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metroplan orlando

Travel Time Studies and B/C Analysis

Travel Time Studies and Benefit-Cost Analysis for Signal Retiming Projects covering Orange, Seminole, and Osceola Counties in the Central Florida Region



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Table of Contents

1	Introduction	1
1.1	Overview	1
1.2	Background.....	1
2	Travel Time & Delay Studies	7
2.1	Overview	7
2.2	Background.....	7
2.3	Methodology	8
2.3.1	Study Prerequisites.....	8
2.3.2	Study Procedure	8
2.3.3	Data Analysis	9
2.3.4	Level of Service Calculation	10
3	Benefit Cost Analysis	10
3.1	Benefits.....	11
3.1.1	Travel Time Cost Savings	11
3.1.2	Fuel Cost Savings	12
3.2	Costs	12
3.3	Benefit-Cost Ratio	14
4	Conclusions	15
4.1	Travel Time and Delay Study.....	15
4.2	Benefit-Cost Ratio Analysis	16
4.3	Pilot Study	21
4.4	Presentations made to various Committees.....	21
5	Appendices.....	22

List of Figures

Figure 1: Study Roadways in Seminole County Area	2
Figure 2: Study Roadways in Orange County Area	3
Figure 3: Study Roadways in the City of Orlando Area.....	4
Figure 4: Study Roadways in Osceola County Area	5

List of Tables

TABLE 1: LIST OF STUDY ROADWAYS.....	6
TABLE 2: HCM EXHIBIT 15-2 - URBAN STREET LOS BY ROADWAY CLASS	10
TABLE 3: SUMMARY OF BEFORE STUDY MOES: SR 50 BETWEEN SR 436 AND DEAN ROAD.....	13
TABLE 4: SUMMARY OF AFTER STUDY MOES: SR 50 BETWEEN SR 436 AND DEAN ROAD	13
TABLE 5: SUMMARY OF MOES & BENEFIT COST ANALYSIS: SR 50 BETWEEN SR 436 AND DEAN ROAD.....	14
TABLE 6: SUMMARY OF ROADWAY MILES OPERATING BELOW THE ADOPTED LOS.....	15
TABLE 7: BENEFIT-COST RATIO SUMMARY FOR SEMINOLE COUNTY ROADWAYS.....	16
TABLE 8: BENEFIT-COST RATIO SUMMARY FOR ORANGE COUNTY ROADWAYS	17
TABLE 9: BENEFIT-COST RATIO SUMMARY FOR CITY OF ORLANDO ROADWAYS.....	18
TABLE 10: BENEFIT-COST RATIO SUMMARY FOR OSCEOLA COUNTY ROADWAYS	18
TABLE 11: ANNUAL TRAVEL TIME AND FUEL SAVINGS SUMMARY	20

1 Introduction

1.1 Overview

MetroPlan Orlando has requested GMB Engineers & Planners, Inc. (GMB) to assess the benefits of the recently completed signal retiming projects on twenty seven (27) selected roadways spread throughout the tri-county (Orange, Seminole, and Osceola) area in the Central Florida region. Out of the 27 study roadways, five (5) fall within Seminole County, eleven (11) fall within Orange County, nine (9) fall within the City of Orlando, and the remaining two (2) fall within Osceola County.

To determine whether the benefits from the completed signal retiming projects would outweigh the implementation costs, a Benefit-Cost (B-C) analysis was performed for each of the study roadways using the input parameters collected during the Travel Time and Delay (TTD) studies conducted before (before scenario) and after (after scenario) the implementation of retiming plans. The signal retiming on the following corridors were postponed until the next year:

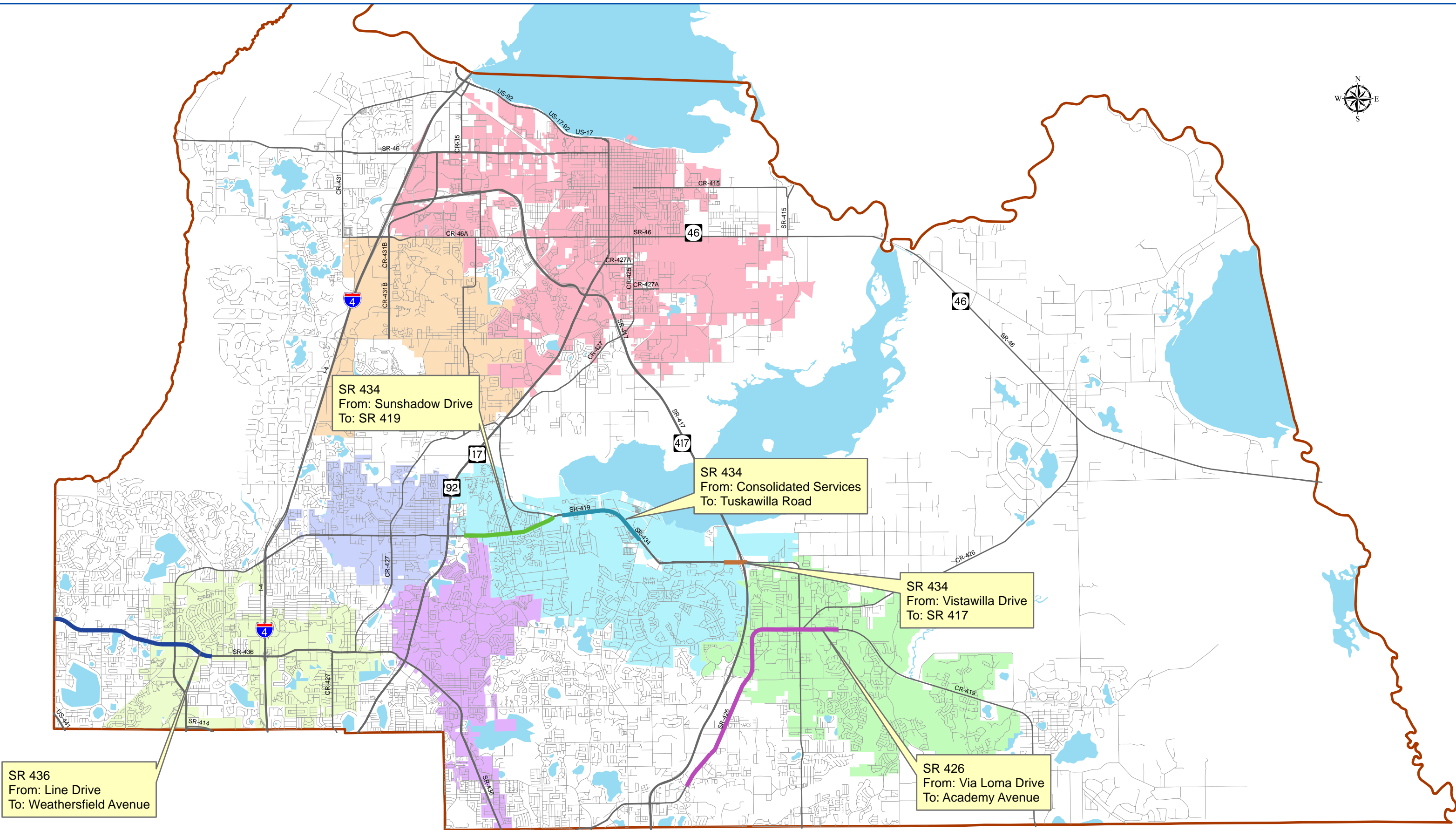
1. Anderson Street between I-4 ramps (City of Orlando)
2. Amelia Street from Garland Avenue to Hughey Avenue (City of Orlando) and
3. SR 50 between SR 429 ramps (Orange County)

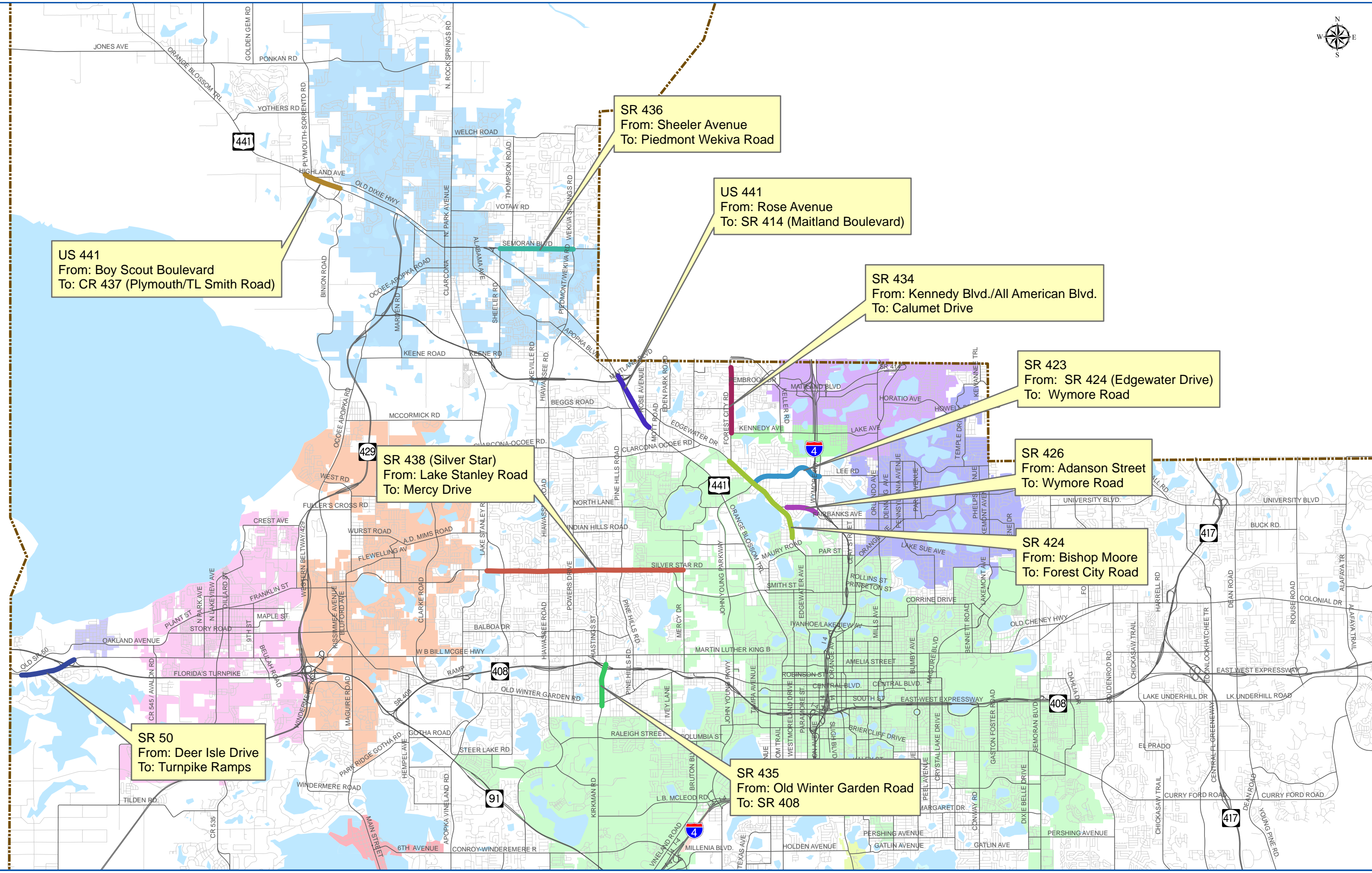
The TTD studies were conducted only for the twenty four (24) study roadways. The study roadways for each of these four (4) jurisdictions are depicted in Figures 1 through 4 in the following pages. A list of the twenty four (24) study roadways with information on segment limits, length, and maintaining jurisdiction is provided in Table 1.

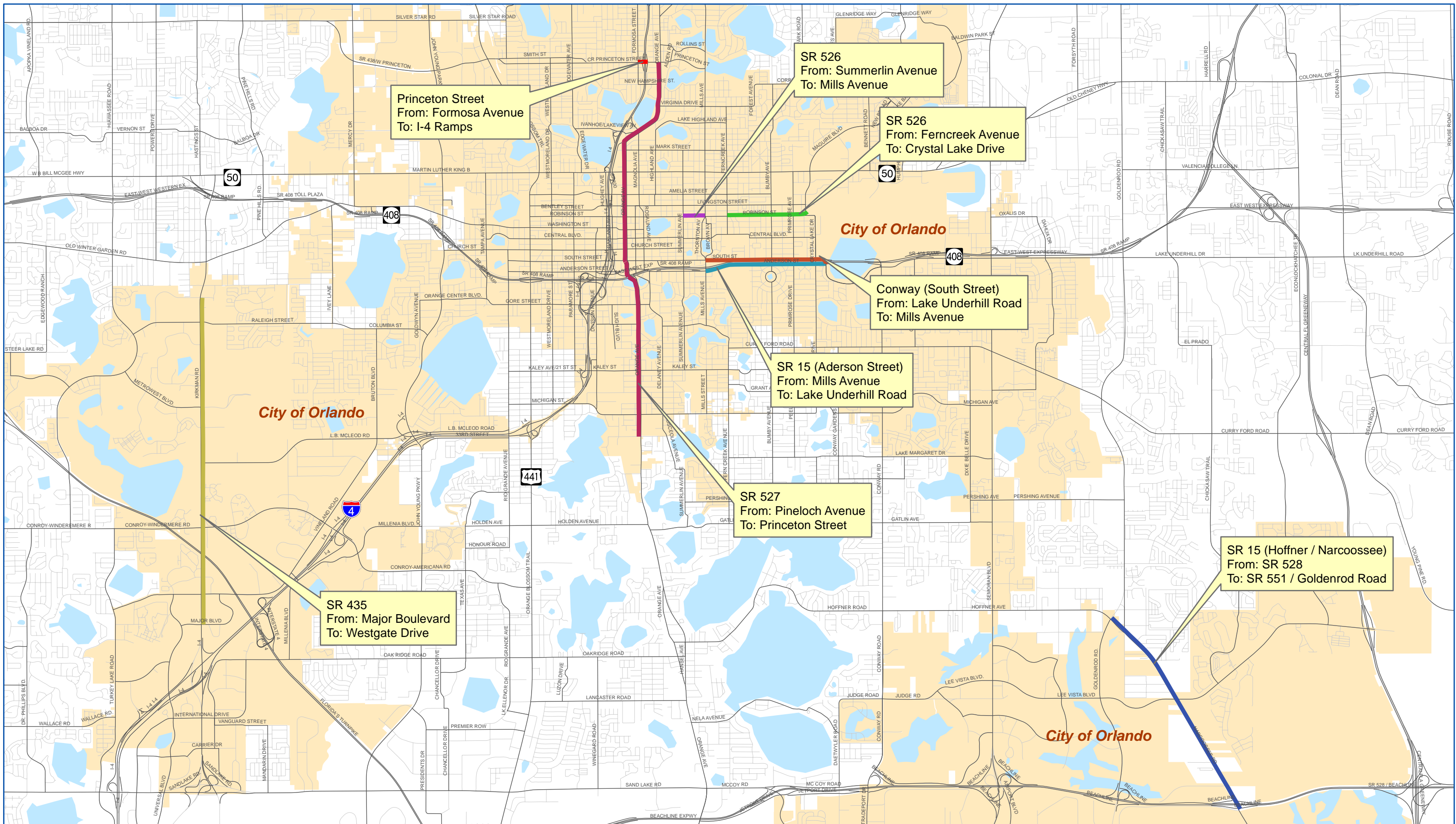
This report, in particular, presents the results of the TTD studies and the B-C analysis for these recently completed signal-retiming projects in the study area.

1.2 Background

Signal re-timing projects generally demonstrate positive results with measurable benefits such as reduced delay, fuel savings, improved air quality, and others. Signal re-timing is one of the most cost-effective strategies to improve traffic flow, enhance safety, and lessen driver frustration. As part of the periodical signal retiming projects to improve the traffic flow on selected study roadways in Central Florida (Study Area), Florida Department of Transportation (FDOT) has recently completed signal re-timing on those roadways for the year 2012. GMB's role is to conduct TTD studies for both the before scenario and after scenario and to assess the benefits achieved through these signal-retiming projects.







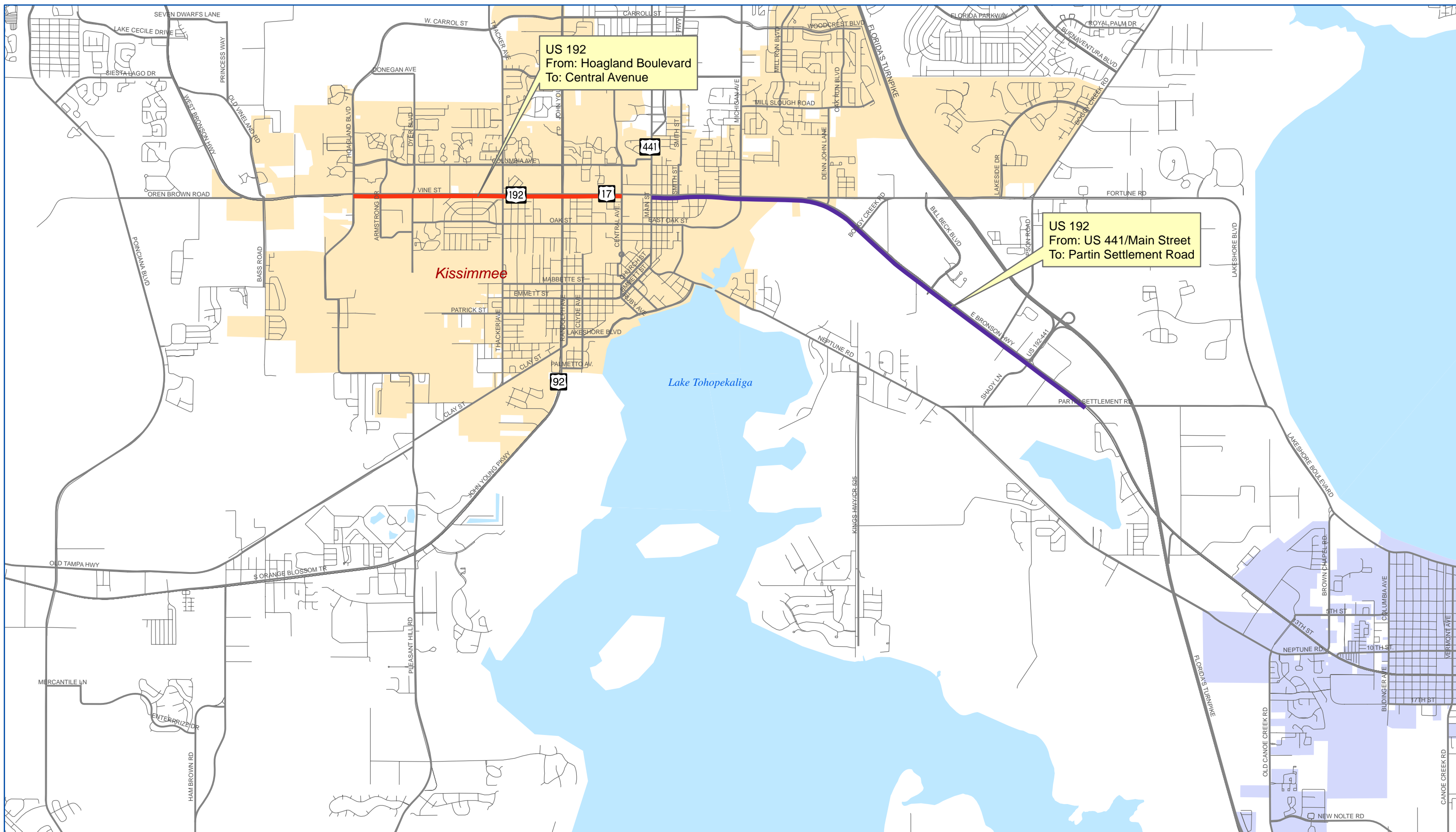


Table 1: List of Study Roadways

Roadway Name	Segment Limits	Length (Miles)	Jurisdiction
SR 426	Via Loma Dr. to Academy Ave.	5.32	Seminole
SR 434	Sunshadow Dr. to SR 419	1.93	Seminole
SR 434	Consolidated Services to Tuskawilla Dr.	2.44	Seminole
SR 434	Vistawilla Dr. to SR 417 Ramps	0.61	Seminole
SR 436	Line Dr. to Weathersfield Ave.	3.47	Seminole
SR 50	Deer Isle Dr. to Turnpike Ramps	1.06	Orange
SR 424/EDGEWATER DR.	Forest City Rd. to Bishop Moore	2.16	Orange
SR 426	Adanson St. to Wymore Rd.	0.66	Orange
SR 434/FOREST CITY RD.	Kennedy Blvd. to Calumet Dr.	1.45	Orange
SR 435/KIRKMAN RD.	Old Winter Garden Rd. to SR 408 Ramps	0.85	Orange
SR 423/LEE RD.	SR 424/Edgewater Dr. to Wymore Rd.	1.54	Orange
US 441	CR 437 to Boy Scout Blvd.	0.8	Orange
US 441	Rose Ave. to SR 414/Maitland Blvd.	1.48	Orange
SR 436	Sheeler Ave. to Piedmont Wekiwa Rd.	1.66	Orange
SR 438	Lake Stanley Rd. to Mercy Dr.	4.01	Orange
SR 435/KIRKMAN RD.	Major Blvd. to Westgate Dr.	3.69	City of Orlando
SR 527	Pineloch Ave. to Princeton St.	4.52	City of Orlando
PRINCETON ST.	Formosa Ave. to I-4 Ramps	0.18	City of Orlando
ANDERSON ST./SOUTH ST.	Mills Ave. to Lake Underhill Rd.	1.39	City of Orlando
SR 526	Summerlin Ave. to Mills Ave.	0.27	City of Orlando
SR 526	Ferncreek Ave. to Crystal Lake Dr.	1.05	City of Orlando
SR 15/HOFFNER AVE.	Goldenrod Rd. to SR 528 Ramps	2.64	City of Orlando
US 192	Hoagland Blvd. to Central Ave.	2.33	Osceola
US 192	US 441/Main St. to Partin Settlement Rd.	4.42	Osceola

Total - 49.93 Miles

2 Travel Time & Delay Studies

2.1 Overview

For the TTD studies, a unique, safe, and innovative technology was used, which utilizes the integration of Global Positioning System (GPS) and Geographical Information Systems (GIS) based technologies for data collection and reduction purposes. The GPS approach has proven to be cost-effective, safer, and more accurate than other methods. The before and the after travel time data on the study roadways were collected using the GeoStats In-Vehicle GeoLogger GPS equipment and floating car technique. GIS and GPS based software tool (TRAVTIME) was used to reduce the field collected travel time data. The output from the before and after TTD studies: 1) travel time data and 2) fuel consumption were utilized in calculating the B-C ratios for the study roadways.

2.2 Background

According to the Manual on Uniform Traffic Studies (MUTS), TTD studies are conducted to evaluate the quality of traffic movement along a route, by time of day and direction and determine the locations, types, and extents of traffic delays experienced at predefined locations or points by using a moving test vehicle. The data collected in the field are used to compute various Measures of Effectiveness (MOEs) for determining the quality of traffic movement. Some of the important MOEs calculated from the field data collection include average travel time, average travel speed, average delay time, and fuel consumption.

Travel time is a direct measure of the performance of the roadway network. High travel times are an indication of congestion, delay, loss of time by drivers, increased fuel use and increased pollution emissions. The travel time data collected can be an important component of the Congestion Management Process (CMP), which alerts the decision makers of progress toward meeting congestion and mobility goals, when collected on a regular basis.

2.3 Methodology

2.3.1 Study Prerequisites

For conducting a Travel Time and Delay Study, the following study prerequisites are generally fulfilled.

Study Area: The study roadways defined for this project are illustrated in Figures 1 through 4 and Table 1.

Control Points: For the purposes of this study, all the signalized intersections were considered as the control points for each study roadway. The information on signalized intersections was collected from the respective counties and FDOT Roadway Characteristics Inventory (RCI) Database.

Number of Study Runs: A procedure to determine the number of study runs in each direction is specified in Chapter 14 of the MUTS. However, for the purposes of this study, the MetroPlan Orlando project staff specified that a minimum of four (4) study runs should be completed for each study route in each direction.

Data Collection Schedule: A data collection schedule is developed, taking into account scheduled roadway construction and school vacation periods, which would affect the results.

2.3.2 Study Procedure

GMB committed four (4) vehicles equipped with GeoStats In-Vehicle GeoLogger to this project. This ensured that the data collection could be completed within the project schedule and allowed time for any roadway segments that may be affected by severe weather or other factors. The before travel time data for the study roadways were collected between third week of October 2011 and fourth week of January 2012. The after field travel time data were collected anywhere between second week of January 2012 and first week of June 2012, depending on the completion of the signal retiming project for an individual study roadway.

The field data were collected from Tuesday through Thursday during the morning and afternoon peak periods. For each peak period and direction of travel, a minimum of four (4) vehicle runs will be completed for all study roadways. Based on previous experience of collecting Travel Time and Delay data for MetroPlan Orlando and Seminole County, GMB realized that the congestion might not extend on the study roadways through the entire two hours between 7:00 and 9:00 a.m. for the morning and between 4:00 and 6:00 p.m. for the afternoon.

To correct this situation and to capture the actual peak travel of each road segment, GMB, as an innovative solution to obtain accurate data used the most current traffic count data from Orange, Seminole and Osceola Counties and from FDOT to determine the actual peak hour (between 7 to 9 a.m. and 4 to 6 p.m.) of travel. The data were collected with run start and end times within the actual peak hour. Within the time-period selected, GMB technicians utilized the entire peak hour for collecting the data.

By following this procedure the technicians collected a minimum of four (4) vehicle runs and in the majority of the cases collected additional runs (more than four).

In performing the data collection, a control point was established at least 1000 feet upstream of the first signal or at the first available median opening of each direction/route. All the signals within the roadway segments were considered as control points. The roadway segments were divided based on the control points identified in the signal-retiming project.

The technicians took field notes describing any factors or conditions that may affect the traffic operations. As a rule, data collection runs were not performed when external factors such as inclement weather, traffic incidents, special events, or roadway construction affected the typical traffic flow of the study roadway. The weekly schedules provided to the field technicians helped them to pursue the backup routes in case of accidents, special events or other factors that may affect the validity of the data.

The data collected for each roadway segment for each period and direction included street name, beginning and ending cross street, jurisdiction, facility type, area type, number of through lanes, left turn and right turn lanes, length, average travel time, stop delay, traffic control device, average travel speed, and speed limit. The procedures described above that were used in collecting the data for the “before” conditions prior to the signal timing plans are implemented were followed in the case of “after” conditions after the signal timing plans are implemented also.

2.3.3 Data Analysis

The GPS data collected were used to determine directly the following four (4) crucial parameters for each of the study roadways during the identified peak hour before and after a retiming plan has been implemented. The four (4) travel parameters are defined as follows:

Average Travel Time: The average time needed to travel between two control points.

Average Travel Speed: The average speed of travel between two control points, including all delays. It is calculated by dividing the total length of the section under consideration by the Average Travel Time.

Average vehicle Delay Time: The average delay time experienced between two points due to any kind of obstruction to the free flow speed that would otherwise occur during ideal traffic conditions (in the absence of traffic control, in the absence of geometric delay, in the absence of any incidents, and when there are no other vehicles on the road).

Fuel Consumption: The amount of fuel consumed during the travel between two control points.

Out of these four (4) parameters, Average Total Travel Time and Fuel Consumption were the main input parameters for assessing the effectiveness of the completed signal retiming process.

2.3.4 Level of Service Calculation

Level of Service (LOS) is one of the vital measures used to evaluate intersection or roadway performance. LOS was calculated before and after a retiming plan is implemented. Using the Average Travel Speed and roadway class (predetermined using the posted speed limit) as inputs, the roadway, or intersection LOS was determined using the HCM (2000) Exhibit 15-2 Urban Street LOS by Roadway Class and Average Travel Speed. The HCM (2000) Exhibit 15-2 is shown as Table 2.

Tables showing the TTD study results for each study roadway are provided in **Appendix A** of this report. In addition, GIS maps graphically illustrating the LOS conditions and listing the travel time and delay summaries are also provided in **Appendix A** of this report.

Table 2: HCM Exhibit 15-2 - Urban Street LOS by Roadway Class

	Arterial Classification			
	I	II	III	IV
Range of Free-flow Speed	45 – 55 MPH	35 – 45 MPH	30 – 35 MPH	25 – 35 MPH
Typical Free Flow Speed	50 MPH	40 MPH	33 MPH	30 MPH
Level of Service	Speed (MPH)			
A	>42	>35	>30	>25
B	>34	>28	>24	>19
C	>27	>22	>18	>13
D	>21	>17	>14	>9
E	>16	>13	>10	>7
F	<=16	<=13	<=10	<=7

3 Benefit Cost Analysis

To determine whether the completed signal retiming process benefits would outweigh the implementation costs, a B-C analysis will be performed using the input parameters collected

during the travel time and delay studies conducted before and after the implementation of retiming plans. Some of the direct benefits of signal retiming include fuel savings, reduced delays & stops, improved traffic flow, reduced toxic emissions & improved air quality, reduced response time for emergency vehicles, etc. In addition, numerous indirect benefits could be attributed to signal retiming such as postponing long-term capacity improvements, reduced driver frustration, attracting tourists with better air quality, etc.

The benefits of the improved signal plans are projected over three years using two peak hours of travel time, one during the morning peak hour and the other during the evening peak hour. The following paragraphs describe the overall procedure of B-C analysis utilized for the signal retiming evaluation process.

3.1 Benefits

As the first step, the cost savings associated with various parameters that were improved because of the retiming process were identified. Benefits are defined in terms of annualized cost savings and were calculated based on reduction in travel times and fuel savings derived from the before and after travel time data. As the first step, the benefit input parameter (travel time [seconds/vehicle] and fuel consumption [gallons/vehicle]) was multiplied with the corresponding peak hour directional traffic volume for each peak hour and direction to obtain the total travel time (vehicle-hours) or fuel consumption (gallons) for one hour. These calculations were performed for the before and after scenarios and the differences were obtained for the AM and PM peak hours. Then these differences (total travel time and fuel consumption) were multiplied with the corresponding dollar value to obtain the time and fuel savings in dollars. The daily savings in dollars are obtained by adding the benefits for AM and PM peak hours. The yearly savings are obtained by applying the daily savings for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffic volumes.

The above-mentioned calculations are explained in the following paragraphs for an example roadway: SR 435 between Major Boulevard and Westgate Drive.

3.1.1 Travel Time Cost Savings

The cost associated with the lost travel time is valued at \$16.30 per hour for the year 2010 based on the latest Urban Mobility Report published by Texas Transportation Institute. The Urban Mobility Report page containing the delay value is provided in **Appendix B** of this memorandum.

Based on the calculations using the field travel time data and traffic volume data from the year 2011 Florida Traffic Information (FTI) DVD, a total annual cost savings (two peak hours combined) of \$1,449,832.57 was obtained from reduction in travel time for the SR 435 (Major Boulevard to Westgate Drive) study corridor.

3.1.2 Fuel Cost Savings

The savings on fuel costs were also included as part of the benefits in the B-C analysis. The fuel costs were determined as \$3.43 based on the Florida Department of Revenue & Orlando Gas Prices. Based on the calculations using the field fuel consumption data and traffic volume data from the year 2011 FTI DVD, a total annual cost savings (two peak hours combined) of \$21,503.01 was obtained from reduction in fuel consumption for the SR 435 (Major Boulevard to Westgate Drive) study corridor.

Combining the cost savings from travel time and fuel consumption, a total annual cost savings of \$1,471,335.58 was obtained for the SR 435 (Major Boulevard to Westgate Drive) study corridor.

3.2 Costs

The second step is to obtain the project implementation cost of the signal retiming process. These project costs were provided by the FDOT and are provided in **Appendix C** of this report for the study projects. The annualized implementation costs were calculated assuming three (3) years of service life for the improvement and a 7% rate of return on investment as currently recommended by the Federal Highway Administration (FHWA).

The annualized total signal-retiming cost was determined as \$18,875.19 from a one-time implementation cost of \$49,534.47 for the SR 435 (Major Boulevard to Westgate Drive) study corridor.

Tables 3 and 4 summarize the Measures of Effectiveness (MOEs) including travel time, delay, average speed, and fuel consumption for the through movement for the before and after scenarios, respectively during the AM and PM peak periods. Table 5 shows the benefits, costs, and B-C ratio for the example study corridor.

Table 3: Summary of Before Study MOEs: SR 435 between Major Boulevard and Westgate Drive

Traffic Volume	MOE's per Vehicle				MOEs for all Vehicles	
	Travel Time (sec/vehicle)	Delay (sec/vehicle)	Average Speed (mph)	Fuel Consumption (gallons/vehicle)	Total Travel Time (Vehicle-hour)	Total Fuel Consumption (gallons)
Northbound/Eastbound - AM Peak Hour						
1562	475.8	125.4	27.9	0.1280	206.44	199.94
Northbound/Eastbound - PM Peak Hour						
2175	612.6	210.6	21.7	0.1320	370.11	287.10
Southbound/Westbound - AM Peak Hour						
1579	594.6	217.2	23.1	0.1330	260.80	210.01
Southbound/Westbound - PM Peak Hour						
1708	656.4	225.0	20.9	0.1370	311.43	234.00

13

Table 4: Summary of After Study MOEs: SR 435 between Major Boulevard and Westgate Drive

Traffic Volume	MOE's Per Vehicle				MOEs for all Vehicles	
	Travel Time (sec/vehicle)	Delay (sec/vehicle)	Average Speed (mph)	Fuel Consumption (gallons/vehicle)	Total Travel Time (Vehicle-hour)	Total Fuel Consumption (gallons)
Northbound/Eastbound - AM Peak Hour						
1562	373.2	43.8	35.6	0.1270	161.93	198.37
Northbound/Eastbound - PM Peak Hour						
2253	506.4	128.4	26.2	0.1300	305.95	282.75
Southbound/Westbound - AM Peak Hour						
1579	408.6	78.6	33.6	0.1300	179.22	205.27
Southbound/Westbound - PM Peak Hour						
1708	432.5	83.4	31.7	0.1310	205.20	223.75

Table 5: Summary of MOEs & Benefit Cost Analysis: SR 435 between Major Boulevard and Westgate Drive

MOE	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	467.24	341.14	681.54	511.15
Total Fuel Consumption (gallons)	409.94	403.64	521.10	506.50
BENEFITS	AM PEAK HOUR		PM PEAK HOUR	
User Benefit Per Day	\$2,077.01		\$2,827.44	
Annual User Benefit	\$623,104.15		\$848,231.43	
Total Annual User Benefit			\$1,471,335.58	
Total Signal Retiming Annual Cost			\$18,875.19	
User Benefit / Cost Ratio			77.95	

Notes:

1. Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
2. Fuel consumption is valued to the rate of \$3.43 per gallon.
3. Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffic volumes.
4. The service life of the improvement was kept as three (3) years.
5. Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

3.3 Benefit-Cost Ratio

As shown in Table 5, a **B-C ratio of 77.95 (greater than 1.0)** was derived from the analysis for SR 435 study corridor. The strong ratio indicates that the funds spent by FDOT/MetroPlan Orlando to increase the operational capacity of the study corridor on SR 435 between Major Boulevard and Westgate Drive in City of Orlando receive approximately seventy eight times in benefits derived through reduced costs associated with reduced travel time and fuel consumption. Therefore, the positive results of this B-C analysis justify the implementation of the recently completed signal timing improvements on this study corridor.

Similar to the MOE calculations and summaries shown in Tables 3 through 5, summary tables for each study roadway are provided in **Appendix A** of this report.

4 Conclusions

This chapter presents the conclusions derived from the TTD study results and a summary of B-C ratio analysis results. GMB has conducted before and after travel time and delay studies on twenty four (24) study roadways in the tri-county area (Orange, Seminole, and Osceola) of the Central Florida region to evaluate the benefits of the recently completed signal retiming projects on these roadways.

4.1 Travel Time and Delay Study

As part of the current study, various roadway characteristics and MOEs based on the travel time studies were summarized and provided in both tabular, and GIS map format for the study roadway segments. A total length of approximately 49.93 centerline miles of roadway segments was evaluated in this study. The adopted LOS for all the study roadways is LOS “E” with the exception of US 192 in Osceola County with LOS “D”. A summary showing the roadway miles that operate below the adopted LOS in the before scenario (before the signal retiming) and in the after scenario (after the signal retiming) is provided in Table 6.

Table 6: Summary of Roadway Miles operating below the Adopted LOS

Direction-Peak Hour	Before Scenario	After Scenario
	%(Miles)	%(Miles)
NB/EB – AM	6.09% (3.0)	0.85% (0.4)
NB/EB – PM	5.91% (2.9)	3.89% (1.9)
SB/WB – AM	8.29% (4.1)	3.53% (1.8)
SB/WB – PM	10.57% (5.2)	5.44% (2.7)
Total	30.54% (15.3)	13.58% (6.8)

As shown in Table 6, while approximately 31% of the total roadway centerline miles were found to operate below the adopted LOS before the implementation of the improved signal timings, only 14% of the total roadway centerline miles were found to operate below the adopted LOS after the signal retiming projects were completed.

4.2 Benefit-Cost Ratio Analysis

As part of the current study, B-C ratios were calculated for the 24 study roadways falling within the Central Florida region. Tables 7 through 10 illustrate the B-C ratios by jurisdiction. Table 7 lists ratios for Seminole County, Table 8 lists ratios for Orange County, Table 9 lists ratios for the City of Orlando, and Table 10 lists the ratios for Osceola County.

Table 7: Benefit-Cost Ratio Summary for Seminole County Roadways

Roadway	Limits	Annual Benefit	Annual Cost	B/C Ratio
SR 426	Via Loma Dr. to Academy Ave.	\$322,427.85	\$20,568.03	15.68
SR 434	Sunshadow Dr. to SR 419	\$290,630.09	\$10,982.24	26.46
SR 434	Consolidated Services to Tuskawilla Dr.	\$280,222.81	\$7,844.46	35.72
SR 434	Vistawilla Dr. to SR 417 Ramps	\$104,391.70	\$4,706.68	22.18
SR 436	Line Dr. to Weathersfield Ave.	\$1,074,465.92	\$20,947.55	51.29

Table 8: Benefit-Cost Ratio Summary for Orange County Roadways

Street	Limits	Annual Benefit	Annual Cost	B/C Ratio
SR 50	Deer Isle Dr. to Turnpike Ramps	\$56,468.47	\$7,251.03	7.79
SR 424/EDGEWATER DR.	Forest City Rd. to Bishop Moore	\$20,503.05	\$6,326.73	3.24
SR 426	Adanson St. to Wymore Rd.	\$64,343.01	\$3,163.37	20.34
SR 434/FOREST CITY RD.	Kennedy Blvd. to Calumet Dr.	\$53,124.18	\$7,077.27	7.51
SR 435/KIRKMAN RD.	Old Winter Garden Rd. to SR 408 Ramps	\$138,894.29	\$6,863.70	20.24
SR 423/LEE RD.	SR 424/Edgewater Dr. to Wymore Rd.	\$404,546.41	\$11,453.27	35.32
US 441	CR 437 to Boy Scout Blvd.	\$75,540.73	\$5,871.63	12.87
US 441	Rose Ave. to SR 414/Maitland Blvd.	\$218,515.91	\$6,616.58	33.03
SR 436	Sheeler Ave. to Piedmont Wekiwa Rd.	\$233,409.94	\$7,405.74	31.52
SR 438	Lake Stanley Rd. to Mercy Dr.	\$694,343.75	\$18,589.22	37.35

Table 9: Benefit-Cost Ratio Summary for City of Orlando Roadways

Street	Limits	Annual Benefit	Annual Cost	B/C Ratio
SR 435/KIRKMAN RD.	Major Blvd. to Westgate Dr.	\$1,471,335.58	\$18,875.19	77.95
SR 527	Pineloch Ave. to Princeton St.	\$734,670.20	\$25,901.67	28.36
PRINCETON ST.	Formosa Ave. to I-4 Ramps	\$32,079.22	\$5,180.33	6.19
ANDERSON ST./SOUTH ST.	Mills Ave. to Lake Underhill Rd.	\$125,799.42	\$18,573.98	6.77
SR 526	Summerlin Ave. to Mills Ave.	\$43,049.93	\$4,826.72	8.92
SR 526	Ferncreek Ave. to Crystal Lake Dr.	\$38,516.24	\$6,435.63	5.98
SR 15/HOFFNER AVE.	Goldenrod Rd. to SR 528 Ramps	\$144,243.43	\$11,514.24	12.53

Table 10: Benefit-Cost Ratio Summary for Osceola County Roadways

Street	Limits	Annual Benefit	Annual Cost	B/C Ratio
US 192	Hoagland Blvd. to Central Ave.	\$530,468.70	\$14,197.60	37.36
US 192	US 441/Main St. to Partin Settlement Rd.	\$630,972.38	\$14,197.60	44.44

As shown in Table 7, the B-C ratios range between 15 and 51 for the signal retiming projects on Seminole County roadways. From Table 8, the B-C ratios range between 3 and 37 for the signal retiming projects on Orange County roadways. As shown in Table 9, the B-C ratios range between 6 and 78 for the signal retiming projects on the City of Orlando roadways. As shown in Table 10, the B-C ratios are 37 and 44 for the two (2) signal retiming projects on Osceola County roadways.

In conclusion, all the twenty four (24) study signal-retiming projects have B-C ratios of greater than one (1). This means that the cost benefits derived from reduced travel time and fuel consumption exceeded the costs incurred from implementing improved signal timing plans on the study roadways. Therefore, these traffic operational improvements are well justified.

In addition, a summary of the annual travel time and fuel savings are shown in Table 11 for the study roadways. As shown in Table 11, 467,824.77 vehicle-hours of travel time are estimated to be saved with the improved signal timings on the study roadways. Similarly, the new improved signal timings could save 45,894.90 gallons of fuel.

Table 11: Annual Travel Time and Fuel Savings Summary

Roadway Name	Limits	Annual Time Savings (vehicle hours)	Annual Fuel Savings (gallons)
SR 426	Via Loma Dr. to Academy Ave.	19,483.45	1,413.3
SR 434	Sunshadow Dr. to SR 419	17,200.93	2,989.8
SR 434	Consolidated Services to Tuskawilla Dr.	16,732.70	2,180.7
SR 434	Vistawilla Dr. to SR 417 Ramps	6,178.65	1,072.8
SR 436	Line Dr. to Weathersfield Ave.	64,910.05	4,790.7
SR 50	Deer Isle Dr. to Turnpike Ramps	3,313.07	718.8
SR 424/EDGEWATER DR.	Forest City Rd. to Bishop Moore	1,036.40	1,052.4
SR 426	Adanson St. to Wymore Rd.	3,759.30	894
SR 434/FOREST CITY RD.	Kennedy Blvd. to Calumet Dr.	3,069.45	901.5
SR 435/KIRKMAN RD.	Old Winter Garden Rd. to SR 408 Ramps	8,342.78	847.5
SR 423/LEE RD.	SR 424/Edgewater Dr. to Wymore Rd.	24,419.95	1,895.4
US 441	CR 437 to Boy Scout Blvd.	4,566.60	322.2
US 441	Rose Ave. to SR 414/Maitland Blvd.	1,3079.95	1,548.9
SR 436	Sheeler Ave. to Piedmont Wekiwa Rd.	1,4106.00	1,015.2
SR 438	Lake Stanley Rd. to Mercy Dr.	41,890.73	3,360
SR 435/KIRKMAN RD.	Major Blvd. to Westgate Dr.	88,946.78	6,269.1
SR 527	Pineloch Ave. to Princeton St.	44,126.50	4,492.2
PRINCETON ST.	Formosa Ave. to I-4 Ramps	1,968.05	0
ANDERSON ST./SOUTH ST.	Mills Ave. to Lake Underhill Rd.	7,547.75	807.9
SR 526	Summerlin Ave. to Mills Ave.	2,578.35	298.2
SR 526	Ferncreek Ave. to Crystal Lake Dr.	2,212.65	714.3
SR 15/HOFFNER AVE.	Goldenrod Rd. to SR 528 Ramps	8,539.08	1,474.2
US 192	Hoagland Blvd. to Central Ave.	31,948.85	2,828.7
US 192	US 441/Main St. to Partin Settlement Rd.	37,866.75	4,007.1
Total Savings		467,824.77	45,894.90

4.3 Pilot Study

MetroPlan had expressed strong desire to explore the feasibility of Alternative Technologies to estimate travel time data for the Benefit Cost Evaluation of Signal Retiming Projects. As such, the objective of this pilot study is to find whether the Bluetooth technology is feasible and meets the study needs. A detail report of this pilot study is provided in Appendix D.

4.4 GIS Task

GMB proposed to conduct a GIS task to complete the funds allocated to this project. In this task, GMB created a GIS shape file summarizing the travel time data collected during the past three years (2010, 2011 and 2012) and also created graphs depicting the Benefit-Cost analysis and Travel Time comparison. By running queries, graphs depicting the Benefit-Cost analysis and Travel Time comparison for any of the jurisdictions for the past three years can be created.

This “One-Stop” graphical interface will help the MetroPlan Orlando and the Committee members to review/view the past three years Travel Time data. These graphs can also be used in both public and internal meetings/presentations. The figure showing all the roadways from the past three years, a sample Benefit-Cost analysis graph, and a sample Travel Time Comparison graph is provided in **Appendix E**. The GIS shape files, graph templates and mxds are provided in a Digital Versatile Disc (DVD).

4.5 Presentations made to various Committees

The results of this Year 2012 MetroPlan Orlando Travel Time Study and Benefit Cost Analysis were presented by GMB and MetroPlan Orlando to the following committees.

- ⊗ Citizens Advisory Committee on September 26, 2012.
- ⊗ Transportation Technical Committee on September 28, 2012.
- ⊗ Municipal Advisory Committee on October 04, 2012.
- ⊗ MetroPlan Orlando Board on October 10, 2012.

The PowerPoint presentation is provided in Appendix F.

5 Appendices

Appendix A: Before & After Travel Time & Delay Study Results, GIS Maps, MOE Summaries, and Benefit-Cost Ratio Calculation Sheets

Appendix B: Page from 2010 Urban Mobility Report

Appendix C: Signal Retiming Project Costs

Appendix D: Pilot Study

Appendix E: GIS Task

Appendix F: Power Point Presentation

Appendix A

Before & After Travel Time & Delay Study Results, GIS Maps, MOE Summaries, and Benefit-Cost Ratio Calculation Sheets

SR 426

Via Loma Dr. to Academy Ave.

TABLE 3
Year 2012 METROPLAN Orlando Travel Time Study
SR 426 - Via Loma Drive to Academy Avenue - Eastbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Via Loma Dr.	Seminole County	Arterial	Rural	1	2	0	45	475	4	Signal	15.6	4.8	II	20.8	D	0.46	
Via Loma Dr. to Aloma Woods Blvd.	Seminole County	Arterial	Rural	1	2	0	45	1,003	4	Signal	16.2	0.0	II	42.2	A	0.94	
Aloma Woods Blvd. to Chapman Rd.	Seminole County	Arterial	Rural	1	2	1	45	6,494	4	Signal	116.4	12.0	II	38.0	A	0.85	
Chapman Rd. to Slavia Rd.	Seminole County	Arterial	Rural	1	2	0	45	2,798	4	Signal	55.2	4.8	II	34.6	B	0.77	
Slavia Rd. to Red Bug Lake Rd.	Seminole County	Arterial	Rural	2	2	1	45	3,062	4	Signal	128.4	64.8	II	16.3	E	0.36	
Red Bug Lake Rd. to Oviedo Mall Blvd.	Seminole County	Arterial	Residential	1	2	0	45	2,270	4	Signal	38.4	0.0	II	40.3	A	0.90	
Oviedo Mall Blvd. to Winter Springs Blvd.	Seminole County	Arterial	Residential	2	2	0	45/40	2,376	4	Signal	40.2	0.0	II	40.3	A	0.90	
Winter Springs Blvd. to Pine Ave.	Seminole County	Arterial	Residential	1	1	0	40	1,478	4	Signal	48.6	19.2	II	20.7	D	0.52	
Pine Ave. to Lake Jessup Ave.	Seminole County	Arterial	Residential	1	1	0	40/30	2,640	4	Signal	70.8	18.0	II	25.4	C	0.64	
Lake Jessup Ave. to Central Ave.	Seminole County	Arterial	Residential	1	1	0	30	1,320	4	Signal	93.0	56.4	III	9.7	F	0.32	
Central Ave. to Station St.	Seminole County	Arterial	Residential	1	1	0	30	264	4	Signal	7.8	0.0	III	23.1	C	0.77	
Station St. to Oviedo Blvd.	Seminole County	Arterial	Residential	1	1	1	35	1,056	4	Signal	22.2	0.0	III	32.4	A	0.93	
Oviedo Blvd. to Academy Ave.	Seminole County	Arterial	Residential	1	1	1	35	2,851	4	Signal	48.6	0.0	III	40.0	A	1.14	
TOTAL							45	28,090			701.4	180.0	II	27.3	C	0.61	0.184 gal/veh
PM PEAK HOUR																	
				1	1	0											
Median Opening to Via Loma Dr.	Seminole County	Arterial	Rural	1	2	0	45	475	4	Signal	7.8	0.0	II	41.5	A	0.92	
Via Loma Dr. to Aloma Woods Blvd.	Seminole County	Arterial	Rural	1	2	0	45	1,003	4	Signal	23.4	6.6	II	29.2	B	0.65	
Aloma Woods Blvd. to Chapman Rd.	Seminole County	Arterial	Rural	1	2	1	45	6,494	4	Signal	127.8	16.8	II	34.6	B	0.77	
Chapman Rd. to Slavia Rd.	Seminole County	Arterial	Rural	1	2	0	45	2,798	4	Signal	60.0	7.2	II	31.8	B	0.71	
Slavia Rd. to Red Bug Lake Rd.	Seminole County	Arterial	Rural	2	2	1	45	3,062	4	Signal	104.4	46.2	II	20.0	D	0.44	
Red Bug Lake Rd. to Oviedo Mall Blvd.	Seminole County	Arterial	Residential	1	2	0	45	2,270	4	Signal	48.6	6.0	II	31.9	B	0.71	
Oviedo Mall Blvd. to Winter Springs Blvd.	Seminole County	Arterial	Residential	2	2	0	45/40	2,376	4	Signal	52.8	9.6	II	30.7	B	0.68	
Winter Springs Blvd. to Pine Ave.	Seminole County	Arterial	Residential	1	1	0	40	1,478	4	Signal	26.4	0.0	II	38.2	A	0.95	
Pine Ave. to Lake Jessup Ave.	Seminole County	Arterial	Residential	1	1	0	40/30	2,640	4	Signal	71.4	10.8	II	25.2	C	0.63	
Lake Jessup Ave. to Central Ave.	Seminole County	Arterial	Residential	1	1	0	30	1,320	4	Signal	166.8	105.6	III	5.4	F	0.18	
Central Ave. to Station St.	Seminole County	Arterial	Residential	1	1	0	30	264	4	Signal	24.6	15.6	III	7.3	F	0.24	
Station St. to Oviedo Blvd.	Seminole County	Arterial	Residential	1	1	1	35	1,056	4	Signal	48.6	21.6	III	14.8	D	0.42	
Oviedo Blvd. to Academy Ave.	Seminole County	Arterial	Residential	1	1	1	35	2,851	4	Signal	97.2	36.0	III	20.0	C	0.57	
TOTAL							45	28,090			859.8	282.0	II	22.3	C	0.49	0.190 gal/veh

- Note:
1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
 2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

TABLE 3
Year 2012 METROPLAN Orlando Travel Time Study
SR 426 - Via Loma Drive to Academy Avenue - Westbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Academy Ave.	Seminole County	Arterial	Residential	1	1	0	35	422	4	Signal	19.8	7.2	III	14.5	D	0.42	
Academy Ave. to Oviedo Blvd.	Seminole County	Arterial	Residential	1	1	0	35	2,851	4	Signal	101.4	34.8	III	19.2	C	0.55	
Oviedo Blvd. to Station St.	Seminole County	Arterial	Residential	0	1	0	35	1,056	4	Signal	104.4	65.4	III	6.9	F	0.20	
Station St. to Central Ave.	Seminole County	Arterial	Residential	1	1	0	35	264	4	Signal	10.2	2.4	III	17.6	D	0.50	
Central Ave. to Lake Jessup Ave.	Seminole County	Arterial	Residential	1	1	0	30	1,320	4	Signal	29.4	0.0	III	30.6	A	1.02	
Lake Jessup Ave. to Pine Ave.	Seminole County	Arterial	Residential	1	2	0	40	2,640	4	Signal	46.8	0.0	II	38.5	A	0.96	
Pine Ave. to Winter Springs Blvd.	Seminole County	Arterial	Residential	1	2	0	40	1,478	4	Signal	28.8	1.2	II	35.0	B	0.87	
Winter Springs Blvd. to Oviedo Mall Blvd.	Seminole County	Arterial	Residential	1	2	0	45	2,376	4	Signal	42.0	1.2	II	38.6	A	0.86	
Oviedo Mall Blvd. to Red Bug Lake Rd.	Seminole County	Arterial	Residential	2	2	1	45	2,270	4	Signal	124.8	79.2	II	12.4	F	0.28	
Red Bug Lake Rd. to Slavia Rd.	Seminole County	Arterial	Rural	1	2	0	45	3,062	4	Signal	76.2	19.2	II	27.4	C	0.61	
Slavia Rd. to Chapman Rd.	Seminole County	Arterial	Rural	1	2	0	45	2,798	4	Signal	43.2	0.0	II	44.2	A	0.98	
Chapman Rd. to Aloma Woods Blvd.	Seminole County	Arterial	Rural	1	2	0	45	6,494	4	Signal	103.2	4.8	II	42.9	A	0.95	
Aloma Woods Blvd. to Via Loma Dr.	Seminole County	Arterial	Rural	1	2	0	45	1,003	4	Signal	18.6	0.6	II	36.8	A	0.82	
TOTAL							45	28,037			748.8	216.0	II	25.5	C	0.57	0.186 gal/veh
PM PEAK HOUR																	
Median Opening to Academy Ave.	Seminole County	Arterial	Residential	1	1	0	35	422	4	Signal	16.8	4.2	III	17.1	D	0.49	
Academy Ave. to Oviedo Blvd.	Seminole County	Arterial	Residential	1	1	0	35	2,851	4	Signal	114.6	49.2	III	17.0	D	0.48	
Oviedo Blvd. to Station St.	Seminole County	Arterial	Residential	0	1	0	35	1,056	4	Signal	104.4	59.4	III	6.9	F	0.20	
Station St. to Central Ave.	Seminole County	Arterial	Residential	1	1	0	35	264	4	Signal	9.6	0.6	III	18.7	C	0.54	
Central Ave. to Lake Jessup Ave.	Seminole County	Arterial	Residential	1	1	0	30	1,320	4	Signal	43.8	4.8	III	20.5	C	0.68	
Lake Jessup Ave. to Pine Ave.	Seminole County	Arterial	Residential	1	2	0	40	2,640	4	Signal	56.4	1.8	II	31.9	B	0.80	
Pine Ave. to Winter Springs Blvd.	Seminole County	Arterial	Residential	1	2	0	40	1,478	4	Signal	81.0	49.2	II	12.4	F	0.31	
Winter Springs Blvd. to Oviedo Mall Blvd.	Seminole County	Arterial	Residential	1	2	0	45	2,376	4	Signal	51.6	8.4	II	31.4	B	0.70	
Oviedo Mall Blvd. to Red Bug Lake Rd.	Seminole County	Arterial	Residential	2	2	1	45	2,270	4	Signal	148.2	100.8	II	10.4	F	0.23	
Red Bug Lake Rd. to Slavia Rd.	Seminole County	Arterial	Rural	1	2	0	45	3,062	4	Signal	62.4	9.6	II	33.5	B	0.74	
Slavia Rd. to Chapman Rd.	Seminole County	Arterial	Rural	1	2	0	45	2,798	4	Signal	52.8	4.8	II	36.1	A	0.80	
Chapman Rd. to Aloma Woods Blvd.	Seminole County	Arterial	Rural	1	2	0	45	6,494	4	Signal	98.4	0.0	II	45.0	A	1.00	
Aloma Woods Blvd. to Via Loma Dr.	Seminole County	Arterial	Rural	1	2	0	45	1,003	4	Signal	15.0	0.0	II	45.6	A	1.01	
TOTAL							45	28,037			855.0	292.8	II	22.4	C	0.50	0.188 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

TABLE 3
Year 2012 METROPLAN Orlando Travel Time Study
SR 426 - Via Loma Drive to Academy Avenue - Eastbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Via Loma Dr.	Seminole County	Arterial	Rural	1	2	0	45	475	4	Signal	16.2	4.8	II	20.0	D	0.44	
Via Loma Dr. to Aloma Woods Blvd.	Seminole County	Arterial	Rural	1	2	0	45	1,003	4	Signal	15.6	0.0	II	43.8	A	0.97	
Aloma Woods Blvd. to Chapman Rd.	Seminole County	Arterial	Rural	1	2	1	45	6,494	4	Signal	152.4	57.6	II	29.1	B	0.65	
Chapman Rd. to Slavia Rd.	Seminole County	Arterial	Rural	1	2	0	45	2,798	4	Signal	43.8	0.0	II	43.6	A	0.97	
Slavia Rd. to Red Bug Lake Rd.	Seminole County	Arterial	Rural	2	2	1	45	3,062	4	Signal	103.2	51.0	II	20.2	D	0.45	
Red Bug Lake Rd. to Oviedo Mall Blvd.	Seminole County	Arterial	Residential	1	2	0	45	2,270	4	Signal	37.2	0.0	II	41.6	A	0.92	
Oviedo Mall Blvd. to Winter Springs Blvd.	Seminole County	Arterial	Residential	2	2	0	45/40	2,376	4	Signal	40.2	2.4	II	40.3	A	0.90	
Winter Springs Blvd. to Pine Ave.	Seminole County	Arterial	Residential	1	1	0	40	1,478	4	Signal	22.8	0.0	II	44.2	A	1.11	
Pine Ave. to Lake Jessup Ave.	Seminole County	Arterial	Residential	1	1	0	40/30	2,640	4	Signal	58.2	8.4	II	30.9	B	0.77	
Lake Jessup Ave. to Central Ave.	Seminole County	Arterial	Residential	1	1	0	30	1,320	4	Signal	41.4	6.6	III	21.7	C	0.72	
Central Ave. to Station St.	Seminole County	Arterial	Residential	1	1	0	30	264	4	Signal	7.2	0.0	III	25.0	B	0.83	
Station St. to Oviedo Blvd.	Seminole County	Arterial	Residential	1	1	1	35	1,056	4	Signal	48.6	15.6	III	14.8	D	0.42	
Oviedo Blvd. to Academy Ave.	Seminole County	Arterial	Residential	1	1	1	35	2,851	4	Signal	83.4	21.6	III	23.3	C	0.67	
TOTAL							45	28,090			670.2	168.0	II	28.6	B	0.64	0.184 gal/veh
PM PEAK HOUR																	
				1	1	0											
Median Opening to Via Loma Dr.	Seminole County	Arterial	Rural	1	2	0	45	475	5	Signal	15.0	3.0	II	21.6	D	0.48	
Via Loma Dr. to Aloma Woods Blvd.	Seminole County	Arterial	Rural	1	2	0	45	1,003	5	Signal	22.8	0.6	II	30.0	B	0.67	
Aloma Woods Blvd. to Chapman Rd.	Seminole County	Arterial	Rural	1	2	1	45	6,494	5	Signal	154.2	51.6	II	28.7	B	0.64	
Chapman Rd. to Slavia Rd.	Seminole County	Arterial	Rural	1	2	0	45	2,798	5	Signal	48.0	3.6	II	39.7	A	0.88	
Slavia Rd. to Red Bug Lake Rd.	Seminole County	Arterial	Rural	2	2	1	45	3,062	5	Signal	99.0	42.6	II	21.1	D	0.47	
Red Bug Lake Rd. to Oviedo Mall Blvd.	Seminole County	Arterial	Residential	1	2	0	45	2,270	5	Signal	38.4	0.0	II	40.3	A	0.90	
Oviedo Mall Blvd. to Winter Springs Blvd.	Seminole County	Arterial	Residential	2	2	0	45/40	2,376	5	Signal	40.2	0.0	II	40.3	A	0.90	
Winter Springs Blvd. to Pine Ave.	Seminole County	Arterial	Residential	1	1	0	40	1,478	5	Signal	32.4	6.0	II	31.1	B	0.78	
Pine Ave. to Lake Jessup Ave.	Seminole County	Arterial	Residential	1	1	0	40/30	2,640	5	Signal	56.4	1.8	II	31.9	B	0.80	
Lake Jessup Ave. to Central Ave.	Seminole County	Arterial	Residential	1	1	0	30	1,320	5	Signal	150.0	96.6	III	6.0	F	0.20	
Central Ave. to Station St.	Seminole County	Arterial	Residential	1	1	0	30	264	5	Signal	9.0	0.6	III	20.0	C	0.67	
Station St. to Oviedo Blvd.	Seminole County	Arterial	Residential	1	1	1	35	1,056	5	Signal	58.8	28.2	III	12.2	E	0.35	
Oviedo Blvd. to Academy Ave.	Seminole County	Arterial	Residential	1	1	1	35	2,851	5	Signal	75.6	15.0	III	25.7	B	0.73	
TOTAL							45	28,090			799.8	249.6	II	23.9	C	0.53	0.189 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

TABLE 3
Year 2012 METROPLAN Orlando Travel Time Study
SR 426 - Via Loma Drive to Academy Avenue - Westbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Academy Ave.	Seminole County	Arterial	Residential	1	1	0	35	422	4	Signal	12.0	1.2	III	24.0	C	0.69	
Academy Ave. to Oviedo Blvd.	Seminole County	Arterial	Residential	1	1	0	35	2,851	4	Signal	58.8	0.0	III	33.1	A	0.94	
Oviedo Blvd. to Station St.	Seminole County	Arterial	Residential	0	1	0	35	1,056	4	Signal	123.6	79.2	III	5.8	F	0.17	
Station St. to Central Ave.	Seminole County	Arterial	Residential	1	1	0	35	264	4	Signal	7.2	0.0	III	25.0	B	0.71	
Central Ave. to Lake Jessup Ave.	Seminole County	Arterial	Residential	1	1	0	30	1,320	4	Signal	29.4	0.0	III	30.6	A	1.02	
Lake Jessup Ave. to Pine Ave.	Seminole County	Arterial	Residential	1	2	0	40	2,640	4	Signal	45.6	0.0	II	39.5	A	0.99	
Pine Ave. to Winter Springs Blvd.	Seminole County	Arterial	Residential	1	2	0	40	1,478	4	Signal	22.8	0.0	II	44.2	A	1.11	
Winter Springs Blvd. to Oviedo Mall Blvd.	Seminole County	Arterial	Residential	1	2	0	45	2,376	4	Signal	35.4	0.0	II	45.8	A	1.02	
Oviedo Mall Blvd. to Red Bug Lake Rd.	Seminole County	Arterial	Residential	2	2	1	45	2,270	4	Signal	74.4	28.8	II	20.8	D	0.46	
Red Bug Lake Rd. to Slavia Rd.	Seminole County	Arterial	Rural	1	2	0	45	3,062	4	Signal	108.6	41.4	II	19.2	D	0.43	
Slavia Rd. to Chapman Rd.	Seminole County	Arterial	Rural	1	2	0	45	2,798	4	Signal	82.8	31.8	II	23.0	C	0.51	
Chapman Rd. to Aloma Woods Blvd.	Seminole County	Arterial	Rural	1	2	0	45	6,494	4	Signal	102.0	7.2	II	43.4	A	0.96	
Aloma Woods Blvd. to Via Loma Dr.	Seminole County	Arterial	Rural	1	2	0	45	1,003	4	Signal	14.4	0.0	II	47.5	A	1.06	
TOTAL							45	28,037			717.0	189.6	II	26.7	C	0.59	0.185 gal/veh
PM PEAK HOUR																	
Median Opening to Academy Ave.	Seminole County	Arterial	Residential	1	1	0	35	422	4	Signal	9.0	0.0	III	32.0	A	0.91	
Academy Ave. to Oviedo Blvd.	Seminole County	Arterial	Residential	1	1	0	35	2,851	4	Signal	121.8	59.4	III	16.0	D	0.46	
Oviedo Blvd. to Station St.	Seminole County	Arterial	Residential	0	1	0	35	1,056	4	Signal	96.0	58.8	III	7.5	F	0.21	
Station St. to Central Ave.	Seminole County	Arterial	Residential	1	1	0	35	264	4	Signal	7.8	0.0	III	23.1	C	0.66	
Central Ave. to Lake Jessup Ave.	Seminole County	Arterial	Residential	1	1	0	30	1,320	4	Signal	37.2	4.8	III	24.2	B	0.81	
Lake Jessup Ave. to Pine Ave.	Seminole County	Arterial	Residential	1	2	0	40	2,640	4	Signal	46.8	0.0	II	38.5	A	0.96	
Pine Ave. to Winter Springs Blvd.	Seminole County	Arterial	Residential	1	2	0	40	1,478	4	Signal	39.0	15.0	II	25.8	C	0.65	
Winter Springs Blvd. to Oviedo Mall Blvd.	Seminole County	Arterial	Residential	1	2	0	45	2,376	4	Signal	35.4	0.0	II	45.8	A	1.02	
Oviedo Mall Blvd. to Red Bug Lake Rd.	Seminole County	Arterial	Residential	2	2	1	45	2,270	4	Signal	79.8	36.6	II	19.4	D	0.43	
Red Bug Lake Rd. to Slavia Rd.	Seminole County	Arterial	Rural	1	2	0	45	3,062	4	Signal	49.8	0.0	II	41.9	A	0.93	
Slavia Rd. to Chapman Rd.	Seminole County	Arterial	Rural	1	2	0	45	2,798	4	Signal	38.4	0.0	II	49.7	A	1.10	
Chapman Rd. to Aloma Woods Blvd.	Seminole County	Arterial	Rural	1	2	0	45	6,494	4	Signal	94.2	3.0	II	47.0	A	1.04	
Aloma Woods Blvd. to Via Loma Dr.	Seminole County	Arterial	Rural	1	2	0	45	1,003	4	Signal	14.4	0.0	II	47.5	A	1.06	
TOTAL							45	28,037			669.6	177.6	II	28.5	B	0.63	0.184 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.



**SR 426
- AM Peak**

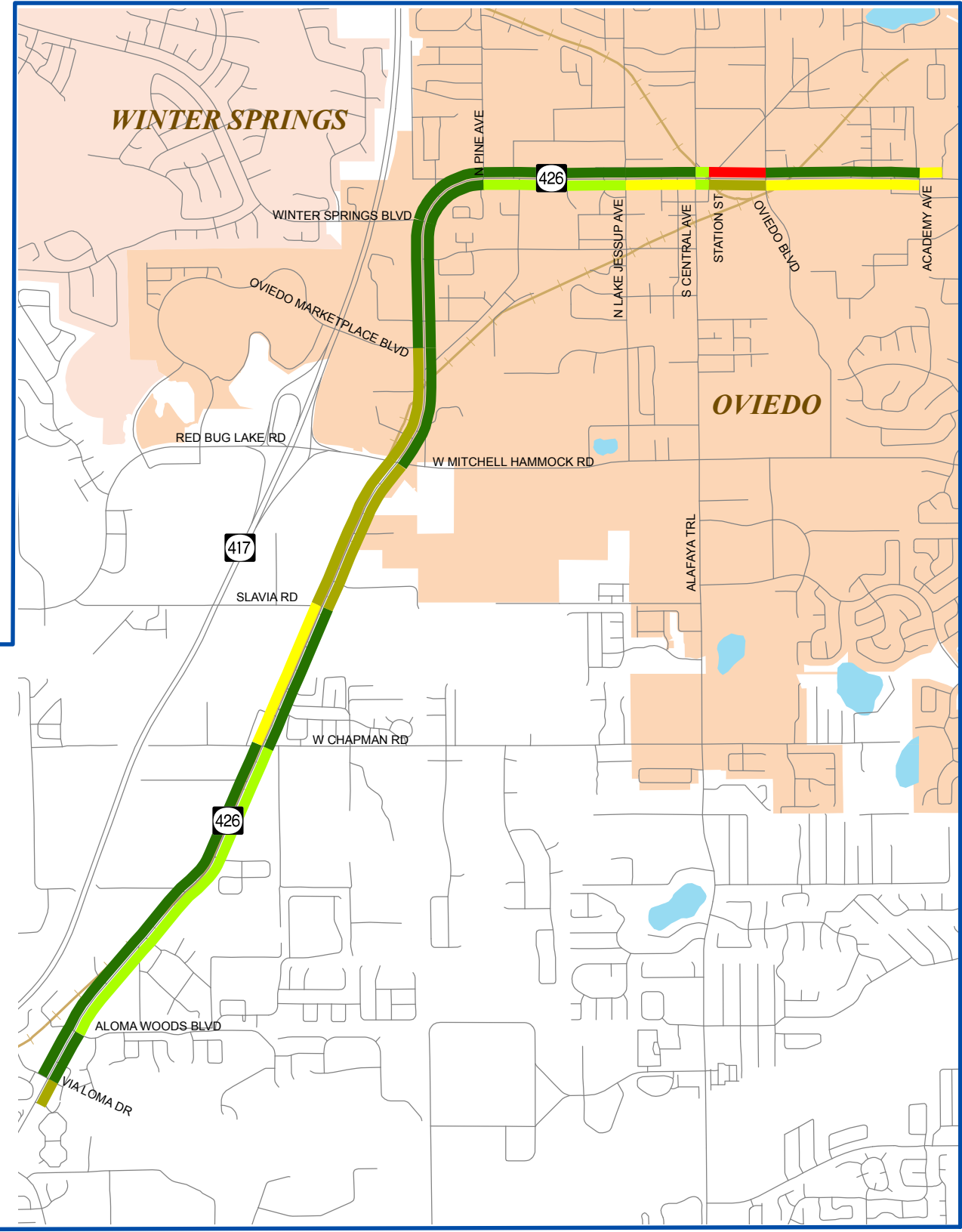
Before Condition

Date of Collection: 11/8/2011
 Distance: 5.32 miles
 From: Via Loma Dr.
 To: Academy Ave.

Start Time: 7:00 AM
 End Time: 9:00 AM

EB Avg Speed: 27.30 MPH
 EB Travel Time: 11.69 MIN
 EB Delay Time: 3.00 MIN

WB Avg Speed: 25.50 MPH
 WB Travel Time: 12.48 MIN
 WB Delay Time: 3.60 MIN



**SR 426
- AM Peak**

After Condition

Date of Collection: 2/8/2012
 Distance: 5.32 miles
 From: Via Loma Dr.
 To: Academy Ave.

Start Time: 7:00 AM
 End Time: 9:00 AM

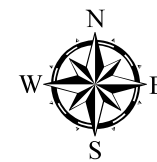
EB Avg Speed: 28.60 MPH
 EB Travel Time: 11.17 MIN
 EB Delay Time: 2.80 MIN

WB Avg Speed: 26.70 MPH
 WB Travel Time: 11.96 MIN
 WB Delay Time: 3.16 MIN

Level of Services:

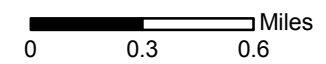


- | | | | | | |
|--|---|--|---|--|---------------|
| | A | | D | | Roads |
| | B | | E | | City Boundary |
| | C | | F | | Water |



2012 METROPLAN ORLANDO

Travel Time Study





**SR 426
- PM Peak**

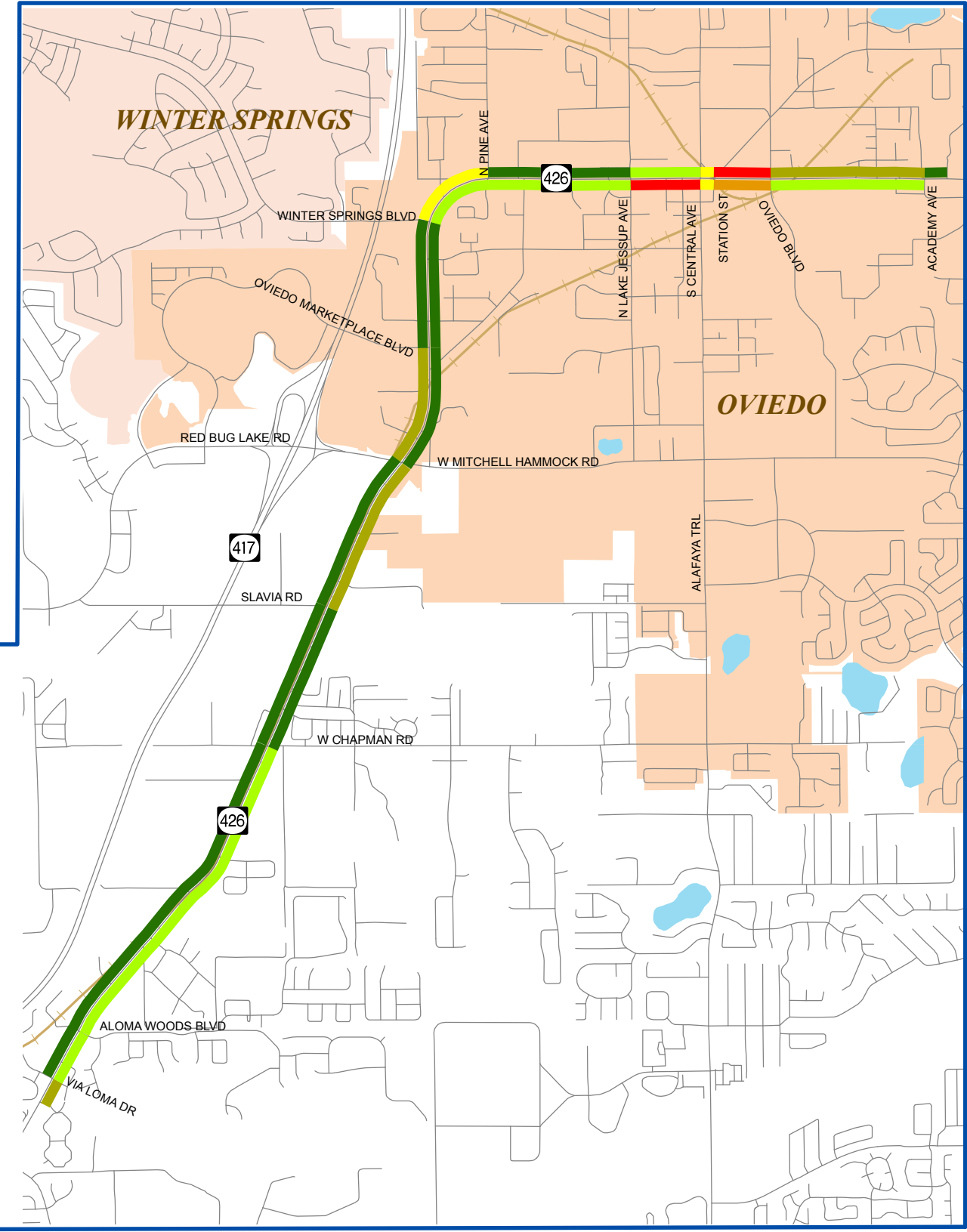
Before Condition

Date of Collection: 11/8/2011
 Distance: 5.32 miles
 From: Via Loma Dr.
 To: Academy Ave.

Start Time: 4:00 PM
 End Time: 6:00 PM

EB Avg Speed: 22.30 MPH
 EB Travel Time: 14.33 MIN
 EB Delay Time: 4.70 MIN

WB Avg Speed: 22.40 MPH
 WB Travel Time: 14.25 MIN
 WB Delay Time: 4.88 MIN



**SR 426
- PM Peak**

After Condition

Date of Collection: 2/8/2012
 Distance: 5.32 miles
 From: Via Loma Dr.
 To: Academy Ave.

Start Time: 4:00 PM
 End Time: 6:00 PM

EB Avg Speed: 23.90 MPH
 EB Travel Time: 13.33 MIN
 EB Delay Time: 4.16 MIN

WB Avg Speed: 28.50 MPH
 WB Travel Time: 11.16 MIN
 WB Delay Time: 2.96 MIN

SR 426 - Via Loma Drive to Academy Avenue
Summary of Before Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
562	701.4	180.0	27.3	0.1840	109.50	103.41
Northbound/Eastbound - PM Peak Hour						
881	859.8	282.0	22.3	0.1900	210.41	167.39
Southbound/Westbound - AM Peak Hour						
970	748.8	216.0	25.5	0.1860	201.76	180.42
Southbound/Westbound - PM Peak Hour						
715	855.0	292.8	22.4	0.1880	169.81	134.42

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 426 - Via Loma Drive to Academy Avenue
Summary of After Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
562	670.2	168.0	28.6	0.1840	104.63	103.41
Northbound/Eastbound - PM Peak Hour						
881	799.8	249.6	23.9	0.1890	195.73	166.51
Southbound/Westbound - AM Peak Hour						
970	717.0	189.6	26.7	0.1850	193.19	179.45
Southbound/Westbound - PM Peak Hour						
715	669.6	177.6	28.5	0.1840	132.99	131.56

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 426 - Via Loma Drive to Academy Avenue
Summary of Measures of Effectiveness & Benefit Cost Analysis

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	311.26	297.82	380.22	328.72
Total Fuel Consumption (gallons)	283.83	282.86	301.81	298.07

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$222.38	\$852.38
Annual User Benefit	\$66,714.84	\$255,713.01
Total Annual User Benefit =	\$322,427.85	
Total Signal Retiming Annual Cost	\$20,568.03	
User Benefit / Cost Ratio	15.68	

Notes:

- * Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
- * Fuel consumption is valued to the rate of \$3.43 per gallon.(Florida Department of Revenue & Orlando Gas Prices)
- * Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffics
- * The service life of the improvement was kept as three (3) years.
- * Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

SR 434

Sunshadow Dr. to SR 419

TABLE 4
Year 2012 METROPLAN Orlando Travel Time Study
SR 434 - Sunshadow Drive to SR 419 - Eastbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Sunshadow Dr.	Seminole County	Arterial	OBD	1	2	1	45	211	8	Signal	6.6	1.8	II	21.8	D	0.48	
Sunshadow Dr. to North Winter Park Dr.	Seminole County	Arterial	OBD	0	2	0	45	1,214	8	Signal	24.0	2.4	II	34.5	B	0.77	
North Winter Park Dr. to Sheoah Blvd.	Seminole County	Arterial	OBD	1	2	0	45	1,373	8	Signal	30.6	3.6	II	30.6	B	0.68	
Sheoah Blvd. to Edgemon Ave.	Seminole County	Arterial	Residential	1	2	0	45	1,214	8	Signal	25.8	3.0	II	32.1	B	0.71	
Edgemon Ave. to Moss Rd.	Seminole County	Arterial	Residential	1	2	1	45	1,320	8	Signal	24.6	2.4	II	36.6	A	0.81	
Moss Rd. to Hayes Rd.	Seminole County	Arterial	Residential	1	2	0	45	3,274	8	Signal	51.6	0.0	II	43.3	A	0.96	
Hayes Rd. to SR 419	Seminole County	Arterial	Residential	1	2	0	45	1,584	8	Signal	22.8	0.0	II	47.4	A	1.05	
TOTAL							45	10,190			186.0	13.2	II	37.4	A	0.83	0.066 gal/veh
PM PEAK HOUR																	
Median Opening to Sunshadow Dr.	Seminole County	Arterial	OBD	1	2	1	45	211	9	Signal	10.8	5.4	II	13.3	E	0.30	
Sunshadow Dr. to North Winter Park Dr.	Seminole County	Arterial	OBD	0	2	0	45	1,214	9	Signal	24.0	1.2	II	34.5	B	0.77	
North Winter Park Dr. to Sheoah Blvd.	Seminole County	Arterial	OBD	1	2	0	45	1,373	9	Signal	30.6	3.6	II	30.6	B	0.68	
Sheoah Blvd. to Edgemon Ave.	Seminole County	Arterial	Residential	1	2	0	45	1,214	9	Signal	28.2	3.0	II	29.4	B	0.65	
Edgemon Ave. to Moss Rd.	Seminole County	Arterial	Residential	1	2	1	45	1,320	9	Signal	31.8	3.0	II	28.3	B	0.63	
Moss Rd. to Hayes Rd.	Seminole County	Arterial	Residential	1	2	0	45	3,274	9	Signal	60.6	4.8	II	36.8	A	0.82	
Hayes Rd. to SR 419	Seminole County	Arterial	Residential	1	2	0	45	1,584	9	Signal	25.8	0.0	II	41.9	A	0.93	
TOTAL							45	10,190			211.8	21.0	II	32.8	B	0.73	0.067 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

TABLE 4
Year 2012 METROPLAN Orlando Travel Time Study
SR 434 - Sunshadow Drive to SR 419 - Westbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Consolidated Services to SR 419	Seminole County	Arterial	Residential	1	2	1	50	581	9	Signal	28.8	12.6	I	13.7	F	0.27	
SR 419 to Hayes Rd.	Seminole County	Arterial	Residential	1	2	0	45	1,584	9	Signal	28.2	0.0	II	38.3	A	0.85	
Hayes Rd. to Moss Rd.	Seminole County	Arterial	Residential	1	2	0	45	3,274	9	Signal	55.2	0.0	II	40.4	A	0.90	
Moss Rd. to Edgemon Ave.	Seminole County	Arterial	Residential	1	2	0	45	1,320	9	Signal	28.2	3.6	II	31.9	B	0.71	
Edgemon Ave. to Sheoah Blvd.	Seminole County	Arterial	Residential	1	2	0	45	1,214	9	Signal	36.6	10.2	II	22.6	C	0.50	
Sheoah Blvd. to North Winter Park Dr.	Seminole County	Arterial	OBD	1	2	0	45	1,373	9	Signal	34.2	7.2	II	27.4	C	0.61	
North Winter Park Dr. to Sunshadow Dr.	Seminole County	Arterial	OBD	1	2	0	45	1,214	9	Signal	27.6	4.8	II	30.0	B	0.67	
TOTAL							45	10,560			238.8	38.4	II	30.1	B	0.67	0.069 gal/veh
PM PEAK HOUR																	
Consolidated Services to SR 419	Seminole County	Arterial	Residential	1	2	1	50	581	9	Signal	30.0	13.2	I	13.2	F	0.26	
SR 419 to Hayes Rd.	Seminole County	Arterial	Residential	1	2	0	45	1,584	9	Signal	36.6	5.4	II	29.5	B	0.66	
Hayes Rd. to Moss Rd.	Seminole County	Arterial	Residential	1	2	0	45	3,274	9	Signal	61.2	5.4	II	36.5	A	0.81	
Moss Rd. to Edgemon Ave.	Seminole County	Arterial	Residential	1	2	0	45	1,320	9	Signal	38.4	9.0	II	23.4	C	0.52	
Edgemon Ave. to Sheoah Blvd.	Seminole County	Arterial	Residential	1	2	0	45	1,214	9	Signal	31.2	6.0	II	26.5	C	0.59	
Sheoah Blvd. to North Winter Park Dr.	Seminole County	Arterial	OBD	1	2	0	45	1,373	9	Signal	27.0	2.4	II	34.7	B	0.77	
North Winter Park Dr. to Sunshadow Dr.	Seminole County	Arterial	OBD	1	2	0	45	1,214	9	Signal	36.0	10.8	II	23.0	C	0.51	
TOTAL							45	10,560			260.4	52.2	II	27.6	C	0.61	0.070 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

TABLE 4
Year 2012 METROPLAN Orlando Travel Time Study
SR 434 - Sunshadow Drive to SR 419 - Eastbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Sunshadow Dr.	Seminole County	Arterial	OBD	1	2	1	45	211	10	Signal	3.0	0.0	II	48.0	A	1.07	
Sunshadow Dr. to North Winter Park Dr.	Seminole County	Arterial	OBD	0	2	0	45	1,214	10	Signal	19.8	1.2	II	41.8	A	0.93	
North Winter Park Dr. to Sheoah Blvd.	Seminole County	Arterial	OBD	1	2	0	45	1,373	10	Signal	35.4	9.6	II	26.4	C	0.59	
Sheoah Blvd. to Edgemon Ave.	Seminole County	Arterial	Residential	1	2	0	45	1,214	10	Signal	25.2	3.6	II	32.9	B	0.73	
Edgemon Ave. to Moss Rd.	Seminole County	Arterial	Residential	1	2	1	45	1,320	10	Signal	19.8	0.0	II	45.5	A	1.01	
Moss Rd. to Hayes Rd.	Seminole County	Arterial	Residential	1	2	0	45	3,274	10	Signal	47.4	0.6	II	47.1	A	1.05	
Hayes Rd. to SR 419	Seminole County	Arterial	Residential	1	2	0	45	1,584	10	Signal	21.5	0.0	II	50.2	A	1.12	
TOTAL							45	10,190			172.1	15.0	II	40.4	A	0.90	0.065 gal/veh
PM PEAK HOUR																	
Median Opening to Sunshadow Dr.	Seminole County	Arterial	OBD	1	2	1	45	211	11	Signal	3.1	0.0	II	46.5	A	1.03	
Sunshadow Dr. to North Winter Park Dr.	Seminole County	Arterial	OBD	0	2	0	45	1,214	11	Signal	21.6	1.2	II	38.3	A	0.85	
North Winter Park Dr. to Sheoah Blvd.	Seminole County	Arterial	OBD	1	2	0	45	1,373	11	Signal	28.2	4.8	II	33.2	B	0.74	
Sheoah Blvd. to Edgemon Ave.	Seminole County	Arterial	Residential	1	2	0	45	1,214	11	Signal	28.8	7.2	II	28.7	B	0.64	
Edgemon Ave. to Moss Rd.	Seminole County	Arterial	Residential	1	2	1	45	1,320	11	Signal	28.2	6.6	II	31.9	B	0.71	
Moss Rd. to Hayes Rd.	Seminole County	Arterial	Residential	1	2	0	45	3,274	11	Signal	49.8	0.0	II	44.8	A	1.00	
Hayes Rd. to SR 419	Seminole County	Arterial	Residential	1	2	0	45	1,584	11	Signal	27.6	4.8	II	39.1	A	0.87	
TOTAL							45	10,190			187.3	24.6	II	37.1	A	0.82	0.065 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

TABLE 4
Year 2012 METROPLAN Orlando Travel Time Study
SR 434 - Sunshadow Drive to SR 419 - Westbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Consolidated Services to SR 419	Seminole County	Arterial	Residential	1	2	1	50	581	11	Signal	11.4	0.6	I	34.7	B	0.69	
SR 419 to Hayes Rd.	Seminole County	Arterial	Residential	1	2	0	45	1,584	11	Signal	22.8	0.0	II	47.4	A	1.05	
Hayes Rd. to Moss Rd.	Seminole County	Arterial	Residential	1	2	0	45	3,274	11	Signal	47.4	0.0	II	47.1	A	1.05	
Moss Rd. to Edgemon Ave.	Seminole County	Arterial	Residential	1	2	0	45	1,320	11	Signal	21.6	0.0	II	41.7	A	0.93	
Edgemon Ave. to Sheoah Blvd.	Seminole County	Arterial	Residential	1	2	0	45	1,214	11	Signal	33.6	10.8	II	24.6	C	0.55	
Sheoah Blvd. to North Winter Park Dr.	Seminole County	Arterial	OBD	1	2	0	45	1,373	11	Signal	33.6	4.8	II	27.9	C	0.62	
North Winter Park Dr. to Sunshadow Dr.	Seminole County	Arterial	OBD	1	2	0	45	1,214	11	Signal	30.6	6.0	II	27.1	C	0.60	
TOTAL							45	10,560			201.0	22.2	II	35.8	A	0.80	0.068 gal/veh
PM PEAK HOUR																	
Consolidated Services to SR 419	Seminole County	Arterial	Residential	1	2	1	50	581	11	Signal	13.2	3.0	I	30.0	C	0.60	
SR 419 to Hayes Rd.	Seminole County	Arterial	Residential	1	2	0	45	1,584	11	Signal	27.6	1.8	II	39.1	A	0.87	
Hayes Rd. to Moss Rd.	Seminole County	Arterial	Residential	1	2	0	45	3,274	11	Signal	59.4	6.6	II	37.6	A	0.83	
Moss Rd. to Edgemon Ave.	Seminole County	Arterial	Residential	1	2	0	45	1,320	11	Signal	26.4	4.2	II	34.1	B	0.76	
Edgemon Ave. to Sheoah Blvd.	Seminole County	Arterial	Residential	1	2	0	45	1,214	11	Signal	19.8	0.0	II	41.8	A	0.93	
Sheoah Blvd. to North Winter Park Dr.	Seminole County	Arterial	OBD	1	2	0	45	1,373	11	Signal	21.6	0.0	II	43.3	A	0.96	
North Winter Park Dr. to Sunshadow Dr.	Seminole County	Arterial	OBD	1	2	0	45	1,214	11	Signal	24.0	4.8	II	34.5	B	0.77	
TOTAL							45	10,560			192.0	20.4	II	37.5	A	0.83	0.067 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

**SR 434
- AM Peak**

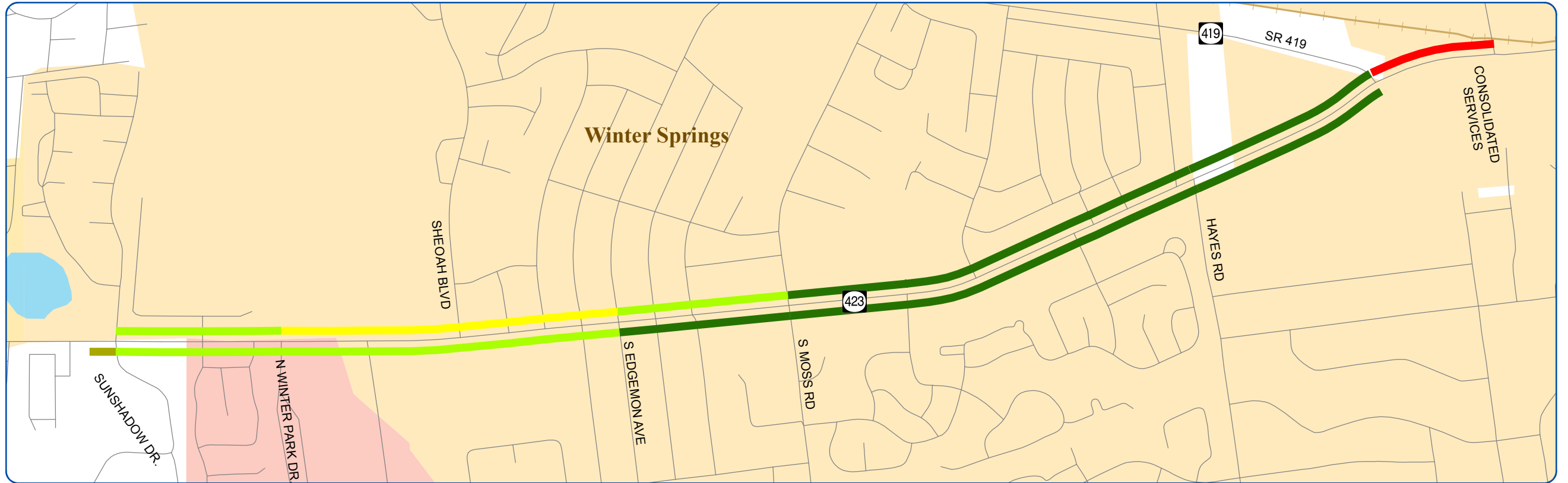
Before Condition

Date of Collection: 11/9/2011
 Distance: 1.93 miles
 From: Sunshadow Dr.
 To: SR 419

Start Time: 7:00 AM
 End Time: 9:00 AM

EB Avg Speed: 37.4 MPH
 EB Travel Time: 3.10 MIN
 EB Delay Time: 0.22 MIN

WB Avg Speed: 30.1 MPH
 WB Travel Time: 3.98 MIN
 WB Delay Time: 0.64 MIN



**SR 434
- AM Peak**

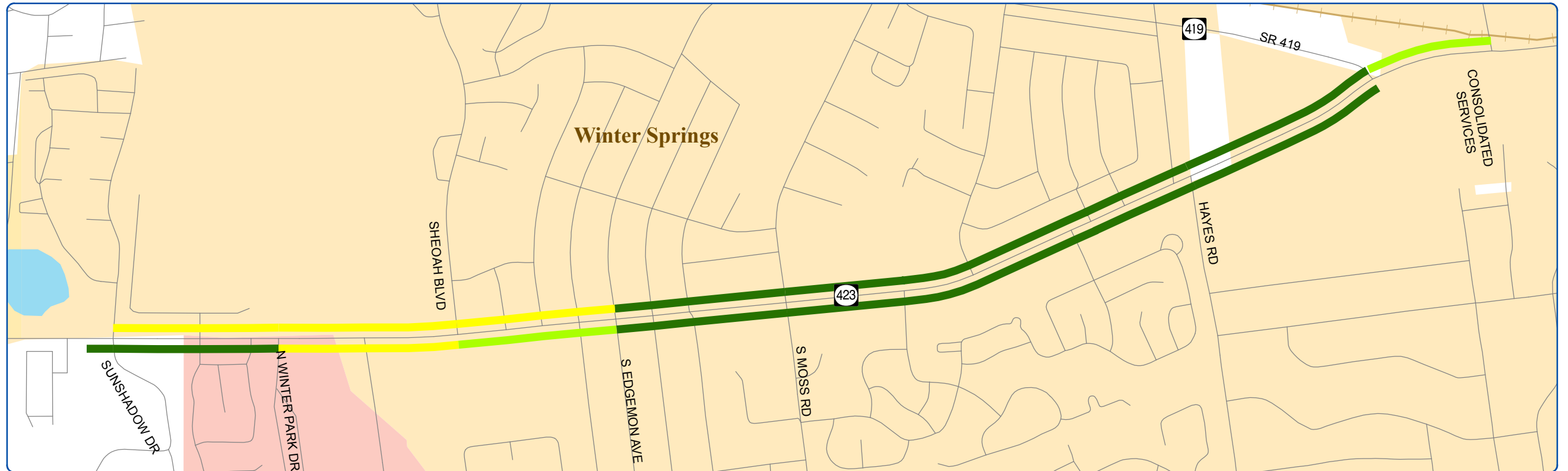
After Condition

Date of Collection: 3/1/2012
 Distance: 1.93 miles
 From: Sunshadow Dr.
 To: SR 419

Start Time: 7:00 AM
 End Time: 9:00 AM

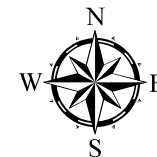
EB Avg Speed: 40.4 MPH
 EB Travel Time: 2.87 MIN
 EB Delay Time: 0.25 MIN

WB Avg Speed: 35.8 MPH
 WB Travel Time: 3.35 MIN
 WB Delay Time: 0.37 MIN



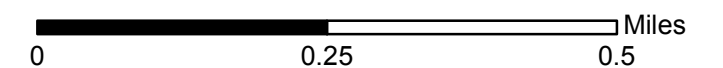
Level of Services:

- | | | |
|---|---|---------------|
| A | D | Roads |
| B | E | City Boundary |
| C | F | Water |



2012 METROPLAN ORLANDO

Travel Time Study



**SR 434
- PM Peak**

Before Condition

Date of Collection: 11/9/2011
 Distance: 1.93 miles
 From: Sunshadow Dr.
 To: SR 419

Start Time: 4:00 PM
 End Time: 6:00 PM

EB Avg Speed: 32.8 MPH
 EB Travel Time: 3.53 MIN
 EB Delay Time: 0.35 MIN

WB Avg Speed: 27.6 MPH
 WB Travel Time: 4.34 MIN
 WB Delay Time: 0.87 MIN



**SR 434
- PM Peak**

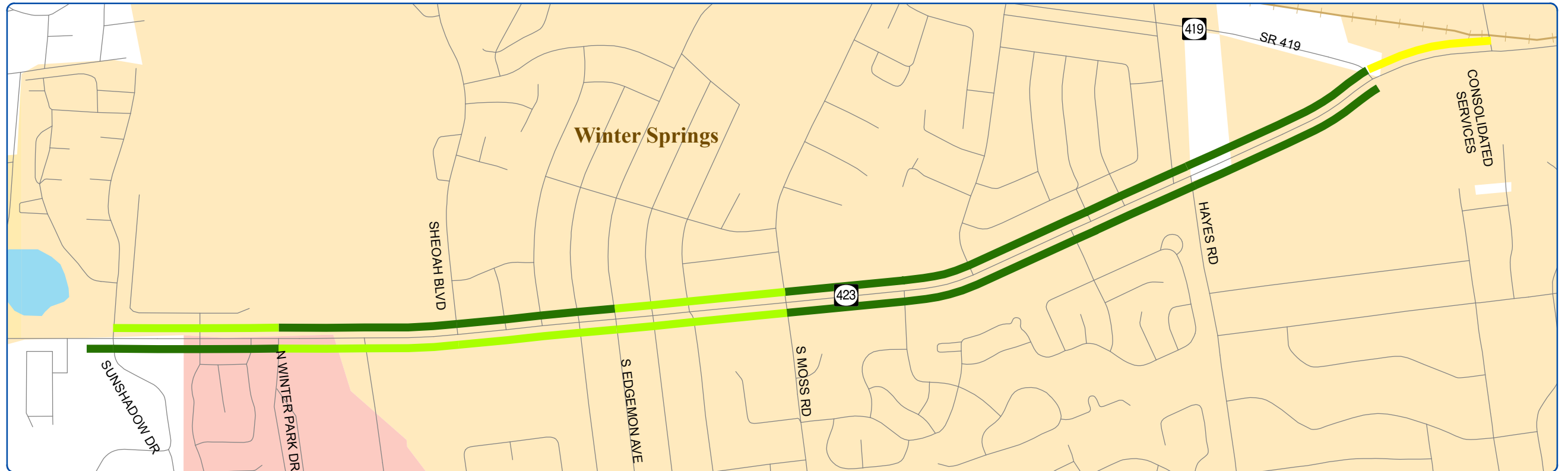
After Condition

Date of Collection: 3/1/2012
 Distance: 1.93 miles
 From: Sunshadow Dr.
 To: SR 419

Start Time: 4:00 PM
 End Time: 6:00 PM

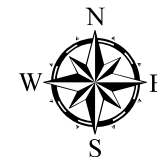
EB Avg Speed: 37.1 MPH
 EB Travel Time: 3.12 MIN
 EB Delay Time: 0.41 MIN

WB Avg Speed: 37.5 MPH
 WB Travel Time: 3.20 MIN
 WB Delay Time: 0.34 MIN



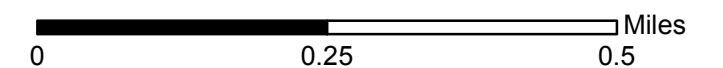
Level of Services:

- | | | | | | | |
|---|---|---|---|---|---------------|-------|
| A | B | C | D | E | F | Roads |
| B | C | D | E | F | City Boundary | Water |



2012 METROPLAN ORLANDO

Travel Time Study



SR 434 - Sunshadow Drive to SR 419
Summary of Before Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
889	186.0	13.2	37.4	0.0660	45.93	58.67
Northbound/Eastbound - PM Peak Hour						
1906	211.8	21.0	32.8	0.0670	112.14	127.70
Southbound/Westbound - AM Peak Hour						
1821	238.8	38.4	30.1	0.0690	120.79	125.65
Southbound/Westbound - PM Peak Hour						
1148	260.4	52.2	27.6	0.0700	83.04	80.36

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 434 - Sunshadow Drive to SR 419
Summary of After Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
889	172.1	15.0	40.4	0.0650	42.50	57.79
Northbound/Eastbound - PM Peak Hour						
1906	187.3	24.6	37.1	0.0650	99.16	123.89
Southbound/Westbound - AM Peak Hour						
1821	201.0	22.2	35.8	0.0680	101.67	123.83
Southbound/Westbound - PM Peak Hour						
1148	192.0	20.4	37.5	0.0670	61.23	76.92

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 434 - Sunshadow Drive to SR 419
Summary of Measures of Effectiveness & Benefit Cost Analysis

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	166.72	144.17	195.18	160.39
Total Fuel Consumption (gallons)	184.32	181.61	208.06	200.81

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$376.91	\$591.86
Annual User Benefit	\$113,072.90	\$177,557.20
Total Annual User Benefit =	\$290,630.09	
Total Signal Retiming Annual Cost	\$10,982.24	
User Benefit / Cost Ratio	26.46	

Notes:

- * Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
- * Fuel consumption is valued to the rate of \$3.43 per gallon.(Florida Department of Revenue & Orlando Gas Prices)
- * Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffics
- * The service life of the improvement was kept as three (3) years.
- * Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

SR 434

Consolidated Services to Tuskawilla Dr.

TABLE 5
Year 2012 METROPLAN Orlando Travel Time Study
SR 434 - Consolidated Services to Tuskawilla Road - Eastbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
SR 419 to Consolidated Services	Seminole County	Arterial	Residential	1	2	0	50	317	9	Signal	9.0	1.8	I	24.0	D	0.48	
Consolidated Services to Winding Hollow	Seminole County	Arterial	Residential	1	2	0	50	2,323	9	Signal	42.6	4.2	I	37.2	B	0.74	
Winding Hollow Blvd./Parkstone Blvd. to H	Seminole County	Arterial	Residential	1	2	0	50/45	3,696	9	Signal	68.4	5.4	I	36.8	B	0.74	
Heritage Park St. to McLeod's Way/Doran	Seminole County	Arterial	Residential	1	2	0	45	2,218	9	Signal	42.6	4.2	II	35.5	A	0.79	
McLeod's Way/Doran Dr. to Tuskawilla Rd	Seminole County	Arterial	Residential	1	2	1	45	1,426	9	Signal	30.0	4.8	II	32.4	B	0.72	
TOTAL							50	9,979			192.6	20.4	I	35.3	B	0.71	0.065 gal/veh
PM PEAK HOUR																	
SR 419 to Consolidated Services	Seminole County	Arterial	Residential	1	2	0	50	317	10	Signal	5.4	0.0	I	40.0	B	0.80	
Consolidated Services to Winding Hollow	Seminole County	Arterial	Residential	1	2	0	50	2,323	10	Signal	58.2	14.4	I	27.2	C	0.54	
Winding Hollow Blvd./Parkstone Blvd. to H	Seminole County	Arterial	Residential	1	2	0	50/45	3,696	10	Signal	62.4	1.2	I	40.4	B	0.81	
Heritage Park St. to McLeod's Way/Doran	Seminole County	Arterial	Residential	1	2	0	45	2,218	10	Signal	37.8	0.6	II	40.0	A	0.89	
McLeod's Way/Doran Dr. to Tuskawilla Rd	Seminole County	Arterial	Residential	1	2	1	45	1,426	10	Signal	61.8	28.8	II	15.7	E	0.35	
TOTAL							50	9,979			225.6	45.0	I	30.2	C	0.60	0.066 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

TABLE 5
Year 2012 METROPLAN Orlando Travel Time Study
SR 434 - Consolidated Services to Tuskawilla Road - Westbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Gardena Ave. to Tuskawilla Rd.	Seminole County	Arterial	Residential	1	2	0	50/45	3,221	8	Signal	96.6	23.4	I	22.7	D	0.51	
Tuskawilla Rd. to McLeod's Way/Doran Dr.	Seminole County	Arterial	Residential	1	2	0	45	1,426	8	Signal	26.4	0.0	II	36.8	A	0.82	
McLeod's Way/Doran Dr. to Heritage Park St.	Seminole County	Arterial	Residential	1	2	0	45	2,218	8	Signal	57.6	17.4	II	26.2	C	0.58	
Heritage Park St. to Winding Hollow Blvd./Parkstone Blvd.	Seminole County	Arterial	Residential	1	2	1	50	3,696	8	Signal	82.8	16.8	I	30.4	C	0.61	
Winding Hollow Blvd./Parkstone Blvd. to Co	Seminole County	Arterial	Residential	1	2	1	50	2,323	8	Signal	52.2	7.2	I	30.3	C	0.61	
TOTAL							50	12,883			315.6	64.8	I	27.8	C	0.56	0.084 gal/veh
PM PEAK HOUR																	
Gardena Ave. to Tuskawilla Rd.	Seminole County	Arterial	Residential	1	2	0	50/45	3,221	10	Signal	90.6	12.0	I	24.2	D	0.54	
Tuskawilla Rd. to McLeod's Way/Doran Dr.	Seminole County	Arterial	Residential	1	2	0	45	1,426	10	Signal	27.6	0.6	II	35.2	A	0.78	
McLeod's Way/Doran Dr. to Heritage Park St.	Seminole County	Arterial	Residential	1	2	0	45	2,218	10	Signal	36.0	0.0	II	42.0	A	0.93	
Heritage Park St. to Winding Hollow Blvd./Parkstone Blvd.	Seminole County	Arterial	Residential	1	2	1	50	3,696	10	Signal	58.2	0.0	I	43.3	A	0.87	
Winding Hollow Blvd./Parkstone Blvd. to Co	Seminole County	Arterial	Residential	1	2	1	50	2,323	10	Signal	40.8	3.6	I	38.8	B	0.78	
TOTAL							50	12,883			253.2	16.2	I	34.7	B	0.69	0.082 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

TABLE 5
Year 2012 METROPLAN Orlando Travel Time Study
SR 434 - Consolidated Services to Tuskawilla Road - Eastbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
SR 419 to Consolidated Services	Seminole County	Arterial	Residential	1	2	0	50	317	9	Signal	4.4	0.0	I	49.1	A	0.98	
Consolidated Services to Winding Hollow	Seminole County	Arterial	Residential	1	2	0	50	2,323	9	Signal	50.4	12.6	I	31.4	C	0.63	
Winding Hollow Blvd./Parkstone Blvd. to H	Seminole County	Arterial	Residential	1	2	0	50/45	3,696	9	Signal	57.6	3.0	I	43.7	A	0.87	
Heritage Park St. to McLeod's Way/Doran	Seminole County	Arterial	Residential	1	2	0	45	2,218	9	Signal	43.2	7.2	II	35.0	B	0.78	
McLeod's Way/Doran Dr. to Tuskawilla Rd	Seminole County	Arterial	Residential	1	2	1	45	1,426	9	Signal	31.2	7.8	II	31.2	B	0.69	
TOTAL							50	9,979			186.8	30.6	I	36.4	B	0.73	0.064 gal/veh
PM PEAK HOUR																	
SR 419 to Consolidated Services	Seminole County	Arterial	Residential	1	2	0	50	317	12	Signal	6.0	1.2	I	36.0	B	0.72	
Consolidated Services to Winding Hollow	Seminole County	Arterial	Residential	1	2	0	50	2,323	12	Signal	38.4	1.2	I	41.2	B	0.82	
Winding Hollow Blvd./Parkstone Blvd. to H	Seminole County	Arterial	Residential	1	2	0	50/45	3,696	12	Signal	54.0	0.0	I	46.7	A	0.93	
Heritage Park St. to McLeod's Way/Doran	Seminole County	Arterial	Residential	1	2	0	45	2,218	12	Signal	33.6	0.0	II	45.0	A	1.00	
McLeod's Way/Doran Dr. to Tuskawilla Rd	Seminole County	Arterial	Residential	1	2	1	45	1,426	12	Signal	34.2	7.2	II	28.4	B	0.63	
TOTAL							50	9,979			166.2	9.6	I	40.9	B	0.82	0.064 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

TABLE 5
Year 2012 METROPLAN Orlando Travel Time Study
SR 434 - Consolidated Services to Tuskawilla Road - Westbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Gardena Ave. to Tuskawilla Rd.	Seminole County	Arterial	Residential	1	2	0	50/45	3,221	11	Signal	89.4	24.0	I	24.6	D	0.55	
Tuskawilla Rd. to McLeod's Way/Doran Dr.	Seminole County	Arterial	Residential	1	2	0	45	1,426	11	Signal	24.6	0.0	II	39.5	A	0.88	
McLeod's Way/Doran Dr. to Heritage Park St.	Seminole County	Arterial	Residential	1	2	0	45	2,218	11	Signal	56.4	16.2	II	26.8	C	0.60	
Heritage Park St. to Winding Hollow Blvd./Parkstone Blvd.	Seminole County	Arterial	Residential	1	2	1	50	3,696	11	Signal	53.4	0.0	I	47.2	A	0.94	
Winding Hollow Blvd./Parkstone Blvd. to Co	Seminole County	Arterial	Residential	1	2	1	50	2,323	11	Signal	31.8	0.0	I	49.8	A	1.00	
TOTAL							50	12,883			255.6	40.2	I	34.4	B	0.69	0.082 gal/veh
PM PEAK HOUR																	
Gardena Ave. to Tuskawilla Rd.	Seminole County	Arterial	Residential	1	2	0	50/45	3,221	9	Signal	78.0	17.4	I	28.2	C	0.63	
Tuskawilla Rd. to McLeod's Way/Doran Dr.	Seminole County	Arterial	Residential	1	2	0	45	1,426	9	Signal	25.2	0.6	II	38.6	A	0.86	
McLeod's Way/Doran Dr. to Heritage Park St.	Seminole County	Arterial	Residential	1	2	0	45	2,218	9	Signal	49.8	7.8	II	30.4	B	0.67	
Heritage Park St. to Winding Hollow Blvd./Parkstone Blvd.	Seminole County	Arterial	Residential	1	2	1	50	3,696	9	Signal	55.8	0.0	I	45.2	A	0.90	
Winding Hollow Blvd./Parkstone Blvd. to Co	Seminole County	Arterial	Residential	1	2	1	50	2,323	9	Signal	37.8	1.2	I	41.9	B	0.84	
TOTAL							50	12,883			246.6	27.0	I	35.6	B	0.71	0.082 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

**SR 434
- AM Peak**

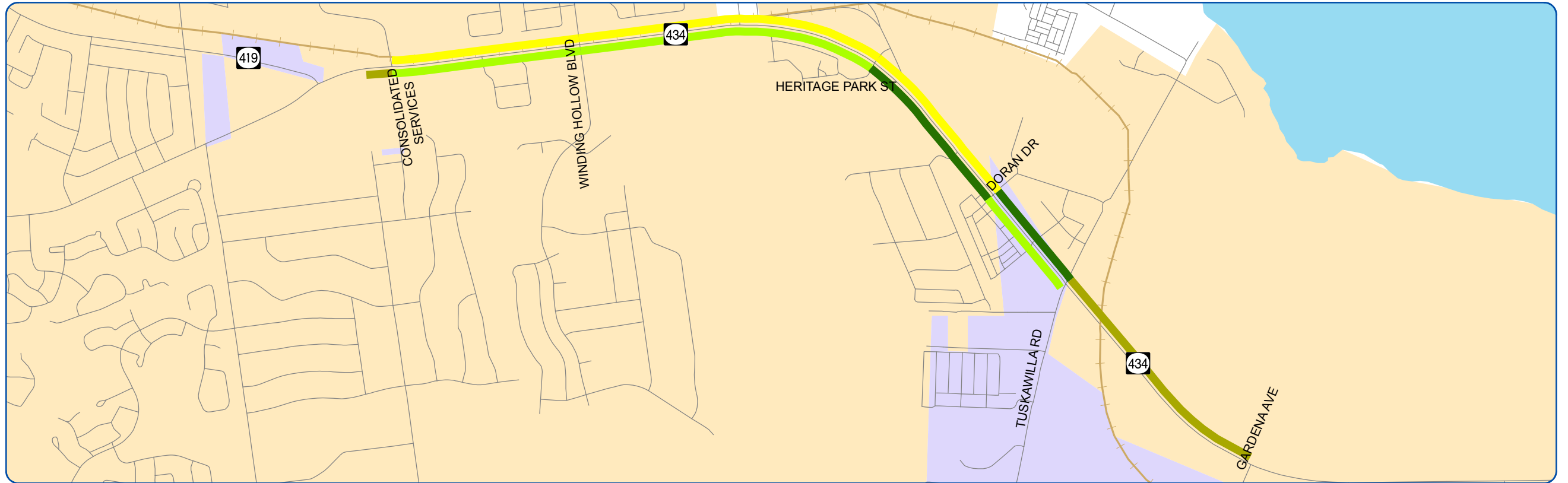
Before Condition

Date of Collection: 11/10/2011
 Distance: 1.89 miles
 From: Consolidated Services
 To: Tuskawilla Rd.

Start Time: 7:00 AM
 End Time: 9:00 AM

EB Avg Speed: 35.3 MPH
 EB Travel Time: 3.21 MIN
 EB Delay Time: 0.34 MIN

WB Avg Speed: 27.8 MPH
 WB Travel Time: 5.26 MIN
 WB Delay Time: 1.08 MIN



**SR 434
- AM Peak**

After Condition

Date of Collection: 2/23/2012
 Distance: 1.89 miles
 From: Consolidated Services
 To: Tuskawilla Rd.

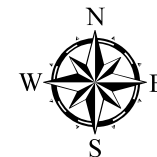
Start Time: 7:00 AM
 End Time: 9:00 AM

EB Avg Speed: 36.4 MPH
 EB Travel Time: 3.11 MIN
 EB Delay Time: 0.51 MIN

WB Avg Speed: 34.4 MPH
 WB Travel Time: 4.26 MIN
 WB Delay Time: 0.67 MIN

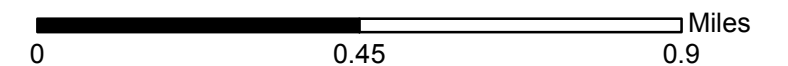


Level of Services:



2012 METROPLAN ORLANDO

Travel Time Study



**SR 434
- PM Peak**

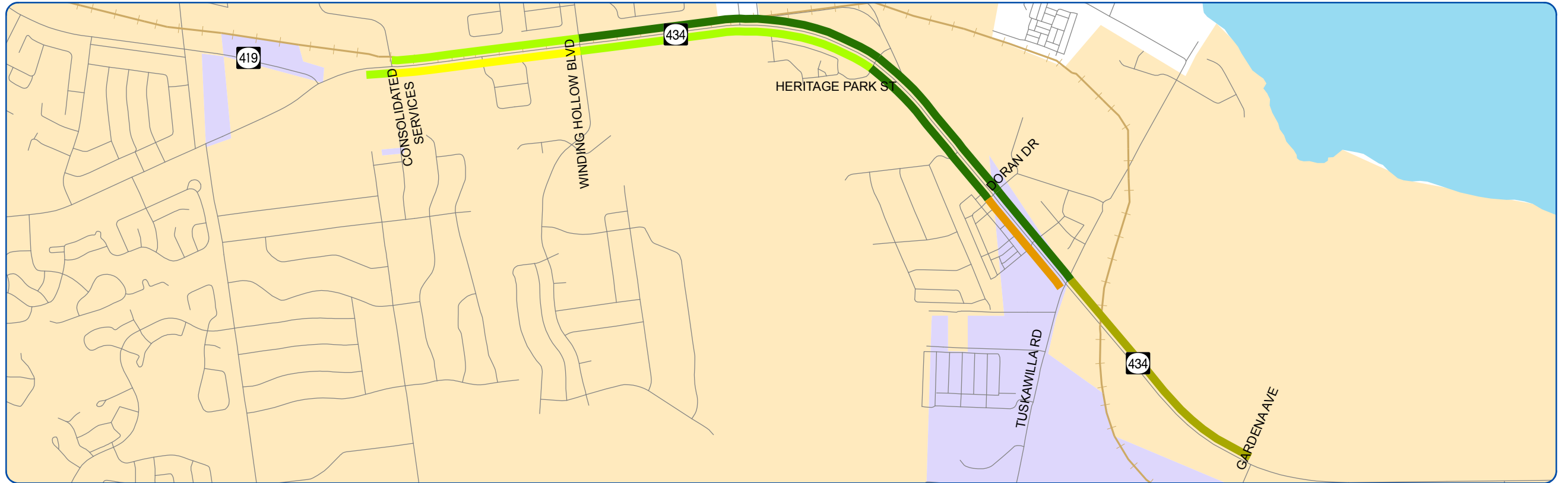
Before Condition

Date of Collection: 11/10/2011
 Distance: 1.89 miles
 From: Consolidated Services
 To: Tuskawilla Rd.

Start Time: 4:00 PM
 End Time: 6:00 PM

EB Avg Speed: 30.2 MPH
 EB Travel Time: 3.76 MIN
 EB Delay Time: 0.75 MIN

WB Avg Speed: 34.7 MPH
 WB Travel Time: 4.22 MIN
 WB Delay Time: 0.27 MIN



**SR 434
- PM Peak**

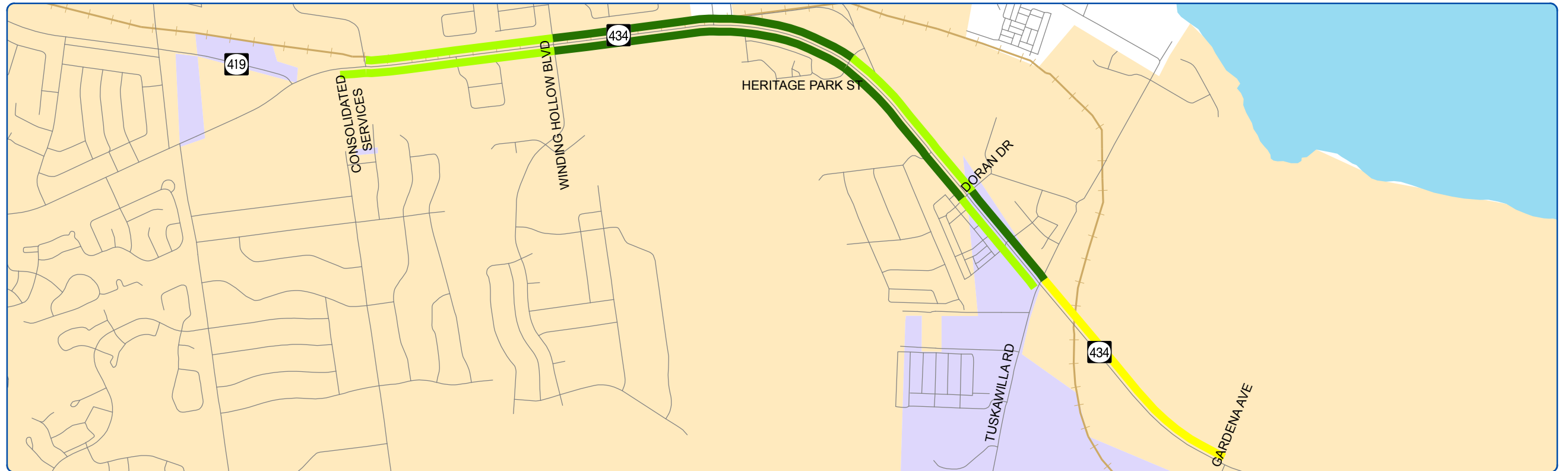
After Condition

Date of Collection: 2/23/2012
 Distance: 1.89 miles
 From: Consolidated Services
 To: Tuskawilla Rd.

Start Time: 4:00 PM
 End Time: 6:00 PM

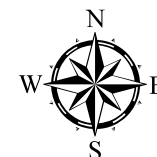
EB Avg Speed: 40.9 MPH
 EB Travel Time: 2.77 MIN
 EB Delay Time: 0.16 MIN

WB Avg Speed: 35.6 MPH
 WB Travel Time: 4.11 MIN
 WB Delay Time: 0.45 MIN



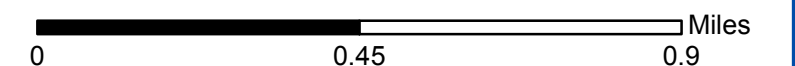
Level of Services:

- | | | |
|---|---|---------------|
| A | D | Roads |
| B | E | City Boundary |
| C | F | Water |



2012 METROPLAN ORLANDO

Travel Time Study



SR 434 - Consolidated Services to Tuskawilla Road
Summary of Before Study Travel Time and Delay Study Results

Traffic Volume	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
1011	192.6	20.4	35.3	0.0650	54.09	65.72
Northbound/Eastbound - PM Peak Hour						
1505	225.6	45.0	30.2	0.0660	94.31	99.33
Southbound/Westbound - AM Peak Hour						
1624	315.6	64.8	27.8	0.0840	142.37	136.42
Southbound/Westbound - PM Peak Hour						
1226	253.2	16.2	34.7	0.0820	86.23	100.53

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 434 - Consolidated Services to Tuskawilla Road
Summary of After Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
1011	186.8	30.6	36.4	0.0640	52.46	64.70
Northbound/Eastbound - PM Peak Hour						
1505	166.2	9.6	40.9	0.0640	69.48	96.32
Southbound/Westbound - AM Peak Hour						
1624	255.6	40.2	34.4	0.0820	115.30	133.17
Southbound/Westbound - PM Peak Hour						
1226	246.6	27.0	35.6	0.0820	83.98	100.53

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 434 - Consolidated Services to Tuskawilla Road
Summary of Measures of Effectiveness & Benefit Cost Analysis

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	196.46	167.76	180.54	153.46
Total Fuel Consumption (gallons)	202.13	197.87	199.86	196.85

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$482.35	\$451.73
Annual User Benefit	\$144,703.51	\$135,519.31
Total Annual User Benefit =	\$280,222.81	
Total Signal Retiming Annual Cost	\$7,844.46	
User Benefit / Cost Ratio	35.72	

Notes:

- * Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
- * Fuel consumption is valued to the rate of \$3.43 per gallon.(Florida Department of Revenue & Orlando Gas Prices)
- * Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffics
- * The service life of the improvement was kept as three (3) years.
- * Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

SR 434

Vistawilla Dr. to SR 417 Ramps

TABLE 6
Year 2012 METROPLAN Orlando Travel Time Study
SR 434 -Vistawilla Drive to SR 417 - Eastbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary		
														Average Speed		Avg Speed/	Avg. Fuel	
														(mph)	LOS	Speed Limit	Consump.	
AM PEAK HOUR																		
Median Opening to Vistawilla Dr.	Seminole County	Arterial	Residential	1	2	1	50	1,003	11	Signal	37.2	12.6	I	18.4	E	0.37		
Vistawilla Dr. to SR 417 SB Ramps	Seminole County	Arterial	Residential	0	2	1	45	1,637	11	Signal	31.8	1.8	II	35.1	A	0.78		
SR 417 SB Ramps to SR 417 NB Ramps	Seminole County	Arterial	Residential	1	1	0	45	581	11	Signal	10.2	1.2	II	38.8	A	0.86		
TOTAL							45	3,221			79.2	15.6	II	27.7	C	0.62	0.022 gal/veh	
PM PEAK HOUR																		
Median Opening to Vistawilla Dr.	Seminole County	Arterial	Residential	1	2	1	50	1,003	10	Signal	34.2	6.0	I	20.0	E	0.40		
Vistawilla Dr. to SR 417 SB Ramps	Seminole County	Arterial	Residential	0	2	1	45	1,637	10	Signal	61.2	18.0	II	18.2	D	0.41		
SR 417 SB Ramps to SR 417 NB Ramps	Seminole County	Arterial	Residential	1	1	0	45	581	10	Signal	14.4	1.2	II	27.5	C	0.61		
TOTAL							45	3,221			109.8	25.2	II	20.0	D	0.44	0.023 gal/veh	

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

TABLE 6
Year 2012 METROPLAN Orlando Travel Time Study
SR 434 -Vistawilla Drive to SR 417 - Westbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to SR 417 NB Ramps	Seminole County	Arterial	Residential	0	2	1	45	1,162	12	Signal	32.4	5.4	II	24.4	C	0.54	
SR 417 NB Ramps to SR 417 SB Ramps	Seminole County	Arterial	Residential	1	2	0	45	581	12	Signal	12.6	1.2	II	31.4	B	0.70	
SR 417 SB Ramps to Vistawilla Dr.	Seminole County	Arterial	Residential	1	2	0	50	1,637	12	Signal	25.8	0.0	I	43.3	A	0.87	
TOTAL							45	3,379			70.8	6.6	II	32.5	B	0.72	0.023 gal/veh
PM PEAK HOUR																	
Median Opening to SR 417 NB Ramps	Seminole County	Arterial	Residential	0	2	1	45	1,162	11	Signal	28.2	5.4	II	28.1	B	0.62	
SR 417 NB Ramps to SR 417 SB Ramps	Seminole County	Arterial	Residential	1	2	0	45	581	11	Signal	19.8	6.6	II	20.0	D	0.44	
SR 417 SB Ramps to Vistawilla Dr.	Seminole County	Arterial	Residential	1	2	0	50	1,637	11	Signal	30.0	0.6	I	37.2	B	0.74	
TOTAL							45	3,379			78.0	12.6	II	29.5	B	0.66	0.023 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

TABLE 6
Year 2012 METROPLAN Orlando Travel Time Study
SR 434 - Vistawilla Drive to SR 417 - Eastbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Vistawilla Dr.	Seminole County	Arterial	Residential	1	2	1	50	1,003	11	Signal	19.2	0.0	I	35.6	B	0.71	
Vistawilla Dr. to SR 417 SB Ramps	Seminole County	Arterial	Residential	0	2	1	45	1,637	11	Signal	40.2	7.8	II	27.8	C	0.62	
SR 417 SB Ramps to SR 417 NB Ramps	Seminole County	Arterial	Residential	1	1	0	45	581	11	Signal	13.2	3.0	II	30.0	B	0.67	
TOTAL							45	3,221			72.6	10.8	II	30.2	B	0.67	0.022 gal/veh
PM PEAK HOUR																	
Median Opening to Vistawilla Dr.	Seminole County	Arterial	Residential	1	2	1	50	1,003	13	Signal	20.4	0.0	I	33.5	C	0.67	
Vistawilla Dr. to SR 417 SB Ramps	Seminole County	Arterial	Residential	0	2	1	45	1,637	13	Signal	47.4	10.2	II	23.5	C	0.52	
SR 417 SB Ramps to SR 417 NB Ramps	Seminole County	Arterial	Residential	1	1	0	45	581	13	Signal	16.2	2.4	II	24.4	C	0.54	
TOTAL							45	3,221			84.0	12.6	II	26.1	C	0.58	0.022 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

TABLE 6
Year 2012 METROPLAN Orlando Travel Time Study
SR 434 -Vistawilla Drive to SR 417 - Westbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to SR 417 NB Ramps	Seminole County	Arterial	Residential	0	2	1	45	1,162	13	Signal	32.4	9.6	II	24.4	C	0.54	
SR 417 NB Ramps to SR 417 SB Ramps	Seminole County	Arterial	Residential	1	2	0	45	581	13	Signal	10.2	0.6	II	38.8	A	0.86	
SR 417 SB Ramps to Vistawilla Dr.	Seminole County	Arterial	Residential	1	2	0	50	1,637	13	Signal	21.6	0.6	I	51.7	A	1.03	
TOTAL							45	3,379			64.2	10.8	II	35.9	A	0.80	0.022 gal/veh
PM PEAK HOUR																	
Median Opening to SR 417 NB Ramps	Seminole County	Arterial	Residential	0	2	1	45	1,162	12	Signal	22.2	0.6	II	35.7	A	0.79	
SR 417 NB Ramps to SR 417 SB Ramps	Seminole County	Arterial	Residential	1	2	0	45	581	12	Signal	11.4	3.0	II	34.7	B	0.77	
SR 417 SB Ramps to Vistawilla Dr.	Seminole County	Arterial	Residential	1	2	0	50	1,637	12	Signal	23.4	1.2	I	47.7	A	0.95	
TOTAL							45	3,379			57.0	4.8	II	40.4	A	0.90	0.022 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

**SR 434
- AM Peak**

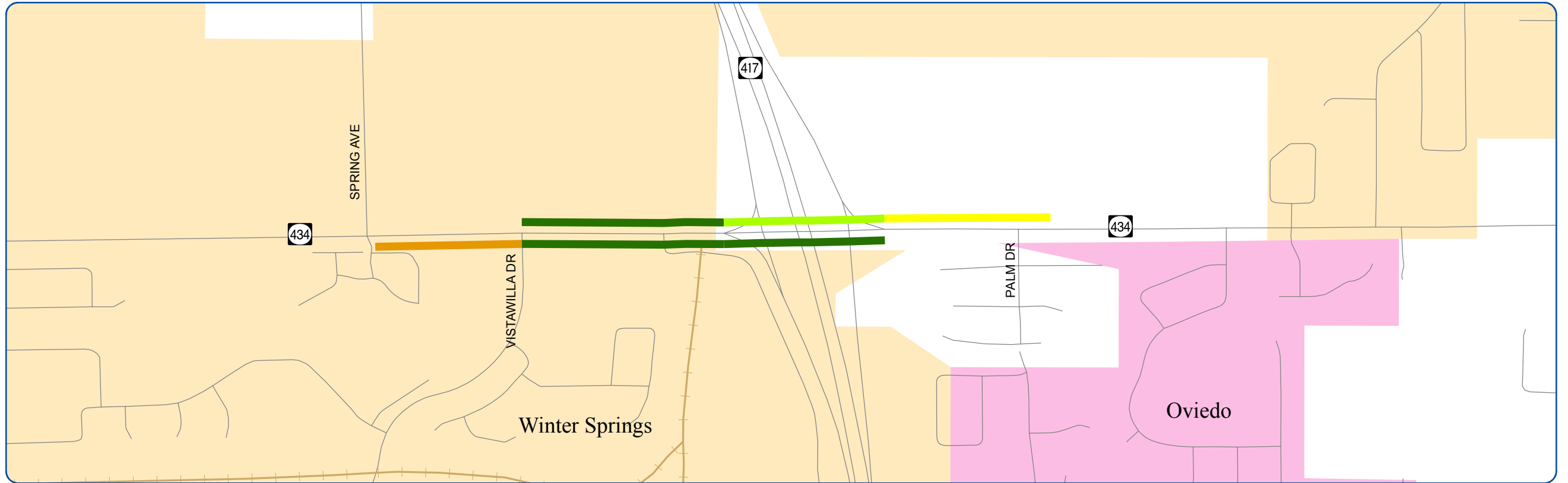
Before Condition

Date of Collection: 11/16/2011
 Distance: 0.61 miles
 From: Vistawilla Dr.
 To: SR 417

Start Time: 7:30 AM
 End Time: 8:30 AM

EB Avg Speed: 27.7 MPH
 EB Travel Time: 1.32 MIN
 EB Delay Time: 0.26 MIN

WB Avg Speed: 32.5 MPH
 WB Travel Time: 1.18 MIN
 WB Delay Time: 0.11 MIN



**SR 434
- AM Peak**

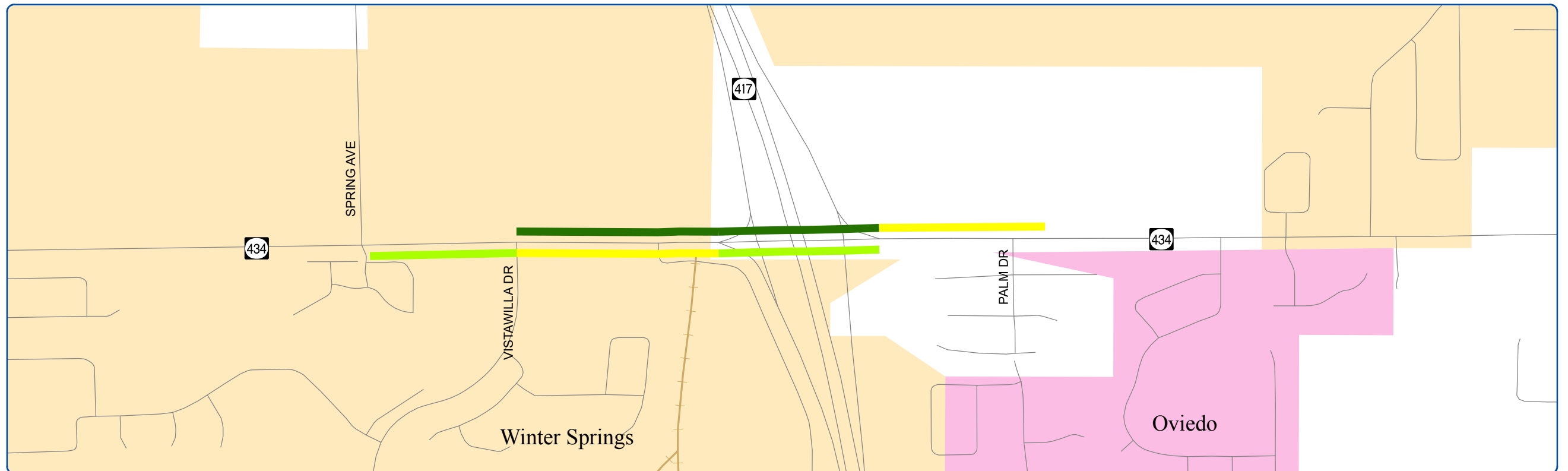
After Condition

Date of Collection: 2/29/2012
 Distance: 0.61 miles
 From: Vistawilla Dr.
 To: SR 417

Start Time: 7:30 AM
 End Time: 8:30 AM

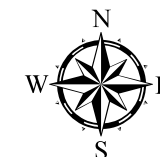
EB Avg Speed: 30.2 MPH
 EB Travel Time: 1.21 MIN
 EB Delay Time: 0.18 MIN

WB Avg Speed: 35.9 MPH
 WB Travel Time: 1.07 MIN
 WB Delay Time: 0.18 MIN



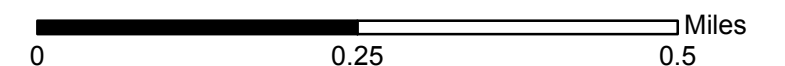
Level of Services:

- | | | |
|---|---|---------------|
| A | D | Roads |
| B | E | City Boundary |
| C | F | Water |



2012 METROPLAN ORLANDO

Travel Time Study



**SR 434
- PM Peak**

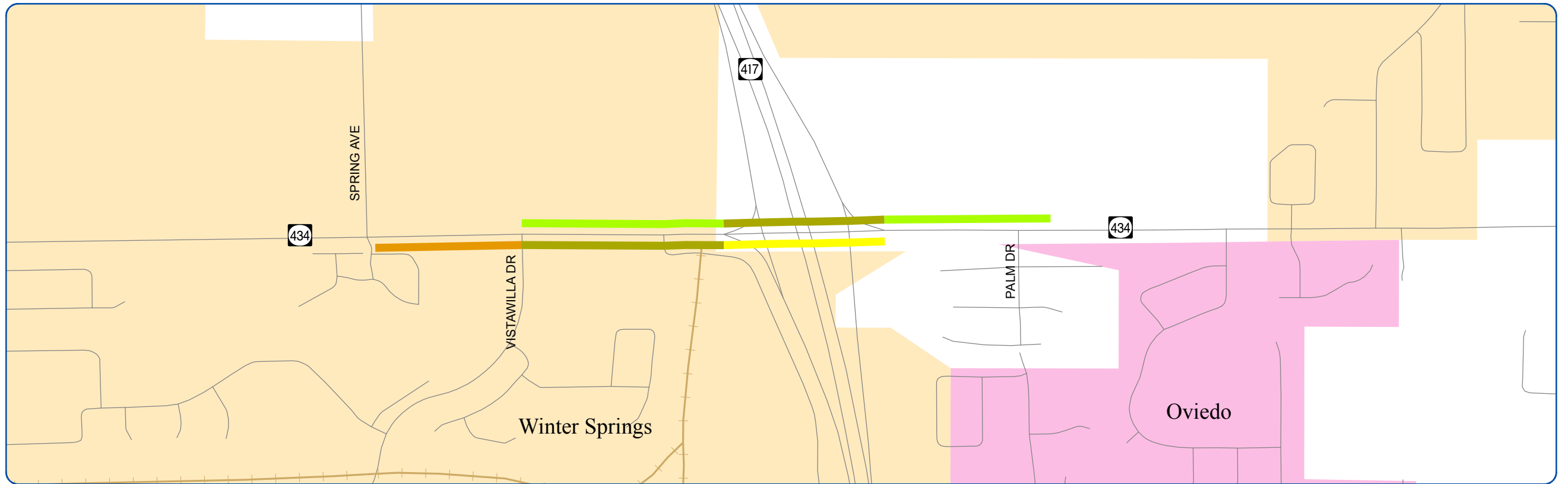
Before Condition

Date of Collection: 11/16/2011
 Distance: 0.61 miles
 From: Vistawilla Dr.
 To: SR 417

Start Time: 4:45 PM
 End Time: 5:45 PM

EB Avg Speed: 20.0 MPH
 EB Travel Time: 1.83 MIN
 EB Delay Time: 0.42 MIN

WB Avg Speed: 29.5 MPH
 WB Travel Time: 1.30 MIN
 WB Delay Time: 0.21 MIN



**SR 434
- PM Peak**

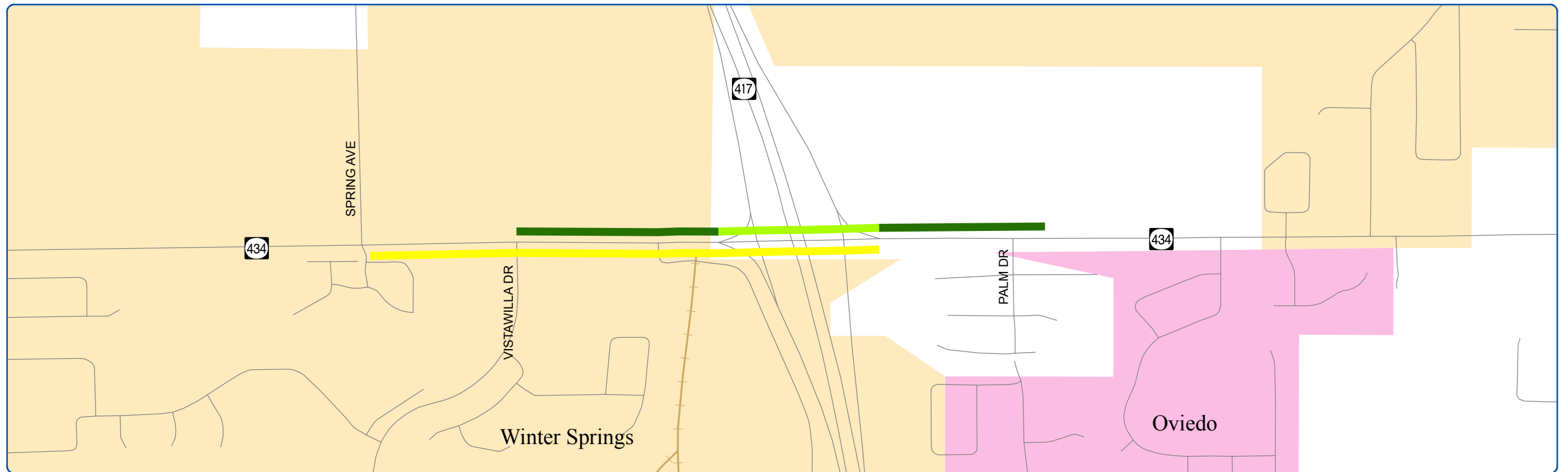
After Condition

Date of Collection: 2/29/2012
 Distance: 0.61 miles
 From: Vistawilla Dr.
 To: SR 417

Start Time: 4:45 PM
 End Time: 5:45 PM

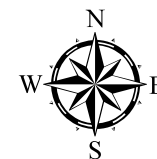
EB Avg Speed: 26.1 MPH
 EB Travel Time: 1.40 MIN
 EB Delay Time: 0.21 MIN

WB Avg Speed: 40.4 MPH
 WB Travel Time: 0.95 MIN
 WB Delay Time: 0.08 MIN



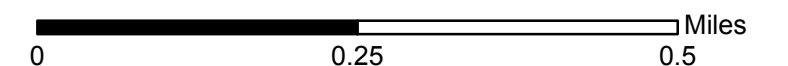
Level of Services:

- | | | |
|---|---|---------------|
| A | D | Roads |
| B | E | City Boundary |
| C | F | Water |



2012 METROPLAN ORLANDO

Travel Time Study



SR 434 -Vistawilla Drive to SR 417
Summary of Before Study Travel Time and Delay Study Results

Traffic Volume	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
1255	79.2	15.6	27.7	0.0220	27.61	27.61
Northbound/Eastbound - PM Peak Hour						
1289	109.8	25.2	20.0	0.0230	39.31	29.65
Southbound/Westbound - AM Peak Hour						
1071	70.8	6.6	32.5	0.0230	21.06	24.63
Southbound/Westbound - PM Peak Hour						
1216	78.0	12.6	29.5	0.0230	26.35	27.97

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 434 -Vistawilla Drive to SR 417
Summary of After Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
1255	72.6	10.8	30.2	0.0220	25.31	27.61
Northbound/Eastbound - PM Peak Hour						
1289	84.0	12.6	26.1	0.0220	30.08	28.36
Southbound/Westbound - AM Peak Hour						
1071	64.2	10.8	35.9	0.0220	19.10	23.56
Southbound/Westbound - PM Peak Hour						
1216	57.0	4.8	40.4	0.0220	19.25	26.75

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 434 -Vistawilla Drive to SR 417
Summary of Measures of Effectiveness & Benefit Cost Analysis

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	48.67	44.41	65.66	49.33
Total Fuel Consumption (gallons)	52.24	51.17	57.62	55.11

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$73.18	\$274.79
Annual User Benefit	\$21,954.65	\$82,437.05
Total Annual User Benefit =	\$104,391.70	
Total Signal Retiming Annual Cost	\$4,706.68	
User Benefit / Cost Ratio	22.18	

Notes:

- * Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
- * Fuel consumption is valued to the rate of \$3.43 per gallon.(Florida Department of Revenue & Orlando Gas Prices)
- * Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffics
- * The service life of the improvement was kept as three (3) years.
- * Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

SR 436

Line Dr. to Weathersfield Ave.

TABLE 7
Year 2012 METROPLAN Orlando Travel Time Study
SR 436 - Line Drive to Weathersfield Avenue - Eastbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Line Dr.	Seminole County	Arterial	Residential	1	3	0	45	581	6	Signal	16.8	4.8	II	23.6	C	0.52	
Line Dr. to Balmy Beach Dr.	Seminole County	Arterial	Residential	1	3	1	45	1,531	6	Signal	32.4	4.8	II	32.2	B	0.72	
Balmy Beach Dr. to Hunt Club Blvd.	Seminole County	Arterial	Residential	1	3	1	45	1,795	6	Signal	56.4	19.2	II	21.7	D	0.48	
Hunt Club Blvd. to Bear Lake Rd.	Seminole County	Arterial	Residential	1	3	0	45	2,006	6	Signal	82.2	34.2	II	16.6	E	0.37	
Bear Lake Rd. to Post Lake Pl.	Seminole County	Arterial	Residential	1	3	1	45	2,376	6	Signal	39.0	0.0	II	41.5	A	0.92	
Post Lake Pl. to Academy Dr.	Seminole County	Arterial	Residential	1	3	0	45	1,795	6	Signal	29.4	0.0	II	41.6	A	0.93	
Academy Dr. to Willow Ave.	Seminole County	Arterial	OBD	1	3	0	45	1,320	6	Signal	44.4	7.2	II	20.3	D	0.45	
Willow Ave. to Maple St.	Seminole County	Arterial	OBD	1	3	1	45	1,162	6	Signal	24.0	0.0	II	33.0	B	0.73	
Maple St. to SR 434	Seminole County	Arterial	OBD	2	3	1	45	1,478	6	Signal	31.2	0.6	II	32.3	B	0.72	
SR 434 to Laurel St.	Seminole County	Arterial	OBD	1	4	0	45	1,478	6	Signal	30.0	3.6	II	33.6	B	0.75	
Laurel St. to Orange Ave.	Seminole County	Arterial	OBD	0	4	0	45	1,954	6	Signal	31.2	0.0	II	42.7	A	0.95	
Orange Ave. to Weathersfield Ave.	Seminole County	Arterial	OBD	1	3	1	45	845	6	Signal	54.6	35.4	II	10.5	F	0.23	
TOTAL							45	18,322			471.6	109.8	II	26.5	C	0.59	0.122 gal/veh
PM PEAK HOUR																	
Median Opening to Line Dr.	Seminole County	Arterial	Residential	1	3	0	45	581	6	Signal	15.0	3.6	II	26.4	C	0.59	
Line Dr. to Balmy Beach Dr.	Seminole County	Arterial	Residential	1	3	1	45	1,531	6	Signal	50.4	19.2	II	20.7	D	0.46	
Balmy Beach Dr. to Hunt Club Blvd.	Seminole County	Arterial	Residential	1	3	1	45	1,795	6	Signal	37.2	6.0	II	32.9	B	0.73	
Hunt Club Blvd. to Bear Lake Rd.	Seminole County	Arterial	Residential	1	3	0	45	2,006	6	Signal	73.2	30.0	II	18.7	D	0.42	
Bear Lake Rd. to Post Lake Pl.	Seminole County	Arterial	Residential	1	3	1	45	2,376	6	Signal	40.2	0.0	II	40.3	A	0.90	
Post Lake Pl. to Academy Dr.	Seminole County	Arterial	Residential	1	3	0	45	1,795	6	Signal	40.8	8.4	II	30.0	B	0.67	
Academy Dr. to Willow Ave.	Seminole County	Arterial	OBD	1	3	0	45	1,320	6	Signal	56.4	22.8	II	16.0	E	0.35	
Willow Ave. to Maple St.	Seminole County	Arterial	OBD	1	3	1	45	1,162	6	Signal	21.6	0.0	II	36.7	A	0.81	
Maple St. to SR 434	Seminole County	Arterial	OBD	2	3	1	45	1,478	6	Signal	50.4	21.6	II	20.0	D	0.44	
SR 434 to Laurel St.	Seminole County	Arterial	OBD	1	4	0	45	1,478	6	Signal	24.0	0.0	II	42.0	A	0.93	
Laurel St. to Orange Ave.	Seminole County	Arterial	OBD	0	4	0	45	1,954	6	Signal	44.4	12.6	II	30.0	B	0.67	
Orange Ave. to Weathersfield Ave.	Seminole County	Arterial	OBD	1	3	1	45	845	6	Signal	22.2	5.4	II	25.9	C	0.58	
TOTAL							45	18,322			475.8	129.6	II	26.3	C	0.58	0.121 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

TABLE 7
Year 2012 METROPLAN Orlando Travel Time Study
SR 436 - Line Drive to Weathersfield Avenue - Westbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to Weathersfield Ave.	Seminole County	Arterial	OBD	1	4	0	45	581	6	Signal	114.0	92.4	II	3.5	F	0.08	
Weathersfield Ave. to Orange Ave.	Seminole County	Arterial	OBD	1	4	0	45	845	6	Signal	15.0	0.0	II	38.4	A	0.85	
Orange Ave. to Laurel St.	Seminole County	Arterial	OBD	1	4	0	45	1,954	6	Signal	47.4	7.8	II	28.1	B	0.62	
Laurel St. to SR 434	Seminole County	Arterial	OBD	2	3	1	45	1,478	6	Signal	70.2	30.6	II	14.4	E	0.32	
SR 434 to Maple St.	Seminole County	Arterial	OBD	1	3	1	45	1,478	6	Signal	25.2	0.0	II	40.0	A	0.89	
Maple St. to Willow Ave.	Seminole County	Arterial	OBD	1	3	1	45	1,162	6	Signal	18.6	0.0	II	42.6	A	0.95	
Willow Ave. to Academy Dr.	Seminole County	Arterial	OBD	1	3	0	45	1,320	6	Signal	22.8	0.0	II	39.5	A	0.88	
Academy Dr. to Post Lake Pl.	Seminole County	Arterial	Residential	1	3	0	45	1,795	6	Signal	28.8	0.0	II	42.5	A	0.94	
Post Lake Pl. to Bear Lake Rd.	Seminole County	Arterial	Residential	1	3	0	45	2,376	6	Signal	39.0	0.0	II	41.5	A	0.92	
Bear Lake Rd. to Hunt Club Blvd.	Seminole County	Arterial	Residential	1	3	1	45	2,006	6	Signal	33.0	0.0	II	41.5	A	0.92	
Hunt Club Blvd. to Balmy Beach Dr.	Seminole County	Arterial	Residential	2	3	1	45	1,795	6	Signal	28.2	0.0	II	43.4	A	0.96	
Balmy Beach Dr. to Line Dr.	Seminole County	Arterial	Residential	1	3	1	45	1,531	6	Signal	22.8	0.0	II	45.8	A	1.02	
TOTAL							45	18,322			465.0	130.8	II	26.9	C	0.60	0.119 gal/veh
PM PEAK HOUR																	
Median Opening to Weathersfield Ave.	Seminole County	Arterial	OBD	1	4	0	45	581	6	Signal	43.8	17.4	II	9.0	F	0.20	
Weathersfield Ave. to Orange Ave.	Seminole County	Arterial	OBD	1	4	0	45	845	6	Signal	14.4	0.0	II	40.0	A	0.89	
Orange Ave. to Laurel St.	Seminole County	Arterial	OBD	1	4	0	45	1,954	6	Signal	87.6	50.4	II	15.2	E	0.34	
Laurel St. to SR 434	Seminole County	Arterial	OBD	2	3	1	45	1,478	6	Signal	58.2	21.6	II	17.3	D	0.38	
SR 434 to Maple St.	Seminole County	Arterial	OBD	1	3	1	45	1,478	6	Signal	24.6	0.0	II	41.0	A	0.91	
Maple St. to Willow Ave.	Seminole County	Arterial	Residential	1	3	1	45	1,162	6	Signal	18.6	0.0	II	42.6	A	0.95	
Willow Ave. to Academy Dr.	Seminole County	Arterial	Residential	1	3	0	45	1,320	6	Signal	36.0	7.2	II	25.0	C	0.56	
Academy Dr. to Post Lake Pl.	Seminole County	Arterial	Residential	1	3	0	45	1,795	6	Signal	28.8	0.0	II	42.5	A	0.94	
Post Lake Pl. to Bear Lake Rd.	Seminole County	Arterial	Residential	1	3	0	45	2,376	6	Signal	53.4	11.4	II	30.3	B	0.67	
Bear Lake Rd. to Hunt Club Blvd.	Seminole County	Arterial	Residential	1	3	1	45	2,006	6	Signal	54.6	15.6	II	25.1	C	0.56	
Hunt Club Blvd. to Balmy Beach Dr.	Seminole County	Arterial	Residential	2	3	1	45	1,795	6	Signal	36.0	4.8	II	34.0	B	0.76	
Balmy Beach Dr. to Line Dr.	Seminole County	Arterial	Residential	1	3	1	45	1,531	6	Signal	30.6	1.8	II	34.1	B	0.76	
TOTAL							45	18,322			486.6	130.2	II	25.7	C	0.57	0.120 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

TABLE 7
Year 2012 METROPLAN Orlando Travel Time Study
SR 436 - Line Drive to Weathersfield Avenue - Eastbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Line Dr.	Seminole County	Arterial	Residential	1	3	0	45	581	8	Signal	14.4	1.8	II	27.5	C	0.61	
Line Dr. to Balmy Beach Dr.	Seminole County	Arterial	Residential	1	3	1	45	1,531	8	Signal	30.6	5.4	II	34.1	B	0.76	
Balmy Beach Dr. to Hunt Club Blvd.	Seminole County	Arterial	Residential	1	3	1	45	1,795	8	Signal	35.4	6.6	II	34.6	B	0.77	
Hunt Club Blvd. to Bear Lake Rd.	Seminole County	Arterial	Residential	1	3	0	45	2,006	8	Signal	37.2	4.2	II	36.8	A	0.82	
Bear Lake Rd. to Post Lake Pl.	Seminole County	Arterial	Residential	1	3	1	45	2,376	8	Signal	35.4	0.0	II	45.8	A	1.02	
Post Lake Pl. to Academy Dr.	Seminole County	Arterial	Residential	1	3	0	45	1,795	8	Signal	32.4	2.4	II	37.8	A	0.84	
Academy Dr. to Willow Ave.	Seminole County	Arterial	OBD	1	3	0	45	1,320	8	Signal	27.6	2.4	II	32.6	B	0.72	
Willow Ave. to Maple St.	Seminole County	Arterial	OBD	1	3	1	45	1,162	8	Signal	19.2	0.0	II	41.2	A	0.92	
Maple St. to SR 434	Seminole County	Arterial	OBD	2	3	1	45	1,478	8	Signal	40.2	12.6	II	25.1	C	0.56	
SR 434 to Laurel St.	Seminole County	Arterial	OBD	1	4	0	45	1,478	8	Signal	24.6	0.0	II	41.0	A	0.91	
Laurel St. to Orange Ave.	Seminole County	Arterial	OBD	0	4	0	45	1,954	8	Signal	36.6	2.4	II	36.4	A	0.81	
Orange Ave. to Weathersfield Ave.	Seminole County	Arterial	OBD	1	3	1	45	845	8	Signal	13.8	0.0	II	41.7	A	0.93	
TOTAL							45	18,322			347.4	37.8	II	36.0	A	0.80	0.118 gal/veh
PM PEAK HOUR																	
Median Opening to Line Dr.	Seminole County	Arterial	Residential	1	3	0	45	581	6	Signal	13.2	3.6	II	30.0	B	0.67	
Line Dr. to Balmy Beach Dr.	Seminole County	Arterial	Residential	1	3	1	45	1,531	6	Signal	40.2	10.8	II	26.0	C	0.58	
Balmy Beach Dr. to Hunt Club Blvd.	Seminole County	Arterial	Residential	1	3	1	45	1,795	6	Signal	47.4	12.6	II	25.8	C	0.57	
Hunt Club Blvd. to Bear Lake Rd.	Seminole County	Arterial	Residential	1	3	0	45	2,006	6	Signal	48.0	12.6	II	28.5	B	0.63	
Bear Lake Rd. to Post Lake Pl.	Seminole County	Arterial	Residential	1	3	1	45	2,376	6	Signal	60.0	15.0	II	27.0	C	0.60	
Post Lake Pl. to Academy Dr.	Seminole County	Arterial	Residential	1	3	0	45	1,795	6	Signal	30.0	0.0	II	40.8	A	0.91	
Academy Dr. to Willow Ave.	Seminole County	Arterial	OBD	1	3	0	45	1,320	6	Signal	28.8	4.8	II	31.2	B	0.69	
Willow Ave. to Maple St.	Seminole County	Arterial	OBD	1	3	1	45	1,162	6	Signal	20.4	0.0	II	38.8	A	0.86	
Maple St. to SR 434	Seminole County	Arterial	OBD	2	3	1	45	1,478	6	Signal	73.8	35.4	II	13.7	E	0.30	
SR 434 to Laurel St.	Seminole County	Arterial	OBD	1	4	0	45	1,478	6	Signal	25.8	0.0	II	39.1	A	0.87	
Laurel St. to Orange Ave.	Seminole County	Arterial	OBD	0	4	0	45	1,954	6	Signal	30.6	0.0	II	43.5	A	0.97	
Orange Ave. to Weathersfield Ave.	Seminole County	Arterial	OBD	1	3	1	45	845	6	Signal	20.4	4.2	II	28.2	B	0.63	
TOTAL							45	18,322			438.6	99.0	II	28.5	B	0.63	0.121 gal/veh

- Note:
1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
 2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
 3. OBD - Outlying Business District

TABLE 7
Year 2012 METROPLAN Orlando Travel Time Study
SR 436 - Line Drive to Weathersfield Avenue - Westbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Weathersfield Ave.	Seminole County	Arterial	OBD	1	4	0	45	581	8	Signal	75.0	47.4	II	5.3	F	0.12	
Weathersfield Ave. to Orange Ave.	Seminole County	Arterial	OBD	1	4	0	45	845	8	Signal	17.4	2.4	II	33.1	B	0.74	
Orange Ave. to Laurel St.	Seminole County	Arterial	OBD	1	4	0	45	1,954	8	Signal	43.8	10.2	II	30.4	B	0.68	
Laurel St. to SR 434	Seminole County	Arterial	OBD	2	3	1	45	1,478	8	Signal	73.8	42.0	II	13.7	E	0.30	
SR 434 to Maple St.	Seminole County	Arterial	OBD	1	3	1	45	1,478	8	Signal	23.4	0.0	II	43.1	A	0.96	
Maple St. to Willow Ave.	Seminole County	Arterial	OBD	1	3	1	45	1,162	8	Signal	21.6	0.6	II	36.7	A	0.81	
Willow Ave. to Academy Dr.	Seminole County	Arterial	OBD	1	3	0	45	1,320	8	Signal	21.6	0.0	II	41.7	A	0.93	
Academy Dr. to Post Lake Pl.	Seminole County	Arterial	Residential	1	3	0	45	1,795	8	Signal	26.4	0.0	II	46.4	A	1.03	
Post Lake Pl. to Bear Lake Rd.	Seminole County	Arterial	Residential	1	3	0	45	2,376	8	Signal	38.4	0.0	II	42.2	A	0.94	
Bear Lake Rd. to Hunt Club Blvd.	Seminole County	Arterial	Residential	1	3	1	45	2,006	8	Signal	34.2	1.2	II	40.0	A	0.89	
Hunt Club Blvd. to Balmy Beach Dr.	Seminole County	Arterial	Residential	2	3	1	45	1,795	8	Signal	26.4	0.0	II	46.4	A	1.03	
Balmy Beach Dr. to Line Dr.	Seminole County	Arterial	Residential	1	3	1	45	1,531	8	Signal	27.6	6.6	II	37.8	A	0.84	
TOTAL							45	18,322			429.6	110.4	II	29.1	B	0.65	0.117 gal/veh
PM PEAK HOUR																	
Median Opening to Weathersfield Ave.	Seminole County	Arterial	OBD	1	4	0	45	581	6	Signal	21.0	8.4	II	18.9	D	0.42	
Weathersfield Ave. to Orange Ave.	Seminole County	Arterial	OBD	1	4	0	45	845	6	Signal	14.4	0.0	II	40.0	A	0.89	
Orange Ave. to Laurel St.	Seminole County	Arterial	OBD	1	4	0	45	1,954	6	Signal	29.4	0.0	II	45.3	A	1.01	
Laurel St. to SR 434	Seminole County	Arterial	OBD	2	3	1	45	1,478	6	Signal	36.6	6.0	II	27.5	C	0.61	
SR 434 to Maple St.	Seminole County	Arterial	OBD	1	3	1	45	1,478	6	Signal	23.4	0.0	II	43.1	A	0.96	
Maple St. to Willow Ave.	Seminole County	Arterial	Residential	1	3	1	45	1,162	6	Signal	27.0	3.0	II	29.3	B	0.65	
Willow Ave. to Academy Dr.	Seminole County	Arterial	Residential	1	3	0	45	1,320	6	Signal	25.8	1.8	II	34.9	B	0.78	
Academy Dr. to Post Lake Pl.	Seminole County	Arterial	Residential	1	3	0	45	1,795	6	Signal	31.8	2.4	II	38.5	A	0.86	
Post Lake Pl. to Bear Lake Rd.	Seminole County	Arterial	Residential	1	3	0	45	2,376	6	Signal	38.4	0.0	II	42.2	A	0.94	
Bear Lake Rd. to Hunt Club Blvd.	Seminole County	Arterial	Residential	1	3	1	45	2,006	6	Signal	45.6	9.0	II	30.0	B	0.67	
Hunt Club Blvd. to Balmy Beach Dr.	Seminole County	Arterial	Residential	2	3	1	45	1,795	6	Signal	29.4	0.0	II	41.6	A	0.93	
Balmy Beach Dr. to Line Dr.	Seminole County	Arterial	Residential	1	3	1	45	1,531	6	Signal	27.0	0.6	II	38.7	A	0.86	
TOTAL							45	18,322			349.8	31.2	II	35.7	A	0.79	0.119 gal/veh

Note:
1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

**SR 436
- AM Peak**

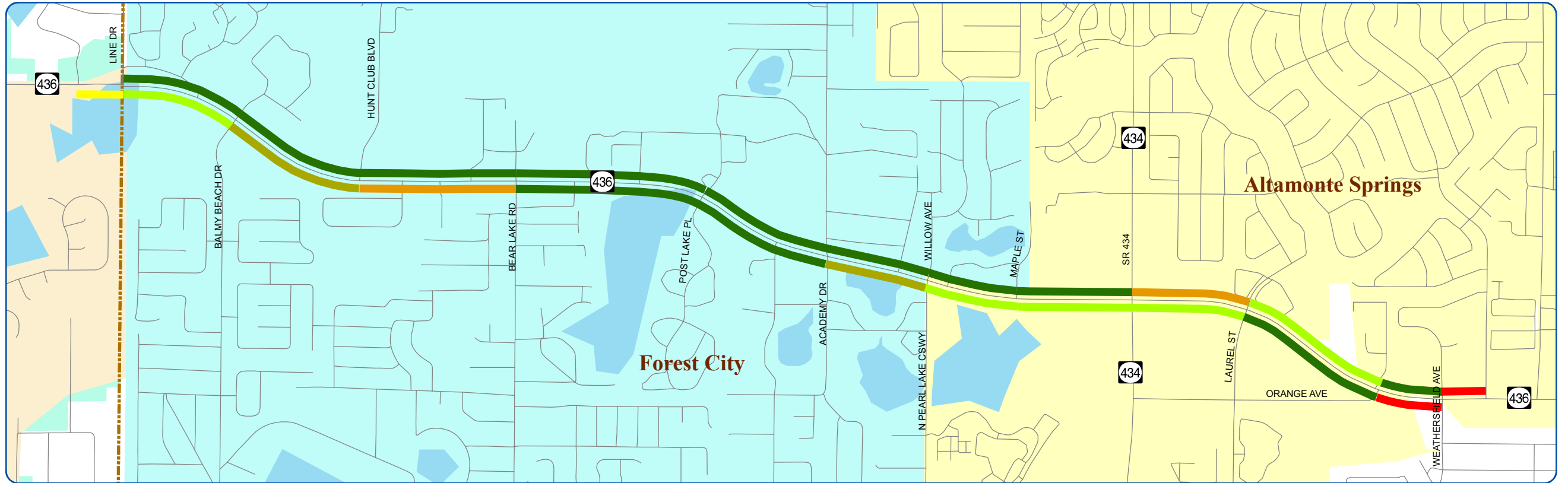
Before Condition

Date of Collection: 11/30/2011
 Distance: 3.47 miles
 From: Line Dr.
 To: Weathersfield Ave.

Start Time: 7:00 AM
 End Time: 9:00 AM

EB Avg Speed: 26.5 MPH
 EB Travel Time: 7.86 MIN
 EB Delay Time: 3.31 MIN

WB Avg Speed: 26.9 MPH
 WB Travel Time: 7.75 MIN
 WB Delay Time: 2.18 MIN



**SR 436
- AM Peak**

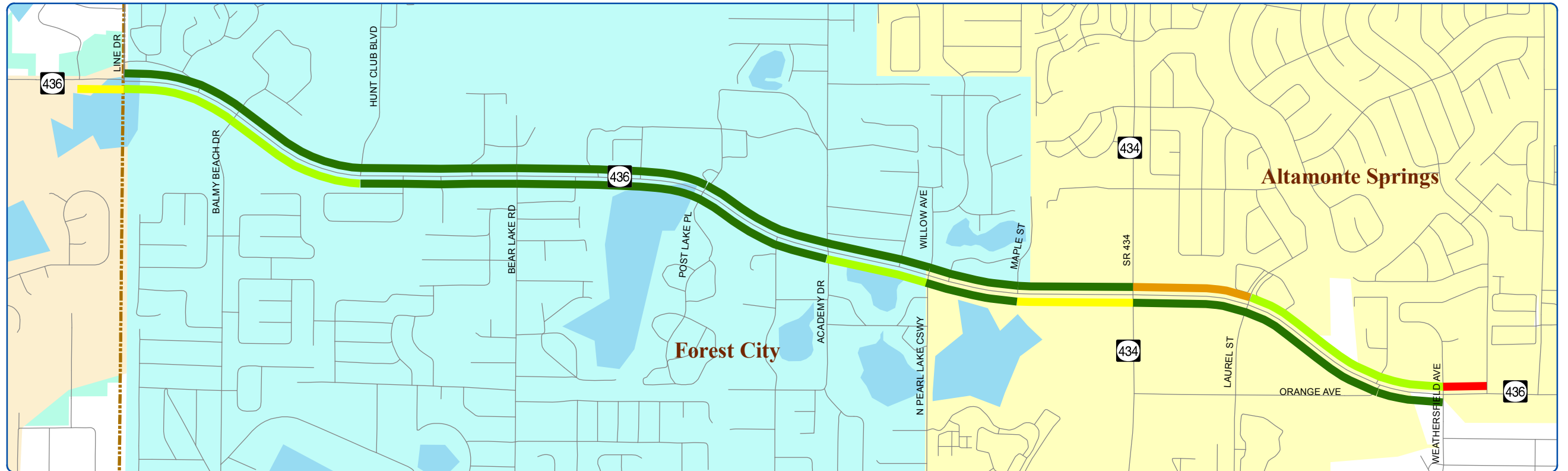
After Condition

Date of Collection: 5/1/2012
 Distance: 3.47 miles
 From: Line Dr.
 To: Weathersfield Ave.

Start Time: 7:00 AM
 End Time: 9:00 AM

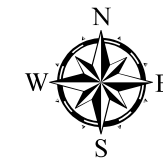
EB Avg Speed: 36.0 MPH
 EB Travel Time: 5.79 MIN
 EB Delay Time: 0.63 MIN

WB Avg Speed: 29.1 MPH
 WB Travel Time: 7.16 MIN
 WB Delay Time: 1.84 MIN



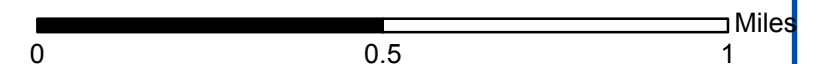
Level of Services:

- | | | |
|---|---|---------------|
| A | D | Roads |
| B | E | City Boundary |
| C | F | Water |



2012 METROPLAN ORLANDO

Travel Time Study



**SR 436
- PM Peak**

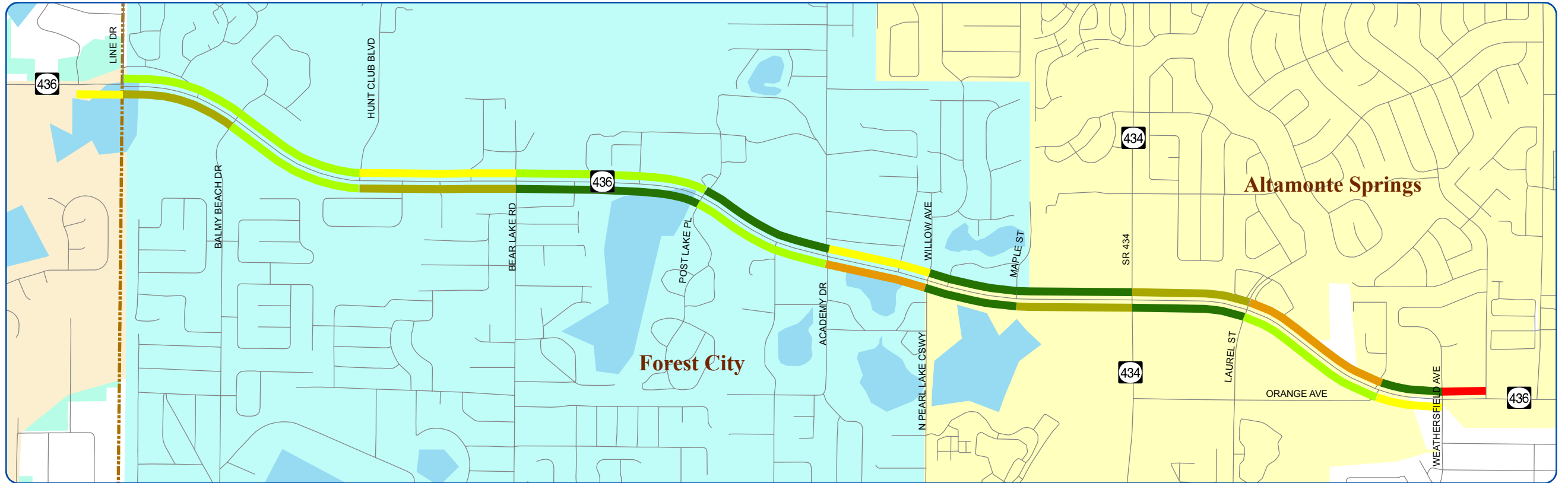
Before Condition

Date of Collection: 11/30/2011
Distance: 3.47 miles
From: Line Dr.
To: Weathersfield Ave.

Start Time: 4:00 PM
End Time: 6:00 PM

EB Avg Speed: 26.3 MPH
EB Travel Time: 7.93 MIN
EB Delay Time: 2.16 MIN

WB Avg Speed: 25.7 MPH
WB Travel Time: 8.11 MIN
WB Delay Time: 2.17 MIN



**SR 436
- PM Peak**

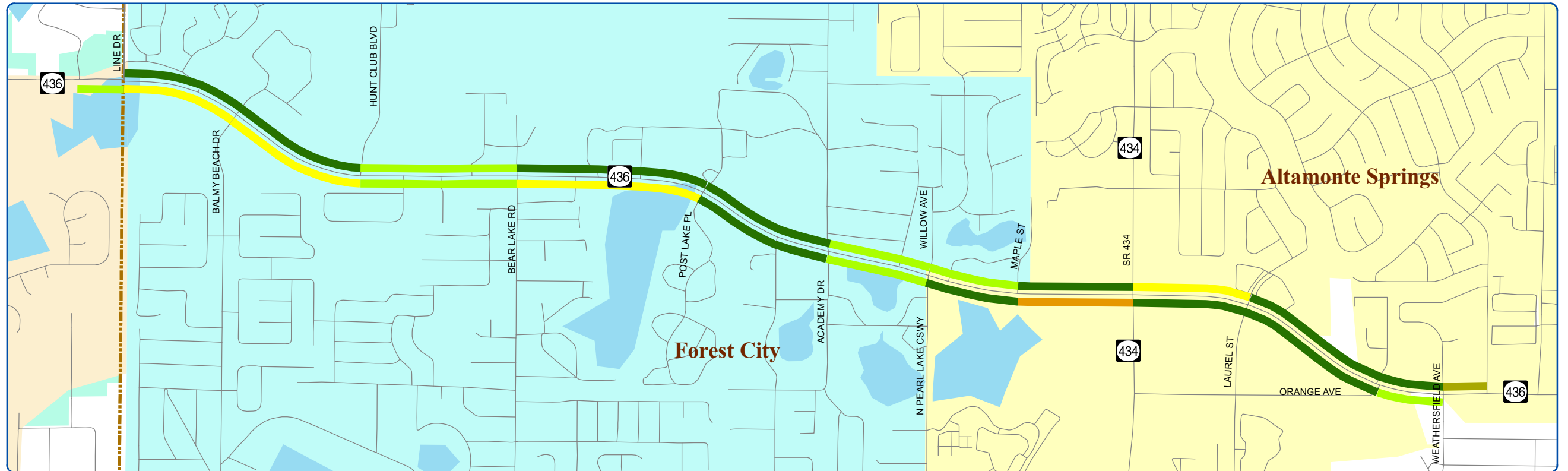
After Condition

Date of Collection: 5/1/2012
Distance: 3.47 miles
From: Line Dr.
To: Weathersfield Ave.

Start Time: 4:00 PM
End Time: 6:00 PM

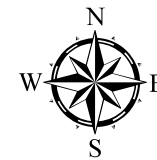
EB Avg Speed: 28.5 MPH
EB Travel Time: 7.31 MIN
EB Delay Time: 1.65 MIN

WB Avg Speed: 35.7 MPH
WB Travel Time: 5.83 MIN
WB Delay Time: 0.52 MIN



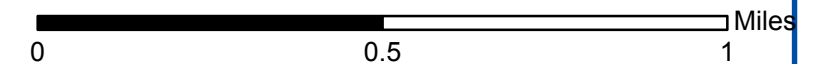
Level of Services:

- | | | | | | |
|--|---|--|---|--|---------------|
| | A | | D | | Roads |
| | B | | E | | City Boundary |
| | C | | F | | Water |



2012 METROPLAN ORLANDO

Travel Time Study



SR 436 - Line Drive to Weathersfield Avenue
Summary of Before Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
2750	471.6	109.8	26.5	0.1220	360.25	335.50
Northbound/Eastbound - PM Peak Hour						
1866	475.8	129.6	26.3	0.1210	246.62	225.79
Southbound/Westbound - AM Peak Hour						
1309	465.0	130.8	26.9	0.1190	169.08	155.77
Southbound/Westbound - PM Peak Hour						
2351	486.6	130.2	25.7	0.1200	317.78	282.12

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 436 - Line Drive to Weathersfield Avenue
Summary of After Study Travel Time and Delay Study Results

Traffic Volume	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
2750	347.4	37.8	36.0	0.1180	265.38	324.50
Northbound/Eastbound - PM Peak Hour						
1866	438.6	99.0	28.5	0.1210	227.34	225.79
Southbound/Westbound - AM Peak Hour						
1309	429.6	110.4	29.1	0.1170	156.21	153.15
Southbound/Westbound - PM Peak Hour						
2351	349.8	31.2	35.7	0.1190	228.44	279.77

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 436 - Line Drive to Weathersfield Avenue
Summary of Measures of Effectiveness & Benefit Cost Analysis

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	529.33	421.58	564.40	455.78
Total Fuel Consumption (gallons)	491.27	477.65	507.91	505.56

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$1,802.98	\$1,778.57
Annual User Benefit	\$540,894.94	\$533,570.98
Total Annual User Benefit =	\$1,074,465.92	
Total Signal Retiming Annual Cost	\$20,947.55	
User Benefit / Cost Ratio	51.29	

Notes:

- * Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
- * Fuel consumption is valued to the rate of \$3.43 per gallon.(Florida Department of Revenue & Orlando Gas Prices)
- * Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffics
- * The service life of the improvement was kept as three (3) years.
- * Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

SR 50

Deer Isle Dr. to Turnpike Ramps

TABLE 18
Year 2012 METROPLAN Orlando Travel Time Study
SR 50 - Deer Isle Drive to Turnpike Ramps - Eastbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Lake Blvd. to Deer Isle Dr.	City of Orlando	Arterial	OBD	1	3	0	45	528	12	Signal	19.8	7.2	II	18.2	D	0.40	
Deer Isle Dr. to Remington Rd.	City of Orlando	Arterial	OBD	1	4	1	45	2,798	12	Signal	48.6	1.8	II	39.3	A	0.87	
Remington Rd. to Turnpike SB Ramps	City of Orlando	Arterial	OBD	0	3	0	45	1,003	12	Signal	19.2	0.6	II	35.6	A	0.79	
Turnpike SB Ramps to Turnpike NB Ramps	City of Orlando	Arterial	OBD	1	3	0	45	1,426	12	Signal	30.6	6.0	II	31.8	B	0.71	
TOTAL							45	5,755			118.2	15.6	II	33.2	B	0.74	0.038 gal/veh
PM PEAK HOUR																	
Lake Blvd. to Deer Isle Dr.	City of Orlando	Arterial	OBD	1	3	0	45	528	11	Signal	10.8	0.6	II	33.3	B	0.74	
Deer Isle Dr. to Remington Rd.	City of Orlando	Arterial	OBD	1	4	1	45	2,798	11	Signal	52.2	4.8	II	36.6	A	0.81	
Remington Rd. to Turnpike SB Ramps	City of Orlando	Arterial	OBD	0	3	0	45	1,003	11	Signal	19.2	0.6	II	35.6	A	0.79	
Turnpike SB Ramps to Turnpike NB Ramps	City of Orlando	Arterial	OBD	1	3	0	45	1,426	11	Signal	31.2	0.0	II	31.2	B	0.69	
TOTAL							45	5,755			113.4	6.0	II	34.6	B	0.77	0.037 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

TABLE 18
Year 2012 METROPLAN Orlando Travel Time Study
SR 50 - Deer Isle Drive to Turnpike Ramps - Westbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Turnpike NB Ramps	City of Orlando	Arterial	OBD	0	5	1	45	370	12	Signal	5.4	0.0	II	46.7	A	1.04	
Turnpike NB Ramps to Turnpike SB Ramps	City of Orlando	Arterial	OBD	2	3	0	45	1,426	12	Signal	38.4	9.6	II	25.3	C	0.56	
Turnpike SB Ramps to Remington Rd.	City of Orlando	Arterial	OBD	1	3	0	45	1,003	12	Signal	17.4	0.6	II	39.3	A	0.87	
Remington Rd. to Deer Isle Dr.	City of Orlando	Arterial	OBD	1	3	1	45	2,798	12	Signal	56.4	9.6	II	33.8	B	0.75	
TOTAL							45	5,597			117.6	19.8	II	32.4	B	0.72	0.037 gal/veh
PM PEAK HOUR																	
Median Opening to Turnpike NB Ramps	City of Orlando	Arterial	OBD	0	5	1	45	370	11	Signal	5.4	0.0	II	46.7	A	1.04	
Turnpike NB Ramps to Turnpike SB Ramps	City of Orlando	Arterial	OBD	2	3	0	45	1,426	11	Signal	63.6	30.0	II	15.3	E	0.34	
Turnpike SB Ramps to Remington Rd.	City of Orlando	Arterial	OBD	1	3	0	45	1,003	11	Signal	23.4	2.4	II	29.2	B	0.65	
Remington Rd. to Deer Isle Dr.	City of Orlando	Arterial	OBD	1	3	1	45	2,798	11	Signal	48.6	1.2	II	39.3	A	0.87	
TOTAL							45	5,597			141.0	33.6	II	27.1	C	0.60	0.037 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

TABLE 18
Year 2012 METROPLAN Orlando Travel Time Study
SR 50 - Deer Isle Drive to Turnpike Ramps - Eastbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Lake Blvd. to Deer Isle Dr.	City of Orlando	Arterial	OBD	1	3	0	45	528	13	Signal	13.2	3.0	II	27.3	C	0.61	
Deer Isle Dr. to Remington Rd.	City of Orlando	Arterial	OBD	1	4	1	45	2,798	13	Signal	52.2	4.2	II	36.6	A	0.81	
Remington Rd. to Turnpike SB Ramps	City of Orlando	Arterial	OBD	0	3	0	45	1,003	13	Signal	22.2	4.2	II	30.8	B	0.68	
Turnpike SB Ramps to Turnpike NB Ramps	City of Orlando	Arterial	OBD	1	3	0	45	1,426	13	Signal	19.8	0.0	II	49.1	A	1.09	
TOTAL							45	5,755			107.4	11.4	II	36.5	A	0.81	0.037 gal/veh
PM PEAK HOUR																	
Lake Blvd. to Deer Isle Dr.	City of Orlando	Arterial	OBD	1	3	0	45	528	10	Signal	10.8	1.2	II	33.3	B	0.74	
Deer Isle Dr. to Remington Rd.	City of Orlando	Arterial	OBD	1	4	1	45	2,798	10	Signal	45.6	3.6	II	41.8	A	0.93	
Remington Rd. to Turnpike SB Ramps	City of Orlando	Arterial	OBD	0	3	0	45	1,003	10	Signal	17.4	1.2	II	39.3	A	0.87	
Turnpike SB Ramps to Turnpike NB Ramps	City of Orlando	Arterial	OBD	1	3	0	45	1,426	10	Signal	32.4	9.0	II	30.0	B	0.67	
TOTAL							45	5,755			106.2	15.0	II	36.9	A	0.82	0.037 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

TABLE 18
Year 2012 METROPLAN Orlando Travel Time Study
SR 50 - Deer Isle Drive to Turnpike Ramps - Westbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Turnpike NB Ramps	City of Orlando	Arterial	OBD	0	5	1	45	370	13	Signal	5.5	0.0	II	45.8	A	1.02	
Turnpike NB Ramps to Turnpike SB Ramps	City of Orlando	Arterial	OBD	2	3	0	45	1,426	13	Signal	30.0	6.6	II	32.4	B	0.72	
Turnpike SB Ramps to Remington Rd.	City of Orlando	Arterial	OBD	1	3	0	45	1,003	13	Signal	15.0	0.0	II	45.6	A	1.01	
Remington Rd. to Deer Isle Dr.	City of Orlando	Arterial	OBD	1	3	1	45	2,798	13	Signal	57.0	10.2	II	33.5	B	0.74	
TOTAL							45	5,597			107.5	16.8	II	35.5	A	0.79	0.036 gal/veh
PM PEAK HOUR																	
Median Opening to Turnpike NB Ramps	City of Orlando	Arterial	OBD	0	5	1	45	370	13	Signal	6.0	0.0	II	42.0	A	0.93	
Turnpike NB Ramps to Turnpike SB Ramps	City of Orlando	Arterial	OBD	2	3	0	45	1,426	13	Signal	43.8	11.4	II	22.2	C	0.49	
Turnpike SB Ramps to Remington Rd.	City of Orlando	Arterial	OBD	1	3	0	45	1,003	13	Signal	19.8	3.0	II	34.5	B	0.77	
Remington Rd. to Deer Isle Dr.	City of Orlando	Arterial	OBD	1	3	1	45	2,798	13	Signal	50.4	4.2	II	37.9	A	0.84	
TOTAL							45	5,597			120.0	18.6	II	31.8	B	0.71	0.036 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

**SR 50
- AM Peak**

Before Condition

Date of Collection: 12/1/2011
 Distance: 1.09 miles
 From: Deer Isle Dr.
 To: Turnpike Ramps

Start Time: 7:00 AM
 End Time: 8:30 AM

EB Avg Speed: 33.2 MPH
 EB Travel Time: 1.97 MIN
 EB Delay Time: 0.26 MIN

WB Avg Speed: 32.4 MPH
 WB Travel Time: 1.96 MIN
 WB Delay Time: 0.33 MIN



**SR 50
- AM Peak**

After Condition

Date of Collection: 5/30/2012
 Distance: 1.09 miles
 From: Deer Isle Dr.
 To: Turnpike Ramps

Start Time: 7:00 AM
 End Time: 8:30 AM

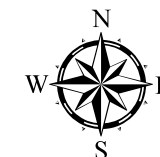
EB Avg Speed: 36.5 MPH
 EB Travel Time: 1.79 MIN
 EB Delay Time: 0.19 MIN

WB Avg Speed: 35.5 MPH
 WB Travel Time: 1.79 MIN
 WB Delay Time: 0.28 MIN



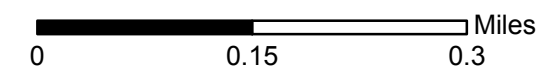
Level of Services:

- | | | | | | |
|--|---|--|---|--|---------------|
| | A | | D | | Roads |
| | B | | E | | City Boundary |
| | C | | F | | Water |



2012 METROPLAN ORLANDO

Travel Time Study



**SR 50
- PM Peak**

Before Condition

Date of Collection: 12/1/2011
 Distance: 1.09 miles
 From: Deer Isle Dr.
 To: Turnpike Ramps

Start Time: 4:30 PM
 End Time: 6:00 PM

EB Avg Speed: 34.6 MPH
 EB Travel Time: 1.89 MIN
 EB Delay Time: 0.10 MIN

WB Avg Speed: 27.1 MPH
 WB Travel Time: 2.35 MIN
 WB Delay Time: 0.56 MIN



**SR 50
- PM Peak**

After Condition

Date of Collection: 5/30/2012
 Distance: 1.09 miles
 From: Deer Isle Dr.
 To: Turnpike Ramps

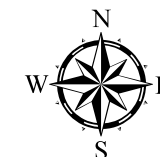
Start Time: 4:30 PM
 End Time: 6:00 PM

EB Avg Speed: 36.9 MPH
 EB Travel Time: 1.77 MIN
 EB Delay Time: 0.25 MIN

WB Avg Speed: 31.8 MPH
 WB Travel Time: 2.00 MIN
 WB Delay Time: 0.31 MIN

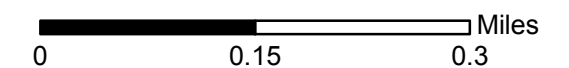


Level of Services:



2012 METROPLAN ORLANDO

Travel Time Study



SR 50 - Deer Isle Drive to Turnpike Ramps
Summary of Before Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
912	118.2	15.6	33.2	0.0380	29.94	34.66
Northbound/Eastbound - PM Peak Hour						
758	113.4	6.0	34.6	0.0370	23.88	28.05
Southbound/Westbound - AM Peak Hour						
616	117.6	19.8	32.4	0.0370	20.12	22.79
Southbound/Westbound - PM Peak Hour						
868	141.0	33.6	27.1	0.0370	34.00	32.12

*Traffic Volumes are obtained from the latest 2011 Orange County Counts.

SR 50 - Deer Isle Drive to Turnpike Ramps
Summary of After Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
912	107.4	11.4	36.5	0.0370	27.21	33.74
Northbound/Eastbound - PM Peak Hour						
758	106.2	15.0	36.9	0.0370	22.36	28.05
Southbound/Westbound - AM Peak Hour						
616	107.5	16.8	35.5	0.0360	18.39	22.18
Southbound/Westbound - PM Peak Hour						
868	120.0	18.6	31.8	0.0360	28.93	31.25

*Traffic Volumes are obtained from the latest 2011 Orange County Counts, Station 113.

SR 50 - Deer Isle Drive to Turnpike Ramps
Summary of Measures of Effectiveness & Benefit Cost Analysis

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	50.07	45.60	57.87	51.29
Total Fuel Consumption (gallons)	57.45	55.92	60.16	59.29

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$78.01	\$110.22
Annual User Benefit	\$23,402.36	\$33,066.11
Total Annual User Benefit =	\$56,468.47	
Total Signal Retiming Annual Cost	\$7,251.03	
User Benefit / Cost Ratio	7.79	

Notes:

- * Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
- * Fuel consumption is valued to the rate of \$3.43 per gallon.(Florida Department of Revenue & Orlando Gas Prices)
- * Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffics
- * The service life of the improvement was kept as three (3) years.
- * Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

SR 424/EDGEWATER DR.

Forest City Rd. to Bishop Moore

TABLE 20
Year 2012 METROPLAN Orlando Travel Time Study
SR 424 (Edgewater Drive) - Forest City Road to Bishop Moore - Eastbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Forest City Rd.	Orange County	Collector	OBD	1	2	0	40	1,056	7	Signal	36.0	12.0	II	20.0	D	0.50	
Forest City Rd. to SR 423/Lee Rd.	Orange County	Arterial	OBD	1	2	0	45	3,485	7	Signal	119.4	51.0	II	19.9	D	0.44	
SR 423/Lee Rd. to SR 426	Orange County	Arterial	Residential	1	2	0	45	3,854	7	Signal	67.8	1.8	II	38.8	A	0.86	
SR 426 to Bishop Moore	Orange County	Arterial	Residential	1	2	0	45/40	3,643	7	Signal	59.4	0.0	II	41.8	A	0.93	
TOTAL							45	12,038			282.6	64.8	II	29.0	B	0.65	0.080 gal/veh
PM PEAK HOUR																	
Median Opening to Forest City Rd.	Orange County	Collector	OBD	1	2	0	40	1,056	8	Signal	27.0	4.2	II	26.7	C	0.67	
Forest City Rd. to SR 423/Lee Rd.	Orange County	Arterial	OBD	1	2	0	45	3,485	8	Signal	120.0	50.4	II	19.8	D	0.44	
SR 423/Lee Rd. to SR 426	Orange County	Arterial	Residential	1	2	0	45	3,854	8	Signal	69.0	0.6	II	38.1	A	0.85	
SR 426 to Bishop Moore	Orange County	Arterial	Residential	1	2	0	45/40	3,643	8	Signal	64.8	1.8	II	38.3	A	0.85	
TOTAL							45	12,038			280.8	57.0	II	29.2	B	0.65	0.081 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

TABLE 20
Year 2012 METROPLAN Orlando Travel Time Study
SR 424 (Edgewater Drive) - Forest City Road to Bishop Moore -Westbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Bishop Moore	Orange County	Arterial	Residential	0	2	0	40	422	8	Signal	16.2	7.2	II	17.8	D	0.44	
Bishop Moore to SR 426	Orange County	Arterial	Residential	1	2	0	40	3,643	8	Signal	82.8	15.6	II	30.0	B	0.75	
SR 426 to SR 423/Lee Rd.	Orange County	Arterial	Residential	1	2	0	45	3,854	8	Signal	106.8	28.8	II	24.6	C	0.55	
SR 423/Lee Rd. to Forest City Rd.	Orange County	Arterial	OBD	0	2	1	45	3,485	8	Signal	71.4	9.0	II	33.3	B	0.74	
TOTAL							45	11,405			277.2	60.6	II	28.1	B	0.62	0.075 gal/veh
PM PEAK HOUR																	
Median Opening to Bishop Moore	Orange County	Arterial	Residential	0	2	0	40	422	7	Signal	9.0	0.0	II	32.0	B	0.80	
Bishop Moore to SR 426	Orange County	Arterial	Residential	1	2	0	40	3,643	7	Signal	69.0	1.8	II	36.0	A	0.90	
SR 426 to SR 423/Lee Rd.	Orange County	Arterial	Residential	1	2	0	45	3,854	7	Signal	240.0	145.2	II	10.9	F	0.24	
SR 423/Lee Rd. to Forest City Rd.	Orange County	Arterial	OBD	0	2	1	45	3,485	7	Signal	78.6	10.2	II	30.2	B	0.67	
TOTAL							45	11,405			396.6	157.2	II	19.6	D	0.44	0.078 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

TABLE 20
Year 2012 METROPLAN Orlando Travel Time Study
SR 424 (Edgewater Drive) - Forest City Road to Bishop Moore - Eastbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Forest City Rd.	Orange County	Collector	OBD	1	2	0	40	1,056	6	Signal	55.2	26.4	II	13.0	E	0.33	
Forest City Rd. to SR 423/Lee Rd.	Orange County	Arterial	OBD	1	2	0	45	3,485	6	Signal	140.4	62.4	II	16.9	E	0.38	
SR 423/Lee Rd. to SR 426	Orange County	Arterial	Residential	1	2	0	45	3,854	6	Signal	62.4	0.0	II	42.1	A	0.94	
SR 426 to Bishop Moore	Orange County	Arterial	Residential	1	2	0	45/40	3,643	6	Signal	59.4	1.2	II	41.8	A	0.93	
TOTAL							45	12,038			317.4	90.0	II	25.9	C	0.57	0.081 gal/veh
PM PEAK HOUR																	
Median Opening to Forest City Rd.	Orange County	Collector	OBD	1	2	0	40	1,056	7	Signal	31.8	6.6	II	22.6	C	0.57	
Forest City Rd. to SR 423/Lee Rd.	Orange County	Arterial	OBD	1	2	0	45	3,485	7	Signal	123.6	56.4	II	19.2	D	0.43	
SR 423/Lee Rd. to SR 426	Orange County	Arterial	Residential	1	2	0	45	3,854	7	Signal	64.2	0.0	II	40.9	A	0.91	
SR 426 to Bishop Moore	Orange County	Arterial	Residential	1	2	0	45/40	3,643	7	Signal	57.6	0.0	II	43.1	A	0.96	
TOTAL							45	12,038			277.2	63.0	II	29.6	B	0.66	0.080 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

TABLE 20
Year 2012 METROPLAN Orlando Travel Time Study
SR 424 (Edgewater Drive) - Forest City Road to Bishop Moore -Westbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Bishop Moore	Orange County	Arterial	Residential	0	2	0	40	422	8	Signal	21.0	12.6	II	13.7	E	0.34	
Bishop Moore to SR 426	Orange County	Arterial	Residential	1	2	0	40	3,643	8	Signal	72.0	7.2	II	34.5	B	0.86	
SR 426 to SR 423/Lee Rd.	Orange County	Arterial	Residential	1	2	0	45	3,854	8	Signal	90.0	21.0	II	29.2	B	0.65	
SR 423/Lee Rd. to Forest City Rd.	Orange County	Arterial	OBD	0	2	1	45	3,485	8	Signal	70.2	6.0	II	33.8	B	0.75	
TOTAL							45	11,405			253.2	46.8	II	30.7	B	0.68	0.074 gal/veh
PM PEAK HOUR																	
Median Opening to Bishop Moore	Orange County	Arterial	Residential	0	2	0	40	422	6	Signal	6.6	0.0	II	43.6	A	1.09	
Bishop Moore to SR 426	Orange County	Arterial	Residential	1	2	0	40	3,643	6	Signal	75.0	9.0	II	33.1	B	0.83	
SR 426 to SR 423/Lee Rd.	Orange County	Arterial	Residential	1	2	0	45	3,854	6	Signal	250.2	154.8	II	10.5	F	0.23	
SR 423/Lee Rd. to Forest City Rd.	Orange County	Arterial	OBD	0	2	1	45	3,485	6	Signal	66.0	3.6	II	36.0	A	0.80	
TOTAL							45	11,405			397.8	167.4	II	19.5	D	0.43	0.077 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District



**SR 424 /
Edgewater Dr.
- AM Peak
Before Condition**

Date of Collection: 12/15/2011
 Distance: 2.28 miles
 From: Forest City Rd.
 To: Bishop Moore

Start Time: 7:30 AM
 End Time: 9:00 AM

EB Avg Speed: 29.0 MPH
 EB Travel Time: 4.71 MIN
 EB Delay Time: 1.08 MIN

WB Avg Speed: 28.1 MPH
 WB Travel Time: 4.62 MIN
 WB Delay Time: 1.01 MIN

**SR 424 /
Edgewater Dr.
- AM Peak
After Condition**

Date of Collection: 4/25/2012
 Distance: 2.28 miles
 From: Forest City Rd.
 To: Bishop Moore

Start Time: 7:30 AM
 End Time: 9:00 AM

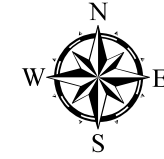
EB Avg Speed: 25.9 MPH
 EB Travel Time: 5.29 MIN
 EB Delay Time: 1.50 MIN

WB Avg Speed: 30.7 MPH
 WB Travel Time: 4.22 MIN
 WB Delay Time: 0.78 MIN



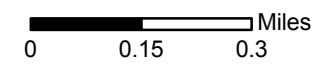
Level of Services:

A	D	Roads
B	E	City Boundary
C	F	Water



2012 METROPLAN ORLANDO

Travel Time Study





**SR 424 /
Edgewater Dr.
- PM Peak
Before Condition**

Date of Collection: 12/15/2011
 Distance: 2.28 miles
 From: Forest City Rd.
 To: Bishop Moore

Start Time: 4:30 PM
 End Time: 6:00 PM

EB Avg Speed: 29.2 MPH
 EB Travel Time: 4.68 MIN
 EB Delay Time: 0.95 MIN

WB Avg Speed: 19.6 MPH
 WB Travel Time: 6.61 MIN
 WB Delay Time: 2.62 MIN

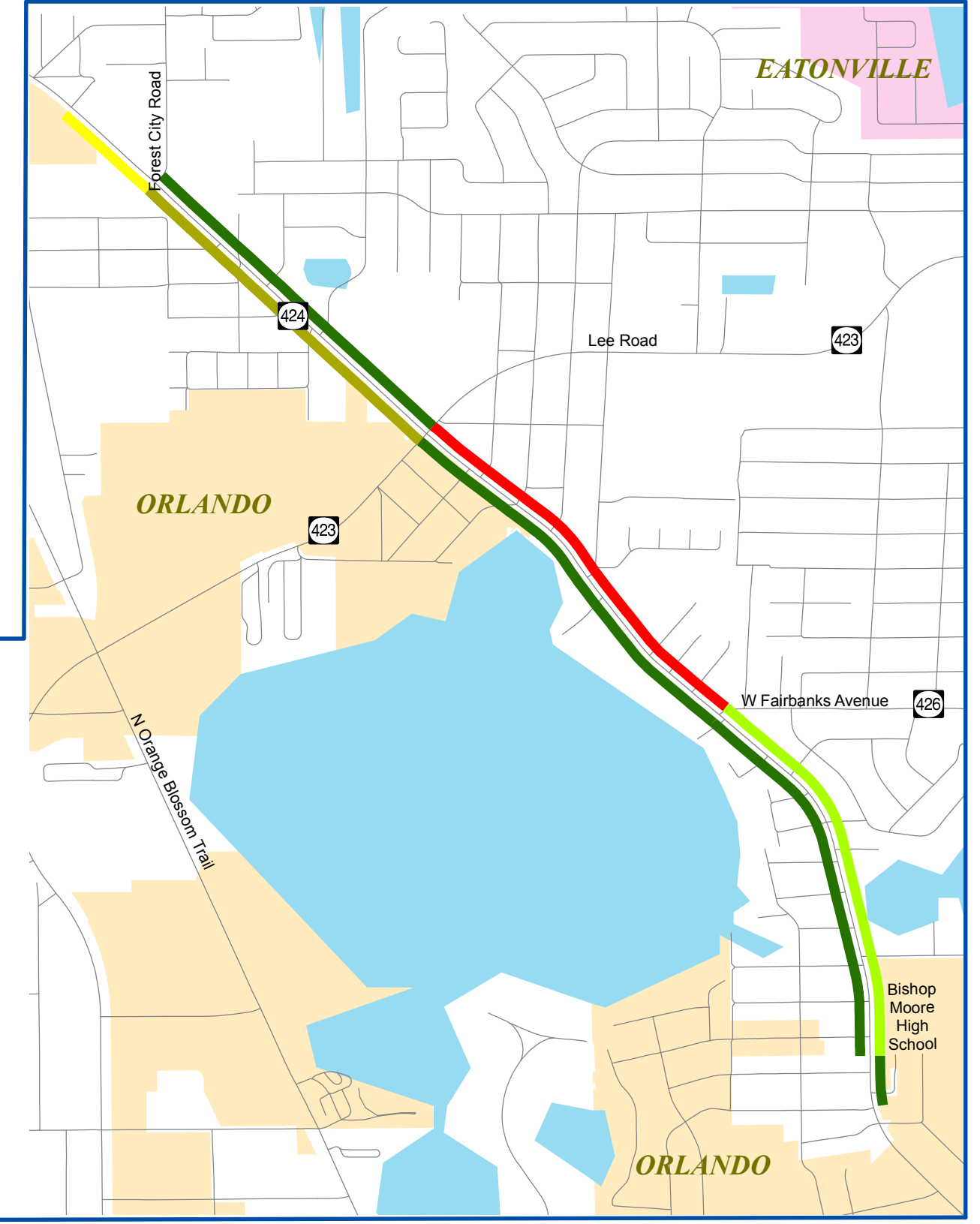
**SR 424 /
Edgewater Dr.
- PM Peak
After Condition**

Date of Collection: 4/25/2012
 Distance: 2.28 miles
 From: Forest City Rd.
 To: Bishop Moore

Start Time: 4:30 PM
 End Time: 6:00 PM

EB Avg Speed: 29.6 MPH
 EB Travel Time: 3.95 MIN
 EB Delay Time: 1.05 MIN

WB Avg Speed: 19.5 MPH
 WB Travel Time: 6.63 MIN
 WB Delay Time: 2.79 MIN



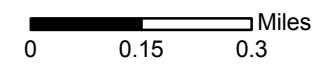
Level of Services:

	A		D		Roads
	B		E		City Boundary
	C		F		Water



2012 METROPLAN ORLANDO

Travel Time Study



SR 424 (Edgewater Drive) - Forest City Road to Bishop Moore
Summary of Before Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
858	282.6	64.8	29.0	0.0800	67.35	68.64
Northbound/Eastbound - PM Peak Hour						
1755	280.8	57.0	29.2	0.0810	136.89	142.16
Southbound/Westbound - AM Peak Hour						
1552	277.2	60.6	28.1	0.0750	119.50	116.40
Southbound/Westbound - PM Peak Hour						
1059	396.6	157.2	19.6	0.0780	116.67	82.60

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 424 (Edgewater Drive) - Forest City Road to Bishop Moore
Summary of After Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
858	317.4	90.0	25.9	0.0810	75.65	69.50
Northbound/Eastbound - PM Peak Hour						
1755	277.2	63.0	29.6	0.0800	135.14	140.40
Southbound/Westbound - AM Peak Hour						
1552	253.2	46.8	30.7	0.0740	109.16	114.85
Southbound/Westbound - PM Peak Hour						
1059	397.8	167.4	19.5	0.0770	117.02	81.54

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 424 (Edgewater Drive) - Forest City Road to Bishop Moore
Summary of Measures of Effectiveness & Benefit Cost Analysis

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	186.86	184.80	253.56	252.15
Total Fuel Consumption (gallons)	185.04	184.35	224.76	221.94

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$35.84	\$32.50
Annual User Benefit	\$10,751.67	\$9,751.39
Total Annual User Benefit =	\$20,503.05	
Total Signal Retiming Annual Cost	\$6,326.73	
User Benefit / Cost Ratio	3.24	

Notes:

- * Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
- * Fuel consumption is valued to the rate of \$3.43 per gallon.(Florida Department of Revenue & Orlando Gas Prices)
- * Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffics
- * The service life of the improvement was kept as three (3) years.
- * Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

SR 426

Adanson St. to Wymore Rd.

TABLE 21
Year 2012 METROPLAN Orlando Travel Time Study
SR 426 (Fairbanks Avenue) - Adanson Street to Wymore Road - Eastbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Estill Ct. to Adanson St.	Orange County	Arterial	Residential	1	2	0	45	634	14	Signal	15.6	1.2	II	27.7	C	0.62	
Adanson St. to Wymore Rd.	Orange County	Arterial	Residential	1	2	0	45/35	2,693	14	Signal	54.0	6.0	II	34.0	B	0.76	
TOTAL							45	3,326			69.6	7.2	II	32.6	B	0.72	0.022 gal/veh
PM PEAK HOUR																	
Estill Ct. to Adanson St.	Orange County	Arterial	Residential	1	2	0	45	634	12	Signal	17.4	2.4	II	24.8	C	0.55	
Adanson St. to Wymore Rd.	Orange County	Arterial	Residential	1	2	0	45/35	2,693	12	Signal	48.6	3.6	II	37.8	A	0.84	
TOTAL							45	3,326			66.0	6.0	II	34.4	B	0.76	0.022 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

TABLE 21
Year 2012 METROPLAN Orlando Travel Time Study
SR 426 (Fairbanks Avenue) - Adanson Street to Wymore Road - Westbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to Wymore Rd.	Orange County	Arterial	Residential	0	2	0	35	792	14	Signal	21.6	3.6	III	25.0	B	0.71	
Wymore Rd. to Adanson St.	Orange County	Arterial	Residential	0	2	0	45	2,693	14	Signal	49.2	1.2	II	37.3	A	0.83	
TOTAL							45	3,485			70.8	4.8	II	33.6	B	0.75	0.023 gal/veh
PM PEAK HOUR																	
Median Opening to Wymore Rd.	Orange County	Arterial	Residential	0	2	0	35	792	12	Signal	22.8	5.4	III	23.7	C	0.68	
Wymore Rd. to Adanson St.	Orange County	Arterial	Residential	0	2	0	45	2,693	12	Signal	50.4	5.4	II	36.4	A	0.81	
TOTAL							45	3,485			73.2	10.8	II	32.5	B	0.72	0.022 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

TABLE 21
Year 2012 METROPLAN Orlando Travel Time Study
SR 426 (Fairbanks Avenue) - Adanson Street to Wymore Road - Eastbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Estill Ct. to Adanson St.	Orange County	Arterial	Residential	1	2	0	45	634	14	Signal	13.8	0.0	II	31.3	B	0.70	
Adanson St. to Wymore Rd.	Orange County	Arterial	Residential	1	2	0	45/35	2,693	14	Signal	39.0	1.2	II	47.1	A	1.05	
TOTAL							45	3,326			52.8	1.2	II	43.0	A	0.95	0.021 gal/veh
PM PEAK HOUR																	
Estill Ct. to Adanson St.	Orange County	Arterial	Residential	1	2	0	45	634	16	Signal	11.4	0.0	II	37.9	A	0.84	
Adanson St. to Wymore Rd.	Orange County	Arterial	Residential	1	2	0	45/35	2,693	16	Signal	42.6	2.4	II	43.1	A	0.96	
TOTAL							45	3,326			54.0	2.4	II	42.0	A	0.93	0.021 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

TABLE 21
Year 2012 METROPLAN Orlando Travel Time Study
SR 426 (Fairbanks Avenue) - Adanson Street to Wymore Road - Westbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to Wymore Rd.	Orange County	Arterial	Residential	0	2	0	35	792	14	Signal	24.0	4.8	III	22.5	C	0.64	
Wymore Rd. to Adanson St.	Orange County	Arterial	Residential	0	2	0	45	2,693	14	Signal	40.8	0.0	II	45.0	A	1.00	
TOTAL							45	3,485			64.8	4.8	II	36.7	A	0.81	0.022 gal/veh
PM PEAK HOUR																	
Median Opening to Wymore Rd.	Orange County	Arterial	Residential	0	2	0	35	792	16	Signal	22.2	1.8	III	24.3	B	0.69	
Wymore Rd. to Adanson St.	Orange County	Arterial	Residential	0	2	0	45	2,693	16	Signal	41.4	0.0	II	44.3	A	0.99	
TOTAL							45	3,485			63.6	1.8	II	37.4	A	0.83	0.022 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

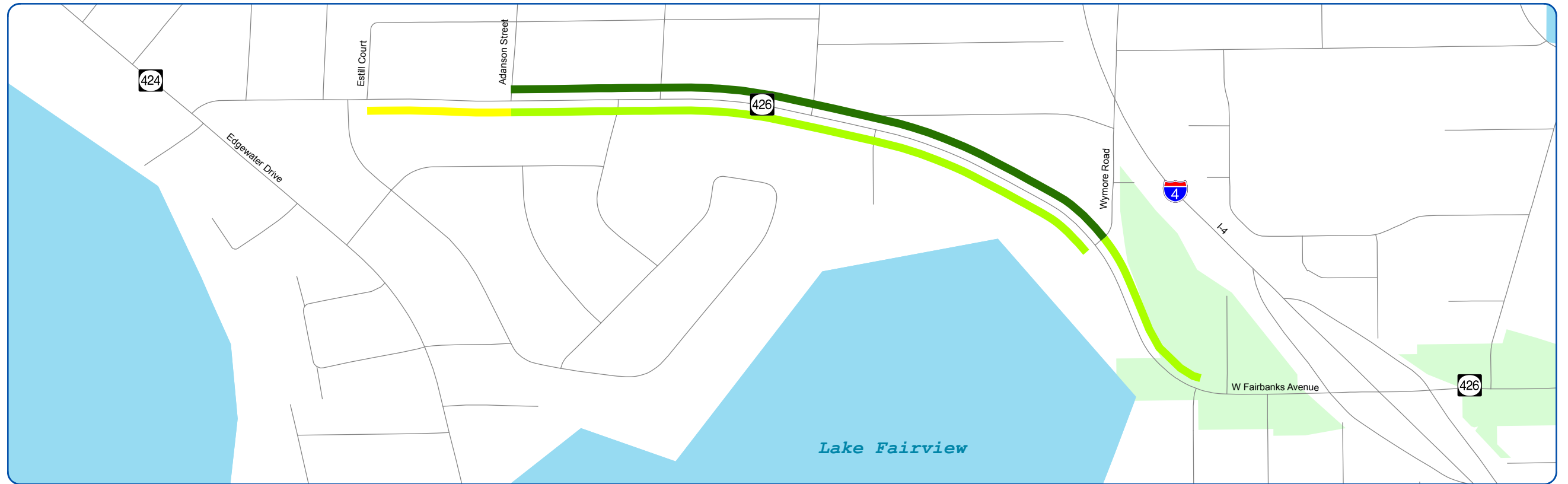
**SR 426 /
Fairbans Ave.
- AM Peak
Before Condition**

Date of Collection: 1/17/2012
Distance: 0.63 miles
From: Adanson St.
To: Wymore Rd.

Start Time: 7:30 AM
End Time: 8:30 AM

EB Avg Speed: 32.6 MPH
EB Travel Time: 1.16 MIN
EB Delay Time: 0.12 MIN

WB Avg Speed: 33.6 MPH
WB Travel Time: 1.18 MIN
WB Delay Time: 0.08 MIN



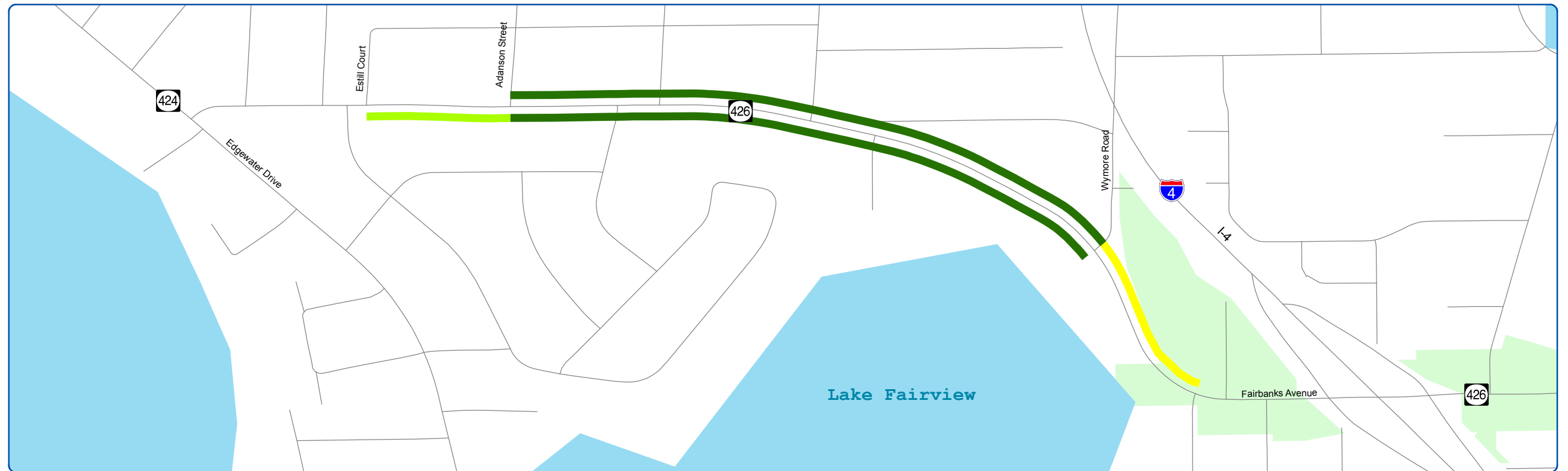
**SR 426 /
Fairbanks Ave.
- AM Peak
After Condition**

Date of Collection: 5/3/2012
Distance: 0.63 miles
From: Adanson St.
To: Wymore Rd.

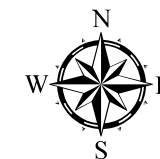
Start Time: 7:30 AM
End Time: 8:30 AM

EB Avg Speed: 43.0 MPH
EB Travel Time: 0.88 MIN
EB Delay Time: 0.02 MIN

WB Avg Speed: 36.7 MPH
WB Travel Time: 1.08 MIN
WB Delay Time: 0.08 MIN

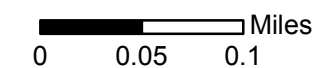


Level of Services:



2012 METROPLAN ORLANDO

Travel Time Study



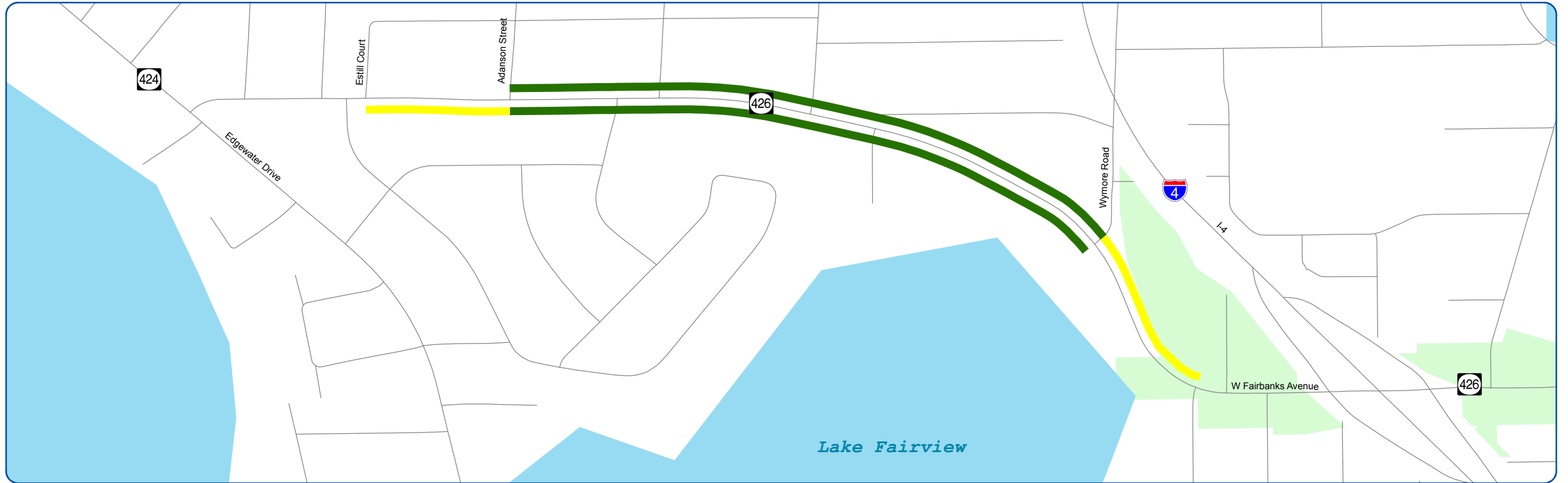
**SR 426 /
Fairbans Ave.
- PM Peak
Before Condition**

Date of Collection: 1/17/2012
Distance: 0.63 miles
From: Adanson St.
To: Wymore Rd.

Start Time: 5:00 PM
End Time: 6:00 PM

EB Avg Speed: 34.4 MPH
EB Travel Time: 1.10 MIN
EB Delay Time: 0.10 MIN

WB Avg Speed: 32.5 MPH
WB Travel Time: 1.22 MIN
WB Delay Time: 0.18 MIN



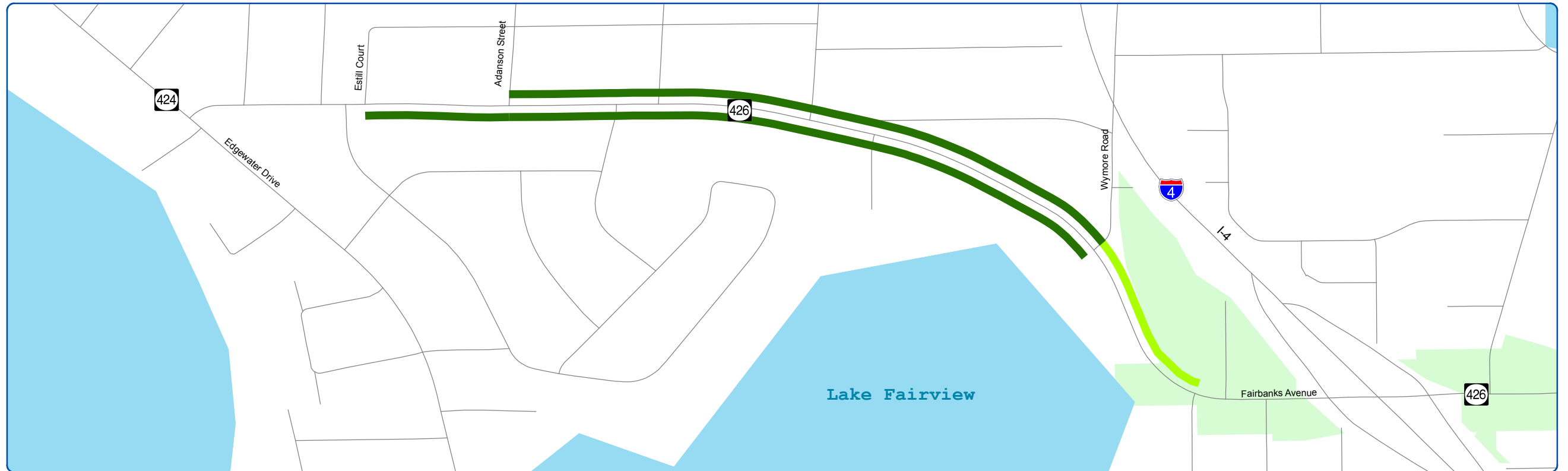
**SR 426 /
Fairbanks Ave.
- PM Peak
After Condition**

Date of Collection: 5/3/2012
Distance: 0.63 miles
From: Adanson St.
To: Wymore Rd.

Start Time: 5:00 PM
End Time: 6:00 PM

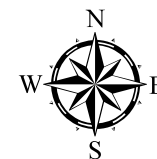
EB Avg Speed: 42.0 MPH
EB Travel Time: 0.90 MIN
EB Delay Time: 0.04 MIN

WB Avg Speed: 37.4 MPH
WB Travel Time: 1.06 MIN
WB Delay Time: 0.03 MIN



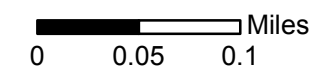
Level of Services:

- | | | |
|---|---|---------------|
| A | D | Roads |
| B | E | City Boundary |
| C | F | Water |



2012 METROPLAN ORLANDO

Travel Time Study



SR 426 (Fairbanks Avenue) - Adanson Street to Wymore Road

Summary of Before Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
1156	69.6	7.2	32.6	0.0220	22.35	25.43
Northbound/Eastbound - PM Peak Hour						
861	66.0	6.0	34.4	0.0220	15.79	18.94
Southbound/Westbound - AM Peak Hour						
963	70.8	4.8	33.6	0.0230	18.94	22.15
Southbound/Westbound - PM Peak Hour						
998	73.2	10.8	32.5	0.0220	20.29	21.96

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 426 (Fairbanks Avenue) - Adanson Street to Wymore Road
Summary of After Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
1156	52.8	1.2	43.0	0.0210	16.95	24.28
Northbound/Eastbound - PM Peak Hour						
861	54.0	2.4	42.0	0.0210	12.92	18.08
Southbound/Westbound - AM Peak Hour						
963	64.8	4.8	36.7	0.0220	17.33	21.19
Southbound/Westbound - PM Peak Hour						
998	63.6	1.8	37.4	0.0220	17.63	21.96

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

**SR 426 (Fairbanks Avenue) - Adanson Street to Wymore Road
Summary of Measures of Effectiveness & Benefit Cost Analysis**

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	41.29	34.29	36.08	30.55
Total Fuel Consumption (gallons)	47.58	45.46	40.90	40.04

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$121.36	\$93.11
Annual User Benefit	\$36,408.82	\$27,934.19
Total Annual User Benefit =	\$64,343.01	
Total Signal Retiming Annual Cost	\$3,163.37	
User Benefit / Cost Ratio	20.34	

Notes:

- * Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
- * Fuel consumption is valued to the rate of \$3.43 per gallon.(Florida Department of Revenue & Orlando Gas Prices)
- * Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffics
- * The service life of the improvement was kept as three (3) years.
- * Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

**SR 434/FOREST CITY RD.
Kennedy Blvd. to Calumet Dr.**

TABLE 22
Year 2012 METROPLAN Orlando Travel Time Study

SR 434 (Forest City Road) - Kennedy Boulevard/All American Boulevard to Calumet Drive- Northbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Kennedy Blvd.	Orange County	Arterial	Residential	1	2	1	45	211	7	Signal	43.2	34.8	II	3.3	F	0.07	
Kennedy Blvd. to Riverside Park Rd.	Orange County	Arterial	Residential	1	2	0	45	2,587	7	Signal	49.2	2.4	II	35.9	A	0.80	
Riverside Park Rd. to Pembroke Dr.	Orange County	Arterial	Residential	0	2	0	45	2,587	7	Signal	44.4	3.0	II	39.7	A	0.88	
Pembroke Dr. to Calumet Dr.	Orange County	Arterial	Residential	1	2	1	45	1,795	7	Signal	29.4	0.0	II	41.6	A	0.93	
TOTAL							45	7,181			166.2	40.2	II	29.5	B	0.65	0.047 gal/veh
PM PEAK HOUR																	
Median Opening to Kennedy Blvd.	Orange County	Arterial	Residential	1	2	1	45	211	8	Signal	13.2	7.2	II	10.9	F	0.24	
Kennedy Blvd. to Riverside Park Rd.	Orange County	Arterial	Residential	1	2	0	45	2,587	8	Signal	43.8	0.0	II	40.3	A	0.89	
Riverside Park Rd. to Pembroke Dr.	Orange County	Arterial	Residential	0	2	0	45	2,587	8	Signal	70.2	22.2	II	25.1	C	0.56	
Pembroke Dr. to Calumet Dr.	Orange County	Arterial	Residential	1	2	1	45	1,795	8	Signal	34.8	0.6	II	35.2	A	0.78	
TOTAL							45	7,181			162.0	30.0	II	30.2	B	0.67	0.048 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

**TABLE 22
Year 2012 METROPLAN Orlando Travel Time Study**

SR 434 (Forest City Road) - Kennedy Boulevard/All American Boulevard to Calumet Drive- Southbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
SR 414 Maitland Blvd. to Calumet Dr.	Orange County	Arterial	Residential	1	2	0	45	686	7	Signal	24.0	7.8	II	19.5	D	0.43	
Calumet Dr. to Pembroke Dr.	Orange County	Arterial	Residential	1	2	0	45	1,795	7	Signal	34.2	1.8	II	35.8	A	0.80	
Pembroke Dr. to Riverside Park Rd.	Orange County	Arterial	Residential	1	2	0	45	2,587	7	Signal	44.4	1.8	II	39.7	A	0.88	
Riverside Park Rd. to Kennedy Blvd.	Orange County	Arterial	Residential	1	2	1	45	2,587	7	Signal	61.8	14.4	II	28.5	B	0.63	
TOTAL							45	7,656			164.4	25.8	II	31.8	B	0.71	0.051 gal/veh
PM PEAK HOUR																	
SR 414 Maitland Blvd. to Calumet Dr.	Orange County	Arterial	Residential	1	2	0	45	686	8	Signal	11.4	0.0	II	41.1	A	0.91	
Calumet Dr. to Pembroke Dr.	Orange County	Arterial	Residential	1	2	0	45	1,795	8	Signal	37.2	4.2	II	32.9	B	0.73	
Pembroke Dr. to Riverside Park Rd.	Orange County	Arterial	Residential	1	2	0	45	2,587	8	Signal	45.0	0.0	II	39.2	A	0.87	
Riverside Park Rd. to Kennedy Blvd.	Orange County	Arterial	Residential	1	2	1	45	2,587	8	Signal	63.6	14.4	II	27.7	C	0.62	
TOTAL							45	7,656			157.2	18.6	II	33.2	B	0.74	0.050 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

TABLE 22
Year 2012 METROPLAN Orlando Travel Time Study
SR 434 (Forest City Road) - Kennedy Boulevard/All American Boulevard to Calumet Drive- Northbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Kennedy Blvd.	Orange County	Arterial	Residential	1	2	1	45	211	9	Signal	39.6	31.2	II	3.6	F	0.08	
Kennedy Blvd. to Riverside Park Rd.	Orange County	Arterial	Residential	1	2	0	45	2,587	9	Signal	48.6	2.4	II	36.3	A	0.81	
Riverside Park Rd. to Pembroke Dr.	Orange County	Arterial	Residential	0	2	0	45	2,587	9	Signal	40.8	0.0	II	43.2	A	0.96	
Pembroke Dr. to Calumet Dr.	Orange County	Arterial	Residential	1	2	1	45	1,795	9	Signal	27.6	0.0	II	44.3	A	0.99	
TOTAL							45	7,181			156.6	33.6	II	31.3	B	0.69	0.047 gal/veh
PM PEAK HOUR																	
Median Opening to Kennedy Blvd.	Orange County	Arterial	Residential	1	2	1	45	211	7	Signal	26.4	21.0	II	5.5	F	0.12	
Kennedy Blvd. to Riverside Park Rd.	Orange County	Arterial	Residential	1	2	0	45	2,587	7	Signal	42.0	0.0	II	42.0	A	0.93	
Riverside Park Rd. to Pembroke Dr.	Orange County	Arterial	Residential	0	2	0	45	2,587	7	Signal	39.6	0.0	II	44.5	A	0.99	
Pembroke Dr. to Calumet Dr.	Orange County	Arterial	Residential	1	2	1	45	1,795	7	Signal	27.6	0.0	II	44.3	A	0.99	
TOTAL							45	7,181			135.6	21.0	II	36.1	A	0.80	0.046 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

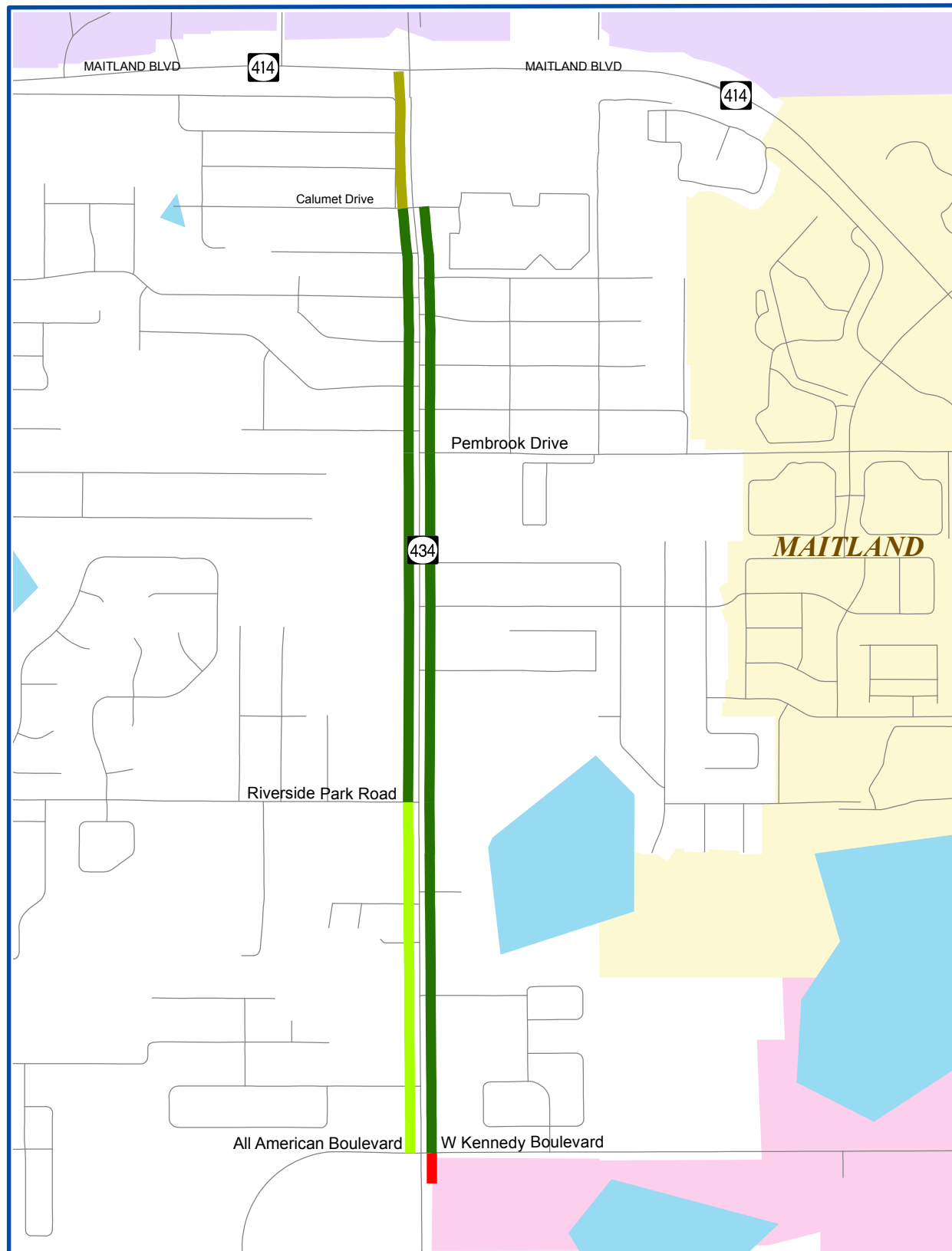
TABLE 22
Year 2012 METROPLAN Orlando Travel Time Study

SR 434 (Forest City Road) - Kennedy Boulevard/All American Boulevard to Calumet Drive- Southbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
SR 414 Maitland Blvd. to Calumet Dr.	Orange County	Arterial	Residential	1	2	0	45	686	9	Signal	12.6	1.2	II	37.1	A	0.83	
Calumet Dr. to Pembroke Dr.	Orange County	Arterial	Residential	1	2	0	45	1,795	9	Signal	33.0	4.2	II	37.1	A	0.82	
Pembroke Dr. to Riverside Park Rd.	Orange County	Arterial	Residential	1	2	0	45	2,587	9	Signal	44.4	1.8	II	39.7	A	0.88	
Riverside Park Rd. to Kennedy Blvd.	Orange County	Arterial	Residential	1	2	1	45	2,587	9	Signal	49.8	4.2	II	35.4	A	0.79	
TOTAL							45	7,656			139.8	11.4	II	37.3	A	0.83	0.049 gal/veh
PM PEAK HOUR																	
SR 414 Maitland Blvd. to Calumet Dr.	Orange County	Arterial	Residential	1	2	0	45	686	7	Signal	13.2	1.2	II	35.5	A	0.79	
Calumet Dr. to Pembroke Dr.	Orange County	Arterial	Residential	1	2	0	45	1,795	7	Signal	33.6	2.4	II	36.4	A	0.81	
Pembroke Dr. to Riverside Park Rd.	Orange County	Arterial	Residential	1	2	0	45	2,587	7	Signal	60.0	13.2	II	29.4	B	0.65	
Riverside Park Rd. to Kennedy Blvd.	Orange County	Arterial	Residential	1	2	1	45	2,587	7	Signal	73.2	21.0	II	24.1	C	0.54	
TOTAL							45	7,656			180.0	37.8	II	29.0	B	0.64	0.051 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.



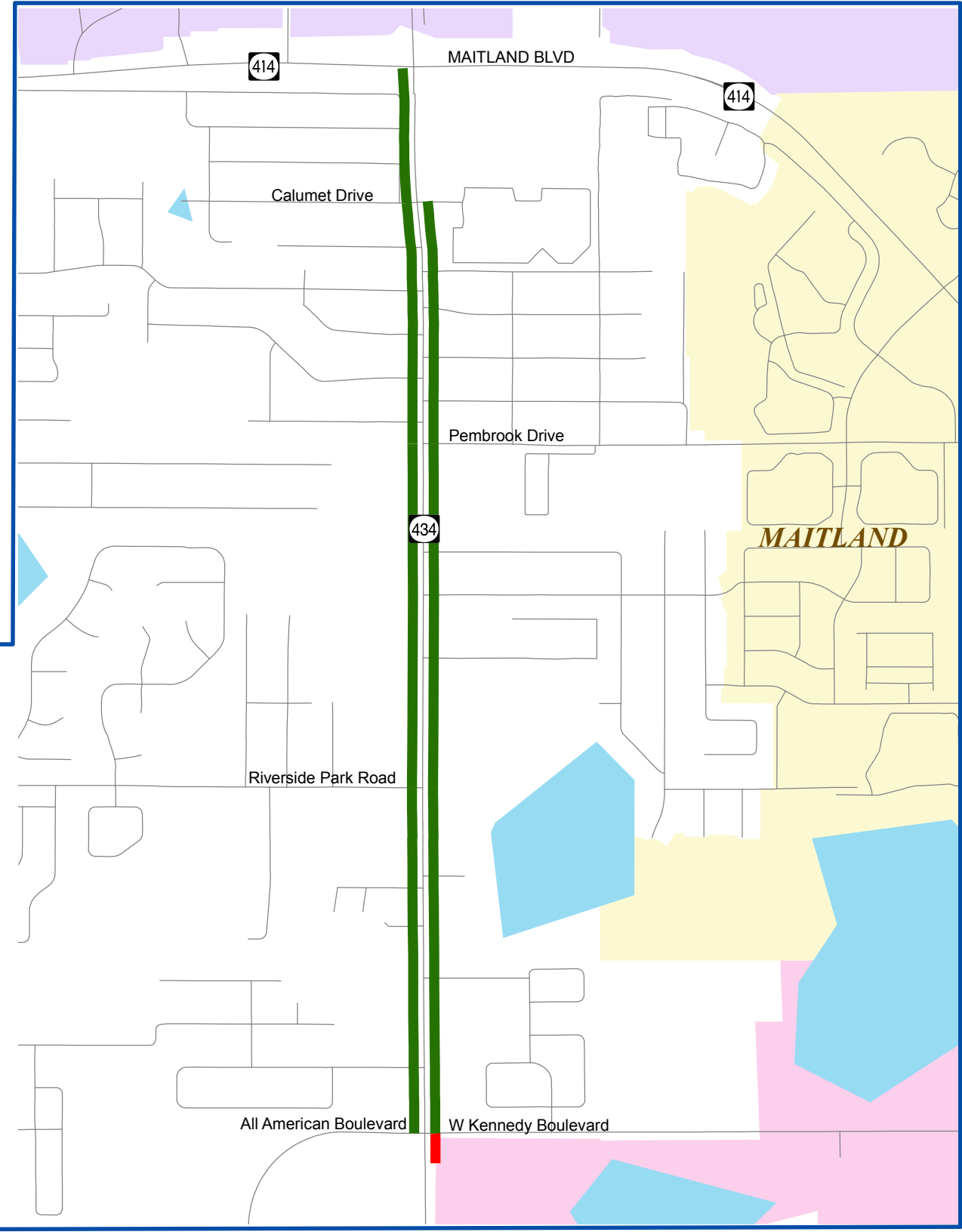
**SR 434 /
Forest City Rd.
- AM Peak
Before Condition**

Date of Collection: 12/8/2011
 Distance: 1.36 miles
 From: Kennedy Blvd.
 To: Calumet Dr.

Start Time: 7:45 AM
 End Time: 9:00 AM

NB Avg Speed: 29.50 MPH
 NB Travel Time: 2.77 MIN
 NB Delay Time: 0.67 MIN

SB Avg Speed: 31.80 MPH
 SB Travel Time: 2.74 MIN
 SB Delay Time: 0.43 MIN



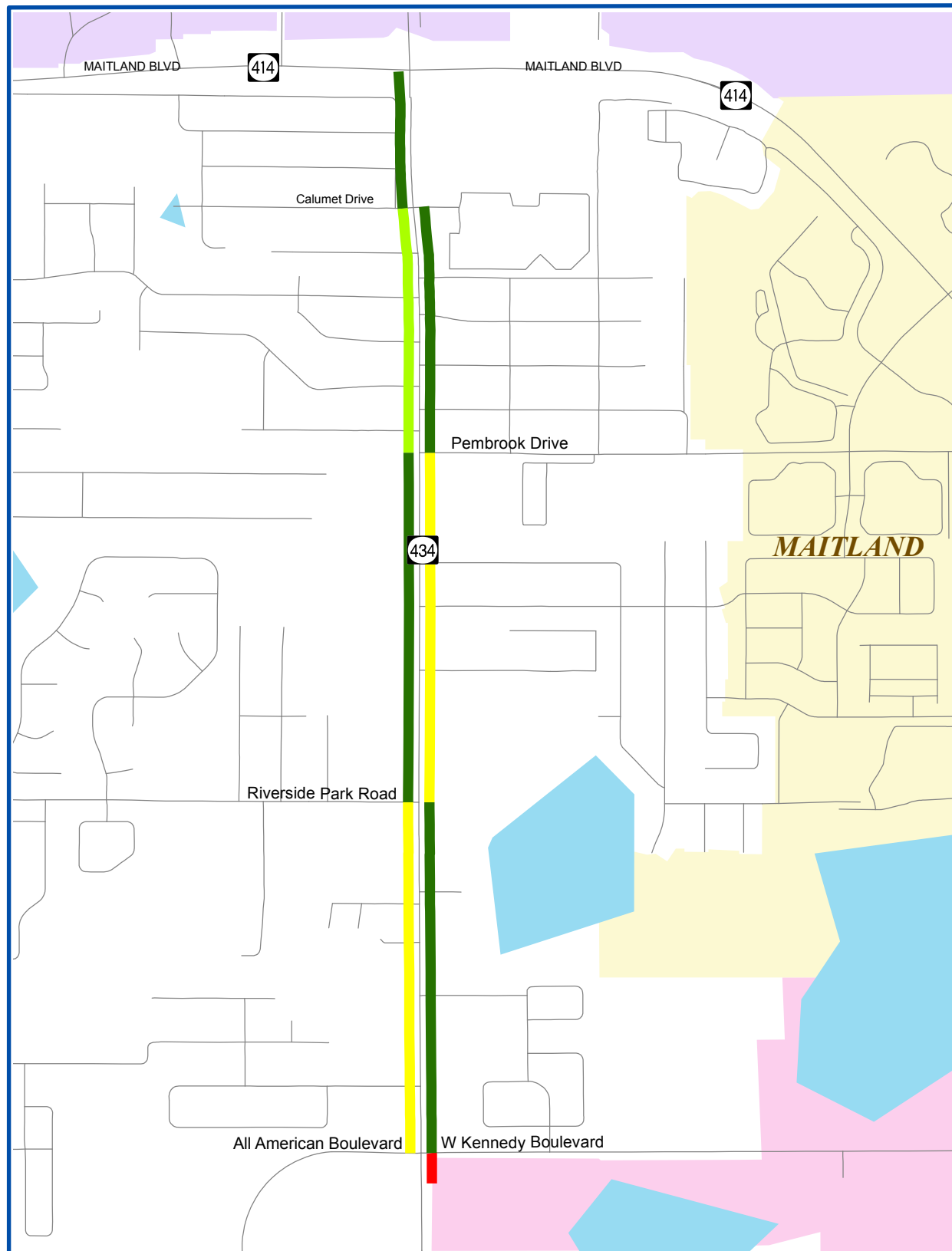
**SR 434 /
Forest City Rd.
- AM Peak
After Condition**

Date of Collection: 4/25/2012
 Distance: 1.36 miles
 From: Kennedy Blvd.
 To: Calumet Dr.

Start Time: 7:45 AM
 End Time: 9:00 AM

NB Avg Speed: 31.30 MPH
 NB Travel Time: 2.61 MIN
 NB Delay Time: 0.56 MIN

SB Avg Speed: 37.30 MPH
 SB Travel Time: 2.33 MIN
 SB Delay Time: 0.19 MIN



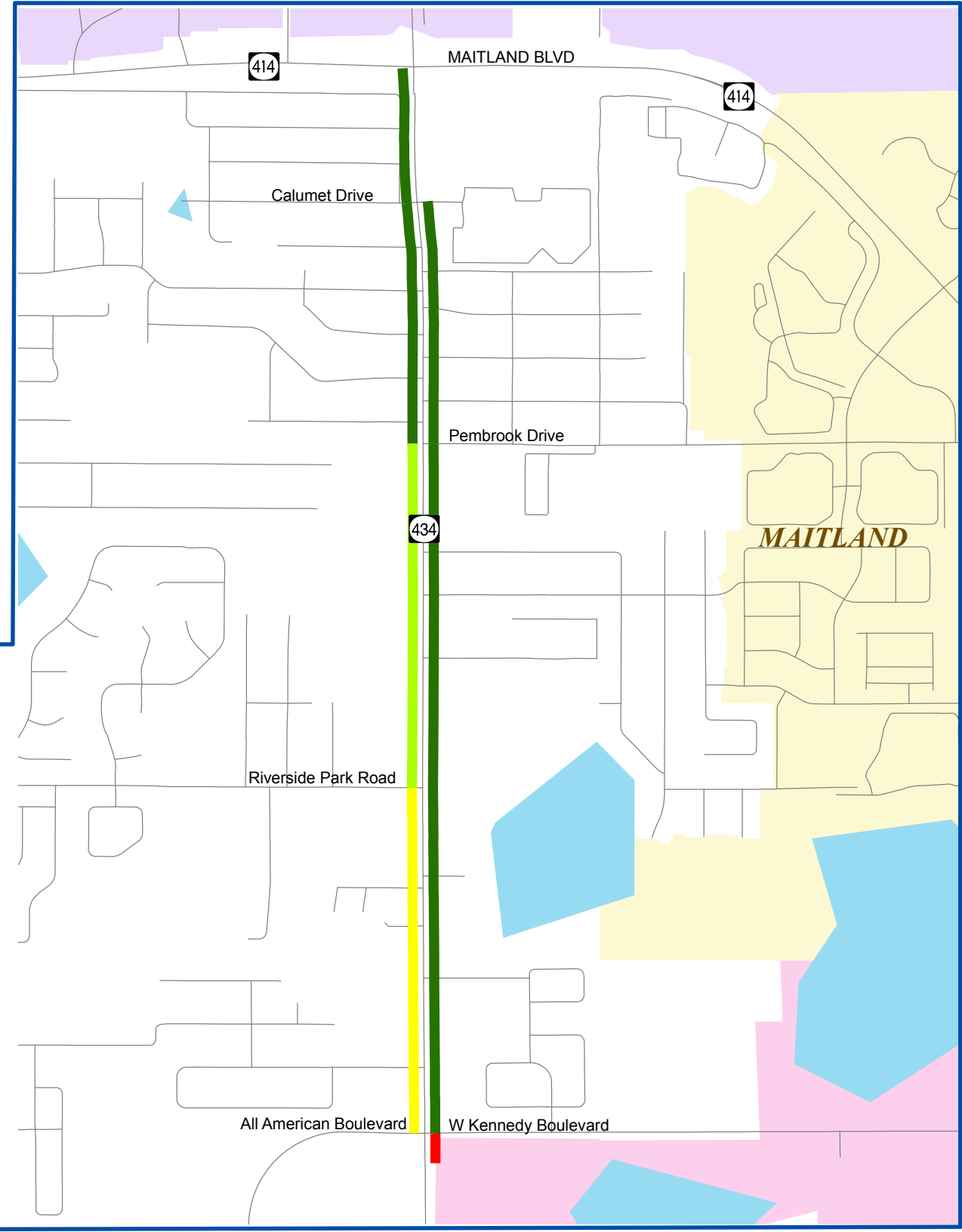
**SR 434 /
Forest City Rd.
- PM Peak
Before Condition**

Date of Collection: 12/8/2011
 Distance: 1.36 miles
 From: Kennedy Blvd.
 To: Calumet Dr.

Start Time: 4:30 PM
 End Time: 6:00 PM

NB Avg Speed: 30.20 MPH
 NB Travel Time: 2.70 MIN
 NB Delay Time: 0.50 MIN

SB Avg Speed: 33.20 MPH
 SB Travel Time: 2.62 MIN
 SB Delay Time: 0.31 MIN



**SR 434 /
Forest City Rd.
- PM Peak
After Condition**










Date of Collection: 4/25/2012
 Distance: 1.36 miles
 From: Kennedy Blvd.
 To: Calumet Dr.

Start Time: 4:30 PM
 End Time: 6:00 PM

NB Avg Speed: 36.10 MPH
 NB Travel Time: 2.26 MIN
 NB Delay Time: 0.35 MIN

SB Avg Speed: 29.0 MPH
 SB Travel Time: 3.00 MIN
 SB Delay Time: 0.63 MIN

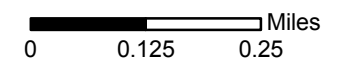
Level of Services:

- | | | |
|--|---|---|
|  A |  D |  Roads |
|  B |  E |  City Boundary |
|  C |  F |  Water |



2012 METROPLAN ORLANDO

Travel Time Study



SR 434 (Forest City Rd) - Kennedy Blvd/All American Blvd to Calumet Dr
Summary of Before Study Travel Time and Delay Study Results

Traffic Volume	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
579	166.2	40.2	29.5	0.0470	26.73	27.21
Northbound/Eastbound - PM Peak Hour						
1140	162.0	30.0	30.2	0.0480	51.30	54.72
Southbound/Westbound - AM Peak Hour						
731	164.4	25.8	31.8	0.0510	33.38	37.28
Southbound/Westbound - PM Peak Hour						
737	157.2	18.6	33.2	0.0500	32.18	36.85

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 434 (Forest City Rd) - Kennedy Blvd/All American Blvd to Calumet Dr
Summary of After Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
579	156.6	33.6	31.3	0.0470	25.19	27.21
Northbound/Eastbound - PM Peak Hour						
1140	135.6	21.0	36.1	0.0460	42.94	52.44
Southbound/Westbound - AM Peak Hour						
731	139.8	11.4	37.3	0.0490	28.39	35.82
Southbound/Westbound - PM Peak Hour						
737	180.0	37.8	29.0	0.0510	36.85	37.59

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 434 (Forest City Rd) - Kennedy Blvd/All American Blvd to Calumet Dr
Summary of Measures of Effectiveness & Benefit Cost Analysis

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	60.11	53.57	83.48	79.79
Total Fuel Consumption (gallons)	64.49	63.03	91.57	90.03

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$111.60	\$65.48
Annual User Benefit	\$33,480.92	\$19,643.26
Total Annual User Benefit =	\$53,124.18	
Total Signal Retiming Annual Cost	\$7,077.27	
User Benefit / Cost Ratio	7.51	

Notes:

- * Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
- * Fuel consumption is valued to the rate of \$3.43 per gallon.(Florida Department of Revenue & Orlando Gas Prices)
- * Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffics
- * The service life of the improvement was kept as three (3) years.
- * Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

SR 435/KIRKMAN RD. Old Winter Garden Rd. to SR 408 Ramps

TABLE 23
Year 2012 METROPLAN Orlando Travel Time Study
SR 435 (Kirkman Road) - Old Winter Garden Road to SR 408 - Northbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to Old Winter Garden Rd	Orange County	Arterial	Residential	2	3	1	45	211	7	Signal	34.8	27.0	II	4.1	F	0.09	
Old Winter Garden Rd. to Washington St.	Orange County	Arterial	Residential	1	3	0	45	1,848	7	Signal	33.0	0.0	II	38.2	A	0.85	
Washington St. to SR 408 EB Ramps	Orange County	Arterial	Residential	0	4	1	45	1,901	7	Signal	31.2	0.0	II	41.5	A	0.92	
SR 408 EB Ramps to SR 408 WB Ramps	Orange County	Arterial	Residential	1	3	0	45	528	7	Signal	7.2	0.0	II	50.0	A	1.11	
TOTAL							45	4,488			106.2	27.0	II	28.8	B	0.64	0.029 gal/veh
PM PEAK HOUR																	
Median Opening to Old Winter Garden Rd	Orange County	Arterial	Residential	2	3	1	45	211	8	Signal	37.2	30.0	II	3.9	F	0.09	
Old Winter Garden Rd. to Washington St.	Orange County	Arterial	Residential	1	3	0	45	1,848	8	Signal	31.2	0.0	II	40.4	A	0.90	
Washington St. to SR 408 EB Ramps	Orange County	Arterial	Residential	0	4	1	45	1,901	8	Signal	28.8	0.0	II	45.0	A	1.00	
SR 408 EB Ramps to SR 408 WB Ramps	Orange County	Arterial	Residential	1	3	0	45	528	8	Signal	7.4	0.0	II	48.6	A	1.08	
TOTAL							45	4,488			104.6	30.0	II	29.3	B	0.65	0.029 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

TABLE 23
Year 2012 METROPLAN Orlando Travel Time Study
SR 435 (Kirkman Road) - Old Winter Garden Road to SR 408 - Southbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to SR 408 WB Ramps	Orange County	Arterial	Residential	0	4	1	45	211	8	Signal	14.4	9.6	II	10.0	F	0.22	
SR 408 WB Ramps to SR 408 EB Ramps	Orange County	Arterial	Residential	1	3	0	45	528	8	Signal	13.8	0.6	II	26.1	C	0.58	
SR 408 EB Ramps to Washington St.	Orange County	Arterial	Residential	1	3	0	45	1,901	8	Signal	54.0	15.6	II	24.0	C	0.53	
Washington St. to Old Winter Garden Rd.	Orange County	Arterial	Residential	1	3	1	45	1,848	8	Signal	40.2	4.2	II	31.3	B	0.70	
TOTAL							45	4,488			122.4	30.0	II	25.0	C	0.56	0.030 gal/veh
PM PEAK HOUR																	
Median Opening to SR 408 WB Ramps	Orange County	Arterial	Residential	0	4	1	45	211	8	Signal	13.2	8.4	II	10.9	F	0.24	
SR 408 WB Ramps to SR 408 EB Ramps	Orange County	Arterial	Residential	1	3	0	45	528	8	Signal	9.0	0.0	II	40.0	A	0.89	
SR 408 EB Ramps to Washington St.	Orange County	Arterial	Residential	1	3	0	45	1,901	8	Signal	30.6	0.0	II	42.4	A	0.94	
Washington St. to Old Winter Garden Rd.	Orange County	Arterial	Residential	1	3	1	45	1,848	8	Signal	69.6	30.6	II	18.1	D	0.40	
TOTAL							45	4,488			122.4	39.0	II	25.0	C	0.56	0.030 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

TABLE 23
Year 2012 METROPLAN Orlando Travel Time Study
SR 435 (Kirkman Road) - Old Winter Garden Road to SR 408 - Northbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to Old Winter Garden Rd	Orange County	Arterial	Residential	2	3	1	45	211	10	Signal	9.0	4.8	II	16.0	E	0.36	
Old Winter Garden Rd. to Washington St.	Orange County	Arterial	Residential	1	3	0	45	1,848	10	Signal	40.8	4.8	II	30.9	B	0.69	
Washington St. to SR 408 EB Ramps	Orange County	Arterial	Residential	0	4	1	45	1,901	10	Signal	38.4	2.4	II	33.7	B	0.75	
SR 408 EB Ramps to SR 408 WB Ramps	Orange County	Arterial	Residential	1	3	0	45	528	10	Signal	7.4	0.0	II	48.6	A	1.08	
TOTAL							45	4,488			95.6	12.0	II	32.0	B	0.71	0.029 gal/veh
PM PEAK HOUR																	
Median Opening to Old Winter Garden Rd	Orange County	Arterial	Residential	2	3	1	45	211	8	Signal	15.0	9.6	II	9.6	F	0.21	
Old Winter Garden Rd. to Washington St.	Orange County	Arterial	Residential	1	3	0	45	1,848	8	Signal	32.4	0.0	II	38.9	A	0.86	
Washington St. to SR 408 EB Ramps	Orange County	Arterial	Residential	0	4	1	45	1,901	8	Signal	31.8	0.0	II	40.8	A	0.91	
SR 408 EB Ramps to SR 408 WB Ramps	Orange County	Arterial	Residential	1	3	0	45	528	8	Signal	7.2	1.2	II	50.0	A	1.11	
TOTAL							45	4,488			86.4	10.8	II	35.4	A	0.79	0.029 gal/veh

Note:

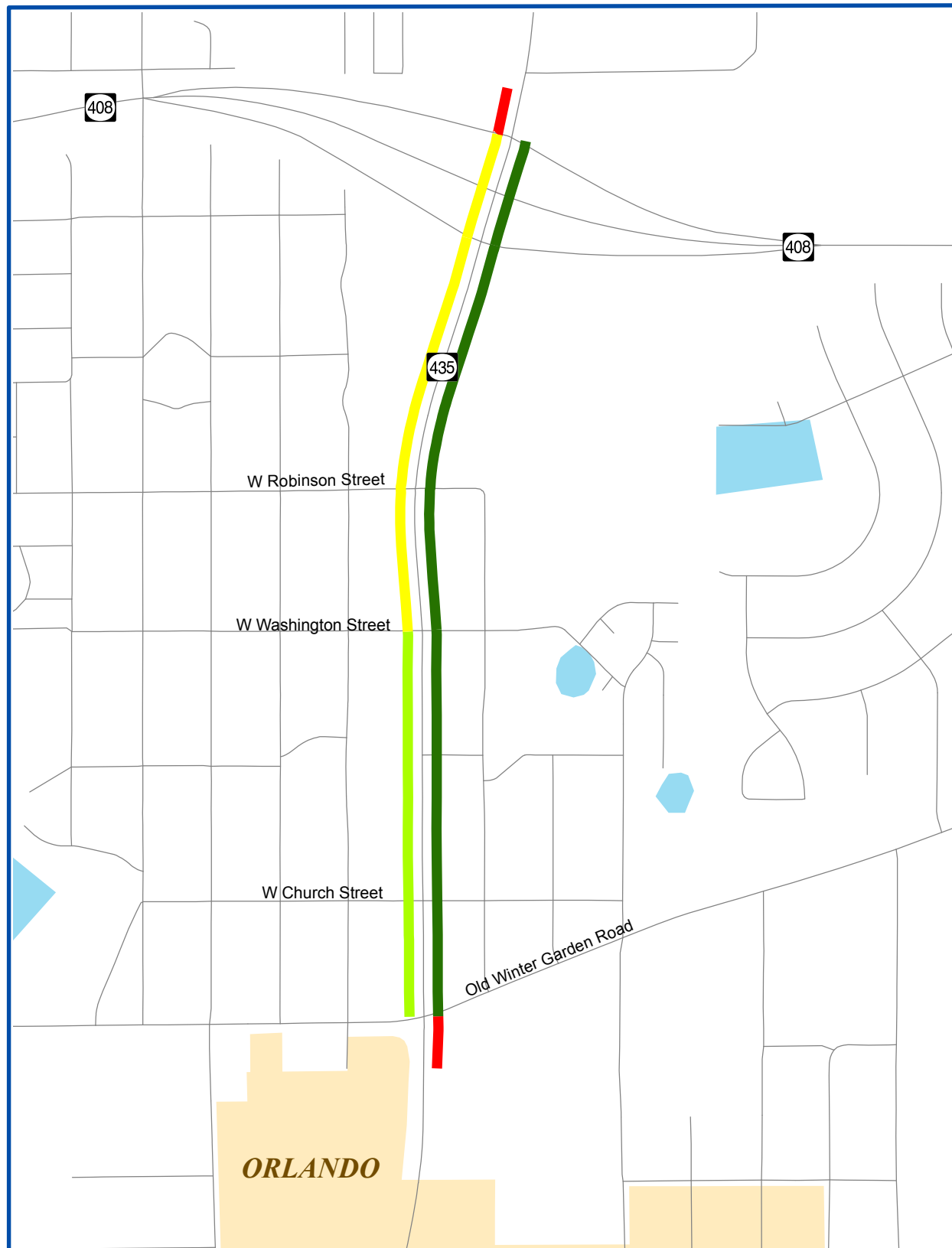
1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

TABLE 23
Year 2012 METROPLAN Orlando Travel Time Study
SR 435 (Kirkman Road) - Old Winter Garden Road to SR 408 - Southbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to SR 408 WB Ramps	Orange County	Arterial	Residential	0	4	1	45	211	9	Signal	10.8	0.0	II	13.3	E	0.30	
SR 408 WB Ramps to SR 408 EB Ramps	Orange County	Arterial	Residential	1	3	0	45	528	9	Signal	10.2	0.0	II	35.3	A	0.78	
SR 408 EB Ramps to Washington St.	Orange County	Arterial	Residential	1	3	0	45	1,901	9	Signal	37.2	4.2	II	34.8	B	0.77	
Washington St. to Old Winter Garden Rd.	Orange County	Arterial	Residential	1	3	1	45	1,848	9	Signal	34.8	3.0	II	36.2	A	0.80	
TOTAL							45	4,488			93.0	7.2	II	32.9	B	0.73	0.029 gal/veh
PM PEAK HOUR																	
Median Opening to SR 408 WB Ramps	Orange County	Arterial	Residential	0	4	1	45	211	7	Signal	3.0	0.0	II	48.0	A	1.07	
SR 408 WB Ramps to SR 408 EB Ramps	Orange County	Arterial	Residential	1	3	0	45	528	7	Signal	7.6	0.0	II	47.4	A	1.05	
SR 408 EB Ramps to Washington St.	Orange County	Arterial	Residential	1	3	0	45	1,901	7	Signal	28.2	0.0	II	46.0	A	1.02	
Washington St. to Old Winter Garden Rd.	Orange County	Arterial	Residential	1	3	1	45	1,848	7	Signal	76.8	35.4	II	16.4	E	0.36	
TOTAL							45	4,488			115.6	35.4	II	26.5	C	0.59	0.029 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.



**SR 435/Kirkman Rd.
- AM Peak**

Before Condition

Date of Collection: 1/12/2012
 Distance: 0.85 miles
 From: Old Winter Garden Rd.
 To: SR 408

Start Time: 7:45 AM
 End Time: 9:00 AM

NB Avg Speed: 28.8 MPH
 NB Travel Time: 1.77 MIN
 NB Delay Time: 0.45 MIN

SB Avg Speed: 25.0 MPH
 SB Travel Time: 2.04 MIN
 SB Delay Time: 0.50 MIN

**SR 435/Kirkman Rd.
- AM Peak**

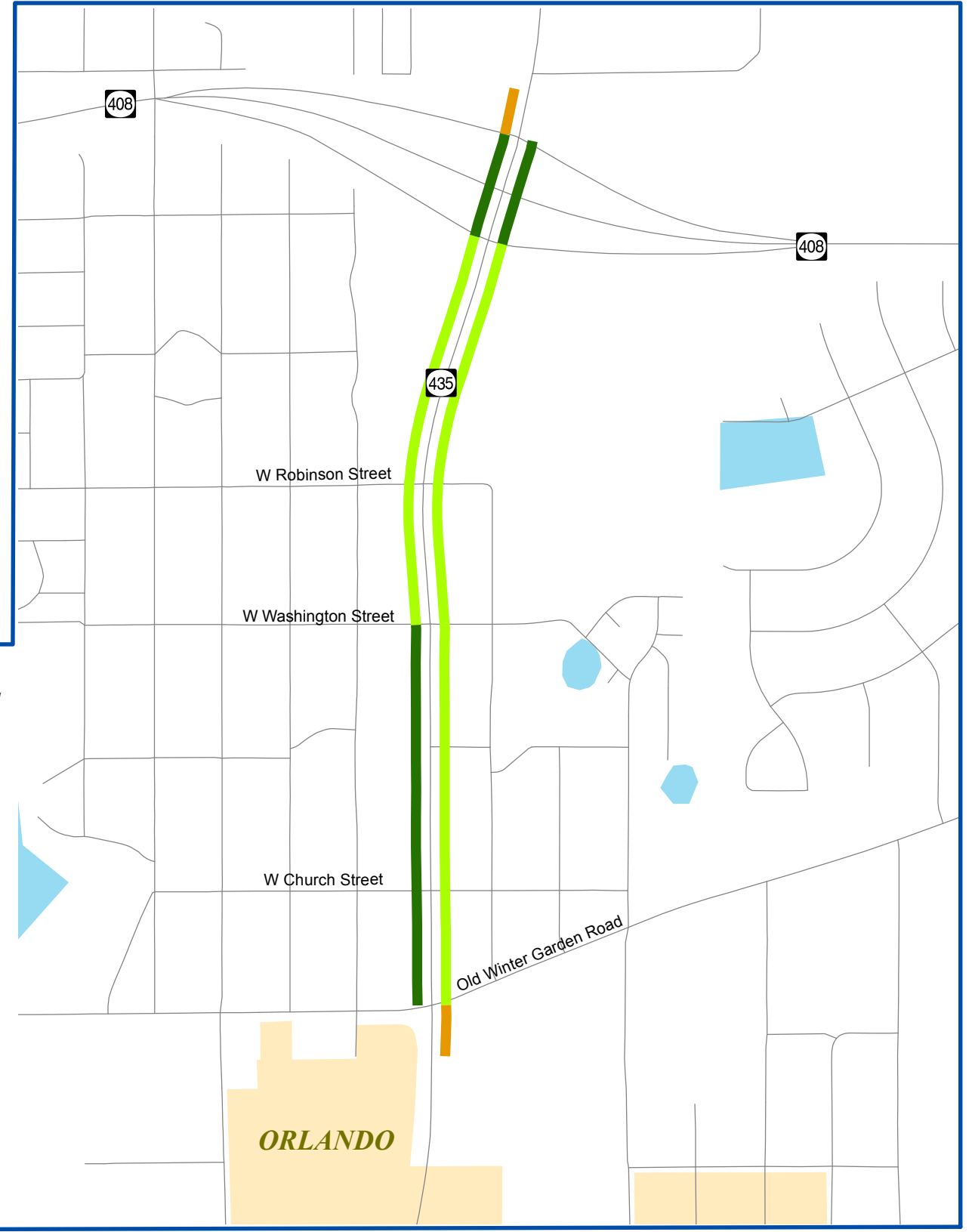
After Condition

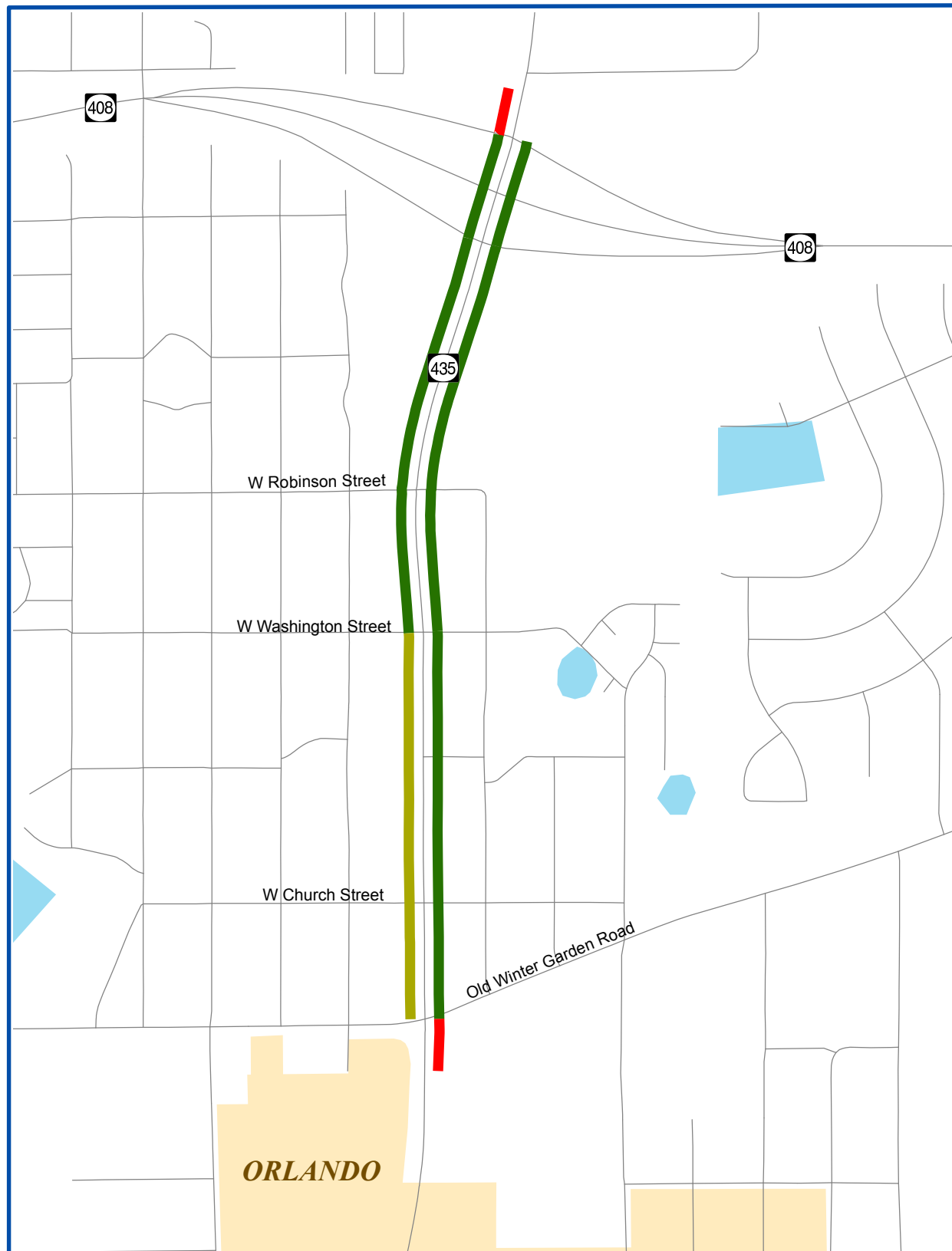
Date of Collection: 4/26/2012
 Distance: 0.85 miles
 From: Old Winter Garden Rd.
 To: SR 408

Start Time: 7:45 AM
 End Time: 9:00 AM

NB Avg Speed: 32.0 MPH
 NB Travel Time: 1.59 MIN
 NB Delay Time: 0.20 MIN

SB Avg Speed: 32.9 MPH
 SB Travel Time: 1.55 MIN
 SB Delay Time: 0.12 MIN





**SR 435/Kirkman Rd.
- PM Peak**

Before Condition

Date of Collection: 1/12/2012
 Distance: 0.85 miles
 From: Old Winter Garden Rd.
 To: SR 408

Start Time: 4:45 PM
 End Time: 6:00 PM

NB Avg Speed: 29.3 MPH
 NB Travel Time: 1.74 MIN
 NB Delay Time: 0.50 MIN

SB Avg Speed: 25.0 MPH
 SB Travel Time: 2.04 MIN
 SB Delay Time: 0.65 MIN

**SR 435/Kirkman Rd.
- PM Peak**

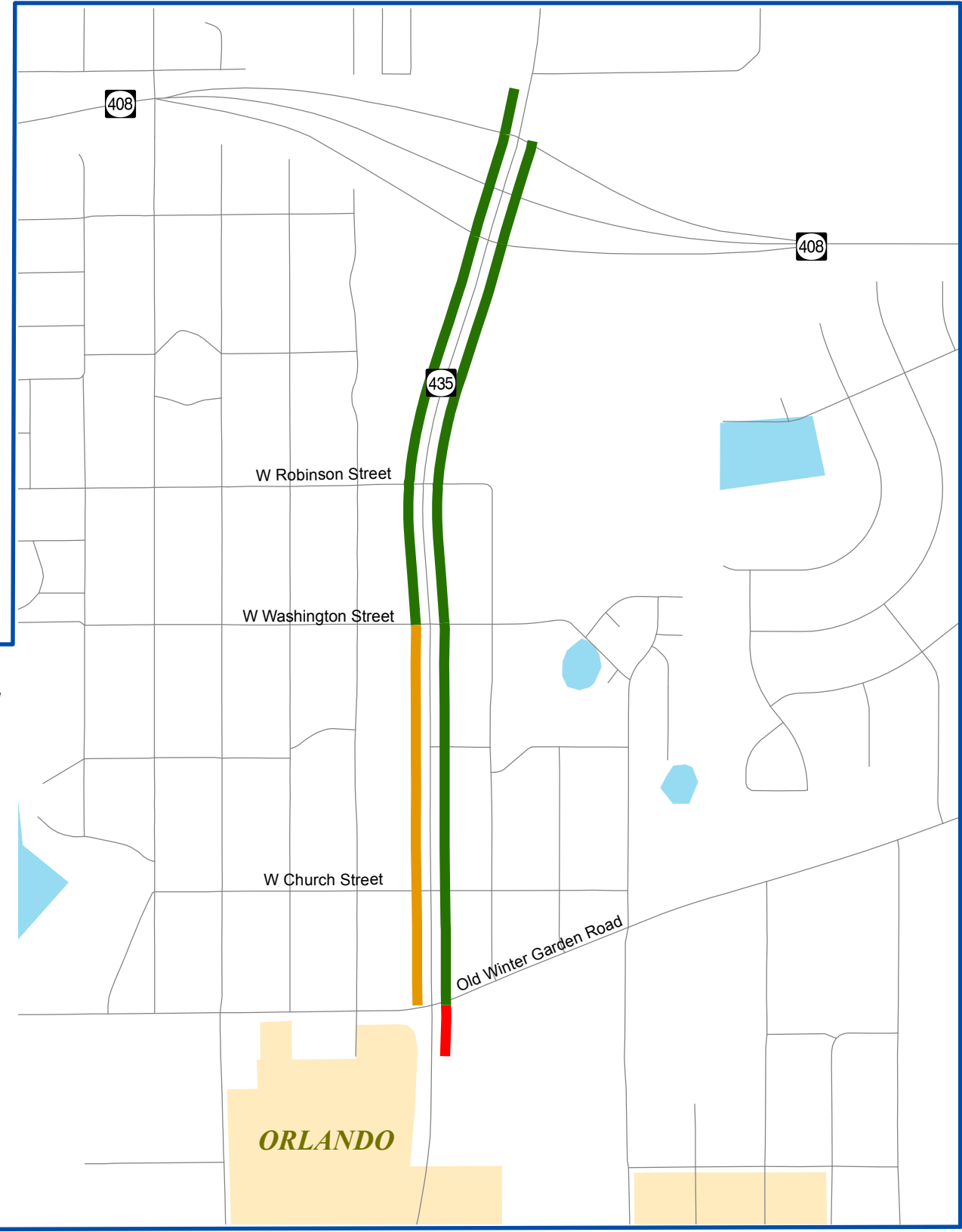
After Condition

Date of Collection: 4/26/2012
 Distance: 0.85 miles
 From: Old Winter Garden Rd.
 To: SR 408

Start Time: 4:45 PM
 End Time: 6:00 PM

NB Avg Speed: 35.4 MPH
 NB Travel Time: 1.44 MIN
 NB Delay Time: 0.18 MIN

SB Avg Speed: 26.5 MPH
 SB Travel Time: 1.92 MIN
 SB Delay Time: 0.59 MIN



SR 435 (Kirkman Road) - Old Winter Garden Road to SR 408
Summary of Before Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
1141	106.2	27.0	28.8	0.0290	33.66	33.09
Northbound/Eastbound - PM Peak Hour						
2041	104.6	30.0	29.3	0.0290	59.30	59.19
Southbound/Westbound - AM Peak Hour						
1401	122.4	30.0	25.0	0.0300	47.63	42.03
Southbound/Westbound - PM Peak Hour						
1424	122.4	39.0	25.0	0.0300	48.42	42.72

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 435 (Kirkman Road) - Old Winter Garden Road to SR 408
Summary of After Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
1141	95.6	12.0	32.0	0.0290	30.30	33.09
Northbound/Eastbound - PM Peak Hour						
2041	86.4	10.8	35.4	0.0290	48.98	59.19
Southbound/Westbound - AM Peak Hour						
1401	93.0	7.2	32.9	0.0290	36.19	40.63
Southbound/Westbound - PM Peak Hour						
1424	115.6	35.4	26.5	0.0290	45.73	41.30

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 435 (Kirkman Road) - Old Winter Garden Road to SR 408
Summary of Measures of Effectiveness & Benefit Cost Analysis

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	81.29	66.49	107.72	94.71
Total Fuel Consumption (gallons)	75.12	73.72	101.91	100.49

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$246.06	\$216.92
Annual User Benefit	\$73,819.06	\$65,075.23
Total Annual User Benefit =	\$138,894.29	
Total Signal Retiming Annual Cost	\$6,863.70	
User Benefit / Cost Ratio	20.24	

Notes:

- * Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
- * Fuel consumption is valued to the rate of \$3.43 per gallon.(Florida Department of Revenue & Orlando Gas Prices)
- * Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffics
- * The service life of the improvement was kept as three (3) years.
- * Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

SR 423/LEE RD.

SR 424/Edgewater Dr. to Wymore Rd.

TABLE 24
Year 2012 METROPLAN Orlando Travel Time Study
SR 423/Lee Road - SR 424/Edgewater Drive to Wymore Road - Eastbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to SR 424/Edgewater Dr.	Orange County	Arterial	OBD	1	3	0	45	211	7	Signal	64.8	57.6	II	2.2	F	0.05	
SR 424/Edgewater Dr. to Kingswood Dr.	Orange County	Arterial	OBD	1	3	0	45	2,798	7	Signal	43.8	0.0	II	43.6	A	0.97	
Kingswood Dr. to Adanson St.	Orange County	Arterial	OBD	1	3	0	45	1,901	7	Signal	30.6	0.0	II	42.4	A	0.94	
Adanson St. to Diplomat Cir.	Orange County	Arterial	OBD	1	3	0	45/35	1,742	7	Signal	34.2	1.2	II	34.7	B	0.87	
Diplomat Cir. to I-4 WB Ramps	Orange County	Arterial	OBD	1	2	1	35	792	7	Signal	30.6	6.0	II	17.6	D	0.50	
I-4 WB Ramps to I-4 EB Ramps	Orange County	Arterial	OBD	1	2	0	35	317	7	Signal	7.8	0.0	II	27.7	C	0.79	
I-4 EB Ramps to Wymore Rd.	Orange County	Arterial	OBD	1	2	0	35	317	7	Signal	6.0	0.0	II	36.0	A	1.03	
TOTAL							45	8,078			217.8	64.8	II	25.3	C	0.56	0.054 gal/veh
PM PEAK HOUR																	
Median Opening to SR 424/Edgewater Dr.	Orange County	Arterial	OBD	1	3	0	45	211	10	Signal	22.8	16.8	II	6.3	F	0.14	
SR 424/Edgewater Dr. to Kingswood Dr.	Orange County	Arterial	OBD	1	3	0	45	2,798	10	Signal	47.4	0.0	II	40.3	A	0.89	
Kingswood Dr. to Adanson St.	Orange County	Arterial	OBD	1	3	0	45	1,901	10	Signal	34.8	0.6	II	37.2	A	0.83	
Adanson St. to Diplomat Cir.	Orange County	Arterial	OBD	1	3	0	45/35	1,742	10	Signal	42.0	7.2	II	28.3	B	0.71	
Diplomat Cir. to I-4 WB Ramps	Orange County	Arterial	OBD	1	2	1	35	792	10	Signal	37.8	13.2	II	14.3	E	0.41	
I-4 WB Ramps to I-4 EB Ramps	Orange County	Arterial	OBD	1	2	0	35	317	10	Signal	11.4	1.2	II	18.9	D	0.54	
I-4 EB Ramps to Wymore Rd.	Orange County	Arterial	OBD	1	2	0	35	317	10	Signal	15.0	7.8	II	14.4	E	0.41	
TOTAL							45	8,078			211.2	46.8	II	26.1	C	0.58	0.054 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

TABLE 24
Year 2012 METROPLAN Orlando Travel Time Study
SR 423/Lee Road - SR 424/Edgewater Drive to Wymore Road - Westbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to Wymore Rd.	Orange County	Arterial	OBD	1	4	0	35	264	7	Signal	78.0	64.2	II	2.3	F	0.07	
Wymore Rd. to I-4 EB Ramps	Orange County	Arterial	OBD	0	4	1	35	317	7	Signal	31.2	18.0	II	6.9	F	0.20	
I-4 EB Ramps to I-4 WB Ramps	Orange County	Arterial	OBD	2	2	0	35	317	7	Signal	8.4	0.0	II	25.7	C	0.73	
I-4 WB Ramps to Diplomat Cir.	Orange County	Arterial	OBD	1	3	0	35	792	7	Signal	15.0	0.0	II	36.0	A	1.03	
Diplomat Cir. to Adanson St.	Orange County	Arterial	OBD	1	3	0	35/45	1,742	7	Signal	31.2	0.0	II	38.1	A	0.95	
Adanson St. to Kingswood Dr.	Orange County	Arterial	OBD	1	3	0	45	1,901	7	Signal	46.2	10.8	II	28.1	B	0.62	
Kingswood Dr. to SR 424/Edgewater Dr.	Orange County	Arterial	OBD	1	3	0	45	2,798	7	Signal	109.8	53.4	II	17.4	D	0.39	
TOTAL							45	8,131			319.8	146.4	II	17.3	D	0.39	0.056 gal/veh
PM PEAK HOUR																	
Median Opening to Wymore Rd.	Orange County	Arterial	OBD	1	4	0	35	264	9	Signal	55.8	43.8	II	3.2	F	0.09	
Wymore Rd. to I-4 EB Ramps	Orange County	Arterial	OBD	0	4	1	35	317	9	Signal	14.4	4.8	II	15.0	E	0.43	
I-4 EB Ramps to I-4 WB Ramps	Orange County	Arterial	OBD	2	2	0	35	317	9	Signal	6.6	0.0	II	32.7	B	0.94	
I-4 WB Ramps to Diplomat Cir.	Orange County	Arterial	OBD	1	3	0	35	792	9	Signal	15.0	0.0	II	36.0	A	1.03	
Diplomat Cir. to Adanson St.	Orange County	Arterial	OBD	1	3	0	35/45	1,742	9	Signal	34.2	0.0	II	34.7	B	0.87	
Adanson St. to Kingswood Dr.	Orange County	Arterial	OBD	1	3	0	45	1,901	9	Signal	31.8	0.0	II	40.8	A	0.91	
Kingswood Dr. to SR 424/Edgewater Dr.	Orange County	Arterial	OBD	1	3	0	45	2,798	9	Signal	67.8	12.0	II	28.1	B	0.63	
TOTAL							45	8,131			225.6	60.6	II	24.6	C	0.55	0.055 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

TABLE 24
Year 2012 METROPLAN Orlando Travel Time Study
SR 423/Lee Road - SR 424/Edgewater Drive to Wymore Road - Eastbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to SR 424/Edgewater Dr.	Orange County	Arterial	OBD	1	3	0	45	211	8	Signal	28.2	21.6	II	5.1	F	0.11	
SR 424/Edgewater Dr. to Kingswood Dr.	Orange County	Arterial	OBD	1	3	0	45	2,798	8	Signal	46.8	0.0	II	40.8	A	0.91	
Kingswood Dr. to Adanson St.	Orange County	Arterial	OBD	1	3	0	45	1,901	8	Signal	30.6	0.0	II	42.4	A	0.94	
Adanson St. to Diplomat Cir.	Orange County	Arterial	OBD	1	3	0	45/35	1,742	8	Signal	32.4	1.2	II	36.7	A	0.92	
Diplomat Cir. to I-4 WB Ramps	Orange County	Arterial	OBD	1	2	1	35	792	8	Signal	33.0	13.2	II	16.4	E	0.47	
I-4 WB Ramps to I-4 EB Ramps	Orange County	Arterial	OBD	1	2	0	35	317	8	Signal	7.8	0.0	II	27.7	C	0.79	
I-4 EB Ramps to Wymore Rd.	Orange County	Arterial	OBD	1	2	0	35	317	8	Signal	16.2	9.6	II	13.3	E	0.38	
TOTAL							45	8,078			195.0	45.6	II	28.2	B	0.63	0.053 gal/veh
PM PEAK HOUR																	
Median Opening to SR 424/Edgewater Dr.	Orange County	Arterial	OBD	1	3	0	45	211	9	Signal	12.0	6.6	II	12.0	F	0.27	
SR 424/Edgewater Dr. to Kingswood Dr.	Orange County	Arterial	OBD	1	3	0	45	2,798	9	Signal	46.2	0.0	II	41.3	A	0.92	
Kingswood Dr. to Adanson St.	Orange County	Arterial	OBD	1	3	0	45	1,901	9	Signal	31.8	0.0	II	40.8	A	0.91	
Adanson St. to Diplomat Cir.	Orange County	Arterial	OBD	1	3	0	45/35	1,742	9	Signal	31.8	0.0	II	37.4	A	0.93	
Diplomat Cir. to I-4 WB Ramps	Orange County	Arterial	OBD	1	2	1	35	792	9	Signal	19.2	0.6	II	28.1	B	0.80	
I-4 WB Ramps to I-4 EB Ramps	Orange County	Arterial	OBD	1	2	0	35	317	9	Signal	6.6	0.0	II	32.7	B	0.94	
I-4 EB Ramps to Wymore Rd.	Orange County	Arterial	OBD	1	2	0	35	317	9	Signal	24.6	18.0	II	8.8	F	0.25	
TOTAL							45	8,078			172.2	25.2	II	32.0	B	0.71	0.053 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

TABLE 24
Year 2012 METROPLAN Orlando Travel Time Study
SR 423/Lee Road - SR 424/Edgewater Drive to Wymore Road - Westbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to Wymore Rd.	Orange County	Arterial	OBD	1	4	0	35	264	8	Signal	21.6	12.6	II	8.3	F	0.24	
Wymore Rd. to I-4 EB Ramps	Orange County	Arterial	OBD	0	4	1	35	317	8	Signal	9.0	1.2	II	24.0	C	0.69	
I-4 EB Ramps to I-4 WB Ramps	Orange County	Arterial	OBD	2	2	0	35	317	8	Signal	6.0	0.0	II	36.0	A	1.03	
I-4 WB Ramps to Diplomat Cir.	Orange County	Arterial	OBD	1	3	0	35	792	8	Signal	14.4	0.0	II	37.5	A	1.07	
Diplomat Cir. to Adanson St.	Orange County	Arterial	OBD	1	3	0	35/45	1,742	8	Signal	30.0	0.0	II	39.6	A	0.99	
Adanson St. to Kingswood Dr.	Orange County	Arterial	OBD	1	3	0	45	1,901	8	Signal	30.0	0.0	II	43.2	A	0.96	
Kingswood Dr. to SR 424/Edgewater Dr.	Orange County	Arterial	OBD	1	3	0	45	2,798	8	Signal	88.8	36.0	II	21.5	D	0.48	
TOTAL							45	8,131			199.8	49.8	II	27.7	C	0.62	0.054 gal/veh
PM PEAK HOUR																	
Median Opening to Wymore Rd.	Orange County	Arterial	OBD	1	4	0	35	264	9	Signal	39.0	27.6	II	4.6	F	0.13	
Wymore Rd. to I-4 EB Ramps	Orange County	Arterial	OBD	0	4	1	35	317	9	Signal	9.0	0.0	II	24.0	C	0.69	
I-4 EB Ramps to I-4 WB Ramps	Orange County	Arterial	OBD	2	2	0	35	317	9	Signal	7.2	0.0	II	30.0	B	0.86	
I-4 WB Ramps to Diplomat Cir.	Orange County	Arterial	OBD	1	3	0	35	792	9	Signal	16.8	0.6	II	32.1	B	0.92	
Diplomat Cir. to Adanson St.	Orange County	Arterial	OBD	1	3	0	35/45	1,742	9	Signal	32.4	0.0	II	36.7	A	0.92	
Adanson St. to Kingswood Dr.	Orange County	Arterial	OBD	1	3	0	45	1,901	9	Signal	31.2	0.0	II	41.5	A	0.92	
Kingswood Dr. to SR 424/Edgewater Dr.	Orange County	Arterial	OBD	1	3	0	45	2,798	9	Signal	82.8	26.4	II	23.0	C	0.51	
TOTAL							45	8,131			218.4	54.6	II	25.4	C	0.56	0.055 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

**SR 423/Lee Rd.
- AM Peak**

Before Condition

Date of Collection: 11/30/2011
Distance: 1.53 miles
From: SR 424/Edgewater Dr.
To: Wymore Rd.

Start Time: 7:30 AM
End Time: 9:00 AM

EB Avg Speed: 25.3 MPH
EB Travel Time: 3.63 MIN
EB Delay Time: 1.08 MIN

WB Avg Speed: 17.3 MPH
WB Travel Time: 5.33 MIN
WB Delay Time: 2.44 MIN



**SR 423/Lee Rd.
- AM Peak**

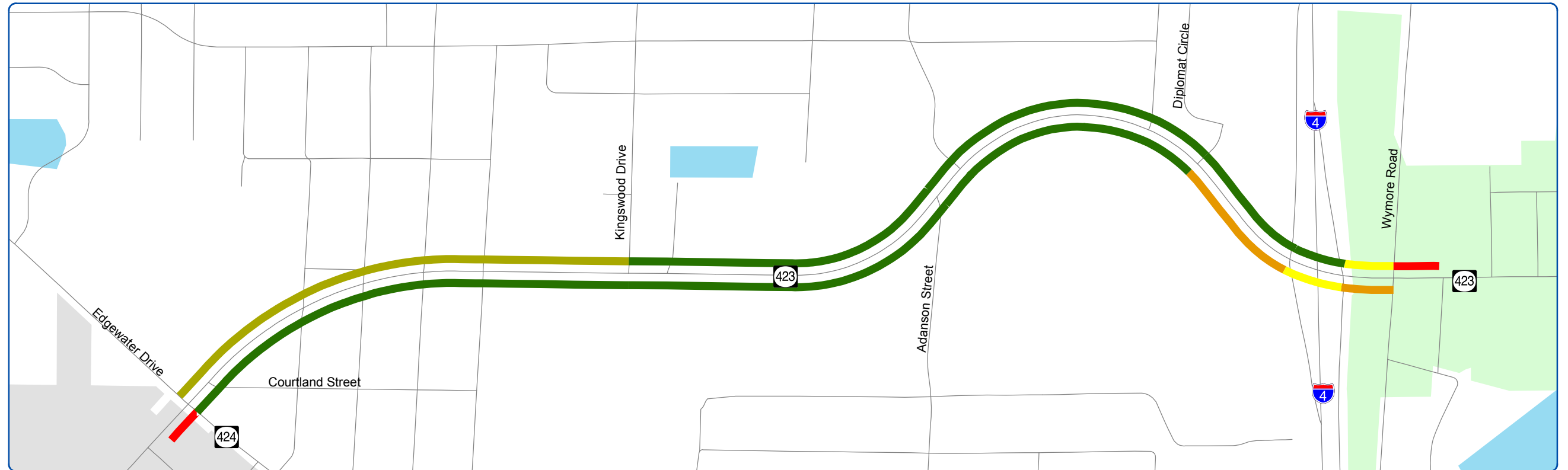
After Condition

Date of Collection: 4/24/2012
Distance: 1.53 miles
From: SR 424/Edgewater Dr.
To: Wymore Rd.

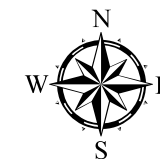
Start Time: 7:30 AM
End Time: 9:00 AM

EB Avg Speed: 28.2 MPH
EB Travel Time: 3.25 MIN
EB Delay Time: 0.76 MIN

WB Avg Speed: 27.7 MPH
WB Travel Time: 3.33 MIN
WB Delay Time: 0.83 MIN

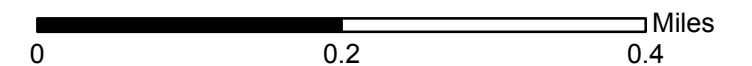


Level of Services:



2012 METROPLAN ORLANDO

Travel Time Study



**SR 423/Lee Rd.
- PM Peak**

Before Condition

Date of Collection: 11/30/2011
Distance: 1.53 miles
From: SR 424/Edgewater Dr.
To: Wymore Rd.

Start Time: 4:00 PM
End Time: 5:30 PM

EB Avg Speed: 26.1 MPH
EB Travel Time: 3.52 MIN
EB Delay Time: 0.78 MIN

WB Avg Speed: 24.6 MPH
WB Travel Time: 3.76 MIN
WB Delay Time: 1.01 MIN



**SR 423/Lee Rd.
- PM Peak**

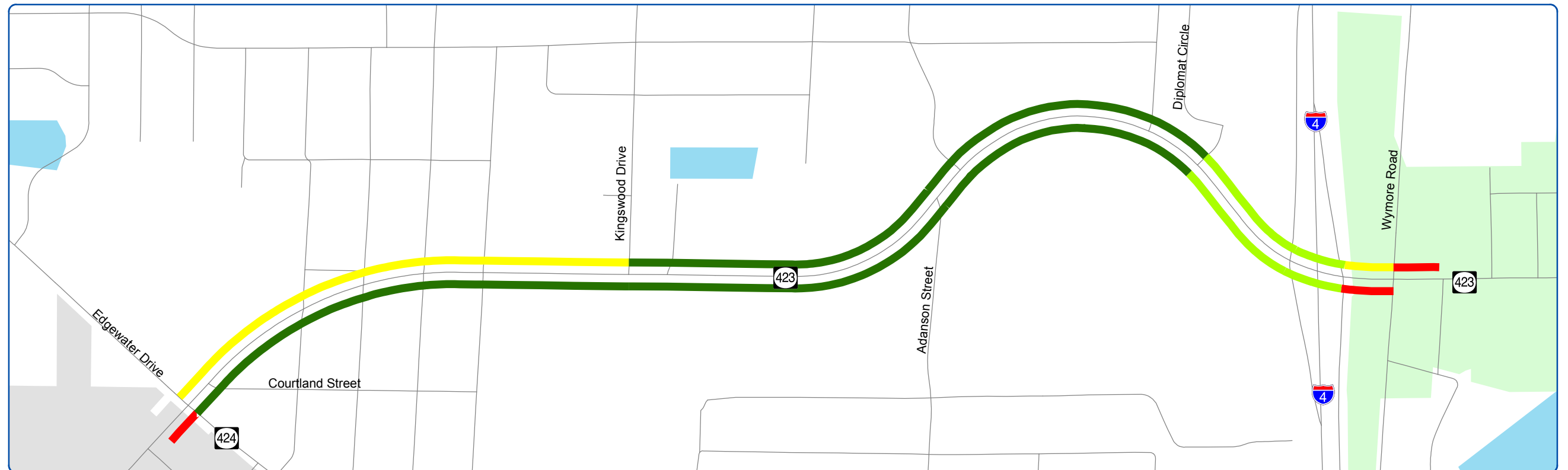
After Condition

Date of Collection: 4/24/2012
Distance: 1.53 miles
From: SR 424/Edgewater Dr.
To: Wymore Rd.

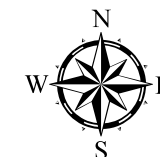
Start Time: 4:00 PM
End Time: 5:30 PM

EB Avg Speed: 32.0 MPH
EB Travel Time: 2.87 MIN
EB Delay Time: 0.42 MIN

WB Avg Speed: 25.4 MPH
WB Travel Time: 3.64 MIN
WB Delay Time: 0.91 MIN

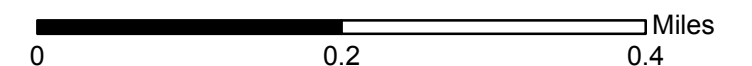


Level of Services:



2012 METROPLAN ORLANDO

Travel Time Study



SR 423/Lee Road - SR 424/Edgewater Drive to Wymore Road
Summary of Before Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
1553	217.8	64.8	25.3	0.0540	93.96	83.86
Northbound/Eastbound - PM Peak Hour						
1833	211.2	46.8	26.1	0.0540	107.54	98.98
Southbound/Westbound - AM Peak Hour						
1466	319.8	146.4	17.3	0.0560	130.23	82.10
Southbound/Westbound - PM Peak Hour						
1420	225.6	60.6	24.6	0.0550	88.99	78.10

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

**SR 423/Lee Road - SR 424/Edgewater Drive to Wymore Road
Summary of After Study Travel Time and Delay Study Results**

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
1553	195.0	45.6	28.2	0.0530	84.12	82.31
Northbound/Eastbound - PM Peak Hour						
1833	172.2	25.2	32.0	0.0530	87.68	97.15
Southbound/Westbound - AM Peak Hour						
1466	199.8	49.8	27.7	0.0540	81.36	79.16
Southbound/Westbound - PM Peak Hour						
1420	218.4	54.6	25.4	0.0550	86.15	78.10

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

**SR 423/Lee Road - SR 424/Edgewater Drive to Wymore Road
Summary of Measures of Effectiveness & Benefit Cost Analysis**

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	224.19	165.48	196.52	173.83
Total Fuel Consumption (gallons)	165.96	161.47	177.08	175.25

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$972.23	\$376.26
Annual User Benefit	\$291,669.48	\$112,876.93
Total Annual User Benefit =	\$404,546.41	
Total Signal Retiming Annual Cost	\$11,453.27	
User Benefit / Cost Ratio	35.32	

Notes:

- * Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
- * Fuel consumption is valued to the rate of \$3.43 per gallon.(Florida Department of Revenue & Orlando Gas Prices)
- * Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffics
- * The service life of the improvement was kept as three (3) years.
- * Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

US 441

CR 437 to Boy Scout Blvd.

TABLE 29
Year 2012 METROPLAN Orlando Travel Time Study
US 441 - Boy Scout Boulevard to CR 437 (Plymouth/TL Smith Road) - Northbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to Boy Scout Blvd.	Orange County	Arterial	Residential	1	2	0	45	950	10	Signal	54.6	13.2	II	11.9	F	0.26	
Boy Scout Blvd. to CR 437	Orange County	Arterial	Residential	0	2	0	45	3,274	10	Signal	69.6	9.0	II	32.1	B	0.71	
CR 437 to TL Smith Rd.	Orange County	Arterial	Residential	1	2	0	45	739	10	Signal	11.4	0.0	II	44.2	A	0.98	
TOTAL							45	4,963			135.6	22.2	II	25.0	C	0.55	0.032 gal/veh
PM PEAK HOUR																	
Median Opening to Boy Scout Blvd.	Orange County	Arterial	Residential	1	2	0	45	950	10	Signal	21.0	3.6	II	30.9	B	0.69	
Boy Scout Blvd. to CR 437	Orange County	Arterial	Residential	0	2	0	45	3,274	10	Signal	67.8	8.4	II	32.9	B	0.73	
CR 437 to TL Smith Rd.	Orange County	Arterial	Residential	1	2	0	45	739	10	Signal	11.4	0.0	II	44.2	A	0.98	
TOTAL							45	4,963			100.2	12.0	II	33.8	B	0.75	0.032 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

TABLE 29
Year 2012 METROPLAN Orlando Travel Time Study
US 441 - Boy Scout Boulevard to CR 437 (Plymouth/TL Smith Road) - Southbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to TL Smith Rd.	Orange County	Arterial	Residential	1	2	1	45	211	10	Signal	4.8	0.0	II	30.0	B	0.67	
TL Smith Rd. to CR 437	Orange County	Arterial	Residential	1	2	0	45	739	10	Signal	21.0	3.6	II	24.0	C	0.53	
CR 437 to Boy Scout Blvd.	Orange County	Arterial	Residential	1	2	0	45	3,274	10	Signal	70.8	10.8	II	31.5	B	0.70	
TOTAL							45	4,224			96.6	14.4	II	29.8	B	0.66	0.028 gal/veh
PM PEAK HOUR																	
Median Opening to TL Smith Rd.	Orange County	Arterial	Residential	1	2	1	45	211	11	Signal	10.8	6.6	II	13.3	E	0.30	
TL Smith Rd. to CR 437	Orange County	Arterial	Residential	1	2	0	45	739	11	Signal	12.0	0.0	II	42.0	A	0.93	
CR 437 to Boy Scout Blvd.	Orange County	Arterial	Residential	1	2	0	45	3,274	11	Signal	57.0	4.2	II	39.2	A	0.87	
TOTAL							45	4,224			79.8	10.8	II	36.1	A	0.80	0.027 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

TABLE 29
Year 2012 METROPLAN Orlando Travel Time Study
US 441 - Boy Scout Boulevard to CR 437 (Plymouth/TL Smith Road) - Northbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to Boy Scout Blvd.	Orange County	Arterial	Residential	1	2	0	45	950	10	Signal	28.2	4.8	II	23.0	C	0.51	
Boy Scout Blvd. to CR 437	Orange County	Arterial	Residential	0	2	0	45	3,274	10	Signal	71.4	9.0	II	31.3	B	0.69	
CR 437 to TL Smith Rd.	Orange County	Arterial	Residential	1	2	0	45	739	10	Signal	12.0	0.0	II	42.0	A	0.93	
TOTAL							45	4,963			111.6	13.8	II	30.3	B	0.67	0.031 gal/veh
PM PEAK HOUR																	
Median Opening to Boy Scout Blvd.	Orange County	Arterial	Residential	1	2	0	45	950	12	Signal	23.4	3.6	II	27.7	C	0.62	
Boy Scout Blvd. to CR 437	Orange County	Arterial	Residential	0	2	0	45	3,274	12	Signal	58.8	2.4	II	38.0	A	0.84	
CR 437 to TL Smith Rd.	Orange County	Arterial	Residential	1	2	0	45	739	12	Signal	9.6	0.0	II	52.5	A	1.17	
TOTAL							45	4,963			91.8	6.0	II	36.9	A	0.82	0.032 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

TABLE 29
Year 2012 METROPLAN Orlando Travel Time Study
US 441 - Boy Scout Boulevard to CR 437 (Plymouth/TL Smith Road) - Southbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to TL Smith Rd.	Orange County	Arterial	Residential	1	2	1	45	211	9	Signal	7.2	1.2	II	20.0	D	0.44	
TL Smith Rd. to CR 437	Orange County	Arterial	Residential	1	2	0	45	739	9	Signal	18.6	3.6	II	27.1	C	0.60	
CR 437 to Boy Scout Blvd.	Orange County	Arterial	Residential	1	2	0	45	3,274	9	Signal	65.4	5.4	II	34.1	B	0.76	
TOTAL							45	4,224			91.2	10.2	II	31.6	B	0.70	0.028 gal/veh
PM PEAK HOUR																	
Median Opening to TL Smith Rd.	Orange County	Arterial	Residential	1	2	1	45	211	10	Signal	6.0	2.4	II	24.0	C	0.53	
TL Smith Rd. to CR 437	Orange County	Arterial	Residential	1	2	0	45	739	10	Signal	18.6	4.2	II	27.1	C	0.60	
CR 437 to Boy Scout Blvd.	Orange County	Arterial	Residential	1	2	0	45	3,274	10	Signal	52.8	2.4	II	42.3	A	0.94	
TOTAL							45	4,224			77.4	9.0	II	37.2	A	0.83	0.027 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. The right turn lane at TL Smith Rd intersection was closed due to the ongoing construction work.

**US 441
- AM Peak**

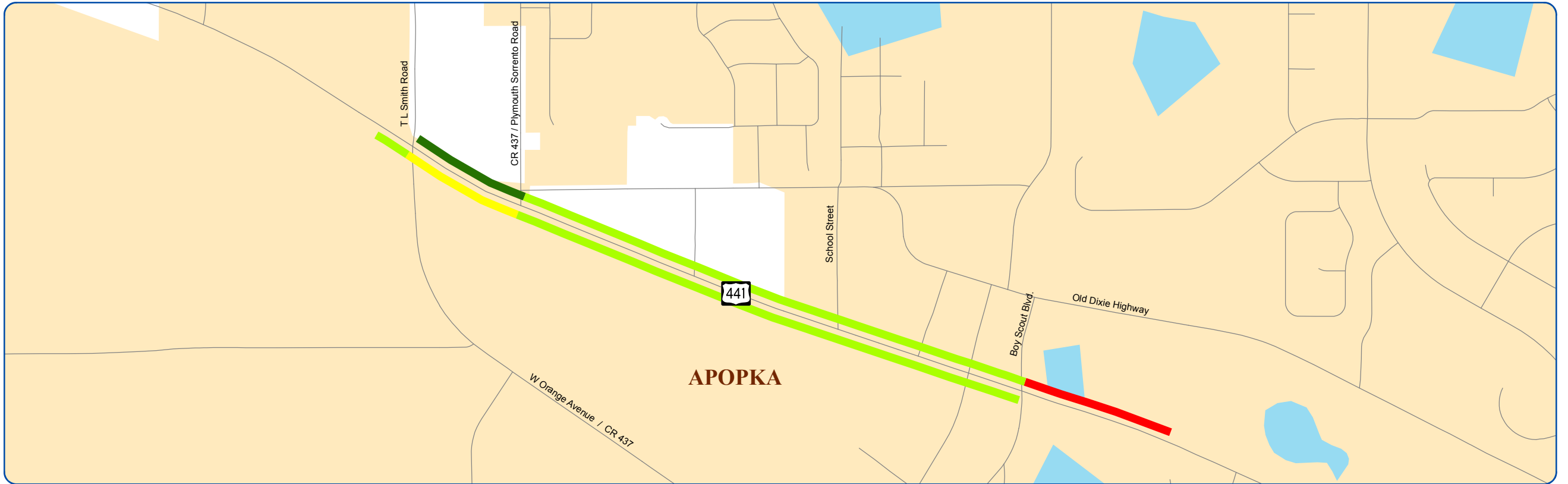
Before Condition

Date of Collection: 1/24/2012
 Distance: 0.94 miles
 From: Boy Scout Blvd.
 To: CR 437
 (Plymouth/TL Smith Rd.)

Start Time: 7:30 AM
 End Time: 8:30 AM

NB Avg Speed: 25.0 MPH
 NB Travel Time: 2.26 MIN
 NB Delay Time: 0.37 MIN

SB Avg Speed: 29.8 MPH
 SB Travel Time: 1.61 MIN
 SB Delay Time: 0.24 MIN



**US 441
- AM Peak**

After Condition

Date of Collection: 5/16/2012
 Distance: 0.94 miles
 From: Boy Scout Blvd.
 To: CR 437
 (Plymouth/TL Smith Rd.)

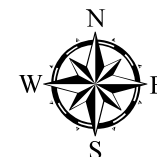
Start Time: 7:30 AM
 End Time: 8:30 AM

NB Avg Speed: 30.3 MPH
 NB Travel Time: 1.86 MIN
 NB Delay Time: 0.23 MIN

SB Avg Speed: 31.6 MPH
 SB Travel Time: 1.52 MIN
 SB Delay Time: 0.17 MIN

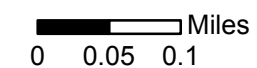


Level of Services:



2012 METROPLAN ORLANDO

Travel Time Study



**US 441
- PM Peak**

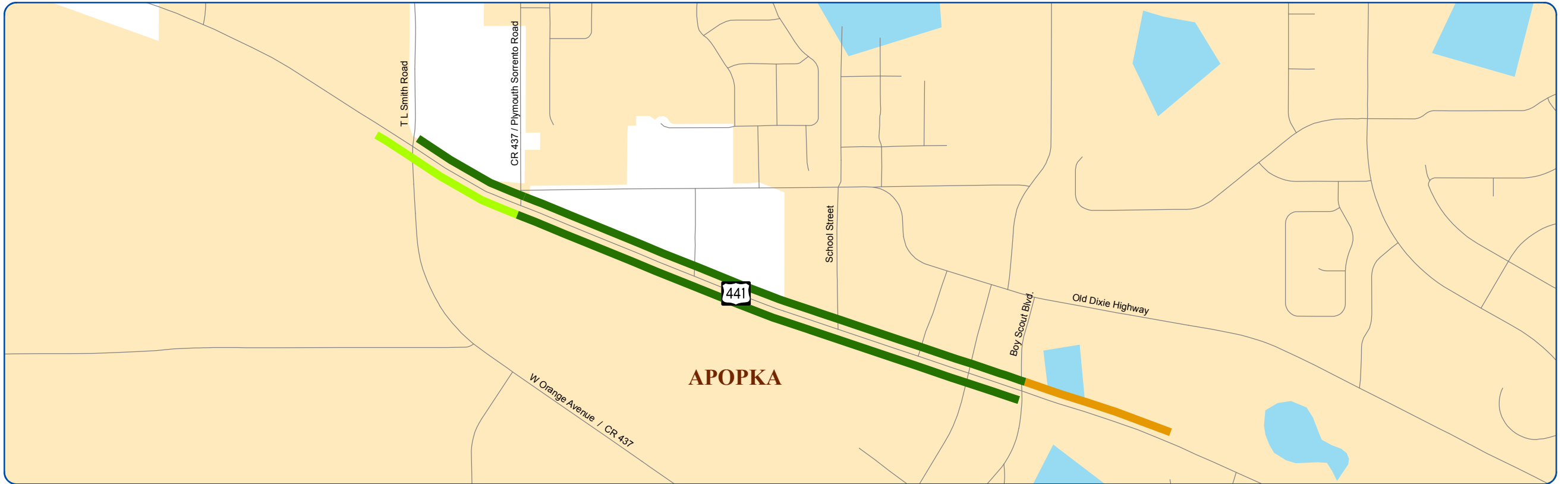
Before Condition

Date of Collection: 1/24/2012
 Distance: 0.94 miles
 From: Boy Scout Blvd.
 To: CR 437
 (Plymouth/TL Smith Rd.)

Start Time: 4:45 PM
 End Time: 5:45 PM

NB Avg Speed: 33.8 MPH
 NB Travel Time: 1.67 MIN
 NB Delay Time: 0.20 MIN

SB Avg Speed: 36.1 MPH
 SB Travel Time: 1.33 MIN
 SB Delay Time: 0.18 MIN



**US 441
- PM Peak**

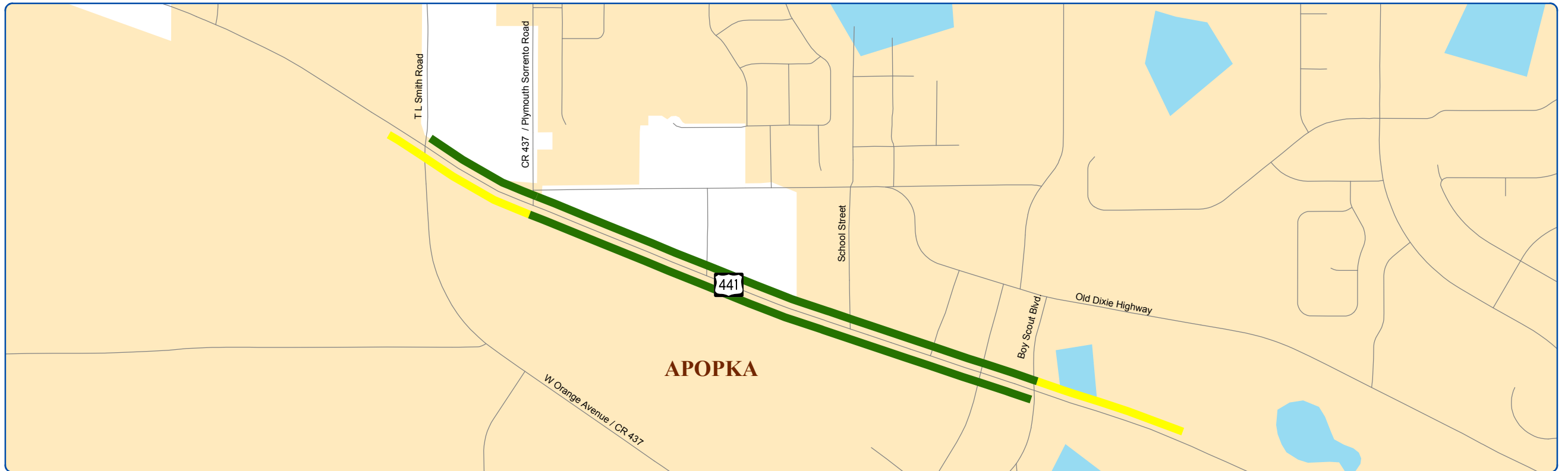
After Condition

Date of Collection: 5/16/2012
 Distance: 0.94 miles
 From: Boy Scout Blvd.
 To: CR 437
 (Plymouth/TL Smith Rd.)

Start Time: 4:45 PM
 End Time: 5:45 PM

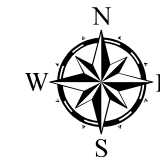
NB Avg Speed: 36.9 MPH
 NB Travel Time: 1.53 MIN
 NB Delay Time: 0.10 MIN

SB Avg Speed: 37.2 MPH
 SB Travel Time: 1.29 MIN
 SB Delay Time: 0.15 MIN



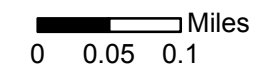
Level of Services:

- | | | | | | |
|--|---|--|---|--|---------------|
| | A | | D | | Roads |
| | B | | E | | City Boundary |
| | C | | F | | Water |



2012 METROPLAN ORLANDO

Travel Time Study



US 441 - Boy Scout Boulevard to CR 437 (Plymouth/TL Smith Road)
Summary of Before Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
1074	135.6	22.2	25.0	0.0320	40.45	34.37
Northbound/Eastbound - PM Peak Hour						
1851	100.2	12.0	33.8	0.0320	51.52	59.23
Southbound/Westbound - AM Peak Hour						
1970	96.6	14.4	29.8	0.0280	52.86	55.16
Southbound/Westbound - PM Peak Hour						
1182	79.8	10.8	36.1	0.0270	26.20	31.91

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

US 441 - Boy Scout Boulevard to CR 437 (Plymouth/TL Smith Road)
Summary of After Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
1074	111.6	13.8	30.3	0.0310	33.29	33.29
Northbound/Eastbound - PM Peak Hour						
1851	91.8	6.0	36.9	0.0320	47.20	59.23
Southbound/Westbound - AM Peak Hour						
1970	91.2	10.2	31.6	0.0280	49.91	55.16
Southbound/Westbound - PM Peak Hour						
1182	77.4	9.0	37.2	0.0270	25.41	31.91

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

US 441 - Boy Scout Boulevard to CR 437 (Plymouth/TL Smith Road)
Summary of Measures of Effectiveness & Benefit Cost Analysis

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	93.32	83.20	77.72	72.61
Total Fuel Consumption (gallons)	89.53	88.45	91.15	91.15

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$168.56	\$83.24
Annual User Benefit	\$50,567.50	\$24,973.23
Total Annual User Benefit =	\$75,540.73	
Total Signal Retiming Annual Cost	\$5,871.63	
User Benefit / Cost Ratio	12.87	

Notes:

- * Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
- * Fuel consumption is valued to the rate of \$3.43 per gallon.(Florida Department of Revenue & Orlando Gas Prices)
- * Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffics
- * The service life of the improvement was kept as three (3) years.
- * Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

US 441

Rose Ave. to SR 414/Maitland Blvd.

TABLE 26
Year 2012 METROPLAN Orlando Travel Time Study
US 441 - Rose Avenue to SR 414 (Maitland Boulevard) - Northbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Rose Ave.	Orange County	Arterial	OBD	1	2	1	45	1,267	9	Signal	57.0	24.6	II	15.2	E	0.34	
Rose Ave. to SR 414 EB Ramps	Orange County	Arterial	Residential	0	3	1	45	5,861	9	Signal	107.4	9.6	II	37.2	A	0.83	
SR 414 EB Ramps to SR 414 WB Ramps	Orange County	Arterial	Residential	1	2	0	45	686	9	Signal	15.6	0.6	II	30.0	B	0.67	
TOTAL							45	7,814			180.0	34.8	II	29.6	B	0.66	0.057 gal/veh
PM PEAK HOUR																	
Median Opening to Rose Ave.	Orange County	Arterial	OBD	1	2	1	45	1,267	11	Signal	31.8	6.0	II	27.2	C	0.60	
Rose Ave. to SR 414 EB Ramps	Orange County	Arterial	Residential	0	3	1	45	5,861	11	Signal	121.8	22.8	II	32.8	B	0.73	
SR 414 EB Ramps to SR 414 WB Ramps	Orange County	Arterial	Residential	1	2	0	45	686	11	Signal	15.6	0.6	II	30.0	B	0.67	
TOTAL							45	7,814			169.2	29.4	II	31.5	B	0.70	0.057 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District.

TABLE 26
Year 2012 METROPLAN Orlando Travel Time Study
US 441 - Rose Avenue to SR 414 (Maitland Boulevard) - Southbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to SR 414 WB Ramps	Orange County	Arterial	Residential	1	2	1	45	792	10	Signal	22.2	6.6	II	24.3	C	0.54	
SR 414 WB Ramps to SR 414 EB Ramps	Orange County	Arterial	Residential	2	2	0	45	686	10	Signal	10.8	0.0	II	43.3	A	0.96	
SR 414 EB Ramps to Rose Ave.	Orange County	Arterial	Residential	1	2	1	45	5,861	10	Signal	117.6	23.4	II	34.0	B	0.76	
TOTAL							45	7,339			150.6	30.0	II	33.2	B	0.74	0.047 gal/veh
PM PEAK HOUR																	
Median Opening to SR 414 WB Ramps	Orange County	Arterial	Residential	1	2	1	45	792	11	Signal	19.8	0.0	II	27.3	C	0.61	
SR 414 WB Ramps to SR 414 EB Ramps	Orange County	Arterial	Residential	2	2	0	45	686	11	Signal	11.4	0.0	II	41.1	A	0.91	
SR 414 EB Ramps to Rose Ave.	Orange County	Arterial	Residential	1	2	1	45	5,861	11	Signal	128.4	34.2	II	31.1	B	0.69	
TOTAL							45	7,339			159.6	34.2	II	31.4	B	0.70	0.047 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District.

TABLE 26
Year 2012 METROPLAN Orlando Travel Time Study
US 441 - Rose Avenue to SR 414 (Maitland Boulevard) - Northbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to Rose Ave.	Orange County	Arterial	OBD	1	2	1	45	1,267	10	Signal	24.0	0.6	II	36.0	A	0.80	
Rose Ave. to SR 414 EB Ramps	Orange County	Arterial	Residential	0	3	1	45	5,861	10	Signal	90.0	4.2	II	44.4	A	0.99	
SR 414 EB Ramps to SR 414 WB Ramps	Orange County	Arterial	Residential	1	2	0	45	686	10	Signal	12.0	0.0	II	39.0	A	0.87	
TOTAL							45	7,814			126.0	4.8	II	42.3	A	0.94	0.055 gal/veh
PM PEAK HOUR																	
Median Opening to Rose Ave.	Orange County	Arterial	OBD	1	2	1	45	1,267	10	Signal	24.0	0.6	II	36.0	A	0.80	
Rose Ave. to SR 414 EB Ramps	Orange County	Arterial	Residential	0	3	1	45	5,861	10	Signal	96.0	4.8	II	41.6	A	0.92	
SR 414 EB Ramps to SR 414 WB Ramps	Orange County	Arterial	Residential	1	2	0	45	686	10	Signal	15.0	2.4	II	31.2	B	0.69	
TOTAL							45	7,814			135.0	7.8	II	39.5	A	0.88	0.055 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District.

TABLE 26
Year 2012 METROPLAN Orlando Travel Time Study
US 441 - Rose Avenue to SR 414 (Maitland Boulevard) - Southbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to SR 414 WB Ramps	Orange County	Arterial	Residential	1	2	1	45	792	10	Signal	27.0	6.6	II	20.0	D	0.44	
SR 414 WB Ramps to SR 414 EB Ramps	Orange County	Arterial	Residential	2	2	0	45	686	10	Signal	9.6	0.0	II	48.7	A	1.08	
SR 414 EB Ramps to Rose Ave.	Orange County	Arterial	Residential	1	2	1	45	5,861	10	Signal	83.4	0.0	II	47.9	A	1.06	
TOTAL							45	7,339			120.0	6.6	II	41.7	A	0.93	0.046 gal/veh
PM PEAK HOUR																	
Median Opening to SR 414 WB Ramps	Orange County	Arterial	Residential	1	2	1	45	792	10	Signal	17.4	0.6	II	31.0	B	0.69	
SR 414 WB Ramps to SR 414 EB Ramps	Orange County	Arterial	Residential	2	2	0	45	686	10	Signal	9.6	0.0	II	48.7	A	1.08	
SR 414 EB Ramps to Rose Ave.	Orange County	Arterial	Residential	1	2	1	45	5,861	10	Signal	86.4	0.6	II	46.2	A	1.03	
TOTAL							45	7,339			113.4	1.2	II	44.1	A	0.98	0.047 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District.



**US 441
- AM Peak**

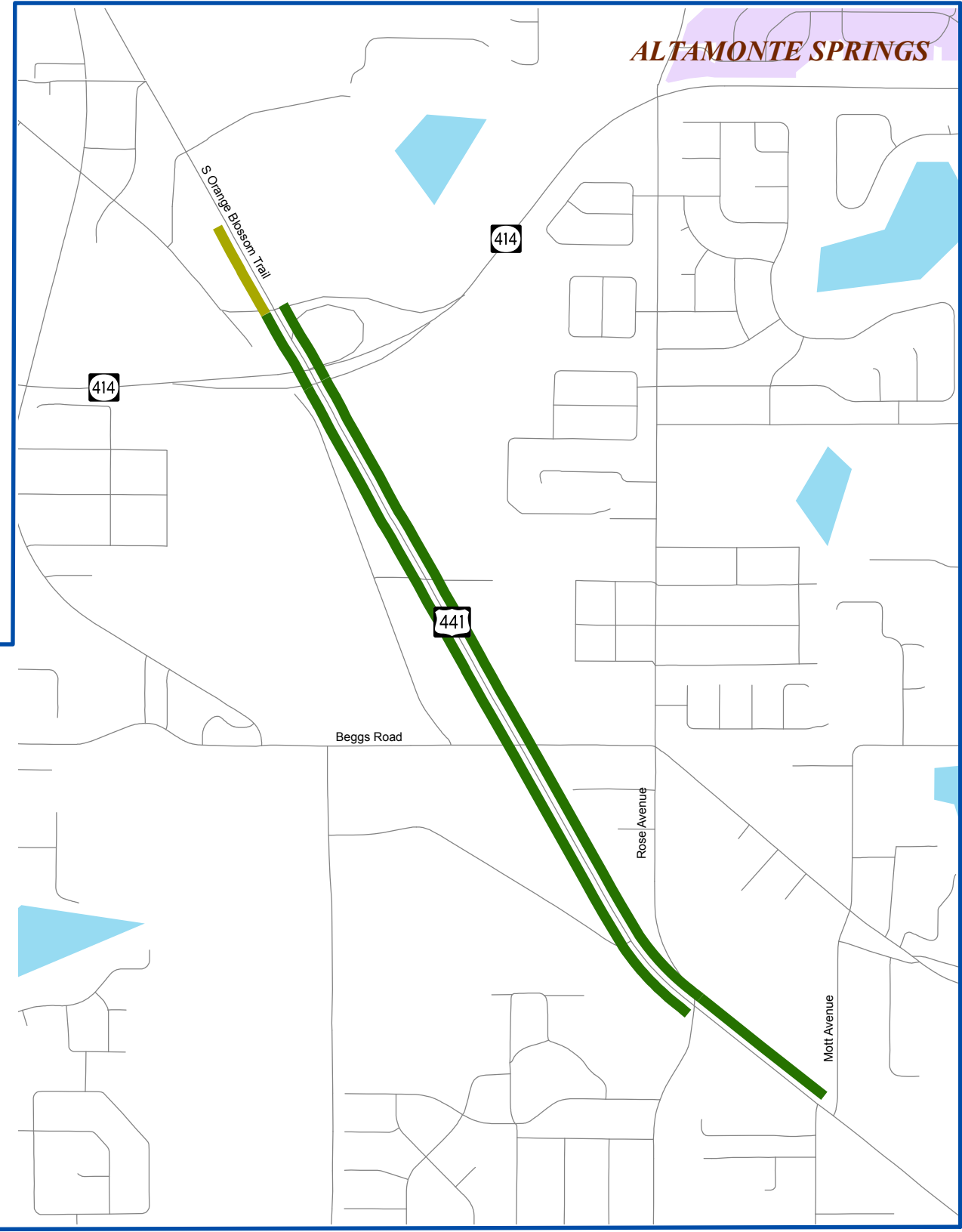
Before Condition

Date of Collection: 1/19/2012
 Distance: 1.48 miles
 From: Rose Ave.
 To: SR 414(Maitland Blvd.)

Start Time: 7:45 AM
 End Time: 9:00 AM

NB Avg Speed: 29.6 MPH
 NB Travel Time: 3.00 MIN
 NB Delay Time: 0.58 MIN

SB Avg Speed: 33.2 MPH
 SB Travel Time: 2.51 MIN
 SB Delay Time: 0.50 MIN



**US 441
- AM Peak**

After Condition

Date of Collection: 5/31/2012
 Distance: 1.48 miles
 From: Rose Ave.
 To: SR 414(Maitland Blvd.)

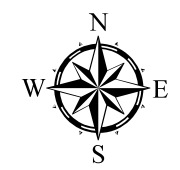
Start Time: 7:45 AM
 End Time: 9:00 AM

NB Avg Speed: 42.3 MPH
 NB Travel Time: 2.10 MIN
 NB Delay Time: 0.08 MIN

SB Avg Speed: 41.7 MPH
 SB Travel Time: 2.00 MIN
 SB Delay Time: 0.11 MIN

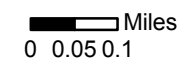
Level of Services:

- | | | |
|---|---|---------------|
| A | D | Roads |
| B | E | City Boundary |
| C | F | Water |



2012 METROPLAN ORLANDO

Travel Time Study





**US 441
- PM Peak**

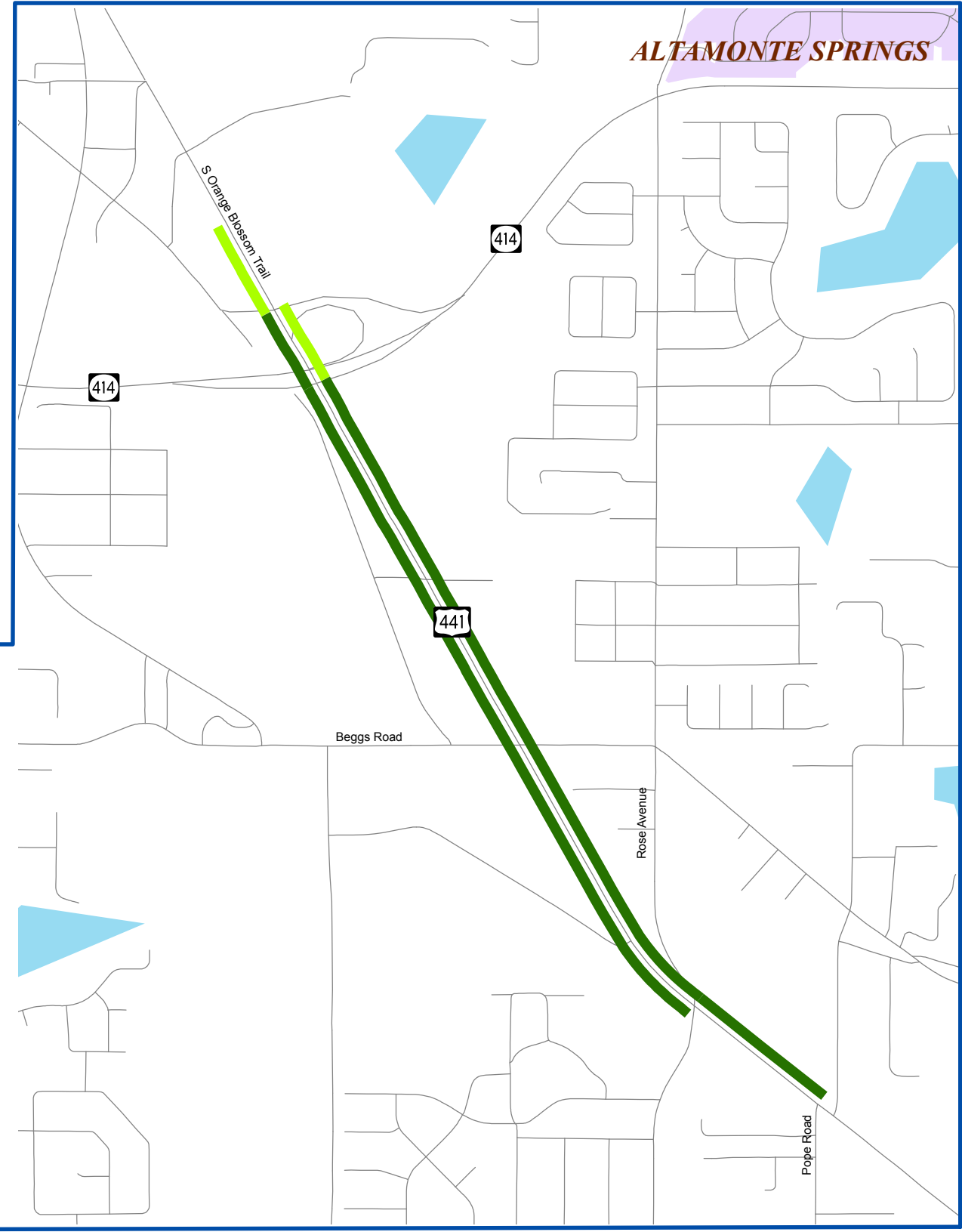
Before Condition

Date of Collection: 1/19/2012
 Distance: 1.48 miles
 From: Rose Ave.
 To: SR 414(Maitland Blvd.)

Start Time: 4:15 PM
 End Time: 5:30 PM

NB Avg Speed: 31.5 MPH
 NB Travel Time: 2.82 MIN
 NB Delay Time: 0.49 MIN

SB Avg Speed: 31.4 MPH
 SB Travel Time: 2.66 MIN
 SB Delay Time: 0.57 MIN



**US 441
- PM Peak**

After Condition

Date of Collection: 5/31/2012
 Distance: 1.48 miles
 From: Rose Ave.
 To: SR 414(Maitland Blvd.)

Start Time: 4:15 PM
 End Time: 5:30 PM

NB Avg Speed: 39.5 MPH
 NB Travel Time: 2.25 MIN
 NB Delay Time: 0.13 MIN

SB Avg Speed: 44.1 MPH
 SB Travel Time: 1.89 MIN
 SB Delay Time: 0.02 MIN

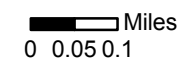
Level of Services:

- | | | |
|---|---|---------------|
| A | D | Roads |
| B | E | City Boundary |
| C | F | Water |



2012 METROPLAN ORLANDO

Travel Time Study



US 441 - Rose Avenue to SR 414 (Maitland Boulevard)
Summary of Before Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
606	180.0	34.8	29.6	0.0570	30.30	34.54
Northbound/Eastbound - PM Peak Hour						
1064	169.2	29.4	31.5	0.0570	50.01	60.65
Southbound/Westbound - AM Peak Hour						
1823	150.6	30.0	33.2	0.0470	76.26	85.68
Southbound/Westbound - PM Peak Hour						
694	159.6	34.2	31.4	0.0470	30.77	32.62

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

US 441 - Rose Avenue to SR 414 (Maitland Boulevard)
Summary of After Study Travel Time and Delay Study Results

Traffic Volume	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
606	126.0	4.8	42.3	0.0550	21.21	33.33
Northbound/Eastbound - PM Peak Hour						
1064	135.0	7.8	39.5	0.0550	39.90	58.52
Southbound/Westbound - AM Peak Hour						
1823	120.0	6.6	41.7	0.0460	60.77	83.86
Southbound/Westbound - PM Peak Hour						
694	113.4	1.2	44.1	0.0470	21.86	32.62

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

US 441 - Rose Avenue to SR 414 (Maitland Boulevard)
Summary of Measures of Effectiveness & Benefit Cost Analysis

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	106.56	81.98	80.78	61.76
Total Fuel Consumption (gallons)	120.22	117.19	93.27	91.14

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$411.15	\$317.23
Annual User Benefit	\$123,346.11	\$95,169.80
Total Annual User Benefit =	\$218,515.91	
Total Signal Retiming Annual Cost	\$6,616.58	
User Benefit / Cost Ratio	33.03	

Notes:

- * Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
- * Fuel consumption is valued to the rate of \$3.43 per gallon.(Florida Department of Revenue & Orlando Gas Prices)
- * Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffics
- * The service life of the improvement was kept as three (3) years.
- * Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

SR 436

Sheeler Ave. to Piedmont Wekiwa Rd.

TABLE 27
Year 2012 METROPLAN Orlando Travel Time Study
SR 436 (Semoran Boulevard) - Sheeler Avenue to Piedmont Wekiva Road - Eastbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to Sheeler Ave.	Orange County	Arterial	OBD	1	4	0	45	211	10	Signal	15.6	6.6	II	9.2	F	0.21	
Sheeler Ave. to Thompson Rd.	Orange County	Arterial	OBD	1	4	0	45	1,320	10	Signal	41.4	9.6	II	21.7	D	0.48	
Thompson Rd. to Semoran Commerce Pl.	Orange County	Arterial	OBD	1	4	0	45	3,115	10	Signal	56.4	3.0	II	37.7	A	0.84	
Semoran Commerce Pl. to Piedmont Wekiva Rd.	Orange County	Arterial	OBD	2	4	0	45	3,379	10	Signal	77.4	13.8	II	29.8	B	0.66	
TOTAL							45	8,026			190.8	33.0	II	28.7	B	0.64	0.054 gal/veh
PM PEAK HOUR																	
Median Opening to Sheeler Ave.	Orange County	Arterial	OBD	1	4	0	45	211.2	9	Signal	18.0	9.6	II	8.0	F	0.18	
Sheeler Ave. to Thompson Rd.	Orange County	Arterial	OBD	1	4	0	45	1320	9	Signal	52.8	13.8	II	17.0	D	0.38	
Thompson Rd. to Semoran Commerce Pl.	Orange County	Arterial	OBD	1	4	0	45	3115.2	9	Signal	63.0	6.0	II	33.7	B	0.75	
Semoran Commerce Pl. to Piedmont Wekiva Rd.	Orange County	Arterial	OBD	2	4	0	45	3379.2	9	Signal	90.0	26.4	II	25.6	C	0.57	
TOTAL							45	8,026			223.8	55.8	II	24.4	C	0.54	0.054 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

TABLE 27
Year 2012 METROPLAN Orlando Travel Time Study
SR 436 (Semoran Boulevard) - Sheeler Avenue to Piedmont - Westbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Piedmont Wekiva Rd.	Orange County	Arterial	Residential	2	4	0	45	950	10	Signal	97.8	66.0	II	6.6	F	0.15	
Piedmont Wekiva Rd. to Semoran Commerce Pl.	Orange County	Arterial	OBD	1	4	0	45	3,379	10	Signal	56.4	0.0	II	40.8	A	0.91	
Semoran Commerce Pl. to Thompson Rd.	Orange County	Arterial	OBD	1	4	0	45	3,115	10	Signal	54.0	3.0	II	39.3	A	0.87	
Thompson Rd. to Sheeler Ave.	Orange County	Arterial	OBD	2	3	1	45	1,320	10	Signal	68.4	39.6	II	13.2	E	0.29	
TOTAL							45	8,765			276.6	108.6	II	21.6	D	0.48	0.057 gal/veh
PM PEAK HOUR																	
Median Opening to Piedmont Wekiva Rd.	Orange County	Arterial	Residential	2	4	0	45	950	9	Signal	79.2	48.0	II	8.2	F	0.18	
Piedmont Wekiva Rd. to Semoran Commerce Pl.	Orange County	Arterial	OBD	1	4	0	45	3,379	9	Signal	56.4	0.0	II	40.8	A	0.91	
Semoran Commerce Pl. to Thompson Rd.	Orange County	Arterial	OBD	1	4	0	45	3,115	9	Signal	80.4	27.6	II	26.4	C	0.59	
Thompson Rd. to Sheeler Ave.	Orange County	Arterial	OBD	2	3	1	45	1,320	9	Signal	67.2	37.2	II	13.4	E	0.30	
TOTAL							45	8,765			283.2	112.8	II	21.1	D	0.47	0.058 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

TABLE 27
Year 2012 METROPLAN Orlando Travel Time Study
SR 436 (Semoran Boulevard) - Sheeler Avenue to Piedmont Wekiwa Road - Eastbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to Sheeler Ave.	Orange County	Arterial	OBD	1	4	0	45	211	7	Signal	4.8	0.0	II	30.0	B	0.67	
Sheeler Ave. to Thompson Rd.	Orange County	Arterial	OBD	1	4	0	45	1,320	7	Signal	35.4	9.6	II	25.4	C	0.56	
Thompson Rd. to Semoran Commerce Pl.	Orange County	Arterial	OBD	1	4	0	45	3,115	7	Signal	51.0	0.6	II	41.6	A	0.93	
Semoran Commerce Pl. to Piedmont Wekiwa Rd.	Orange County	Arterial	OBD	2	4	0	45	3,379	7	Signal	92.4	33.0	II	24.9	C	0.55	
TOTAL							45	8,026			183.6	43.2	II	29.8	B	0.66	0.053 gal/veh
PM PEAK HOUR																	
Median Opening to Sheeler Ave.	Orange County	Arterial	OBD	1	4	0	45	211.2	8	Signal	6.6	1.8	II	21.8	D	0.48	
Sheeler Ave. to Thompson Rd.	Orange County	Arterial	OBD	1	4	0	45	1320	8	Signal	40.8	11.4	II	22.1	C	0.49	
Thompson Rd. to Semoran Commerce Pl.	Orange County	Arterial	OBD	1	4	0	45	3115.2	8	Signal	49.8	0.0	II	42.6	A	0.95	
Semoran Commerce Pl. to Piedmont Wekiwa Rd.	Orange County	Arterial	OBD	2	4	0	45	3379.2	8	Signal	84.6	27.0	II	27.2	C	0.61	
TOTAL							45	8,026			181.8	40.2	II	30.1	B	0.67	0.053 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

TABLE 27
Year 2012 METROPLAN Orlando Travel Time Study
SR 436 (Semoran Boulevard) - Sheeler Avenue to Piedmont Wekiwa Road - Westbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Piedmont Wekiwa Rd.	Orange County	Arterial	Residential	2	4	0	45	950	8	Signal	36.0	17.4	II	18.0	D	0.40	
Piedmont Wekiwa Rd. to Semoran Commerce Pl.	Orange County	Arterial	OBD	1	4	0	45	3,379	8	Signal	49.8	0.0	II	46.3	A	1.03	
Semoran Commerce Pl. to Thompson Rd.	Orange County	Arterial	OBD	1	4	0	45	3,115	8	Signal	48.0	0.0	II	44.2	A	0.98	
Thompson Rd. to Sheeler Ave.	Orange County	Arterial	OBD	2	3	1	45	1,320	8	Signal	43.8	16.2	II	20.5	D	0.46	
TOTAL							45	8,765			177.6	33.6	II	33.6	B	0.75	0.056 gal/veh
PM PEAK HOUR																	
Median Opening to Piedmont Wekiwa Rd.	Orange County	Arterial	Residential	2	4	0	45	950	6	Signal	52.2	33.6	II	12.4	F	0.28	
Piedmont Wekiwa Rd. to Semoran Commerce Pl.	Orange County	Arterial	OBD	1	4	0	45	3,379	6	Signal	51.6	0.0	II	44.6	A	0.99	
Semoran Commerce Pl. to Thompson Rd.	Orange County	Arterial	OBD	1	4	0	45	3,115	6	Signal	82.8	31.8	II	25.7	C	0.57	
Thompson Rd. to Sheeler Ave.	Orange County	Arterial	OBD	2	3	1	45	1,320	6	Signal	85.8	43.8	II	10.5	F	0.23	
TOTAL							45	8,765			272.4	109.2	II	21.9	D	0.49	0.058 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

**SR 436
- AM Peak**

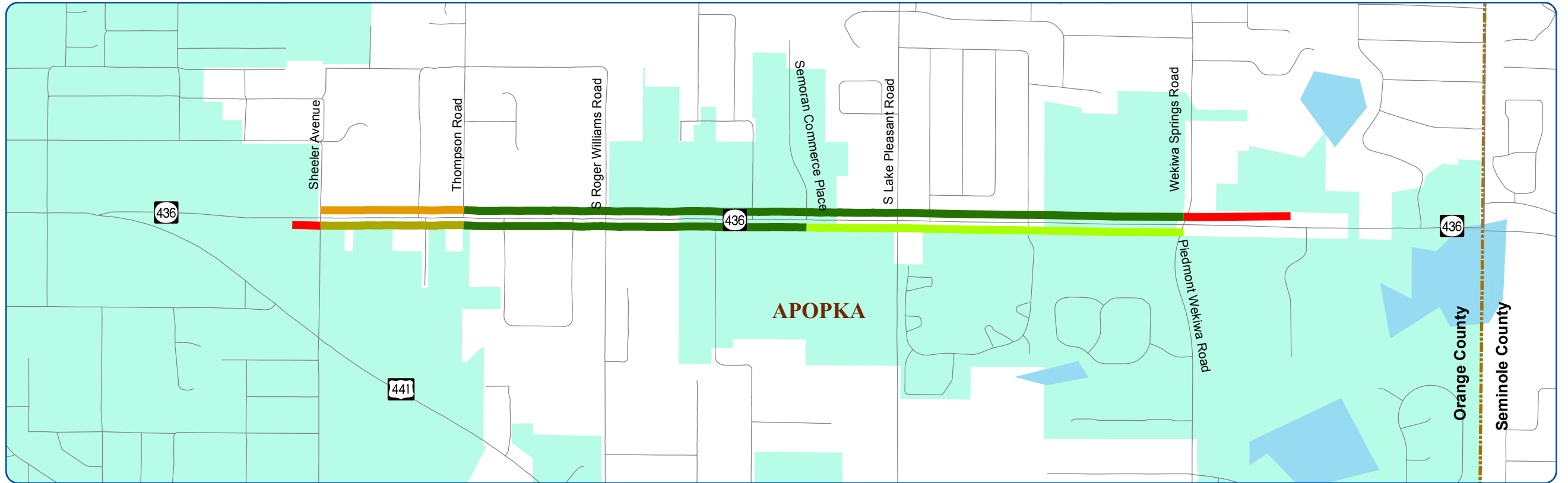
Before Condition

Date of Collection: 12/6/2011
 Distance: 0.64 miles
 From: Sheeler Ave.
 To: Piedmont Wekiwa Rd.

Start Time: 7:15 AM
 End Time: 8:45 AM

EB Avg Speed: 28.7 MPH
 EB Travel Time: 3.18 MIN
 EB Delay Time: 0.55 MIN

WB Avg Speed: 21.6 MPH
 WB Travel Time: 4.61 MIN
 WB Delay Time: 1.81 MIN



**SR 436
- AM Peak**

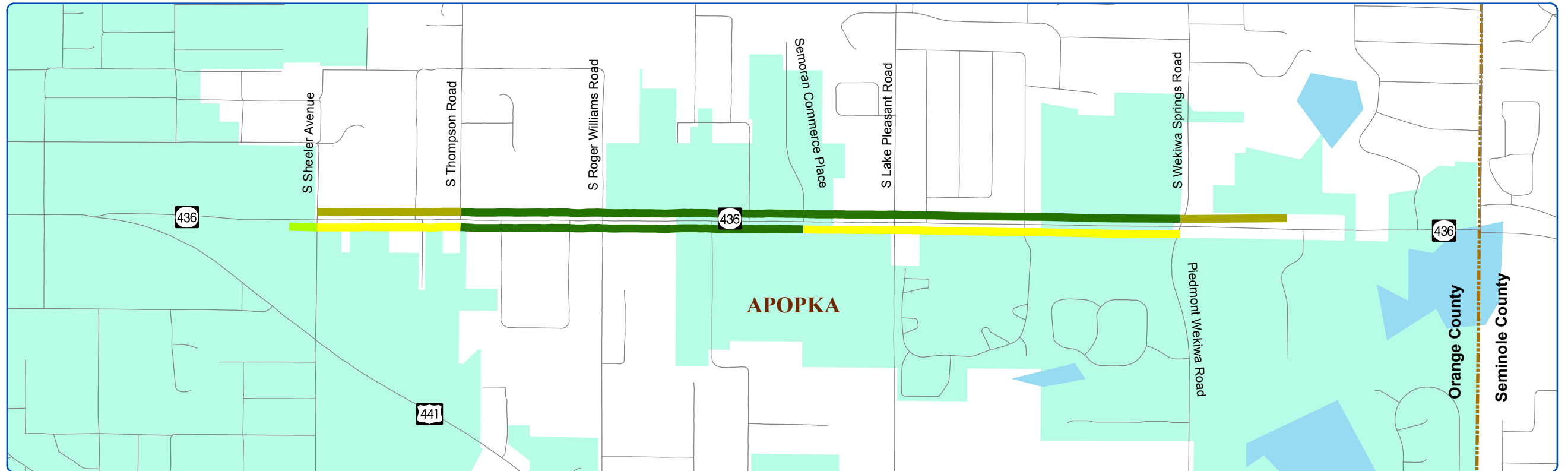
After Condition

Date of Collection: 5/15/2012
 Distance: 0.64 miles
 From: Sheeler Ave.
 To: Piedmont Wekiwa Rd.

Start Time: 7:15 AM
 End Time: 8:45 AM

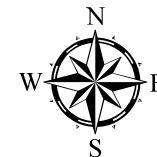
EB Avg Speed: 29.8 MPH
 EB Travel Time: 3.06 MIN
 EB Delay Time: 0.72 MIN

WB Avg Speed: 33.6 MPH
 WB Travel Time: 2.96 MIN
 WB Delay Time: 0.56 MIN



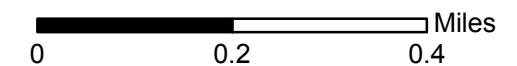
Level of Services:

- | | | |
|---|---|---------------|
| A | D | Roads |
| B | E | City Boundary |
| C | F | Water |



2012 METROPLAN ORLANDO

Travel Time Study



**SR 436
- PM Peak**

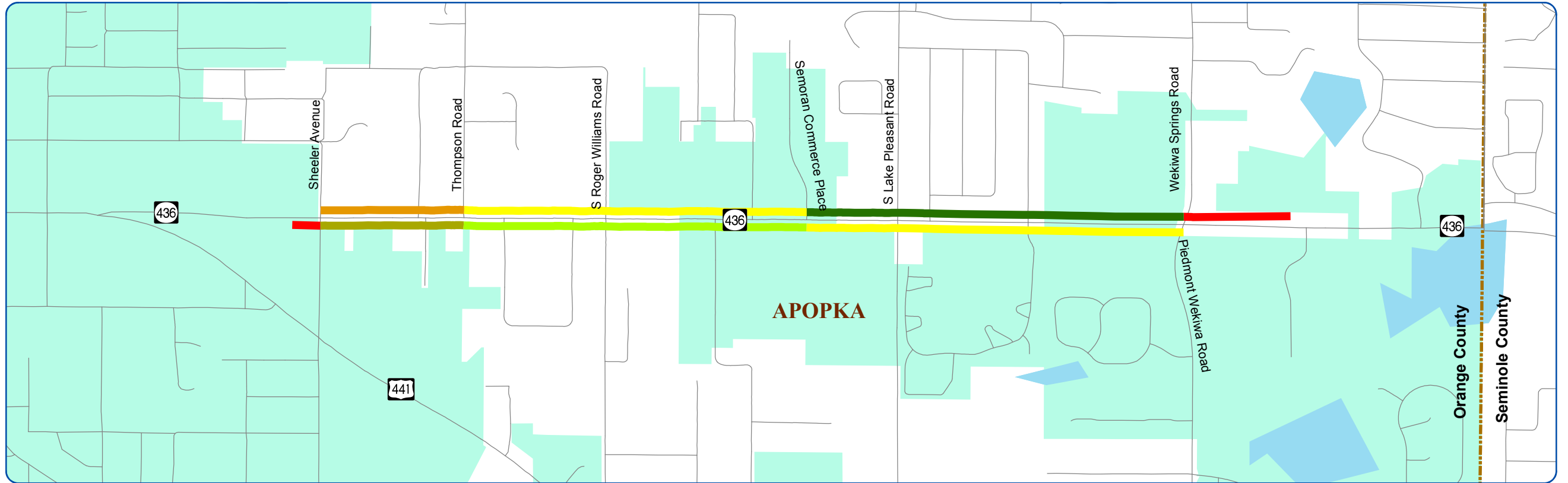
Before Condition

Date of Collection: 12/6/2011
 Distance: 0.64 miles
 From: Sheeler Ave.
 To: Piedmont Wekiwa Rd.

Start Time: 4:30 PM
 End Time: 6:00 PM

EB Avg Speed: 24.4 MPH
 EB Travel Time: 3.73 MIN
 EB Delay Time: 0.93 MIN

WB Avg Speed: 21.1 MPH
 WB Travel Time: 4.72 MIN
 WB Delay Time: 1.88 MIN



**SR 436
- PM Peak**

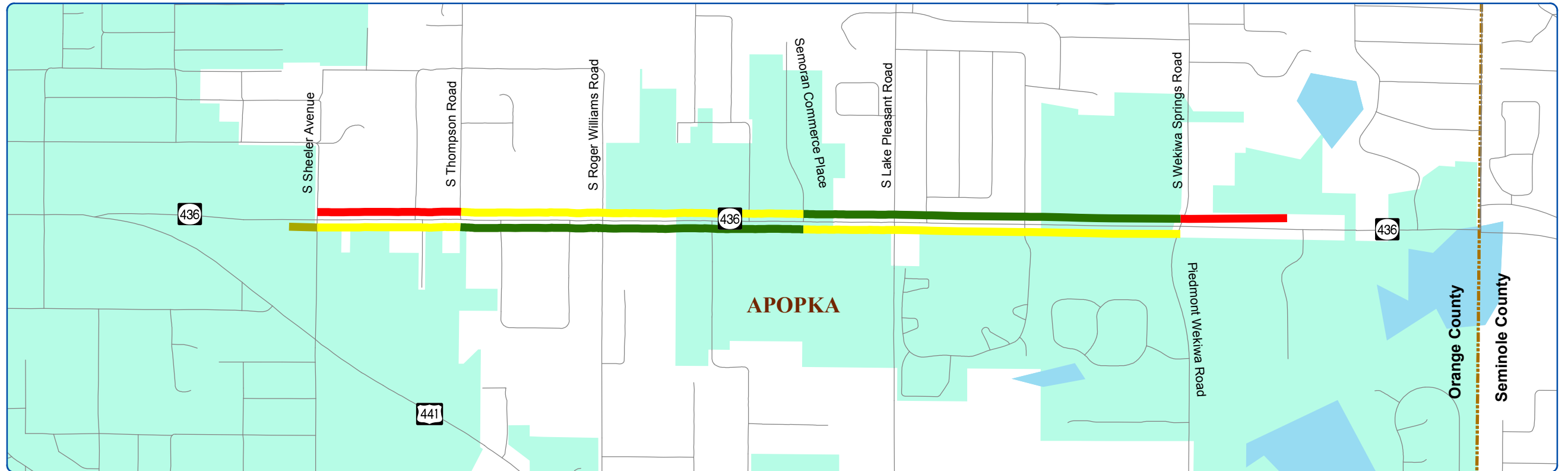
After Condition

Date of Collection: 5/15/2012
 Distance: 0.64 miles
 From: Sheeler Ave.
 To: Piedmont Wekiwa Rd.

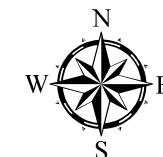
Start Time: 4:30 PM
 End Time: 6:00 PM

EB Avg Speed: 30.1 MPH
 EB Travel Time: 3.03 MIN
 EB Delay Time: 0.67 MIN

WB Avg Speed: 21.9 MPH
 WB Travel Time: 4.54 MIN
 WB Delay Time: 1.82 MIN

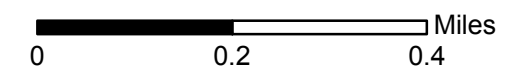


Level of Services:



2012 METROPLAN ORLANDO

Travel Time Study



SR 436 - Sheeler Avenue to Piedmont Wekiwa Road
Summary of Before Study Travel Time and Delay Study Results

Traffic Volume	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
1158	190.8	33.0	28.7	0.0540	61.37	62.53
Northbound/Eastbound - PM Peak Hour						
1284	223.8	55.8	24.4	0.0540	79.82	69.34
Southbound/Westbound - AM Peak Hour						
942	276.6	108.6	21.6	0.0570	72.38	53.69
Southbound/Westbound - PM Peak Hour						
1273	283.2	112.8	21.1	0.0580	100.14	73.83

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 436 - Sheeler Avenue to Piedmont Wekiwa Road
Summary of After Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
1158	183.6	43.2	29.8	0.0530	59.06	61.37
Northbound/Eastbound - PM Peak Hour						
1284	181.8	40.2	30.1	0.0530	64.84	68.05
Southbound/Westbound - AM Peak Hour						
942	177.6	33.6	33.6	0.0560	46.47	52.75
Southbound/Westbound - PM Peak Hour						
1273	272.4	109.2	21.9	0.0580	96.32	73.83

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 436 - Sheeler Avenue to Piedmont Wekiwa Road
Summary of Measures of Effectiveness & Benefit Cost Analysis

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	133.75	105.53	179.96	161.17
Total Fuel Consumption (gallons)	116.23	114.13	143.17	141.89

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$467.21	\$310.83
Annual User Benefit	\$140,161.59	\$93,248.35
Total Annual User Benefit =	\$233,409.94	
Total Signal Retiming Annual Cost	\$7,405.74	
User Benefit / Cost Ratio	31.52	

Notes:

- * Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
- * Fuel consumption is valued to the rate of \$3.43 per gallon.(Florida Department of Revenue & Orlando Gas Prices)
- * Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffics
- * The service life of the improvement was kept as three (3) years.
- * Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

SR 438

Lake Stanley Rd. to Mercy Dr.

TABLE 28
Year 2012 METROPLAN Orlando Travel Time Study
SR 438 (Silver Star Road) - Lake Stanley Road to Mercy Drive - Eastbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to Lake Stanley Rd.	Orange County	Arterial	Residential	1	3	0	45	845	6	Signal	24.6	5.4	II	23.4	C	0.52	
Lake Stanley Rd. to Apopka Vineland Rd.	Orange County	Arterial	Residential	1	3	0	45	1,795	6	Signal	54.0	15.6	II	22.7	C	0.50	
Apopka Vineland Rd. to Silver Ridge Dr.	Orange County	Arterial	Residential	1	3	0	45	1,584	6	Signal	39.6	6.6	II	27.3	C	0.61	
Silver Ridge Dr. to Hiawasse Rd.	Orange County	Arterial	Residential	2	3	0	45	3,168	6	Signal	95.4	34.8	II	22.6	C	0.50	
Hiawasse Rd. to Powers Dr.	Orange County	Arterial	Residential	1	3	0	40	2,640	6	Signal	60.6	13.2	II	29.7	B	0.74	
Powers Dr. to Hastings St.	Orange County	Arterial	OBD	1	3	0	40	2,429	6	Signal	55.8	8.4	II	29.7	B	0.74	
Hastings St. to Pine Hills Rd	Orange County	Arterial	OBD	2	3	0	40	2,693	6	Signal	63.6	6.6	II	28.9	B	0.72	
Pine Hills Rd to Kingsland Ave.	Orange County	Arterial	Residential	1	3	0	40	1,162	6	Signal	21.0	0.0	II	37.7	A	0.94	
Kingsland Ave. to Ashland Blvd.	Orange County	Arterial	Residential	1	3	0	40	792	6	Signal	16.2	1.2	II	33.3	B	0.83	
Ashland Blvd. to Dardanelle Dr.	Orange County	Arterial	Residential	1	3	0	40	2,112	6	Signal	49.2	8.4	II	29.3	B	0.73	
Dardanelle Dr. to Princeton St.	Orange County	Arterial	Residential	2*	2**	0	40	1,056	6	Signal	41.4	12.0	II	17.4	D	0.43	
Princeton St. to Mercy Dr.	Orange County	Arterial	Residential	1	2	0	40	1,426	6	Signal	40.2	10.2	II	24.2	C	0.60	
TOTAL							40	21,701			561.6	122.4	II	26.3	C	0.66	0.146 gal/veh
PM PEAK HOUR																	
Median Opening to Lake Stanley Rd.	Orange County	Arterial	Residential	1	3	0	45	845	6	Signal	18.0	0.0	II	32.0	B	0.71	
Lake Stanley Rd. to Apopka Vineland Rd.	Orange County	Arterial	Residential	1	3	0	45	1,795	6	Signal	69.0	34.8	II	17.7	D	0.39	
Apopka Vineland Rd. to Silver Ridge Dr.	Orange County	Arterial	Residential	1	3	0	45	1,584	6	Signal	41.4	4.8	II	26.1	C	0.58	
Silver Ridge Dr. to Hiawasse Rd.	Orange County	Arterial	Residential	2	3	0	45	3,168	6	Signal	114.0	49.8	II	18.9	D	0.42	
Hiawasse Rd. to Powers Dr.	Orange County	Arterial	Residential	1	3	0	40	2,640	6	Signal	59.4	8.4	II	30.3	B	0.76	
Powers Dr. to Hastings St.	Orange County	Arterial	OBD	1	3	0	40	2,429	6	Signal	70.2	20.4	II	23.6	C	0.59	
Hastings St. to Pine Hills Rd	Orange County	Arterial	OBD	2	3	0	40	2,693	6	Signal	93.6	33.6	II	19.6	D	0.49	
Pine Hills Rd to Kingsland Ave.	Orange County	Arterial	Residential	1	3	0	40	1,162	6	Signal	21.6	0.0	II	36.7	A	0.92	
Kingsland Ave. to Ashland Blvd.	Orange County	Arterial	Residential	1	3	0	40	792	6	Signal	14.4	0.0	II	37.5	A	0.94	
Ashland Blvd. to Dardanelle Dr.	Orange County	Arterial	Residential	1	3	0	40	2,112	6	Signal	52.8	7.8	II	27.3	C	0.68	
Dardanelle Dr. to Princeton St.	Orange County	Arterial	Residential	2*	2**	0	40	1,056	6	Signal	39.6	12.0	II	18.2	D	0.45	
Princeton St. to Mercy Dr.	Orange County	Arterial	Residential	1	2	0	40	1,426	6	Signal	40.2	5.4	II	24.2	C	0.60	
TOTAL							40	21,701			634.2	177.0	II	23.3	C	0.58	0.147 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.

2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

3. OBD - Outlying Business District

* Two left turn lanes continue to access the EB Direction of Silver Star Road /SR 416

** Two through Lanes continue to access the EB direction of Princeton Street/SR 438

TABLE 28
Year 2012 METROPLAN Orlando Travel Time Study
SR 438 (Silver Star Road) - Lake Stanley Road to Mercy Drive - Westbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Mercy Dr.	Orange County	Arterial	OBD	1	2	0	40	264	6	Signal	16.8	10.2	II	10.7	F	0.27	
Mercy Dr. to Dardanelle Dr.	Orange County	Arterial	Residential	1	3	0	40	2,482	6	Signal	49.8	3.6	II	34.0	B	0.85	
Dardanelle Dr. to Ashland Blvd.	Orange County	Arterial	Residential	1	3	0	40	2,112	6	Signal	34.8	0.0	II	41.4	A	1.03	
Ashland Blvd. to Kingsland Ave.	Orange County	Arterial	Residential	1	3	0	40	792	6	Signal	15.6	0.0	II	34.6	B	0.87	
Kingsland Ave. to Pine Hills Rd	Orange County	Arterial	OBD	2	3	0	40	1,162	6	Signal	66.0	37.2	II	12.0	F	0.30	
Pine Hills Rd to Hastings St.	Orange County	Arterial	OBD	1	3	0	40	2,693	6	Signal	60.0	4.2	II	30.6	B	0.76	
Hastings St. to Powers Dr.	Orange County	Arterial	Residential	1	3	0	40	2,482	6	Signal	59.4	13.2	II	28.5	B	0.71	
Powers Dr. to Hiwassee Rd.	Orange County	Arterial	Residential	2	3	0	40	2,640	6	Signal	66.6	12.6	II	27.0	C	0.68	
Hiwassee Rd. to Silver Ridge Dr.	Orange County	Arterial	Residential	1	3	0	45	3,168	6	Signal	55.8	2.4	II	38.7	A	0.86	
Silver Ridge Dr. to Apopka Vineland Rd.	Orange County	Arterial	Residential	1	3	0	45	1,584	6	Signal	38.4	10.2	II	28.1	B	0.62	
Apopka Vineland Rd. to Lake Stanley Rd.	Orange County	Arterial	Residential	1	2	1	45	1,795	6	Signal	36.0	3.0	II	34.0	B	0.76	
TOTAL							40	21,173			499.2	96.6	II	28.9	B	0.72	0.140 gal/veh
PM PEAK HOUR																	
Median Opening to Mercy Dr.	Orange County	Arterial	OBD	1	2	0	40	264	5	Signal	26.4	18.0	II	6.8	F	0.17	
Mercy Dr. to Dardanelle Dr.	Orange County	Arterial	Residential	1	3	0	40	2,482	5	Signal	46.8	0.0	II	36.2	A	0.90	
Dardanelle Dr. to Ashland Blvd.	Orange County	Arterial	Residential	1	3	0	40	2,112	5	Signal	42.0	2.4	II	34.3	B	0.86	
Ashland Blvd. to Kingsland Ave.	Orange County	Arterial	Residential	1	3	0	40	792	5	Signal	16.8	0.0	II	32.1	B	0.80	
Kingsland Ave. to Pine Hills Rd	Orange County	Arterial	OBD	2	3	0	40	1,162	5	Signal	52.2	18.0	II	15.2	E	0.38	
Pine Hills Rd to Hastings St.	Orange County	Arterial	OBD	1	3	0	40	2,693	5	Signal	48.0	0.0	II	38.2	A	0.96	
Hastings St. to Powers Dr.	Orange County	Arterial	Residential	1	3	0	40	2,482	5	Signal	77.4	27.6	II	21.9	D	0.55	
Powers Dr. to Hiwassee Rd.	Orange County	Arterial	Residential	2	3	0	40	2,640	5	Signal	123.0	55.2	II	14.6	E	0.37	
Hiwassee Rd. to Silver Ridge Dr.	Orange County	Arterial	Residential	1	3	0	45	3,168	5	Signal	60.0	1.8	II	36.0	A	0.80	
Silver Ridge Dr. to Apopka Vineland Rd.	Orange County	Arterial	Residential	1	3	0	45	1,584	5	Signal	51.6	19.8	II	20.9	D	0.47	
Apopka Vineland Rd. to Lake Stanley Rd.	Orange County	Arterial	Residential	1	2	1	45	1,795	5	Signal	28.2	0.0	II	43.4	A	0.96	
TOTAL							40	21,173			572.4	142.8	II	25.2	C	0.63	0.143 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

TABLE 28
Year 2012 METROPLAN Orlando Travel Time Study
SR 438 (Silver Star Road) - Lake Stanley Road to Mercy Drive - Eastbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to Lake Stanley Rd.	Orange County	Arterial	Residential	1	3	0	45	845	6	Signal	15.6	0.0	II	36.9	A	0.82	
Lake Stanley Rd. to Apopka Vineland Rd.	Orange County	Arterial	Residential	1	3	0	45	1,795	6	Signal	82.8	47.4	II	14.8	E	0.33	
Apopka Vineland Rd. to Silver Ridge Dr.	Orange County	Arterial	Residential	1	3	0	45	1,584	6	Signal	34.8	4.2	II	31.0	B	0.69	
Silver Ridge Dr. to Hiawasse Rd.	Orange County	Arterial	Residential	2	3	0	45	3,168	6	Signal	69.0	10.2	II	31.3	B	0.70	
Hiawasse Rd. to Powers Dr.	Orange County	Arterial	Residential	1	3	0	40	2,640	6	Signal	51.0	3.0	II	35.3	A	0.88	
Powers Dr. to Hastings St.	Orange County	Arterial	OBD	1	3	0	40	2,429	6	Signal	39.6	0.0	II	41.8	A	1.05	
Hastings St. to Pine Hills Rd	Orange County	Arterial	OBD	2	3	0	40	2,693	6	Signal	70.8	10.8	II	25.9	C	0.65	
Pine Hills Rd to Kingsland Ave.	Orange County	Arterial	Residential	1	3	0	40	1,162	6	Signal	21.6	0.0	II	36.7	A	0.92	
Kingsland Ave. to Ashland Blvd.	Orange County	Arterial	Residential	1	3	0	40	792	6	Signal	13.2	0.0	II	40.9	A	1.02	
Ashland Blvd. to Dardanelle Dr.	Orange County	Arterial	Residential	1	3	0	40	2,112	6	Signal	35.4	0.0	II	40.7	A	1.02	
Dardanelle Dr. to Princeton St.	Orange County	Arterial	Residential	2*	2**	0	40	1,056	6	Signal	21.0	0.0	II	34.3	B	0.86	
Princeton St. to Mercy Dr.	Orange County	Arterial	Residential	1	2	0	40	1,426	6	Signal	25.2	0.0	II	38.6	A	0.96	
TOTAL							40	21,701			480.0	75.6	II	30.8	B	0.77	0.143 gal/veh
PM PEAK HOUR																	
Median Opening to Lake Stanley Rd.	Orange County	Arterial	Residential	1	3	0	45	845	5	Signal	18.0	0.6	II	32.0	B	0.71	
Lake Stanley Rd. to Apopka Vineland Rd.	Orange County	Arterial	Residential	1	3	0	45	1,795	5	Signal	79.2	41.4	II	15.5	E	0.34	
Apopka Vineland Rd. to Silver Ridge Dr.	Orange County	Arterial	Residential	1	3	0	45	1,584	5	Signal	30.0	0.0	II	36.0	A	0.80	
Silver Ridge Dr. to Hiawasse Rd.	Orange County	Arterial	Residential	2	3	0	45	3,168	5	Signal	54.0	1.8	II	40.0	A	0.89	
Hiawasse Rd. to Powers Dr.	Orange County	Arterial	Residential	1	3	0	40	2,640	5	Signal	49.2	1.8	II	36.6	A	0.91	
Powers Dr. to Hastings St.	Orange County	Arterial	OBD	1	3	0	40	2,429	5	Signal	43.2	0.0	II	38.3	A	0.96	
Hastings St. to Pine Hills Rd	Orange County	Arterial	OBD	2	3	0	40	2,693	5	Signal	69.6	8.4	II	26.4	C	0.66	
Pine Hills Rd to Kingsland Ave.	Orange County	Arterial	Residential	1	3	0	40	1,162	5	Signal	23.4	0.0	II	33.8	B	0.85	
Kingsland Ave. to Ashland Blvd.	Orange County	Arterial	Residential	1	3	0	40	792	5	Signal	15.0	0.0	II	36.0	A	0.90	
Ashland Blvd. to Dardanelle Dr.	Orange County	Arterial	Residential	1	3	0	40	2,112	5	Signal	35.4	0.0	II	40.7	A	1.02	
Dardanelle Dr. to Princeton St.	Orange County	Arterial	Residential	2*	2**	0	40	1,056	5	Signal	21.0	0.0	II	34.3	B	0.86	
Princeton St. to Mercy Dr.	Orange County	Arterial	Residential	1	2	0	40	1,426	5	Signal	48.6	19.8	II	20.0	D	0.50	
TOTAL							40	21,701			486.6	73.8	II	30.4	B	0.76	0.144 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.

2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

3. OBD - Outlying Business District

* Two left turn lanes continue to access the EB Direction of Silver Star Road /SR 416

** Two through Lanes continue to access the EB direction of Princeton Street/SR 438

TABLE 28
Year 2012 METROPLAN Orlando Travel Time Study
SR 438 (Silver Star Road) - Lake Stanley Road to Mercy Drive - Westbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Mercy Dr.	Orange County	Arterial	OBD	1	2	0	40	264	7	Signal	5.0	0.0	II	36.0	A	0.90	
Mercy Dr. to Dardanelle Dr.	Orange County	Arterial	Residential	1	3	0	40	2,482	7	Signal	40.2	0.0	II	42.1	A	1.05	
Dardanelle Dr. to Ashland Blvd.	Orange County	Arterial	Residential	1	3	0	40	2,112	7	Signal	50.4	9.6	II	28.6	B	0.71	
Ashland Blvd. to Kingsland Ave.	Orange County	Arterial	Residential	1	3	0	40	792	7	Signal	18.0	0.6	II	30.0	B	0.75	
Kingsland Ave. to Pine Hills Rd	Orange County	Arterial	OBD	2	3	0	40	1,162	7	Signal	39.6	12.6	II	20.0	D	0.50	
Pine Hills Rd to Hastings St.	Orange County	Arterial	OBD	1	3	0	40	2,693	7	Signal	46.2	0.0	II	39.7	A	0.99	
Hastings St. to Powers Dr.	Orange County	Arterial	Residential	1	3	0	40	2,482	7	Signal	43.2	0.6	II	39.2	A	0.98	
Powers Dr. to Hiwassee Rd.	Orange County	Arterial	Residential	2	3	0	40	2,640	7	Signal	73.2	15.6	II	24.6	C	0.61	
Hiwassee Rd. to Silver Ridge Dr.	Orange County	Arterial	Residential	1	3	0	45	3,168	7	Signal	51.0	0.0	II	42.4	A	0.94	
Silver Ridge Dr. to Apopka Vineland Rd.	Orange County	Arterial	Residential	1	3	0	45	1,584	7	Signal	35.4	1.8	II	30.5	B	0.68	
Apopka Vineland Rd. to Lake Stanley Rd.	Orange County	Arterial	Residential	1	2	1	45	1,795	7	Signal	33.0	3.0	II	37.1	A	0.82	
TOTAL							40	21,173			435.2	43.8	II	33.2	B	0.83	0.139 gal/veh
PM PEAK HOUR																	
Median Opening to Mercy Dr.	Orange County	Arterial	OBD	1	2	0	40	264	5	Signal	16.2	9.6	II	11.1	F	0.28	
Mercy Dr. to Dardanelle Dr.	Orange County	Arterial	Residential	1	3	0	40	2,482	5	Signal	49.2	0.6	II	34.4	B	0.86	
Dardanelle Dr. to Ashland Blvd.	Orange County	Arterial	Residential	1	3	0	40	2,112	5	Signal	37.2	0.0	II	38.7	A	0.97	
Ashland Blvd. to Kingsland Ave.	Orange County	Arterial	Residential	1	3	0	40	792	5	Signal	20.4	5.4	II	26.5	C	0.66	
Kingsland Ave. to Pine Hills Rd	Orange County	Arterial	OBD	2	3	0	40	1,162	5	Signal	69.6	37.8	II	11.4	F	0.28	
Pine Hills Rd to Hastings St.	Orange County	Arterial	OBD	1	3	0	40	2,693	5	Signal	58.8	0.6	II	31.2	B	0.78	
Hastings St. to Powers Dr.	Orange County	Arterial	Residential	1	3	0	40	2,482	5	Signal	55.8	3.0	II	30.3	B	0.76	
Powers Dr. to Hiwassee Rd.	Orange County	Arterial	Residential	2	3	0	40	2,640	5	Signal	88.8	43.8	II	20.3	D	0.51	
Hiwassee Rd. to Silver Ridge Dr.	Orange County	Arterial	Residential	1	3	0	45	3,168	5	Signal	69.6	11.4	II	31.0	B	0.69	
Silver Ridge Dr. to Apopka Vineland Rd.	Orange County	Arterial	Residential	1	3	0	45	1,584	5	Signal	37.8	3.0	II	28.6	B	0.63	
Apopka Vineland Rd. to Lake Stanley Rd.	Orange County	Arterial	Residential	1	2	1	45	1,795	5	Signal	39.0	6.6	II	31.4	B	0.70	
TOTAL							40	21,173			542.4	121.8	II	26.6	C	0.67	0.143 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

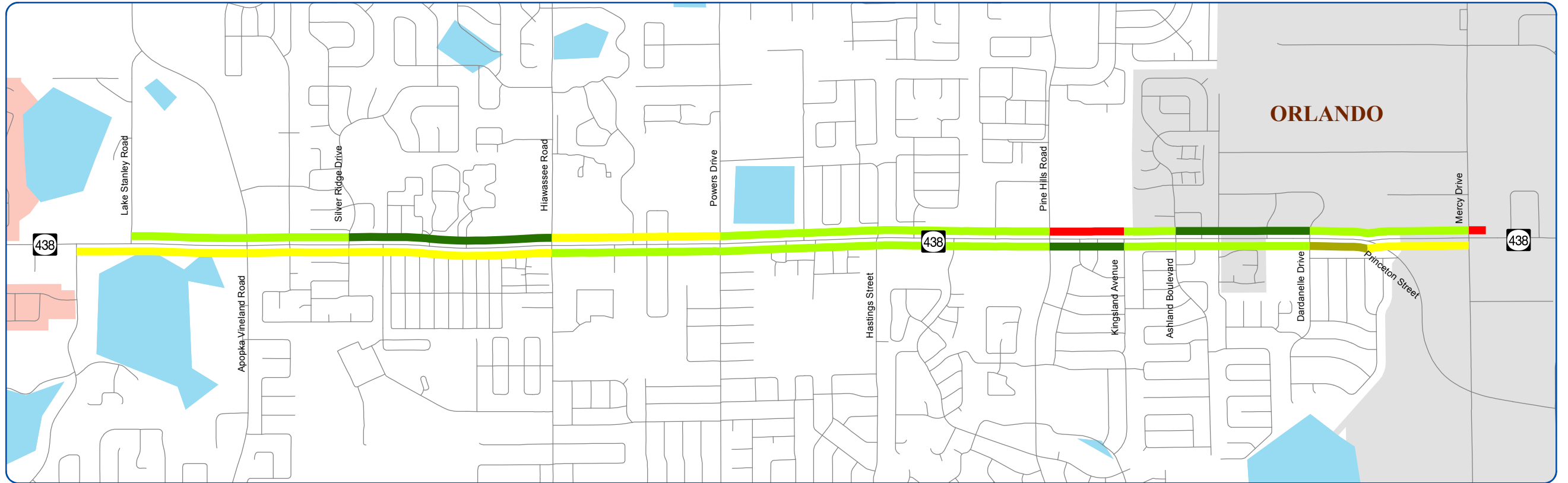
**SR 438 /
Silver Star Rd.
- AM Peak
Before Condition**

Date of Collection: 12/14/2011
Distance: 4.11 miles
From: Lake Stanley Rd.
To: Mercy Dr.

Start Time: 7:00 AM
End Time: 9:00 AM

EB Avg Speed: 26.3 MPH
EB Travel Time: 9.36 MIN
EB Delay Time: 2.04 MIN

WB Avg Speed: 28.9 MPH
WB Travel Time: 8.32 MIN
WB Delay Time: 1.61 MIN



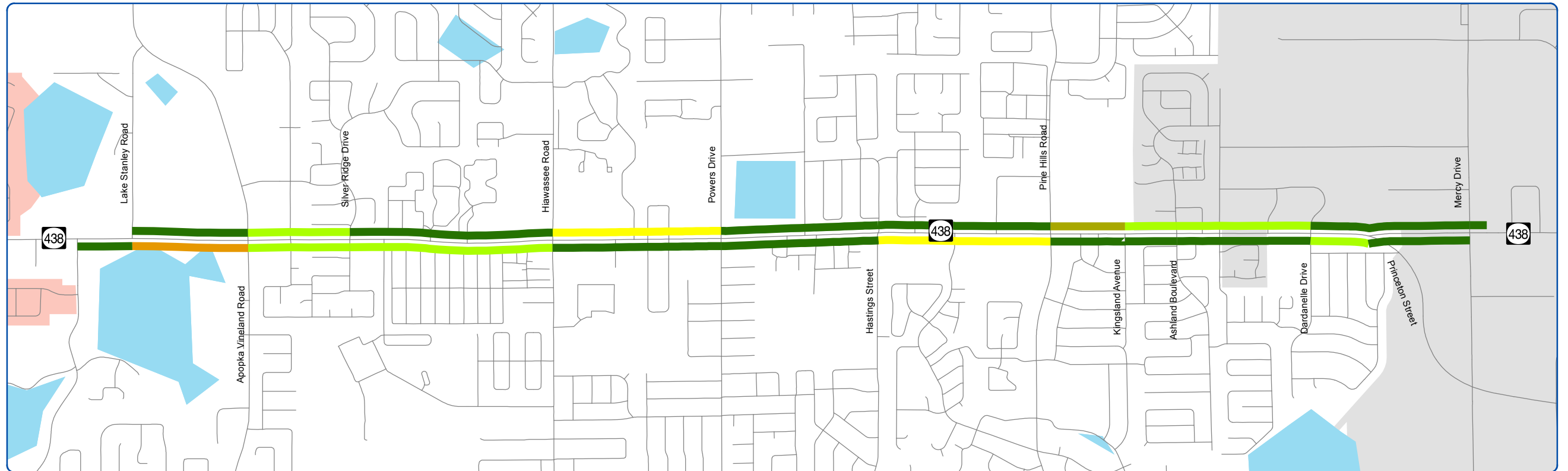
**SR 438 /
Silver Star Rd.
- AM Peak
After Condition**

Date of Collection: 6/5/2012
Distance: 4.11 miles
From: Lake Stanley Rd.
To: Mercy Dr.

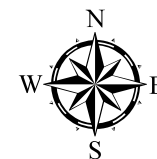
Start Time: 7:00 AM
End Time: 9:00 AM

EB Avg Speed: 30.8 MPH
EB Travel Time: 6.00 MIN
EB Delay Time: 1.26 MIN

WB Avg Speed: 33.2 MPH
WB Travel Time: 7.25 MIN
WB Delay Time: 0.73 MIN

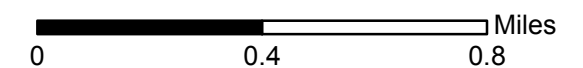


Level of Services:



2012 METROPLAN ORLANDO

Travel Time Study



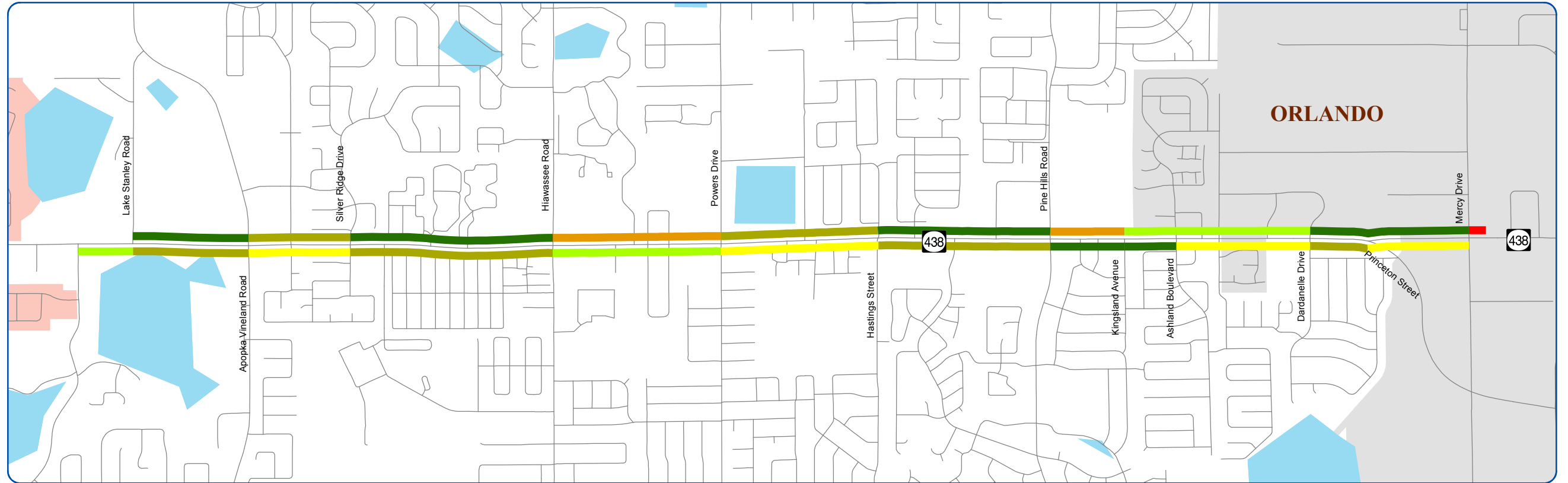
**SR 438 /
Silver Star Rd.
- PM Peak
Before Condition**

Date of Collection: 12/14/2011
Distance: 4.11 miles
From: Lake Stanley Rd.
To: Mercy Dr.

Start Time: 4:00 PM
End Time: 6:00 PM

EB Avg Speed: 23.30 MPH
EB Travel Time: 10.57 MIN
EB Delay Time: 2.95 MIN

WB Avg Speed: 25.2 MPH
WB Travel Time: 9.54 MIN
WB Delay Time: 2.38 MIN



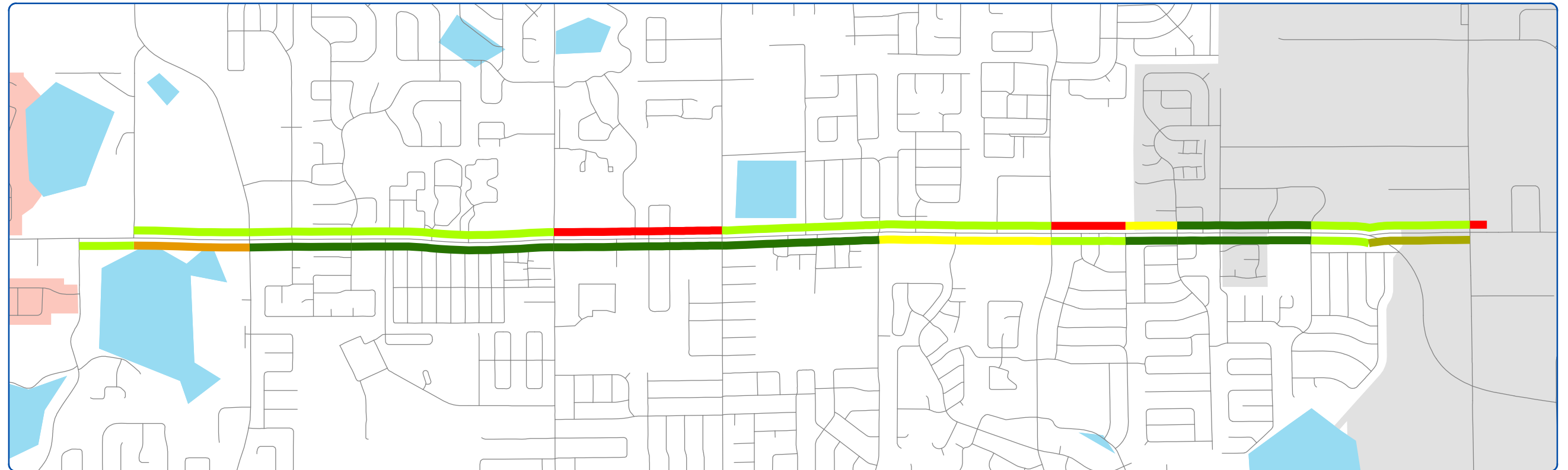
**SR 438 /
Silver Star Rd.
- PM Peak
After Condition**

Date of Collection: 6/5/2012
Distance: 4.11 miles
From: Lake Stanley Rd.
To: Mercy Dr.

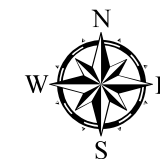
Start Time: 4:00 PM
End Time: 6:00 PM

EB Avg Speed: 30.4 MPH
EB Travel Time: 8.11 MIN
EB Delay Time: 1.23 MIN

WB Avg Speed: 24.00 MPH
WB Travel Time: 10.04 MIN
WB Delay Time: 2.52 MIN

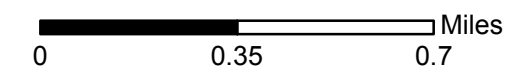


Level of Services:



2012 METROPLAN ORLANDO

Travel Time Study



SR 438 (Silver Star Road) - Lake Stanley Road to Mercy Drive
Summary of Before Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
1907	561.6	122.4	26.3	0.1460	297.49	278.42
Northbound/Eastbound - PM Peak Hour						
1436	634.2	177.0	23.3	0.1470	252.98	211.09
Southbound/Westbound - AM Peak Hour						
1171	499.2	96.6	28.9	0.1400	162.38	163.94
Southbound/Westbound - PM Peak Hour						
2006	572.4	142.8	25.2	0.1430	318.95	286.86

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 438 (Silver Star Road) - Lake Stanley Road to Mercy Drive
Summary of After Study Travel Time and Delay Study Results

Traffic Volume	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
1907	480.0	75.6	30.8	0.1430	254.27	272.70
Northbound/Eastbound - PM Peak Hour						
1436	486.6	73.8	30.4	0.1440	194.10	206.78
Southbound/Westbound - AM Peak Hour						
1171	435.2	43.8	33.2	0.1390	141.56	162.77
Southbound/Westbound - PM Peak Hour						
2006	542.4	121.8	26.2	0.1430	302.24	286.86

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 438 (Silver Star Road) - Lake Stanley Road to Mercy Drive
Summary of Measures of Effectiveness & Benefit Cost Analysis

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	459.87	395.83	571.93	496.34
Total Fuel Consumption (gallons)	442.36	435.47	497.95	493.64

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$1,067.54	\$1,246.94
Annual User Benefit	\$320,262.68	\$374,081.07
Total Annual User Benefit =	\$694,343.75	
Total Signal Retiming Annual Cost	\$18,589.22	
User Benefit / Cost Ratio	37.35	

Notes:

- * Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
- * Fuel consumption is valued to the rate of \$3.43 per gallon.(Florida Department of Revenue & Orlando Gas Prices)
- * Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffics
- * The service life of the improvement was kept as three (3) years.
- * Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

SR 435/KIRKMAN RD. Major Blvd. to Westgate Dr.

Table 8
Year 2012 METROPLAN Orlando Travel Time Study
SR 435 (Kirkman Road) - Major Boulevard to Westgate Drive - Northbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Major Blvd. to Vineland Rd.	City of Orlando	Arterial	OBD	2	4	0	50	1,742	5	Signal	75.0	34.8	I	15.8	F	0.32	
Vineland Rd. to Conroy Rd.	City of Orlando	Arterial	Residential Area	2	3	1	50	4,013	5	Signal	64.2	0.0	I	42.6	A	0.85	
Conroy Rd. to L.B. McLeod Rd.	City of Orlando	Arterial	Residential Area	1	3	1	50	3,854	5	Signal	63.6	2.4	I	41.3	B	0.83	
L.B. McLeod Rd. to Arnold Palmer Dr.	City of Orlando	Arterial	Residential Area	2	3	0	50	2,112	5	Signal	56.4	21.6	I	25.5	D	0.51	
Arnold Palmer Dr. to Metrowest Blvd.	City of Orlando	Arterial	Residential Area	2	3	0	50	1,214	5	Signal	63.0	36.0	I	13.1	F	0.26	
Metrowest Blvd. to Metropolis Way	City of Orlando	Arterial	OBD	1	3	0	50	1,267	5	Signal	39.0	9.0	I	22.2	D	0.44	
Metropolis Way to (S)Valencia Community College	City of Orlando	Arterial	OBD	2	3	0	50	1,214	5	Signal	21.0	0.0	I	39.4	B	0.79	
(S)Valencia Community College Dr. to (N)Valencia Community College Dr.	City of Orlando	Arterial	OBD	1	3	0	50	1,267	5	Signal	28.8	7.8	I	30.0	C	0.60	
(N)Valencia Community College Dr. to Raleigh St.	City of Orlando	Arterial	OBD	2	3	1	50	1,320	5	Signal	36.6	13.8	I	24.6	D	0.49	
Raleigh St. to Westgate Dr.	City of Orlando	Arterial	Residential Area	1	3	1	50	1,478	5	Signal	28.2	0.0	I	35.7	B	0.71	
TOTAL							50	19,483			475.8	125.4	I	27.9	C	0.56	0.128 gal/veh
PM PEAK HOUR																	
Major Blvd. to Vineland Rd.	City of Orlando	Arterial	OBD	2	4	0	50	1,742	4	Signal	80.4	34.8	I	14.8	F	0.30	
Vineland Rd. to Conroy Rd.	City of Orlando	Arterial	Residential Area	2	3	1	50	4,013	4	Signal	149.4	64.8	I	18.3	E	0.37	
Conroy Rd. to L.B. McLeod Rd.	City of Orlando	Arterial	Residential Area	1	3	1	50	3,854	4	Signal	64.2	0.0	I	40.9	B	0.82	
L.B. McLeod Rd. to Arnold Palmer Dr.	City of Orlando	Arterial	Residential Area	2	3	0	50	2,112	4	Signal	75.0	30.6	I	19.2	E	0.38	
Arnold Palmer Dr. to Metrowest Blvd.	City of Orlando	Arterial	Residential Area	2	3	0	50	1,214	4	Signal	45.6	18.6	I	18.2	E	0.36	
Metrowest Blvd. to Metropolis Way	City of Orlando	Arterial	OBD	1	3	0	50	1,267	4	Signal	39.0	15.0	I	22.2	D	0.44	
Metropolis Way to (S)Valencia Community College	City of Orlando	Arterial	OBD	2	3	0	50	1,214	4	Signal	31.8	3.0	I	26.0	D	0.52	
(S)Valencia Community College Dr. to (N)Valencia Community College Dr.	City of Orlando	Arterial	OBD	1	3	0	50	1,267	4	Signal	23.4	0.0	I	36.9	B	0.74	
(N)Valencia Community College Dr. to Raleigh St.	City of Orlando	Arterial	OBD	2	3	1	50	1,320	4	Signal	64.2	34.2	I	14.0	F	0.28	
Raleigh St. to Westgate Dr.	City of Orlando	Arterial	Residential Area	1	3	1	50	1,478	4	Signal	39.6	9.6	I	25.5	D	0.51	
TOTAL							50	19,483			612.6	210.6	I	21.7	D	0.43	0.132 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

Table 8
Year 2012 METROPLAN Orlando Travel Time Study
SR 435 (Kirkman Road) - Major Boulevard to Westgate Drive - Southbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary		
														Average Speed		Avg Speed/	Avg. Fuel	
														(mph)	LOS	Speed Limit	Consump.	
AM PEAK HOUR																		
Median Opening to Westgate Dr.	City of Orlando	Arterial	Residential Area	1	3	1	50	634	5	Signal	14.4	3.6	I	30.0	C	0.60		
Westgate Dr. to Raleigh St.	City of Orlando	Arterial	Residential Area	1	3	1	50	1,478	5	Signal	57.6	21.6	I	17.5	E	0.35		
Raleigh St. to (N)Valencia Community College Dr.	City of Orlando	Arterial	OBD	1	3	1	50	1,320	5	Signal	23.4	0.0	I	38.5	B	0.77		
(N)Valencia Community College Dr. to (S)Valencia Community College Dr.	City of Orlando	Arterial	OBD	1	3	1	50	1,267	5	Signal	60.6	34.8	I	14.3	F	0.29		
(S)Valencia Community College Dr. to Metropolis Way	City of Orlando	Arterial	OBD	1	3	1	50	1,214	5	Signal	28.8	5.4	I	28.7	C	0.57		
Metropolis Way to Metrowest Blvd.	City of Orlando	Arterial	OBD	1	3	1	50	1,267	5	Signal	54.0	24.6	I	16.0	F	0.32		
Metrowest Blvd. to Arnold Palmer Dr.	City of Orlando	Arterial	Residential Area	1	3	0	50	1,214	5	Signal	21.6	0.0	I	38.3	B	0.77		
Arnold Palmer Dr. to L.B. McLeod Rd.	City of Orlando	Arterial	Residential Area	2	3	0	50	2,112	5	Signal	31.8	0.0	I	45.3	A	0.91		
L.B. McLeod Rd. to Conroy Rd.	City of Orlando	Arterial	Residential Area	2	3	1	50	3,854	5	Signal	76.2	16.2	I	34.5	B	0.69		
Conroy Rd. to Vineland Rd.	City of Orlando	Arterial	Residential Area	2	3	1	50	4,013	5	Signal	108.0	35.4	I	25.3	D	0.51		
Vineland Rd. to Major Blvd.	City of Orlando	Arterial	OBD	1	3	1	50	1,742	5	Signal	118.2	75.6	I	10.1	F	0.20		
TOTAL							50	20,117			594.6	217.2	I	23.1	D	0.46	0.133 gal/veh	
PM PEAK HOUR																		
Median Opening to Westgate Dr.	City of Orlando	Arterial	Residential Area	1	3	1	50	634	4	Signal	19.8	3.6	I	21.8	D	0.44		
Westgate Dr. to Raleigh St.	City of Orlando	Arterial	Residential Area	1	3	1	50	1,478	4	Signal	40.2	8.4	I	25.1	D	0.50		
Raleigh St. to (N)Valencia Community College Dr.	City of Orlando	Arterial	OBD	1	3	1	50	1,320	4	Signal	28.8	4.8	I	31.2	C	0.62		
(N)Valencia Community College Dr. to (S)Valencia Community College Dr.	City of Orlando	Arterial	OBD	1	3	1	50	1,267	4	Signal	35.4	10.8	I	24.4	D	0.49		
(S)Valencia Community College Dr. to Metropolis Way	City of Orlando	Arterial	OBD	1	3	1	50	1,214	4	Signal	41.4	6.6	I	20.0	E	0.40		
Metropolis Way to Metrowest Blvd.	City of Orlando	Arterial	OBD	1	3	1	50	1,267	4	Signal	99.6	58.8	I	8.7	F	0.17		
Metrowest Blvd. to Arnold Palmer Dr.	City of Orlando	Arterial	Residential Area	1	3	0	50	1,214	4	Signal	49.2	21.0	I	16.8	E	0.34		
Arnold Palmer Dr. to L.B. McLeod Rd.	City of Orlando	Arterial	Residential Area	2	3	0	50	2,112	4	Signal	34.8	0.0	I	41.4	B	0.83		
L.B. McLeod Rd. to Conroy Rd.	City of Orlando	Arterial	Residential Area	2	3	1	50	3,854	4	Signal	147.6	67.2	I	17.8	E	0.36		
Conroy Rd. to Vineland Rd.	City of Orlando	Arterial	Residential Area	2	3	1	50	4,013	4	Signal	69.0	0.0	I	39.7	B	0.79		
Vineland Rd. to Major Blvd.	City of Orlando	Arterial	OBD	1	3	1	50	1,742	4	Signal	90.6	43.8	I	13.1	F	0.26		
TOTAL							50	20,117			656.4	225.0	I	20.9	E	0.42	0.137 gal/veh	

- Note:
1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
 2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
 3. OBD - Outlying Business District

Table 8
Year 2012 METROPLAN Orlando Travel Time Study
SR 435 (Kirkman Road) - Major Boulevard to Westgate Drive - Northbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Major Blvd. to Vineland Rd.	City of Orlando	Arterial	OBD	2	4	0	50	1,742	6	Signal	52.8	15.6	I	22.5	D	0.45	
Vineland Rd. to Conroy Rd.	City of Orlando	Arterial	Residential Area	2	3	1	50	4,013	6	Signal	64.8	3.6	I	42.2	A	0.84	
Conroy Rd. to L.B. McLeod Rd.	City of Orlando	Arterial	Residential Area	1	3	1	50	3,854	6	Signal	60.6	3.6	I	43.4	A	0.87	
L.B. McLeod Rd. to Arnold Palmer Dr.	City of Orlando	Arterial	Residential Area	2	3	0	50	2,112	6	Signal	30.6	0.0	I	47.1	A	0.94	
Arnold Palmer Dr. to Metrowest Blvd.	City of Orlando	Arterial	Residential Area	2	3	0	50	1,214	6	Signal	23.4	0.0	I	35.4	B	0.71	
Metrowest Blvd. to Metropolis Way	City of Orlando	Arterial	OBD	1	3	0	50	1,267	6	Signal	22.2	0.0	I	38.9	B	0.78	
Metropolis Way to (S)Valencia Community College	City of Orlando	Arterial	OBD	2	3	0	50	1,214	6	Signal	32.4	10.2	I	25.6	D	0.51	
(S)Valencia Community College Dr. to (N)Valencia Community College Dr.	City of Orlando	Arterial	OBD	1	3	0	50	1,267	6	Signal	30.6	7.8	I	28.2	C	0.56	
(N)Valencia Community College Dr. to Raleigh St.	City of Orlando	Arterial	OBD	2	3	1	50	1,320	6	Signal	28.8	1.8	I	31.2	C	0.62	
Raleigh St. to Westgate Dr.	City of Orlando	Arterial	Residential Area	1	3	1	50	1,478	6	Signal	27.0	1.2	I	37.3	B	0.75	
TOTAL							50	19,483			373.2	43.8	I	35.6	B	0.71	0.127 gal/veh
PM PEAK HOUR																	
Major Blvd. to Vineland Rd.	City of Orlando	Arterial	OBD	2	4	0	50	1,742	6	Signal	45.6	3.0	I	26.1	D	0.52	
Vineland Rd. to Conroy Rd.	City of Orlando	Arterial	Residential Area	2	3	1	50	4,013	6	Signal	106.2	33.0	I	25.8	D	0.52	
Conroy Rd. to L.B. McLeod Rd.	City of Orlando	Arterial	Residential Area	1	3	1	50	3,854	6	Signal	91.2	19.8	I	28.8	C	0.58	
L.B. McLeod Rd. to Arnold Palmer Dr.	City of Orlando	Arterial	Residential Area	2	3	0	50	2,112	6	Signal	37.2	0.0	I	38.7	B	0.77	
Arnold Palmer Dr. to Metrowest Blvd.	City of Orlando	Arterial	Residential Area	2	3	0	50	1,214	6	Signal	52.8	30.0	I	15.7	F	0.31	
Metrowest Blvd. to Metropolis Way	City of Orlando	Arterial	OBD	1	3	0	50	1,267	6	Signal	22.8	0.0	I	37.9	B	0.76	
Metropolis Way to (S)Valencia Community College	City of Orlando	Arterial	OBD	2	3	0	50	1,214	6	Signal	21.0	0.0	I	39.4	B	0.79	
(S)Valencia Community College Dr. to (N)Valencia Community College Dr.	City of Orlando	Arterial	OBD	1	3	0	50	1,267	6	Signal	41.4	4.8	I	20.9	E	0.42	
(N)Valencia Community College Dr. to Raleigh St.	City of Orlando	Arterial	OBD	2	3	1	50	1,320	6	Signal	65.4	37.8	I	13.8	F	0.28	
Raleigh St. to Westgate Dr.	City of Orlando	Arterial	Residential Area	1	3	1	50	1,478	6	Signal	22.8	0.0	I	44.2	A	0.88	
TOTAL							50	19,483			506.4	128.4	I	26.2	D	0.52	0.130 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

Table 8
Year 2012 METROPLAN Orlando Travel Time Study
SR 435 (Kirkman Road) - Major Boulevard to Westgate Drive - Southbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Westgate Dr.	City of Orlando	Arterial	Residential Area	1	3	1	50	634	6	Signal	28.8	18.6	I	15.0	F	0.30	
Westgate Dr. to Raleigh St.	City of Orlando	Arterial	Residential Area	1	3	1	50	1,478	6	Signal	34.8	7.2	I	29.0	C	0.58	
Raleigh St. to (N)Valencia Community College Dr.	City of Orlando	Arterial	OBD	1	3	1	50	1,320	6	Signal	20.4	0.0	I	44.1	A	0.88	
(N)Valencia Community College Dr. to (S)Valencia Community College Dr.	City of Orlando	Arterial	OBD	1	3	1	50	1,267	6	Signal	22.8	3.6	I	37.9	B	0.76	
(S)Valencia Community College Dr. to Metropolis Way	City of Orlando	Arterial	OBD	1	3	1	50	1,214	6	Signal	21.0	0.0	I	39.4	B	0.79	
Metropolis Way to Metrowest Blvd.	City of Orlando	Arterial	OBD	1	3	1	50	1,267	6	Signal	46.2	16.2	I	18.7	E	0.37	
Metrowest Blvd. to Arnold Palmer Dr.	City of Orlando	Arterial	Residential Area	1	3	0	50	1,214	6	Signal	27.0	3.6	I	30.7	C	0.61	
Arnold Palmer Dr. to L.B. McLeod Rd.	City of Orlando	Arterial	Residential Area	2	3	0	50	2,112	6	Signal	32.4	0.0	I	44.4	A	0.89	
L.B. McLeod Rd. to Conroy Rd.	City of Orlando	Arterial	Residential Area	2	3	1	50	3,854	6	Signal	55.8	0.0	I	47.1	A	0.94	
Conroy Rd. to Vineland Rd.	City of Orlando	Arterial	Residential Area	2	3	1	50	4,013	6	Signal	57.0	0.0	I	48.0	A	0.96	
Vineland Rd. to Major Blvd.	City of Orlando	Arterial	OBD	1	3	1	50	1,742	6	Signal	62.4	29.4	I	19.0	E	0.38	
TOTAL							50	20,117			408.6	78.6	I	33.6	C	0.67	0.130 gal/veh
PM PEAK HOUR																	
Median Opening to Westgate Dr.	City of Orlando	Arterial	Residential Area	1	3	1	50	634	6	Signal	8.3	0.0	I	52.0	A	1.04	
Westgate Dr. to Raleigh St.	City of Orlando	Arterial	Residential Area	1	3	1	50	1,478	6	Signal	25.2	1.8	I	40.0	B	0.80	
Raleigh St. to (N)Valencia Community College Dr.	City of Orlando	Arterial	OBD	1	3	1	50	1,320	6	Signal	19.8	0.0	I	45.5	A	0.91	
(N)Valencia Community College Dr. to (S)Valencia Community College Dr.	City of Orlando	Arterial	OBD	1	3	1	50	1,267	6	Signal	22.8	0.0	I	37.9	B	0.76	
(S)Valencia Community College Dr. to Metropolis Way	City of Orlando	Arterial	OBD	1	3	1	50	1,214	6	Signal	19.2	0.0	I	43.1	A	0.86	
Metropolis Way to Metrowest Blvd.	City of Orlando	Arterial	OBD	1	3	1	50	1,267	6	Signal	27.0	1.8	I	32.0	C	0.64	
Metrowest Blvd. to Arnold Palmer Dr.	City of Orlando	Arterial	Residential Area	1	3	0	50	1,214	6	Signal	36.0	12.6	I	23.0	D	0.46	
Arnold Palmer Dr. to L.B. McLeod Rd.	City of Orlando	Arterial	Residential Area	2	3	0	50	2,112	6	Signal	37.8	4.8	I	38.1	B	0.76	
L.B. McLeod Rd. to Conroy Rd.	City of Orlando	Arterial	Residential Area	2	3	1	50	3,854	6	Signal	71.4	4.2	I	36.8	B	0.74	
Conroy Rd. to Vineland Rd.	City of Orlando	Arterial	Residential Area	2	3	1	50	4,013	6	Signal	60.0	0.0	I	45.6	A	0.91	
Vineland Rd. to Major Blvd.	City of Orlando	Arterial	OBD	1	3	1	50	1,742	6	Signal	105.0	58.2	I	11.3	F	0.23	
TOTAL							50	20,117			432.5	83.4	I	31.7	C	0.63	0.131 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District



**SR 435/Kirkman Rd.
- AM Peak**

Before Condition

Date of Collection: 10/27/2011
 Distance: 3.69 miles
 From: Major Blvd.
 To: Westgate Dr.

Start Time: 7:00 AM
 End Time: 9:00 AM

NB Avg Speed: 27.9 MPH
 NB Travel Time: 7.93 MIN
 NB Delay Time: 2.09 MIN

SB Avg Speed: 23.1 MPH
 SB Travel Time: 9.91 MIN
 SB Delay Time: 3.62 MIN



**SR 435/Kirkman Rd.
- AM Peak**

After Condition

Date of Collection: 4/26/2012
 Distance: 3.69 miles
 From: Major Blvd.
 To: Westgate Dr.

Start Time: 7:00 AM
 End Time: 9:00 AM

NB Avg Speed: 35.6 MPH
 NB Travel Time: 6.22 MIN
 NB Delay Time: 0.73 MIN

SB Avg Speed: 33.6 MPH
 SB Travel Time: 6.81 MIN
 SB Delay Time: 1.31 MIN



**SR 435/Kirkman Rd.
- PM Peak**

Before Condition

Date of Collection: 10/27/2011
 Distance: 3.69 miles
 From: Major Blvd.
 To: Westgate Dr.

Start Time: 4:00 PM
 End Time: 6:00 PM

NB Avg Speed: 21.70 MPH
 NB Travel Time: 10.21 MIN
 NB Delay Time: 3.51 MIN

SB Avg Speed: 20.90 MPH
 SB Travel Time: 10.94 MIN
 SB Delay Time: 3.75 MIN



**SR 435/Kirkman Rd.
- PM Peak**

After Condition

Date of Collection: 4/26/2012
 Distance: 3.69 miles
 From: Major Blvd.
 To: Westgate Dr.

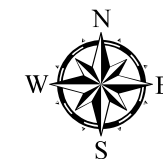
Start Time: 4:00 PM
 End Time: 6:00 PM

NB Avg Speed: 26.2 MPH
 NB Travel Time: 8.44 MIN
 NB Delay Time: 2.14 MIN

SB Avg Speed: 31.7 MPH
 SB Travel Time: 7.21 MIN
 SB Delay Time: 1.39 MIN

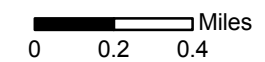
Level of Services:

- | | | |
|--|---|---|
|  A |  D |  Roads |
|  B |  E |  City Boundary |
|  C |  F |  Water |



2012 METROPLAN ORLANDO

Travel Time Study



SR 435 (Kirkman Road) - Major Boulevard to Westgate Drive
Summary of Before Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
1562	475.8	125.4	27.9	0.1280	206.44	199.94
Northbound/Eastbound - PM Peak Hour						
2175	612.6	210.6	21.7	0.1320	370.11	287.10
Southbound/Westbound - AM Peak Hour						
1579	594.6	217.2	23.1	0.1330	260.80	210.01
Southbound/Westbound - PM Peak Hour						
1708	656.4	225.0	20.9	0.1370	311.43	234.00

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 435 (Kirkman Road) - Major Boulevard to Westgate Drive
Summary of After Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
1562	373.2	43.8	35.6	0.1270	161.93	198.37
Northbound/Eastbound - PM Peak Hour						
2175	506.4	128.4	26.2	0.1300	305.95	282.75
Southbound/Westbound - AM Peak Hour						
1579	408.6	78.6	33.6	0.1300	179.22	205.27
Southbound/Westbound - PM Peak Hour						
1708	432.5	83.4	31.7	0.1310	205.20	223.75

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 435 (Kirkman Road) - Major Boulevard to Westgate Drive
Summary of Measures of Effectiveness & Benefit Cost Analysis

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	467.24	341.14	681.54	511.15
Total Fuel Consumption (gallons)	409.94	403.64	521.10	506.50

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$2,077.01	\$2,827.44
Annual User Benefit	\$623,104.15	\$848,231.43
Total Annual User Benefit =	\$1,471,335.58	
Total Signal Retiming Annual Cost	\$18,875.19	
User Benefit / Cost Ratio	77.95	

Notes:

- * Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
- * Fuel consumption is valued to the rate of \$3.43 per gallon.(Florida Department of Revenue & Orlando Gas Prices)
- * Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffics
- * The service life of the improvement was kept as three (3) years.
- * Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

SR 527

Pineloch Ave. to Princeton St.

TABLE 9
Year 2012 METROPLAN Orlando Travel Time Study
SR 527 - Pineloch Avenue to Princeton Street - Northbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to Pineloch Ave.	City of Orlando	Arterial	OBD	1	2	0	40	845	6	Signal	52.8	25.2	II	10.9	F	0.27	
Pineloch Ave. to Michigan St.	City of Orlando	Arterial	OBD	2	2	1	40	1,320	6	Signal	92.4	51.0	II	9.7	F	0.24	
Michigan St. to Grant St.	City of Orlando	Arterial	CBD	1	2	0	40	1,320	6	Signal	43.8	4.8	II	20.5	D	0.51	
Grant St. to Kaley St.	City of Orlando	Arterial	CBD	1	2	0	35	1,320	6	Signal	49.2	14.4	III	18.3	C	0.52	
Kaley St. to Miller St.	City of Orlando	Arterial	CBD	1	2	0	30	1,320	6	Signal	45.0	14.4	IV	20.0	B	0.67	
Miller St. to Copeland Dr.	City of Orlando	Arterial	CBD	0	2	0	30	898	6	Signal	25.2	1.2	IV	24.3	B	0.81	
Copeland Dr. to Columbia St.	City of Orlando	Arterial	CBD	0	2	0	30	581	6	Signal	35.4	17.4	IV	11.2	D	0.37	
Columbia St. to Gore St.	City of Orlando	Arterial	CBD	1	2	0	30	1,162	6	Signal	30.0	1.2	IV	26.4	A	0.88	
Gore St. to Lucerne Cir. S	City of Orlando	Arterial	CBD	0	3	0	30	845	6	Signal	23.4	3.6	IV	24.6	B	0.82	
Lucerne Cir. S to Anderson St.	City of Orlando	One Way	CBD	0	3	0	30	1,320	6	Signal	91.8	48.6	IV	9.8	D	0.33	
Anderson St. to South St.	City of Orlando	One Way	CBD	0	3	0	30	528	6	Signal	49.8	33.6	IV	7.2	E or F	0.24	
South St. to Jackson St.	City of Orlando	One Way	CBD	0	3	0	30	211	6	Signal	13.8	6.6	IV	10.4	D	0.35	
Jackson St. to Church St.	City of Orlando	One Way	CBD	0	3	0	30	475	6	Signal	12.6	0.0	IV	25.7	A	0.86	
Church St. to Pine St.	City of Orlando	One Way	CBD	0	3	0	30	317	6	Signal	10.8	0.0	IV	20.0	B	0.67	
Pine St. to Central Blvd.	City of Orlando	One Way	CBD	0	3	0	30	317	6	Signal	15.6	6.6	IV	13.8	C	0.46	
Central Blvd. to Washington St.	City of Orlando	One Way	CBD	0	3	0	30	528	6	Signal	15.6	1.2	IV	23.1	B	0.77	
Washington St. to Robinson St.	City of Orlando	One Way	CBD	0	3	0	30	739	6	Signal	28.2	1.2	IV	17.9	C	0.60	
Robinson St. to Livingston St.	City of Orlando	One Way	CBD	0	3	0	25	739	6	Signal	60.6	39.0	IV	8.3	E or F	0.33	
Livingston St. to Amelia St.	City of Orlando	One Way	CBD	0	3	0	30	686	6	Signal	15.6	0.0	IV	30.0	A	1.00	
Amelia St. to Concord St.	City of Orlando	One Way	CBD	0	3	0	30	581	6	Signal	12.0	0.0	IV	33.0	A	1.10	
Concord St. to Colonial Dr.	City of Orlando	One Way	CBD	0	3	1	30	792	6	Signal	54.6	30.6	IV	9.9	D	0.33	
Colonial Dr. to Marks St.	City of Orlando	One Way	CBD	0	3	0	30	1,320	6	Signal	36.0	2.4	IV	25.0	B	0.83	
Marks St. to Orange Ave.	City of Orlando	One Way	CBD	1	2	1	30	1,003	6	Signal	27.6	0.0	IV	24.8	B	0.83	
Orange Ave. to Highland Ave.	City of Orlando	Arterial	CBD	0	1	1	30	1,162	6	Signal	45.6	14.4	IV	17.4	C	0.58	
Highland Ave. to Virginia Dr.	City of Orlando	Arterial	CBD	0	1	1	30	1,056	6	Signal	39.0	9.6	IV	18.5	C	0.62	
Virginia Dr. to New Hampshire St.	City of Orlando	Arterial	CBD	1	1	0	30	1,320	6	Signal	31.8	0.0	IV	28.3	A	0.94	
New Hampshire St. to Princeton St.	City of Orlando	Arterial	CBD	1	2	0	30	1,320	6	Signal	36.0	2.4	IV	25.0	B	0.83	
TOTAL							30	24,024			994.2	329.4	IV	16.5	C	0.55	0.173 gal/veh

TABLE 9
Year 2012 METROPLAN Orlando Travel Time Study
SR 527 - Pineloch Avenue to Princeton Street - Northbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
PM PEAK HOUR																	
Median Opening to Pineloch Ave.	City of Orlando	Arterial	OBD	1	2	0	40	845	6	Signal	71.4	42.6	II	8.1	F	0.20	
Pineloch Ave. to Michigan St.	City of Orlando	Arterial	OBD	2	2	1	40	1,320	6	Signal	87.6	45.6	II	10.3	F	0.26	
Michigan St. to Grant St.	City of Orlando	Arterial	CBD	1	2	0	40	1,320	6	Signal	35.4	0.0	II	25.4	C	0.64	
Grant St. to Kaley St.	City of Orlando	Arterial	CBD	1	2	0	35	1,320	6	Signal	55.2	24.0	III	16.3	D	0.47	
Kaley St. to Miller St.	City of Orlando	Arterial	CBD	1	2	0	30	1,320	6	Signal	27.0	0.0	IV	33.3	A	1.11	
Miller St. to Copeland Dr.	City of Orlando	Arterial	CBD	0	2	0	30	898	6	Signal	55.2	29.4	IV	11.1	D	0.37	
Copeland Dr. to Columbia St.	City of Orlando	Arterial	CBD	0	2	0	30	581	6	Signal	28.8	13.8	IV	13.7	C	0.46	
Columbia St. to Gore St.	City of Orlando	Arterial	CBD	1	2	0	30	1,162	6	Signal	44.4	9.0	IV	17.8	C	0.59	
Gore St. to Lucerne Cir. S	City of Orlando	Arterial	CBD	0	3	0	30	845	6	Signal	18.6	0.0	IV	31.0	A	1.03	
Lucerne Cir. S to Anderson St.	City of Orlando	One Way	CBD	0	3	0	30	1,320	6	Signal	123.0	79.8	IV	7.3	E or F	0.24	
Anderson St. to South St.	City of Orlando	One Way	CBD	0	3	0	30	528	6	Signal	46.2	13.8	IV	7.8	E or F	0.26	
South St. to Jackson St.	City of Orlando	One Way	CBD	0	3	0	30	211	6	Signal	7.2	0.0	IV	20.0	B	0.67	
Jackson St. to Church St.	City of Orlando	One Way	CBD	0	3	0	30	475	6	Signal	19.8	7.2	IV	16.4	C	0.55	
Church St. to Pine St.	City of Orlando	One Way	CBD	0	3	0	30	317	6	Signal	10.2	0.0	IV	21.2	B	0.71	
Pine St. to Central Blvd.	City of Orlando	One Way	CBD	0	3	0	30	317	6	Signal	10.8	1.2	IV	20.0	B	0.67	
Central Blvd. to Washington St.	City of Orlando	One Way	CBD	0	3	0	30	528	6	Signal	15.0	0.0	IV	24.0	B	0.80	
Washington St. to Robinson St.	City of Orlando	One Way	CBD	0	3	0	30	739	6	Signal	20.4	0.0	IV	24.7	B	0.82	
Robinson St. to Livingston St.	City of Orlando	One Way	CBD	0	3	0	25	739	6	Signal	19.2	0.0	IV	26.2	A	1.05	
Livingston St. to Amelia St.	City of Orlando	One Way	CBD	0	3	0	30	686	6	Signal	15.6	0.0	IV	30.0	A	1.00	
Amelia St. to Concord St.	City of Orlando	One Way	CBD	0	3	0	30	581	6	Signal	12.0	0.0	IV	33.0	A	1.10	
Concord St. to Colonial Dr.	City of Orlando	One Way	CBD	0	3	1	30	792	6	Signal	109.8	83.4	IV	4.9	E or F	0.16	
Colonial Dr. to Marks St.	City of Orlando	One Way	CBD	0	3	0	30	1,320	6	Signal	40.2	5.4	IV	22.4	B	0.75	
Marks St. to Orange Ave.	City of Orlando	One Way	CBD	1	2	1	30	1,003	6	Signal	28.2	0.0	IV	24.3	B	0.81	
Orange Ave. to Highland Ave.	City of Orlando	Arterial	CBD	0	1	1	30	1,162	6	Signal	36.0	4.2	IV	22.0	B	0.73	
Highland Ave. to Virginia Dr.	City of Orlando	Arterial	CBD	0	1	1	30	1,056	6	Signal	40.8	6.6	IV	17.6	C	0.59	
Virginia Dr. to New Hampshire St.	City of Orlando	Arterial	CBD	1	1	0	30	1,320	6	Signal	42.6	3.0	IV	21.1	B	0.70	
New Hampshire St. to Princeton St.	City of Orlando	Arterial	CBD	1	2	0	30	1,320	6	Signal	55.8	19.2	IV	16.1	C	0.54	
TOTAL							30	24,024			1,076.4	388.2	IV	15.2	C	0.51	0.176 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. CBD - Outlying Business District.
4. OBD - Outlying Business District.

TABLE 9
Year 2012 METROPLAN Orlando Travel Time Study
SR 527 - Pineloch Avenue to Princeton Street - Southbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Rollins St. to Princeton St.	City of Orlando	Arterial	CBD	1	2	1	35	211	6	Signal	57.6	48.6	III	2.5	F	0.07	
Princeton St. to New Hampshire St.	City of Orlando	Arterial	CBD	0	1	0	30	1,320	6	Signal	34.8	0.0	IV	25.9	A	0.86	
New Hampshire St. to Virginia Dr.	City of Orlando	Arterial	CBD	0	2	0	30	1,320	6	Signal	28.8	0.6	IV	31.2	A	1.04	
Virginia Dr. to Highland Ave.	City of Orlando	Arterial	CBD	0	2	0	30	1,056	6	Signal	22.8	0.0	IV	31.6	A	1.05	
Highland Ave. to Magnolia Ave.	City of Orlando	Arterial	CBD	0	2	0	30	1,162	6	Signal	47.4	14.4	IV	16.7	C	0.56	
Magnolia Ave. to Garland Ave.	City of Orlando	Collector	CBD	1	1	0	30	950	6	Signal	24.6	0.0	IV	26.3	A	0.88	
Garland Ave. to Marks St.	City of Orlando	One Way	CBD	0	3	0	30	475	6	Signal	12.0	0.0	IV	27.0	A	0.90	
Marks St. to Colonial Dr.	City of Orlando	One Way	CBD	0	4	0	30	1,320	6	Signal	93.0	55.2	IV	9.7	D	0.32	
Colonial Dr. to Concord St.	City of Orlando	One Way	CBD	0	4	0	30	792	6	Signal	42.0	15.0	IV	12.9	D	0.43	
Concord St. to Amelia St.	City of Orlando	One Way	CBD	0	4	0	25	581	6	Signal	15.6	0.0	IV	25.4	A	1.02	
Amelia St. to Livingston St.	City of Orlando	One Way	CBD	0	4	0	25	686	6	Signal	16.8	0.0	IV	27.9	A	1.11	
Livingston St. to Robinson St.	City of Orlando	One Way	CBD	0	4	0	25	634	6	Signal	24.0	8.4	IV	18.0	C	0.72	
Robinson St. to Jefferson St.	City of Orlando	One Way	CBD	0	3	1	25	370	6	Signal	9.6	0.0	IV	26.2	A	1.05	
Jefferson St. to Washington St.	City of Orlando	One Way	CBD	0	3	0	25	370	6	Signal	11.4	0.0	IV	22.1	B	0.88	
Washington St. to Wall St.	City of Orlando	One Way	CBD	0	3	0	25	317	6	Signal	10.8	0.0	IV	20.0	B	0.80	
Wall St. to Central Blvd.	City of Orlando	One Way	CBD	0	3	0	25	158	6	Signal	5.4	0.0	IV	20.0	B	0.80	
Central Blvd. to Pine St.	City of Orlando	One Way	CBD	0	3	0	25	317	6	Signal	9.6	0.0	IV	22.5	B	0.90	
Pine St. to Church St.	City of Orlando	One Way	CBD	0	3	0	25	370	6	Signal	15.6	0.0	IV	16.2	C	0.65	
Church St. to Jackson St.	City of Orlando	One Way	CBD	0	3	0	25	475	6	Signal	40.2	18.0	IV	8.1	E or F	0.32	
Jackson St. to South St.	City of Orlando	One Way	CBD	0	3	1	25	211	6	Signal	15.0	33.6	IV	9.6	D	0.38	
South St. to Anderson St.	City of Orlando	One Way	CBD	0	3	0	25	475	6	Signal	26.4	0.6	IV	12.3	D	0.49	
Anderson St. to Lucerne Cir. N	City of Orlando	One Way	CBD	0	3	1	30	422	6	Signal	10.2	0.0	IV	28.2	A	0.94	
Lucerne Cir. N to Lucerne Cir. S	City of Orlando	One Way	CBD	0	3	0	30	1,109	6	Signal	39.0	11.4	IV	19.4	B	0.65	
Lucerne Cir. S to Gore St.	City of Orlando	Arterial	CBD	1	2	1	30	845	6	Signal	48.0	24.6	IV	12.0	D	0.40	
Gore St. to Columbia St.	City of Orlando	Arterial	CBD	0	2	1	30	1,162	6	Signal	44.4	15.6	IV	17.8	C	0.59	
Columbia St. to Copeland Dr.	City of Orlando	Arterial	CBD	0	2	0	30	581	6	Signal	13.8	0.0	IV	28.7	A	0.96	
Copeland Dr. to Miller St.	City of Orlando	Arterial	CBD	1	2	0	30	898	6	Signal	36.0	13.8	IV	17.0	C	0.57	
Miller St. to Kaley St.	City of Orlando	Arterial	CBD	1	2	0	30	1,320	6	Signal	33.0	3.0	IV	27.3	A	0.91	
Kaley St. to Grant St.	City of Orlando	Arterial	CBD	1	2	0	35	1,320	6	Signal	34.2	7.2	III	26.3	B	0.75	
Grant St. to Michigan St.	City of Orlando	Arterial	CBD	2	2	0	40	1,320	6	Signal	42.0	7.8	II	21.4	D	0.54	
Michigan St. to Pineloch Ave.	City of Orlando	Arterial	OBD	1	2	1	40	1,320	6	Signal	26.4	0.6	II	34.1	B	0.85	
TOTAL							30	23,866			890.4	278.4	IV	18.3	C	0.61	0.168 gal/veh

TABLE 9
Year 2012 METROPLAN Orlando Travel Time Study
SR 527 - Pineloch Avenue to Princeton Street - Southbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
PM PEAK HOUR																	
Rollins St. to Princeton St.	City of Orlando	Arterial	CBD	1	2	1	35	211	5	Signal	35.4	28.8	III	4.1	F	0.12	
Princeton St. to New Hampshire St.	City of Orlando	Arterial	CBD	0	1	0	30	1,320	5	Signal	39.6	3.0	IV	22.7	B	0.76	
New Hampshire St. to Virginia Dr.	City of Orlando	Arterial	CBD	0	2	0	30	1,320	5	Signal	39.0	4.2	IV	23.1	B	0.77	
Virginia Dr. to Highland Ave.	City of Orlando	Arterial	CBD	0	2	0	30	1,056	5	Signal	30.0	6.0	IV	24.0	B	0.80	
Highland Ave. to Magnolia Ave.	City of Orlando	Arterial	CBD	0	2	0	30	1,162	5	Signal	47.4	16.2	IV	16.7	C	0.56	
Magnolia Ave. to Garland Ave.	City of Orlando	Collector	CBD	1	1	0	30	950	5	Signal	24.0	0.0	IV	27.0	A	0.90	
Garland Ave. to Marks St.	City of Orlando	One Way	CBD	0	3	0	30	475	5	Signal	12.0	0.0	IV	27.0	A	0.90	
Marks St. to Colonial Dr.	City of Orlando	One Way	CBD	0	4	0	30	1,320	5	Signal	76.8	42.0	IV	11.7	D	0.39	
Colonial Dr. to Concord St.	City of Orlando	One Way	CBD	0	4	0	30	792	5	Signal	25.2	5.4	IV	21.4	B	0.71	
Concord St. to Amelia St.	City of Orlando	One Way	CBD	0	4	0	25	581	5	Signal	31.2	16.8	IV	12.7	D	0.51	
Amelia St. to Livingston St.	City of Orlando	One Way	CBD	0	4	0	25	686	5	Signal	22.8	3.6	IV	20.5	B	0.82	
Livingston St. to Robinson St.	City of Orlando	One Way	CBD	0	4	0	25	634	5	Signal	51.6	31.2	IV	8.4	E or F	0.33	
Robinson St. to Jefferson St.	City of Orlando	One Way	CBD	0	3	1	25	370	5	Signal	15.6	3.6	IV	16.2	C	0.65	
Jefferson St. to Washington St.	City of Orlando	One Way	CBD	0	3	0	25	370	5	Signal	41.4	26.4	IV	6.1	E or F	0.24	
Washington St. to Wall St.	City of Orlando	One Way	CBD	0	3	0	25	317	5	Signal	35.4	24.6	IV	6.1	E or F	0.24	
Wall St. to Central Blvd.	City of Orlando	One Way	CBD	0	3	0	25	158	5	Signal	21.0	15.6	IV	5.1	E or F	0.21	
Central Blvd. to Pine St.	City of Orlando	One Way	CBD	0	3	0	25	317	5	Signal	25.8	21.0	IV	8.4	E or F	0.33	
Pine St. to Church St.	City of Orlando	One Way	CBD	0	3	0	25	370	5	Signal	18.0	1.8	IV	14.0	C	0.56	
Church St. to Jackson St.	City of Orlando	One Way	CBD	0	3	0	25	475	5	Signal	45.6	18.0	IV	7.1	E or F	0.28	
Jackson St. to South St.	City of Orlando	One Way	CBD	0	3	1	25	211	5	Signal	6.6	27.0	IV	21.8	B	0.87	
South St. to Anderson St.	City of Orlando	One Way	CBD	0	3	0	25	475	5	Signal	13.8	0.0	IV	23.5	B	0.94	
Anderson St. to Lucerne Cir. N	City of Orlando	One Way	CBD	0	3	1	30	422	5	Signal	10.2	0.0	IV	28.2	A	0.94	
Lucerne Cir. N to Lucerne Cir. S	City of Orlando	One Way	CBD	0	3	0	30	1,109	5	Signal	45.0	16.2	IV	16.8	C	0.56	
Lucerne Cir. S to Gore St.	City of Orlando	Arterial	CBD	1	2	1	30	845	5	Signal	42.0	19.8	IV	13.7	C	0.46	
Gore St. to Columbia St.	City of Orlando	Arterial	CBD	0	2	1	30	1,162	5	Signal	50.4	18.0	IV	15.7	C	0.52	
Columbia St. to Copeland Dr.	City of Orlando	Arterial	CBD	0	2	0	30	581	5	Signal	16.8	1.2	IV	23.6	B	0.79	
Copeland Dr. to Miller St.	City of Orlando	Arterial	CBD	1	2	0	30	898	5	Signal	35.4	12.6	IV	17.3	C	0.58	
Miller St. to Kaley St.	City of Orlando	Arterial	CBD	1	2	0	30	1,320	5	Signal	73.2	34.8	IV	12.3	D	0.41	
Kaley St. to Grant St.	City of Orlando	Arterial	CBD	1	2	0	35	1,320	5	Signal	30.0	0.0	III	30.0	B	0.86	
Grant St. to Michigan St.	City of Orlando	Arterial	CBD	2	2	0	40	1,320	5	Signal	91.8	48.6	II	9.8	F	0.25	
Michigan St. to Pineloch Ave.	City of Orlando	Arterial	OBD	1	2	1	40	1,320	5	Signal	28.2	0.0	II	31.9	B	0.80	
TOTAL							30	23,866			1,081.2	446.4	IV	15.0	C	0.50	0.173 gal/veh

Note:
1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. CBD - Central Business District.
4. OBD - Outlying Business District.
Construction is observed in the SB direction from Columbia St. to Miller St. at the time of collecting the data.

TABLE 9
Year 2012 METROPLAN Orlando Travel Time Study
SR 527 - Pineloch Avenue to Princeton Street - Northbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to Pineloch Ave.	City of Orlando	Arterial	OBD	1	2	0	40	845	5	Signal	19.2	0.0	II	30.0	B	0.75	
Pineloch Ave. to Michigan St.	City of Orlando	Arterial	OBD	2	2	1	40	1,320	5	Signal	34.8	3.6	II	25.9	C	0.65	
Michigan St. to Grant St.	City of Orlando	Arterial	CBD	1	2	0	40	1,320	5	Signal	26.4	0.0	II	34.1	B	0.85	
Grant St. to Kaley St.	City of Orlando	Arterial	CBD	1	2	0	35	1,320	5	Signal	62.4	31.2	III	14.4	D	0.41	
Kaley St. to Miller St.	City of Orlando	Arterial	CBD	1	2	0	30	1,320	5	Signal	24.6	0.0	IV	36.6	A	1.22	
Miller St. to Copeland Dr.	City of Orlando	Arterial	CBD	0	3	0	30	898	5	Signal	23.4	1.8	IV	26.2	A	0.87	
Copeland Dr. to Columbia St.	City of Orlando	Arterial	CBD	1	2	0	30	581	5	Signal	16.2	1.8	IV	24.4	B	0.81	
Columbia St. to Gore St.	City of Orlando	Arterial	CBD	1	2	0	30	1,162	5	Signal	26.4	0.0	IV	30.0	A	1.00	
Gore St. to Lucerne Cir. S	City of Orlando	Arterial	CBD	0	3	0	30	845	5	Signal	35.4	17.4	IV	16.3	C	0.54	
Lucerne Cir. S to Anderson St.	City of Orlando	One Way	CBD	0	3	0	30	1,320	5	Signal	65.4	13.2	IV	13.8	C	0.46	
Anderson St. to South St.	City of Orlando	One Way	CBD	1	2	0	30	528	5	Signal	57.6	37.2	IV	6.2	E or F	0.21	
South St. to Jackson St.	City of Orlando	One Way	CBD	0	3	0	30	211	5	Signal	6.0	0.0	IV	24.0	B	0.80	
Jackson St. to Church St.	City of Orlando	One Way	CBD	0	3	0	30	475	5	Signal	12.0	0.0	IV	27.0	A	0.90	
Church St. to Pine St.	City of Orlando	One Way	CBD	0	3	0	30	317	5	Signal	7.8	0.0	IV	27.7	A	0.92	
Pine St. to Central Blvd.	City of Orlando	One Way	CBD	0	3	0	30	317	5	Signal	6.6	0.0	IV	32.7	A	1.09	
Central Blvd. to Washington St.	City of Orlando	One Way	CBD	0	3	0	30	528	5	Signal	11.4	0.0	IV	31.6	A	1.05	
Washington St. to Robinson St.	City of Orlando	One Way	CBD	0	3	0	30	739	5	Signal	50.4	29.4	IV	10.0	D	0.33	
Robinson St. to Livingston St.	City of Orlando	One Way	CBD	0	3	0	25	739	5	Signal	46.2	25.2	IV	10.9	D	0.44	
Livingston St. to Amelia St.	City of Orlando	One Way	CBD	0	3	0	30	686	5	Signal	15.6	0.0	IV	30.0	A	1.00	
Amelia St. to Concord St.	City of Orlando	One Way	CBD	0	3	0	30	581	5	Signal	12.0	0.0	IV	33.0	A	1.10	
Concord St. to Colonial Dr.	City of Orlando	One Way	CBD	0	3	1	30	792	5	Signal	81.6	54.6	IV	6.6	E or F	0.22	
Colonial Dr. to Marks St.	City of Orlando	One Way	CBD	0	3	0	30	1,320	5	Signal	42.0	9.0	IV	21.4	B	0.71	
Marks St. to Orange Ave.	City of Orlando	One Way	CBD	1	2	1	30	1,003	5	Signal	54.6	25.8	IV	12.5	D	0.42	
Orange Ave. to Highland Ave.	City of Orlando	Arterial	CBD	0	1	1	30	1,162	5	Signal	31.2	3.6	IV	25.4	A	0.85	
Highland Ave. to Virginia Dr.	City of Orlando	Arterial	CBD	0	1	1	30	1,056	5	Signal	39.6	12.0	IV	18.2	C	0.61	
Virginia Dr. to New Hampshire St.	City of Orlando	Arterial	CBD	1	1	0	30	1,320	5	Signal	30.0	0.6	IV	30.0	A	1.00	
New Hampshire St. to Princeton St.	City of Orlando	Arterial	CBD	1	2	0	30	1,320	5	Signal	60.6	27.0	IV	14.9	C	0.50	
TOTAL							30	24,024			899.4	293.4	IV	18.2	C	0.61	0.169 gal/veh

TABLE 9
Year 2012 METROPLAN Orlando Travel Time Study
SR 527 - Pineloch Avenue to Princeton Street - Northbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
PM PEAK HOUR																	
Median Opening to Pineloch Ave.	City of Orlando	Arterial	OBD	1	2	0	40	845	5	Signal	42.6	14.4	II	13.5	E	0.34	
Pineloch Ave. to Michigan St.	City of Orlando	Arterial	OBD	2	2	1	40	1,320	5	Signal	56.4	21.0	II	16.0	E	0.40	
Michigan St. to Grant St.	City of Orlando	Arterial	CBD	1	2	0	40	1,320	5	Signal	33.0	0.6	II	27.3	C	0.68	
Grant St. to Kaley St.	City of Orlando	Arterial	CBD	1	2	0	35	1,320	5	Signal	29.4	0.6	III	30.6	A	0.87	
Kaley St. to Miller St.	City of Orlando	Arterial	CBD	1	2	0	30	1,320	5	Signal	25.2	0.0	IV	35.7	A	1.19	
Miller St. to Copeland Dr.	City of Orlando	Arterial	CBD	0	3	0	30	898	5	Signal	23.4	1.8	IV	26.2	A	0.87	
Copeland Dr. to Columbia St.	City of Orlando	Arterial	CBD	1	2	0	30	581	5	Signal	13.8	0.0	IV	28.7	A	0.96	
Columbia St. to Gore St.	City of Orlando	Arterial	CBD	1	2	0	30	1,162	5	Signal	34.2	1.8	IV	23.2	B	0.77	
Gore St. to Lucerne Cir. S	City of Orlando	Arterial	CBD	0	3	0	30	845	5	Signal	16.2	0.0	IV	35.6	A	1.19	
Lucerne Cir. S to Anderson St.	City of Orlando	One Way	CBD	0	3	0	30	1,320	5	Signal	64.2	25.8	IV	14.0	C	0.47	
Anderson St. to South St.	City of Orlando	One Way	CBD	1	2	0	30	528	5	Signal	34.8	12.6	IV	10.3	D	0.34	
South St. to Jackson St.	City of Orlando	One Way	CBD	0	3	0	30	211	5	Signal	6.6	0.0	IV	21.8	B	0.73	
Jackson St. to Church St.	City of Orlando	One Way	CBD	0	3	0	30	475	5	Signal	12.0	0.0	IV	27.0	A	0.90	
Church St. to Pine St.	City of Orlando	One Way	CBD	0	3	0	30	317	5	Signal	9.6	0.0	IV	22.5	B	0.75	
Pine St. to Central Blvd.	City of Orlando	One Way	CBD	0	3	0	30	317	5	Signal	33.0	22.2	IV	6.5	E or F	0.22	
Central Blvd. to Washington St.	City of Orlando	One Way	CBD	0	3	0	30	528	5	Signal	13.2	0.0	IV	27.3	A	0.91	
Washington St. to Robinson St.	City of Orlando	One Way	CBD	0	3	0	30	739	5	Signal	18.0	0.0	IV	28.0	A	0.93	
Robinson St. to Livingston St.	City of Orlando	One Way	CBD	0	3	0	25	739	5	Signal	18.6	0.0	IV	27.1	A	1.08	
Livingston St. to Amelia St.	City of Orlando	One Way	CBD	0	3	0	30	686	5	Signal	14.4	0.0	IV	32.5	A	1.08	
Amelia St. to Concord St.	City of Orlando	One Way	CBD	0	3	0	30	581	5	Signal	15.6	1.8	IV	25.4	A	0.85	
Concord St. to Colonial Dr.	City of Orlando	One Way	CBD	0	3	1	30	792	5	Signal	107.4	79.2	IV	5.0	E or F	0.17	
Colonial Dr. to Marks St.	City of Orlando	One Way	CBD	0	3	0	30	1,320	5	Signal	38.4	7.2	IV	23.4	B	0.78	
Marks St. to Orange Ave.	City of Orlando	One Way	CBD	1	2	1	30	1,003	5	Signal	28.2	0.0	IV	24.3	B	0.81	
Orange Ave. to Highland Ave.	City of Orlando	Arterial	CBD	0	1	1	30	1,162	5	Signal	31.2	4.8	IV	25.4	A	0.85	
Highland Ave. to Virginia Dr.	City of Orlando	Arterial	CBD	0	1	1	30	1,056	5	Signal	39.6	12.0	IV	18.2	C	0.61	
Virginia Dr. to New Hampshire St.	City of Orlando	Arterial	CBD	1	1	0	30	1,320	5	Signal	36.6	6.6	IV	24.6	B	0.82	
New Hampshire St. to Princeton St.	City of Orlando	Arterial	CBD	1	2	0	30	1,320	5	Signal	37.8	6.6	IV	23.8	B	0.79	
TOTAL							30	24,024			833.4	219.0	IV	19.7	B	0.66	0.169 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District; CBD - Central Business District

TABLE 9
Year 2012 METROPLAN Orlando Travel Time Study
SR 527 - Pineloch Avenue to Princeton Street - Southbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Rollins St. to Princeton St.	City of Orlando	Arterial	CBD	1	2	1	35	211	5	Signal	48.6	40.2	III	3.0	F	0.08	
Princeton St. to New Hampshire St.	City of Orlando	Arterial	CBD	0	1	0	30	1,320	5	Signal	27.6	0.0	IV	32.6	A	1.09	
New Hampshire St. to Virginia Dr.	City of Orlando	Arterial	CBD	0	2	0	30	1,320	5	Signal	26.4	0.0	IV	34.1	A	1.14	
Virginia Dr. to Highland Ave.	City of Orlando	Arterial	CBD	0	2	0	30	1,056	5	Signal	24.0	0.6	IV	30.0	A	1.00	
Highland Ave. to Magnolia Ave.	City of Orlando	Arterial	CBD	0	2	0	30	1,162	5	Signal	46.8	17.4	IV	16.9	C	0.56	
Magnolia Ave. to Garland Ave.	City of Orlando	Collector	CBD	1	1	0	30	950	5	Signal	25.8	0.6	IV	25.1	A	0.84	
Garland Ave. to Marks St.	City of Orlando	One Way	CBD	0	3	0	30	475	5	Signal	13.2	0.6	IV	24.5	B	0.82	
Marks St. to Colonial Dr.	City of Orlando	One Way	CBD	0	4	0	30	1,320	5	Signal	62.4	24.6	IV	14.4	C	0.48	
Colonial Dr. to Concord St.	City of Orlando	One Way	CBD	0	4	0	25	792	5	Signal	35.4	9.0	IV	15.3	C	0.61	
Concord St. to Amelia St.	City of Orlando	One Way	CBD	0	4	0	25	581	5	Signal	24.6	9.0	IV	16.1	C	0.64	
Amelia St. to Livingston St.	City of Orlando	One Way	CBD	0	4	0	25	686	5	Signal	16.8	0.0	IV	27.9	A	1.11	
Livingston St. to Robinson St.	City of Orlando	One Way	CBD	0	4	0	25	634	5	Signal	15.0	0.0	IV	28.8	A	1.15	
Robinson St. to Jefferson St.	City of Orlando	One Way	CBD	0	3	1	25	370	5	Signal	9.0	0.0	IV	28.0	A	1.12	
Jefferson St. to Washington St.	City of Orlando	One Way	CBD	0	3	0	25	370	5	Signal	10.2	0.0	IV	24.7	B	0.99	
Washington St. to Wall St.	City of Orlando	One Way	CBD	0	3	0	25	317	5	Signal	10.2	0.0	IV	21.2	B	0.85	
Wall St. to Central Blvd.	City of Orlando	One Way	CBD	0	3	0	25	158	5	Signal	7.2	0.0	IV	15.0	C	0.60	
Central Blvd. to Pine St.	City of Orlando	One Way	CBD	0	3	0	25	317	5	Signal	9.6	0.0	IV	22.5	B	0.90	
Pine St. to Church St.	City of Orlando	One Way	CBD	0	3	0	25	370	5	Signal	19.2	9.0	IV	13.1	C	0.52	
Church St. to Jackson St.	City of Orlando	One Way	CBD	0	3	0	25	475	5	Signal	26.4	18.6	IV	12.3	D	0.49	
Jackson St. to South St.	City of Orlando	One Way	CBD	0	3	1	25	211	5	Signal	4.8	17.4	IV	30.0	A	1.20	
South St. to Anderson St.	City of Orlando	One Way	CBD	0	3	0	25	475	5	Signal	45.0	13.2	IV	7.2	E or F	0.29	
Anderson St. to Lucerne Cir. N	City of Orlando	One Way	CBD	0	3	1	30	422	5	Signal	10.2	0.0	IV	28.2	A	0.94	
Lucerne Cir. N to Lucerne Cir. S	City of Orlando	One Way	CBD	0	3	0	30	1,109	5	Signal	46.2	19.8	IV	16.4	C	0.55	
Lucerne Cir. S to Gore St.	City of Orlando	Arterial	CBD	1	2	1	30	845	5	Signal	26.4	6.6	IV	21.8	B	0.73	
Gore St. to Columbia St.	City of Orlando	Arterial	CBD	1	2	0	30	1,162	5	Signal	55.2	26.4	IV	14.3	C	0.48	
Columbia St. to Copeland Dr.	City of Orlando	Arterial	CBD	0	2	0	30	581	5	Signal	17.4	3.0	IV	22.8	B	0.76	
Copeland Dr. to Miller St.	City of Orlando	Arterial	CBD	1	2	0	30	898	5	Signal	51.6	25.8	IV	11.9	D	0.40	
Miller St. to Kaley St.	City of Orlando	Arterial	CBD	1	2	0	30	1,320	5	Signal	51.6	21.0	IV	17.4	C	0.58	
Kaley St. to Grant St.	City of Orlando	Arterial	CBD	1	2	0	35	1,320	5	Signal	25.2	0.0	III	35.7	A	1.02	
Grant St. to Michigan St.	City of Orlando	Arterial	CBD	2	2	0	40	1,320	5	Signal	55.2	21.0	II	16.3	E	0.41	
Michigan St. to Pineloch Ave.	City of Orlando	Arterial	OBD	1	2	1	40	1,320	5	Signal	25.2	0.0	II	35.7	A	0.89	
TOTAL							30	23,866			872.4	283.8	IV	18.7	C	0.62	0.168 gal/veh

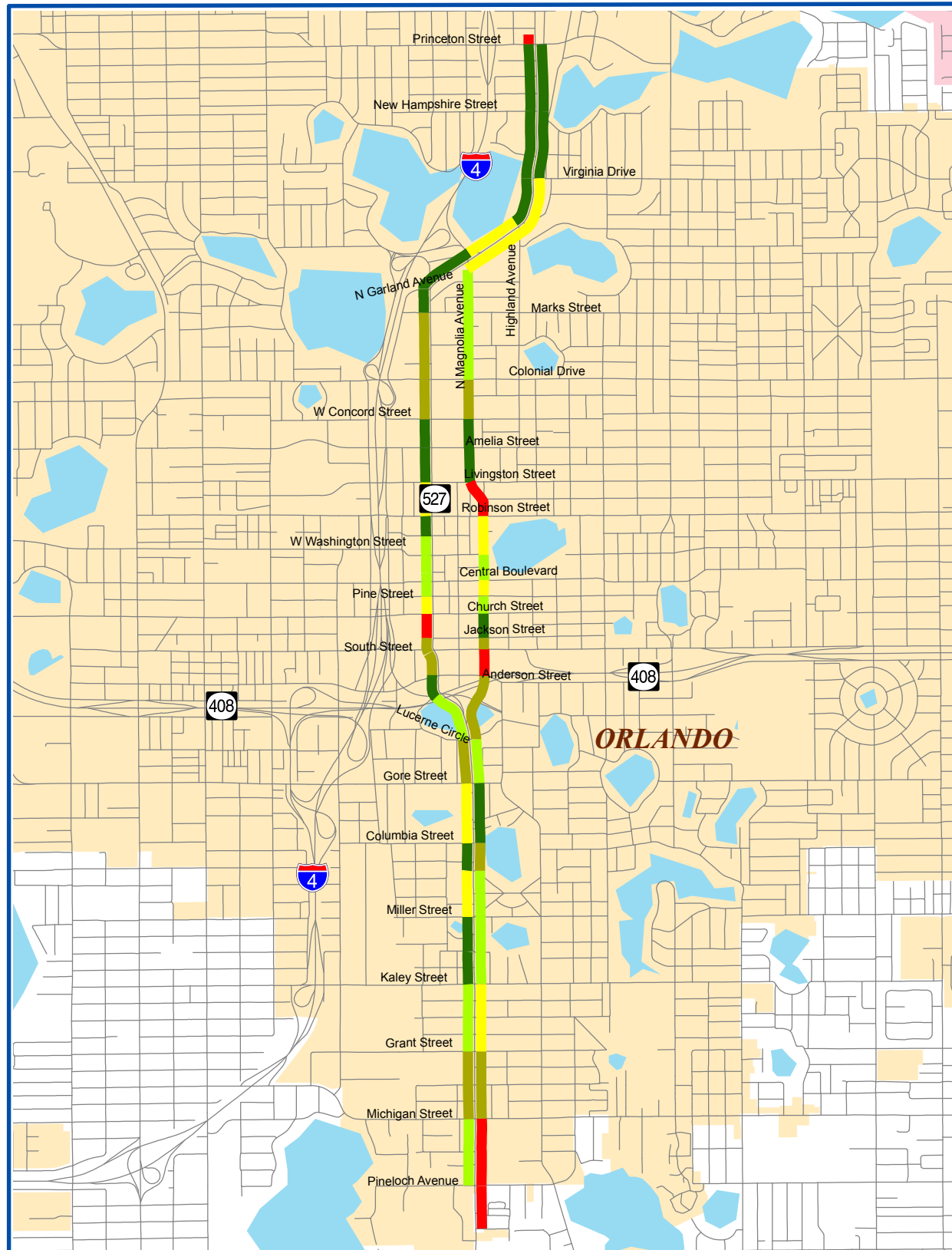
TABLE 9
Year 2012 METROPLAN Orlando Travel Time Study
SR 527 - Pineloch Avenue to Princeton Street - Southbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
PM PEAK HOUR																	
Rollins St. to Princeton St.	City of Orlando	Arterial	CBD	1	2	1	35	211	5	Signal	29.4	21.6	III	4.9	F	0.14	
Princeton St. to New Hampshire St.	City of Orlando	Arterial	CBD	0	1	0	30	1,320	5	Signal	38.4	0.0	IV	23.4	B	0.78	
New Hampshire St. to Virginia Dr.	City of Orlando	Arterial	CBD	0	2	0	30	1,320	5	Signal	28.2	0.0	IV	31.9	A	1.06	
Virginia Dr. to Highland Ave.	City of Orlando	Arterial	CBD	0	2	0	30	1,056	5	Signal	20.4	0.0	IV	35.3	A	1.18	
Highland Ave. to Magnolia Ave.	City of Orlando	Arterial	CBD	0	2	0	30	1,162	5	Signal	45.6	16.8	IV	17.4	C	0.58	
Magnolia Ave. to Garland Ave.	City of Orlando	Collector	CBD	1	1	0	30	950	5	Signal	25.8	0.6	IV	25.1	A	0.84	
Garland Ave. to Marks St.	City of Orlando	One Way	CBD	0	3	0	30	475	5	Signal	16.2	3.0	IV	20.0	B	0.67	
Marks St. to Colonial Dr.	City of Orlando	One Way	CBD	0	4	0	30	1,320	5	Signal	117.6	78.0	IV	7.7	E or F	0.26	
Colonial Dr. to Concord St.	City of Orlando	One Way	CBD	0	4	0	25	792	5	Signal	19.8	0.0	IV	27.3	A	1.09	
Concord St. to Amelia St.	City of Orlando	One Way	CBD	0	4	0	25	581	5	Signal	37.2	21.6	IV	10.6	D	0.43	
Amelia St. to Livingston St.	City of Orlando	One Way	CBD	0	4	0	25	686	5	Signal	41.4	13.8	IV	11.3	D	0.45	
Livingston St. to Robinson St.	City of Orlando	One Way	CBD	0	4	0	25	634	5	Signal	21.0	0.0	IV	20.6	B	0.82	
Robinson St. to Jefferson St.	City of Orlando	One Way	CBD	0	3	1	25	370	5	Signal	10.2	0.0	IV	24.7	B	0.99	
Jefferson St. to Washington St.	City of Orlando	One Way	CBD	0	3	0	25	370	5	Signal	10.2	0.0	IV	24.7	B	0.99	
Washington St. to Wall St.	City of Orlando	One Way	CBD	0	3	0	25	317	5	Signal	18.6	1.8	IV	11.6	D	0.46	
Wall St. to Central Blvd.	City of Orlando	One Way	CBD	0	3	0	25	158	5	Signal	6.6	0.0	IV	16.4	C	0.65	
Central Blvd. to Pine St.	City of Orlando	One Way	CBD	0	3	0	25	317	5	Signal	11.4	0.0	IV	18.9	C	0.76	
Pine St. to Church St.	City of Orlando	One Way	CBD	0	3	0	25	370	5	Signal	17.4	1.8	IV	14.5	C	0.58	
Church St. to Jackson St.	City of Orlando	One Way	CBD	0	3	0	25	475	5	Signal	43.8	26.4	IV	7.4	E or F	0.30	
Jackson St. to South St.	City of Orlando	One Way	CBD	0	3	1	25	211	5	Signal	38.4	30.6	IV	3.7	E or F	0.15	
South St. to Anderson St.	City of Orlando	One Way	CBD	0	3	0	25	475	5	Signal	15.6	0.0	IV	20.8	B	0.83	
Anderson St. to Lucerne Cir. N	City of Orlando	One Way	CBD	0	3	1	30	422	5	Signal	9.0	0.0	IV	32.0	A	1.07	
Lucerne Cir. N to Lucerne Cir. S	City of Orlando	One Way	CBD	0	3	0	30	1,109	5	Signal	29.4	5.4	IV	25.7	A	0.86	
Lucerne Cir. S to Gore St.	City of Orlando	Arterial	CBD	1	2	1	30	845	5	Signal	60.0	39.0	IV	9.6	D	0.32	
Gore St. to Columbia St.	City of Orlando	Arterial	CBD	1	2	0	30	1,162	5	Signal	25.2	0.0	IV	31.4	A	1.05	
Columbia St. to Copeland Dr.	City of Orlando	Arterial	CBD	0	2	0	30	581	5	Signal	19.2	2.4	IV	20.6	B	0.69	
Copeland Dr. to Miller St.	City of Orlando	Arterial	CBD	1	2	0	30	898	5	Signal	60.0	31.8	IV	10.2	D	0.34	
Miller St. to Kaley St.	City of Orlando	Arterial	CBD	1	2	0	30	1,320	5	Signal	46.2	16.2	IV	19.5	B	0.65	
Kaley St. to Grant St.	City of Orlando	Arterial	CBD	1	2	0	35	1,320	5	Signal	27.6	0.0	III	32.6	A	0.93	
Grant St. to Michigan St.	City of Orlando	Arterial	CBD	2	2	0	40	1,320	5	Signal	66.6	24.6	II	13.5	E	0.34	
Michigan St. to Pineloch Ave.	City of Orlando	Arterial	OBD	1	2	1	40	1,320	5	Signal	27.6	0.0	II	32.6	B	0.82	
TOTAL							30	23,866			984.0	335.4	IV	16.5	C	0.55	0.172 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. CBD - Central Business District
4. OBD - Outlying Business District

Construction is observed in the SB direction from Columbia St. to Miller St. at the time of collecting the data.



**SR 527
- AM Peak**

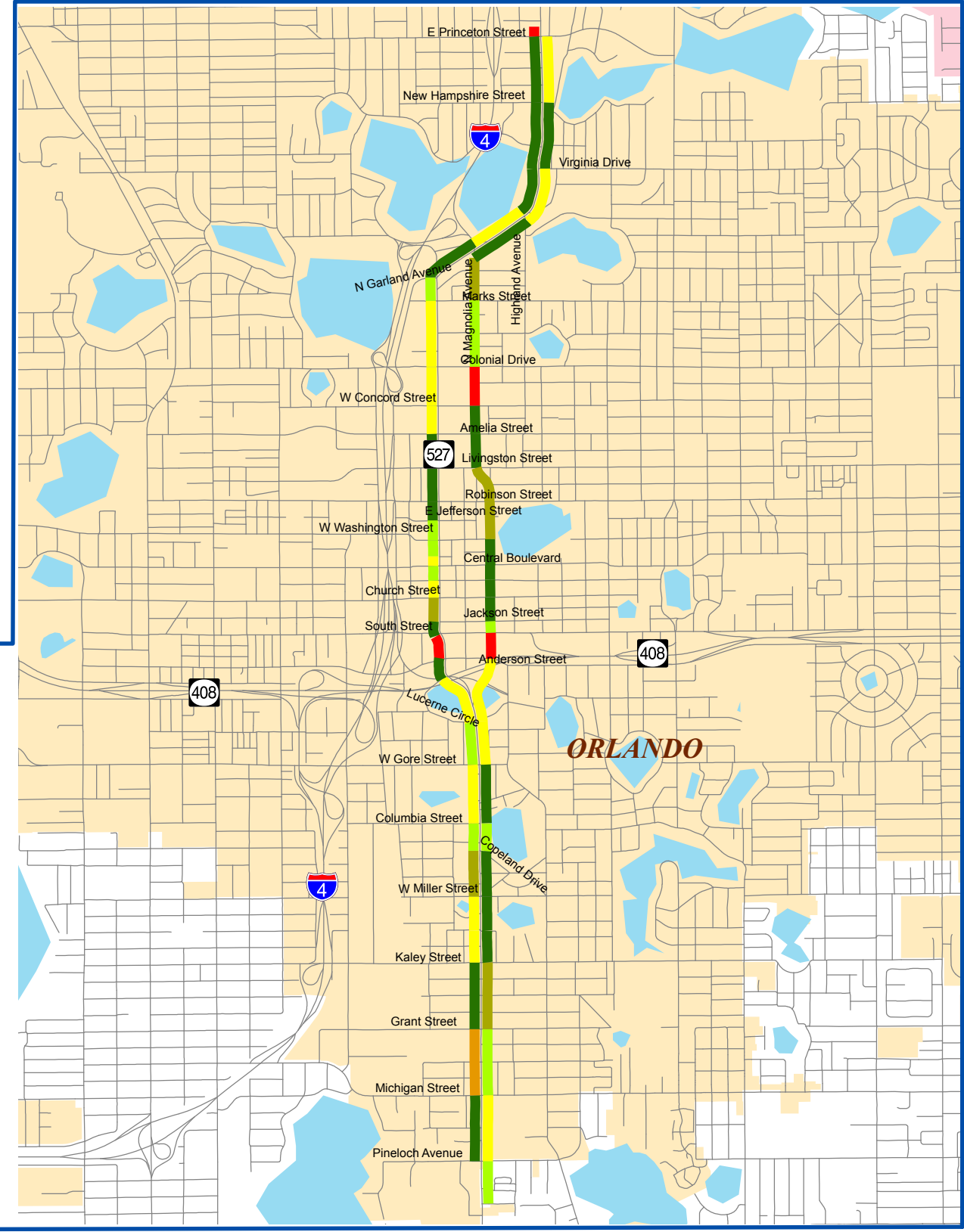
Before Condition

Date of Collection: 1/19/2012
 Distance: 4.55 miles
 From: Pineloch Ave.
 To: Princeton St.

Start Time: 7:00 AM
 End Time: 9:00 AM

NB Avg Speed: 16.50 MPH
 NB Travel Time: 16.57 MIN
 NB Delay Time: 5.49 MIN

SB Avg Speed: 18.30 MPH
 SB Travel Time: 14.84MIN
 SB Delay Time: 4.64 MIN



**SR 527
- AM Peak**

After Condition

Date of Collection: 5/1/2012
 Distance: 4.55 miles
 From: Pineloch Ave.
 To: Princeton St.

Start Time: 7:00 AM
 End Time: 9:00 AM

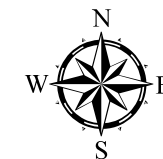
NB Avg Speed: 18.20 MPH
 NB Travel Time: 14.99 MIN
 NB Delay Time: 4.89 MIN

SB Avg Speed: 18.70 MPH
 SB Travel Time: 14.54 MIN
 SB Delay Time: 4.73 MIN

Level of Services:

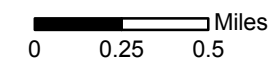


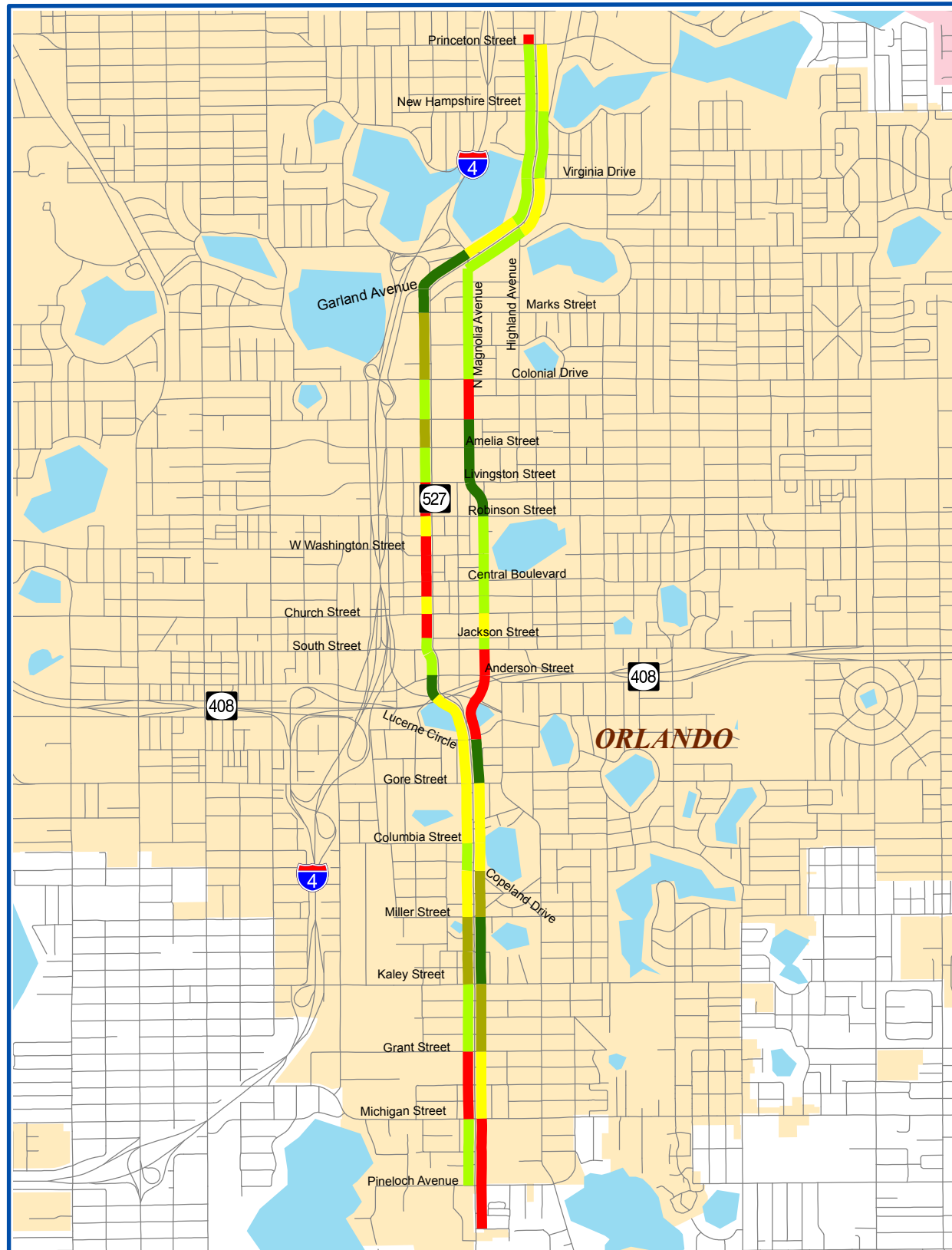
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|--|---|--|---|--|---------------|
| | A | | D | | Roads |
| | B | | E | | City Boundary |
| | C | | F | | Water |



2012 METROPLAN ORLANDO

Travel Time Study





SR 527 - PM Peak

Before Condition

Date of Collection: 1/19/2012
 Distance: 4.55 miles
 From: Pineloch Ave.
 To: Princeton St.

Start Time: 4:00 PM
 End Time: 6:00 PM

NB Avg Speed: 15.20 MPH
 NB Travel Time: 17.94 MIN
 NB Delay Time: 6.47 MIN

SB Avg Speed: 15.50 MPH
 SB Travel Time: 18.02 MIN
 SB Delay Time: 7.44 MIN

SR 527 - PM Peak

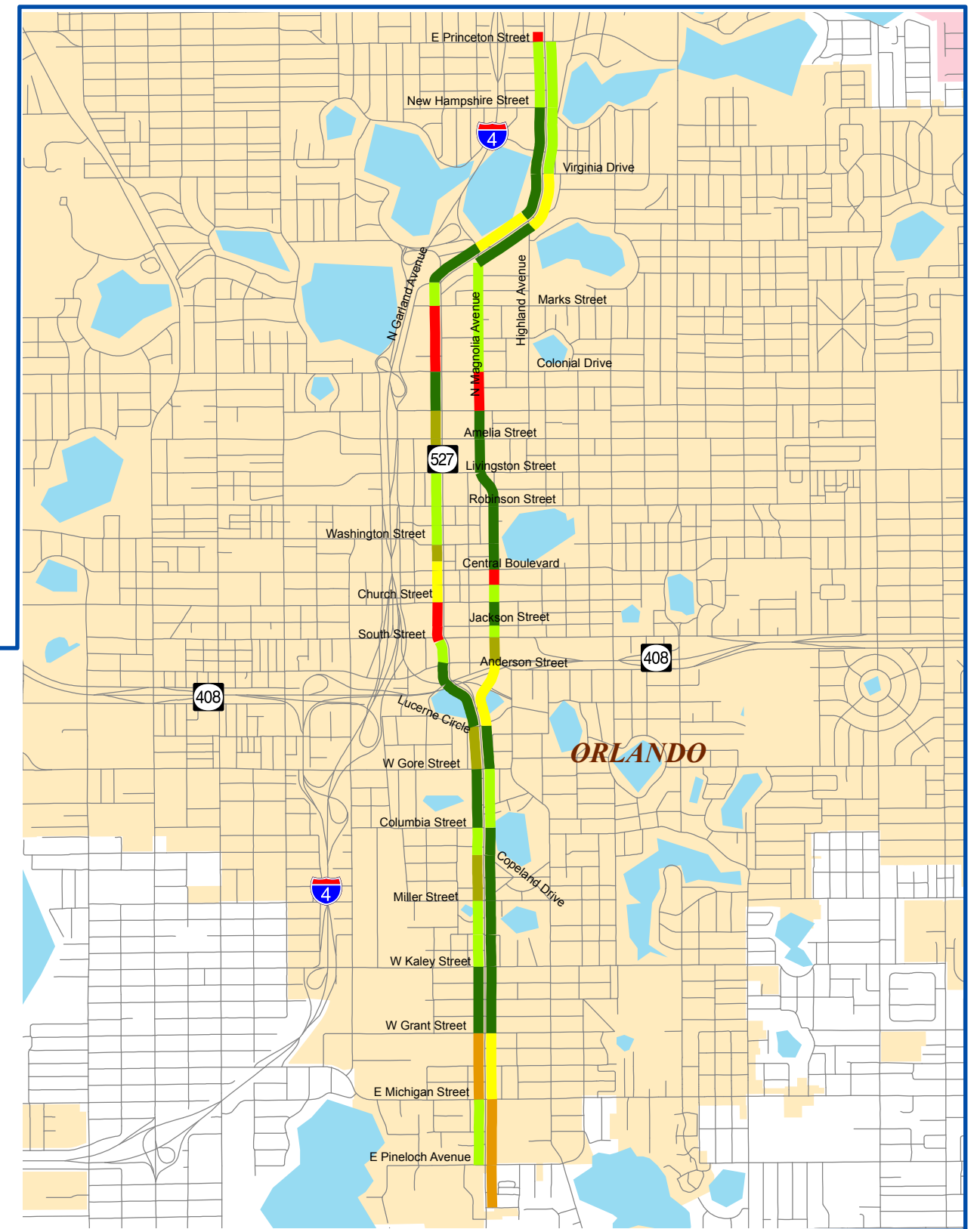
After Condition

Date of Collection: 5/1/2012
 Distance: 4.55 miles
 From: Pineloch Ave.
 To: Princeton St.

Start Time: 4:00 PM
 End Time: 6:00 PM

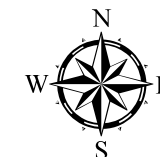
NB Avg Speed: 19.70 MPH
 NB Travel Time: 13.89 MIN
 NB Delay Time: 3.65 MIN

SB Avg Speed: 16.50 MPH
 SB Travel Time: 16.40 MIN
 SB Delay Time: 5.59 MIN



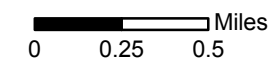
Level of Services:

- | | | | | | |
|--|---|--|---|--|---------------|
| | A | | D | | Roads |
| | B | | E | | City Boundary |
| | C | | F | | Water |



2012 METROPLAN ORLANDO

Travel Time Study



SR 527 - Pineloch Avenue to Princeton Street
Summary of Before Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
1450	994.2	329.4	16.5	0.1730	400.44	250.85
Northbound/Eastbound - PM Peak Hour						
1172	1076.4	388.2	15.2	0.1760	350.43	206.27
Southbound/Westbound - AM Peak Hour						
721	890.4	278.4	18.3	0.1680	178.33	121.13
Southbound/Westbound - PM Peak Hour						
970	1081.2	446.4	15.0	0.1730	291.32	167.81

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 527 - Pineloch Avenue to Princeton Street
Summary of After Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
1450	899.4	293.4	18.2	0.1690	362.26	245.05
Northbound/Eastbound - PM Peak Hour						
1172	833.4	219.0	19.7	0.1690	271.32	198.07
Southbound/Westbound - AM Peak Hour						
721	872.4	283.8	18.7	0.1680	174.72	121.13
Southbound/Westbound - PM Peak Hour						
970	984.0	335.4	16.5	0.1720	265.13	166.84

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 527 - Pineloch Avenue to Princeton Street
Summary of Measures of Effectiveness & Benefit Cost Analysis

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	578.77	536.98	641.75	536.45
Total Fuel Consumption (gallons)	371.98	366.18	374.08	364.91

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$701.04	\$1,747.86
Annual User Benefit	\$210,313.15	\$524,357.05
Total Annual User Benefit =	\$734,670.20	
Total Signal Retiming Annual Cost	\$25,901.67	
User Benefit / Cost Ratio	28.36	

Notes:

- * Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
- * Fuel consumption is valued to the rate of \$3.43 per gallon.(Florida Department of Revenue & Orlando Gas Prices)
- * Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffics
- * The service life of the improvement was kept as three (3) years.
- * Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

PRINCETON ST.

Formosa Ave. to I-4 Ramps

TABLE 11
Year 2012 METROPLAN Orlando Travel Time Study
Princeton Street - Formosa Avenue to I-4 Ramps - Eastbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to Formosa Ave.	City of Orlando	Arterial	CBD	1	2	0	25	370	17	Signal	16.2	5.4	IV	15.6	C	0.62	
Formosa Ave. to I-4 WB Ramps	City of Orlando	Arterial	CBD	0	3	1	25	264	17	Signal	36.0	25.8	IV	5.0	E or F	0.20	
I-4 WB Ramps to I-4 EB Ramps	City of Orlando	Arterial	CBD	1	2	0	25	317	17	Signal	11.4	2.4	IV	18.9	C	0.76	
TOTAL							25	950			63.6	33.6	IV	10.2	D	0.41	0.009 gal/veh
PM PEAK HOUR																	
Median Opening to Formosa Ave.	City of Orlando	Arterial	CBD	1	2	0	25	370	14	Signal	13.8	3.0	IV	18.3	C	0.73	
Formosa Ave. to I-4 WB Ramps	City of Orlando	Arterial	CBD	0	3	1	25	264	14	Signal	34.2	24.6	IV	5.3	E or F	0.21	
I-4 WB Ramps to I-4 EB Ramps	City of Orlando	Arterial	CBD	1	2	0	25	317	14	Signal	12.0	3.0	IV	18.0	C	0.72	
TOTAL							25	950			60.0	30.6	IV	10.8	D	0.43	0.010 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. CBD - Central Business District

TABLE 11
Year 2012 METROPLAN Orlando Travel Time Study
Princeton Street - Formosa Avenue to I-4 Ramps - Westbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to I-4 EB Ramps	City of Orlando	Arterial	CBD	0	3	1	30	370	18	Signal	22.8	10.2	IV	11.1	D	0.37	
I-4 EB Ramps to I-4 WB Ramps	City of Orlando	Arterial	CBD	1	2	0	30	317	18	Signal	9.6	0.6	IV	22.5	B	0.75	
I-4 WB Ramps to Formosa Ave.	City of Orlando	Arterial	CBD	1	2	0	30	264	18	Signal	7.8	0.0	IV	23.1	B	0.77	
TOTAL							30	950			40.2	10.8	IV	16.1	C	0.54	0.009 gal/veh
PM PEAK HOUR																	
Median Opening to I-4 EB Ramps	City of Orlando	Arterial	CBD	0	3	1	30	370	14	Signal	31.8	19.2	IV	7.9	E or F	0.26	
I-4 EB Ramps to I-4 WB Ramps	City of Orlando	Arterial	CBD	1	2	0	30	317	14	Signal	21.6	12.0	IV	10.0	D	0.33	
I-4 WB Ramps to Formosa Ave.	City of Orlando	Arterial	CBD	1	2	0	30	264	14	Signal	11.4	3.0	IV	15.8	C	0.53	
TOTAL							30	950			64.8	34.2	IV	10.0	D	0.33	0.009 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. CBD - Central Business District

TABLE 11
Year 2012 METROPLAN Orlando Travel Time Study
Princeton Street - Formosa Avenue to I-4 Ramps - Eastbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to Formosa Ave.	City of Orlando	Arterial	CBD	1	2	0	25	370	18	Signal	14.4	3.6	IV	17.5	C	0.70	
Formosa Ave. to I-4 WB Ramps	City of Orlando	Arterial	CBD	0	3	1	25	264	18	Signal	30.6	22.2	IV	5.9	E or F	0.24	
I-4 WB Ramps to I-4 EB Ramps	City of Orlando	Arterial	CBD	1	2	0	25	317	18	Signal	7.8	0.0	IV	27.7	A	1.11	
TOTAL							25	950			52.8	25.8	IV	12.3	D	0.49	0.009 gal/veh
PM PEAK HOUR																	
Median Opening to Formosa Ave.	City of Orlando	Arterial	CBD	1	2	0	25	370	16	Signal	16.2	4.2	IV	15.6	C	0.62	
Formosa Ave. to I-4 WB Ramps	City of Orlando	Arterial	CBD	0	3	1	25	264	16	Signal	16.2	8.4	IV	11.1	D	0.44	
I-4 WB Ramps to I-4 EB Ramps	City of Orlando	Arterial	CBD	1	2	0	25	317	16	Signal	7.8	0.0	IV	27.7	A	1.11	
TOTAL							25	950			40.2	12.6	IV	16.1	C	0.64	0.010 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. CBD - Central Business District

TABLE 11
Year 2012 METROPLAN Orlando Travel Time Study
Princeton Street - Formosa Avenue to I-4 Ramps - Westbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to I-4 EB Ramps	City of Orlando	Arterial	CBD	0	3	1	30	370	16	Signal	14.4	3.6	IV	17.5	C	0.58	
I-4 EB Ramps to I-4 WB Ramps	City of Orlando	Arterial	CBD	1	2	0	30	317	16	Signal	6.6	0.0	IV	32.7	A	1.09	
I-4 WB Ramps to Formosa Ave.	City of Orlando	Arterial	CBD	1	2	0	30	264	16	Signal	9.6	2.4	IV	18.7	C	0.62	
TOTAL							30	950			30.6	6.0	IV	21.2	B	0.71	0.009 gal/veh
PM PEAK HOUR																	
Median Opening to I-4 EB Ramps	City of Orlando	Arterial	CBD	0	3	1	30	370	15	Signal	38.4	18.6	IV	6.6	E or F	0.22	
I-4 EB Ramps to I-4 WB Ramps	City of Orlando	Arterial	CBD	1	2	0	30	317	15	Signal	10.8	2.4	IV	20.0	B	0.67	
I-4 WB Ramps to Formosa Ave.	City of Orlando	Arterial	CBD	1	2	0	30	264	15	Signal	8.4	0.0	IV	21.4	B	0.71	
TOTAL							30	950			57.6	21.0	IV	11.2	D	0.37	0.009 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. CBD - Central Business District

**Princeton St.
- AM Peak**

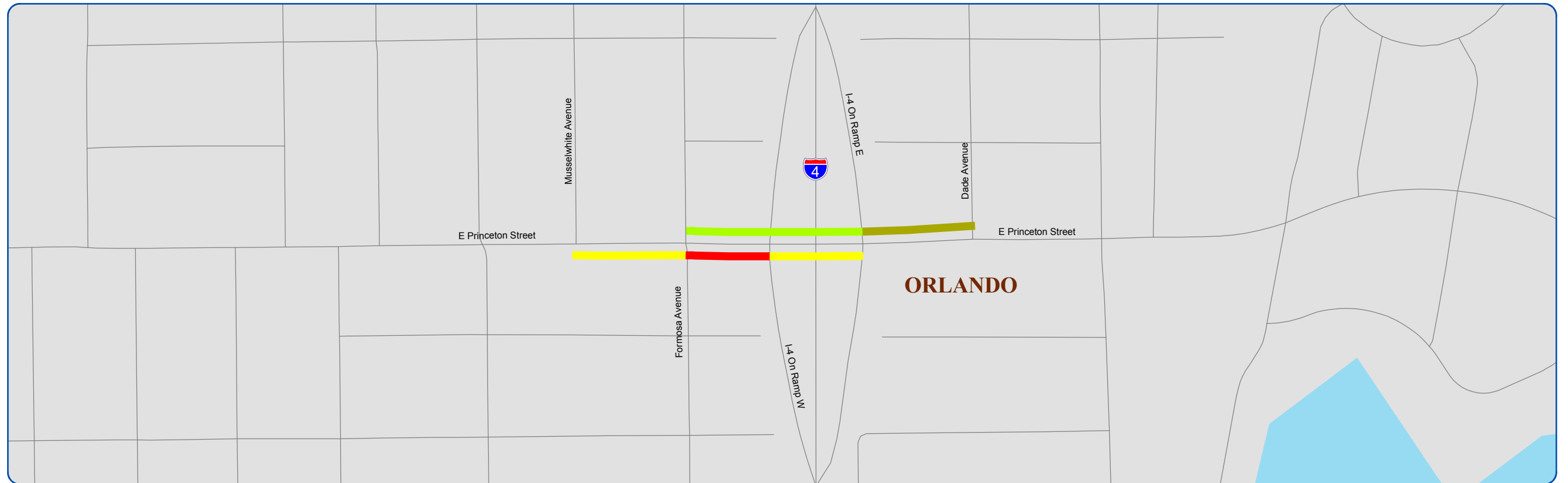
Before Condition

Date of Collection: 1/24/2012
 Distance: 0.18 miles
 From: Formosa Ave.
 To: I-4 Ramps

Start Time: 7:45 AM
 End Time: 8:45 AM

EB Avg Speed: 10.2 MPH
 EB Travel Time: 1.06 MIN
 EB Delay Time: 0.56 MIN

WB Avg Speed: 16.1 MPH
 WB Travel Time: 0.67 MIN
 WB Delay Time: 0.18 MIN



**Princeton St.
- AM Peak**

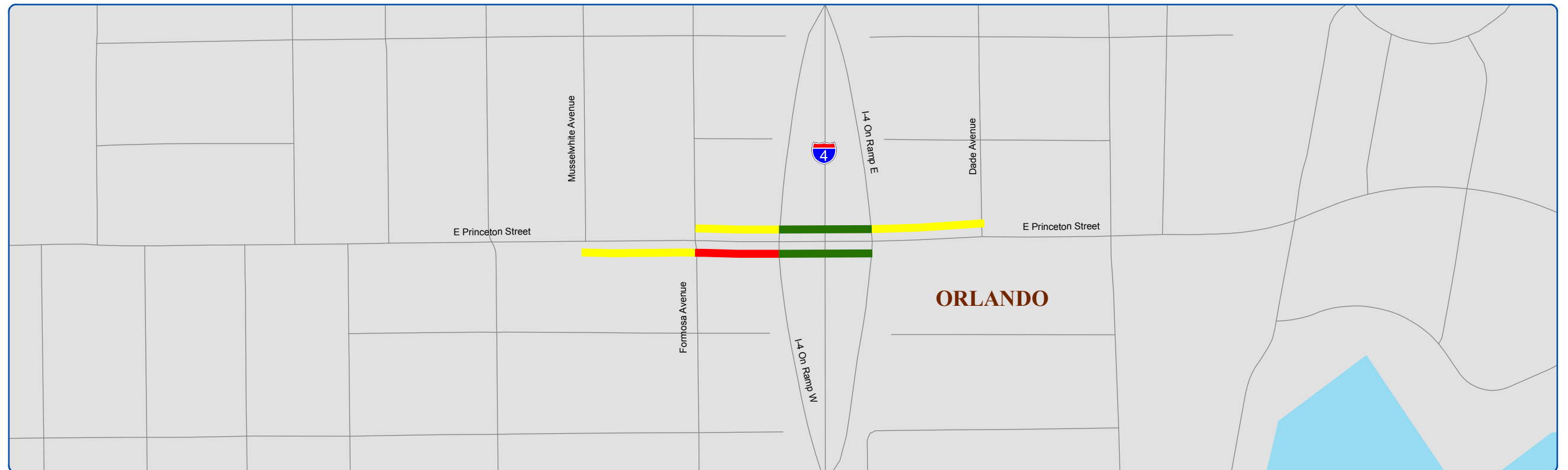
After Condition

Date of Collection: 5/17/2012
 Distance: 0.18 miles
 From: Formosa Ave.
 To: I-4 Ramps

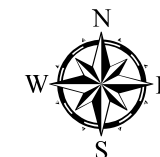
Start Time: 7:45 AM
 End Time: 8:45 AM

EB Avg Speed: 12.3 MPH
 EB Travel Time: 0.88 MIN
 EB Delay Time: 0.43 MIN

WB Avg Speed: 21.2 MPH
 WB Travel Time: 0.51 MIN
 WB Delay Time: 0.10 MIN

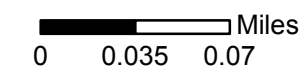


Level of Services:



2012 METROPLAN ORLANDO

Travel Time Study



**Princeton St.
- PM Peak**

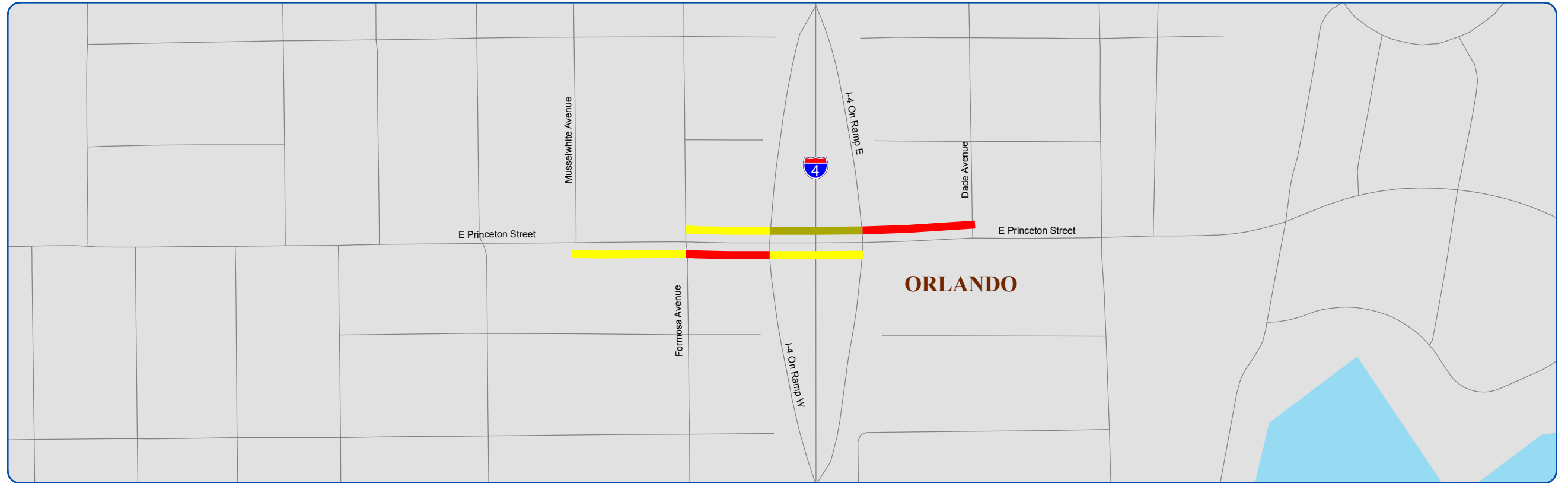
Before Condition

Date of Collection: 1/24/2012
Distance: 0.18 miles
From: Formosa Ave.
To: I-4 Ramps

Start Time: 4:45 PM
End Time: 5:45 PM

EB Avg Speed: 10.8 MPH
EB Travel Time: 1.00 MIN
EB Delay Time: 0.51 MIN

WB Avg Speed: 10.0 MPH
WB Travel Time: 1.08 MIN
WB Delay Time: 0.57 MIN



**Princeton St.
- PM Peak**

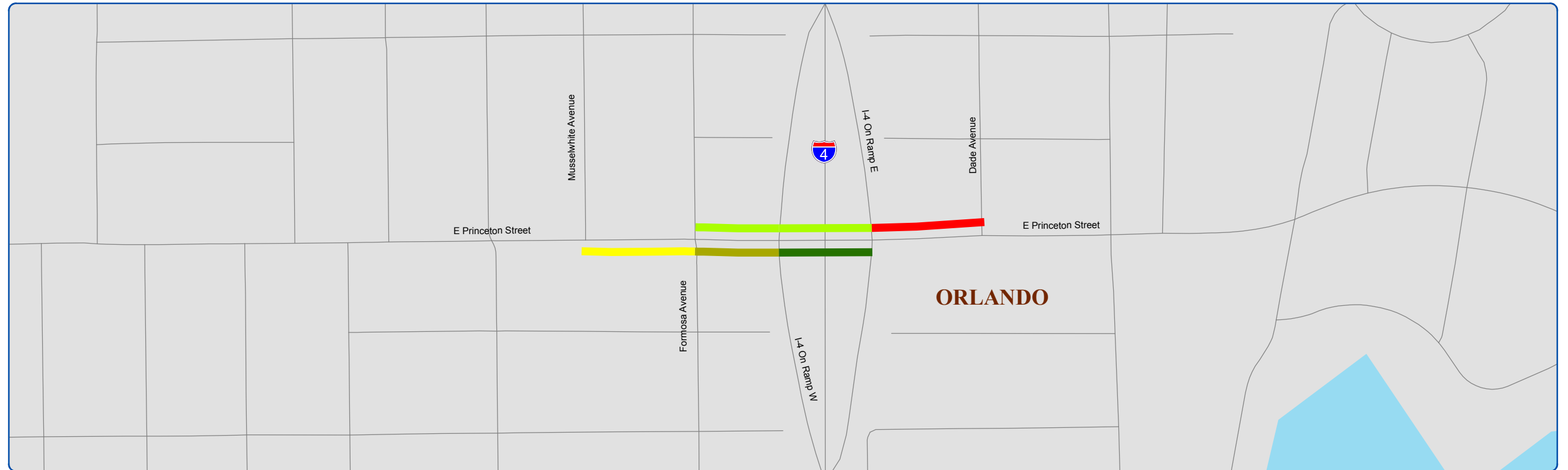
After Condition

Date of Collection: 5/17/2012
Distance: 0.18 miles
From: Formosa Ave.
To: I-4 Ramps

Start Time: 4:45 PM
End Time: 5:45 PM

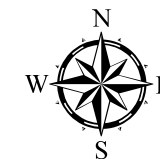
EB Avg Speed: 16.1 MPH
EB Travel Time: 0.67 MIN
EB Delay Time: 0.21 MIN

WB Avg Speed: 11.2 MPH
WB Travel Time: 0.96 MIN
WB Delay Time: 0.35 MIN



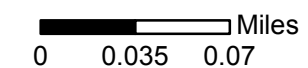
Level of Services:

- | | | | | | |
|--|---|--|---|--|---------------|
| | A | | D | | Roads |
| | B | | E | | City Boundary |
| | C | | F | | Water |



2012 METROPLAN ORLANDO

Travel Time Study



Princeton Street - Formosa Avenue to I-4 Ramps
Summary of Before Study Travel Time and Delay Study Results

Traffic Volume	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
410	63.6	33.6	10.2	0.0090	7.24	3.69
Northbound/Eastbound - PM Peak Hour						
485	60.0	30.6	10.8	0.0100	8.08	4.85
Southbound/Westbound - AM Peak Hour						
466	40.2	10.8	16.1	0.0090	5.20	4.19
Southbound/Westbound - PM Peak Hour						
710	64.8	34.2	10.0	0.0090	12.78	6.39

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

Princeton Street - Formosa Avenue to I-4 Ramps
Summary of After Study Travel Time and Delay Study Results

Traffic Volume	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
410	52.8	25.8	12.3	0.0090	6.01	3.69
Northbound/Eastbound - PM Peak Hour						
485	40.2	12.6	16.1	0.0100	5.42	4.85
Southbound/Westbound - AM Peak Hour						
466	30.6	6.0	21.2	0.0090	3.96	4.19
Southbound/Westbound - PM Peak Hour						
710	57.6	21.0	11.2	0.0090	11.36	6.39

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

Princeton Street - Formosa Avenue to I-4 Ramps
Summary of Measures of Effectiveness & Benefit Cost Analysis

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	12.45	9.97	20.86	16.78
Total Fuel Consumption (gallons)	7.88	7.88	11.24	11.24

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$40.30	\$66.63
Annual User Benefit	\$12,091.34	\$19,987.88
Total Annual User Benefit =	\$32,079.22	
Total Signal Retiming Annual Cost	\$5,180.33	
User Benefit / Cost Ratio	6.19	

Notes:

- * Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
- * Fuel consumption is valued to the rate of \$3.43 per gallon.(Florida Department of Revenue & Orlando Gas Prices)
- * Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffics
- * The service life of the improvement was kept as three (3) years.
- * Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

ANDERSON ST./SOUTH ST.
Mills Ave. to Lake Underhill Rd.

Table 12
Year 2012 METROPLAN Orlando Travel Time Study
SR 15 (Anderson Street) - Mills Avenue to Lake Underhill Drive - Eastbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Summerlin Ave. to Mills Ave.	City of Orlando	One Way	CBD	1	2	1	30	158	7	Signal	3.0	0.0	III	36.0	A	1.20	
Mills Ave. to Bumby Ave.	City of Orlando	One Way	CBD	1	2	1	40	3,960	7	Signal	123.0	40.2	II	22.0	D	0.55	
Bumby Ave. to Primrose Dr.	City of Orlando	One Way	CBD	0	2	1	40	1,320	7	Signal	28.2	0.0	II	31.9	B	0.80	
Primrose Dr. to Crystal Lake Dr.	City of Orlando	One Way	CBD	0	2	1	30	1,320	7	Signal	43.8	8.4	III	20.5	C	0.68	
Crystal Lake Dr. to Lake Underhill Rd.	City of Orlando	One Way	CBD	0	1	1	30	581	7	Signal	82.8	60.6	III	4.8	F	0.16	
TOTAL							40	7,339			280.8	109.2	II	17.8	D	0.45	0.051 gal/veh
PM PEAK HOUR																	
Summerlin Ave. to Mills Ave.	City of Orlando	One Way	CBD	1	2	1	30	158	10	Signal	19.2	14.4	III	5.6	F	0.19	
Mills Ave. to Bumby Ave.	City of Orlando	One Way	CBD	1	2	1	40	3,960	10	Signal	71.4	0.6	II	37.8	A	0.95	
Bumby Ave. to Primrose Dr.	City of Orlando	One Way	CBD	0	2	1	40	1,320	10	Signal	27.0	1.2	II	33.3	B	0.83	
Primrose Dr. to Crystal Lake Dr.	City of Orlando	One Way	CBD	0	2	1	30	1,320	10	Signal	27.0	0.0	III	33.3	A	1.11	
Crystal Lake Dr. to Lake Underhill Rd.	City of Orlando	One Way	CBD	0	1	1	30	581	10	Signal	14.4	0.0	III	27.5	B	0.92	
TOTAL							40	7,339			159.0	16.2	II	31.5	B	0.79	0.049 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. CBD - Primary City Central Business District

Table 13
Year 2012 METROPLAN Orlando Travel Time Study
Conway (South Street) - Lake Underhill Drive to Mills Avenue- Westbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
SR 408 EB Ramp to SR 408 WB Ramp	City of Orlando	One Way	CBD	0	2	0	30	370	7	Signal	33.6	21.0	III	7.5	F	0.25	
SR 408 WB Ramp to Crystal Lake Dr.	City of Orlando	One Way	CBD	0	2	1	30	422	7	Signal	10.2	0.0	III	28.2	B	0.94	
Crystal Lake Dr. to Primrose Dr.	City of Orlando	One Way	CBD	0	3	0	30	1,320	7	Signal	46.2	9.0	III	19.5	C	0.65	
Primrose Dr. to Bumby Ave.	City of Orlando	One Way	CBD	0	3	0	35	1,320	7	Signal	31.8	0.0	II	28.3	B	0.81	
Bumby Ave. to Mills Ave.	City of Orlando	One Way	CBD	0	3	0	35	3,907	7	Signal	76.2	0.0	II	35.0	B	1.00	
TOTAL							35	7,339			198.0	30.0	II	25.3	C	0.72	0.051 gal/veh
PM PEAK HOUR																	
SR 408 EB Ramp to SR 408 WB Ramp	City of Orlando	One Way	CBD	0	2	0	30	370	10	Signal	40.2	17.4	III	6.3	F	0.21	
SR 408 WB Ramp to Crystal Lake Dr.	City of Orlando	One Way	CBD	0	2	1	30	422	10	Signal	27.0	11.4	III	10.7	E	0.36	
Crystal Lake Dr. to Primrose Dr.	City of Orlando	One Way	CBD	0	3	0	30	1,320	10	Signal	72.6	39.6	III	12.4	E	0.41	
Primrose Dr. to Bumby Ave.	City of Orlando	One Way	CBD	0	3	0	35	1,320	10	Signal	47.4	12.6	II	19.0	D	0.54	
Bumby Ave. to Mills Ave.	City of Orlando	One Way	CBD	0	3	0	35	3,907	10	Signal	70.2	0.0	II	37.9	A	1.08	
TOTAL							35	7,339			257.4	81.0	II	19.4	D	0.56	0.052 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. CBD - Primary City Central Business District

Table 12
Year 2012 METROPLAN Orlando Travel Time Study
SR 15 (Anderson Street) - Mills Avenue to Lake Underhill Road - Eastbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Summerlin Ave. to Mills Ave.	City of Orlando	One Way	CBD	1	2	1	30	158	11	Signal	6.0	3.0	III	18.0	D	0.60	
Mills Ave. to Bumby Ave.	City of Orlando	One Way	CBD	1	2	1	40	3,960	11	Signal	88.8	14.4	II	30.4	B	0.76	
Bumby Ave. to Primrose Dr.	City of Orlando	One Way	CBD	0	2	1	40	1,320	11	Signal	33.6	3.6	II	26.8	C	0.67	
Primrose Dr. to Crystal Lake Dr.	City of Orlando	One Way	CBD	0	2	1	30	1,320	11	Signal	27.0	0.0	III	33.3	A	1.11	
Crystal Lake Dr. to Lake Underhill Rd.	City of Orlando	One Way	CBD	0	1	1	30	581	11	Signal	22.2	5.4	III	17.8	D	0.59	
TOTAL							40	7,339			177.6	26.4	II	28.2	B	0.70	0.049 gal/veh
PM PEAK HOUR																	
Summerlin Ave. to Mills Ave.	City of Orlando	One Way	CBD	1	2	1	30	158	7	Signal	12.6	9.0	III	8.6	F	0.29	
Mills Ave. to Bumby Ave.	City of Orlando	One Way	CBD	1	2	1	40	3,960	7	Signal	65.4	6.6	II	41.3	A	1.03	
Bumby Ave. to Primrose Dr.	City of Orlando	One Way	CBD	0	2	1	40	1,320	7	Signal	25.8	4.2	II	34.9	B	0.87	
Primrose Dr. to Crystal Lake Dr.	City of Orlando	One Way	CBD	0	2	1	30	1,320	7	Signal	26.4	0.0	III	34.1	A	1.14	
Crystal Lake Dr. to Lake Underhill Rd.	City of Orlando	One Way	CBD	0	1	1	30	581	7	Signal	13.8	0.0	III	28.7	B	0.96	
TOTAL							40	7,339			144.0	19.8	II	34.7	B	0.87	0.048 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. CBD - Primary City Central Business District

Table 13
Year 2012 METROPLAN Orlando Travel Time Study
Conway (South Street) - Lake Underhill Road to Mills Avenue- Westbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary		
														Average Speed		Avg Speed/	Avg. Fuel	
														(mph)	LOS	Speed Limit	Consump.	
AM PEAK HOUR																		
SR 408 EB Ramp to SR 408 WB Ramp	City of Orlando	One Way	CBD	0	2	0	30	370	9	Signal	25.2	9.6	III	10.0	F	0.33		
SR 408 WB Ramp to Crystal Lake Dr.	City of Orlando	One Way	CBD	0	2	1	30	422	9	Signal	48.6	33.0	III	5.9	F	0.20		
Crystal Lake Dr. to Primrose Dr.	City of Orlando	One Way	CBD	0	3	0	30	1,320	9	Signal	27.6	0.0	III	32.6	A	1.09		
Primrose Dr. to Bumby Ave.	City of Orlando	One Way	CBD	0	3	0	35	1,320	9	Signal	35.4	3.0	II	25.4	C	0.73		
Bumby Ave. to Mills Ave.	City of Orlando	One Way	CBD	0	3	0	35	3,907	9	Signal	91.2	10.2	II	29.2	B	0.83		
TOTAL							35	7,339			228.0	55.8	II	21.9	D	0.63	0.052 gal/veh	
PM PEAK HOUR																		
SR 408 EB Ramp to SR 408 WB Ramp	City of Orlando	One Way	CBD	0	2	0	30	370	6	Signal	14.4	2.4	III	17.5	D	0.58		
SR 408 WB Ramp to Crystal Lake Dr.	City of Orlando	One Way	CBD	0	2	1	30	422	6	Signal	48.6	33.6	III	5.9	F	0.20		
Crystal Lake Dr. to Primrose Dr.	City of Orlando	One Way	CBD	0	3	0	30	1,320	6	Signal	25.2	0.0	III	35.7	A	1.19		
Primrose Dr. to Bumby Ave.	City of Orlando	One Way	CBD	0	3	0	35	1,320	6	Signal	27.6	0.0	II	32.6	B	0.93		
Bumby Ave. to Mills Ave.	City of Orlando	One Way	CBD	0	3	0	35	3,907	6	Signal	80.4	1.2	II	33.1	B	0.95		
TOTAL							35	7,339			196.2	37.2	II	25.5	C	0.73	0.050 gal/veh	

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. CBD - Primary City Central Business District

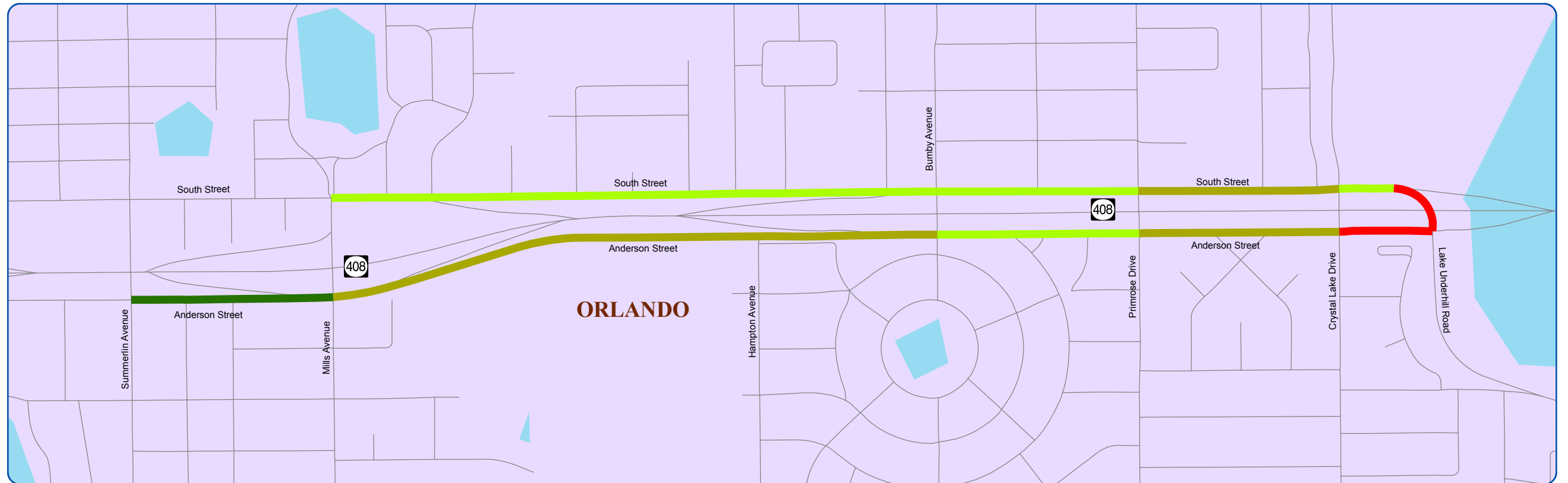
**Aderson St. /
South St.
- AM Peak
Before Condition**

Date of Collection: 10/18/2011
Distance: 1.39 miles
From: Mills Ave.
To: Lake Underhill Rd.

Start Time: 7:30 AM
End Time: 9:00 AM

EB Avg Speed: 17.8 MPH
EB Travel Time: 4.68 MIN
EB Delay Time: 1.82 MIN

WB Avg Speed: 25.3 MPH
WB Travel Time: 3.30 MIN
WB Delay Time: 0.50 MIN



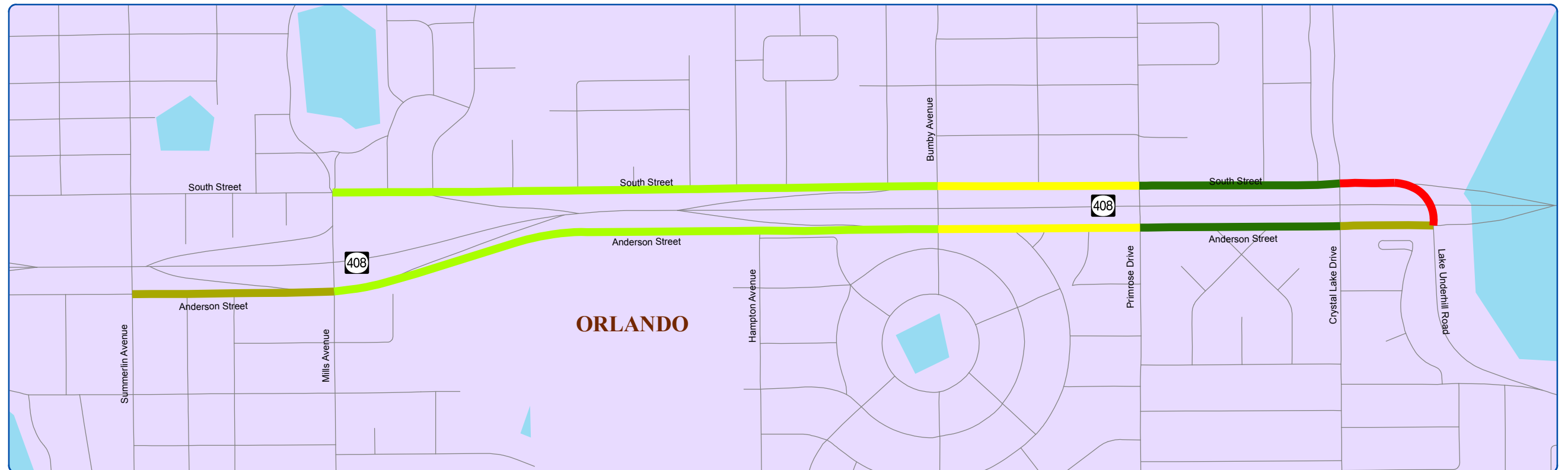
**Aderson St. /
South St.
- AM Peak
After Condition**

Date of Collection: 5/15/2012
Distance: 1.39 miles
From: Mills Ave.
To: Lake Underhill Rd.

Start Time: 7:30 AM
End Time: 9:00 AM

EB Avg Speed: 28.2 MPH
EB Travel Time: 2.96 MIN
EB Delay Time: 0.44 MIN

WB Avg Speed: 21.9 MPH
WB Travel Time: 3.80 MIN
WB Delay Time: 0.93 MIN

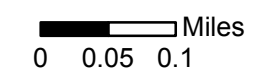


Level of Services:



2012 METROPLAN ORLANDO

Travel Time Study



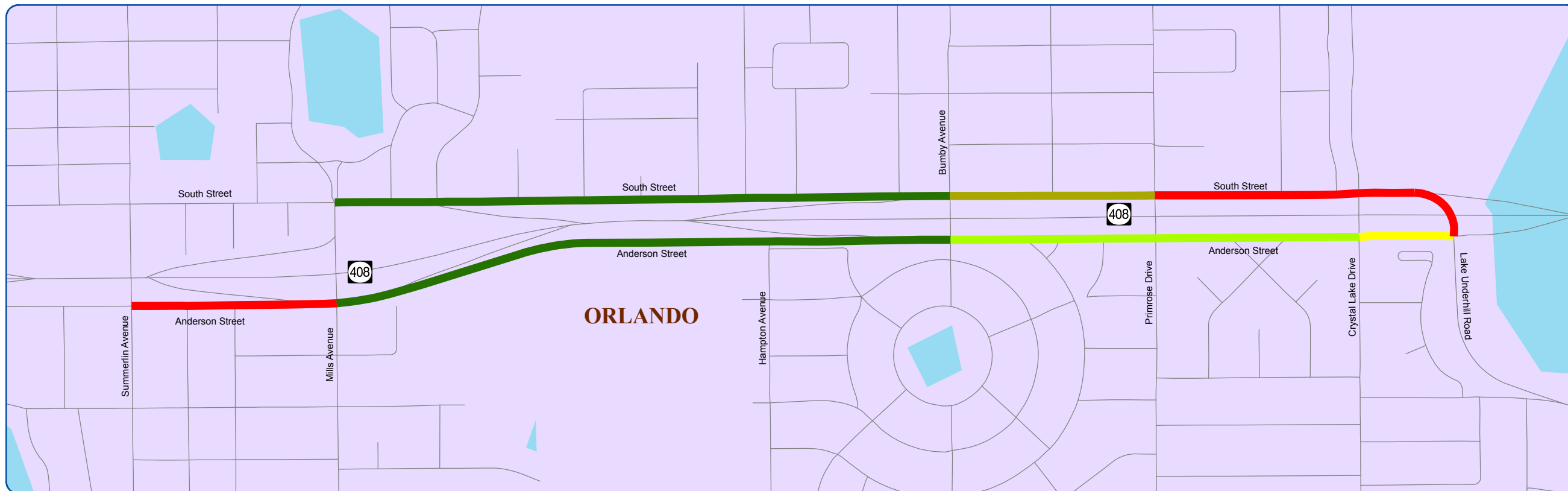
**Aderson St. /
South St.
- PM Peak
Before Condition**

Date of Collection: 10/18/2011
Distance: 1.39 miles
From: Mills Ave.
To: Lake Underhill Rd.

Start Time: 4:30 PM
End Time: 6:00 PM

EB Avg Speed: 31.5 MPH
EB Travel Time: 2.65 MIN
EB Delay Time: 0.27 MIN

WB Avg Speed: 19.4 MPH
WB Travel Time: 4.29 MIN
WB Delay Time: 1.35 MIN



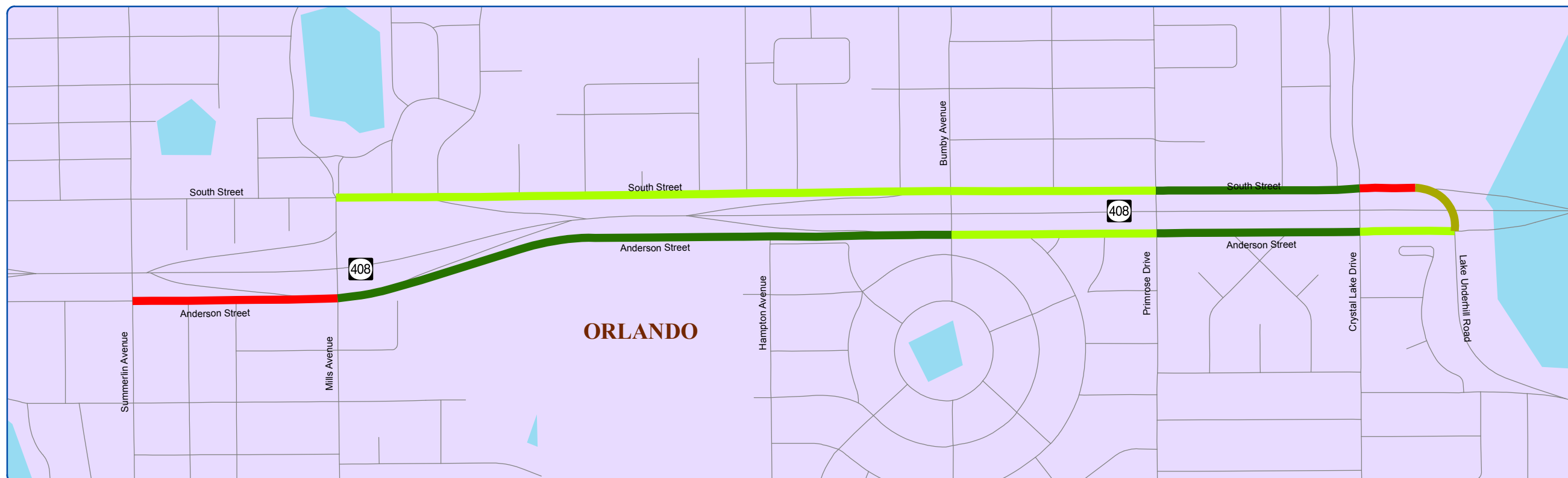
**Aderson St. /
South St.
- PM Peak
After Condition**

Date of Collection: 5/15/2012
Distance: 1.39 miles
From: Mills Ave.
To: Lake Underhill Rd.

Start Time: 4:30 PM
End Time: 6:00 PM

EB Avg Speed: 34.7 MPH
EB Travel Time: 2.40 MIN
EB Delay Time: 0.33 MIN

WB Avg Speed: 25.5 MPH
WB Travel Time: 3.27 MIN
WB Delay Time: 0.62 MIN

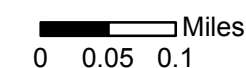


Level of Services:



2012 METROPLAN ORLANDO

Travel Time Study



SR 15 (Anderson Street)/South Street- Mills Avenue to Lake Underhill Road
Summary of Before Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
678	280.8	109.2	17.8	0.0510	52.88	34.58
Northbound/Eastbound - PM Peak Hour						
1341	159.0	16.2	31.5	0.0490	59.23	65.71
Southbound/Westbound - AM Peak Hour						
1018	198.0	30.0	25.3	0.0510	55.99	51.92
Southbound/Westbound - PM Peak Hour						
507	257.4	81.0	19.4	0.0520	36.25	26.36

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 15 (Anderson Street)/South Street- Mills Avenue to Lake Underhill Road
Summary of After Study Travel Time and Delay Study Results

Traffic Volume	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
678	177.6	26.4	28.2	0.0490	33.45	33.22
Northbound/Eastbound - PM Peak Hour						
1341	144.0	19.8	34.7	0.0480	53.64	64.37
Southbound/Westbound - AM Peak Hour						
1018	228.0	55.8	21.9	0.0520	64.47	52.94
Southbound/Westbound - PM Peak Hour						
507	196.2	37.2	25.5	0.0500	27.63	25.35

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

**SR 15 (Anderson Street)/South Street- Mills Avenue to Lake Underhill Road
Summary of Measures of Effectiveness & Benefit Cost Analysis**

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	108.87	97.92	95.48	81.27
Total Fuel Consumption (gallons)	86.50	86.16	92.07	89.72

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$179.69	\$239.64
Annual User Benefit	\$53,906.34	\$71,893.08
Total Annual User Benefit =	\$125,799.42	
Total Signal Retiming Annual Cost	\$18,573.98	
User Benefit / Cost Ratio	6.77	

Notes:

- * Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
- * Fuel consumption is valued to the rate of \$3.43 per gallon.(Florida Department of Revenue & Orlando Gas Prices)
- * Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffics
- * The service life of the improvement was kept as three (3) years.
- * Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

SR 526

Summerlin Ave. to Mills Ave.

Table 15
Year 2012 METROPLAN Orlando Travel Time Study
SR 526 (Robinson Street) - Summerlin Avenue to Mills Avenue - Eastbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary		
														Average Speed		Avg Speed/	Avg. Fuel	
														(mph)	LOS	Speed Limit	Consump.	
AM PEAK HOUR																		
Eola Dr. to Summerlin Ave.	City of Orlando	Collector	Residential Area	1	2	0	35	211	8	Signal	28.8	19.8	III	5.0	F	0.14		
Summerlin Ave. to Howard Middle School	City of Orlando	Collector	Residential Area	0	2	0	35	475	8	Signal	18.0	3.6	III	18.0	D	0.51		
Howard Middle School to Mills Ave.	City of Orlando	Collector	Residential Area	1	2	0	35	845	8	Signal	36.0	13.2	III	16.0	D	0.46		
TOTAL							35	1,531			82.8	36.6	III	12.6	E	0.36	0.012 gal/veh	
PM PEAK HOUR																		
Eola Dr. to Summerlin Ave.	City of Orlando	Collector	Residential Area	1	2	0	35	211	7	Signal	22.8	15.6	III	6.3	F	0.18		
Summerlin Ave. to Howard Middle School	City of Orlando	Collector	Residential Area	0	2	0	35	475	7	Signal	11.4	0.0	III	28.4	B	0.81		
Howard Middle School to Mills Ave.	City of Orlando	Collector	Residential Area	1	2	0	35	845	7	Signal	25.2	3.6	III	22.9	C	0.65		
TOTAL							35	1,531			59.4	19.2	III	17.6	D	0.50	0.011 gal/veh	

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

Table 15
Year 2012 METROPLAN Orlando Travel Time Study
SR 526 (Robinson Street) - Summerlin Avenue to Mills Avenue - Westbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Brown Ave. to Mills Ave.	City of Orlando	Collector	Residential Area	1	2	0	35	106	8	Signal	2.4	0.0	III	30.0	B	0.86	
Mills Ave. to Howard Middle School	City of Orlando	Collector	Residential Area	0	1	0	35	845	8	Signal	16.8	0.0	III	34.3	A	0.98	
Howard Middle School to Summerlin Ave.	City of Orlando	Collector	Residential Area	1	2	0	35	475	8	Signal	27.6	12.6	III	11.7	E	0.34	
TOTAL							35	1,426			46.8	12.6	III	20.8	C	0.59	0.010 gal/veh
PM PEAK HOUR																	
Brown Ave. to Mills Ave.	City of Orlando	Collector	Residential Area	1	2	0	35	106	7	Signal	1.8	0.0	III	40.0	A	1.14	
Mills Ave. to Howard Middle School	City of Orlando	Collector	Residential Area	0	1	0	35	845	7	Signal	18.6	1.8	III	31.0	A	0.88	
Howard Middle School to Summerlin Ave.	City of Orlando	Collector	Residential Area	1	2	0	35	475	7	Signal	40.8	25.2	III	7.9	F	0.23	
TOTAL							35	1,426			61.2	27.0	III	15.9	D	0.45	0.010 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

Table 15
Year 2012 METROPLAN Orlando Travel Time Study
SR 526 (Robinson Street) - Summerlin Avenue to Mills Avenue - Eastbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Eola Dr. to Summerlin Ave.	City of Orlando	Collector	Residential Area	1	2	0	35	211	8	Signal	15.6	9.0	III	9.2	F	0.26	
Summerlin Ave. to Howard Middle School	City of Orlando	Collector	Residential Area	0	2	0	35	475	8	Signal	9.6	0.0	III	33.7	A	0.96	
Howard Middle School to Mills Ave.	City of Orlando	Collector	Residential Area	1	2	0	35	845	8	Signal	24.0	8.4	III	24.0	C	0.69	
TOTAL							35	1,531			49.2	17.4	III	21.2	C	0.61	0.011 gal/veh
PM PEAK HOUR																	
Eola Dr. to Summerlin Ave.	City of Orlando	Collector	Residential Area	1	2	0	35	211	7	Signal	12.0	3.6	III	12.0	E	0.34	
Summerlin Ave. to Howard Middle School	City of Orlando	Collector	Residential Area	0	2	0	35	475	7	Signal	10.8	0.0	III	30.0	B	0.86	
Howard Middle School to Mills Ave.	City of Orlando	Collector	Residential Area	1	2	0	35	845	7	Signal	20.4	3.0	III	28.2	B	0.81	
TOTAL							35	1,531			43.2	6.6	III	24.2	B	0.69	0.011 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

Table 15
Year 2012 METROPLAN Orlando Travel Time Study
SR 526 (Robinson Street) - Summerlin Avenue to Mills Avenue - Westbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Brown Ave. to Mills Ave.	City of Orlando	Collector	Residential Area	1	2	0	35	106	9	Signal	2.4	0.0	III	30.0	B	0.86	
Mills Ave. to Howard Middle School	City of Orlando	Collector	Residential Area	0	1	0	35	845	9	Signal	16.2	0.0	III	35.6	A	1.02	
Howard Middle School to Summerlin Ave.	City of Orlando	Collector	Residential Area	1	2	0	35	475	9	Signal	7.8	0.0	III	41.5	A	1.19	
TOTAL							35	1,426			26.4	0.0	III	36.8	A	1.05	0.009 gal/veh
PM PEAK HOUR																	
Brown Ave. to Mills Ave.	City of Orlando	Collector	Residential Area	1	2	0	35	106	6	Signal	17.4	14.4	III	4.1	F	0.12	
Mills Ave. to Howard Middle School	City of Orlando	Collector	Residential Area	0	1	0	35	845	6	Signal	15.6	0.0	III	36.9	A	1.05	
Howard Middle School to Summerlin Ave.	City of Orlando	Collector	Residential Area	1	2	0	35	475	6	Signal	16.8	8.4	III	19.3	C	0.55	
TOTAL							35	1,426			49.8	22.8	III	19.5	C	0.56	0.009 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

**SR 526 /
Robinson St.
- AM Peak
Before Condition**

Date of Collection: 10/26/2011
Distance: 0.29 miles
From: Summerlin Ave.
To: Mills Ave.

Start Time: 7:30 AM
End Time: 9:00 AM

EB Avg Speed: 12.6 MPH
EB Travel Time: 1.38 MIN
EB Delay Time: 0.61 MIN

WB Avg Speed: 20.8 MPH
WB Travel Time: 0.78 MIN
WB Delay Time: 0.21 MIN



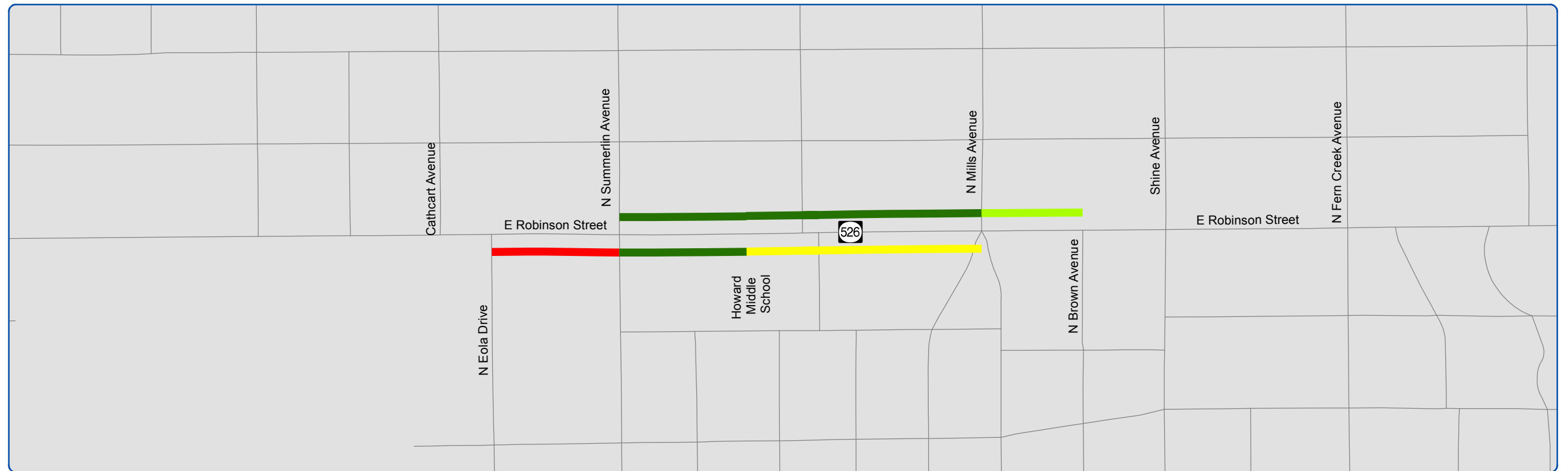
**SR 526 /
Robinson St.
- AM Peak
After Condition**

Date of Collection: 4/17/2012
Distance: 0.29 miles
From: Summerlin Ave.
To: Mills Ave.

Start Time: 7:30 AM
End Time: 9:00 AM

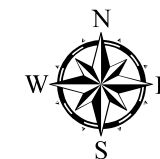
EB Avg Speed: 21.2 MPH
EB Travel Time: 0.82 MIN
EB Delay Time: 0.29 MIN

WB Avg Speed: 36.8 MPH
WB Travel Time: 0.44 MIN
WB Delay Time: 0.00 MIN



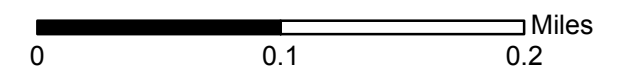
Level of Services:

- | | | |
|---|---|---------------|
| A | D | Roads |
| B | E | City Boundary |
| C | F | Water |



2012 METROPLAN ORLANDO

Travel Time Study



**SR 526 /
Robinson St.
- PM Peak
Before Condition**

Date of Collection: 10/26/2011
Distance: 0.29 miles
From: Summerlin Ave.
To: Mills Ave.

Start Time: 4:30 PM
End Time: 6:00 PM

EB Avg Speed: 17.6 MPH
EB Travel Time: 0.99 MIN
EB Delay Time: 0.32 MIN

WB Avg Speed: 15.9 MPH
WB Travel Time: 1.02 MIN
WB Delay Time: 0.45 MIN



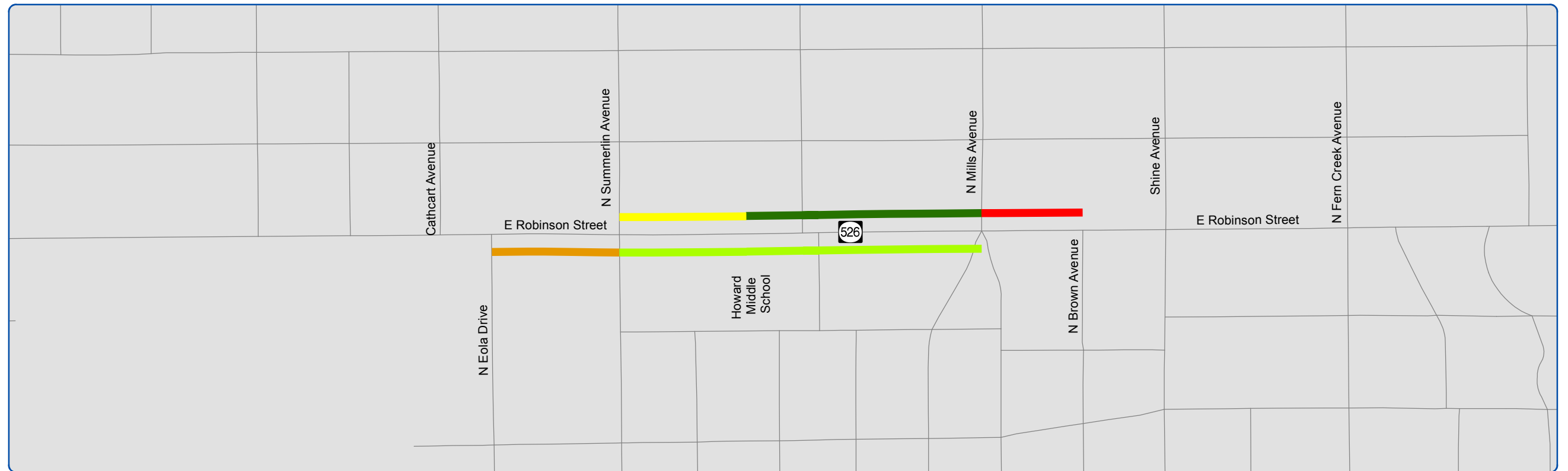
**SR 526 /
Robinson St.
- PM Peak
After Condition**

Date of Collection: 4/17/2012
Distance: 0.29 miles
From: Summerlin Ave.
To: Mills Ave.

Start Time: 4:30 PM
End Time: 6:00 PM

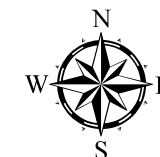
EB Avg Speed: 24.2 MPH
EB Travel Time: 0.72 MIN
EB Delay Time: 0.11 MIN

WB Avg Speed: 19.5 MPH
WB Travel Time: 0.83 MIN
WB Delay Time: 0.38 MIN



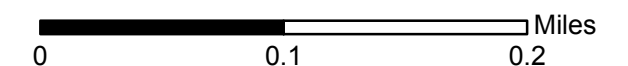
Level of Services:

- | | | |
|---|---|---------------|
| A | D | Roads |
| B | E | City Boundary |
| C | F | Water |



2012 METROPLAN ORLANDO

Travel Time Study



SR 526 (Robinson) - Summerlin Avenue to Mills Avenue
Summary of Before Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
431	82.8	36.6	12.6	0.0120	9.91	5.17
Northbound/Eastbound - PM Peak Hour						
427	59.4	19.2	17.6	0.0110	7.05	4.70
Southbound/Westbound - AM Peak Hour						
347	46.8	12.6	20.8	0.0100	4.51	3.47
Southbound/Westbound - PM Peak Hour						
216	61.2	27.0	15.9	0.0100	3.67	2.16

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 526 (Robinson) - Summerlin Avenue to Mills Avenue
Summary of After Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
431	49.2	17.4	21.2	0.0110	5.89	4.74
Northbound/Eastbound - PM Peak Hour						
427	43.2	6.6	24.2	0.0110	5.12	4.70
Southbound/Westbound - AM Peak Hour						
347	26.4	0.0	36.8	0.0090	2.54	3.12
Southbound/Westbound - PM Peak Hour						
216	49.8	22.8	19.5	0.0090	2.99	1.94

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 526 (Robinson) - Summerlin Avenue to Mills Avenue
Summary of Measures of Effectiveness & Benefit Cost Analysis

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	14.42	8.44	10.72	8.11
Total Fuel Consumption (gallons)	8.64	7.86	6.86	6.64

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$100.29	\$43.21
Annual User Benefit	\$30,086.77	\$12,963.16
Total Annual User Benefit =	\$43,049.93	
Total Signal Retiming Annual Cost	\$4,826.72	
User Benefit / Cost Ratio	8.92	

Notes:

- * Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
- * Fuel consumption is valued to the rate of \$3.43 per gallon.(Florida Department of Revenue & Orlando Gas Prices)
- * Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffics
- * The service life of the improvement was kept as three (3) years.
- * Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

SR 526

Ferncreek Ave. to Crystal Lake Dr.

**Table 16
Year 2012 METROPLAN Orlando Travel Time Study**

SR 526 (Robinson Street) - Ferncreek Avenue to Crystal Lake Drive/Maguire Boulevard - Eastbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Ferncreek Ave.	City of Orlando	Collector	Residential Area	0	2	0	35	634	8	Signal	13.2	0.0	III	32.7	A	0.94	
Ferncreek Ave. to Bumby Ave.	City of Orlando	Collector	Residential Area	1	2	0	35	2,640	8	Signal	54.6	0.0	III	33.0	A	0.94	
Bumby Ave. to Primrose Dr.	City of Orlando	Collector	Residential Area	1	2	0	35	1,320	8	Signal	44.4	14.4	III	20.3	C	0.58	
Primrose Dr. to Crystal Lake Dr./Maguire Blvd.	City of Orlando	Collector	Residential Area	2	0	1	35	950	8	Signal	33.6	10.2	III	19.3	C	0.55	
TOTAL							35	5,544			145.8	24.6	III	25.9	B	0.74	0.037 gal/veh
PM PEAK HOUR																	
Median Opening to Ferncreek Ave.	City of Orlando	Collector	Residential Area	0	2	0	35	634	7	Signal	17.4	3.0	III	24.8	B	0.71	
Ferncreek Ave. to Bumby Ave.	City of Orlando	Collector	Residential Area	1	2	0	35	2,640	7	Signal	73.8	16.8	III	24.4	B	0.70	
Bumby Ave. to Primrose Dr.	City of Orlando	Collector	Residential Area	1	2	0	35	1,320	7	Signal	31.2	0.0	III	28.8	B	0.82	
Primrose Dr. to Crystal Lake Dr./Maguire Blvd.	City of Orlando	Collector	Residential Area	2	0	1	35	950	7	Signal	33.6	9.0	III	19.3	C	0.55	
TOTAL							35	5,544			156.0	28.8	III	24.2	B	0.69	0.038 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

**Table 16
Year 2012 METROPLAN Orlando Travel Time Study**

SR 526 (Robinson Street) - Ferncreek Avenue to Crystal Lake Drive/Maguire Boulevard - Westbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Crystal Lake Dr./Maguire Blvd. to Primrose Dr.	City of Orlando	Collector	Residential Area	1	2	0	35	950	8	Signal	41.4	17.4	III	15.7	D	0.45	
Primrose Dr. to Bumby Ave.	City of Orlando	Collector	Residential Area	1	2	0	35	1,320	8	Signal	56.4	26.4	III	16.0	D	0.46	
Bumby Ave. to Ferncreek Ave.	City of Orlando	Collector	Residential Area	0	2	0	35	2,640	8	Signal	53.4	2.4	III	33.7	A	0.96	
TOTAL							35	4,910			151.2	46.2	III	22.1	C	0.63	0.033 gal/veh
PM PEAK HOUR																	
Crystal Lake Dr./Maguire Blvd. to Primrose Dr.	City of Orlando	Collector	Residential Area	1	2	0	35	950	7	Signal	27.0	1.8	III	24.0	C	0.69	
Primrose Dr. to Bumby Ave.	City of Orlando	Collector	Residential Area	1	2	0	35	1,320	7	Signal	43.8	16.2	III	20.5	C	0.59	
Bumby Ave. to Ferncreek Ave.	City of Orlando	Collector	Residential Area	0	2	0	35	2,640	7	Signal	54.6	1.2	III	33.0	A	0.94	
TOTAL							35	4,910			125.4	19.2	III	26.7	B	0.76	0.033 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

Table 16
Year 2012 METROPLAN Orlando Travel Time Study

SR 526 (Robinson Street) - Ferncreek Avenue to Crystal Lake Drive/Maguire Boulevard - Eastbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Ferncreek Ave.	City of Orlando	Collector	Residential Area	0	2	0	35	634	7	Signal	13.2	3.0	III	32.7	A	0.94	
Ferncreek Ave. to Bumby Ave.	City of Orlando	Collector	Residential Area	1	2	0	35	2,640	7	Signal	90.0	37.8	III	20.0	C	0.57	
Bumby Ave. to Primrose Dr.	City of Orlando	Collector	Residential Area	1	2	0	35	1,320	7	Signal	24.6	0.0	III	36.6	A	1.05	
Primrose Dr. to Crystal Lake Dr./Maguire Blvd.	City of Orlando	Collector	Residential Area	2	0	1	35	950	7	Signal	58.2	38.4	III	11.1	E	0.32	
TOTAL							35	5,544			186.0	79.2	III	20.3	C	0.58	0.037 gal/veh
PM PEAK HOUR																	
Median Opening to Ferncreek Ave.	City of Orlando	Collector	Residential Area	0	2	0	35	634	6	Signal	13.2	0.0	III	32.7	A	0.94	
Ferncreek Ave. to Bumby Ave.	City of Orlando	Collector	Residential Area	1	2	0	35	2,640	6	Signal	51.6	0.0	III	34.9	A	1.00	
Bumby Ave. to Primrose Dr.	City of Orlando	Collector	Residential Area	1	2	0	35	1,320	6	Signal	50.4	19.8	III	17.9	D	0.51	
Primrose Dr. to Crystal Lake Dr./Maguire Blvd.	City of Orlando	Collector	Residential Area	2	0	1	35	950	6	Signal	38.4	16.2	III	16.9	D	0.48	
TOTAL							35	5,544			153.6	36.0	III	24.6	B	0.70	0.037 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

**Table 16
Year 2012 METROPLAN Orlando Travel Time Study**

SR 526 (Robinson Street) - Ferncreek Avenue to Crystal Lake Drive/Maguire Boulevard - Westbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Crystal Lake Dr./Maguire Blvd. to Primrose Dr.	City of Orlando	Collector	Residential Area	1	2	0	35	950	9	Signal	33.0	9.6	III	19.6	C	0.56	
Primrose Dr. to Bumby Ave.	City of Orlando	Collector	Residential Area	1	2	0	35	1,320	9	Signal	45.0	17.4	III	20.0	C	0.57	
Bumby Ave. to Ferncreek Ave.	City of Orlando	Collector	Residential Area	0	2	0	35	2,640	9	Signal	43.2	0.0	III	41.7	A	1.19	
TOTAL							35	4,910			121.2	27.0	III	27.6	B	0.79	0.032 gal/veh
PM PEAK HOUR																	
Crystal Lake Dr./Maguire Blvd. to Primrose Dr.	City of Orlando	Collector	Residential Area	1	2	0	35	950	7	Signal	19.8	0.0	III	32.7	A	0.94	
Primrose Dr. to Bumby Ave.	City of Orlando	Collector	Residential Area	1	2	0	35	1,320	7	Signal	22.2	0.0	III	40.5	A	1.16	
Bumby Ave. to Ferncreek Ave.	City of Orlando	Collector	Residential Area	0	2	0	35	2,640	7	Signal	42.0	0.0	III	42.9	A	1.22	
TOTAL							35	4,910			84.0	0.0	III	39.9	A	1.14	0.032 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

**SR 526 /
Robinson St.
- AM Peak
Before Condition**

Date of Collection: 10/26/2011
Distance: 1.05 miles
From: Ferncreek Ave.
To: Crystal Lake Dr./Maguire Blvd.

Start Time: 7:30 AM
End Time: 9:00 AM

EB Avg Speed: 25.9 MPH
EB Travel Time: 2.43 MIN
EB Delay Time: 0.41 MIN

WB Avg Speed: 22.1 MPH
WB Travel Time: 2.52 MIN
WB Delay Time: 0.77 MIN



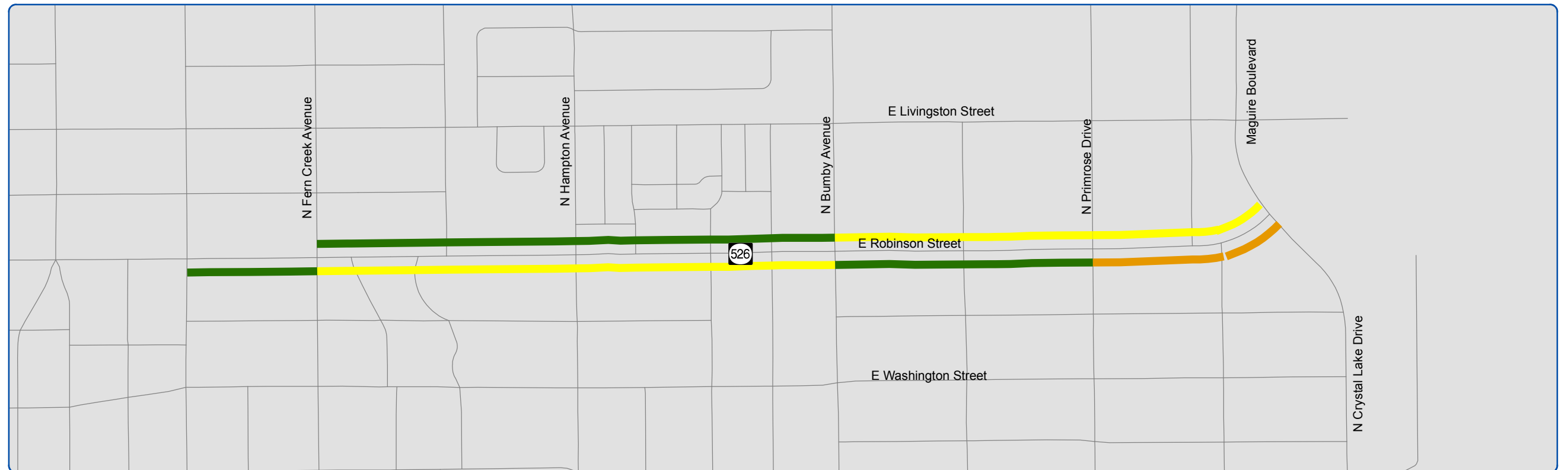
**SR 526 /
Robinson St.
- AM Peak
After Condition**

Date of Collection: 4/17/2012
Distance: 1.05 miles
From: Ferncreek Ave.
To: Crystal Lake Dr./Maguire Blvd.

Start Time: 7:30 AM
End Time: 9:00 AM

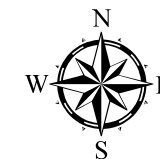
EB Avg Speed: 20.3 MPH
EB Travel Time: 3.10 MIN
EB Delay Time: 1.32 MIN

WB Avg Speed: 27.6 MPH
WB Travel Time: 2.02 MIN
WB Delay Time: 0.45 MIN



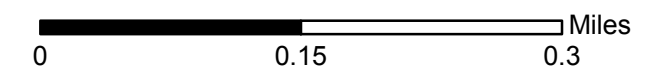
Level of Services:

- | | | |
|---|---|---------------|
| A | D | Roads |
| B | E | City Boundary |
| C | F | Water |



2012 METROPLAN ORLANDO

Travel Time Study



**SR 526 /
Robinson St.
- PM Peak
Before Condition**

Date of Collection: 10/26/2011
Distance: 1.05 miles
From: Ferncreek Ave.
To: Crystal Lake Dr./Maguire Blvd.

Start Time: 4:30 PM
End Time: 6:00 PM

EB Avg Speed: 24.2 MPH
EB Travel Time: 2.60 MIN
EB Delay Time: 0.48 MIN

WB Avg Speed: 26.7 MPH
WB Travel Time: 2.09 MIN
WB Delay Time: 0.32 MIN



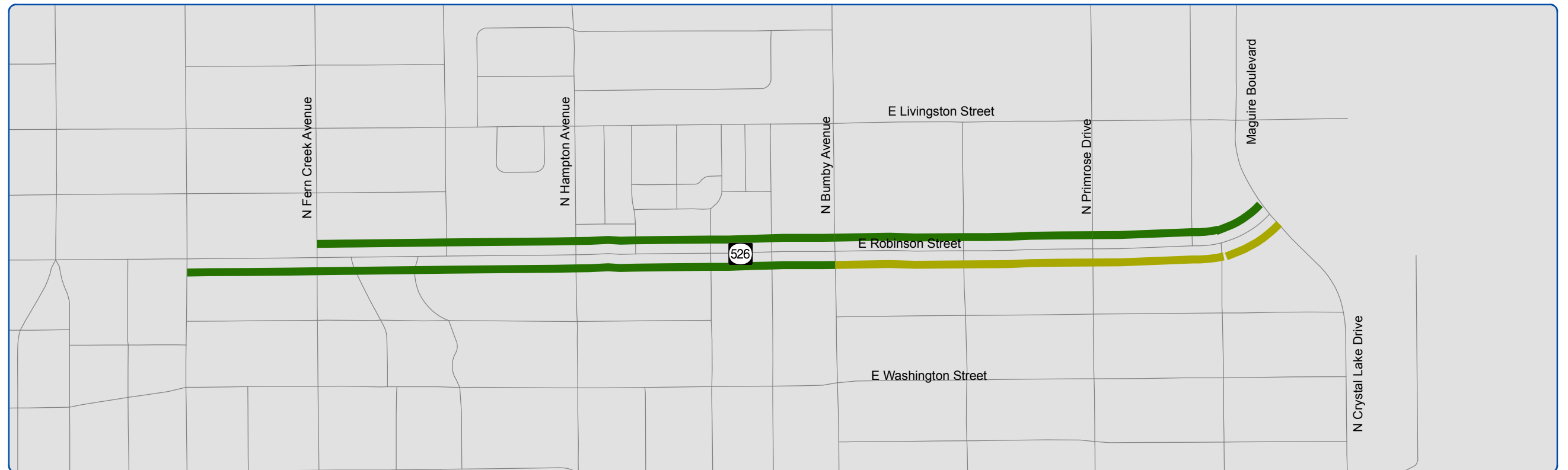
**SR 526 /
Robinson St.
- PM Peak
After Condition**

Date of Collection: 4/17/2012
Distance: 1.05 miles
From: Ferncreek Ave.
To: Crystal Lake Dr./Maguire Blvd.

Start Time: 4:30 PM
End Time: 6:00 PM

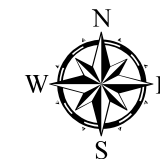
EB Avg Speed: 24.6 MPH
EB Travel Time: 2.56 MIN
EB Delay Time: 0.60 MIN

WB Avg Speed: 39.9 MPH
WB Travel Time: 1.40 MIN
WB Delay Time: 0.00 MIN



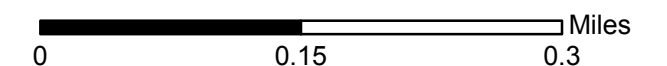
Level of Services:

- | | | |
|--|---|---|
|  A |  D |  Roads |
|  B |  E |  City Boundary |
|  C |  F |  Water |



2012 METROPLAN ORLANDO

Travel Time Study



SR 526 (Robinson) - Ferncreek Ave to Crystal Lake Dr/Maguire Blvd
Summary of Before Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
342	145.8	24.6	25.9	0.0370	13.85	12.65
Northbound/Eastbound - PM Peak Hour						
1258	156.0	28.8	24.2	0.0380	54.51	47.80
Southbound/Westbound - AM Peak Hour						
808	151.2	46.2	22.1	0.0330	33.94	26.66
Southbound/Westbound - PM Peak Hour						
315	125.4	19.2	26.7	0.0330	10.97	10.40

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 526 (Robinson) - Ferncreek Ave to Crystal Lake Dr/Maguire Blvd
Summary of After Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
342	186.0	79.2	20.3	0.0370	17.67	12.65
Northbound/Eastbound - PM Peak Hour						
1258	153.6	36.0	24.6	0.0370	53.67	46.55
Southbound/Westbound - AM Peak Hour						
808	121.2	27.0	27.6	0.0320	27.20	25.86
Southbound/Westbound - PM Peak Hour						
315	84.0	0.0	39.9	0.0320	7.35	10.08

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 526 (Robinson) - Ferncreek Ave to Crystal Lake Dr/Maguire Blvd
Summary of Measures of Effectiveness & Benefit Cost Analysis

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	47.79	44.87	65.49	61.02
Total Fuel Consumption (gallons)	39.32	38.51	58.20	56.63

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$50.28	\$78.11
Annual User Benefit	\$15,082.52	\$23,433.72
Total Annual User Benefit =	\$38,516.24	
Total Signal Retiming Annual Cost	\$6,435.63	
User Benefit / Cost Ratio	5.98	

Notes:

- * Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
- * Fuel consumption is valued to the rate of \$3.43 per gallon.(Florida Department of Revenue & Orlando Gas Prices)
- * Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffics
- * The service life of the improvement was kept as three (3) years.
- * Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

SR 15/HOFFNER AVE.

Goldenrod Rd. to SR 528 Ramps

TABLE 17
Year 2012 METROPLAN Orlando Travel Time Study
SR 15 (Hoffner/Narcoossee) - SR 528 to SR 551/Goldenrod Road - Northbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to SR 528 EB Ramps	City of Orlando	Arterial	Residential Area	0	4	1	45	264	7	Signal	6.6	0.0	II	27.3	C	0.61	
SR 528 EB Ramps to SR 528 WB Ramps	City of Orlando	Arterial	Residential Area	2	2	0	45	528	7	Signal	12.6	1.2	II	28.6	B	0.63	
SR 528 WB Ramps to McCoy Rd.	City of Orlando	Arterial	Residential Area	1	2	0	45	1,056	7	Signal	20.4	1.2	II	35.3	A	0.78	
McCoy Rd. to Home Depot	City of Orlando	Arterial	Residential Area	1	2	1	45	4,224	7	Signal	75.6	4.8	II	38.1	A	0.85	
Home Depot to Lee Vista Blvd.	City of Orlando	Arterial	Residential Area	1	2	1	45	1,690	7	Signal	56.4	21.0	II	20.4	D	0.45	
Lee Vista Blvd. to Old Goldenrod Rd.	City of Orlando	Arterial	Residential Area	1	1	1	45	5,016	7	Signal	106.2	9.0	II	32.2	B	0.72	
Old Goldenrod Rd. to SR 551/Goldenrod Rd.	City of Orlando	Arterial	Residential Area	1	1	1	45	1,162	7	Signal	39.6	12.0	II	20.0	D	0.44	
TOTAL							45	13,939			317.4	49.2	II	29.9	B	0.67	0.093 gal/veh
PM PEAK HOUR																	
Median Opening to SR 528 EB Ramps	City of Orlando	Arterial	Residential Area	0	4	1	45	264	8	Signal	7.8	1.2	II	23.1	C	0.51	
SR 528 EB Ramps to SR 528 WB Ramps	City of Orlando	Arterial	Residential Area	2	2	0	45	528	8	Signal	10.8	0.0	II	33.3	B	0.74	
SR 528 WB Ramps to McCoy Rd.	City of Orlando	Arterial	Residential Area	1	2	0	45	1,056	8	Signal	27.6	5.4	II	26.1	C	0.58	
McCoy Rd. to Home Depot	City of Orlando	Arterial	Residential Area	1	2	1	45	4,224	8	Signal	71.4	0.0	II	40.3	A	0.90	
Home Depot to Lee Vista Blvd.	City of Orlando	Arterial	Residential Area	1	2	1	45	1,690	8	Signal	73.8	36.6	II	15.6	E	0.35	
Lee Vista Blvd. to Old Goldenrod Rd.	City of Orlando	Arterial	Residential Area	1	1	1	45	5,016	8	Signal	111.0	4.2	II	30.8	B	0.68	
Old Goldenrod Rd. to SR 551/Goldenrod Rd.	City of Orlando	Arterial	Residential Area	1	1	1	45	1,162	8	Signal	38.4	10.8	II	20.6	D	0.46	
TOTAL							45	13,939			340.8	58.2	II	27.9	C	0.62	0.094 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

TABLE 17
Year 2012 METROPLAN Orlando Travel Time Study
SR 15 (Hoffner/Narcoossee) - SR 528 to SR 551/Goldenrod Road - Southbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Ponderosa Dr. to SR 551/Goldenrod Rd.	City of Orlando	Arterial	Residential Area	2	1	1	45	264	7	Signal	27.6	17.4	II	6.5	F	0.14	
SR 551/Goldenrod Rd. to Old Goldenrod Rd.	City of Orlando	Arterial	Residential Area	1	1	0	45	1,162	7	Signal	23.4	0.0	II	33.8	B	0.75	
Old Goldenrod Rd. to Lee Vista Blvd.	City of Orlando	Arterial	Residential Area	1	2	1	45	5,016	7	Signal	128.4	39.0	II	26.6	C	0.59	
Lee Vista Blvd. to Home Depot	City of Orlando	Arterial	Residential Area	1	2	0	45	1,690	7	Signal	40.2	7.2	II	28.7	B	0.64	
Home Depot to McCoy Rd.	City of Orlando	Arterial	Residential Area	1	2	1	45	4,224	7	Signal	73.8	3.6	II	39.0	A	0.87	
McCoy Rd. to SR 528 WB Ramps	City of Orlando	Arterial	Residential Area	0	3	1	45	1,056	7	Signal	50.4	22.8	II	14.3	E	0.32	
SR 528 WB Ramps to SR 528 EB Ramps	City of Orlando	Arterial	Residential Area	1	2	0	45	528	7	Signal	10.2	0.6	II	35.3	A	0.78	
TOTAL							45	13,939			354.0	90.6	II	26.8	C	0.60	0.093 gal/veh
PM PEAK HOUR																	
Ponderosa Dr. to SR 551/Goldenrod Rd.	City of Orlando	Arterial	Residential Area	2	1	1	45	264	8	Signal	70.2	59.4	II	2.6	F	0.06	
SR 551/Goldenrod Rd. to Old Goldenrod Rd.	City of Orlando	Arterial	Residential Area	1	1	0	45	1,162	8	Signal	24.0	0.0	II	33.0	B	0.73	
Old Goldenrod Rd. to Lee Vista Blvd.	City of Orlando	Arterial	Residential Area	1	2	1	45	5,016	8	Signal	117.0	24.0	II	29.2	B	0.65	
Lee Vista Blvd. to Home Depot	City of Orlando	Arterial	Residential Area	1	2	0	45	1,690	8	Signal	38.4	1.8	II	30.0	B	0.67	
Home Depot to McCoy Rd.	City of Orlando	Arterial	Residential Area	1	2	1	45	4,224	8	Signal	79.2	6.0	II	36.4	A	0.81	
McCoy Rd. to SR 528 WB Ramps	City of Orlando	Arterial	Residential Area	0	3	1	45	1,056	8	Signal	25.8	1.8	II	27.9	C	0.62	
SR 528 WB Ramps to SR 528 EB Ramps	City of Orlando	Arterial	Residential Area	1	2	0	45	528	8	Signal	10.8	3.6	II	33.3	B	0.74	
TOTAL							45	13,939			365.4	96.6	II	26.0	C	0.58	0.093 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

TABLE 17
Year 2012 METROPLAN Orlando Travel Time Study
SR 15 (Hoffner/narcoossee) - SR 528 to SR 551/Goldenrod Road - Northbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to SR 528 EB Ramps	City of Orlando	Arterial	Residential Area	0	4	1	45	264	8	Signal	5.4	0.6	II	33.3	B	0.74	
SR 528 EB Ramps to SR 528 WB Ramps	City of Orlando	Arterial	Residential Area	2	2	0	45	528	8	Signal	10.8	1.8	II	33.3	B	0.74	
SR 528 WB Ramps to McCoy Rd.	City of Orlando	Arterial	Residential Area	1	2	0	45	1,056	8	Signal	19.8	3.0	II	36.4	A	0.81	
McCoy Rd. to Home Depot	City of Orlando	Arterial	Residential Area	1	2	1	45	4,224	8	Signal	63.6	0.0	II	45.3	A	1.01	
Home Depot to Lee Vista Blvd.	City of Orlando	Arterial	Residential Area	1	2	1	45	1,690	8	Signal	42.0	11.4	II	27.4	C	0.61	
Lee Vista Blvd. to Old Goldenrod Rd.	City of Orlando	Arterial	Residential Area	1	1	1	45	5,016	8	Signal	92.4	3.0	II	37.0	A	0.82	
Old Goldenrod Rd. to SR 551/Goldenrod Rd.	City of Orlando	Arterial	Residential Area	1	1	1	45	1,162	8	Signal	43.8	18.0	II	18.1	D	0.40	
TOTAL							45	13,939			277.8	37.8	II	34.2	B	0.76	0.090 gal/veh
PM PEAK HOUR																	
Median Opening to SR 528 EB Ramps	City of Orlando	Arterial	Residential Area	0	4	1	45	264	8	Signal	9.6	3.0	II	18.7	D	0.42	
SR 528 EB Ramps to SR 528 WB Ramps	City of Orlando	Arterial	Residential Area	2	2	0	45	528	8	Signal	9.0	0.0	II	40.0	A	0.89	
SR 528 WB Ramps to McCoy Rd.	City of Orlando	Arterial	Residential Area	1	2	0	45	1,056	8	Signal	19.2	2.4	II	37.5	A	0.83	
McCoy Rd. to Home Depot	City of Orlando	Arterial	Residential Area	1	2	1	45	4,224	8	Signal	63.0	0.0	II	45.7	A	1.02	
Home Depot to Lee Vista Blvd.	City of Orlando	Arterial	Residential Area	1	2	1	45	1,690	8	Signal	66.6	30.6	II	17.3	D	0.38	
Lee Vista Blvd. to Old Goldenrod Rd.	City of Orlando	Arterial	Residential Area	1	1	1	45	5,016	8	Signal	109.8	4.8	II	31.1	B	0.69	
Old Goldenrod Rd. to SR 551/Goldenrod Rd.	City of Orlando	Arterial	Residential Area	1	1	1	45	1,162	8	Signal	79.2	45.0	II	10.0	F	0.22	
TOTAL							45	13,939			356.4	85.8	II	26.7	C	0.59	0.094 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

TABLE 17
Year 2012 METROPLAN Orlando Travel Time Study
SR 15 (Hoffner/narcoossee) - SR 528 to SR 551/Goldenrod Road - Southbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Ponderosa Dr. to SR 551/Goldenrod Rd.	City of Orlando	Arterial	Residential Area	2	1	1	45	264	10	Signal	18.6	12.0	II	9.7	F	0.22	
SR 551/Goldenrod Rd. to Old Goldenrod Rd.	City of Orlando	Arterial	Residential Area	1	1	0	45	1,162	10	Signal	25.2	3.0	II	31.4	B	0.70	
Old Goldenrod Rd. to Lee Vista Blvd.	City of Orlando	Arterial	Residential Area	1	2	1	45	5,016	10	Signal	111.6	26.4	II	30.6	B	0.68	
Lee Vista Blvd. to Home Depot	City of Orlando	Arterial	Residential Area	1	2	0	45	1,690	10	Signal	28.2	0.0	II	40.8	A	0.91	
Home Depot to McCoy Rd.	City of Orlando	Arterial	Residential Area	1	2	1	45	4,224	10	Signal	63.0	0.0	II	45.7	A	1.02	
McCoy Rd. to SR 528 WB Ramps	City of Orlando	Arterial	Residential Area	0	3	1	45	1,056	10	Signal	23.4	2.4	II	30.8	B	0.68	
SR 528 WB Ramps to SR 528 EB Ramps	City of Orlando	Arterial	Residential Area	1	2	0	45	528	10	Signal	8.0	0.0	II	45.0	A	1.00	
TOTAL							45	13,939			278.0	43.8	II	34.2	B	0.76	0.090 gal/veh
PM PEAK HOUR																	
Ponderosa Dr. to SR 551/Goldenrod Rd.	City of Orlando	Arterial	Residential Area	2	1	1	45	264	8	Signal	30.6	21.6	II	5.9	F	0.13	
SR 551/Goldenrod Rd. to Old Goldenrod Rd.	City of Orlando	Arterial	Residential Area	1	1	0	45	1,162	8	Signal	30.6	3.0	II	25.9	C	0.58	
Old Goldenrod Rd. to Lee Vista Blvd.	City of Orlando	Arterial	Residential Area	1	2	1	45	5,016	8	Signal	112.2	22.2	II	30.5	B	0.68	
Lee Vista Blvd. to Home Depot	City of Orlando	Arterial	Residential Area	1	2	0	45	1,690	8	Signal	30.0	3.0	II	38.4	A	0.85	
Home Depot to McCoy Rd.	City of Orlando	Arterial	Residential Area	1	2	1	45	4,224	8	Signal	61.2	0.0	II	47.1	A	1.05	
McCoy Rd. to SR 528 WB Ramps	City of Orlando	Arterial	Residential Area	0	3	1	45	1,056	8	Signal	21.6	4.2	II	33.3	B	0.74	
SR 528 WB Ramps to SR 528 EB Ramps	City of Orlando	Arterial	Residential Area	1	2	0	45	528	8	Signal	8.5	0.0	II	42.4	A	0.94	
TOTAL							45	13,939			294.7	54.0	II	32.2	B	0.72	0.090 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.



**SR 15
- AM Peak**

Before Condition

Date of Collection: 11/3/2011
 Distance: 2.64 miles
 From: SR 528
 To: SR 551/Goldenrod Rd.

Start Time: 7:00 AM
 End Time: 9:00 AM

NB Avg Speed: 29.9 MPH
 NB Travel Time: 5.29 MIN
 NB Delay Time: 0.82 MIN

SB Avg Speed: 26.8 MPH
 SB Travel Time: 5.90 MIN
 SB Delay Time: 1.51 MIN



**SR 15
- AM Peak**

After Condition

Date of Collection: 4/24/2012
 Distance: 2.64 miles
 From: SR 528
 To: SR 551/Goldenrod Rd.

Start Time: 7:00 AM
 End Time: 9:00 AM

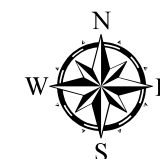
NB Avg Speed: 34.2 MPH
 NB Travel Time: 4.63 MIN
 NB Delay Time: 0.63 MIN

SB Avg Speed: 34.2 MPH
 SB Travel Time: 4.63 MIN
 SB Delay Time: 0.73 MIN



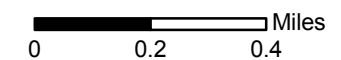
Level of Services:

- | | | | | | |
|--|---|--|---|--|---------------|
| | A | | D | | Roads |
| | B | | E | | City Boundary |
| | C | | F | | Water |



2012 METROPLAN ORLANDO

Travel Time Study





**SR 15
- PM Peak**

Before Condition

Date of Collection: 11/3/2011
 Distance: 2.64 miles
 From: SR 528
 To: SR 551/Goldenrod Rd.

Start Time: 4:00 PM
 End Time: 6:00 PM

NB Avg Speed: 27.9 MPH
 NB Travel Time: 5.68 MIN
 NB Delay Time: 0.97 MIN

SB Avg Speed: 26.0 MPH
 SB Travel Time: 6.09 MIN
 SB Delay Time: 1.61 MIN



**SR 15
- PM Peak**

After Condition

Date of Collection: 4/24/2012
 Distance: 2.64 miles
 From: SR 528
 To: SR 551/Goldenrod Rd.

Start Time: 4:00 PM
 End Time: 6:00 PM

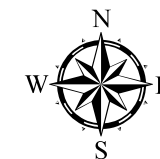
NB Avg Speed: 26.7 MPH
 NB Travel Time: 5.94 MIN
 NB Delay Time: 1.43 MIN

SB Avg Speed: 32.2 MPH
 SB Travel Time: 4.91 MIN
 SB Delay Time: 0.90 MIN

Level of Services:

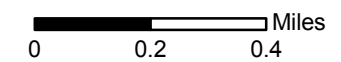


- | | | |
|---|---|---------------|
| A | D | Roads |
| B | E | City Boundary |
| C | F | Water |



2012 METROPLAN ORLANDO

Travel Time Study



SR 15 (Hoffner/Narcoossee) - SR 528 to SR 551/Goldenrod Road

Summary of Before Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
344	317.4	49.2	29.9	0.0930	30.33	31.99
Northbound/Eastbound - PM Peak Hour						
336	340.8	58.2	27.9	0.0940	31.81	31.58
Southbound/Westbound - AM Peak Hour						
491	354.0	90.6	26.8	0.0930	48.28	45.66
Southbound/Westbound - PM Peak Hour						
803	365.4	96.6	26.0	0.0930	81.50	74.68

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

SR 15 (Hoffner/Narcoossee) - SR 528 to SR 551/Goldenrod Road

Summary of After Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
344	277.8	37.8	34.2	0.0900	26.55	30.96
Northbound/Eastbound - PM Peak Hour						
336	356.4	85.8	26.7	0.0940	33.26	31.58
Southbound/Westbound - AM Peak Hour						
491	278.0	43.8	34.2	0.0900	37.92	44.19
Southbound/Westbound - PM Peak Hour						
803	294.7	54.0	32.2	0.0900	65.73	72.27

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

**SR 15 (Hoffner/Narcoossee) - SR 528 to SR 551/Goldenrod Road
Summary of Measures of Effectiveness & Benefit Cost Analysis**

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	78.61	64.46	113.31	99.00
Total Fuel Consumption (gallons)	77.66	75.15	106.26	103.85

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$239.23	\$241.58
Annual User Benefit	\$71,768.97	\$72,474.46
Total Annual User Benefit =	\$144,243.43	
Total Signal Retiming Annual Cost	\$11,514.24	
User Benefit / Cost Ratio	12.53	

Notes:

- * Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
- * Fuel consumption is valued to the rate of \$3.43 per gallon.(Florida Department of Revenue & Orlando Gas Prices)
- * Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffics
- * The service life of the improvement was kept as three (3) years.
- * Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

US 192

Hoagland Blvd. to Central Ave.

Table 1
Year 2012 METROPLAN Orlando Travel Time Study
US 192 - Hoagland Boulevard to Central Avenue - Eastbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to Hoagland Blvd.	Osceola County	Arterial	OBD	1	3	0	45	422	7	Signal	36.0	23.4	II	8.0	F	0.18	
Hoagland Blvd. to Armstrong Blvd.	Osceola County	Arterial	OBD	1	3	0	45	1,214	7	Signal	28.2	4.8	II	29.4	B	0.65	
Armstrong Blvd. to Dyer Blvd.	Osceola County	Arterial	OBD	1	3	0	45	1,426	7	Signal	36.6	8.4	II	26.6	C	0.59	
Dyer Blvd. to Orange Blvd.	Osceola County	Arterial	OBD	1	3	0	45	1,637	7	Signal	28.2	0.0	II	39.6	A	0.88	
Orange Blvd. to Thacker Ave.	Osceola County	Arterial	OBD	1	3	0	40	2,323	7	Signal	50.4	10.2	II	31.4	B	0.79	
Thacker Ave. to Emory Ave.	Osceola County	Arterial	OBD	1	3	0	40	1,373	7	Signal	30.6	3.6	II	30.6	B	0.76	
Emory Ave. to John Young Pkwy.	Osceola County	Arterial	OBD	1	3	0	40	1,267	7	Signal	91.8	59.4	II	9.4	F	0.24	
John Young Pkwy. to Central Ave.	Osceola County	Arterial	OBD	1	3	0	40	2,640	7	Signal	57.0	2.4	II	31.6	B	0.79	
TOTAL							40	12,302			358.8	112.2	II	23.4	C	0.58	0.082 gal/veh
PM PEAK HOUR																	
Median Opening to Hoagland Blvd.	Osceola County	Arterial	OBD	1	3	0	45	422	6	Signal	18.0	8.4	II	16.0	E	0.36	
Hoagland Blvd. to Armstrong Blvd.	Osceola County	Arterial	OBD	1	3	0	45	1,214	6	Signal	22.8	0.0	II	36.3	A	0.81	
Armstrong Blvd. to Dyer Blvd.	Osceola County	Arterial	OBD	1	3	0	45	1,426	6	Signal	39.6	12.6	II	24.5	C	0.55	
Dyer Blvd. to Orange Blvd.	Osceola County	Arterial	OBD	1	3	0	45	1,637	6	Signal	46.8	16.2	II	23.8	C	0.53	
Orange Blvd. to Thacker Ave.	Osceola County	Arterial	OBD	1	3	0	40	2,323	6	Signal	79.8	24.0	II	19.8	D	0.50	
Thacker Ave. to Emory Ave.	Osceola County	Arterial	OBD	1	3	0	40	1,373	6	Signal	33.6	3.6	II	27.9	C	0.70	
Emory Ave. to John Young Pkwy.	Osceola County	Arterial	OBD	1	3	0	40	1,267	6	Signal	99.0	63.6	II	8.7	F	0.22	
John Young Pkwy. to Central Ave.	Osceola County	Arterial	OBD	1	3	0	40	2,640	6	Signal	72.6	19.8	II	24.8	C	0.62	
TOTAL							40	12,302			412.2	148.2	II	20.3	D	0.51	0.084 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

Table 1
Year 2012 METROPLAN Orlando Travel Time Study
US 192 - Hoagland Boulevard to Central Avenue - Westbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Main St. to Central Ave.	Osceola County	Arterial	OBD	1	3	0	40	1,267	7	Signal	76.2	39.6	II	11.3	F	0.28	
Central Ave. to John Young Pkwy.	Osceola County	Arterial	OBD	1	3	0	40	2,640	7	Signal	85.8	30.0	II	21.0	D	0.52	
John Young Pkwy. to Emory Ave.	Osceola County	Arterial	OBD	1	3	0	40	1,267	7	Signal	22.8	0.0	II	37.9	A	0.95	
Emory Ave. to Thacker Ave.	Osceola County	Arterial	OBD	1	3	0	40	1,373	7	Signal	57.0	30.6	II	16.4	E	0.41	
Thacker Ave. to Orange Blvd.	Osceola County	Arterial	OBD	1	3	0	40	2,323	7	Signal	43.8	3.0	II	36.2	A	0.90	
Orange Blvd. to Dyer Blvd.	Osceola County	Arterial	OBD	1	3	0	45	1,637	7	Signal	41.4	7.2	II	27.0	C	0.60	
Dyer Blvd. to Armstrong Blvd.	Osceola County	Arterial	OBD	1	4	0	45	1,426	7	Signal	34.2	6.6	II	28.4	B	0.63	
Armstrong Blvd. to Hoagland Blvd.	Osceola County	Arterial	OBD	1	3	1	45	1,214	7	Signal	37.8	11.4	II	21.9	D	0.49	
TOTAL							40	13,147			399.0	128.4	II	22.5	C	0.56	0.087 gal/veh
PM PEAK HOUR																	
Main St. to Central Ave.	Osceola County	Arterial	OBD	1	3	0	40	1,267	6	Signal	46.2	7.2	II	18.7	D	0.47	
Central Ave. to John Young Pkwy.	Osceola County	Arterial	OBD	1	3	0	40	2,640	6	Signal	128.4	65.4	II	14.0	E	0.35	
John Young Pkwy. to Emory Ave.	Osceola County	Arterial	OBD	1	3	0	40	1,267	6	Signal	31.8	1.8	II	27.2	C	0.68	
Emory Ave. to Thacker Ave.	Osceola County	Arterial	OBD	1	3	0	40	1,373	6	Signal	84.0	42.0	II	11.1	F	0.28	
Thacker Ave. to Orange Blvd.	Osceola County	Arterial	OBD	1	3	0	40	2,323	6	Signal	52.2	0.6	II	30.3	B	0.76	
Orange Blvd. to Dyer Blvd.	Osceola County	Arterial	OBD	1	3	0	45	1,637	6	Signal	38.4	2.4	II	29.1	B	0.65	
Dyer Blvd. to Armstrong Blvd.	Osceola County	Arterial	OBD	1	4	0	45	1,426	6	Signal	24.6	0.0	II	39.5	A	0.88	
Armstrong Blvd. to Hoagland Blvd.	Osceola County	Arterial	OBD	1	3	1	45	1,214	6	Signal	58.2	25.2	II	14.2	E	0.32	
TOTAL							40	13,147			463.8	144.6	II	19.3	D	0.48	0.090 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

Table 1
Year 2012 METROPLAN Orlando Travel Time Study
US 192 - Hoagland Boulevard to Central Avenue - Eastbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to Hoagland Blvd.	Osceola County	Arterial	OBD	1	3	0	45	422	7	Signal	7.8	0.0	II	36.9	A	0.82	
Hoagland Blvd. to Armstrong Blvd.	Osceola County	Arterial	OBD	1	3	0	45	1,214	7	Signal	20.4	0.0	II	40.6	A	0.90	
Armstrong Blvd. to Dyer Blvd.	Osceola County	Arterial	OBD	1	3	0	45	1,426	7	Signal	32.4	7.8	II	30.0	B	0.67	
Dyer Blvd. to Orange Blvd.	Osceola County	Arterial	OBD	1	3	0	45	1,637	7	Signal	32.4	1.8	II	34.4	B	0.77	
Orange Blvd. to Thacker Ave.	Osceola County	Arterial	OBD	1	3	0	40	2,323	7	Signal	50.4	11.4	II	31.4	B	0.79	
Thacker Ave. to Emory Ave.	Osceola County	Arterial	OBD	1	3	0	40	1,373	7	Signal	22.2	0.0	II	42.2	A	1.05	
Emory Ave. to John Young Pkwy.	Osceola County	Arterial	OBD	1	3	0	40	1,267	7	Signal	37.8	9.6	II	22.9	C	0.57	
John Young Pkwy. to Central Ave.	Osceola County	Arterial	OBD	1	3	0	40	2,640	7	Signal	44.4	0.0	II	40.5	A	1.01	
TOTAL							40	12,302			247.8	30.6	II	33.8	B	0.85	0.080 gal/veh
PM PEAK HOUR																	
Median Opening to Hoagland Blvd.	Osceola County	Arterial	OBD	1	3	0	45	422	6	Signal	20.4	8.4	II	14.1	E	0.31	
Hoagland Blvd. to Armstrong Blvd.	Osceola County	Arterial	OBD	1	3	0	45	1,214	6	Signal	21.6	0.0	II	38.3	A	0.85	
Armstrong Blvd. to Dyer Blvd.	Osceola County	Arterial	OBD	1	3	0	45	1,426	6	Signal	39.6	14.4	II	24.5	C	0.55	
Dyer Blvd. to Orange Blvd.	Osceola County	Arterial	OBD	1	3	0	45	1,637	6	Signal	25.2	0.0	II	44.3	A	0.98	
Orange Blvd. to Thacker Ave.	Osceola County	Arterial	OBD	1	3	0	40	2,323	6	Signal	66.0	15.0	II	24.0	C	0.60	
Thacker Ave. to Emory Ave.	Osceola County	Arterial	OBD	1	3	0	40	1,373	6	Signal	25.2	0.0	II	37.1	A	0.93	
Emory Ave. to John Young Pkwy.	Osceola County	Arterial	OBD	1	3	0	40	1,267	6	Signal	126.6	92.4	II	6.8	F	0.17	
John Young Pkwy. to Central Ave.	Osceola County	Arterial	OBD	1	3	0	40	2,640	6	Signal	52.8	3.6	II	34.1	B	0.85	
TOTAL							40	12,302			377.4	133.8	II	22.2	C	0.56	0.082 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

Table 1
Year 2012 METROPLAN Orlando Travel Time Study
US 192 - Hoagland Boulevard to Central Avenue - Westbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Main St. to Central Ave.	Osceola County	Arterial	OBD	1	3	0	40	1,267	7	Signal	57.6	32.4	II	15.0	E	0.37	
Central Ave. to John Young Pkwy.	Osceola County	Arterial	OBD	1	3	0	40	2,640	7	Signal	111.6	60.0	II	16.1	E	0.40	
John Young Pkwy. to Emory Ave.	Osceola County	Arterial	OBD	1	3	0	40	1,267	7	Signal	25.8	0.0	II	33.5	B	0.84	
Emory Ave. to Thacker Ave.	Osceola County	Arterial	OBD	1	3	0	40	1,373	7	Signal	42.0	6.6	II	22.3	C	0.56	
Thacker Ave. to Orange Blvd.	Osceola County	Arterial	OBD	1	3	0	40	2,323	7	Signal	43.2	0.0	II	36.7	A	0.92	
Orange Blvd. to Dyer Blvd.	Osceola County	Arterial	OBD	1	3	0	45	1,637	7	Signal	39.6	4.8	II	28.2	B	0.63	
Dyer Blvd. to Armstrong Blvd.	Osceola County	Arterial	OBD	1	4	0	45	1,426	7	Signal	25.2	0.0	II	38.6	A	0.86	
Armstrong Blvd. to Hoagland Blvd.	Osceola County	Arterial	OBD	1	3	1	45	1,214	7	Signal	19.8	0.0	II	41.8	A	0.93	
TOTAL							40	13,147			364.8	103.8	II	24.6	C	0.61	0.087 gal/veh
PM PEAK HOUR																	
Main St. to Central Ave.	Osceola County	Arterial	OBD	1	3	0	40	1,267	6	Signal	41.4	13.8	II	20.9	D	0.52	
Central Ave. to John Young Pkwy.	Osceola County	Arterial	OBD	1	3	0	40	2,640	6	Signal	82.8	28.2	II	21.7	D	0.54	
John Young Pkwy. to Emory Ave.	Osceola County	Arterial	OBD	1	3	0	40	1,267	6	Signal	24.6	0.0	II	35.1	A	0.88	
Emory Ave. to Thacker Ave.	Osceola County	Arterial	OBD	1	3	0	40	1,373	6	Signal	24.0	0.0	II	39.0	A	0.97	
Thacker Ave. to Orange Blvd.	Osceola County	Arterial	OBD	1	3	0	40	2,323	6	Signal	47.4	3.6	II	33.4	B	0.84	
Orange Blvd. to Dyer Blvd.	Osceola County	Arterial	OBD	1	3	0	45	1,637	6	Signal	33.0	1.8	II	33.8	B	0.75	
Dyer Blvd. to Armstrong Blvd.	Osceola County	Arterial	OBD	1	4	0	45	1,426	6	Signal	24.0	0.0	II	40.5	A	0.90	
Armstrong Blvd. to Hoagland Blvd.	Osceola County	Arterial	OBD	1	3	1	45	1,214	6	Signal	58.2	37.2	II	14.2	E	0.32	
TOTAL							40	13,147			335.4	84.6	II	26.7	C	0.67	0.087 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

**US 192
- AM Peak**

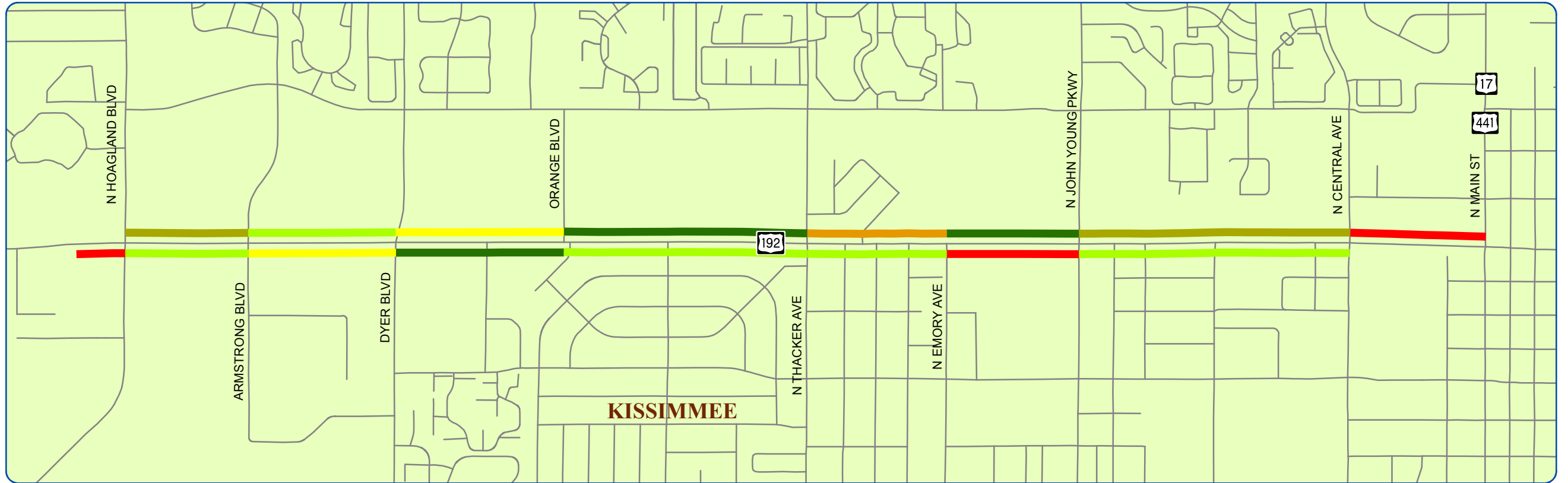
Before Condition

Date of Collection: 10/25/2011
 Distance: 2.33 miles
 From: Hoagland Blvd.
 To: Central Ave.

Start Time: 7:00 AM
 End Time: 9:00 AM

EB Avg Speed: 23.4 MPH
 EB Travel Time: 5.98 MIN
 EB Delay Time: 1.87 MIN

WB Avg Speed: 22.5 MPH
 WB Travel Time: 6.65 MIN
 WB Delay Time: 2.14 MIN



**US 192
- AM Peak**

After Condition

Date of Collection: 5/9/2012
 Distance: 2.33 miles
 From: Hoagland Blvd.
 To: Central Ave.

Start Time: 7:00 AM
 End Time: 9:00 AM

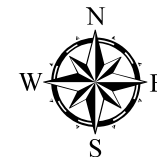
EB Avg Speed: 33.8 MPH
 EB Travel Time: 4.13 MIN
 EB Delay Time: 0.51 MIN

WB Avg Speed: 24.6 MPH
 WB Travel Time: 6.08 MIN
 WB Delay Time: 1.73 MIN



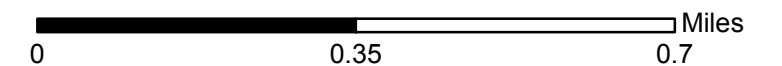
Level of Services:

- | | | |
|---|---|---------------|
| A | D | Roads |
| B | E | City Boundary |
| C | F | Water |



2012 METROPLAN ORLANDO

Travel Time Study



**US 192
- PM Peak**

Before Condition

Date of Collection: 10/25/2011
 Distance: 2.33 miles
 From: Hoagland Blvd.
 To: Central Ave.

Start Time: 4:00 PM
 End Time: 6:00 PM

EB Avg Speed: 20.3 MPH
 EB Travel Time: 6.87 MIN
 EB Delay Time: 2.47 MIN

WB Avg Speed: 19.3 MPH
 WB Travel Time: 7.73 MIN
 WB Delay Time: 2.41 MIN



**US 192
- PM Peak**

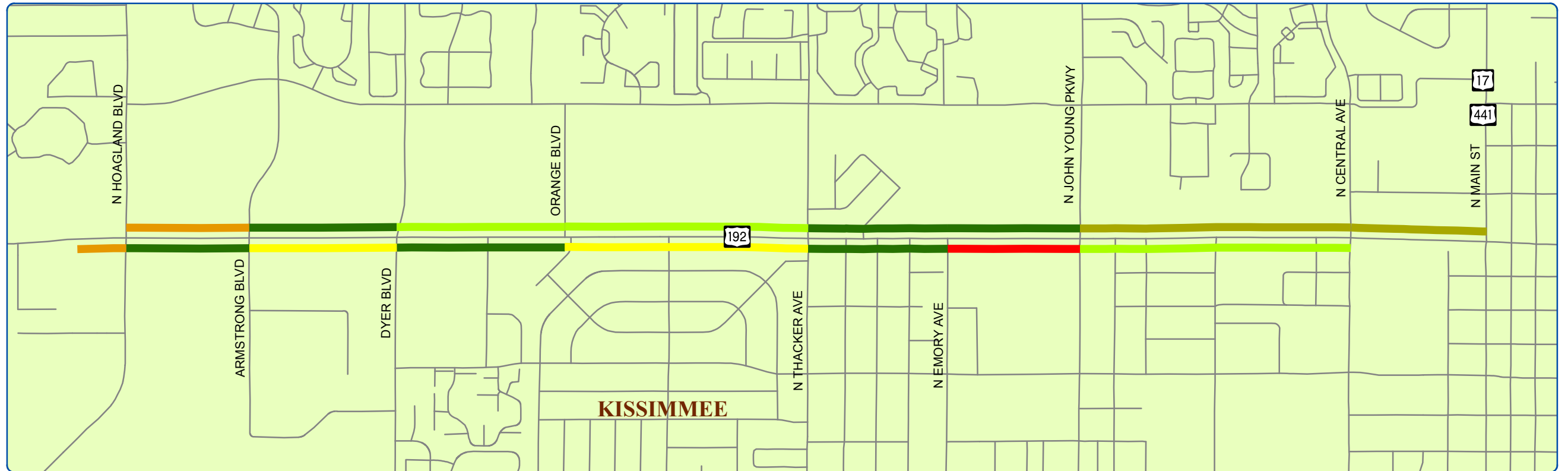
After Condition

Date of Collection: 5/9/2012
 Distance: 2.33 miles
 From: Hoagland Blvd.
 To: Central Ave.

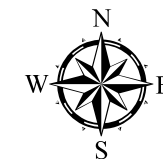
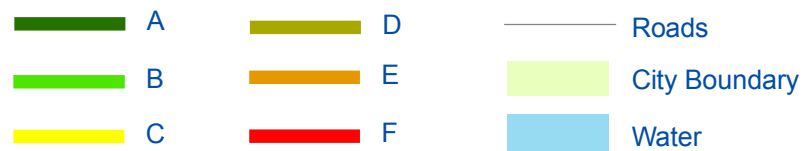
Start Time: 4:00 PM
 End Time: 6:00 PM

EB Avg Speed: 22.2 MPH
 EB Travel Time: 6.29 MIN
 EB Delay Time: 2.23 MIN

WB Avg Speed: 26.7 MPH
 WB Travel Time: 5.59 MIN
 WB Delay Time: 1.41 MIN

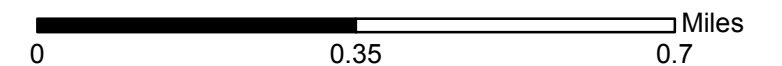


Level of Services:



2012 METROPLAN ORLANDO

Travel Time Study



US 192 - Hoagland Boulevard to Central Avenue
Summary of Before Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
1002	358.8	112.2	23.4	0.0820	99.87	82.16
Northbound/Eastbound - PM Peak Hour						
1704	412.2	148.2	20.3	0.0840	195.11	143.14
Southbound/Westbound - AM Peak Hour						
1197	399.0	128.4	22.5	0.0870	132.67	104.14
Southbound/Westbound - PM Peak Hour						
1339	463.8	144.6	19.3	0.0900	172.51	120.51

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

US 192 - Hoagland Boulevard to Central Avenue
Summary of After Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
1002	247.8	30.6	33.8	0.0800	68.97	80.16
Northbound/Eastbound - PM Peak Hour						
1704	377.4	133.8	22.2	0.0820	178.64	139.73
Southbound/Westbound - AM Peak Hour						
1197	364.8	103.8	24.6	0.0870	121.30	104.14
Southbound/Westbound - PM Peak Hour						
1339	335.4	84.6	26.7	0.0870	124.75	116.49

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

US 192 - Hoagland Boulevard to Central Avenue
Summary of Measures of Effectiveness & Benefit Cost Analysis

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	232.53	190.27	367.62	303.39
Total Fuel Consumption (gallons)	186.30	184.30	263.65	256.22

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$695.82	\$1,072.41
Annual User Benefit	\$208,745.30	\$321,723.40
Total Annual User Benefit =	\$530,468.70	
Total Signal Retiming Annual Cost	\$14,197.60	
User Benefit / Cost Ratio	37.36	

Notes:

- * Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
- * Fuel consumption is valued to the rate of \$3.43 per gallon.(Florida Department of Revenue & Orlando Gas Prices)
- * Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffics
- * The service life of the improvement was kept as three (3) years.
- * Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

US 192

US 441/Main St. to Partin Settlement Rd.

Table 2
Year 2012 METROPLAN Orlando Travel Time Study
US 192 - US 441 to Partin Settlement Road - Eastbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Central Ave. to US 441/Main St.	Osceola County	Arterial	OBD	1	3	0	40	1,267	5	Signal	71.4	34.8	II	12.1	F	0.30	
US 441/Main St. to Michigan Ave.	Osceola County	Arterial	OBD	2	3	1	40/45	3,960	5	Signal	117.0	40.8	II	23.1	C	0.51	
Michigan Ave. to Denn John Ln.	Osceola County	Arterial	OBD	2	3	0	50	3,854	5	Signal	71.4	5.4	I	36.8	B	0.74	
Denn John Ln. to Boggy Creek Rd.	Osceola County	Arterial	OBD	2	3	0	50	1,848	5	Signal	32.4	2.4	I	38.9	B	0.78	
Boggy Creek Rd. to Bill Beck Blvd.	Osceola County	Arterial	OBD	2	3	1	50	4,066	5	Signal	55.8	0.0	I	49.7	A	0.99	
Bill Beck Blvd. to Simpson Rd.	Osceola County	Arterial	OBD	1	3	1	50	3,802	5	Signal	78.6	18.0	I	33.0	C	0.66	
Simpson Rd. to Shady Ln.	Osceola County	Arterial	OBD	2	3	1	50	1,584	5	Signal	87.6	52.8	I	12.3	F	0.25	
Shady Ln. to Partin Settlement Rd.	Osceola County	Arterial	OBD	2	2	0	50/55	3,168	5	Signal	60.0	3.0	I	36.0	B	0.72	
TOTAL							50	23,549			574.2	157.2	I	28.0	C	0.56	0.154 gal/veh
PM PEAK HOUR																	
Central Ave. to US 441/Main St.	Osceola County	Arterial	OBD	1	3	0	40	1,267	5	Signal	93.0	52.8	II	9.3	F	0.23	
US 441/Main St. to Michigan Ave.	Osceola County	Arterial	OBD	2	3	1	40/45	3,960	5	Signal	105.0	32.4	II	25.7	C	0.57	
Michigan Ave. to Denn John Ln.	Osceola County	Arterial	OBD	2	3	0	50	3,854	5	Signal	72.6	6.0	I	36.2	B	0.72	
Denn John Ln. to Boggy Creek Rd.	Osceola County	Arterial	OBD	2	3	0	50	1,848	5	Signal	29.4	0.0	I	42.9	A	0.86	
Boggy Creek Rd. to Bill Beck Blvd.	Osceola County	Arterial	OBD	2	3	1	50	4,066	5	Signal	56.4	0.0	I	49.1	A	0.98	
Bill Beck Blvd. to Simpson Rd.	Osceola County	Arterial	OBD	1	3	1	50	3,802	5	Signal	63.0	3.6	I	41.1	B	0.82	
Simpson Rd. to Shady Ln.	Osceola County	Arterial	OBD	2	3	1	50	1,584	5	Signal	68.4	27.0	I	15.8	F	0.32	
Shady Ln. to Partin Settlement Rd.	Osceola County	Arterial	OBD	2	2	0	50/55	3,168	5	Signal	90.0	15.6	I	24.0	D	0.48	
TOTAL							50	23,549			577.8	137.4	I	27.8	C	0.56	0.156 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

Table 2
Year 2012 METROPLAN Orlando Travel Time Study
US 192 - US 441 to Partin Settlement Road- Westbound Direction Summary - Before Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to Partin Settlement Rd.	Osceola County	Arterial	OBD	1	2	1	55	1,056	5	Signal	68.4	28.8	I	10.5	F	0.19	
Partin Settlement Rd. to Shady Ln.	Osceola County	Arterial	OBD	1	3	1	55	3,168	5	Signal	115.8	46.8	I	18.7	E	0.34	
Shady Ln. to Simpson Rd.	Osceola County	Arterial	OBD	1	3	1	50	1,584	5	Signal	64.8	28.8	I	16.7	E	0.33	
Simpson Rd. to Bill Beck Blvd.	Osceola County	Arterial	OBD	1	3	1	50	3,802	5	Signal	68.4	4.8	I	37.9	B	0.76	
Bill Beck Blvd. to Boggy Creek Rd.	Osceola County	Arterial	OBD	1	3	1	50	4,066	5	Signal	67.8	3.6	I	40.9	B	0.82	
Boggy Creek Rd. to Denn John Ln.	Osceola County	Arterial	OBD	1	3	1	50	1,848	5	Signal	36.6	1.8	I	34.4	B	0.69	
Denn John Ln. to Michigan Ave.	Osceola County	Arterial	OBD	2	3	1	50/45	3,854	5	Signal	85.2	20.4	I	30.8	C	0.62	
Michigan Ave. to US 441/Main St.	Osceola County	Arterial	OBD	1	3	0	45/40	3,960	5	Signal	120.6	43.8	II	22.4	C	0.50	
TOTAL							50	23,338			627.6	178.8	I	25.4	D	0.51	0.154 gal/veh
PM PEAK HOUR																	
Median Opening to Partin Settlement Rd.	Osceola County	Arterial	OBD	1	2	1	55	1,056	5	Signal	56.4	16.2	I	12.8	F	0.23	
Partin Settlement Rd. to Shady Ln.	Osceola County	Arterial	OBD	1	3	1	55	3,168	5	Signal	77.4	15.6	I	27.9	C	0.51	
Shady Ln. to Simpson Rd.	Osceola County	Arterial	OBD	1	3	1	50	1,584	5	Signal	68.4	37.2	I	15.8	F	0.32	
Simpson Rd. to Bill Beck Blvd.	Osceola County	Arterial	OBD	1	3	1	50	3,802	5	Signal	63.0	3.0	I	41.1	B	0.82	
Bill Beck Blvd. to Boggy Creek Rd.	Osceola County	Arterial	OBD	1	3	1	50	4,066	5	Signal	60.0	0.0	I	46.2	A	0.92	
Boggy Creek Rd. to Denn John Ln.	Osceola County	Arterial	OBD	1	3	1	50	1,848	5	Signal	45.0	10.8	I	28.0	C	0.56	
Denn John Ln. to Michigan Ave.	Osceola County	Arterial	OBD	2	3	1	50/45	3,854	5	Signal	109.2	36.0	I	24.1	D	0.48	
Michigan Ave. to US 441/Main St.	Osceola County	Arterial	OBD	1	3	0	45/40	3,960	5	Signal	154.2	75.0	II	17.5	D	0.39	
TOTAL							50	23,338			633.6	193.8	I	25.1	D	0.50	0.153 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

Table 2
Year 2012 METROPLAN Orlando Travel Time Study
US 192 - US 441 to Partin Settlement Road - Eastbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Central Ave. to US 441/Main St.	Osceola County	Arterial	OBD	1	3	0	40	1,267	5	Signal	37.2	5.4	II	23.2	C	0.58	
US 441/Main St. to Michigan Ave.	Osceola County	Arterial	OBD	2	3	1	40/45	3,960	5	Signal	122.4	55.8	II	22.1	C	0.49	
Michigan Ave. to Denn John Ln.	Osceola County	Arterial	OBD	2	3	0	50	3,854	5	Signal	61.2	3.0	I	42.9	A	0.86	
Denn John Ln. to Boggy Creek Rd.	Osceola County	Arterial	OBD	2	3	0	50	1,848	5	Signal	27.6	0.0	I	45.7	A	0.91	
Boggy Creek Rd. to Bill Beck Blvd.	Osceola County	Arterial	OBD	2	3	1	50	4,066	5	Signal	61.2	1.2	I	45.3	A	0.91	
Bill Beck Blvd. to Simpson Rd.	Osceola County	Arterial	OBD	1	3	1	50	3,802	5	Signal	54.6	0.0	I	47.5	A	0.95	
Simpson Rd. to Shady Ln.	Osceola County	Arterial	OBD	2	3	1	50	1,584	5	Signal	46.8	13.2	I	23.1	D	0.46	
Shady Ln. to Partin Settlement Rd.	Osceola County	Arterial	OBD	2	2	0	50/55	3,168	5	Signal	51.0	0.0	I	42.4	A	0.85	
TOTAL							50	23,549			462.0	78.6	I	34.8	B	0.70	0.152 gal/veh
PM PEAK HOUR																	
Central Ave. to US 441/Main St.	Osceola County	Arterial	OBD	1	3	0	40	1,267	5	Signal	73.8	38.4	II	11.7	F	0.29	
US 441/Main St. to Michigan Ave.	Osceola County	Arterial	OBD	2	3	1	40/45	3,960	5	Signal	89.4	13.8	II	30.2	B	0.67	
Michigan Ave. to Denn John Ln.	Osceola County	Arterial	OBD	2	3	0	50	3,854	5	Signal	67.8	7.8	I	38.8	B	0.78	
Denn John Ln. to Boggy Creek Rd.	Osceola County	Arterial	OBD	2	3	0	50	1,848	5	Signal	27.0	0.0	I	46.7	A	0.93	
Boggy Creek Rd. to Bill Beck Blvd.	Osceola County	Arterial	OBD	2	3	1	50	4,066	5	Signal	56.4	0.0	I	49.1	A	0.98	
Bill Beck Blvd. to Simpson Rd.	Osceola County	Arterial	OBD	1	3	1	50	3,802	5	Signal	65.4	7.8	I	39.6	B	0.79	
Simpson Rd. to Shady Ln.	Osceola County	Arterial	OBD	2	3	1	50	1,584	5	Signal	25.8	0.0	I	41.9	B	0.84	
Shady Ln. to Partin Settlement Rd.	Osceola County	Arterial	OBD	2	2	0	50/55	3,168	5	Signal	85.8	33.6	I	25.2	D	0.50	
TOTAL							50	23,549			491.4	101.4	I	32.7	C	0.65	0.153 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

Table 2
Year 2012 METROPLAN Orlando Travel Time Study
US 192 - US 441 to Partin Settlement Road- Westbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to Partin Settlement Rd.	Osceola County	Arterial	OBD	1	2	1	55	1,056	5	Signal	84.0	39.6	I	8.6	F	0.16	
Partin Settlement Rd. to Shady Ln.	Osceola County	Arterial	OBD	1	3	1	55	3,168	5	Signal	79.8	18.0	I	27.1	C	0.49	
Shady Ln. to Simpson Rd.	Osceola County	Arterial	OBD	1	3	1	50	1,584	5	Signal	28.8	0.0	I	37.5	B	0.75	
Simpson Rd. to Bill Beck Blvd.	Osceola County	Arterial	OBD	1	3	1	50	3,802	5	Signal	57.0	0.0	I	45.5	A	0.91	
Bill Beck Blvd. to Boggy Creek Rd.	Osceola County	Arterial	OBD	1	3	1	50	4,066	5	Signal	60.6	1.8	I	45.7	A	0.91	
Boggy Creek Rd. to Denn John Ln.	Osceola County	Arterial	OBD	1	3	1	50	1,848	5	Signal	40.8	9.0	I	30.9	C	0.62	
Denn John Ln. to Michigan Ave.	Osceola County	Arterial	OBD	2	3	1	50/45	3,854	5	Signal	90.6	23.4	I	29.0	C	0.58	
Michigan Ave. to US 441/Main St.	Osceola County	Arterial	OBD	1	3	0	45/40	3,960	5	Signal	109.2	36.6	II	24.7	C	0.55	
TOTAL							50	23,338			550.8	128.4	I	28.9	C	0.58	0.152 gal/veh
PM PEAK HOUR																	
Median Opening to Partin Settlement Rd.	Osceola County	Arterial	OBD	1	2	1	55	1,056	5	Signal	61.8	36.6	I	11.7	F	0.21	
Partin Settlement Rd. to Shady Ln.	Osceola County	Arterial	OBD	1	3	1	55	3,168	5	Signal	69.6	18.6	I	31.0	C	0.56	
Shady Ln. to Simpson Rd.	Osceola County	Arterial	OBD	1	3	1	50	1,584	5	Signal	48.0	21.0	I	22.5	D	0.45	
Simpson Rd. to Bill Beck Blvd.	Osceola County	Arterial	OBD	1	3	1	50	3,802	5	Signal	54.0	0.0	I	48.0	A	0.96	
Bill Beck Blvd. to Boggy Creek Rd.	Osceola County	Arterial	OBD	1	3	1	50	4,066	5	Signal	84.0	18.0	I	33.0	C	0.66	
Boggy Creek Rd. to Denn John Ln.	Osceola County	Arterial	OBD	1	3	1	50	1,848	5	Signal	45.6	12.0	I	27.6	C	0.55	
Denn John Ln. to Michigan Ave.	Osceola County	Arterial	OBD	2	3	1	50/45	3,854	5	Signal	122.4	58.2	I	21.5	D	0.43	
Michigan Ave. to US 441/Main St.	Osceola County	Arterial	OBD	1	3	0	45/40	3,960	5	Signal	73.8	2.4	II	36.6	A	0.81	
TOTAL							50	23,338			559.2	166.8	I	28.5	C	0.57	0.150 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

**US 192
- AM Peak**

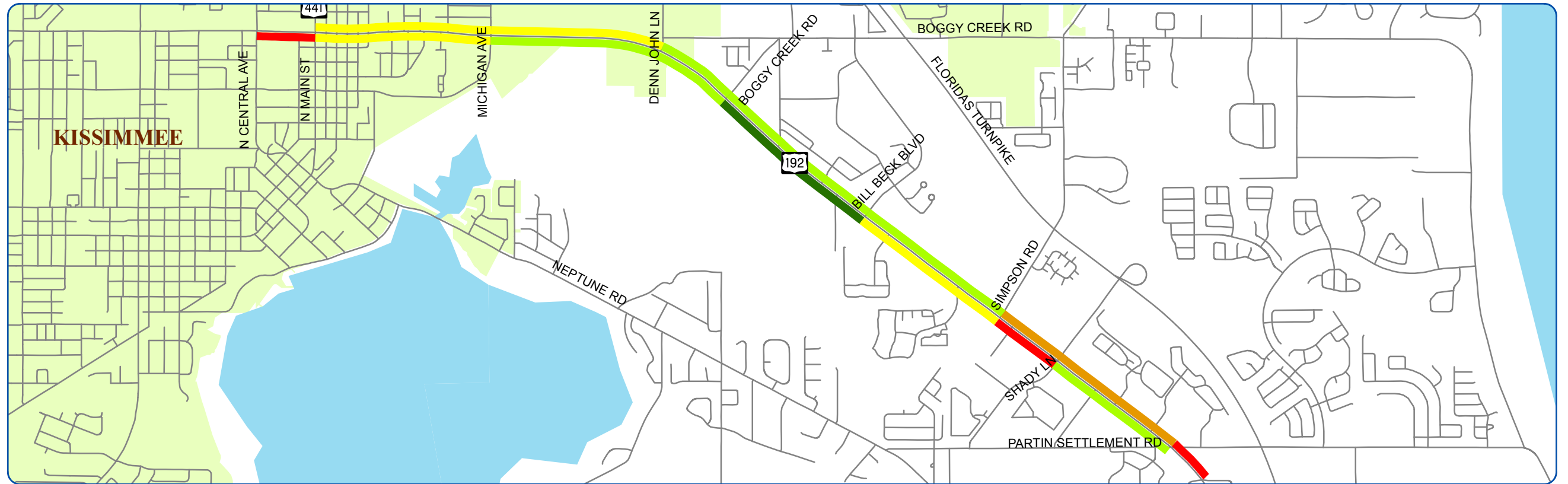
Before Condition

Date of Collection: 10/18/2011
 Distance: 4.46 miles
 From: US 441/Main St.
 To: Partin Settlement Rd.

Start Time: 7:00 AM
 End Time: 9:00 AM

EB Avg Speed: 28.0 MPH
 EB Travel Time: 9.57 MIN
 EB Delay Time: 2.62 MIN

WB Avg Speed: 25.40 MPH
 WB Travel Time: 10.46 MIN
 WB Delay Time: 2.98 MIN



**US 192
- AM Peak**

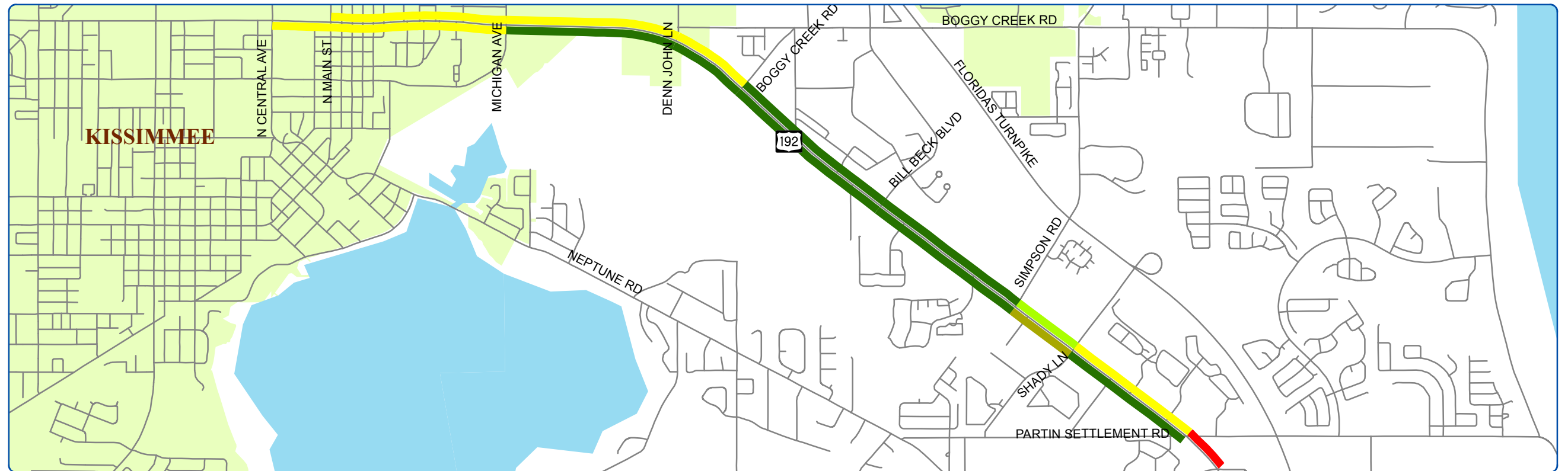
After Condition

Date of Collection: 5/8/2012
 Distance: 4.46 miles
 From: US 441/Main St.
 To: Partin Settlement Rd.

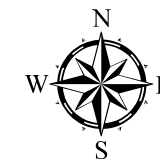
Start Time: 7:00 AM
 End Time: 9:00 AM

EB Avg Speed: 34.8 MPH
 EB Travel Time: 7.70 MIN
 EB Delay Time: 1.31 MIN

WB Avg Speed: 28.9 MPH
 WB Travel Time: 9.18 MIN
 WB Delay Time: 2.14 MIN

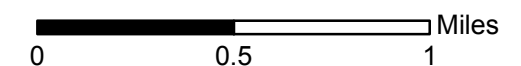


Level of Services:



2012 METROPLAN ORLANDO

Travel Time Study



**US 192
- PM Peak**

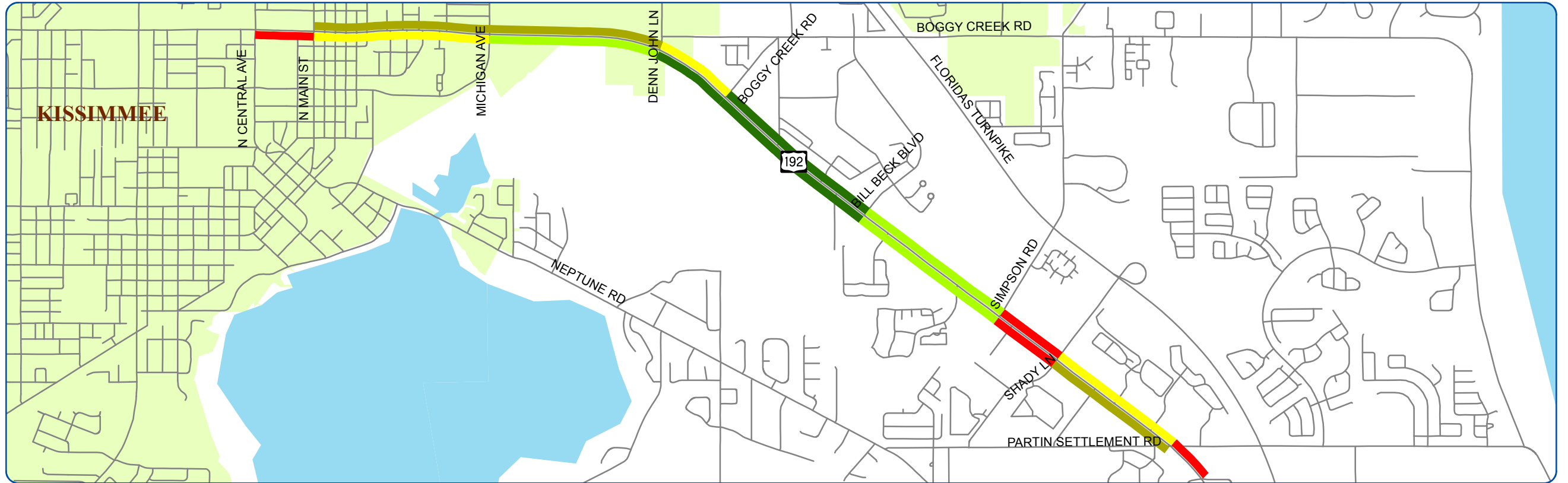
Before Condition

Date of Collection: 10/18/2011
 Distance: 4.46 miles
 From: US 441/Main St.
 To: Partin Settlement Rd.

Start Time: 4:00 PM
 End Time: 6:00 PM

EB Avg Speed: 27.8 MPH
 EB Travel Time: 9.63 MIN
 EB Delay Time: 2.29 MIN

WB Avg Speed: 25.10 MPH
 WB Travel Time: 10.56 MIN
 WB Delay Time: 3.23 MIN



**US 192
- PM Peak**

After Condition

Date of Collection: 5/8/2012
 Distance: 4.46 miles
 From: US 441/Main St.
 To: Partin Settlement Rd.

Start Time: 4:00 PM
 End Time: 6:00 PM

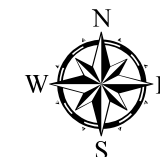
EB Avg Speed: 32.7 MPH
 EB Travel Time: 8.19 MIN
 EB Delay Time: 1.69 MIN

WB Avg Speed: 28.5 MPH
 WB Travel Time: 9.32 MIN
 WB Delay Time: 2.78 MIN



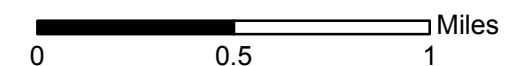
Level of Services:

- | | | | | | |
|--|---|--|---|--|---------------|
| | A | | D | | Roads |
| | B | | E | | City Boundary |
| | C | | F | | Water |



2012 METROPLAN ORLANDO

Travel Time Study



US 192 - US 441 to Partin Settlement Road
Summary of Before Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
989	574.2	157.2	28.0	0.1540	157.75	152.31
Northbound/Eastbound - PM Peak Hour						
1635	577.8	137.4	27.8	0.1560	262.42	255.06
Southbound/Westbound - AM Peak Hour						
1530	627.6	178.8	25.4	0.1540	266.73	235.62
Southbound/Westbound - PM Peak Hour						
1138	633.6	193.8	25.1	0.1530	200.29	174.11

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

US 192 - US 441 to Partin Settlement Road
Summary of After Study Travel Time and Delay Study Results

	MOE's PER VEHICLE				MOE's FOR ALL THE VEHICLES PASSING THROUGH THE ROADWAY SEGMENT	
Traffic Volume	Travel Time (sec/veh)	Delay (sec/veh)	Average Speed (mph)	Fuel Consumption (gallons/veh)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
989	462.0	78.6	34.8	0.1520	126.92	150.33
Northbound/Eastbound - PM Peak Hour						
1635	491.4	101.4	32.7	0.1530	223.18	250.16
Southbound/Westbound - AM Peak Hour						
1530	550.8	128.4	28.9	0.1520	234.09	232.56
Southbound/Westbound - PM Peak Hour						
1138	559.2	166.8	28.5	0.1500	176.77	170.70

*Traffic Volumes are obtained from the latest 2011 Florida Traffic Information.

US 192 - US 441 to Partin Settlement Road
Summary of Measures of Effectiveness & Benefit Cost Analysis

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	424.48	361.01	462.71	399.95
Total Fuel Consumption (gallons)	387.93	382.89	429.17	420.86

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$1,051.74	\$1,051.50
Annual User Benefit	\$315,522.25	\$315,450.13
Total Annual User Benefit =	\$630,972.38	
Total Signal Retiming Annual Cost	\$14,197.60	
User Benefit / Cost Ratio	44.44	

Notes:

- * Value of Delay Time is \$16.30 per hour (Mobility Data for Orlando for the year 2010)
- * Fuel consumption is valued to the rate of \$3.43 per gallon.(Florida Department of Revenue & Orlando Gas Prices)
- * Benefits apply for 300 days per year. This accounts for reduced benefits anticipated from lower weekend traffics
- * The service life of the improvement was kept as three (3) years.
- * Interest rate of 7% used by FDOT was used in arriving at the annual cost of improvements.

Appendix B

Page from 2010 Urban Mobility Report and Fuel price provided by
MetroPlan Orlando

The Mobility Data for Orlando FL

Inventory Measures	2010	2009	2008	2007	2006	2005
Urban Area Information						
Population (1000s)	1,453	1,429	1,415	1,405	1,375	1,360
Rank	33	33	33	33	33	33
Peak Travelers (1000s)	825	809	798	787	765	751
Commuters (1000s)	767	751	741	731	710	697
Freeway						
Daily Vehicle-Miles of Travel (1000s)	13,265	13,199	13,265	13,540	12,980	12,470
Lane-Miles	919	910	910	870	860	850
Arterial Streets						
Daily Vehicle-Miles of Travel (1000s)	16,554	16,472	16,555	17,000	16,595	16,770
Lane-Miles	2,283	2,260	2,260	2,240	2,140	2,100
Public Transportation						
Annual Psgr-Miles of Travel (millions)	159.3	160.4	166.8	159.3	162.9	160.2
Annual Unlinked Psgr Trips (millions)	26.0	26.2	27.2	26.1	25.3	24.8
Cost Components						
Value of Time (\$/hour)	16.30	16.01	16.10	15.47	15.06	14.58
Commercial Cost (\$/hour)	88.12	89.75	81.52	82.56	80.43	78.05
Gasoline (\$/gallon)	2.74	2.33	3.47	2.98	2.66	2.34
Diesel (\$/gallon)	2.96	2.59	4.15	3.36	2.85	2.53
System Performance	2010	2009	2008	2007	2006	2005
Congested Travel (% of peak VMT)	79	81	72	74	72	70
Congested System (% of lane-miles)	74	76	68	69	68	66
Congested Time (number of "Rush Hours")	4.00	4.00	4.00	5.25	--	--
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	11,883	12,680	12,116	14,598	14,395	13,811
Rank	24	25	24	24	24	24
Fuel per Peak Auto Commuter (gallons)	12	13	13	16	16	15
Rank	23	22	22	23	25	25
Annual Delay						
Total Delay (1000s of person-hours)	38,260	39,185	35,025	40,009	39,905	39,242
Rank	26	25	27	27	27	27
Delay per Peak Auto Commuter (pers-hrs)	38	41	37	43	44	44
Rank	15	15	19	19	19	20
Travel Time Index						
	1.18	1.20	1.19	1.22	1.22	1.22
Rank	26	20	23	23	23	23
Commuter Stress Index						
	1.23	1.25	1.24	1.29	--	--
Rank	35	25	33	36	--	--
Truck Congestion Cost (\$ millions)						
	207	213	175	198	--	--
Truck Commodity Value (\$ millions)						
	63,106	62,252	61,409	60,578	--	--
Congestion Cost						
Total Cost (\$ millions)	811	822	733	809	778	729
Rank	26	24	26	25	25	26
Cost per Peak Auto Commuter (\$)	791	829	760	846	1,106	1,047
Rank	18	16	20	20	20	23

Note: Zeros in the table reflect values less than 0.5.

Appendix C

Signal Retiming Project Costs

Signal Retiming Project Costs

Roadway Name	Segment Limits	Project Cost
SR 426	Via Loma Dr. to Academy Ave.	\$53,977
SR 434	Sunshadow Dr. to SR 419	\$61,759
SR 434	Consolidated Services to Tuskawilla Dr.	Inc w/above
SR 434	Vistawilla Dr. to SR 417 Ramps	Inc w/above
SR 436	Line Dr. to Weathersfield Ave.	\$54,973
SR 50	Deer Isle Dr. to Turnpike Ramps	\$19,029
SR 424/EDGEWATER DR.	Forest City Rd. to Bishop Moore	\$24,905
SR 426	Adanson St. to Wymore Rd.	Inc w/above
SR 434/FOREST CITY RD.	Kennedy Blvd. to Calumet Dr.	\$18,573
SR 435/KIRKMAN RD.	Old Winter Garden Rd. to SR 408 Ramps	Inc w/Kirkman
SR 423/LEE RD.	SR 424/Edgewater Dr. to Wymore Rd.	\$30,057
US 441	CR 37 to Boy Scout Blvd.	\$15,409
US 441	Rose Ave. to SR 414/Maitland Blvd.	\$17,364
SR 436	Sheeler Ave. to Piedmont Wekiwa Rd.	\$19,435
SR 438	Lake Stanley Rd. to Mercy Dr.	\$48,784
SR 435/KIRKMAN RD.	Major Blvd. to Westgate Dr.	\$67,547
SR 527	Pineloch Ave. to Princeton St.	\$81,569
PRINCETON ST.	Formosa Ave. to I-4 Ramps	Inc w/above
ANDERSON ST./SOUTH ST.	Mills Ave. to Lake Underhill Rd.	\$48,744
SR 526	Summerlin Ave. to Mills Ave.	\$29,556
SR 526	Ferncreek Ave. to Crystal Lake Dr.	Inc w/above
SR 15/HOFFNER AVE.	Goldenrod Rd. to SR 528 Ramps	\$30,217
US 192	Hoagland Blvd. to Central Ave.	\$74,518
US 192	US 441/Main St. to Partin Settlement Rd.	Inc w/above

Note:

1. The above project costs were provided by FDOT
2. The Project costs (Cell highlighted in the same color under "Project Cost" Column) for each project is prorated based on the number of signals on the study segment.

Appendix D

Pilot Study

METROPLAN ORLANDO TRAVEL TIME FOR SIGNAL RETIMING PROJECTS

Travel Time Pilot Study

7/18/2012

PREPARED BY: GMB ENGINEERS & PLANNERS, INC

PREPARED FOR: METROPLAN ORLANDO

Table of Contents

1	Introduction.....	1
1.1	Study Background.....	1
2	Field Validation.....	2
2.1	GPS Technology.....	2
2.2	Bluetooth Technology.....	4
3	Comparison of the Results.....	7
4	Conclusions.....	10
5	Appendices.....	11

List of Figures

Figure 1:	Blue TOAD devices Map on SR 436 between Line Drive and Weathersfield Avenue	5
Figure 2:	Blue TOAD devices Map on US 192 between Hoagland Boulevard and Central Avenue	5
Figure 3:	Blue TOAD devices Map on SR 438 between Lake Stanley Road and Mercy Drive.....	6

List of Tables

Table 1:	Travel Time Summary for SR 436 between Line Drive and Weathersfield Avenue - GPS Technology.....	2
Table 2:	Travel Time Summary for US 192 between Hoagland Boulevard and Central Avenue - GPS Technology	3
Table 3:	Travel Time Summary for SR 438 between Lake Stanley Road and Mercy Drive - GPS Technology.....	3
Table 4:	SR 436 from Line Drive to Weathersfield Avenue - Comparison of Study Results	7
Table 5:	US 192 from Hoagland Boulevard to Central Avenue - Comparison of Study Results	8
Table 6:	SR 438 from Lake Stanley Road to Mercy Drive - Comparison of Study Results.....	9

1 Introduction

1.1 Study Background

In year 2011, MetroPlan Orlando had assigned the task of conducting a Pilot Study to GMB Engineer's and Planners, Inc. (GMB) to compare the Bluetooth technology travel time results with the Global Positioning System (GPS) travel time results. As part of that study, GMB conducted the Pilot Study on US 17-92 from Spartan Drive to SR 419 (Study Segment) within Seminole County.

Apart from the comparing the results from the two technologies, GMB also mentioned pros and cons of each technology and how well they meet the MetroPlan Orlando Study needs and also recommended MetroPlan Orlando to conduct similar studies on more segments to reach a conclusion.

So, this year, MetroPlan Orlando had asked GMB to conduct a Pilot Study on the following three segments to compare the Bluetooth technology travel time results with the GPS travel time results.

1. SR 436 from Line Drive to Weathersfield Avenue in Seminole County
2. US 192 from Hoagland Boulevard to Central Avenue in Osceola County, and
3. SR 438 from Lake Stanley Road to Mercy Drive in Orange County.

Further this memorandum provides the comparison of the Bluetooth technology travel time results with the GPS technology travel time results for the above mentioned roadway segments.

2 Field Validation

2.1 GPS Technology

The travel time data on the Study Segments were collected using the GeoStats In-Vehicle GeoLogger GPS equipment and floating car technique between 7:00 – 9:00 AM and 4:00 – 6:00 PM on a weekday (Tuesday or Wednesday or Thursday). GIS and GPS based software tool (TRAVTIME) was used to summarize the field collected travel time data. All the signalized intersections were considered as control points for this study. As per GMB's technician field notes, no such external factors like inclement weather, traffic incidents, special events, or roadway construction affected the typical traffic flow of the study roadways while collecting the travel time data.

Tables 1 through 3 show the summary of GPS travel time results for the study corridors. Detailed tables showing the travel time study results for the Study Segments are provided in **Appendix 5** of this report.

Table 1: Travel Time Summary for SR 436 between Line Drive and Weathersfield Avenue - GPS Technology

Peak/Direction	Average Travel Time (Seconds)	Average Travel Speed (MPH)	Average Stop Time (Seconds)	Fuel Consumption (Gallons/Vehicle)	Segment LOS
EB AM	347.4	36.0	37.8	0.118	A
WB AM	429.6	29.1	110.4	0.117	B
EB PM	438.6	28.5	99.0	0.121	B
WB PM	349.8	35.7	31.2	0.119	A

Table 2: Travel Time Summary for US 192 between Hoagland Boulevard and Central Avenue - GPS Technology

Peak/Direction	Average Travel Time (Seconds)	Average Travel Speed (MPH)	Average Stop Time (Seconds)	Fuel Consumption (Gallons/Vehicle)	Segment LOS
EB AM	240.0	33.7	30.6	0.080	B
WB AM	307.2	26.4	71.4	0.087	C
EB PM	357.0	22.7	125.4	0.082	C
WB PM	294.0	27.6	70.8	0.087	C

Table 3: Travel Time Summary for SR 438 between Lake Stanley Road and Mercy Drive - GPS Technology

Peak/Direction	Average Travel Time (Seconds)	Average Travel Speed (MPH)	Average Stop Time (Seconds)	Fuel Consumption (Gallons/Vehicle)	Segment LOS
EB AM	464.4	30.6	75.6	0.143	B
WB AM	430.2	33.1	43.8	0.139	B
EB PM	468.6	30.3	73.2	0.144	B
WB PM	526.2	27.1	112.2	0.144	C

2.2 Bluetooth Technology

For the purpose of this Pilot Study, GMB had obtained the Bluetooth travel time data from Seminole County for the SR 436 Study Segment. Seminole County installed four (4) BlueTOAD devices along the SR 436 corridor from Line Drive to Weathersfield Avenue corridor as shown in Figure 1.

GMB installed two (2) portable BlueTOAD devices along the other two corridors and obtained the travel time data. Figures 2 and 3 depict the BlueTOAD locations on US 192 and SR 438 corridors, respectively.

The BlueTOAD travel time results for all the three corridors are provided in **Appendix 6** of this report. It should be noted that the study results provided by the BlueTOAD devices consist of only the average travel time and speed.

Figure 1: Blue TOAD devices Map on SR 436 between Line Drive and Weathersfield Avenue

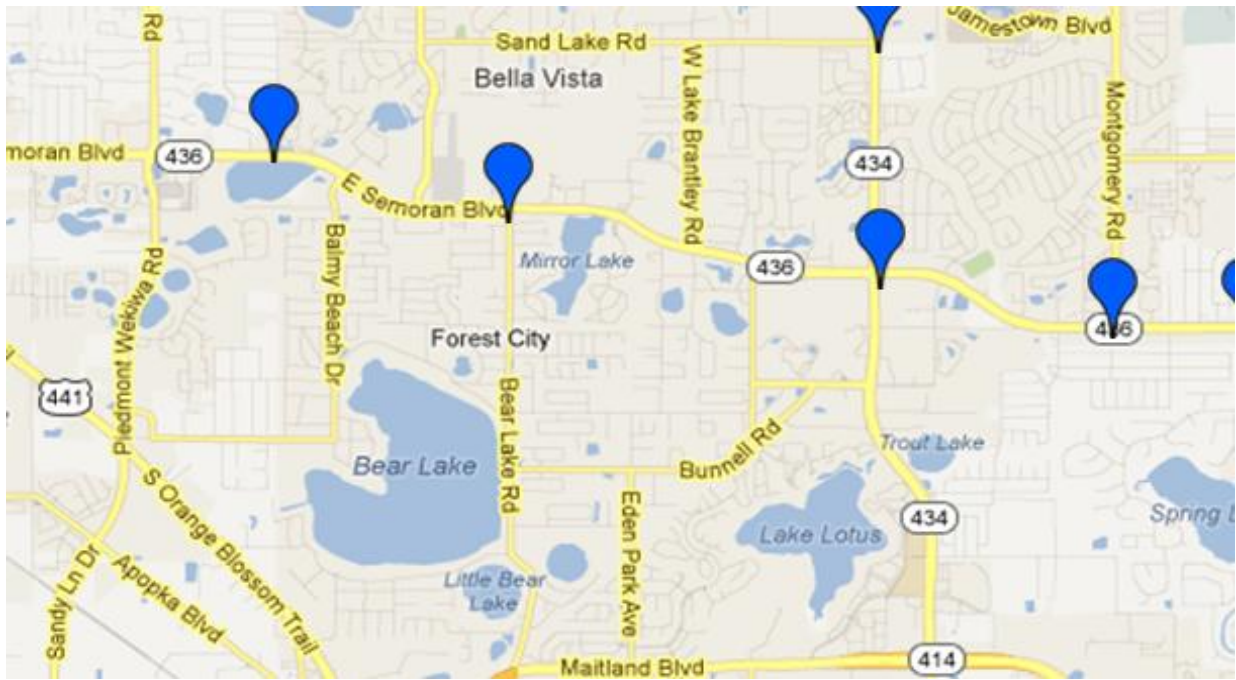


Figure 2: Blue TOAD devices Map on US 192 between Hoagland Boulevard and Central Avenue

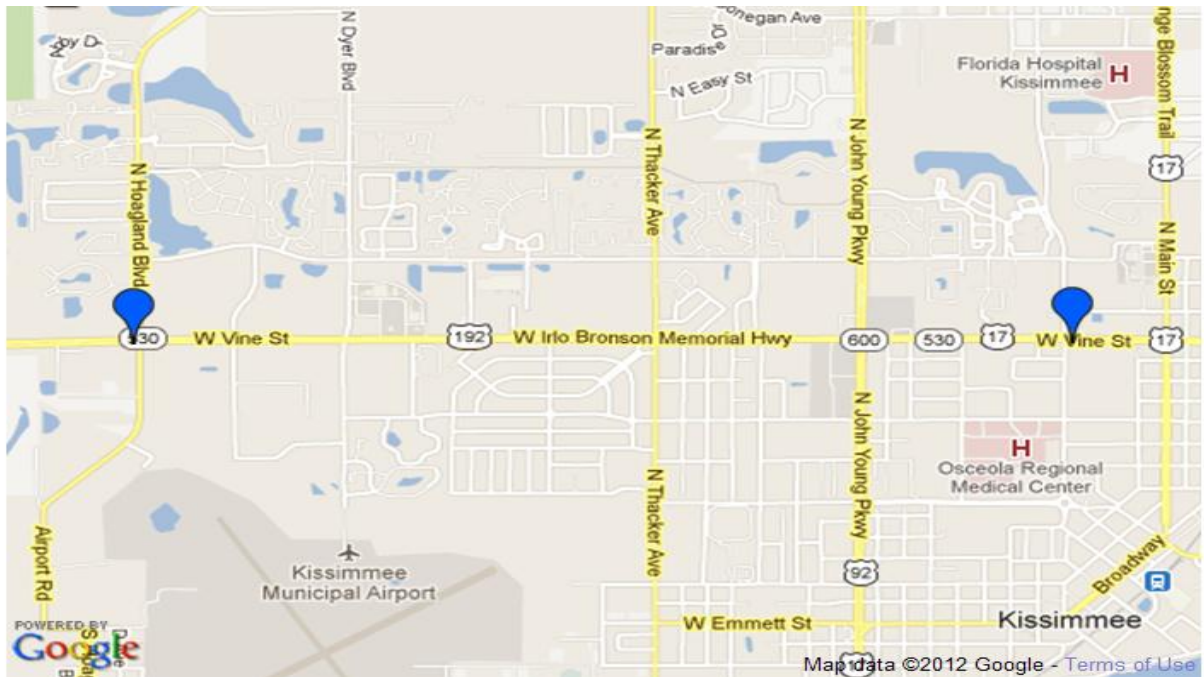
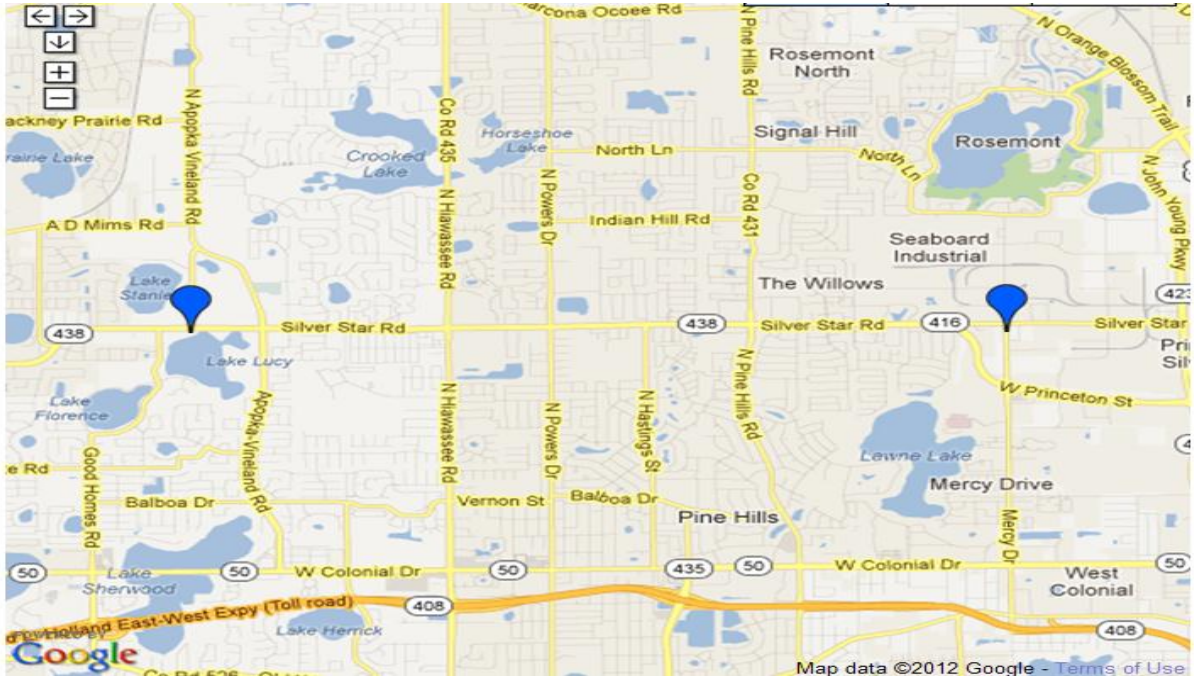


Figure 3: Blue TOAD devices Map on SR 438 between Lake Stanley Road and Mercy Drive



Source: <https://bluetoad.trafficcast.com/>

 - BlueTOAD device location

3 Comparison of the Results

The following Tables 4 through 6 summarizes the travel time and average speed results obtained using the two technologies for all the three study segments.

Table 4: SR 436 from Line Drive to Weathersfield Avenue - Comparison of Study Results

Direction	GPS Technology			BlueTOAD			Travel Time Difference		Average Speed Difference	
	# of Runs	Travel Time (Sec)	Average Speed (MPH)	# of Runs	Travel Time (Sec)	Average Speed (MPH)	Value (Sec)	%	Value (MPH)	%
AM Peak Hour										
Eastbound	8	347.4	36.0	37	369.8	33.8	22.4	6.4%	-2.2	-6.2%
Westbound	8	429.6	29.1	22	380.7	32.8	-48.9	-11.4%	3.7	12.8%
PM Peak Hour										
Eastbound	6	438.6	28.5	20	478.0	26.1	39.4	9.0%	-2.4	-8.3%
Westbound	6	349.8	35.7	41	407.9	30.6	58.1	16.6%	-5.1	-14.2%

The following summarizes the comparison based on Table 4.

- ➔ The observed absolute deviation for the travel times range between -11.4% and 16.6% for the overall corridor.
- ➔ The observed absolute deviation for the average speeds range between -14.2% and 12.8% for the overall corridor.

Table 5: US 192 from Hoagland Boulevard to Central Avenue - Comparison of Study Results

Direction	GPS Technology			BlueTOAD			Travel Time Difference		Average Speed Difference	
	# of Runs	Travel Time (Sec)	Average Speed (MPH)	# of Runs	Travel Time (Sec)	Average Speed (MPH)	Value (Sec)	%	Value (MPH)	%
AM Peak Hour										
Eastbound	7	240.0	33.7	48	250.9	32.3	10.9	4.6%	-1.5	-4.4%
Westbound	7	307.2	26.4	42	290.6	27.9	-16.6	-5.4%	1.5	5.7%
PM Peak Hour										
Eastbound	6	357.0	22.7	70	392.2	20.7	35.2	9.9%	-2.0	-9.0%
Westbound	6	294.0	27.6	48	309.9	26.1	15.9	5.4%	-1.4	-5.1%

The following summarizes the comparison based on Table 5.

- ➔ The observed absolute deviation for the travel times range between -5.4% and -9.9% for the overall corridor.
- ➔ The observed absolute deviation for the average speeds range between -9.0% and 5.7% for the overall corridor.

Table 6: SR 438 from Lake Stanley Road to Mercy Drive - Comparison of Study Results

Direction	GPS Technology			BlueTOAD			Travel Time Difference		Average Speed Difference	
	# of Runs	Travel Time (Sec)	Average Speed (MPH)	# of Runs	Travel Time (Sec)	Average Speed (MPH)	Value (Sec)	%	Value (MPH)	%
AM Peak Hour										
Eastbound	6	464.4	30.6	16	429.7	33.1	-34.8	-7.5%	2.5	8.1%
Westbound	7	430.2	33.1	7	428.9	33.2	-1.3	-0.3%	0.1	0.3%
PM Peak Hour										
Eastbound	5	468.6	30.3	7	498.0	28.6	29.4	6.3%	-1.8	-5.9%
Westbound	5	526.2	27.1	16	557.3	25.6	31.1	5.9%	-1.5	-5.6%

The following summarizes the comparison based on Table 6.

- ➔ The observed absolute deviation for the travel times range between -7.5% and 6.3% for the overall corridor.
- ➔ The observed absolute deviation for the average speeds range between -5.9% and 8.1% for the overall corridor.

4 Conclusions

The following conclusions and observations were deduced based on the study results for the GPS and Bluetooth Technologies.

The main conclusion is:

- ➔ The comparison revealed a comparable set of results for the two technologies. The insignificant difference between the study results indicate that the Bluetooth Technology had produced enough number of pairs and thereby resulted in a true travel time representation for the Study Segment. Therefore, Bluetooth technology could be accepted as an alternative method of collecting travel time for the evaluation of Signal Retiming Studies.

The other conclusions are:

- ➔ Using the GPS Technology, a maximum of 8 runs could be recorded for the Study Segment in a single peak time period. This number is much higher for the Bluetooth Technology, which increases the reliability of the travel time results.
- ➔ The readily available results such as the fuel consumption, stop delay time and LOS with the GPS Technology, could be indirectly calculated with the Bluetooth Technology, with the exception of fuel consumption. However, for the purposes of Benefit Cost Evaluation of Signal Retiming Studies, fuel consumption has a lower influence on the analysis and the other results (stop delay time and LOS) are not used in the evaluation.

5 Appendices

Appendix 5: Travel Time Results using GPS Technology

Appendix 6: Travel Time Results using Bluetooth Technology

Appendix °

Travel Time Results using GPS Technology

TABLE 7
Year 2012 METROPLAN Orlando Travel Time Study
SR 436 - Line Drive to Weathersfield Avenue - Eastbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Median Opening to Line Dr.	Seminole County	Arterial	Residential	1	3	0	45	581	8	Signal	14.4	1.8	II	27.5	C	0.61	
Line Dr. to Balmy Beach Dr.	Seminole County	Arterial	Residential	1	3	1	45	1,531	8	Signal	30.6	5.4	II	34.1	B	0.76	
Balmy Beach Dr. to Hunt Club Blvd.	Seminole County	Arterial	Residential	1	3	1	45	1,795	8	Signal	35.4	6.6	II	34.6	B	0.77	
Hunt Club Blvd. to Bear Lake Rd.	Seminole County	Arterial	Residential	1	3	0	45	2,006	8	Signal	37.2	4.2	II	36.8	A	0.82	
Bear Lake Rd. to Post Lake Pl.	Seminole County	Arterial	Residential	1	3	1	45	2,376	8	Signal	35.4	0.0	II	45.8	A	1.02	
Post Lake Pl. to Academy Dr.	Seminole County	Arterial	Residential	1	3	0	45	1,795	8	Signal	32.4	2.4	II	37.8	A	0.84	
Academy Dr. to Willow Ave.	Seminole County	Arterial	OBD	1	3	0	45	1,320	8	Signal	27.6	2.4	II	32.6	B	0.72	
Willow Ave. to Maple St.	Seminole County	Arterial	OBD	1	3	1	45	1,162	8	Signal	19.2	0.0	II	41.2	A	0.92	
Maple St. to SR 434	Seminole County	Arterial	OBD	2	3	1	45	1,478	8	Signal	40.2	12.6	II	25.1	C	0.56	
SR 434 to Laurel St.	Seminole County	Arterial	OBD	1	4	0	45	1,478	8	Signal	24.6	0.0	II	41.0	A	0.91	
Laurel St. to Orange Ave.	Seminole County	Arterial	OBD	0	4	0	45	1,954	8	Signal	36.6	2.4	II	36.4	A	0.81	
Orange Ave. to Weathersfield Ave.	Seminole County	Arterial	OBD	1	3	1	45	845	8	Signal	13.8	0.0	II	41.7	A	0.93	
TOTAL							45	18,322			347.4	37.8	II	36.0	A	0.80	0.118 gal/veh
PM PEAK HOUR																	
Median Opening to Line Dr.	Seminole County	Arterial	Residential	1	3	0	45	581	6	Signal	13.2	3.6	II	30.0	B	0.67	
Line Dr. to Balmy Beach Dr.	Seminole County	Arterial	Residential	1	3	1	45	1,531	6	Signal	40.2	10.8	II	26.0	C	0.58	
Balmy Beach Dr. to Hunt Club Blvd.	Seminole County	Arterial	Residential	1	3	1	45	1,795	6	Signal	47.4	12.6	II	25.8	C	0.57	
Hunt Club Blvd. to Bear Lake Rd.	Seminole County	Arterial	Residential	1	3	0	45	2,006	6	Signal	48.0	12.6	II	28.5	B	0.63	
Bear Lake Rd. to Post Lake Pl.	Seminole County	Arterial	Residential	1	3	1	45	2,376	6	Signal	60.0	15.0	II	27.0	C	0.60	
Post Lake Pl. to Academy Dr.	Seminole County	Arterial	Residential	1	3	0	45	1,795	6	Signal	30.0	0.0	II	40.8	A	0.91	
Academy Dr. to Willow Ave.	Seminole County	Arterial	OBD	1	3	0	45	1,320	6	Signal	28.8	4.8	II	31.2	B	0.69	
Willow Ave. to Maple St.	Seminole County	Arterial	OBD	1	3	1	45	1,162	6	Signal	20.4	0.0	II	38.8	A	0.86	
Maple St. to SR 434	Seminole County	Arterial	OBD	2	3	1	45	1,478	6	Signal	73.8	35.4	II	13.7	E	0.30	
SR 434 to Laurel St.	Seminole County	Arterial	OBD	1	4	0	45	1,478	6	Signal	25.8	0.0	II	39.1	A	0.87	
Laurel St. to Orange Ave.	Seminole County	Arterial	OBD	0	4	0	45	1,954	6	Signal	30.6	0.0	II	43.5	A	0.97	
Orange Ave. to Weathersfield Ave.	Seminole County	Arterial	OBD	1	3	1	45	845	6	Signal	20.4	4.2	II	28.2	B	0.63	
TOTAL							45	18,322			438.6	99.0	II	28.5	B	0.63	0.121 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

TABLE 7
Year 2012 METROPLAN Orlando Travel Time Study
SR 436 - Line Drive to Weathersfield Avenue - Westbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Median Opening to Weathersfield Ave.	Seminole County	Arterial	OBD	1	4	0	45	581	8	Signal	75.0	47.4	II	5.3	F	0.12	
Weathersfield Ave. to Orange Ave.	Seminole County	Arterial	OBD	1	4	0	45	845	8	Signal	17.4	2.4	II	33.1	B	0.74	
Orange Ave. to Laurel St.	Seminole County	Arterial	OBD	1	4	0	45	1,954	8	Signal	43.8	10.2	II	30.4	B	0.68	
Laurel St. to SR 434	Seminole County	Arterial	OBD	2	3	1	45	1,478	8	Signal	73.8	42.0	II	13.7	E	0.30	
SR 434 to Maple St.	Seminole County	Arterial	OBD	1	3	1	45	1,478	8	Signal	23.4	0.0	II	43.1	A	0.96	
Maple St. to Willow Ave.	Seminole County	Arterial	OBD	1	3	1	45	1,162	8	Signal	21.6	0.6	II	36.7	A	0.81	
Willow Ave. to Academy Dr.	Seminole County	Arterial	OBD	1	3	0	45	1,320	8	Signal	21.6	0.0	II	41.7	A	0.93	
Academy Dr. to Post Lake Pl.	Seminole County	Arterial	Residential	1	3	0	45	1,795	8	Signal	26.4	0.0	II	46.4	A	1.03	
Post Lake Pl. to Bear Lake Rd.	Seminole County	Arterial	Residential	1	3	0	45	2,376	8	Signal	38.4	0.0	II	42.2	A	0.94	
Bear Lake Rd. to Hunt Club Blvd.	Seminole County	Arterial	Residential	1	3	1	45	2,006	8	Signal	34.2	1.2	II	40.0	A	0.89	
Hunt Club Blvd. to Balmy Beach Dr.	Seminole County	Arterial	Residential	2	3	1	45	1,795	8	Signal	26.4	0.0	II	46.4	A	1.03	
Balmy Beach Dr. to Line Dr.	Seminole County	Arterial	Residential	1	3	1	45	1,531	8	Signal	27.6	6.6	II	37.8	A	0.84	
TOTAL							45	18,322			429.6	110.4	II	29.1	B	0.65	0.117 gal/veh
PM PEAK HOUR																	
Median Opening to Weathersfield Ave.	Seminole County	Arterial	OBD	1	4	0	45	581	6	Signal	21.0	8.4	II	18.9	D	0.42	
Weathersfield Ave. to Orange Ave.	Seminole County	Arterial	OBD	1	4	0	45	845	6	Signal	14.4	0.0	II	40.0	A	0.89	
Orange Ave. to Laurel St.	Seminole County	Arterial	OBD	1	4	0	45	1,954	6	Signal	29.4	0.0	II	45.3	A	1.01	
Laurel St. to SR 434	Seminole County	Arterial	OBD	2	3	1	45	1,478	6	Signal	36.6	6.0	II	27.5	C	0.61	
SR 434 to Maple St.	Seminole County	Arterial	OBD	1	3	1	45	1,478	6	Signal	23.4	0.0	II	43.1	A	0.96	
Maple St. to Willow Ave.	Seminole County	Arterial	Residential	1	3	1	45	1,162	6	Signal	27.0	3.0	II	29.3	B	0.65	
Willow Ave. to Academy Dr.	Seminole County	Arterial	Residential	1	3	0	45	1,320	6	Signal	25.8	1.8	II	34.9	B	0.78	
Academy Dr. to Post Lake Pl.	Seminole County	Arterial	Residential	1	3	0	45	1,795	6	Signal	31.8	2.4	II	38.5	A	0.86	
Post Lake Pl. to Bear Lake Rd.	Seminole County	Arterial	Residential	1	3	0	45	2,376	6	Signal	38.4	0.0	II	42.2	A	0.94	
Bear Lake Rd. to Hunt Club Blvd.	Seminole County	Arterial	Residential	1	3	1	45	2,006	6	Signal	45.6	9.0	II	30.0	B	0.67	
Hunt Club Blvd. to Balmy Beach Dr.	Seminole County	Arterial	Residential	2	3	1	45	1,795	6	Signal	29.4	0.0	II	41.6	A	0.93	
Balmy Beach Dr. to Line Dr.	Seminole County	Arterial	Residential	1	3	1	45	1,531	6	Signal	27.0	0.6	II	38.7	A	0.86	
TOTAL							45	18,322			349.8	31.2	II	35.7	A	0.79	0.119 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

Table 1
Year 2012 METROPLAN Orlando Travel Time Study
US 192 - Hoagland Boulevard to Central Avenue - Eastbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)	LOS		
AM PEAK HOUR																	
Hoagland Blvd. to Armstrong Blvd.	Osceola County	Arterial	OBD	1	3	0	45	1,214	7	Signal	20.4	0.0	II	40.6	A	0.90	
Armstrong Blvd. to Dyer Blvd.	Osceola County	Arterial	OBD	1	3	0	45	1,426	7	Signal	32.4	7.8	II	30.0	B	0.67	
Dyer Blvd. to Orange Blvd.	Osceola County	Arterial	OBD	1	3	0	45	1,637	7	Signal	32.4	1.8	II	34.4	B	0.77	
Orange Blvd. to Thacker Ave.	Osceola County	Arterial	OBD	1	3	0	40	2,323	7	Signal	50.4	11.4	II	31.4	B	0.79	
Thacker Ave. to Emory Ave.	Osceola County	Arterial	OBD	1	3	0	40	1,373	7	Signal	22.2	0.0	II	42.2	A	1.05	
Emory Ave. to John Young Pkwy.	Osceola County	Arterial	OBD	1	3	0	40	1,267	7	Signal	37.8	9.6	II	22.9	C	0.57	
John Young Pkwy. to Central Ave.	Osceola County	Arterial	OBD	1	3	0	40	2,640	7	Signal	44.4	0.0	II	40.5	A	1.01	
TOTAL							40	12,302			240.0	30.6	II	34.9	B	0.87	0.080 gal/veh
PM PEAK HOUR																	
Hoagland Blvd. to Armstrong Blvd.	Osceola County	Arterial	OBD	1	3	0	45	1,214	6	Signal	21.6	0.0	II	38.3	A	0.85	
Armstrong Blvd. to Dyer Blvd.	Osceola County	Arterial	OBD	1	3	0	45	1,426	6	Signal	39.6	14.4	II	24.5	C	0.55	
Dyer Blvd. to Orange Blvd.	Osceola County	Arterial	OBD	1	3	0	45	1,637	6	Signal	25.2	0.0	II	44.3	A	0.98	
Orange Blvd. to Thacker Ave.	Osceola County	Arterial	OBD	1	3	0	40	2,323	6	Signal	66.0	15.0	II	24.0	C	0.60	
Thacker Ave. to Emory Ave.	Osceola County	Arterial	OBD	1	3	0	40	1,373	6	Signal	25.2	0.0	II	37.1	A	0.93	
Emory Ave. to John Young Pkwy.	Osceola County	Arterial	OBD	1	3	0	40	1,267	6	Signal	126.6	92.4	II	6.8	F	0.17	
John Young Pkwy. to Central Ave.	Osceola County	Arterial	OBD	1	3	0	40	2,640	6	Signal	52.8	3.6	II	34.1	B	0.85	
TOTAL							40	12,302			357.0	125.4	II	23.5	C	0.59	0.082 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

Table 1
Year 2012 METROPLAN Orlando Travel Time Study
US 192 - Hoagland Boulevard to Central Avenue - Westbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Central Ave. to John Young Pkwy.	Osceola County	Arterial	OBD	1	3	0	40	2,640	7	Signal	111.6	60.0	II	16.1	E	0.40	
John Young Pkwy. to Emory Ave.	Osceola County	Arterial	OBD	1	3	0	40	1,267	7	Signal	25.8	0.0	II	33.5	B	0.84	
Emory Ave. to Thacker Ave.	Osceola County	Arterial	OBD	1	3	0	40	1,373	7	Signal	42.0	6.6	II	22.3	C	0.56	
Thacker Ave. to Orange Blvd.	Osceola County	Arterial	OBD	1	3	0	40	2,323	7	Signal	43.2	0.0	II	36.7	A	0.92	
Orange Blvd. to Dyer Blvd.	Osceola County	Arterial	OBD	1	3	0	45	1,637	7	Signal	39.6	4.8	II	28.2	B	0.63	
Dyer Blvd. to Armstrong Blvd.	Osceola County	Arterial	OBD	1	4	0	45	1,426	7	Signal	25.2	0.0	II	38.6	A	0.86	
Armstrong Blvd. to Hoagland Blvd.	Osceola County	Arterial	OBD	1	3	1	45	1,214	7	Signal	19.8	0.0	II	41.8	A	0.93	
TOTAL							40	13,147			307.2	71.4	II	29.2	B	0.73	0.087 gal/veh
PM PEAK HOUR																	
Central Ave. to John Young Pkwy.	Osceola County	Arterial	OBD	1	3	0	40	2,640	6	Signal	82.8	28.2	II	21.7	D	0.54	
John Young Pkwy. to Emory Ave.	Osceola County	Arterial	OBD	1	3	0	40	1,267	6	Signal	24.6	0.0	II	35.1	A	0.88	
Emory Ave. to Thacker Ave.	Osceola County	Arterial	OBD	1	3	0	40	1,373	6	Signal	24.0	0.0	II	39.0	A	0.97	
Thacker Ave. to Orange Blvd.	Osceola County	Arterial	OBD	1	3	0	40	2,323	6	Signal	47.4	3.6	II	33.4	B	0.84	
Orange Blvd. to Dyer Blvd.	Osceola County	Arterial	OBD	1	3	0	45	1,637	6	Signal	33.0	1.8	II	33.8	B	0.75	
Dyer Blvd. to Armstrong Blvd.	Osceola County	Arterial	OBD	1	4	0	45	1,426	6	Signal	24.0	0.0	II	40.5	A	0.90	
Armstrong Blvd. to Hoagland Blvd.	Osceola County	Arterial	OBD	1	3	1	45	1,214	6	Signal	58.2	37.2	II	14.2	E	0.32	
TOTAL							40	13,147			294.0	70.8	II	30.5	B	0.76	0.087 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

TABLE 28
Year 2012 METROPLAN Orlando Travel Time Study
SR 438 (Silver Star Road) - Lake Stanley Road to Mercy Drive - Eastbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Lake Stanley Rd. to Apopka Vineland Rd.	Orange County	Arterial	Residential	1	3	0	45	1,795	6	Signal	82.8	47.4	II	14.8	E	0.33	
Apopka Vineland Rd. to Silver Ridge Dr.	Orange County	Arterial	Residential	1	3	0	45	1,584	6	Signal	34.8	4.2	II	31.0	B	0.69	
Silver Ridge Dr. to Hiawasse Rd.	Orange County	Arterial	Residential	2	3	0	45	3,168	6	Signal	69.0	10.2	II	31.3	B	0.70	
Hiawasse Rd. to Powers Dr.	Orange County	Arterial	Residential	1	3	0	40	2,640	6	Signal	51.0	3.0	II	35.3	A	0.88	
Powers Dr. to Hastings St.	Orange County	Arterial	OBD	1	3	0	40	2,429	6	Signal	39.6	0.0	II	41.8	A	1.05	
Hastings St. to Pine Hills Rd	Orange County	Arterial	OBD	2	3	0	40	2,693	6	Signal	70.8	10.8	II	25.9	C	0.65	
Pine Hills Rd to Kingsland Ave.	Orange County	Arterial	Residential	1	3	0	40	1,162	6	Signal	21.6	0.0	II	36.7	A	0.92	
Kingsland Ave. to Ashland Blvd.	Orange County	Arterial	Residential	1	3	0	40	792	6	Signal	13.2	0.0	II	40.9	A	1.02	
Ashland Blvd. to Dardanelle Dr.	Orange County	Arterial	Residential	1	3	0	40	2,112	6	Signal	35.4	0.0	II	40.7	A	1.02	
Dardanelle Dr. to Princeton St.	Orange County	Arterial	Residential	2*	2**	0	40	1,056	6	Signal	21.0	0.0	II	34.3	B	0.86	
Princeton St. to Mercy Dr.	Orange County	Arterial	Residential	1	2	0	40	1,426	6	Signal	25.2	0.0	II	38.6	A	0.96	
TOTAL							40	20,856			464.4	75.6	II	30.6	B	0.77	0.143 gal/veh
PM PEAK HOUR																	
Lake Stanley Rd. to Apopka Vineland Rd.	Orange County	Arterial	Residential	1	3	0	45	1,795	5	Signal	79.2	41.4	II	15.5	E	0.34	
Apopka Vineland Rd. to Silver Ridge Dr.	Orange County	Arterial	Residential	1	3	0	45	1,584	5	Signal	30.0	0.0	II	36.0	A	0.80	
Silver Ridge Dr. to Hiawasse Rd.	Orange County	Arterial	Residential	2	3	0	45	3,168	5	Signal	54.0	1.8	II	40.0	A	0.89	
Hiawasse Rd. to Powers Dr.	Orange County	Arterial	Residential	1	3	0	40	2,640	5	Signal	49.2	1.8	II	36.6	A	0.91	
Powers Dr. to Hastings St.	Orange County	Arterial	OBD	1	3	0	40	2,429	5	Signal	43.2	0.0	II	38.3	A	0.96	
Hastings St. to Pine Hills Rd	Orange County	Arterial	OBD	2	3	0	40	2,693	5	Signal	69.6	8.4	II	26.4	C	0.66	
Pine Hills Rd to Kingsland Ave.	Orange County	Arterial	Residential	1	3	0	40	1,162	5	Signal	23.4	0.0	II	33.8	B	0.85	
Kingsland Ave. to Ashland Blvd.	Orange County	Arterial	Residential	1	3	0	40	792	5	Signal	15.0	0.0	II	36.0	A	0.90	
Ashland Blvd. to Dardanelle Dr.	Orange County	Arterial	Residential	1	3	0	40	2,112	5	Signal	35.4	0.0	II	40.7	A	1.02	
Dardanelle Dr. to Princeton St.	Orange County	Arterial	Residential	2*	2**	0	40	1,056	5	Signal	21.0	0.0	II	34.3	B	0.86	
Princeton St. to Mercy Dr.	Orange County	Arterial	Residential	1	2	0	40	1,426	5	Signal	48.6	19.8	II	20.0	D	0.50	
TOTAL							40	20,856			468.6	73.2	II	30.3	B	0.76	0.144 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

* Two left turn lanes continue to access the EB Direction of Silver Star Road /SR 416

** Two through Lanes continue to access the EB direction of Princeton Street/SR 438

TABLE 28
Year 2012 METROPLAN Orlando Travel Time Study
SR 438 (Silver Star Road) - Lake Stanley Road to Mercy Drive - Westbound Direction Summary - After Condition

Roadway Segment	Jurisdiction	Facility Type ¹	Area Type ¹	Left Turn Lanes ²	Thru Lanes ²	Right Turn Lanes ²	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed		Avg Speed/	Avg. Fuel
														(mph)	LOS	Speed Limit	Consump.
AM PEAK HOUR																	
Mercy Dr. to Dardanelle Dr.	Orange County	Arterial	Residential	1	3	0	40	2,482	7	Signal	40.2	0.0	II	42.1	A	1.05	
Dardanelle Dr. to Ashland Blvd.	Orange County	Arterial	Residential	1	3	0	40	2,112	7	Signal	50.4	9.6	II	28.6	B	0.71	
Ashland Blvd. to Kingsland Ave.	Orange County	Arterial	Residential	1	3	0	40	792	7	Signal	18.0	0.6	II	30.0	B	0.75	
Kingsland Ave. to Pine Hills Rd	Orange County	Arterial	OBD	2	3	0	40	1,162	7	Signal	39.6	12.6	II	20.0	D	0.50	
Pine Hills Rd to Hastings St.	Orange County	Arterial	OBD	1	3	0	40	2,693	7	Signal	46.2	0.0	II	39.7	A	0.99	
Hastings St. to Powers Dr.	Orange County	Arterial	Residential	1	3	0	40	2,482	7	Signal	43.2	0.6	II	39.2	A	0.98	
Powers Dr. to Hiwassee Rd.	Orange County	Arterial	Residential	2	3	0	40	2,640	7	Signal	73.2	15.6	II	24.6	C	0.61	
Hiwassee Rd. to Silver Ridge Dr.	Orange County	Arterial	Residential	1	3	0	45	3,168	7	Signal	51.0	0.0	II	42.4	A	0.94	
Silver Ridge Dr. to Apopka Vineland Rd.	Orange County	Arterial	Residential	1	3	0	45	1,584	7	Signal	35.4	1.8	II	30.5	B	0.68	
Apopka Vineland Rd. to Lake Stanley Rd.	Orange County	Arterial	Residential	1	2	1	45	1,795	7	Signal	33.0	3.0	II	37.1	A	0.82	
TOTAL							40	20,909			430.2	43.8	II	33.1	B	0.83	0.139 gal/veh
PM PEAK HOUR																	
Mercy Dr. to Dardanelle Dr.	Orange County	Arterial	Residential	1	3	0	40	2,482	5	Signal	49.2	0.6	II	34.4	B	0.86	
Dardanelle Dr. to Ashland Blvd.	Orange County	Arterial	Residential	1	3	0	40	2,112	5	Signal	37.2	0.0	II	38.7	A	0.97	
Ashland Blvd. to Kingsland Ave.	Orange County	Arterial	Residential	1	3	0	40	792	5	Signal	20.4	5.4	II	26.5	C	0.66	
Kingsland Ave. to Pine Hills Rd	Orange County	Arterial	OBD	2	3	0	40	1,162	5	Signal	69.6	37.8	II	11.4	F	0.28	
Pine Hills Rd to Hastings St.	Orange County	Arterial	OBD	1	3	0	40	2,693	5	Signal	58.8	0.6	II	31.2	B	0.78	
Hastings St. to Powers Dr.	Orange County	Arterial	Residential	1	3	0	40	2,482	5	Signal	55.8	3.0	II	30.3	B	0.76	
Powers Dr. to Hiwassee Rd.	Orange County	Arterial	Residential	2	3	0	40	2,640	5	Signal	88.8	43.8	II	20.3	D	0.51	
Hiwassee Rd. to Silver Ridge Dr.	Orange County	Arterial	Residential	1	3	0	45	3,168	5	Signal	69.6	11.4	II	31.0	B	0.69	
Silver Ridge Dr. to Apopka Vineland Rd.	Orange County	Arterial	Residential	1	3	0	45	1,584	5	Signal	37.8	3.0	II	28.6	B	0.63	
Apopka Vineland Rd. to Lake Stanley Rd.	Orange County	Arterial	Residential	1	2	1	45	1,795	5	Signal	39.0	6.6	II	31.4	B	0.70	
TOTAL							40	20,909			526.2	112.2	II	27.1	C	0.68	0.144 gal/veh

Note:

1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.
3. OBD - Outlying Business District

Appendix "

Travel Time Results using Bluetooth Technology

Bluetoad Data Report

Pair 4001: (SR 436 & Montgomery (u1399) to SR 436 & Line Dr (u1052) - WB)

Start Date 5/1/2012 7:00

End Date 5/1/2012 8:59

Type Individual Speeds (Filtered): Each Pair

Day of wee Date	Time	Travel time	Speed (mph)
Tuesday	5/1/2012	7:03	336 38.57
Tuesday	5/1/2012	7:17	348 37.24
Tuesday	5/1/2012	7:25	432 30
Tuesday	5/1/2012	7:28	408 31.76
Tuesday	5/1/2012	7:45	369 35.12
Tuesday	5/1/2012	7:48	359 36.1
Tuesday	5/1/2012	7:49	366 35.41
Tuesday	5/1/2012	7:57	384 33.75
Tuesday	5/1/2012	8:04	449 28.86
Tuesday	5/1/2012	8:08	347 37.35
Tuesday	5/1/2012	8:17	379 34.2
Tuesday	5/1/2012	8:22	352 36.82
Tuesday	5/1/2012	8:22	358 36.2
Tuesday	5/1/2012	8:22	360 36
Tuesday	5/1/2012	8:25	329 39.39
Tuesday	5/1/2012	8:28	360 36
Tuesday	5/1/2012	8:34	360 36
Tuesday	5/1/2012	8:35	418 31
Tuesday	5/1/2012	8:35	439 29.52
Tuesday	5/1/2012	8:35	439 29.52
Tuesday	5/1/2012	8:46	404 32.08
Tuesday	5/1/2012	8:50	379 34.2

Bluetoad Data Report

Pair 4001: (SR 436 & Montgomery (u1399) to SR 436 & Line Dr (u1052)
 Start Date 5/1/2012 16:00
 End Date 5/1/2012 17:59
 Type Individual Speeds (Filtered): Each Pair

Day of wee Date	Time	Travel time	Speed (mph)
Tuesday	5/1/2012	16:01	434 29.86
Tuesday	5/1/2012	16:01	440 29.45
Tuesday	5/1/2012	16:02	412 31.46
Tuesday	5/1/2012	16:09	389 33.32
Tuesday	5/1/2012	16:12	480 27
Tuesday	5/1/2012	16:15	411 31.53
Tuesday	5/1/2012	16:19	490 26.45
Tuesday	5/1/2012	16:22	312 41.54
Tuesday	5/1/2012	16:27	458 28.3
Tuesday	5/1/2012	16:39	474 27.34
Tuesday	5/1/2012	16:44	668 19.4
Tuesday	5/1/2012	16:47	677 19.14
Tuesday	5/1/2012	16:47	457 28.36
Tuesday	5/1/2012	16:50	403 32.16
Tuesday	5/1/2012	16:50	418 31
Tuesday	5/1/2012	16:56	469 27.63
Tuesday	5/1/2012	16:58	477 27.17
Tuesday	5/1/2012	16:59	346 37.46
Tuesday	5/1/2012	16:59	350 37.03
Tuesday	5/1/2012	16:59	413 31.38
Tuesday	5/1/2012	17:01	448 28.93
Tuesday	5/1/2012	17:02	467 27.75
Tuesday	5/1/2012	17:04	348 37.24
Tuesday	5/1/2012	17:07	446 29.06
Tuesday	5/1/2012	17:12	470 27.57
Tuesday	5/1/2012	17:16	491 26.4
Tuesday	5/1/2012	17:16	487 26.61
Tuesday	5/1/2012	17:16	334 38.8
Tuesday	5/1/2012	17:16	373 34.75
Tuesday	5/1/2012	17:30	426 30.42
Tuesday	5/1/2012	17:30	356 36.4
Tuesday	5/1/2012	17:30	325 39.88
Tuesday	5/1/2012	17:30	355 36.51
Tuesday	5/1/2012	17:35	395 32.81
Tuesday	5/1/2012	17:38	327 39.63
Tuesday	5/1/2012	17:38	342 37.89
Tuesday	5/1/2012	17:38	342 37.89
Tuesday	5/1/2012	17:38	329 39.39
Tuesday	5/1/2012	17:39	329 39.39
Tuesday	5/1/2012	17:47	494 26.23
Tuesday	5/1/2012	17:47	807 16.06
Tuesday	5/1/2012	17:50	845 15.34
Tuesday	5/1/2012	17:50	847 15.3
Tuesday	5/1/2012	17:56	369 35.12
Tuesday	5/1/2012	17:58	345 37.57
Tuesday	5/1/2012	17:59	492 26.34

Bluetoad Data Report

Pair 4002: (SR 436 & Line Dr (u1052) to SR 436 & Montgomery (u1399) - EB)

Start Date 5/1/2012 7:00

End Date 5/1/2012 8:59

Type Individual Speeds (Filtered): Each Pair

Day of wee Date	Time	Travel time	Speed (mph)
Tuesday	5/1/2012	7:09	291 44.54
Tuesday	5/1/2012	7:12	314 41.27
Tuesday	5/1/2012	7:16	441 29.39
Tuesday	5/1/2012	7:21	312 41.54
Tuesday	5/1/2012	7:21	324 40
Tuesday	5/1/2012	7:25	442 29.32
Tuesday	5/1/2012	7:31	428 30.28
Tuesday	5/1/2012	7:31	424 30.57
Tuesday	5/1/2012	7:45	400 32.4
Tuesday	5/1/2012	7:47	408 31.76
Tuesday	5/1/2012	7:50	392 33.06
Tuesday	5/1/2012	7:52	409 31.69
Tuesday	5/1/2012	7:52	402 32.24
Tuesday	5/1/2012	7:55	315 41.14
Tuesday	5/1/2012	7:58	400 32.4
Tuesday	5/1/2012	7:59	355 36.51
Tuesday	5/1/2012	8:00	368 35.22
Tuesday	5/1/2012	8:00	304 42.63
Tuesday	5/1/2012	8:00	380 34.11
Tuesday	5/1/2012	8:09	309 41.94
Tuesday	5/1/2012	8:12	359 36.1
Tuesday	5/1/2012	8:16	403 32.16
Tuesday	5/1/2012	8:16	374 34.65
Tuesday	5/1/2012	8:19	392 33.06
Tuesday	5/1/2012	8:20	412 31.46
Tuesday	5/1/2012	8:31	442 29.32
Tuesday	5/1/2012	8:31	440 29.45
Tuesday	5/1/2012	8:34	310 41.81
Tuesday	5/1/2012	8:34	356 36.4
Tuesday	5/1/2012	8:34	281 46.12
Tuesday	5/1/2012	8:36	312 41.54
Tuesday	5/1/2012	8:36	398 32.56
Tuesday	5/1/2012	8:44	397 32.64
Tuesday	5/1/2012	8:47	366 35.41
Tuesday	5/1/2012	8:48	358 36.2
Tuesday	5/1/2012	8:52	346 37.46
Tuesday	5/1/2012	8:54	317 40.88

Bluetoad Data Report

Pair 4002: (SR 436 & Line Dr (u1052) to SR 436 & Montgomery (u1399) - EB)

Start Date 5/1/2012 16:00

End Date 5/1/2012 17:59

Type Individual Speeds (Filtered): Each Pair

Day of wee Date	Time	Travel time	Speed (mph)
Tuesday	5/1/2012	16:09	383 33.84
Tuesday	5/1/2012	16:16	601 21.56
Tuesday	5/1/2012	16:16	440 29.45
Tuesday	5/1/2012	16:16	443 29.26
Tuesday	5/1/2012	16:18	506 25.61
Tuesday	5/1/2012	16:18	333 38.92
Tuesday	5/1/2012	16:25	378 34.29
Tuesday	5/1/2012	16:27	389 33.32
Tuesday	5/1/2012	16:30	402 32.24
Tuesday	5/1/2012	16:58	484 26.78
Tuesday	5/1/2012	17:01	483 26.83
Tuesday	5/1/2012	17:01	442 29.32
Tuesday	5/1/2012	17:13	505 25.66
Tuesday	5/1/2012	17:23	577 22.46
Tuesday	5/1/2012	17:24	535 24.22
Tuesday	5/1/2012	17:27	577 22.46
Tuesday	5/1/2012	17:29	480 27
Tuesday	5/1/2012	17:41	500 25.92
Tuesday	5/1/2012	17:41	499 25.97
Tuesday	5/1/2012	17:49	603 21.49

Bluetoad Data Report

Pair 5107: ((u6208) US 192 & Hoagland - (u6215) US 192 & Central - EB)
 Start Date 5/31/2012 7:00
 End Date 5/31/2012 8:59
 Type Individual Speeds (Filtered): Each Pair

Day of wee Date	Time	Travel time	Speed (mph)
Thursday	5/31/2012	7:03	255 31.06
Thursday	5/31/2012	7:07	218 36.33
Thursday	5/31/2012	7:20	215 36.84
Thursday	5/31/2012	7:20	189 41.9
Thursday	5/31/2012	7:20	209 37.89
Thursday	5/31/2012	7:20	205 38.63
Thursday	5/31/2012	7:23	214 37.01
Thursday	5/31/2012	7:23	205 38.63
Thursday	5/31/2012	7:36	228 34.74
Thursday	5/31/2012	7:40	285 27.79
Thursday	5/31/2012	7:41	192 41.25
Thursday	5/31/2012	7:41	211 37.54
Thursday	5/31/2012	7:46	207 38.26
Thursday	5/31/2012	7:49	206 38.45
Thursday	5/31/2012	7:49	223 35.52
Thursday	5/31/2012	7:51	311 25.47
Thursday	5/31/2012	7:55	251 31.55
Thursday	5/31/2012	7:59	284 27.89
Thursday	5/31/2012	8:03	216 36.67
Thursday	5/31/2012	8:03	199 39.8
Thursday	5/31/2012	8:08	197 40.2
Thursday	5/31/2012	8:11	200 39.6
Thursday	5/31/2012	8:11	193 41.04
Thursday	5/31/2012	8:12	313 25.3
Thursday	5/31/2012	8:12	281 28.19
Thursday	5/31/2012	8:13	316 25.06
Thursday	5/31/2012	8:13	331 23.93
Thursday	5/31/2012	8:13	203 39.01
Thursday	5/31/2012	8:13	356 22.25
Thursday	5/31/2012	8:16	197 40.2
Thursday	5/31/2012	8:19	212 37.36
Thursday	5/31/2012	8:19	355 22.31
Thursday	5/31/2012	8:24	227 34.89
Thursday	5/31/2012	8:24	216 36.67
Thursday	5/31/2012	8:24	243 32.59
Thursday	5/31/2012	8:27	208 38.08
Thursday	5/31/2012	8:29	258 30.7
Thursday	5/31/2012	8:32	225 35.2
Thursday	5/31/2012	8:32	215 36.84

Thursday	5/31/2012	8:34	471	16.82
Thursday	5/31/2012	8:40	223	35.52
Thursday	5/31/2012	8:40	238	33.28
Thursday	5/31/2012	8:42	338	23.43
Thursday	5/31/2012	8:50	339	23.36
Thursday	5/31/2012	8:51	241	32.86
Thursday	5/31/2012	8:53	501	15.81
Thursday	5/31/2012	8:56	212	37.36
Thursday	5/31/2012	8:56	213	37.18

Bluetoad Data Report

Pair 5107: ((u6208) US 192 & Hoagland - (u6215) US 192 & Central - EB)

Start Date 5/31/2012 16:00

End Date 5/31/2012 17:59

Type Individual Speeds (Filtered): Each Pair

Day of wee Date	Time	Travel time	Speed (mph)
Thursday	5/31/2012	16:00	381 20.79
Thursday	5/31/2012	16:00	364 21.76
Thursday	5/31/2012	16:00	364 21.76
Thursday	5/31/2012	16:04	426 18.59
Thursday	5/31/2012	16:06	491 16.13
Thursday	5/31/2012	16:06	404 19.6
Thursday	5/31/2012	16:07	405 19.56
Thursday	5/31/2012	16:14	472 16.78
Thursday	5/31/2012	16:16	430 18.42
Thursday	5/31/2012	16:16	425 18.64
Thursday	5/31/2012	16:16	434 18.25
Thursday	5/31/2012	16:16	453 17.48
Thursday	5/31/2012	16:16	619 12.79
Thursday	5/31/2012	16:18	334 23.71
Thursday	5/31/2012	16:18	342 23.16
Thursday	5/31/2012	16:19	469 16.89
Thursday	5/31/2012	16:20	589 13.45
Thursday	5/31/2012	16:20	458 17.29
Thursday	5/31/2012	16:21	376 21.06
Thursday	5/31/2012	16:21	330 24
Thursday	5/31/2012	16:24	362 21.88
Thursday	5/31/2012	16:31	350 22.63
Thursday	5/31/2012	16:33	331 23.93
Thursday	5/31/2012	16:33	341 23.23
Thursday	5/31/2012	16:34	358 22.12
Thursday	5/31/2012	16:36	345 22.96
Thursday	5/31/2012	16:36	416 19.04
Thursday	5/31/2012	16:36	349 22.69
Thursday	5/31/2012	16:39	331 23.93
Thursday	5/31/2012	16:39	385 20.57
Thursday	5/31/2012	16:48	356 22.25
Thursday	5/31/2012	16:48	332 23.86
Thursday	5/31/2012	16:51	483 16.4
Thursday	5/31/2012	16:51	394 20.1
Thursday	5/31/2012	16:54	355 22.31
Thursday	5/31/2012	16:57	367 21.58
Thursday	5/31/2012	17:00	367 21.58
Thursday	5/31/2012	17:00	498 15.9
Thursday	5/31/2012	17:03	362 21.88

Thursday	5/31/2012	17:06	354	22.37
Thursday	5/31/2012	17:06	380	20.84
Thursday	5/31/2012	17:09	364	21.76
Thursday	5/31/2012	17:09	436	18.17
Thursday	5/31/2012	17:09	346	22.89
Thursday	5/31/2012	17:12	362	21.88
Thursday	5/31/2012	17:12	388	20.41
Thursday	5/31/2012	17:14	471	16.82
Thursday	5/31/2012	17:15	375	21.12
Thursday	5/31/2012	17:15	375	21.12
Thursday	5/31/2012	17:15	363	21.82
Thursday	5/31/2012	17:21	364	21.76
Thursday	5/31/2012	17:21	342	23.16
Thursday	5/31/2012	17:24	347	22.82
Thursday	5/31/2012	17:28	368	21.52
Thursday	5/31/2012	17:30	347	22.82
Thursday	5/31/2012	17:33	365	21.7
Thursday	5/31/2012	17:35	457	17.33
Thursday	5/31/2012	17:35	366	21.64
Thursday	5/31/2012	17:39	364	21.76
Thursday	5/31/2012	17:39	351	22.56
Thursday	5/31/2012	17:42	364	21.76
Thursday	5/31/2012	17:42	351	22.56
Thursday	5/31/2012	17:42	353	22.44
Thursday	5/31/2012	17:45	479	16.53
Thursday	5/31/2012	17:45	572	13.85
Thursday	5/31/2012	17:48	355	22.31
Thursday	5/31/2012	17:48	374	21.18
Thursday	5/31/2012	17:51	382	20.73
Thursday	5/31/2012	17:51	374	21.18
Thursday	5/31/2012	17:57	319	24.83

Bluetoad Data Report

Pair 5108: ((u 6215) US 192 & Central - (u 6208) US 192 & Hoagland - WB)
 Start Date 5/31/2012 7:00
 End Date 5/31/2012 8:59
 Type Individual Speeds (Filtered): Each Pair

Day of wee Date	Time	Travel time	Speed (mph)
Thursday	5/31/2012	7:09	220 36
Thursday	5/31/2012	7:09	208 38.08
Thursday	5/31/2012	7:09	197 40.2
Thursday	5/31/2012	7:11	307 25.8
Thursday	5/31/2012	7:12	194 40.82
Thursday	5/31/2012	7:17	332 23.86
Thursday	5/31/2012	7:17	226 35.04
Thursday	5/31/2012	7:17	236 33.56
Thursday	5/31/2012	7:20	371 21.35
Thursday	5/31/2012	7:23	198 40
Thursday	5/31/2012	7:23	216 36.67
Thursday	5/31/2012	7:31	341 23.23
Thursday	5/31/2012	7:31	348 22.76
Thursday	5/31/2012	7:31	245 32.33
Thursday	5/31/2012	7:46	275 28.8
Thursday	5/31/2012	7:55	291 27.22
Thursday	5/31/2012	7:57	348 22.76
Thursday	5/31/2012	7:57	359 22.06
Thursday	5/31/2012	7:57	221 35.84
Thursday	5/31/2012	8:03	219 36.16
Thursday	5/31/2012	8:05	288 27.5
Thursday	5/31/2012	8:11	333 23.78
Thursday	5/31/2012	8:13	235 33.7
Thursday	5/31/2012	8:13	341 23.23
Thursday	5/31/2012	8:14	235 33.7
Thursday	5/31/2012	8:16	335 23.64
Thursday	5/31/2012	8:16	210 37.71
Thursday	5/31/2012	8:19	275 28.8
Thursday	5/31/2012	8:21	351 22.56
Thursday	5/31/2012	8:24	323 24.52
Thursday	5/31/2012	8:35	377 21.01
Thursday	5/31/2012	8:37	351 22.56
Thursday	5/31/2012	8:37	350 22.63
Thursday	5/31/2012	8:40	365 21.7
Thursday	5/31/2012	8:41	249 31.81
Thursday	5/31/2012	8:43	356 22.25
Thursday	5/31/2012	8:43	344 23.02
Thursday	5/31/2012	8:43	344 23.02
Thursday	5/31/2012	8:45	244 32.46

Thursday	5/31/2012	8:48	330	24
Thursday	5/31/2012	8:50	283	27.99
Thursday	5/31/2012	8:56	333	23.78

Bluetoad Data Report

Pair 5108: ((u 6215) US 192 & Central - (u 6208) US 192 & Hoagland - WB)
Start Date 5/31/2012 16:00
End Date 5/31/2012 17:59
Type Individual Speeds (Filtered): Each Pair

Day of wee Date	Time	Travel time	Speed (mph)
Thursday	5/31/2012	16:00	368 21.52
Thursday	5/31/2012	16:00	394 20.1
Thursday	5/31/2012	16:06	465 17.03
Thursday	5/31/2012	16:19	367 21.58
Thursday	5/31/2012	16:19	253 31.3
Thursday	5/31/2012	16:39	355 22.31
Thursday	5/31/2012	16:40	332 23.86
Thursday	5/31/2012	16:40	243 32.59
Thursday	5/31/2012	16:48	384 20.63
Thursday	5/31/2012	16:49	372 21.29
Thursday	5/31/2012	16:51	341 23.23
Thursday	5/31/2012	16:58	364 21.76
Thursday	5/31/2012	16:58	371 21.35
Thursday	5/31/2012	17:00	355 22.31
Thursday	5/31/2012	17:01	217 36.5
Thursday	5/31/2012	17:04	231 34.29
Thursday	5/31/2012	17:07	416 19.04
Thursday	5/31/2012	17:07	236 33.56
Thursday	5/31/2012	17:09	325 24.37
Thursday	5/31/2012	17:10	338 23.43
Thursday	5/31/2012	17:10	363 21.82
Thursday	5/31/2012	17:10	291 27.22
Thursday	5/31/2012	17:10	286 27.69
Thursday	5/31/2012	17:10	285 27.79
Thursday	5/31/2012	17:12	357 22.18
Thursday	5/31/2012	17:13	242 32.73
Thursday	5/31/2012	17:16	265 29.89
Thursday	5/31/2012	17:16	223 35.52
Thursday	5/31/2012	17:21	354 22.37
Thursday	5/31/2012	17:22	229 34.59
Thursday	5/31/2012	17:22	291 27.22
Thursday	5/31/2012	17:24	399 19.85
Thursday	5/31/2012	17:24	353 22.44
Thursday	5/31/2012	17:26	224 35.36
Thursday	5/31/2012	17:34	247 32.06
Thursday	5/31/2012	17:34	284 27.89
Thursday	5/31/2012	17:36	344 23.02
Thursday	5/31/2012	17:36	345 22.96
Thursday	5/31/2012	17:37	379 20.9

Thursday	5/31/2012	17:40	256	30.94
Thursday	5/31/2012	17:40	256	30.94
Thursday	5/31/2012	17:40	232	34.14
Thursday	5/31/2012	17:41	233	33.99
Thursday	5/31/2012	17:43	244	32.46
Thursday	5/31/2012	17:57	371	21.35
Thursday	5/31/2012	17:58	351	22.56
Thursday	5/31/2012	17:58	221	35.84
Thursday	5/31/2012	17:58	224	35.36

Bluetoad Data Report

Pair 5427: ((u6208) SR 438 & Lake Stanley Rd to (u6215) SR 438 & Mercy Dr - EB)
Start Date 6/5/2012 7:00
End Date 6/5/2012 8:59
Type Individual Speeds (Filtered): Each Pair

Day of wee Date	Time	Travel time	Speed (mph)
Tuesday	6/5/2012	7:00	503 28.63
Tuesday	6/5/2012	7:03	414 34.78
Tuesday	6/5/2012	7:12	392 36.73
Tuesday	6/5/2012	7:15	360 40
Tuesday	6/5/2012	7:17	384 37.5
Tuesday	6/5/2012	7:22	418 34.45
Tuesday	6/5/2012	7:24	439 32.8
Tuesday	6/5/2012	7:27	402 35.82
Tuesday	6/5/2012	7:36	478 30.13
Tuesday	6/5/2012	7:57	494 29.15
Tuesday	6/5/2012	7:59	369 39.02
Tuesday	6/5/2012	8:02	455 31.65
Tuesday	6/5/2012	8:08	431 33.41
Tuesday	6/5/2012	8:27	398 36.18
Tuesday	6/5/2012	8:34	555 25.95
Tuesday	6/5/2012	8:39	382 37.7

Bluetoad Data Report

Pair 5427: ((u6208) SR 438 & Lake Stanley Rd to (u6215) SR 438 & Mercy Dr - EB)

Start Date 6/5/2012 16:00

End Date 6/5/2012 17:59

Type Individual Speeds (Filtered): Each Pair

Day of wee	Date	Time	Travel time	Speed (mph)
Tuesday	6/5/2012	16:12	530	27.17
Tuesday	6/5/2012	16:18	380	37.89
Tuesday	6/5/2012	16:45	481	29.94
Tuesday	6/5/2012	16:55	562	25.62
Tuesday	6/5/2012	16:58	580	24.83
Tuesday	6/5/2012	17:25	1043	13.81
Tuesday	6/5/2012	17:42	505	28.51
Tuesday	6/5/2012	17:44	448	32.14

Bluetoad Data Report

Pair 5428: ((u6215) SR 438 & Mercy Dr to (u6208) SR 438 & Lake Stanley Rd - WB)

Start Date 6/5/2012 7:00

End Date 6/5/2012 8:59

Type Individual Speeds (Filtered): Each Pair

Day of wee Date	Time	Travel time	Speed (mph)
Tuesday	6/5/2012	7:08	501 28.74
Tuesday	6/5/2012	7:44	441 32.65
Tuesday	6/5/2012	7:53	367 39.24
Tuesday	6/5/2012	7:53	355 40.56
Tuesday	6/5/2012	8:06	482 29.88
Tuesday	6/5/2012	8:30	497 28.97
Tuesday	6/5/2012	8:44	359 40.11

Bluetoad Data Report

Pair 5428: ((u6215) SR 438 & Mercy Dr to (u6208) SR 438 & Lake Stanley Rd - WB)

Start Date 6/5/2012 16:00

End Date 6/5/2012 17:59

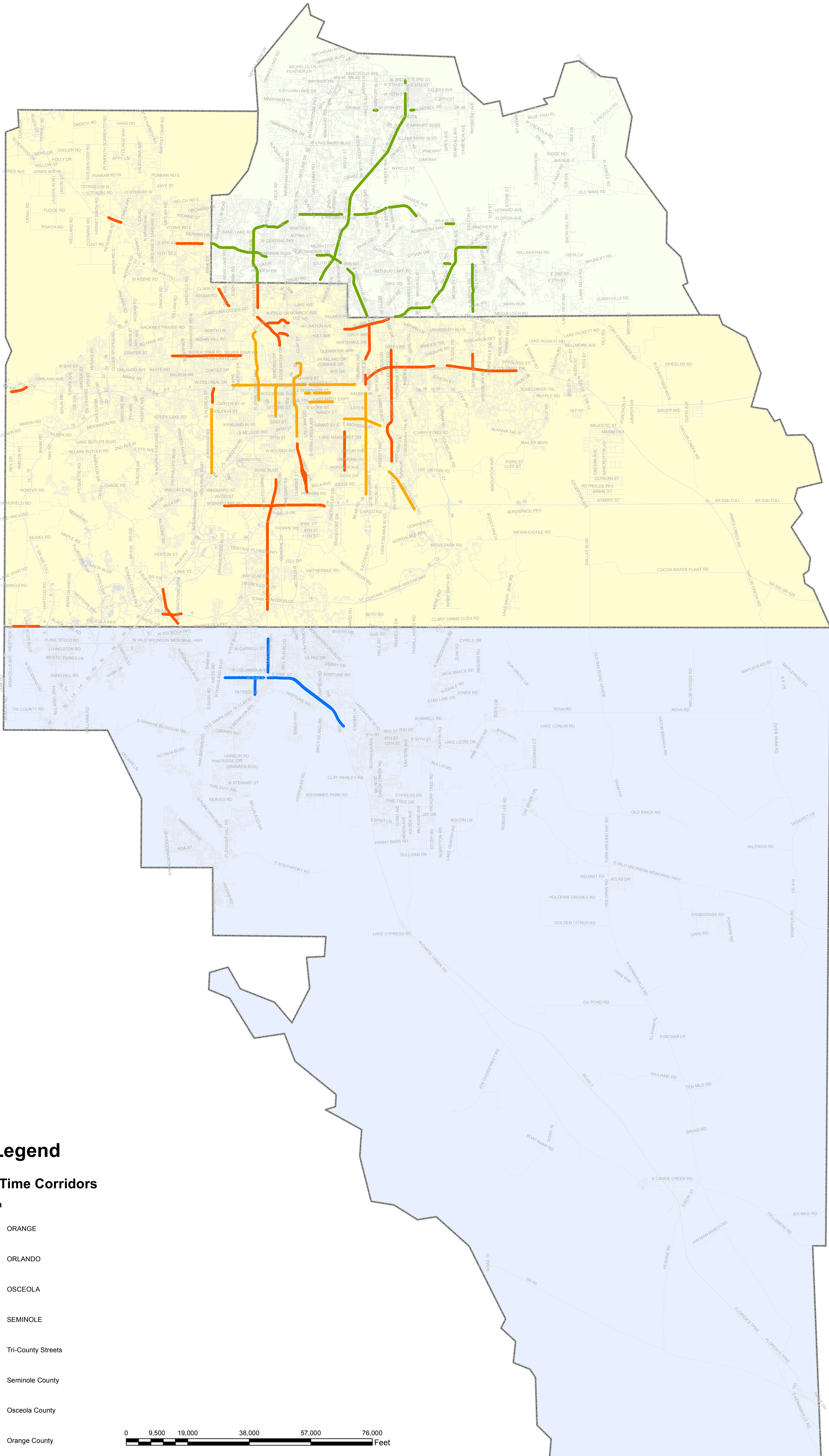
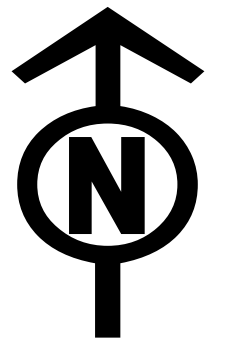
Type Individual Speeds (Filtered): Each Pair

Day of wee Date	Time	Travel time	Speed (mph)
Tuesday	6/5/2012	16:00	529 27.22
Tuesday	6/5/2012	16:09	521 27.64
Tuesday	6/5/2012	16:18	581 24.78
Tuesday	6/5/2012	16:22	496 29.03
Tuesday	6/5/2012	16:31	721 19.97
Tuesday	6/5/2012	16:34	576 25
Tuesday	6/5/2012	16:45	475 30.32
Tuesday	6/5/2012	16:57	507 28.4
Tuesday	6/5/2012	17:16	582 24.74
Tuesday	6/5/2012	17:28	572 25.17
Tuesday	6/5/2012	17:29	593 24.28
Tuesday	6/5/2012	17:31	523 27.53
Tuesday	6/5/2012	17:38	535 26.92
Tuesday	6/5/2012	17:45	670 21.49
Tuesday	6/5/2012	17:47	624 23.08
Tuesday	6/5/2012	17:53	412 34.95

Appendix E

GIS Task

Metroplan Orlando Travel Time Corridors



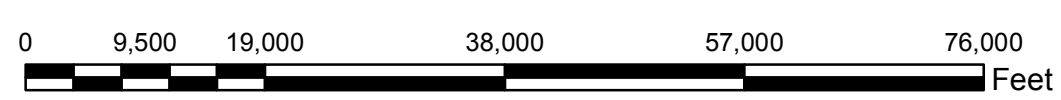
Legend

Travel Time Corridors

Jurisdiction

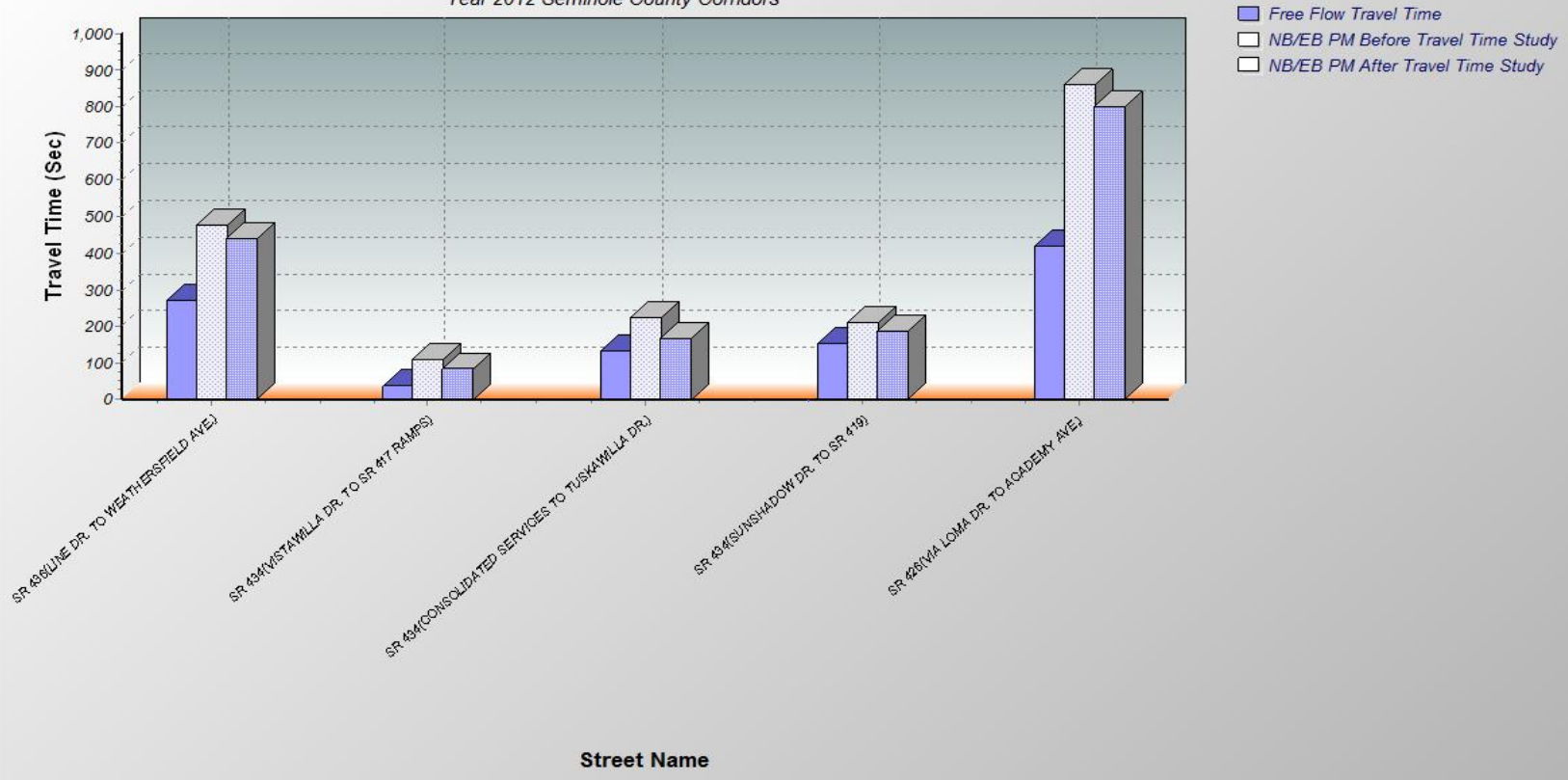
- ORANGE
- ORLANDO
- OSCEOLA
- SEMINOLE

- Tri-County Streets
- Seminole County
- Osceola County
- Orange County



Travel Time Comparison

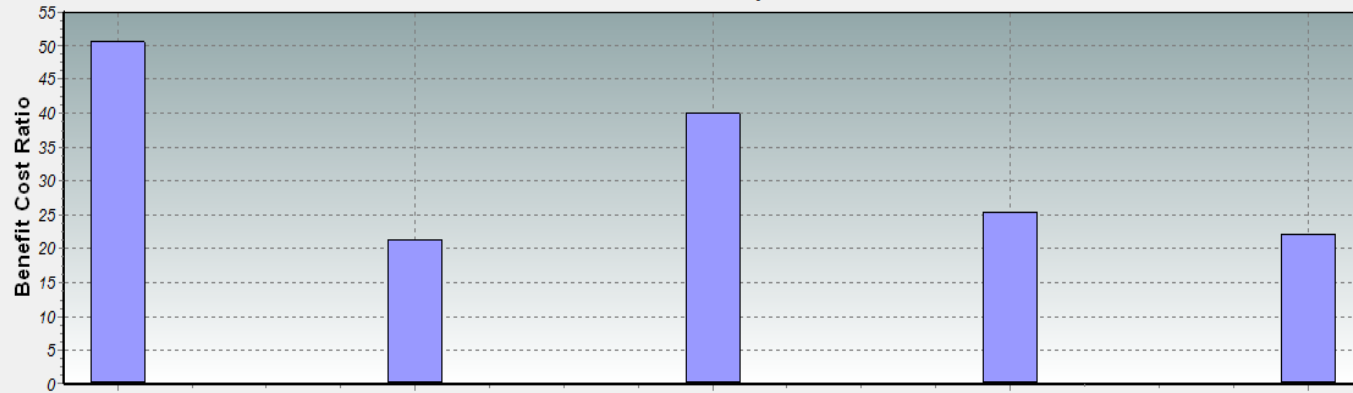
Year 2012 Seminole County Corridors



Benefit Cost Analysis

Year 2012 Seminole County Corridors

Benefit Cost Ratio



SR 406/LINE DR. TO WEATHERSFIELD AVE

SR 434/WILLOW DR. TO SR 417 RAMP(S)

SR 464/CONSOLIDATED SERVICES TO TUSAWILLA DR

SR 434/SUNSHADOW DR. TO SR 469

SR 428/VAL LOMA DR. TO ACADEMY AVE

Street Name

Appendix F

Power Point Presentation

Year 2012 Travel Time Study and Benefit - Cost Analysis



GMB Engineers and
Planners, Inc.



metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

Study Purpose



- Benefit/Cost Analysis of Signal Retiming was performed by FDOT
- GMB Engineers and Planners, Inc.
- Bluetooth Technology
- Graphs depicting the Benefit – Cost Analysis and Travel Time Comparison

Why Signal Retiming?



- Improves traffic flow
- Account for changes in traffic patterns
- Reduce driver frustration, emissions and fuel consumption
- Regular signal timing updates has a benefit/cost ratio between 20:1 and 55:1*

* ITS Benefits, Costs and Lessons Learned Database. U.S. Department of Transportation (U.S. DOT) Intelligent Transportation Systems Joint Program Office. Accessible via www.benefitcost.its.dot.gov.

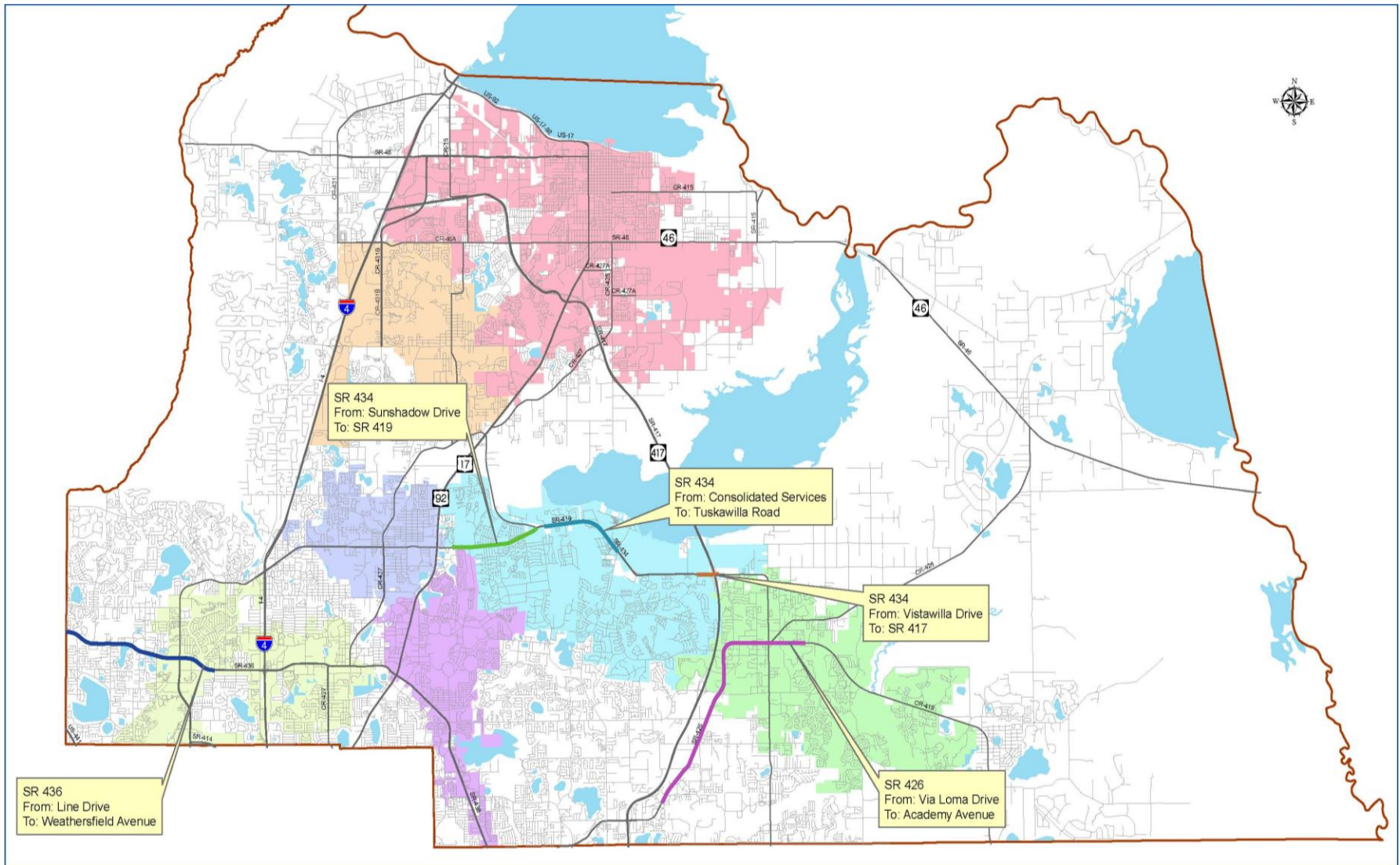
Year 2012 Metroplan Orlando Travel Time Study – Roadway Limits

Street	From	To	Length	Jurisdiction
SR 426	VIA LOMA DR.	ACADEMY AVE.	5.32	SEMINOLE
SR 434	SUNSHADOW DR.	SR 419	1.93	SEMINOLE
SR 434	CONSOLIDATED SERVICES	TUSKAWILLA DR.	2.44	SEMINOLE
SR 434	VISTAWILLA DR.	SR 417 RAMPS	0.61	SEMINOLE
SR 436	LINE DR.	WEATHERSFIELD AVE.	3.47	SEMINOLE
SR 50	DEER ISLE DR.	TURNPIKE RAMPS	1.06	ORANGE
SR 424/EDGEWATER DR.	FOREST CITY RD.	BISHOP MOORE	2.16	ORANGE
SR 426	ADANSON ST.	WYMORE RD.	0.66	ORANGE
SR 434/FOREST CITY RD.	KENNEDY BLVD.	CALUMET DR.	1.45	ORANGE
SR 435/KIRKMAN RD.	OLD WINTER GARDEN RD.	SR 408 RAMPS	0.85	ORANGE
SR 423/LEE RD.	SR 424/EDGEWATER DR.	WYMORE RD.	1.54	ORANGE
US 441	CR 437	BOY SCOUT BLVD.	0.8	ORANGE
US 441	ROSE AVE.	SR 414/MAITLAND BLVD.	1.48	ORANGE
SR 436	SHEELER AVE.	PIEDMONT WEKIVA RD.	1.66	ORANGE
SR 438	LAKE STANLEY RD.	MERCY DR.	4.01	ORANGE
SR 435/KIRKMAN RD.	MAJOR BLVD.	WESTGATE DR.	3.69	CITY OF ORLANDO
SR 527	PINELOCH AVE.	PRINCETON ST.	4.52	CITY OF ORLANDO
PRINCETON ST.	FORMOSA AVE.	I-4 RAMPS	0.18	CITY OF ORLANDO
ANDERSON ST./SOUTH ST.	MILLS AVE.	LAKE UNDERHILL RD.	1.39	CITY OF ORLANDO
SR 526	SUMMERLIN AVE.	MILLS AVE.	0.27	CITY OF ORLANDO
SR 526	FERNCREEK AVE.	CRYSTAL LAKE DR.	1.05	CITY OF ORLANDO
SR 15/HOFFNER AVE.	GOLDENROD RD.	SR 528 RAMPS	2.64	CITY OF ORLANDO
US 192	HOAGLAND BLVD.	CENTRAL AVE.	2.33	OSCEOLA
US 192	US 441/MAIN ST.	PARTIN SETTLEMENT RD.	4.42	OSCEOLA

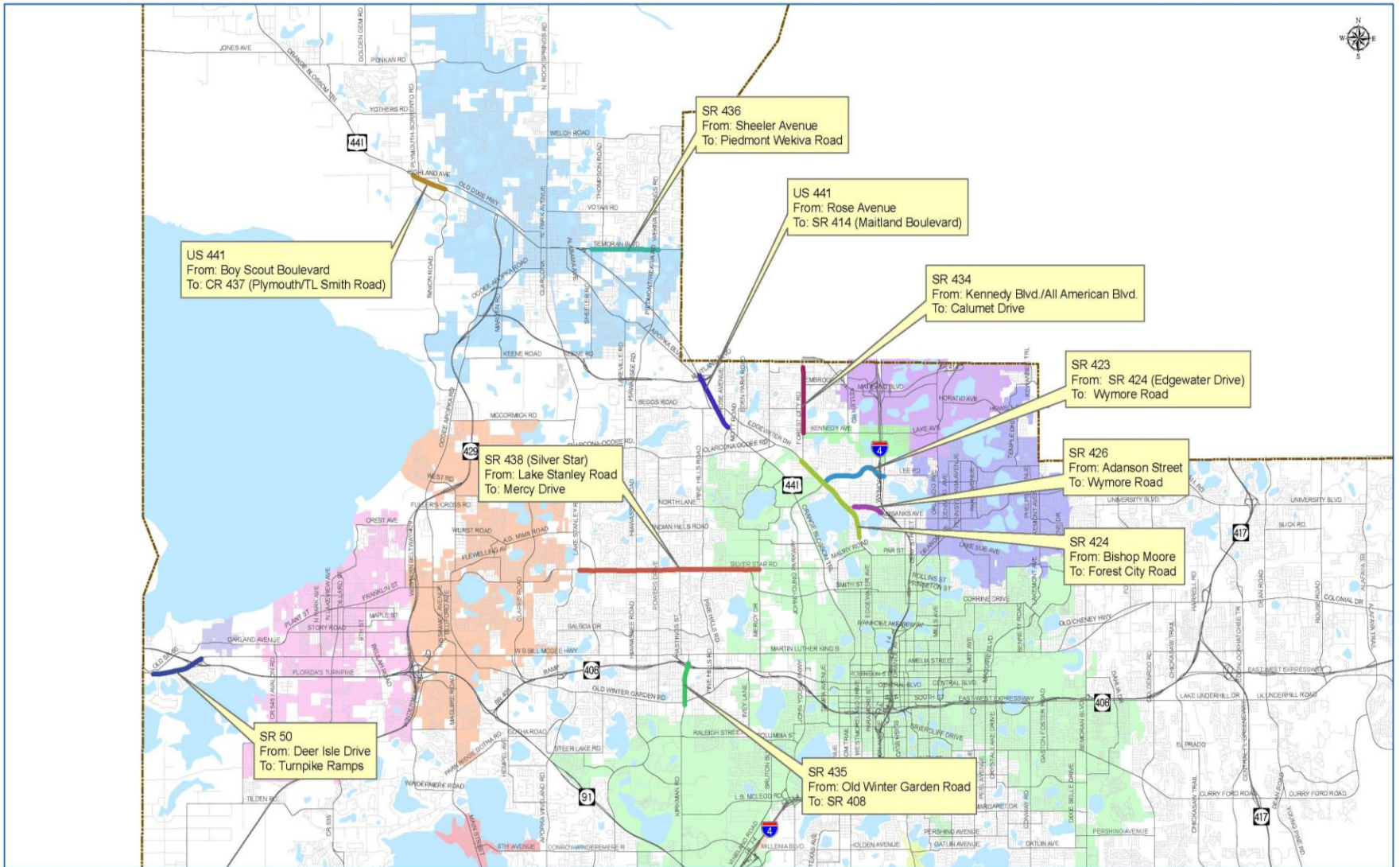
TOTAL – 49.93 MILES



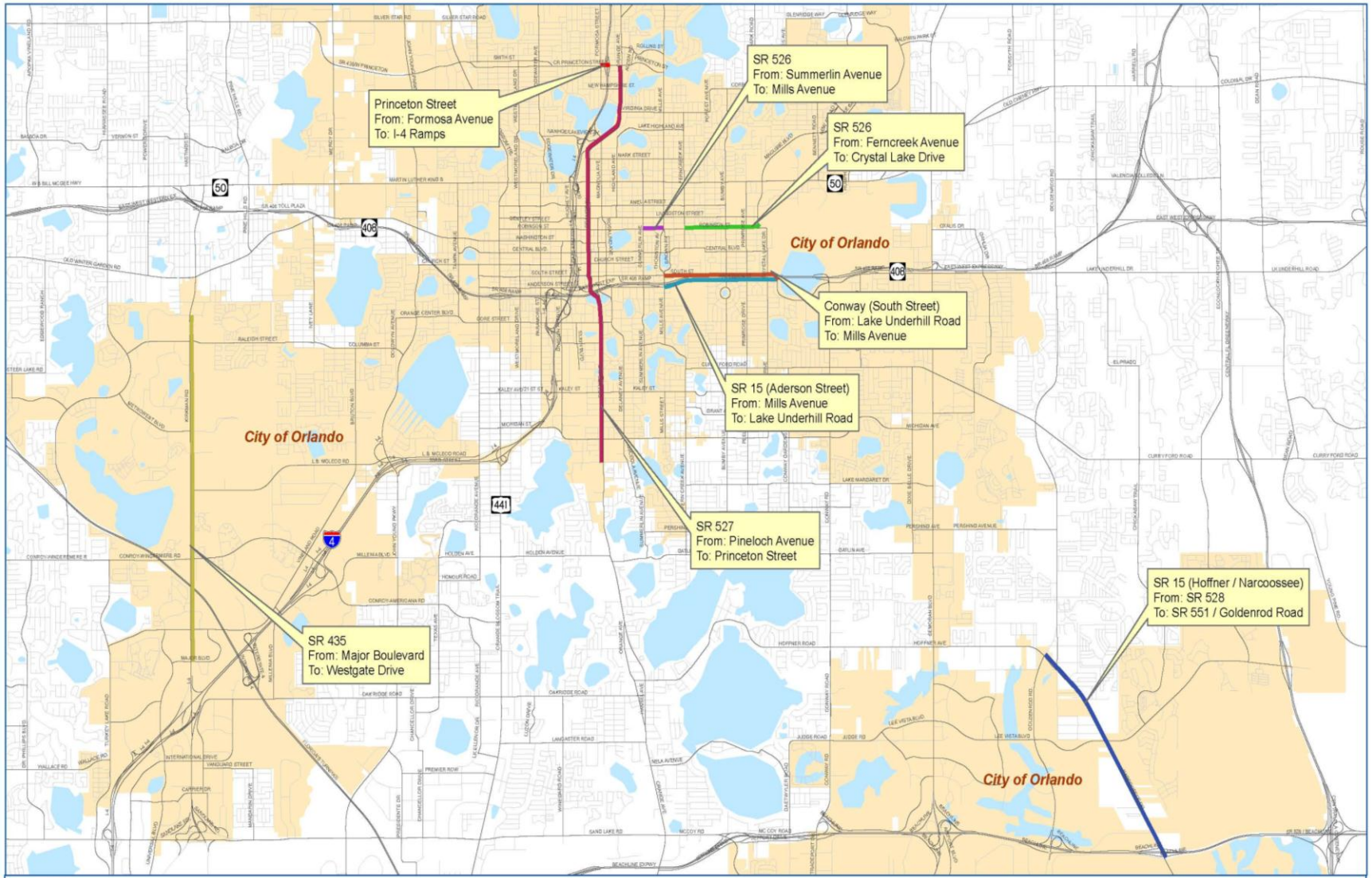
Year 2012 Metroplan Orlando Travel Time Study – Seminole County



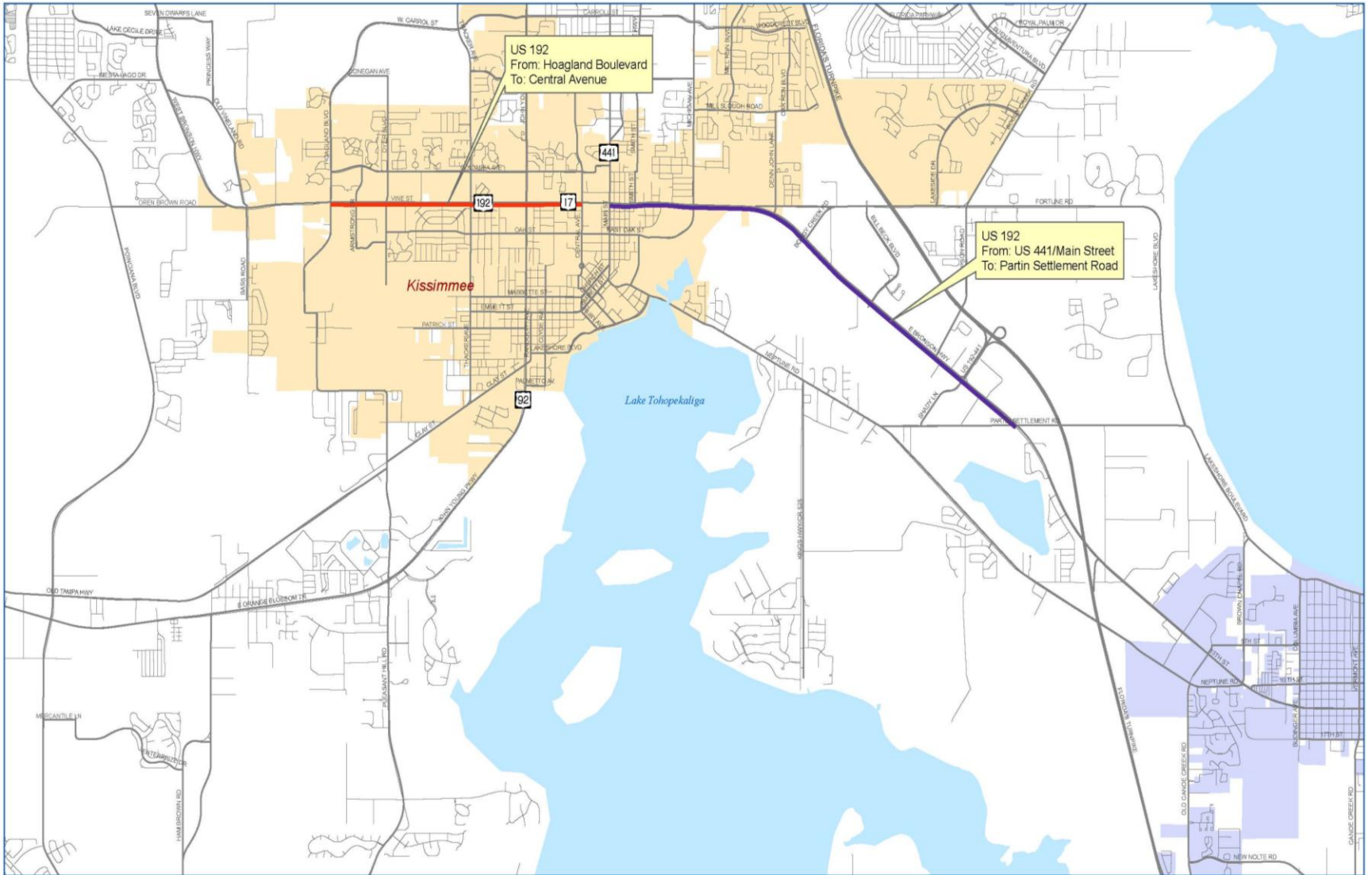
Year 2012 Metroplan Orlando Travel Time Study – Orange County



Year 2012 Metroplan Orlando Travel Time Study – City of Orlando



Year 2012 Metroplan Orlando Travel Time Study – Osceola County



Benefit – Cost Analysis



- Input Benefit Items
 - *Travel Time Cost Savings: \$16.30/hr for Orlando
 - ~Fuel Cost Savings: \$3.43/gallon
- Signal Retiming Costs obtained from FDOT

***Source:** Year 2010 Mobility Data for Orlando

~**Source:** Florida Department of Revenue & OrlandoGasPrices.com (Year 2011)

Sample Benefit / Cost Calculation

SR 435 - Major Boulevard to Westgate Drive

Summary of Measures of Effectiveness & Benefit Cost Analysis

MOE's	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	467.24	341.14	681.54	511.15
Total Fuel Consumption (gallons)	409.94	403.64	521.10	506.50

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$2,077.01	\$2,827.44
Annual User Benefit	\$623,104.15	\$848,231.43
Total Annual User Benefit	\$1,471,335.58	
Total Signal Retiming Annual Cost	\$18,875.19	
User Benefit / Cost Ratio	77.95	

Year 2012 MetroPlan Orlando Travel Time Study



**SR 435/Kirkman Rd.
- AM Peak**

Before Condition

Date of Collection: 10/27/2011
 Distance: 3.69 miles
 From: Major Blvd.
 To: Westgate Dr.

Start Time: 7:00 AM
 End Time: 9:00 AM

NB Avg Speed: 27.9 MPH
 NB Travel Time: 7.93 MIN
 NB Delay Time: 2.09 MIN

SB Avg Speed: 23.1 MPH
 SB Travel Time: 9.91 MIN
 SB Delay Time: 3.62 MIN



**SR 435/Kirkman Rd.
- AM Peak**

After Condition

Date of Collection: 4/26/2012
 Distance: 3.69 miles
 From: Major Blvd.
 To: Westgate Dr.

Start Time: 7:00 AM
 End Time: 9:00 AM

NB Avg Speed: 35.6 MPH
 NB Travel Time: 6.22 MIN
 NB Delay Time: 0.73 MIN

SB Avg Speed: 33.6 MPH
 SB Travel Time: 6.81 MIN
 SB Delay Time: 1.31 MIN

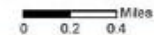
Level of Services:

- | | | | | | |
|--|---|--|---|--|---------------|
| | A | | D | | Roads |
| | B | | E | | City Boundary |
| | C | | F | | Water |



2012 METROPLAN ORLANDO

Travel Time Study



Year 2012 MetroPlan Orlando Travel Time Study



SR 435/Kirkman Rd. - PM Peak

Before Condition

Date of Collection: 10/27/2011
 Distance: 3.69 miles
 From: Major Blvd.
 To: Westgate Dr.

Start Time: 4:00 PM
 End Time: 6:00 PM

NB Avg Speed: 21.70 MPH
 NB Travel Time: 10.21 MIN
 NB Delay Time: 3.51 MIN

SB Avg Speed: 20.90 MPH
 SB Travel Time: 10.94 MIN
 SB Delay Time: 3.75 MIN

SR 435/Kirkman Rd. - PM Peak

After Condition

Date of Collection: 4/26/2012
 Distance: 3.69 miles
 From: Major Blvd.
 To: Westgate Dr.

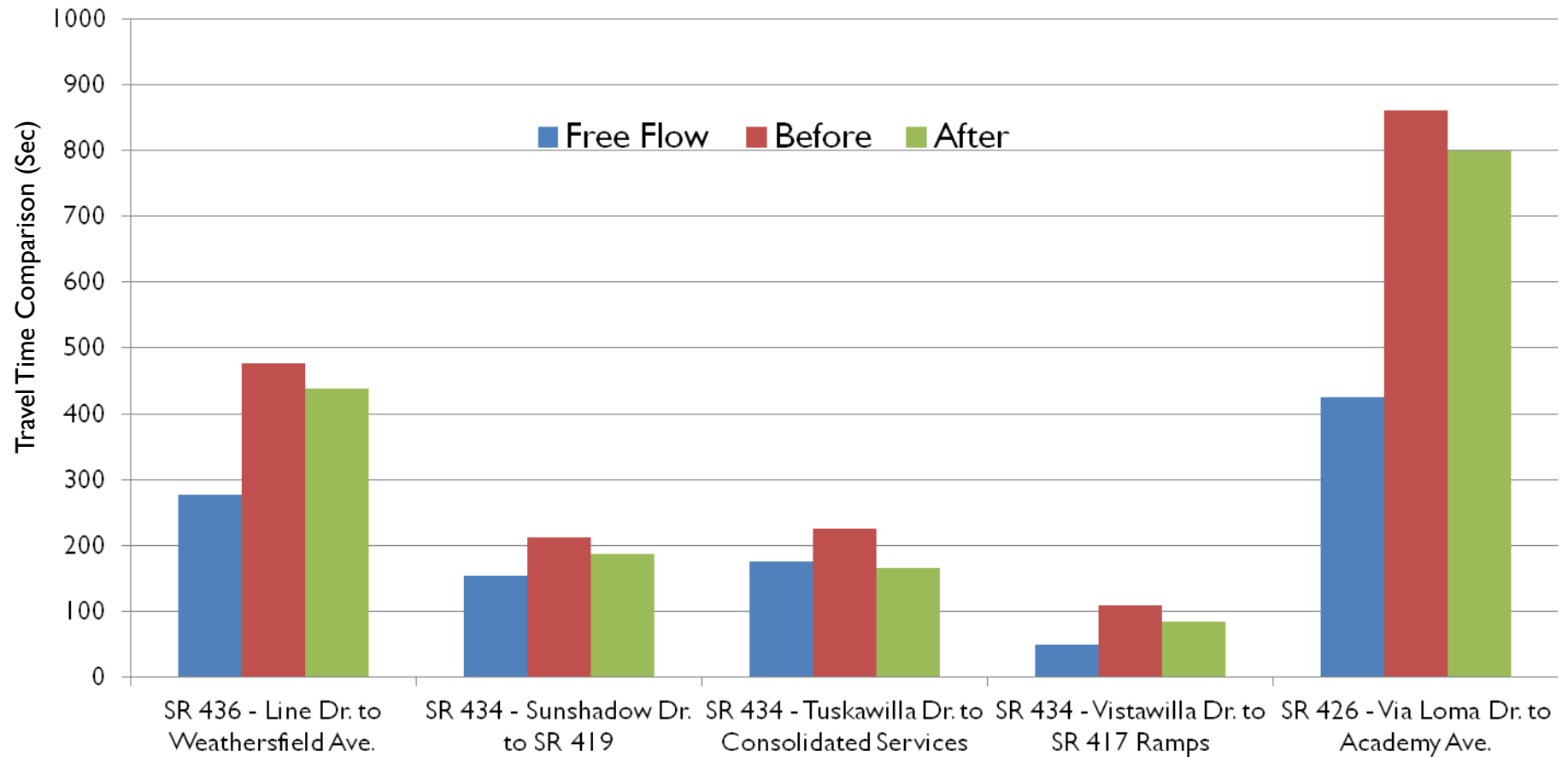
Start Time: 4:00 PM
 End Time: 6:00 PM

NB Avg Speed: 25.2 MPH
 NB Travel Time: 8.44 MIN
 NB Delay Time: 2.14 MIN

SB Avg Speed: 31.7 MPH
 SB Travel Time: 7.21 MIN
 SB Delay Time: 1.39 MIN



Year 2012 Seminole County Corridors Year – Travel Time Comparison



Annual Travel Time and Fuel Savings



- Annual Time Savings (vehicle hours): **467,824.77**
- Annual Fuel Savings (gallons): **45,894.90**
- Overall Annual User Benefit: **\$7,782,963.20**
- Overall Annual Cost: **\$265,370.48**
- Overall B/C: **29.33**

% (Miles) Below Adopted LOS : Before and After

Direction-Peak Hour	BEFORE %(Miles)	AFTER %(Miles)
NB/EB – AM	6.09% (3.0)	0.85% (0.4)
NB/EB – PM	5.91% (2.9)	3.89% (1.9)
SB/WB – AM	8.29% (4.1)	3.53% (1.8)
SB/WB – PM	10.57% (5.2)	5.44% (2.7)
Total	30.54% (15.3)	13.58% (6.8)

Pilot Study



Objective:

To evaluate the Blue Tooth technology and the GPS technology for collecting travel time data.

Time Period: 7:00 – 9:00 AM and 4:00 – 6:00 PM

Street	From	To	Length	Jurisdiction
SR 436	LINE DR.	WEATHERSFIELD AVE.	3.47	SEMINOLE
SR 438	LAKE STANLEY RD.	MERCY DR.	4.01	ORANGE
US 192	HOAGLAND BLVD.	CENTRAL AVE.	2.33	OSCEOLA

SR 436 from Line Dr. to Weathersfield Ave. - Comparison of Results

Direction	GPS Technology			BlueTOAD			Travel Time Difference		Average Speed Difference	
	# of Runs	Travel Time (Sec)	Average Speed (MPH)	# of Samples	Travel Time (Sec)	Average Speed (MPH)	Value (Sec)	%	Value (MPH)	%
AM Peak Hour										
Eastbound	8	347.4	36.0	37	369.8	33.8	22.4	6.4%	-2.2	-6.2%
Westbound	8	429.6	29.1	22	380.7	32.8	-48.9	-11.4%	3.7	12.8%
PM Peak Hour										
Eastbound	6	438.6	28.5	20	478.0	26.1	39.4	9.0%	-2.4	-8.3%
Westbound	6	349.8	35.7	41	407.9	30.6	58.1	16.6%	-5.1	-14.2%

SR 438 from Lake Stanley Rd. to Mercy Dr. - Comparison of Results

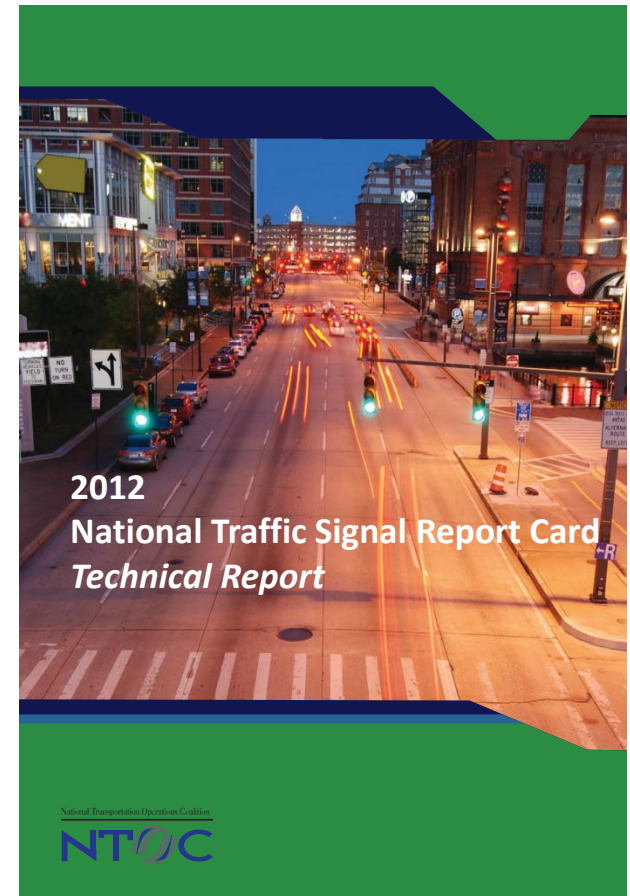
Direction	GPS Technology			BlueTOAD			Travel Time Difference		Average Speed Difference	
	# of Runs	Travel Time (Sec)	Average Speed (MPH)	# of Samples	Travel Time (Sec)	Average Speed (MPH)	Value (Sec)	%	Value (MPH)	%
AM Peak Hour										
Eastbound	6	464.4	30.6	16	429.7	33.1	-34.8	-7.5%	2.5	8.1%
Westbound	7	430.2	33.1	7	428.9	33.2	-1.3	-0.3%	0.1	0.3%
PM Peak Hour										
Eastbound	5	468.6	30.3	7	498.0	28.6	29.4	6.3%	-1.8	-5.9%
Westbound	5	526.2	27.1	16	557.3	25.6	31.1	5.9%	-1.5	-5.6%

US 192 from Hoagland Blvd. to Central Ave. - Comparison of Results

Direction	GPS Technology			BlueTOAD			Travel Time Difference		Average Speed Difference	
	# of Runs	Travel Time (Sec)	Average Speed (MPH)	# of Samples	Travel Time (Sec)	Average Speed (MPH)	Value (Sec)	%	Value (MPH)	%
AM Peak Hour										
Eastbound	7	240.0	33.7	48	250.9	32.3	10.9	4.6%	-1.5	-4.4%
Westbound	7	307.2	26.4	42	290.6	27.9	-16.6	-5.4%	1.5	5.7%
PM Peak Hour										
Eastbound	6	357.0	22.7	70	392.2	20.7	35.2	9.9%	-2.0	-9.0%
Westbound	6	294.0	27.6	48	309.9	26.1	15.9	5.4%	-1.4	-5.1%

Traffic Signal Report Card

- National Transportation Operations Coalition (NTOC)
- 2005 and 2007 Traffic Signal Report Cards
- 2011 Traffic Signal Operations Self-Assessment

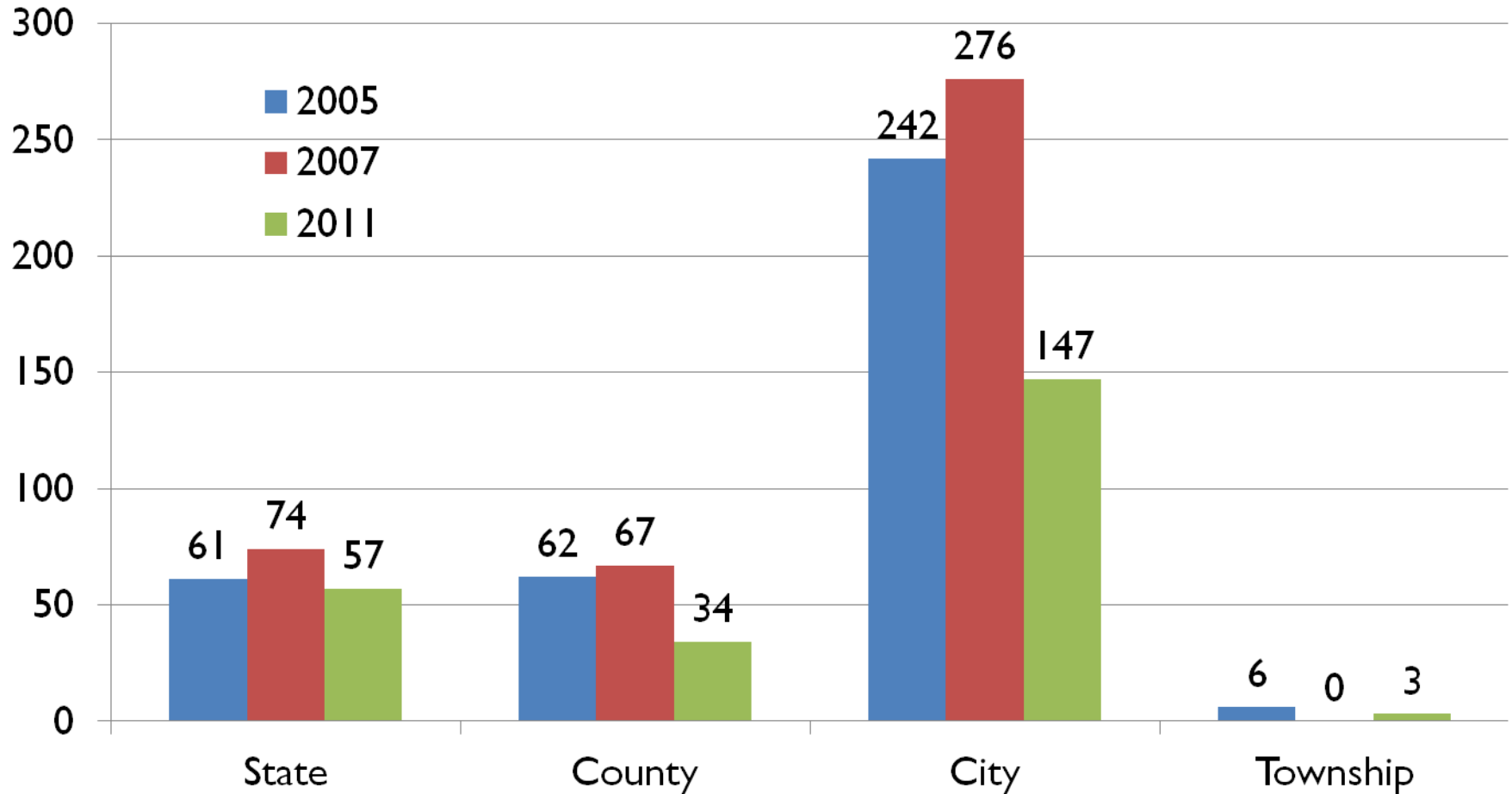


Self Assessment Report



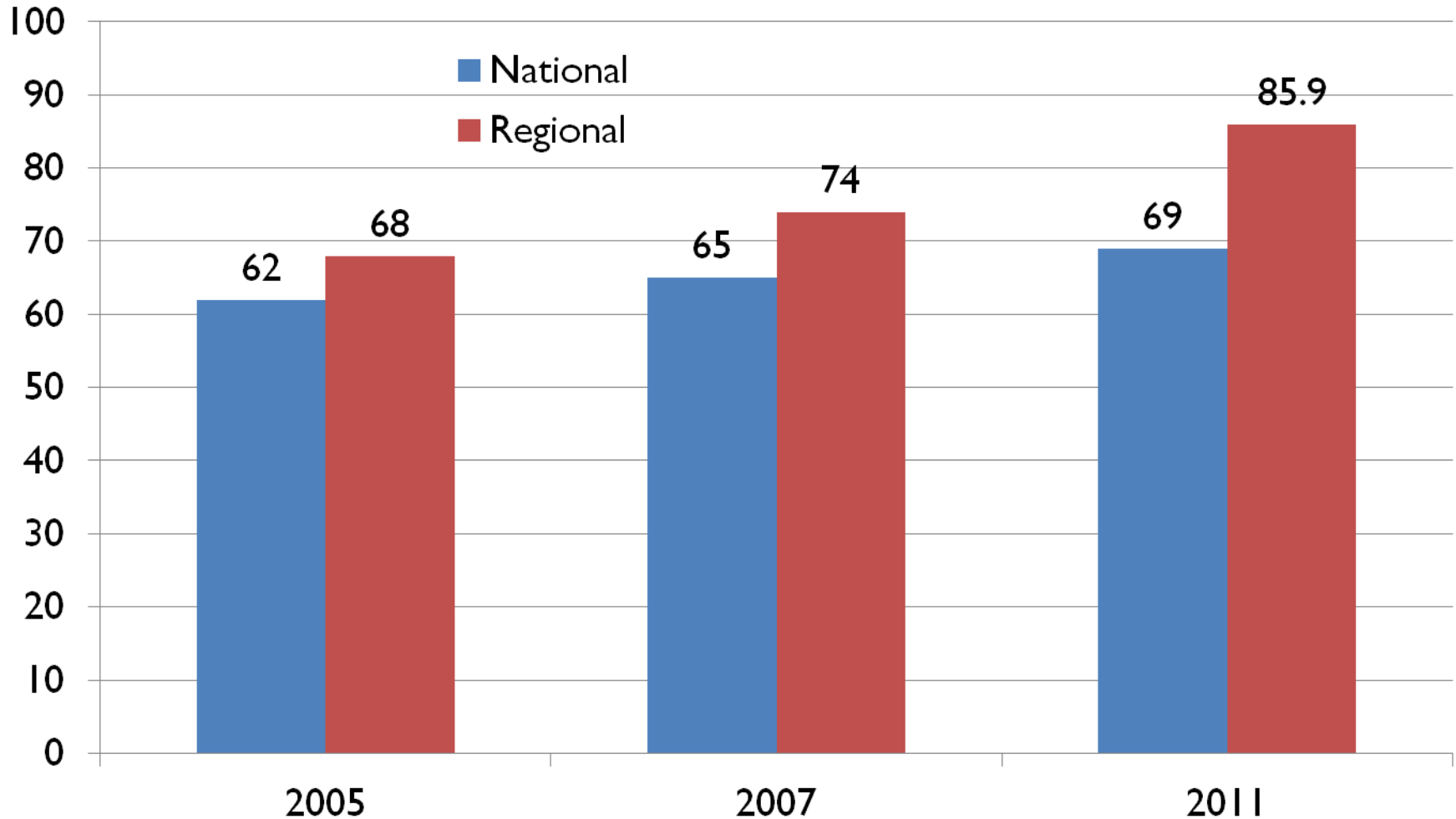
- Management
- Coordinate Signal Systems *(2005/07)*
- Individualized Signal Systems
- Signal Timing *(2007/11)*
- Monitoring & Data Collection
- Maintenance

Number of Responses by Type of Agency



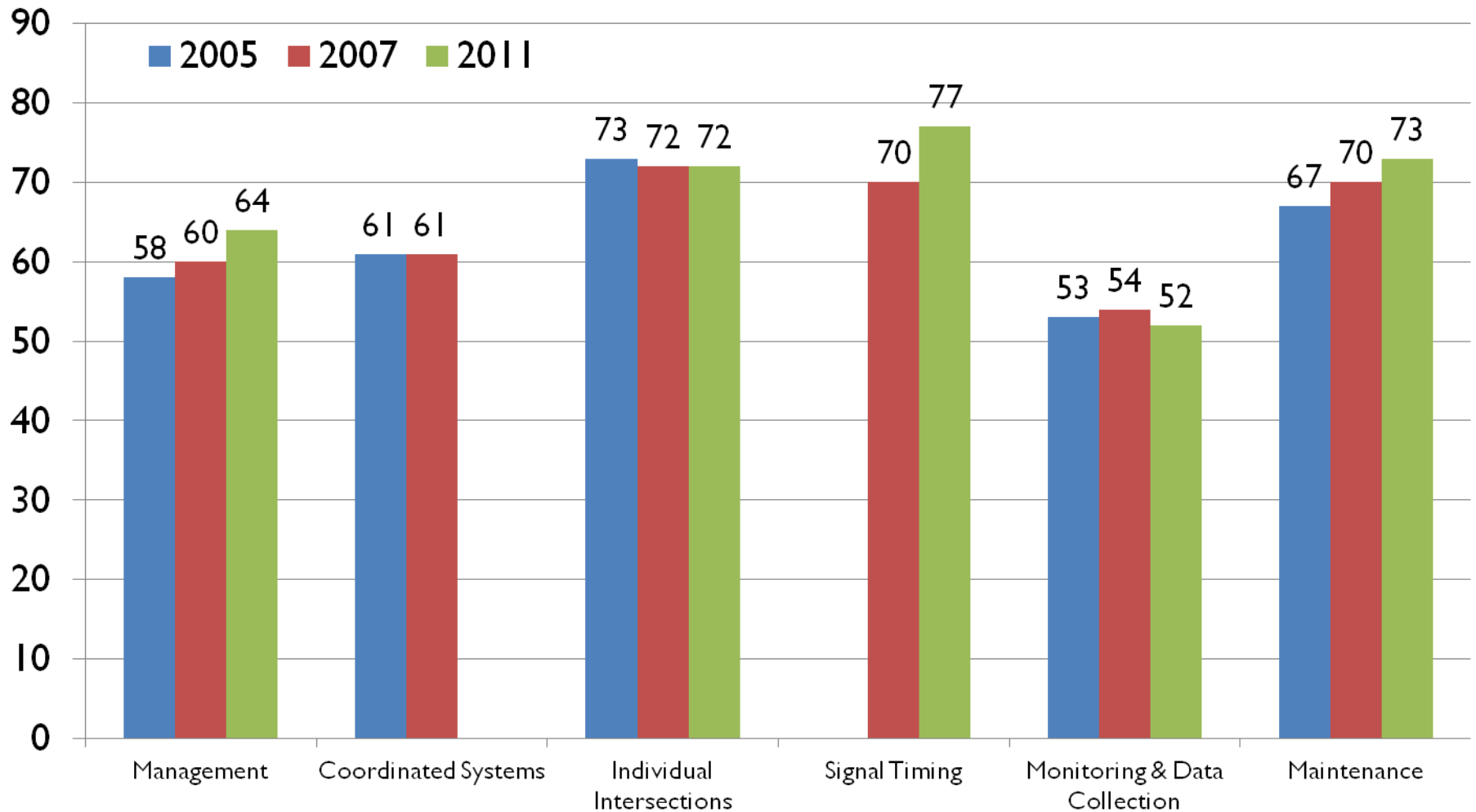
Note: Includes results from Canada. State results include responses from various districts or regions that operate their own signal systems. It is estimated that survey responses represents approximately 39 percent of signals in the U.S.

2012 Overall Score

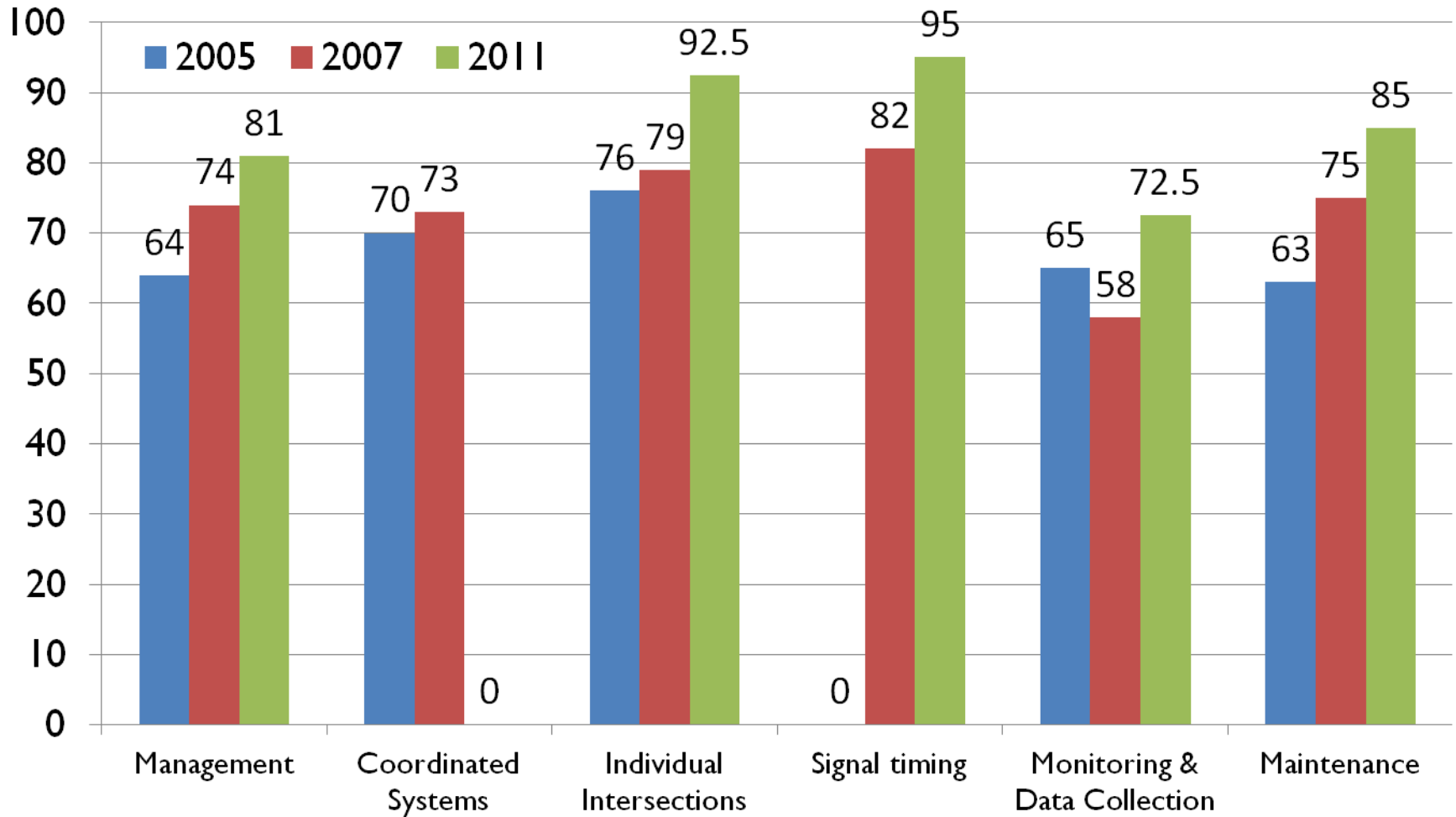


Note: Includes results for Orange and Seminole Counties, the scores are 82 and 89.8, respectively. Orange and Seminole Counties are responsible for 63 percent of traffic signals in the MetroPlan Orlando area.

2012 National Traffic Signal Report Card



2012 Regional Traffic Signal Report Card



Noteworthy Findings



- Economic downturn affected funding priorities
- Operation/Maintenance
- Capital Projects
- Investments supported by high B/C ratio



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315 E. Robinson Street, Suite 355 • Orlando, FL 32801 • 407-481-5672 • www.metroplanorlando.com