



Appendix C:  
Travel Time Reliability Analysis  
Technical Memorandum



# TRAVEL TIME RELIABILITY ANALYSIS

Prepared for:



Prepared by:



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## LIST OF ACRONYMS

|        |   |
|--------|---|
| ATR    | Automatic Traffic Recorder                            |
| BI     | Buffer Index  |
| FHWA   | Federal Highway Administration                        |
| HCM    | Highway Capacity Manual                               |
| NPMRDS | National Performance Management Research Data Set     |
| OD     | Origin-Destination                                    |
| PTI    | Planning Time Index                                   |
| RITIS  | Regional Integrated Transportation Information System |
| SCDOT  | South Carolina Department of Transportation           |
| SND    | Standard Normal Deviate                               |
| TMC    | Traffic Message Channel                               |
| TT     | Travel Time   |
| TTI    | Travel Time Index                                     |



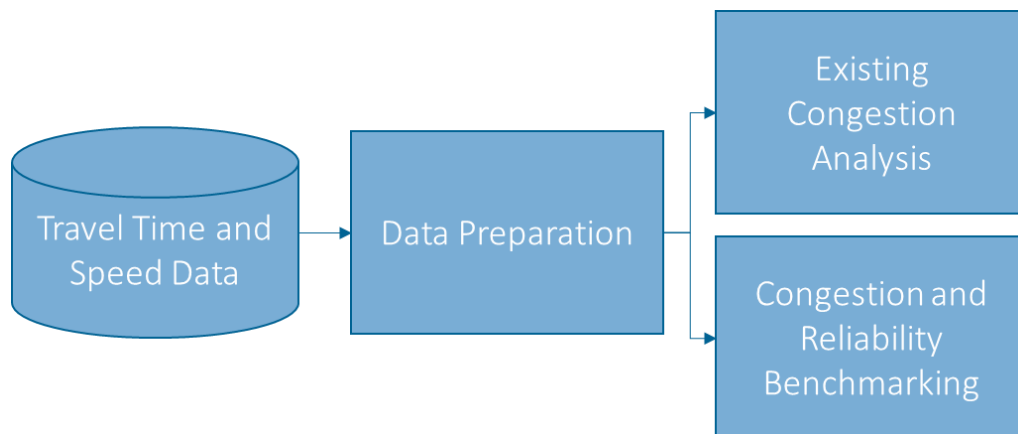
## 1.1 PURPOSE

This technical memorandum describes the travel time reliability analysis that was conducted in support of the South Carolina Department of Transportation's (SCDOT) *I-526 Lowcountry Corridor East PEL Study*. The travel time reliability analysis detailed in this memorandum was used to identify the locations, frequency, and severity of congestion in the corridor. Additionally, the travel time reliability analysis was used to identify locations of recurring and non-recurring congestion<sup>1</sup> throughout the study corridor, which can help guide the selection of congestion mitigation strategies. Finally, travel time reliability measures were calculated for Existing (2017), No Build (2050), and Build conditions to provide a point of reference for proposed improvement alternatives for the study corridor.

## 1.2 PROCESS OVERVIEW

**Figure 1-1** provides an overview of the travel time reliability analysis process. Travel time and speed data are the core input to this process. **Section 1.3** defines the source and resolution of these and other supporting data. **Section 2.1** details the data preparation effort that has been conducted to ensure the completeness of data, reduction of statistical noise, and meaningfulness of results. **Section 2.2** details existing congestion analysis and identifies locations, frequency, and intensity of recurring and non-recurring congestion along the study corridor. The results for the existing congestion analysis are summarized in **Section 3.1**. Congestion and reliability benchmarking allows for the comparison of proposed improvements across multiple scenarios including existing (2017), future (2050) No Build, and one build scenario (The metrics for benchmarking are described in **Section 2.2** and the results of benchmarking are described in **Section 3.1**).

Figure 1-1: Overview of Travel Time Reliability and Congestion Analysis Process



<sup>1</sup> FHWA Report № FHWA-HOP-14-034 defines recurring congestion as expected congestion which occurs when travel demand exceeds capacity, and defines non-recurring congestion as congestion that occurs when there are disruptions to the flow of traffic, including crashes, disabled vehicles, large special events (concerts, sports games, etc.), inclement weather, and construction work zones.

## 1.3 DATA

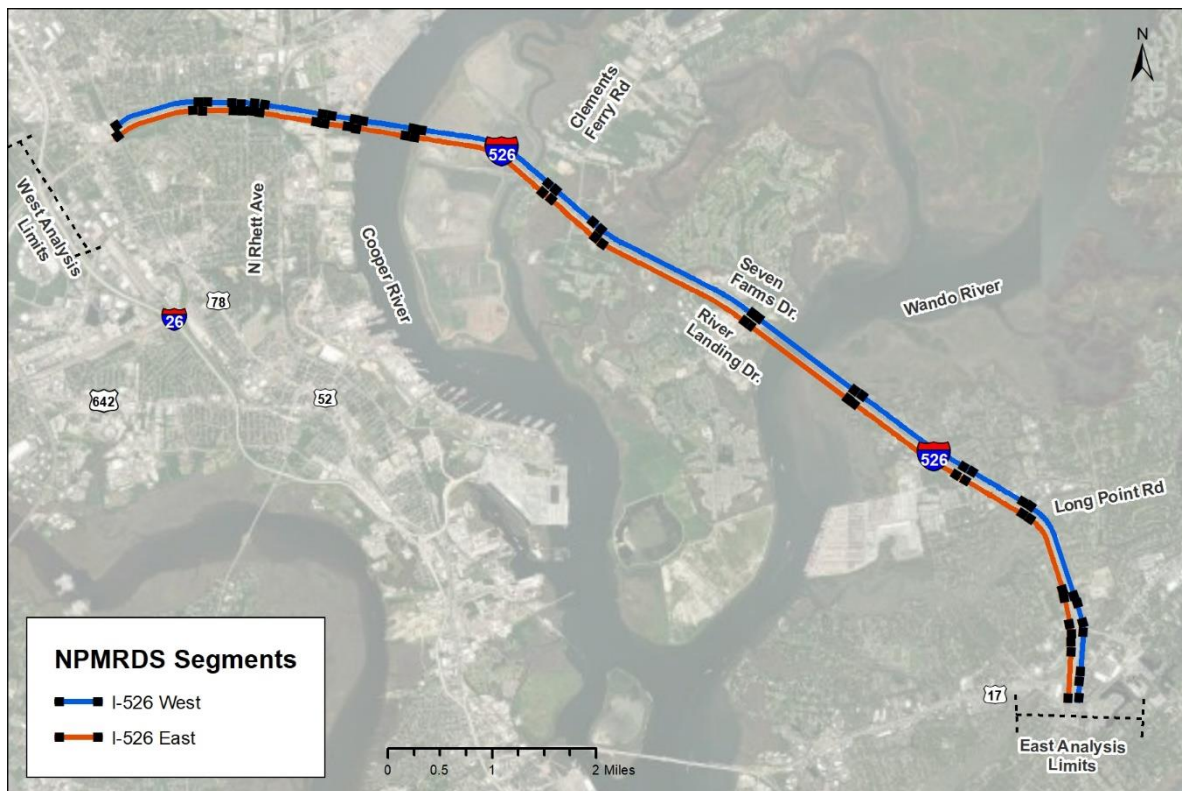
The following subsections detail the various data sources used throughout the analysis presented within this memorandum. Travel time and speed data serve as the primary data for analysis, and data for traffic volumes, incident data, and origin-destination data were used to supplement the analysis.

### 1.3.1 Travel Time and Speed Data

The National Performance Management Research Data Set (NPMRDS) served as the source of travel time and speed data for the corridor. NPMRDS provides travel time and speed estimates based on probe data on segments called Traffic Message Channels (TMCs). These segments are roadway sections with defined end points that typically align with critical changes in geometry or interchanges.

**Figure 1-2** illustrates the study corridor of I-526 from US 52 to US 17 which is made up of 33 TMC segments, including 16 TMC segments on the westbound direction and 17 TMC segments on the eastbound direction<sup>2</sup>. To align with the other data collected for this study, travel time and speed data for weekdays in 2017 were acquired at a 5-minute temporal resolution. These data contained average travel time and speed for passenger cars, trucks, and a combination of all vehicles. Note, while more recent NPMRDS data was available, 2017 data was selected to correspond to the 2017 base year established in previous project documentation and analysis, as well as the calibrated base year VISSIM model.

**Figure 1-2: I-526 Study Corridor in NPMRDS TMC Segments**

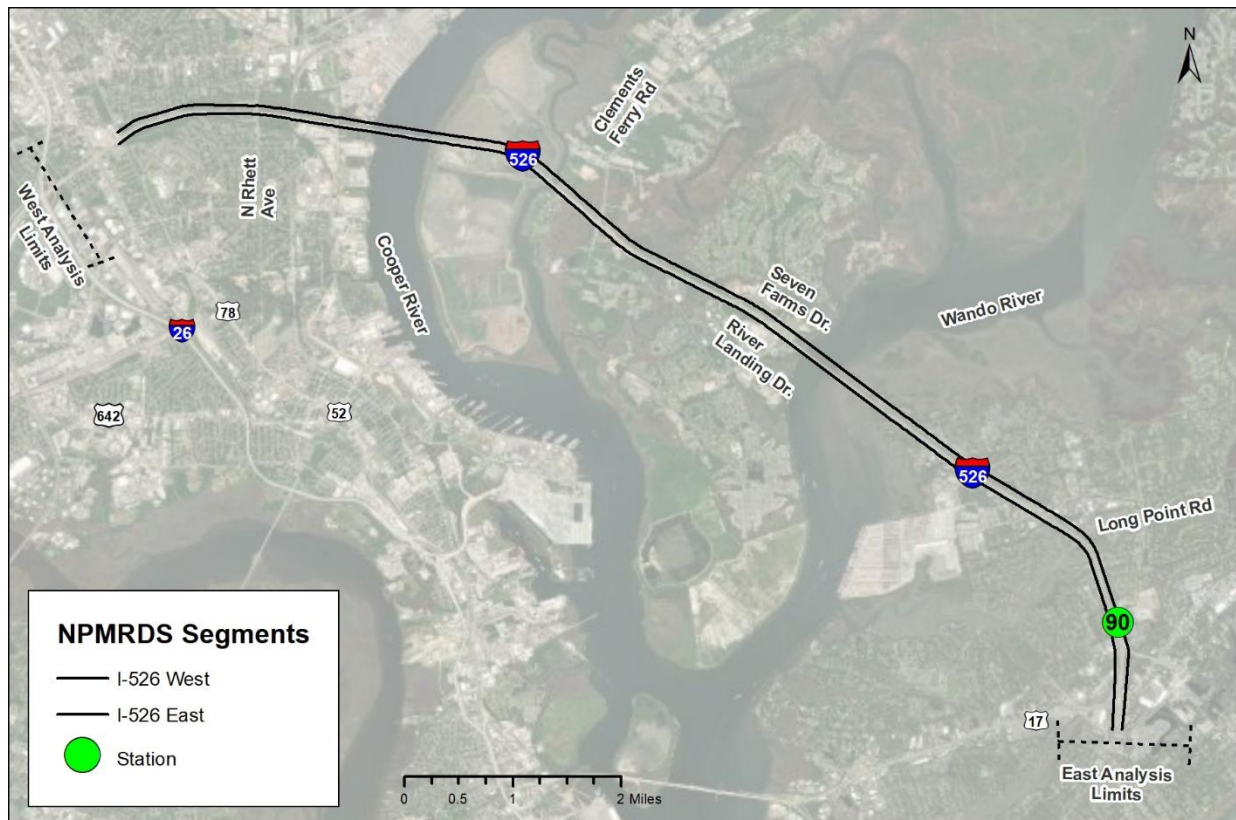


<sup>2</sup> Note the provided number of segments excludes small segments that are completely overlapped by larger segments and includes a section in each direction where two segments overlap for ~ 0.25 miles.

### 1.3.2 Traffic Volume and Class Data

Traffic volume and class data was needed to empirically determine free flow speed for the corridor (see **Subsection 2.1.1.2** for methods). **Figure 1-3** illustrates the location of the automatic traffic recorder (ATR) between Long Point Road and Mathis Ferry Road (ATR 90) that was used to acquire hourly directional traffic data for the purpose of determining free flow speed. Additionally, an estimate of daily truck percentage, as described in the **Data Collection Report**<sup>3</sup>, was used to estimate the percentage of trucks at the ATR location.

Figure 1-3: Traffic Count Location



### 1.3.3 Incident Data

Incident data was retrieved from the Regional Integrated Transportation Information System (RITIS). This data, with records for crashes, special events, lane closures, etc. was used to aid in the identification of instances of non-recurring congestion.

### 1.3.4 Origin-Destination Data

Origin-Destination (OD) data as collected from the Bluetooth survey, described in the **Data Collection Report**, were used to identify some of the most common paths traveler's take throughout the study corridor. These paths were used to spatially aggregate the travel time and speed data in order to

<sup>3</sup> CDM Smith. *I-526 Lowcountry Corridor East Data Collection Report*. 2018.

provide congestion and reliability metrics that are more relatable to those who travel the corridor frequently.

### 2.1 DATA PREPARATION

#### 2.1.1 Imputation

Probe based travel time and speed data, such as that provided by NPMRDS, often contains temporal gaps due to observation intervals with no traffic or simply no probe vehicles; therefore, to have a complete data set for every time interval in the study period imputation must be performed to fill these temporal gaps.

For the purpose of this study, a two-tiered imputation scheme was used. The day was divided into five periods: pre-morning peak period, morning peak period, midday, afternoon peak period, and post-afternoon peak period. Free flow conditions were assumed for any temporal gaps in the travel time and speed data that occurred in the pre-morning peak and post-afternoon peak periods. Linear interpolation based on the last preceding and next succeeding interval with observed travel time and speed data was used to fill any missing intervals in the morning peak period, midday, and afternoon peak period. Implementing this two-tiered scheme depends on the determination of peak periods and determination of free flow speeds. The methods for these determinations are described in the subsequent subsections.

Note, that the selected methods depend on imputation of five-minute epochs prior to aggregation to fifteen-minute periods, rather than direct download of fifteen-minute data. This method was chosen because fifteen-minute data directly downloaded from NPMRDS is prepared under the naïve method of averaging available five-minute epochs within the fifteen-minute period. This naïve method assumes that observed epochs are representative of unobserved epochs and still results in missing fifteen-minute periods, therefore imputation is still required. Our method relies on more robust assumptions as described above and the additional imputation burden is not significant, since the process is automated.

### 2.1.1.1 Peak Period Determination

Peak periods were determined based on the 2017 ATR data available in the corridor. Like the peak hour determination described in the **Data Collection Report**, peak period determination can be done based on a graphical assessment of the volume data throughout the day to capture build-up and dissipation of peak hour traffic. **Figure 2-1** and **Figure 2-2** show the directional volume data at ATR 90 on weekdays in 2017, summarized by month. From the graphical assessment, the morning and afternoon peak periods were determined to be 7-10 AM and 3-6 PM, respectively. This graphical analysis is confirmed tabularly by comparing each successive three-hour period to determine the morning and afternoon three-hour periods in which the most volume was observed.

Figure 2-1: Eastbound 2017 Hourly Traffic Variation by Month - ATR Station 90

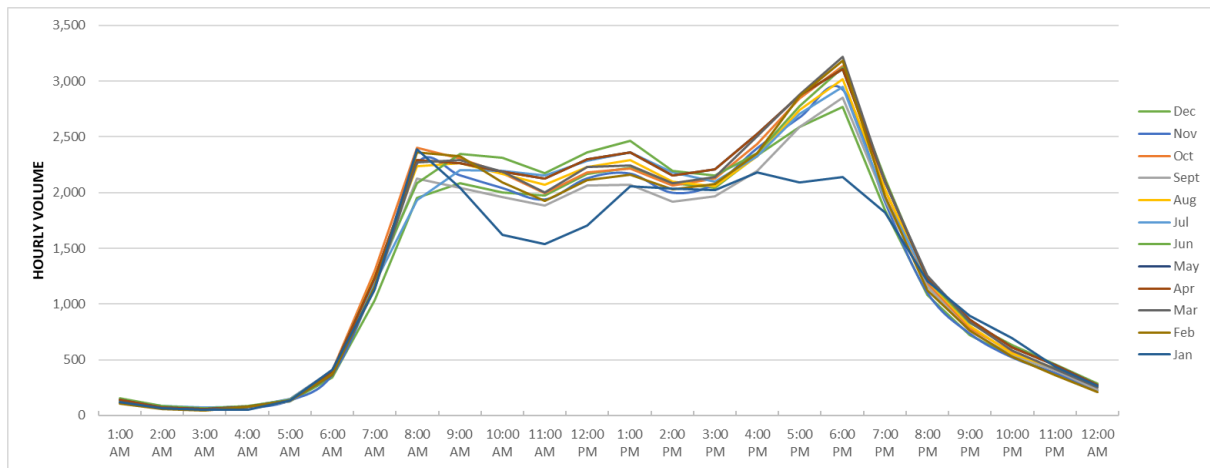
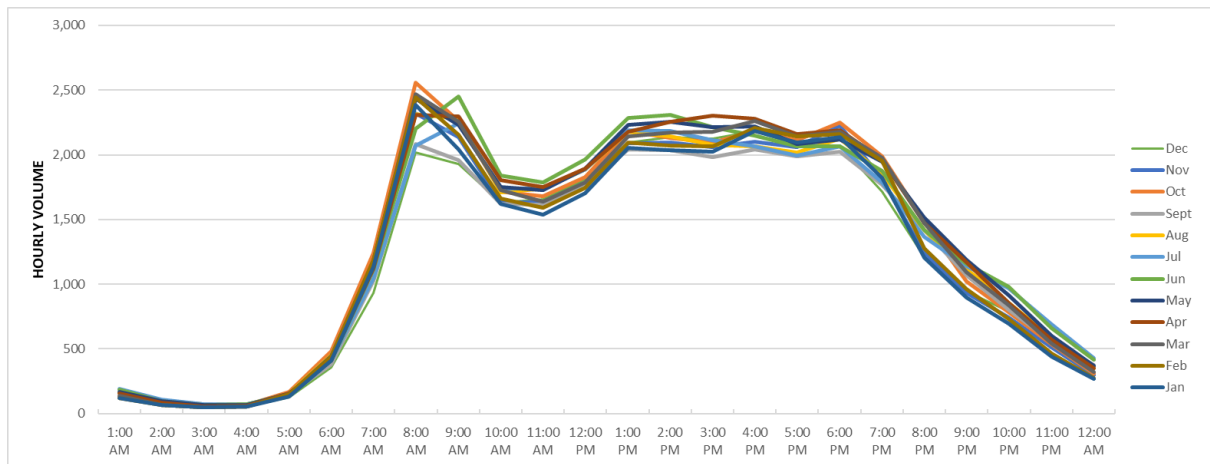


Figure 2-2: Westbound 2017 Hourly Traffic Variation by Month - ATR Station 90





**Table 2-1** shows the three-hour sums of two-way weekday traffic throughout the observed weekdays in 2017 (i.e. the sum of the successive three individual hour volume totals shown in the middle column of **Table 2-1**), confirming that the identified peak periods have the highest observed volume.

**Table 2-1: Tabular Weekday Peak Period Determination for ATR 90 2017**

|                         | Period     | Hourly Two-Way Weekday Traffic 2017 Sum | Three-Hour Two-Way Weekday Traffic 2017 Sum |
|-------------------------|------------|---|---|
| Pre-Morning Off Peak    | 12-1 AM    | 65,132                                  | 128,280                                     |
|                         | 1-2 AM     | 36,379                                  | 95,702                                      |
|                         | 2-3 AM     | 26,769                                  | 127,330                                     |
|                         | 3-4 AM     | 32,554                                  | 291,647                                     |
|                         | 4-5 AM     | 68,007                                  | 811,253                                     |
|                         | 5-6 AM     | 191,086                                 | 1,821,307                                   |
|                         | 6-7 AM     | 552,160                                 | 2,686,353                                   |
| Morning Peak            | 7-8 AM     | 1,078,061                               | <b>3,042,446</b>                            |
|                         | 8-9 AM     | 1,056,132                               | 2,838,827                                   |
|                         | 9-10 AM    | 908,253                                 | 2,734,203                                   |
| Midday                  | 10-11 AM   | 874,442                                 | 2,866,984                                   |
|                         | 11 – 12 PM | 951,508                                 | 2,991,009                                   |
|                         | 12-1 PM    | 1,041,034                               | 3,037,534                                   |
|                         | 1-2PM      | 998,467                                 | 3,068,956                                   |
|                         | 2-3 PM     | 998,033                                 | 3,215,023                                   |
| Afternoon Peak          | 3-4 PM     | 1,072,456                               | <b>3,446,759</b>                            |
|                         | 4-5 PM     | 1,144,534                               | 3,296,658                                   |
|                         | 5-6 PM     | 1,229,769                               | 2,760,557                                   |
| Post-Afternoon Off Peak | 6-7 PM     | 922,355                                 | 1,971,327                                   |
|                         | 7-8 PM     | 608,433                                 | 1,379,401                                   |
|                         | 8-9 PM     | 440,539                                 | 1,000,298                                   |
|                         | 9-10 PM    | 330,429                                 | 699,803                                     |
|                         | 10-11 PM   | 229,330                                 |   |
|                         | 11 – 12 PM | 140,044                                 |   |

### 2.1.1.2 Determination of Free Flow Speed

Free flow speed was determined for each direction utilizing guidance from the Highway Capacity Manual (HCM) Chapter 12. HCM defines the observed free flow speed as the speed of passenger cars when the volume falls below 1,000 passenger cars per hour per lane.

The 2017 hourly data from ATR 90 was used to determine which hours throughout 2017 met this criterion in each direction in the corridor. The truck percentage (3% EB and 2% WB from the **Data Collection Report**) and the roadway profile of two lanes in each direction at the ATR location were used to convert from the count units of vehicles per hour to the required units of passenger car per hour per lane. The NPMRDS passenger car speeds observed on the ATR segment in qualifying time intervals were used to create an average observed free flow speed in each direction. The resulting free flow speed was determined to be 59.2 miles per hour in the Eastbound direction and 59.9 miles per hour in the

Westbound direction. This determined free flow speed was used to estimate the existing conditions reliability metrics.

### 2.1.1.3 Imputation Summary

The two-tiered imputation strategy described above was used to fill all missing speed data in the NPMRDS dataset of weekdays for 2017. Once speeds were imputed, NPMRDS segment length was used to calculate the imputed travel time. **Table 2-2** summarizes the results of the two-tiered imputation strategy.

**Table 2-2: Imputation Summary**

| Observation Type                        | Percentage of Imputed 5-Minute Time intervals in 2017 Weekday Data    |  |
|---|---|--|
|   | Pre- Morning and Post-Afternoon Peak Period<br>(Free Flow Assumption) | Morning Peak, Midday, and Afternoon Peak<br>Period (Interpolation) |
| All Traffic (Trucks and Passenger Cars) | 52%   | 11%  |
| Truck only                              | 72%   | 34%  |

### 2.1.2 Aggregation

Temporal and spatial aggregation was used in the travel time and congestion analysis to smooth statistical noise and make the results of the analysis more interpretable. Temporal aggregation was used to create average 15-minute values for travel time and speed for each NPMRDS segment and each observation type (passenger cars, trucks, and all vehicles). A simple arithmetic mean was used for temporal aggregation.

Spatial aggregation was used to calculate the metrics described below for overall corridor performance and common origin-destination pairs through the corridor. Common origin OD pairs were identified by analyzing the Bluetooth study presented in the **Data Collection Report**. While the NPMRDS data is accompanied with an estimated of ADT, this data lacks the hourly volume data (or necessary factors) to support the use of VMT weighted metrics for the corridor and OD pairs during the peak period. Therefore, travel times were spatially aggregated by creating a sum of observed travel times on individual NPMRDS segments that made up the corridor or chosen OD pair, resulting in a 15-minute interval estimate of travel time. Speeds were spatially aggregated by creating a length weighted harmonic mean<sup>4</sup> of speeds on individual NPMRDS segments that made up the corridor or chosen OD pair, resulting in the equivalent constant speed that would be required to traverse the corridor or OD pair in the aggregated travel time.

### 2.1.3 Identification of Representative Month

A representative month was identified for further detailed analysis and creation of benchmarking metrics. The representative month is defined as the month with travel time profiles most similar to the annual average travel time profiles. The steps below summarize the identification process.

---

<sup>4</sup> Harmonic mean is a kind of Pythagorean mean. Typically, it is appropriate for situations when the average of rates is desired.  
(<https://www.itl.nist.gov/div898/software/dataplot/refman2/auxillar/harmmean.htm>)



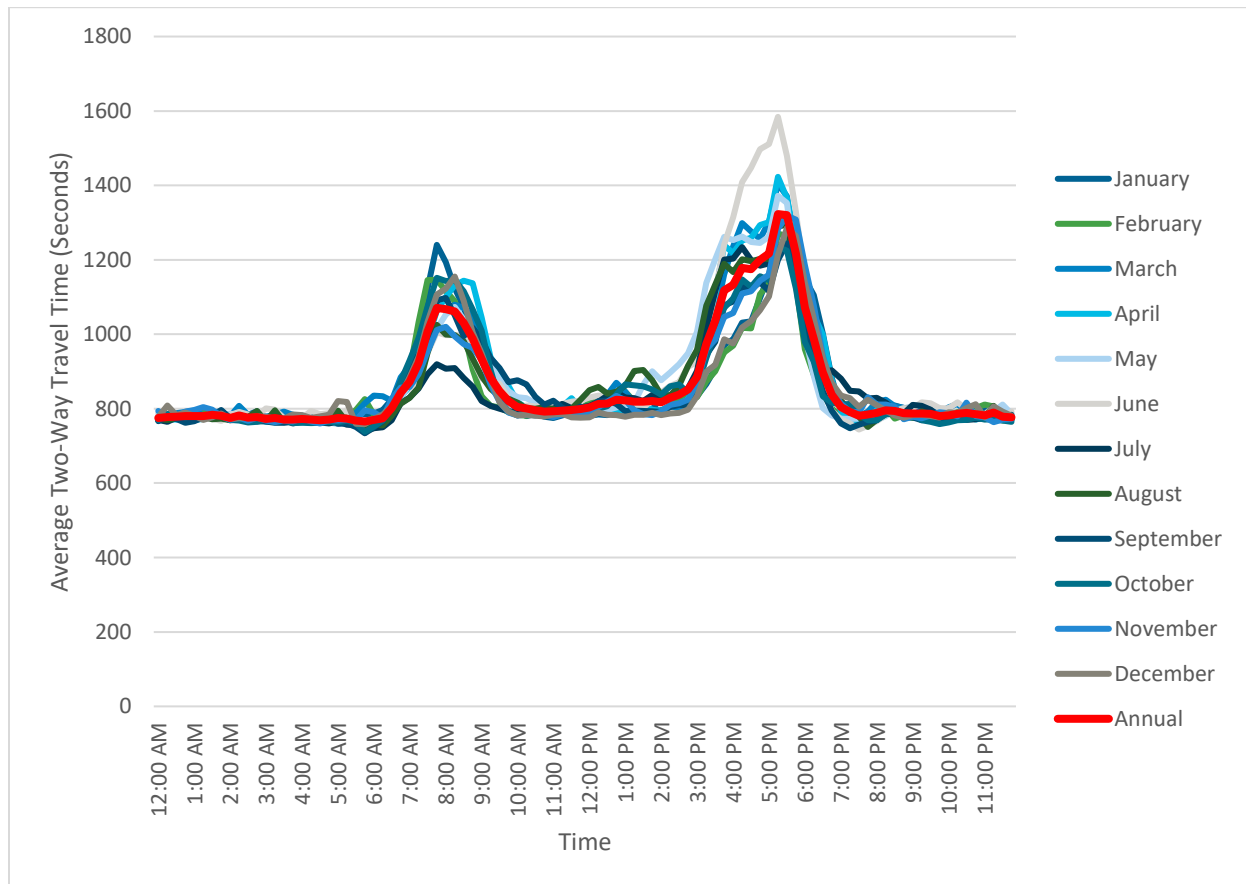
1. Create monthly averages for two-way corridor travel time for each 15-minute period throughout the day.
2. Create an annual average for two-way corridor travel time for each 15-minute period throughout the day.
3. Calculate the absolute percentage difference between the monthly and annual averages two-way corridor travel time for each 15-minute period throughout the day.
4. For each month, average the 15-minute absolute percentage differences to get a single value for each month (the average absolute percentage difference shown in **Table 2-3**).
5. Rank the months from most to least representative according to the average absolute percentage difference (lowest difference defined as most representative).

This process led to the identification of March 2017 as the representative month. **Table 2-3** summarizes the average absolute percentage differences and final ranks. **Figure 2-3** graphically depicts the monthly and annual averages.

**Table 2-3: Representative Month Identification Summary**

| Month        | Average Absolute Percentage Travel Time Difference from Annual | Rank     |
|--------------|--|----------|
| January      | 3.07%  | 9        |
| February     | 3.30%  | 11       |
| <b>March</b> | <b>2.38%</b>   | <b>1</b> |
| April        | 2.59%  | 4        |
| May          | 2.93%  | 7        |
| June         | 3.99%  | 12       |
| July         | 3.07%  | 8        |
| August       | 2.53%  | 3        |
| September    | 2.69%  | 5        |
| October      | 2.74%  | 6        |
| November     | 2.39%  | 2        |
| December     | 3.25%  | 10       |

**Figure 2-3: Comparison of Monthly Two-Way Travel Time Averages to 2017 Annual Average**



## 2.2 METRICS FOR CONGESTION ANALYSIS AND BENCHMARKING

The metrics described in the subsequent subsections describe congestion and reliability within the study corridor. The travel time index (TTI) and standard normal deviate (SND) support the identification of locations and paths experiencing recurring and non-recurring congestion under existing conditions<sup>5</sup>. The planning time index (PTI) and buffer index (BI) are used to examine existing reliability in the corridor. Additionally, the TTI is used for benchmarking to enable comparisons for modeled scenarios. The required model data and adjustments necessary to compare modeled traffic information to observed data are discussed in the **Subsection 2.2.5**.

### 2.2.1 Travel Time Index

The TTI quantifies congestion based on user experienced travel time for a given time interval. The TTI is defined as the ratio between the observed travel time to free flow travel time, which represents the percentage increase in travel time compared to free flow conditions. The formula for TTI is presented below:

$$TTI = \frac{\text{Observed Travel Time}}{\text{Free Flow Travel Time}}$$

For example, if under free flow conditions a trip takes 10 minutes, but during a congested time interval that trip takes 15 minutes, the TTI would be equal to 1.5. This TTI indicates that it took the traveler 50% longer than what it would have taken under the free flow conditions to complete the trip.

The TTI can be used to describe the severity of congestion under the following scheme<sup>6</sup>:

- Moderate Congestion:  $1.1 < TTI \leq 1.5$
- Significant Congestion:  $1.5 < TTI \leq 2.0$
- Severe Congestion:  $TTI > 2.0$

For this study, the TTI was calculated for every NPMRDS segment within the study corridor for each 15-minute interval in the representative month of March 2017. The free flow speed determined as described in **Subsection 2.1.1.2** was used for the existing conditions analysis. These metrics were used to quantify how frequently and how severely congested segments and paths in the study corridor were during the representative month.

### 2.2.2 Standard Normal Deviate

The SND of speed is computed as the difference of the given speed from its mean, divided by the standard deviation of the data set. A limiting value for the SND of -1.5 or more indicates a disruptive flow or an incident with a 92% detection ratio and a 1.3% false detection rate during peak periods<sup>7</sup>. The formula for Speed SND is presented below:

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<sup>5</sup> Note TTI, PTI, and BI are specified as reliability metrics in FHWA Report #FHWA-HOP-19-062 (2019)

<sup>6</sup> Sisiopiku, V. P., and S. Rostami-Hosuri. "Congestion Quantification Using the National Performance Management Research Data Set." Data 2, № 4 (2017): 39.

<sup>7</sup> Dudek et al. (1974) as cited by Sullivan, A. J., V. P. Sisiopiku, and B. R. Kallem. "Measuring Non Recurring Congestion in Small to Medium Sized Urban Areas." University Transportation Center for Alabama, Report № 09201 (2012).

$$\text{Speed SND} = \frac{(\text{Observed Speed} - \text{Average Speed})}{\text{Standard Deviation of Speed}}$$

The Speed SND was calculated for each congested 15-minute interval (as defined by TTI) in the representative month of March 2017 for NPMRDS segments and paths within the study corridor. Therefore, the observed speed in the above equation is the observed speed for a given fifteen-minute period and the average and standard deviation describe the given fifteen-minute period for the representative month of March 2017. This metric was used to quantify how much congestion of each level of severity (as indicated by TTI) was recurring congestion and how much was non-recurring congestion.

### 2.2.3 Planning Time Index

The planning time index (PTI) describes how much total time a traveler would have to plan to ensure on-time arrival compared to free flow conditions for a given time period. When compared to an average TTI, the PTI can be an indicator of the reliability for a segment or path. The PTI is calculated as the ratio between the 95<sup>th</sup> percentile observed travel time to free flow travel time as shown in the equation below:

$$PTI = \frac{95\text{th Percentile Travel Time}}{\text{Free Flow Travel Time}}$$

For example, if under free flow conditions a trip takes 10 minutes, but one day out of twenty workdays (95<sup>th</sup> percentile or the worst weekday of the month) that trip takes 20 minutes, the PTI would be equal to 2. This PTI indicates that it took the traveler twice as much as what it would have taken under free flow conditions to complete the trip.

The PTI was calculated for each fifteen-minute period within the AM and PM Peak Hours (7-8 AM and 5-6 PM, as defined in the **Data Collection Report**) for NPMRDS segments and paths within the study corridor. The free flow speed determined as described in **Subsection 2.1.1.2** was used for the existing conditions analysis.

### 2.2.4 Buffer Index

The buffer index (BI) describes how much additional time a traveler would have to plan to ensure on-time arrival compared to an average day for a given time period. The BI relies on the buffer time which is the increase in travel time on the worst weekday of the month compared to the average travel time. The BI is calculated as the ratio of the buffer time and average travel time as shown in the equation below:

$$BI = \frac{(95\text{th Percentile Travel Time} - \text{Average Travel Time})}{\text{Average Travel Time}}$$

For example, if under average conditions a trip takes 15 minutes, but during the worst weekday of the month (95<sup>th</sup> percentile) that trip takes 20 minutes, the BI would be equal to 0.33. This BI indicates that it took the traveler 33% longer than what it would have taken on an average day.

The BI was calculated for each fifteen-minute period within the AM and PM Peak Hours (7-8 AM and 5-6 PM, as defined in the **Data Collection Report**) for NPMRDS segments and paths within the study corridor.

### 2.2.5 Assessing Travel Time Metrics from Model Scenarios

A VISSIM microsimulation model has been developed for use in operational analyses in this study. Details on the development and calibration of the VISSIM model are available in the **Microsimulation Model Development and Calibration Report**. The 2017 base model was developed in VISSIM version 9.00-14 microsimulation software. The model simulates existing conditions for the AM and PM peak hours. The model validation process involved Volumes and Travel Times in adherence to FHWA's Traffic Analysis Toolbox Volume III (2004). The models were developed and validated against a synthetic day. The peak hour simulated volumes were compared against the balanced volumes developed based on traffic counts conducted between October 10 and November 16, 2017 as described in the **Data Collection Report**. The model travel times were validated against INRIX Travel time data from September 5<sup>th</sup> to 28<sup>th</sup>, 2017, which represented freeway travel times for the peak hours. The VISSIM OD was compared against the CHATS Model, Bluetooth survey data, and StreetLight OD data for reasonableness. As part of calibration, various driver behaviors, desired speed distributions, and lane change distances were modified. At the end of this process the model met the established validation criteria and traffic patterns were similar to those observed in the field.

Note the validated model predates the analysis presented in this memo and because the representative month for travel time analysis (March) does not align with the month used for simulation (September) adjustment factors were used to account for this difference as described below. The use of adjustment factors allowed the study team to avoid the burdensome task of validating the model to another dataset.

The validated 2017 model was used to develop simulations for 2050 No Build and Build conditions. Travel times and speeds for 23 iterations of the model were used to develop the required averages and percentile values to support the calculation of the benchmark metrics described above for each modeled scenario.

The 2017 VISSIM model validation involved speed reduction zones, as documented in the **Microsimulation Model Development and Calibration Report**, however, those speed reduction zones were not modeled in the 2050 scenarios. Accordingly, it was necessary to acquire simulated 2017 travel times and speeds without the speed reduction to attain the offset between the VISSIM-generated travel times and speeds and observed NPMRDS data. This adjustment allows for the development of comparable benchmarks for 2017 and 2050 conditions.

This adjustment process has two components: (a) Adjustment for the difference in modeled travel times and speeds compared to the model validation month of September 2017 and (b) adjustment for the difference in travel times and speeds in September 2017 and the representative month of March 2017. The adjustment was made according to the below formula for each fifteen-minute period,  $i$ , and NPMRDS segment,  $j$ , within the AM and PM peak hours.

*Adjusted VISSIM TT*  $_{i,j,Future} =$

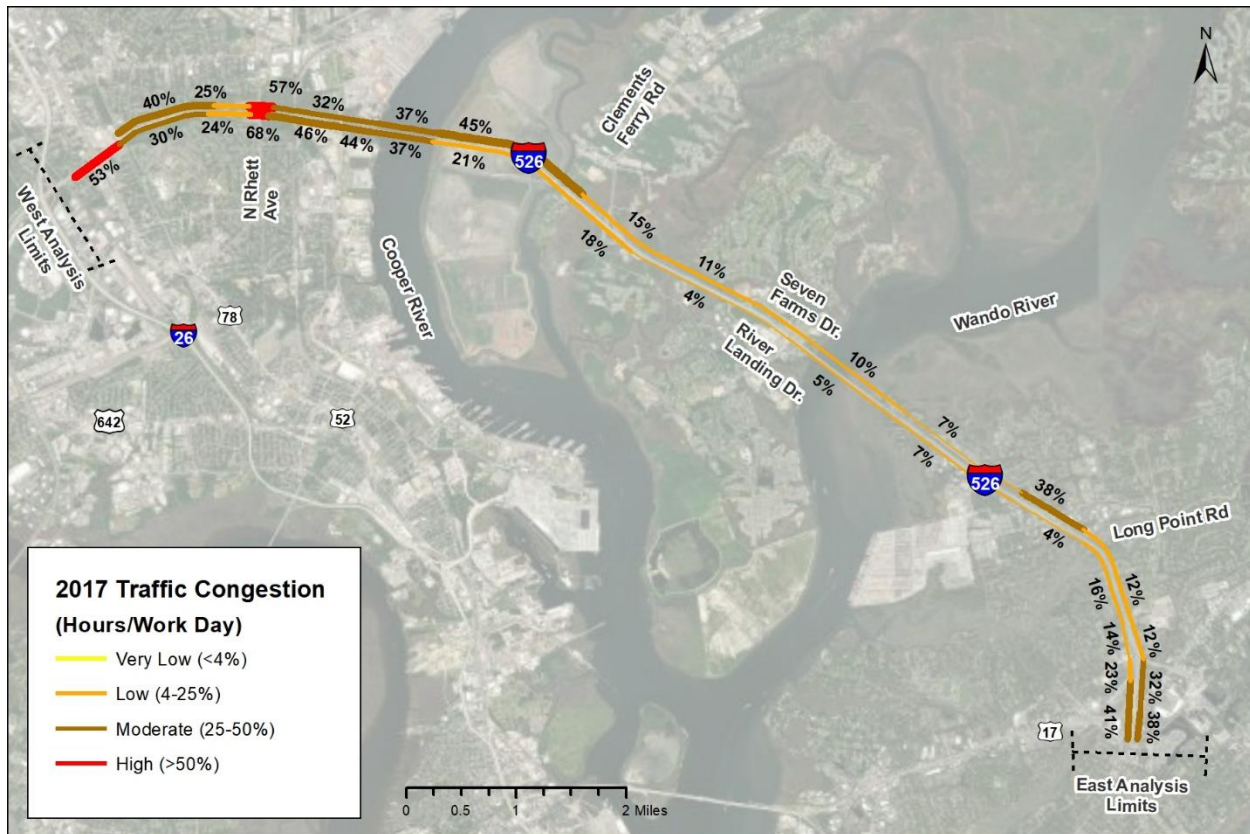
$$\begin{aligned}
 & VISSIM\ TT_{i,j,Future} \\
 & \times \left( 1 + \frac{NPMRDS\ TT_{SEP,i,j} - VISSIM\ TT_{i,j,Existing}}{VISSIM\ TT_{i,j,Existing}} \right) \\
 & \times \left( 1 + \frac{NPMRDS\ TT_{MAR,i,j} - NPMRDS\ TT_{SEP,i,j}}{NPMRDS\ TT_{SEP,i,j}} \right)
 \end{aligned}$$

### 3.1 EXISTING CONDITIONS CONGESTION AND RELIABILITY ANALYSIS

Observed NPMRDS data from the representative month of March 2017 was used to conduct all of the existing conditions analysis. For all these metrics the free flow speed was taken as the empirically determined values identified in **Subsection 2.1.1.2**.

Locations in the corridor experiencing frequent congestion were identified by calculating how many 15-minute intervals on weekdays in the representative month of March 2017 were at least moderately congested ( $TTI > 1.1$ ). **Figure 3-1** indicates the frequency of congestion on NPMRDS segments throughout the corridor and summarizes the frequency of congestion for common OD pairs in the corridor. The most frequently congested portion on the corridor is the western end of the corridor from Clements Ferry Road to the west analysis limits around US 52 in both travel directions. There are also frequent congestion hot spots in the westbound direction around the Long Point Road Interchange and in both directions near the eastern analysis limits at Bowman Road. The middle of the corridor between Clements Ferry Road and Long Point Road is less frequently congested. This pattern can be seen in the common OD analysis as well indicating those shorter trips that utilize the western end of the corridor are the most frequently congested, whereas those with longer trips throughout the entire study corridor are slightly less impacted relative to the length of their trips.

Figure 3-1: Frequency of Moderate or Worse Congestion (% of Time Periods with TTI &gt; 1.1) 2017





As discussed in **Subsection 2.2.2**, the Speed SND is a statistical tool used to differentiate between recurring and non-recurring congestion, with  $SND < -1.5$  indicating unusual operating conditions associated with non-recurring congestion. This tool was used to estimate the frequency of congestion in the corridor attributable to recurring and non-recurring conditions. **Figure 3-2** summarizes the frequency of recurring congestion in the corridor. The patterns observed when assessing recurring congestion are very similar to those of all congestion shown in **Figure 3-1**, indicating that the congestion issues in the corridor are mostly attributable to demand frequently exceeding capacity in the western end of the corridor from around Clements Ferry Road to US 52 in both travel direction, at the Long Point Road interchange in the westbound direction, and at the eastern analysis limits of Bowman Road in both travel directions.

Figure 3-2: Frequency of Moderate or Worse Recurring Congestion (% of Time Periods with  $TTI > 1.1$  &  $SND > -1.5$ ) 2017



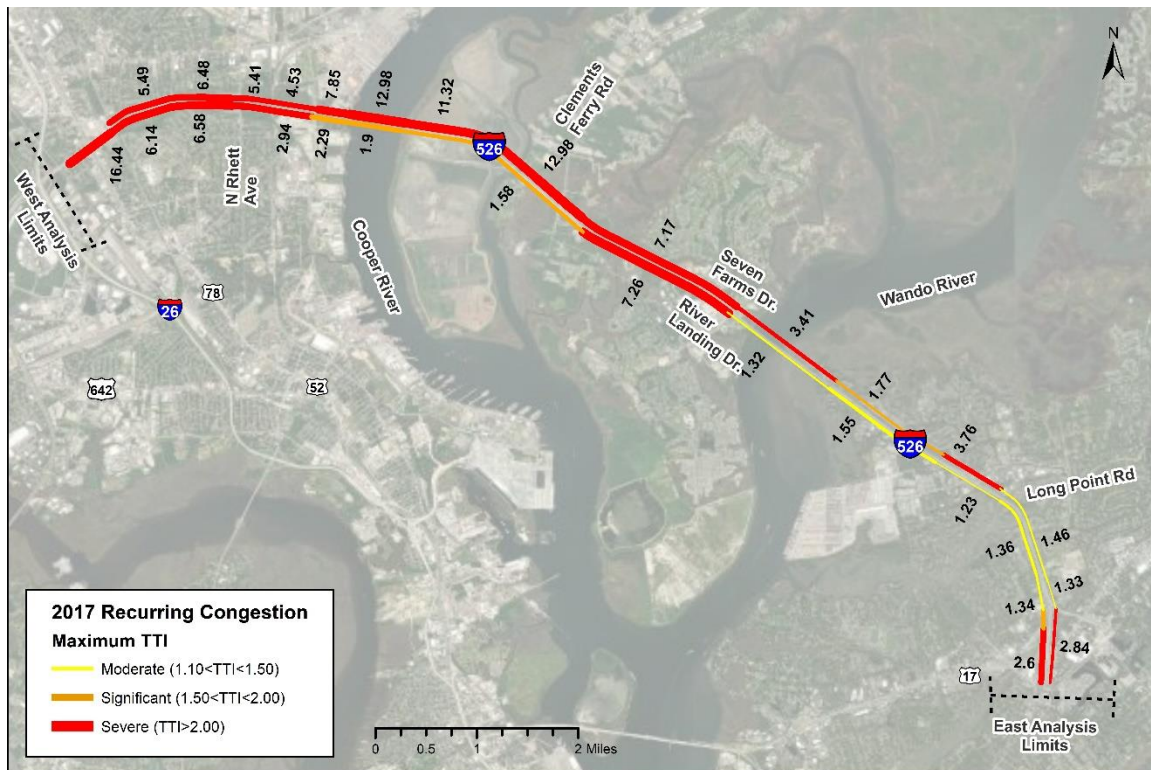
**Figure 3-3** provides a summary of the frequency of non-recurring congestion in the corridor. Overall non-recurring congestion accounts for a small portion of the congested time in the corridor, but the pattern is similar to both total and recurring congestion with the same key hot spots at both ends of the corridor in both directions. In contrast with the patterns of all congestion and recurring congestion the interchange of Long Point Road in the westbound direction was not identified as a hot spot of non-recurring congestion.

**Figure 3-3: Frequency of Moderate or Worse Non-Recurring Congestion (% of Time Periods with TTI > 1.1 & SND < -1.5 ) 2017**



**Figure 3-4** gives an indication of the severity of recurring congestion in the corridor by summarizing the maximum TTI experienced throughout the corridor during the representative month of March 2017. The most severely congested locations include the very beginning of the corridor in the eastbound direction approaching the Rhett Avenue interchange and the westbound direction following the Clements Ferry Road on ramp continuing over the Don Holt Bridge/ Cooper River Crossing. It is also of note that while less frequently congested compared to other areas in the corridor, the segments around Seven Farms Drive/River Landing Drive interchange experience some very severe congestion with TTI >7 indicating travel times greater than 7 times the free flow conditions in the worst recurring conditions.

**Figure 3-4: Maximum TTI during Recurring Congestion 2017**





Assessing the PTI and BI for mixed traffic and trucks only, shown in **Figure 3-5** through **Figure 3-8**, reveals where reliability issues are greatest in the corridor. The biggest peak hour reliability issues occur in the eastbound direction from the western analysis limits around the interchange with US 52 continuing east of North Rhett Avenue. The BI in this area indicates that travelers on these segments experience between approximately a 350% and 440% increase in travel time on these segments during the worst day of the month compared to an average day. Similar levels of unreliability occur in the westbound direction around the interchange with Long Point Road and continue over the Wando River Bridge. Comparing the mixed traffic and truck only metrics across the figures reveals that congestion and reliability patterns in the corridor for trucks and the overall traffic stream are similar under existing conditions with trucks typically experiencing slightly slower travel times in general.

Figure 3-5: 2017 Average Peak Hour PTI Mixed Traffic

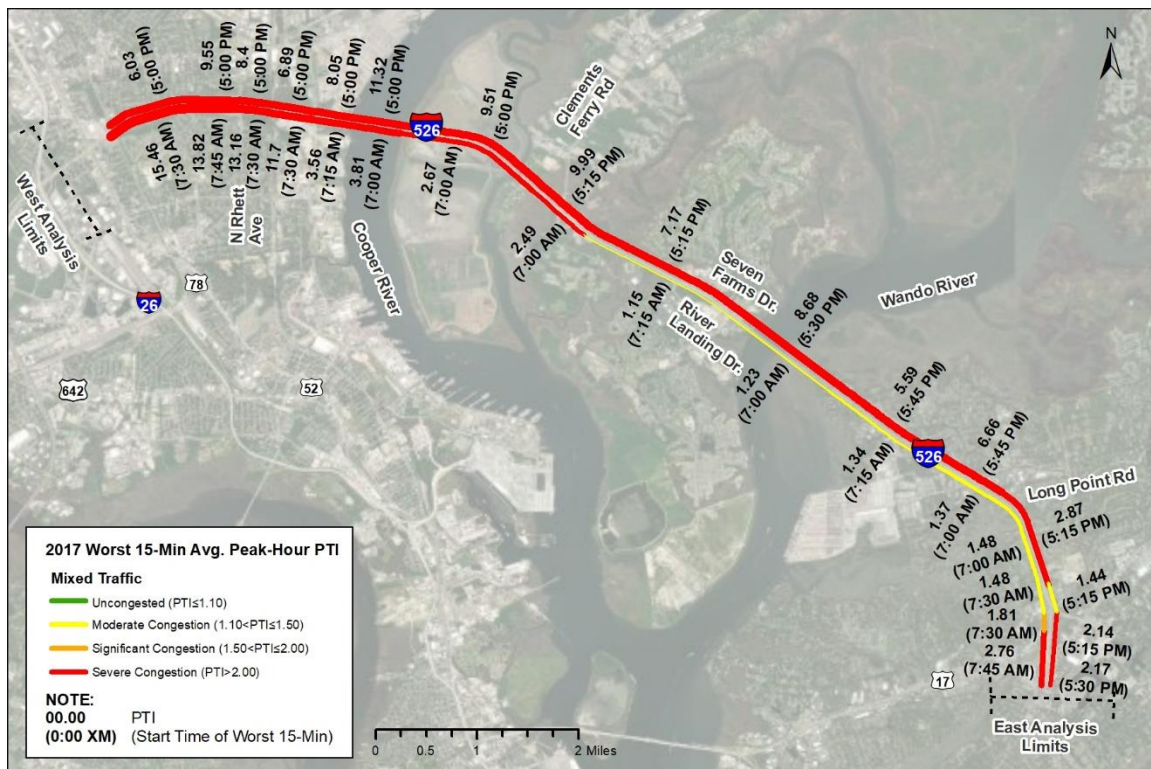


Figure 3-6: 2017 Average Peak Hour PTI Trucks Only

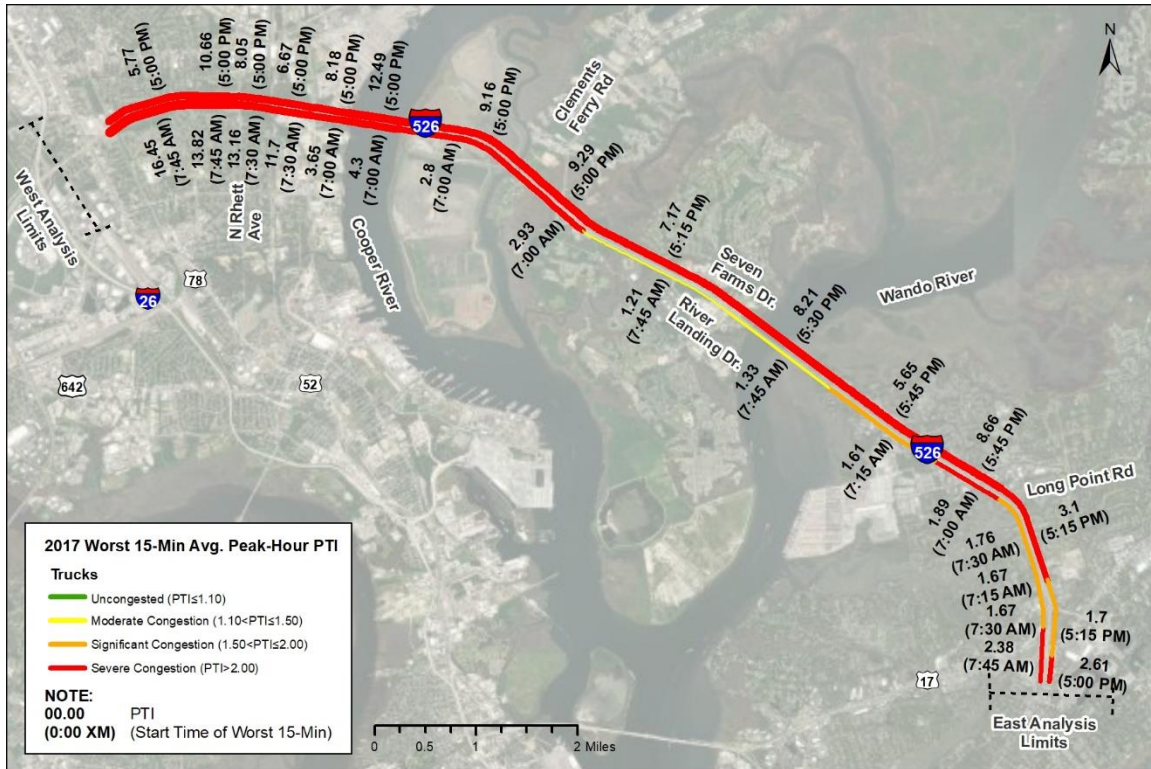


Figure 3-7: 2017 Average Peak Hour BI Mixed Traffic





Figure 3-8: 2017 Average Peak Hour BI Trucks Only



## 3.2 BENCHMARKING CONGESTION AND RELIABILITY

The following subsections highlight TTI for existing conditions in 2017, 2050 “No Build”, and 2050 Build scenarios. These metrics are calculated for the worst 15-minutes of the average peak hour conditions for each direction (Eastbound 7-8 AM, Westbound 5-6 PM). Additionally, metrics are provided for mixed traffic and trucks only. The 2017 existing conditions and 2050 No Build scenario provide points of comparison for the performance of the build alternative.

### 3.2.1 2017 Existing Conditions

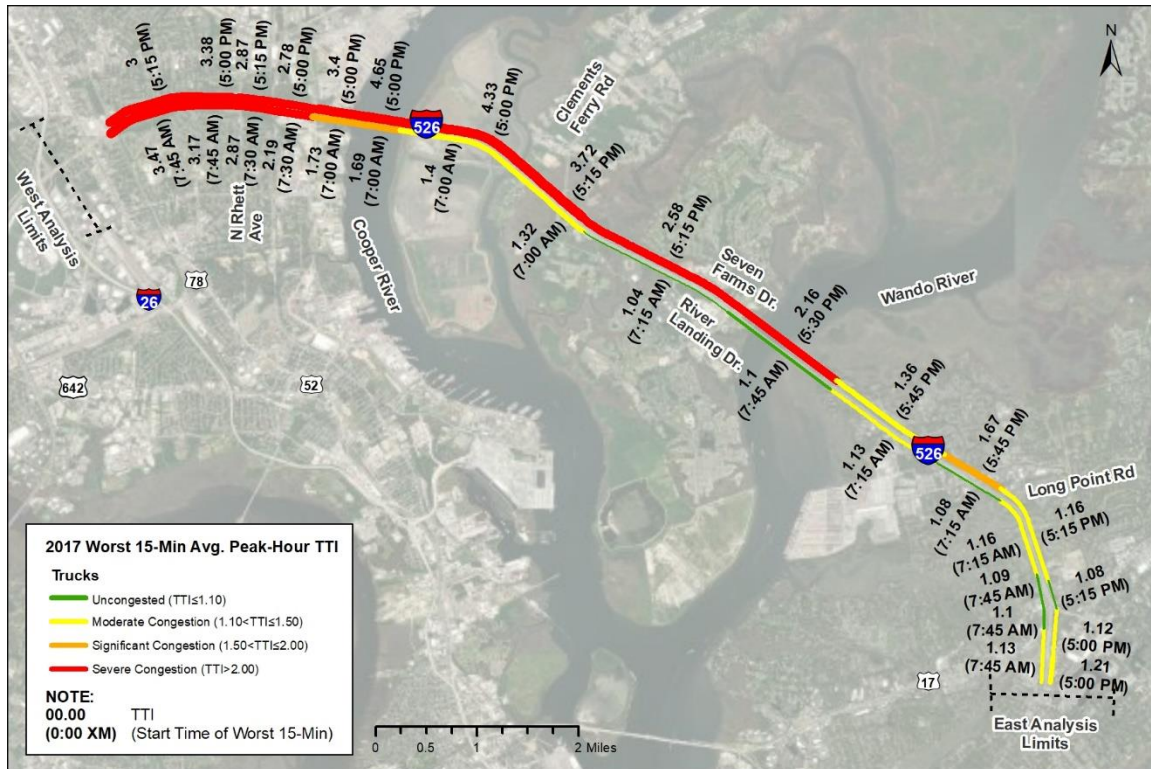
Observed NPMRDS data from the representative month of March 2017 was used to conduct all of the existing conditions analysis. For all these metrics the free flow speed was taken as the empirically determined values identified in **Subsection 2.1.1.2**.

**Figure 3-9** summarizes the worst 15-minute average peak hour TTI for mixed traffic based on 2017 existing conditions. **Figure 3-10** shows the same metric calculated for trucks. Comparing the mixed traffic and truck only metrics across the figures and tables reveals that congestion patterns in the corridor for trucks and the overall traffic stream are similar under existing conditions with trucks typically experiencing slightly slower travel times in general. Therefore, the metrics referenced in the below takeaways are for mixed traffic, but similar conclusions apply to trucks as well. The TTI reveals that congestion is typically worse in the Westbound direction during the peak hour with travelers encountering severe congestion ( $TTI > 2$ ) starting at the Wando River bridge and continuing to the West Analysis Limits with the worst congestion occurring on the Don Holt Bridge/Cooper River Crossing. Travel times on these segments vary from 2.7 to 4.4 times free flow travel time. In the eastbound direction the western end of the corridor is severely congested during the peak hour but drops to only moderate congestion once traveler’s cross the Don Holt Bridge/Cooper River Crossing. Eastbound peak hour congestion begins to reach significant levels once again at the eastern analysis limits approaching Bowman Road.

Figure 3-9: 2017 Average Peak Hour TTI Mixed Traffic



Figure 3-10: 2017 Average Peak Hour TTI Trucks Only





**Table 3-1** and **Table 3-2** show the worst 15-minute average peak hour TTI for ramp to ramp origin-destination pairs for the eastbound and westbound travel directions respectively. The **Data Collection Report** identifies that most traveled paths in the corridor all have either an origin or destination at the western project limits. In the eastbound direction shorter trips that start at the western project limits have severe levels of congestion (TTI >2), whereas longer trips through the corridor experience significant to moderate congestion. In the westbound direction travelers destined for the western project limits consistently experience severe congestion, regardless of their origin. **Appendix A** contains more detailed origin-destination results including the components required to calculate TTI (i.e. free flow travel time and average travel time), results for both peak hours in each direction, and truck specific matrices.

**Table 3-1: 2017 Eastbound Ramp to Ramp Origin-Destination Peak Hour Mixed Traffic TTI**

| Origins                    | Destinations | N. Rhett Ave off-ramp (19) | Virginia Ave off-ramp (20) | Clements Ferry Rd S. off-ramp (23 A) | Clements Ferry Rd N. off-ramp (23 B) | River Landing Dr. off-ramp (24) | Long Point Rd. off-ramp (28) | 17 North off-ramp (29) | 17 South off-ramp (30) |
|----------------------------|--------------|----------------------------|----------------------------|--------------------------------------|--------------------------------------|---------------------------------|------------------------------|------------------------|------------------------|
| I-526 west of N. Rhett Ave |              | 3.41<br>(7:45AM)           | 3.25<br>(7:45AM)           | 2.07<br>(7:30AM)                     | 1.99<br>(7:30AM)                     | 1.81<br>(7:30AM)                | 1.54<br>(7:30AM)             | 1.47<br>(7:30AM)       | 1.45<br>(7:30AM)       |
| N. Rhett Ave on-ramp       |              | -                          | 2.73<br>(7:30AM)           | 1.62<br>(7:15AM)                     | 1.57<br>(7:15AM)                     | 1.44<br>(7:15AM)                | 1.28<br>(7:15AM)             | 1.25<br>(7:15AM)       | 1.24<br>(7:15AM)       |
| Clements Ferry Rd on-ramp  |              | -                          | -                          | -                                    | -                                    | 1.04<br>(7:15AM)                | 1.05<br>(7:15AM)             | 1.05<br>(7:15AM)       | 1.06<br>(7:15AM)       |
| River Landing Dr. on-ramp  |              | -                          | -                          | -                                    | -                                    | -                               | 1.06<br>(7:15AM)             | 1.06<br>(7:15AM)       | 1.06<br>(7:15AM)       |
| Long Point Rd. S. on-ramp  |              | -                          | -                          | -                                    | -                                    | -                               | -                            | 1.08<br>(7:30AM)       | 1.09<br>(7:30AM)       |
| Long Point Rd. N. on-ramp  |              | -                          | -                          | -                                    | -                                    | -                               | -                            | 1.12<br>(7:30AM)       | 1.12<br>(7:30AM)       |

Uncongested, Moderate Congestion, Significant Congestion, Severe Congestion

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval

Table 3-2: 2017 Westbound Ramp to Ramp Origin-Destination Peak Hour Mixed Traffic TTI

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North<br>on-ramp          |              | 1.12<br>(5:15PM)                | 1.44<br>(5:30PM)                 | 1.64<br>(5:30PM)                   | 2.34<br>(5:15PM)              | 2.41<br>(5:15PM)              |
| 17 South<br>on-ramp          |              | 1.12<br>(5:15PM)                | 1.5<br>(5:30PM)                  | 1.71<br>(5:30PM)                   | 2.44<br>(5:15PM)              | 2.5<br>(5:15PM)               |
| Long Point Rd.<br>N. on-ramp |              | -                               | 1.71<br>(5:30PM)                 | 1.88<br>(5:30PM)                   | 2.64<br>(5:15PM)              | 2.69<br>(5:15PM)              |
| Long Point Rd.<br>S. on-ramp |              | -                               | 1.71<br>(5:30PM)                 | 1.94<br>(5:30PM)                   | 2.7<br>(5:15PM)               | 2.74<br>(5:15PM)              |
| Seven Farms<br>Dr. on-ramp   |              | -                               | -                                | 2.43<br>(5:15PM)                   | 3.49<br>(5:15PM)              | 3.39<br>(5:15PM)              |
| Clements Ferry<br>Rd on-ramp |              | -                               | -                                | -                                  | 3.83<br>(5:00PM)              | 3.57<br>(5:15PM)              |
| Virginia Ave<br>on-ramp      |              | -                               | -                                | -                                  | 2.76<br>(5:15PM)              | 2.99<br>(5:15PM)              |
| N. Rhett Ave<br>on-ramp      |              | -                               | -                                | -                                  | -                             | 3.01<br>(5:15PM)              |

Uncongested, Moderate Congestion, Significant Congestion, Severe Congestion

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval

### 3.2.2 2050 No Build

For the purposes of this study, the No Build condition is defined as the existing alignment plus the improvements planned as part of the I-526 Lowcountry Corridor West Project. Model travel time data and free flow speed were used for the computation of 2050 metrics.

**Figure 3-11** and **Figure 3-12** summarize the worst 15-minute average peak hour TTI for mixed traffic and then trucks only for the 2050 No Build scenario. Comparing the mixed traffic and truck only metrics across the figures and tables reveals that congestion patterns in the corridor for trucks and the overall traffic stream are similar under the 2050 No Build scenario with trucks typically experiencing slightly slower travel times in general. Therefore, the metrics referenced in the below takeaways are for mixed traffic, but similar conclusions apply to trucks as well.

In the 2050 No Build scenario, the TTI shows that there are extremely high levels of congestion at the Wando River Bridge in the westbound direction (more than 30x higher than free flow travel time on the bridge). In contrast with existing conditions, the pattern of TTI indicates that this congestion on the Wando River Bridge may be resulting in bottlenecking that induces more congestion upstream of the Bridge. The TTI indicates a significant drop in congestion after the bridge that would be consistent with the metered flow downstream of a bottleneck, but it is important to note that the congestion is still severe on most of these westbound links (TTI between approximately 2.3 and 3.5).

In the eastbound direction the TTI indicates congestion increases compared to existing conditions, but the spatial pattern is similar to that observed in 2017. Congestion is highest in the eastbound direction at the western analysis limits, falls to only moderate levels of congestion in the middle of the corridor, before increasing as travelers approach Bowman Road.

Figure 3-11: 2050 No Build Average Peak Hour TTI Mixed Traffic

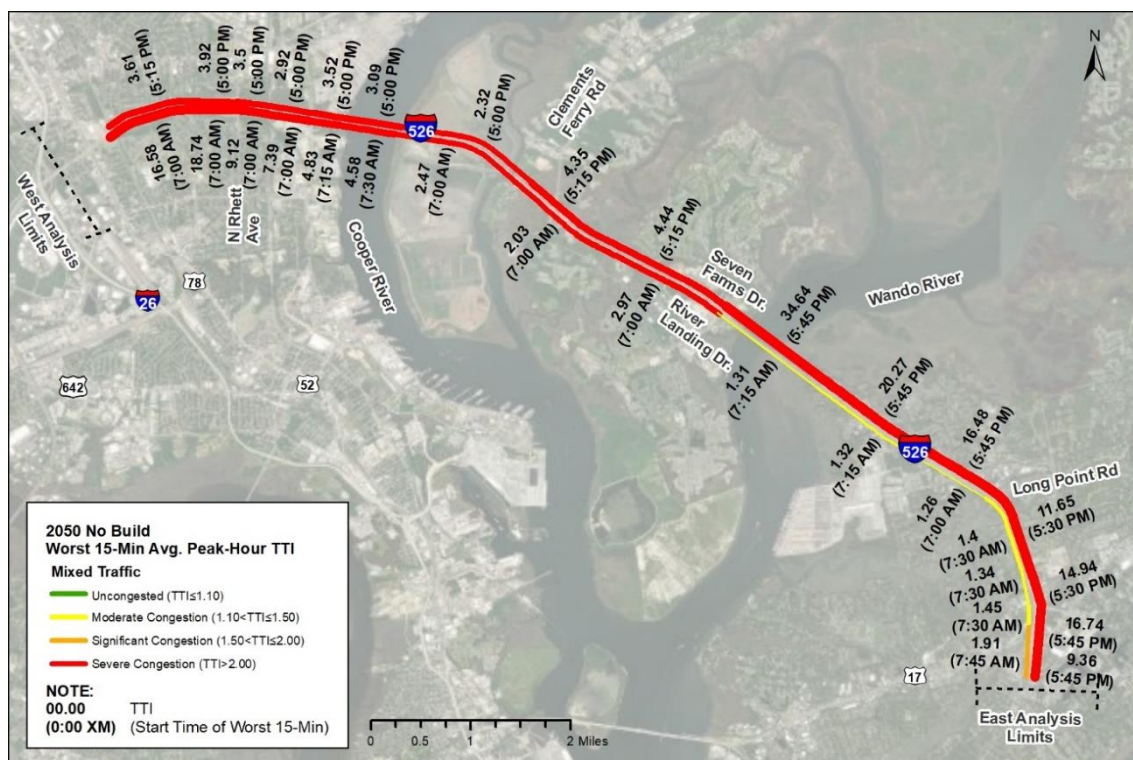


Figure 3-12: 2050 No Build Average Peak Hour TTI Trucks Only



**Table 3-3** and **Table 3-4** show the worst 15-minute average peak hour TTI for ramp to ramp origin-destination pairs for the eastbound and westbound travel directions respectively. The **Data Collection Report** identifies that most traveled paths in the corridor all have either an origin or destination at the western project limits. In the eastbound direction shorter trips experience extremely high levels of congestion (TTI > 15), but all trips starting at the western project limits are severely congested. In the westbound direction travelers destined for the western project limits consistently experience severe congestion, with longer trips experiencing the highest levels of congestion (TTI > 6) due to the bottlenecks described above at the eastern end of the corridor. **Appendix A** contains more detailed origin-destination results including the components required to calculate TTI (i.e. free flow travel time and average travel time), results for both peak hours in each direction, and truck specific matrices.

**Table 3-3: 2050 No Build Eastbound Ramp to Ramp Origin-Destination Peak Hour Mixed Traffic TTI**

| Origins                          | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|----------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west<br>of N. Rhett<br>Ave |              | 18.28<br>(7:00AM)             | 16.16<br>(7:00AM)             | 6.33<br>(7:00AM)                           | 5.9<br>(7:00AM)                            | 5.28<br>(7:00AM)                      | 3.77<br>(7:15AM)                | 3.42<br>(7:15AM)          | 3.32<br>(7:15AM)          |
| N. Rhett<br>Ave on-<br>ramp      |              | -                             | -                             | 3.11<br>(7:00AM)                           | 2.99<br>(7:00AM)                           | 3.01<br>(7:00AM)                      | 2.34<br>(7:00AM)                | 2.17<br>(7:00AM)          | 2.12<br>(7:00AM)          |
| Clements<br>Ferry Rd on-<br>ramp |              | -                             | -                             | -  | -  | 2.76<br>(7:00AM)                      | 1.67<br>(7:00AM)                | 1.57<br>(7:00AM)          | 1.55<br>(7:00AM)          |
| River<br>Landing Dr.<br>on-ramp  |              | -                             | -                             | -  | -  | -                                     | 1.39<br>(7:15AM)                | 1.35<br>(7:15AM)          | 1.34<br>(7:15AM)          |
| Long Point<br>Rd. S. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 1.31<br>(7:30AM)          | 1.32<br>(7:30AM)          |
| Long Point<br>Rd. N. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 1.36<br>(7:30AM)          | 1.34<br>(7:30AM)          |

Uncongested, Moderate Congestion, Significant Congestion, Severe Congestion

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval

Table 3-4: 2050 No Build Westbound Ramp to Ramp Origin-Destination Peak Hour Mixed Traffic TTI

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 9.94<br>(5:45PM)                | 11.85<br>(5:45PM)                | 9.62<br>(5:45PM)                   | 6.61<br>(5:45PM)              | 6.05<br>(5:45PM)              |
| 17 South on-ramp             |              | 10.73<br>(5:15PM)               | 13.13<br>(5:45PM)                | 10.29<br>(5:45PM)                  | 6.75<br>(5:45PM)              | 6.07<br>(5:45PM)              |
| Long Point Rd.<br>N. on-ramp |              | -                               | 15.1<br>(5:45PM)                 | 10.73<br>(5:45PM)                  | 6.23<br>(5:45PM)              | 5.46<br>(5:45PM)              |
| Long Point Rd.<br>S. on-ramp |              | -                               | 16.66<br>(5:45PM)                | 11.35<br>(5:45PM)                  | 6.41<br>(5:45PM)              | 5.64<br>(5:45PM)              |
| Seven Farms<br>Dr. on-ramp   |              | -                               | -                                | 2.02<br>(5:15PM)                   | 2.61<br>(5:00PM)              | 2.75<br>(5:00PM)              |
| Clements Ferry<br>Rd on-ramp |              | -                               | -                                | -                                  | 2.77<br>(5:00PM)              | 2.91<br>(5:00PM)              |
| Virginia Ave<br>on-ramp      |              | -                               | -                                | -                                  | -                             | 3.33<br>(5:15PM)              |
| N. Rhett Ave<br>on-ramp      |              | -                               | -                                | -                                  | -                             | 3.61<br>(5:15PM)              |

Uncongested, Moderate Congestion, Significant Congestion, Severe Congestion

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval



### 3.2.3 2050 Build

The 2050 Build scenario considers I-526 to be widened to four lanes in each direction along the East corridor. The interchange ramps at Clements Ferry Road, Seven Farms Drive/River Landing Drive, Long Point Road, and at US 17 are considered to be the same configuration with additional capacity where necessary as discussed further in the *Technical Memorandum: Alternatives Analysis*. Model travel time data and free flow speed were used for the computation of 2050 metrics.

**Figure 3-13** and **Figure 3-14** summarize the worst 15-minute average peak hour TTI for mixed traffic and then trucks only for the 2050 Build scenario. Comparing the mixed traffic and truck only metrics across the figures and tables reveals that congestion patterns in the corridor for trucks and the overall traffic stream are similar under the 2050 Build scenario with trucks typically experiencing slightly slower travel times in general. Therefore, the metrics referenced in the below takeaways are for mixed traffic, but similar conclusions apply to trucks as well.

In the 2050 Build scenario, the TTI shows that the bottlenecking effect observed in the westbound direction at the Wando River bridge is largely relived. With the removal of the metering effect, segments further west along the corridor experience slightly more congestion than No Build and existing conditions.

In the eastbound direction the TTI indicates similar congestion levels in the east end of the corridor, but significant improvements in the West. Segments of the corridor approaching the ramp to Seven Farms/River Landing Drive experience improvements when compared to existing conditions even with the increased demand of the 2050 scenario.

**Figure 3-13: 2050 Build Average Peak Hour TTI Mixed Traffic**

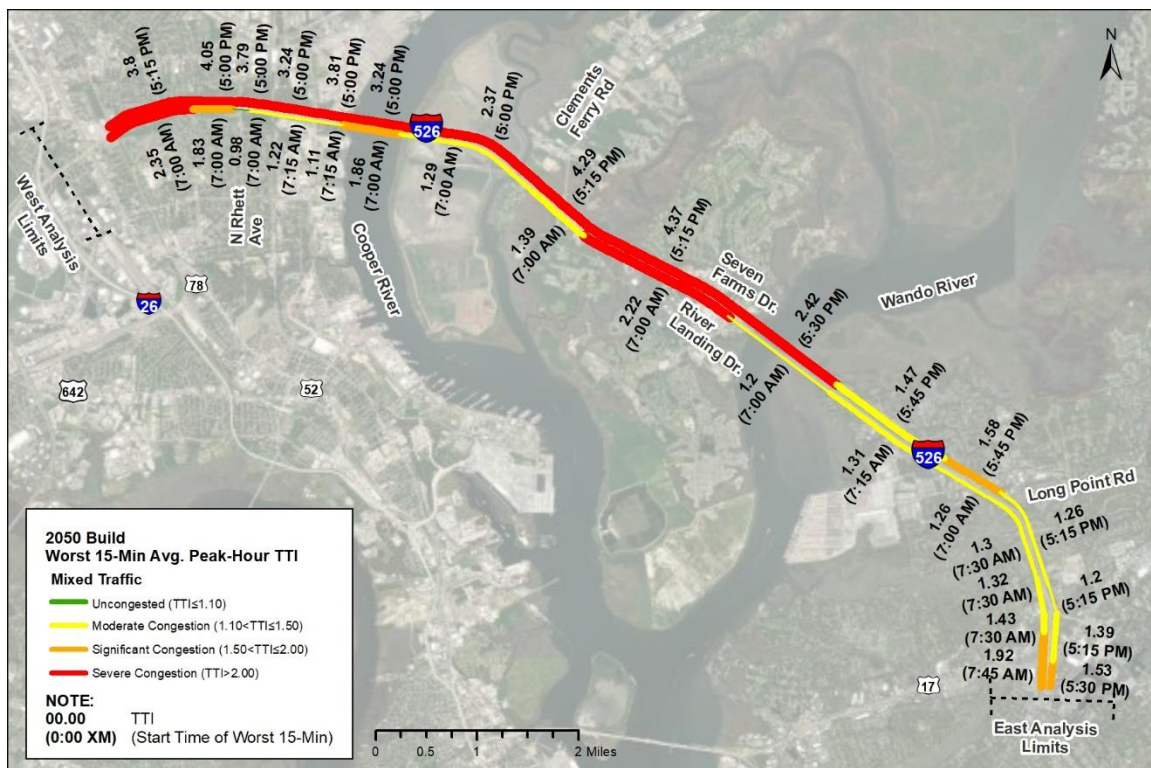
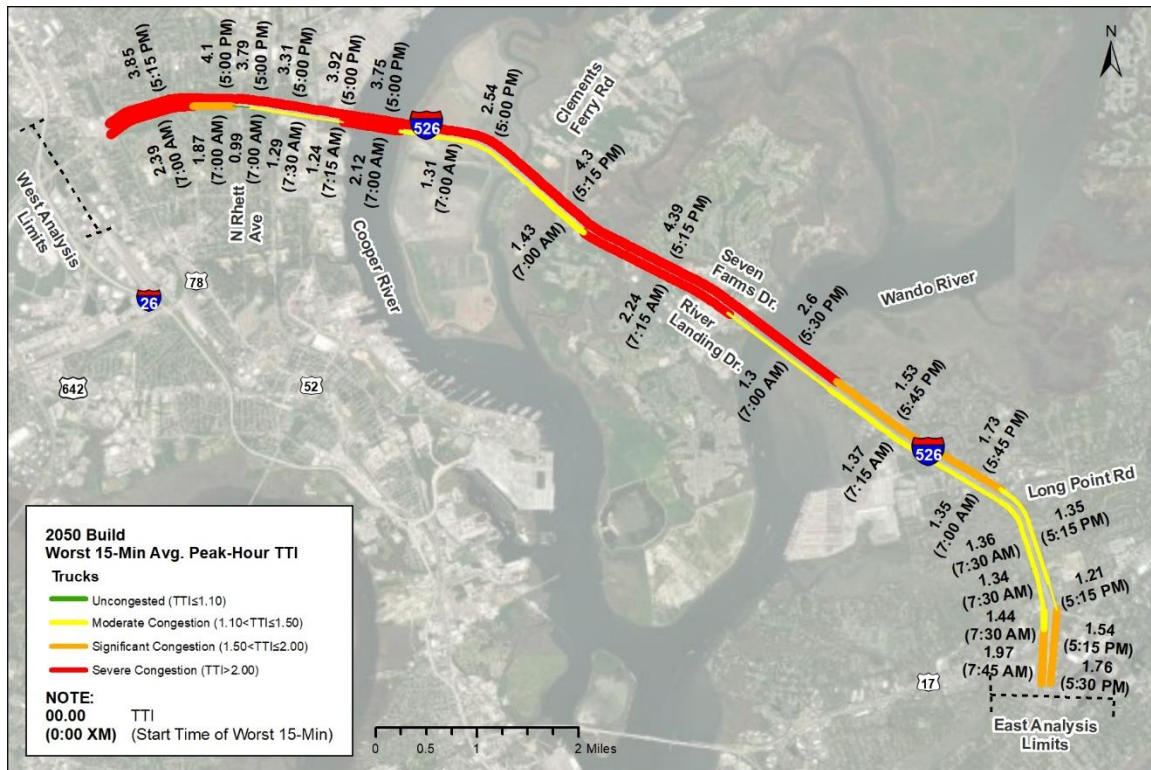


Figure 3-14: 2050 Build Average Peak Hour TTI Trucks Only





**Table 3-5** and **Table 3-6** show the worst 15-minute average peak hour TTI for ramp to ramp origin-destination pairs for the eastbound and westbound travel directions respectively. The **Data Collection Report** identifies that most traveled paths in the corridor all have either an origin or destination at the western project limits. In the eastbound direction shorter trips starting at the western project limits experience severe congestion (TTI > 2) which is an improvement over the extreme congestion identified in No Build. Longer eastbound trips starting at the western project limits experience only significant or moderate congestion. In the westbound direction travelers destined for the western project limits consistently experience severe congestion, but the longer trips that experience the highest levels of congestion in No Build conditions (TTI > 6) show significant improvement in the Build condition. **Appendix A** contains more detailed origin-destination results including the components required to calculate TTI (i.e. free flow travel time and average travel time), results for both peak hours in each direction, and truck specific matrices.

**Table 3-5: 2050 Build Eastbound Ramp to Ramp Origin-Destination Peak Hour Mixed Traffic TTI**

| Origins                    | Destinations               |                            |                                      |                                      |                                 |                              |                        |                        |
|----------------------------|----------------------------|----------------------------|--------------------------------------|--------------------------------------|---------------------------------|------------------------------|------------------------|------------------------|
|                            | N. Rhett Ave off-ramp (19) | Virginia Ave off-ramp (20) | Clements Ferry Rd S. off-ramp (23 A) | Clements Ferry Rd N. off-ramp (23 B) | River Landing Dr. off-ramp (24) | Long Point Rd. off-ramp (28) | 17 North off-ramp (29) | 17 South off-ramp (30) |
| I-526 west of N. Rhett Ave | 2.35<br>(7:00AM)           | 2.07<br>(7:00AM)           | 1.57<br>(7:00AM)                     | 1.55<br>(7:00AM)                     | 1.62<br>(7:00AM)                | 1.5<br>(7:00AM)              | 1.47<br>(7:00AM)       | 1.46<br>(7:00AM)       |
| N. Rhett Ave on-ramp       | -                          | -                          | 1.32<br>(7:00AM)                     | 1.33<br>(7:00AM)                     | 1.47<br>(7:00AM)                | 1.41<br>(7:00AM)             | 1.38<br>(7:00AM)       | 1.38<br>(7:00AM)       |
| Clements Ferry Rd on-ramp  | -                          | -                          | -                                    | -                                    | 2.01<br>(7:00AM)                | 1.47<br>(7:15AM)             | 1.41<br>(7:00AM)       | 1.4<br>(7:00AM)        |
| River Landing Dr. on-ramp  | -                          | -                          | -                                    | -                                    | -                               | 1.29<br>(7:15AM)             | 1.27<br>(7:00AM)       | 1.27<br>(7:00AM)       |
| Long Point Rd. S. on-ramp  | -                          | -                          | -                                    | -                                    | -                               | -                            | 1.26<br>(7:30AM)       | 1.28<br>(7:30AM)       |
| Long Point Rd. N. on-ramp  | -                          | -                          | -                                    | -                                    | -                               | -                            | 1.3<br>(7:30AM)        | 1.31<br>(7:30AM)       |

Uncongested, Moderate Congestion, Significant Congestion, Severe Congestion

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval

Table 3-6: 2050 Build Westbound Ramp to Ramp Origin-Destination Peak Hour Mixed Traffic TTI

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 1.29<br>(5:15PM)                | 1.69<br>(5:30PM)                 | 1.72<br>(5:30PM)                   | 2.01<br>(5:15PM)              | 2.19<br>(5:15PM)              |
| 17 South on-ramp             |              | 1.26<br>(5:15PM)                | 1.75<br>(5:30PM)                 | 1.77<br>(5:30PM)                   | 2.06<br>(5:15PM)              | 2.25<br>(5:15PM)              |
| Long Point Rd.<br>N. on-ramp |              | -                               | 1.89<br>(5:30PM)                 | 1.88<br>(5:30PM)                   | 2.16<br>(5:15PM)              | 2.36<br>(5:15PM)              |
| Long Point Rd.<br>S. on-ramp |              | -                               | 1.91<br>(5:30PM)                 | 1.89<br>(5:30PM)                   | 2.18<br>(5:15PM)              | 2.38<br>(5:15PM)              |
| Seven Farms<br>Dr. on-ramp   |              | -                               | -                                | 1.98<br>(5:15PM)                   | 2.63<br>(5:00PM)              | 2.84<br>(5:15PM)              |
| Clements Ferry<br>Rd on-ramp |              | -                               | -                                | -                                  | 2.89<br>(5:00PM)              | 3.09<br>(5:00PM)              |
| Virginia Ave<br>on-ramp      |              | -                               | -                                | -                                  | -                             | 3.73<br>(5:15PM)              |
| N. Rhett Ave<br>on-ramp      |              | -                               | -                                | -                                  | -                             | 3.83<br>(5:15PM)              |

Uncongested, Moderate Congestion, Significant Congestion, Severe Congestion

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval



## APPENDIX A: OD ANALYSIS

Table A-1: 2017 Eastbound Ramp to Ramp Origin-Destination Free Flow Travel Time

| Origins                    | Destinations | N. Rhett Ave off-ramp (19) | Virginia Ave off-ramp (20) | Clements Ferry Rd S. off-ramp (23 A) | Clements Ferry Rd N. off-ramp (23 B) | River Landing Dr. off-ramp (24) | Long Point Rd. off-ramp (28) | 17 North off-ramp (29) | 17 South off-ramp (30) |
|----------------------------|--------------|----------------------------|----------------------------|--------------------------------------|--------------------------------------|---------------------------------|------------------------------|------------------------|------------------------|
| I-526 west of N. Rhett Ave |              | 54.47                      | 88.00                      | 269.32                               | 293.00                               | 364.90                          | 562.61                       | 659.10                 | 690.51                 |
| N. Rhett Ave on-ramp       |              | -                          | 9.94                       | 191.26                               | 214.94                               | 286.84                          | 484.55                       | 581.04                 | 612.44                 |
| Clements Ferry Rd on-ramp  |              | -                          | -                          | -                                    | -                                    | 55.53                           | 253.24                       | 349.73                 | 381.13                 |
| River Landing Dr. on-ramp  |              | -                          | -                          | -                                    | -                                    | -                               | 185.75                       | 282.23                 | 313.64                 |
| Long Point Rd. S. on-ramp  |              | -                          | -                          | -                                    | -                                    | -                               | -                            | 78.43                  | 109.83                 |
| Long Point Rd. N. on-ramp  |              | -                          | -                          | -                                    | -                                    | -                               | -                            | 51.45                  | 82.85                  |

NOTE: 0.00 Travel Time in Seconds

Table A-2: 2017 Westbound Ramp to Ramp Origin-Destination Free Flow Travel Time

| Origins                   | Destinations | Long Point Rd. off-ramp (28) | Seven Farms Dr. off-ramp (24) | Clements Ferry Rd off-ramp (23) | N. Rhett Ave off-ramp (19) | I-526 west of N. Rhett Ave |
|---------------------------|--------------|------------------------------|-------------------------------|---------------------------------|----------------------------|----------------------------|
| 17 North on-ramp          |              | 106.03                       | 320.21                        | 403.13                          | 629.89                     | 704.38                     |
| 17 South on-ramp          |              | 59.85                        | 274.03                        | 356.95                          | 583.71                     | 658.20                     |
| Long Point Rd. N. on-ramp |              | -                            | 211.56                        | 278.24                          | 505.01                     | 579.49                     |
| Long Point Rd. S. on-ramp |              | -                            | 174.57                        | 257.49                          | 484.25                     | 558.74                     |
| Seven Farms Dr. on-ramp   |              | -                            | -                             | 66.26                           | 293.03                     | 367.51                     |
| Clements Ferry Rd on-ramp |              | -                            | -                             | -                               | 192.66                     | 267.14                     |
| Virginia Ave on-ramp      |              | -                            | -                             | -                               | 13.09                      | 87.57                      |
| N. Rhett Ave on-ramp      |              | -                            | -                             | -                               | -                          | 55.01                      |

NOTE: 0.00 Travel Time in Seconds

**Table A-3: 2017 Eastbound Ramp to Ramp Origin-Destination  
Avg. AM Peak Hour Mixed Traffic Travel Time**

| <b>Origins</b>                            | <b>Destinations</b> | <b>N. Rhett Ave<br/>off-ramp (19)</b> | <b>Virginia Ave<br/>off-ramp (20)</b> | <b>Clements Ferry<br/>Rd S. off-ramp<br/>(23 A)</b> | <b>Clements Ferry<br/>Rd N. off-ramp<br/>(23 B)</b> | <b>River Landing<br/>Dr. off-ramp<br/>(24)</b> | <b>Long Point Rd.<br/>off-ramp (28)</b> | <b>17 North<br/>off-ramp (29)</b> | <b>17 South<br/>off-ramp (30)</b> |
|---|---------------------|---------------------------------------|---------------------------------------|---|---|--|---|-----------------------------------|-----------------------------------|
| <b>I-526 west of<br/>N. Rhett Ave</b>     |                     | 185.86<br>(7:45AM)                    | 286.14<br>(7:45AM)                    | 558.11<br>(7:30AM)                                  | 584.08<br>(7:30AM)                                  | 659.11<br>(7:30AM)                             | 864.76<br>(7:30AM)                      | 967.46<br>(7:30AM)                | 1002.76<br>(7:30AM)               |
| <b>N. Rhett Ave<br/>on-ramp</b>           |                     | -                                     | 27.12<br>(7:30AM)                     | 309.62<br>(7:15AM)                                  | 336.65<br>(7:15AM)                                  | 412.88<br>(7:15AM)                             | 622.29<br>(7:15AM)                      | 723.8<br>(7:15AM)                 | 757.97<br>(7:15AM)                |
| <b>Clements<br/>Ferry Rd on-<br/>ramp</b> |                     | -                                     | -                                     | -   | -   | 57.55<br>(7:15AM)                              | 266.96<br>(7:15AM)                      | 368.47<br>(7:15AM)                | 402.63<br>(7:15AM)                |
| <b>River<br/>Landing Dr.<br/>on-ramp</b>  |                     | -                                     | -                                     | -   | -   | -  | 197.01<br>(7:15AM)                      | 298.52<br>(7:15AM)                | 332.68<br>(7:15AM)                |
| <b>Long Point<br/>Rd. S. on-<br/>ramp</b> |                     | -                                     | -                                     | -   | -   | -  | -                                       | 84.57<br>(7:30AM)                 | 119.87<br>(7:30AM)                |
| <b>Long Point<br/>Rd. N. on-<br/>ramp</b> |                     | -                                     | -                                     | -   | -   | -  | -                                       | 57.48<br>(7:30AM)                 | 92.78<br>(7:30AM)                 |

NOTE: 0.00      Travel Time in Seconds  
**(00:00XM) Start Time of Worst 15-Minute Interval**

Table A-4: 2017 Westbound Ramp to Ramp Origin-Destination  
Avg. AM Peak Hour Mixed Traffic Travel Time

| Origins                      | Destinations | Long Point<br>Rd. off-ramp<br>(28) | Seven Farms<br>Dr. off-ramp<br>(24) | Clements<br>Ferry Rd off-<br>ramp (23) | N. Rhett Ave<br>off-ramp<br>(19) | I-526 west of<br>N. Rhett Ave |
|------------------------------|--------------|------------------------------------|-------------------------------------|--|----------------------------------|-------------------------------|
| 17 North on-ramp             |              | 120.8<br>(7:45AM)                  | 415.6<br>(7:45AM)                   | 505.15<br>(7:45AM)                     | 834.11<br>(7:45AM)               | 920.22<br>(7:45AM)            |
| 17 South on-ramp             |              | 70.29<br>(7:45AM)                  | 365.09<br>(7:45AM)                  | 454.64<br>(7:45AM)                     | 783.6<br>(7:45AM)                | 869.71<br>(7:45AM)            |
| Long Point Rd. N.<br>on-ramp |              | -                                  | 275.34<br>(7:45AM)                  | 347.36<br>(7:45AM)                     | 676.32<br>(7:45AM)               | 762.43<br>(7:45AM)            |
| Long Point Rd. S. on-ramp    |              | -                                  | 217.09<br>(7:45AM)                  | 306.64<br>(7:45AM)                     | 635.6<br>(7:45AM)                | 721.71<br>(7:45AM)            |
| Seven Farms Dr. on-ramp      |              | -                                  | -                                   | 71.57<br>(7:45AM)                      | 400.53<br>(7:45AM)               | 486.64<br>(7:45AM)            |
| Clements Ferry Rd<br>on-ramp |              | -                                  | -                                   | -                                      | 292.59<br>(7:45AM)               | 378.7<br>(7:45AM)             |
| Virginia Ave on-ramp         |              | -                                  | -                                   | -                                      | 21.04<br>(7:45AM)                | 107.15<br>(7:45AM)            |
| N. Rhett Ave on-ramp         |              | -                                  | -                                   | -                                      | -                                | 65.97<br>(7:30AM)             |

NOTE: 0.00 Travel Time in Seconds

(00:00XM) Start Time of Worst 15-Minute Interval

Table A-5: 2017 Eastbound Ramp to Ramp Origin-Destination  
Avg. PM Peak Hour Mixed Traffic Travel Time

| Origins                          | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|----------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west of<br>N. Rhett Ave    |              | 104.61<br>(5:15PM)            | 167.04<br>(5:15PM)            | 422.18<br>(5:15PM)                         | 451.69<br>(5:15PM)                         | 540.76<br>(5:15PM)                    | 761.03<br>(5:15PM)              | 864.44<br>(5:15PM)        | 899.38<br>(5:15PM)        |
| N. Rhett Ave<br>on-ramp          |              | -                             | 18.51<br>(5:15PM)             | 273.65<br>(5:15PM)                         | 303.16<br>(5:15PM)                         | 392.23<br>(5:15PM)                    | 612.5<br>(5:15PM)               | 715.91<br>(5:15PM)        | 750.85<br>(5:15PM)        |
| Clements<br>Ferry Rd on-<br>ramp |              | -                             | -                             | -  | -  | 68.67<br>(5:15PM)                     | 288.94<br>(5:15PM)              | 392.35<br>(5:15PM)        | 427.29<br>(5:15PM)        |
| River Landing<br>Dr. on-ramp     |              | -                             | -                             | -  | -  | -                                     | 205.47<br>(5:15PM)              | 308.88<br>(5:15PM)        | 343.82<br>(5:15PM)        |
| Long Point<br>Rd. S. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 88.92<br>(5:45PM)         | 123.41<br>(5:45PM)        |
| Long Point<br>Rd. N. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 61.66<br>(5:45PM)         | 96.15<br>(5:45PM)         |

NOTE: 0.00 Travel Time in Seconds  
(00:00XM) Start Time of Worst 15-Minute Interval

Table A-6: 2017 Westbound Ramp to Ramp Origin-Destination  
Avg. PM Peak Hour Mixed Traffic Travel Time

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 119.23<br>(5:15PM)              | 460.11<br>(5:30PM)               | 659.71<br>(5:30PM)                 | 1474.75<br>(5:15PM)           | 1700.16<br>(5:15PM)           |
| 17 South on-ramp             |              | 67.33<br>(5:15PM)               | 410.44<br>(5:30PM)               | 610.04<br>(5:30PM)                 | 1422.85<br>(5:15PM)           | 1648.26<br>(5:15PM)           |
| Long Point Rd. N.<br>on-ramp |              | -                               | 362.21<br>(5:30PM)               | 522.73<br>(5:30PM)                 | 1331.81<br>(5:15PM)           | 1557.23<br>(5:15PM)           |
| Long Point Rd. S.<br>on-ramp |              | -                               | 299.05<br>(5:30PM)               | 498.65<br>(5:30PM)                 | 1305.72<br>(5:15PM)           | 1531.13<br>(5:15PM)           |
| Seven Farms Dr.<br>on-ramp   |              | -                               | -                                | 161.17<br>(5:15PM)                 | 1021.38<br>(5:15PM)           | 1246.8<br>(5:15PM)            |
| Clements Ferry Rd<br>on-ramp |              | -                               | -                                | -                                  | 738 (5:00PM)                  | 952.55<br>(5:15PM)            |
| Virginia Ave on-ramp         |              | -                               | -                                | -                                  | 36.09 (5:15PM)                | 261.5 (5:15PM)                |
| N. Rhett Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 165.42<br>(5:15PM)            |

NOTE: 0.00      Travel Time in Seconds  
(00:00XM) Start Time of Worst 15-Minute Interval



Table A-7: 2017 Eastbound Ramp to Ramp Origin-Destination  
Avg. AM Peak Hour Mixed TTI

| Origins                          | Destinations                  |                               |  |  |                                       |                                 |                           |                           |
|----------------------------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
|                                  | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
| I-526 west of<br>N. Rhett Ave    | 3.41<br>(7:45AM)              | 3.25<br>(7:45AM)              | 2.07<br>(7:30AM)                           | 1.99<br>(7:30AM)                           | 1.81<br>(7:30AM)                      | 1.54<br>(7:30AM)                | 1.47<br>(7:30AM)          | 1.45<br>(7:30AM)          |
| N. Rhett Ave<br>on-ramp          | -                             | 2.73<br>(7:30AM)              | 1.62<br>(7:15AM)                           | 1.57<br>(7:15AM)                           | 1.44<br>(7:15AM)                      | 1.28<br>(7:15AM)                | 1.25<br>(7:15AM)          | 1.24<br>(7:15AM)          |
| Clements<br>Ferry Rd on-<br>ramp | -                             | -                             | -  | -  | 1.04<br>(7:15AM)                      | 1.05<br>(7:15AM)                | 1.05<br>(7:15AM)          | 1.06<br>(7:15AM)          |
| River<br>Landing Dr.<br>on-ramp  | -                             | -                             | -  | -  | -                                     | 1.06<br>(7:15AM)                | 1.06<br>(7:15AM)          | 1.06<br>(7:15AM)          |
| Long Point<br>Rd. S. on-<br>ramp | -                             | -                             | -  | -  | -                                     | -                               | 1.08<br>(7:30AM)          | 1.09<br>(7:30AM)          |
| Long Point<br>Rd. N. on-<br>ramp | -                             | -                             | -  | -  | -                                     | -                               | 1.12<br>(7:30AM)          | 1.12<br>(7:30AM)          |

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval

Table A-8: 2017 Westbound Ramp to Ramp Origin-Destination  
Avg. AM Peak Hour Mixed TTI

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 1.14<br>(7:45AM)                | 1.3 (7:45AM)                     | 1.25<br>(7:45AM)                   | 1.32<br>(7:45AM)              | 1.31<br>(7:45AM)              |
| 17 South on-ramp             |              | 1.17<br>(7:45AM)                | 1.33<br>(7:45AM)                 | 1.27<br>(7:45AM)                   | 1.34<br>(7:45AM)              | 1.32<br>(7:45AM)              |
| Long Point Rd. N.<br>on-ramp |              | -                               | 1.3 (7:45AM)                     | 1.25<br>(7:45AM)                   | 1.34<br>(7:45AM)              | 1.32<br>(7:45AM)              |
| Long Point Rd. S. on-ramp    |              | -                               | 1.24<br>(7:45AM)                 | 1.19<br>(7:45AM)                   | 1.31<br>(7:45AM)              | 1.29<br>(7:45AM)              |
| Seven Farms Dr. on-ramp      |              | -                               | -                                | 1.08<br>(7:45AM)                   | 1.37<br>(7:45AM)              | 1.32<br>(7:45AM)              |
| Clements Ferry Rd<br>on-ramp |              | -                               | -                                | -                                  | 1.52<br>(7:45AM)              | 1.42<br>(7:45AM)              |
| Virginia Ave on-ramp         |              | -                               | -                                | -                                  | 1.61<br>(7:45AM)              | 1.22<br>(7:45AM)              |
| N. Rhett Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 1.2 (7:30AM)                  |

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval

Table A-9: 2017 Eastbound Ramp to Ramp Origin-Destination  
Avg. PM Peak Hour Mixed TTI

| Origins                          | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|----------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west of<br>N. Rhett Ave    |              | 1.92<br>(5:15PM)              | 1.9<br>(5:15PM)               | 1.57<br>(5:15PM)                           | 1.54<br>(5:15PM)                           | 1.48<br>(5:15PM)                      | 1.35<br>(5:15PM)                | 1.31<br>(5:15PM)          | 1.3<br>(5:15PM)           |
| N. Rhett Ave<br>on-ramp          |              | -                             | 1.86<br>(5:15PM)              | 1.43<br>(5:15PM)                           | 1.41<br>(5:15PM)                           | 1.37<br>(5:15PM)                      | 1.26<br>(5:15PM)                | 1.23<br>(5:15PM)          | 1.23<br>(5:15PM)          |
| Clements<br>Ferry Rd on-<br>ramp |              | -                             | -                             | -  | -  | 1.24<br>(5:15PM)                      | 1.14<br>(5:15PM)                | 1.12<br>(5:15PM)          | 1.12<br>(5:15PM)          |
| River Landing<br>Dr. on-ramp     |              | -                             | -                             | -  | -  | -                                     | 1.11<br>(5:15PM)                | 1.09<br>(5:15PM)          | 1.1<br>(5:15PM)           |
| Long Point<br>Rd. S. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 1.13<br>(5:45PM)          | 1.12<br>(5:45PM)          |
| Long Point<br>Rd. N. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 1.2<br>(5:45PM)           | 1.16<br>(5:45PM)          |

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval

Table A-10: 2017 Westbound Ramp to Ramp Origin-Destination  
Avg. PM Peak Hour Mixed TTI

| Origins                      | Destinations | Long Point<br>Rd. off-ramp<br>(28) | Seven Farms<br>Dr. off-ramp<br>(24) | Clements<br>Ferry Rd off-<br>ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of<br>N. Rhett Ave |
|------------------------------|--------------|------------------------------------|-------------------------------------|--|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 1.12 (5:15PM)                      | 1.44 (5:30PM)                       | 1.64 (5:30PM)                          | 2.34 (5:15PM)                 | 2.41 (5:15PM)                 |
| 17 South on-ramp             |              | 1.12 (5:15PM)                      | 1.5 (5:30PM)                        | 1.71 (5:30PM)                          | 2.44 (5:15PM)                 | 2.5 (5:15PM)                  |
| Long Point Rd. N.<br>on-ramp |              | -                                  | 1.71 (5:30PM)                       | 1.88 (5:30PM)                          | 2.64 (5:15PM)                 | 2.69 (5:15PM)                 |
| Long Point Rd. S.<br>on-ramp |              | -                                  | 1.71 (5:30PM)                       | 1.94 (5:30PM)                          | 2.7 (5:15PM)                  | 2.74 (5:15PM)                 |
| Seven Farms Dr.<br>on-ramp   |              | -                                  | -                                   | 2.43 (5:15PM)                          | 3.49 (5:15PM)                 | 3.39 (5:15PM)                 |
| Clements Ferry Rd<br>on-ramp |              | -                                  | -                                   | -                                      | 3.83 (5:00PM)                 | 3.57 (5:15PM)                 |
| Virginia Ave on-ramp         |              | -                                  | -                                   | -                                      | 2.76 (5:15PM)                 | 2.99 (5:15PM)                 |
| N. Rhett Ave on-ramp         |              | -                                  | -                                   | -                                      | -                             | 3.01 (5:15PM)                 |

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval

**Table A-11: 2017 Eastbound Ramp to Ramp Origin-Destination  
Avg. AM Peak Hour Truck Traffic Travel Time**

| Origins                          | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|----------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west of<br>N. Rhett Ave    |              | 188.77<br>(7:45AM)            | 291.23<br>(7:45AM)            | 565.21<br>(7:45AM)                         | 592.25<br>(7:45AM)                         | 668.26<br>(7:45AM)                    | 882.86<br>(7:45AM)              | 987.91<br>(7:45AM)        | 1022.17<br>(7:45AM)       |
| N. Rhett Ave<br>on-ramp          |              | -                             | 28.56<br>(7:30AM)             | 312.02<br>(7:15AM)                         | 339.94<br>(7:15AM)                         | 416.88<br>(7:15AM)                    | 632.74<br>(7:15AM)              | 740.91<br>(7:15AM)        | 774.39<br>(7:15AM)        |
| Clements<br>Ferry Rd on-<br>ramp |              | -                             | -                             | -  | -  | 57.64<br>(7:15AM)                     | 273.5<br>(7:15AM)               | 381.68<br>(7:15AM)        | 415.15<br>(7:15AM)        |
| River Landing<br>Dr. on-ramp     |              | -                             | -                             | -  | -  | -                                     | 203.44<br>(7:15AM)              | 311.61<br>(7:15AM)        | 345.09<br>(7:15AM)        |
| Long Point<br>Rd. S. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 88.75<br>(7:15AM)         | 122.78<br>(7:30AM)        |
| Long Point<br>Rd. N. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 59.74<br>(7:15AM)         | 93.66<br>(7:30AM)         |

NOTE: 0.00      Travel Time in Seconds  
**(00:00XM) Start Time of Worst 15-Minute Interval**

Table A-12: 2017 Westbound Ramp to Ramp Origin-Destination  
Avg. AM Peak Hour Truck Traffic Travel Time

| Origins                      | Destinations | Long Point<br>Rd. off-ramp<br>(28) | Seven Farms<br>Dr. off-ramp<br>(24) | Clements<br>Ferry Rd off-<br>ramp (23) | N. Rhett Ave<br>off-ramp<br>(19) | I-526 west of<br>N. Rhett Ave |
|------------------------------|--------------|------------------------------------|-------------------------------------|--|----------------------------------|-------------------------------|
| 17 North on-ramp             |              | 122.59<br>(7:45AM)                 | 423.64<br>(7:45AM)                  | 516.3<br>(7:45AM)                      | 857.89<br>(7:45AM)               | 947.79<br>(7:45AM)            |
| 17 South on-ramp             |              | 70.57<br>(7:45AM)                  | 371.61<br>(7:45AM)                  | 464.27<br>(7:45AM)                     | 805.87<br>(7:45AM)               | 895.76<br>(7:45AM)            |
| Long Point Rd. N.<br>on-ramp |              | -                                  | 281.53<br>(7:45AM)                  | 356.04<br>(7:45AM)                     | 697.64<br>(7:45AM)               | 787.53<br>(7:45AM)            |
| Long Point Rd. S. on-ramp    |              | -                                  | 221.93<br>(7:45AM)                  | 314.58<br>(7:45AM)                     | 656.18<br>(7:45AM)               | 746.07<br>(7:45AM)            |
| Seven Farms Dr. on-ramp      |              | -                                  | -                                   | 74.05<br>(7:45AM)                      | 415.65<br>(7:45AM)               | 505.54<br>(7:45AM)            |
| Clements Ferry Rd<br>on-ramp |              | -                                  | -                                   | -                                      | 303.25<br>(7:45AM)               | 393.15<br>(7:45AM)            |
| Virginia Ave on-ramp         |              | -                                  | -                                   | -                                      | 23.48<br>(7:45AM)                | 113.37<br>(7:45AM)            |
| N. Rhett Ave on-ramp         |              | -                                  | -                                   | -                                      | -                                | 68.73<br>(7:30AM)             |

NOTE: 0.00      Travel Time in Seconds  
(00:00XM) Start Time of Worst 15-Minute Interval

**Table A-13: 2017 Eastbound Ramp to Ramp Origin-Destination  
Avg. PM Peak Hour Truck Traffic Travel Time**

| Origins                          | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|----------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west of<br>N. Rhett Ave    |              | 107<br>(5:15PM)               | 171.99<br>(5:15PM)            | 433.8<br>(5:15PM)                          | 464.34<br>(5:15PM)                         | 550.92<br>(5:15PM)                    | 783.06<br>(5:15PM)              | 886.6<br>(5:15PM)         | 923.42<br>(5:15PM)        |
| N. Rhett Ave<br>on-ramp          |              | -                             | 20.55<br>(5:15PM)             | 282.36<br>(5:15PM)                         | 312.9<br>(5:15PM)                          | 399.48<br>(5:15PM)                    | 631.62<br>(5:15PM)              | 735.16<br>(5:15PM)        | 771.98<br>(5:15PM)        |
| Clements<br>Ferry Rd on-<br>ramp |              | -                             | -                             | -  | -  | 65.47<br>(5:15PM)                     | 297.61<br>(5:15PM)              | 401.15<br>(5:15PM)        | 438.68<br>(5:00PM)        |
| River Landing<br>Dr. on-ramp     |              | -                             | -                             | -  | -  | -                                     | 218.03<br>(5:15PM)              | 321.56<br>(5:15PM)        | 359.31<br>(5:00PM)        |
| Long Point<br>Rd. S. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 86.07<br>(5:00PM)         | 129.23<br>(5:00PM)        |
| Long Point<br>Rd. N. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 57.51<br>(5:00PM)         | 100.67<br>(5:00PM)        |

NOTE: 0.00      Travel Time in Seconds  
**(00:00XM) Start Time of Worst 15-Minute Interval**



Table A-14: 2017 Westbound Ramp to Ramp Origin-Destination  
Avg. PM Peak Hour Truck Traffic Travel Time

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 120.03<br>(5:15PM)              | 478.22<br>(5:30PM)               | 674.29<br>(5:30PM)                 | 1495.38<br>(5:15PM)           | 1723.55<br>(5:15PM)           |
| 17 South on-ramp             |              | 69.53<br>(5:30PM)               | 429.12<br>(5:30PM)               | 625.19<br>(5:30PM)                 | 1444.84<br>(5:15PM)           | 1673.01<br>(5:15PM)           |
| Long Point Rd. N.<br>on-ramp |              | -                               | 373.36<br>(5:30PM)               | 531.04<br>(5:30PM)                 | 1348.11<br>(5:15PM)           | 1576.29<br>(5:15PM)           |
| Long Point Rd. S.<br>on-ramp |              | -                               | 307.86<br>(5:30PM)               | 503.93<br>(5:30PM)                 | 1318.13<br>(5:15PM)           | 1546.3<br>(5:15PM)            |
| Seven Farms Dr.<br>on-ramp   |              | -                               | -                                | 160.9<br>(5:15PM)                  | 1017.27<br>(5:15PM)           | 1245.44<br>(5:15PM)           |
| Clements Ferry Rd<br>on-ramp |              | -                               | -                                | -                                  | 745.63<br>(5:00PM)            | 968.77<br>(5:00PM)            |
| Virginia Ave on-ramp         |              | -                               | -                                | -                                  | 37.57 (5:15PM)                | 265.75<br>(5:15PM)            |
| N. Rhett Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 165.12<br>(5:15PM)            |

NOTE: 0.00 Travel Time in Seconds  
(00:00XM) Start Time of Worst 15-Minute Interval

**Table A-15: 2017 Eastbound Ramp to Ramp Origin-Destination  
Avg. AM Peak Hour Truck TTI**

| Origins                          | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|----------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west of<br>N. Rhett Ave    |              | 3.47<br>(7:45AM)              | 3.31<br>(7:45AM)              | 2.1<br>(7:45AM)                            | 2.02<br>(7:45AM)                           | 1.83<br>(7:45AM)                      | 1.57<br>(7:45AM)                | 1.5<br>(7:45AM)           | 1.48<br>(7:45AM)          |
| N. Rhett Ave<br>on-ramp          |              | -                             | 2.87<br>(7:30AM)              | 1.63<br>(7:15AM)                           | 1.58<br>(7:15AM)                           | 1.45<br>(7:15AM)                      | 1.31<br>(7:15AM)                | 1.28<br>(7:15AM)          | 1.26<br>(7:15AM)          |
| Clements<br>Ferry Rd on-<br>ramp |              | -                             | -                             | -  | -  | 1.04<br>(7:15AM)                      | 1.08<br>(7:15AM)                | 1.09<br>(7:15AM)          | 1.09<br>(7:15AM)          |
| River Landing<br>Dr. on-ramp     |              | -                             | -                             | -  | -  | -                                     | 1.1<br>(7:15AM)                 | 1.1<br>(7:15AM)           | 1.1<br>(7:15AM)           |
| Long Point<br>Rd. S. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 1.13<br>(7:15AM)          | 1.12<br>(7:30AM)          |
| Long Point<br>Rd. N. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 1.16<br>(7:15AM)          | 1.13<br>(7:30AM)          |

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval

Table A-16: 2017 Westbound Ramp to Ramp Origin-Destination  
Avg. AM Peak Hour Truck TTI

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 1.16<br>(7:45AM)                | 1.32<br>(7:45AM)                 | 1.28<br>(7:45AM)                   | 1.36<br>(7:45AM)              | 1.35<br>(7:45AM)              |
| 17 South on-ramp             |              | 1.18<br>(7:45AM)                | 1.36<br>(7:45AM)                 | 1.3 (7:45AM)                       | 1.38<br>(7:45AM)              | 1.36<br>(7:45AM)              |
| Long Point Rd. N.<br>on-ramp |              | -                               | 1.33<br>(7:45AM)                 | 1.28<br>(7:45AM)                   | 1.38<br>(7:45AM)              | 1.36<br>(7:45AM)              |
| Long Point Rd. S. on-ramp    |              | -                               | 1.27<br>(7:45AM)                 | 1.22<br>(7:45AM)                   | 1.36<br>(7:45AM)              | 1.34<br>(7:45AM)              |
| Seven Farms Dr. on-ramp      |              | -                               | -                                | 1.12<br>(7:45AM)                   | 1.42<br>(7:45AM)              | 1.38<br>(7:45AM)              |
| Clements Ferry Rd<br>on-ramp |              | -                               | -                                | -                                  | 1.57<br>(7:45AM)              | 1.47<br>(7:45AM)              |
| Virginia Ave on-ramp         |              | -                               | -                                | -                                  | 1.79<br>(7:45AM)              | 1.29<br>(7:45AM)              |
| N. Rhett Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 1.25<br>(7:30AM)              |

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval

**Table A-17: 2017 Eastbound Ramp to Ramp Origin-Destination  
Avg. PM Peak Hour Truck TTI**

| Origins                          | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|----------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west of<br>N. Rhett Ave    |              | 1.96<br>(5:15PM)              | 1.95<br>(5:15PM)              | 1.61<br>(5:15PM)                           | 1.58<br>(5:15PM)                           | 1.51<br>(5:15PM)                      | 1.39<br>(5:15PM)                | 1.35<br>(5:15PM)          | 1.34<br>(5:15PM)          |
| N. Rhett Ave<br>on-ramp          |              | -                             | 2.07<br>(5:15PM)              | 1.48<br>(5:15PM)                           | 1.46<br>(5:15PM)                           | 1.39<br>(5:15PM)                      | 1.3<br>(5:15PM)                 | 1.27<br>(5:15PM)          | 1.26<br>(5:15PM)          |
| Clements<br>Ferry Rd on-<br>ramp |              | -                             | -                             | -  | -  | 1.18<br>(5:15PM)                      | 1.18<br>(5:15PM)                | 1.15<br>(5:15PM)          | 1.15<br>(5:00PM)          |
| River Landing<br>Dr. on-ramp     |              | -                             | -                             | -  | -  | -                                     | 1.17<br>(5:15PM)                | 1.14<br>(5:15PM)          | 1.15<br>(5:00PM)          |
| Long Point<br>Rd. S. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 1.1<br>(5:00PM)           | 1.18<br>(5:00PM)          |
| Long Point<br>Rd. N. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 1.12<br>(5:00PM)          | 1.22<br>(5:00PM)          |

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval

Table A-18: 2017 Westbound Ramp to Ramp Origin-Destination  
Avg. PM Peak Hour Truck TTI

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 1.13 (5:15PM)                   | 1.49 (5:30PM)                    | 1.67 (5:30PM)                      | 2.37 (5:15PM)                 | 2.45 (5:15PM)                 |
| 17 South on-ramp             |              | 1.16 (5:30PM)                   | 1.57 (5:30PM)                    | 1.75 (5:30PM)                      | 2.48 (5:15PM)                 | 2.54 (5:15PM)                 |
| Long Point Rd. N.<br>on-ramp |              | -                               | 1.76 (5:30PM)                    | 1.91 (5:30PM)                      | 2.67 (5:15PM)                 | 2.72 (5:15PM)                 |
| Long Point Rd. S.<br>on-ramp |              | -                               | 1.76 (5:30PM)                    | 1.96 (5:30PM)                      | 2.72 (5:15PM)                 | 2.77 (5:15PM)                 |
| Seven Farms Dr.<br>on-ramp   |              | -                               | -                                | 2.43 (5:15PM)                      | 3.47 (5:15PM)                 | 3.39 (5:15PM)                 |
| Clements Ferry Rd<br>on-ramp |              | -                               | -                                | -                                  | 3.87 (5:00PM)                 | 3.63 (5:00PM)                 |
| Virginia Ave on-ramp         |              | -                               | -                                | -                                  | 2.87 (5:15PM)                 | 3.03 (5:15PM)                 |
| N. Rhett Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 3 (5:15PM)                    |

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval

Table A-19: 2050 No Build Eastbound Ramp to Ramp Origin-Destination Free Flow Travel Time

| Origins                       | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|-------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west of<br>N. Rhett Ave |              | 30.11                         | 30.11                         | 208.96                                     | 228.02                                     | 287.05                                | 451.47                          | 529.83                    | 556.33                    |
| N. Rhett Ave<br>on-ramp       |              | -                             | -                             | 133.34                                     | 152.40                                     | 211.44                                | 375.85                          | 454.21                    | 480.71                    |
| Clements Ferry<br>Rd on-ramp  |              | -                             | -                             | -  | -  | 48.40                                 | 212.82                          | 291.18                    | 317.68                    |
| River Landing<br>Dr. on-ramp  |              | -                             | -                             | -  | -  | -                                     | 155.96                          | 234.33                    | 260.83                    |
| Long Point Rd.<br>S. on-ramp  |              | -                             | -                             | -  | -  | -                                     | -                               | 67.26                     | 93.76                     |
| Long Point Rd.<br>N. on-ramp  |              | -                             | -                             | -  | -  | -                                     | -                               | 47.60                     | 74.10                     |

NOTE: 0.00 Travel Time in Seconds

Table A-20: 2050 No Build Westbound Ramp to Ramp Origin-Destination Free Flow Travel Time

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 91.18                           | 272.26                           | 340.00                             | 490.66                        | 573.16                        |
| 17 South on-ramp             |              | 52.08                           | 233.17                           | 300.90                             | 451.56                        | 534.06                        |
| Long Point Rd. N.<br>on-ramp |              | -                               | 167.88                           | 235.61                             | 386.27                        | 468.77                        |
| Long Point Rd. S. on-ramp    |              | -                               | 150.47                           | 218.20                             | 368.87                        | 451.36                        |
| Seven Farms Dr. on-ramp      |              | -                               | -                                | 59.85                              | 210.51                        | 293.01                        |
| Clements Ferry Rd<br>on-ramp |              | -                               | -                                | -                                  | 125.41                        | 207.90                        |
| Virginia Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 61.59                         |
| N. Rhett Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 19.48                         |

NOTE: 0.00 Travel Time in Seconds

Table A-21: 2050 No Build Eastbound Ramp to Ramp Origin-Destination  
Avg. AM Peak Hour Mixed Traffic Travel Time

| Origins                          | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|----------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west of<br>N. Rhett Ave    |              | 550.49<br>(7:00AM)            | 486.67<br>(7:00AM)            | 1321.94<br>(7:00AM)                        | 1346.31<br>(7:00AM)                        | 1515.28<br>(7:00AM)                   | 1701.53<br>(7:15AM)             | 1809.76<br>(7:15AM)       | 1848.66<br>(7:15AM)       |
| N. Rhett Ave<br>on-ramp          |              | -                             | -                             | 414.49<br>(7:00AM)                         | 455.29<br>(7:00AM)                         | 635.73<br>(7:00AM)                    | 880.17<br>(7:00AM)              | 983.71<br>(7:00AM)        | 1018.1<br>(7:00AM)        |
| Clements<br>Ferry Rd on-<br>ramp |              | -                             | -                             | -  | -  | 133.79<br>(7:00AM)                    | 356.22<br>(7:00AM)              | 457.06<br>(7:00AM)        | 490.9<br>(7:00AM)         |
| River Landing<br>Dr. on-ramp     |              | -                             | -                             | -  | -  | -                                     | 216.65<br>(7:15AM)              | 315.47<br>(7:15AM)        | 349.76<br>(7:15AM)        |
| Long Point<br>Rd. S. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 88.3<br>(7:30AM)          | 123.42<br>(7:30AM)        |
| Long Point<br>Rd. N. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 64.71<br>(7:30AM)         | 99.59<br>(7:30AM)         |

NOTE: 0.00 Travel Time in Seconds

(00:00XM) Start Time of Worst 15-Minute Interval



Table A-22: 2050 No Build Westbound Ramp to Ramp Origin-Destination  
Avg. AM Peak Hour Mixed Traffic Travel Time

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 126.59<br>(7:45AM)              | 520.08<br>(7:45AM)               | 589.23<br>(7:45AM)                 | 877.53<br>(7:45AM)            | 955.79<br>(7:45AM)            |
| 17 South on-ramp             |              | 74.97<br>(7:45AM)               | 469.45<br>(7:45AM)               | 541.17<br>(7:45AM)                 | 827.92<br>(7:45AM)            | 905.14<br>(7:45AM)            |
| Long Point Rd. N.<br>on-ramp |              | -                               | 377.72<br>(7:45AM)               | 451.15<br>(7:45AM)                 | 739.85<br>(7:45AM)            | 818.18<br>(7:45AM)            |
| Long Point Rd. S. on-ramp    |              | -                               | 354.97<br>(7:45AM)               | 424.57<br>(7:45AM)                 | 716.01<br>(7:45AM)            | 796.59<br>(7:45AM)            |
| Seven Farms Dr. on-ramp      |              | -                               | -                                | 141.05<br>(7:00AM)                 | 392.44<br>(7:45AM)            | 483.19<br>(7:45AM)            |
| Clements Ferry Rd<br>on-ramp |              | -                               | -                                | -                                  | 276.42<br>(7:45AM)            | 366.57<br>(7:45AM)            |
| Virginia Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 77.85<br>(7:45AM)             |
| N. Rhett Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 25.1<br>(7:30AM)              |

NOTE: 0.00 Travel Time in Seconds  
(00:00XM) Start Time of Worst 15-Minute Interval

**Table A-23: 2050 No Build Eastbound Ramp to Ramp Origin-Destination**  
**Avg. PM Peak Hour Mixed Traffic Travel Time**

| Origins                          | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|----------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west of<br>N. Rhett Ave    |              | 466.21<br>(5:00PM)            | 462.73<br>(5:00PM)            | 1657.71<br>(5:15PM)                        | 1686.57<br>(5:15PM)                        | 1913.78<br>(5:15PM)                   | 2884.22<br>(5:15PM)             | 2948.05<br>(5:15PM)       | 2934.88<br>(5:15PM)       |
| N. Rhett Ave<br>on-ramp          |              | -                             | -                             | 911.6<br>(5:45PM)                          | 930.7<br>(5:45PM)                          | 1075.21<br>(5:45PM)                   | 1649.82<br>(5:45PM)             | 1787.52<br>(5:45PM)       | 1811.8<br>(5:45PM)        |
| Clements<br>Ferry Rd on-<br>ramp |              | -                             | -                             | -  | -  | 137.55<br>(5:30PM)                    | 886.92<br>(5:30PM)              | 1055.26<br>(5:30PM)       | 1071.21<br>(5:30PM)       |
| River Landing<br>Dr. on-ramp     |              | -                             | -                             | -  | -  | -                                     | 741.86<br>(5:15PM)              | 894.68<br>(5:30PM)        | 908.62<br>(5:30PM)        |
| Long Point<br>Rd. S. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 168.45<br>(5:45PM)        | 203.43<br>(5:45PM)        |
| Long Point<br>Rd. N. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 94.86<br>(5:45PM)         | 129.93<br>(5:15PM)        |

NOTE: 0.00      Travel Time in Seconds  
 (00:00XM) Start Time of Worst 15-Minute Interval

Table A-24: 2050 No Build Westbound Ramp to Ramp Origin-Destination  
Avg. PM Peak Hour Mixed Traffic Travel Time

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 906.26<br>(5:45PM)              | 3227.6 (5:45PM)                  | 3269.76<br>(5:45PM)                | 3244.78<br>(5:45PM)           | 3468.25<br>(5:45PM)           |
| 17 South on-ramp             |              | 558.63<br>(5:15PM)              | 3062.24<br>(5:45PM)              | 3095.57<br>(5:45PM)                | 3046.1<br>(5:45PM)            | 3239.9<br>(5:45PM)            |
| Long Point Rd. N.<br>on-ramp |              | -                               | 2534.23<br>(5:45PM)              | 2528.01<br>(5:45PM)                | 2405.88<br>(5:45PM)           | 2557.7<br>(5:45PM)            |
| Long Point Rd. S.<br>on-ramp |              | -                               | 2506.74<br>(5:45PM)              | 2477.07<br>(5:45PM)                | 2366.16<br>(5:45PM)           | 2545.71<br>(5:45PM)           |
| Seven Farms Dr.<br>on-ramp   |              | -                               | -                                | 120.84<br>(5:15PM)                 | 549.55<br>(5:00PM)            | 806.12<br>(5:00PM)            |
| Clements Ferry Rd<br>on-ramp |              | -                               | -                                | -                                  | 346.96<br>(5:00PM)            | 606.01<br>(5:00PM)            |
| Virginia Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 205.33<br>(5:15PM)            |
| N. Rhett Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 70.23 (5:15PM)                |

NOTE: 0.00 Travel Time in Seconds  
(00:00XM) Start Time of Worst 15-Minute Interval

**Table A-25: 2050 No Build Eastbound Ramp to Ramp Origin-Destination**  
**Avg. AM Peak Hour Mixed TTI**

| Origins                          | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|----------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west of<br>N. Rhett Ave    |              | 18.28<br>(7:00AM)             | 16.16<br>(7:00AM)             | 6.33<br>(7:00AM)                           | 5.9<br>(7:00AM)                            | 5.28<br>(7:00AM)                      | 3.77<br>(7:15AM)                | 3.42<br>(7:15AM)          | 3.32<br>(7:15AM)          |
| N. Rhett Ave<br>on-ramp          |              | -                             | -                             | 3.11<br>(7:00AM)                           | 2.99<br>(7:00AM)                           | 3.01<br>(7:00AM)                      | 2.34<br>(7:00AM)                | 2.17<br>(7:00AM)          | 2.12<br>(7:00AM)          |
| Clements<br>Ferry Rd on-<br>ramp |              | -                             | -                             | -  | -  | 2.76<br>(7:00AM)                      | 1.67<br>(7:00AM)                | 1.57<br>(7:00AM)          | 1.55<br>(7:00AM)          |
| River Landing<br>Dr. on-ramp     |              | -                             | -                             | -  | -  | -                                     | 1.39<br>(7:15AM)                | 1.35<br>(7:15AM)          | 1.34<br>(7:15AM)          |
| Long Point<br>Rd. S. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 1.31<br>(7:30AM)          | 1.32<br>(7:30AM)          |
| Long Point<br>Rd. N. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 1.36<br>(7:30AM)          | 1.34<br>(7:30AM)          |

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval

Table A-26: 2050 No Build Westbound Ramp to Ramp Origin-Destination  
Avg. AM Peak Hour Mixed TTI

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 1.39<br>(7:45AM)                | 1.91<br>(7:45AM)                 | 1.73<br>(7:45AM)                   | 1.79<br>(7:45AM)              | 1.67<br>(7:45AM)              |
| 17 South on-ramp             |              | 1.44<br>(7:45AM)                | 2.01<br>(7:45AM)                 | 1.8 (7:45AM)                       | 1.83<br>(7:45AM)              | 1.69<br>(7:45AM)              |
| Long Point Rd. N.<br>on-ramp |              | -                               | 2.25<br>(7:45AM)                 | 1.91<br>(7:45AM)                   | 1.92<br>(7:45AM)              | 1.75<br>(7:45AM)              |
| Long Point Rd. S. on-ramp    |              | -                               | 2.36<br>(7:45AM)                 | 1.95<br>(7:45AM)                   | 1.94<br>(7:45AM)              | 1.76<br>(7:45AM)              |
| Seven Farms Dr. on-ramp      |              | -                               | -                                | 2.36<br>(7:00AM)                   | 1.86<br>(7:45AM)              | 1.65<br>(7:45AM)              |
| Clements Ferry Rd<br>on-ramp |              | -                               | -                                | -                                  | 2.2 (7:45AM)                  | 1.76<br>(7:45AM)              |
| Virginia Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 1.26<br>(7:45AM)              |
| N. Rhett Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 1.29<br>(7:30AM)              |

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval

**Table A-27: 2050 No Build Eastbound Ramp to Ramp Origin-Destination**  
**Avg. PM Peak Hour Mixed TTI**

| Origins                          | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|----------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west of<br>N. Rhett Ave    |              | 15.49<br>(5:00PM)             | 15.37<br>(5:00PM)             | 7.93<br>(5:15PM)                           | 7.4<br>(5:15PM)                            | 6.67<br>(5:15PM)                      | 6.39<br>(5:15PM)                | 5.56<br>(5:15PM)          | 5.28<br>(5:15PM)          |
| N. Rhett Ave<br>on-ramp          |              | -                             | -                             | 6.84<br>(5:45PM)                           | 6.11<br>(5:45PM)                           | 5.09<br>(5:45PM)                      | 4.39<br>(5:45PM)                | 3.94<br>(5:45PM)          | 3.77<br>(5:45PM)          |
| Clements<br>Ferry Rd on-<br>ramp |              | -                             | -                             | -  | -  | 2.84<br>(5:30PM)                      | 4.17<br>(5:30PM)                | 3.62<br>(5:30PM)          | 3.37<br>(5:30PM)          |
| River Landing<br>Dr. on-ramp     |              | -                             | -                             | -  | -  | -                                     | 4.76<br>(5:15PM)                | 3.82<br>(5:30PM)          | 3.48<br>(5:30PM)          |
| Long Point<br>Rd. S. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 2.5<br>(5:45PM)           | 2.17<br>(5:45PM)          |
| Long Point<br>Rd. N. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 1.99<br>(5:45PM)          | 1.75<br>(5:15PM)          |

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval



Table A-28: 2050 No Build Westbound Ramp to Ramp Origin-Destination  
Avg. PM Peak Hour Mixed TTI

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 9.94 (5:45PM)                   | 11.85<br>(5:45PM)                | 9.62 (5:45PM)                      | 6.61 (5:45PM)                 | 6.05 (5:45PM)                 |
| 17 South on-ramp             |              | 10.73<br>(5:15PM)               | 13.13<br>(5:45PM)                | 10.29<br>(5:45PM)                  | 6.75 (5:45PM)                 | 6.07 (5:45PM)                 |
| Long Point Rd. N.<br>on-ramp |              | -                               | 15.1 (5:45PM)                    | 10.73<br>(5:45PM)                  | 6.23 (5:45PM)                 | 5.46 (5:45PM)                 |
| Long Point Rd. S.<br>on-ramp |              | -                               | 16.66<br>(5:45PM)                | 11.35<br>(5:45PM)                  | 6.41 (5:45PM)                 | 5.64 (5:45PM)                 |
| Seven Farms Dr.<br>on-ramp   |              | -                               | -                                | 2.02 (5:15PM)                      | 2.61 (5:00PM)                 | 2.75 (5:00PM)                 |
| Clements Ferry Rd<br>on-ramp |              | -                               | -                                | -                                  | 2.77 (5:00PM)                 | 2.91 (5:00PM)                 |
| Virginia Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 3.33 (5:15PM)                 |
| N. Rhett Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 3.61 (5:15PM)                 |

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval

**Table A-29: 2050 No Build Eastbound Ramp to Ramp Origin-Destination**  
**Avg. AM Peak Hour Truck Traffic Travel Time**

| Origins                          | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|----------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west of<br>N. Rhett Ave    |              | 553.71<br>(7:00AM)            | 489.52<br>(7:00AM)            | 1347.51<br>(7:00AM)                        | 1369.42<br>(7:00AM)                        | 1544.88<br>(7:00AM)                   | 1735.68<br>(7:15AM)             | 1793.82<br>(7:15AM)       | 1816.98<br>(7:15AM)       |
| N. Rhett Ave<br>on-ramp          |              | -                             | -                             | 448.9<br>(7:30AM)                          | 483.35<br>(7:00AM)                         | 674.53<br>(7:00AM)                    | 926.44<br>(7:00AM)              | 1016.04<br>(7:00AM)       | 1052.2<br>(7:00AM)        |
| Clements<br>Ferry Rd on-<br>ramp |              | -                             | -                             | -  | -  | 139.64<br>(7:00AM)                    | 378.69<br>(7:00AM)              | 482.54<br>(7:00AM)        | 516.95<br>(7:00AM)        |
| River Landing<br>Dr. on-ramp     |              | -                             | -                             | -  | -  | -                                     | 227.26<br>(7:15AM)              | 332.99<br>(7:15AM)        | 368.2<br>(7:15AM)         |
| Long Point<br>Rd. S. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 91.31<br>(7:15AM)         | 127.38<br>(7:15AM)        |
| Long Point<br>Rd. N. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 65.91<br>(7:30AM)         | 101.39<br>(7:30AM)        |

NOTE: 0.00      Travel Time in Seconds  
 (00:00XM) Start Time of Worst 15-Minute Interval

Table A-30: 2050 No Build Westbound Ramp to Ramp Origin-Destination  
Avg. AM Peak Hour Truck Traffic Travel Time

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 136.04<br>(7:45AM)              | 570.14<br>(7:45AM)               | 620.55<br>(7:45AM)                 | 858.94<br>(7:45AM)            | -                             |
| 17 South on-ramp             |              | 80.56<br>(7:45AM)               | 523.88<br>(7:45AM)               | 567.73<br>(7:45AM)                 | 878.22<br>(7:45AM)            | 969.18<br>(7:45AM)            |
| Long Point Rd. N.<br>on-ramp |              | -                               | 407.97<br>(7:45AM)               | 475.67<br>(7:45AM)                 | 794.28<br>(7:45AM)            | 854.6<br>(7:45AM)             |
| Long Point Rd. S. on-ramp    |              | -                               | 380<br>(7:45AM)                  | 448.91<br>(7:45AM)                 | 749.42<br>(7:45AM)            | 838.53<br>(7:45AM)            |
| Seven Farms Dr. on-ramp      |              | -                               | -                                | 144.89<br>(7:00AM)                 | 411.37<br>(7:45AM)            | 507.96<br>(7:45AM)            |
| Clements Ferry Rd<br>on-ramp |              | -                               | -                                | -                                  | 291.86<br>(7:45AM)            | 387<br>(7:45AM)               |
| Virginia Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 79.3<br>(7:45AM)              |
| N. Rhett Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 26.41<br>(7:30AM)             |

NOTE: 0.00 Travel Time in Seconds  
(00:00XM) Start Time of Worst 15-Minute Interval

**Table A-31: 2050 No Build Eastbound Ramp to Ramp Origin-Destination**  
**Avg. PM Peak Hour Truck Traffic Travel Time**

| Origins                          | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|----------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west of<br>N. Rhett Ave    |              | 434.92<br>(5:00PM)            | 431.67<br>(5:00PM)            | 1717.88<br>(5:15PM)                        | 1765.4<br>(5:15PM)                         | 1847.23<br>(5:15PM)                   | 2941.15<br>(5:15PM)             | 3018.18<br>(5:15PM)       | 2881.96<br>(5:15PM)       |
| N. Rhett Ave<br>on-ramp          |              | -                             | -                             | 1180.54<br>(5:45PM)                        | 1231.52<br>(5:45PM)                        | 1501.47<br>(5:45PM)                   | 2026.22<br>(5:45PM)             | 1939.04<br>(5:45PM)       | 2105.99<br>(5:45PM)       |
| Clements<br>Ferry Rd on-<br>ramp |              | -                             | -                             | -  | -  | 145.86<br>(5:30PM)                    | 930.54<br>(5:15PM)              | 1116.57<br>(5:30PM)       | 1151.5<br>(5:30PM)        |
| River Landing<br>Dr. on-ramp     |              | -                             | -                             | -  | -  | -                                     | 779.35<br>(5:15PM)              | 960.38<br>(5:30PM)        | 977.65<br>(5:30PM)        |
| Long Point<br>Rd. S. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 178.75<br>(5:45PM)        | 217.52<br>(5:30PM)        |
| Long Point<br>Rd. N. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 99.56<br>(5:30PM)         | 139.65<br>(5:30PM)        |

NOTE: 0.00      Travel Time in Seconds  
 (00:00XM) Start Time of Worst 15-Minute Interval

Table A-32: 2050 No Build Westbound Ramp to Ramp Origin-Destination  
Avg. PM Peak Hour Truck Traffic Travel Time

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 946.17<br>(5:30PM)              | 3303.17<br>(5:45PM)              | 3428.19<br>(5:45PM)                | 3195.39<br>(5:45PM)           | 3286.89<br>(5:45PM)           |
| 17 South on-ramp             |              | 618.17<br>(5:15PM)              | 3162.87<br>(5:45PM)              | 3262.04<br>(5:45PM)                | 3192.01<br>(5:45PM)           | 3278.98<br>(5:45PM)           |
| Long Point Rd. N.<br>on-ramp |              | -                               | 2583.58<br>(5:45PM)              | 2586.25<br>(5:45PM)                | 2465.8<br>(5:45PM)            | 2664.8<br>(5:45PM)            |
| Long Point Rd. S.<br>on-ramp |              | -                               | 2446.8 (5:45PM)                  | 2449.48<br>(5:45PM)                | 2411.53<br>(5:45PM)           | 2526.68<br>(5:45PM)           |
| Seven Farms Dr.<br>on-ramp   |              | -                               | -                                | 127.79<br>(5:15PM)                 | 570.62<br>(5:00PM)            | 831.1 (5:00PM)                |
| Clements Ferry Rd<br>on-ramp |              | -                               | -                                | -                                  | 367.6 (5:00PM)                | 631.46<br>(5:00PM)            |
| Virginia Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 207.47<br>(5:15PM)            |
| N. Rhett Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 76.91 (5:15PM)                |

NOTE: 0.00 Travel Time in Seconds  
(00:00XM) Start Time of Worst 15-Minute Interval

**Table A-33: 2050 No Build Eastbound Ramp to Ramp Origin-Destination  
Avg. AM Peak Hour Truck TTI**

| Origins                          | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|----------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west of<br>N. Rhett Ave    |              | 18.39<br>(7:00AM)             | 16.26<br>(7:00AM)             | 6.45<br>(7:00AM)                           | 6.01<br>(7:00AM)                           | 5.38<br>(7:00AM)                      | 3.84<br>(7:15AM)                | 3.39<br>(7:15AM)          | 3.27<br>(7:15AM)          |
| N. Rhett Ave<br>on-ramp          |              | -                             | -                             | 3.37<br>(7:30AM)                           | 3.17<br>(7:00AM)                           | 3.19<br>(7:00AM)                      | 2.46<br>(7:00AM)                | 2.24<br>(7:00AM)          | 2.19<br>(7:00AM)          |
| Clements<br>Ferry Rd on-<br>ramp |              | -                             | -                             | -  | -  | 2.88<br>(7:00AM)                      | 1.78<br>(7:00AM)                | 1.66<br>(7:00AM)          | 1.63<br>(7:00AM)          |
| River<br>Landing Dr.<br>on-ramp  |              | -                             | -                             | -  | -  | -                                     | 1.46<br>(7:15AM)                | 1.42<br>(7:15AM)          | 1.41<br>(7:15AM)          |
| Long Point<br>Rd. S. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 1.36<br>(7:15AM)          | 1.36<br>(7:15AM)          |
| Long Point<br>Rd. N. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 1.38<br>(7:30AM)          | 1.37<br>(7:30AM)          |

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval

Table A-34: 2050 No Build Westbound Ramp to Ramp Origin-Destination  
Avg. AM Peak Hour Truck TTI

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 1.49<br>(7:45AM)                | 2.09<br>(7:45AM)                 | 1.83<br>(7:45AM)                   | 1.75<br>(7:45AM)              | -                             |
| 17 South on-ramp             |              | 1.55<br>(7:45AM)                | 2.25<br>(7:45AM)                 | 1.89<br>(7:45AM)                   | 1.94<br>(7:45AM)              | 1.81<br>(7:45AM)              |
| Long Point Rd. N. on-ramp    |              | -                               | 2.43<br>(7:45AM)                 | 2.02<br>(7:45AM)                   | 2.06<br>(7:45AM)              | 1.82<br>(7:45AM)              |
| Long Point Rd. S. on-ramp    |              | -                               | 2.53<br>(7:45AM)                 | 2.06<br>(7:45AM)                   | 2.03<br>(7:45AM)              | 1.86<br>(7:45AM)              |
| Seven Farms Dr. on-ramp      |              | -                               | -                                | 2.42<br>(7:00AM)                   | 1.95<br>(7:45AM)              | 1.73<br>(7:45AM)              |
| Clements Ferry Rd<br>on-ramp |              | -                               | -                                | -                                  | 2.33<br>(7:45AM)              | 1.86<br>(7:45AM)              |
| Virginia Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 1.29<br>(7:45AM)              |
| N. Rhett Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 1.36<br>(7:30AM)              |

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval



**Table A-35: 2050 No Build Eastbound Ramp to Ramp Origin-Destination  
Avg. PM Peak Hour Truck TTI**

| Origins                          | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|----------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west of<br>N. Rhett Ave    |              | 14.45<br>(5:00PM)             | 14.34<br>(5:00PM)             | 8.22<br>(5:15PM)                           | 7.74<br>(5:15PM)                           | 6.44<br>(5:15PM)                      | 6.51<br>(5:15PM)                | 5.7<br>(5:15PM)           | 5.18<br>(5:15PM)          |
| N. Rhett Ave<br>on-ramp          |              | -                             | -                             | 8.85<br>(5:45PM)                           | 8.08<br>(5:45PM)                           | 7.1<br>(5:45PM)                       | 5.39<br>(5:45PM)                | 4.27<br>(5:45PM)          | 4.38<br>(5:45PM)          |
| Clements<br>Ferry Rd on-<br>ramp |              | -                             | -                             | -  | -  | 3.01<br>(5:30PM)                      | 4.37<br>(5:15PM)                | 3.83<br>(5:30PM)          | 3.62<br>(5:30PM)          |
| River Landing<br>Dr. on-ramp     |              | -                             | -                             | -  | -  | -                                     | 5<br>(5:15PM)                   | 4.1<br>(5:30PM)           | 3.75<br>(5:30PM)          |
| Long Point<br>Rd. S. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 2.66<br>(5:45PM)          | 2.32<br>(5:30PM)          |
| Long Point<br>Rd. N. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 2.09<br>(5:30PM)          | 1.88<br>(5:30PM)          |

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval

Table A-36: 2050 No Build Westbound Ramp to Ramp Origin-Destination  
Avg. PM Peak Hour Truck TTI

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 10.38<br>(5:30PM)               | 12.13<br>(5:45PM)                | 10.08<br>(5:45PM)                  | 6.51 (5:45PM)                 | 5.73 (5:45PM)                 |
| 17 South on-ramp             |              | 11.87<br>(5:15PM)               | 13.56<br>(5:45PM)                | 10.84<br>(5:45PM)                  | 7.07 (5:45PM)                 | 6.14 (5:45PM)                 |
| Long Point Rd. N.<br>on-ramp |              | -                               | 15.39<br>(5:45PM)                | 10.98<br>(5:45PM)                  | 6.38 (5:45PM)                 | 5.68 (5:45PM)                 |
| Long Point Rd. S.<br>on-ramp |              | -                               | 16.26<br>(5:45PM)                | 11.23<br>(5:45PM)                  | 6.54 (5:45PM)                 | 5.6 (5:45PM)                  |
| Seven Farms Dr.<br>on-ramp   |              | -                               | -                                | 2.14 (5:15PM)                      | 2.71 (5:00PM)                 | 2.84 (5:00PM)                 |
| Clements Ferry Rd<br>on-ramp |              | -                               | -                                | -                                  | 2.93 (5:00PM)                 | 3.04 (5:00PM)                 |
| Virginia Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 3.37 (5:15PM)                 |
| N. Rhett Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 3.95 (5:15PM)                 |

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval

Table A-37: 2050 Build Eastbound Ramp to Ramp Origin-Destination Free Flow Travel Time

| Origins                       | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|-------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west of<br>N. Rhett Ave |              | 30.09                         | 30.09                         | 208.49                                     | 227.24                                     | 286.35                                | 451.41                          | 529.49                    | 556.25                    |
| N. Rhett Ave<br>on-ramp       |              | -                             | -                             | 151.16                                     | 169.90                                     | 229.01                                | 394.08                          | 472.16                    | 498.92                    |
| Clements Ferry<br>Rd on-ramp  |              | -                             | -                             | -  | -  | 50.47                                 | 215.53                          | 293.61                    | 320.37                    |
| River Landing<br>Dr. on-ramp  |              | -                             | -                             | -  | -  | -                                     | 155.76                          | 233.84                    | 260.60                    |
| Long Point Rd.<br>S. on-ramp  |              | -                             | -                             | -  | -  | -                                     | -                               | 69.06                     | 95.82                     |
| Long Point Rd.<br>N. on-ramp  |              | -                             | -                             | -  | -  | -                                     | -                               | 50.30                     | 77.06                     |

NOTE: 0.00 Travel Time in Seconds

Table A-38: 2050 Build Westbound Ramp to Ramp Origin-Destination Free Flow Travel Time

| Origins                   | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|---------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp          |              | 90.22                           | 272.95                           | 343.09                             | 497.17                        | 573.31                        |
| 17 South on-ramp          |              | 55.41                           | 238.14                           | 308.28                             | 462.35                        | 538.50                        |
| Long Point Rd. N. on-ramp |              | -                               | 171.80                           | 241.95                             | 396.02                        | 472.16                        |
| Long Point Rd. S. on-ramp |              | -                               | 156.02                           | 226.17                             | 380.24                        | 456.38                        |
| Seven Farms Dr. on-ramp   |              | -                               | -                                | 62.07                              | 216.15                        | 292.29                        |
| Clements Ferry Rd on-ramp |              | -                               | -                                | -                                  | 130.72                        | 206.86                        |
| Virginia Ave on-ramp      |              | -                               | -                                | -                                  | -                             | 42.27                         |
| N. Rhett Ave on-ramp      |              | -                               | -                                | -                                  | -                             | 19.48                         |

NOTE: 0.00 Travel Time in Seconds

Table A-39: 2050 Build Eastbound Ramp to Ramp Origin-Destination  
Avg. AM Peak Hour Mixed Traffic Travel Time

| Origins                       | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|-------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west of<br>N. Rhett Ave |              | 70.57<br>(7:00AM)             | 62.39<br>(7:00AM)             | 326.38<br>(7:00AM)                         | 351.58<br>(7:00AM)                         | 463.27<br>(7:00AM)                    | 679.1<br>(7:00AM)               | 777.41<br>(7:00AM)        | 813.02<br>(7:00AM)        |
| N. Rhett Ave<br>on-ramp       |              | -                             | -                             | 199.85<br>(7:00AM)                         | 225.35<br>(7:00AM)                         | 337.58<br>(7:00AM)                    | 554.16<br>(7:00AM)              | 652.5<br>(7:00AM)         | 687.78<br>(7:00AM)        |
| Clements<br>Ferry Rd on-ramp  |              | -                             | -                             | -  | -  | 101.6<br>(7:00AM)                     | 316.35<br>(7:15AM)              | 413.56<br>(7:00AM)        | 448.66<br>(7:00AM)        |
| River Landing<br>Dr. on-ramp  |              | -                             | -                             | -  | -  | -                                     | 200.77<br>(7:15AM)              | 297.66<br>(7:00AM)        | 332.15<br>(7:00AM)        |
| Long Point<br>Rd. S. on-ramp  |              | -                             | -                             | -  | -  | -                                     | -                               | 87.2<br>(7:30AM)          | 123.1<br>(7:30AM)         |
| Long Point<br>Rd. N. on-ramp  |              | -                             | -                             | -  | -  | -                                     | -                               | 65.32<br>(7:30AM)         | 100.87<br>(7:30AM)        |

NOTE: 0.00 Travel Time in Seconds

(00:00XM) Start Time of Worst 15-Minute Interval

Table A-40: 2050 Build Westbound Ramp to Ramp Origin-Destination  
Avg. AM Peak Hour Mixed Traffic Travel Time

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 117.96<br>(7:45AM)              | 359.13<br>(7:30AM)               | 490<br>(7:15AM)                    | 709.3<br>(7:45AM)             | 823.79<br>(7:45AM)            |
| 17 South on-ramp             |              | 72.94<br>(7:45AM)               | 313.16<br>(7:45AM)               | 445<br>(7:15AM)                    | 664.34<br>(7:45AM)            | 779.33<br>(7:45AM)            |
| Long Point Rd. N. on-ramp    |              | -                               | 228.54<br>(7:30AM)               | 356.97<br>(7:15AM)                 | 582.37<br>(7:45AM)            | 698.06<br>(7:45AM)            |
| Long Point Rd. S. on-ramp    |              | -                               | 214.23<br>(7:45AM)               | 327.67<br>(7:15AM)                 | 571.16<br>(7:45AM)            | 687.43<br>(7:45AM)            |
| Seven Farms Dr. on-ramp      |              | -                               | -                                | 123.3<br>(7:00AM)                  | 346.62<br>(7:45AM)            | 462.5<br>(7:45AM)             |
| Clements Ferry Rd<br>on-ramp |              | -                               | -                                | -                                  | 244.69<br>(7:45AM)            | 363.08<br>(7:45AM)            |
| Virginia Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 63.24<br>(7:45AM)             |
| N. Rhett Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 29.31<br>(7:30AM)             |

NOTE: 0.00 Travel Time in Seconds  
(00:00XM) Start Time of Worst 15-Minute Interval

**Table A-41: 2050 Build Eastbound Ramp to Ramp Origin-Destination**  
**Avg. PM Peak Hour Mixed Traffic Travel Time**

| Origins                          | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|----------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west of<br>N. Rhett Ave    |              | 73.87<br>(5:15PM)             | 71.96<br>(5:15PM)             | 387.99<br>(5:15PM)                         | 414.62<br>(5:15PM)                         | 529.07<br>(5:15PM)                    | 894.72<br>(5:15PM)              | 981.93<br>(5:15PM)        | 1018.47<br>(5:15PM)       |
| N. Rhett Ave<br>on-ramp          |              | -                             | -                             | 250.47<br>(5:15PM)                         | 277.34<br>(5:15PM)                         | 392.2<br>(5:15PM)                     | 757.71<br>(5:15PM)              | 845.31<br>(5:15PM)        | 881.85<br>(5:15PM)        |
| Clements<br>Ferry Rd on-<br>ramp |              | -                             | -                             | -  | -  | 104.73<br>(5:15PM)                    | 470.34<br>(5:15PM)              | 557.35<br>(5:15PM)        | 594.83<br>(5:15PM)        |
| River Landing<br>Dr. on-ramp     |              | -                             | -                             | -  | -  | -                                     | 348.66<br>(5:15PM)              | 437.45<br>(5:15PM)        | 474.01<br>(5:15PM)        |
| Long Point<br>Rd. S. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 85.07<br>(5:45PM)         | 128.9<br>(5:45PM)         |
| Long Point<br>Rd. N. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 61.73<br>(5:45PM)         | 105.52<br>(5:45PM)        |

NOTE: 0.00      Travel Time in Seconds  
 (00:00XM) Start Time of Worst 15-Minute Interval

Table A-42: 2050 Build Westbound Ramp to Ramp Origin-Destination  
Avg. PM Peak Hour Mixed Traffic Travel Time

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 115.96<br>(5:15PM)              | 460.45 (5:30PM)                  | 590.71<br>(5:30PM)                 | 1001.36<br>(5:15PM)           | 1254.65<br>(5:15PM)           |
| 17 South on-ramp             |              | 69.96<br>(5:15PM)               | 415.86 (5:30PM)                  | 545.81<br>(5:30PM)                 | 953.56<br>(5:15PM)            | 1209.29<br>(5:15PM)           |
| Long Point Rd. N.<br>on-ramp |              | -                               | 324.63 (5:30PM)                  | 455.47<br>(5:30PM)                 | 855.56<br>(5:15PM)            | 1113.81<br>(5:15PM)           |
| Long Point Rd. S.<br>on-ramp |              | -                               | 297.48 (5:30PM)                  | 427.75<br>(5:30PM)                 | 827.57<br>(5:15PM)            | 1086.48<br>(5:15PM)           |
| Seven Farms Dr.<br>on-ramp   |              | -                               | -                                | 122.59<br>(5:15PM)                 | 567.97<br>(5:00PM)            | 829.58<br>(5:15PM)            |
| Clements Ferry Rd<br>on-ramp |              | -                               | -                                | -                                  | 377.36<br>(5:00PM)            | 639.38<br>(5:00PM)            |
| Virginia Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 157.65<br>(5:15PM)            |
| N. Rhett Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 74.55 (5:15PM)                |

NOTE: 0.00 Travel Time in Seconds  
(00:00XM) Start Time of Worst 15-Minute Interval

**Table A-43: 2050 Build Eastbound Ramp to Ramp Origin-Destination**  
**Avg. AM Peak Hour Mixed TTI**

| Origins                          | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|----------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west of<br>N. Rhett Ave    |              | 2.35<br>(7:00AM)              | 2.07<br>(7:00AM)              | 1.57<br>(7:00AM)                           | 1.55<br>(7:00AM)                           | 1.62<br>(7:00AM)                      | 1.5<br>(7:00AM)                 | 1.47<br>(7:00AM)          | 1.46<br>(7:00AM)          |
| N. Rhett Ave<br>on-ramp          |              | -                             | -                             | 1.32<br>(7:00AM)                           | 1.33<br>(7:00AM)                           | 1.47<br>(7:00AM)                      | 1.41<br>(7:00AM)                | 1.38<br>(7:00AM)          | 1.38<br>(7:00AM)          |
| Clements<br>Ferry Rd on-<br>ramp |              | -                             | -                             | -  | -  | 2.01<br>(7:00AM)                      | 1.47<br>(7:15AM)                | 1.41<br>(7:00AM)          | 1.4<br>(7:00AM)           |
| River<br>Landing Dr.<br>on-ramp  |              | -                             | -                             | -  | -  | -                                     | 1.29<br>(7:15AM)                | 1.27<br>(7:00AM)          | 1.27<br>(7:00AM)          |
| Long Point<br>Rd. S. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 1.26<br>(7:30AM)          | 1.28<br>(7:30AM)          |
| Long Point<br>Rd. N. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 1.3<br>(7:30AM)           | 1.31<br>(7:30AM)          |

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval



Table A-44: 2050 Build Westbound Ramp to Ramp Origin-Destination  
Avg. AM Peak Hour Mixed TTI

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 1.31<br>(7:45AM)                | 1.32<br>(7:30AM)                 | 1.43<br>(7:15AM)                   | 1.43<br>(7:45AM)              | 1.44<br>(7:45AM)              |
| 17 South on-ramp             |              | 1.32<br>(7:45AM)                | 1.32<br>(7:45AM)                 | 1.44<br>(7:15AM)                   | 1.44<br>(7:45AM)              | 1.45<br>(7:45AM)              |
| Long Point Rd. N. on-ramp    |              | -                               | 1.33<br>(7:30AM)                 | 1.48<br>(7:15AM)                   | 1.47<br>(7:45AM)              | 1.48<br>(7:45AM)              |
| Long Point Rd. S. on-ramp    |              | -                               | 1.37<br>(7:45AM)                 | 1.45<br>(7:15AM)                   | 1.5 (7:45AM)                  | 1.51<br>(7:45AM)              |
| Seven Farms Dr. on-ramp      |              | -                               | -                                | 1.99<br>(7:00AM)                   | 1.6 (7:45AM)                  | 1.58<br>(7:45AM)              |
| Clements Ferry Rd<br>on-ramp |              | -                               | -                                | -                                  | 1.87<br>(7:45AM)              | 1.76<br>(7:45AM)              |
| Virginia Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 1.5 (7:45AM)                  |
| N. Rhett Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 1.5 (7:30AM)                  |

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval

Table A-45: 2050 Build Eastbound Ramp to Ramp Origin-Destination  
Avg. PM Peak Hour Mixed TTI

| Origins                          | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|----------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west of<br>N. Rhett Ave    |              | 2.45<br>(5:15PM)              | 2.39<br>(5:15PM)              | 1.86<br>(5:15PM)                           | 1.82<br>(5:15PM)                           | 1.85<br>(5:15PM)                      | 1.98<br>(5:15PM)                | 1.85<br>(5:15PM)          | 1.83<br>(5:15PM)          |
| N. Rhett Ave<br>on-ramp          |              | -                             | -                             | 1.66<br>(5:15PM)                           | 1.63<br>(5:15PM)                           | 1.71<br>(5:15PM)                      | 1.92<br>(5:15PM)                | 1.79<br>(5:15PM)          | 1.77<br>(5:15PM)          |
| Clements<br>Ferry Rd on-<br>ramp |              | -                             | -                             | -  | -  | 2.08<br>(5:15PM)                      | 2.18<br>(5:15PM)                | 1.9<br>(5:15PM)           | 1.86<br>(5:15PM)          |
| River Landing<br>Dr. on-ramp     |              | -                             | -                             | -  | -  | -                                     | 2.24<br>(5:15PM)                | 1.87<br>(5:15PM)          | 1.82<br>(5:15PM)          |
| Long Point<br>Rd. S. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 1.23<br>(5:45PM)          | 1.35<br>(5:45PM)          |
| Long Point<br>Rd. N. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 1.23<br>(5:45PM)          | 1.37<br>(5:45PM)          |

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval

Table A-46: 2050 Build Westbound Ramp to Ramp Origin-Destination  
Avg. PM Peak Hour Mixed TTI

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 1.29 (5:15PM)                   | 1.69 (5:30PM)                    | 1.72 (5:30PM)                      | 2.01 (5:15PM)                 | 2.19 (5:15PM)                 |
| 17 South on-ramp             |              | 1.26 (5:15PM)                   | 1.75 (5:30PM)                    | 1.77 (5:30PM)                      | 2.06 (5:15PM)                 | 2.25 (5:15PM)                 |
| Long Point Rd. N.<br>on-ramp |              | -                               | 1.89 (5:30PM)                    | 1.88 (5:30PM)                      | 2.16 (5:15PM)                 | 2.36 (5:15PM)                 |
| Long Point Rd. S.<br>on-ramp |              | -                               | 1.91 (5:30PM)                    | 1.89 (5:30PM)                      | 2.18 (5:15PM)                 | 2.38 (5:15PM)                 |
| Seven Farms Dr.<br>on-ramp   |              | -                               | -                                | 1.98 (5:15PM)                      | 2.63 (5:00PM)                 | 2.84 (5:15PM)                 |
| Clements Ferry Rd<br>on-ramp |              | -                               | -                                | -                                  | 2.89 (5:00PM)                 | 3.09 (5:00PM)                 |
| Virginia Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 3.73 (5:15PM)                 |
| N. Rhett Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 3.83 (5:15PM)                 |

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval

**Table A-47: 2050 Build Eastbound Ramp to Ramp Origin-Destination**  
**Avg. AM Peak Hour Truck Traffic Travel Time**

| Origins                          | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|----------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west of<br>N. Rhett Ave    |              | 71.97<br>(7:00AM)             | 63.62<br>(7:00AM)             | 342.26<br>(7:00AM)                         | 368.33<br>(7:00AM)                         | 482.59<br>(7:00AM)                    | 714.65<br>(7:00AM)              | 819.96<br>(7:00AM)        | 851.01<br>(7:00AM)        |
| N. Rhett Ave<br>on-ramp          |              | -                             | -                             | 212.12<br>(7:00AM)                         | 238.76<br>(7:00AM)                         | 354.11<br>(7:00AM)                    | 586.46<br>(7:00AM)              | 691.79<br>(7:00AM)        | 722<br>(7:00AM)           |
| Clements<br>Ferry Rd on-<br>ramp |              | -                             | -                             | -  | -  | 104.59<br>(7:00AM)                    | 332.46<br>(7:15AM)              | 434.66<br>(7:00AM)        | 468.64<br>(7:00AM)        |
| River<br>Landing Dr.<br>on-ramp  |              | -                             | -                             | -  | -  | -                                     | 212.26<br>(7:15AM)              | 314.52<br>(7:00AM)        | 348.19<br>(7:00AM)        |
| Long Point<br>Rd. S. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 91.27<br>(7:30AM)         | 127.22<br>(7:30AM)        |
| Long Point<br>Rd. N. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 67.11<br>(7:30AM)         | 103.17<br>(7:30AM)        |

NOTE: 0.00      Travel Time in Seconds  
 (00:00XM) Start Time of Worst 15-Minute Interval

Table A-48: 2050 Build Westbound Ramp to Ramp Origin-Destination  
Avg. AM Peak Hour Truck Traffic Travel Time

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 124.64<br>(7:45AM)              | 380.17<br>(7:45AM)               | 509.86<br>(7:15AM)                 | 760.05<br>(7:45AM)            | -                             |
| 17 South on-ramp             |              | 76.17<br>(7:45AM)               | 332.35<br>(7:45AM)               | 463.17<br>(7:15AM)                 | 701.9<br>(7:30AM)             | 819.67<br>(7:45AM)            |
| Long Point Rd. N. on-ramp    |              | -                               | 241.98<br>(7:30AM)               | 372.42<br>(7:15AM)                 | 617.43<br>(7:45AM)            | 733.75<br>(7:45AM)            |
| Long Point Rd. S. on-ramp    |              | -                               | 228.59<br>(7:45AM)               | 343.92<br>(7:15AM)                 | 602.58<br>(7:45AM)            | 721.46<br>(7:45AM)            |
| Seven Farms Dr. on-ramp      |              | -                               | -                                | 126.75<br>(7:00AM)                 | 365.9<br>(7:45AM)             | 484.2<br>(7:45AM)             |
| Clements Ferry Rd<br>on-ramp |              | -                               | -                                | -                                  | 262.29<br>(7:45AM)            | 382.9<br>(7:45AM)             |
| Virginia Ave on-ramp         |              | -                               | -                                | -                                  | 0 (7:00AM)                    | 64.58<br>(7:45AM)             |
| N. Rhett Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 30.16<br>(7:30AM)             |

NOTE: 0.00 Travel Time in Seconds  
(00:00XM) Start Time of Worst 15-Minute Interval

**Table A-49: 2050 Build Eastbound Ramp to Ramp Origin-Destination**  
**Avg. PM Peak Hour Truck Traffic Travel Time**

| Origins                          | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|----------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west of<br>N. Rhett Ave    |              | 74.39<br>(5:15PM)             | 72.47<br>(5:15PM)             | 404.39<br>(5:15PM)                         | 432.81<br>(5:15PM)                         | 550.69<br>(5:15PM)                    | 938.55<br>(5:15PM)              | 1025.49<br>(5:15PM)       | 1064.73<br>(5:15PM)       |
| N. Rhett Ave<br>on-ramp          |              | -                             | -                             | 264.08<br>(5:15PM)                         | 292.62<br>(5:15PM)                         | 411.23<br>(5:15PM)                    | 799.75<br>(5:15PM)              | 886.52<br>(5:15PM)        | 925.05<br>(5:15PM)        |
| Clements<br>Ferry Rd on-<br>ramp |              | -                             | -                             | -  | -  | 107.88<br>(5:15PM)                    | 496.08<br>(5:15PM)              | 589.43<br>(5:15PM)        | 625.01<br>(5:15PM)        |
| River Landing<br>Dr. on-ramp     |              | -                             | -                             | -  | -  | -                                     | 372.68<br>(5:15PM)              | 469.13<br>(5:15PM)        | 504.17<br>(5:15PM)        |
| Long Point<br>Rd. S. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 92.38<br>(5:45PM)         | 135.01<br>(5:45PM)        |
| Long Point<br>Rd. N. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 65.65<br>(5:45PM)         | 108.4<br>(5:45PM)         |

NOTE: 0.00      Travel Time in Seconds  
**(00:00XM) Start Time of Worst 15-Minute Interval**

Table A-50: 2050 Build Westbound Ramp to Ramp Origin-Destination  
Avg. PM Peak Hour Truck Traffic Travel Time

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 120.73<br>(5:15PM)              | 487.22 (5:30PM)                  | 617.95<br>(5:30PM)                 | 1056.27<br>(5:15PM)           | 1331.1<br>(5:15PM)            |
| 17 South on-ramp             |              | 72 (5:15PM)                     | 438.47 (5:30PM)                  | 571.69<br>(5:30PM)                 | 1002.48<br>(5:15PM)           | 1266.5<br>(5:15PM)            |
| Long Point Rd. N.<br>on-ramp |              | -                               | 344.24 (5:30PM)                  | 476.84<br>(5:30PM)                 | 906.65<br>(5:15PM)            | 1188.67<br>(5:15PM)           |
| Long Point Rd. S.<br>on-ramp |              | -                               | 316.19 (5:30PM)                  | 448.04<br>(5:30PM)                 | 872.2 (5:15PM)                | 1139.68<br>(5:15PM)           |
| Seven Farms Dr.<br>on-ramp   |              | -                               | -                                | 124.22<br>(5:15PM)                 | 598.99<br>(5:00PM)            | 865.15<br>(5:15PM)            |
| Clements Ferry Rd<br>on-ramp |              | -                               | -                                | -                                  | 408.43<br>(5:00PM)            | 672 (5:00PM)                  |
| Virginia Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 159.21<br>(5:15PM)            |
| N. Rhett Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 75.31 (5:15PM)                |

NOTE: 0.00 Travel Time in Seconds  
(00:00XM) Start Time of Worst 15-Minute Interval



**Table A-51: 2050 Build Eastbound Ramp to Ramp Origin-Destination  
Avg. AM Peak Hour Truck TTI**

| Origins                          | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|----------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west of<br>N. Rhett Ave    |              | 2.39<br>(7:00AM)              | 2.11<br>(7:00AM)              | 1.64<br>(7:00AM)                           | 1.62<br>(7:00AM)                           | 1.69<br>(7:00AM)                      | 1.58<br>(7:00AM)                | 1.55<br>(7:00AM)          | 1.53<br>(7:00AM)          |
| N. Rhett Ave<br>on-ramp          |              | -                             | -                             | 1.4<br>(7:00AM)                            | 1.41<br>(7:00AM)                           | 1.55<br>(7:00AM)                      | 1.49<br>(7:00AM)                | 1.47<br>(7:00AM)          | 1.45<br>(7:00AM)          |
| Clements<br>Ferry Rd on-<br>ramp |              | -                             | -                             | -  | -  | 2.07<br>(7:00AM)                      | 1.54<br>(7:15AM)                | 1.48<br>(7:00AM)          | 1.46<br>(7:00AM)          |
| River Landing<br>Dr. on-ramp     |              | -                             | -                             | -  | -  | -                                     | 1.36<br>(7:15AM)                | 1.35<br>(7:00AM)          | 1.34<br>(7:00AM)          |
| Long Point<br>Rd. S. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 1.32<br>(7:30AM)          | 1.33<br>(7:30AM)          |
| Long Point<br>Rd. N. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 1.33<br>(7:30AM)          | 1.34<br>(7:30AM)          |

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval

Table A-52: 2050 Build Westbound Ramp to Ramp Origin-Destination  
Avg. AM Peak Hour Truck TTI

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 1.38<br>(7:45AM)                | 1.39<br>(7:45AM)                 | 1.49<br>(7:15AM)                   | 1.53<br>(7:45AM)              | -                             |
| 17 South on-ramp             |              | 1.37<br>(7:45AM)                | 1.4 (7:45AM)                     | 1.5 (7:15AM)                       | 1.52<br>(7:30AM)              | 1.52<br>(7:45AM)              |
| Long Point Rd. N. on-ramp    |              | -                               | 1.41<br>(7:30AM)                 | 1.54<br>(7:15AM)                   | 1.56<br>(7:45AM)              | 1.55<br>(7:45AM)              |
| Long Point Rd. S. on-ramp    |              | -                               | 1.47<br>(7:45AM)                 | 1.52<br>(7:15AM)                   | 1.58<br>(7:45AM)              | 1.58<br>(7:45AM)              |
| Seven Farms Dr. on-ramp      |              | -                               | -                                | 2.04<br>(7:00AM)                   | 1.69<br>(7:45AM)              | 1.66<br>(7:45AM)              |
| Clements Ferry Rd<br>on-ramp |              | -                               | -                                | -                                  | 2.01<br>(7:45AM)              | 1.85<br>(7:45AM)              |
| Virginia Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 1.53<br>(7:45AM)              |
| N. Rhett Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 1.55<br>(7:30AM)              |

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval

**Table A-53: 2050 Build Eastbound Ramp to Ramp Origin-Destination  
Avg. PM Peak Hour Truck TTI**

| Origins                          | Destinations | N. Rhett Ave<br>off-ramp (19) | Virginia Ave<br>off-ramp (20) | Clements Ferry<br>Rd S. off-ramp<br>(23 A) | Clements Ferry<br>Rd N. off-ramp<br>(23 B) | River Landing<br>Dr. off-ramp<br>(24) | Long Point Rd.<br>off-ramp (28) | 17 North<br>off-ramp (29) | 17 South<br>off-ramp (30) |
|----------------------------------|--------------|-------------------------------|-------------------------------|--|--|---------------------------------------|---------------------------------|---------------------------|---------------------------|
| I-526 west of<br>N. Rhett Ave    |              | 2.47<br>(5:15PM)              | 2.41<br>(5:15PM)              | 1.94<br>(5:15PM)                           | 1.9<br>(5:15PM)                            | 1.92<br>(5:15PM)                      | 2.08<br>(5:15PM)                | 1.94<br>(5:15PM)          | 1.91<br>(5:15PM)          |
| N. Rhett Ave<br>on-ramp          |              | -                             | -                             | 1.75<br>(5:15PM)                           | 1.72<br>(5:15PM)                           | 1.8<br>(5:15PM)                       | 2.03<br>(5:15PM)                | 1.88<br>(5:15PM)          | 1.85<br>(5:15PM)          |
| Clements<br>Ferry Rd on-<br>ramp |              | -                             | -                             | -  | -  | 2.14<br>(5:15PM)                      | 2.3<br>(5:15PM)                 | 2.01<br>(5:15PM)          | 1.95<br>(5:15PM)          |
| River Landing<br>Dr. on-ramp     |              | -                             | -                             | -  | -  | -                                     | 2.39<br>(5:15PM)                | 2.01<br>(5:15PM)          | 1.93<br>(5:15PM)          |
| Long Point<br>Rd. S. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 1.34<br>(5:45PM)          | 1.41<br>(5:45PM)          |
| Long Point<br>Rd. N. on-<br>ramp |              | -                             | -                             | -  | -  | -                                     | -                               | 1.31<br>(5:45PM)          | 1.41<br>(5:45PM)          |

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval

Table A-54: 2050 Build Westbound Ramp to Ramp Origin-Destination  
Avg. PM Peak Hour Truck TTI

| Origins                      | Destinations | Long Point Rd.<br>off-ramp (28) | Seven Farms Dr.<br>off-ramp (24) | Clements Ferry<br>Rd off-ramp (23) | N. Rhett Ave<br>off-ramp (19) | I-526 west of N.<br>Rhett Ave |
|------------------------------|--------------|---------------------------------|----------------------------------|------------------------------------|-------------------------------|-------------------------------|
| 17 North on-ramp             |              | 1.34 (5:15PM)                   | 1.79 (5:30PM)                    | 1.8 (5:30PM)                       | 2.12 (5:15PM)                 | 2.32 (5:15PM)                 |
| 17 South on-ramp             |              | 1.3 (5:15PM)                    | 1.84 (5:30PM)                    | 1.85 (5:30PM)                      | 2.17 (5:15PM)                 | 2.35 (5:15PM)                 |
| Long Point Rd. N.<br>on-ramp |              | -                               | 2 (5:30PM)                       | 1.97 (5:30PM)                      | 2.29 (5:15PM)                 | 2.52 (5:15PM)                 |
| Long Point Rd. S.<br>on-ramp |              | -                               | 2.03 (5:30PM)                    | 1.98 (5:30PM)                      | 2.29 (5:15PM)                 | 2.5 (5:15PM)                  |
| Seven Farms Dr.<br>on-ramp   |              | -                               | -                                | 2 (5:15PM)                         | 2.77 (5:00PM)                 | 2.96 (5:15PM)                 |
| Clements Ferry Rd<br>on-ramp |              | -                               | -                                | -                                  | 3.12 (5:00PM)                 | 3.25 (5:00PM)                 |
| Virginia Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 3.77 (5:15PM)                 |
| N. Rhett Ave on-ramp         |              | -                               | -                                | -                                  | -                             | 3.87 (5:15PM)                 |

NOTE: 0.00 TTI

(00:00XM) Start Time of Worst 15-Minute Interval