC 41 & SC 41 Access Road, SC 41 & Colonnade Drive, and Park West and Bessemer Road Roundabout.

5.0 SUMMARY

In the AM and PM peak hours, the simulated volumes meet the calibration criteria. In addition, the travel time targets were met.

Based on field measurements, traffic conditions in this area are generally free flow with heavy congestion in specific locations. The calibrated existing model reflects these conditions during both peak hours along SC 41 and US 17. Based on the calibration targets and field conditions in comparison with the calibrated existing model, it was determined that this model is adequately calibrated. This VISSIM model will be used as the foundation for future year models developed for this project.

The VISSIM model output and comparison sheets are included in **Appendix C** for review.

6.0 REFERENCES

(1) Federal Highway Administration. Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software. June 2004 https://ops.fhwa.dot.gov/trafficanalysistools/tat_vol3/index.htm

(2) Wisconsin Department of Transportation. *WisDOT Microsimulation Guidelines,* September 2019

Appendix F

Signal Warrant Analyses

HCS7 Warrants Report

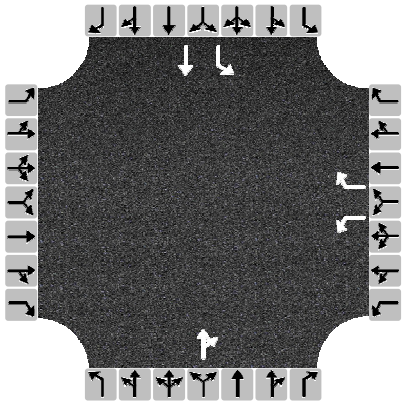
Project Information

Analyst	Devesh Kumar	Date	4/8/2022
Agency	Stantec	Analysis Year	2028
Jurisdiction	Mount Pleasant	Time Period Analyzed	Peak Hour
Project Description	Dunes West Blvd & Wando Plantation		

General

Major Street Direction	North-South	Population < 10,000	No
Starting Time Interval	7	Coordinated Signal System	No
Median Type	Undivided	Crashes (crashes/year)	0
Major Street Speed (mi/h)	35	Adequate Trials of Crash Exp. Alt.	No
Nearest Signal (ft)	4200		

Geometry and Traffic



Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Number of Lanes, N	0	0	0	1	0	1	0	1	0	1	1	0
Lane Usage				L		R		TR		L	T	
Vehicle Volumes Averages (veh/h)	0	0	0	44	0	17	0	73	22	14	97	0
Pedestrian Averages (peds/h)	0			0			0			0		
Gap Averages (gaps/h)	0			0			0			0		
Delay (s/veh)	0.0			0.0			0.0			0.0		
Delay (veh-hrs)	0.0			0.0			0.0			0.0		

School Crossing and Roadway Network

Number of Students in Highest Hour	0	Two or More Major Routes	No
Number of Adequate Gaps in Period	0	Weekend Counts	No
Number of Minutes in Period	0	5-year Growth Factor (%)	0

Railroad Crossing

Grade Crossing Approach	None	Rail Traffic (trains/day)	4
Highest Volume Hour with Trains	Unknown	High Occupancy Buses (%)	0
Distance to Stop Line (ft)		Tractor-Trailer Trucks (%)	10

HCS7 Warrants Report

Volume Summary

Hour	Major Volume	Minor Volume	Total Volume	Peds/h	Gaps/h	1A (100%)	1A (80%)	1B (100%)	1B (80%)	2 (100%)	3A (100%)	3B (100%)	4A (100%)	4B (100%)
07 - 08	1045	455	1500	0	0	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No
08 - 09	0	0	0	0	0	No	No	No	No	No	No	No	No	No
09 - 10	0	0	0	0	0	No	No	No	No	No	No	No	No	No
10 - 11	0	0	0	0	0	No	No	No	No	No	No	No	No	No
11 - 12	0	0	0	0	0	No	No	No	No	No	No	No	No	No
12 - 13	0	0	0	0	0	No	No	No	No	No	No	No	No	No
13 - 14	0	0	0	0	0	No	No	No	No	No	No	No	No	No
14 - 15	0	0	0	0	0	No	No	No	No	No	No	No	No	No
15 - 16	0	0	0	0	0	No	No	No	No	No	No	No	No	No
16 - 17	1458	290	1748	0	0	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No
17 - 18	0	0	0	0	0	No	No	No	No	No	No	No	No	No
18 - 19	0	0	0	0	0	No	No	No	No	No	No	No	No	No
Total	2503	745	3248	0	0	2	2	2	2	2	0	2	0	0

Warrants

Warrant 1: Eight-Hour Vehicular Volume	
A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	
B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	
80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	
Warrant 2: Four-Hour Vehicular Volume	
Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)	
Warrant 3: Peak Hour	✓
A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--	
B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	✓
Warrant 4: Pedestrian Volume	
A. Four Hour Volumes --or--	
B. One-Hour Volumes	
Warrant 5: School Crossing	
Gaps Same Period --and--	
Student Volumes	
Nearest Traffic Control Signal (optional)	✓
Warrant 6: Coordinated Signal System	
Degree of Platooning (Predominant direction or both directions)	
Warrant 7: Crash Experience	
A. Adequate trials of alternatives, observance and enforcement failed --and--	
B. Reported crashes susceptible to correction by signal (12-month period) --and--	
C. 80% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied	
Warrant 8: Roadway Network	
A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--	
B. Weekend Volume (Five hours total)	
Warrant 9: Grade Crossing	
A. Grade Crossing within 140 ft --and--	
B. Peak-Hour Vehicular Volumes	

HCS7 Warrants Report

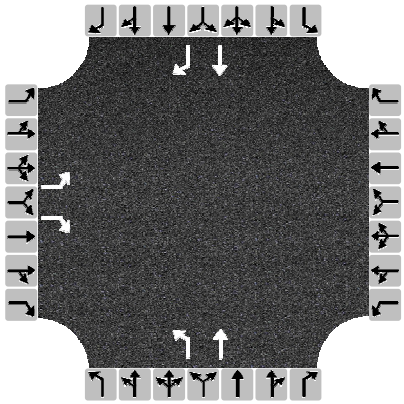
Project Information

Analyst	Devesh Kumar	Date	4/8/2022
Agency	Stantec	Analysis Year	2028
Jurisdiction	Mount Pleasant	Time Period Analyzed	Peak Hour
Project Description	Porchers Bluff Blvd & Billy Swails Blvd		

General

Major Street Direction	North-South	Population < 10,000	No
Starting Time Interval	7	Coordinated Signal System	No
Median Type	Undivided	Crashes (crashes/year)	0
Major Street Speed (mi/h)	40	Adequate Trials of Crash Exp. Alt.	No
Nearest Signal (ft)	2700		

Geometry and Traffic



Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Number of Lanes, N	1	0	1	0	0	0	1	1	0	0	1	1
Lane Usage	L		R				L	T			T	R
Vehicle Volumes Averages (veh/h)	28	0	23	0	0	0	11	82	0	0	81	17
Pedestrian Averages (peds/h)	0			0			0			0		
Gap Averages (gaps/h)	0			0			0			0		
Delay (s/veh)	0.0			0.0			0.0			0.0		
Delay (veh-hrs)	0.0			0.0			0.0			0.0		

School Crossing and Roadway Network

Number of Students in Highest Hour	0	Two or More Major Routes	No
Number of Adequate Gaps in Period	0	Weekend Counts	No
Number of Minutes in Period	0	5-year Growth Factor (%)	0

Railroad Crossing

Grade Crossing Approach	None	Rail Traffic (trains/day)	4
Highest Volume Hour with Trains	Unknown	High Occupancy Buses (%)	0
Distance to Stop Line (ft)		Tractor-Trailer Trucks (%)	10

HCS7 Warrants Report

Volume Summary

Hour	Major Volume	Minor Volume	Total Volume	Peds/h	Gaps/h	1A (100%)	1A (80%)	1B (100%)	1B (80%)	2 (100%)	3A (100%)	3B (100%)	4A (100%)	4B (100%)
07 - 08	1191	319	1510	0	0	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No
08 - 09	0	0	0	0	0	No	No	No	No	No	No	No	No	No
09 - 10	0	0	0	0	0	No	No	No	No	No	No	No	No	No
10 - 11	0	0	0	0	0	No	No	No	No	No	No	No	No	No
11 - 12	0	0	0	0	0	No	No	No	No	No	No	No	No	No
12 - 13	0	0	0	0	0	No	No	No	No	No	No	No	No	No
13 - 14	0	0	0	0	0	No	No	No	No	No	No	No	No	No
14 - 15	0	0	0	0	0	No	No	No	No	No	No	No	No	No
15 - 16	0	0	0	0	0	No	No	No	No	No	No	No	No	No
16 - 17	1131	307	1438	0	0	Yes	Yes	Yes	Yes	Yes	No	No	No	No
17 - 18	0	0	0	0	0	No	No	No	No	No	No	No	No	No
18 - 19	0	0	0	0	0	No	No	No	No	No	No	No	No	No
Total	2322	626	2948	0	0	2	2	2	2	2	0	1	0	0

Warrants

Warrant 1: Eight-Hour Vehicular Volume	
A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	
B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	
80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	
Warrant 2: Four-Hour Vehicular Volume	
Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)	
Warrant 3: Peak Hour	✓
A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--	
B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	✓
Warrant 4: Pedestrian Volume	
A. Four Hour Volumes --or--	
B. One-Hour Volumes	
Warrant 5: School Crossing	
Gaps Same Period --and--	
Student Volumes	
Nearest Traffic Control Signal (optional)	✓
Warrant 6: Coordinated Signal System	
Degree of Platooning (Predominant direction or both directions)	
Warrant 7: Crash Experience	
A. Adequate trials of alternatives, observance and enforcement failed --and--	
B. Reported crashes susceptible to correction by signal (12-month period) --and--	
C. 80% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied	
Warrant 8: Roadway Network	
A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--	
B. Weekend Volume (Five hours total)	
Warrant 9: Grade Crossing	
A. Grade Crossing within 140 ft --and--	
B. Peak-Hour Vehicular Volumes	

HCS7 Warrants Report

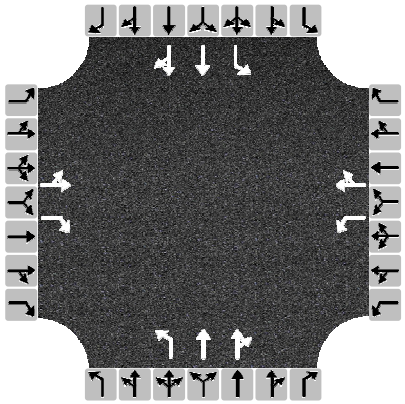
Project Information

Analyst	Devesh Kumar	Date	4/8/2022
Agency	Stantec	Analysis Year	2028
Jurisdiction	Mount Pleasant	Time Period Analyzed	Peak Hour
Project Description	SC 41 & Colonnade Dr/Emma Lane		

General

Major Street Direction	North-South	Population < 10,000	No
Starting Time Interval	7	Coordinated Signal System	No
Median Type	Undivided	Crashes (crashes/year)	0
Major Street Speed (mi/h)	45	Adequate Trials of Crash Exp. Alt.	No
Nearest Signal (ft)	1000		

Geometry and Traffic



Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Number of Lanes, N	0	1	1	1	1	0	1	2	0	1	2	0
Lane Usage		LT	R	L	TR		L	TR		L	TR	
Vehicle Volumes Averages (veh/h)	1	0	7	0	0	2	6	164	2	2	241	0
Pedestrian Averages (peds/h)	0			0			0			0		
Gap Averages (gaps/h)	0			0			0			0		
Delay (s/veh)	0.0			0.0			0.0			0.0		
Delay (veh-hrs)	0.0			0.0			0.0			0.0		

School Crossing and Roadway Network

Number of Students in Highest Hour	0	Two or More Major Routes	No
Number of Adequate Gaps in Period	0	Weekend Counts	No
Number of Minutes in Period	0	5-year Growth Factor (%)	0

Railroad Crossing

Grade Crossing Approach	None	Rail Traffic (trains/day)	4
Highest Volume Hour with Trains	Unknown	High Occupancy Buses (%)	0
Distance to Stop Line (ft)		Tractor-Trailer Trucks (%)	10

HCS7 Warrants Report

Volume Summary

Hour	Major Volume	Minor Volume	Total Volume	Peds/h	Gaps/h	1A (70%)	1A (56%)	1B (70%)	1B (56%)	2 (70%)	3A (70%)	3B (70%)	4A (70%)	4B (70%)
07 - 08	2178	47	2244	0	0	No	No	No	No	No	No	No	No	No
08 - 09	0	0	0	0	0	No	No	No	No	No	No	No	No	No
09 - 10	0	0	0	0	0	No	No	No	No	No	No	No	No	No
10 - 11	0	0	0	0	0	No	No	No	No	No	No	No	No	No
11 - 12	0	0	0	0	0	No	No	No	No	No	No	No	No	No
12 - 13	0	0	0	0	0	No	No	No	No	No	No	No	No	No
13 - 14	0	0	0	0	0	No	No	No	No	No	No	No	No	No
14 - 15	0	0	0	0	0	No	No	No	No	No	No	No	No	No
15 - 16	0	0	0	0	0	No	No	No	No	No	No	No	No	No
16 - 17	2842	61	2929	0	0	No	No	No	Yes	No	No	No	No	No
17 - 18	0	0	0	0	0	No	No	No	No	No	No	No	No	No
18 - 19	0	0	0	0	0	No	No	No	No	No	No	No	No	No
Total	5020	108	5173	0	0	0	0	0	1	0	0	0	0	0

Warrants

Warrant 1: Eight-Hour Vehicular Volume	
A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	
B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	
56% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	
Warrant 2: Four-Hour Vehicular Volume	
Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)	
Warrant 3: Peak Hour	
A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--	
B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	
Warrant 4: Pedestrian Volume	
A. Four Hour Volumes --or--	
B. One-Hour Volumes	
Warrant 5: School Crossing	
Gaps Same Period --and--	
Student Volumes	
Nearest Traffic Control Signal (optional)	✓
Warrant 6: Coordinated Signal System	
Degree of Platooning (Predominant direction or both directions)	
Warrant 7: Crash Experience	
A. Adequate trials of alternatives, observance and enforcement failed --and--	
B. Reported crashes susceptible to correction by signal (12-month period) --and--	
C. 56% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied	
Warrant 8: Roadway Network	
A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--	
B. Weekend Volume (Five hours total)	
Warrant 9: Grade Crossing	
A. Grade Crossing within 140 ft --and--	
B. Peak-Hour Vehicular Volumes	

HCS7 Warrants Report

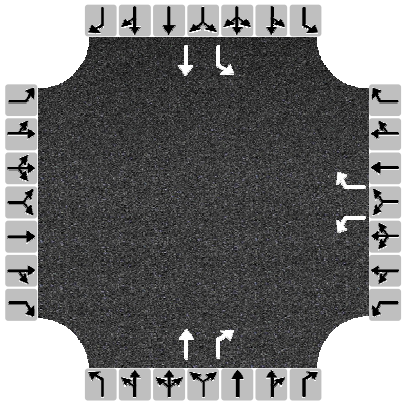
Project Information

Analyst	Devesh Kumar	Date	4/8/2022
Agency	Stantec	Analysis Year	2028
Jurisdiction	Mount Pleasant	Time Period Analyzed	Peak Hour
Project Description	SC 41 & Joe Rouse Road		

General

Major Street Direction	North-South	Population < 10,000	No
Starting Time Interval	7	Coordinated Signal System	No
Median Type	Undivided	Crashes (crashes/year)	0
Major Street Speed (mi/h)	45	Adequate Trials of Crash Exp. Alt.	No
Nearest Signal (ft)	1500		

Geometry and Traffic



Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Number of Lanes, N	0	0	0	1	0	1	0	1	1	1	1	0
Lane Usage				L		R		T	R	L	T	
Vehicle Volumes Averages (veh/h)	0	0	0	5	0	13	0	110	10	19	158	0
Pedestrian Averages (peds/h)	0			0			0			0		
Gap Averages (gaps/h)	0			0			0			0		
Delay (s/veh)	0.0			0.0			0.0			0.0		
Delay (veh-hrs)	0.0			0.0			0.0			0.0		

School Crossing and Roadway Network

Number of Students in Highest Hour	0	Two or More Major Routes	No
Number of Adequate Gaps in Period	0	Weekend Counts	No
Number of Minutes in Period	0	5-year Growth Factor (%)	0

Railroad Crossing

Grade Crossing Approach	None	Rail Traffic (trains/day)	4
Highest Volume Hour with Trains	Unknown	High Occupancy Buses (%)	0
Distance to Stop Line (ft)		Tractor-Trailer Trucks (%)	10

HCS7 Warrants Report

Volume Summary

Hour	Major Volume	Minor Volume	Total Volume	Peds/h	Gaps/h	1A (70%)	1A (56%)	1B (70%)	1B (56%)	2 (70%)	3A (70%)	3B (70%)	4A (70%)	4B (70%)
07 - 08	1531	103	1634	0	0	No	No	Yes	Yes	Yes	No	Yes	No	No
08 - 09	0	0	0	0	0	No	No	No	No	No	No	No	No	No
09 - 10	0	0	0	0	0	No	No	No	No	No	No	No	No	No
10 - 11	0	0	0	0	0	No	No	No	No	No	No	No	No	No
11 - 12	0	0	0	0	0	No	No	No	No	No	No	No	No	No
12 - 13	0	0	0	0	0	No	No	No	No	No	No	No	No	No
13 - 14	0	0	0	0	0	No	No	No	No	No	No	No	No	No
14 - 15	0	0	0	0	0	No	No	No	No	No	No	No	No	No
15 - 16	2054	126	2180	0	0	No	Yes	Yes	Yes	Yes	No	Yes	No	No
16 - 17	0	0	0	0	0	No	No	No	No	No	No	No	No	No
17 - 18	0	0	0	0	0	No	No	No	No	No	No	No	No	No
18 - 19	0	0	0	0	0	No	No	No	No	No	No	No	No	No
Total	3585	229	3814	0	0	0	1	2	2	2	0	2	0	0

Warrants

Warrant 1: Eight-Hour Vehicular Volume	
A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	
B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	
56% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	
Warrant 2: Four-Hour Vehicular Volume	
Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)	
Warrant 3: Peak Hour	✓
A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--	
B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	✓
Warrant 4: Pedestrian Volume	
A. Four Hour Volumes --or--	
B. One-Hour Volumes	
Warrant 5: School Crossing	
Gaps Same Period --and--	
Student Volumes	
Nearest Traffic Control Signal (optional)	✓
Warrant 6: Coordinated Signal System	
Degree of Platooning (Predominant direction or both directions)	
Warrant 7: Crash Experience	
A. Adequate trials of alternatives, observance and enforcement failed --and--	
B. Reported crashes susceptible to correction by signal (12-month period) --and--	
C. 56% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied	
Warrant 8: Roadway Network	
A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--	
B. Weekend Volume (Five hours total)	
Warrant 9: Grade Crossing	
A. Grade Crossing within 140 ft --and--	
B. Peak-Hour Vehicular Volumes	

HCS7 Warrants Report

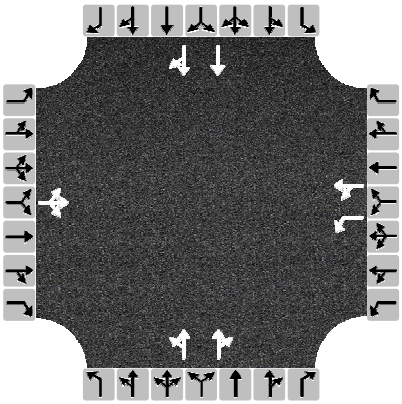
Project Information

Analyst	Devesh Kumar	Date	4/8/2022
Agency	Stantec	Analysis Year	2028
Jurisdiction	Mount Pleasant	Time Period Analyzed	Peak Hour
Project Description	SC 41 & Parkway/Cardinal Hill		

General

Major Street Direction	North-South	Population < 10,000	No
Starting Time Interval	7	Coordinated Signal System	No
Median Type	Undivided	Crashes (crashes/year)	0
Major Street Speed (mi/h)	0	Adequate Trials of Crash Exp. Alt.	No
Nearest Signal (ft)	1500		

Geometry and Traffic



Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Number of Lanes, N	0	1	0	1	1	0	0	2	0	0	2	0
Lane Usage		LTR		L	LT			LTR			TR	
Vehicle Volumes Averages (veh/h)	0	0	0	84	0	0	0	116	46	0	159	0
Pedestrian Averages (peds/h)	0			0			0			0		
Gap Averages (gaps/h)	0			0			0			0		
Delay (s/veh)	0.0			0.0			0.0			0.0		
Delay (veh-hrs)	0.0			0.0			0.0			0.0		

School Crossing and Roadway Network

Number of Students in Highest Hour	0	Two or More Major Routes	No
Number of Adequate Gaps in Period	0	Weekend Counts	No
Number of Minutes in Period	0	5-year Growth Factor (%)	0

Railroad Crossing

Grade Crossing Approach	None	Rail Traffic (trains/day)	4
Highest Volume Hour with Trains	Unknown	High Occupancy Buses (%)	0
Distance to Stop Line (ft)		Tractor-Trailer Trucks (%)	10

HCS7 Warrants Report

Volume Summary

Hour	Major Volume	Minor Volume	Total Volume	Peds/h	Gaps/h	1A (100%)	1A (80%)	1B (100%)	1B (80%)	2 (100%)	3A (100%)	3B (100%)	4A (100%)	4B (100%)
07 - 08	1499	652	2151	0	0	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No
08 - 09	0	0	0	0	0	No	No	No	No	No	No	No	No	No
09 - 10	0	0	0	0	0	No	No	No	No	No	No	No	No	No
10 - 11	0	0	0	0	0	No	No	No	No	No	No	No	No	No
11 - 12	0	0	0	0	0	No	No	No	No	No	No	No	No	No
12 - 13	0	0	0	0	0	No	No	No	No	No	No	No	No	No
13 - 14	0	0	0	0	0	No	No	No	No	No	No	No	No	No
14 - 15	0	0	0	0	0	No	No	No	No	No	No	No	No	No
15 - 16	0	0	0	0	0	No	No	No	No	No	No	No	No	No
16 - 17	2370	362	2732	0	0	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No
17 - 18	0	0	0	0	0	No	No	No	No	No	No	No	No	No
18 - 19	0	0	0	0	0	No	No	No	No	No	No	No	No	No
Total	3869	1014	4883	0	0	2	2	2	2	2	0	2	0	0

Warrants

Warrant 1: Eight-Hour Vehicular Volume	
A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	
B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	
80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	
Warrant 2: Four-Hour Vehicular Volume	
Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)	
Warrant 3: Peak Hour	✓
A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--	
B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	✓
Warrant 4: Pedestrian Volume	
A. Four Hour Volumes --or--	
B. One-Hour Volumes	
Warrant 5: School Crossing	
Gaps Same Period --and--	
Student Volumes	
Nearest Traffic Control Signal (optional)	✓
Warrant 6: Coordinated Signal System	
Degree of Platooning (Predominant direction or both directions)	
Warrant 7: Crash Experience	
A. Adequate trials of alternatives, observance and enforcement failed --and--	
B. Reported crashes susceptible to correction by signal (12-month period) --and--	
C. 80% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied	
Warrant 8: Roadway Network	
A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--	
B. Weekend Volume (Five hours total)	
Warrant 9: Grade Crossing	
A. Grade Crossing within 140 ft --and--	
B. Peak-Hour Vehicular Volumes	

HCS7 Warrants Report

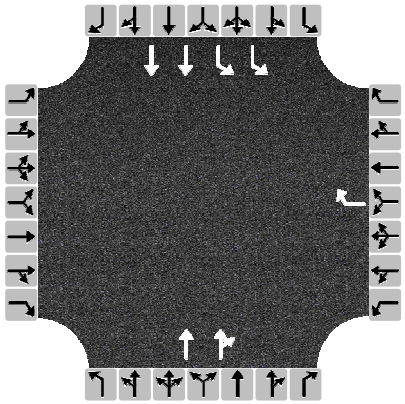
Project Information

Analyst	Devesh Kumar	Date	4/8/2022
Agency	Stantec	Analysis Year	2028
Jurisdiction	Mount Pleasant	Time Period Analyzed	Peak Hour
Project Description	SC 41 & Winnowing Way		

General

Major Street Direction	North-South	Population < 10,000	No
Starting Time Interval	7	Coordinated Signal System	No
Median Type	Undivided	Crashes (crashes/year)	0
Major Street Speed (mi/h)	0	Adequate Trials of Crash Exp. Alt.	No
Nearest Signal (ft)	1000		

Geometry and Traffic



Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Number of Lanes, N	0	0	0	0	0	1	0	2	0	2	2	0
Lane Usage						R		TR		L	T	
Vehicle Volumes Averages (veh/h)	0	0	0	0	0	38	0	96	1	50	188	0
Pedestrian Averages (peds/h)	0			0			0			0		
Gap Averages (gaps/h)	0			0			0			0		
Delay (s/veh)	0.0			0.0			0.0			0.0		
Delay (veh-hrs)	0.0			0.0			0.0			0.0		

School Crossing and Roadway Network

Number of Students in Highest Hour	0	Two or More Major Routes	No
Number of Adequate Gaps in Period	0	Weekend Counts	No
Number of Minutes in Period	0	5-year Growth Factor (%)	0

Railroad Crossing

Grade Crossing Approach	None	Rail Traffic (trains/day)	4
Highest Volume Hour with Trains	Unknown	High Occupancy Buses (%)	0
Distance to Stop Line (ft)		Tractor-Trailer Trucks (%)	10

HCS7 Warrants Report

Volume Summary

Hour	Major Volume	Minor Volume	Total Volume	Peds/h	Gaps/h	1A (100%)	1A (80%)	1B (100%)	1B (80%)	2 (100%)	3A (100%)	3B (100%)	4A (100%)	4B (100%)
07 - 08	1716	326	2042	0	0	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No
08 - 09	0	0	0	0	0	No	No	No	No	No	No	No	No	No
09 - 10	0	0	0	0	0	No	No	No	No	No	No	No	No	No
10 - 11	0	0	0	0	0	No	No	No	No	No	No	No	No	No
11 - 12	0	0	0	0	0	No	No	No	No	No	No	No	No	No
12 - 13	0	0	0	0	0	No	No	No	No	No	No	No	No	No
13 - 14	0	0	0	0	0	No	No	No	No	No	No	No	No	No
14 - 15	0	0	0	0	0	No	No	No	No	No	No	No	No	No
15 - 16	0	0	0	0	0	No	No	No	No	No	No	No	No	No
16 - 17	2338	140	2478	0	0	No	Yes	Yes	Yes	Yes	No	Yes	No	No
17 - 18	0	0	0	0	0	No	No	No	No	No	No	No	No	No
18 - 19	0	0	0	0	0	No	No	No	No	No	No	No	No	No
Total	4054	466	4520	0	0	1	2	2	2	2	0	2	0	0

Warrants

Warrant 1: Eight-Hour Vehicular Volume	
A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	
B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	
80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	
Warrant 2: Four-Hour Vehicular Volume	
Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)	
Warrant 3: Peak Hour	✓
A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--	
B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	✓
Warrant 4: Pedestrian Volume	
A. Four Hour Volumes --or--	
B. One-Hour Volumes	
Warrant 5: School Crossing	
Gaps Same Period --and--	
Student Volumes	
Nearest Traffic Control Signal (optional)	✓
Warrant 6: Coordinated Signal System	
Degree of Platooning (Predominant direction or both directions)	
Warrant 7: Crash Experience	
A. Adequate trials of alternatives, observance and enforcement failed --and--	
B. Reported crashes susceptible to correction by signal (12-month period) --and--	
C. 80% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied	
Warrant 8: Roadway Network	
A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--	
B. Weekend Volume (Five hours total)	
Warrant 9: Grade Crossing	
A. Grade Crossing within 140 ft --and--	
B. Peak-Hour Vehicular Volumes	

HCS7 Warrants Report

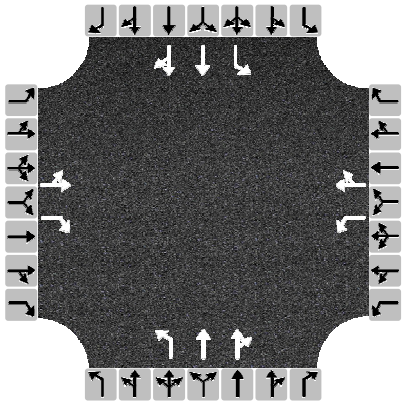
Project Information

Analyst	Devesh Kumar	Date	4/8/2022
Agency	Stantec	Analysis Year	2045
Jurisdiction	Mount Pleasant	Time Period Analyzed	Peak Hour
Project Description	SC 41 & Colonnade Dr/Emma Lane		

General

Major Street Direction	North-South	Population < 10,000	No
Starting Time Interval	7	Coordinated Signal System	No
Median Type	Undivided	Crashes (crashes/year)	0
Major Street Speed (mi/h)	45	Adequate Trials of Crash Exp. Alt.	No
Nearest Signal (ft)	1000		

Geometry and Traffic



Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Number of Lanes, N	0	1	1	1	1	0	1	2	0	1	2	0
Lane Usage		LT	R	L	TR		L	TR		L	TR	
Vehicle Volumes Averages (veh/h)	1	0	11	2	1	7	7	209	7	7	336	1
Pedestrian Averages (peds/h)	0			0			0			0		
Gap Averages (gaps/h)	0			0			0			0		
Delay (s/veh)	0.0			0.0			0.0			0.0		
Delay (veh-hrs)	0.0			0.0			0.0			0.0		

School Crossing and Roadway Network

Number of Students in Highest Hour	0	Two or More Major Routes	No
Number of Adequate Gaps in Period	0	Weekend Counts	No
Number of Minutes in Period	0	5-year Growth Factor (%)	0

Railroad Crossing

Grade Crossing Approach	None	Rail Traffic (trains/day)	4
Highest Volume Hour with Trains	Unknown	High Occupancy Buses (%)	0
Distance to Stop Line (ft)		Tractor-Trailer Trucks (%)	10

HCS7 Warrants Report

Volume Summary

Hour	Major Volume	Minor Volume	Total Volume	Peds/h	Gaps/h	1A (70%)	1A (56%)	1B (70%)	1B (56%)	2 (70%)	3A (70%)	3B (70%)	4A (70%)	4B (70%)
07 - 08	2970	65	3086	0	0	No	No	No	Yes	No	No	No	No	No
08 - 09	0	0	0	0	0	No	No	No	No	No	No	No	No	No
09 - 10	0	0	0	0	0	No	No	No	No	No	No	No	No	No
10 - 11	0	0	0	0	0	No	No	No	No	No	No	No	No	No
11 - 12	0	0	0	0	0	No	No	No	No	No	No	No	No	No
12 - 13	0	0	0	0	0	No	No	No	No	No	No	No	No	No
13 - 14	0	0	0	0	0	No	No	No	No	No	No	No	No	No
14 - 15	0	0	0	0	0	No	No	No	No	No	No	No	No	No
15 - 16	0	0	0	0	0	No	No	No	No	No	No	No	No	No
16 - 17	3857	100	4029	0	0	No	No	Yes	Yes	Yes	No	No	No	No
17 - 18	0	0	0	0	0	No	No	No	No	No	No	No	No	No
18 - 19	0	0	0	0	0	No	No	No	No	No	No	No	No	No
Total	6827	165	7115	0	0	0	0	1	2	1	0	0	0	0

Warrants

Warrant 1: Eight-Hour Vehicular Volume	
A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	
B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	
56% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	
Warrant 2: Four-Hour Vehicular Volume	
Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)	
Warrant 3: Peak Hour	✓
A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--	
B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	✓
Warrant 4: Pedestrian Volume	
A. Four Hour Volumes --or--	
B. One-Hour Volumes	
Warrant 5: School Crossing	
Gaps Same Period --and--	
Student Volumes	
Nearest Traffic Control Signal (optional)	✓
Warrant 6: Coordinated Signal System	
Degree of Platooning (Predominant direction or both directions)	
Warrant 7: Crash Experience	
A. Adequate trials of alternatives, observance and enforcement failed --and--	
B. Reported crashes susceptible to correction by signal (12-month period) --and--	
C. 56% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied	
Warrant 8: Roadway Network	
A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--	
B. Weekend Volume (Five hours total)	
Warrant 9: Grade Crossing	
A. Grade Crossing within 140 ft --and--	
B. Peak-Hour Vehicular Volumes	