

Continuing Services Contract for Modeling Support and Limited Access  
Analysis, Contract No. C9-A66

TECHNICAL MEMORANDUM

**Interstate Access Plan: Phase II Improvement Plan**

**Task 2: Process and Analyze HERE Data**

Prepared for:



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## BACKGROUND AND SUMMARY

The objective of this study is to identify the peak conditions to support a diversion analysis and provide the framework for future traffic analysis for the the I-4 Beyond the Ultimate (I-4 BtU) project's southern study. Specifically this task included processing and analyzing HERE data to support the Interstate Access Plan Documentation (IAPD) for the I-4 BtU project. The southern portion of the I-4 BtU corridor is approximately 20 miles in length, ranging from the Kirkman Road interchange (MP 75) to the SR 25/US 27 interchange (MP 55).

HERE captures real-time travel time data using probe points generated by multiple resources such as GPS or smart phone devices as well as sensor data. FDOT's Traffic Operations Office has acquired archived HERE data dating back to October 2013. For this study, Kittelson & Associates (KAI) received agreement from the FDOT Traffic Operations Office to collect and process HERE data for 2014 to avoid data that includes I-4 Ultimate construction. KAI analyzed the 2014 HERE data to inform the models regarding peak versus off-peak months, days of the week, times of days and the corresponding free-flow and congested speeds on the I-4 study corridor.

The study's key findings are as follows:

### Peak and Off-Peak Months

The project team identified peak and off-peak months based on weekdays, weekends, and holidays average travel speeds. A month with the lowest average speed was determined to be the peak month and a month with the highest average speed was determined to be the off-peak month. This same analysis was completed using the median speed to determine the peak and off-peak months. The peak and off-peak months on the I-4 study corridor using **average speeds** were identified as:

- Peak month for weekday: July
- Off-peak month for weekday: April
- Peak month for weekend: July
- Off-peak month for weekend: April
- Peak month for holiday: December
- Off-peak month for holiday: January

The peak and off-peak months using **median speeds** on the I-4 study corridor were identified as:

- Peak month for weekday: May
- Off-peak month for weekday: April
- Peak month for weekend: May
- Off-peak month for weekend: April

- 
- Peak month for holiday: December
  - Off-peak month for holiday: November

The peak month for weekdays and the peak month for weekends are not the same when analyzing average speeds versus median speeds. July is the second slowest month based on the median speeds of weekday data, and the second slowest month based on the median speeds of weekend data. Differences between July and May's median speeds were small (within 0.5 mph) for the TMCs when they have lower median speeds in May than median speeds in July. The project team recommends selecting the peak and off-peak months for the I-4 study corridor using **average speeds** for the following reasons:

- Travel speeds for 5 minutes periods in an entire day were used in each month to find the peak and off-peak months. Since the median speed represents the 50<sup>th</sup> percentile speed, it does not typically account for really low travel speeds during the peak hour congestion. The lower median speed may not be correlated with the lower congested speed during peak hour. The more dramatically lower speeds, as indicated by the average speeds, likely provide a more complete range of alternative diversion routes.
- The peak month based on weekday median travel speeds is May, and the off-peak month based on weekday median travel speeds is April. Since these two months are back to back, and the volume in back to back months is assumed to not significantly increase or decrease. The fluctuation of median speed in May may be caused by some random speed variations due to driver's behavior.
- The selection of July as the peak month based on average weekday and weekend travel speeds intuitively makes sense. July is a summer vacation month and lots of visitors are attracted to theme parks. Storms and rain during July cause unreliable travel conditions. The combination of increased vehicle volumes and adverse weather conditions typically leads to slower travel conditions.
- To be consistent with the peak month for weekdays and peak month for weekends, January was selected to be the off-peak month for holidays based on average speeds.

## Peak and Off-Peak Days of Week

The weekday, weekend, and holiday data were analyzed to identify the peak and off-peak months.

- The peak and off-peak months, determined by weekday travel, were identified based on data from Tuesday to Thursday. Mondays and Fridays were not considered since these two days typically have different travel patterns than other weekdays. No holidays were included in the weekday speed analyses.
- Weekends include Saturday and Sundays. No holidays were included in the weekend speed analyses.
- These are the holidays for holiday data analyses:

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- Jan 1<sup>st</sup> -5<sup>th</sup> – New Year’s traffic
  - July 3<sup>rd</sup> -6<sup>th</sup> – Independence Day traffic
  - November 24<sup>th</sup> -30<sup>th</sup> – Thanksgiving traffic
  - December 22<sup>nd</sup> -28<sup>th</sup> – Christmas traffic

### Peak and Off-Peak Hours of Day

Weekday, weekend, and holiday data were analyzed to determine peak hours and off-peak hours, and the hours with slow speed anomalies. Generally weekend has the lowest speed anomalies during peak month. Weekday has the highest speed anomalies during peak month, compared to weekend and holiday.

The findings are as below:

#### ***Peak month weekday: July***

- Peak hours: 5-6PM
- Off-peak hours: 6-7AM
- Hours with slow speed anomalies: 11AM-12PM

#### ***Peak month weekend: July***

- Peak hours: 4-5PM and 7-8PM
- Off-peak hours: 6-7AM
- Hours with slow speed anomalies: 11AM-12PM

#### ***Peak month holiday: December***

- Peak hours: 6-7PM
- Off-peak hours: 5-6AM
- Hours with slow speed anomalies: 6-7PM, 7-8PM, 12-1PM, 11AM-12PM

#### ***Off-peak month weekday: April***

- Peak hours: 5-6PM
- Off-peak hours: 6-7AM
- Hours with slow speed anomalies: 11AM-12PM

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***Off-peak month weekend: April***

- Peak hours: 11AM-12PM
- Off-peak hours: 7-8AM, 8-9AM
- Hours with slow speed anomalies: 11AM-12PM

***Off-peak month holiday: January***

- Peak hours: 6-7PM
- Off-peak hours: 5-6AM
- Hours with slow speed anomalies: 12PM-1PM, 11AM-12PM

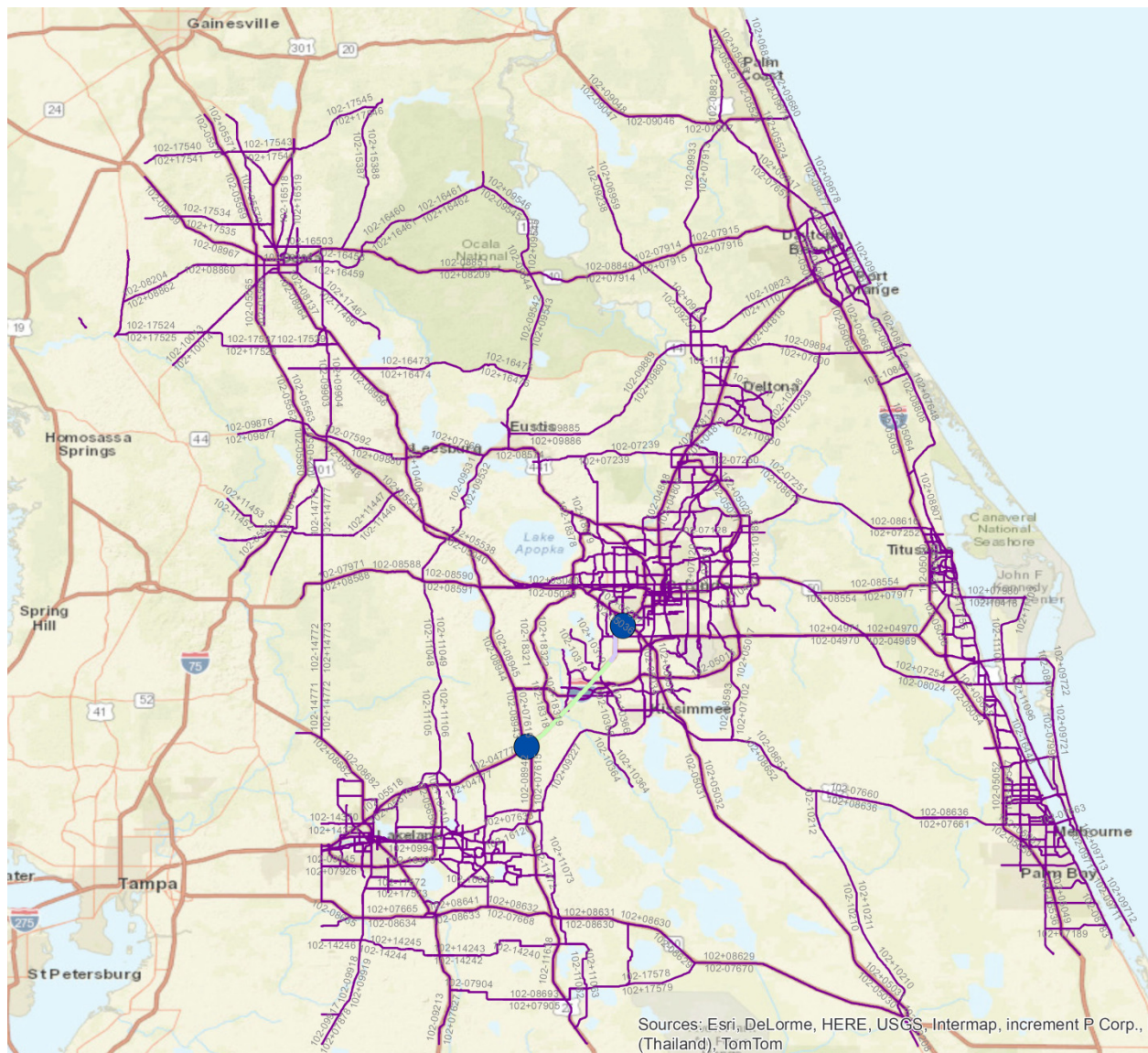


## HERE DATA COLLECTION

HERE captures real-time travel time data using probe points generated by multiple sources like GPS, smart phone devices, and sensor data. This data is provided in five minute increments along with a shape file designating the traffic collection locations. Figure 1 represents the data coverage in central Florida.

The consultant team entered into an agreement with FDOT to obtain HERE data for this study. All the 2014 HERE data, in 5-min bins, for all nine counties in District 5 and Polk County were downloaded and used for the study.

**Figure 1: Coverage of HERE Data**



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## PROCESS AND ANALYZE HERE DATA

The travel time data obtained from HERE are in 5-minute increments and do not include separate truck travel speeds. Traffic data are reported at the road link level on Traffic Message Channel (TMC) segments. Each TMC has a unique TMC ID.

A TMC shape file was developed to show the locations and codes of available HERE TMCs in FDOT District 5 and Polk County. Exact locations of the TMCs are displayed in Figure 2. For most of the fifty TMCs in the I-4 study corridor, there is 5 minute HERE speed data for each day in 2014. Three of the fifty TMCs only have 5-min level speed data from January, 2014 to May, 2014. Ten TMCs didn't have any speed data since these are interchange ramps and HERE didn't collect data on ramps. Table 1 displays the date range of available HERE speeds by TMC ID.

Table 1: Here Speed Data Time Period

TMCID	5-Min Speed Data
102+04779	January, 2014 - May, 2014
102+04780	January, 2014 - December, 2014
102+04781	January, 2014 - December, 2014
102+04782	January, 2014 - December, 2014
102+04783	January, 2014 - December, 2014
102+04784	January, 2014 - December, 2014
102+04785	January, 2014 - December, 2014
102+04786	January, 2014 - December, 2014
102+04787	January, 2014 - December, 2014
102+04788	January, 2014 - December, 2014
102+11563	January, 2014 - December, 2014
102+18341	January, 2014 - December, 2014
102-04778	January, 2014 - December, 2014
102-04779	January, 2014 - December, 2014
102-04780	January, 2014 - December, 2014
102-04781	January, 2014 - December, 2014
102-04782	January, 2014 - December, 2014
102-04783	January, 2014 - December, 2014
102-04784	January, 2014 - December, 2014
102-04785	January, 2014 - December, 2014
102-04786	January, 2014 - December, 2014
102-04787	January, 2014 - December, 2014
102-11563	January, 2014 - December, 2014
102-18341	January, 2014 - December, 2014
102N04779	January, 2014 - December, 2014
102N04780	January, 2014 - December, 2014
102N04781	January, 2014 - December, 2014
102N04782	January, 2014 - December, 2014

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102N04783	January, 2014 - December, 2014
102N04784	January, 2014 - December, 2014
102N04785	January, 2014 - December, 2014
102N04786	January, 2014 - December, 2014
102N04787	January, 2014 - December, 2014
102N04788	January, 2014 - December, 2014
102N11563	January, 2014 - December, 2014
102N18341	January, 2014 - December, 2014
102P04778	January, 2014 - May, 2014
102P04779	January, 2014 - May, 2014
102P04780	January, 2014 - December, 2014
102P04781	January, 2014 - December, 2015
102P04782	January, 2014 - December, 2016
102P04783	January, 2014 - December, 2017
102P04784	January, 2014 - December, 2018
102P04785	January, 2014 - December, 2019
102P04786	January, 2014 - December, 2020
102P04787	January, 2014 - December, 2021
102P04788	January, 2014 - December, 2022
102P11563	January, 2014 - December, 2023
102P18054	January, 2014 - December, 2024
102P18341	January, 2014 - December, 2025
102P18965	No Data Are Available
102P18969	No Data Are Available
102P18971	No Data Are Available
102P18973	No Data Are Available
102P18975	No Data Are Available
102P18985	No Data Are Available
102P18987	No Data Are Available
102P18989	No Data Are Available
102P18991	No Data Are Available
102P18993	No Data Are Available



Figure 2: HERE TMC Locations

HERE TMC on I-4 Study Corridor

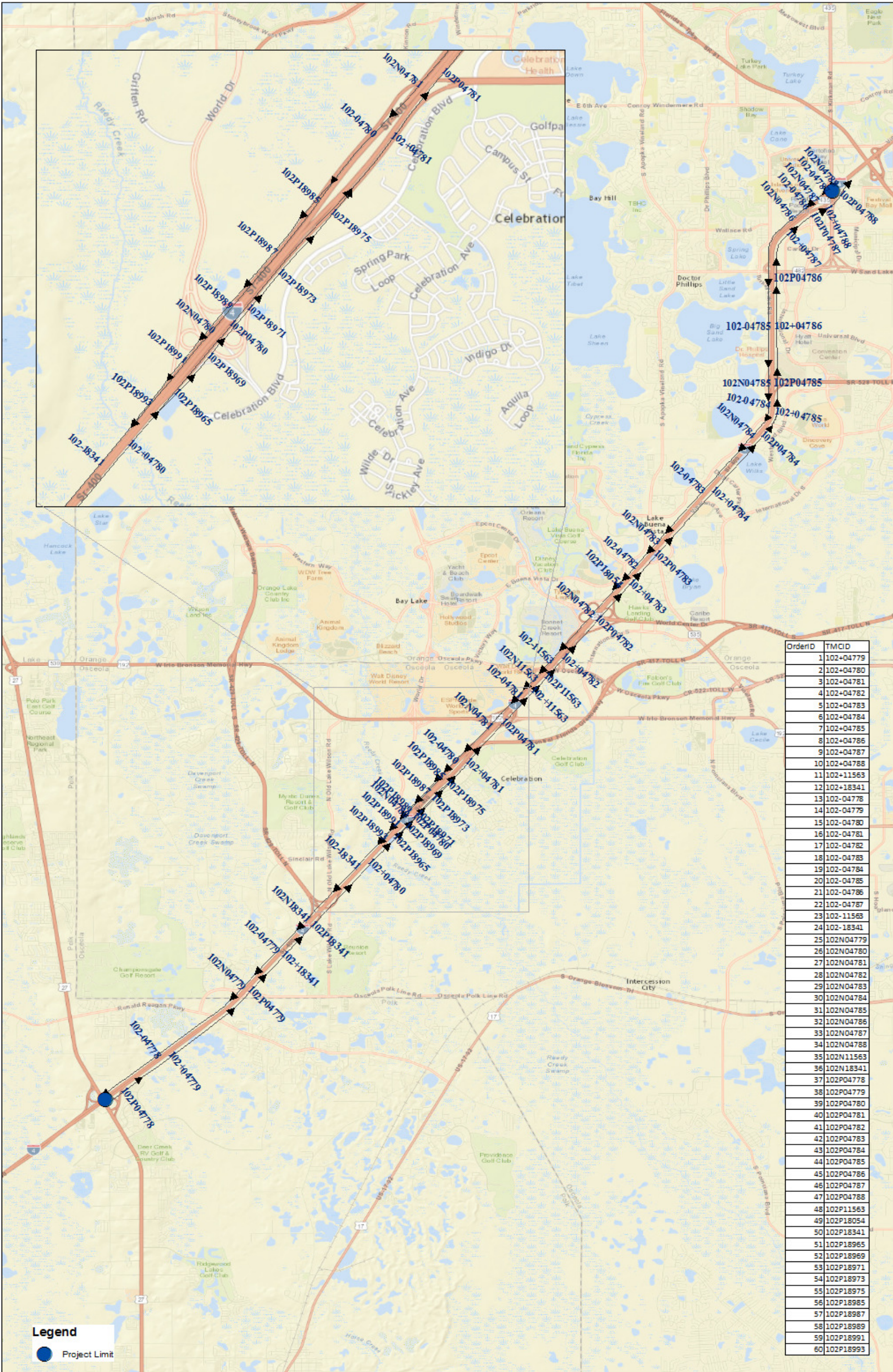




Table 2 and Table 3 give peak and off-peak months for each of 50 TMCs. The peak month for weekdays and the peak month for weekends are different when using average speeds and median speeds. Table 4 provides details on the differences between the average and the median speeds for the month of May.

Table 2: Peak and Off-peak Months Using Average Speeds

Use Average Speed								
TMCID	Peak_Month_Weekday	Off_Peak_Month_Weekday	Peak_Month_Weekend	Off_Peak_Month_Weekend	Peak_Month_Holiday	Off_Peak_Month_Holiday	Month	Count of Peak_Month_Weekday
102-04778	October	March	September	April	July	January	May	4
102-04779	October	January	September	April	December	January	June	2
102-04780	December	April	December	April	December	January	July	29
102-04781	June	April	June	April	July	January	October	4
102-04782	July	April	July	April	December	January	November	1
102-04783	July	May	July	September	December	November	December	10
102-04784	July	May	July	April	December	November	Grand Total	50
102-04785	July	January	July	April	December	November		
102-04786	July	January	July	April	December	November		
102-04787	July	April	July	April	December	January		
102-11563	July	April	June	April	July	January		
102-18341	July	January	December	April	December	January		
102N04779	October	January	September	April	December	January	Month	Count of Off_Peak_Month_Weekday
102N04780	December	April	December	April	December	January	January	17
102N04781	June	April	June	April	July	January	February	2
102N04782	November	April	July	April	December	January	March	1
102N04783	July	May	July	September	December	November	April	24
102N04784	July	May	July	April	December	November	May	4
102N04785	July	January	July	April	December	November	September	2
102N04786	July	January	July	April	December	November	Grand Total	50
102N04787	July	April	July	April	December	January		
102N04788	October	April	December	January	December	January		
102N11563	July	April	June	April	July	January	Month	Count of Peak_Month_Weekend
102N18341	July	January	December	April	December	January	March	3
102+04779	May	April	May	April		January	May	3
102+04780	December	April	June	April	December	January	June	6
102+04781	July	February	July	January	December	November	July	24
102+04782	July	September	July	September	December	November	September	3
102+04783	July	January	July	September	July	November	November	6
102+04784	July	January	July	January	December	November	Grand Total	50
102+04785	July	April	March	April	December	November		
102+04786	July	January	July	January	December	November		
102+04787	December	April	November	April	December	January		
102+04788	December	April	November	April	July	January		
102+11563	July	January	July	September	December	November	Row Labels	Count of Off_Peak_Month_Weekend
102+18341	December	April	November	April	December	January	January	8
102P04778	May	April	March	April		January	April	34
102P04779	May	April	May	April		January	September	8
102P04780	December	April	June	April	December	January	Grand Total	50
102P04781	July	February	July	January	December	November		
102P04782	July	September	July	September	December	November	Row Labels	Count of Peak_Month_Holiday
102P04783	July	January	July	September	July	November	January	1
102P04784	July	January	July	January	December	November	July	9
102P04785	July	April	March	April	December	November	December	37
102P04786	July	January	July	January	December	November	(blank)	
102P04787	December	April	November	April	December	January	Grand Total	47
102P04788	December	April	November	April	July	January		
102P11563	July	January	July	September	December	November	Row Labels	Count of Off_Peak_Month_Holiday
102P18054	May	January	May	January	December	November	January	27
102P18341	December	April	November	April	December	January	November	23
							Grand Total	50

Table 3: Peak and Off-peak Months Using Median Speeds

Use Median Speed								
TMCID	Peak Month Weekday	Off Peak Month Weekday	Peak Month Weekend	Off Peak Month Weekend	Peak Month Holiday	Off Peak Month Holiday	Row Labels	Count of Peak Month Weekday
102-04778	February	April	February	April	January	November	January	2
102-04779	February	April	September	April	December	July	February	6
102-04780	February	April	January	April	December	November	March	1
102-04781	May	April	May	April	July	November	May	21
102-04782	November	September	July	September	December	November	July	11
102-04783	February	May	February	May	December	November	October	5
102-04784	January	November	February	April	January	November	November	4
102-04785	July	November	January	April	December	November	Grand Total	50
102-04786	May	April	May	April	January	November		
102-04787	May	April	May	April	December	January	Row Labels	Count of Off Peak Month Weekday
102-11563	November	September	June	September	July	November	January	2
102-18341	May	April	May	April	December	July	April	27
102N04779	February	April	May	April	December	July	May	4
102N04780	May	April	May	April	December	November	September	13
102N04781	May	April	May	April	July	November	November	4
102N04782	November	September	July	September	December	November	Grand Total	50
102N04783	February	May	February	May	December	November		
102N04784	January	November	February	April	January	November	Row Labels	Count of Peak Month Weekend
102N04785	July	November	January	April	December	November	January	3
102N04786	May	April	May	April	January	November	February	7
102N04787	May	April	May	April	December	November	May	25
102N04788	May	April	May	April	January	November	June	2
102N11563	November	September	June	September	July	November	July	10
102N18341	May	April	May	April	December	July	September	1
102+04779	May	April	May	April	January	January	October	2
102+04780	May	April	May	April	January	November	Grand Total	50
102+04781	October	April	May	April	December	November		
102+04782	October	September	February	September	January	November	Row Labels	Count of Off Peak Month Weekend
102+04783	July	January	July	September	December	November	April	38
102+04784	July	September	July	September	December	November	May	2
102+04785	July	September	July	April	January	November	September	10
102+04786	July	September	July	April	December	November	Grand Total	50
102+04787	May	April	May	April	December	January		
102+04788	May	April	May	April	December	January	Row Labels	Count of Peak Month Holiday
102+11563	July	May	October	April	July	November	January	16
102+18341	May	April	May	April	January	November	July	6
102P04778	March	April	May	April	January	January	December	25
102P04779	May	April	May	April	January	January	(blank)	
102P04780	May	April	May	April	January	November	Grand Total	47
102P04781	October	April	May	April	December	November		
102P04782	October	September	February	September	January	November	Row Labels	Count of Off Peak Month Holiday
102P04783	July	January	July	April	December	November	January	7
102P04784	July	September	July	September	December	November	July	4
102P04785	July	September	July	April	January	November	November	39
102P04786	July	September	July	April	December	November	Grand Total	50
102P04787	May	April	May	April	January	November		
102P04788	May	April	May	April	December	January		
102P11563	October	May	October	April	July	November		
102P18054	May	September	May	September	January	November		
102P18341	May	April	May	April	January	November		

Table 4: Average and Median Speeds Difference in May and July

Tmc Code	Avg. Speed_ Weekday_May	Avg. Speed_ Weekday_July	Avg. Speed Difference between May and July	Median Speed_ Weekend_May	Median Speed_ Weekend_July	Median Speed Difference between May and July
102-04778	64.23	63.65	0.58	65	65.2	-0.2
102-04779	64	61.98	2.02	65	65.2	-0.2
102-04780	64.18	63.12	1.06	65	65.2	-0.2
102-04781	64.43	64.05	0.38	65	65.2	-0.2
102-04782	62.88	61.86	1.02	63.36	63.25	0.11
102-04783	58.85	55.57	3.28	59.88	59.06	0.82
102-04784	58.88	54.56	4.32	59.99	59.58	0.41
102-04785	58.98	55.15	3.83	60	59.99	0.01
102-04786	56.51	53.59	2.92	57	57.2	-0.2
102-04787	54.89	53.79	1.1	54.99	55.3	-0.31
102-11563	63.83	63	0.83	64.77	64.67	0.1
102-18341	63.94	61.82	2.12	65	65.2	-0.2
102N04779	64	61.98	2.02	65	65.2	-0.2
102N04780	64.18	63.12	1.06	65	65.2	-0.2
102N04781	64.43	64.05	0.38	65	65.2	-0.2
102N04782	62.88	61.86	1.02	63.36	63.25	0.11
102N04783	58.85	55.57	3.28	59.88	59.06	0.82
102N04784	58.88	54.56	4.32	59.99	59.58	0.41
102N04785	58.98	55.15	3.83	60	59.99	0.01
102N04786	56.51	53.59	2.92	57	57.2	-0.2
102N04787	54.89	53.79	1.1	54.99	55.3	-0.31
102N04788	54.36	52.5	1.86	55	55.3	-0.3
102N11563	63.83	63	0.83	64.77	64.67	0.1
102N18341	63.94	61.82	2.12	65	65.2	-0.2
102+04779	63.95			65		
102+04780	64.6	64.4	0.2	65	65.2	-0.2
102+04781	64.09	61.27	2.82	65	65.2	-0.2
102+04782	62.73	55.13	7.6	64.32	64.67	-0.35
102+04783	58.17	50.68	7.49	59	58.33	0.67
102+04784	58.91	54.65	4.26	59.97	59.39	0.58
102+04785	59.29	57.39	1.9	60	59.87	0.13
102+04786	58.83	56.33	2.5	59.97	59.53	0.44
102+04787	55.06	54.54	0.52	55.5	55.7	-0.2
102+04788	54.4	54.29	0.11	55	55.3	-0.3
102+11563	63.41	57.67	5.74	64.79	64.55	0.24
102+18341	64.44	64.33	0.11	65	65.2	-0.2
102P04778	67.17			68.79		
102P04779	63.95			65		
102P04780	64.6	64.4	0.2	65	65.2	-0.2
102P04781	64.09	61.27	2.82	65	65.2	-0.2
102P04782	62.73	55.13	7.6	64.32	64.67	-0.35
102P04783	58.17	50.68	7.49	59	58.33	0.67
102P04784	58.91	54.65	4.26	59.97	59.39	0.58
102P04785	59.29	57.39	1.9	60	59.87	0.13
102P04786	58.83	56.33	2.5	59.97	59.53	0.44
102P04787	55.06	54.54	0.52	55.5	55.7	-0.2
102P04788	54.4	54.29	0.11	55	55.3	-0.3
102P11563	63.41	57.67	5.74	64.79	64.55	0.24
102P18054	46.45	49.19	-2.74	45	49.7	-4.7
102P18341	64.44	64.33	0.11	65	65.2	-0.2

Table 5, Table 6, and Table 7 give highest and lowest hourly speeds for peak and off-peak month weekdays, weekends, and holidays for each of 50 TMCs. The cells highlighted in pink color indicate that the differences of speeds are more than 30 mph between highest hourly speeds and lowest hourly speeds. The cells highlighted in green color indicate the most frequent hours with highest speeds or lowest speeds.

Table 5: Highest and Lowest Hourly Speed in Pk Month Weekday and Off-Pk Month Weekday

Tmc Code	Highest Average Speed in Pk Month Weekday (July)	Lowest Average Speed in Pk Month Weekday (July)	Difference	Hour of Highest Average Speed in Pk Month Weekday (July)	Hour of lowest Average Speed in Pk Month Weekday (July)	Highest Average Speed in Off-Pk Month Weekday (April)	Lowest Average Speed in Off-Pk Month Weekday (April)	Difference	Hour of Highest Average Speed in Off-Pk Month Weekday (April)	Hour of lowest Average Speed in Off-Pk Month Weekday (April)
102-04778	65.04	61.73	3.31	6-7AM	5-6PM	66.23	61.61	4.62	6-7AM	10-11AM
102-04779	65.03	47.32	17.71	6-7AM	5-6PM	66.21	53.19	13.02	6-7AM	5-6PM
102-04780	65.04	50.45	14.59	6-7AM	5-6PM	66.13	52.35	13.78	6-7AM	5-6PM
102-04781	65.04	61.64	3.4	6-7AM	6-7PM	65.99	63.64	2.35	10-11AM	5-6PM
102-04782	64.18	56.85	7.33	6-7AM	6-7PM	65.26	59.32	5.94	5-6AM	6-7PM
102-04783	60.06	41.85	18.21	6-7AM	6-7PM	61.38	46.12	15.26	5-6AM	6-7PM
102-04784	59.89	32.56	27.33	4-5AM	6-7PM	61.16	42.77	18.39	5-6AM	6-7PM
102-04785	60.15	39.09	21.06	6-7AM	5-6PM	61.84	40.25	21.59	5-6AM	6-7PM
102-04786	57.09	41.13	15.96	6-7AM	5-6PM	59.5	46.91	12.59	5-6AM	6-7PM
102-04787	55.25	49.39	5.86	6-7AM	5-6PM	57.98	54.75	3.23	5-6AM	6-7PM
102-11563	65.03	58.71	6.32	6-7AM	10-11PM	65.72	61.02	4.7	5-6AM	9-10PM
102-18341	65.11	42.19	22.92	6-7AM	5-6PM	66.52	48.03	18.49	6-7AM	5-6PM
102N04779	65.03	47.32	17.71	6-7AM	5-6PM	66.21	53.19	13.02	6-7AM	5-6PM
102N04780	65.04	50.45	14.59	6-7AM	5-6PM	66.13	52.35	13.78	6-7AM	5-6PM
102N04781	65.04	61.64	3.4	6-7AM	6-7PM	65.99	63.64	2.35	10-11AM	5-6PM
102N04782	64.18	56.85	7.33	6-7AM	6-7PM	65.26	59.32	5.94	5-6AM	6-7PM
102N04783	60.06	41.85	18.21	6-7AM	6-7PM	61.38	46.12	15.26	5-6AM	6-7PM
102N04784	59.89	32.56	27.33	4-5AM	6-7PM	61.16	42.77	18.39	5-6AM	6-7PM
102N04785	60.15	39.09	21.06	6-7AM	5-6PM	61.84	40.25	21.59	5-6AM	6-7PM
102N04786	57.09	41.13	15.96	6-7AM	5-6PM	59.5	46.91	12.59	5-6AM	6-7PM
102N04787	55.25	49.39	5.86	6-7AM	5-6PM	57.98	54.75	3.23	5-6AM	6-7PM
102N04788	55.2	43.32	11.88	4-5AM	5-6PM	58.12	49.95	8.17	5-6AM	8-9AM
102N11563	65.03	58.71	6.32	6-7AM	10-11PM	65.72	61.02	4.7	5-6AM	9-10PM
102N18341	65.11	42.19	22.92	6-7AM	5-6PM	66.52	48.03	18.49	6-7AM	5-6PM
102-04779						66.72	64.95	1.77	7-8PM	5-6PM
102-04780	65.11	63.28	1.83	6-7AM	11AM-12PM	66.57	63.13	3.44	7-8PM	4-5PM
102-04781	65.01	41.55	23.46	6-7AM	11AM-12PM	66.08	41.39	24.69	7-8PM	11AM-12PM
102-04782	64.95	23.56	41.39	7-8AM	11AM-12PM	66.55	32.27	34.28	6-7AM	11AM-12PM
102-04783	61.16	28.38	32.78	6-7AM	11AM-12PM	62.12	36.69	25.43	6-7AM	11AM-12PM
102-04784	60.14	45.36	14.78	6-7AM	11AM-12PM	62.01	50.47	11.54	6-7AM	10-11AM
102-04785	60.11	50.95	9.16	6-7AM	5-6PM	61.81	50.85	10.96	6-7AM	5-6PM
102-04786	60.03	46.49	13.54	3-4AM	6-7PM	61.61	39.86	21.75	7-8AM	6-7PM
102-04787	55.67	50.87	4.8	3-4AM	5-6PM	58.73	51.85	6.88	6-7AM	5-6PM
102-04788	55.3	48.1	7.2	3-4AM	5-6PM	58.23	45.52	12.71	6-7AM	5-6PM
102-11563	64.89	24.38	40.51	5-6AM	11AM-12PM	66	32.85	33.15	7-8AM	11AM-12PM
102-18341	65.03	63.38	1.65	6-7AM	1-2AM	66.49	63.14	3.35	7-8PM	4-5PM
102P04778			0			69.41	67.5	1.91	7-8PM	3-4AM
102P04779			0			66.72	64.95	1.77	7-8PM	5-6PM
102P04780	65.11	63.28	1.83	6-7AM	11AM-12PM	66.57	63.13	3.44	7-8PM	4-5PM
102P04781	65.01	41.55	23.46	6-7AM	11AM-12PM	66.08	41.39	24.69	7-8PM	11AM-12PM
102P04782	64.95	23.56	41.39	7-8AM	11AM-12PM	66.55	32.27	34.28	6-7AM	11AM-12PM
102P04783	61.16	28.38	32.78	6-7AM	11AM-12PM	62.12	36.69	25.43	6-7AM	11AM-12PM
102P04784	60.14	45.36	14.78	6-7AM	11AM-12PM	62.01	50.47	11.54	6-7AM	10-11AM
102P04785	60.11	50.95	9.16	6-7AM	5-6PM	61.81	50.85	10.96	6-7AM	5-6PM
102P04786	60.03	46.49	13.54	3-4AM	6-7PM	61.61	39.86	21.75	7-8AM	6-7PM
102P04787	55.67	50.87	4.8	3-4AM	5-6PM	58.73	51.85	6.88	6-7AM	5-6PM
102P04788	55.3	48.1	7.2	3-4AM	5-6PM	58.23	45.52	12.71	6-7AM	5-6PM
102P11563	64.89	24.38	40.51	5-6AM	11AM-12PM	66	32.85	33.15	7-8AM	11AM-12PM
102P18054	49.7	48.31	1.39	2-3AM	6-7PM	48.7	47.02	1.68	7-8AM	10-11AM
102P18341	65.03	63.38	1.65	6-7AM	1-2AM	66.49	63.14	3.35	7-8PM	4-5PM

Row Labels	Count of Hour of Highest Average Speed in Pk Month Weekday (July)
2-3AM	1
3-4AM	6
4-5AM	3
5-6AM	2
6-7AM	33
7-8AM	2
(blank)	
Grand Total	47
Row Labels	Count of Hour of lowest Average Speed in Pk Month Weekday (July)
10-11PM	2
11AM-12PM	12
1-2AM	2
5-6PM	20
6-7PM	11
(blank)	
Grand Total	47
Row Labels	Count of Hour of Highest Average Speed in Off-Pk Month Weekday (April)
10-11AM	2
5-6AM	15
6-7AM	19
7-8AM	5
7-8PM	9
Grand Total	50
Row Labels	Count of Hour of lowest Average Speed in Off-Pk Month Weekday (April)
10-11AM	4
11AM-12PM	8
3-4AM	1
4-5PM	4
5-6PM	16
6-7PM	14
8-9AM	1
9-10PM	2
Grand Total	50



Table 6: Highest and Lowest Hourly Speed in Pk Month Weekend and Off-Pk Month Weekend

Tmc Code	Highest Average Speed in Pk Month Weekend (July)	Lowest Average Speed in Pk Month Weekend (July)	Difference	Hour of Highest Average Speed in Pk Month Weekend (July)	Hour of lowest Average Speed in Pk Month Weekend (July)	Highest Average Speed in Off-Pk Month Weekend (April)	Lowest Average Speed in Off-Pk Month Weekend (April)	Difference	Hour of Highest Average Speed in Off-Pk Month Weekend (April)	Hour of lowest Average Speed in Off-Pk Month Weekend (April)	Row Labels	Count of Hour of Highest Average Speed in Pk Month Weekend(July)
102-04778	64.92	59.53	5.39	8-9AM	3-4PM	66.63	63.64	2.99	12-1PM	10-11AM	1-2AM	1
102-04779	65.04	57.37	7.67	6-7AM	3-4PM	66.76	63.83	2.93	12-1PM	8-9PM	2-3AM,5-6AM	2
102-04780	65.07	61.76	3.31	6-7AM	3-4PM	66.57	62.16	4.41	12-1PM,	5-6PM	2-3AM,8-9AM	2
102-04781	65.01	62.21	2.8	6-7AM	9-10PM	66.55	63.5	3.05	12-1PM	9-10PM	3-4AM	4
102-04782	63.85	57.17	6.68	4-5AM	9-10PM	65.18	60.52	4.66	7-8AM	8-9PM	4-5AM	6
102-04783	60.11	40.49	19.62	6-7AM	5-6PM	61.43	49.78	11.65	8-9AM	6-7PM	5-6AM	4
102-04784	59.97	37.56	22.41	6-7AM	7-8PM	61.5	48.3	13.2	8-9AM	5-6PM	6-7AM	21
102-04785	60.25	40.94	19.31	6-7AM	7-8PM	61.73	52.44	9.29	7-8AM	5-6PM	8-9AM	7
102-04786	57.2	45.19	12.01	6-7AM	4-5PM	59.14	56.06	3.08	6-7AM,	10-11AM	(blank)	47
102-04787	55.3	47.62	7.68	5-6AM	4-5PM	58.41	54.75	3.66	10-11AM	11AM-12PM	Grand Total	47
102-11563	65.07	58.23	6.84	6-7AM	9-10PM	66.24	61.06	5.18	8-9AM	9-10PM	Row Labels	Count of Hour of lowest Average Speed in Pk Month Weekend (July)
102-18341	65.06	59.32	5.74	6-7AM	4-5PM	66.7	60.83	5.87	12-1PM	5-6PM	10-11AM,1-2PM	2
102N04779	65.04	57.37	7.67	6-7AM	3-4PM	66.76	63.83	2.93	12-1PM	8-9PM	11AM-12PM	8
102N04780	65.07	61.76	3.31	6-7AM	3-4PM	66.57	62.16	4.41	5-6PM	5-6PM	12-1PM	2
102N04781	65.01	62.21	2.8	6-7AM	9-10PM	66.55	63.5	3.05	12-1PM	8-9PM	12AM-1PM	1
102N04782	63.85	57.17	6.68	4-5AM	9-10PM	65.18	60.52	4.66	7-8AM	8-9PM	12PM-1PM	1
102N04783	60.01	40.49	19.52	6-7AM	5-6PM	61.43	49.78	11.65	8-9AM	6-7PM	3-4PM	5
102N04784	59.97	37.56	22.41	6-7AM	7-8PM	61.5	48.3	13.2	8-9AM	5-6PM	4-5PM	9
102N04785	60.25	40.94	19.31	6-7AM	7-8PM	61.73	52.44	9.29	7-8AM	5-6PM	5-6PM	2
102N04786	57.2	45.19	12.01	6-7AM	4-5PM	59.41	56.06	3.35	6-7AM,	10-11AM	6-7PM	2
102N04787	55.3	47.62	7.68	5-6AM	4-5PM	58.41	54.75	3.66	10-11AM	11-12AM	7-8PM	9
102N04788	55.27	37.13	18.14	6-7AM	4-5PM	58.18	45.82	12.36	8-9AM	3-4PM	9-10PM	6
102N11563	65.07	58.23	6.84	6-7AM	9-10PM	66.24	61.06	5.18	8-9AM	9-10PM	(blank)	47
102N18341	65.06	59.32	5.74	6-7AM	4-5PM	66.7	60.83	5.87	12-1PM	5-6PM	Grand Total	47
102+04779			0			67.48	64.83	2.65	6-7PM	2-3AM	Row Labels	Count of Hour of Highest Average Speed in Off-Pk Month Weekend (April)
102+04780	65.18	62.47	2.71	3-4AM	12PM-1PM	67.39	61.39	6	5-6PM	6-7AM	10-11AM	2
102+04781	65.05	30.16	34.89	3-4AM	11AM-12PM	66.68	34	32.68	3-4PM	11AM-12PM	12-1PM	6
102+04782	65.18	16.91	48.27	4-5AM	11AM-12PM	66.46	19.62	46.84	7-8AM	11AM-12PM	12-1PM,2-3PM	1
102+04783	61.2	20.6	40.6	5-6AM	11AM-12PM	62.51	23.49	39.02	5-6AM	11AM-12PM	12-1PM,5-6PM	1
102+04784	60.26	43.07	17.19	5-6AM	12-1PM	62.54	45.7	16.84	6-7AM	11AM-12PM	1-2PM	1
102+04785	60.17	55.35	4.82	8-9AM	4-5PM	62.25	56.41	5.84	6-7AM	7-8PM	3-4PM	2
102+04786	60.19	47.02	13.17	6-7AM	7-8PM	62.05	48.08	13.97	7-8AM	7-8PM	5-6AM	4
102+04787	55.55	53.36	2.19	8-9AM	7-8PM	59.1	55.12	3.98	7-8AM	9-10PM	6-7AM	4
102+04788	55.25	53.7	1.55	8-9AM	6-7PM	58.59	55.56	3.03	8-9AM	9-10PM	7-8AM	2
102+11563	64.93	18.04	46.89	4-5AM	11AM-12PM	65.96	20.13	45.83	5-6AM	11AM-12PM	8-9AM	10
102+18341	65.06	63.75	1.31	8-9AM	1-2PM	67.18	63.57	3.61	5-6PM	11AM-12PM	Grand Total	50
102P04778			0			70.63	66.28	4.35	7-8PM	6-7AM	Row Labels	Count of Hour of lowest Average Speed in Off-Pk Month Weekend (April)
102P04779			0			67.48	64.83	2.65	6-7PM	2-3AM	10-11AM	1
102P04780	65.18	62.47	2.71	3-4AM	12AM-1PM	67.39	61.39	6	5-6PM	6-7AM	11-12AM	1
102P04781	65.05	30.16	34.89	3-4AM	11AM-12PM	66.68	34	32.68	3-4PM	11AM-12PM	12-1PM	6
102P04782	65.18	16.91	48.27	4-5AM	11AM-12PM	66.46	19.62	46.84	7-8AM	11AM-12PM	12-1PM,2-3PM	1
102P04783	61.2	20.6	40.6	5-6AM	11AM-12PM	62.51	23.49	39.02	5-6AM	11AM-12PM	12-1PM,5-6PM	1
102P04784	60.26	43.07	17.19	5-6AM	12-1PM	62.54	45.7	16.84	6-7AM	11AM-12PM	1-2PM	1
102P04785	60.17	55.35	4.82	8-9AM	4-5PM	62.25	56.41	5.84	6-7AM	7-8PM	3-4PM	2
102P04786	60.19	47.02	13.17	6-7AM	7-8PM	62.05	48.08	13.97	7-8AM	7-8PM	5-6AM	4
102P04787	55.55	53.36	2.19	8-9AM	7-8PM	59.1	55.12	3.98	7-8AM	9-10PM	6-7AM	4
102P04788	55.25	53.7	1.55	8-9AM	6-7PM	58.59	55.56	3.03	8-9AM	9-10PM	7-8AM	2
102P11563	64.93	18.04	46.89	4-5AM	11AM-12PM	65.96	20.13	45.83	5-6AM	11AM-12PM	8-9PM	10
102P18054	49.7	47.78	1.92	1-2AM	7-8PM	48.93	46.98	1.95	8-9AM	12-1PM	Grand Total	50
102P18341	65.06	63.75	1.31	8-9AM	10-11AM,	67.18	63.57	3.61	5-6PM	11AM-12PM	Row Labels	Count of Hour of lowest Average Speed in Off-Pk Month Weekend (April)
											10-11AM	1
											11-12AM	1
											12-1PM	1
											2-3AM	2
											3-4PM	1
											4-5PM	2
											5-6PM	8
											6-7AM	3
											6-7PM	2
											7-8PM	4
											8-9PM	5
											9-10PM	7
											Grand Total	50

Table 7: Highest and Lowest Hourly Speed in Pk Month Holiday and Off-Pk Month Holiday

Tmc Code	Highest Average Speed in Pk Month Holiday (December)	Lowest Average Speed in Pk Month Holiday (December)	Difference	Hour of Highest Average Speed in Pk Month Holiday (December)	Hour of lowest Average Speed in Pk Month Holiday (December)	Highest Average Speed in Off-Pk Month Holiday (January)	Lowest Average Speed in Off-Pk Month Holiday (January)	Difference	Hour of Highest Average Speed in Off-Pk Month Holiday (January)	Hour of lowest Average Speed in Off-Pk Month Holiday (January)	Row Labels	Count of Hour of Highest Average Speed in Pk Month Holiday(December)
102-04778	64.94	59.39	5.55	3-4AM, 6-7AM	11-12AM	65.52	62.97	2.55	2-3PM	6-7PM	1-2AM	5
102-04779	64.96	51.58	13.38	5-6AM	5-6PM	65.73	56.96	8.77	8-9AM	5-6PM	2-3AM	4
102-04780	65.08	41.49	23.59	8-9AM	5-6PM	65.89	56.36	9.53	11AM-12PM	5-6PM	3-4AM	6
102-04781	64.95	55.53	9.42	9-10AM	6-7PM	66	62.68	3.32	11AM-12PM	1-2AM	4-5AM,6-7AM, 5-6AM	8
102-04782	63.87	50.59	13.28	3-4AM	5-6PM	64.51	56.76	7.75	5-6AM	6-7PM	5-6AM, 6-7AM	1
102-04783	59.71	27.27	32.44	2-3AM	6-7PM	59.86	43.19	16.67	5-6AM	6-7PM	5-6AM, 6-7AM	1
102-04784	60.04	17.02	43.02	3-4AM	7-8PM	59.79	35.68	24.11	8-9AM	6-7PM	5-6AM, 6-7AM	1
102-04785	60.14	19.8	40.34	5-6AM	7-8PM	60.69	35.4	25.29	1-2AM	6-7PM	5-6AM, 6-7AM	1
102-04786	57.03	28.5	28.53	6-7AM	6-7PM	58.56	37.65	20.91	7-8AM	5-6PM	5-6AM, 6-7AM	1
102-04787	55.23	42.38	12.85	4-5AM	6-7PM	57.7	47.41	10.29	11AM-12PM	5-6PM	5-6AM, 6-7AM	1
102-11563	64.85	53.32	11.53	4-5AM	6-7PM	65.43	59.22	6.21	7-8AM	6-7PM	5-6AM, 6-7AM	1
102-18341	64.98	41.14	23.84	3-4AM	5-6PM	65.82	55.14	10.68	7-8AM	6-7PM	6-7AM	4
102N04779	64.96	51.58	13.38	5-6AM	5-6PM	65.73	56.96	8.77	8-9AM	5-6PM	7-8AM	4
102N04780	65.08	41.49	23.59	8-9AM	5-6PM	65.89	56.36	9.53	11AM-12PM	5-6PM	8-9AM	4
102N04781	64.95	55.53	9.42	9-10AM	6-7PM	66	62.68	3.32	11AM-12PM	1-2AM	9-10AM	3
102N04782	63.87	50.59	13.28	4-5AM	5-6PM	64.51	56.76	7.75	5-6AM	6-7PM	(blank)	47
102N04783	59.71	27.27	32.44	2-3AM	6-7PM	59.86	43.19	16.67	5-6AM	6-7PM	Grand Total	47
102N04784	60.04	17.02	43.02	3-4AM	7-8PM	59.79	35.68	24.11	8-9AM	6-7PM	Row Labels	Count of Hour of lowest Average Speed in Pk Month Holiday (December)
102N04785	60.14	19.8	40.34	5-6AM	7-8PM	60.69	35.4	25.29	1-2AM	6-7PM	10-11AM	2
102N04786	57.03	28.5	28.53	6-7AM	6-7PM	58.56	37.65	20.91	7-8AM	5-6PM	11-12AM	1
102N04787	55.23	42.38	12.85	4-5AM	6-7PM	57.7	47.41	10.29	11AM-12PM	5-6PM	11AM-12PM	6
102N04788	55.26	34.19	21.07	9-10AM	6-7PM	56.85	44.22	12.63	11AM-12PM	5-6PM	12-1PM	2
102N11563	64.85	53.32	11.53	4-5AM	6-7PM	65.43	59.22	6.21	7-8AM	6-7PM	12PM-1PM	4
102N18341	64.98	41.14	23.84	3-4AM	5-6PM	65.82	55.14	10.68	7-8AM	6-7PM	3-4PM	1
102+04779			0			66.25	63.19	3.06	11AM-12PM	4-5PM	4-5PM	4
102+04780	64.96	49.1	15.86	1-2AM	12PM-1PM	65.88	59.03	6.85	5-6AM	12PM-1PM	5-6PM	9
102+04781	64.82	20.67	44.15	7-8AM	12PM-1PM	65.14	29.16	35.98	5-6AM	12PM-1PM	6-7PM	12
102+04782	64.98	23.11	41.87	2-3AM	11AM-12PM	65.67	24.61	41.06	5-6AM	11AM-12PM	7-8PM	6
102+04783	60.95	26.74	34.21	7-8AM	11AM-12PM	61.51	24.44	37.07	6-7AM	11AM-12PM	(blank)	47
102+04784	60.07	44.33	15.74	7-8AM	11AM-12PM	61.3	44.82	16.48	5-6AM	11AM-12PM	Grand Total	47
102+04785	60.22	45.23	14.99	6-7AM	7-8PM	60.84	53.64	7.2	5-6AM	10-11AM	Row Labels	Count of Hour of Highest Average Speed in Off-Pk Month Holiday (January)
102+04786	60.18	37.37	22.81	7-8AM	6-7PM	60.94	52.55	8.39	6-7AM	6-7PM	11AM-12PM	10
102+04787	55.65	51	4.65	5-6AM	4-5PM	57.32	49.34	7.98	7-8AM	6-7PM	1-2AM	2
102+04788	55.26	48.92	6.34	8-9AM	4-5PM	56.99	47.36	9.63	8-9AM	6-7PM	1-2PM	3
102+11563	64.95	18.04	46.91	5-6AM	12-1PM	65.41	23.69	41.72	5-6AM	11AM-12PM	2-3PM	1
102+18341	65.15	53.7	11.45	1-2AM	10-11AM	66.12	63.37	2.75	1-2PM	7-8PM	5-6AM	16
102P04778			0			69.61	65.48	4.13	11AM-12PM	2-3AM	6-7AM	4
102P04779			0			66.25	63.19	3.06	11AM-12PM	4-5PM	7-8AM	8
102P04780	64.96	49.1	15.86	1-2AM	12PM-1PM	65.88	59.03	6.85	5-6AM	12PM-1PM	8-9AM	6
102P04781	64.82	20.67	44.15	7-8AM	12-1PM	65.41	29.16	36.25	5-6AM	12-1PM	Grand Total	50
102P04782	64.98	23.11	41.87	2-3AM	11AM-12PM	65.67	24.61	41.06	5-6AM	11AM-12PM	Row Labels	Count of Hour of lowest Average Speed in Off-Pk Month Holiday (January)
102P04783	60.95	26.74	34.21	7-8AM	11AM-12PM	61.51	24.44	37.07	6-7AM	11AM-12PM	10-11AM	2
102P04784	60.07	44.33	15.74	7-8AM	11AM-12PM	61.3	44.82	16.48	5-6AM	11AM-12PM	11AM-12PM	8
102P04785	60.22	45.23	14.99	6-7AM	7-8PM	60.84	53.64	7.2	5-6AM	10-11AM	12-1PM	1
102P04786	60.18	37.37	22.81	7-8AM	6-7PM	60.94	52.55	8.39	6-7AM	6-7AM	1-2AM	2
102P04787	55.65	51	4.65	5-6AM	4-5PM	57.32	49.34	7.98	7-8AM	6-7PM	1-2PM	3
102P04788	55.26	48.92	6.34	8-9AM	4-5PM	56.99	47.36	9.63	8-9AM	6-7PM	2-3AM	3
102P11563	64.95	18.04	46.91	5-6AM	12PM-1PM	65.41	23.69	41.72	5-6AM	11AM-12PM	4-5PM	2
102P18054	49.7	42.75	6.95	1-2AM	5-6PM	47.82	45.38	2.44	1-2PM	7-8PM	5-6PM	9
102P18341	65.15	53.7	11.45	1-2AM	10-11AM	66.12	63.37	2.75	1-2PM	7-8PM	6-7AM	1
											6-7AM	1
											6-7PM	18
											7-8PM	3
											Grand Total	50

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## SPEED DATA CHECK AND REVIEW THE FTE'S TECHNICAL MEMORANDUM PROFILE

### Speed Data Check at TMCs

The travel speeds at TMCs were visually checked to make sure that they capture the I-4 speeds. Especially when Vineland Road or Turkey Lake Road is the parallel road very close to I-4, the hypothesis is that the travel speeds from either Vineland Road or Turkey Lake Road may be mistakenly associated with I-4.

Based on the data provided, the travel speeds from either Vineland Road or Turkey Lake Road were found to not mistakenly associated with I-4.

The lowest peak speeds on I-4 in the area of Vineland Road range between 49 and 50 mph. When we compared the lowest peak speeds on Vineland Road, a signalized arterial, they are much lower than 49 mph. The Vineland Avenue, that runs parallel to I-4 towards the southern end of the study area that seems more likely to have speeds that may be associated to I-4. Vineland Avenue is only 75 feet from I-4, this short distance may cause the speeds to be read incorrectly.

The portion of I-4 running parallel to Turkey Lake Road has speeds with greater variation - ranging from 46 to 32.5 mph. The highest speeds reported on Turkey Lake Rd in the peak are 30 mph from Florida Turnpike Enterprise's Traffic and Revenue (T&R) Study. If the lowest speeds from Turkey Lake Road were incorrectly associated with I-4 they would likely be far less than 32.5 mph. So the speeds on I-4 parallel to Turkey Lake are likely representative of traffic on I-4.

### Review HERE data from the Florida Turnpike Enterprise's Traffic and Revenue (T&R) Study South Section BtU Traffic and Revenue (T&R) Study<sup>1</sup>

In previous years, the Florida's Turnpike Enterprise (FTE) has completed a Planning Level Traffic and Revenue Study to define balanced traffic and operations profiles for several of the roads in the southern I-4 BtU corridor. This effort focused on field collected speed data, HERE data, and SunGuide speed data. It also included the collection of FDOT provided seasonal factors and the development of traffic profiles. While this effort includes good information that can be compared to the HERE data analysis, it is focused on fewer roadway corridors than the current task, in several cases only considers two weeks of data in what is likely the peak season, and limited traffic count data days as well as

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<sup>1</sup> *I-4 Beyond the Ultimate: Kirkman Rd./SR 435 to US 27 Planning Level Traffic and Revenue Study*

locations. The HERE speed information from the T&R study was summarized and compared to this HERE data analysis.

### *Floating Car Runs*

In the T& R study, speed data collection was performed on I-4 using the floating car method for two midweek days in August 2015, which aims to place the speed of the data collection vehicle at the 50th percentile by aiming to pass a number of vehicles equal to the number of vehicles which pass the data collection vehicle. Table 8 below shows the results for I-4.

Table 8: I-4 – Field Collected Average Speeds

Cross Street		Distance	Speed (MPH)					
From	To	(Miles)	AM (8/18)		MD (8/18)		PM (8/20)	
			EB	WB	EB	WB	EB	WB
West of Adventure Way	East of Universal Boulevard	0.56	56.3	65.1	65.1	61.3	No Data	65.1
East of Sand Lake Road (SR 482)	West of Adventure Way	0.55	59.0	57.3	64.7	55.7	57.3	59.0
West of Sand Lake Road (SR 482)	East of Sand Lake Road (SR 482)	1.43	61.4	59.6	63.4	65.5	59.6	65.5
East of SR 528	West of Sand Lake Road (SR 482)	0.71	61.9	62.6	57.1	64.2	58.4	62.6
West of SR 528	East of SR 528	0.97	64.0	62.4	53.3	73.1	60.9	64.0
West of Central Florida Parkway	West of SR 528	1.89	56.4	61.4	56.4	70.0	58.3	62.5
East of Kissimmee Vineland Road	West of Central Florida Parkway	0.97	64.3	67.5	50.1	66.2	55.9	62.0
East of Epcot Center Drive	East of Kissimmee Vineland Road	1.44	65.7	71.0	43.5	65.7	57.1	63.3
East of Osceola Parkway	East of Epcot Center Drive	1.30	46.2	72.9	42.8	68.1	60.9	65.6
East of US 192	East of Osceola Parkway	1.86	58.4	70.7	66.7	66.7	64.0	65.8
East of World Drive/ West of SR 417	East of US 192	1.77	67.1	73.7	69.9	71.4	69.9	67.1
West of World Drive/SR 417	East of World Drive/ West of SR 417	0.84	66.3	74.8	72.3	69.9	70.7	68.4
East of SR 429	West of World Drive/SR 417	1.17	66.8	71.6	68.3	71.6	71.6	64.0
West of SR 429	East of SR 429	0.88	67.7	73.6	68.8	67.7	72.3	64.5
East of Championsgate Road	West of SR 429	0.78	60.9	72.0	70.4	72.0	70.4	58.6
West of Championsgate Road	East of Championsgate Road	2.20	59.5	71.7	66.6	71.7	66.6	57.1
East of US 27	West of Championsgate Road	1.10	67.2	73.4	68.9	72.7	69.5	63.4

The floating car method has limited sample size for two midweek days in August 2015, so it may not be comparable to the HERE data used in this study.

### HERE Data

FDOT staff provided aggregated Nokia HERE speed data for the last two weeks of July 2014. The HERE speed data were available only for Apopka-Vineland Road and partial segments on Turkey Lake Road. The data were not available for International Drive. HERE data for I-4 were not requested or used in the T&R analysis, as other sources (i.e., floating car and SunGuide) were available. Table 9 and Table 10 below present the HERE speeds on Apopka-Vineland Road and Turkey Lake Road, respectively.

Table 9: Apopka/Kissimmee Vineland Road – Nokia HERE Speeds

Cross Streets		Avg Speed AM Peak		Avg Speed PM Peak	
South	North	NB	SB	NB	SB
Kilgore Rd	W Sand Lake Rd/Granada Blvd	39.2	37.2	36.3	38.5
Darlene Dr	Kilgore Rd	40.8	41.2	41.5	41.0
Hidden Village Blvd	Darlene Dr	42.2	42.1	42.5	42.1
Winter Garden Vineland Rd/Palm Pkwy	Hidden Village Blvd	33.3	33.0	32.5	32.4
Interstate 4	Winter Garden Vineland Rd/Palm Pkwy	16.7	20.7	16.0	17.2
World Center Dr	Interstate 4	29.1	35.2	23.8	30.3

Table 10: Turkey Lake Road – Nokia HERE Speeds

Cross Streets		Avg Speed AM Peak		Avg Speed PM Peak	
From	To	NB	SB	NB	SB
W Vineland Rd	Lake Marsha Dr	27.8	N/A	26.8	N/A
Hollywood Way	W Vineland Rd	29.3	21.5	28.2	22.0
Wallace Rd	Hollywood Way	27.5	30.2	29.5	29.8
W Sand Lake Rd	Wallace Rd	30.7	29.9	30.6	25.8
Palmacia Bv	W Sand Lake Rd	24.1	24.4	23.6	24.6
Westgate Lakes Blvd/Le Laque Dr	Palmacia Bv	24.9	24.5	24.7	24.7
Central Florida Pkwy	Westgate Lakes Blvd/Le Laque Dr	24.8	24.8	24.8	24.5

Legend: 

>= 60 MPH	50 to 59	40 to 49	30 to 39	20 to 29	<20 MPH
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As shown in Table 9, Apopka-Vineland Road travelers experience speeds below 21 MPH from I-4 to Winter Garden Vineland Road/Palm Parkway. The average speed for this segment is approximately 18 MPH. Along Turkey Lake Road, speeds stay relatively constant between 22 and 31 MPH in both the AM and PM peak periods, as well in the northbound and southbound directions across all segments of this corridor. The T & R study used HERE speed data for the last two weeks of July 2014. This study may provide better data analysis since whole years of 2014 HERE data are used.

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## Appendix 1

### Monthly Weekday, Weekend and Holiday Box Plots

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Appendix 2  
Hours of Peak Month and Off-  
peak Month Weekday,  
Weekend and Holiday Box Plots

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Appendix 3  
Average and Median Speeds of  
Peak Month and Off-peak  
Month Weekday, Weekend and  
Holiday