



**METROPLAN**  
ORLANDO

A Regional Transportation Partnership



# Year 2010 **METROPLAN** **ORLANDO** **TRAVEL TIME STUDY** **AND BC ANALYSIS**



GMB ENGINEERS & PLANNERS, INC.

Final Report

# **Metroplan Orlando Travel Time Study & Benefit-Cost Analysis**

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

October 2010

Metroplan Orlando

&

GMB Engineers & Planners, Inc.

## Table of Contents

<b>1</b>	<b>Introduction .....</b>	<b>1</b>
1.1	Overview .....	1
1.2	Background.....	1
<b>2</b>	<b>Travel Time &amp; Delay Studies .....</b>	<b>7</b>
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
<b>3</b>	<b>Benefit Cost Analysis .....</b>	<b>11</b>
3.1	Benefits.....	11
3.1.1	Travel Time Cost Savings .....	12
3.1.2	Fuel Cost Savings .....	12
3.2	Costs .....	12
3.3	Benefit-Cost Ratio .....	14
<b>4</b>	<b>Conclusions .....</b>	<b>15</b>
4.1	Travel Time and Delay Study.....	15
4.2	Benefit-Cost Ratio Analysis .....	16
<b>5</b>	<b>Appendices .....</b>	<b>20</b>

## 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: US 17-92 between Osceola Parkway and Columbia Avenue ..... 13

Table 4: Summary of After Study MOEs: US 17-92 between Osceola Parkway and Columbia Avenue ..... 13

Table 5: Summary of MOEs & Benefit Cost Analysis: US 17-92 between Osceola Parkway and Columbia Avenue ..... 14

Table 6: Summary of Roadway Miles operating at LOS F..... 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 ..... 17

Table 10: Benefit-Cost Ratio Summary for Osceola County Roadways..... 18

Table 11: Annual Travel Time and Cost Savings Summary ..... 19

# 1 Introduction

## 1.1 Overview

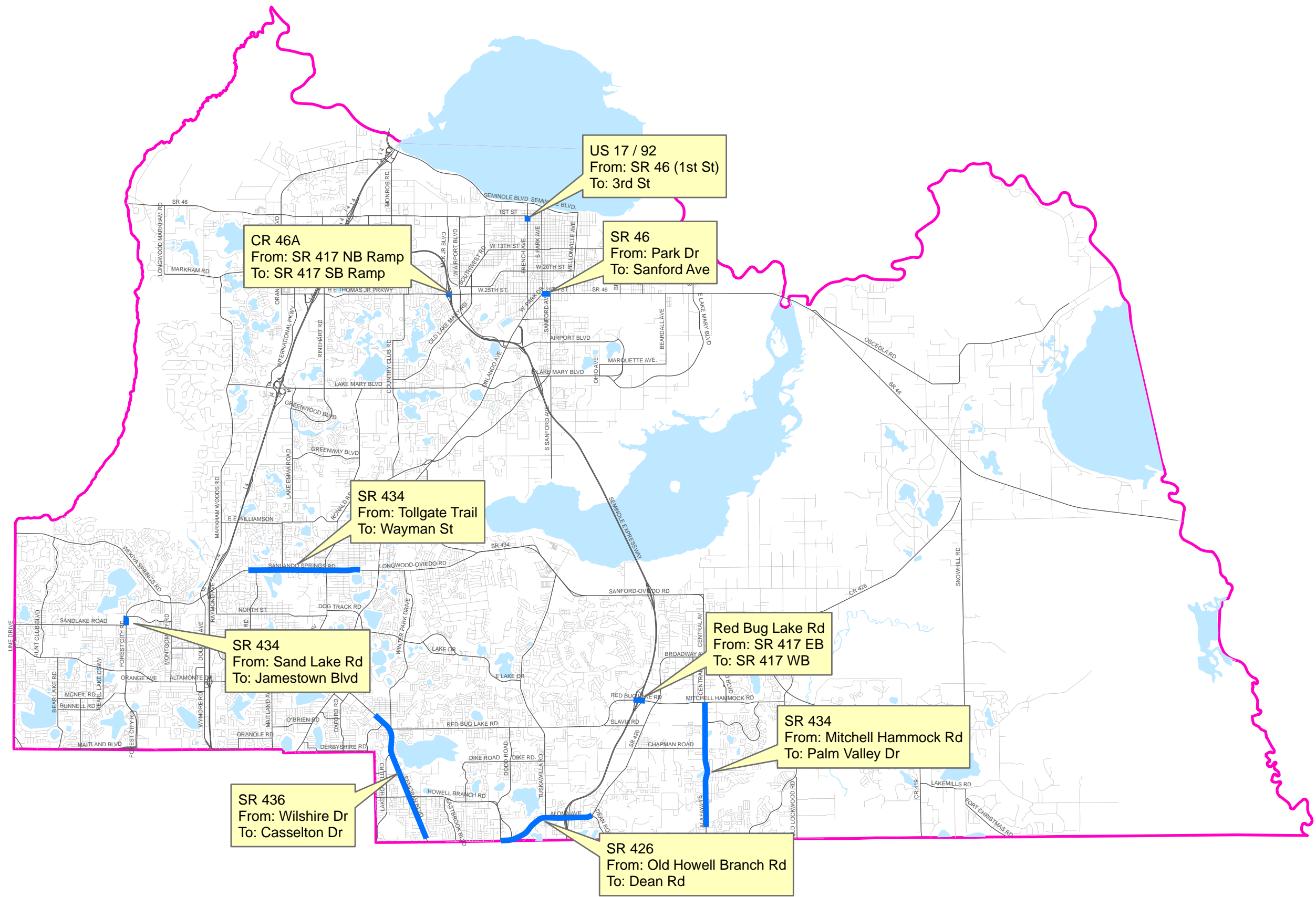
Metroplan Orlando has requested GMB Engineers & Planners, Inc. (GMB) to assess the benefits of the recently completed signal retiming projects on twenty-four (24) selected roadways spread throughout the tri-county (Orange, Seminole, and Osceola) area in the Central Florida region. Out of the 24 study roadways, nine fall within Seminole County, seven (7) fall with Orange County, six (6) fall within the City of Orlando, and the remaining two (2) fall within Osceola County. 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 study roadways with information on segment limits, length, and maintaining jurisdiction is provided in Table 1.

To determine whether the benefits from the completed signal retiming projects would outweigh the implementation costs, a Benefit-Cost 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 TTD studies were conducted for all the 24 twenty-four (24) study roadways in the before scenario. However, based on the direction from the City of Orlando project staff, TTD studies for the after scenario were conducted on only 21 study roadways. Due to the ongoing construction and other reasons, the signal retiming on Hoffner Avenue/Narcoossee Road, Mills Avenue, and Central Boulevard in the City of Orlando was postponed until the next year.

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

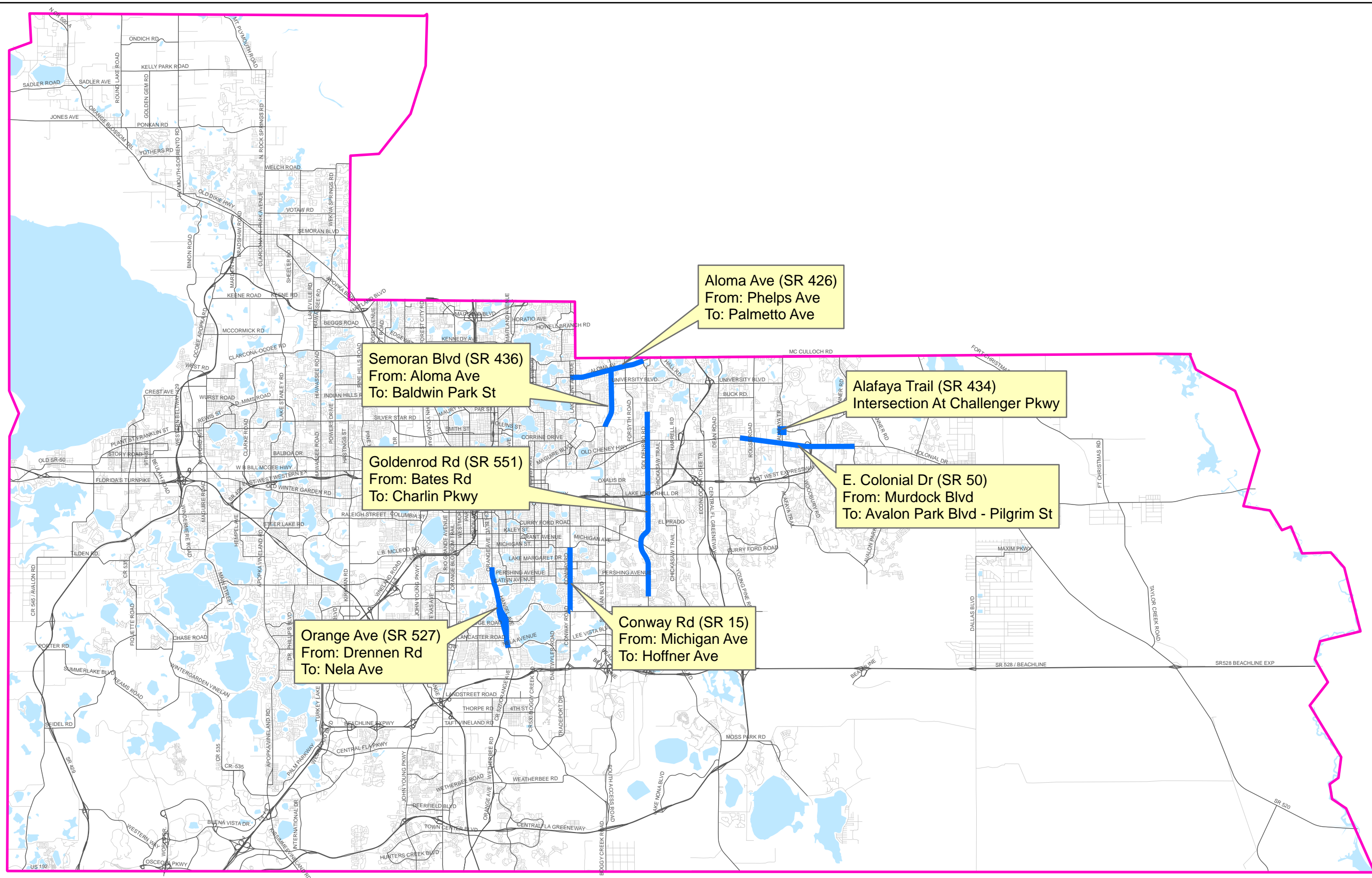
## 1.2 Background

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 2010. GMB's role is to conduct TTD studies to assess the benefits achieved through these signal-retiming projects.



**Year 2010 Metroplan Orlando Travel Time Study & BC Analysis**

**Fig - 1  
Seminole County  
Roadway Limits**



Aloma Ave (SR 426)  
From: Phelps Ave  
To: Palmetto Ave

Semoran Blvd (SR 436)  
From: Aloma Ave  
To: Baldwin Park St

Alafaya Trail (SR 434)  
Intersection At Challenger Pkwy

Goldenrod Rd (SR 551)  
From: Bates Rd  
To: Charlin Pkwy

E. Colonial Dr (SR 50)  
From: Murdock Blvd  
To: Avalon Park Blvd - Pilgrim St

Orange Ave (SR 527)  
From: Drennen Rd  
To: Nela Ave

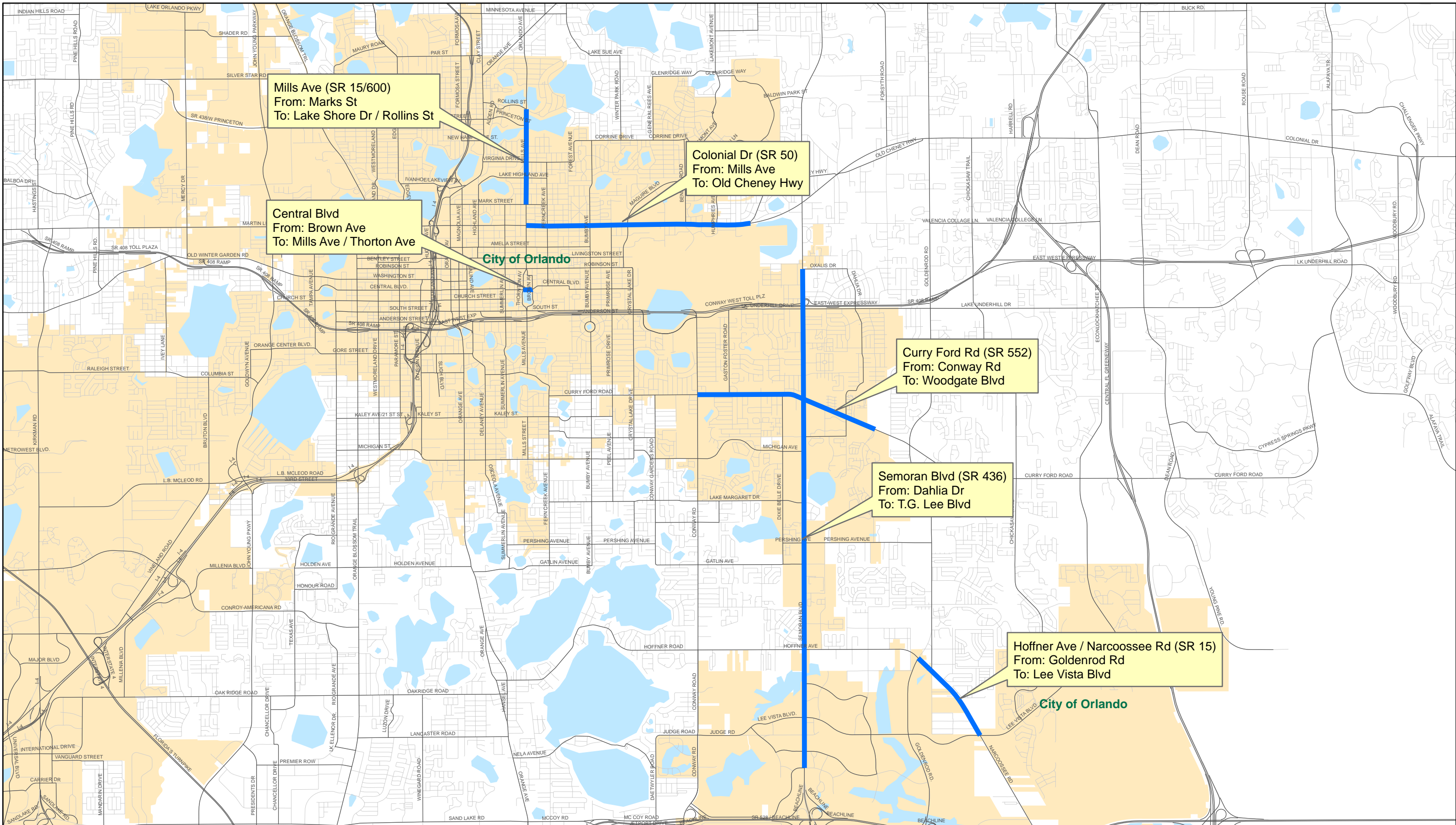
Conway Rd (SR 15)  
From: Michigan Ave  
To: Hoffner Ave



**Year 2010 Metroplan Orlando Travel Time Study & BC Analysis**

**Fig - 2  
Orange County  
Roadway Limits**

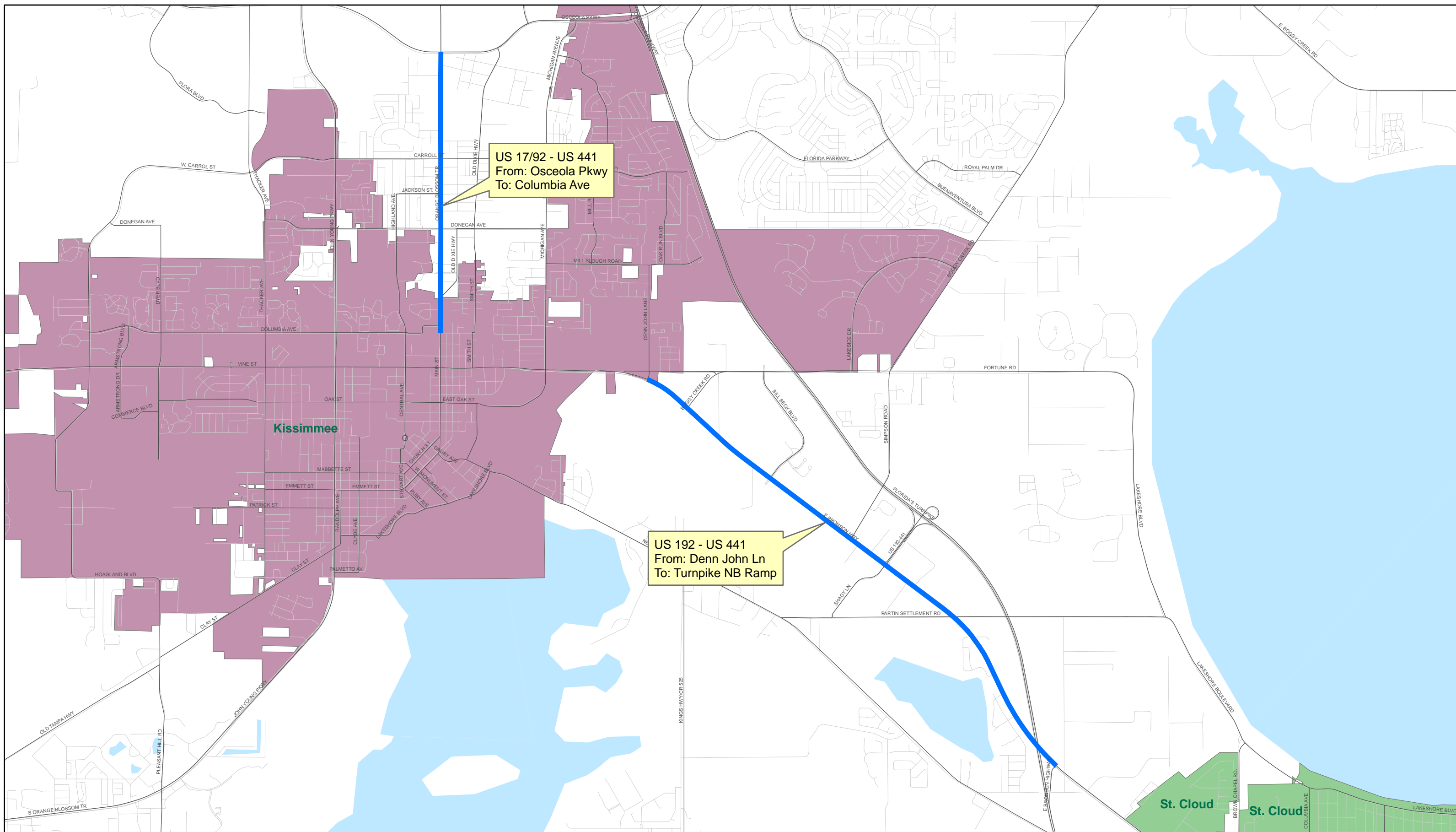




**Year 2010 Metroplan Orlando Travel Time Study & BC Analysis**

**Fig - 3**  
**City of Orlando**  
**Roadway Limits**





US 17/92 - US 441  
 From: Osceola Pkwy  
 To: Columbia Ave

US 192 - US 441  
 From: Denn John Ln  
 To: Turnpike NB Ramp



**Year 2010 Metroplan Orlando Travel Time Study & BC Analysis**

**Fig - 4  
 Osceola County  
 Roadway Limits**



**Table 1: List of Study Roadways**

Roadway Name	Segment Limits	Length (Miles)	Jurisdiction
Alafaya TI (SR 434)	Challenger Pkwy Intersection	NA	Orange
Aloma Ave (SR 426)	Phelps Ave to Palmetto Ave	2.00	Orange
Colonial Dr E. (SR 50)	Murdock Blvd to Avalon Park Blvd	4.10	Orange
Conway Rd (SR 15)	Michigan Ave to Hoffner Ave	2.30	Orange
Goldenrod Rd (SR 551)	Bates Rd to Charlin Pkwy	6.80	Orange
Orange Ave (SR 527)	Drennan Rd to Nela Ave	2.70	Orange
Semoran Blvd (SR 436)	Aloma Ave to Baldwin Park St	2.20	Orange
Curry Ford Rd (SR 552)	Conway Rd to Woodgate Blvd	2.20	Orlando
Hoffner Ave/ Narcoossee Rd (SR 15)	Goldenrod Rd to Lee Vista Blvd	1.20	Orlando/Orange
Semoran Blvd (SR 436)	Dahlia Dr to T.G. Lee Blvd	6.00	Orlando
Colonial Dr (SR 50)	Mills Ave to Old Cheney Hwy	2.65	Orlando
Mills Ave (SR 15/600)	Marks St to Lake Shore Dr/Rollins St	1.20	Orlando
Central Blvd	Brown Ave to Mills Ave	0.15	Orlando
US 17/92 - US 441	Osceola Pkwy to Columbia Ave	2.00	Osceola /Kissimmee
US 192 - US 441	Denn John Ln to Turnpike NB Ramp	4.00	Osceola
US 17/92	SR 46 (1st St) to 3rd St	0.13	Seminole
SR 434	Sand Lake Rd to Jamestown Blvd	0.20	Seminole
SR 434	Tollgate Trail to Wayman St	2.54	Seminole
SR 434	Mitchell Hammock Rd to Palm Valley Dr	2.77	Seminole
SR 436	Wilshire Dr to Casselton Dr	3.10	Seminole
SR 46	Park Dr to Sanford Ave	0.19	Seminole
CR 46A	SR 417 NB Ramp to SR 417 SB Ramp	0.12	Seminole
SR 426	Old Howell Branch Rd to Dean Rd	2.30	Seminole
Red Bug Lake Rd	SR 417 EB to SR 417 WB	0.20	Seminole

## 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 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 benefit cost 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 second week of January 2010 and second week of February 2010. The after field travel time data were collected anywhere between second week of March 2010 and first week of June 2010, 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 (Geographical Information System) maps graphically illustrating the LOS conditions and listing the travel time and delay summaries are also provided in **Appendix A** of this report.

10

**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 Benefit Cost 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 Benefit-Cost 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 project: US 17/92 between Osceola Parkway and Columbia Avenue.



### 3.1.1 Travel Time Cost Savings

The cost associated with the lost travel time is valued at \$15.47 per hour for the year 2007 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. For the purposes of this study, the 2007 value was grown at 3% per year to obtain a value of \$16.90 per hour for the year 2010.

Based on the calculations using the field travel time data and traffic volume data from the latest (year 2008) traffic counts, a total annual cost savings (two peak hours combined) of \$270,095.80 was obtained from reduction in travel time for the US 17-92 study corridor.

### 3.1.2 Fuel Cost Savings

The savings on fuel costs were also included as part of the benefits in the Benefit-Cost analysis. The fuel costs were determined as \$2.98 based on the current market fuel costs. Based on the calculations using the field fuel consumption data and traffic volume data from the latest (year 2008) traffic counts, a total annual cost savings (two peak hours combined) of \$7,849.32 was obtained from reduction in fuel consumption for the US 17-92 study corridor.

Combining the cost savings from travel time and fuel consumption, a total annual cost savings of \$277,945.12 was obtained for the US 17-92 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 \$6,439.77 from a one-time implementation cost of \$16,900.00 for the US 17-92 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 4 shows the benefits, costs, and Benefit-Cost ratio for the example study corridor.

**Table 3: Summary of Before Study MOEs: US 17-92 between Osceola Parkway and Columbia Avenue**

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)
<b>Northbound/Eastbound - AM Peak Hour</b>						
813	243.0	51.6	29.5	0.0700	54.88	56.91
<b>Northbound/Eastbound - PM Peak Hour</b>						
904	269.4	70.2	26.6	0.0700	67.65	63.28
<b>Southbound/Westbound - AM Peak Hour</b>						
1117	238.2	38.4	32.8	0.0830	73.91	92.71
<b>Southbound/Westbound - PM Peak Hour</b>						
1708	261.0	52.2	29.9	0.0840	123.83	143.47

13

**Table 4: Summary of After Study MOEs: US 17-92 between Osceola Parkway and Columbia Avenue**

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)
<b>Northbound/Eastbound - AM Peak Hour</b>						
813	179.4	15.6	39.9	0.0670	40.51	54.47
<b>Northbound/Eastbound - PM Peak Hour</b>						
904	218.4	45.6	32.8	0.0680	54.84	61.47
<b>Southbound/Westbound - AM Peak Hour</b>						
1117	208.2	18.6	37.5	0.0820	64.60	91.59
<b>Southbound/Westbound - PM Peak Hour</b>						
1708	225.6	35.4	34.6	0.0820	107.03	140.06

**Table 5: Summary of MOEs & Benefit Cost Analysis: US 17-92 between Osceola Parkway and Columbia Avenue**

MOE	AM PEAK HOUR		PM PEAK HOUR	
	Before	After	Before	After
Total Travel Time (vehicle - hrs)	128.79	105.11	191.48	161.88
Total Fuel Consumption (gallons)	149.62	146.07	206.75	201.53
BENEFITS	AM PEAK HOUR		PM PEAK HOUR	
User Benefit Per Day	\$410.64		\$515.84	
Annual User Benefit	<b>\$123,192.72</b>		<b>\$154,752.40</b>	
Total Annual User Benefit	<b>\$277,945.12</b>			
Total Signal Retiming Annual Cost	\$6,439.77			
<b>User Benefit / Cost Ratio</b>	<b>43.16</b>			

Notes:

1. Value of Delay Time is \$16.90 per hour (\$15.47 from Mobility Data for Orlando for the year 2007 & grown 3% per year)
2. Fuel consumption is valued to the rate of \$2.98 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 **benefit cost ratio of 43.16 (greater than 1.0)** was derived from the analysis for US 17-92 study corridor. The strong ratio indicates that the funds spent by FDOT/Metroplan Orlando to increase the operational capacity of the study corridor on US 17-92 between Osceola Parkway and Columbia Avenue in Osceola County receive approximately forty-three times in benefits derived through reduced costs associated with reduced travel time and fuel consumption. Therefore, the positive results of this benefit cost 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 Benefit-Cost ratio analysis results. GMB has conducted before and after travel time and delay studies on twenty-one (21) 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 55 centerline miles of roadway segments was evaluated in this study. A summary showing the roadway miles that operate at LOS F 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 at LOS F**

Direction-Peak Hour	Before Scenario	After Scenario
	%(Miles)	%(Miles)
NB/EB – AM	3.13% (1.7)	1.67% (1.0)
NB/EB – PM	10.06% (5.6)	6.05% (3.4)
SB/WB – AM	8.98% (5.0)	3.76% (2.1)
SB/WB – PM	12.78% (7.1)	7.05% (3.9)
<b>Total</b>	<b>19.4 (35%)</b>	<b>10.4(18%)</b>

As shown in Table 6, while approximately 35% of the total roadway centerline miles were found to operate at LOS F before the implementation of the improved signal timings, only 18% of the total roadway centerline miles were found to operate at LOS F after the signal retiming projects were completed. In conclusion, LOS conditions on approximately 17% of the total roadway centerline miles were improved because of the recently completed signal retiming projects.

## 4.2 Benefit-Cost Ratio Analysis

As part of the current study, benefit-cost ratios were calculated for the 21 study roadways falling within the Central Florida region. Tables 7 through 10 illustrate the benefit-cost 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
US 17/92	SR 46 (1st St) to 3rd St	\$91,803.70	\$3,905.78	<b>23.50</b>
SR 434	Sand Lake Rd to Jamestown Blvd	\$97,494.71	\$3,861.20	<b>25.25</b>
SR 434	Tollgate Trail to Wayman St	\$872,118.48	\$11,926.92	<b>73.12</b>
SR 434	Mitchell Hammock Rd to Palm Valley Dr	\$486,025.44	\$9,678.71	<b>50.22</b>
SR 436	Wilshire Dr to Casselton Dr	\$933,847.95	\$17,509.32	<b>53.33</b>
SR 46	Park Dr to Sanford Ave	\$115,608.62	\$3,905.78	<b>29.60</b>
CR 46A	SR 417 NB Ramp to SR 417 SB Ramp	\$50,435.76	\$3,861.20	<b>13.06</b>
SR 426	Old Howell Branch Rd to Dean Rd	\$380,396.32	\$13,717.86	<b>27.73</b>
Red Bug Lake Rd	SR 417 EB to SR 417 WB	\$160,113.12	\$3,861.20	<b>41.47</b>

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

Street	Limits	Annual Benefit	Annual Cost	B/C Ratio
Alafaya TI (SR 434)	Challenger Pkwy Intersection	\$513,383.90	\$1,566.12	<b>327.81</b>
Aloma Ave (SR 426)	Phelps Ave to Palmetto Ave	\$953,161.33	\$12,879.55	<b>74.01</b>
Colonial Dr E. (SR 50)	Murdock Blvd to Avalon Park Blvd	\$1,490,036.19	\$17,219.72	<b>86.53</b>
Conway Rd (SR 15)	Michigan St to Hoffner Ave	\$494,870.99	\$10,402.71	<b>47.57</b>
Goldenrod Rd (SR 551)	Bates Rd to Charlin Pkwy	\$795,728.03	\$15,889.85	<b>50.08</b>
Orange Ave (SR 527)	Drennan St to Nela Ave	\$1,132,333.09	\$16,309.01	<b>69.43</b>
Semorán Blvd (SR 436)	Aloma Ave to Baldwin Park St	\$605,321.47	\$8,345.03	<b>72.54</b>

17

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

Street	Limits	Annual Benefit	Annual Cost	B/C Ratio
Curry Ford Rd (SR 552)	Conway Rd to Woodgate Blvd	\$758,784.55	\$10,402.71	<b>72.94</b>
Semorán Blvd (SR 436)	Dahlia Dr to T.G. Lee Blvd	\$1,609,694.32	\$29,036.14	<b>55.44</b>
Colonial Dr (SR 50)	Mills Ave to Old Cheney Hwy	\$917,396.80	\$21,948.58	<b>41.8</b>

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

Street	Limits	Annual Benefit	Annual Cost	B/C Ratio
US 17/92	Osceola Pkwy to Columbia Ave	\$277,945.12	\$6,439.77	<b>43.16</b>
US 192	Denn John Ln to Turnpike NB Ramp	\$392,859.77	\$11,660.18	<b>33.69</b>

As shown in Table 7, the benefit-cost ratios range between 13 and 73 for the signal retiming projects on Seminole County roadways. From Table 8, the benefit-cost ratios range between 38 and 328 for the signal retiming projects on Orange County roadways. As shown in Table 9, the benefit-cost ratios range between 42 and 73 for the signal retiming projects on the City of Orlando roadways. As shown in Table 10, the benefit-cost ratios are 39 and 43 for the two (2) signal retiming projects on Osceola County roadways.

**In conclusion, all the twenty-one (21) study signal-retiming projects have benefit-cost 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, 762,022 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 84,289 gallons of fuel.**

**Table 11: Annual Travel Time and Cost Savings Summary**

Roadway Name	Limits	Annual Time Savings (vehicle hours)	Annual Fuel Savings (gallons)
Alafaya Trail	Challenger Pkwy Intersection	29,747	3,580
Aloma Ave	Balfour Dr to Palmetto Ave	55,695	3,997
Conway Rd	Michigan Ave to Hoffner Ave	28,900	2,168
CR 46A	SR 417 NB Ramp to SR 417 SB Ramp	2,941	248
Curry Ford Rd	Conway Rd to Woodgate Blvd	44,537	2,048
Goldenrod Rd	Bates Rd to Charlin Pkwy	41,965	29,033
Orange Ave	Drennan St to Nela Ave	66,660	1,937
Red Bug Lake Rd	SR 417 EB to SR 417 WB	9,425	279
SR 426	Old Howell Branch Rd to Dean Rd	22,050	2,603
SR 434	Sand Lake Rd to Jamestown Blvd	5,627	804
SR 434	Tollgate Trail to Wayman St	50,945	3,740
SR 434	Mitchell Hammock Rd to Palm Valley Dr	28,567	1,087
SR 436	Aloma Ave to Baldwin Park St	35,151	3,781
SR 436	Wilshire Dr to Casselton Dr	54,198	6,009
SR 436	Dahlia Dr to T.G. Lee Blvd	94,372	4,971
SR 46	Park Dr to Sanford Ave	6,811	170
SR 50	Mills Ave to Old Cheney Hwy	53,560	4,106
SR 50	Murdock Blvd to Avalon Park Blvd	86,449	9,749
US 17-92	SR 46 (1st St) to 3rd St	5,385	266
US 17-92	Osceola Pkwy to Columbia Ave	15,982	2,634
US 192	Denn John Ln to Turnpike NB Ramp	23,056	1,079
<b>Total Savings</b>		<b>762,022</b>	<b>84,289</b>



## 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 2007 Urban Mobility Report

Appendix C: Signal Retiming Project Costs

# Appendix A

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

**Alafaya Tl @  
Challenger Pkwy Intersection**

**TABLE 1**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Alafaya Trail - Northbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.	
<b>AM PEAK HOUR -BEFORE CONDITION</b>																		
Colonial Dr to Challenger Pkwy	Orange	Arterial	Outlying Business District	1	3	0	45	2,270	12	Signal	44.4	3.6	II	34.9	B	0.77		
Challenger Pkwy to College Knights Ct	Orange	Arterial	Outlying Business District	1	3	0	45	2,270	12	Stop	32.4	0.0	II	47.8	A	1.06		
<b>TOTAL</b>							45	4,541			76.8	3.6	II	40.3	A	0.90	0.029 gal/veh	
<b>PM PEAK HOUR - BEFORE CONDITION</b>																		
Colonial Dr to Challenger Pkwy	Orange	Arterial	Outlying Business District	1	3	0	45	2,270	6	Signal	61.8	13.2	II	25.0	C	0.56		
Challenger Pkwy to College Knights Ct	Orange	Arterial	Outlying Business District	1	3	0	45	2,270	6	Stop	34.8	0.0	II	44.5	A	0.99		
<b>TOTAL</b>							45	4,541			96.6	13.2	II	32.0	B	0.71	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 1**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Alafaya Trail - Southbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.	
<b>AM PEAK HOUR -BEFORE CONDITION</b>																		
College Knights Ct to Challenger Pkwy	Orange	Arterial	Outlying Business District	2	3	0	45	2,270	12	Signal	42.6	2.4	II	36.3	A	0.81		
Challenger Pkwy to Colonial Dr	Orange	Arterial	Outlying Business District	2	3	1	45	2,270	12	Signal	106.2	66.0	II	14.6	E	0.32		
<b>TOTAL</b>							45	4,541			148.8	68.4	II	20.8	D	0.46	0.030 gal/veh	
<b>PM PEAK HOUR - BEFORE CONDITION</b>																		
College Knights Ct to Challenger Pkwy	Orange	Arterial	Outlying Business District	2	3	0	45	2,270	6	Signal	224.4	128.4	II	6.9	F	0.15		
Challenger Pkwy to Colonial Dr	Orange	Arterial	Outlying Business District	2	3	1	45	2,270	6	Signal	181.8	108.0	II	8.5	F	0.19		
<b>TOTAL</b>							45	4,541			406.2	236.4	II	7.6	F	0.17	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 1**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Alafaya Trail - Northbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Colonial Dr to Challenger Pkwy	Orange	Arterial	Outlying Business District	1	3	0	45	2,270	15	Signal	39.6	0.0	II	39.1	A	0.87	
Challenger Pkwy to College Knights Ct	Orange	Arterial	Outlying Business District	1	3	0	45	2,270	15	Stop	33.6	0.6	II	46.1	A	1.02	
<b>TOTAL</b>							45	4,541			73.2	0.6	II	42.3	A	0.94	0.029 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Colonial Dr to Challenger Pkwy	Orange	Arterial	Outlying Business District	1	3	0	45	2,270	8	Signal	55.8	13.8	II	27.7	C	0.62	
Challenger Pkwy to College Knights Ct	Orange	Arterial	Outlying Business District	1	3	0	45	2,270	8	Stop	35.4	1.2	II	43.7	A	0.97	
<b>TOTAL</b>							45	4,541			91.2	15.0	II	33.9	B	0.75	0.029 gal/veh

Note:

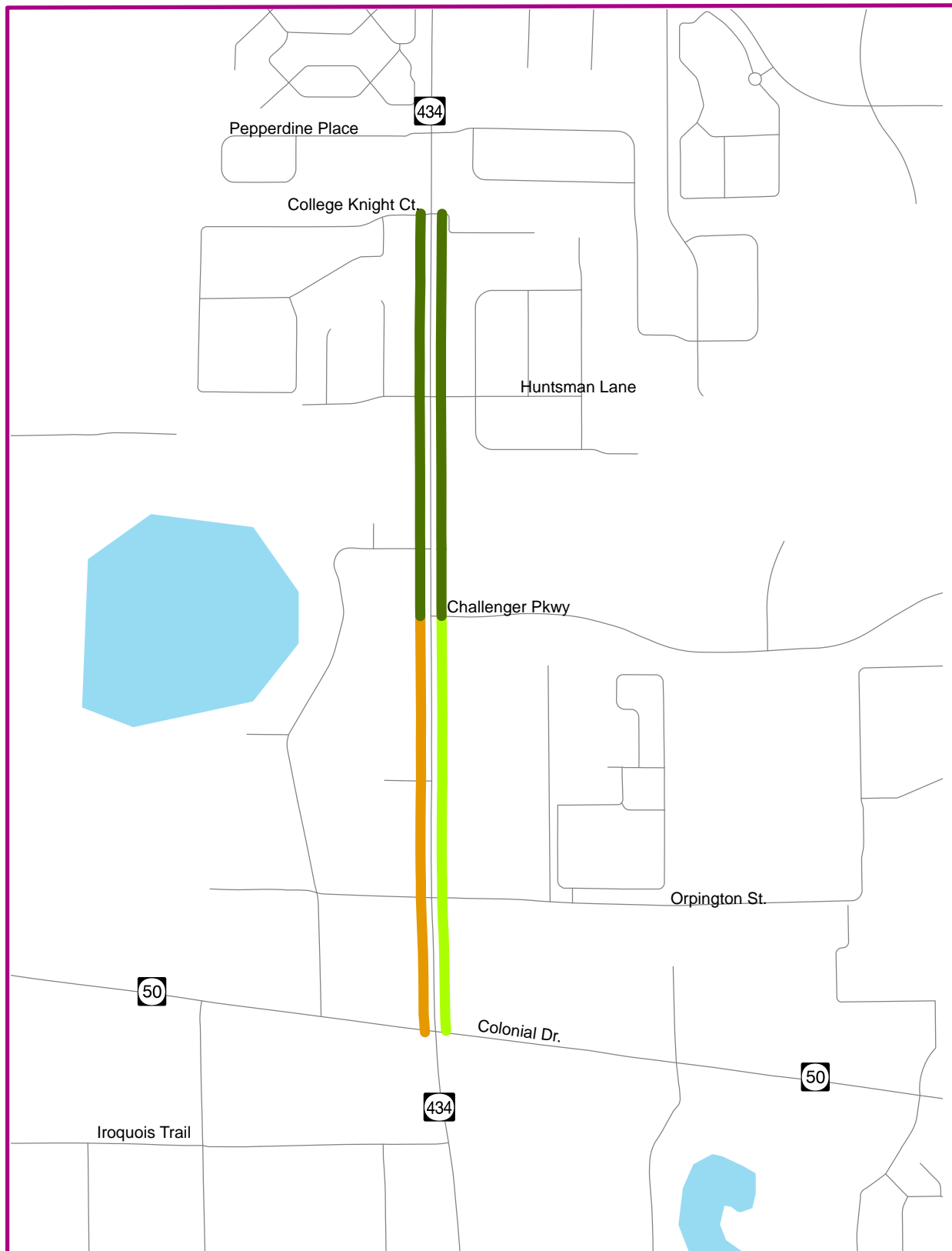
1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

**TABLE 1**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Alafaya Trail - Southbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
College Knights Ct to Challenger Pkwy	Orange	Arterial	Outlying Business District	2	3	0	45	2,270	17	Signal	37.2	0.6	II	41.6	A	0.92	
Challenger Pkwy to Colonial Dr	Orange	Arterial	Outlying Business District	2	3	1	45	2,270	17	Signal	84.0	43.2	II	18.4	D	0.41	
<b>TOTAL</b>							45	4,541			121.2	43.8	II	25.5	C	0.57	0.030 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
College Knights Ct to Challenger Pkwy	Orange	Arterial	Outlying Business District	2	3	0	45	2,270	7	Signal	75.0	27.0	II	20.6	D	0.46	
Challenger Pkwy to Colonial Dr	Orange	Arterial	Outlying Business District	2	3	1	45	2,270	7	Signal	177.6	115.8	II	8.7	F	0.19	
<b>TOTAL</b>							45	4,541			252.6	142.8	II	12.3	F	0.27	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.



### Alafaya Trail - AM Peak

#### Before Condition

Date of Collection: 2/10/2010  
 Distance: 0.86 miles  
 From: Colonial Dr.  
 To: College Knights Ct.

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

NB Avg Speed: 40.3 MPH  
 NB Travel Time: 1.28 MIN  
 NB Delay Time: 0.06 MIN

SB Avg Speed: 20.8 MPH  
 SB Travel Time: 2.48 MIN  
 SB Delay Time: 1.14 MIN

### Alafaya Trail - AM Peak

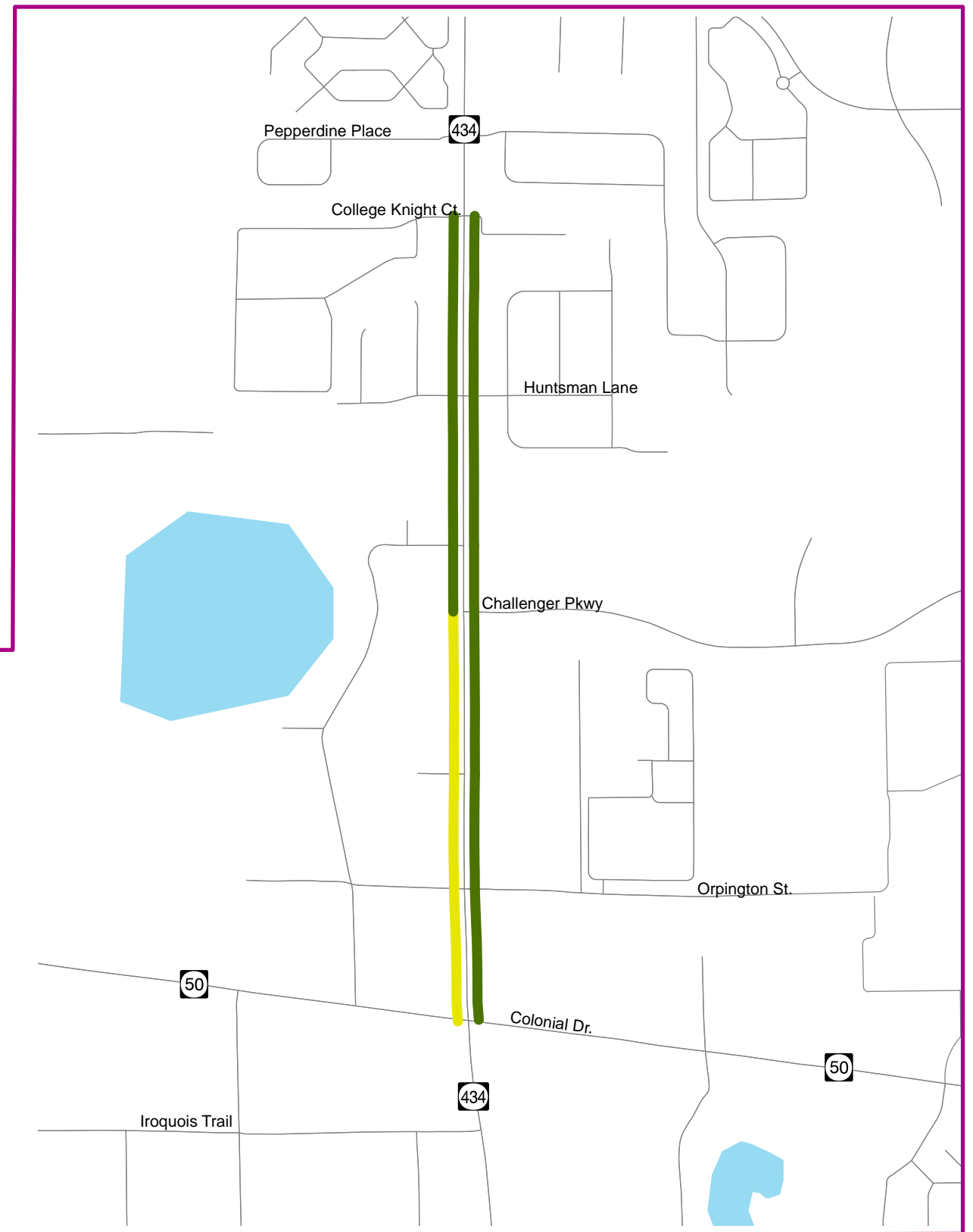
#### After Condition

Date of Collection: 5/5/2010  
 Distance: 0.86 miles  
 From: Colonial Dr.  
 To: College Knights Ct.

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

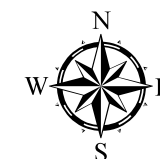
NB Avg Speed: 42.3 MPH  
 NB Travel Time: 1.22 MIN  
 NB Delay Time: 0.01 MIN

SB Avg Speed: 25.5 MPH  
 SB Travel Time: 2.02 MIN  
 SB Delay Time: 0.73 MIN



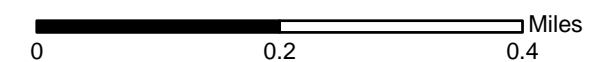
### Level of Services:

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

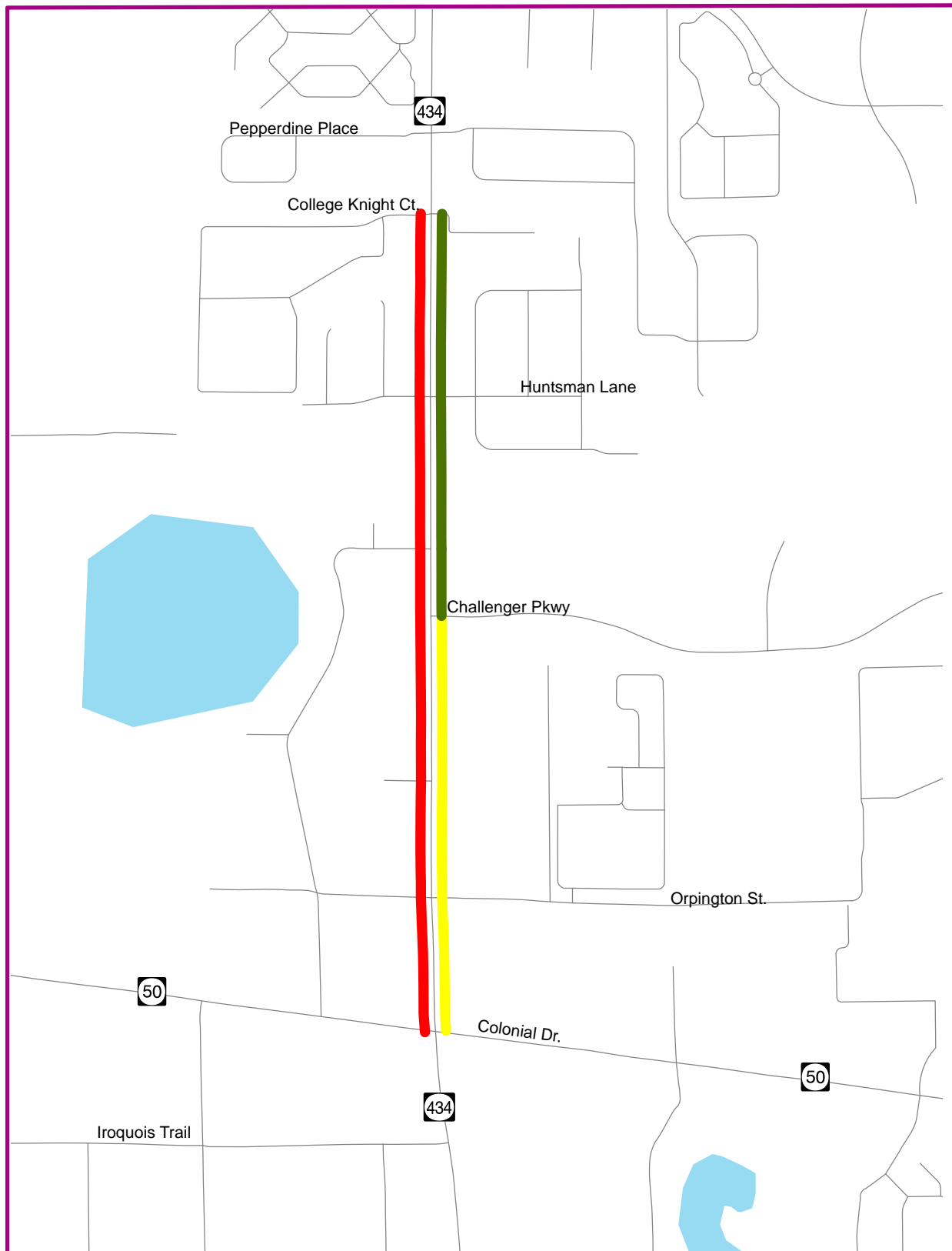


## 2010 METROPLAN ORLANDO

### Travel Time Study







**Alafaya Trail  
- PM Peak**

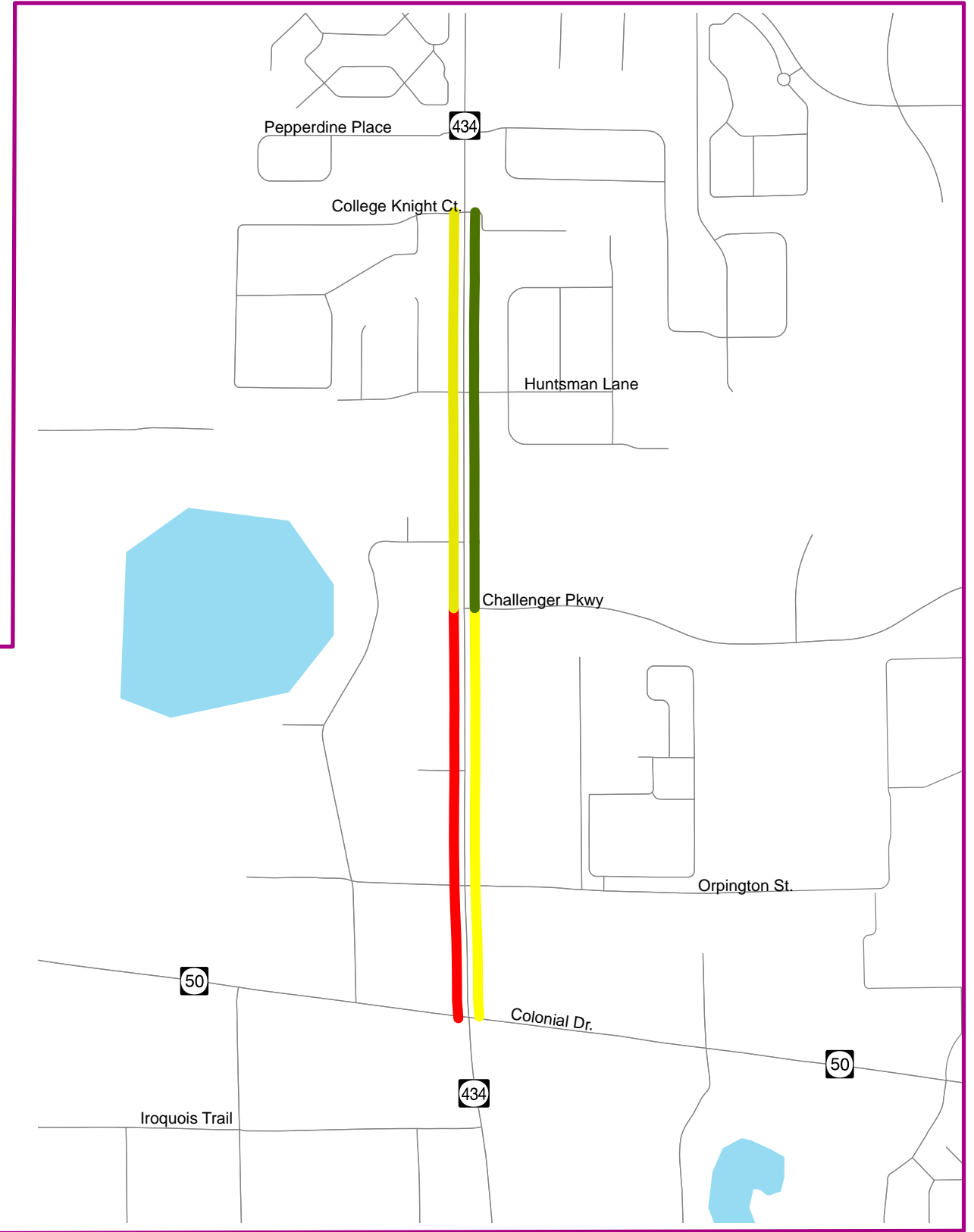
**Before Condition**

Date of Collection: 2/10/2010  
 Distance: 0.86 miles  
 From: Colonial Dr.  
 To: College Knights Ct.

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

NB Avg Speed: 32.0 MPH  
 NB Travel Time: 1.61 MIN  
 NB Delay Time: 0.22 MIN

SB Avg Speed: 7.60 MPH  
 SB Travel Time: 6.77 MIN  
 SB Delay Time: 3.94 MIN



**Alafaya Trail  
- PM Peak**

**After Condition**

Date of Collection: 5/5/2010  
 Distance: 0.86 miles  
 From: Colonial Dr.  
 To: College Knights Ct.

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

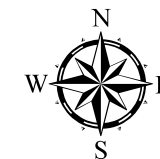
NB Avg Speed: 33.9 MPH  
 NB Travel Time: 1.52 MIN  
 NB Delay Time: 0.25 MIN

SB Avg Speed: 12.3 MPH  
 SB Travel Time: 4.21 MIN  
 SB Delay Time: 2.38 MIN



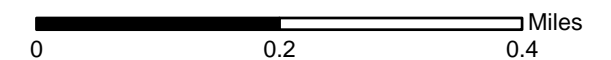
**Level of Services:**

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



**2010 METROPLAN ORLANDO**

*Travel Time Study*



**Alafaya Trail at Challenger Pkwy: Before & After Study**  
**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)
<b>Northbound/Eastbound - AM Peak Hour</b>						
2391	76.8	3.6	40.3	0.0290	51.01	69.34
<b>Northbound/Eastbound - PM Peak Hour</b>						
2537	96.6	13.2	32.0	0.0300	68.08	76.11
<b>Southbound/Westbound - AM Peak Hour</b>						
1668	148.8	68.4	20.8	0.0300	68.94	50.04
<b>Southbound/Westbound - PM Peak Hour</b>						
1879	406.2	236.4	7.6	0.0380	212.01	71.40

\*Traffic Volumes are obtained from the latest FDOT Counts

**Alafaya Trail at Challenger Pkwy: Before & After Study**  
**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)
<b>Northbound/Eastbound - AM Peak Hour</b>						
2391	73.2	0.6	42.3	0.0290	48.62	69.34
<b>Northbound/Eastbound - PM Peak Hour</b>						
2537	91.2	15.0	33.9	0.0290	64.27	73.57
<b>Southbound/Westbound - AM Peak Hour</b>						
1668	121.2	43.8	25.5	0.0300	56.16	50.04
<b>Southbound/Westbound - PM Peak Hour</b>						
1879	252.6	142.8	12.3	0.0330	131.84	62.01

\*Traffic Volumes are obtained from the latest FDOT Counts

**Alafaya Trail at Challenger Pkwy: Before & After Study**  
**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)	119.95	104.77	280.09	196.11
Total Fuel Consumption (gallons)	119.38	119.38	147.51	135.58

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$256.53	\$1,454.75
<b>Annual User Benefit</b>	<b>\$76,957.53</b>	<b>\$436,426.37</b>
<b>Total Annual User Benefit =</b>	<b>\$513,383.90</b>	
Total Signal Retiming Annual Cost	\$1,566.12	
<b>User Benefit / Cost Ratio</b>	<b>327.81</b>	

Notes:

- \* Value of Delay Time is \$16.90 per hour (\$15.47 from Mobility Data for Orlando for the year 2007 & grown 3% per year)
- \* Fuel consumption is valued to the rate of \$2.98 per gallon.
- \* 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.

**Aloma Ave**  
**Phelps Ave to Palmetto Ave**

**TABLE 2**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Aloma Avenue - Eastbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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			
<b>AM PEAK HOUR -BEFORE CONDITION</b>																		
Median Opening to Phelps Ave	Orange	Arterial	Residential Area	0	2	0	35	739	5	Signal	27.6	8.4	II	18.3	D	0.52		
Phelps Ave to Lakemont Ave	Orange	Arterial	Residential Area	1	2	1	35	1,056	5	Signal	57.6	31.2	II	12.5	F	0.36		
Lakemont Ave to St. Andrews Blvd	Orange	Arterial	Outlying Business District	1	2	0	35	2,218	5	Signal	43.8	1.2	II	34.5	B	0.99		
St. Andrews Blvd to Balfour Dr	Orange	Arterial	Outlying Business District	1	2	0	40	1,162	5	Signal	25.2	1.8	II	31.4	B	0.79		
Balfour Dr to Ranger Blvd	Orange	Arterial	Outlying Business District	0	2	0	40	2,006	5	Signal	38.4	1.2	II	35.6	A	0.89		
Ranger Blvd to SR 436	Orange	Arterial	Outlying Business District	2	3	1	40	1,320	5	Signal	73.8	45.0	II	12.2	F	0.30		
SR 436 to Eastbrook Blvd	Orange	Arterial	Outlying Business District	1	2	1	45	2,482	5	Signal	42.0	0.0	II	40.3	A	0.90		
Eastbrook Blvd to Forsyth Rd	Orange	Arterial	Outlying Business District	0	2	1	45	211	5	Signal	3.0	0.0	II	48.0	A	1.07		
Forsyth Rd to Palmetto Ave	Orange	Arterial	Outlying Business District	1	2	0	45	3,485	5	Signal	57.0	0.0	II	41.7	A	0.93		
<b>TOTAL</b>							45	14,678			368.4	88.8	II	27.2	C	0.60	0.101 gal/veh	
<b>PM PEAK HOUR - BEFORE CONDITION</b>																		
Median Opening to Phelps Ave	Orange	Arterial	Residential Area	0	2	0	35	739	4	Signal	24.6	6.0	II	20.5	D	0.59		
Phelps Ave to Lakemont Ave	Orange	Arterial	Residential Area	1	2	1	35	1,056	4	Signal	64.8	34.2	II	11.1	F	0.32		
Lakemont Ave to St. Andrews Blvd	Orange	Arterial	Outlying Business District	1	2	0	35	2,218	4	Signal	58.2	9.0	II	26.0	C	0.74		
St. Andrews Blvd to Balfour Dr	Orange	Arterial	Outlying Business District	1	2	0	40	1,162	4	Signal	28.8	1.2	II	27.5	C	0.69		
Balfour Dr to Ranger Blvd	Orange	Arterial	Outlying Business District	0	2	0	40	2,006	4	Signal	45.6	3.6	II	30.0	B	0.75		
Ranger Blvd to SR 436	Orange	Arterial	Outlying Business District	2	3	1	40	1,320	4	Signal	127.2	85.2	II	7.1	F	0.18		
SR 436 to Eastbrook Blvd	Orange	Arterial	Outlying Business District	1	2	1	45	2,482	4	Signal	70.8	15.6	II	23.9	C	0.53		
Eastbrook Blvd to Forsyth Rd	Orange	Arterial	Outlying Business District	0	2	1	45	211	4	Signal	3.6	0.0	II	40.0	A	0.89		
Forsyth Rd to Palmetto Ave	Orange	Arterial	Outlying Business District	1	2	0	45	3,485	4	Signal	146.4	58.8	II	16.2	E	0.36		
<b>TOTAL</b>							45	14,678			570.0	213.6	II	17.6	D	0.39	0.107 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 2**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Aloma Avenue - Westbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.	
<b>AM PEAK HOUR -BEFORE CONDITION</b>																		
Median Opening to Palmetto Ave	Orange	Arterial	Outlying Business District	2	2	0	45	686	5	Signal	24.6	8.4	II	19.0	D	0.42		
Palmetto Ave to Forsyth Rd	Orange	Arterial	Outlying Business District	2	2	0	45	3,485	5	Signal	88.8	15.0	II	26.8	C	0.59		
Forsyth Rd to Eastbrook Blvd	Orange	Arterial	Outlying Business District	0	2	0	45	211	5	Signal	10.2	4.2	II	14.1	E	0.31		
Eastbrook Blvd to SR 436	Orange	Arterial	Outlying Business District	2	3	1	40	2,482	5	Signal	153.6	81.6	II	11.0	F	0.28		
SR 436 to Ranger Blvd	Orange	Arterial	Outlying Business District	1	2	0	40	1,320	5	Signal	25.8	0.0	II	34.9	B	0.87		
Ranger Blvd to Balfour Dr	Orange	Arterial	Outlying Business District	1	2	0	40	2,006	5	Signal	62.4	14.4	II	21.9	D	0.55		
Balfour Dr to St. Andrews Blvd	Orange	Arterial	Outlying Business District	1	2	0	35	1,162	5	Signal	36.6	7.2	II	21.6	D	0.62		
St. Andrews Blvd to Lakemont Ave	Orange	Arterial	Outlying Business District	1	2	0	35	2,218	5	Signal	129.6	66.6	II	11.7	F	0.33		
Lakemont Ave to Phelps Ave	Orange	Arterial	Residential Area	0	2	0	35	1,056	5	Signal	19.2	0.0	II	37.5	A	1.07		
<b>TOTAL</b>							40	14,626			550.8	197.4	II	18.1	D	0.45	0.107 gal/veh	
<b>PM PEAK HOUR - BEFORE CONDITION</b>																		
Median Opening to Palmetto Ave	Orange	Arterial	Outlying Business District	2	2	0	45	686	4	Signal	42.0	23.4	II	11.1	F	0.25		
Palmetto Ave to Forsyth Rd	Orange	Arterial	Outlying Business District	2	2	0	45	3,485	4	Signal	82.8	17.4	II	28.7	B	0.64		
Forsyth Rd to Eastbrook Blvd	Orange	Arterial	Outlying Business District	0	2	0	45	211	4	Signal	3.6	0.0	II	40.0	A	0.89		
Eastbrook Blvd to SR 436	Orange	Arterial	Outlying Business District	2	3	1	40	2,482	4	Signal	78.6	25.8	II	21.5	D	0.54		
SR 436 to Ranger Blvd	Orange	Arterial	Outlying Business District	1	2	0	40	1,320	4	Signal	24.0	0.0	II	37.5	A	0.94		
Ranger Blvd to Balfour Dr	Orange	Arterial	Outlying Business District	1	2	0	40	2,006	4	Signal	36.0	0.0	II	38.0	A	0.95		
Balfour Dr to St. Andrews Blvd	Orange	Arterial	Outlying Business District	1	2	0	35	1,162	4	Signal	28.8	2.4	II	27.5	C	0.79		
St. Andrews Blvd to Lakemont Ave	Orange	Arterial	Outlying Business District	1	2	0	35	2,218	4	Signal	130.2	75.6	II	11.6	F	0.33		
Lakemont Ave to Phelps Ave	Orange	Arterial	Residential Area	0	2	0	35	1,056	4	Signal	19.8	0.0	II	36.4	A	1.04		
<b>TOTAL</b>							40	14,626			445.8	144.6	II	22.4	C	0.56	0.103 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 2**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Aloma Avenue - Eastbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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		
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Phelps Ave	Orange	Arterial	Residential Area	0	2	0	35	739	5	Signal	21.6	6.0	II	23.3	C	0.67	
Phelps Ave to Lakemont Ave	Orange	Arterial	Residential Area	1	2	1	35	1,056	5	Signal	45.6	23.4	II	15.8	E	0.45	
Lakemont Ave to St. Andrews Blvd	Orange	Arterial	Outlying Business District	1	2	0	35	2,218	5	Signal	37.8	1.2	II	40.0	A	1.14	
St. Andrews Blvd to Balfour Dr	Orange	Arterial	Outlying Business District	1	2	0	40	1,162	5	Signal	18.6	0.0	II	42.6	A	1.06	
Balfour Dr to Ranger Blvd	Orange	Arterial	Outlying Business District	0	2	0	40	2,006	5	Signal	40.8	4.2	II	33.5	B	0.84	
Ranger Blvd to SR 436	Orange	Arterial	Outlying Business District	2	3	1	40	1,320	5	Signal	66.0	33.6	II	13.6	E	0.34	
SR 436 to Eastbrook Blvd	Orange	Arterial	Outlying Business District	1	2	1	45	2,482	5	Signal	37.8	0.0	II	44.8	A	0.99	
Eastbrook Blvd to Forsyth Rd	Orange	Arterial	Outlying Business District	0	2	1	45	211	5	Signal	4.8	0.0	II	30.0	B	0.67	
Forsyth Rd to Palmetto Ave	Orange	Arterial	Outlying Business District	1	2	0	45	3,485	5	Signal	48.0	0.0	II	49.5	A	1.10	
<b>TOTAL</b>							45	14,678			321.0	68.4	II	31.2	B	0.69	0.101 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Phelps Ave	Orange	Arterial	Residential Area	0	2	0	35	739	5	Signal	28.8	10.2	II	17.5	D	0.50	
Phelps Ave to Lakemont Ave	Orange	Arterial	Residential Area	1	2	1	35	1,056	5	Signal	39.6	9.6	II	18.2	D	0.52	
Lakemont Ave to St. Andrews Blvd	Orange	Arterial	Outlying Business District	1	2	0	35	2,218	5	Signal	45.6	3.6	II	33.2	B	0.95	
St. Andrews Blvd to Balfour Dr	Orange	Arterial	Outlying Business District	1	2	0	40	1,162	5	Signal	26.4	4.2	II	30.0	B	0.75	
Balfour Dr to Ranger Blvd	Orange	Arterial	Outlying Business District	0	2	0	40	2,006	5	Signal	55.8	14.4	II	24.5	C	0.61	
Ranger Blvd to SR 436	Orange	Arterial	Outlying Business District	2	3	1	40	1,320	5	Signal	74.4	40.2	II	12.1	F	0.30	
SR 436 to Eastbrook Blvd	Orange	Arterial	Outlying Business District	1	2	1	45	2,482	5	Signal	57.0	2.4	II	29.7	B	0.66	
Eastbrook Blvd to Forsyth Rd	Orange	Arterial	Outlying Business District	0	2	1	45	211	5	Signal	3.6	0.0	II	40.0	A	0.89	
Forsyth Rd to Palmetto Ave	Orange	Arterial	Outlying Business District	1	2	0	45	3,485	5	Signal	108.0	33.0	II	22.0	D	0.49	
<b>TOTAL</b>							45	14,678			439.2	117.6	II	22.8	C	0.51	0.104 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 2**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Aloma Avenue - Westbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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			
<b>AM PEAK HOUR - AFTER CONDITION</b>																		
Median Opening to Palmetto Ave	Orange	Arterial	Outlying Business District	2	2	0	45	686	5	Signal	18.0	5.4	II	26.0	C	0.58		
Palmetto Ave to Forsyth Rd	Orange	Arterial	Outlying Business District	2	2	0	45	3,485	5	Signal	68.4	8.4	II	34.7	B	0.77		
Forsyth Rd to Eastbrook Blvd	Orange	Arterial	Outlying Business District	0	2	0	45	211	5	Signal	3.0	0.0	II	48.0	A	1.07		
Eastbrook Blvd to SR 436	Orange	Arterial	Outlying Business District	2	3	1	40	2,482	5	Signal	138.0	67.2	II	12.3	F	0.31		
SR 436 to Ranger Blvd	Orange	Arterial	Outlying Business District	1	2	0	40	1,320	5	Signal	22.8	0.0	II	39.5	A	0.99		
Ranger Blvd to Balfour Dr	Orange	Arterial	Outlying Business District	1	2	0	40	2,006	5	Signal	33.6	0.0	II	40.7	A	1.02		
Balfour Dr to St. Andrews Blvd	Orange	Arterial	Outlying Business District	1	2	0	35	1,162	5	Signal	28.8	1.2	II	27.5	C	0.79		
St. Andrews Blvd to Lakemont Ave	Orange	Arterial	Outlying Business District	1	2	0	35	2,218	5	Signal	118.8	58.2	II	12.7	F	0.36		
Lakemont Ave to Phelps Ave	Orange	Arterial	Residential Area	0	2	0	35	1,056	5	Signal	16.8	0.0	II	42.9	A	1.22		
<b>TOTAL</b>							40	14,626			448.2	140.4	II	22.2	C	0.56	0.105 gal/veh	
<b>PM PEAK HOUR - AFTER CONDITION</b>																		
Median Opening to Palmetto Ave	Orange	Arterial	Outlying Business District	2	2	0	45	686	5	Signal	22.8	6.6	II	20.5	D	0.46		
Palmetto Ave to Forsyth Rd	Orange	Arterial	Outlying Business District	2	2	0	45	3,485	5	Signal	88.8	24.0	II	26.8	C	0.59		
Forsyth Rd to Eastbrook Blvd	Orange	Arterial	Outlying Business District	0	2	0	45	211	5	Signal	4.2	0.0	II	34.3	B	0.76		
Eastbrook Blvd to SR 436	Orange	Arterial	Outlying Business District	2	3	1	40	2,482	5	Signal	94.8	41.4	II	17.8	D	0.45		
SR 436 to Ranger Blvd	Orange	Arterial	Outlying Business District	1	2	0	40	1,320	5	Signal	24.6	0.0	II	36.6	A	0.91		
Ranger Blvd to Balfour Dr	Orange	Arterial	Outlying Business District	1	2	0	40	2,006	5	Signal	33.0	0.0	II	41.5	A	1.04		
Balfour Dr to St. Andrews Blvd	Orange	Arterial	Outlying Business District	1	2	0	35	1,162	5	Signal	21.0	0.0	II	37.7	A	1.08		
St. Andrews Blvd to Lakemont Ave	Orange	Arterial	Outlying Business District	1	2	0	35	2,218	5	Signal	44.4	1.8	II	34.1	B	0.97		
Lakemont Ave to Phelps Ave	Orange	Arterial	Residential Area	0	2	0	35	1,056	5	Signal	25.8	3.0	II	27.9	C	0.80		
<b>TOTAL</b>							40	14,626			359.4	76.8	II	27.7	C	0.69	0.101 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.

**Aloma Avenue  
- AM Peak**

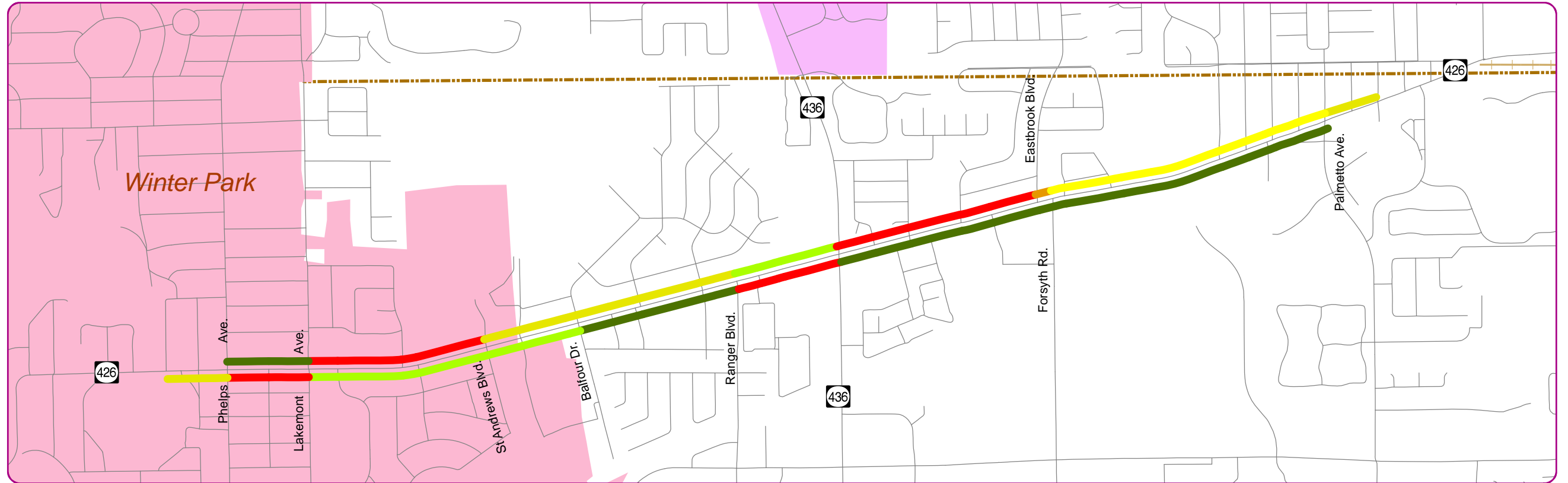
**Before Condition**

Date of Collection: 4/22/2010  
 Distance: 2.77 miles  
 From: Palmetto Ave.  
 To: Phelps Ave.

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

EB Avg Speed: 27.2 MPH  
 EB Travel Time: 6.14 MIN  
 EB Delay Time: 1.48 MIN

WB Avg Speed: 18.1 MPH  
 WB Travel Time: 9.18 MIN  
 WB Delay Time: 3.29 MIN



**Aloma Avenue  
- AM Peak**

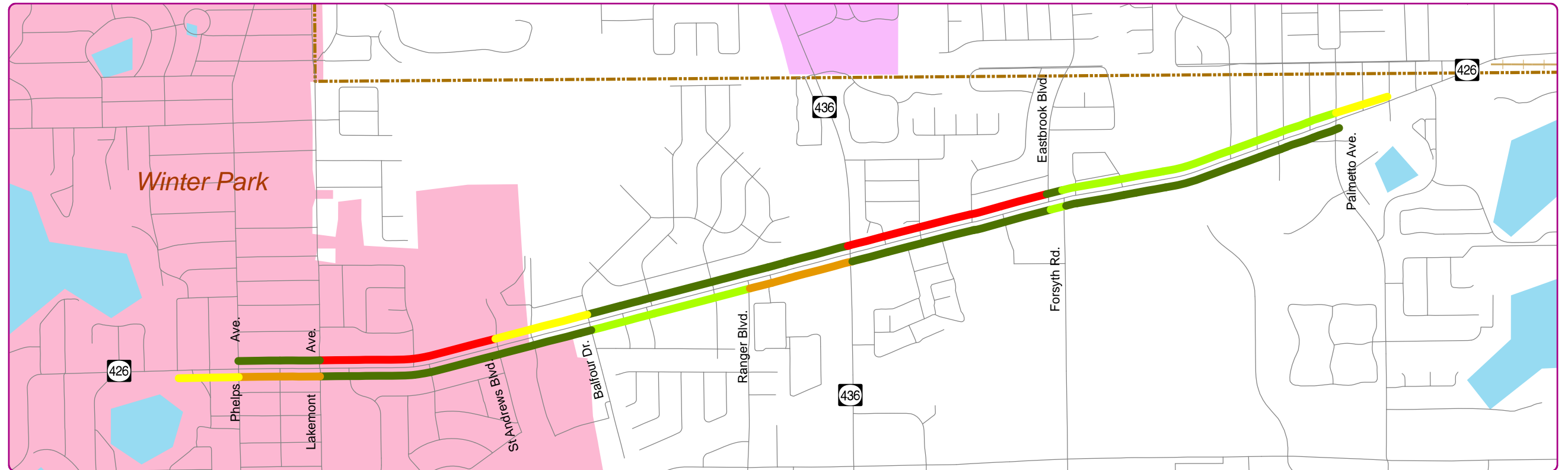
**After Condition**

Date of Collection: 5/25/2010  
 Distance: 2.77 miles  
 From: Palmetto Ave.  
 To: Phelps Ave.

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

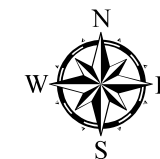
EB Avg Speed: 31.2 MPH  
 EB Travel Time: 5.35 MIN  
 EB Delay Time: 1.14 MIN

WB Avg Speed: 22.2 MPH  
 WB Travel Time: 7.47 MIN  
 WB Delay Time: 2.34 MIN



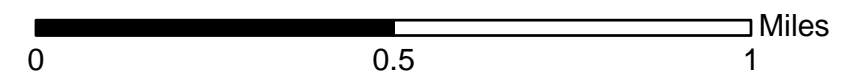
**Level of Services:**

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



**2010 METROPLAN ORLANDO**

*Travel Time Study*



**Aloma Avenue  
- PM Peak**

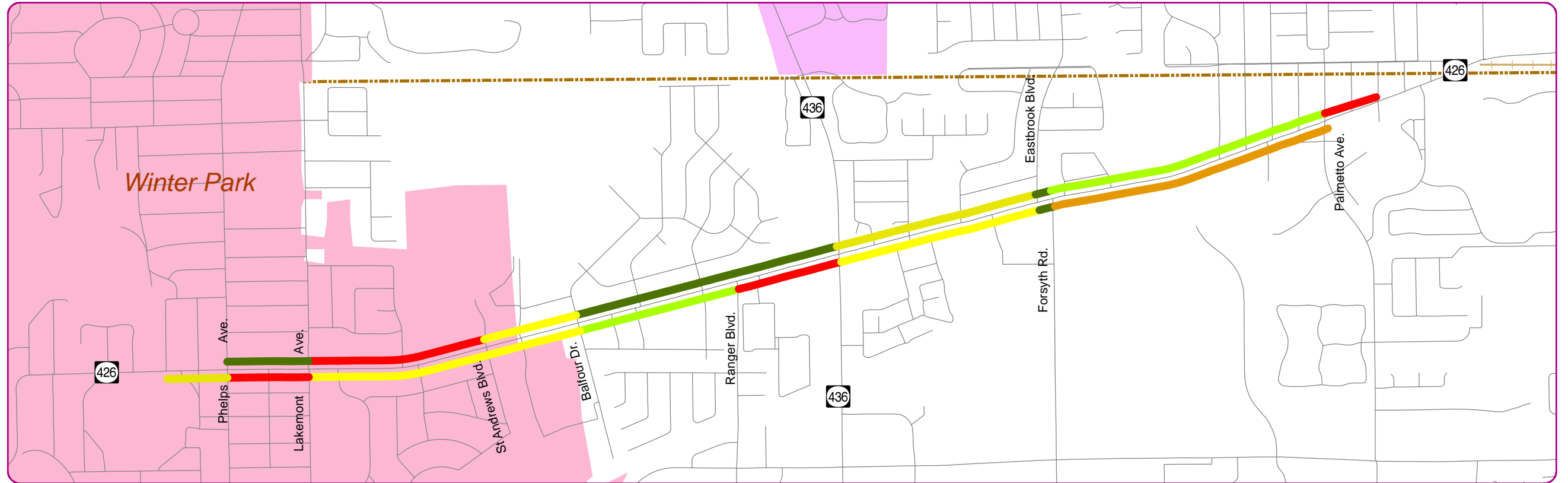
**Before Condition**

Date of Collection: 4/22/2010  
Distance: 2.77 miles  
From: Palmetto Ave.  
To: Phelps Ave.

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

EB Avg Speed: 17.6 MPH  
EB Travel Time: 9.50 MIN  
EB Delay Time: 3.56 MIN

WB Avg Speed: 22.4 MPH  
WB Travel Time: 7.43 MIN  
WB Delay Time: 2.41 MIN



**Aloma Avenue  
- PM Peak**

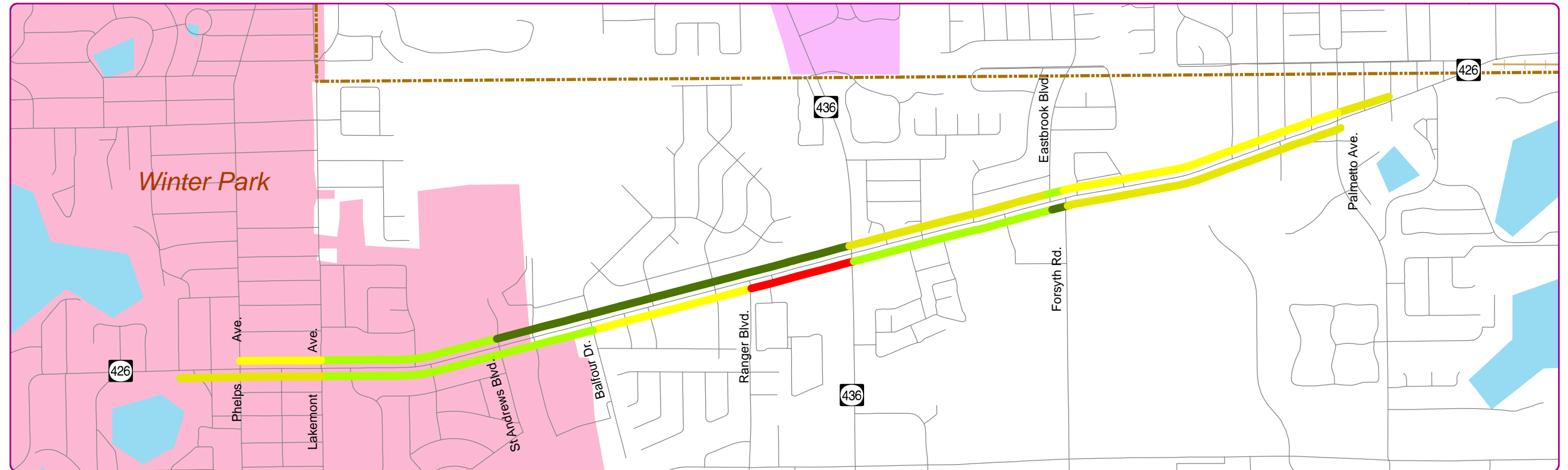
**After Condition**

Date of Collection: 5/25/2010  
Distance: 2.77 miles  
From: Palmetto Ave.  
To: Phelps Ave.

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

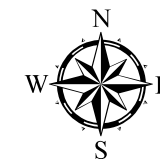
EB Avg Speed: 22.8 MPH  
EB Travel Time: 7.32 MIN  
EB Delay Time: 1.96 MIN

WB Avg Speed: 27.7 MPH  
WB Travel Time: 5.99 MIN  
WB Delay Time: 1.28 MIN



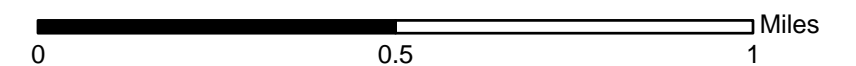
**Level of Services:**

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



**2010 METROPLAN ORLANDO**

*Travel Time Study*



## Aloma Ave: Phelps Ave to Palmetto Ave: Before & After Study

### 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						
1148	368.4	88.8	27.2	0.1010	117.48	115.95
Northbound/Eastbound - PM Peak Hour						
2063	570.0	213.6	17.6	0.1070	326.64	220.74
Southbound/Westbound - AM Peak Hour						
2216	550.8	197.4	18.1	0.1070	339.05	237.11
Southbound/Westbound - PM Peak Hour						
1351	445.8	144.6	22.4	0.1030	167.30	139.15

\*Traffic Volumes are obtained from the latest FDOT Counts

## Aloma Ave: Phelps Ave to Palmetto Ave: Before & After Study

### 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						
1148	321.0	68.4	31.2	0.1010	102.36	115.95
Northbound/Eastbound - PM Peak Hour						
2063	439.2	117.6	22.8	0.1040	251.69	214.55
Southbound/Westbound - AM Peak Hour						
2216	448.2	140.4	22.2	0.1050	275.89	232.68
Southbound/Westbound - PM Peak Hour						
1351	359.4	76.8	27.7	0.1010	134.87	136.45

\*Traffic Volumes are obtained from the latest FDOT Counts

**Aloma Ave: Phelps Ave to Palmetto Ave: Before & After Study**  
**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)	456.53	378.26	493.94	386.56
Total Fuel Consumption (gallons)	353.06	348.63	359.89	351.00

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$1,335.99	\$1,841.21
<b>Annual User Benefit</b>	<b>\$400,797.87</b>	<b>\$552,363.46</b>
<b>Total Annual User Benefit =</b>	<b>\$953,161.33</b>	
Total Signal Retiming Annual Cost	\$12,879.55	
<b>User Benefit / Cost Ratio</b>	<b>74.01</b>	

Notes:

- \* Value of Delay Time is \$16.90 per hour (\$15.47 from Mobility Data for Orlando for the year 2007 & grown 3% per year)
- \* Fuel consumption is valued to the rate of \$2.98 per gallon.
- \* 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.

**Colonial Dr E. (SR 50)**  
**Murdock Blvd to Avalon Park Blvd**

**TABLE 3**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 50 - Eastbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Murdock Blvd	Orange	Arterial	Residential Area	1	2	0	45	898	7	Signal	24.6	5.4	I	24.9	D	0.55	
Murdock Blvd to Rouse Rd	Orange	Arterial	Residential Area	1	2	1	45	2,640	7	Signal	65.4	12.0	I	27.5	C	0.61	
Rouse Rd to Walmart/Rouse Lake Rd	Orange	Arterial	Residential Area	1	2	1	45	2,270	7	Signal	65.4	21.0	I	23.7	D	0.53	
Walmart/Rouse Lake Rd to Alafaya Trail	Orange	Arterial	Residential Area	2	2	1	45	2,957	7	Signal	94.8	42.6	I	21.3	D	0.47	
Alafya Trail to Sophie Blvd	Orange	Arterial	Residential Area	1	2	1	45	1,373	7	Signal	21.6	0.0	I	43.3	A	0.96	
Sophie Blvd to Woodbury Rd	Orange	Arterial	Residential Area	0	2	1	45	2,746	7	Signal	45.0	4.8	I	41.6	B	0.92	
Woodbury Rd to SR 408	Orange	Arterial	Residential Area	0	2	0	45	1,373	7	Signal	19.8	0.0	I	47.3	A	1.05	
SR 408 to Bonneville Dr	Orange	Arterial	Residential Area	1	3	0	45	1,109	7	Signal	16.8	0.0	I	45.0	A	1.00	
Bonneville Dr to Lake Pickett Rd	Orange	Arterial	Residential Area	1	2	1	45	1,478	7	Signal	25.2	1.2	I	40.0	B	0.89	
Lake Pickett Rd to Pebble Beach Blvd	Orange	Arterial	Residential Area	1	2	0	55	2,693	7	Signal	49.2	4.8	I	37.3	B	0.68	
Pebble Beach Blvd to Avalon Park Blvd	Orange	Arterial	Residential Area	1	2	1	55	2,587	7	Signal	51.0	12.0	I	34.6	B	0.63	
<b>TOTAL</b>							45	22,123			478.8	103.8	I	31.5	C	0.70	0.144 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Murdock Blvd	Orange	Arterial	Residential Area	1	2	0	45	898	6	Signal	45.0	16.2	I	13.6	F	0.30	
Murdock Blvd to Rouse Rd	Orange	Arterial	Residential Area	1	2	1	45	2,640	6	Signal	130.2	67.8	I	13.8	F	0.31	
Rouse Rd to Walmart/Rouse Lake Rd	Orange	Arterial	Residential Area	1	2	1	45	2,270	6	Signal	50.4	10.2	I	30.7	C	0.68	
Walmart/Rouse Lake Rd to Alafaya Trail	Orange	Arterial	Residential Area	2	2	1	45	2,957	6	Signal	82.8	22.8	I	24.3	D	0.54	
Alafya Trail to Sophie Blvd	Orange	Arterial	Residential Area	1	2	1	45	1,373	6	Signal	38.4	10.8	I	24.4	D	0.54	
Sophie Blvd to Woodbury Rd	Orange	Arterial	Residential Area	0	2	1	45	2,746	6	Signal	239.4	145.2	I	7.8	F	0.17	
Woodbury Rd to SR 408	Orange	Arterial	Residential Area	0	2	0	45	1,373	6	Signal	117.0	50.4	I	8.0	F	0.18	
SR 408 to Bonneville Dr	Orange	Arterial	Residential Area	1	3	0	45	1,109	6	Signal	58.2	16.8	I	13.0	F	0.29	
Bonneville Dr to Lake Pickett Rd	Orange	Arterial	Residential Area	1	2	1	45	1,478	6	Signal	73.2	27.6	I	13.8	F	0.31	
Lake Pickett Rd to Pebble Beach Blvd	Orange	Arterial	Residential Area	1	2	0	55	2,693	6	Signal	39.6	0.0	I	46.4	A	0.84	
Pebble Beach Blvd to Avalon Park Blvd	Orange	Arterial	Residential Area	1	2	1	55	2,587	6	Signal	61.2	13.8	I	28.8	C	0.52	
<b>TOTAL</b>							45	22,123			935.4	381.6	I	16.1	E	0.36	0.161gal/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 2010 METROPLAN Orlando Travel Time Study**  
**SR 50 - Westbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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			
<b>AM PEAK HOUR - BEFORE CONDITION</b>																		
Median Opening to Avalon Park Blvd	Orange	Arterial	Residential Area	1	2	0	55	845	7	Signal	89.4	60.0	I	6.4	F	0.12		
Avalon Park Blvd to Pebble Beach Blvd	Orange	Arterial	Residential Area	1	2	1	55	2,587	7	Signal	196.8	82.8	I	9.0	F	0.16		
Pebble Beach Blvd to Lake Pickett Rd	Orange	Arterial	Residential Area	1	2	1	45	2,693	7	Signal	189.6	81.0	I	9.7	F	0.22		
Lake Pickett Rd to Bonneville Dr	Orange	Arterial	Residential Area	1	2	0	45	1,478	7	Signal	45.6	6.6	I	22.1	D	0.49		
Bonneville Dr to SR 408	Orange	Arterial	Residential Area	0	2	0	45	1,109	7	Signal	21.0	1.2	I	36.0	B	0.80		
Sr 408 to Woodbury Rd	Orange	Arterial	Residential Area	1	2	0	45	1,373	7	Signal	25.2	3.0	I	37.1	B	0.83		
Woodbury Rd to Sophie Blvd	Orange	Arterial	Residential Area	1	2	1	45	2,746	7	Signal	69.6	20.4	I	26.9	D	0.60		
Sophie Blvd to Alafaya Trail	Orange	Arterial	Residential Area	2	2	1	45	1,373	7	Signal	48.0	18.0	I	19.5	E	0.43		
Alafaya Trail to Walmart/Rouse Lake Rd	Orange	Arterial	Residential Area	1	2	0	45	2,957	7	Signal	46.8	0.0	I	43.1	A	0.96		
Walmart/Rouse Lake Rd to Rouse Rd	Orange	Arterial	Residential Area	1	2	1	45	2,270	7	Signal	37.8	0.0	I	41.0	B	0.91		
Rouse Rd to Murdock Blvd	Orange	Arterial	Residential Area	1	2	1	45	2,640	7	Signal	41.4	0.0	I	43.5	A	0.97		
<b>TOTAL</b>							45	22,071			811.2	273.0	I	18.5	E	0.41	0.159 gal/veh	
<b>PM PEAK HOUR - BEFORE CONDITION</b>																		
Median Opening to Avalon Park Blvd	Orange	Arterial	Residential Area	1	2	0	55	845	5	Signal	26.4	10.2	I	21.8	D	0.40		
Avalon Park Blvd to Pebble Beach Blvd	Orange	Arterial	Residential Area	1	2	1	55	2,587	5	Signal	38.4	0.0	I	45.9	A	0.84		
Pebble Beach Blvd to Lake Pickett Rd	Orange	Arterial	Residential Area	1	2	1	45	2,693	5	Signal	82.8	31.2	I	22.2	D	0.49		
Lake Pickett Rd to Bonneville Dr	Orange	Arterial	Residential Area	1	2	0	45	1,478	5	Signal	28.2	0.0	I	35.7	B	0.79		
Bonneville Dr to SR 408	Orange	Arterial	Residential Area	0	2	0	45	1,109	5	Signal	24.0	5.4	I	31.5	C	0.70		
Sr 408 to Woodbury Rd	Orange	Arterial	Residential Area	1	2	0	45	1,373	5	Signal	25.2	1.2	I	37.1	B	0.83		
Woodbury Rd to Sophie Blvd	Orange	Arterial	Residential Area	1	2	1	45	2,746	5	Signal	65.4	18.6	I	28.6	C	0.64		
Sophie Blvd to Alafaya Trail	Orange	Arterial	Residential Area	2	2	1	45	1,373	5	Signal	76.8	42.6	I	12.2	F	0.27		
Alafaya Trail to Walmart/Rouse Lake Rd	Orange	Arterial	Residential Area	1	2	0	45	2,957	5	Signal	47.4	0.0	I	42.5	A	0.95		
Walmart/Rouse Lake Rd to Rouse Rd	Orange	Arterial	Residential Area	1	2	1	45	2,270	5	Signal	97.8	51.6	I	15.8	F	0.35		
Rouse Rd to Murdock Blvd	Orange	Arterial	Residential Area	1	2	1	45	2,640	5	Signal	51.6	7.2	I	34.9	B	0.78		
<b>TOTAL</b>							45	22,071			564.0	168.0	I	26.7	D	0.59	0.145 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 2010 METROPLAN Orlando Travel Time Study**  
**SR 50 - Eastbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Murdock Blvd	Orange	Arterial	Residential Area	1	2	0	45	898	5	Signal	25.8	4.8	I	23.7	D	0.53	
Murdock Blvd to Rouse Rd	Orange	Arterial	Residential Area	1	2	1	45	2,640	5	Signal	60.6	16.2	I	29.7	C	0.66	
Rouse Rd to Walmart/Rouse Lake Rd	Orange	Arterial	Residential Area	1	2	1	45	2,270	5	Signal	33.0	0.0	I	46.9	A	1.04	
Walmart/Rouse Lake Rd to Alafaya Trail	Orange	Arterial	Residential Area	2	2	1	45	2,957	5	Signal	46.8	0.6	I	43.1	A	0.96	
Alafya Trail to Sophie Blvd	Orange	Arterial	Residential Area	1	2	1	45	1,373	5	Signal	19.8	0.0	I	47.3	A	1.05	
Sophie Blvd to Woodbury Rd	Orange	Arterial	Residential Area	0	2	1	45	2,746	5	Signal	45.6	2.4	I	41.1	B	0.91	
Woodbury Rd to SR 408	Orange	Arterial	Residential Area	0	2	0	45	1,373	5	Signal	20.4	0.0	I	45.9	A	1.02	
SR 408 to Bonneville Dr	Orange	Arterial	Residential Area	1	3	0	45	1,109	5	Signal	15.6	0.0	I	48.5	A	1.08	
Bonneville Dr to Lake Pickett Rd	Orange	Arterial	Residential Area	1	2	1	45	1,478	5	Signal	21.0	0.0	I	48.0	A	1.07	
Lake Pickett Rd to Pebble Beach Blvd	Orange	Arterial	Residential Area	1	2	0	55	2,693	5	Signal	36.0	0.0	I	51.0	A	0.93	
Pebble Beach Blvd to Avalon Park Blvd	Orange	Arterial	Residential Area	1	2	1	55	2,587	5	Signal	48.0	4.2	I	36.7	B	0.67	
<b>TOTAL</b>							45	22,123			372.6	28.2	I	40.5	B	0.90	0.142 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Murdock Blvd	Orange	Arterial	Residential Area	1	2	0	45	898	4	Signal	20.4	0.0	I	30.0	C	0.67	
Murdock Blvd to Rouse Rd	Orange	Arterial	Residential Area	1	2	1	45	2,640	4	Signal	65.4	12.6	I	27.5	C	0.61	
Rouse Rd to Walmart/Rouse Lake Rd	Orange	Arterial	Residential Area	1	2	1	45	2,270	4	Signal	40.2	0.0	I	38.5	B	0.86	
Walmart/Rouse Lake Rd to Alafaya Trail	Orange	Arterial	Residential Area	2	2	1	45	2,957	4	Signal	60.6	6.0	I	33.3	C	0.74	
Alafya Trail to Sophie Blvd	Orange	Arterial	Residential Area	1	2	1	45	1,373	4	Signal	24.0	0.0	I	39.0	B	0.87	
Sophie Blvd to Woodbury Rd	Orange	Arterial	Residential Area	0	2	1	45	2,746	4	Signal	105.6	48.0	I	17.7	E	0.39	
Woodbury Rd to SR 408	Orange	Arterial	Residential Area	0	2	0	45	1,373	4	Signal	76.8	36.6	I	12.2	F	0.27	
SR 408 to Bonneville Dr	Orange	Arterial	Residential Area	1	3	0	45	1,109	4	Signal	53.4	16.2	I	14.2	F	0.31	
Bonneville Dr to Lake Pickett Rd	Orange	Arterial	Residential Area	1	2	1	45	1,478	4	Signal	60.0	22.2	I	16.8	E	0.37	
Lake Pickett Rd to Pebble Beach Blvd	Orange	Arterial	Residential Area	1	2	0	55	2,693	4	Signal	40.8	0.0	I	45.0	A	0.82	
Pebble Beach Blvd to Avalon Park Blvd	Orange	Arterial	Residential Area	1	2	1	55	2,587	4	Signal	53.4	6.6	I	33.0	C	0.60	
<b>TOTAL</b>							45	22,123			600.6	148.2	I	25.1	D	0.56	0.150gal/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 2010 METROPLAN Orlando Travel Time Study**  
**SR 50 - Westbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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		
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Avalon Park Blvd	Orange	Arterial	Residential Area	1	2	0	55	845	5	Signal	68.4	47.4	I	8.4	F	0.15	
Avalon Park Blvd to Pebble Beach Blvd	Orange	Arterial	Residential Area	1	2	1	55	2,587	5	Signal	88.8	24.0	I	19.9	E	0.36	
Pebble Beach Blvd to Lake Pickett Rd	Orange	Arterial	Residential Area	1	2	1	45	2,693	5	Signal	177.0	80.4	I	10.4	F	0.23	
Lake Pickett Rd to Bonneville Dr	Orange	Arterial	Residential Area	1	2	0	45	1,478	5	Signal	45.6	10.2	I	22.1	D	0.49	
Bonneville Dr to SR 408	Orange	Arterial	Residential Area	0	2	0	45	1,109	5	Signal	18.0	0.0	I	42.0	B	0.93	
Sr 408 to Woodbury Rd	Orange	Arterial	Residential Area	1	2	0	45	1,373	5	Signal	20.4	0.0	I	45.9	A	1.02	
Woodbury Rd to Sophie Blvd	Orange	Arterial	Residential Area	1	2	1	45	2,746	5	Signal	54.0	7.8	I	34.7	B	0.77	
Sophie Blvd to Alafaya Trail	Orange	Arterial	Residential Area	2	2	1	45	1,373	5	Signal	29.4	1.2	I	31.8	C	0.71	
Alafaya Trail to Walmart/Rouse Lake Rd	Orange	Arterial	Residential Area	1	2	0	45	2,957	5	Signal	45.0	0.0	I	44.8	A	1.00	
Walmart/Rouse Lake Rd to Rouse Rd	Orange	Arterial	Residential Area	1	2	1	45	2,270	5	Signal	48.0	0.6	I	32.2	C	0.72	
Rouse Rd to Murdock Blvd	Orange	Arterial	Residential Area	1	2	1	45	2,640	5	Signal	58.8	17.4	I	30.6	C	0.68	
<b>TOTAL</b>							45	22,071			653.4	189.0	I	23.0	D	0.51	0.151 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Avalon Park Blvd	Orange	Arterial	Residential Area	1	2	0	55	845	4	Signal	24.0	8.4	I	24.0	D	0.44	
Avalon Park Blvd to Pebble Beach Blvd	Orange	Arterial	Residential Area	1	2	1	55	2,587	4	Signal	39.0	0.0	I	45.2	A	0.82	
Pebble Beach Blvd to Lake Pickett Rd	Orange	Arterial	Residential Area	1	2	1	45	2,693	4	Signal	75.0	45.0	I	24.5	D	0.54	
Lake Pickett Rd to Bonneville Dr	Orange	Arterial	Residential Area	1	2	0	45	1,478	4	Signal	26.4	0.0	I	38.2	B	0.85	
Bonneville Dr to SR 408	Orange	Arterial	Residential Area	0	2	0	45	1,109	4	Signal	19.8	0.0	I	38.2	B	0.85	
Sr 408 to Woodbury Rd	Orange	Arterial	Residential Area	1	2	0	45	1,373	4	Signal	23.4	4.8	I	40.0	B	0.89	
Woodbury Rd to Sophie Blvd	Orange	Arterial	Residential Area	1	2	1	45	2,746	4	Signal	54.0	13.2	I	34.7	B	0.77	
Sophie Blvd to Alafaya Trail	Orange	Arterial	Residential Area	2	2	1	45	1,373	4	Signal	69.6	39.0	I	13.4	F	0.30	
Alafaya Trail to Walmart/Rouse Lake Rd	Orange	Arterial	Residential Area	1	2	0	45	2,957	4	Signal	46.8	0.0	I	43.1	A	0.96	
Walmart/Rouse Lake Rd to Rouse Rd	Orange	Arterial	Residential Area	1	2	1	45	2,270	4	Signal	81.0	29.4	I	19.1	E	0.42	
Rouse Rd to Murdock Blvd	Orange	Arterial	Residential Area	1	2	1	45	2,640	4	Signal	51.0	8.4	I	35.3	B	0.78	
<b>TOTAL</b>							45	22,071			510.0	148.2	I	29.5	C	0.66	0.146 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 50  
- AM Peak**

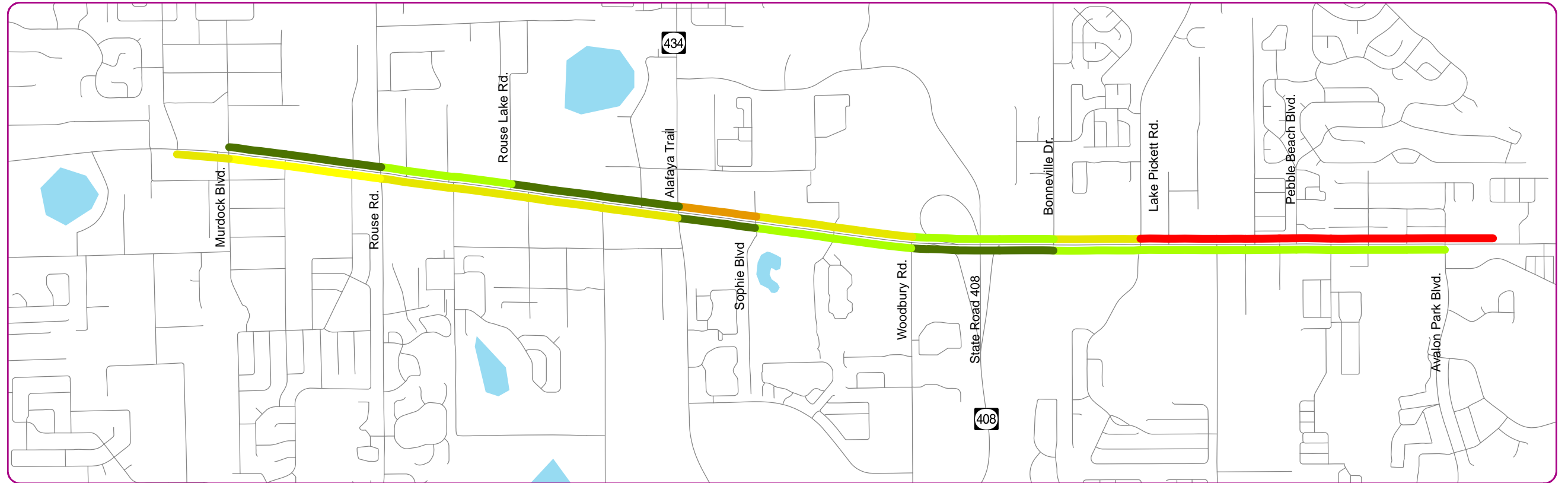
**Before Condition**

Date of Collection: 1/12/2010  
 Distance: 4.18 miles  
 From: Avalon Park Blvd.  
 To: Murdock Blvd.

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

EB Avg Speed: 31.5 MPH  
 EB Travel Time: 7.98 MIN  
 EB Delay Time: 1.73 MIN

WB Avg Speed: 18.5 MPH  
 WB Travel Time: 13.52 MIN  
 WB Delay Time: 4.55 MIN



**SR 50  
- AM Peak**

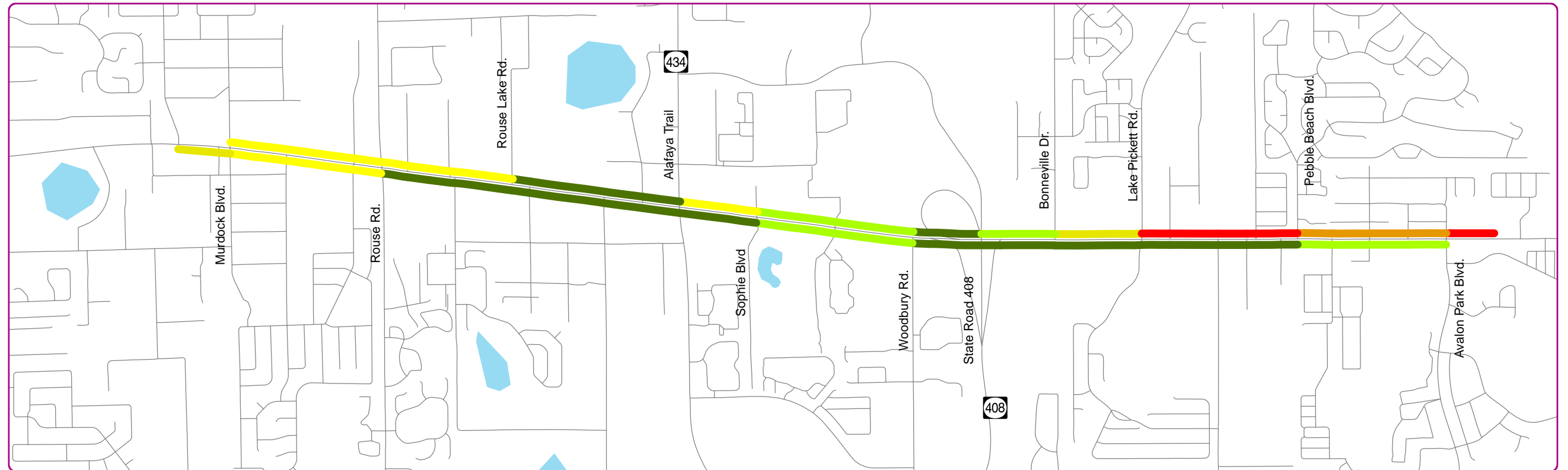
**After Condition**

Date of Collection: 5/4/2010  
 Distance: 4.18 miles  
 From: Avalon Park Blvd.  
 To: Murdock Blvd.

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

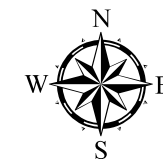
EB Avg Speed: 40.5 MPH  
 EB Travel Time: 6.21 MIN  
 EB Delay Time: 0.47 MIN

WB Avg Speed: 23.0 MPH  
 WB Travel Time: 10.89 MIN  
 WB Delay Time: 3.15 MIN



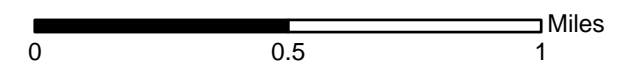
**Level of Services:**

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



**2010 METROPLAN ORLANDO**

*Travel Time Study*



**SR 50  
- PM Peak**

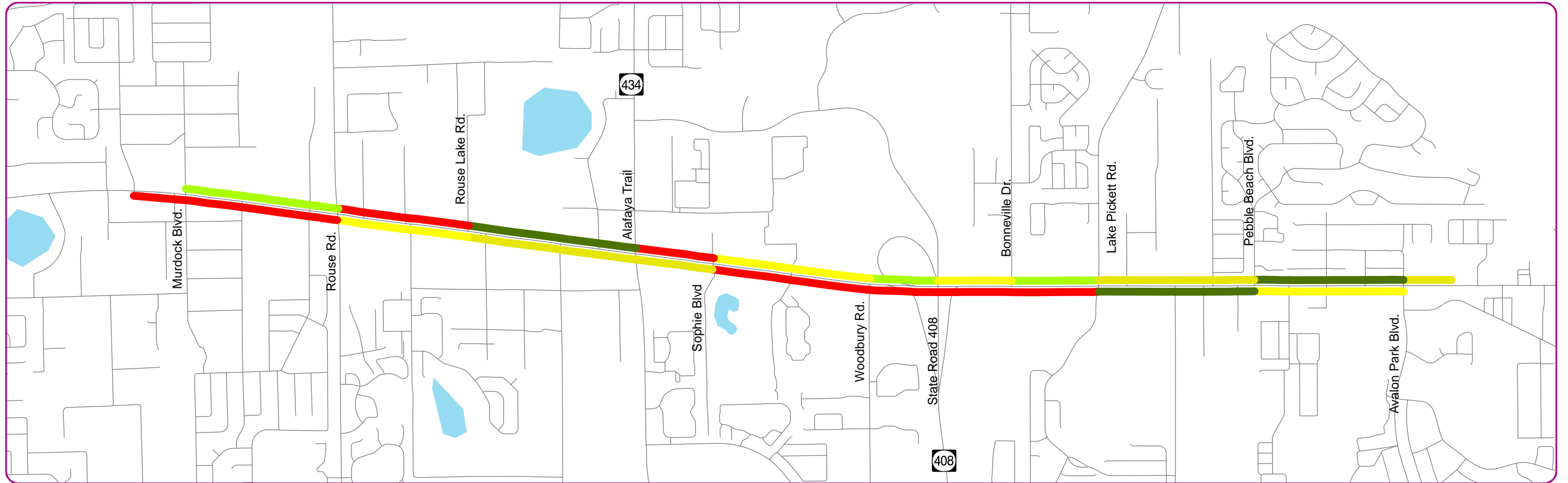
**Before Condition**

Date of Collection: 1/12/2010  
 Distance: 4.18 miles  
 From: Avalon Park Blvd.  
 To: Murdock Blvd.

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

EB Avg Speed: 16.1 MPH  
 EB Travel Time: 15.59 MIN  
 EB Delay Time: 6.36 MIN

WB Avg Speed: 26.7 MPH  
 WB Travel Time: 9.40 MIN  
 WB Delay Time: 2.80 MIN



**SR 50  
- PM Peak**

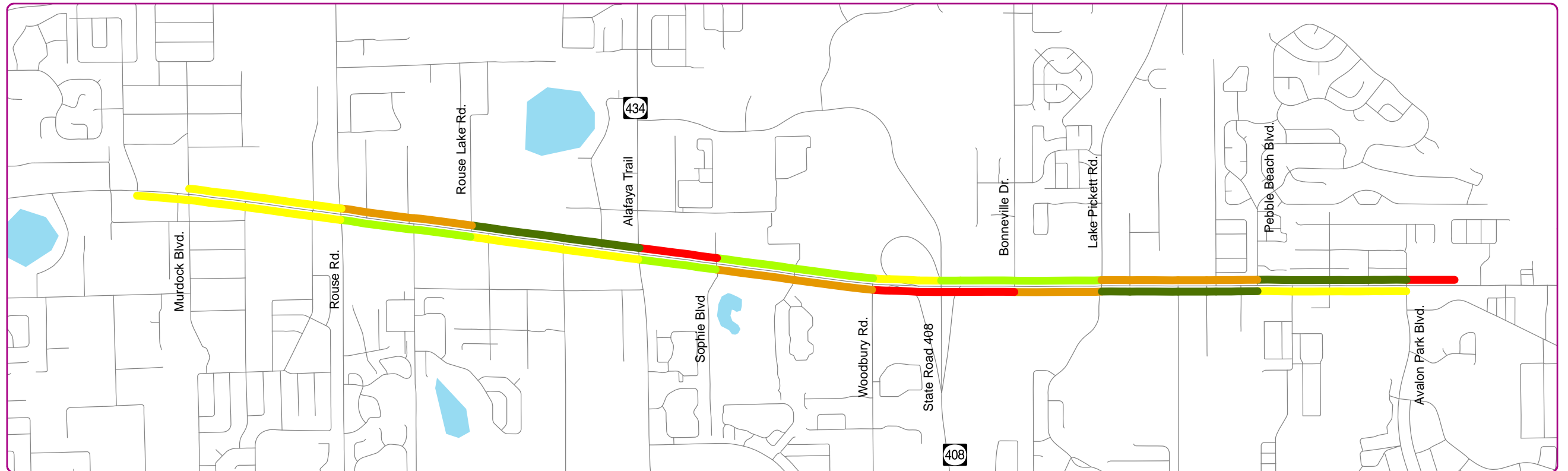
**After Condition**

Date of Collection: 5/4/2010  
 Distance: 4.18 miles  
 From: Avalon Park Blvd.  
 To: Murdock Blvd.

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

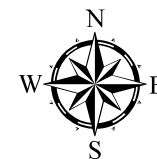
EB Avg Speed: 25.1 MPH  
 EB Travel Time: 10.01 MIN  
 EB Delay Time: 2.47 MIN

WB Avg Speed: 24.0 MPH  
 WB Travel Time: 8.5 MIN  
 WB Delay Time: 2.47 MIN



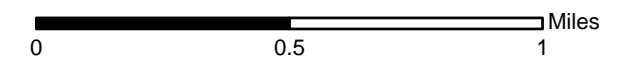
**Level of Services:**

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



**2010 METROPLAN ORLANDO**

*Travel Time Study*



## SR 50 : Murdock Blvd to Avalon Park Blvd: Before & After Study

### 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						
1047	478.8	103.8	31.5	0.1440	139.25	150.77
Northbound/Eastbound - PM Peak Hour						
1778	935.4	381.6	16.1	0.1610	461.98	286.26
Southbound/Westbound - AM Peak Hour						
1554	811.2	273.0	18.5	0.1590	350.17	247.09
Southbound/Westbound - PM Peak Hour						
1587	564.0	168.0	26.7	0.1450	248.63	230.12

\*Traffic Volumes are obtained from the latest FDOT Counts

## SR 50 : Murdock Blvd to Avalon Park Blvd: Before & After Study

### 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						
1047	372.6	28.2	40.5	0.1420	108.36	148.67
Northbound/Eastbound - PM Peak Hour						
1778	600.6	148.2	25.1	0.1500	296.63	266.70
Southbound/Westbound - AM Peak Hour						
1554	653.4	189.0	23.0	0.1510	282.05	234.65
Southbound/Westbound - PM Peak Hour						
1587	510.0	148.2	29.5	0.1460	224.83	231.70

\*Traffic Volumes are obtained from the latest FDOT Counts

**SR 50 : Murdock Blvd to Avalon Park Blvd: Before & After Study**  
**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)	489.42	390.42	710.61	521.45
Total Fuel Consumption (gallons)	397.85	383.33	516.37	498.40

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$1,716.45	\$3,250.34
<b>Annual User Benefit</b>	<b>\$514,933.99</b>	<b>\$975,102.20</b>
<b>Total Annual User Benefit =</b>	<b>\$1,490,036.19</b>	
Total Signal Retiming Annual Cost	\$17,219.72	
<b>User Benefit / Cost Ratio</b>	<b>86.53</b>	

Notes:

- \* Value of Delay Time is \$16.90 per hour (\$15.47 from Mobility Data for Orlando for the year 2007 & grown 3% per year)
- \* Fuel consumption is valued to the rate of \$2.98 per gallon.
- \* 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.



**Conway Rd (SR 15)**  
**Michigan Ave to Hoffner Ave**

**TABLE 4**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Conway Road - Northbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Hoffner Ave	Orange	Arterial	Residential Area	1	2	1	40	317	8	Signal	46.8	32.4	II	4.6	F	0.12	
Hoffner Ave to Shenandoah Elementary School	Orange	Arterial	Residential Area	1	2	1	40	950	8	Signal	18.6	0.0	II	34.8	B	0.87	
Shenandoah Elementary School to Gatlin Ave	Orange	Arterial	Residential Area	1	2	0	40	4,330	8	Signal	88.8	9.6	II	33.2	B	0.83	
Gatlin Ave to Anderson Rd	Orange	Arterial	Residential Area	1	2	0	40	2,640	8	Signal	49.2	1.2	II	36.6	A	0.91	
Anderson Rd to Lake Margaret Dr	Orange	Arterial	Residential Area	1	2	0	40	1,320	8	Signal	40.8	14.4	II	22.1	C	0.55	
Lake Margaret Dr to Michigan St	Orange	Arterial	Residential Area	1	2	0	40	2,587	8	Signal	56.4	8.4	II	31.3	B	0.78	
<b>TOTAL</b>							40	12,144			300.6	66.0	II	27.5	C	0.69	0.081 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Hoffner Ave	Orange	Arterial	Residential Area	1	2	1	40	317	5	Signal	40.8	26.4	II	5.3	F	0.13	
Hoffner Ave to Shenandoah Elementary School	Orange	Arterial	Residential Area	1	2	1	40	950	5	Signal	18.6	0.0	II	34.8	B	0.87	
Shenandoah Elementary School to Gatlin Ave	Orange	Arterial	Residential Area	1	2	0	40	4,330	5	Signal	123.0	35.4	II	24.0	C	0.60	
Gatlin Ave to Anderson Rd	Orange	Arterial	Residential Area	1	2	0	40	2,640	5	Signal	47.4	0.0	II	38.0	A	0.95	
Anderson Rd to Lake Margaret Dr	Orange	Arterial	Residential Area	1	2	0	40	1,320	5	Signal	24.0	0.0	II	37.5	A	0.94	
Lake Margaret Dr to Michigan St	Orange	Arterial	Residential Area	1	2	0	40	2,587	5	Signal	52.2	3.6	II	33.8	B	0.84	
<b>TOTAL</b>							40	12,144			306.0	65.4	II	27.1	C	0.68	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.

**TABLE 4**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Conway Road - Southbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Michigan St	Orange	Arterial	Residential Area	1	2	0	40	581	8	Signal	43.8	25.8	II	9.0	F	0.23	
Michigan St to Lake Margaret Dr	Orange	Arterial	Residential Area	1	2	0	40	2,587	8	Signal	60.0	7.8	II	29.4	B	0.73	
Lake Margaret Dr to Anderson Rd	Orange	Arterial	Residential Area	1	2	0	40	1,320	8	Signal	24.0	0.0	II	37.5	A	0.94	
Anderson Rd to Gatlin Ave	Orange	Arterial	Residential Area	1	2	0	40	2,640	8	Signal	51.0	1.2	II	35.3	A	0.88	
Gatlin Ave to Shenandoah Elementary School	Orange	Arterial	Residential Area	1	2	0	40/35	4,330	8	Signal	81.6	0.0	II	36.2	A	0.90	
Shenandoah Elementary School to Hoffner Ave	Orange	Arterial	Residential Area	1	2	1	40	950	8	Signal	50.4	25.2	II	12.9	F	0.32	
<b>TOTAL</b>							40	12,408			310.8	60.0	II	27.2	C	0.68	0.085 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Michigan St	Orange	Arterial	Residential Area	1	2	0	40	581	5	Signal	48.6	27.0	II	8.1	F	0.20	
Michigan St to Lake Margaret Dr	Orange	Arterial	Residential Area	1	2	0	40	2,587	5	Signal	84.6	26.4	II	20.9	D	0.52	
Lake Margaret Dr to Anderson Rd	Orange	Arterial	Residential Area	1	2	0	40	1,320	5	Signal	26.4	0.0	II	34.1	B	0.85	
Anderson Rd to Gatlin Ave	Orange	Arterial	Residential Area	1	2	0	40	2,640	5	Signal	77.4	17.4	II	23.3	C	0.58	
Gatlin Ave to Shenandoah Elementary School	Orange	Arterial	Residential Area	1	2	0	40/35	4,330	5	Signal	84.0	0.0	II	35.1	A	0.88	
Shenandoah Elementary School to Hoffner Ave	Orange	Arterial	Residential Area	1	2	1	40	950	5	Signal	66.0	43.2	II	9.8	F	0.25	
<b>TOTAL</b>							40	12,408			387.0	114.0	II	21.9	D	0.55	0.086 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 4**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Conway Road - Northbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Hoffner Ave	Orange	Arterial	Residential Area	1	2	1	40	317	8	Signal	54.6	36.0	II	4.0	F	0.10	
Hoffner Ave to Shenandoah Elementary School	Orange	Arterial	Residential Area	1	2	1	40	950	8	Signal	22.2	0.0	II	29.2	B	0.73	
Shenandoah Elementary School to Gatlin Ave	Orange	Arterial	Residential Area	1	2	0	40	4,330	8	Signal	68.4	0.0	II	43.2	A	1.08	
Gatlin Ave to Anderson Rd	Orange	Arterial	Residential Area	1	2	0	40	2,640	8	Signal	41.4	0.0	II	43.5	A	1.09	
Anderson Rd to Lake Margaret Dr	Orange	Arterial	Residential Area	1	2	0	40	1,320	8	Signal	23.4	1.2	II	38.5	A	0.96	
Lake Margaret Dr to Michigan St	Orange	Arterial	Residential Area	1	2	0	40	2,587	8	Signal	55.2	6.6	II	32.0	B	0.80	
<b>TOTAL</b>							40	12,144			265.2	43.8	II	31.2	B	0.78	0.081 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Hoffner Ave	Orange	Arterial	Residential Area	1	2	1	40	317	6	Signal	36.0	21.0	II	6.0	F	0.15	
Hoffner Ave to Shenandoah Elementary School	Orange	Arterial	Residential Area	1	2	1	40	950	6	Signal	18.0	0.0	II	36.0	A	0.90	
Shenandoah Elementary School to Gatlin Ave	Orange	Arterial	Residential Area	1	2	0	40	4,330	6	Signal	72.6	2.4	II	40.7	A	1.02	
Gatlin Ave to Anderson Rd	Orange	Arterial	Residential Area	1	2	0	40	2,640	6	Signal	41.4	0.0	II	43.5	A	1.09	
Anderson Rd to Lake Margaret Dr	Orange	Arterial	Residential Area	1	2	0	40	1,320	6	Signal	38.4	12.6	II	23.4	C	0.59	
Lake Margaret Dr to Michigan St	Orange	Arterial	Residential Area	1	2	0	40	2,587	6	Signal	47.4	3.0	II	37.2	A	0.93	
<b>TOTAL</b>							40	12,144			253.8	39.0	II	32.6	B	0.82	0.081 gal/veh

Note:

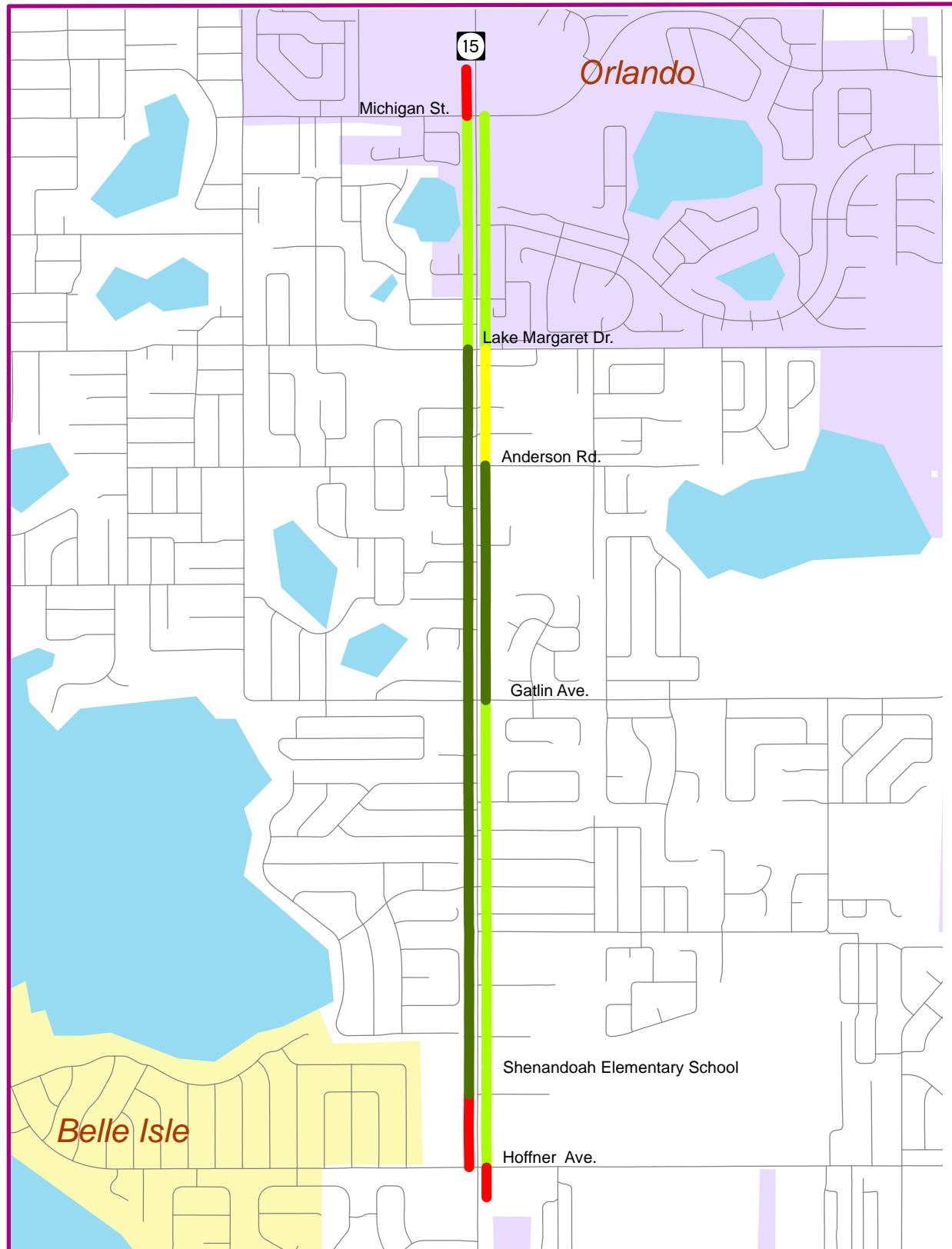
1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

**TABLE 4**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Conway Road - Southbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Michigan St	Orange	Arterial	Residential Area	1	2	0	40	581	7	Signal	39.0	21.0	II	10.2	F	0.25	
Michigan St to Lake Margaret Dr	Orange	Arterial	Residential Area	1	2	0	40	2,587	7	Signal	49.8	5.4	II	35.4	A	0.89	
Lake Margaret Dr to Anderson Rd	Orange	Arterial	Residential Area	1	2	0	40	1,320	7	Signal	21.0	0.0	II	42.9	A	1.07	
Anderson Rd to Gatlin Ave	Orange	Arterial	Residential Area	1	2	0	40	2,640	7	Signal	46.8	0.0	II	38.5	A	0.96	
Gatlin Ave to Shenandoah Elementary School	Orange	Arterial	Residential Area	1	2	0	40/35	4,330	7	Signal	81.6	1.2	II	36.2	A	0.90	
Shenandoah Elementary School to Hoffner Ave	Orange	Arterial	Residential Area	1	2	1	40	950	7	Signal	38.4	21.0	II	16.9	E	0.42	
<b>TOTAL</b>							40	12,408			276.6	48.6	II	30.6	B	0.76	0.083 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Michigan St	Orange	Arterial	Residential Area	1	2	0	40	581	6	Signal	55.8	41.4	II	7.1	F	0.18	
Michigan St to Lake Margaret Dr	Orange	Arterial	Residential Area	1	2	0	40	2,587	6	Signal	51.6	8.4	II	34.2	B	0.85	
Lake Margaret Dr to Anderson Rd	Orange	Arterial	Residential Area	1	2	0	40	1,320	6	Signal	22.2	1.2	II	40.5	A	1.01	
Anderson Rd to Gatlin Ave	Orange	Arterial	Residential Area	1	2	0	40	2,640	6	Signal	55.2	9.0	II	32.6	B	0.82	
Gatlin Ave to Shenandoah Elementary School	Orange	Arterial	Residential Area	1	2	0	40/35	4,330	6	Signal	66.0	0.0	II	44.7	A	1.12	
Shenandoah Elementary School to Hoffner Ave	Orange	Arterial	Residential Area	1	2	1	40	950	6	Signal	24.6	6.0	II	26.3	C	0.66	
<b>TOTAL</b>							40	12,408			275.4	66.0	II	30.7	B	0.77	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.



**Conway Road  
- AM Peak**

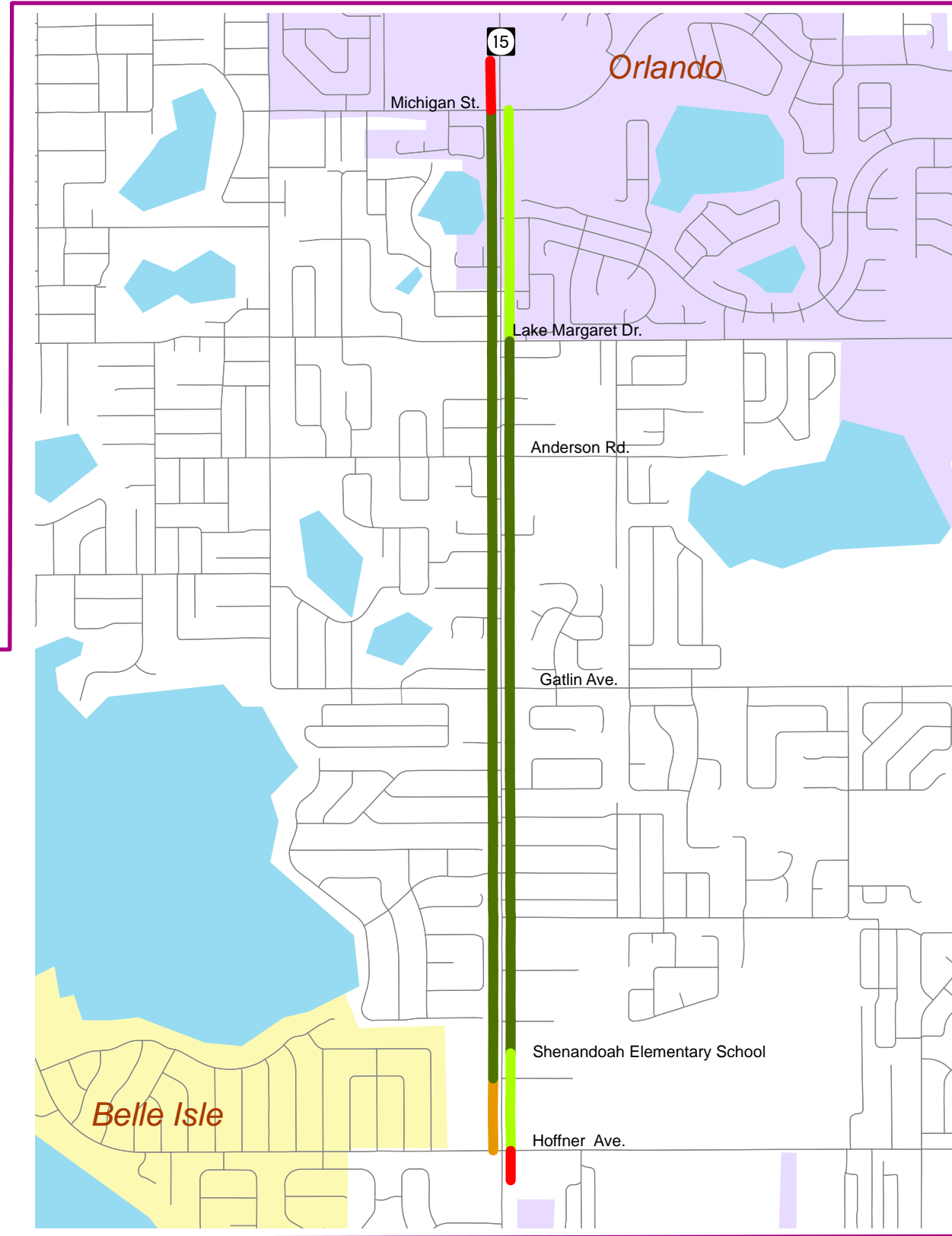
**Before Condition**

Date of Collection: 1/12/2010  
 Distance: 2.30 miles  
 From: Hoffner Ave.  
 To: Michigan St.

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

NB Avg Speed: 27.5 MPH  
 NB Travel Time: 5.01 MIN  
 NB Delay Time: 1.10 MIN

SB Avg Speed: 27.2 MPH  
 SB Travel Time: 5.18 MIN  
 SB Delay Time: 1.00 MIN



**Conway Road  
- AM Peak**

**After Condition**

Date of Collection: 5/26/2010  
 Distance: 2.30 miles  
 From: Hoffner Ave.  
 To: Michigan St.

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

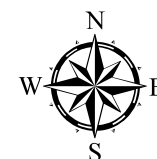
NB Avg Speed: 31.2 MPH  
 NB Travel Time: 4.42 MIN  
 NB Delay Time: 0.73 MIN

SB Avg Speed: 30.6 MPH  
 SB Travel Time: 4.60 MIN  
 SB Delay Time: 0.81 MIN



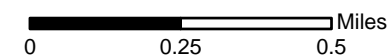
**Level of Services:**

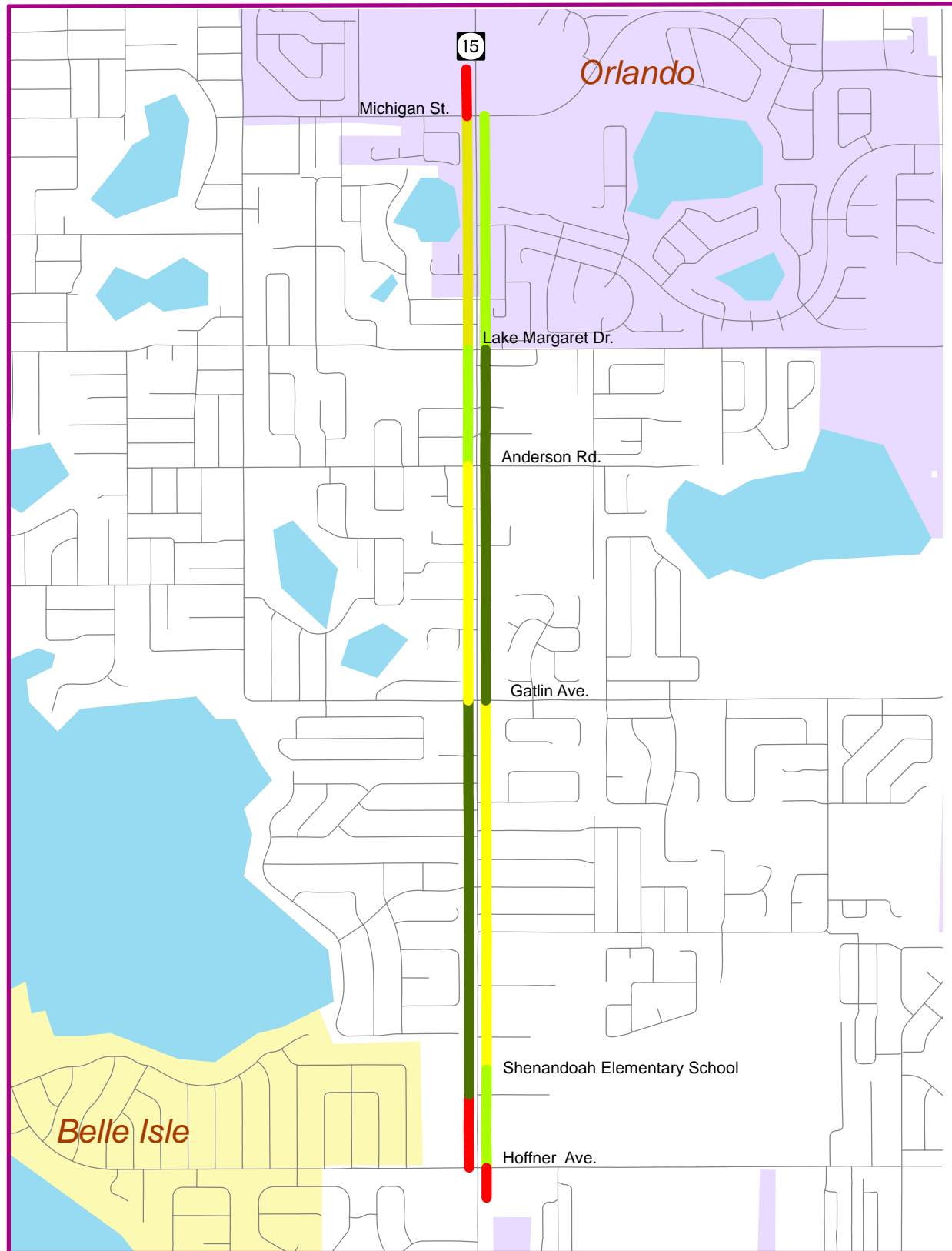
- |   |   |               |
|---|---|---------------|
| A | D | Roads         |
| B | E | City Boundary |
| C | F | Water         |



**2010 METROPLAN ORLANDO**

*Travel Time Study*





**Conway Road  
- PM Peak**

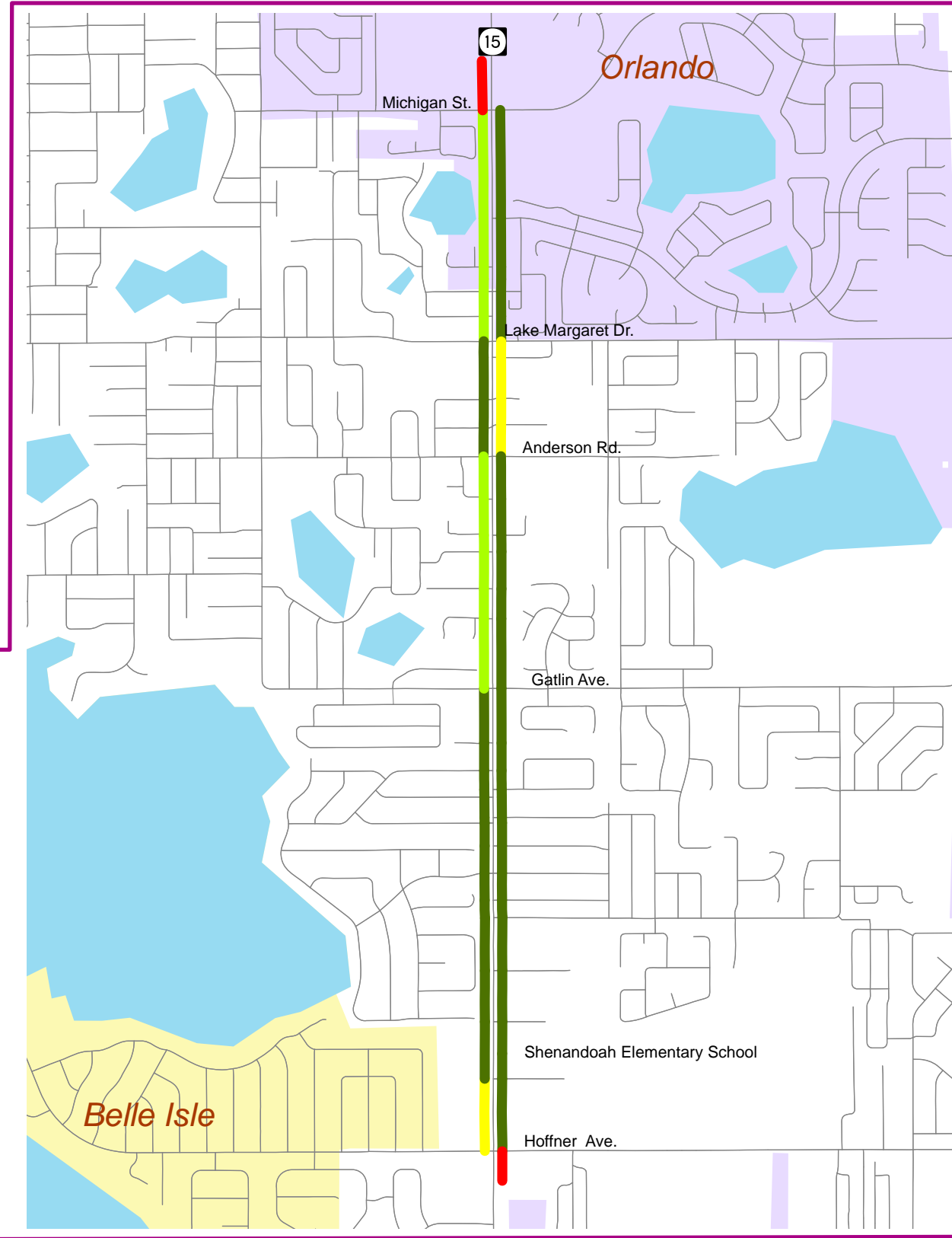
**Before Condition**

Date of Collection: 1/12/2010  
 Distance: 2.30 miles  
 From: Hoffner Ave.  
 To: Michigan St.

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

NB Avg Speed: 27.1 MPH  
 NB Travel Time: 5.10 MIN  
 NB Delay Time: 1.09 MIN

SB Avg Speed: 21.9 MPH  
 SB Travel Time: 6.45 MIN  
 SB Delay Time: 1.90 MIN



**Conway Road  
- PM Peak**

**After Condition**

Date of Collection: 5/26/2010  
 Distance: 2.30 miles  
 From: Hoffner Ave.  
 To: Michigan St.

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

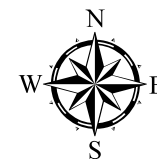
NB Avg Speed: 32.6 MPH  
 NB Travel Time: 4.23 MIN  
 NB Delay Time: 0.65 MIN

SB Avg Speed: 30.7 MPH  
 SB Travel Time: 4.59 MIN  
 SB Delay Time: 1.10 MIN



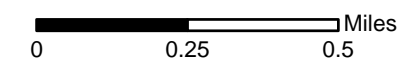
**Level of Services:**

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



**2010 METROPLAN ORLANDO**

*Travel Time Study*



**Conway Rd: Michigan Ave to Hoffner Ave: Before & After Study**  
**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)
<b>Northbound/Eastbound - AM Peak Hour</b>						
1592	300.6	66.0	27.5	0.0810	132.93	128.95
<b>Northbound/Eastbound - PM Peak Hour</b>						
2151	306.0	65.4	27.1	0.0810	182.84	174.23
<b>Southbound/Westbound - AM Peak Hour</b>						
1088	310.8	60.0	27.2	0.0850	93.93	92.48
<b>Southbound/Westbound - PM Peak Hour</b>						
1263	387.0	114.0	21.9	0.0860	135.77	108.62

\*Traffic Volumes are obtained from the latest Orange County Counts



## Conway Rd: Michigan Ave to Hoffner Ave: Before & After Study

### 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						
1592	265.2	43.8	31.2	0.0810	117.28	128.95
Northbound/Eastbound - PM Peak Hour						
2151	253.8	39.0	32.6	0.0810	151.65	174.23
Southbound/Westbound - AM Peak Hour						
1088	276.6	48.6	30.6	0.0830	83.59	90.30
Southbound/Westbound - PM Peak Hour						
1263	275.4	66.0	30.7	0.0820	96.62	103.57

\*Traffic Volumes are obtained from the latest Orange County Counts

**Conway Rd: Michigan Ave to Hoffner Ave: Before & After Study**  
**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)	226.86	200.87	318.61	248.27
Total Fuel Consumption (gallons)	221.43	219.26	282.85	277.80

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$445.73	\$1,203.84
<b>Annual User Benefit</b>	<b>\$133,718.02</b>	<b>\$361,152.96</b>
<b>Total Annual User Benefit =</b>	<b>\$494,870.99</b>	
Total Signal Retiming Annual Cost	\$10,402.71	
<b>User Benefit / Cost Ratio</b>	<b>47.57</b>	

Notes:

- \* Value of Delay Time is \$16.90 per hour (\$15.47 from Mobility Data for Orlando for the year 2007 & grown 3% per year)
- \* Fuel consumption is valued to the rate of \$2.98 per gallon.
- \* 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.

**Goldenrod Rd (SR 551)**  
**Bates Rd to Charlin Pkwy**

**TABLE 5**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Goldenrod Road - Northbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Charlin Pkwy	Orange	Arterial	Residential Area	1	2	0	45	792	6	Signal	24.6	0.0	I	22.0	D	0.49	
Charlin Pkwy to Sun Vista Way	Orange	Arterial	Residential Area	0	2	0	45	1,531	6	Signal	24.0	0.0	I	43.5	A	0.97	
Sun Vista Way to Pershing Ave	Orange	Arterial	Residential Area	2	2	0	50	2,323	6	Signal	39.6	2.4	I	40.0	B	0.80	
Pershing Ave to Curry Ford Rd	Orange	Arterial	Residential Area	1	2	1	50/45	6,336	6	Signal	141.6	33.0	I	30.5	C	0.68	
Curry Ford Rd to Lake Underhill Rd	Orange	Arterial	Residential Area	1	2	1	45	8,923	6	Signal	282.0	96.6	I	21.6	D	0.48	
Lake Underhill Rd to SR 408 EB Ramp	Orange	Arterial	Residential Area	0	2	0	45	370	6	Signal	15.0	4.8	I	16.8	E	0.31	
SR 408 EB Ramp to SR 408 WB Ramp	Orange	Arterial	Residential Area	2	2	0	45	370	6	Signal	7.2	0.0	I	35.0	B	0.70	
SR 408 WB Ramp to Valencia College Ln	Orange	Arterial	Residential Area	0	2	0	45	4,541	6	Signal	84.0	10.8	I	36.9	B	0.82	
Valencia College Ln to Colonial Dr	Orange	Arterial	Residential Area	2	2	1	45	5,280	6	Signal	156.6	60.0	I	23.0	D	0.51	
Colonial Dr to Liver Pool Blvd	Orange	Arterial	Residential Area	1	2	0	45	2,587	6	Signal	42.0	0.0	I	42.0	B	0.93	
Liver Pool Blvd to Bates Rd	Orange	Arterial	Residential Area	0	2	0	45	2,693	6	Signal	42.6	1.2	I	43.1	A	0.96	
<b>TOTAL</b>							45	35,746			859.2	208.8	I	28.4	C	0.63	0.230 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Charlin Pkwy	Orange	Arterial	Residential Area	1	2	0	45	792	5	Signal	17.4	0.0	I	31.0	C	0.69	
Charlin Pkwy to Sun Vista Way	Orange	Arterial	Residential Area	0	2	0	45	1,531	5	Signal	30.6	0.0	I	34.1	B	0.76	
Sun Vista Way to Pershing Ave	Orange	Arterial	Residential Area	2	2	0	50	2,323	5	Signal	59.4	16.2	I	26.7	D	0.53	
Pershing Ave to Curry Ford Rd	Orange	Arterial	Residential Area	1	2	1	50/45	6,336	5	Signal	178.2	59.4	I	24.2	D	0.54	
Curry Ford Rd to Lake Underhill Rd	Orange	Arterial	Residential Area	1	2	1	45	8,923	5	Signal	239.4	75.0	I	25.4	D	0.56	
Lake Underhill Rd to SR 408 EB Ramp	Orange	Arterial	Residential Area	0	2	0	45	370	5	Signal	9.0	0.0	I	28.0	C	0.51	
SR 408 EB Ramp to SR 408 WB Ramp	Orange	Arterial	Residential Area	2	2	0	45	370	5	Signal	7.2	0.0	I	35.0	B	0.70	
SR 408 WB Ramp to Valencia College Ln	Orange	Arterial	Residential Area	0	2	0	45	4,541	5	Signal	77.4	1.8	I	40.0	B	0.89	
Valencia College Ln to Colonial Dr	Orange	Arterial	Residential Area	2	2	1	45	5,280	5	Signal	199.8	101.4	I	18.0	E	0.40	
Colonial Dr to Liver Pool Blvd	Orange	Arterial	Residential Area	1	2	0	45	2,587	5	Signal	55.8	7.2	I	31.6	C	0.70	
Liver Pool Blvd to Bates Rd	Orange	Arterial	Residential Area	0	2	0	45	2,693	5	Signal	61.8	15.0	I	29.7	C	0.66	
<b>TOTAL</b>							45	35,746			936.0	276.0	I	26.0	D	0.58	0.276 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 2010 METROPLAN Orlando Travel Time Study**  
**Goldenrod Road - Southbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Bates Rd	Orange	Arterial	Residential Area	1	2	0	45	370	6	Signal	15.0	3.6	I	16.8	E	0.37	
Bates Rd to Liver Pool Blvd	Orange	Arterial	Residential Area	1	2	0	45	2,693	6	Signal	41.4	0.0	I	44.3	A	0.99	
Liver Pool Blvd to Colonial Dr	Orange	Arterial	Residential Area	2	2	0	45	2,587	6	Signal	129.0	73.8	I	13.7	F	0.30	
Colonial Dr to Valencia College Ln	Orange	Arterial	Residential Area	1	2	0	45	5,280	6	Signal	98.4	11.4	I	36.6	B	0.81	
Valencia College Ln to SR 408 WB Ramp	Orange	Arterial	Residential Area	0	2	1	45	4,541	6	Signal	104.4	28.8	I	29.7	C	0.66	
SR 408 WB Ramp to SR 408 EB Ramp	Orange	Arterial	Residential Area	1	2	0	45	370	6	Signal	16.8	6.6	I	15.0	F	0.33	
SR 408 EB Ramp to Lake Underhill Rd	Orange	Arterial	Residential Area	2	2	1	45	370	6	Signal	10.8	1.2	I	23.3	D	0.52	
Lake Underhill Rd to Curry Ford Rd	Orange	Arterial	Residential Area	1	2	1	45	8,923	6	Signal	203.4	44.4	I	29.9	C	0.66	
Curry Ford Rd to Pershing Ave	Orange	Arterial	Residential Area	1	2	1	50	6,336	6	Signal	129.0	13.2	I	33.5	C	0.67	
Pershing Ave to Sun Vista Way	Orange	Arterial	Residential Area	1	2	0	50	2,323	6	Signal	45.6	2.4	I	34.7	B	0.69	
Sun Vista Way to Charlin Pkwy	Orange	Arterial	Residential Area	1	2	0	50	1,531	6	Signal	29.4	3.6	I	35.5	B	0.71	
<b>TOTAL</b>							45	35,323			823.2	189.0	I	29.3	C	0.65	0.231 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Bates Rd	Orange	Arterial	Residential Area	1	2	0	45	370	5	Signal	29.4	5.4	I	8.6	F	0.19	
Bates Rd to Liver Pool Blvd	Orange	Arterial	Residential Area	1	2	0	45	2,693	5	Signal	45.0	1.2	I	40.8	B	0.91	
Liver Pool Blvd to Colonial Dr	Orange	Arterial	Residential Area	2	2	0	45	2,587	5	Signal	110.4	52.8	I	16.0	F	0.36	
Colonial Dr to Valencia College Ln	Orange	Arterial	Residential Area	1	2	0	45	5,280	5	Signal	102.6	11.4	I	35.1	B	0.78	
Valencia College Ln to SR 408 WB Ramp	Orange	Arterial	Residential Area	0	2	1	45	4,541	5	Signal	186.6	75.0	I	16.6	E	0.37	
SR 408 WB Ramp to SR 408 EB Ramp	Orange	Arterial	Residential Area	1	2	0	45	370	5	Signal	20.4	9.6	I	12.4	F	0.27	
SR 408 EB Ramp to Lake Underhill Rd	Orange	Arterial	Residential Area	2	2	1	45	370	5	Signal	33.0	22.2	I	7.6	F	0.17	
Lake Underhill Rd to Curry Ford Rd	Orange	Arterial	Residential Area	1	2	1	45	8,923	5	Signal	291.0	109.8	I	20.9	E	0.46	
Curry Ford Rd to Pershing Ave	Orange	Arterial	Residential Area	1	2	1	50	6,336	5	Signal	122.4	14.4	I	35.3	B	0.71	
Pershing Ave to Sun Vista Way	Orange	Arterial	Residential Area	1	2	0	50	2,323	5	Signal	45.0	3.0	I	35.2	B	0.70	
Sun Vista Way to Charlin Pkwy	Orange	Arterial	Residential Area	1	2	0	50	1,531	5	Signal	28.8	0.0	I	36.2	B	0.72	
<b>TOTAL</b>							45	35,323			1,014.6	304.8	I	23.7	D	0.53	0.238 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 2010 METROPLAN Orlando Travel Time Study**  
**Goldenrod Road - Northbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Charlin Pkwy	Orange	Arterial	Residential Area	1	2	0	45	792	5	Signal	11.4	0.0	I	47.4	A	1.05	
Charlin Pkwy to Sun Vista Way	Orange	Arterial	Residential Area	0	2	0	45	1,531	5	Signal	27.0	2.4	I	38.7	B	0.86	
Sun Vista Way to Pershing Ave	Orange	Arterial	Residential Area	2	2	0	50	2,323	5	Signal	51.6	14.4	I	30.7	C	0.61	
Pershing Ave to Curry Ford Rd	Orange	Arterial	Residential Area	1	2	1	50/45	6,336	5	Signal	120.0	14.4	I	36.0	B	0.80	
Curry Ford Rd to Lake Underhill Rd	Orange	Arterial	Residential Area	1	2	1	45	8,923	5	Signal	303.0	117.0	I	20.1	E	0.45	
Lake Underhill Rd to SR 408 EB Ramp	Orange	Arterial	Residential Area	0	2	0	45	370	5	Signal	10.2	0.0	I	24.7	D	0.55	
SR 408 EB Ramp to SR 408 WB Ramp	Orange	Arterial	Residential Area	2	2	0	45	370	5	Signal	7.2	0.0	I	35.0	B	0.78	
SR 408 WB Ramp to Valencia College Ln	Orange	Arterial	Residential Area	0	2	0	45	4,541	5	Signal	67.8	0.0	I	45.7	A	1.01	
Valencia College Ln to Colonial Dr	Orange	Arterial	Residential Area	2	2	1	45	5,280	5	Signal	100.8	7.8	I	35.7	B	0.79	
Colonial Dr to Liver Pool Blvd	Orange	Arterial	Residential Area	1	2	0	45	2,587	5	Signal	43.2	0.0	I	40.8	B	0.91	
Liver Pool Blvd to Bates Rd	Orange	Arterial	Residential Area	0	2	0	45	2,693	5	Signal	40.8	0.0	I	45.0	A	1.00	
<b>TOTAL</b>							45	35,746			783.0	156.0	I	31.1	C	0.69	0.221 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Charlin Pkwy	Orange	Arterial	Residential Area	1	2	0	45	792	6	Signal	18.0	0.0	I	30.0	C	0.67	
Charlin Pkwy to Sun Vista Way	Orange	Arterial	Residential Area	0	2	0	45	1,531	6	Signal	22.8	0.0	I	45.8	A	1.02	
Sun Vista Way to Pershing Ave	Orange	Arterial	Residential Area	2	2	0	50	2,323	6	Signal	42.6	2.4	I	37.2	B	0.74	
Pershing Ave to Curry Ford Rd	Orange	Arterial	Residential Area	1	2	1	50/45	6,336	6	Signal	276.0	128.4	I	15.7	F	0.35	
Curry Ford Rd to Lake Underhill Rd	Orange	Arterial	Residential Area	1	2	1	45	8,923	6	Signal	206.4	52.8	I	29.5	C	0.66	
Lake Underhill Rd to SR 408 EB Ramp	Orange	Arterial	Residential Area	0	2	0	45	370	6	Signal	9.0	0.0	I	28.0	C	0.62	
SR 408 EB Ramp to SR 408 WB Ramp	Orange	Arterial	Residential Area	2	2	0	45	370	6	Signal	7.2	0.0	I	35.0	B	0.78	
SR 408 WB Ramp to Valencia College Ln	Orange	Arterial	Residential Area	0	2	0	45	4,541	6	Signal	62.4	0.0	I	49.6	A	1.10	
Valencia College Ln to Colonial Dr	Orange	Arterial	Residential Area	2	2	1	45	5,280	6	Signal	102.0	15.0	I	35.3	B	0.78	
Colonial Dr to Liver Pool Blvd	Orange	Arterial	Residential Area	1	2	0	45	2,587	6	Signal	48.0	2.4	I	36.7	B	0.82	
Liver Pool Blvd to Bates Rd	Orange	Arterial	Residential Area	0	2	0	45	2,693	6	Signal	46.8	3.0	I	39.2	B	0.87	
<b>TOTAL</b>							45	35,746			841.2	204.0	I	29.0	C	0.64	0.233 gal/veh

Note:

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

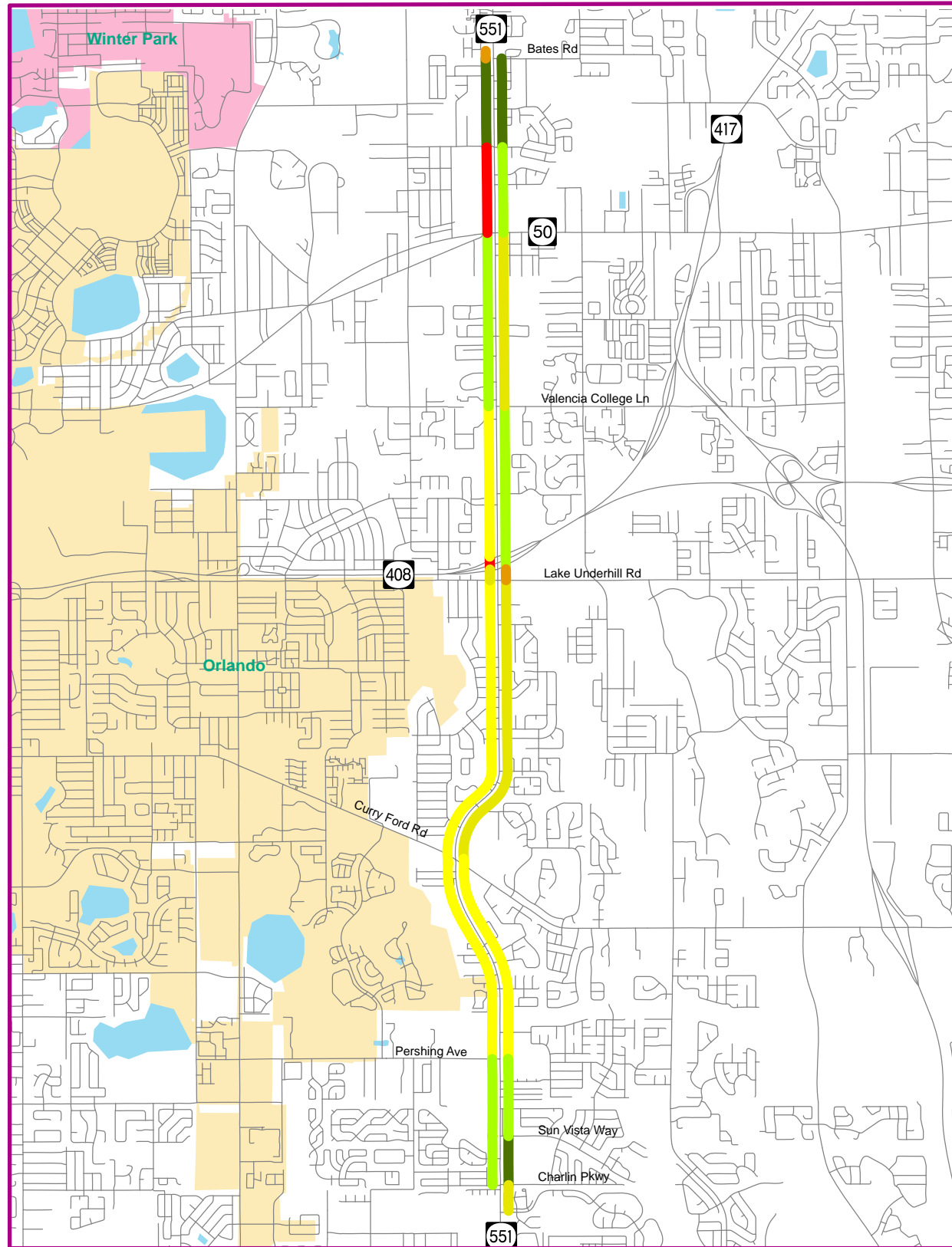
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

**TABLE 5**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Goldenrod Road - Southbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Bates Rd	Orange	Arterial	Residential Area	1	2	0	45	370	6	Signal	4.8	0.0	I	52.5	A	1.17	
Bates Rd to Liver Pool Blvd	Orange	Arterial	Residential Area	1	2	0	45	2,693	6	Signal	51.0	7.8	I	36.0	B	0.80	
Liver Pool Blvd to Colonial Dr	Orange	Arterial	Residential Area	2	2	1	45	2,587	6	Signal	99.0	43.2	I	17.8	E	0.40	
Colonial Dr to Valencia College Ln	Orange	Arterial	Residential Area	1	2	0	45	5,280	6	Signal	91.8	5.4	I	39.2	B	0.87	
Valencia College Ln to SR 408 WB Ramp	Orange	Arterial	Residential Area	0	2	1	45	4,541	6	Signal	110.4	25.8	I	28.0	C	0.62	
SR 408 WB Ramp to SR 408 EB Ramp	Orange	Arterial	Residential Area	1	2	0	45	370	6	Signal	16.2	3.6	I	15.6	F	0.35	
SR 408 EB Ramp to Lake Underhill Rd	Orange	Arterial	Residential Area	2	2	1	45	370	6	Signal	9.0	0.0	I	28.0	C	0.62	
Lake Underhill Rd to Curry Ford Rd	Orange	Arterial	Residential Area	1	2	1	45	8,923	6	Signal	166.2	12.6	I	36.6	B	0.81	
Curry Ford Rd to Pershing Ave	Orange	Arterial	Residential Area	1	2	1	50	6,336	6	Signal	112.8	7.8	I	38.3	B	0.77	
Pershing Ave to Sun Vista Way	Orange	Arterial	Residential Area	1	2	0	50	2,323	6	Signal	37.2	1.2	I	42.6	A	0.85	
Sun Vista Way to Charlin Pkwy	Orange	Arterial	Residential Area	1	2	0	50	1,531	6	Signal	31.2	0.0	I	33.5	C	0.67	
<b>TOTAL</b>							45	35,323			729.6	107.4	I	33.0	C	0.73	0.22 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Bates Rd	Orange	Arterial	Residential Area	1	2	0	45	370	4	Signal	7.2	0.0	I	35.0	B	0.78	
Bates Rd to Liver Pool Blvd	Orange	Arterial	Residential Area	1	2	0	45	2,693	4	Signal	39.0	0.0	I	47.1	A	1.05	
Liver Pool Blvd to Colonial Dr	Orange	Arterial	Residential Area	2	2	1	45	2,587	4	Signal	111.0	63.6	I	15.9	F	0.35	
Colonial Dr to Valencia College Ln	Orange	Arterial	Residential Area	1	2	0	45	5,280	4	Signal	87.6	6.6	I	41.1	B	0.91	
Valencia College Ln to SR 408 WB Ramp	Orange	Arterial	Residential Area	0	2	1	45	4,541	4	Signal	312.6	168.0	I	9.9	F	0.22	
SR 408 WB Ramp to SR 408 EB Ramp	Orange	Arterial	Residential Area	1	2	0	45	370	4	Signal	21.0	9.0	I	12.0	F	0.27	
SR 408 EB Ramp to Lake Underhill Rd	Orange	Arterial	Residential Area	2	2	1	45	370	4	Signal	8.4	0.0	I	30.0	C	0.67	
Lake Underhill Rd to Curry Ford Rd	Orange	Arterial	Residential Area	1	2	1	45	8,923	4	Signal	164.4	15.6	I	37.0	B	0.82	
Curry Ford Rd to Pershing Ave	Orange	Arterial	Residential Area	1	2	1	50	6,336	4	Signal	118.8	18.0	I	36.4	B	0.73	
Pershing Ave to Sun Vista Way	Orange	Arterial	Residential Area	1	2	0	50	2,323	4	Signal	36.0	0.0	I	44.0	A	0.88	
Sun Vista Way to Charlin Pkwy	Orange	Arterial	Residential Area	1	2	0	50	1,531	4	Signal	23.4	0.0	I	44.6	A	0.89	
<b>TOTAL</b>							45	35,323			929.4	280.8	I	25.9	D	0.58	0.237 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 Colonial Drive is newly added. There was no right turn lane in Before Condition.



### Goldenrod Rd - AM Peak

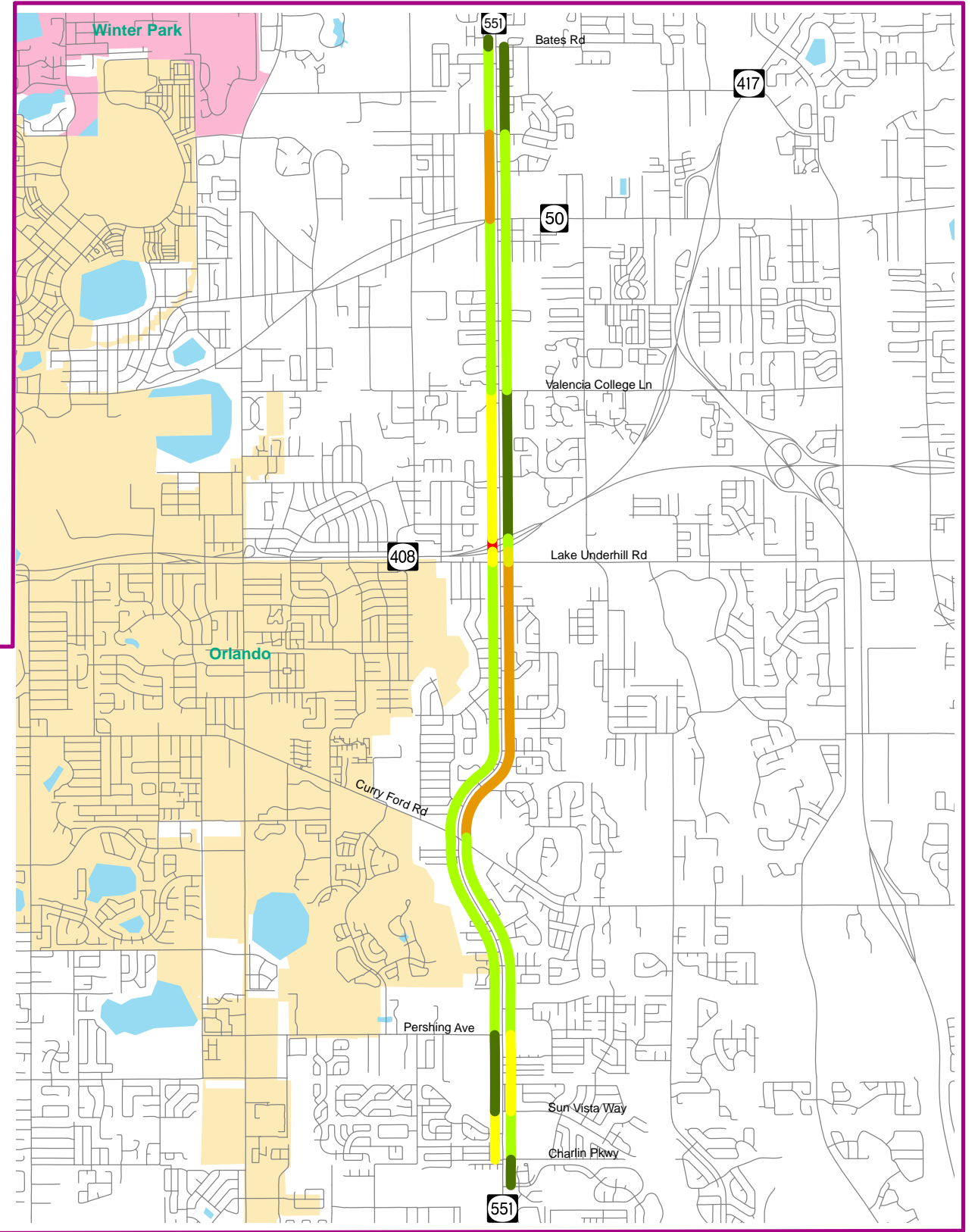
#### Before Condition

Date of Collection: 1/19/2010  
 Distance: 6.77 miles  
 From: Charlin Pkwy.  
 To: Bates Rd

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

NB Avg Speed: 28.4 MPH  
 NB Travel Time: 14.32 MIN  
 NB Delay Time: 3.48 MIN

SB Avg Speed: 29.3 MPH  
 SB Travel Time: 13.72 MIN  
 SB Delay Time: 3.15 MIN



### Goldenrod Rd - AM Peak

#### After Condition

Date of Collection: 8/27/2010  
 Distance: 6.77 miles  
 From: Charlin Pkwy.  
 To: Bates Rd

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

NB Avg Speed: 31.1 MPH  
 NB Travel Time: 13.05 MIN  
 NB Delay Time: 2.60 MIN

SB Avg Speed: 33.0 MPH  
 SB Travel Time: 12.16 MIN  
 SB Delay Time: 1.79 MIN



#### Level of Services:

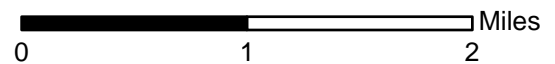
- █ A
- █ B
- █ C
- █ D
- █ E
- █ F

- Roads
- City Boundary
- Water

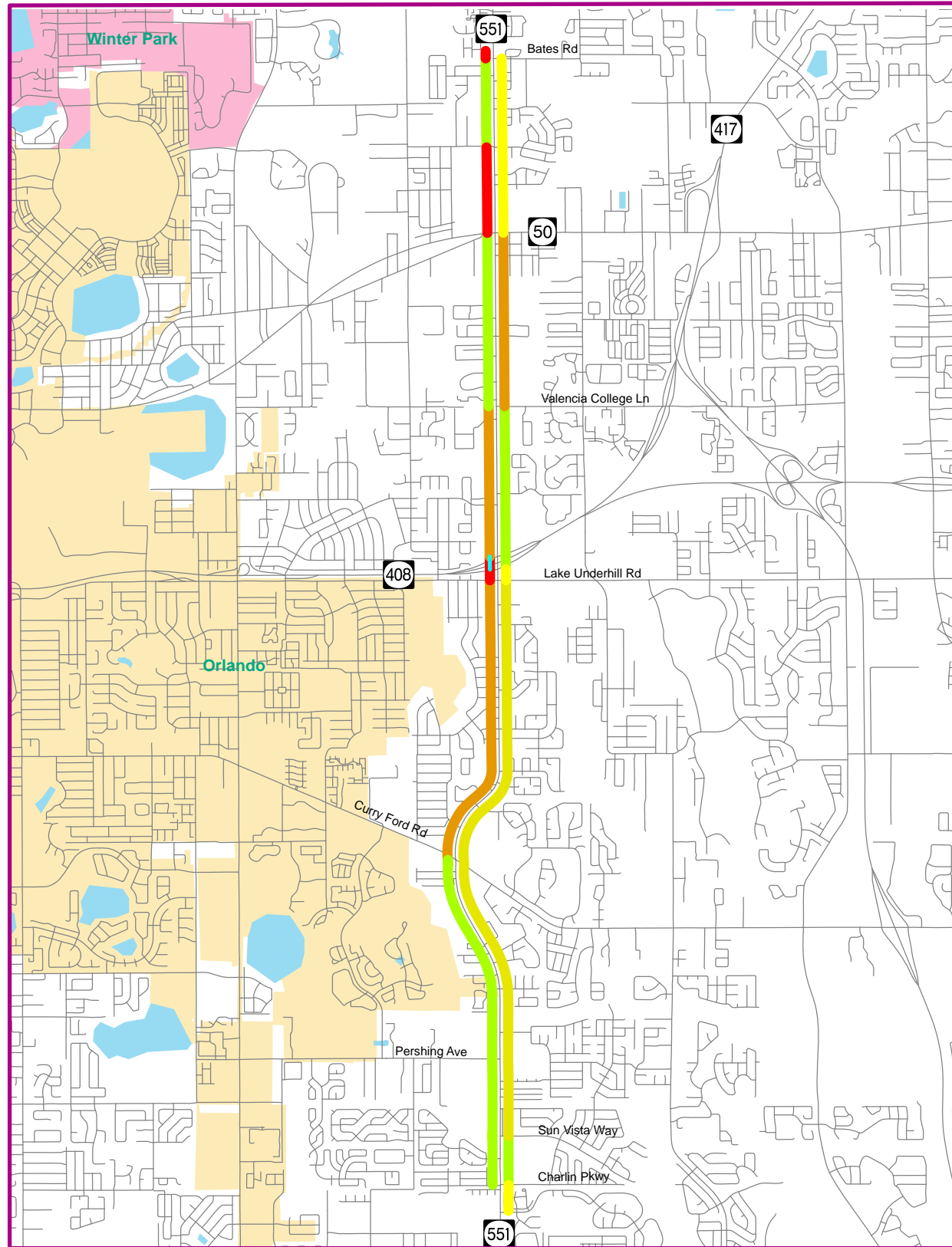


## 2010 METROPLAN ORLANDO

### Travel Time Study







### Goldenrod Rd - PM Peak

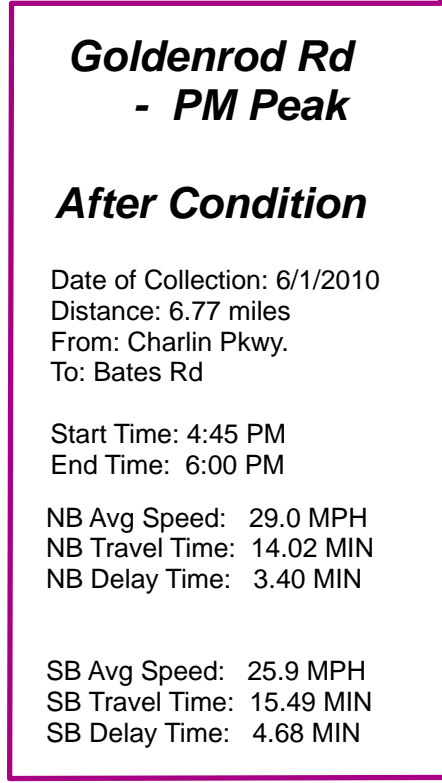
#### Before Condition

Date of Collection: 1/19/2010  
 Distance: 6.77 miles  
 From: Charlin Pkwy.  
 To: Bates Rd

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

NB Avg Speed: 26.0 MPH  
 NB Travel Time: 15.6 MIN  
 NB Delay Time: 4.60 MIN

SB Avg Speed: 23.7 MPH  
 SB Travel Time: 16.91 MIN  
 SB Delay Time: 5.08 MIN



### Goldenrod Rd - PM Peak

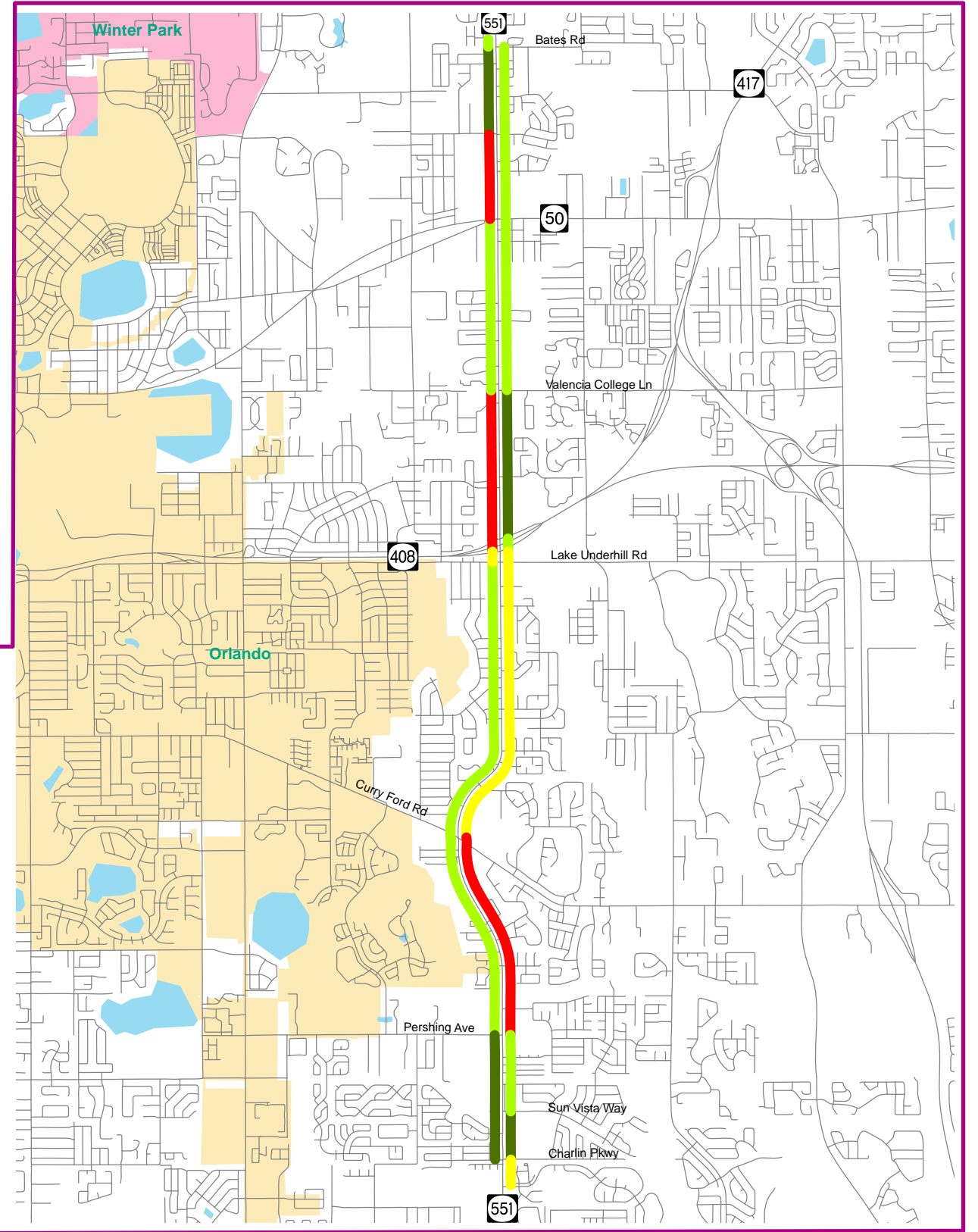
#### After Condition

Date of Collection: 6/1/2010  
 Distance: 6.77 miles  
 From: Charlin Pkwy.  
 To: Bates Rd

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

NB Avg Speed: 29.0 MPH  
 NB Travel Time: 14.02 MIN  
 NB Delay Time: 3.40 MIN

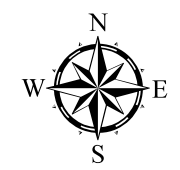
SB Avg Speed: 25.9 MPH  
 SB Travel Time: 15.49 MIN  
 SB Delay Time: 4.68 MIN



### Level of Services:

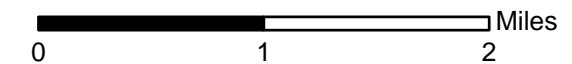
- A
- B
- C
- D
- E
- F

- Roads
- City Boundary
- Water



## 2010 METROPLAN ORLANDO

### Travel Time Study



## Goldenrod Rd: Lake Underhill Rd to Charlin Pkwy: Before & After Study

### 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						
1228	859.2	208.8	28.4	0.2300	293.08	282.44
Northbound/Eastbound - PM Peak Hour						
1588	936.0	276.0	26.0	0.2760	412.88	438.29
Southbound/Westbound - AM Peak Hour						
1454	823.2	189.0	29.3	0.2310	332.48	335.87
Southbound/Westbound - PM Peak Hour						
1448	1014.6	304.8	23.7	0.2380	408.09	344.62

\*Traffic Volumes are obtained from the latest FDOT Counts

## Goldenrod Rd: Lake Underhill Rd to Charlin Pkwy: Before & After Study

### 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						
1228	783.0	156.0	31.1	0.2210	267.09	271.39
Northbound/Eastbound - PM Peak Hour						
1588	841.2	204.0	29.0	0.2330	371.06	370.00
Southbound/Westbound - AM Peak Hour						
1454	729.6	107.4	33.0	0.2200	294.68	319.88
Southbound/Westbound - PM Peak Hour						
1448	929.4	280.8	25.9	0.2370	373.83	343.18

\*Traffic Volumes are obtained from the latest FDOT Counts

**Goldenrod Rd: Lake Underhill Rd to Charlin Pkwy: Before & After Study**  
**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)	625.56	561.77	820.97	744.89
Total Fuel Consumption (gallons)	618.31	591.27	782.91	713.18

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$1,158.76	\$1,493.67
<b>Annual User Benefit</b>	<b>\$347,628.22</b>	<b>\$448,099.81</b>
<b>Total Annual User Benefit =</b>	<b>\$795,728.03</b>	
Total Signal Retiming Annual Cost	\$15,889.85	
<b>User Benefit / Cost Ratio</b>	<b>50.08</b>	

Notes:

- \* Value of Delay Time is \$16.90 per hour (\$15.47 from Mobility Data for Orlando for the year 2007 & grown 3% per year)
- \* Fuel consumption is valued to the rate of \$2.98 per gallon.
- \* 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.

**Orange Ave (SR 527)**  
**Drennen Rd to Nela Ave**

**TABLE 6**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Orange Avenue - Northbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Nela Ave	Orange	Arterial	Outlying Business District	1	2	0	45	581	6	Signal	46.2	17.4	II	8.6	F	0.19	
Nela Ave to Lancaster Rd	Orange	Arterial	Outlying Business District	1	2	0	45	1,320	6	Signal	57.6	3.0	II	15.6	E	0.35	
Lancaster Rd to Fairlane Ave	Orange	Arterial	Outlying Business District	1	2	0	40	2,376	6	Signal	54.6	3.6	II	29.7	B	0.74	
Fairlane Ave to Oak Ridge Rd	Orange	One Way	Outlying Business District	1	2	0	40	264	6	Signal	9.0	1.2	II	20.0	D	0.50	
Oak Ridge Rd to Hoffner Ave	Orange	One Way	Residential Area	0	2	1	40	845	6	Signal	24.6	2.4	II	23.4	C	0.59	
Hoffner Ave to Mary Jess Rd	Orange	One Way	Outlying Business District	1	2	0	40	2,006	6	Stop	35.4	0.0	II	38.6	A	0.97	
Mary Jess Rd to Gatlin Ave	Orange	One Way	Outlying Business District	0	2	1	40	5,069	6	Signal	145.2	43.8	II	23.8	C	0.60	
Gatlin Ave to Holden Ave	Orange	Arterial	Outlying Business District	1	2	1	40	370	6	Signal	25.8	15.6	II	9.8	F	0.24	
Holden Ave to Drennen Rd	Orange	Arterial	Outlying Business District	1	2	0	40	3,062	6	Signal	52.8	0.0	II	39.5	A	0.99	
<b>TOTAL</b>							40	15,893			451.2	87.0	II	24.0	C	0.60	0.103 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Nela Ave	Orange	Arterial	Outlying Business District	1	2	0	45	581	4	Signal	46.2	15.6	II	8.6	F	0.19	
Nela Ave to Lancaster Rd	Orange	Arterial	Outlying Business District	1	2	0	45	1,320	4	Signal	57.6	0.6	II	15.6	E	0.35	
Lancaster Rd to Fairlane Ave	Orange	Arterial	Outlying Business District	1	2	0	40	2,376	4	Signal	43.2	0.0	II	37.5	A	0.94	
Fairlane Ave to Oak Ridge Rd	Orange	One Way	Outlying Business District	1	2	0	40	264	4	Signal	13.2	6.0	II	13.6	E	0.34	
Oak Ridge Rd to Hoffner Ave	Orange	One Way	Residential Area	0	2	1	40	845	4	Signal	39.6	16.2	II	14.5	E	0.36	
Hoffner Ave to Mary Jess Rd	Orange	One Way	Outlying Business District	1	2	0	40	2,006	4	Stop	34.8	0.0	II	39.3	A	0.98	
Mary Jess Rd to Gatlin Ave	Orange	One Way	Outlying Business District	0	2	1	40	5,069	4	Signal	213.0	84.6	II	16.2	E	0.41	
Gatlin Ave to Holden Ave	Orange	Arterial	Outlying Business District	1	2	1	40	370	4	Signal	43.8	30.0	II	5.8	F	0.14	
Holden Ave to Drennen Rd	Orange	Arterial	Outlying Business District	1	2	0	40	3,062	4	Signal	55.8	2.4	II	37.4	A	0.94	
<b>TOTAL</b>							40	15,893			547.2	155.4	II	19.8	D	0.50	0.106 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 2010 METROPLAN Orlando Travel Time Study**  
**Orange Avenue - Southbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Drennen Rd	Orange	Arterial	Outlying Business District	1	2	0	40	528	7	Signal	14.4	0.0	II	25.0	C	0.62	
Drennen Rd to Holden Ave	Orange	Arterial	Outlying Business District	1	2	0	40	3,062	7	Signal	73.8	17.4	II	28.3	B	0.71	
Holden Ave to Gatlin Ave	Orange	Arterial	Outlying Business District	1	2	0	40	317	7	Signal	6.6	0.0	II	32.7	B	0.82	
Gatlin Ave to Mary Jess Rd	Orange	One Way	Outlying Business District	1	2	0	40	5,016	7	Signal	85.2	0.6	II	40.1	A	1.00	
Mary Jess Rd to Hoffner Ave	Orange	One Way	Outlying Business District	1	2	0	35	1,901	7	Signal	42.0	9.0	II	30.9	B	0.88	
Hoffner Ave to Oak Ridge Rd	Orange	One Way	Outlying Business District	0	2	1	40	898	7	Signal	19.2	0.0	II	31.9	B	0.80	
Oak Ridge Rd to Fairlane Ave	Orange	One Way	Outlying Business District	0	2	0	40	317	7	Stop	6.0	0.0	II	36.0	A	0.90	
Fairlane Ave to Lancaster Rd	Orange	Arterial	Outlying Business District	0	2	1	45	2,376	7	Signal	44.4	0.6	II	36.5	A	0.81	
Lancaster Rd to Nela Ave	Orange	Arterial	Outlying Business District	1	2	0	45	1,320	7	Signal	22.2	1.8	II	40.5	A	0.90	
<b>TOTAL</b>							40	15,734			313.8	29.4	II	34.2	B	0.85	0.105 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Drennen Rd	Orange	Arterial	Outlying Business District	1	2	0	40	528	4	Signal	26.4	8.4	II	13.6	E	0.34	
Drennen Rd to Holden Ave	Orange	Arterial	Outlying Business District	1	2	0	40	3,062	4	Signal	88.8	13.2	II	23.5	C	0.59	
Holden Ave to Gatlin Ave	Orange	Arterial	Outlying Business District	1	2	0	40	317	4	Signal	8.4	0.0	II	25.7	C	0.64	
Gatlin Ave to Mary Jess Rd	Orange	One Way	Outlying Business District	1	2	0	40	5,016	4	Signal	94.2	5.4	II	36.3	A	0.91	
Mary Jess Rd to Hoffner Ave	Orange	One Way	Outlying Business District	1	2	0	35	1,901	4	Signal	40.8	2.4	II	31.8	B	0.91	
Hoffner Ave to Oak Ridge Rd	Orange	One Way	Outlying Business District	0	2	1	40	898	4	Signal	18.6	0.0	II	32.9	B	0.82	
Oak Ridge Rd to Fairlane Ave	Orange	One Way	Outlying Business District	0	2	0	40	317	4	Stop	5.4	0.0	II	40.0	A	1.00	
Fairlane Ave to Lancaster Rd	Orange	Arterial	Outlying Business District	0	2	1	45	2,376	4	Signal	55.2	9.6	II	29.3	B	0.65	
Lancaster Rd to Nela Ave	Orange	Arterial	Outlying Business District	1	2	0	45	1,320	4	Signal	25.8	0.0	II	34.9	B	0.78	
<b>TOTAL</b>							40	15,734			363.6	39.0	II	29.5	B	0.74	0.106 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 2010 METROPLAN Orlando Travel Time Study**  
**Orange Avenue - Northbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Nela Ave	Orange	Arterial	Outlying Business District	1	2	0	45	581	7	Signal	8.5	3.0	II	46.6	A	1.04	
Nela Ave to Lancaster Rd	Orange	Arterial	Outlying Business District	1	2	0	45	1,320	7	Signal	18.6	0.0	II	48.4	A	1.08	
Lancaster Rd to Fairlane Ave	Orange	Arterial	Outlying Business District	1	2	0	40	2,376	7	Signal	43.8	4.8	II	37.0	A	0.92	
Fairlane Ave to Oak Ridge Rd	Orange	One Way	Outlying Business District	1	2	0	40	264	7	Signal	7.2	0.6	II	25.0	C	0.62	
Oak Ridge Rd to Hoffner Ave	Orange	One Way	Residential Area	0	2	1	40	845	7	Signal	31.2	12.6	II	18.5	D	0.46	
Hoffner Ave to Mary Jess Rd	Orange	One Way	Outlying Business District	1	2	0	40	2,006	7	Stop	32.4	4.8	II	42.2	A	1.06	
Mary Jess Rd to Gatlin Ave	Orange	One Way	Outlying Business District	0	2	1	40	5,069	7	Signal	105.6	16.2	II	32.7	B	0.82	
Gatlin Ave to Holden Ave	Orange	Arterial	Outlying Business District	1	2	1	40	370	7	Signal	7.2	0.0	II	35.0	B	0.87	
Holden Ave to Drennen Rd	Orange	Arterial	Outlying Business District	1	2	0	40	3,062	7	Signal	61.2	7.2	II	34.1	B	0.85	
<b>TOTAL</b>							40	15,893			315.7	49.2	II	34.3	B	0.86	0.102 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Nela Ave	Orange	Arterial	Outlying Business District	1	2	0	45	581	5	Signal	9.2	3.0	II	43.0	A	0.96	
Nela Ave to Lancaster Rd	Orange	Arterial	Outlying Business District	1	2	0	45	1,320	5	Signal	18.0	0.0	II	50.0	A	1.11	
Lancaster Rd to Fairlane Ave	Orange	Arterial	Outlying Business District	1	2	0	40	2,376	5	Signal	55.8	14.4	II	29.0	B	0.73	
Fairlane Ave to Oak Ridge Rd	Orange	One Way	Outlying Business District	1	2	0	40	264	5	Signal	6.6	1.8	II	27.3	C	0.68	
Oak Ridge Rd to Hoffner Ave	Orange	One Way	Residential Area	0	2	1	40	845	5	Signal	17.4	0.0	II	33.1	B	0.83	
Hoffner Ave to Mary Jess Rd	Orange	One Way	Outlying Business District	1	2	0	40	2,006	5	Stop	31.8	0.0	II	43.0	A	1.08	
Mary Jess Rd to Gatlin Ave	Orange	One Way	Outlying Business District	0	2	1	40	5,069	5	Signal	84.6	3.6	II	40.8	A	1.02	
Gatlin Ave to Holden Ave	Orange	Arterial	Outlying Business District	1	2	1	40	370	5	Signal	7.8	0.0	II	32.3	B	0.81	
Holden Ave to Drennen Rd	Orange	Arterial	Outlying Business District	1	2	0	40	3,062	5	Signal	50.4	0.0	II	41.4	A	1.04	
<b>TOTAL</b>							40	15,893			281.6	22.8	II	38.5	A	0.96	0.105 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.

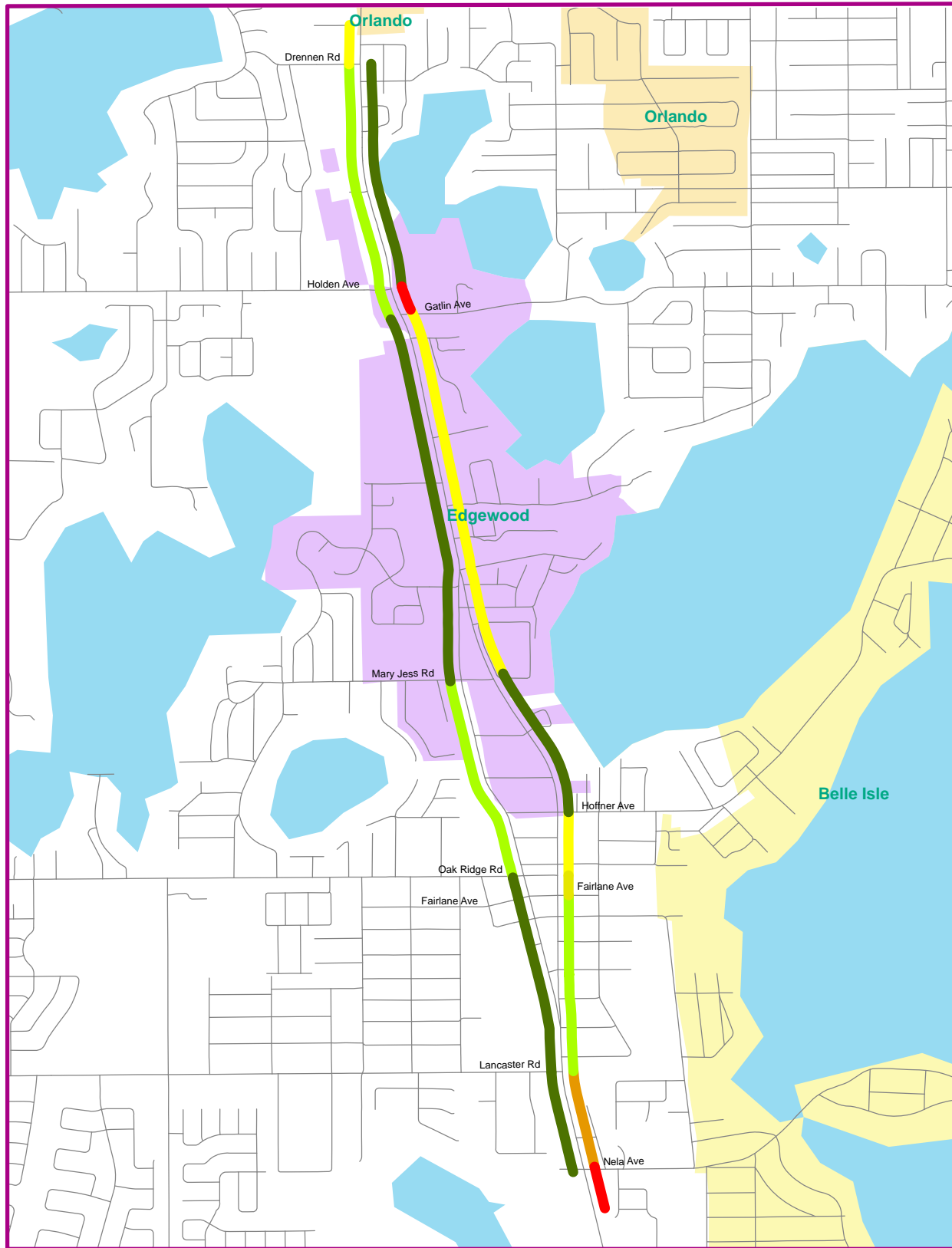


**TABLE 6**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Orange Avenue - Southbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Drennen Rd	Orange	Arterial	Outlying Business District	1	2	0	40	528	7	Signal	11.4	0.0	II	31.6	B	0.79	
Drennen Rd to Holden Ave	Orange	Arterial	Outlying Business District	1	2	0	40	3,062	7	Signal	61.8	16.8	II	33.8	B	0.84	
Holden Ave to Gatlin Ave	Orange	Arterial	Outlying Business District	1	2	0	40	317	7	Signal	6.0	0.0	II	36.0	A	0.90	
Gatlin Ave to Mary Jess Rd	Orange	One Way	Outlying Business District	1	2	0	40	5,016	7	Signal	75.6	0.6	II	45.2	A	1.13	
Mary Jess Rd to Hoffner Ave	Orange	One Way	Outlying Business District	1	2	0	35	1,901	7	Signal	45.0	10.8	II	28.8	B	0.82	
Hoffner Ave to Oak Ridge Rd	Orange	One Way	Outlying Business District	0	2	1	40	898	7	Signal	18.6	0.0	II	32.9	B	0.82	
Oak Ridge Rd to Fairlane Ave	Orange	One Way	Outlying Business District	0	2	0	40	317	7	Stop	5.4	0.0	II	40.0	A	1.00	
Fairlane Ave to Lancaster Rd	Orange	Arterial	Outlying Business District	0	2	1	45	2,376	7	Signal	39.0	6.0	II	41.5	A	0.92	
Lancaster Rd to Nela Ave	Orange	Arterial	Outlying Business District	1	2	0	45	1,320	7	Signal	23.4	0.0	II	38.5	A	0.85	
<b>TOTAL</b>							40	15,734			286.2	34.2	II	37.5	A	0.94	0.103 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Drennen Rd	Orange	Arterial	Outlying Business District	1	2	0	40	528	5	Signal	11.4	0.0	II	31.6	B	0.79	
Drennen Rd to Holden Ave	Orange	Arterial	Outlying Business District	1	2	0	40	3,062	5	Signal	81.0	12.6	II	25.8	C	0.64	
Holden Ave to Gatlin Ave	Orange	Arterial	Outlying Business District	1	2	0	40	317	5	Signal	7.2	0.0	II	30.0	B	0.75	
Gatlin Ave to Mary Jess Rd	Orange	One Way	Outlying Business District	1	2	0	40	5,016	5	Signal	83.4	0.0	II	41.0	A	1.03	
Mary Jess Rd to Hoffner Ave	Orange	One Way	Outlying Business District	1	2	0	35	1,901	5	Signal	33.6	6.0	II	38.6	A	1.10	
Hoffner Ave to Oak Ridge Rd	Orange	One Way	Outlying Business District	0	2	1	40	898	5	Signal	17.4	0.0	II	35.2	A	0.88	
Oak Ridge Rd to Fairlane Ave	Orange	One Way	Outlying Business District	0	2	0	40	317	5	Stop	6.0	0.0	II	36.0	A	0.90	
Fairlane Ave to Lancaster Rd	Orange	Arterial	Outlying Business District	0	2	1	45	2,376	5	Signal	57.6	7.8	II	28.1	B	0.62	
Lancaster Rd to Nela Ave	Orange	Arterial	Outlying Business District	1	2	0	45	1,320	5	Signal	21.0	0.0	II	42.9	A	0.95	
<b>TOTAL</b>							40	15,734			318.6	26.4	II	33.7	B	0.84	0.106 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.



### Orange Ave - AM Peak

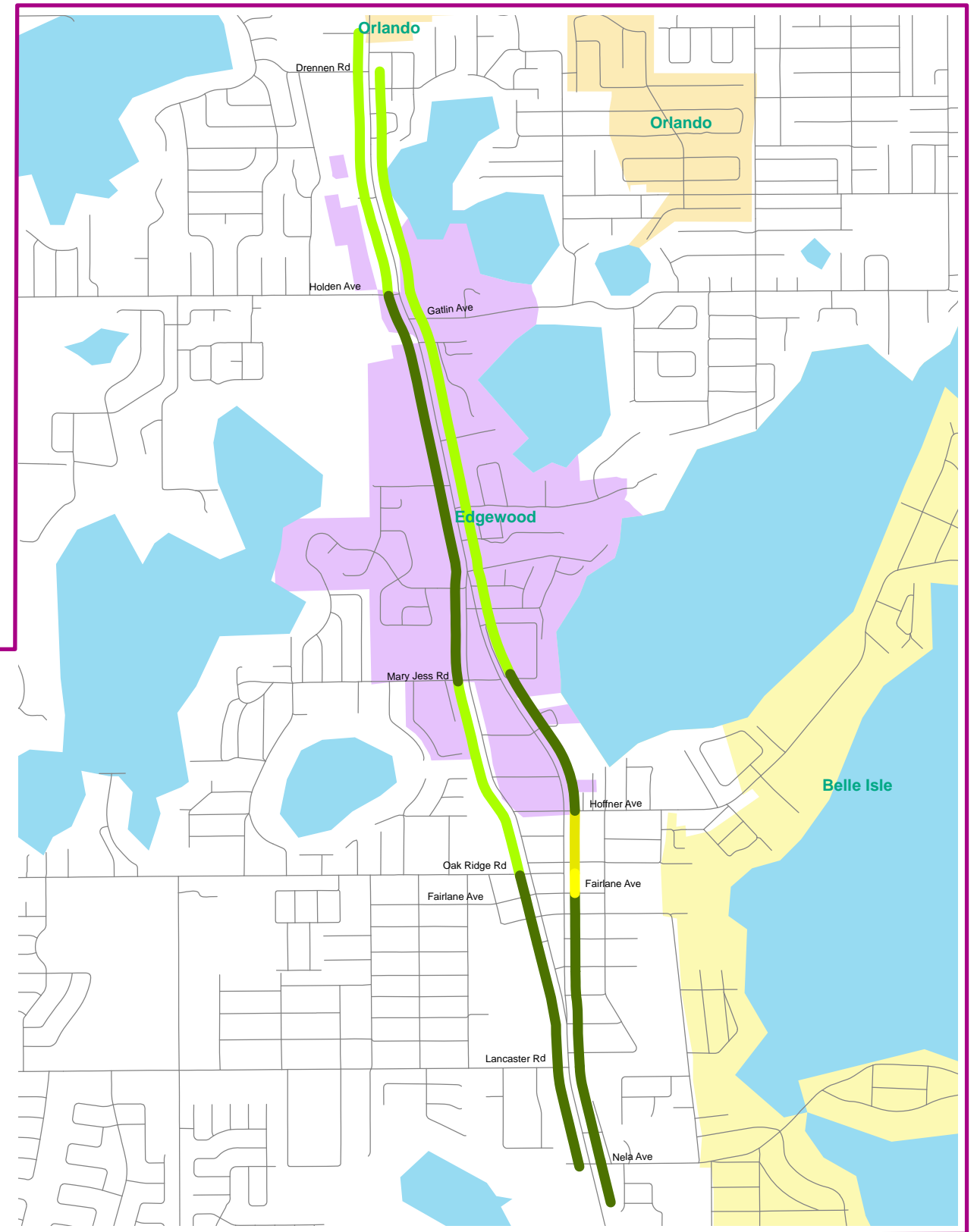
#### Before Condition

Date of Collection: 1/21/2010  
 Distance: 3.01 miles  
 From: Nela Ave.  
 To: Drennen Rd

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

NB Avg Speed: 24.0 MPH  
 NB Travel Time: 7.52 MIN  
 NB Delay Time: 1.45 MIN

SB Avg Speed: 34.2 MPH  
 SB Travel Time: 5.23 MIN  
 SB Delay Time: 0.49 MIN



### Orange Ave - AM Peak

#### After Condition

Date of Collection: 6/3/2010  
 Distance: 3.01 miles  
 From: Nela Ave.  
 To: Drennen Rd

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

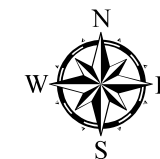
NB Avg Speed: 34.3 MPH  
 NB Travel Time: 5.26 MIN  
 NB Delay Time: 0.82 MIN

SB Avg Speed: 37.5 MPH  
 SB Travel Time: 4.77 MIN  
 SB Delay Time: 0.57 MIN



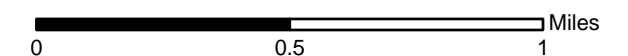
#### Level of Services:

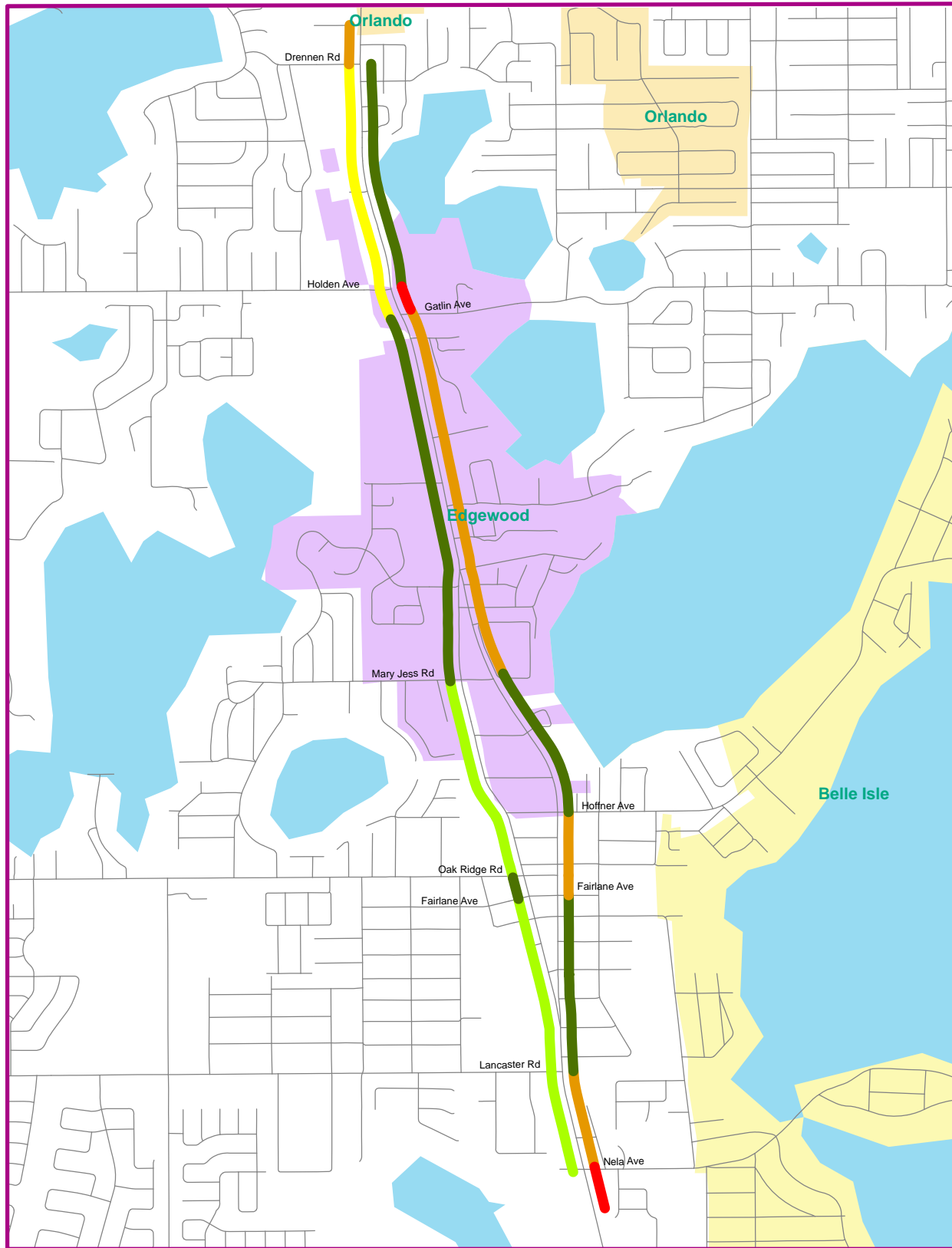
- |  |   |  |   |  |               |
|--|---|--|---|--|---------------|
|  | A |  | D |  | Roads         |
|  | B |  | E |  | City Boundary |
|  | C |  | F |  | Water         |



## 2010 METROPLAN ORLANDO

### Travel Time Study





### Orange Ave - PM Peak

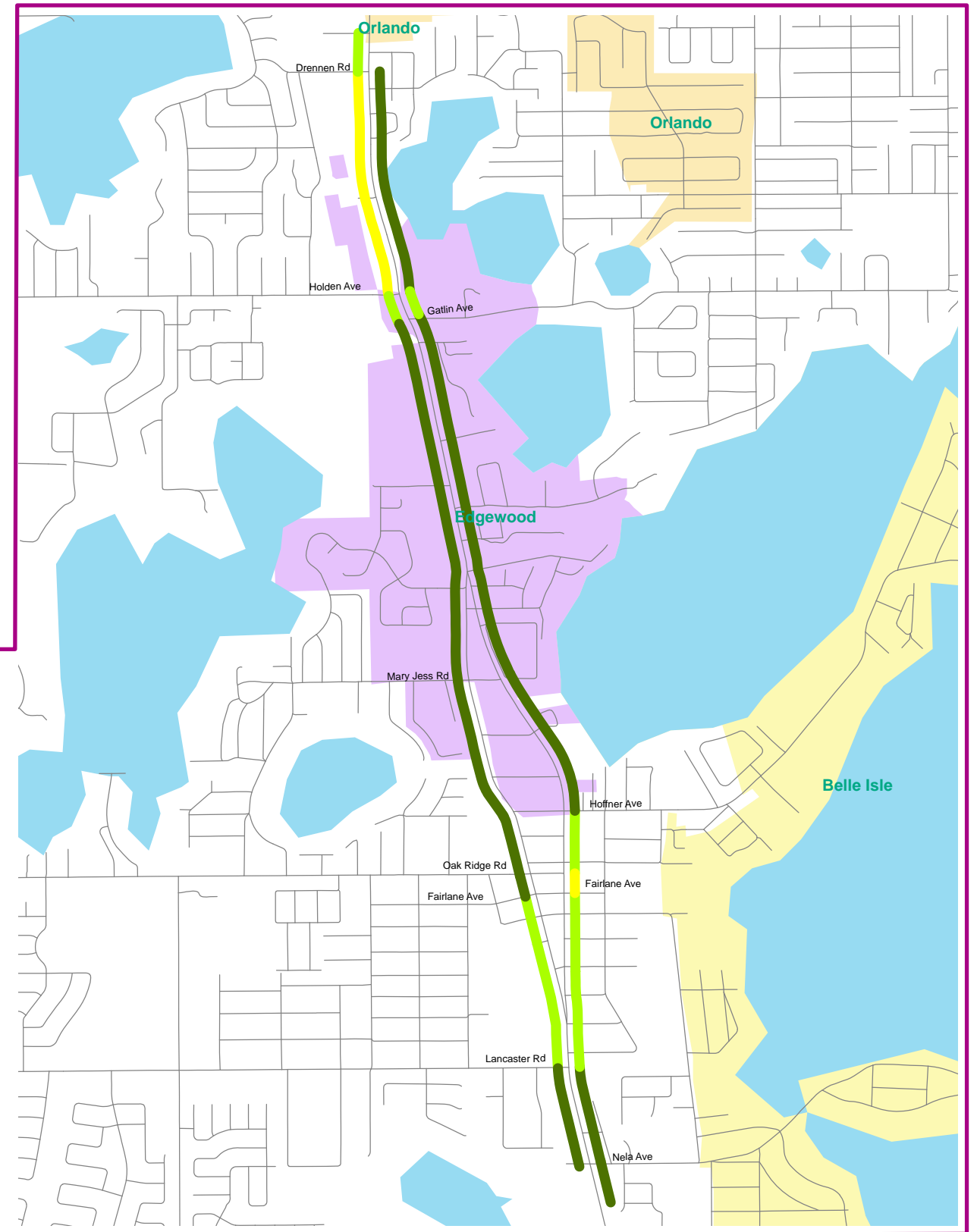
#### Before Condition

Date of Collection: 1/21/2010  
 Distance: 3.01 miles  
 From: Nela Ave.  
 To: Drennen Rd

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

NB Avg Speed: 19.8 MPH  
 NB Travel Time: 9.12 MIN  
 NB Delay Time: 2.59 MIN

SB Avg Speed: 29.5 MPH  
 SB Travel Time: 6.06 MIN  
 SB Delay Time: 0.65 MIN



### Orange Ave - PM Peak

#### After Condition

Date of Collection: 6/2/2010  
 Distance: 3.01 miles  
 From: Nela Ave.  
 To: Drennen Rd

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

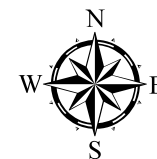
NB Avg Speed: 38.5 MPH  
 NB Travel Time: 4.69 MIN  
 NB Delay Time: 0.38 MIN

SB Avg Speed: 33.7 MPH  
 SB Travel Time: 5.31 MIN  
 SB Delay Time: 0.44 MIN



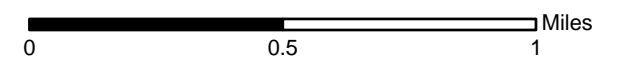
#### Level of Services:

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



## 2010 METROPLAN ORLANDO

### Travel Time Study



**Orange Ave: Nela Ave to Drennen St: Before & After Study**  
**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)
<b>Northbound/Eastbound - AM Peak Hour</b>						
1854	451.2	87.0	24.0	0.1030	232.37	190.96
<b>Northbound/Eastbound - PM Peak Hour</b>						
1576	547.2	155.4	19.8	0.1060	239.55	167.06
<b>Southbound/Westbound - AM Peak Hour</b>						
1514	313.8	29.4	34.2	0.1050	131.97	158.97
<b>Southbound/Westbound - PM Peak Hour</b>						
1963	363.6	39.0	29.5	0.1060	198.26	208.08

\*Traffic Volumes are obtained from the latest FDOT Counts

**Orange Ave: Nela Ave to Drennen St: Before & After Study**  
**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)
<b>Northbound/Eastbound - AM Peak Hour</b>						
1854	315.7	49.2	34.3	0.1020	162.59	189.11
<b>Northbound/Eastbound - PM Peak Hour</b>						
1576	281.6	22.8	38.5	0.1050	123.28	165.48
<b>Southbound/Westbound - AM Peak Hour</b>						
1514	286.2	34.2	37.5	0.1030	120.36	155.94
<b>Southbound/Westbound - PM Peak Hour</b>						
1963	318.6	26.4	33.7	0.1060	173.73	208.08

\*Traffic Volumes are obtained from the latest FDOT Counts

**Orange Ave: Nela Ave to Drennen St: Before & After Study**  
**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)	364.34	282.95	437.82	297.00
Total Fuel Consumption (gallons)	349.93	345.05	375.13	373.56

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$1,390.04	\$2,384.41
<b>Annual User Benefit</b>	<b>\$417,010.96</b>	<b>\$715,322.12</b>
<b>Total Annual User Benefit =</b>	<b>\$1,132,333.09</b>	
Total Signal Retiming Annual Cost	\$16,309.01	
<b>User Benefit / Cost Ratio</b>	<b>69.43</b>	

Notes:

- \* Value of Delay Time is \$16.90 per hour (\$15.47 from Mobility Data for Orlando for the year 2007 & grown 3% per year)
- \* Fuel consumption is valued to the rate of \$2.98 per gallon.
- \* 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.

**Semoran Blvd (SR 436)**  
**Aloma Ave to Baldwin Park St**

**TABLE 7**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 436 - Northbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.	
<b>AM PEAK HOUR - BEFORE CONDITION</b>																		
Median Opening to Baldwin Park St	Orange	Arterial	Residential Area	1	3	1	50	634	8	Signal	24.0	9.6	I	18.0	E	0.36		
Baldwin Park St to Hanging Moss Rd	Orange	Arterial	Residential Area	1	3	1	50	1,478	8	Signal	27.6	3.6	I	36.5	B	0.73		
Hanging Moss Rd to Banchory Rd	Orange	Arterial	Residential Area	1	3	1	50	4,066	8	Signal	69.0	7.2	I	40.2	B	0.80		
Banchory Rd to University Blvd	Orange	Arterial	Outlying Business District	1	3	1	50	2,640	8	Signal	63.6	15.0	I	28.3	C	0.57		
University Blvd to SR 426	Orange	Arterial	Outlying Business District	2	3	1	50	2,587	8	Signal	69.6	16.8	I	25.3	D	0.51		
<b>TOTAL</b>							50	11,405			253.8	52.2	I	30.6	C	0.61	0.075 gal/veh	
<b>PM PEAK HOUR - BEFORE CONDITION</b>																		
Median Opening to Baldwin Park St	Orange	Arterial	Residential Area	1	3	1	50	634	5	Signal	20.4	5.4	I	21.2	D	0.42		
Baldwin Park St to Hanging Moss Rd	Orange	Arterial	Residential Area	1	3	1	50	1,478	5	Signal	28.2	0.0	I	35.7	B	0.71		
Hanging Moss Rd to Banchory Rd	Orange	Arterial	Residential Area	1	3	1	50	4,066	5	Signal	98.4	28.2	I	28.2	C	0.56		
Banchory Rd to University Blvd	Orange	Arterial	Outlying Business District	1	3	1	50	2,640	5	Signal	79.8	24.0	I	22.6	D	0.45		
University Blvd to SR 426	Orange	Arterial	Outlying Business District	2	3	1	50	2,587	5	Signal	102.6	39.6	I	17.2	E	0.34		
<b>TOTAL</b>							50	11,405			329.4	97.2	I	23.6	D	0.47	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.



**TABLE 7**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 436 - Southbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed	LOS	Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)			
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to SR 426	Orange	Arterial	Outlying Business District	2	3	1	50	475	8	Signal	49.8	36.6	I	6.5	F	0.13	
SR 426 to University Blvd	Orange	Arterial	Outlying Business District	2	3	1	50	2,587	8	Signal	49.8	2.4	I	35.4	B	0.71	
University Blvd to Banchory Rd	Orange	Arterial	Outlying Business District	1	3	1	50	2,640	8	Signal	55.2	5.4	I	32.6	C	0.65	
Banchory Rd to Hanging Moss Rd	Orange	Arterial	Residential Area	1	3	0	50	4,066	8	Signal	64.2	1.2	I	43.2	A	0.86	
Hanging Moss Rd to Baldwin Park St	Orange	Arterial	Residential Area	1	3	1	50	1,478	8	Signal	30.6	4.8	I	32.9	C	0.66	
<b>TOTAL</b>							50	11,246			249.6	50.4	I	30.7	C	0.61	0.074 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to SR 426	Orange	Arterial	Outlying Business District	2	3	1	50	475	6	Signal	19.8	7.2	I	16.4	E	0.33	
SR 426 to University Blvd	Orange	Arterial	Outlying Business District	2	3	1	50	2,587	6	Signal	64.2	6.0	I	27.5	C	0.55	
University Blvd to Banchory Rd	Orange	Arterial	Outlying Business District	1	3	1	50	2,640	6	Signal	72.6	15.0	I	24.8	D	0.50	
Banchory Rd to Hanging Moss Rd	Orange	Arterial	Residential Area	1	3	0	50	4,066	6	Signal	78.0	8.4	I	35.5	B	0.71	
Hanging Moss Rd to Baldwin Park St	Orange	Arterial	Residential Area	1	3	1	50	1,478	6	Signal	36.0	9.6	I	28.0	C	0.56	
<b>TOTAL</b>							50	11,246			270.6	46.2	I	28.3	C	0.57	0.075 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 7**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 436 - Northbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Baldwin Park St	Orange	Arterial	Residential Area	1	3	1	50	634	9	Signal	24.6	12.0	I	17.6	E	0.35	
Baldwin Park St to Hanging Moss Rd	Orange	Arterial	Residential Area	1	3	1	50	1,478	9	Signal	25.2	2.4	I	40.0	B	0.80	
Hanging Moss Rd to Banchory Rd	Orange	Arterial	Residential Area	1	3	1	50	4,066	9	Signal	57.0	2.4	I	48.6	A	0.97	
Banchory Rd to University Blvd	Orange	Arterial	Outlying Business District	1	3	1	50	2,640	9	Signal	52.2	12.0	I	34.5	B	0.69	
University Blvd to SR 426	Orange	Arterial	Outlying Business District	2	3	1	50	2,587	9	Signal	55.2	8.4	I	32.0	C	0.64	
<b>TOTAL</b>							50	11,405			214.2	37.2	I	36.3	B	0.73	0.075 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Baldwin Park St	Orange	Arterial	Residential Area	1	3	1	50	634	6	Signal	18.0	4.8	I	24.0	D	0.48	
Baldwin Park St to Hanging Moss Rd	Orange	Arterial	Residential Area	1	3	1	50	1,478	6	Signal	21.6	0.0	I	46.7	A	0.93	
Hanging Moss Rd to Banchory Rd	Orange	Arterial	Residential Area	1	3	1	50	4,066	6	Signal	65.4	2.4	I	42.4	A	0.85	
Banchory Rd to University Blvd	Orange	Arterial	Outlying Business District	1	3	1	50	2,640	6	Signal	69.0	28.8	I	26.1	D	0.52	
University Blvd to SR 426	Orange	Arterial	Outlying Business District	2	3	1	50	2,587	6	Signal	99.0	33.6	I	17.8	E	0.36	
<b>TOTAL</b>							50	11,405			273.0	69.6	I	28.5	C	0.57	0.075 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 7**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 436 - Southbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to SR 426	Orange	Arterial	Outlying Business District	2	3	1	50	475	9	Signal	42.0	30.0	I	7.7	F	0.15	
SR 426 to University Blvd	Orange	Arterial	Outlying Business District	2	3	1	50	2,587	9	Signal	44.4	1.8	I	39.7	B	0.79	
University Blvd to Banchory Rd	Orange	Arterial	Outlying Business District	1	3	1	50	2,640	9	Signal	46.8	8.4	I	38.5	B	0.77	
Banchory Rd to Hanging Moss Rd	Orange	Arterial	Residential Area	1	3	0	50	4,066	9	Signal	58.8	0.0	I	47.1	A	0.94	
Hanging Moss Rd to Baldwin Park St	Orange	Arterial	Residential Area	1	3	1	50	1,478	9	Signal	22.8	0.0	I	44.2	A	0.88	
<b>TOTAL</b>							50	11,246			214.8	40.2	I	35.7	B	0.71	0.073 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to SR 426	Orange	Arterial	Outlying Business District	2	3	1	50	475	6	Signal	15.0	6.0	I	21.6	D	0.43	
SR 426 to University Blvd	Orange	Arterial	Outlying Business District	2	3	1	50	2,587	6	Signal	53.4	7.2	I	33.0	C	0.66	
University Blvd to Banchory Rd	Orange	Arterial	Outlying Business District	1	3	1	50	2,640	6	Signal	63.6	14.4	I	28.3	C	0.57	
Banchory Rd to Hanging Moss Rd	Orange	Arterial	Residential Area	1	3	0	50	4,066	6	Signal	60.0	3.0	I	46.2	A	0.92	
Hanging Moss Rd to Baldwin Park St	Orange	Arterial	Residential Area	1	3	1	50	1,478	6	Signal	26.4	0.0	I	38.2	B	0.76	
<b>TOTAL</b>							50	11,246			218.4	30.6	I	35.1	B	0.70	0.074 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 436  
- AM Peak**

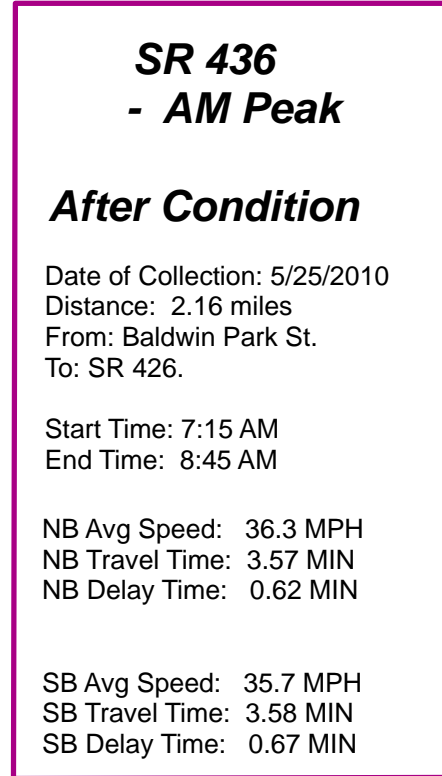
**Before Condition**

Date of Collection: 1/20/2010  
 Distance: 2.16 miles  
 From: Baldwin Park St.  
 To: SR 426.

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

NB Avg Speed: 30.6 MPH  
 NB Travel Time: 4.23 MIN  
 NB Delay Time: 0.87 MIN

SB Avg Speed: 30.7 MPH  
 SB Travel Time: 4.16 MIN  
 SB Delay Time: 0.84 MIN



**SR 436  
- AM Peak**

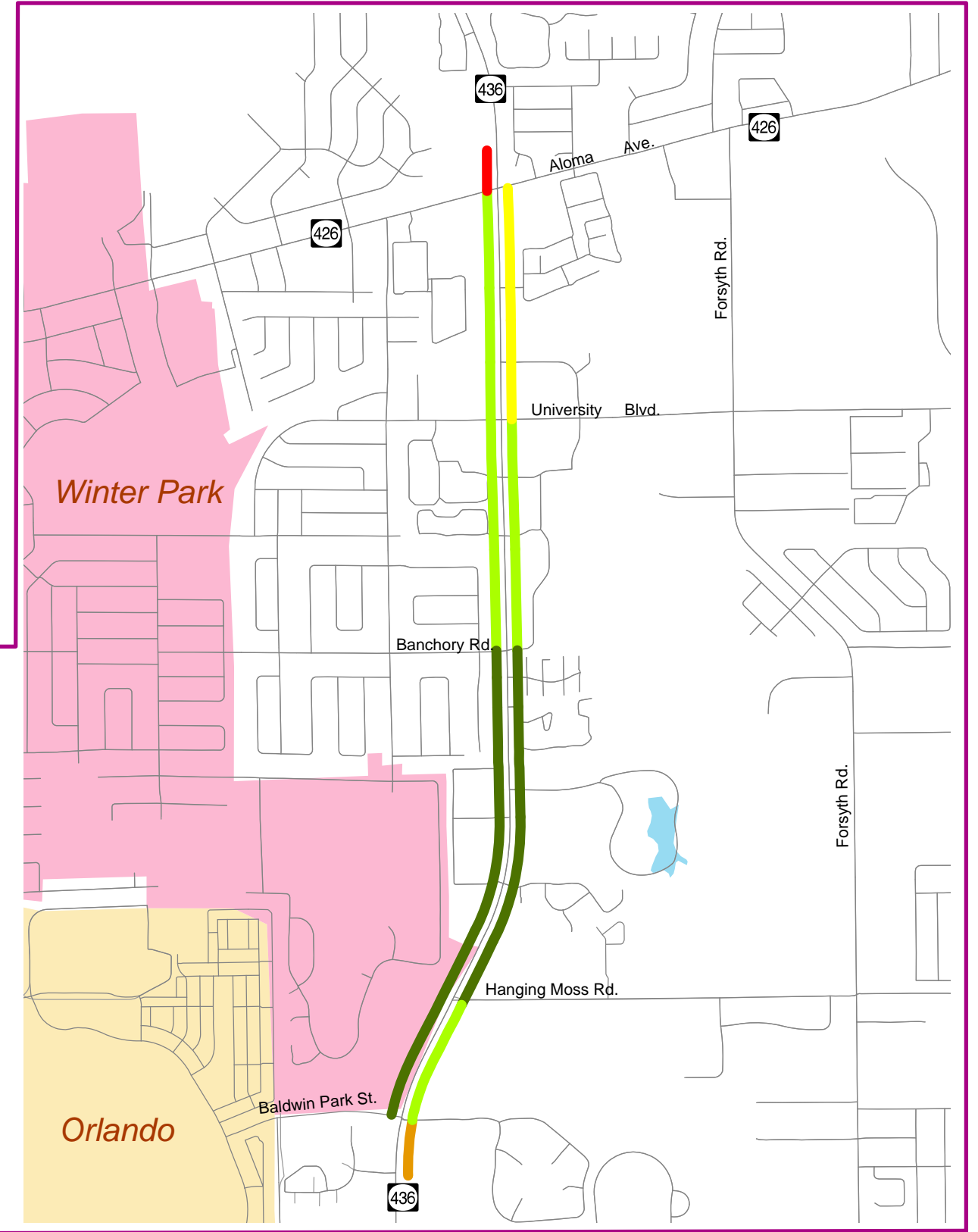
**After Condition**

Date of Collection: 5/25/2010  
 Distance: 2.16 miles  
 From: Baldwin Park St.  
 To: SR 426.

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

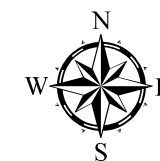
NB Avg Speed: 36.3 MPH  
 NB Travel Time: 3.57 MIN  
 NB Delay Time: 0.62 MIN

SB Avg Speed: 35.7 MPH  
 SB Travel Time: 3.58 MIN  
 SB Delay Time: 0.67 MIN



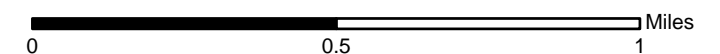
**Level of Services:**

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



**2010 METROPLAN ORLANDO**

*Travel Time Study*





**SR 436  
- PM Peak**

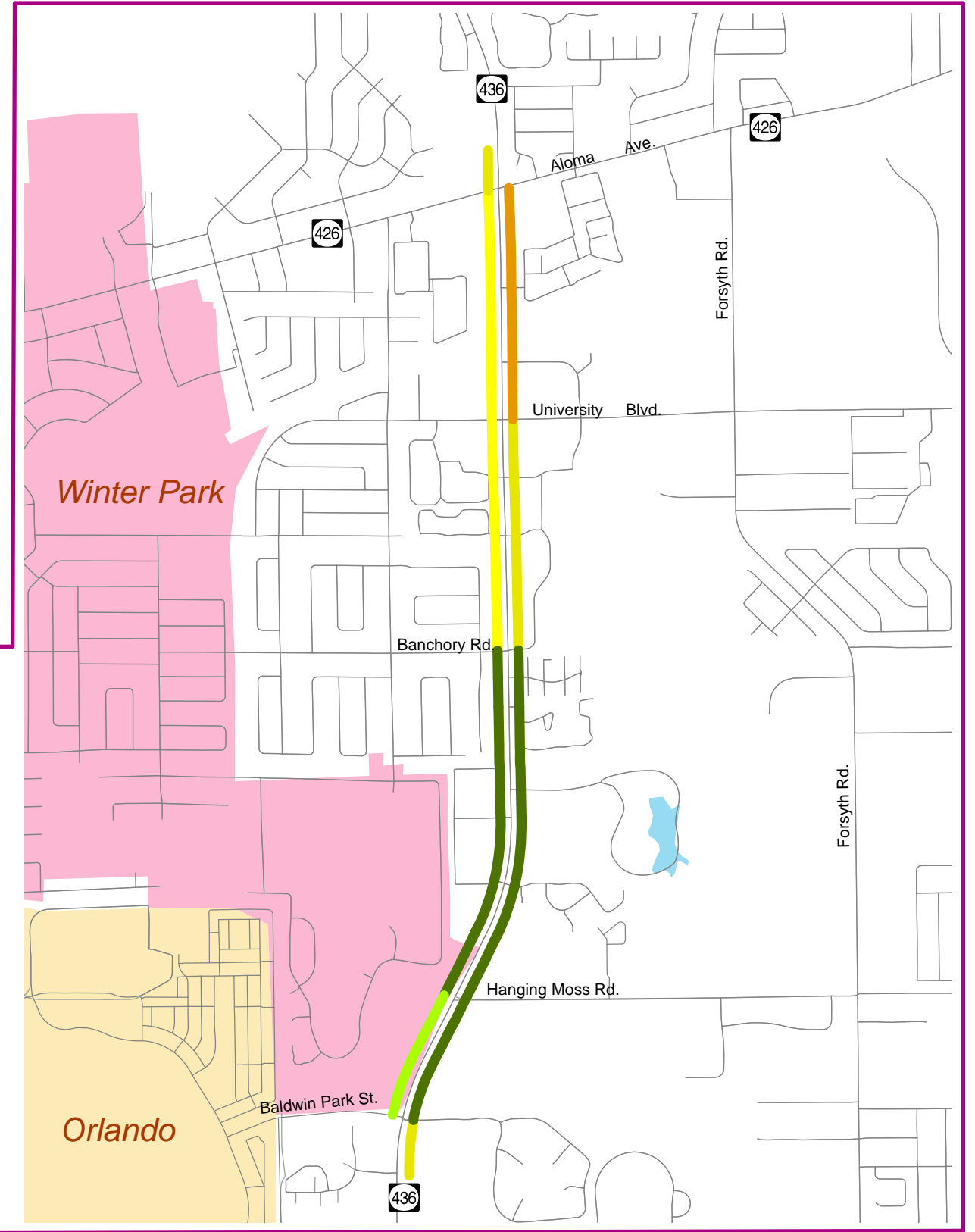
**Before Condition**

Date of Collection: 1/27/2010  
 Distance: 2.16 miles  
 From: Baldwin Park St.  
 To: SR 426.

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

NB Avg Speed: 23.6 MPH  
 NB Travel Time: 5.49 MIN  
 NB Delay Time: 1.62 MIN

SB Avg Speed: 28.3 MPH  
 SB Travel Time: 4.51 MIN  
 SB Delay Time: 0.77 MIN



**SR 436  
- PM Peak**

**After Condition**

Date of Collection: 5/25/2010  
 Distance: 2.16 miles  
 From: Baldwin Park St.  
 To: SR 426.

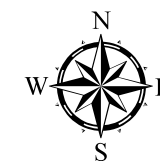
Start Time: 4:30 PM  
 End Time: 6:00 PM

NB Avg Speed: 28.5 MPH  
 NB Travel Time: 4.55 MIN  
 NB Delay Time: 1.16 MIN

SB Avg Speed: 35.1 MPH  
 SB Travel Time: 3.64 MIN  
 SB Delay Time: 0.51 MIN

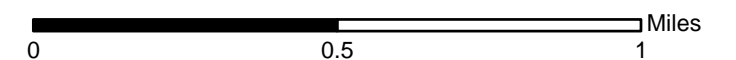
**Level of Services:**

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



**2010 METROPLAN ORLANDO**

*Travel Time Study*



## SR 436: Aloma Ave to Baldwin Park St: Before & After Study

### 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						
1992	253.8	52.2	30.6	0.0750	140.44	149.40
Northbound/Eastbound - PM Peak Hour						
2762	329.4	97.2	23.6	0.0780	252.72	215.44
Southbound/Westbound - AM Peak Hour						
2192	249.6	50.4	30.7	0.0740	151.98	162.21
Southbound/Westbound - PM Peak Hour						
2124	270.6	46.2	28.3	0.0750	159.65	159.30

\*Traffic Volumes are obtained from the latest FDOT Counts

## SR 436: Aloma Ave to Baldwin Park St: Before & After Study

### 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						
1992	214.2	37.2	36.3	0.0750	118.52	149.40
Northbound/Eastbound - PM Peak Hour						
2762	273.0	69.6	28.5	0.0750	209.45	207.15
Southbound/Westbound - AM Peak Hour						
2192	214.8	40.2	35.7	0.0730	130.79	160.02
Southbound/Westbound - PM Peak Hour						
2124	218.4	30.6	35.1	0.0740	128.86	157.18

\*Traffic Volumes are obtained from the latest FDOT Counts

**SR 436: Aloma Ave to Baldwin Park St: Before & After Study**  
**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)	292.41	249.31	412.38	338.31
Total Fuel Consumption (gallons)	311.61	309.42	374.74	364.33

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$734.94	\$1,282.79
<b>Annual User Benefit</b>	<b>\$220,483.41</b>	<b>\$384,838.06</b>
<b>Total Annual User Benefit =</b>	<b>\$605,321.47</b>	
Total Signal Retiming Annual Cost	\$8,345.03	
<b>User Benefit / Cost Ratio</b>	<b>72.54</b>	

Notes:

- \* Value of Delay Time is \$16.90 per hour (\$15.47 from Mobility Data for Orlando for the year 2007 & grown 3% per year)
- \* Fuel consumption is valued to the rate of \$2.98 per gallon.
- \* 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.



**Curry Ford Rd (SR 552)**  
**Conway Rd to Woodgate Blvd**

**TABLE 8**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Curry Ford Road - Eastbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Conway Rd	City of Orlando	Arterial	Residential Area	1	2	0	35	422	6	Signal	52.2	36.6	II	5.5	F	0.16	
Conway Rd to Gaston Foster Rd	City of Orlando	Arterial	Residential Area	1	2	0	35	2,006	6	Signal	39.6	1.2	II	34.5	B	0.99	
Gaston Foster Rd to Dixie Belle Dr/Bahia Ave	City of Orlando	Arterial	Residential Area	0	2	0	40	3,274	6	Signal	66.6	7.2	II	33.5	B	0.84	
Dixie Belle Dr/Bahia Ave to Semoran Blvd	City of Orlando	Arterial	Outlying Business District	2	2	1	40	1,373	6	Signal	46.8	18.0	II	20.0	D	0.50	
Semoran Blvd to Oxalis Ave	City of Orlando	Arterial	Residential Area	1	2	0	45	2,851	6	Signal	60.0	4.2	II	32.4	B	0.72	
Oxalis Ave to Woodgate Blvd	City of Orlando	Arterial	Residential Area	1	2	0	45	1,954	6	Signal	52.8	13.2	II	25.2	C	0.56	
<b>TOTAL</b>							45	11,880			318.0	80.4	II	25.5	C	0.57	0.079 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Conway Rd	City of Orlando	Arterial	Residential Area	1	2	0	35	422	5	Signal	78.0	54.0	II	3.7	F	0.11	
Conway Rd to Gaston Foster Rd	City of Orlando	Arterial	Residential Area	1	2	0	35	2,006	5	Signal	40.2	0.0	II	34.0	B	0.97	
Gaston Foster Rd to Dixie Belle Dr/Bahia Ave	City of Orlando	Arterial	Residential Area	0	2	0	40	3,274	5	Signal	61.8	0.0	II	36.1	A	0.90	
Dixie Belle Dr/Bahia Ave to Semoran Blvd	City of Orlando	Arterial	Outlying Business District	2	2	1	40	1,373	5	Signal	147.0	104.4	II	6.4	F	0.16	
Semoran Blvd to Oxalis Ave	City of Orlando	Arterial	Residential Area	1	2	0	45	2,851	5	Signal	99.6	42.0	II	19.5	D	0.43	
Oxalis Ave to Woodgate Blvd	City of Orlando	Arterial	Residential Area	1	2	0	45	1,954	5	Signal	57.6	9.6	II	23.1	C	0.51	
<b>TOTAL</b>							45	11,880			484.2	210.0	II	16.7	E	0.37	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 8**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Curry Ford Road - Westbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Woodgate Blvd	City of Orlando	Arterial	Residential Area	1	2	0	45	845	6	Signal	19.8	3.0	II	29.1	B	0.65	
Woodgate Blvd to Oxalis Ave	City of Orlando	Arterial	Residential Area	1	2	0	45	1,901	6	Signal	45.6	11.4	II	28.4	B	0.63	
Oxalis Ave to Semoran Blvd	City of Orlando	Arterial	Residential Area	2	2	0	40	2,851	6	Signal	130.2	63.6	II	14.9	E	0.37	
Semoran Blvd to Dixie Belle Dr/Bahia Ave	City of Orlando	Arterial	Outlying Business District	0	2	0	40	1,373	6	Signal	111.0	78.0	II	8.4	F	0.21	
Dixie Belle Dr/Bahia Ave to Gaston Foster Rd	City of Orlando	Arterial	Residential Area	0	2	0	40	3,274	6	Signal	58.2	0.0	II	38.3	A	0.96	
Gaston Foster Rd to Conway Rd	City of Orlando	Arterial	Residential Area	1	2	0	35	2,006	6	Signal	55.2	6.0	II	24.8	C	0.71	
<b>TOTAL</b>							40	12,250			420.0	162.0	II	19.9	D	0.50	0.084 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Woodgate Blvd	City of Orlando	Arterial	Residential Area	1	2	0	45	845	4	Signal	19.8	0.0	II	29.1	B	0.65	
Woodgate Blvd to Oxalis Ave	City of Orlando	Arterial	Residential Area	1	2	0	45	1,901	4	Signal	29.4	0.6	II	44.1	A	0.98	
Oxalis Ave to Semoran Blvd	City of Orlando	Arterial	Residential Area	2	2	0	40	2,851	4	Signal	72.6	19.8	II	26.8	C	0.67	
Semoran Blvd to Dixie Belle Dr/Bahia Ave	City of Orlando	Arterial	Outlying Business District	0	2	0	40	1,373	4	Signal	89.4	58.8	II	10.5	F	0.26	
Dixie Belle Dr/Bahia Ave to Gaston Foster Rd	City of Orlando	Arterial	Residential Area	0	2	0	40	3,274	4	Signal	57.0	0.0	II	39.2	A	0.98	
Gaston Foster Rd to Conway Rd	City of Orlando	Arterial	Residential Area	1	2	0	35	2,006	4	Signal	109.8	53.4	II	12.5	F	0.36	
<b>TOTAL</b>							40	12,250			378.0	132.6	II	22.1	C	0.55	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.

**TABLE 8**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Curry Ford Road - Eastbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Conway Rd	City of Orlando	Arterial	Residential Area	1	2	0	35	422	8	Signal	8.4	0.0	II	34.3	B	0.98	
Conway Rd to Gaston Foster Rd	City of Orlando	Arterial	Residential Area	1	2	0	35	2,006	8	Signal	37.2	4.8	II	36.8	A	1.05	
Gaston Foster Rd to Dixie Belle Dr/Bahia Ave	City of Orlando	Arterial	Residential Area	0	2	0	40	3,274	8	Signal	64.2	9.0	II	34.8	B	0.87	
Dixie Belle Dr/Bahia Ave to Semoran Blvd	City of Orlando	Arterial	Outlying Business District	2	2	1	40	1,373	8	Signal	39.6	13.8	II	23.6	C	0.59	
Semoran Blvd to Oxalis Ave	City of Orlando	Arterial	Residential Area	1	2	0	45	2,851	8	Signal	61.2	12.0	II	31.8	B	0.71	
Oxalis Ave to Woodgate Blvd	City of Orlando	Arterial	Residential Area	1	2	0	45	1,954	8	Signal	31.2	0.6	II	42.7	A	0.95	
<b>TOTAL</b>							45	11,880			241.8	40.2	II	33.5	B	0.74	0.078 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Conway Rd	City of Orlando	Arterial	Residential Area	1	2	0	35	422	5	Signal	12.6	1.8	II	22.9	C	0.65	
Conway Rd to Gaston Foster Rd	City of Orlando	Arterial	Residential Area	1	2	0	35	2,006	5	Signal	36.0	0.0	II	38.0	A	1.09	
Gaston Foster Rd to Dixie Belle Dr/Bahia Ave	City of Orlando	Arterial	Residential Area	0	2	0	40	3,274	5	Signal	80.4	19.8	II	27.8	C	0.69	
Dixie Belle Dr/Bahia Ave to Semoran Blvd	City of Orlando	Arterial	Outlying Business District	2	2	1	40	1,373	5	Signal	97.8	58.2	II	9.6	F	0.24	
Semoran Blvd to Oxalis Ave	City of Orlando	Arterial	Residential Area	1	2	0	45	2,851	5	Signal	62.4	11.4	II	31.2	B	0.69	
Oxalis Ave to Woodgate Blvd	City of Orlando	Arterial	Residential Area	1	2	0	45	1,954	5	Signal	36.0	1.2	II	37.0	A	0.82	
<b>TOTAL</b>							45	11,880			325.2	92.4	II	24.9	C	0.55	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.

**TABLE 8**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Curry Ford Road - Westbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Woodgate Blvd	City of Orlando	Arterial	Residential Area	1	2	0	45	845	7	Signal	12.0	0.0	II	48.0	A	1.07	
Woodgate Blvd to Oxalis Ave	City of Orlando	Arterial	Residential Area	1	2	0	45	1,901	7	Signal	25.8	0.6	II	50.2	A	1.12	
Oxalis Ave to Semoran Blvd	City of Orlando	Arterial	Residential Area	2	2	0	40	2,851	7	Signal	85.8	25.8	II	22.7	C	0.57	
Semoran Blvd to Dixie Belle Dr/Bahia Ave	City of Orlando	Arterial	Outlying Business District	0	2	0	40	1,373	7	Signal	61.8	31.2	II	15.1	E	0.38	
Dixie Belle Dr/Bahia Ave to Gaston Foster Rd	City of Orlando	Arterial	Residential Area	0	2	0	40	3,274	7	Signal	57.0	0.0	II	39.2	A	0.98	
Gaston Foster Rd to Conway Rd	City of Orlando	Arterial	Residential Area	1	2	0	35	2,006	7	Signal	76.8	27.6	II	17.8	D	0.51	
<b>TOTAL</b>							40	12,250			319.2	85.2	II	26.2	C	0.65	0.083 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Woodgate Blvd	City of Orlando	Arterial	Residential Area	1	2	0	45	845	5	Signal	12.6	0.0	II	45.7	A	1.02	
Woodgate Blvd to Oxalis Ave	City of Orlando	Arterial	Residential Area	1	2	0	45	1,901	5	Signal	24.6	0.0	II	52.7	A	1.17	
Oxalis Ave to Semoran Blvd	City of Orlando	Arterial	Residential Area	2	2	0	40	2,851	5	Signal	66.0	13.8	II	29.5	B	0.74	
Semoran Blvd to Dixie Belle Dr/Bahia Ave	City of Orlando	Arterial	Outlying Business District	0	2	0	40	1,373	5	Signal	88.2	54.0	II	10.6	F	0.27	
Dixie Belle Dr/Bahia Ave to Gaston Foster Rd	City of Orlando	Arterial	Residential Area	0	2	0	40	3,274	5	Signal	58.2	1.2	II	38.3	A	0.96	
Gaston Foster Rd to Conway Rd	City of Orlando	Arterial	Residential Area	1	2	0	35	2,006	5	Signal	87.6	34.8	II	15.6	E	0.45	
<b>TOTAL</b>							40	12,250			337.2	103.8	II	24.8	C	0.62	0.083 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.

## Curry Ford Road - AM Peak

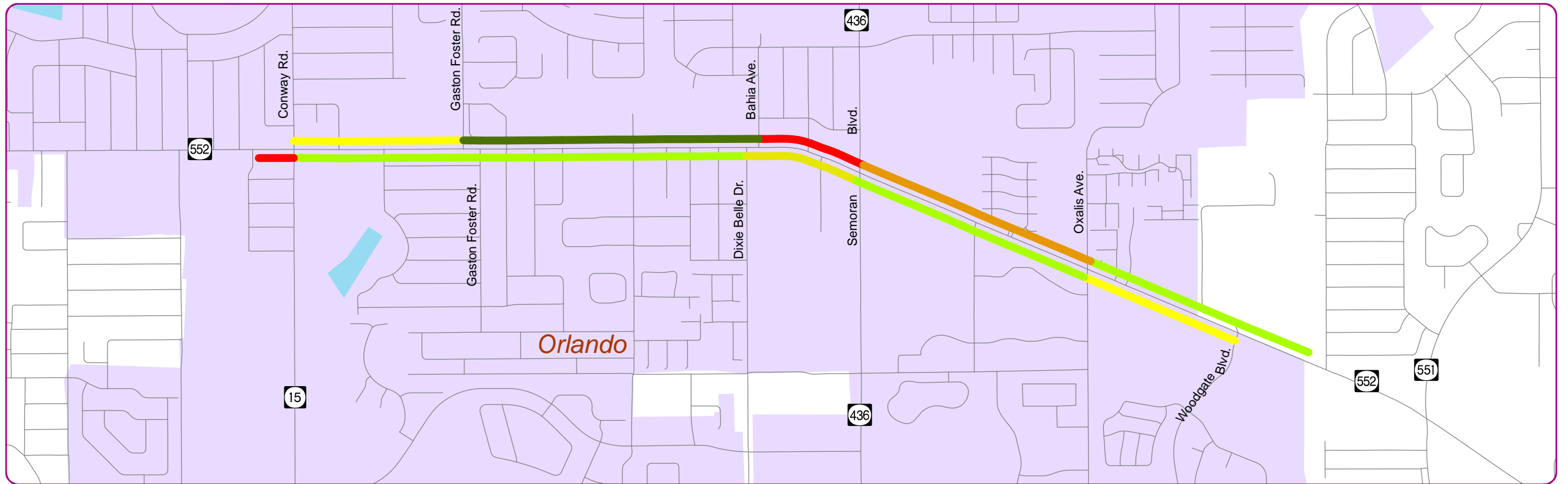
### Before Condition

Date of Collection: 1/14/2010  
 Distance: 2.32 miles  
 From: Woodgate Blvd.  
 To: Conway Rd.

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

WB Avg Speed: 19.9 MPH  
 WB Travel Time: 7.00 MIN  
 WB Delay Time: 2.70 MIN

EB Avg Speed: 25.5 MPH  
 EB Travel Time: 5.30 MIN  
 EB Delay Time: 1.34 MIN



## Curry Ford Road - AM Peak

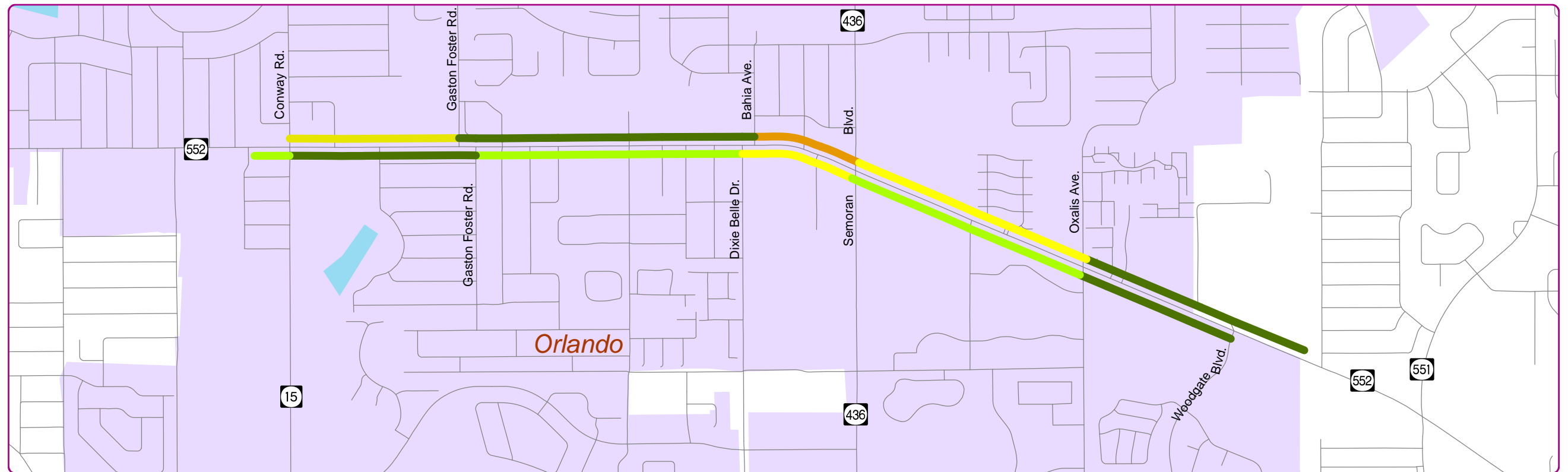
### After Condition

Date of Collection: 5/26/2010  
 Distance: 2.32 miles  
 From: Woodgate Blvd.  
 To: Conway Rd.

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

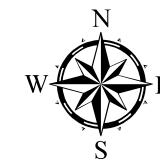
WB Avg Speed: 26.2 MPH  
 WB Travel Time: 5.32 MIN  
 WB Delay Time: 1.42 MIN

EB Avg Speed: 33.5 MPH  
 EB Travel Time: 4.03 MIN  
 EB Delay Time: 0.67 MIN



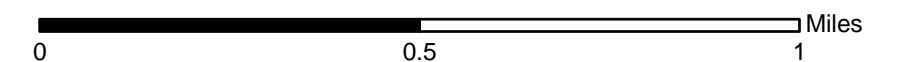
### Level of Services:

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



## 2010 METROPLAN ORLANDO

### Travel Time Study



## Curry Ford Road - PM Peak

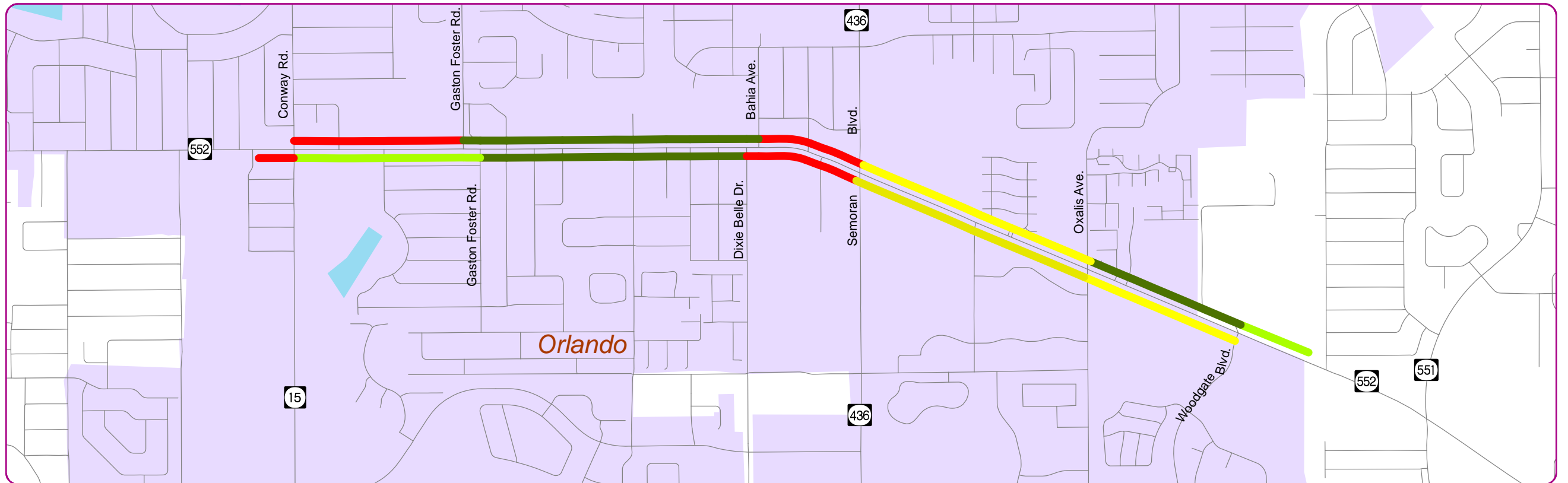
### Before Condition

Date of Collection: 1/14/2010  
 Distance: 2.32 miles  
 From: Woodgate Blvd.  
 To: Conway Rd.

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

WB Avg Speed: 22.1 MPH  
 WB Travel Time: 6.30 MIN  
 WB Delay Time: 2.21 MIN

EB Avg Speed: 16.7 MPH  
 EB Travel Time: 8.07 MIN  
 EB Delay Time: 3.50 MIN



## Curry Ford Road - PM Peak

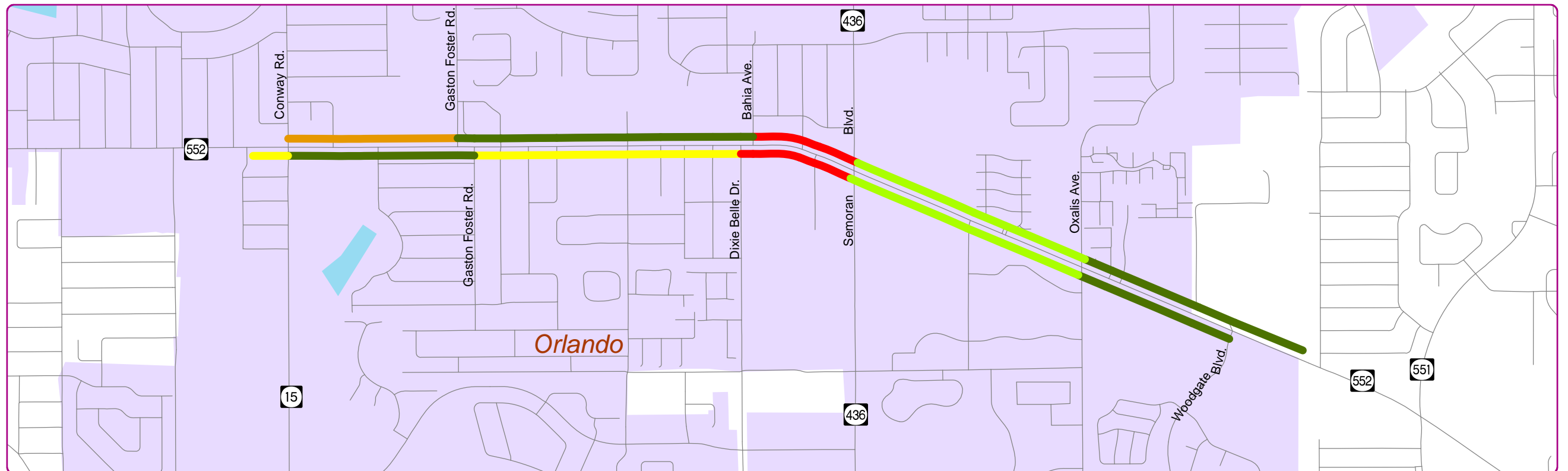
### After Condition

Date of Collection: 5/27/2010  
 Distance: 2.32 miles  
 From: Woodgate Blvd.  
 To: Conway Rd.

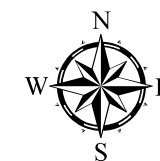
Start Time: 4:45 PM  
 End Time: 6:00 PM

WB Avg Speed: 24.8 MPH  
 WB Travel Time: 5.62 MIN  
 WB Delay Time: 1.73 MIN

EB Avg Speed: 24.9 MPH  
 EB Travel Time: 5.42 MIN  
 EB Delay Time: 1.54 MIN

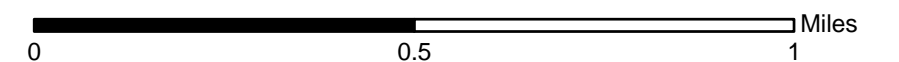


### Level of Services:



## 2010 METROPLAN ORLANDO

### Travel Time Study



**Curry Ford Rd: Conway Rd to Woodgate Blvd: Before & After Study**  
**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)
<b>Northbound/Eastbound - AM Peak Hour</b>						
752	318.0	80.4	25.5	0.0790	66.43	59.41
<b>Northbound/Eastbound - PM Peak Hour</b>						
1767	484.2	210.0	16.7	0.0820	237.66	144.89
<b>Southbound/Westbound - AM Peak Hour</b>						
1542	420.0	162.0	19.9	0.0840	179.90	129.53
<b>Southbound/Westbound - PM Peak Hour</b>						
999	378.0	132.6	22.1	0.0840	104.90	83.92

\*Traffic Volumes are obtained from the latest FDOT Counts



## Curry Ford Rd: Conway Rd to Woodgate Blvd: Before & After Study

### 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						
752	241.8	40.2	33.5	0.0780	50.51	58.66
Northbound/Eastbound - PM Peak Hour						
1767	325.2	92.4	24.9	0.0800	159.62	141.36
Southbound/Westbound - AM Peak Hour						
1542	319.2	85.2	26.2	0.0830	136.72	127.99
Southbound/Westbound - PM Peak Hour						
999	337.2	103.8	24.8	0.0830	93.57	82.92

\*Traffic Volumes are obtained from the latest FDOT Counts

**Curry Ford Rd: Conway Rd to Woodgate Blvd: Before & After Study**  
**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)	246.33	187.23	342.56	253.19
Total Fuel Consumption (gallons)	188.94	186.64	228.81	224.28

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$1,005.51	\$1,523.77
<b>Annual User Benefit</b>	<b>\$301,654.04</b>	<b>\$457,130.52</b>
<b>Total Annual User Benefit =</b>	<b>\$758,784.55</b>	
Total Signal Retiming Annual Cost	\$10,402.71	
<b>User Benefit / Cost Ratio</b>	<b>72.94</b>	

Notes:

- \* Value of Delay Time is \$16.90 per hour (\$15.47 from Mobility Data for Orlando for the year 2007 & grown 3% per year)
- \* Fuel consumption is valued to the rate of \$2.98 per gallon.
- \* 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.

**Hoffner Ave/Narcoossee Rd (SR 15)**

**Goldenrod Rd to Lee Vista Blvd**

**TABLE 9**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Hoffner Road/ Narcoossee Road - Eastbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to New Goldenrod Rd	City of Orlando	Arterial	Residential Area	1	1	1	45	317	6	Signal	45.0	34.8	II	4.8	F	0.11	
New Goldenrod Rd to Old Goldenrod Rd	City of Orlando	Arterial	Residential Area	1	1	0	45	1,162	6	Signal	27.0	5.4	II	29.3	B	0.65	
Old Goldenrod Rd to Lee Vista Blvd	City of Orlando	Arterial	Residential Area	1	1	0	45	5,069	6	Signal	102.6	12.0	II	33.7	B	0.75	
<b>TOTAL</b>							45	6,547			174.6	52.2	II	25.6	C	0.57	0.045 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to New Goldenrod Rd	City of Orlando	Arterial	Residential Area	1	1	1	45	317	8	Signal	47.4	37.2	II	4.6	F	0.10	
New Goldenrod Rd to Old Goldenrod Rd	City of Orlando	Arterial	Residential Area	1	1	0	45	1,162	8	Signal	35.4	7.8	II	22.4	C	0.50	
Old Goldenrod Rd to Lee Vista Blvd	City of Orlando	Arterial	Residential Area	1	1	0	45	5,069	8	Signal	152.4	48.6	II	22.7	C	0.50	
<b>TOTAL</b>							45	6,547			235.2	93.6	II	19.0	D	0.42	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 9**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Hoffner Road/ Narcoossee Road - Westbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Lee Vista Blvd	City of Orlando	Arterial	Residential Area	1	1	1	45	264	6	Signal	23.4	16.2	II	7.7	F	0.17	
Lee Vista Blvd to Old Goldenrod Rd	City of Orlando	Arterial	Residential Area	1	1	1	45	5,069	6	Signal	95.4	1.2	II	36.2	A	0.81	
Old Goldenrod Rd to New Goldenrod Rd	City of Orlando	Arterial	Residential Area	1	1	1	45	1,162	6	Signal	55.2	25.8	II	14.3	E	0.32	
<b>TOTAL</b>							45	6,494			174.0	43.2	II	25.4	C	0.57	0.046 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Lee Vista Blvd	City of Orlando	Arterial	Residential Area	1	1	1	45	264	8	Signal	25.2	19.2	II	7.1	F	0.16	
Lee Vista Blvd to Old Goldenrod Rd	City of Orlando	Arterial	Residential Area	1	1	1	45	5,069	8	Signal	94.8	2.4	II	36.5	A	0.81	
Old Goldenrod Rd to New Goldenrod Rd	City of Orlando	Arterial	Residential Area	1	1	1	45	1,162	8	Signal	49.8	20.4	II	15.9	E	0.35	
<b>TOTAL</b>							45	6,494			169.8	42.0	II	26.1	C	0.58	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.

**Semoran Blvd (SR 436)**  
**Dahlia Dr to T.G. Lee Blvd**

**TABLE 10**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 436 - Northbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed	LOS	Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)			
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to T.G. Lee Blvd	City of Orlando	Arterial	Outlying Business District	2	3	1	45	845	6	Signal	58.2	34.8	I	9.9	F	0.22	
T.G. Lee Blvd to Hazeltine National Dr	City of Orlando	Arterial	Outlying Business District	1	3	1	45	1,056	6	Signal	23.4	3.6	I	30.8	C	0.68	
Hazeltine National Dr to Lee Vista Blvd	City of Orlando	Arterial	Outlying Business District	1	3	1	50	2,059	6	Signal	36.6	2.4	I	38.4	B	0.77	
Lee Vista Blvd to Bent Pine Dr	City of Orlando	Arterial	Outlying Business District	1	3	1	50	2,112	6	Signal	35.4	4.8	I	40.7	B	0.81	
Bent Pine Dr to Hoffner Ave	City of Orlando	Arterial	Outlying Business District	2	3	1	50	2,112	6	Signal	45.6	13.2	I	31.6	C	0.63	
Hoffner Ave to Turnbull Dr	City of Orlando	Arterial	Outlying Business District	1	3	1	50	1,584	6	Signal	39.6	8.4	I	27.3	C	0.55	
Turnbull Dr to Gatlin Ave	City of Orlando	Arterial	Outlying Business District	1	3	1	50	3,696	6	Signal	57.0	3.0	I	44.2	A	0.88	
Gatlin Ave to Pershing Ave	City of Orlando	Arterial	Outlying Business District	1	3	1	50	1,320	6	Signal	57.6	30.6	I	15.6	F	0.31	
Pershing Ave to Lake Margaret Dr	City of Orlando	Arterial	Outlying Business District	2	3	1	50	2,482	6	Signal	38.4	0.0	I	44.1	A	0.88	
Lake Margaret Dr to Michigan St	City of Orlando	Arterial	Outlying Business District	2	3	1	50	3,168	6	Signal	45.0	0.0	I	48.0	A	0.96	
Michigan St to Grant St	City of Orlando	Arterial	Outlying Business District	1	3	1	45	898	6	Signal	13.2	0.0	I	46.4	A	1.03	
Grant St to Curry Ford Rd	City of Orlando	Arterial	Outlying Business District	2	3	1	45	2,323	6	Signal	52.8	7.2	I	30.0	C	0.67	
Curry Ford Rd to La Costa Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	45	1,478	6	Signal	25.8	0.0	I	39.1	B	0.87	
La Costa Dr to Stonewall Jackson Rd	City of Orlando	Arterial	Outlying Business District	0	3	0	45	2,006	6	Signal	48.6	13.2	I	28.1	C	0.63	
Stonewall Jackson Rd to Lake Underhill Rd	City of Orlando	Arterial	Outlying Business District	1	3	0	45	2,112	6	Signal	78.0	28.8	I	18.5	E	0.41	
Lake Underhill Rd to Yew Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	45	634	6	Signal	10.2	6.0	I	42.4	A	0.94	
Yew Dr to Kalmia Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	45	898	6	Signal	19.2	2.4	I	31.9	C	0.71	
Kalmia Dr to Dahlia Dr	City of Orlando	Arterial	Outlying Business District	0	3	0	45	950	6	Signal	31.8	13.2	I	20.4	E	0.45	
<b>TOTAL</b>							50	31,733			716.4	171.6	I	30.2	C	0.60	0.208 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to T.G. Lee Blvd	City of Orlando	Arterial	Outlying Business District	2	3	1	45	845	6	Signal	75.6	52.8	I	7.6	F	0.17	
T.G. Lee Blvd to Hazeltine National Dr	City of Orlando	Arterial	Outlying Business District	1	3	1	45	1,056	6	Signal	43.8	15.0	I	16.4	E	0.37	
Hazeltine National Dr to Lee Vista Blvd	City of Orlando	Arterial	Outlying Business District	1	3	1	50	2,059	6	Signal	36.6	0.0	I	38.4	B	0.77	
Lee Vista Blvd to Bent Pine Dr	City of Orlando	Arterial	Outlying Business District	1	3	1	50	2,112	6	Signal	29.4	0.0	I	49.0	A	0.98	
Bent Pine Dr to Hoffner Ave	City of Orlando	Arterial	Outlying Business District	2	3	1	50	2,112	6	Signal	48.0	16.2	I	30.0	C	0.60	
Hoffner Ave to Turnbull Dr	City of Orlando	Arterial	Outlying Business District	1	3	1	50	1,584	6	Signal	24.0	0.0	I	45.0	A	0.90	
Turnbull Dr to Gatlin Ave	City of Orlando	Arterial	Outlying Business District	1	3	1	50	3,696	6	Signal	51.6	0.0	I	48.8	A	0.98	
Gatlin Ave to Pershing Ave	City of Orlando	Arterial	Outlying Business District	1	3	1	50	1,320	6	Signal	96.6	67.2	I	9.3	F	0.19	
Pershing Ave to Lake Margaret Dr	City of Orlando	Arterial	Outlying Business District	2	3	1	50	2,482	6	Signal	37.8	0.0	I	44.8	A	0.90	
Lake Margaret Dr to Michigan St	City of Orlando	Arterial	Outlying Business District	2	3	1	50	3,168	6	Signal	49.8	3.0	I	43.4	A	0.87	
Michigan St to Grant St	City of Orlando	Arterial	Outlying Business District	1	3	1	45	898	6	Signal	13.8	0.0	I	44.3	A	0.99	
Grant St to Curry Ford Rd	City of Orlando	Arterial	Outlying Business District	2	3	1	45	2,323	6	Signal	123.6	76.8	I	12.8	F	0.28	
Curry Ford Rd to La Costa Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	45	1,478	6	Signal	49.2	21.6	I	20.5	E	0.46	
La Costa Dr to Stonewall Jackson Rd	City of Orlando	Arterial	Outlying Business District	0	3	0	45	2,006	6	Signal	42.0	9.0	I	32.6	C	0.72	
Stonewall Jackson Rd to Lake Underhill Rd	City of Orlando	Arterial	Outlying Business District	1	3	0	45	2,112	6	Signal	65.4	22.2	I	22.0	D	0.49	
Lake Underhill Rd to Yew Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	45	634	6	Signal	10.8	0.0	I	40.0	B	0.89	
Yew Dr to Kalmia Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	45	898	6	Signal	13.8	0.0	I	44.3	A	0.99	
Kalmia Dr to Dahlia Dr	City of Orlando	Arterial	Outlying Business District	0	3	0	45	950	6	Signal	16.8	1.8	I	38.6	B	0.86	
<b>TOTAL</b>							50	31,733			828.6	285.6	I	26.1	D	0.52	0.207 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 10**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 436 - Southbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed (mph)	LOS	Avg Speed/Speed Limit	Avg. Fuel Consump.
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Dahlia Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	45	422	6	Signal	18.0	6.6	I	16.0	F	0.36	
Dahlia Dr to Kalmia Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	45	950	6	Signal	17.4	0.0	I	37.2	B	0.83	
Kalmia Dr to Yew Dr	City of Orlando	Arterial	Outlying Business District	0	3	0	45	898	6	Signal	44.4	23.4	I	13.8	F	0.31	
Yew Dr to Lake Underhill Rd	City of Orlando	Arterial	Outlying Business District	2	3	0	45	634	6	Signal	26.4	0.0	I	16.4	E	0.36	
Lake Underhill Rd to Stonewall Jackson Rd	City of Orlando	Arterial	Outlying Business District	1	3	0	45	2,112	6	Signal	43.8	1.8	I	32.9	C	0.73	
Stonewall Jackson Rd to La Costa Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	45	2,006	6	Signal	32.4	0.0	I	42.2	A	0.94	
La Costa Dr to Curry Ford Rd	City of Orlando	Arterial	Outlying Business District	2	3	1	45	1,478	6	Signal	42.6	16.2	I	23.7	D	0.53	
Curry Ford Rd to Grant St	City of Orlando	Arterial	Outlying Business District	1	3	1	45	2,323	6	Signal	36.6	0.0	I	43.3	A	0.96	
Grant St to Michigan St	City of Orlando	Arterial	Outlying Business District	1	3	1	50	898	6	Signal	13.8	0.0	I	44.3	A	0.89	
Michigan St to Lake Margaret Dr	City of Orlando	Arterial	Outlying Business District	1	3	1	50	3,168	6	Signal	85.2	28.2	I	25.4	D	0.51	
Lake Margaret Dr to Pershing Ave	City of Orlando	Arterial	Outlying Business District	2	3	1	50	2,482	6	Signal	47.4	6.6	I	35.7	B	0.71	
Pershing Ave to Gatlin Ave	City of Orlando	Arterial	Outlying Business District	1	3	1	50	1,320	6	Signal	18.6	0.0	I	48.4	A	0.97	
Gatlin Ave to Turnbull Dr	City of Orlando	Arterial	Outlying Business District	1	3	1	50	3,696	6	Signal	71.4	13.2	I	35.3	B	0.71	
Turnbull Dr to Hoffner Ave	City of Orlando	Arterial	Outlying Business District	2	3	1	50	1,584	6	Signal	95.4	60.0	I	11.3	F	0.23	
Hoffner Ave to Bent Pine Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	50	2,112	6	Signal	49.8	7.8	I	28.9	C	0.58	
Bent Pine Dr to Lee Vista Blvd	City of Orlando	Arterial	Outlying Business District	2	3	1	50	2,112	6	Signal	42.0	2.4	I	34.3	B	0.69	
Lee Vista Blvd to Hazeltine National Dr	City of Orlando	Arterial	Outlying Business District	2	3	1	45	2,059	6	Signal	33.0	0.0	I	42.5	A	0.95	
Hazeltine National Dr to T.G. Lee Blvd	City of Orlando	Arterial	Outlying Business District	1	3	1	45	1,056	6	Signal	15.0	0.0	I	48.0	A	1.07	
<b>TOTAL</b>							50	31,310			733.2	166.2	I	29.1	C	0.58	0.206 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Dahlia Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	45	422	6	Signal	6.6	0.0	I	43.6	A	0.97	
Dahlia Dr to Kalmia Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	45	950	6	Signal	30.0	8.4	I	21.6	D	0.48	
Kalmia Dr to Yew Dr	City of Orlando	Arterial	Outlying Business District	0	3	0	45	898	6	Signal	40.8	13.8	I	15.0	F	0.33	
Yew Dr to Lake Underhill Rd	City of Orlando	Arterial	Outlying Business District	2	3	0	45	634	6	Signal	29.4	9.6	I	14.7	F	0.33	
Lake Underhill Rd to Stonewall Jackson Rd	City of Orlando	Arterial	Outlying Business District	1	3	0	45	2,112	6	Signal	52.8	10.8	I	27.3	C	0.61	
Stonewall Jackson Rd to La Costa Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	45	2,006	6	Signal	36.0	0.0	I	38.0	B	0.84	
La Costa Dr to Curry Ford Rd	City of Orlando	Arterial	Outlying Business District	2	3	1	45	1,478	6	Signal	103.2	62.4	I	9.8	F	0.22	
Curry Ford Rd to Grant St	City of Orlando	Arterial	Outlying Business District	1	3	1	45	2,323	6	Signal	39.0	0.0	I	40.6	B	0.90	
Grant St to Michigan St	City of Orlando	Arterial	Outlying Business District	1	3	1	50	898	6	Signal	15.6	0.0	I	39.2	B	0.78	
Michigan St to Lake Margaret Dr	City of Orlando	Arterial	Outlying Business District	1	3	1	50	3,168	6	Signal	60.0	7.2	I	36.0	B	0.72	
Lake Margaret Dr to Pershing Ave	City of Orlando	Arterial	Outlying Business District	2	3	1	50	2,482	6	Signal	52.8	7.8	I	32.0	C	0.64	
Pershing Ave to Gatlin Ave	City of Orlando	Arterial	Outlying Business District	1	3	1	50	1,320	6	Signal	20.4	0.0	I	44.1	A	0.88	
Gatlin Ave to Turnbull Dr	City of Orlando	Arterial	Outlying Business District	1	3	1	50	3,696	6	Signal	56.4	0.0	I	44.7	A	0.89	
Turnbull Dr to Hoffner Ave	City of Orlando	Arterial	Outlying Business District	2	3	1	50	1,584	6	Signal	44.4	16.8	I	24.3	D	0.49	
Hoffner Ave to Bent Pine Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	50	2,112	6	Signal	31.8	0.0	I	45.3	A	0.91	
Bent Pine Dr to Lee Vista Blvd	City of Orlando	Arterial	Outlying Business District	2	3	1	50	2,112	6	Signal	47.4	10.8	I	30.4	C	0.61	
Lee Vista Blvd to Hazeltine National Dr	City of Orlando	Arterial	Outlying Business District	2	3	1	45	2,059	6	Signal	45.0	10.8	I	31.2	C	0.69	
Hazeltine National Dr to T.G. Lee Blvd	City of Orlando	Arterial	Outlying Business District	1	3	1	45	1,056	6	Signal	56.4	36.6	I	12.8	F	0.28	
<b>TOTAL</b>							50	31,310			768.0	195.0	I	27.8	C	0.56	0.206 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 10**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 436 - Northbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed	LOS	Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)			
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to T.G. Lee Blvd	City of Orlando	Arterial	Outlying Business District	2	3	1	45	845	4	Signal	34.8	17.4	I	16.6	E	0.37	
T.G. Lee Blvd to Hazeltine National Dr	City of Orlando	Arterial	Outlying Business District	1	3	1	45	1,056	4	Signal	16.8	0.0	I	42.9	A	0.95	
Hazeltine National Dr to Lee Vista Blvd	City of Orlando	Arterial	Outlying Business District	1	3	1	50	2,059	4	Signal	30.0	0.0	I	46.8	A	0.94	
Lee Vista Blvd to Bent Pine Dr	City of Orlando	Arterial	Outlying Business District	1	3	1	50	2,112	4	Signal	29.0	0.0	I	49.7	A	0.99	
Bent Pine Dr to Hoffner Ave	City of Orlando	Arterial	Outlying Business District	2	3	1	50	2,112	4	Signal	34.2	3.0	I	42.1	A	0.84	
Hoffner Ave to Turnbull Dr	City of Orlando	Arterial	Outlying Business District	1	3	1	50	1,584	4	Signal	22.0	0.0	I	49.1	A	0.98	
Turnbull Dr to Gatlin Ave	City of Orlando	Arterial	Outlying Business District	1	3	1	50	3,696	4	Signal	51.0	0.0	I	49.4	A	0.99	
Gatlin Ave to Pershing Ave	City of Orlando	Arterial	Outlying Business District	1	3	1	50	1,320	4	Signal	18.0	0.0	I	50.0	A	1.00	
Pershing Ave to Lake Margaret Dr	City of Orlando	Arterial	Outlying Business District	2	3	1	50	2,482	4	Signal	35.4	0.0	I	47.8	A	0.96	
Lake Margaret Dr to Michigan St	City of Orlando	Arterial	Outlying Business District	2	3	1	50	3,168	4	Signal	42.6	0.0	I	50.7	A	1.01	
Michigan St to Grant St	City of Orlando	Arterial	Outlying Business District	1	3	1	45	898	4	Signal	12.6	0.0	I	48.6	A	1.08	
Grant St to Curry Ford Rd	City of Orlando	Arterial	Outlying Business District	2	3	1	45	2,323	4	Signal	120.0	72.0	I	13.2	F	0.29	
Curry Ford Rd to La Costa Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	45	1,478	4	Signal	25.8	0.0	I	39.1	B	0.87	
La Costa Dr to Stonewall Jackson Rd	City of Orlando	Arterial	Outlying Business District	0	3	0	45	2,006	4	Signal	35.4	1.2	I	38.6	B	0.86	
Stonewall Jackson Rd to Lake Underhill Rd	City of Orlando	Arterial	Outlying Business District	1	3	0	45	2,112	4	Signal	45.0	3.6	I	32.0	C	0.71	
Lake Underhill Rd to Yew Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	45	634	4	Signal	10.8	0.0	I	40.0	B	0.89	
Yew Dr to Kalmia Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	45	898	4	Signal	12.6	0.0	I	48.6	A	1.08	
Kalmia Dr to Dahlia Dr	City of Orlando	Arterial	Outlying Business District	0	3	0	45	950	4	Signal	47.4	31.8	I	13.7	F	0.30	
<b>TOTAL</b>							50	31,733			623.4	129.0	I	34.7	B	0.69	0.206 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to T.G. Lee Blvd	City of Orlando	Arterial	Outlying Business District	2	3	1	45	845	4	Signal	28.8	10.8	I	20.0	E	0.44	
T.G. Lee Blvd to Hazeltine National Dr	City of Orlando	Arterial	Outlying Business District	1	3	1	45	1,056	4	Signal	16.8	0.0	I	42.9	A	0.95	
Hazeltine National Dr to Lee Vista Blvd	City of Orlando	Arterial	Outlying Business District	1	3	1	50	2,059	4	Signal	34.8	1.2	I	40.3	B	0.81	
Lee Vista Blvd to Bent Pine Dr	City of Orlando	Arterial	Outlying Business District	1	3	1	50	2,112	4	Signal	34.8	0.0	I	41.4	B	0.83	
Bent Pine Dr to Hoffner Ave	City of Orlando	Arterial	Outlying Business District	2	3	1	50	2,112	4	Signal	33.0	0.0	I	43.6	A	0.87	
Hoffner Ave to Turnbull Dr	City of Orlando	Arterial	Outlying Business District	1	3	1	50	1,584	4	Signal	21.6	0.0	I	50.0	A	1.00	
Turnbull Dr to Gatlin Ave	City of Orlando	Arterial	Outlying Business District	1	3	1	50	3,696	4	Signal	51.0	0.0	I	49.4	A	0.99	
Gatlin Ave to Pershing Ave	City of Orlando	Arterial	Outlying Business District	1	3	1	50	1,320	4	Signal	19.8	0.0	I	45.5	A	0.91	
Pershing Ave to Lake Margaret Dr	City of Orlando	Arterial	Outlying Business District	2	3	1	50	2,482	4	Signal	34.2	0.0	I	49.5	A	0.99	
Lake Margaret Dr to Michigan St	City of Orlando	Arterial	Outlying Business District	2	3	1	50	3,168	4	Signal	48.0	0.0	I	45.0	A	0.90	
Michigan St to Grant St	City of Orlando	Arterial	Outlying Business District	1	3	1	45	898	4	Signal	17.4	0.0	I	35.2	B	0.78	
Grant St to Curry Ford Rd	City of Orlando	Arterial	Outlying Business District	2	3	1	45	2,323	4	Signal	120.0	67.2	I	13.2	F	0.29	
Curry Ford Rd to La Costa Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	45	1,478	4	Signal	26.4	0.0	I	38.2	B	0.85	
La Costa Dr to Stonewall Jackson Rd	City of Orlando	Arterial	Outlying Business District	0	3	0	45	2,006	4	Signal	44.4	12.6	I	30.8	C	0.68	
Stonewall Jackson Rd to Lake Underhill Rd	City of Orlando	Arterial	Outlying Business District	1	3	0	45	2,112	4	Signal	46.2	9.6	I	31.2	C	0.69	
Lake Underhill Rd to Yew Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	45	634	4	Signal	9.6	0.0	I	45.0	A	1.00	
Yew Dr to Kalmia Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	45	898	4	Signal	13.0	0.0	I	47.1	A	1.05	
Kalmia Dr to Dahlia Dr	City of Orlando	Arterial	Outlying Business District	0	3	0	45	950	4	Signal	13.0	0.0	I	49.8	A	1.11	
<b>TOTAL</b>							50	31,733			612.8	101.4	I	35.3	B	0.71	0.205 gal/veh

Note:

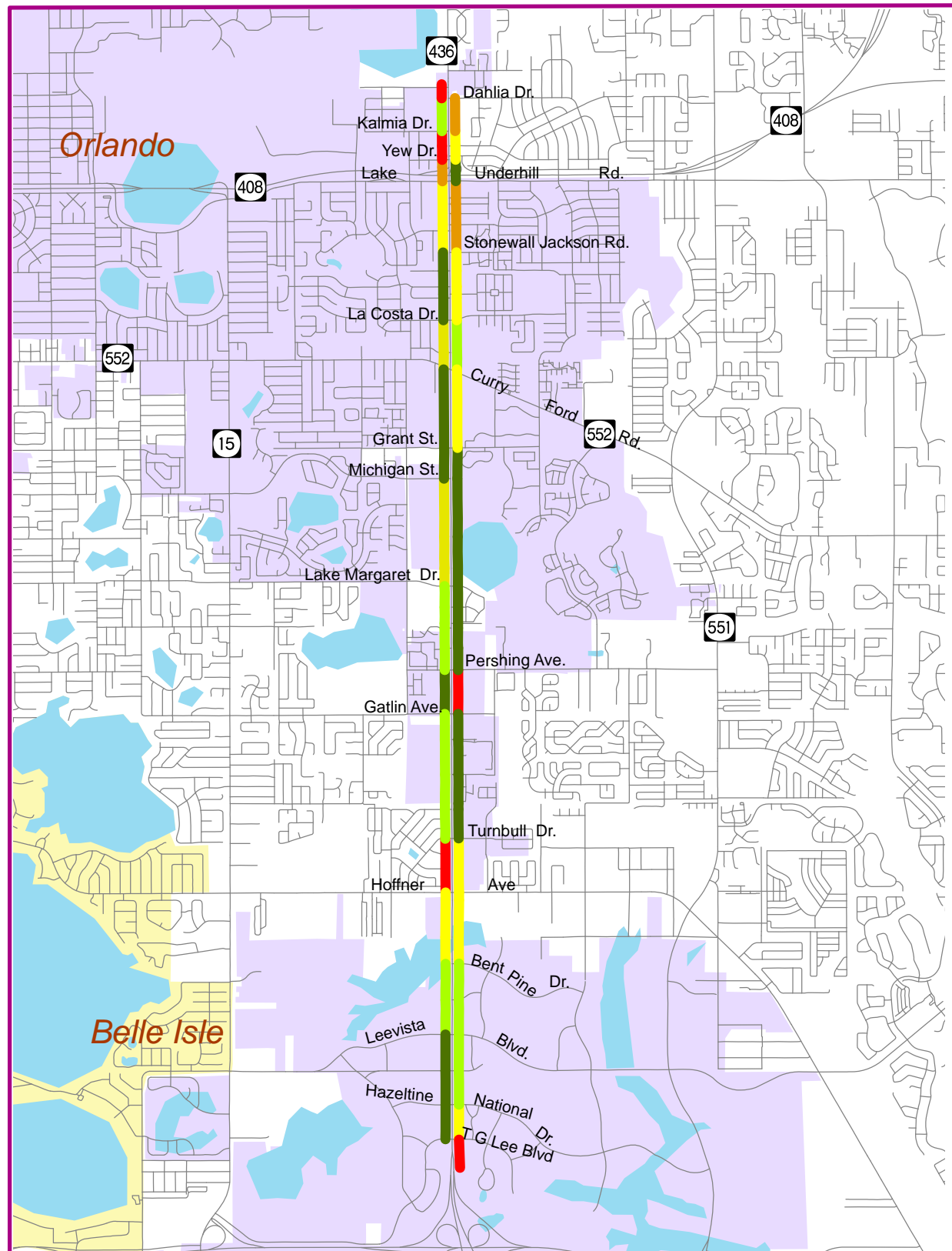
1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

**TABLE 10**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 436 - Southbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed	LOS	Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)			
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Dahlia Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	45	422	4	Signal	32.4	19.2	I	8.9	F	0.20	
Dahlia Dr to Kalmia Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	45	950	4	Signal	19.2	0.0	I	33.7	C	0.75	
Kalmia Dr to Yew Dr	City of Orlando	Arterial	Outlying Business District	0	3	0	45	898	4	Signal	15.0	0.0	I	40.8	B	0.91	
Yew Dr to Lake Underhill Rd	City of Orlando	Arterial	Outlying Business District	2	3	0	45	634	4	Signal	28.8	0.0	I	15.0	F	0.33	
Lake Underhill Rd to Stonewall Jackson Rd	City of Orlando	Arterial	Outlying Business District	1	3	0	45	2,112	4	Signal	39.6	2.4	I	36.4	B	0.81	
Stonewall Jackson Rd to La Costa Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	45	2,006	4	Signal	40.8	7.2	I	33.5	C	0.75	
La Costa Dr to Curry Ford Rd	City of Orlando	Arterial	Outlying Business District	2	3	1	45	1,478	4	Signal	27.0	0.0	I	37.3	B	0.83	
Curry Ford Rd to Grant St	City of Orlando	Arterial	Outlying Business District	1	3	1	45	2,323	4	Signal	33.6	0.0	I	47.1	A	1.05	
Grant St to Michigan St	City of Orlando	Arterial	Outlying Business District	1	3	1	50	898	4	Signal	12.0	0.0	I	51.0	A	1.02	
Michigan St to Lake Margaret Dr	City of Orlando	Arterial	Outlying Business District	1	3	1	50	3,168	4	Signal	42.0	0.0	I	51.4	A	1.03	
Lake Margaret Dr to Pershing Ave	City of Orlando	Arterial	Outlying Business District	2	3	1	50	2,482	4	Signal	34.2	0.0	I	49.5	A	0.99	
Pershing Ave to Gatlin Ave	City of Orlando	Arterial	Outlying Business District	1	3	1	50	1,320	4	Signal	18.0	0.0	I	50.0	A	1.00	
Gatlin Ave to Turnbull Dr	City of Orlando	Arterial	Outlying Business District	1	3	1	50	3,696	4	Signal	49.5	0.0	I	50.9	A	1.02	
Turnbull Dr to Hoffner Ave	City of Orlando	Arterial	Outlying Business District	2	3	1	50	1,584	4	Signal	22.0	0.0	I	49.1	A	0.98	
Hoffner Ave to Bent Pine Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	50	2,112	4	Signal	34.2	0.0	I	42.1	A	0.84	
Bent Pine Dr to Lee Vista Blvd	City of Orlando	Arterial	Outlying Business District	2	3	1	50	2,112	4	Signal	30.0	0.0	I	48.0	A	0.96	
Lee Vista Blvd to Hazeltine National Dr	City of Orlando	Arterial	Outlying Business District	2	3	1	45	2,059	4	Signal	29.0	0.0	I	48.4	A	1.08	
Hazeltine National Dr to T.G. Lee Blvd	City of Orlando	Arterial	Outlying Business District	1	3	1	45	1,056	4	Signal	15.0	0.0	I	48.0	A	1.07	
<b>TOTAL</b>							50	31,310			522.3	28.8	I	40.9	B	0.82	0.202 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Dahlia Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	45	422	4	Signal	31.8	21.6	I	9.1	F	0.20	
Dahlia Dr to Kalmia Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	45	950	4	Signal	15.0	0.0	I	43.2	A	0.96	
Kalmia Dr to Yew Dr	City of Orlando	Arterial	Outlying Business District	0	3	0	45	898	4	Signal	12.6	0.0	I	48.6	A	1.08	
Yew Dr to Lake Underhill Rd	City of Orlando	Arterial	Outlying Business District	2	3	0	45	634	4	Signal	25.2	7.8	I	17.1	E	0.38	
Lake Underhill Rd to Stonewall Jackson Rd	City of Orlando	Arterial	Outlying Business District	1	3	0	45	2,112	4	Signal	64.2	22.8	I	22.4	D	0.50	
Stonewall Jackson Rd to La Costa Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	45	2,006	4	Signal	37.8	1.8	I	36.2	B	0.80	
La Costa Dr to Curry Ford Rd	City of Orlando	Arterial	Outlying Business District	2	3	1	45	1,478	4	Signal	136.8	99.0	I	7.4	F	0.16	
Curry Ford Rd to Grant St	City of Orlando	Arterial	Outlying Business District	1	3	1	45	2,323	4	Signal	39.0	1.8	I	40.6	B	0.90	
Grant St to Michigan St	City of Orlando	Arterial	Outlying Business District	1	3	1	50	898	4	Signal	21.0	4.2	I	29.1	C	0.58	
Michigan St to Lake Margaret Dr	City of Orlando	Arterial	Outlying Business District	1	3	1	50	3,168	4	Signal	57.0	7.8	I	37.9	B	0.76	
Lake Margaret Dr to Pershing Ave	City of Orlando	Arterial	Outlying Business District	2	3	1	50	2,482	4	Signal	37.8	0.0	I	44.8	A	0.90	
Pershing Ave to Gatlin Ave	City of Orlando	Arterial	Outlying Business District	1	3	1	50	1,320	4	Signal	21.0	6.0	I	42.9	A	0.86	
Gatlin Ave to Turnbull Dr	City of Orlando	Arterial	Outlying Business District	1	3	1	50	3,696	4	Signal	58.2	8.4	I	43.3	A	0.87	
Turnbull Dr to Hoffner Ave	City of Orlando	Arterial	Outlying Business District	2	3	1	50	1,584	4	Signal	26.4	0.0	I	40.9	B	0.82	
Hoffner Ave to Bent Pine Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	50	2,112	4	Signal	28.8	0.0	I	50.0	A	1.00	
Bent Pine Dr to Lee Vista Blvd	City of Orlando	Arterial	Outlying Business District	2	3	1	50	2,112	4	Signal	35.4	0.0	I	40.7	B	0.81	
Lee Vista Blvd to Hazeltine National Dr	City of Orlando	Arterial	Outlying Business District	2	3	1	45	2,059	4	Signal	31.2	0.0	I	45.0	A	1.00	
Hazeltine National Dr to T.G. Lee Blvd	City of Orlando	Arterial	Outlying Business District	1	3	1	45	1,056	4	Signal	16.0	0.0	I	45.0	A	1.00	
<b>TOTAL</b>							50	31,310			695.2	181.2	I	30.7	C	0.61	0.205 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 436  
- AM Peak**

**Before Condition**

Date of Collection: 1/13/2010  
 Distance: 6.01 miles  
 From: T. G. Lee Blvd.  
 To: Dahlia Dr.

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

NB Avg Speed: 30.20 MPH  
 NB Travel Time: 11.94 MIN  
 NB Delay Time: 2.86 MIN

SB Avg Speed: 29.10 MPH  
 SB Travel Time: 12.22 MIN  
 SB Delay Time: 2.77 MIN

**SR 436  
- AM Peak**

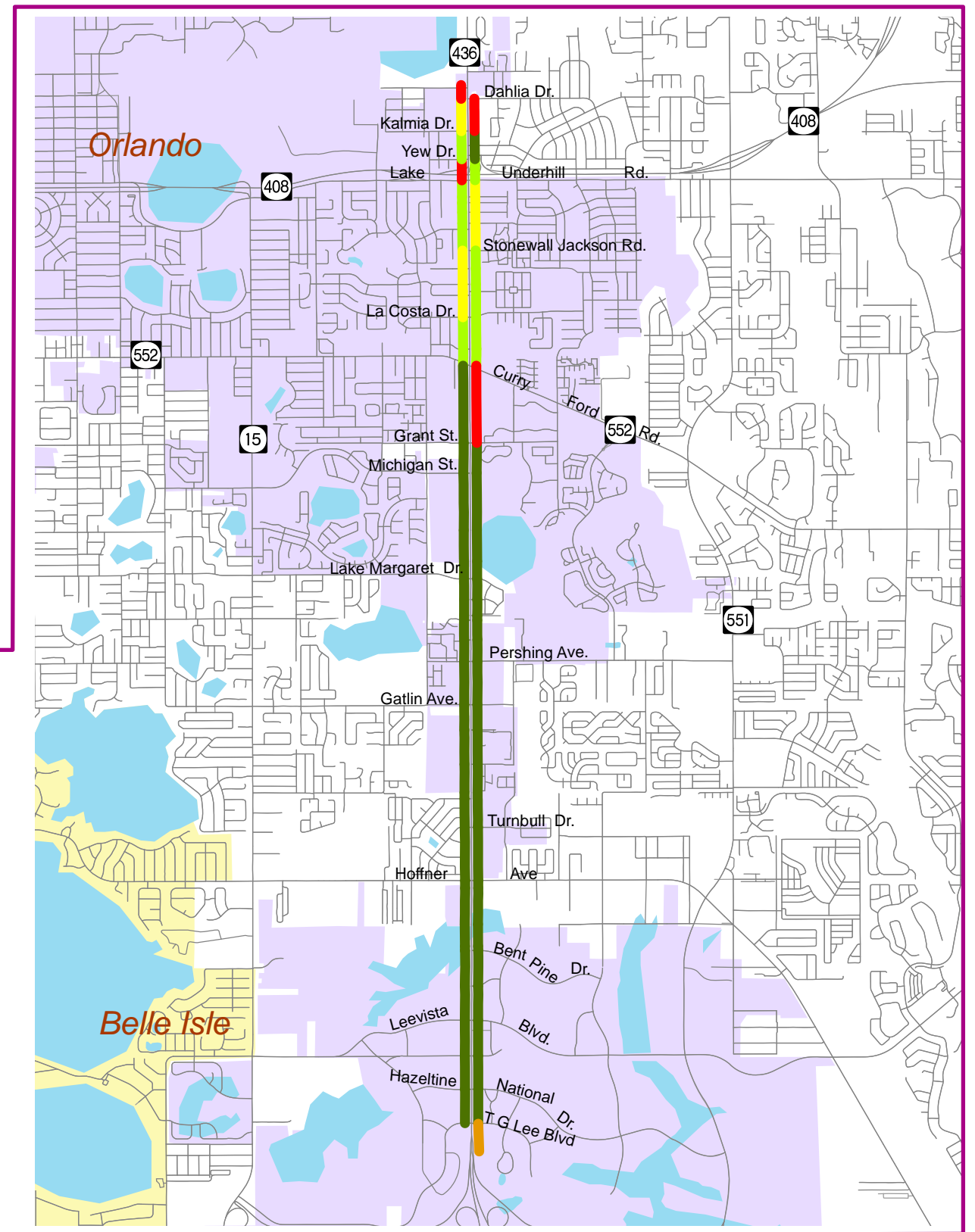
**After Condition**

Date of Collection: 5/27/2010  
 Distance: 6.01 miles  
 From: T. G. Lee Blvd.  
 To: Dahlia Dr.

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

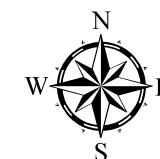
NB Avg Speed: 34.70 MPH  
 NB Travel Time: 10.39 MIN  
 NB Delay Time: 2.15 MIN

SB Avg Speed: 40.90 MPH  
 SB Travel Time: 8.71 MIN  
 SB Delay Time: 0.48 MIN



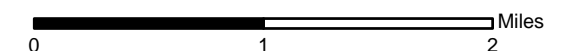
**Level of Services:**

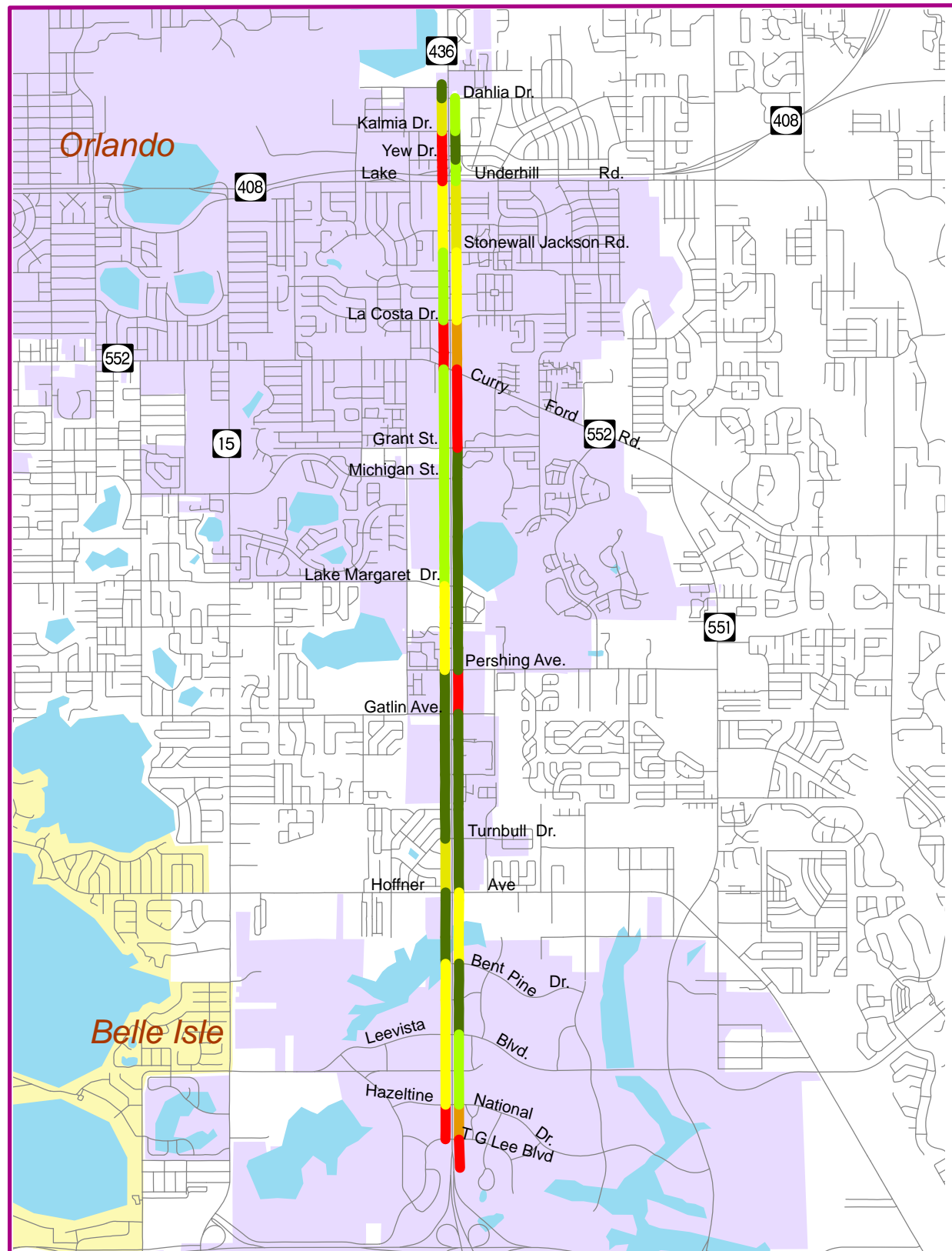
- |   |   |               |
|---|---|---------------|
| A | D | Roads         |
| B | E | City Boundary |
| C | F | Water         |



**2010 METROPLAN ORLANDO**

*Travel Time Study*





**SR 436  
- PM Peak**

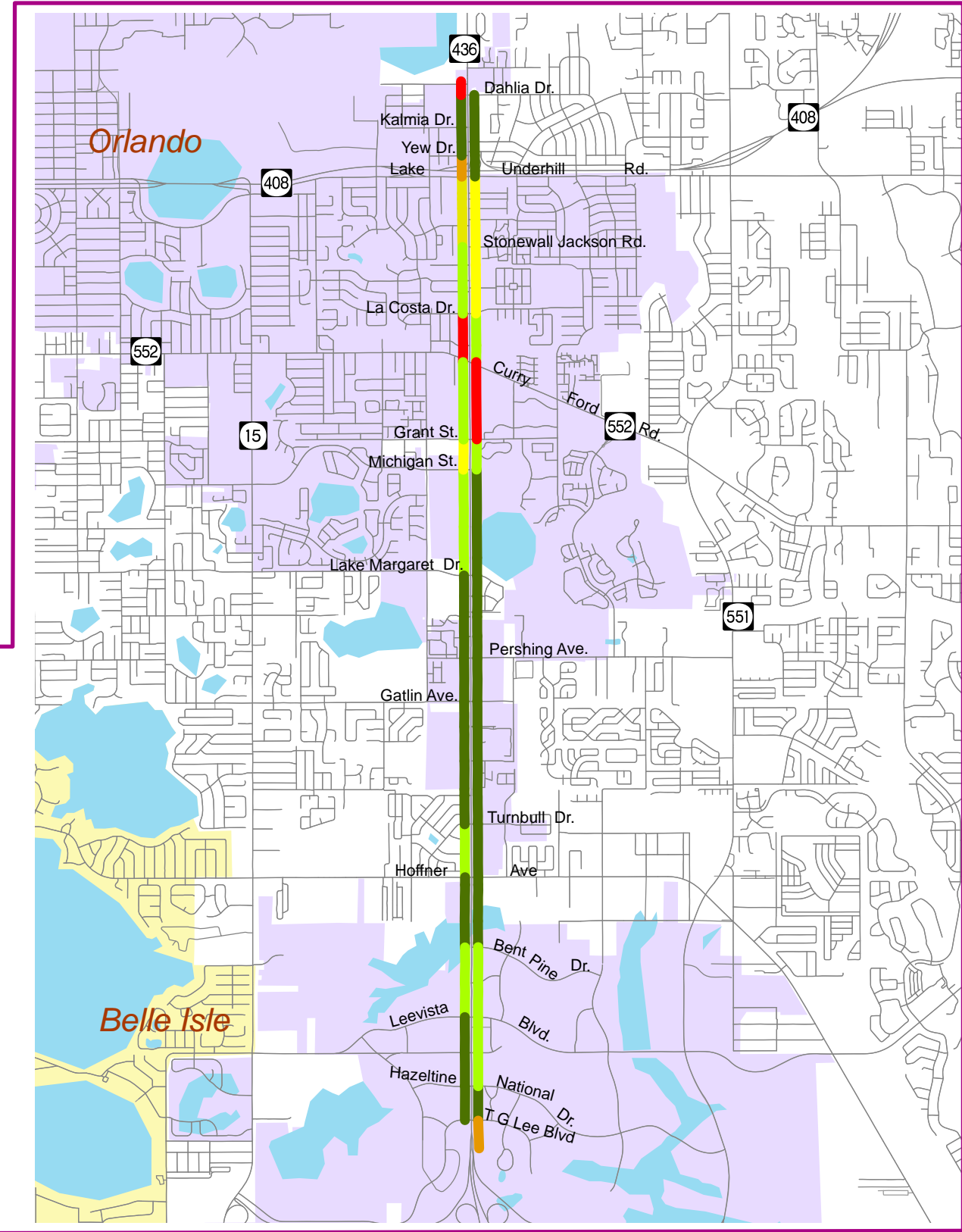
**Before Condition**

Date of Collection: 1/13/2010  
 Distance: 6.01 miles  
 From: T. G. Lee Blvd.  
 To: Dahlia Dr.

Start Time: 4:15 PM  
 End Time: 6:00 PM

NB Avg Speed: 26.10 MPH  
 NB Travel Time: 13.81 MIN  
 NB Delay Time: 4.76 MIN

SB Avg Speed: 27.80 MPH  
 SB Travel Time: 12.80 MIN  
 SB Delay Time: 3.25 MIN



**SR 436  
- PM Peak**

**After Condition**

Date of Collection: 5/27/2010  
 Distance: 6.01 miles  
 From: T. G. Lee Blvd.  
 To: Dahlia Dr.

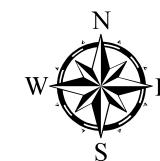
Start Time: 4:15 PM  
 End Time: 6:00 PM

NB Avg Speed: 35.30 MPH  
 NB Travel Time: 10.21 MIN  
 NB Delay Time: 1.69 MIN

SB Avg Speed: 30.70 MPH  
 SB Travel Time: 11.59 MIN  
 SB Delay Time: 3.02 MIN

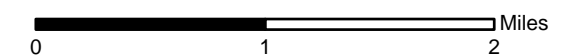
**Level of Services:**

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



**2010 METROPLAN ORLANDO**

*Travel Time Study*



**SR 436: Dahlia Dr to T.G.Lee Blvd: Before & After Study**  
**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)
<b>Northbound/Eastbound - AM Peak Hour</b>						
1758	716.4	171.6	30.2	0.2080	349.84	365.66
<b>Northbound/Eastbound - PM Peak Hour</b>						
2170	828.6	285.6	26.1	0.2070	499.46	449.19
<b>Southbound/Westbound - AM Peak Hour</b>						
1665	733.2	166.2	29.1	0.2060	339.11	342.99
<b>Southbound/Westbound - PM Peak Hour</b>						
2054	768.0	195.0	27.8	0.2060	438.19	423.12

\*Traffic Volumes are obtained from the latest FDOT Counts

**SR 436: Dahlia Dr to T.G.Lee Blvd: Before & After Study**  
**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)
<b>Northbound/Eastbound - AM Peak Hour</b>						
1758	623.4	129.0	34.7	0.2060	304.43	362.15
<b>Northbound/Eastbound - PM Peak Hour</b>						
2170	612.8	101.4	35.3	0.2050	369.38	444.85
<b>Southbound/Westbound - AM Peak Hour</b>						
1665	522.3	28.8	40.9	0.2020	241.56	336.33
<b>Southbound/Westbound - PM Peak Hour</b>						
2054	695.2	181.2	30.7	0.2050	396.65	421.07

\*Traffic Volumes are obtained from the latest FDOT Counts

**SR 436: Dahlia Dr to T.G.Lee Blvd: Before & After Study**  
**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)	688.95	545.99	937.65	766.03
Total Fuel Consumption (gallons)	708.65	698.48	872.31	865.92

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$2,446.29	\$2,919.36
<b>Annual User Benefit</b>	<b>\$733,885.53</b>	<b>\$875,808.79</b>
<b>Total Annual User Benefit =</b>	<b>\$1,609,694.32</b>	
Total Signal Retiming Annual Cost	\$29,036.14	
<b>User Benefit / Cost Ratio</b>	<b>55.44</b>	

Notes:

- \* Value of Delay Time is \$16.90 per hour (\$15.47 from Mobility Data for Orlando for the year 2007 & grown 3% per year)
- \* Fuel consumption is valued to the rate of \$2.98 per gallon.
- \* 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.

**Colonial Dr (SR 50)**  
**Mills Ave to Old Cheney Hwy**



**TABLE 11**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 50 - Eastbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Mills Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	317	6	Signal	36.0	27.6	II	6.0	F	0.15	
Mills Ave to Shine Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	581	6	Signal	9.6	0.0	II	41.2	A	1.03	
Shine Ave to Ferncreek Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	739	6	Signal	24.6	9.6	II	20.5	D	0.51	
Ferncreek Ave to Hampton Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	1,320	6	Signal	20.4	0.0	II	44.1	A	1.10	
Hampton Ave to Bumby Ave	City of Orlando	Arterial	Outlying Business District	1	3	0	40	1,320	6	Signal	41.4	14.4	II	21.7	D	0.54	
Bumby Ave to Coy St	City of Orlando	Arterial	Outlying Business District	1	3	1	40	634	6	Signal	13.2	0.0	II	32.7	B	0.82	
Coy St to Primerose Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	40	686	6	Signal	12.6	0.0	II	37.1	A	0.93	
Primerose Dr to Maguire Blvd	City of Orlando	Arterial	Outlying Business District	2	3	0	40	1,003	6	Signal	91.8	36.6	II	7.5	F	0.19	
Maguire Blvd to Fashion Square Mall Entrance	City of Orlando	Arterial	Outlying Business District	1	3	0	40	1,690	6	Signal	28.2	0.0	II	40.8	A	1.02	
Fashion Square Mall Entrance to Herndon Ave	City of Orlando	Arterial	Outlying Business District	1	3	0	40	634	6	Signal	33.0	13.2	II	13.1	E	0.33	
Herndon Ave to Bennett Rd	City of Orlando	Arterial	Outlying Business District	1	3	0	45	1,320	6	Signal	22.8	0.0	II	39.5	A	0.88	
Bennett Rd to Humphries Ave	City of Orlando	Arterial	Outlying Business District	1	3	0	45	1,901	6	Signal	26.4	0.0	II	49.1	A	1.09	
Humphries Ave to Old Cheney Hwy	City of Orlando	Arterial	Outlying Business District	1	3	0	45	2,112	6	Signal	27.0	0.0	II	53.3	A	1.19	
<b>TOTAL</b>							40	14,256			387.0	101.4	II	25.1	C	0.63	0.094 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Mills Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	317	4	Signal	8.4	0.0	II	25.7	C	0.64	
Mills Ave to Shine Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	581	4	Signal	13.2	0.0	II	30.0	B	0.75	
Shine Ave to Ferncreek Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	739	4	Signal	16.8	0.0	II	30.0	B	0.75	
Ferncreek Ave to Hampton Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	1,320	4	Signal	49.2	15.6	II	18.3	D	0.46	
Hampton Ave to Bumby Ave	City of Orlando	Arterial	Outlying Business District	1	3	0	40	1,320	4	Signal	71.4	28.2	II	12.6	F	0.32	
Bumby Ave to Coy St	City of Orlando	Arterial	Outlying Business District	1	3	1	40	634	4	Signal	12.6	0.0	II	34.3	B	0.86	
Coy St to Primerose Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	40	686	4	Signal	12.6	0.0	II	37.1	A	0.93	
Primerose Dr to Maguire Blvd	City of Orlando	Arterial	Outlying Business District	2	3	0	40	1,003	4	Signal	31.8	4.2	II	21.5	D	0.54	
Maguire Blvd to Fashion Square Mall Entrance	City of Orlando	Arterial	Outlying Business District	1	3	0	40	1,690	4	Signal	32.4	0.0	II	35.6	A	0.89	
Fashion Square Mall Entrance to Herndon Ave	City of Orlando	Arterial	Outlying Business District	1	3	0	40	634	4	Signal	10.8	0.0	II	40.0	A	1.00	
Herndon Ave to Bennett Rd	City of Orlando	Arterial	Outlying Business District	1	3	0	45	1,320	4	Signal	64.2	36.6	II	14.0	E	0.31	
Bennett Rd to Humphries Ave	City of Orlando	Arterial	Outlying Business District	1	3	0	45	1,901	4	Signal	52.8	13.2	II	24.5	C	0.55	
Humphries Ave to Old Cheney Hwy	City of Orlando	Arterial	Outlying Business District	1	3	0	45	2,112	4	Signal	31.8	0.0	II	45.3	A	1.01	
<b>TOTAL</b>							40	14,256			408.0	97.8	II	23.8	C	0.60	0.098 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 11**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 50 - Westbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Old Cheney Hwy	City of Orlando	Arterial	Outlying Business District	1	3	0	45	898	7	Signal	27.0	0.0	II	22.7	C	0.50	
Old Cheney Hwy to Humphries Ave	City of Orlando	Arterial	Outlying Business District	1	3	0	45	2,112	7	Signal	34.2	3.0	II	42.1	A	0.94	
Humphries Ave to Bennett Rd	City of Orlando	Arterial	Outlying Business District	1	3	0	45	1,901	7	Signal	28.2	0.0	II	46.0	A	1.02	
Bennett Rd to Herndon Ave	City of Orlando	Arterial	Outlying Business District	1	3	0	40	1,320	7	Signal	21.0	0.0	II	42.9	A	1.07	
Herndon Ave to Fashion Square Mall Entrance	City of Orlando	Arterial	Outlying Business District	1	3	1	40	634	7	Signal	9.6	0.0	II	45.0	A	1.12	
Fashion Square Mall Entrance to Maguire Blvd	City of Orlando	Arterial	Outlying Business District	2	3	0	40	1,690	7	Signal	31.8	0.0	II	36.2	A	0.91	
Maguire Blvd to Primerose Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	40	1,003	7	Signal	21.6	0.0	II	31.7	B	0.79	
Primerose Dr to Coy St	City of Orlando	Arterial	Outlying Business District	1	3	0	40	686	7	Signal	20.4	4.2	II	22.9	C	0.57	
Coy St to Bumby Ave	City of Orlando	Arterial	Outlying Business District	2	3	0	40	634	7	Signal	23.4	4.2	II	18.5	D	0.46	
Bumby Ave to Hampton Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	1,320	7	Signal	38.4	6.6	II	23.4	C	0.59	
Hampton Ave to Ferncreek Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	1,320	7	Signal	38.4	7.8	II	23.4	C	0.59	
Ferncreek Ave to Shine Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	739	7	Signal	21.6	3.0	II	23.3	C	0.58	
Shine Ave to Mills Ave	City of Orlando	Arterial	Outlying Business District	1	2	1	40	581	7	Signal	27.6	13.2	II	14.3	E	0.36	
<b>TOTAL</b>							40	14,837			343.2	42.0	II	29.5	B	0.74	0.097 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Old Cheney Hwy	City of Orlando	Arterial	Outlying Business District	1	3	0	45	898	5	Signal	55.8	23.4	II	11.0	F	0.24	
Old Cheney Hwy to Humphries Ave	City of Orlando	Arterial	Outlying Business District	1	3	0	45	2,112	5	Signal	32.4	0.0	II	44.4	A	0.99	
Humphries Ave to Bennett Rd	City of Orlando	Arterial	Outlying Business District	1	3	0	45	1,901	5	Signal	57.0	18.6	II	22.7	C	0.51	
Bennett Rd to Herndon Ave	City of Orlando	Arterial	Outlying Business District	1	3	0	40	1,320	5	Signal	25.8	0.0	II	34.9	B	0.87	
Herndon Ave to Fashion Square Mall Entrance	City of Orlando	Arterial	Outlying Business District	1	3	1	40	634	5	Signal	10.2	0.0	II	42.4	A	1.06	
Fashion Square Mall Entrance to Maguire Blvd	City of Orlando	Arterial	Outlying Business District	2	3	0	40	1,690	5	Signal	48.0	15.6	II	24.0	C	0.60	
Maguire Blvd to Primerose Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	40	1,003	5	Signal	47.4	18.0	II	14.4	E	0.36	
Primerose Dr to Coy St	City of Orlando	Arterial	Outlying Business District	1	3	0	40	686	5	Signal	15.6	0.0	II	30.0	B	0.75	
Coy St to Bumby Ave	City of Orlando	Arterial	Outlying Business District	2	3	0	40	634	5	Signal	12.6	0.0	II	34.3	B	0.86	
Bumby Ave to Hampton Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	1,320	5	Signal	34.2	4.2	II	26.3	C	0.66	
Hampton Ave to Ferncreek Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	1,320	5	Signal	51.6	17.4	II	17.4	D	0.44	
Ferncreek Ave to Shine Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	739	5	Signal	21.0	0.0	II	24.0	C	0.60	
Shine Ave to Mills Ave	City of Orlando	Arterial	Outlying Business District	1	2	1	40	581	5	Signal	83.4	66.6	II	4.7	F	0.12	
<b>TOTAL</b>							40	14,837			495.0	163.8	II	20.4	D	0.51	0.101 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 11**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 50 - Eastbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.	
<b>AM PEAK HOUR - BEFORE CONDITION</b>																		
Median Opening to Mills Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	317	5	Signal	33.0	21.6	II	6.5	F	0.16		
Mills Ave to Shine Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	581	5	Signal	15.6	1.8	II	25.4	C	0.63		
Shine Ave to Ferncreek Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	739	5	Signal	35.4	15.6	II	14.2	E	0.36		
Ferncreek Ave to Hampton Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	1,320	5	Signal	29.4	1.8	II	30.6	B	0.77		
Hampton Ave to Bumby Ave	City of Orlando	Arterial	Outlying Business District	1	3	0	40	1,320	5	Signal	47.4	15.6	II	19.0	D	0.47		
Bumby Ave to Coy St	City of Orlando	Arterial	Outlying Business District	1	3	1	40	634	5	Signal	13.2	0.0	II	32.7	B	0.82		
Coy St to Primerose Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	40	686	5	Signal	56.4	36.0	II	8.3	F	0.21		
Primerose Dr to Maguire Blvd	City of Orlando	Arterial	Outlying Business District	2	3	0	40	1,003	5	Signal	22.2	0.0	II	30.8	B	0.77		
Maguire Blvd to Fashion Square Mall Entrance	City of Orlando	Arterial	Outlying Business District	1	3	0	40	1,690	5	Signal	49.8	7.2	II	23.1	C	0.58		
Fashion Square Mall Entrance to Herndon Ave	City of Orlando	Arterial	Outlying Business District	1	3	0	40	634	5	Signal	42.0	22.8	II	10.3	F	0.26		
Herndon Ave to Bennett Rd	City of Orlando	Arterial	Outlying Business District	1	3	0	45	1,320	5	Signal	23.4	0.0	II	38.5	A	0.85		
Bennett Rd to Humphries Ave	City of Orlando	Arterial	Outlying Business District	1	3	0	45	1,901	5	Signal	35.4	2.4	II	36.6	A	0.81		
Humphries Ave to Old Cheney Hwy	City of Orlando	Arterial	Outlying Business District	1	3	0	45	2,112	5	Signal	34.2	0.6	II	42.1	A	0.94		
<b>TOTAL</b>							40	14,256			437.4	125.4	II	22.2	C	0.56	0.097 gal/veh	
<b>PM PEAK HOUR - BEFORE CONDITION</b>																		
Median Opening to Mills Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	317	4	Signal	44.4	31.8	II	4.9	F	0.12		
Mills Ave to Shine Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	581	4	Signal	13.2	0.0	II	30.0	B	0.75		
Shine Ave to Ferncreek Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	739	4	Signal	19.8	1.2	II	25.5	C	0.64		
Ferncreek Ave to Hampton Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	1,320	4	Signal	47.4	13.2	II	19.0	D	0.47		
Hampton Ave to Bumby Ave	City of Orlando	Arterial	Outlying Business District	1	3	0	40	1,320	4	Signal	62.4	26.4	II	14.4	E	0.36		
Bumby Ave to Coy St	City of Orlando	Arterial	Outlying Business District	1	3	1	40	634	4	Signal	15.6	0.0	II	27.7	C	0.69		
Coy St to Primerose Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	40	686	4	Signal	31.2	16.8	II	15.0	E	0.37		
Primerose Dr to Maguire Blvd	City of Orlando	Arterial	Outlying Business District	2	3	0	40	1,003	4	Signal	28.2	4.8	II	24.3	C	0.61		
Maguire Blvd to Fashion Square Mall Entrance	City of Orlando	Arterial	Outlying Business District	1	3	0	40	1,690	4	Signal	72.0	27.0	II	16.0	E	0.40		
Fashion Square Mall Entrance to Herndon Ave	City of Orlando	Arterial	Outlying Business District	1	3	0	40	634	4	Signal	42.6	25.2	II	10.1	F	0.25		
Herndon Ave to Bennett Rd	City of Orlando	Arterial	Outlying Business District	1	3	0	45	1,320	4	Signal	39.6	11.4	II	22.7	C	0.51		
Bennett Rd to Humphries Ave	City of Orlando	Arterial	Outlying Business District	1	3	0	45	1,901	4	Signal	54.0	15.0	II	24.0	C	0.53		
Humphries Ave to Old Cheney Hwy	City of Orlando	Arterial	Outlying Business District	1	3	0	45	2,112	4	Signal	48.0	10.8	II	30.0	B	0.67		
<b>TOTAL</b>							40	14,256			518.4	183.6	II	18.7	D	0.47	0.099 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 11**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 50 - Westbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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		
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Old Cheney Hwy	City of Orlando	Arterial	Outlying Business District	1	3	0	45	898	5	Signal	40.8	12.6	II	15.0	E	0.33	
Old Cheney Hwy to Humphries Ave	City of Orlando	Arterial	Outlying Business District	1	3	0	45	2,112	5	Signal	58.2	15.0	II	24.7	C	0.55	
Humphries Ave to Bennett Rd	City of Orlando	Arterial	Outlying Business District	1	3	0	45	1,901	5	Signal	58.8	18.0	II	22.0	C	0.49	
Bennett Rd to Herndon Ave	City of Orlando	Arterial	Outlying Business District	1	3	0	40	1,320	5	Signal	34.8	5.4	II	25.9	C	0.65	
Herndon Ave to Fashion Square Mall Entrance	City of Orlando	Arterial	Outlying Business District	1	3	1	40	634	5	Signal	12.0	0.0	II	36.0	A	0.90	
Fashion Square Mall Entrance to Maguire Blvd	City of Orlando	Arterial	Outlying Business District	2	3	0	40	1,690	5	Signal	40.2	3.0	II	28.7	B	0.72	
Maguire Blvd to Primerose Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	40	1,003	5	Signal	20.4	0.0	II	33.5	B	0.84	
Primerose Dr to Coy St	City of Orlando	Arterial	Outlying Business District	1	3	0	40	686	5	Signal	24.0	5.4	II	19.5	D	0.49	
Coy St to Bumby Ave	City of Orlando	Arterial	Outlying Business District	2	3	0	40	634	5	Signal	26.4	12.0	II	16.4	E	0.41	
Bumby Ave to Hampton Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	1,320	5	Signal	49.8	15.0	II	18.1	D	0.45	
Hampton Ave to Ferncreek Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	1,320	5	Signal	51.6	21.6	II	17.4	D	0.44	
Ferncreek Ave to Shine Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	739	5	Signal	17.4	0.0	II	29.0	B	0.72	
Shine Ave to Mills Ave	City of Orlando	Arterial	Outlying Business District	1	2	1	40	581	5	Signal	43.2	27.6	II	9.2	F	0.23	
<b>TOTAL</b>							40	14,837			477.6	135.6	II	21.2	D	0.53	0.101 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Old Cheney Hwy	City of Orlando	Arterial	Outlying Business District	1	3	0	45	898	4	Signal	58.2	31.8	II	10.5	F	0.23	
Old Cheney Hwy to Humphries Ave	City of Orlando	Arterial	Outlying Business District	1	3	0	45	2,112	4	Signal	63.0	21.0	II	22.9	C	0.51	
Humphries Ave to Bennett Rd	City of Orlando	Arterial	Outlying Business District	1	3	0	45	1,901	4	Signal	34.8	0.0	II	37.2	A	0.83	
Bennett Rd to Herndon Ave	City of Orlando	Arterial	Outlying Business District	1	3	0	40	1,320	4	Signal	27.6	1.2	II	32.6	B	0.82	
Herndon Ave to Fashion Square Mall Entrance	City of Orlando	Arterial	Outlying Business District	1	3	1	40	634	4	Signal	12.6	0.0	II	34.3	B	0.86	
Fashion Square Mall Entrance to Maguire Blvd	City of Orlando	Arterial	Outlying Business District	2	3	0	40	1,690	4	Signal	74.4	25.2	II	15.5	E	0.39	
Maguire Blvd to Primerose Dr	City of Orlando	Arterial	Outlying Business District	1	3	0	40	1,003	4	Signal	22.8	0.0	II	30.0	B	0.75	
Primerose Dr to Coy St	City of Orlando	Arterial	Outlying Business District	1	3	0	40	686	4	Signal	57.0	37.2	II	8.2	F	0.21	
Coy St to Bumby Ave	City of Orlando	Arterial	Outlying Business District	2	3	0	40	634	4	Signal	31.2	13.8	II	13.8	E	0.35	
Bumby Ave to Hampton Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	1,320	4	Signal	27.6	0.0	II	32.6	B	0.82	
Hampton Ave to Ferncreek Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	1,320	4	Signal	54.0	25.2	II	16.7	E	0.42	
Ferncreek Ave to Shine Ave	City of Orlando	Arterial	Outlying Business District	1	2	0	40	739	4	Signal	34.8	15.0	II	14.5	E	0.36	
Shine Ave to Mills Ave	City of Orlando	Arterial	Outlying Business District	1	2	1	40	581	4	Signal	43.8	26.4	II	9.0	F	0.23	
<b>TOTAL</b>							40	14,837			541.8	196.8	II	18.7	D	0.47	0.101 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 50  
- AM Peak**

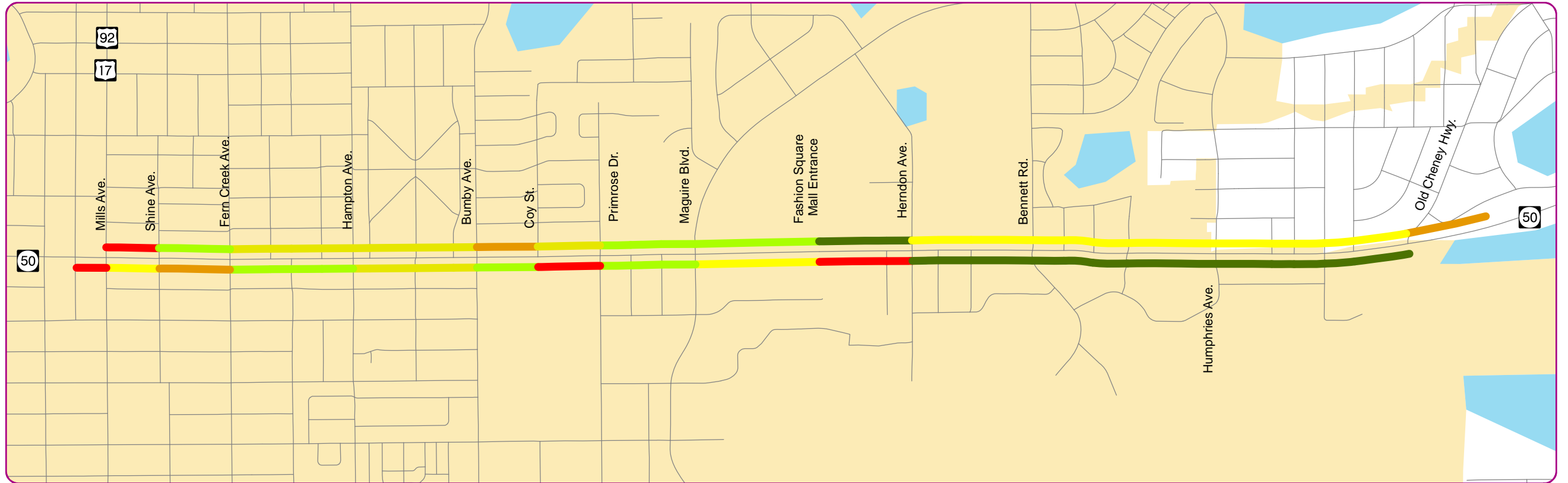
**Before Condition**

Date of Collection: 1/26/2010  
 Distance: 2.81 miles  
 From: Old Cheney Hwy.  
 To: Mills Ave.

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

EB Avg Speed: 22.2 MPH  
 EB Travel Time: 7.30 MIN  
 EB Delay Time: 2.09 MIN

WB Avg Speed: 21.2 MPH  
 WB Travel Time: 7.96 MIN  
 WB Delay Time: 2.26 MIN



**SR 50  
- AM Peak**

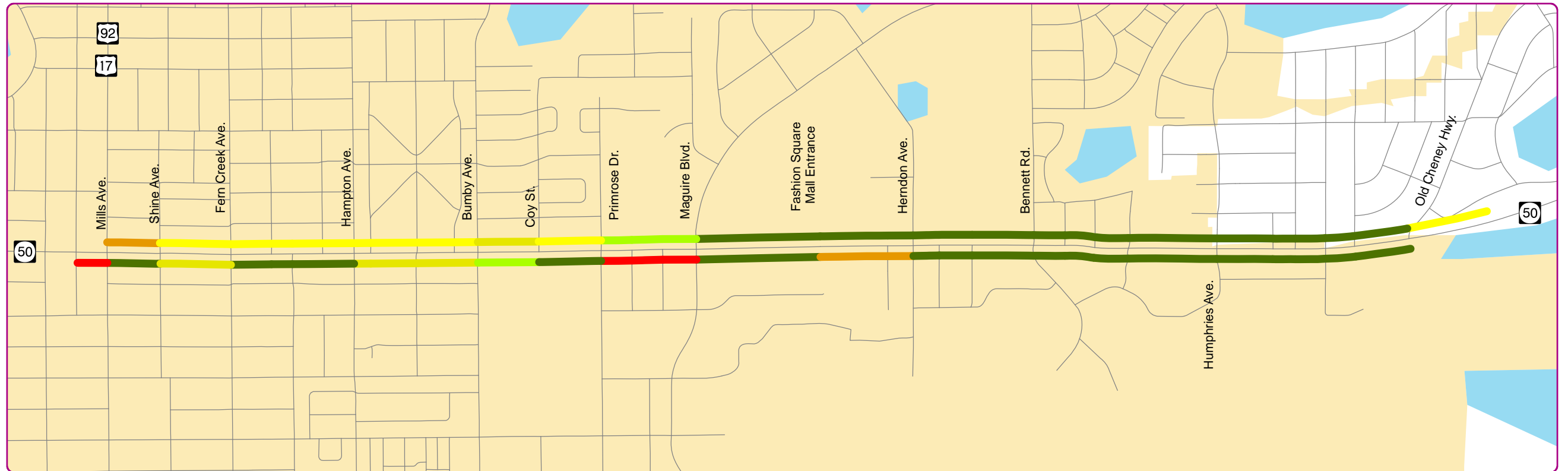
**After Condition**

Date of Collection: 5/20/2010  
 Distance: 2.81 miles  
 From: Old Cheney Hwy.  
 To: Mills Ave.

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

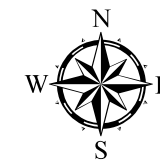
EB Avg Speed: 25.1 MPH  
 EB Travel Time: 6.45 MIN  
 EB Delay Time: 2.19 MIN

WB Avg Speed: 29.5 MPH  
 WB Travel Time: 5.72 MIN  
 WB Delay Time: 0.70 MIN



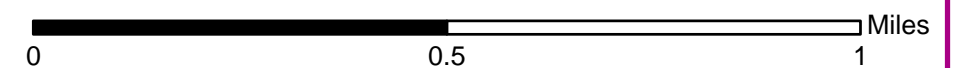
**Level of Services:**

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



**2010 METROPLAN ORLANDO**

*Travel Time Study*



**SR 50  
- PM Peak**

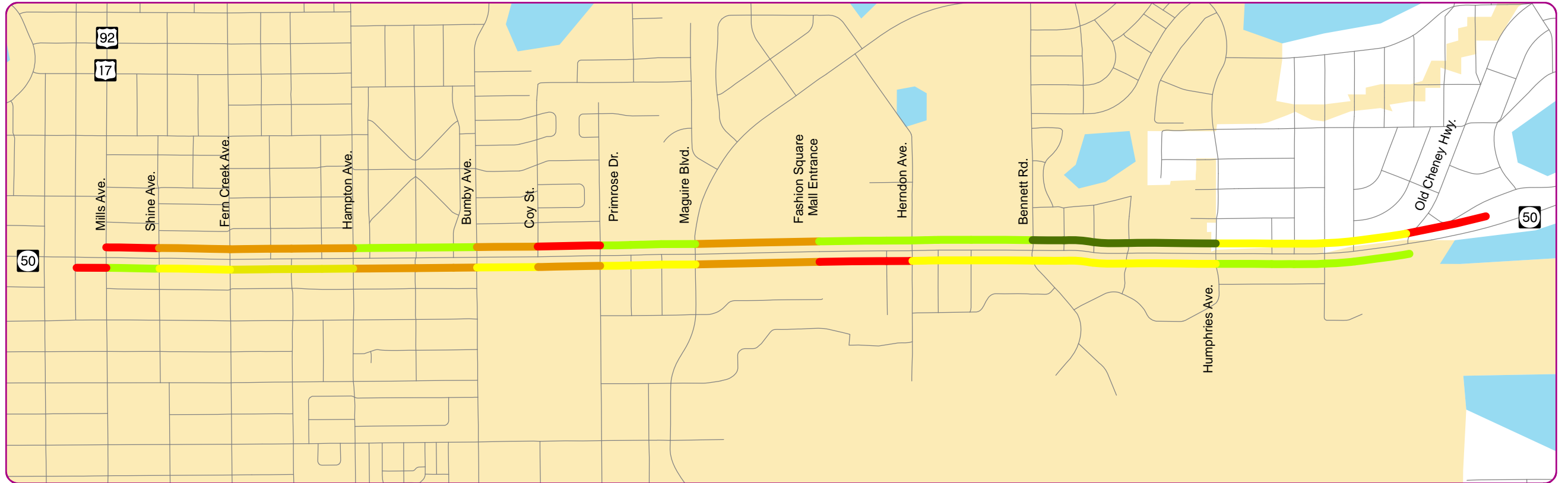
**Before Condition**

Date of Collection: 1/26/2010  
 Distance: 2.81 miles  
 From: Old Cheney Hwy.  
 To: Mills Ave.

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

EB Avg Speed: 18.7 MPH  
 EB Travel Time: 8.64 MIN  
 EB Delay Time: 3.06 MIN

WB Avg Speed: 18.7 MPH  
 WB Travel Time: 9.03 MIN  
 WB Delay Time: 3.28 MIN



**SR 50  
- PM Peak**

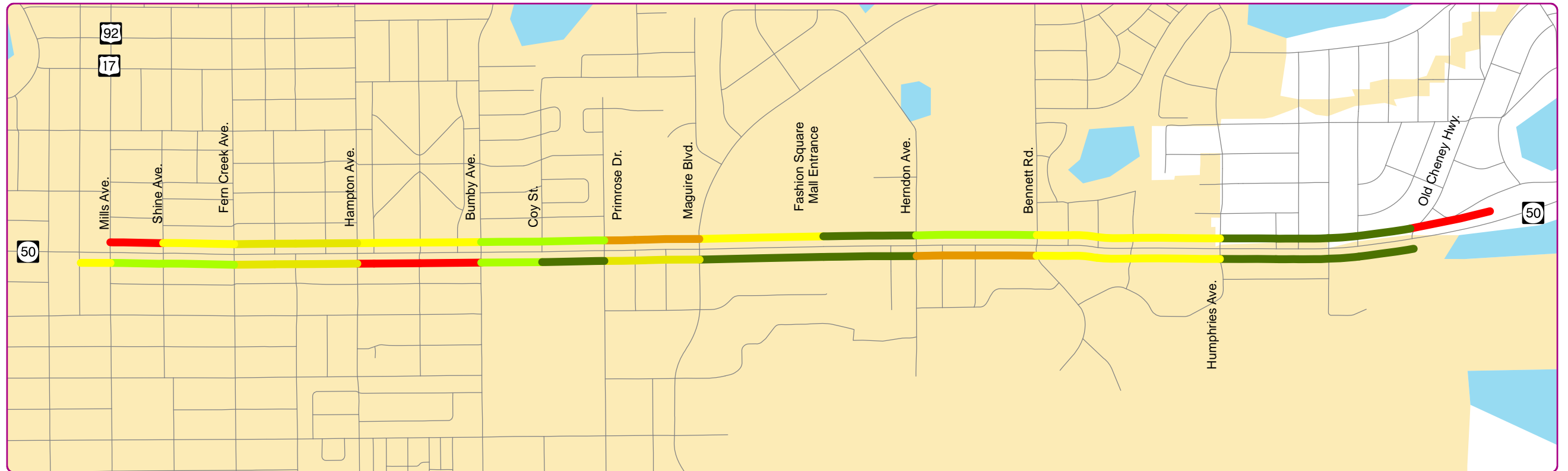
**After Condition**

Date of Collection: 5/20/2010  
 Distance: 2.81 miles  
 From: Old Cheney Hwy.  
 To: Mills Ave.

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

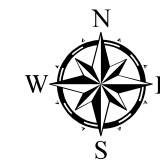
EB Avg Speed: 23.8 MPH  
 EB Travel Time: 6.80 MIN  
 EB Delay Time: 1.63 MIN

WB Avg Speed: 20.4 MPH  
 WB Travel Time: 8.25 MIN  
 WB Delay Time: 2.73 MIN



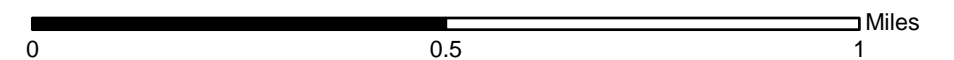
**Level of Services:**

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



**2010 METROPLAN ORLANDO**

*Travel Time Study*



## SR 50 : Mills Ave to Old Cheney Hwy: Before & After Study

### 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						
1082	437.4	125.4	22.2	0.0970	131.46	104.95
Northbound/Eastbound - PM Peak Hour						
2017	518.4	183.6	18.7	0.0990	290.45	199.68
Southbound/Westbound - AM Peak Hour						
2106	477.6	135.6	21.2	0.1010	279.40	212.71
Southbound/Westbound - PM Peak Hour						
1762	541.8	196.8	18.7	0.1010	265.18	177.96

\*Traffic Volumes are obtained from the latest FDOT Counts

## SR 50 : Mills Ave to Old Cheney Hwy: Before & After Study

### 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						
1082	387.0	101.4	25.1	0.0940	116.32	101.71
Northbound/Eastbound - PM Peak Hour						
2017	408.0	97.8	23.8	0.0980	228.59	197.67
Southbound/Westbound - AM Peak Hour						
2106	343.2	42.0	29.5	0.0970	200.77	204.28
Southbound/Westbound - PM Peak Hour						
1762	495.0	163.8	20.4	0.1010	242.28	177.96

\*Traffic Volumes are obtained from the latest FDOT Counts



**SR 50 : Mills Ave to Old Cheney Hwy: Before & After Study**  
**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)	410.86	317.09	555.63	470.87
Total Fuel Consumption (gallons)	317.66	305.99	377.65	375.63

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$1,619.52	\$1,438.47
<b>Annual User Benefit</b>	<b>\$485,857.02</b>	<b>\$431,539.78</b>
<b>Total Annual User Benefit =</b>	<b>\$917,396.80</b>	
Total Signal Retiming Annual Cost	\$21,948.58	
<b>User Benefit / Cost Ratio</b>	<b>41.80</b>	

Notes:

- \* Value of Delay Time is \$16.90 per hour (\$15.47 from Mobility Data for Orlando for the year 2007 & grown 3% per year)
- \* Fuel consumption is valued to the rate of \$2.98 per gallon.
- \* 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.

**Mills Ave (SR 15/600)**

**Marks St to Lake Shore Dr/Rollins St**

**TABLE 12**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Mills Ave - Northbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Colonial Dr to Marks St	City of Orlando	Arterial	Residential Area	1	2	0	35	1,267	6	Signal	30.6	1.2	II	28.2	B	0.81	
Marks St to Lake Highland Dr	City of Orlando	Arterial	Residential Area	1	2	0	35	1,637	6	Signal	37.2	1.2	II	30.0	B	0.86	
Lake Highland Dr to Virginia Dr	City of Orlando	Arterial	Residential Area	1	2	0	35	1,003	6	Signal	64.2	36.0	II	10.7	F	0.30	
Virginia Dr to Nebraska St	City of Orlando	Arterial	Residential Area	1	2	0	35	528	6	Signal	12.6	0.0	II	28.6	B	0.82	
Nebraska St to Princeton St	City of Orlando	Arterial	Residential Area	1	2	0	35	1,690	6	Signal	37.2	0.6	II	31.0	B	0.88	
Princeton St to Rollins St	City of Orlando	Arterial	Residential Area	1	2	0	35	1,003	6	Signal	21.0	0.0	II	32.6	B	0.93	
Rollins St to Dorchester St	City of Orlando	Arterial	Residential Area	1	2	0	35	1,531	6	Stop	28.8	0.0	II	36.2	A	1.04	
<b>TOTAL</b>							35	8,659			231.6	39.0	II	25.5	C	0.73	0.059 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Colonial Dr to Marks St	City of Orlando	Arterial	Residential Area	1	2	0	35	1,267	6	Signal	46.2	12.0	II	18.7	D	0.53	
Marks St to Lake Highland Dr	City of Orlando	Arterial	Residential Area	1	2	0	35	1,637	6	Signal	38.4	3.0	II	29.1	B	0.83	
Lake Highland Dr to Virginia Dr	City of Orlando	Arterial	Residential Area	1	2	0	35	1,003	6	Signal	76.2	46.8	II	9.0	F	0.26	
Virginia Dr to Nebraska St	City of Orlando	Arterial	Residential Area	1	2	0	35	528	6	Signal	13.8	0.0	II	26.1	C	0.75	
Nebraska St to Princeton St	City of Orlando	Arterial	Residential Area	1	2	0	35	1,690	6	Signal	39.6	1.2	II	29.1	B	0.83	
Princeton St to Rollins St	City of Orlando	Arterial	Residential Area	1	2	0	35	1,003	6	Signal	21.0	0.0	II	32.6	B	0.93	
Rollins St to Dorchester St	City of Orlando	Arterial	Residential Area	1	2	0	35	1,531	6	Signal	28.2	0.0	II	37.0	A	1.06	
<b>TOTAL</b>							35	8,659			263.4	63.0	II	22.4	C	0.64	0.060 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 12**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Mills Ave - Southbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Dorchester St to Rollins St	City of Orlando	Arterial	Residential Area	1	2	0	35	1,531	6	Signal	40.8	6.0	II	25.6	C	0.73	
Rollins St to Princeton St	City of Orlando	Arterial	Residential Area	0	2	0	35	1,003	6	Signal	33.0	5.4	II	20.7	D	0.59	
Princeton St to Nebraska St	City of Orlando	Arterial	Residential Area	1	2	0	35	1,690	6	Signal	37.2	0.0	II	31.0	B	0.88	
Nebraska St to Virginia Dr	City of Orlando	Arterial	Residential Area	2	2	0	35	528	6	Signal	15.0	0.0	II	24.0	C	0.69	
Virginia Dr to Lake Highland Dr	City of Orlando	Arterial	Residential Area	1	2	0	35	1,003	6	Signal	19.8	0.0	II	34.5	B	0.99	
Lake Highland Dr to Marks st	City of Orlando	Arterial	Residential Area	1	2	0	35	1,637	6	Signal	31.8	0.0	II	35.1	A	1.00	
Marks st to Colonial Dr	City of Orlando	Arterial	Residential Area	1	2	0	35	1,267	6	Signal	48.6	18.6	II	17.8	D	0.51	
<b>TOTAL</b>							35	8,659			226.2	30.0	II	26.1	C	0.75	0.059 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Dorchester St to Rollins St	City of Orlando	Arterial	Residential Area	1	2	0	35	1,531	6	Signal	46.2	9.6	II	22.6	C	0.65	
Rollins St to Princeton St	City of Orlando	Arterial	Residential Area	0	2	0	35	1,003	6	Signal	40.2	13.8	II	17.0	D	0.49	
Princeton St to Nebraska St	City of Orlando	Arterial	Residential Area	1	2	0	35	1,690	6	Signal	48.0	6.0	II	24.0	C	0.69	
Nebraska St to Virginia Dr	City of Orlando	Arterial	Residential Area	2	2	0	35	528	6	Signal	18.6	3.0	II	19.4	D	0.55	
Virginia Dr to Lake Highland Dr	City of Orlando	Arterial	Residential Area	1	2	0	35	1,003	6	Signal	20.4	0.0	II	33.5	B	0.96	
Lake Highland Dr to Marks st	City of Orlando	Arterial	Residential Area	1	2	0	35	1,637	6	Signal	33.6	0.0	II	33.2	B	0.95	
Marks st to Colonial Dr	City of Orlando	Arterial	Residential Area	1	2	0	35	1,267	6	Signal	66.0	31.2	II	13.1	E	0.37	
<b>TOTAL</b>							35	8,659			273.0	63.6	II	21.6	D	0.62	0.060 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.

**Central Blvd**  
**Brown Ave to Mills Ave**

**TABLE 13**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Central Blvd - Eastbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Summerlin Ave to Thornton Ave	City of Orlando	Arterial	Residential Area	0	1	0	25	1,109	6	Signal	43.2	8.4	IV	17.5	C	0.70	
Thornton Ave to Mills Ave	City of Orlando	Arterial	Residential Area	0	1	0	25	317	6	Stop	10.2	0.0	IV	21.2	B	0.85	
Mills Ave to Brown Ave	City of Orlando	Arterial	Residential Area	0	1	0	25	264	6	Signal	22.8	10.2	IV	7.9	E	0.32	
Brown Ave to Ferncreek Ave	City of Orlando	Arterial	Residential Area	0	1	0	25	1,003	6	Stop	28.2	0.0	IV	24.3	B	0.97	
<b>TOTAL</b>							25	2,693			104.4	18.6	IV	17.6	C	0.70	0.020 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Summerlin Ave to Thornton Ave	City of Orlando	Arterial	Residential Area	0	1	0	25	1,109	6	Signal	64.8	28.2	IV	11.7	D	0.47	
Thornton Ave to Mills Ave	City of Orlando	Arterial	Residential Area	0	1	0	25	317	6	Stop	10.2	0.0	IV	21.2	B	0.85	
Mills Ave to Brown Ave	City of Orlando	Arterial	Residential Area	0	1	0	25	264	6	Signal	21.6	8.4	IV	8.3	E	0.33	
Brown Ave to Ferncreek Ave	City of Orlando	Arterial	Residential Area	0	1	0	25	1,003	6	Stop	25.8	0.6	IV	26.5	A	1.06	
<b>TOTAL</b>							25	2,693			122.4	37.2	IV	15.0	C	0.60	0.020 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 13**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Central Blvd - Westbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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			
<b>AM PEAK HOUR -BEFORE CONDITION</b>																		
Ferncreek Ave to Brown Ave	City of Orlando	Arterial	Residential Area	0	1	0	25	1,003	6	Signal	39.0	12.6	IV	17.5	C	0.70		
Brown Ave to Mills Ave	City of Orlando	Arterial	Residential Area	0	1	0	25	264	6	Stop	12.6	0.0	IV	14.3	C	0.57		
Mills Ave to Thornton Ave	City of Orlando	Arterial	Residential Area	0	1	0	25	317	6	Signal	28.2	15.6	IV	7.7	E	0.31		
Thornton Ave to Summerlin Ave	City of Orlando	Arterial	Residential Area	1	1	0	25	1,109	6	Signal	48.0	12.0	IV	15.7	C	0.63		
<b>TOTAL</b>							25	2,693			127.8	40.2	IV	14.4	C	0.57	0.021 gal/veh	
<b>PM PEAK HOUR - BEFORE CONDITION</b>																		
Ferncreek Ave to Brown Ave	City of Orlando	Arterial	Residential Area	0	1	0	25	1,003	6	Signal	26.4	0.6	IV	25.9	A	1.04		
Brown Ave to Mills Ave	City of Orlando	Arterial	Residential Area	0	1	0	25	264	6	Stop	9.0	0.0	IV	20.0	B	0.80		
Mills Ave to Thornton Ave	City of Orlando	Arterial	Residential Area	0	1	0	25	317	6	Signal	21.0	10.8	IV	10.3	D	0.41		
Thornton Ave to Summerlin Ave	City of Orlando	Arterial	Residential Area	1	1	0	25	1,109	6	Signal	56.4	22.2	IV	13.4	C	0.54		
<b>TOTAL</b>							25	2,693			112.8	33.6	IV	16.3	C	0.65	0.020 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.

**US 17/92**

**Osceola Pkwy to Columbia Ave**



**TABLE 14**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**US 17/92 (Osceola) - Northbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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		
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Columbia Ave	Osceola	Arterial	Residential Area	1	2	0	45	264	8	Signal	11.4	3.6	II	15.8	E	0.35	
Columbia Ave to Donegan Ave	Osceola	Arterial	Residential Area	1	2	0	45	3,643	8	Signal	73.8	7.2	II	33.7	B	0.75	
Donegan Ave to Carroll St	Osceola	Arterial	Residential Area	1	2	0	45	2,640	8	Signal	61.2	12.0	II	29.4	B	0.65	
Carroll St to Osceola Pkwy	Osceola	Arterial	Residential Area	2	3	1	45	3,960	8	Signal	96.6	28.8	II	27.9	C	0.62	
<b>TOTAL</b>							45	10,507			243.0	51.6	II	29.5	B	0.66	0.070 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Columbia Ave	Osceola	Arterial	Residential Area	1	2	0	45	264	7	Signal	12.0	5.4	II	15.0	E	0.33	
Columbia Ave to Donegan Ave	Osceola	Arterial	Residential Area	1	2	0	45	3,643	7	Signal	78.6	13.2	II	31.6	B	0.70	
Donegan Ave to Carroll St	Osceola	Arterial	Residential Area	1	2	0	45	2,640	7	Signal	72.0	19.2	II	25.0	C	0.56	
Carroll St to Osceola Pkwy	Osceola	Arterial	Residential Area	2	3	1	45	3,960	7	Signal	106.8	32.4	II	25.3	C	0.56	
<b>TOTAL</b>							45	10,507			269.4	70.2	II	26.6	C	0.59	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.

**TABLE 14**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**US 17/92 (Osceola) - Southbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed	LOS	Avg Speed/Speed Limit	Avg. Fuel Consump.
														(mph)			
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Osceola Pkwy	Osceola	Arterial	Residential Area	1	2	1	45	1,214	6	Signal	46.8	21.6	II	17.7	D	0.39	
Osceola Pkwy to Carroll St	Osceola	Arterial	Residential Area	1	2	1	45	3,960	6	Signal	84.0	14.4	II	32.1	B	0.71	
Carroll St to Donegan Ave	Osceola	Arterial	Residential Area	1	2	0	45	2,640	6	Signal	46.2	0.0	II	39.0	A	0.87	
Donegan Ave to Columbia Ave	Osceola	Arterial	Residential Area	1	2	0	40	3,643	6	Signal	61.2	2.4	II	40.6	A	1.01	
<b>TOTAL</b>							45	11,458			238.2	38.4	II	32.8	B	0.73	0.083 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Osceola Pkwy	Osceola	Arterial	Residential Area	1	2	1	45	1,214	5	Signal	58.8	27.0	II	14.1	E	0.31	
Osceola Pkwy to Carroll St	Osceola	Arterial	Residential Area	1	2	1	45	3,960	5	Signal	93.0	21.6	II	29.0	B	0.65	
Carroll St to Donegan Ave	Osceola	Arterial	Residential Area	1	2	0	45	2,640	5	Signal	43.8	0.0	II	41.1	A	0.91	
Donegan Ave to Columbia Ave	Osceola	Arterial	Residential Area	1	2	0	40	3,643	5	Signal	65.4	3.6	II	38.0	A	0.95	
<b>TOTAL</b>							45	11,458			261.0	52.2	II	29.9	B	0.67	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.

**TABLE 14**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**US 17/92 (Osceola) - Northbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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		
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Columbia Ave	Osceola	Arterial	Residential Area	1	2	0	45	264	9	Signal	8.4	3.6	II	21.4	D	0.48	
Columbia Ave to Donegan Ave	Osceola	Arterial	Residential Area	1	2	0	45	3,643	9	Signal	60.0	1.2	II	41.4	A	0.92	
Donegan Ave to Carroll St	Osceola	Arterial	Residential Area	1	2	0	45	2,640	9	Signal	42.6	1.8	II	42.3	A	0.94	
Carroll St to Osceola Pkwy	Osceola	Arterial	Residential Area	2	3	1	45	3,960	9	Signal	68.4	9.0	II	39.5	A	0.88	
<b>TOTAL</b>							45	10,507			179.4	15.6	II	39.9	A	0.89	0.067 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Columbia Ave	Osceola	Arterial	Residential Area	1	2	0	45	264	7	Signal	7.8	3.0	II	23.1	C	0.51	
Columbia Ave to Donegan Ave	Osceola	Arterial	Residential Area	1	2	0	45	3,643	7	Signal	64.8	9.6	II	38.3	A	0.85	
Donegan Ave to Carroll St	Osceola	Arterial	Residential Area	1	2	0	45	2,640	7	Signal	73.8	21.0	II	24.4	C	0.54	
Carroll St to Osceola Pkwy	Osceola	Arterial	Residential Area	2	3	1	45	3,960	7	Signal	72.0	12.0	II	37.5	A	0.83	
<b>TOTAL</b>							45	10,507			218.4	45.6	II	32.8	B	0.73	0.068 gal/veh

Note:

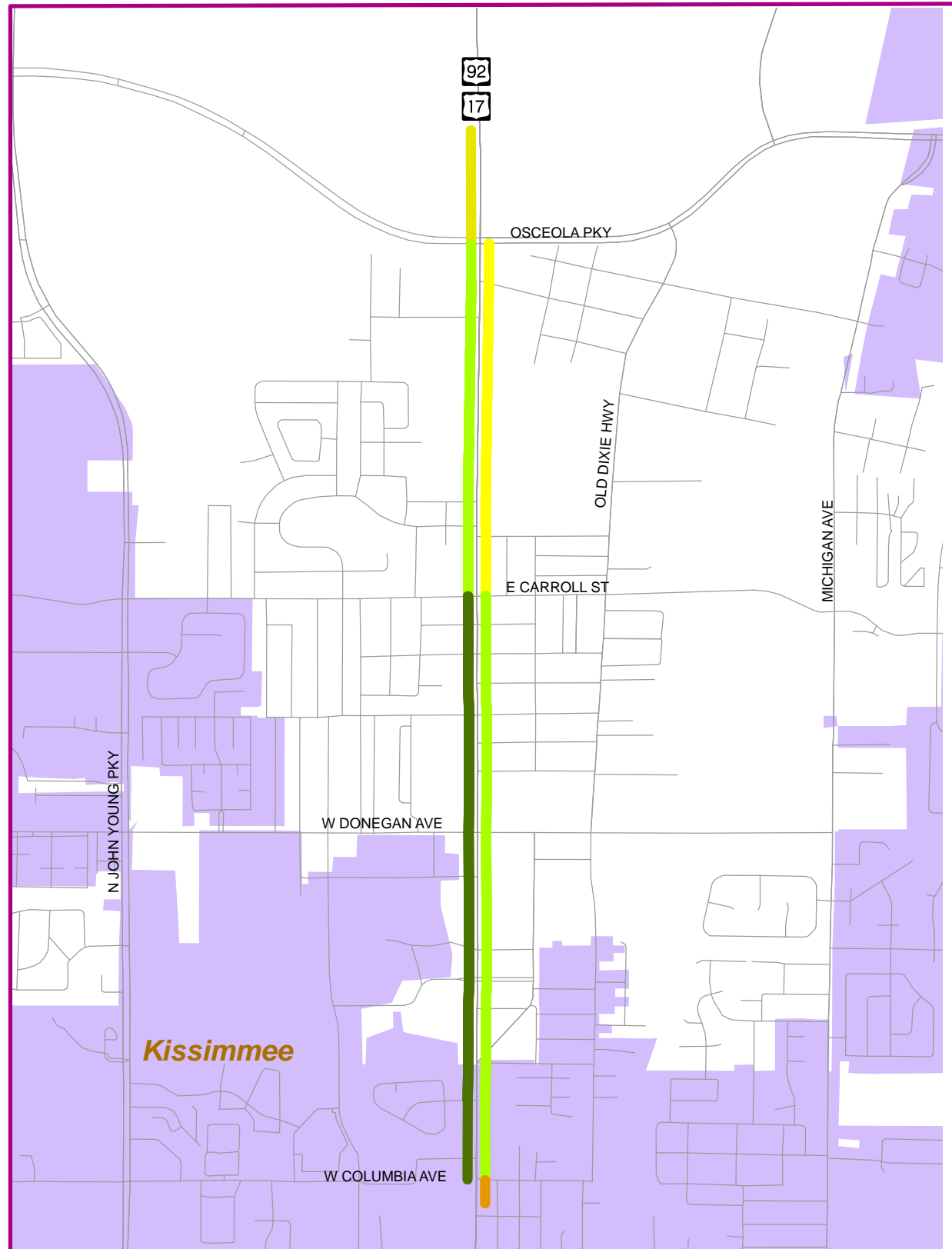
1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

**TABLE 14**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**US 17/92 (Osceola) - Southbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Osceola Pkwy	Osceola	Arterial	Residential Area	1	2	1	45	1,214	9	Signal	44.4	17.4	II	18.6	D	0.41	
Osceola Pkwy to Carroll St	Osceola	Arterial	Residential Area	1	2	1	45	3,960	9	Signal	61.2	0.0	II	44.1	A	0.98	
Carroll St to Donegan Ave	Osceola	Arterial	Residential Area	1	2	0	45	2,640	9	Signal	45.6	0.0	II	39.5	A	0.88	
Donegan Ave to Columbia Ave	Osceola	Arterial	Residential Area	1	2	0	40	3,643	9	Signal	57.0	1.2	II	43.6	A	1.09	
<b>TOTAL</b>							45	11,458			208.2	18.6	II	37.5	A	0.83	0.082 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Osceola Pkwy	Osceola	Arterial	Residential Area	1	2	1	45	1,214	7	Signal	57.0	30.0	II	14.5	E	0.32	
Osceola Pkwy to Carroll St	Osceola	Arterial	Residential Area	1	2	1	45	3,960	7	Signal	68.4	4.2	II	39.5	A	0.88	
Carroll St to Donegan Ave	Osceola	Arterial	Residential Area	1	2	0	45	2,640	7	Signal	42.6	0.0	II	42.3	A	0.94	
Donegan Ave to Columbia Ave	Osceola	Arterial	Residential Area	1	2	0	40	3,643	7	Signal	57.6	1.2	II	43.1	A	1.08	
<b>TOTAL</b>							45	11,458			225.6	35.4	II	34.6	B	0.77	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.



**US 17/92 (Osceola)  
- AM Peak**

**Before Condition**

Date of Collection: 1/26/2010  
 Distance: 2.17 miles  
 From: Columbia Ave.  
 To: Osceola Pkwy.

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

NB Avg Speed: 29.5 MPH  
 NB Travel Time: 4.05 MIN  
 NB Delay Time: 0.86 MIN

SB Avg Speed: 32.8 MPH  
 SB Travel Time: 3.97 MIN  
 SB Delay Time: 0.64 MIN

**US 17/92 (Osceola)  
- AM Peak**

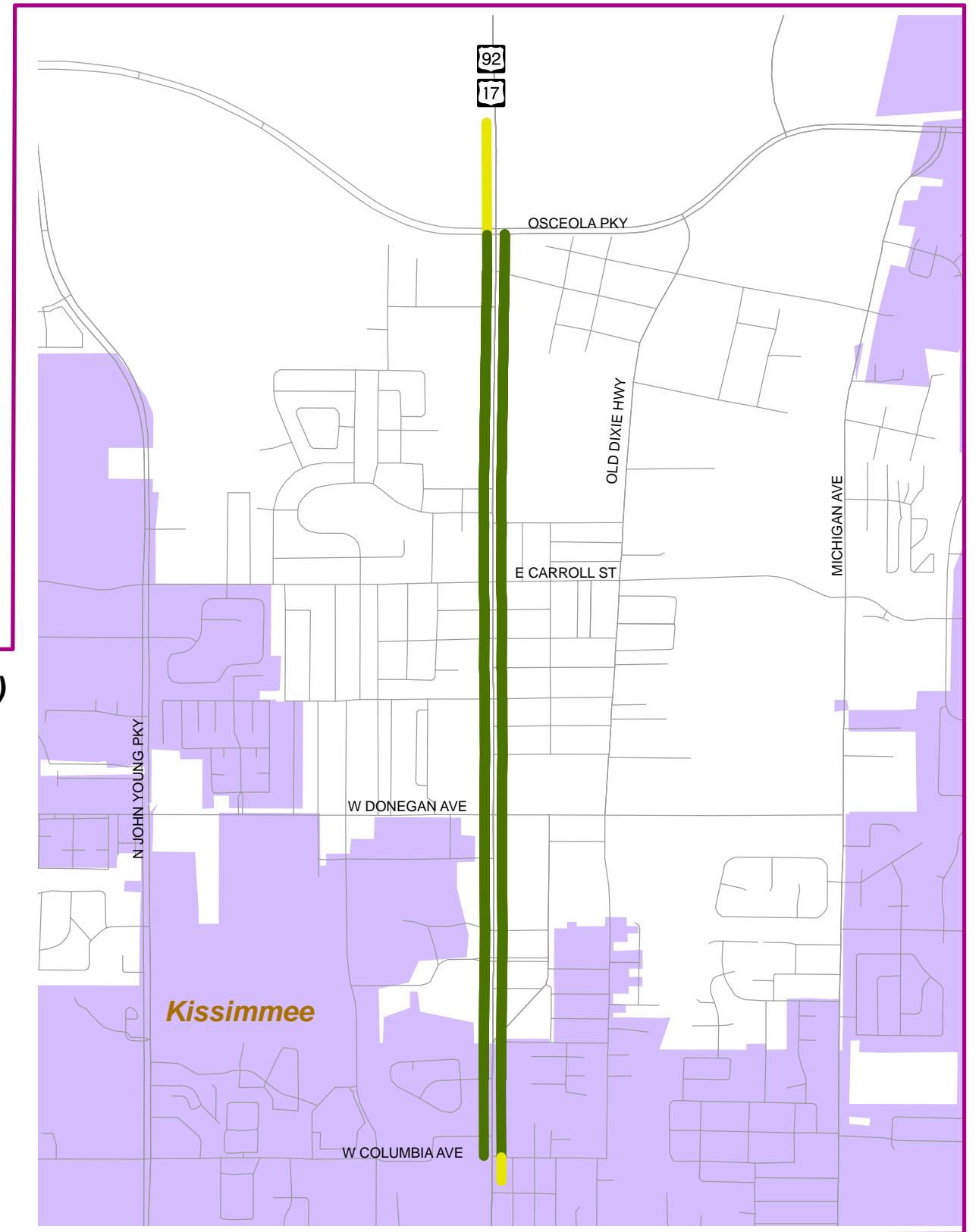
**After Condition**

Date of Collection: 5/20/2010  
 Distance: 2.17 miles  
 From: Columbia Ave.  
 To: Osceola Pkwy.

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

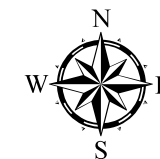
NB Avg Speed: 39.9 MPH  
 NB Travel Time: 2.99 MIN  
 NB Delay Time: 0.26 MIN

SB Avg Speed: 37.5 MPH  
 SB Travel Time: 3.47 MIN  
 SB Delay Time: 0.31 MIN



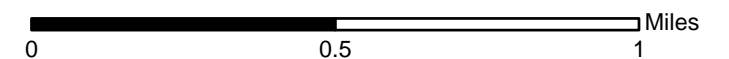
**Level of Services:**

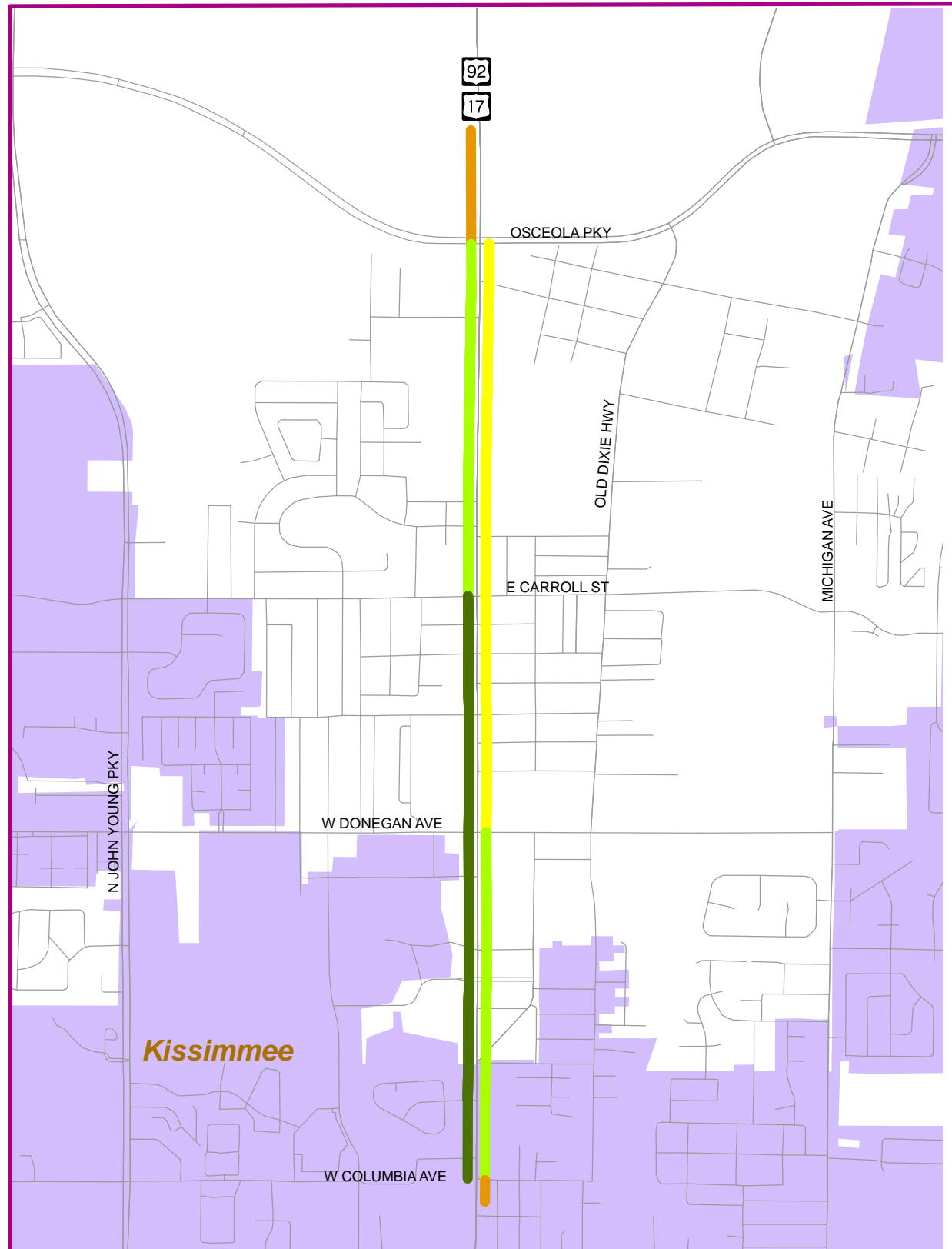
- |   |   |   |   |   |               |
|---|---|---|---|---|---------------|
|  | A |  | D |  | Roads         |
|  | B |  | E |  | City Boundary |
|  | C |  | F |  | Water         |



**2010 METROPLAN ORLANDO**

*Travel Time Study*





**US 17/92 (Osceola)  
- PM Peak**

**Before Condition**

Date of Collection: 1/26/2010  
 Distance: 2.17 miles  
 From: Columbia Ave.  
 To: Osceola Pkwy.

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

NB Avg Speed: 26.6 MPH  
 NB Travel Time: 4.49 MIN  
 NB Delay Time: 1.17 MIN

SB Avg Speed: 29.9 MPH  
 SB Travel Time: 4.35 MIN  
 SB Delay Time: 0.87 MIN

**US 17/92 (Osceola)  
- PM Peak**

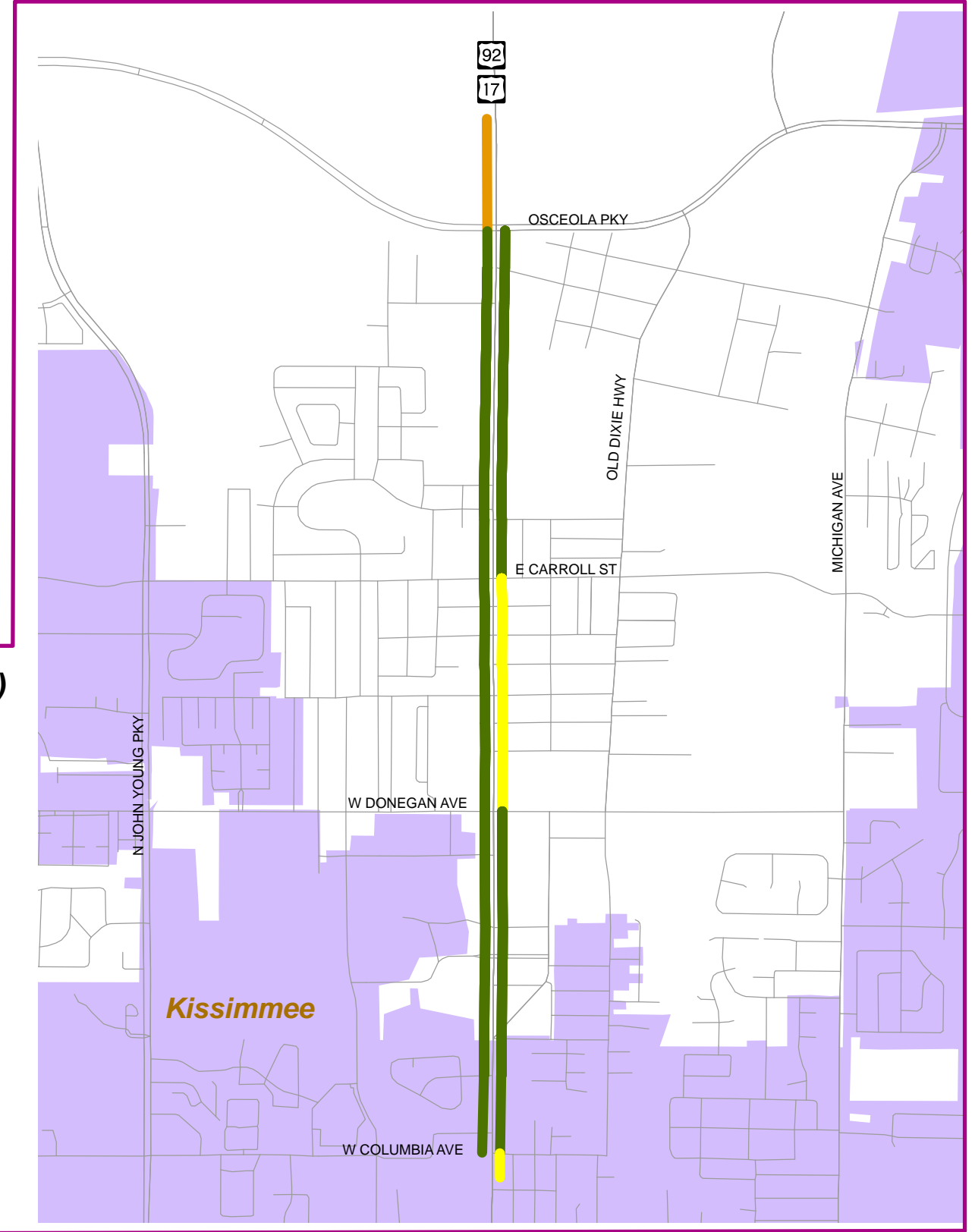
**After Condition**

Date of Collection: 5/20/2010  
 Distance: 2.17 miles  
 From: Columbia Ave.  
 To: Osceola Pkwy.

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

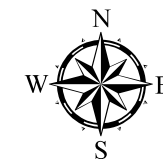
NB Avg Speed: 32.8 MPH  
 NB Travel Time: 3.64 MIN  
 NB Delay Time: 0.76 MIN

SB Avg Speed: 34.6 MPH  
 SB Travel Time: 3.76 MIN  
 SB Delay Time: 0.59 MIN



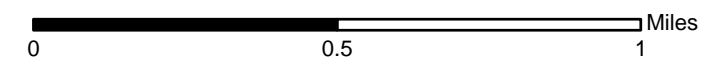
**Level of Services:**

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



**2010 METROPLAN ORLANDO**

*Travel Time Study*



## US 17-92 : Osceola Pkwy to Columbia Ave: Before & After Study

### 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						
813	243.0	51.6	29.5	0.0700	54.88	56.91
Northbound/Eastbound - PM Peak Hour						
904	269.4	70.2	26.6	0.0700	67.65	63.28
Southbound/Westbound - AM Peak Hour						
1117	238.2	38.4	32.8	0.0830	73.91	92.71
Southbound/Westbound - PM Peak Hour						
1708	261.0	52.2	29.9	0.0840	123.83	143.47

\*Traffic Volumes are obtained from the latest FDOT Counts

## US 17-92 : Osceola Pkwy to Columbia Ave: Before & After Study

### 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						
813	179.4	15.6	39.9	0.0670	40.51	54.47
Northbound/Eastbound - PM Peak Hour						
904	218.4	45.6	32.8	0.0680	54.84	61.47
Southbound/Westbound - AM Peak Hour						
1117	208.2	18.6	37.5	0.0820	64.60	91.59
Southbound/Westbound - PM Peak Hour						
1708	225.6	35.4	34.6	0.0820	107.03	140.06

\*Traffic Volumes are obtained from the latest FDOT Counts



**US 17-92 : Osceola Pkwy to Columbia Ave: Before & After Study**  
**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)	128.79	105.11	191.48	161.88
Total Fuel Consumption (gallons)	149.62	146.07	206.75	201.53

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$410.64	\$515.84
<b>Annual User Benefit</b>	<b>\$123,192.72</b>	<b>\$154,752.40</b>
<b>Total Annual User Benefit =</b>	<b>\$277,945.12</b>	
Total Signal Retiming Annual Cost	\$6,439.77	
<b>User Benefit / Cost Ratio</b>	<b>43.16</b>	

Notes:

- \* Value of Delay Time is \$16.90 per hour (\$15.47 from Mobility Data for Orlando for the year 2007 & grown 3% per year)
- \* Fuel consumption is valued to the rate of \$2.98 per gallon.
- \* 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**

## **Denn John Ln to Turnpike NB Ramp**

**TABLE 15**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**US 192 - Eastbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Denn John Ln	Osceola	Arterial	Outlying Business District	2	3	1	50	739	4	Signal	13.2	1.8	I	38.2	B	0.76	
Denn John Ln to Boggy Creek Rd	Osceola	Arterial	Outlying Business District	2	3	0	50	1,848	4	Signal	24.6	0.0	I	51.2	A	1.02	
Boggy Creek Rd to Bill Beck Blvd	Osceola	Arterial	Outlying Business District	1	3	1	50	4,066	4	Signal	56.4	0.0	I	49.1	A	0.98	
Bill Beck Blvd to Simpson Rd	Osceola	Arterial	Outlying Business District	1	3	1	50	3,802	4	Signal	77.4	16.2	I	33.5	C	0.67	
Simpson Rd to Shady Ln	Osceola	Arterial	Outlying Business District	2	3	1	50	1,637	4	Signal	43.8	14.4	I	25.5	D	0.51	
Shady Ln to Partin Settlement Rd	Osceola	Arterial	Outlying Business District	2	2	0	55	3,115	4	Signal	53.4	6.6	I	39.8	B	0.72	
Partin Settlement Rd to Turnpike Ramp	Osceola	Arterial	Outlying Business District	1	2	1	55	6,864	4	Signal	88.2	0.0	I	53.1	A	0.96	
Turnpike Ramp to Median Opening	Osceola	Arterial	Outlying Business District	2	2	1	55	475	4	Signal	5.6	0.0	I	57.9	A	1.05	
<b>TOTAL</b>							50	22,546			362.6	39.0	I	42.4	A	0.85	0.145 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Denn John Ln	Osceola	Arterial	Outlying Business District	2	3	1	50	739	4	Signal	16.2	5.4	I	31.1	C	0.62	
Denn John Ln to Boggy Creek Rd	Osceola	Arterial	Outlying Business District	2	3	0	50	1,848	4	Signal	24.0	0.0	I	52.5	A	1.05	
Boggy Creek Rd to Bill Beck Blvd	Osceola	Arterial	Outlying Business District	1	3	1	50	4,066	4	Signal	63.6	10.2	I	43.6	A	0.87	
Bill Beck Blvd to Simpson Rd	Osceola	Arterial	Outlying Business District	1	3	1	50	3,802	4	Signal	56.4	0.6	I	46.0	A	0.92	
Simpson Rd to Shady Ln	Osceola	Arterial	Outlying Business District	2	3	1	50	1,637	4	Signal	51.6	20.4	I	21.6	D	0.43	
Shady Ln to Partin Settlement Rd	Osceola	Arterial	Outlying Business District	2	2	0	55	3,115	4	Signal	70.8	11.4	I	30.0	C	0.55	
Partin Settlement Rd to Turnpike Ramp	Osceola	Arterial	Outlying Business District	1	2	1	55	6,864	4	Signal	92.4	2.4	I	50.6	A	0.92	
Turnpike Ramp to Median Opening	Osceola	Arterial	Outlying Business District	2	2	1	55	475	4	Signal	5.4	0.0	I	60.0	A	1.09	
<b>TOTAL</b>							50	22,546			380.4	50.4	I	40.4	B	0.81	0.146 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 2010 METROPLAN Orlando Travel Time Study**  
**US 192 - Westbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Turnpike Ramp	Osceola	Arterial	Outlying Business District	1	2	1	55	475	4	Signal	9.0	1.2	I	36.0	B	0.65	
Turnpike Ramp to Partin Settlement Rd	Osceola	Arterial	Outlying Business District	1	2	1	55	6,864	4	Signal	108.0	17.4	I	43.3	A	0.79	
Partin Settlement Rd to Shady Ln	Osceola	Arterial	Outlying Business District	1	3	1	55	3,115	4	Signal	54.6	1.8	I	38.9	B	0.71	
Shady Ln to Simpson Rd	Osceola	Arterial	Outlying Business District	1	3	1	50	1,637	4	Signal	60.0	22.8	I	18.6	E	0.37	
Simpson Rd to Bill Beck Blvd	Osceola	Arterial	Outlying Business District	1	3	1	50	3,802	4	Signal	64.2	1.8	I	40.4	B	0.81	
Bill Beck Blvd to Boggy Creek Rd	Osceola	Arterial	Outlying Business District	1	3	1	50	4,066	4	Signal	64.2	3.0	I	43.2	A	0.86	
Boggy Creek Rd to Denn John Ln	Osceola	Arterial	Outlying Business District	1	3	1	50	1,848	4	Signal	33.0	1.2	I	38.2	B	0.76	
Denn John Ln to Median Opening	Osceola	Arterial	Outlying Business District	1	3	1	50	739	4	Signal	10.2	0.0	I	49.4	A	0.99	
<b>TOTAL</b>							50	22,546			403.2	49.2	I	38.1	B	0.76	0.146 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Turnpike Ramp	Osceola	Arterial	Outlying Business District	1	2	1	55	475	4	Signal	7.2	0.0	I	45.0	A	0.82	
Turnpike Ramp to Partin Settlement Rd	Osceola	Arterial	Outlying Business District	1	2	1	55	6,864	4	Signal	108.6	19.8	I	43.1	A	0.78	
Partin Settlement Rd to Shady Ln	Osceola	Arterial	Outlying Business District	1	3	1	55	3,115	4	Signal	81.0	28.2	I	26.2	D	0.48	
Shady Ln to Simpson Rd	Osceola	Arterial	Outlying Business District	1	3	1	50	1,637	4	Signal	77.4	43.2	I	14.4	F	0.29	
Simpson Rd to Bill Beck Blvd	Osceola	Arterial	Outlying Business District	1	3	1	50	3,802	4	Signal	65.4	6.6	I	39.6	B	0.79	
Bill Beck Blvd to Boggy Creek Rd	Osceola	Arterial	Outlying Business District	1	3	1	50	4,066	4	Signal	56.4	0.6	I	49.1	A	0.98	
Boggy Creek Rd to Denn John Ln	Osceola	Arterial	Outlying Business District	1	3	1	50	1,848	4	Signal	24.0	0.0	I	52.5	A	1.05	
Denn John Ln to Median Opening	Osceola	Arterial	Outlying Business District	1	3	1	50	739	4	Signal	9.1	0.0	I	55.4	A	1.11	
<b>TOTAL</b>							50	22,546			429.1	98.4	I	35.8	B	0.72	0.148 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 2010 METROPLAN Orlando Travel Time Study**  
**US 192 - Eastbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.	
<b>AM PEAK HOUR - AFTER CONDITION</b>																		
Median Opening to Denn John Ln	Osceola	Arterial	Outlying Business District	2	3	1	50	739	5	Signal	13.8	1.8	I	36.5	B	0.73		
Denn John Ln to Boggy Creek Rd	Osceola	Arterial	Outlying Business District	2	3	0	50	1,848	5	Signal	23.4	0.0	I	53.8	A	1.08		
Boggy Creek Rd to Bill Beck Blvd	Osceola	Arterial	Outlying Business District	1	3	1	50	4,066	5	Signal	52.8	0.0	I	52.5	A	1.05		
Bill Beck Blvd to Simpson Rd	Osceola	Arterial	Outlying Business District	1	3	1	50	3,802	5	Signal	51.0	5.4	I	50.8	A	1.02		
Simpson Rd to Shady Ln	Osceola	Arterial	Outlying Business District	2	3	1	50	1,637	5	Signal	42.0	15.0	I	26.6	D	0.53		
Shady Ln to Partin Settlement Rd	Osceola	Arterial	Outlying Business District	2	2	0	55	3,115	5	Signal	49.8	1.2	I	42.6	A	0.78		
Partin Settlement Rd to Turnpike Ramp	Osceola	Arterial	Outlying Business District	1	2	1	55	6,864	5	Signal	84.6	2.4	I	55.3	A	1.01		
Turnpike Ramp to Median Opening	Osceola	Arterial	Outlying Business District	2	2	1	55	475	5	Signal	6.6	0.0	I	49.1	A	0.89		
<b>TOTAL</b>							50	22,546			324.0	25.8	I	47.4	A	0.95	0.144 gal/veh	
<b>PM PEAK HOUR - AFTER CONDITION</b>																		
Median Opening to Denn John Ln	Osceola	Arterial	Outlying Business District	2	3	1	50	739	5	Signal	16.8	3.6	I	30.0	C	0.60		
Denn John Ln to Boggy Creek Rd	Osceola	Arterial	Outlying Business District	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	Arterial	Outlying Business District	1	3	1	50	4,066	5	Signal	50.4	0.0	I	55.0	A	1.10		
Bill Beck Blvd to Simpson Rd	Osceola	Arterial	Outlying Business District	1	3	1	50	3,802	5	Signal	51.6	11.4	I	50.2	A	1.00		
Simpson Rd to Shady Ln	Osceola	Arterial	Outlying Business District	2	3	1	50	1,637	5	Signal	34.8	3.0	I	32.1	C	0.64		
Shady Ln to Partin Settlement Rd	Osceola	Arterial	Outlying Business District	2	2	0	55	3,115	5	Signal	57.6	0.6	I	36.9	B	0.67		
Partin Settlement Rd to Turnpike Ramp	Osceola	Arterial	Outlying Business District	1	2	1	55	6,864	5	Signal	90.6	0.0	I	51.7	A	0.94		
Turnpike Ramp to Median Opening	Osceola	Arterial	Outlying Business District	2	2	1	55	475	5	Signal	19.2	12.0	I	16.9	E	0.31		
<b>TOTAL</b>							50	22,546			348.0	30.6	I	44.2	A	0.88	0.145 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 2010 METROPLAN Orlando Travel Time Study**  
**US 192 - Westbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Turnpike Ramp	Osceola	Arterial	Outlying Business District	1	2	1	55	475	5	Signal	7.2	0.0	I	45.0	A	0.82	
Turnpike Ramp to Partin Settlement Rd	Osceola	Arterial	Outlying Business District	1	2	1	55	6,864	5	Signal	96.0	18.0	I	48.7	A	0.89	
Partin Settlement Rd to Shady Ln	Osceola	Arterial	Outlying Business District	1	3	1	55	3,115	5	Signal	54.0	1.8	I	39.3	B	0.72	
Shady Ln to Simpson Rd	Osceola	Arterial	Outlying Business District	1	3	1	50	1,637	5	Signal	37.2	7.8	I	30.0	C	0.60	
Simpson Rd to Bill Beck Blvd	Osceola	Arterial	Outlying Business District	1	3	1	50	3,802	5	Signal	54.6	0.0	I	47.5	A	0.95	
Bill Beck Blvd to Boggy Creek Rd	Osceola	Arterial	Outlying Business District	1	3	1	50	4,066	5	Signal	53.4	0.0	I	51.9	A	1.04	
Boggy Creek Rd to Denn John Ln	Osceola	Arterial	Outlying Business District	1	3	1	50	1,848	5	Signal	33.0	3.6	I	38.2	B	0.76	
Denn John Ln to Median Opening	Osceola	Arterial	Outlying Business District	1	3	1	50	739	5	Signal	9.6	0.0	I	52.5	A	1.05	
<b>TOTAL</b>							50	22,546			345.0	31.2	I	44.6	A	0.89	0.146 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Turnpike Ramp	Osceola	Arterial	Outlying Business District	1	2	1	55	475	5	Signal	9.6	0.6	I	33.7	C	0.61	
Turnpike Ramp to Partin Settlement Rd	Osceola	Arterial	Outlying Business District	1	2	1	55	6,864	5	Signal	95.4	13.8	I	49.1	A	0.89	
Partin Settlement Rd to Shady Ln	Osceola	Arterial	Outlying Business District	1	3	1	55	3,115	5	Signal	52.8	7.8	I	40.2	B	0.73	
Shady Ln to Simpson Rd	Osceola	Arterial	Outlying Business District	1	3	1	50	1,637	5	Signal	24.0	0.0	I	46.5	A	0.93	
Simpson Rd to Bill Beck Blvd	Osceola	Arterial	Outlying Business District	1	3	1	50	3,802	5	Signal	50.4	0.0	I	51.4	A	1.03	
Bill Beck Blvd to Boggy Creek Rd	Osceola	Arterial	Outlying Business District	1	3	1	50	4,066	5	Signal	52.8	0.0	I	52.5	A	1.05	
Boggy Creek Rd to Denn John Ln	Osceola	Arterial	Outlying Business District	1	3	1	50	1,848	5	Signal	36.0	4.2	I	35.0	B	0.70	
Denn John Ln to Median Opening	Osceola	Arterial	Outlying Business District	1	3	1	50	739	5	Signal	10.8	0.0	I	46.7	A	0.93	
<b>TOTAL</b>							50	22,546			331.8	26.4	I	46.3	A	0.93	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.

**US 192  
- AM Peak**

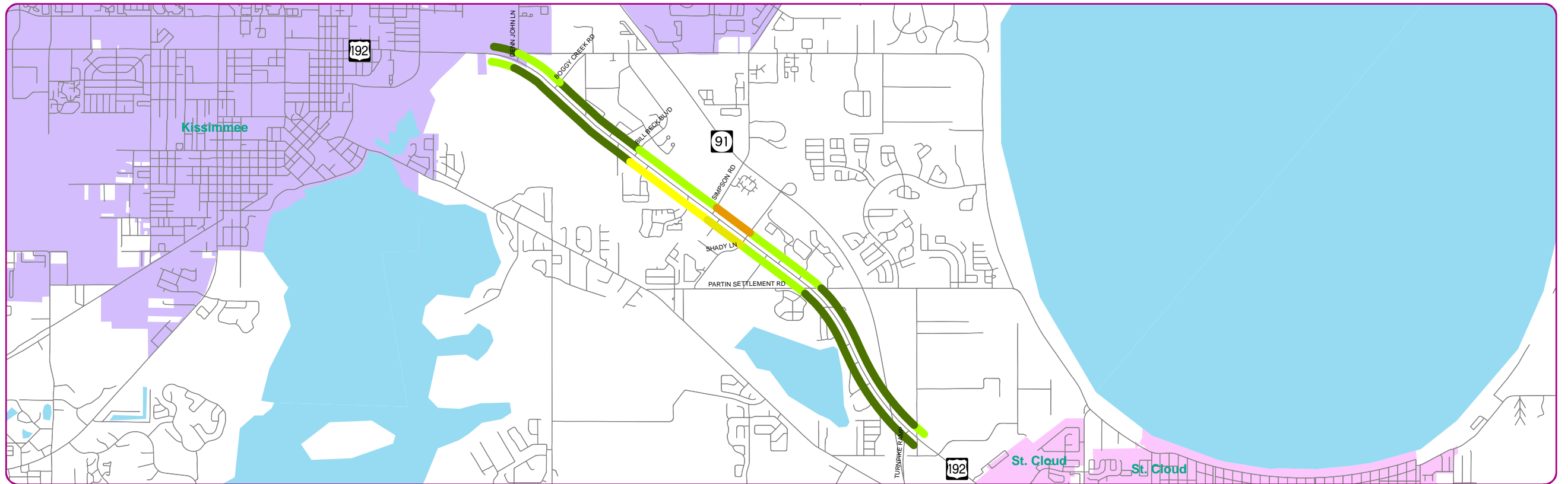
**Before Condition**

Date of Collection: 2/10/2010  
Distance: 4.27 miles  
From: Denn John Ln.  
To: Turnpike NB Ramp.

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

EB Avg Speed: 42.4 MPH  
EB Travel Time: 6.04 MIN  
EB Delay Time: 0.65 MIN

WB Avg Speed: 38.1 MPH  
WB Travel Time: 6.72 MIN  
WB Delay Time: 0.82 MIN



**US 192  
- AM Peak**

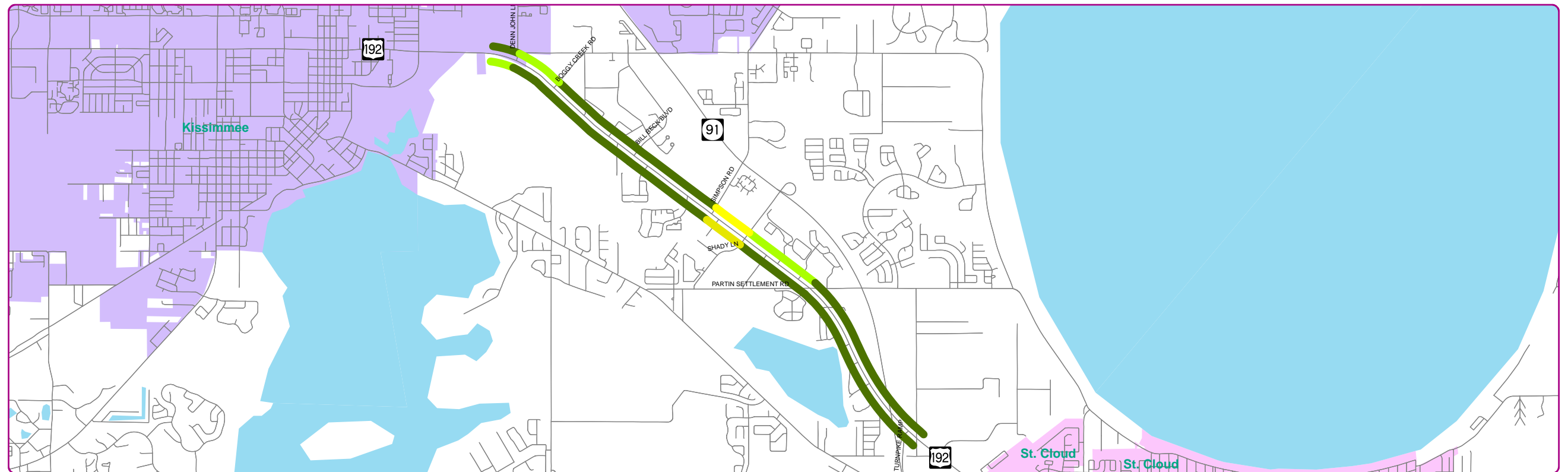
**After Condition**

Date of Collection: 6/8/2010  
Distance: 4.27 miles  
From: Denn John Ln.  
To: Turnpike NB Ramp.

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

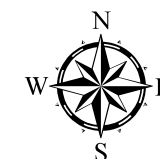
EB Avg Speed: 47.4 MPH  
EB Travel Time: 5.40 MIN  
EB Delay Time: 0.43 MIN

WB Avg Speed: 44.6 MPH  
WB Travel Time: 5.75 MIN  
WB Delay Time: 0.52 MIN



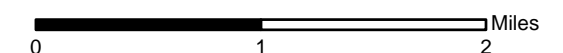
**Level of Services:**

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



**2010 METROPLAN ORLANDO**

*Travel Time Study*



**US 192  
- PM Peak**

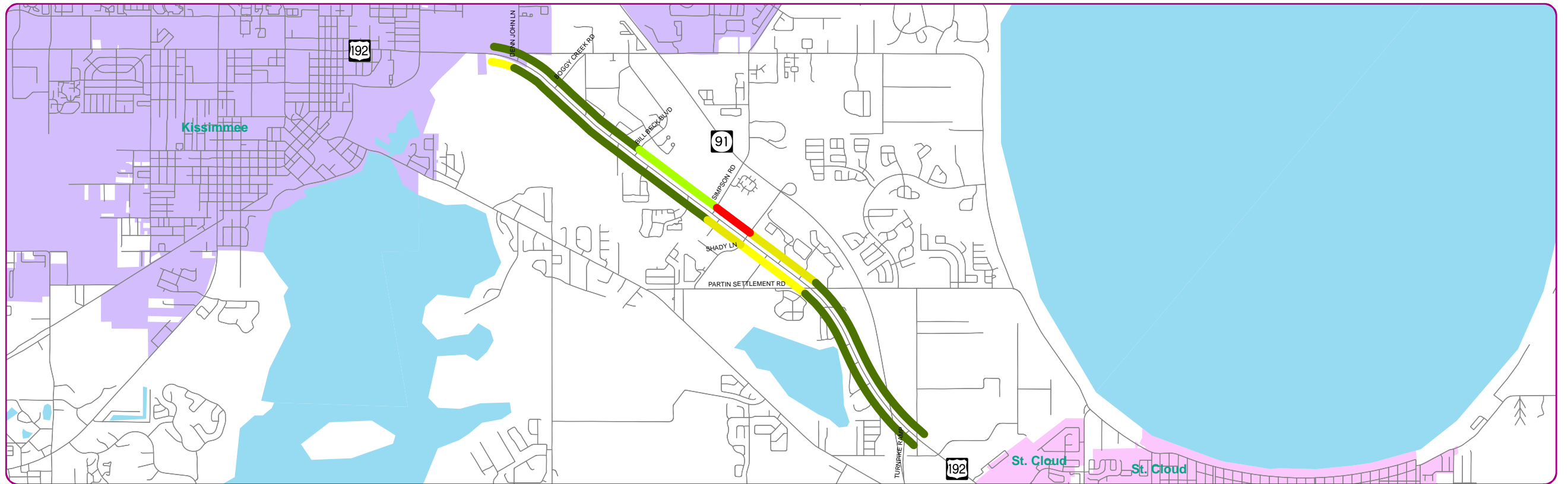
**Before Condition**

Date of Collection: 1/28/2010  
Distance: 4.27 miles  
From: Denn John Ln.  
To: Turnpike NB Ramp.

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

EB Avg Speed: 40.4 MPH  
EB Travel Time: 6.34 MIN  
EB Delay Time: 0.84 MIN

WB Avg Speed: 35.8 MPH  
WB Travel Time: 7.15 MIN  
WB Delay Time: 1.64 MIN



**US 192  
- PM Peak**

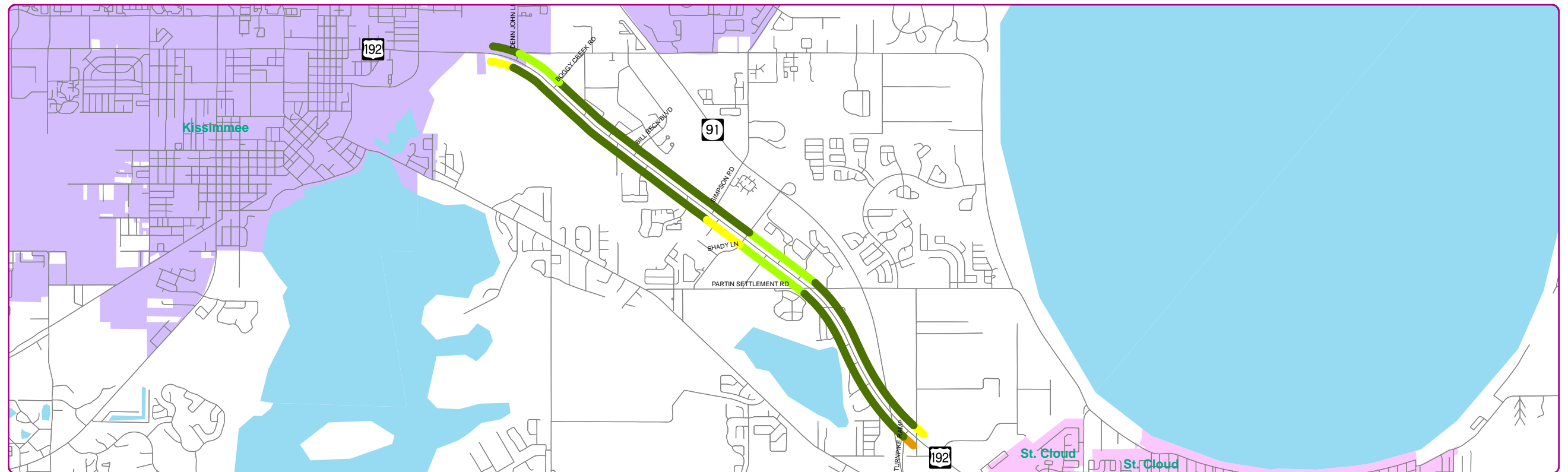
**After Condition**

Date of Collection: 6/8/2010  
Distance: 4.27 miles  
From: Denn John Ln.  
To: Turnpike NB Ramp.

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

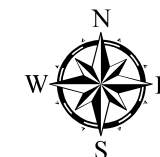
EB Avg Speed: 44.2 MPH  
EB Travel Time: 5.80 MIN  
EB Delay Time: 0.51 MIN

WB Avg Speed: 46.3 MPH  
WB Travel Time: 5.53 MIN  
WB Delay Time: 0.44 MIN



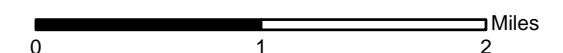
**Level of Services:**

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



**2010 METROPLAN ORLANDO**

*Travel Time Study*





**US 192 : Denn John Ln to Turnpike NB Ramp: Before & After Study**  
**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						
883	362.6	39.0	42.4	0.1450	88.94	128.04
Northbound/Eastbound - PM Peak Hour						
1614	380.4	50.4	40.4	0.1460	170.55	235.64
Southbound/Westbound - AM Peak Hour						
1434	403.2	49.2	38.1	0.1460	160.61	209.36
Southbound/Westbound - PM Peak Hour						
1098	429.1	98.4	35.8	0.1480	130.88	162.50

\*Traffic Volumes are obtained from the latest FDOT Counts

## US 192 : Denn John Ln to Turnpike NB Ramp: Before & After Study

### 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						
883	324.0	25.8	47.4	0.1440	79.47	127.15
Northbound/Eastbound - PM Peak Hour						
1614	348.0	30.6	44.2	0.1450	156.02	234.03
Southbound/Westbound - AM Peak Hour						
1434	345.0	31.2	44.6	0.1460	137.43	209.36
Southbound/Westbound - PM Peak Hour						
1098	331.8	26.4	46.3	0.1470	101.20	161.41

\*Traffic Volumes are obtained from the latest FDOT Counts

**US 192 : Denn John Ln to Turnpike NB Ramp: Before & After Study**  
**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)	249.55	216.90	301.42	257.22
Total Fuel Consumption (gallons)	337.40	336.52	398.15	395.44

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$554.43	\$755.10
<b>Annual User Benefit</b>	<b>\$166,328.56</b>	<b>\$226,531.20</b>
<b>Total Annual User Benefit =</b>	<b>\$392,859.77</b>	
Total Signal Retiming Annual Cost	\$11,660.18	
<b>User Benefit / Cost Ratio</b>	<b>33.69</b>	

Notes:

- \* Value of Delay Time is \$16.90 per hour (\$15.47 from Mobility Data for Orlando for the year 2007 & grown 3% per year)
- \* Fuel consumption is valued to the rate of \$2.98 per gallon.
- \* 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 17/92**

**SR 46 (1st St) to 3rd St**

**TABLE 16**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**US 17/92 (Seminole)- Northbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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			
<b>AM PEAK HOUR -BEFORE CONDITION</b>																		
5th St. to 3rd St.	Seminole	Arterial	Residential Area	1	2	0	40	686	14	Signal	27.0	9.6	II	17.3	D	0.43		
3rd St. to SR 46/1st St.	Seminole	Arterial	Residential Area	1	2	0	40	634	14	Signal	19.8	4.8	II	21.8	D	0.55		
SR 46/1st St. to Fulton St.	Seminole	Arterial	Residential Area	1	2	0	40	581	14	Stop	9.6	0.0	II	41.2	A	1.03		
<b>TOTAL</b>							40	1,901			56.4	14.4	II	23.0	C	0.57	0.013 gal/veh	
<b>PM PEAK HOUR - BEFORE CONDITION</b>																		
5th St. to 3rd St.	Seminole	Arterial	Residential Area	1	2	0	40	686	12	Signal	50.4	30.0	II	9.3	F	0.23		
3rd St. to SR 46/1st St.	Seminole	Arterial	Residential Area	1	2	0	40	634	12	Signal	22.2	5.4	II	19.5	D	0.49		
SR 46/1st St. to Fulton St.	Seminole	Arterial	Residential Area	1	2	0	40	581	12	Stop	10.2	0.0	II	38.8	A	0.97		
<b>TOTAL</b>							40	1,901			82.8	35.4	II	15.7	E	0.39	0.014 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 2010 METROPLAN Orlando Travel Time Study**  
**US 17/92 (Seminole)- Southbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.	
<b>AM PEAK HOUR - BEFORE CONDITION</b>																		
Fluton St to SR 46/1st St.	Seminole	Arterial	Residential Area	1	2	0	40	581	13	Signal	32.4	18.0	II	12.2	F	0.31		
SR 46/1st St. to 3rd St.	Seminole	Arterial	Residential Area	1	2	0	40	634	13	Signal	18.6	4.2	II	23.2	C	0.58		
3rd St. to 5th St.	Seminole	Arterial	Residential Area	1	2	0	40	686	13	Stop	10.8	0.0	II	43.3	A	1.08		
<b>TOTAL</b>							40	1,901			61.8	22.2	II	21.0	D	0.52		0.013 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																		
Fluton St to SR 46/1st St.	Seminole	Arterial	Residential Area	1	2	0	40	581	11	Signal	48.0	29.4	II	8.2	F	0.21		
SR 46/1st St. to 3rd St.	Seminole	Arterial	Residential Area	1	2	0	40	634	11	Signal	14.4	0.0	II	30.0	B	0.75		
3rd St. to 5th St.	Seminole	Arterial	Residential Area	1	2	0	40	686	11	Stop	11.4	0.0	II	41.1	A	1.03		
<b>TOTAL</b>							40	1,901			73.8	29.4	II	17.6	D	0.44		0.013 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 2010 METROPLAN Orlando Travel Time Study**  
**US 17/92 (Seminole)- Northbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.	
<b>AM PEAK HOUR - AFTER CONDITION</b>																		
5th St. to 3rd St.	Seminole	Arterial	Residential Area	1	2	0	40	686	14	Signal	18.6	4.8	II	25.2	C	0.63		
3rd St. to SR 46/1st St.	Seminole	Arterial	Residential Area	1	2	0	40	634	14	Signal	13.8	0.0	II	31.3	B	0.78		
SR 46/1st St. to Fulton St.	Seminole	Arterial	Residential Area	1	2	0	40	581	14	Stop	15.0	3.0	II	26.4	C	0.66		
<b>TOTAL</b>							40	1,901			47.4	7.8	II	27.3	C	0.68	0.013 gal/veh	
<b>PM PEAK HOUR - AFTER CONDITION</b>																		
5th St. to 3rd St.	Seminole	Arterial	Residential Area	1	2	0	40	686	12	Signal	13.8	0.0	II	33.9	B	0.85		
3rd St. to SR 46/1st St.	Seminole	Arterial	Residential Area	1	2	0	40	634	12	Signal	16.8	3.0	II	25.7	C	0.64		
SR 46/1st St. to Fulton St.	Seminole	Arterial	Residential Area	1	2	0	40	581	12	Stop	13.2	1.2	II	30.0	B	0.75		
<b>TOTAL</b>							40	1,901			43.8	4.2	II	29.6	B	0.74	0.013 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.

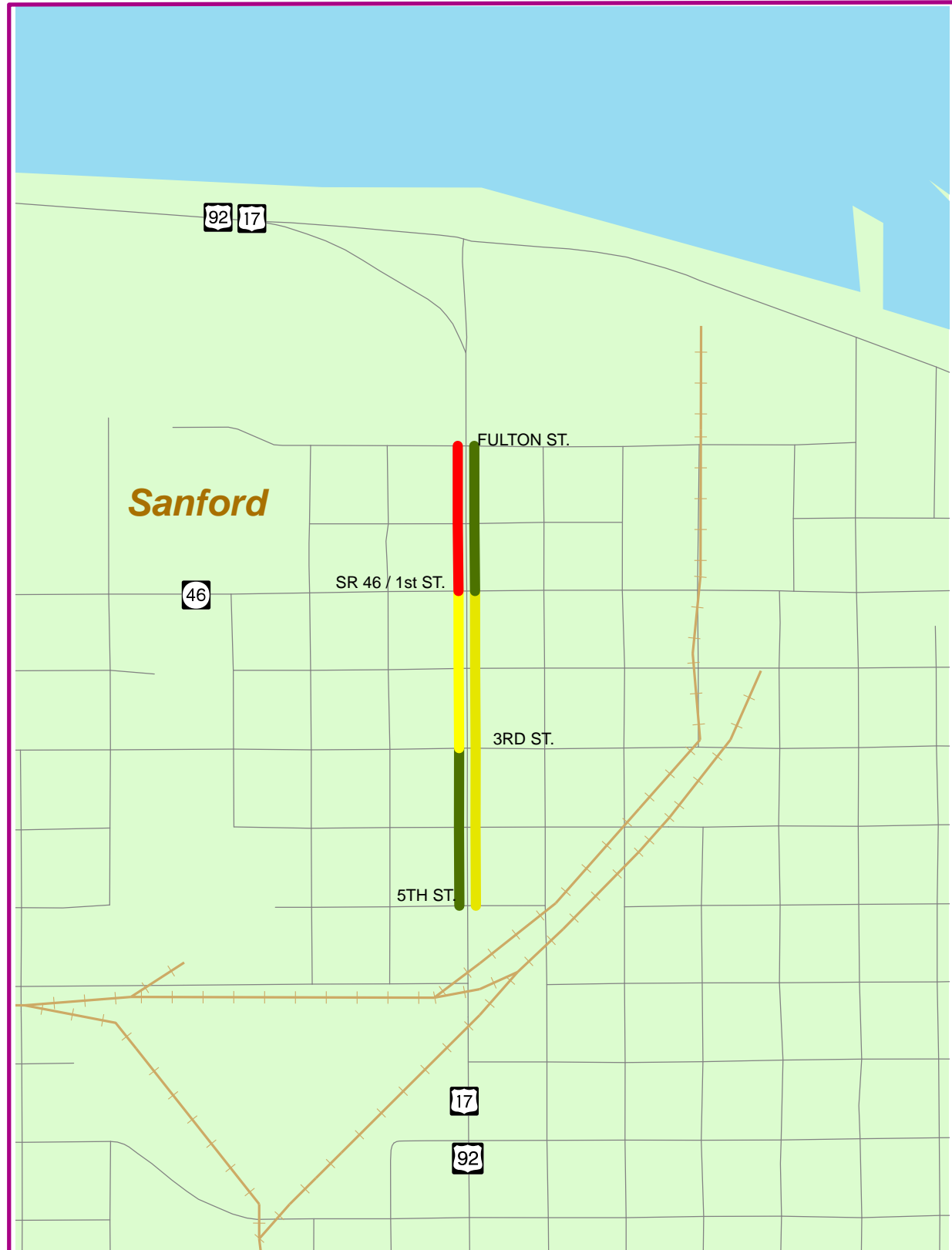
**TABLE 16**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**US 17/92 (Seminole)- Southbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.	
<b>AM PEAK HOUR - AFTER CONDITION</b>																		
Fluton St to SR 46/1st St.	Seminole	Arterial	Residential Area	1	2	0	40	581	15	Signal	18.6	1.8	II	21.3	D	0.53		
SR 46/1st St. to 3rd St.	Seminole	Arterial	Residential Area	1	2	0	40	634	15	Signal	12.0	0.0	II	36.0	A	0.90		
3rd St. to 5th St.	Seminole	Arterial	Residential Area	1	2	0	40	686	15	Stop	18.6	6.0	II	25.2	C	0.63		
<b>TOTAL</b>							40	1,901			49.2	7.8	II	26.3	C	0.66	0.013 gal/veh	
<b>PM PEAK HOUR - AFTER CONDITION</b>																		
Fluton St to SR 46/1st St.	Seminole	Arterial	Residential Area	1	2	0	40	581	13	Signal	27.0	12.0	II	14.7	E	0.37		
SR 46/1st St. to 3rd St.	Seminole	Arterial	Residential Area	1	2	0	40	634	13	Signal	13.8	1.8	II	31.3	B	0.78		
3rd St. to 5th St.	Seminole	Arterial	Residential Area	1	2	0	40	686	13	Stop	15.6	1.8	II	30.0	B	0.75		
<b>TOTAL</b>							40	1,901			56.4	15.6	II	23.0	C	0.57	0.013 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.





**US 17/92  
- AM Peak**

**Before Condition**

Date of Collection: 2/4/2010  
 Distance: 0.36 miles  
 From: 5th St.  
 To: Fulton St.

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

NB Avg Speed: 23.0 MPH  
 NB Travel Time: 0.94 MIN  
 NB Delay Time: 0.24 MIN

SB Avg Speed: 21.0 MPH  
 SB Travel Time: 1.03 MIN  
 SB Delay Time: 0.37 MIN

**US 17/92  
- AM Peak**

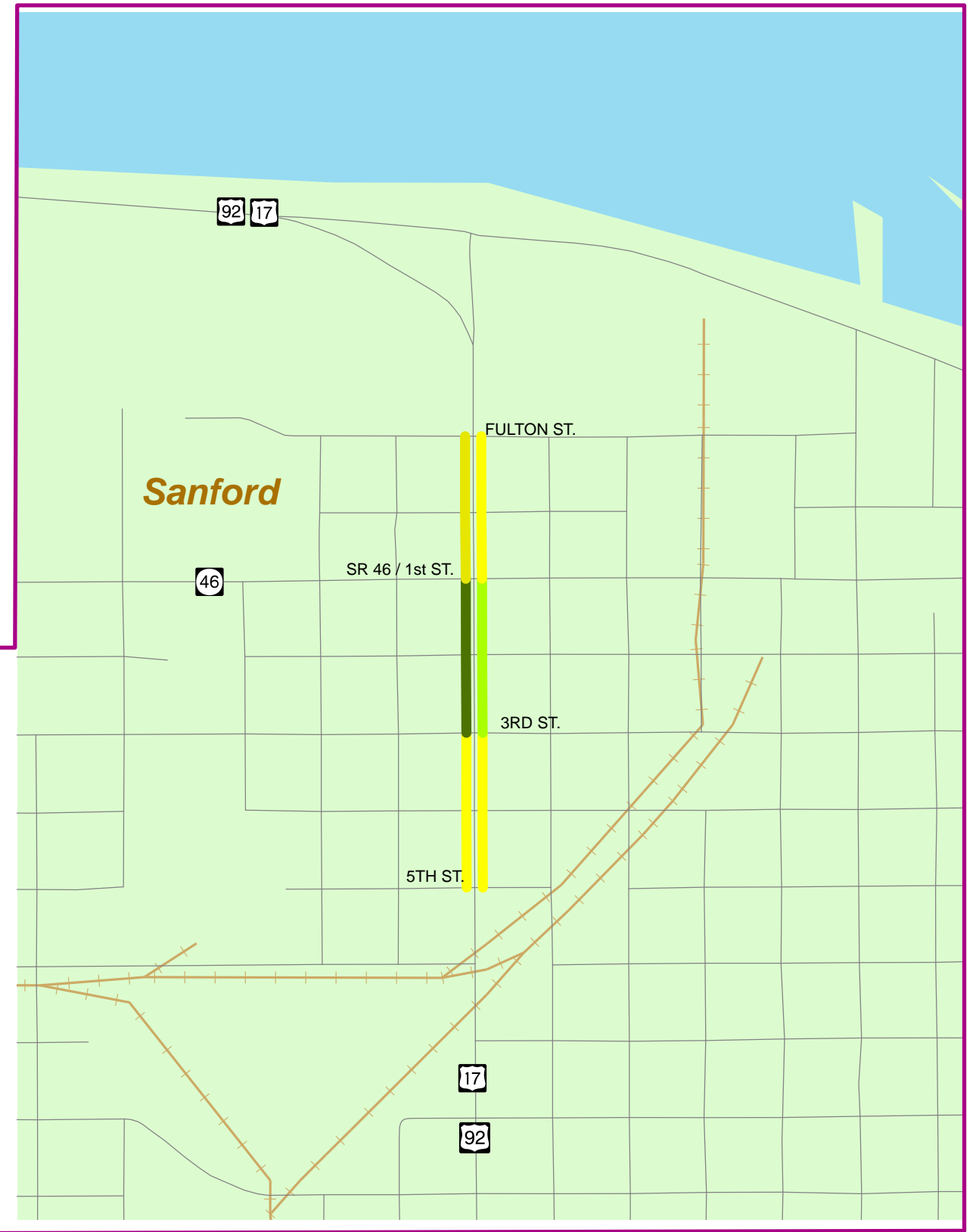
**After Condition**

Date of Collection: 5/11/2010  
 Distance: 0.36 miles  
 From: 5th St.  
 To: Fulton St.

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

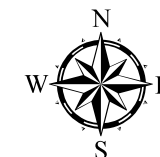
NB Avg Speed: 27.3 MPH  
 NB Travel Time: 0.79 MIN  
 NB Delay Time: 0.13 MIN

SB Avg Speed: 26.3 MPH  
 SB Travel Time: 0.82 MIN  
 SB Delay Time: 0.13 MIN



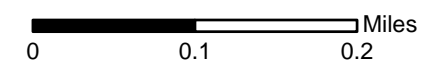
**Level of Services:**

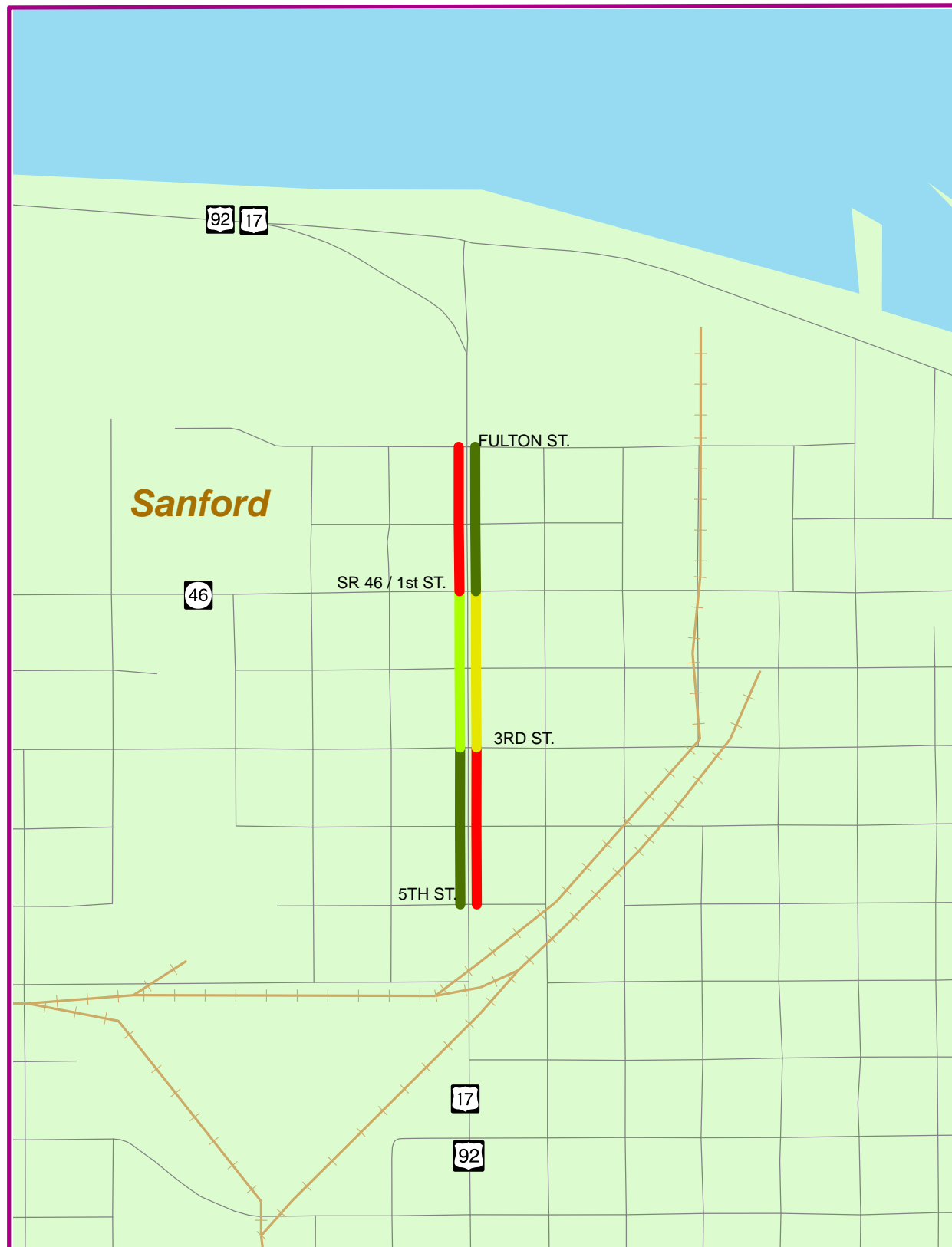
- |   |   |               |
|---|---|---------------|
| A | D | Roads         |
| B | E | City Boundary |
| C | F | Water         |



**2010 METROPLAN ORLANDO**

*Travel Time Study*





**US 17/92  
- PM Peak**

**Before Condition**

Date of Collection: 2/4/2010  
 Distance: 0.36 miles  
 From: 5th St.  
 To: Fulton St.

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

NB Avg Speed: 15.7 MPH  
 NB Travel Time: 1.38 MIN  
 NB Delay Time: 0.59 MIN

SB Avg Speed: 17.6 MPH  
 SB Travel Time: 1.23 MIN  
 SB Delay Time: 0.49 MIN

**US 17/92  
- PM Peak**

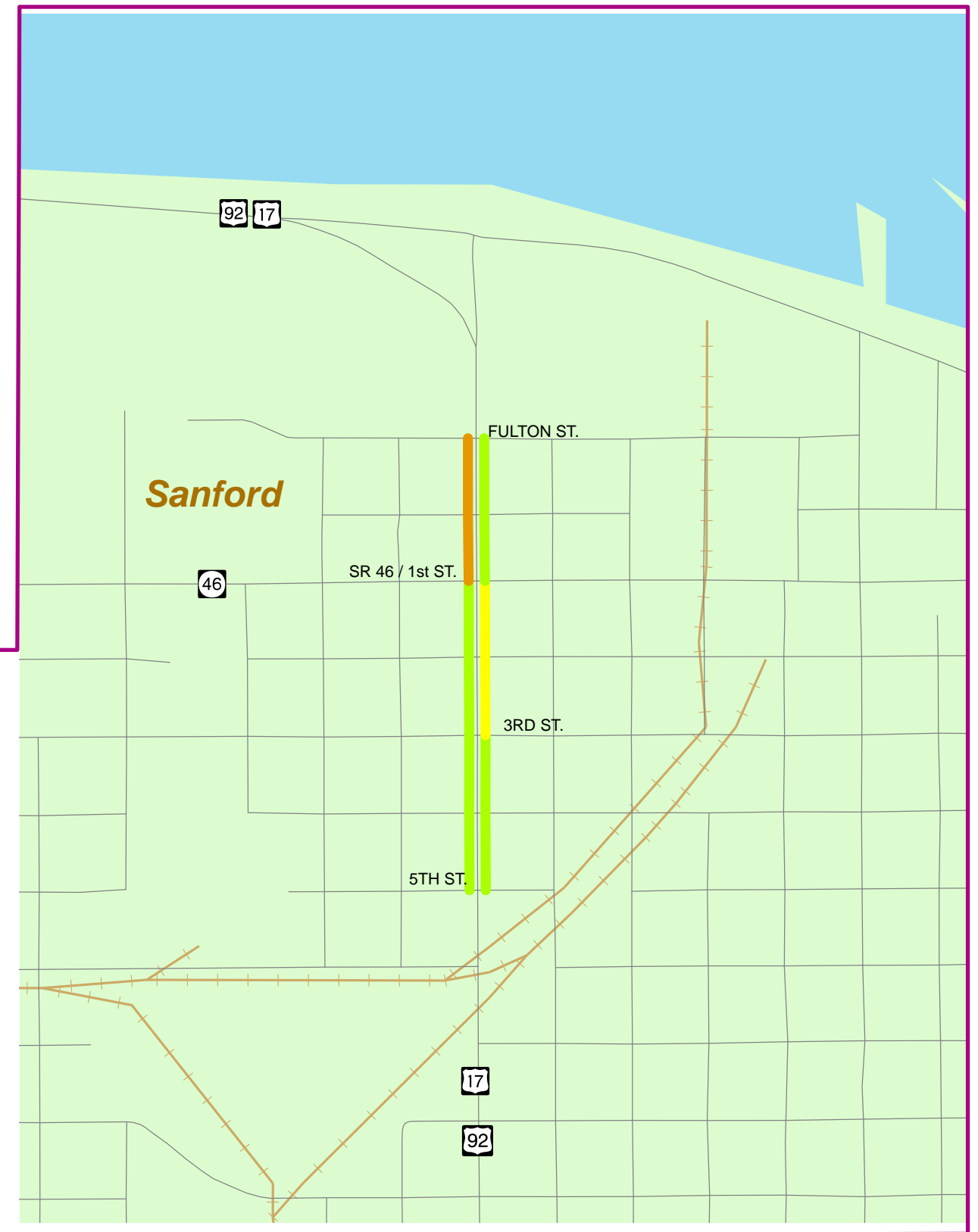
**After Condition**

Date of Collection: 5/11/2010  
 Distance: 0.36 miles  
 From: 5th St.  
 To: Fulton St.

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

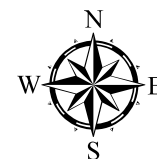
NB Avg Speed: 29.6 MPH  
 NB Travel Time: 0.73 MIN  
 NB Delay Time: 0.07 MIN

SB Avg Speed: 23.0 MPH  
 SB Travel Time: 0.94 MIN  
 SB Delay Time: 0.26 MIN



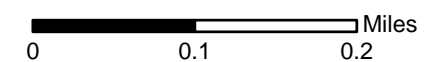
**Level of Services:**

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



**2010 METROPLAN ORLANDO**

*Travel Time Study*



**US 17/92 : SR 46 (1st St) to 3rd St: Before & After Study**  
**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)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
<b>Northbound/Eastbound - AM Peak Hour</b>						
824	56.4	14.4	23.0	0.0130	12.91	10.71
<b>Northbound/Eastbound - PM Peak Hour</b>						
887	82.8	35.4	15.7	0.0140	20.40	12.42
<b>Southbound/Westbound - AM Peak Hour</b>						
603	61.8	22.2	21.0	0.0130	10.35	7.84
<b>Southbound/Westbound - PM Peak Hour</b>						
863	73.8	29.4	17.6	0.0130	17.69	11.22

\*Traffic Volumes are obtained from the 2009 Seminole County Counts

**US 17/92 : SR 46 (1st St) to 3rd St: Before & After Study**  
**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)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
<b>Northbound/Eastbound - AM Peak Hour</b>						
824	47.4	7.8	27.3	0.0130	10.85	10.71
<b>Northbound/Eastbound - PM Peak Hour</b>						
887	43.8	4.2	29.6	0.0130	10.79	11.53
<b>Southbound/Westbound - AM Peak Hour</b>						
603	49.2	7.8	26.3	0.0130	8.24	7.84
<b>Southbound/Westbound - PM Peak Hour</b>						
863	56.4	15.6	23.0	0.0130	13.52	11.22

\*Traffic Volumes are obtained from the 2009 Seminole County Counts

**US 17/92 : SR 46 (1st St) to 3rd St: Before & After Study**  
**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)	23.26	19.09	38.09	24.31
Total Fuel Consumption (gallons)	18.55	18.55	23.64	22.75

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$70.48	\$235.53
<b>Annual User Benefit</b>	<b>\$21,144.44</b>	<b>\$70,659.27</b>
<b>Total Annual User Benefit =</b>	<b>\$91,803.70</b>	
Total Signal Retiming Annual Cost	\$3,905.78	
<b>User Benefit / Cost Ratio</b>	<b>23.50</b>	

Notes:

- \* Value of Delay Time is \$16.90 per hour (\$15.47 from Mobility Data for Orlando for the year 2007 & grown 3% per year)
- \* Fuel consumption is valued to the rate of \$2.98 per gallon.
- \* 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**

**Sand Lake Rd to Jamestown Blvd**

**TABLE 17**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 434 Part A - Eastbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR -BEFORE CONDITION</b>																	
San Sebastian Prado to Sand Lake Rd.	Seminole	Arterial	Residential Area	1	2	0	45	2,904	12	Signal	75.6	27.6	II	26.2	C	0.58	
Sand Lake Rd. to Jamestown Blvd.	Seminole	Arterial	Outlying Business District	1	2	1	45	1,003	12	Signal	34.2	10.8	II	20.0	D	0.44	
Jamestown Blvd. to E. Lake Brantley Rd.	Seminole	Arterial	Outlying Business District	1	2	0	45	2,534	12	Signal	43.8	3.6	II	39.5	A	0.88	
<b>TOTAL</b>							45	6,442			153.6	42.0	II	28.6	B	0.64	0.042 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
San Sebastian Prado to Sand Lake Rd.	Seminole	Arterial	Residential Area	1	2	0	45	2,904	10	Signal	54.6	7.8	II	36.3	A	0.81	
Sand Lake Rd. to Jamestown Blvd.	Seminole	Arterial	Outlying Business District	1	2	1	45	1,003	10	Signal	34.8	9.0	II	19.7	D	0.44	
Jamestown Blvd. to E. Lake Brantley Rd.	Seminole	Arterial	Outlying Business District	1	2	0	45	2,534	10	Signal	56.4	6.0	II	30.6	B	0.68	
<b>TOTAL</b>							45	6,442			145.8	22.8	II	30.1	B	0.67	0.043 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 2010 METROPLAN Orlando Travel Time Study**  
**SR 434 Part A - Westbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.	
<b>AM PEAK HOUR -BEFORE CONDITION</b>																		
E. Lake Brantley Rd. to Jamestown Blvd.	Seminole	Arterial	Outlying Business District	1	2	0	45	2,534	12	Signal	57.0	7.8	II	30.3	B	0.67		
Jamestown Blvd. to Sand Lake Rd.	Seminole	Arterial	Outlying Business District	1	2	1	45	1,003	12	Signal	48.0	23.4	II	14.2	E	0.32		
Sand Lake Rd. to San Sebastian Prado	Seminole	Arterial	Residential Area	1	2	0	45	2,904	12	Signal	47.4	0.6	II	41.8	A	0.93		
<b>TOTAL</b>							45	6,442			152.4	31.8	II	28.8	B	0.64	0.042 gal/veh	
<b>PM PEAK HOUR - BEFORE CONDITION</b>																		
E. Lake Brantley Rd. to Jamestown Blvd.	Seminole	Arterial	Outlying Business District	1	2	0	45	2,534	10	Signal	78.0	25.8	II	22.2	C	0.49		
Jamestown Blvd. to Sand Lake Rd.	Seminole	Arterial	Outlying Business District	1	2	1	45	1,003	10	Signal	42.6	12.6	II	16.1	E	0.36		
Sand Lake Rd. to San Sebastian Prado	Seminole	Arterial	Residential Area	1	2	0	45	2,904	10	Signal	54.6	2.4	II	36.3	A	0.81		
<b>TOTAL</b>							45	6,442			175.2	40.8	II	25.1	C	0.56	0.044 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 2010 METROPLAN Orlando Travel Time Study**  
**SR 434 Part A - Eastbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.	
<b>AM PEAK HOUR -AFTER CONDITION</b>																		
San Sebastian Prado to Sand Lake Rd.	Seminole	Arterial	Residential Area	1	2	0	45	2,904	12	Signal	55.2	8.4	II	35.9	A	0.80		
Sand Lake Rd. to Jamestown Blvd.	Seminole	Arterial	Outlying Business District	1	2	1	45	1,003	12	Signal	28.8	6.0	II	23.7	C	0.53		
Jamestown Blvd. to E. Lake Brantley Rd.	Seminole	Arterial	Outlying Business District	1	2	0	45	2,534	12	Signal	51.0	6.0	II	33.9	B	0.75		
<b>TOTAL</b>							45	6,442			135.0	20.4	II	32.5	B	0.72	0.042 gal/veh	
<b>PM PEAK HOUR - AFER CONDITION</b>																		
San Sebastian Prado to Sand Lake Rd.	Seminole	Arterial	Residential Area	1	2	0	45	2,904	6	Signal	51.6	3.6	II	38.4	A	0.85		
Sand Lake Rd. to Jamestown Blvd.	Seminole	Arterial	Outlying Business District	1	2	1	45	1,003	6	Signal	33.0	4.8	II	20.7	D	0.46		
Jamestown Blvd. to E. Lake Brantley Rd.	Seminole	Arterial	Outlying Business District	1	2	0	45	2,534	6	Signal	50.4	2.4	II	34.3	B	0.76		
<b>TOTAL</b>							45	6,442			135.0	10.8	II	32.5	B	0.72	0.043 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 2010 METROPLAN Orlando Travel Time Study**  
**SR 434 Part A - Westbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.	
<b>AM PEAK HOUR -AFTER CONDITION</b>																		
E. Lake Brantley Rd. to Jamestown Blvd.	Seminole	Arterial	Outlying Business District	1	2	0	45	2,534	10	Signal	54.6	9.6	II	31.6	B	0.70		
Jamestown Blvd. to Sand Lake Rd.	Seminole	Arterial	Outlying Business District	1	2	1	45	1,003	10	Signal	40.2	18.6	II	17.0	D	0.38		
Sand Lake Rd. to San Sebastian Prado	Seminole	Arterial	Residential Area	1	2	0	45	2,904	10	Signal	45.6	1.2	II	43.4	A	0.96		
<b>TOTAL</b>							45	6,442			140.4	29.4	II	31.3	B	0.70	0.041 gal/veh	
<b>PM PEAK HOUR - AFER CONDITION</b>																		
E. Lake Brantley Rd. to Jamestown Blvd.	Seminole	Arterial	Outlying Business District	1	2	0	45	2,534	8	Signal	73.8	24.6	II	23.4	C	0.52		
Jamestown Blvd. to Sand Lake Rd.	Seminole	Arterial	Outlying Business District	1	2	1	45	1,003	8	Signal	34.8	10.8	II	19.7	D	0.44		
Sand Lake Rd. to San Sebastian Prado	Seminole	Arterial	Residential Area	1	2	0	45	2,904	8	Signal	52.2	6.0	II	37.9	A	0.84		
<b>TOTAL</b>							45	6,442			160.8	41.4	II	27.3	C	0.61	0.043 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 Part A  
- AM Peak**

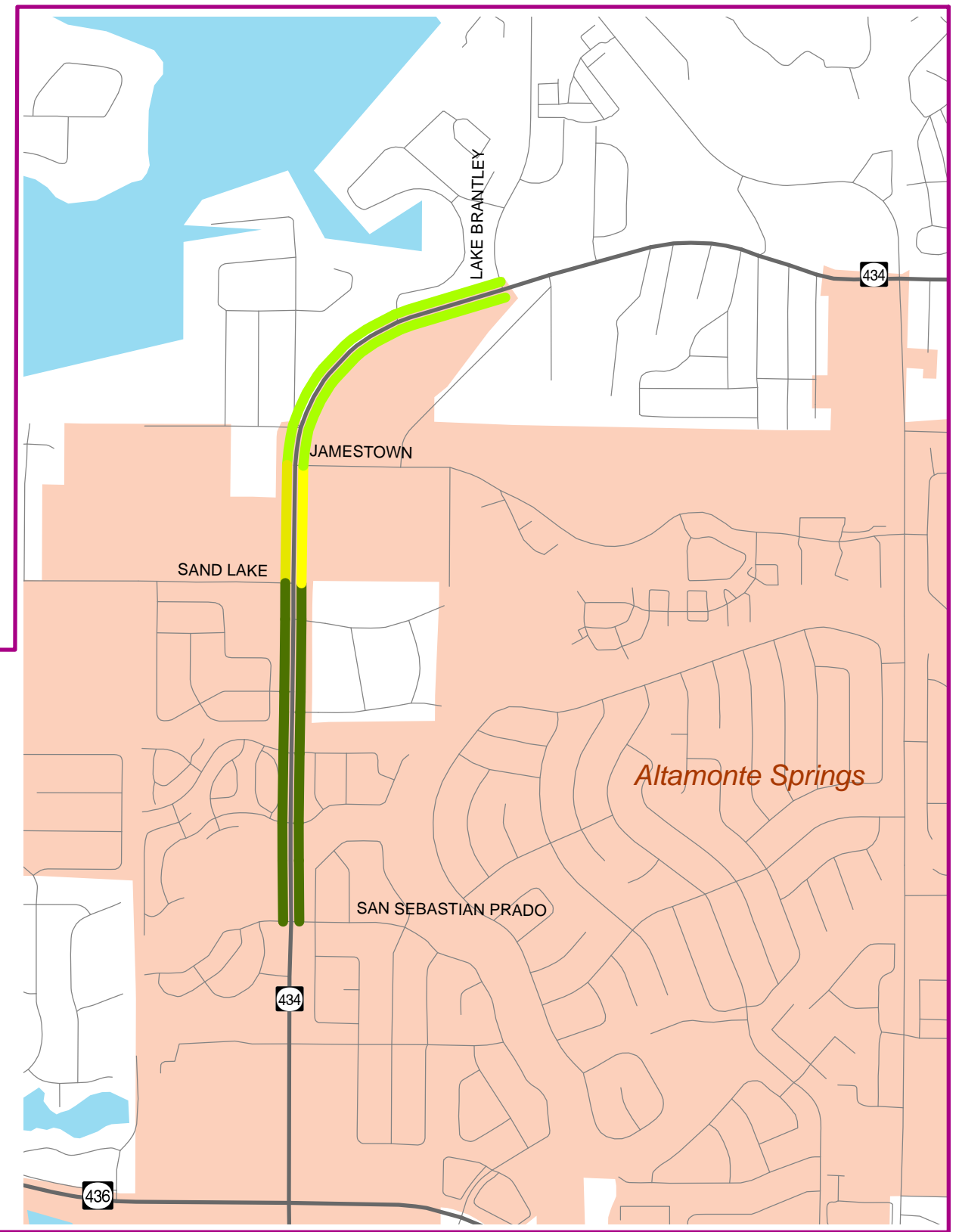
**Before Condition**

Date of Collection: 2/3/2010  
 Distance: 1.22 miles  
 From: E. Lake Brantley Rd.  
 To: San Sebastian Rd.

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

EB Avg Speed: 28.6 MPH  
 EB Travel Time: 2.56 MIN  
 EB Delay Time: 0.70 MIN

WB Avg Speed: 28.8 MPH  
 WB Travel Time: 2.54 MIN  
 WB Delay Time: 0.53 MIN



**SR 434 Part A  
- AM Peak**

**After Condition**

Date of Collection: 4/15/2010  
 Distance: 1.22 miles  
 From: E. Lake Brantley Rd.  
 To: San Sebastian Rd.

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

EB Avg Speed: 32.5 MPH  
 EB Travel Time: 2.25 MIN  
 EB Delay Time: 0.34 MIN

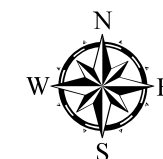
WB Avg Speed: 31.3 MPH  
 WB Travel Time: 2.34 MIN  
 WB Delay Time: 0.49 MIN

**Level of Services:**

- A
- B
- C

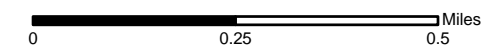
- D
- E
- F

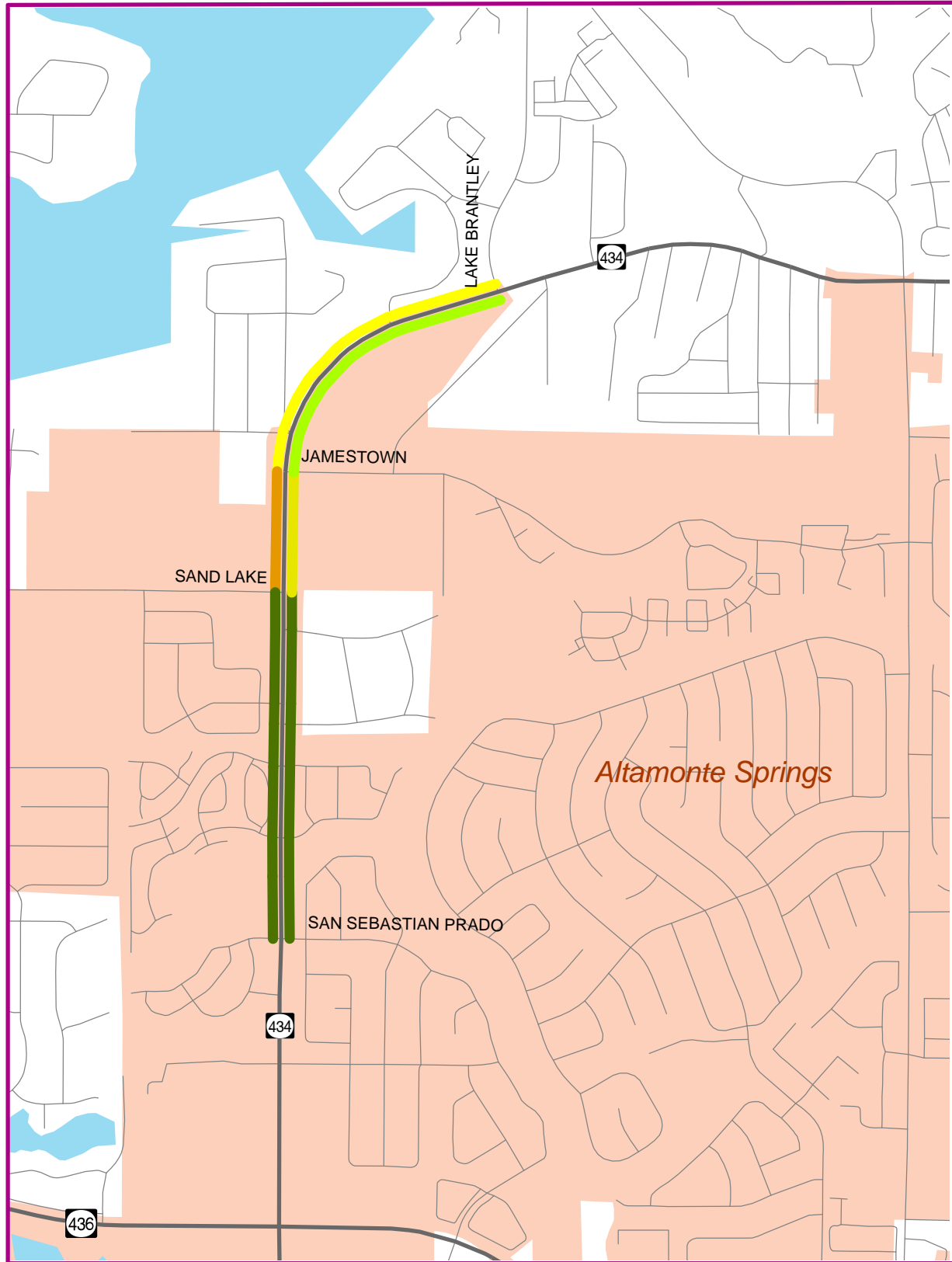
- Roads
- City Boundary
- Water



**2010 METROPLAN ORLANDO**

*Travel Time Study*





**SR 434 Part A  
- PM Peak**

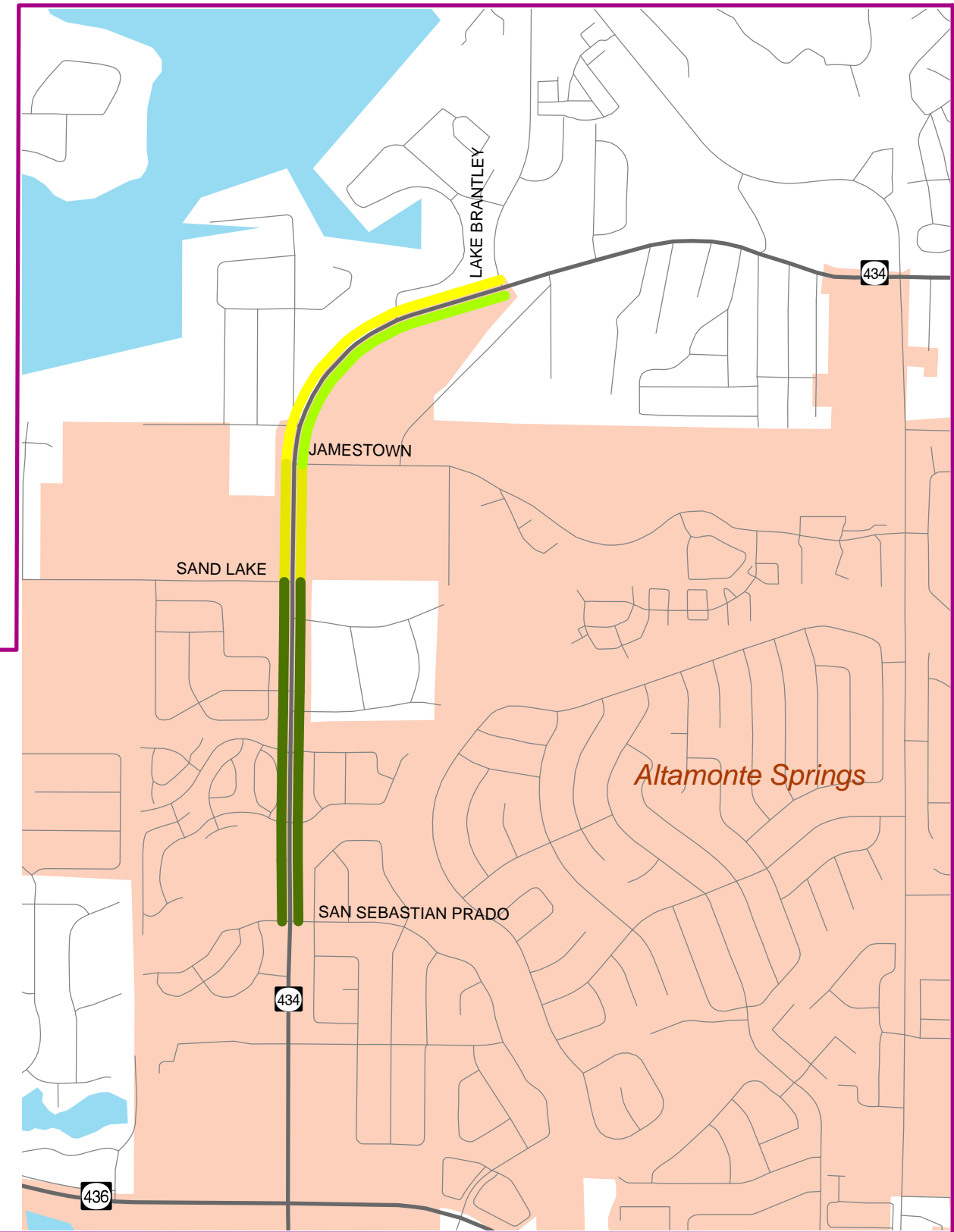
**Before Condition**

Date of Collection: 2/3/2010  
 Distance: 1.22 miles  
 From: E. Lake Brantley Rd.  
 To: San Sebastian Rd.

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

EB Avg Speed: 30.1 MPH  
 EB Travel Time: 2.43 MIN  
 EB Delay Time: 0.38 MIN

WB Avg Speed: 25.1 MPH  
 WB Travel Time: 2.92 MIN  
 WB Delay Time: 0.68 MIN



**SR 434 Part A  
- PM Peak**

**After Condition**

Date of Collection: 4/15/2010  
 Distance: 1.22 miles  
 From: E. Lake Brantley Rd.  
 To: San Sebastian Rd.

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

EB Avg Speed: 32.5 MPH  
 EB Travel Time: 2.25 MIN  
 EB Delay Time: 0.18 MIN

WB Avg Speed: 27.3 MPH  
 WB Travel Time: 2.68 MIN  
 WB Delay Time: 0.69 MIN

**Level of Services:**

<span style="color: green;">█</span> A	<span style="color: yellow;">█</span> D	<span style="border-bottom: 1px solid black; width: 20px; display: inline-block;"></span> Roads
<span style="color: lightgreen;">█</span> B	<span style="color: orange;">█</span> E	<span style="background-color: #fde9d9; width: 20px; height: 10px; display: inline-block;"></span> City Boundary
<span style="color: yellow;">█</span> C	<span style="color: red;">█</span> F	<span style="background-color: #add8e6; width: 20px; height: 10px; display: inline-block;"></span> Water

**2010 METROPLAN ORLANDO**

*Travel Time Study*

## SR 434 Part A : Sand Lake Rd to Jamestown Blvd: Before & After Study

### 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						
936	153.6	42.0	28.6	0.0420	39.94	39.31
Northbound/Eastbound - PM Peak Hour						
1430	145.8	22.8	30.1	0.0430	57.92	61.49
Southbound/Westbound - AM Peak Hour						
1627	152.4	31.8	28.8	0.0420	68.88	68.33
Southbound/Westbound - PM Peak Hour						
1052	175.2	40.8	25.1	0.0440	51.20	46.29

\*Traffic Volumes are obtained from the 2009 Seminole County Counts

## SR 434 Part A : Sand Lake Rd to Jamestown Blvd: Before & After Study

### 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						
936	135.0	20.4	32.5	0.0420	35.10	39.31
Northbound/Eastbound - PM Peak Hour						
1430	135.0	10.8	32.5	0.0430	53.63	61.49
Southbound/Westbound - AM Peak Hour						
1627	140.4	29.4	31.3	0.0410	63.45	66.71
Southbound/Westbound - PM Peak Hour						
1052	160.8	41.4	27.3	0.0430	46.99	45.24

\*Traffic Volumes are obtained from the 2009 Seminole County Counts

**SR 434 Part A : Sand Lake Rd to Jamestown Blvd: Before & After Study**  
**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)	108.81	98.55	109.11	100.61
Total Fuel Consumption (gallons)	107.65	106.02	107.78	106.73

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$178.23	\$146.75
<b>Annual User Benefit</b>	<b>\$53,469.36</b>	<b>\$44,025.35</b>
<b>Total Annual User Benefit =</b>	<b>\$97,494.71</b>	
Total Signal Retiming Annual Cost	\$3,861.20	
<b>User Benefit / Cost Ratio</b>	<b>25.25</b>	

Notes:

- \* Value of Delay Time is \$16.90 per hour (\$15.47 from Mobility Data for Orlando for the year 2007 & grown 3% per year)
- \* Fuel consumption is valued to the rate of \$2.98 per gallon.
- \* 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**

**Tollgate Trail to Wayman St**



**TABLE 18**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 434 Part B - Eastbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.	
<b>AM PEAK HOUR - BEFORE CONDITION</b>																		
Median Opening to Tollgate Tr.	Seminole	Arterial	Residential Area	1	2	0	45	317	6	Signal	10.8	1.8	II	20.0	D	0.44		
Tollgate Tr. to Palm Springs Dr.	Seminole	Arterial	Residential Area	1	2	0	45	898	6	Signal	43.2	22.2	II	14.2	E	0.31		
Palm Springs Dr. to Rangeline Rd.	Seminole	Arterial	Residential Area	1	2	0	45	3,010	6	Signal	79.2	13.8	II	25.9	C	0.58		
Rangeline Rd. to Florida Central Pkwy.	Seminole	Arterial	Residential Area	1	2	0	45	2,957	6	Signal	84.0	16.8	II	24.0	C	0.53		
Florida Central Pkwy. to RR Tracks	Seminole	Arterial	Residential Area	1	2	0	35	1,690	6	NA	32.4	0.0	II	35.6	A	0.89		
RR Tracks to CR 427/Ronald Reagan Blvd.	Seminole	Arterial	Residential Area	1	2	0	35	370	6	Signal	24.0	15.0	II	10.5	F	0.26		
CR 427/Ronald Reagan Blvd. to Grant St.	Seminole	Arterial	Outlying Business District	1	2	0	45	2,587	6	Signal	54.6	7.2	II	32.3	B	0.72		
Grant St. to S. Wayman St.	Seminole	Arterial	Outlying Business District	1	2	0	45	1,320	6	Signal	24.6	1.2	II	36.6	A	0.81		
<b>TOTAL</b>							45	13,147			352.8	78.0	II	25.4	C	0.56	0.089 gal/veh	
<b>PM PEAK HOUR - BEFORE CONDITION</b>																		
Median Opening to Tollgate Tr.	Seminole	Arterial	Residential Area	1	2	0	45	317	6	Signal	6.6	0.6	II	32.7	B	0.73		
Tollgate Tr. to Palm Springs Dr.	Seminole	Arterial	Residential Area	1	2	0	45	898	6	Signal	39.6	20.4	II	15.5	E	0.34		
Palm Springs Dr. to Rangeline Rd.	Seminole	Arterial	Residential Area	1	2	0	45	3,010	6	Signal	61.8	3.6	II	33.2	B	0.74		
Rangeline Rd. to Florida Central Pkwy.	Seminole	Arterial	Residential Area	1	2	0	45	2,957	6	Signal	85.2	18.0	II	23.7	C	0.53		
Florida Central Pkwy. to RR Tracks	Seminole	Arterial	Residential Area	1	2	0	35	1,690	6	NA	127.2	75.6	II	9.1	F	0.23		
RR Tracks to CR 427/Ronald Reagan Blvd.	Seminole	Arterial	Residential Area	1	2	0	35	370	6	Signal	81.6	67.8	II	3.1	F	0.08		
CR 427/Ronald Reagan Blvd. to Grant St.	Seminole	Arterial	Outlying Business District	1	2	0	45	2,587	6	Signal	47.4	0.0	II	37.2	A	0.83		
Grant St. to S. Wayman St.	Seminole	Arterial	Outlying Business District	1	2	0	45	1,320	6	Signal	19.8	0.0	II	45.5	A	1.01		
<b>TOTAL</b>							45	13,147			469.2	186.0	II	19.1	D	0.42	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.

**TABLE 18**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 434 Part B - Westbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to S. Wayman St.	Seminole	Arterial	Outlying Business District	1	2	0	45	317	6	Signal	20.4	3.0	II	10.6	F	0.24	
S. Wayman St. to Grant St.	Seminole	Arterial	Outlying Business District	1	2	0	45	1,320	6	Signal	32.4	4.8	II	27.8	C	0.62	
Grant St. to CR 427/Ronald Reagan Blvd.	Seminole	Arterial	Outlying Business District	1	2	0	35	2,587	6	Signal	112.8	54.6	II	15.6	E	0.45	
CR 427/Ronald Reagan Blvd. to RR Tracks	Seminole	Arterial	Residential Area	1	2	0	45	370	6	NA	7.8	0.0	II	32.3	B	0.81	
RR Tracks to Florida Central Pkwy.	Seminole	Arterial	Residential Area	1	2	0	45	1,690	6	Signal	47.4	12.0	II	24.3	C	0.61	
Florida Central Pkwy. to Rangeline Rd.	Seminole	Arterial	Residential Area	1	2	0	45	2,957	6	Signal	61.2	6.0	II	32.9	B	0.73	
Rangeline Rd. to Palm Springs Dr.	Seminole	Arterial	Residential Area	1	2	0	45	3,010	6	Signal	61.2	0.0	II	33.5	B	0.75	
Palm Springs Dr. to Tollgate Tr.	Seminole	Arterial	Residential Area	1	2	0	45	898	6	Signal	18.0	0.0	II	34.0	B	0.76	
<b>TOTAL</b>							45	13,147			361.2	80.4	II	24.8	C	0.55	0.088 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to S. Wayman St.	Seminole	Arterial	Outlying Business District	1	2	0	45	317	5	Signal	13.2	4.2	II	16.4	E	0.36	
S. Wayman St. to Grant St.	Seminole	Arterial	Outlying Business District	1	2	0	45	1,320	5	Signal	29.4	6.0	II	30.6	B	0.68	
Grant St. to CR 427/Ronald Reagan Blvd.	Seminole	Arterial	Outlying Business District	1	2	0	35	2,587	5	Signal	133.8	73.2	II	13.2	E	0.38	
CR 427/Ronald Reagan Blvd. to RR Tracks	Seminole	Arterial	Residential Area	1	2	0	45	370	5	NA	7.8	0.0	II	32.3	B	0.81	
RR Tracks to Florida Central Pkwy.	Seminole	Arterial	Residential Area	1	2	0	45	1,690	5	Signal	57.0	24.6	II	20.2	D	0.51	
Florida Central Pkwy. to Rangeline Rd.	Seminole	Arterial	Residential Area	1	2	0	45	2,957	5	Signal	112.2	46.2	II	18.0	D	0.40	
Rangeline Rd. to Palm Springs Dr.	Seminole	Arterial	Residential Area	1	2	0	45	3,010	5	Signal	70.2	10.2	II	29.2	B	0.65	
Palm Springs Dr. to Tollgate Tr.	Seminole	Arterial	Residential Area	1	2	0	45	898	5	Signal	13.8	0.0	II	44.3	A	0.99	
<b>TOTAL</b>							45	13,147			437.4	164.4	II	20.5	D	0.46	0.089 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 18**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 434 Part B - Eastbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.	
<b>AM PEAK HOUR - AFTER CONDITION</b>																		
Median Opening to Tollgate Tr.	Seminole	Arterial	Residential Area	1	2	0	45	317	7	Signal	9.0	1.2	II	24.0	C	0.53		
Tollgate Tr. to Palm Springs Dr.	Seminole	Arterial	Residential Area	1	2	0	45	898	7	Signal	26.4	9.0	II	23.2	C	0.52		
Palm Springs Dr. to Rangeline Rd.	Seminole	Arterial	Residential Area	1	2	0	45	3,010	7	Signal	58.2	5.4	II	35.3	A	0.78		
Rangeline Rd. to Florida Central Pkwy.	Seminole	Arterial	Residential Area	1	2	0	45	2,957	7	Signal	68.4	14.4	II	29.5	B	0.65		
Florida Central Pkwy. to RR Tracks	Seminole	Arterial	Residential Area	1	2	0	35	1,690	7	NA	28.8	0.0	II	40.0	A	1.00		
RR Tracks to CR 427/Ronald Reagan Blvd.	Seminole	Arterial	Residential Area	1	2	0	35	370	7	Signal	6.6	0.0	II	38.2	A	0.95		
CR 427/Ronald Reagan Blvd. to Grant St.	Seminole	Arterial	Outlying Business District	1	2	0	45	2,587	7	Signal	41.4	0.0	II	42.6	A	0.95		
Grant St. to S. Wayman St.	Seminole	Arterial	Outlying Business District	1	2	0	45	1,320	7	Signal	19.8	0.0	II	45.5	A	1.01		
<b>TOTAL</b>							45	13,147			258.6	30.0	II	34.7	B	0.77	0.085 gal/veh	
<b>PM PEAK HOUR - AFTER CONDITION</b>																		
Median Opening to Tollgate Tr.	Seminole	Arterial	Residential Area	1	2	0	45	317	6	Signal	7.8	0.0	II	27.7	C	0.62		
Tollgate Tr. to Palm Springs Dr.	Seminole	Arterial	Residential Area	1	2	0	45	898	6	Signal	49.2	22.2	II	12.4	F	0.28		
Palm Springs Dr. to Rangeline Rd.	Seminole	Arterial	Residential Area	1	2	0	45	3,010	6	Signal	60.6	2.4	II	33.9	B	0.75		
Rangeline Rd. to Florida Central Pkwy.	Seminole	Arterial	Residential Area	1	2	0	45	2,957	6	Signal	70.8	13.2	II	28.5	B	0.63		
Florida Central Pkwy. to RR Tracks	Seminole	Arterial	Residential Area	1	2	0	35	1,690	6	NA	54.6	8.4	II	21.1	D	0.53		
RR Tracks to CR 427/Ronald Reagan Blvd.	Seminole	Arterial	Residential Area	1	2	0	35	370	6	Signal	15.0	5.4	II	16.8	E	0.42		
CR 427/Ronald Reagan Blvd. to Grant St.	Seminole	Arterial	Outlying Business District	1	2	0	45	2,587	6	Signal	45.0	0.0	II	39.2	A	0.87		
Grant St. to S. Wayman St.	Seminole	Arterial	Outlying Business District	1	2	0	45	1,320	6	Signal	20.4	0.0	II	44.1	A	0.98		
<b>TOTAL</b>							45	13,147			323.4	51.6	II	27.7	C	0.62	0.089 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 18**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 434 Part B - Westbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to S. Wayman St.	Seminole	Arterial	Outlying Business District	1	2	0	45	317	7	Signal	18.6	11.4	II	11.6	F	0.26	
S. Wayman St. to Grant St.	Seminole	Arterial	Outlying Business District	1	2	0	45	1,320	7	Signal	35.4	9.6	II	25.4	C	0.56	
Grant St. to CR 427/Ronald Reagan Blvd.	Seminole	Arterial	Outlying Business District	1	2	0	35	2,587	7	Signal	123.0	67.2	II	14.3	E	0.41	
CR 427/Ronald Reagan Blvd. to RR Tracks	Seminole	Arterial	Residential Area	1	2	0	45	370	7	NA	8.4	0.0	II	30.0	B	0.75	
RR Tracks to Florida Central Pkwy.	Seminole	Arterial	Residential Area	1	2	0	45	1,690	7	Signal	30.0	0.0	II	38.4	A	0.96	
Florida Central Pkwy. to Rangeline Rd.	Seminole	Arterial	Residential Area	1	2	0	45	2,957	7	Signal	57.0	1.2	II	35.4	A	0.79	
Rangeline Rd. to Palm Springs Dr.	Seminole	Arterial	Residential Area	1	2	0	45	3,010	7	Signal	53.4	0.0	II	38.4	A	0.85	
Palm Springs Dr. to Tollgate Tr.	Seminole	Arterial	Residential Area	1	2	0	45	898	7	Signal	12.0	0.0	II	51.0	A	1.13	
<b>TOTAL</b>							45	13,147			337.8	89.4	II	26.5	C	0.59	0.087 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to S. Wayman St.	Seminole	Arterial	Outlying Business District	1	2	0	45	317	6	Signal	7.2	0.6	II	30.0	B	0.67	
S. Wayman St. to Grant St.	Seminole	Arterial	Outlying Business District	1	2	0	45	1,320	6	Signal	28.8	5.4	II	31.2	B	0.69	
Grant St. to CR 427/Ronald Reagan Blvd.	Seminole	Arterial	Outlying Business District	1	2	0	35	2,587	6	Signal	66.6	16.2	II	26.5	C	0.76	
CR 427/Ronald Reagan Blvd. to RR Tracks	Seminole	Arterial	Residential Area	1	2	0	45	370	6	NA	7.2	0.0	II	35.0	B	0.87	
RR Tracks to Florida Central Pkwy.	Seminole	Arterial	Residential Area	1	2	0	45	1,690	6	Signal	37.8	1.8	II	30.5	B	0.76	
Florida Central Pkwy. to Rangeline Rd.	Seminole	Arterial	Residential Area	1	2	0	45	2,957	6	Signal	75.0	16.8	II	26.9	C	0.60	
Rangeline Rd. to Palm Springs Dr.	Seminole	Arterial	Residential Area	1	2	0	45	3,010	6	Signal	58.8	1.8	II	34.9	B	0.78	
Palm Springs Dr. to Tollgate Tr.	Seminole	Arterial	Residential Area	1	2	0	45	898	6	Signal	16.8	0.0	II	36.4	A	0.81	
<b>TOTAL</b>							45	13,147			298.2	42.6	II	30.1	B	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.

**SR 434 Part B  
- AM Peak**

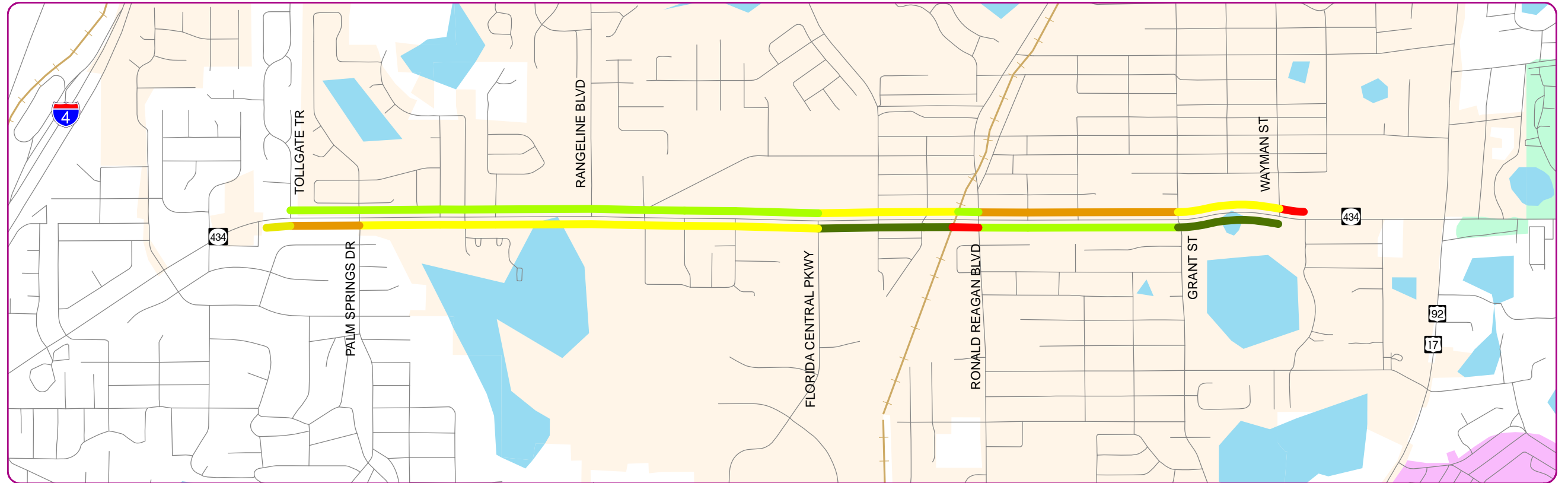
**Before Condition**

Date of Collection: 1/28/2010  
 Distance: 2.49 miles  
 From: Wayman St.  
 To: Tollgate Tr.

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

EB Avg Speed: 25.4 MPH  
 EB Travel Time: 5.88 MIN  
 EB Delay Time: 1.30 MIN

WB Avg Speed: 24.8 MPH  
 WB Travel Time: 6.02 MIN  
 WB Delay Time: 1.34 MIN



**SR 434 Part B  
- AM Peak**

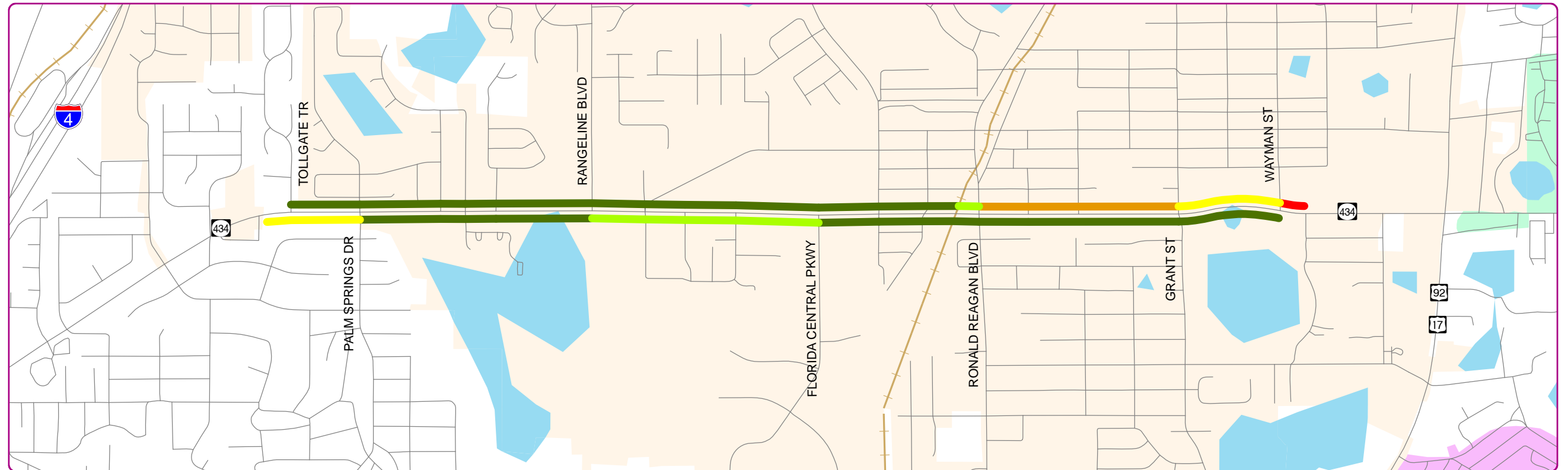
**After Condition**

Date of Collection: 4/14/2010  
 Distance: 2.49 miles  
 From: Wayman St.  
 To: Tollgate Tr.

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

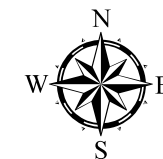
EB Avg Speed: 34.7 MPH  
 EB Travel Time: 4.31 MIN  
 EB Delay Time: 0.50 MIN

WB Avg Speed: 26.5 MPH  
 WB Travel Time: 5.63 MIN  
 WB Delay Time: 1.49 MIN



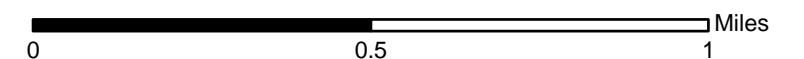
**Level of Services:**

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



**2010 METROPLAN ORLANDO**

*Travel Time Study*



**SR 434 Part B  
- PM Peak**

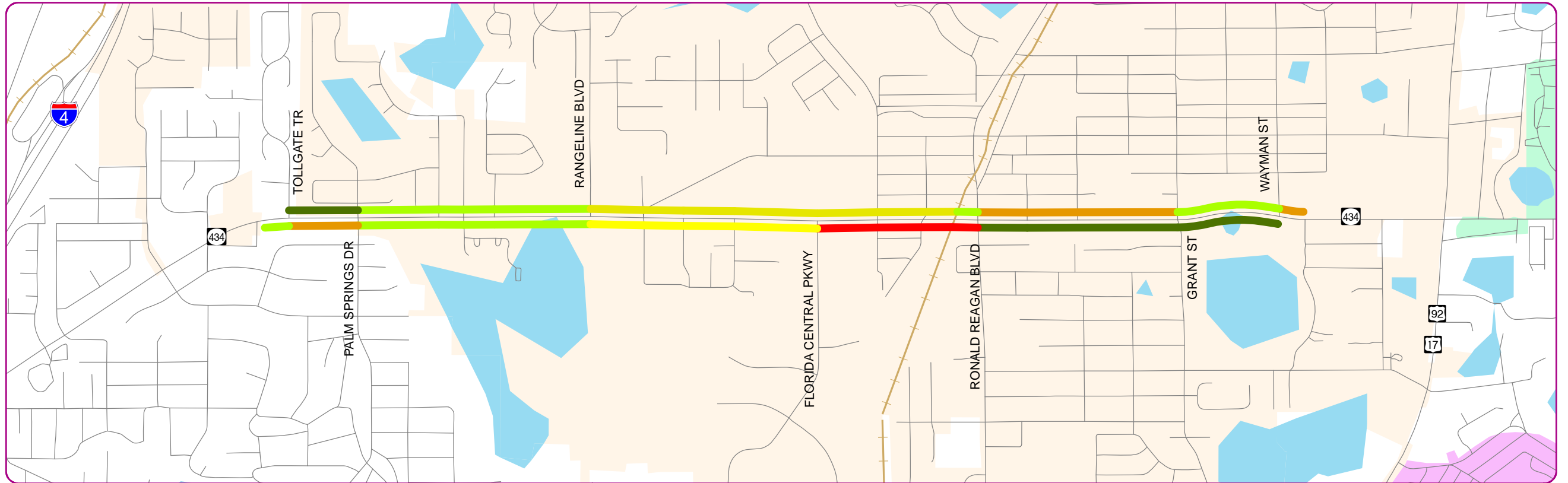
**Before Condition**

Date of Collection: 2/3/2010  
 Distance: 2.49 miles  
 From: Wayman St.  
 To: Tollgate Tr.

Start Time: 4:15 PM  
 End Time: 5:45 PM

EB Avg Speed: 19.1 MPH  
 EB Travel Time: 7.82 MIN  
 EB Delay Time: 3.10 MIN

WB Avg Speed: 20.5 MPH  
 WB Travel Time: 7.29 MIN  
 WB Delay Time: 2.74 MIN



**SR 434 Part B  
- PM Peak**

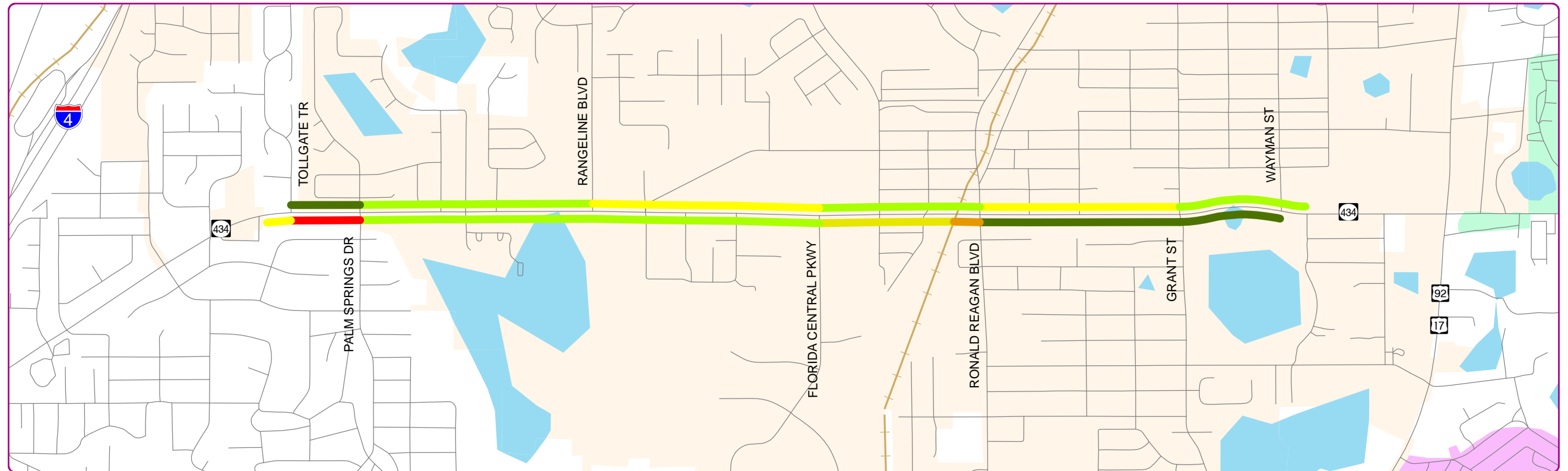
**After Condition**

Date of Collection: 4/14/2010  
 Distance: 2.49 miles  
 From: Wayman St.  
 To: Tollgate Tr.

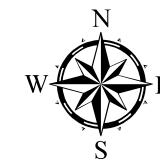
Start Time: 4:15 PM  
 End Time: 5:45 PM

EB Avg Speed: 27.7 MPH  
 EB Travel Time: 5.39 MIN  
 EB Delay Time: 0.86 MIN

WB Avg Speed: 30.1 MPH  
 WB Travel Time: 4.97 MIN  
 WB Delay Time: 0.71 MIN

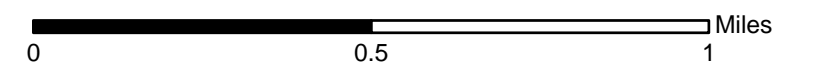


**Level of Services:**



**2010 METROPLAN ORLANDO**

*Travel Time Study*



**Table 1**  
**SR 434 Part B : Tollgate Trail to Wayman St: Before & After Study**  
**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 (gallons)
Northbound/Eastbound - AM Peak Hour						
1732	352.8	78.0	25.4	0.0890	169.74	154.15
Northbound/Eastbound - PM Peak Hour						
1420	469.2	186.0	19.1	0.0900	185.07	127.80
Southbound/Westbound - AM Peak Hour						
984	361.2	80.4	24.8	0.0880	98.73	86.59
Southbound/Westbound - PM Peak Hour						
1567	437.4	164.4	20.5	0.0890	190.39	139.46

\*Traffic Volumes are obtained from the latest FDOT counts.

**Table 2**  
**SR 434 Part B : Tollgate Trail to Wayman St: Before & After Study**  
**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 (gallons)
<b>Northbound/Eastbound - AM Peak Hour</b>						
1732	258.6	30.0	34.7	0.0850	124.42	147.22
<b>Northbound/Eastbound - PM Peak Hour</b>						
1420	323.4	51.6	27.7	0.0890	127.56	126.38
<b>Southbound/Westbound - AM Peak Hour</b>						
984	337.8	89.4	26.5	0.0870	92.33	85.61
<b>Southbound/Westbound - PM Peak Hour</b>						
1567	298.2	42.6	30.1	0.0870	129.80	136.33

\*Traffic Volumes are obtained from the latest FDOT counts.



**SR 434 Part B : Tollgate Trail to Wayman St : Before & After Study**  
**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)	268.46	216.75	375.46	257.36
Total Fuel Consumption (gallons)	240.74	232.83	267.26	262.71

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$897.59	\$2,009.47
<b>Annual User Benefit</b>	<b>\$269,276.83</b>	<b>\$602,841.66</b>
<b>Total Annual User Benefit =</b>	<b>\$872,118.48</b>	
Total Signal Retiming Annual Cost	\$11,926.92	
<b>User Benefit / Cost Ratio</b>	<b>73.12</b>	

Notes:

- \* Value of Delay Time is \$16.90 per hour (\$15.47 from Mobility Data for Orlando for the year 2007 & grown 3% per year)
- \* Fuel consumption is valued to the rate of \$2.98 per gallon.
- \* 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**

**Mitchell Hammock Rd to Palm Valley Dr**

**TABLE 19**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 434 Part C - Northbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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			
<b>AM PEAK HOUR - BEFORE CONDITION</b>																		
McCulloch Rd to E. Palm Valley Dr.	Seminole	Arterial	Residential Area	1	3	0	50	1,373	5	Signal	24.6	4.2	I	38.0	B	0.76		
E. Palm Valley Dr. to Carrigan Ave.	Seminole	Arterial	Residential Area	1	3	0	50	3,907	5	Signal	55.8	1.2	I	47.7	A	0.95		
Carrigan Ave. to Chapman Rd.	Seminole	Arterial	Residential Area	2	3	0	50	5,280	5	Signal	114.0	34.8	I	31.6	C	0.63		
Chapman Rd. to Alafaya Woods Blvd.	Seminole	Arterial	Residential Area	1	3	1	50	2,957	5	Signal	54.6	9.0	I	36.9	B	0.74		
Alafaya Woods Blvd. to Mitchell Hammock Rd.	Seminole	Arterial	Residential Area	2	2	0	45	2,323	5	Signal	80.4	40.2	II	19.7	D	0.44		
Mitchell Hammock Rd. to Hilcrest St.	Seminole	Arterial	Residential Area	0	1	0	45/35	3,062	5	Signal	60.0	0.0	II	34.8	B	0.87		
<b>TOTAL</b>							50	18,902			389.4	89.4	I	33.1	C	0.66	0.122 gal/veh	
<b>PM PEAK HOUR - BEFORE CONDITION</b>																		
McCulloch Rd to E. Palm Valley Dr.	Seminole	Arterial	Residential Area	1	3	0	50	1,373	4	Signal	19.8	0.0	I	47.3	A	0.95		
E. Palm Valley Dr. to Carrigan Ave.	Seminole	Arterial	Residential Area	1	3	0	50	3,907	4	Signal	52.2	0.0	I	51.0	A	1.02		
Carrigan Ave. to Chapman Rd.	Seminole	Arterial	Residential Area	2	3	0	50	5,280	4	Signal	112.8	36.0	I	31.9	C	0.64		
Chapman Rd. to Alafaya Woods Blvd.	Seminole	Arterial	Residential Area	1	3	1	50	2,957	4	Signal	67.2	16.2	I	30.0	C	0.60		
Alafaya Woods Blvd. to Mitchell Hammock Rd.	Seminole	Arterial	Residential Area	2	2	0	45	2,323	4	Signal	137.4	85.8	II	11.5	F	0.26		
Mitchell Hammock Rd. to Hilcrest St.	Seminole	Arterial	Residential Area	0	1	0	45/35	3,062	4	Signal	64.8	0.0	II	32.2	B	0.81		
<b>TOTAL</b>							50	18,902			454.2	138.0	I	28.4	C	0.57	0.123 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 19**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 434 Part C - Southbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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		
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Hilcrest St to Mitchell Hammock Rd.	Seminole	Arterial	Residential Area	1	2	0	45	3,062	5	Signal	102.6	43.8	II	20.4	D	0.45	
Mitchell Hammock Rd. to Alafaya Woods Blvd.	Seminole	Arterial	Residential Area	1	3	0	45	2,323	5	Signal	42.0	1.2	II	37.7	A	0.84	
Alafaya Woods Blvd. to Chapman Rd.	Seminole	Arterial	Residential Area	1	3	1	50	2,957	5	Signal	72.6	18.6	I	27.8	C	0.56	
Chapman Rd. to Carrigan Ave.	Seminole	Arterial	Residential Area	1	3	0	50	5,280	5	Signal	96.6	11.4	I	37.3	B	0.75	
Carrigan Ave. to E. Palm Valley Dr.	Seminole	Arterial	Residential Area	1	3	0	50	3,907	5	Signal	68.4	7.8	I	38.9	B	0.78	
E. Palm Valley Dr. to McCulloch Rd	Seminole	Arterial	Residential Area	2	3	1	50	1,373	5	Signal	61.8	34.8	I	15.1	F	0.30	
<b>TOTAL</b>							50	18,902			444.0	117.6	I	29.0	C	0.58	0.124 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Hilcrest St to Mitchell Hammock Rd.	Seminole	Arterial	Residential Area	1	2	0	45	3,062	4	Signal	205.8	143.4	II	10.1	F	0.23	
Mitchell Hammock Rd. to Alafaya Woods Blvd.	Seminole	Arterial	Residential Area	1	3	0	45	2,323	4	Signal	44.4	4.2	II	35.7	A	0.79	
Alafaya Woods Blvd. to Chapman Rd.	Seminole	Arterial	Residential Area	1	3	1	50	2,957	4	Signal	109.8	61.2	I	18.4	E	0.37	
Chapman Rd. to Carrigan Ave.	Seminole	Arterial	Residential Area	1	3	0	50	5,280	4	Signal	94.8	15.0	I	38.0	B	0.76	
Carrigan Ave. to E. Palm Valley Dr.	Seminole	Arterial	Residential Area	1	3	0	50	3,907	4	Signal	54.6	0.0	I	48.8	A	0.98	
E. Palm Valley Dr. to McCulloch Rd	Seminole	Arterial	Residential Area	2	3	1	50	1,373	4	Signal	28.2	9.0	I	33.2	C	0.66	
<b>TOTAL</b>							50	18,902			537.6	232.8	I	24.0	D	0.48	0.123 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 19**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 434 Part C - Northbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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		
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
McCulloch Rd to E. Palm Valley Dr.	Seminole	Arterial	Residential Area	1	3	0	50	1,373	6	Signal	22.2	0.0	I	42.2	A	0.84	
E. Palm Valley Dr. to Carrigan Ave.	Seminole	Arterial	Residential Area	1	3	0	50	3,907	6	Signal	60.6	7.8	I	44.0	A	0.88	
Carrigan Ave. to Chapman Rd.	Seminole	Arterial	Residential Area	2	3	0	50	5,280	6	Signal	79.8	4.8	I	45.1	A	0.90	
Chapman Rd. to Alafaya Woods Blvd.	Seminole	Arterial	Residential Area	1	3	1	50	2,957	6	Signal	48.0	2.4	I	42.0	B	0.84	
Alafaya Woods Blvd. to Mitchell Hammock Rd.	Seminole	Arterial	Residential Area	2	2	0	45	2,323	6	Signal	51.0	4.2	II	31.1	B	0.69	
Mitchell Hammock Rd. to Hilcrest St.	Seminole	Arterial	Residential Area	0	1	0	45/35	3,062	6	Signal	54.0	0.0	II	38.7	A	0.97	
<b>TOTAL</b>							50	18,902			315.6	19.2	I	40.8	B	0.82	0.122 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
McCulloch Rd to E. Palm Valley Dr.	Seminole	Arterial	Residential Area	1	3	0	50	1,373	5	Signal	29.4	2.4	I	31.8	C	0.64	
E. Palm Valley Dr. to Carrigan Ave.	Seminole	Arterial	Residential Area	1	3	0	50	3,907	5	Signal	61.8	3.0	I	43.1	A	0.86	
Carrigan Ave. to Chapman Rd.	Seminole	Arterial	Residential Area	2	3	0	50	5,280	5	Signal	96.0	13.2	I	37.5	B	0.75	
Chapman Rd. to Alafaya Woods Blvd.	Seminole	Arterial	Residential Area	1	3	1	50	2,957	5	Signal	65.4	15.6	I	30.8	C	0.62	
Alafaya Woods Blvd. to Mitchell Hammock Rd.	Seminole	Arterial	Residential Area	2	2	0	45	2,323	5	Signal	110.4	57.6	II	14.3	E	0.32	
Mitchell Hammock Rd. to Hilcrest St.	Seminole	Arterial	Residential Area	0	1	0	45/35	3,062	5	Signal	62.4	0.0	II	33.5	B	0.84	
<b>TOTAL</b>							50	18,902			425.4	91.8	I	30.3	C	0.61	0.122 gal/veh

Note:

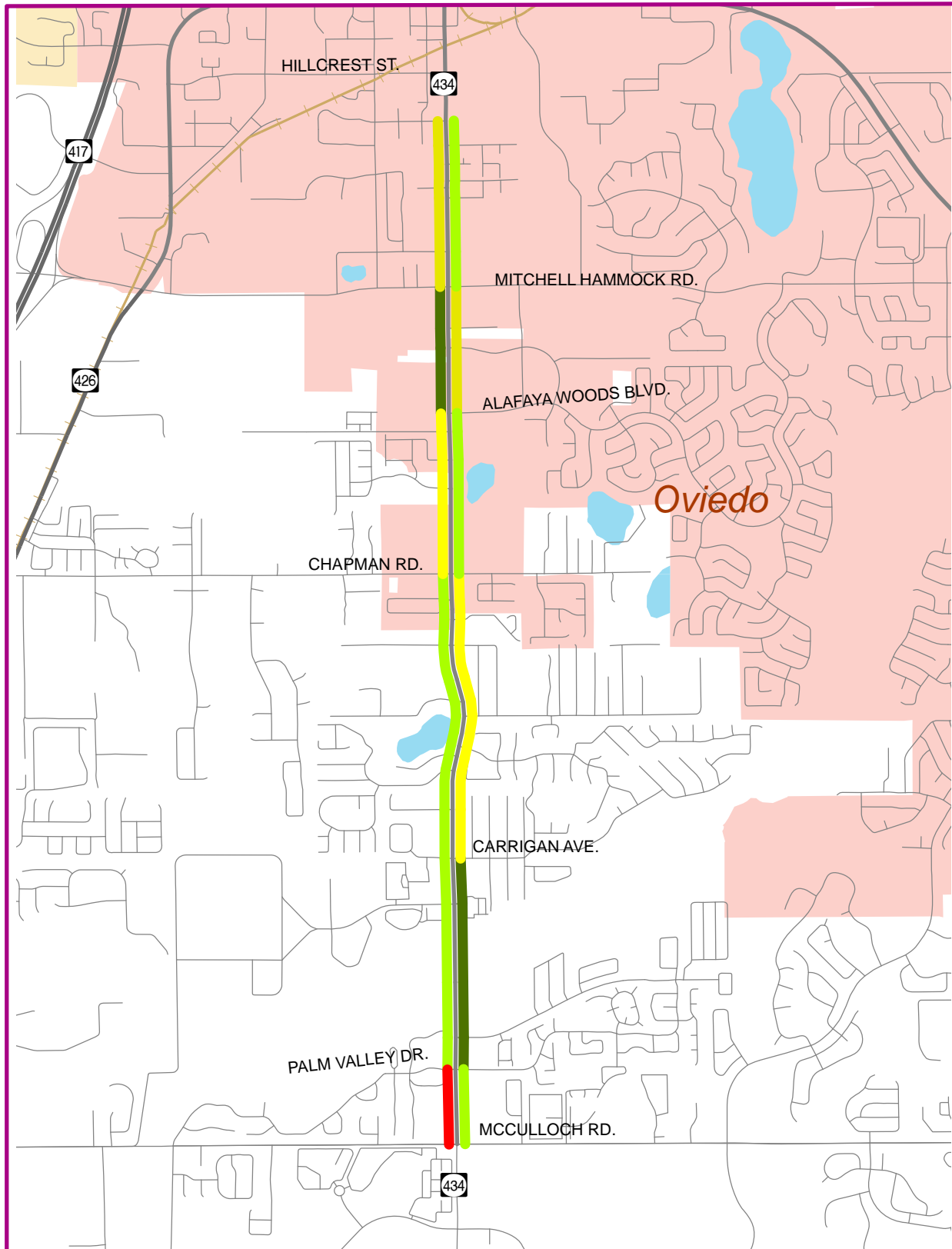
1. The Facility type and Area type definitions were obtained from the latest Orlando Urban Area Transportation Study (OUATS) Model.
2. The Through lanes and Turn lanes are provided for the approach of the direction of travel.

**TABLE 19**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 434 Part C - Southbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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		
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Hilcrest St to Mitchell Hammock Rd.	Seminole	Arterial	Residential Area	1	2	0	45	3,062	7	Signal	127.2	73.2	II	16.4	E	0.36	
Mitchell Hammock Rd. to Alafaya Woods Blvd.	Seminole	Arterial	Residential Area	1	3	0	45	2,323	7	Signal	33.0	0.0	II	48.0	A	1.07	
Alafaya Woods Blvd. to Chapman Rd.	Seminole	Arterial	Residential Area	1	3	1	50	2,957	7	Signal	45.6	2.4	I	44.2	A	0.88	
Chapman Rd. to Carrigan Ave.	Seminole	Arterial	Residential Area	1	3	0	50	5,280	7	Signal	75.6	0.0	I	47.6	A	0.95	
Carrigan Ave. to E. Palm Valley Dr.	Seminole	Arterial	Residential Area	1	3	0	50	3,907	7	Signal	54.0	0.0	I	49.3	A	0.99	
E. Palm Valley Dr. to McCulloch Rd	Seminole	Arterial	Residential Area	2	3	1	50	1,373	7	Signal	51.0	25.2	I	18.4	E	0.37	
<b>TOTAL</b>							50	18,902			386.4	100.8	I	33.4	C	0.67	0.123 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Hilcrest St to Mitchell Hammock Rd.	Seminole	Arterial	Residential Area	1	2	0	45	3,062	4	Signal	151.8	80.4	II	13.8	E	0.31	
Mitchell Hammock Rd. to Alafaya Woods Blvd.	Seminole	Arterial	Residential Area	1	3	0	45	2,323	4	Signal	37.2	0.0	II	42.6	A	0.95	
Alafaya Woods Blvd. to Chapman Rd.	Seminole	Arterial	Residential Area	1	3	1	50	2,957	4	Signal	40.8	0.0	I	49.4	A	0.99	
Chapman Rd. to Carrigan Ave.	Seminole	Arterial	Residential Area	1	3	0	50	5,280	4	Signal	74.4	0.0	I	48.4	A	0.97	
Carrigan Ave. to E. Palm Valley Dr.	Seminole	Arterial	Residential Area	1	3	0	50	3,907	4	Signal	61.8	6.0	I	43.1	A	0.86	
E. Palm Valley Dr. to McCulloch Rd	Seminole	Arterial	Residential Area	2	3	1	50	1,373	4	Signal	75.0	43.8	I	12.5	F	0.25	
<b>TOTAL</b>							50	18,902			441.0	130.2	I	29.2	C	0.58	0.123 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 Part C  
- AM Peak**

**Before Condition**

Date of Collection: 2/2/2010  
 Distance: 3.58 miles  
 From: McCulloch Rd.  
 To: Hilcrest St.

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

NB Avg Speed: 33.1 MPH  
 NB Travel Time: 6.49 MIN  
 NB Delay Time: 1.49 MIN

SB Avg Speed: 29.0 MPH  
 SB Travel Time: 7.40 MIN  
 SB Delay Time: 1.96 MIN

**SR 434 Part C  
- AM Peak**

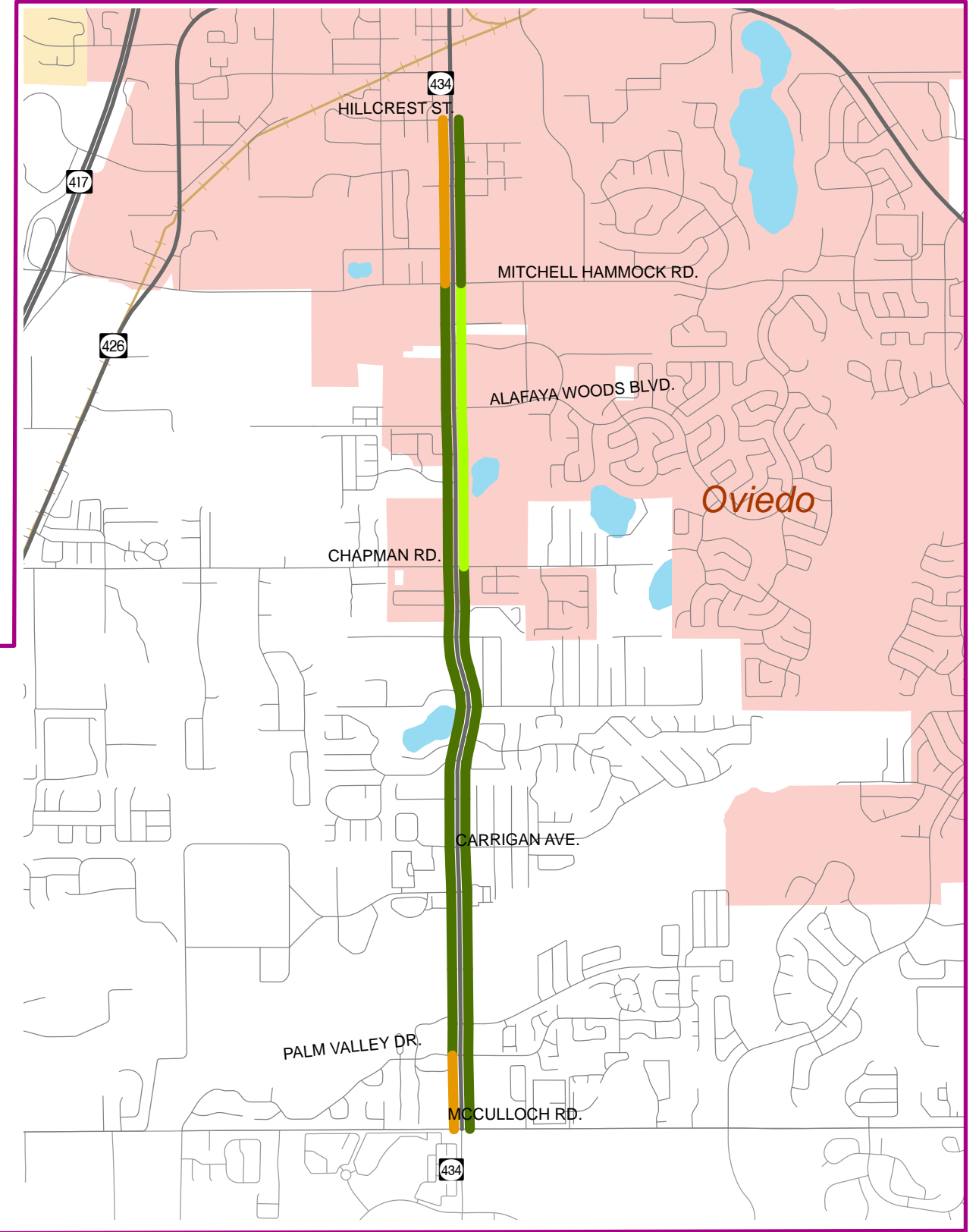
**After Condition**

Date of Collection: 5/11/2010  
 Distance: 3.58 miles  
 From: McCulloch Rd.  
 To: Hilcrest St.

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

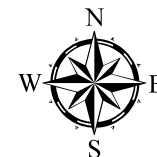
NB Avg Speed: 40.8 MPH  
 NB Travel Time: 5.26 MIN  
 NB Delay Time: 0.32 MIN

SB Avg Speed: 33.4 MPH  
 SB Travel Time: 6.44 MIN  
 SB Delay Time: 1.68 MIN



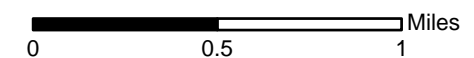
**Level of Services:**

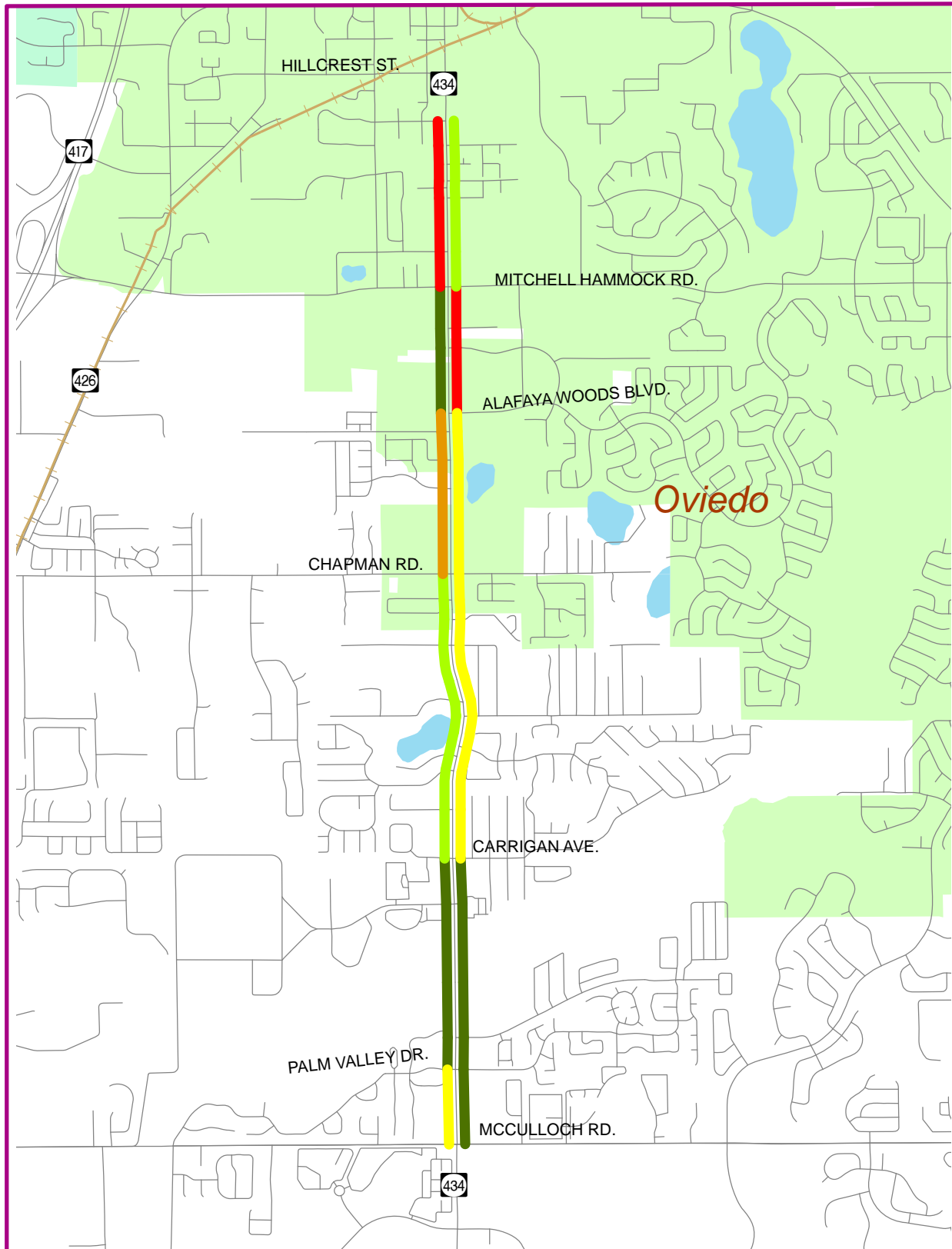
- |   |   |               |
|---|---|---------------|
| A | D | Roads         |
| B | E | City Boundary |
| C | F | Water         |



**2010 METROPLAN ORLANDO**

*Travel Time Study*





### SR 434 Part C - PM Peak

#### Before Condition

Date of Collection: 2/2/2010  
 Distance: 3.58 miles  
 From: McCulloch Rd.  
 To: Hillcrest St.

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

NB Avg Speed: 28.4 MPH  
 NB Travel Time: 7.57 MIN  
 NB Delay Time: 2.30 MIN

SB Avg Speed: 24.0 MPH  
 SB Travel Time: 8.96 MIN  
 SB Delay Time: 3.88 MIN

### SR 434 Part C - PM Peak

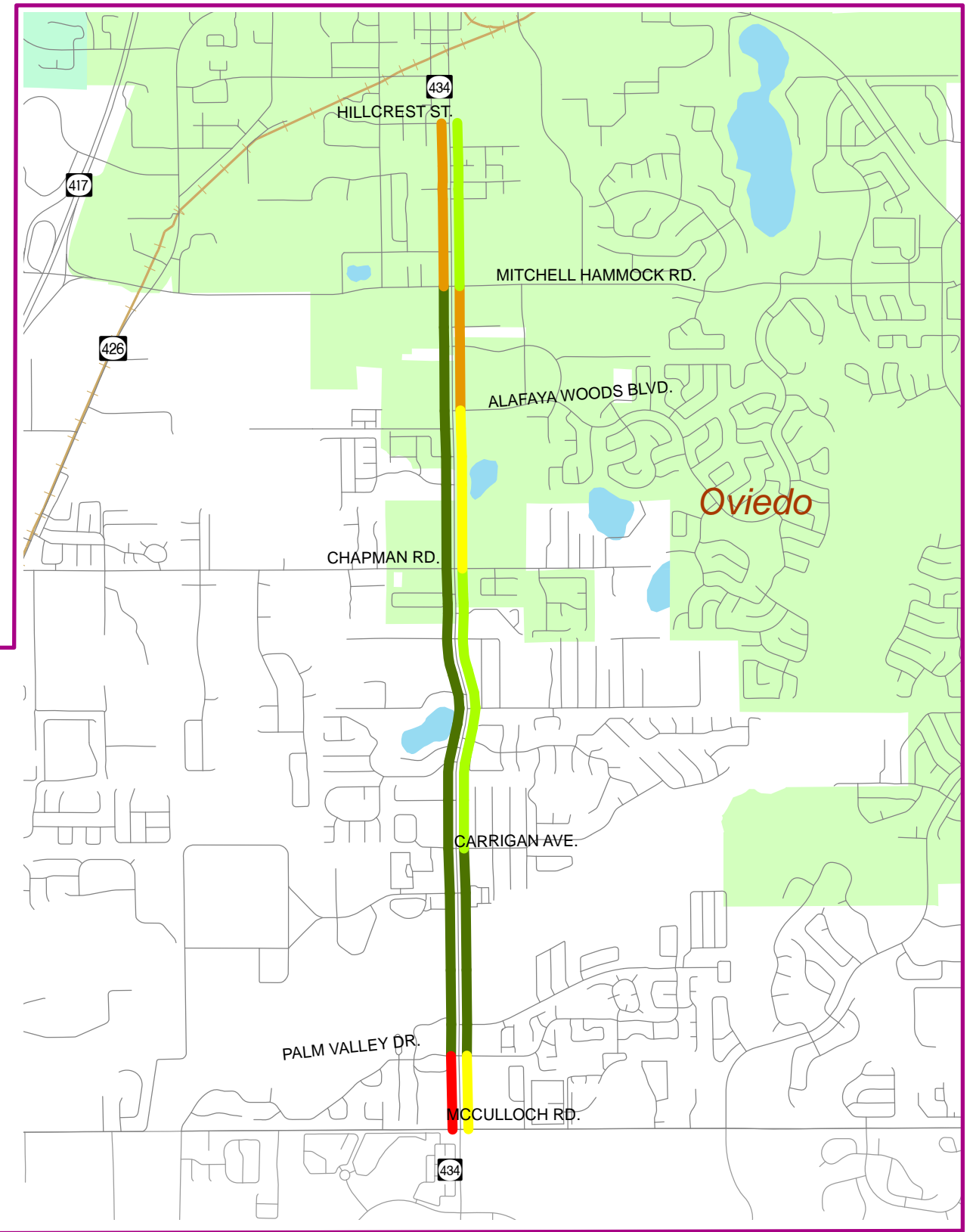
#### After Condition

Date of Collection: 4/13/2010  
 Distance: 3.58 miles  
 From: McCulloch Rd.  
 To: Hillcrest St.

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

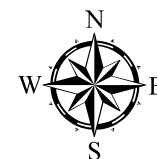
NB Avg Speed: 30.3 MPH  
 NB Travel Time: 7.09 MIN  
 NB Delay Time: 1.53 MIN

SB Avg Speed: 29.2 MPH  
 SB Travel Time: 7.35 MIN  
 SB Delay Time: 2.17 MIN



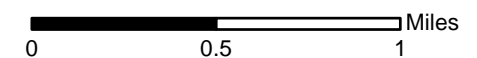
#### Level of Services:

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



## 2010 METROPLAN ORLANDO

### Travel Time Study





## SR 434 Part C : Mitchell Hammock Rd to Palm Valley Dr: Before & After Study

### 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)
<b>Northbound/Eastbound - AM Peak Hour</b>						
1130	389.4	89.4	33.1	0.1220	122.23	137.86
<b>Northbound/Eastbound - PM Peak Hour</b>						
1953	454.2	138.0	28.4	0.1230	246.40	240.22
<b>Southbound/Westbound - AM Peak Hour</b>						
1669	444.0	117.6	29.0	0.1240	205.84	206.96
<b>Southbound/Westbound - PM Peak Hour</b>						
1108	537.6	232.8	24.0	0.1230	165.46	136.28

\*Traffic Volumes are obtained from the latest FDOT Counts

## SR 434 Part C : Mitchell Hammock Rd to Palm Valley Dr: Before & After Study

### 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						
1130	315.6	19.2	40.8	0.1220	99.06	137.86
Northbound/Eastbound - PM Peak Hour						
1953	425.4	91.8	30.3	0.1240	230.78	242.17
Southbound/Westbound - AM Peak Hour						
1669	386.4	100.8	33.4	0.1230	179.14	205.29
Southbound/Westbound - PM Peak Hour						
1108	441.0	130.2	29.2	0.1230	135.73	136.28

\*Traffic Volumes are obtained from the latest FDOT Counts

**SR 434 Part C : Mitchell Hammock Rd to Palm Valley Dr: Before & After Study**  
**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)	328.07	278.20	411.86	366.51
Total Fuel Consumption (gallons)	344.82	343.15	376.50	378.46

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$847.76	\$760.69
<b>Annual User Benefit</b>	<b>\$254,327.92</b>	<b>\$228,205.56</b>
<b>Total Annual User Benefit =</b>	<b>\$482,533.47</b>	
Total Signal Retiming Annual Cost	\$9,678.71	
<b>User Benefit / Cost Ratio</b>	<b>49.86</b>	

Notes:

- \* Value of Delay Time is \$16.90 per hour (\$15.47 from Mobility Data for Orlando for the year 2007 & grown 3% per year)
- \* Fuel consumption is valued to the rate of \$2.98 per gallon.
- \* 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**

**Wilshire Dr to Casselton Dr**

**TABLE 20**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 436 - Northbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.	
<b>AM PEAK HOUR - BEFORE CONDITION</b>																		
Aloma Ave. to Castleton Blvd.	Seminole	Arterial	Outlying Business District	1	3	1	50	2,746	4	Signal	46.2	4.2	I	40.5	B	0.81		
Castleton Blvd. to Winter Woods Blvd.	Seminole	Arterial	Outlying Business District	1	3	1	50	2,746	4	Signal	39.0	0.0	I	48.0	A	0.96		
Winter Woods Blvd. to Howell Branch Rd.	Seminole	Arterial	Outlying Business District	2	3	1	50	2,429	4	Signal	95.4	51.0	I	17.4	E	0.35		
Howell Branch Rd. to Lake Howell Ln.	Seminole	Arterial	Outlying Business District	1	3	1	50	2,851	4	Signal	42.0	0.0	I	46.3	A	0.93		
Lake Howell Ln. to Lake Howell Square	Seminole	Arterial	Outlying Business District	1	3	1	50	1,373	4	Signal	19.8	0.0	I	47.3	A	0.95		
Lake Howell Square to Lake Howell Rd.	Seminole	Arterial	Outlying Business District	1	3	1	50	1,320	4	Signal	19.2	0.0	I	46.9	A	0.94		
Lake Howell Rd. to Sausalito Blvd.	Seminole	Arterial	Outlying Business District	1	4	0	50/45	1,795	4	Signal	53.4	13.2	I	22.9	D	0.51		
Sausalito Blvd. to Red Bug Lake Rd.	Seminole	Arterial	Outlying Business District	1	4	0	45	898	4	Signal	31.2	6.0	II	19.6	D	0.44		
Red Bug Lake Rd. to Kewanee Tr.	Seminole	Arterial	Outlying Business District	1	3	1	45	1,109	4	Signal	20.4	0.0	II	37.1	A	0.82		
Kewanee Tr. to Wilshire Blvd.	Seminole	Arterial	Outlying Business District	1	3	0	45	1,373	4	Signal	22.8	0.0	II	41.1	A	0.91		
Wilshire Blvd. to Fern Park Blvd	Seminole	Arterial	Outlying Business District	1	3	0	45	2,851	4	Signal	45.6	0.0	II	42.6	A	0.95		
<b>TOTAL</b>							50	21,490			435.0	74.4	I	33.7	C	0.67	0.140 gal/veh	
<b>PM PEAK HOUR - BEFORE CONDITION</b>																		
Aloma Ave. to Castleton Blvd.	Seminole	Arterial	Outlying Business District	1	3	1	50	2,746	6	Signal	47.4	0.0	I	39.5	B	0.79		
Castleton Blvd. to Winter Woods Blvd.	Seminole	Arterial	Outlying Business District	1	3	1	50	2,746	6	Signal	63.6	14.4	I	29.4	C	0.59		
Winter Woods Blvd. to Howell Branch Rd.	Seminole	Arterial	Outlying Business District	2	3	1	50	2,429	6	Signal	130.8	75.0	I	12.7	F	0.25		
Howell Branch Rd. to Lake Howell Ln.	Seminole	Arterial	Outlying Business District	1	3	1	50	2,851	6	Signal	61.2	7.2	I	31.8	C	0.64		
Lake Howell Ln. to Lake Howell Square	Seminole	Arterial	Outlying Business District	1	3	1	50	1,373	6	Signal	47.4	18.0	I	19.7	E	0.39		
Lake Howell Square to Lake Howell Rd.	Seminole	Arterial	Outlying Business District	1	3	1	50	1,320	6	Signal	36.0	10.2	I	25.0	D	0.50		
Lake Howell Rd. to Sausalito Blvd.	Seminole	Arterial	Outlying Business District	1	4	0	50/45	1,795	6	Signal	70.8	26.4	I	17.3	E	0.38		
Sausalito Blvd. to Red Bug Lake Rd.	Seminole	Arterial	Outlying Business District	1	4	0	45	898	6	Signal	144.6	111.0	II	4.2	F	0.09		
Red Bug Lake Rd. to Kewanee Tr.	Seminole	Arterial	Outlying Business District	1	3	1	45	1,109	6	Signal	33.0	8.4	II	22.9	C	0.51		
Kewanee Tr. to Wilshire Blvd.	Seminole	Arterial	Outlying Business District	1	3	0	45	1,373	6	Signal	26.4	0.0	II	35.5	A	0.79		
Wilshire Blvd. to Fern Park Blvd	Seminole	Arterial	Outlying Business District	1	3	0	45	2,851	6	Signal	59.4	5.4	II	32.7	B	0.73		
<b>TOTAL</b>							50	21,490			720.6	276.0	I	20.3	E	0.41	0.146 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 20**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 436 - Southbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Fern Park Blvd. to Wilshire Blvd.	Seminole	Arterial	Outlying Business District	1	3	1	45	2,851	4	Signal	54.0	4.8	II	36.0	A	0.80	
Wilshire Blvd. to Kewanee Tr.	Seminole	Arterial	Outlying Business District	1	3	1	45	1,373	4	Signal	20.4	0.0	II	45.9	A	1.02	
Kewanee Tr. to Red Bug Lake Rd.	Seminole	Arterial	Outlying Business District	2	3	1	45	1,109	4	Signal	15.6	0.0	II	48.5	A	1.08	
Red Bug Lake Rd. to Sausalito Blvd.	Seminole	Arterial	Outlying Business District	1	3	1	45	898	4	Signal	17.4	2.4	II	35.2	A	0.78	
Sausalito Blvd. to Lake Howell Rd.	Seminole	Arterial	Outlying Business District	1	3	1	45/50	1,795	4	Signal	26.4	0.0	I	46.4	A	1.03	
Lake Howell Rd. to Lake Howell Square	Seminole	Arterial	Outlying Business District	1	3	1	50	1,320	4	Signal	31.8	6.0	I	28.3	C	0.57	
Lake Howell Square to Lake Howell Ln.	Seminole	Arterial	Outlying Business District	1	3	1	50	1,373	4	Signal	19.8	0.0	I	47.3	A	0.95	
Lake Howell Ln. to Howell Branch Rd.	Seminole	Arterial	Outlying Business District	2	3	1	50	2,851	4	Signal	70.8	16.2	I	27.5	C	0.55	
Howell Branch Rd. to Winter Woods Blvd.	Seminole	Arterial	Outlying Business District	1	3	1	50	2,429	4	Signal	45.0	1.2	I	36.8	B	0.74	
Winter Woods Blvd. to Castelton Blvd.	Seminole	Arterial	Outlying Business District	1	3	1	50	2,746	4	Signal	54.6	7.2	I	34.3	B	0.69	
Castelton Blvd. to Aloma Ave	Seminole	Arterial	Outlying Business District	1	3	1	50	2,746	4	Signal	147.6	84.0	I	12.7	F	0.25	
<b>TOTAL</b>							50	21,490			503.4	121.8	I	29.1	C	0.58	0.141 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Fern Park Blvd. to Wilshire Blvd.	Seminole	Arterial	Outlying Business District	1	3	1	45	2,851	5	Signal	66.6	13.2	II	29.2	B	0.65	
Wilshire Blvd. to Kewanee Tr.	Seminole	Arterial	Outlying Business District	1	3	1	45	1,373	5	Signal	67.2	30.6	II	13.9	E	0.31	
Kewanee Tr. to Red Bug Lake Rd.	Seminole	Arterial	Outlying Business District	2	3	1	45	1,109	5	Signal	19.2	0.6	II	39.4	A	0.87	
Red Bug Lake Rd. to Sausalito Blvd.	Seminole	Arterial	Outlying Business District	1	3	1	45	898	5	Signal	33.0	16.8	II	18.5	D	0.41	
Sausalito Blvd. to Lake Howell Rd.	Seminole	Arterial	Outlying Business District	1	3	1	45/50	1,795	5	Signal	41.4	9.0	I	29.6	C	0.66	
Lake Howell Rd. to Lake Howell Square	Seminole	Arterial	Outlying Business District	1	3	1	50	1,320	5	Signal	43.8	13.8	I	20.5	E	0.41	
Lake Howell Square to Lake Howell Ln.	Seminole	Arterial	Outlying Business District	1	3	1	50	1,373	5	Signal	21.6	0.0	I	43.3	A	0.87	
Lake Howell Ln. to Howell Branch Rd.	Seminole	Arterial	Outlying Business District	2	3	1	50	2,851	5	Signal	144.0	82.2	I	13.5	F	0.27	
Howell Branch Rd. to Winter Woods Blvd.	Seminole	Arterial	Outlying Business District	1	3	1	50	2,429	5	Signal	72.6	22.8	I	22.8	D	0.46	
Winter Woods Blvd. to Castelton Blvd.	Seminole	Arterial	Outlying Business District	1	3	1	50	2,746	5	Signal	42.6	0.0	I	43.9	A	0.88	
Castelton Blvd. to Aloma Ave	Seminole	Arterial	Outlying Business District	1	3	1	50	2,746	5	Signal	137.4	82.8	I	13.6	F	0.27	
<b>TOTAL</b>							50	21,490			689.4	271.8	I	21.3	D	0.43	0.145 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 20**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 436 - Northbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.	
<b>AM PEAK HOUR - AFTER CONDITION</b>																		
Aloma Ave. to Castelton Blvd.	Seminole	Arterial	Outlying Business District	1	3	1	50	2,746	4	Signal	45.6	0.0	I	41.1	B	0.82		
Castelton Blvd. to Winter Woods Blvd.	Seminole	Arterial	Outlying Business District	1	3	1	50	2,746	4	Signal	37.8	0.0	I	49.5	A	0.99		
Winter Woods Blvd. to Howell Branch Rd.	Seminole	Arterial	Outlying Business District	2	3	1	50	2,429	4	Signal	84.0	45.0	I	19.7	E	0.39		
Howell Branch Rd. to Lake Howell Ln.	Seminole	Arterial	Outlying Business District	1	3	1	50	2,851	4	Signal	44.4	0.0	I	43.8	A	0.88		
Lake Howell Ln. to Lake Howell Square	Seminole	Arterial	Outlying Business District	1	3	1	50	1,373	4	Signal	33.0	3.6	I	28.4	C	0.57		
Lake Howell Square to Lake Howell Rd.	Seminole	Arterial	Outlying Business District	1	3	1	50	1,320	4	Signal	20.4	0.0	I	44.1	A	0.88		
Lake Howell Rd. to Sausalito Blvd.	Seminole	Arterial	Outlying Business District	1	4	0	50/45	1,795	4	Signal	27.6	0.0	I	44.3	A	0.99		
Sausalito Blvd. to Red Bug Lake Rd.	Seminole	Arterial	Outlying Business District	1	4	0	45	898	4	Signal	22.8	1.8	II	26.8	C	0.60		
Red Bug Lake Rd. to Kewanee Tr.	Seminole	Arterial	Outlying Business District	1	3	1	45	1,109	4	Signal	18.0	0.0	II	42.0	A	0.93		
Kewanee Tr. to Wilshire Blvd.	Seminole	Arterial	Outlying Business District	1	3	0	45	1,373	4	Signal	21.6	0.0	II	43.3	A	0.96		
Wilshire Blvd. to Fern Park Blvd	Seminole	Arterial	Outlying Business District	1	3	0	45	2,851	4	Signal	54.0	9.6	II	36.0	A	0.80		
<b>TOTAL</b>							50	21,490			409.2	60.0	I	35.8	B	0.72	0.139 gal/veh	
<b>PM PEAK HOUR - AFTER CONDITION</b>																		
Aloma Ave. to Castelton Blvd.	Seminole	Arterial	Outlying Business District	1	3	1	50	2,746	4	Signal	66.0	12.0	I	28.4	C	0.57		
Castelton Blvd. to Winter Woods Blvd.	Seminole	Arterial	Outlying Business District	1	3	1	50	2,746	4	Signal	40.2	0.0	I	46.6	A	0.93		
Winter Woods Blvd. to Howell Branch Rd.	Seminole	Arterial	Outlying Business District	2	3	1	50	2,429	4	Signal	77.4	31.8	I	21.4	D	0.43		
Howell Branch Rd. to Lake Howell Ln.	Seminole	Arterial	Outlying Business District	1	3	1	50	2,851	4	Signal	44.4	0.0	I	43.8	A	0.88		
Lake Howell Ln. to Lake Howell Square	Seminole	Arterial	Outlying Business District	1	3	1	50	1,373	4	Signal	54.6	28.8	I	17.1	E	0.34		
Lake Howell Square to Lake Howell Rd.	Seminole	Arterial	Outlying Business District	1	3	1	50	1,320	4	Signal	33.0	10.2	I	27.3	C	0.55		
Lake Howell Rd. to Sausalito Blvd.	Seminole	Arterial	Outlying Business District	1	4	0	50/45	1,795	4	Signal	31.8	2.4	I	38.5	B	0.86		
Sausalito Blvd. to Red Bug Lake Rd.	Seminole	Arterial	Outlying Business District	1	4	0	45	898	4	Signal	79.8	55.8	II	7.7	F	0.17		
Red Bug Lake Rd. to Kewanee Tr.	Seminole	Arterial	Outlying Business District	1	3	1	45	1,109	4	Signal	19.2	0.0	II	39.4	A	0.87		
Kewanee Tr. to Wilshire Blvd.	Seminole	Arterial	Outlying Business District	1	3	0	45	1,373	4	Signal	36.6	13.8	II	25.6	C	0.57		
Wilshire Blvd. to Fern Park Blvd	Seminole	Arterial	Outlying Business District	1	3	0	45	2,851	4	Signal	106.2	57.0	II	18.3	D	0.41		
<b>TOTAL</b>							50	21,490			589.2	211.8	I	24.9	D	0.50	0.141 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.

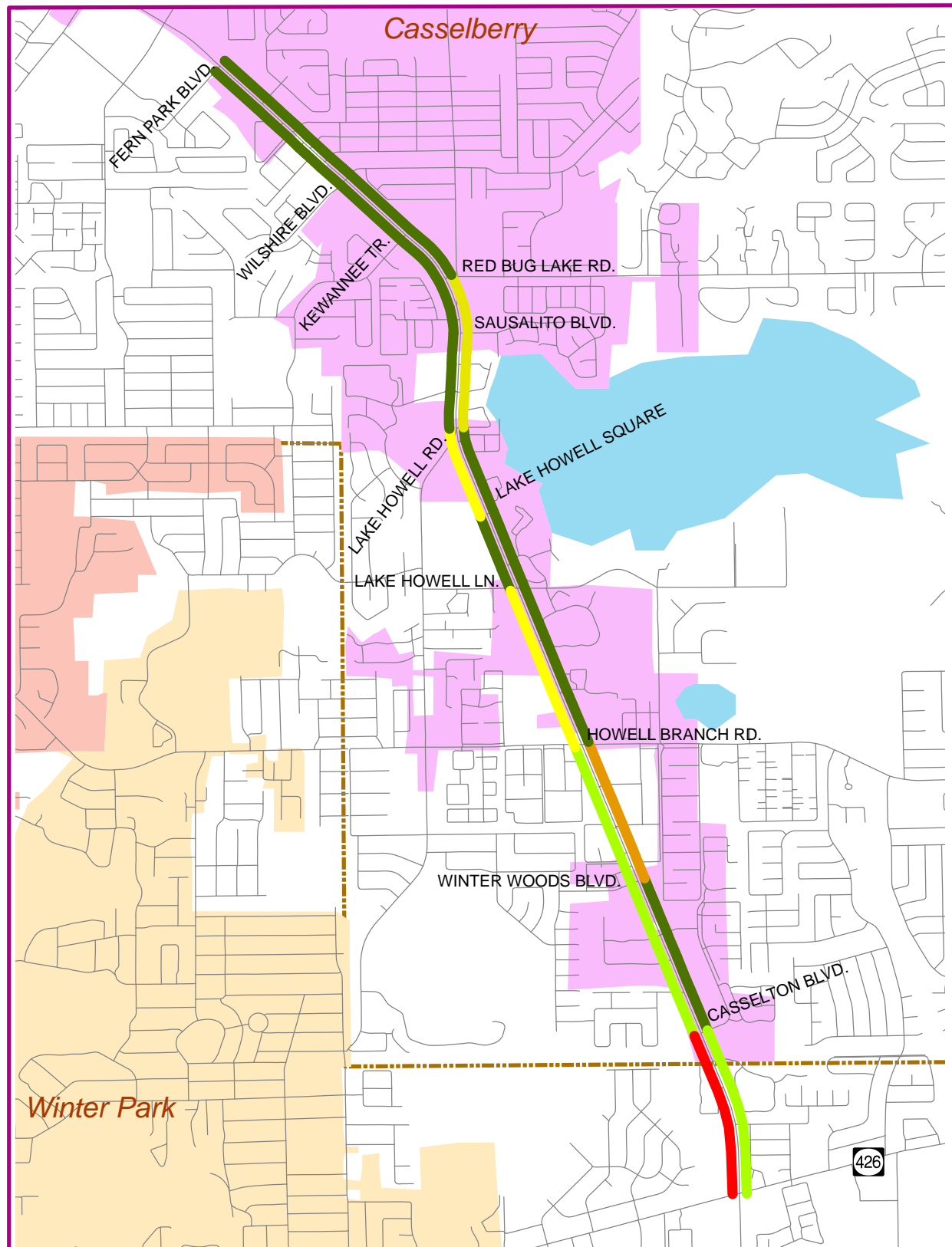
**TABLE 20**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 436 - Southbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Fern Park Blvd. to Wilshire Blvd.	Seminole	Arterial	Outlying Business District	1	3	1	45	2,851	4	Signal	58.2	9.6	II	33.4	B	0.74	
Wilshire Blvd. to Kewanee Tr.	Seminole	Arterial	Outlying Business District	1	3	1	45	1,373	4	Signal	29.4	6.6	II	31.8	B	0.71	
Kewanee Tr. to Red Bug Lake Rd.	Seminole	Arterial	Outlying Business District	2	3	1	45	1,109	4	Signal	43.8	22.8	II	17.3	D	0.38	
Red Bug Lake Rd. to Sausalito Blvd.	Seminole	Arterial	Outlying Business District	1	3	1	45	898	4	Signal	13.2	0.0	II	46.4	A	1.03	
Sausalito Blvd. to Lake Howell Rd.	Seminole	Arterial	Outlying Business District	1	3	1	45/50	1,795	4	Signal	24.6	0.0	I	49.8	A	1.11	
Lake Howell Rd. to Lake Howell Square	Seminole	Arterial	Outlying Business District	1	3	1	50	1,320	4	Signal	17.4	0.0	I	51.7	A	1.03	
Lake Howell Square to Lake Howell Ln.	Seminole	Arterial	Outlying Business District	1	3	1	50	1,373	4	Signal	30.6	3.0	I	30.6	C	0.61	
Lake Howell Ln. to Howell Branch Rd.	Seminole	Arterial	Outlying Business District	2	3	1	50	2,851	4	Signal	54.0	0.6	I	36.0	B	0.72	
Howell Branch Rd. to Winter Woods Blvd.	Seminole	Arterial	Outlying Business District	1	3	1	50	2,429	4	Signal	45.0	5.4	I	36.8	B	0.74	
Winter Woods Blvd. to Castelton Blvd.	Seminole	Arterial	Outlying Business District	1	3	1	50	2,746	4	Signal	49.2	4.8	I	38.0	B	0.76	
Castelton Blvd. to Aloma Ave	Seminole	Arterial	Outlying Business District	1	3	1	50	2,746	4	Signal	114.6	58.8	I	16.3	E	0.33	
<b>TOTAL</b>							50	21,490			480.0	111.6	I	30.5	C	0.61	0.143 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Fern Park Blvd. to Wilshire Blvd.	Seminole	Arterial	Outlying Business District	1	3	1	45	2,851	4	Signal	69.6	15.6	II	27.9	C	0.62	
Wilshire Blvd. to Kewanee Tr.	Seminole	Arterial	Outlying Business District	1	3	1	45	1,373	4	Signal	51.6	23.4	II	18.1	D	0.40	
Kewanee Tr. to Red Bug Lake Rd.	Seminole	Arterial	Outlying Business District	2	3	1	45	1,109	4	Signal	54.6	28.2	II	13.8	E	0.31	
Red Bug Lake Rd. to Sausalito Blvd.	Seminole	Arterial	Outlying Business District	1	3	1	45	898	4	Signal	15.0	0.0	II	40.8	A	0.91	
Sausalito Blvd. to Lake Howell Rd.	Seminole	Arterial	Outlying Business District	1	3	1	45/50	1,795	4	Signal	25.2	0.0	I	48.6	A	1.08	
Lake Howell Rd. to Lake Howell Square	Seminole	Arterial	Outlying Business District	1	3	1	50	1,320	4	Signal	48.0	15.0	I	18.7	E	0.37	
Lake Howell Square to Lake Howell Ln.	Seminole	Arterial	Outlying Business District	1	3	1	50	1,373	4	Signal	23.4	0.0	I	40.0	B	0.80	
Lake Howell Ln. to Howell Branch Rd.	Seminole	Arterial	Outlying Business District	2	3	1	50	2,851	4	Signal	127.2	67.8	I	15.3	F	0.31	
Howell Branch Rd. to Winter Woods Blvd.	Seminole	Arterial	Outlying Business District	1	3	1	50	2,429	4	Signal	48.0	3.6	I	34.5	B	0.69	
Winter Woods Blvd. to Castelton Blvd.	Seminole	Arterial	Outlying Business District	1	3	1	50	2,746	4	Signal	46.8	0.0	I	40.0	B	0.80	
Castelton Blvd. to Aloma Ave	Seminole	Arterial	Outlying Business District	1	3	1	50	2,746	4	Signal	99.0	42.6	I	18.9	E	0.38	
<b>TOTAL</b>							50	21,490			608.4	196.2	I	24.1	D	0.48	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.





**SR 436 Part B  
- AM Peak**

**Before Condition**

Date of Collection: 2/9/2010  
 Distance: 4.07 miles  
 From: Aloma Ave.  
 To: Fern Park Blvd.

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

NB Avg Speed: 33.7 MPH  
 NB Travel Time: 7.25 MIN  
 NB Delay Time: 1.23 MIN

SB Avg Speed: 29.1 MPH  
 SB Travel Time: 8.39 MIN  
 SB Delay Time: 2.03 MIN

**SR 436 Part B  
- AM Peak**

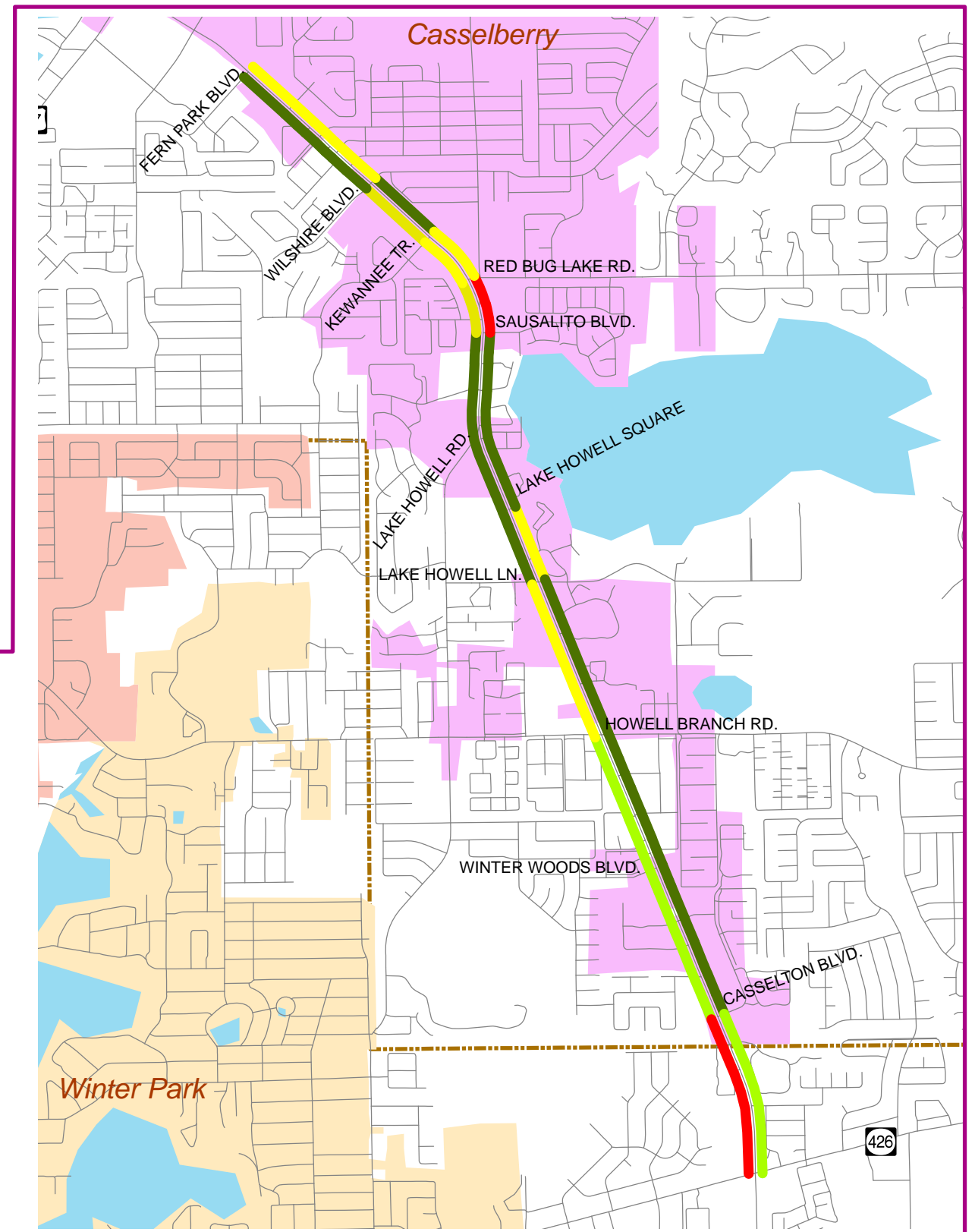
**After Condition**

Date of Collection: 5/11/2010  
 Distance: 4.07 miles  
 From: Aloma Ave.  
 To: Fern Park Blvd.

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

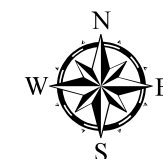
NB Avg Speed: 35.8 MPH  
 NB Travel Time: 6.82 MIN  
 NB Delay Time: 1.00 MIN

SB Avg Speed: 30.5 MPH  
 SB Travel Time: 8.00 MIN  
 SB Delay Time: 1.86 MIN



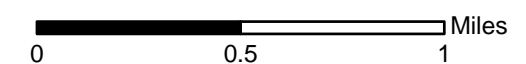
**Level of Services:**

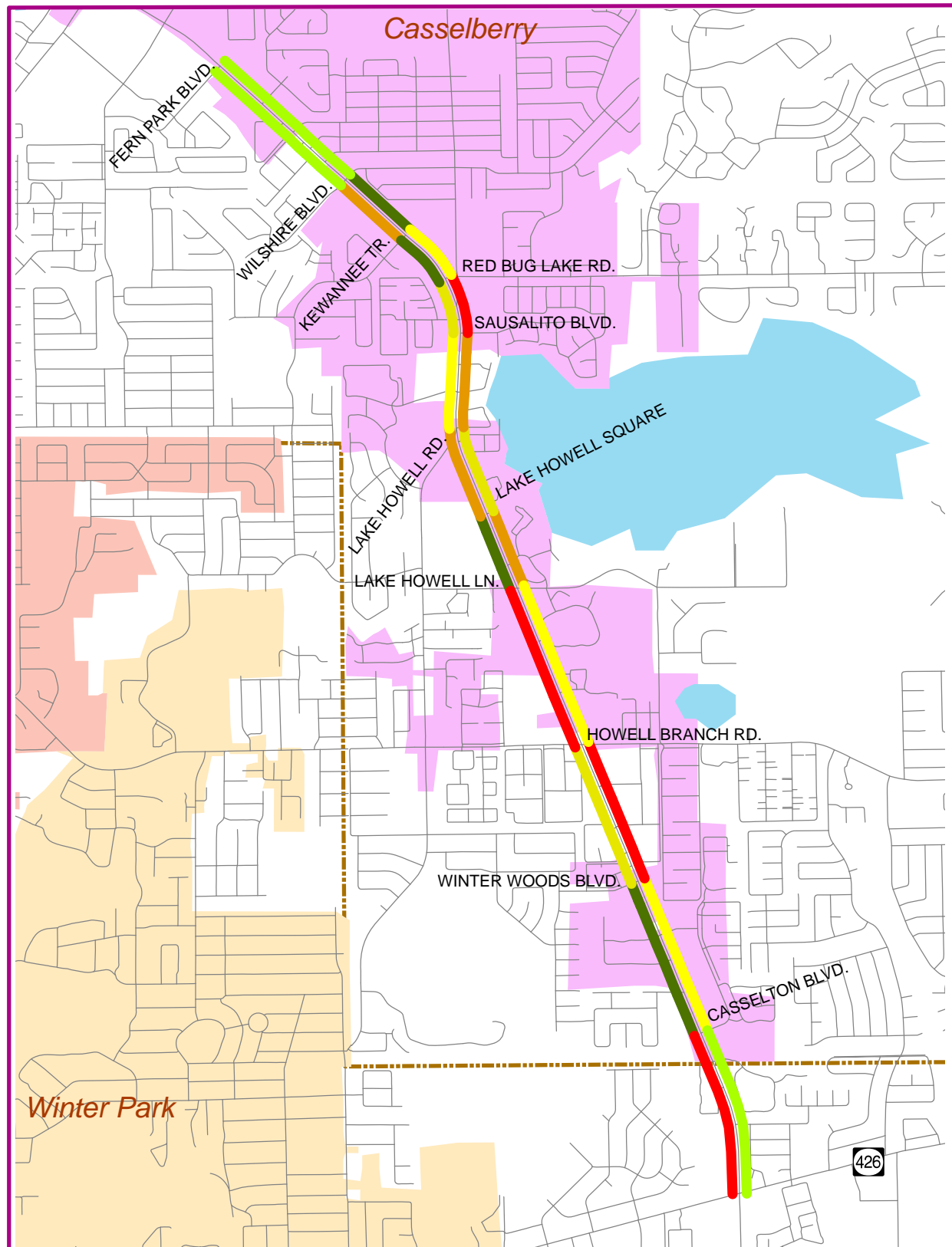
- |  |   |  |   |  |               |
|--|---|--|---|--|---------------|
|  | A |  | D |  | Roads         |
|  | B |  | E |  | City Boundary |
|  | C |  | F |  | Water         |



**2010 METROPLAN ORLANDO**

*Travel Time Study*





**SR 436 Part B  
- PM Peak**

**Before Condition**

Date of Collection: 2/9/2010  
 Distance: 4.07 miles  
 From: Aloma Ave.  
 To: Fern Park Blvd.

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

NB Avg Speed: 20.3 MPH  
 NB Travel Time: 12.01 MIN  
 NB Delay Time: 4.60 MIN

SB Avg Speed: 21.3 MPH  
 SB Travel Time: 11.49 MIN  
 SB Delay Time: 4.53 MIN

**SR 436 Part B  
- PM Peak**

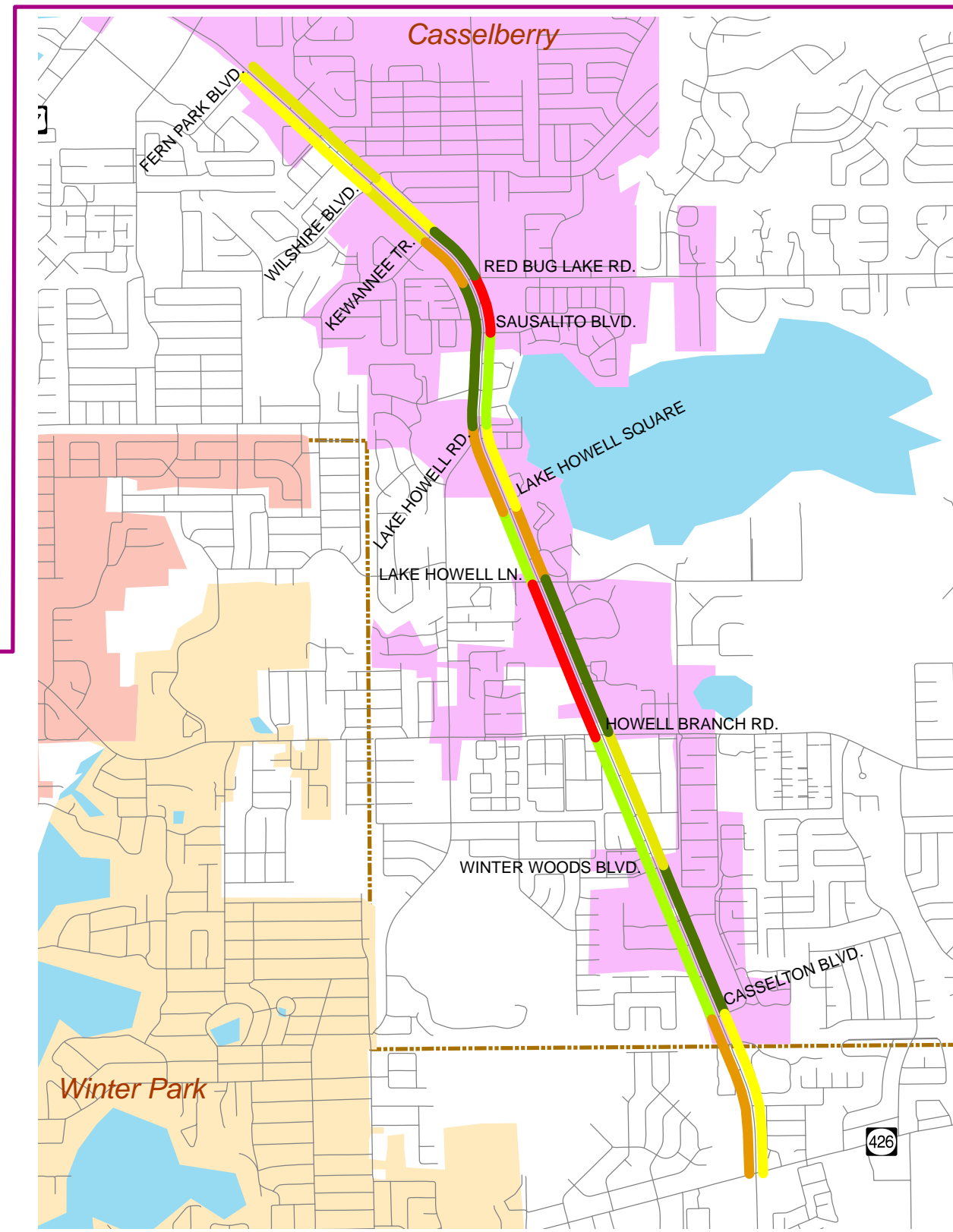
**After Condition**

Date of Collection: 4/13/2010  
 Distance: 4.07 miles  
 From: Aloma Ave.  
 To: Fern Park Blvd.

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

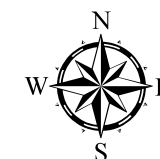
NB Avg Speed: 24.9 MPH  
 NB Travel Time: 9.82 MIN  
 NB Delay Time: 3.53 MIN

SB Avg Speed: 24.1 MPH  
 SB Travel Time: 10.14 MIN  
 SB Delay Time: 3.27 MIN



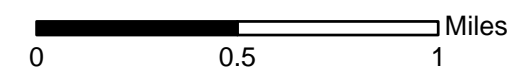
**Level of Services:**

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



**2010 METROPLAN ORLANDO**

*Travel Time Study*



## SR 436 : Wilshire Dr to Casselton Dr : Before & After Study

### 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)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
<b>Northbound/Eastbound - AM Peak Hour</b>						
2418	435.0	74.4	33.7	0.1400	292.18	338.52
<b>Northbound/Eastbound - PM Peak Hour</b>						
2434	720.6	276.0	20.3	0.1460	487.21	355.36
<b>Southbound/Westbound - AM Peak Hour</b>						
2041	503.4	121.8	29.1	0.1410	285.40	287.78
<b>Southbound/Westbound - PM Peak Hour</b>						
2721	689.4	271.8	21.3	0.1450	521.07	394.55

\*Traffic Volumes are obtained from the latest FDOT Counts

## SR 436 : Wilshire Dr to Casselton Dr : Before & After Study

### 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)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
Northbound/Eastbound - AM Peak Hour						
2418	409.2	60.0	35.8	0.1390	274.85	336.10
Northbound/Eastbound - PM Peak Hour						
2434	589.2	211.8	24.9	0.1410	398.36	343.19
Southbound/Westbound - AM Peak Hour						
2041	480.0	111.6	30.5	0.1410	272.13	287.78
Southbound/Westbound - PM Peak Hour						
2721	608.4	196.2	24.1	0.1430	459.85	389.10

\*Traffic Volumes are obtained from the latest FDOT Counts

**SR 436 : Wilshire Dr to Casselton Dr : Before & After Study**  
**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)	577.57	546.98	1,008.28	858.21
Total Fuel Consumption (gallons)	626.30	623.88	749.91	732.30

BENEFITS	AM PEAK HOUR (7:30-9:00 AM)	PM PEAK HOUR (4:15-5:45 PM)
User Benefit Per Day	\$524.27	\$2,588.56
<b>Annual User Benefit</b>	<b>\$157,280.88</b>	<b>\$776,567.07</b>
<b>Total Annual User Benefit =</b>	<b>\$933,847.95</b>	
Total Signal Retiming Annual Cost	\$17,509.32	
<b>User Benefit / Cost Ratio</b>	<b>53.33</b>	

Notes:

- \* Value of Delay Time is \$16.90 per hour (\$15.47 from Mobility Data for Orlando for the year 2007 & grown 3% per year)
- \* Fuel consumption is valued to the rate of \$2.98 per gallon.
- \* 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 46**

**Park Dr to Sanford Ave**

**TABLE 21**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 46 - Eastbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR -BEFORE CONDITION</b>																	
US 17/92 to Park Ave.	Seminole	Arterial	Residential Area	1	2	0	35	1,637	6	Signal	40.2	7.8	II	27.8	C	0.79	
Park Ave. to Sanford Ave.	Seminole	Arterial	Residential Area	1	2	0	35	950	6	Signal	64.2	40.2	II	10.1	F	0.29	
Sanford Ave. to RR Tracks	Seminole	Arterial	Residential Area	0	2	0	35	1,478	6	NA Flash Signal	28.2	0.0	II	35.7	A	1.02	
RR Tracks to Mellonville Ave.	Seminole	Arterial	Residential Area	1	1	1	40	1,214	6	Signal	19.8	0.0	II	41.8	A	1.05	
<b>TOTAL</b>							35	5,280			152.4	48.0	II	23.6	C	0.67	0.036 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
US 17/92 to Park Ave.	Seminole	Arterial	Residential Area	1	2	0	35	1,637	9	Signal	39.0	6.0	II	28.6	B	0.82	
Park Ave. to Sanford Ave.	Seminole	Arterial	Residential Area	1	2	0	35	950	9	Signal	49.2	24.6	II	13.2	E	0.38	
Sanford Ave. to RR Tracks	Seminole	Arterial	Residential Area	0	2	0	35	1,478	9	NA Flash Signal	27.6	0.0	II	36.5	A	1.04	
Sanford Ave. to Mellonville Ave.	Seminole	Arterial	Residential Area	1	1	1	40	1,214	9	Signal	19.8	0.0	II	41.8	A	1.05	
<b>TOTAL</b>							35	5,280			135.6	30.6	II	26.5	C	0.76	0.035 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 2010 METROPLAN Orlando Travel Time Study**  
**SR 46 - Westbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Mellonville Ave. to RR Tracks	Seminole	Arterial	Residential Area	0	2	0	40	1,214	6	NA	19.8	0.0	II	41.8	A	1.05	
RR Tracks to Sanford Ave.	Seminole	Arterial	Residential Area	1	2	0	40	1,478	6	Signal	38.4	11.4	II	26.2	C	0.66	
Sanford Ave. to Park Ave.	Seminole	Arterial	Residential Area	1	2	0	35	950	6	Signal	18.6	0.0	II	34.8	B	1.00	
Park Ave. to US 17/92	Seminole	Arterial	Residential Area	1	1	1	35	1,637	6	Signal	64.8	28.8	II	17.2	D	0.49	
<b>TOTAL</b>							40	5,280			141.6	40.2	II	25.4	C	0.64	0.035 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Mellonville Ave. to Sanford Ave.	Seminole	Arterial	Residential Area	0	2	0	40	1,214	9	NA	19.8	0.0	II	41.8	A	1.05	
RR Tracks to Sanford Ave.	Seminole	Arterial	Residential Area	1	2	0	40	1,478	9	Signal	56.4	24.6	II	17.9	D	0.45	
Sanford Ave. to Park Ave.	Seminole	Arterial	Residential Area	1	2	0	35	950	9	Signal	18.6	0.0	II	34.8	B	1.00	
Park Ave. to US 17/92	Seminole	Arterial	Residential Area	1	1	1	35	1,637	9	Signal	80.4	45.0	II	13.9	E	0.40	
<b>TOTAL</b>							40	5,280			175.2	69.6	II	20.5	D	0.51	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.



**TABLE 21**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 46 - Eastbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
US 17/92 to Park Ave.	Seminole	Arterial	Residential Area	1	2	0	35	1,637	12	Signal	32.4	1.2	II	34.4	B	0.98	
Park Ave. to Sanford Ave.	Seminole	Arterial	Residential Area	1	2	0	35	950	12	Signal	40.2	17.4	II	16.1	E	0.46	
Sanford Ave. to RR Tracks	Seminole	Arterial	Residential Area	0	2	0	35	1,478	12	NA Flash Signal	25.8	0.0	II	39.1	A	1.12	
RR Tracks to Mellonville Ave.	Seminole	Arterial	Residential Area	1	1	1	40	1,214	12	Signal	18.6	0.0	II	44.5	A	1.11	
<b>TOTAL</b>							35	5,280			117.0	18.6	II	30.8	B	0.88	0.035 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
US 17/92 to Park Ave.	Seminole	Arterial	Residential Area	1	2	0	35	1,637	11	Signal	33.6	2.4	II	33.2	B	0.95	
Park Ave. to Sanford Ave.	Seminole	Arterial	Residential Area	1	2	0	35	950	11	Signal	43.2	21.0	II	15.0	E	0.43	
Sanford Ave. to RR Tracks	Seminole	Arterial	Residential Area	0	2	0	35	1,478	11	NA Flash Signal	25.2	0.0	II	40.0	A	1.14	
Sanford Ave. to Mellonville Ave.	Seminole	Arterial	Residential Area	1	1	1	40	1,214	11	Signal	24.0	0.0	II	34.5	B	0.86	
<b>TOTAL</b>							35	5,280			126.0	23.4	II	28.6	B	0.82	0.035 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 2010 METROPLAN Orlando Travel Time Study**  
**SR 46 - Westbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Mellonville Ave. to RR Tracks	Seminole	Arterial	Residential Area	0	2	0	40	1,214	12	NA	19.8	0.0	II	41.8	A	1.05	
RR Tracks to Sanford Ave.	Seminole	Arterial	Residential Area	1	2	0	40	1,478	12	Signal	39.0	13.2	II	25.8	C	0.65	
Sanford Ave. to Park Ave.	Seminole	Arterial	Residential Area	1	2	0	35	950	12	Signal	19.2	1.8	II	33.7	B	0.96	
Park Ave. to US 17/92	Seminole	Arterial	Residential Area	1	1	1	35	1,637	12	Signal	36.0	4.8	II	31.0	B	0.89	
<b>TOTAL</b>							40	5,280			114.0	19.8	II	31.6	B	0.79	0.035 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Mellonville Ave. to Sanford Ave.	Seminole	Arterial	Residential Area	0	2	0	40	1,214	11	NA	20.4	0.0	II	40.6	A	1.01	
RR Tracks to Sanford Ave.	Seminole	Arterial	Residential Area	1	2	0	40	1,478	11	Signal	28.2	0.6	II	35.7	A	0.89	
Sanford Ave. to Park Ave.	Seminole	Arterial	Residential Area	1	2	0	35	950	11	Signal	17.4	0.0	II	37.2	A	1.06	
Park Ave. to US 17/92	Seminole	Arterial	Residential Area	1	1	1	35	1,637	11	Signal	61.2	25.2	II	18.2	D	0.52	
<b>TOTAL</b>							40	5,280			127.2	25.8	II	28.3	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.

**SR 46  
- AM Peak**

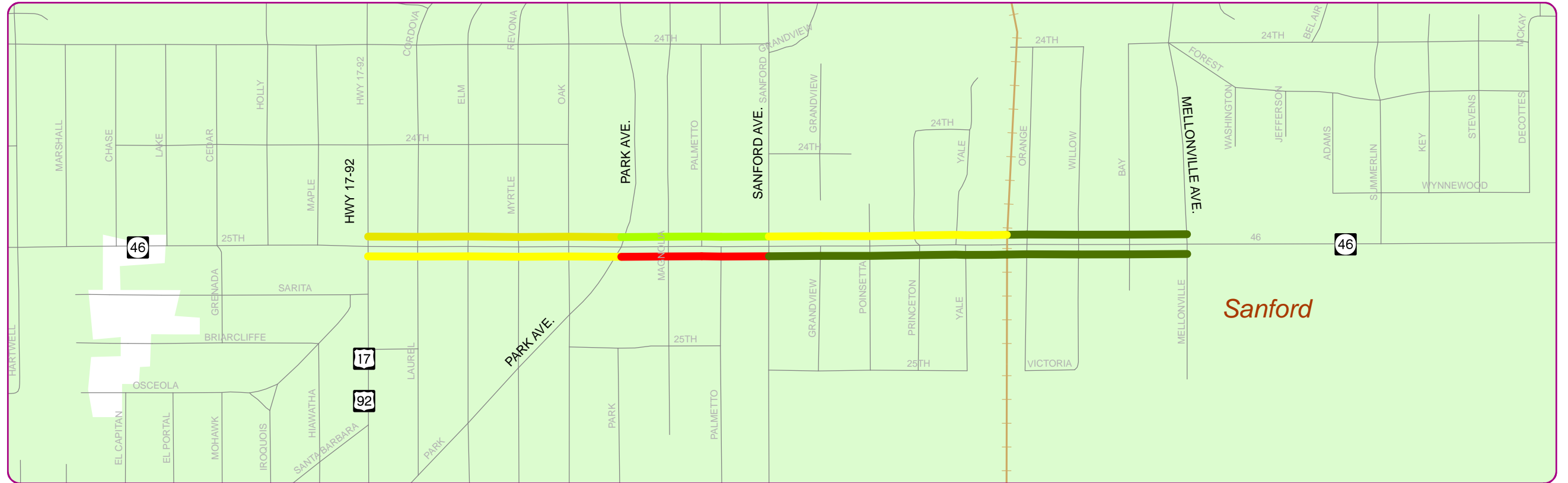
**Before Condition**

Date of Collection: 2/4/2010  
Distance: 1.00 mile  
From: Mellonville Ave.  
To: US 17/92

Start Time: 7:15 AM  
End Time: 8:30 AM

EB Avg Speed: 23.6 MPH  
EB Travel Time: 2.54 MIN  
EB Delay Time: 0.80 MIN

WB Avg Speed: 25.4 MPH  
WB Travel Time: 2.36 MIN  
WB Delay Time: 0.67 MIN



**SR 46  
- AM Peak**

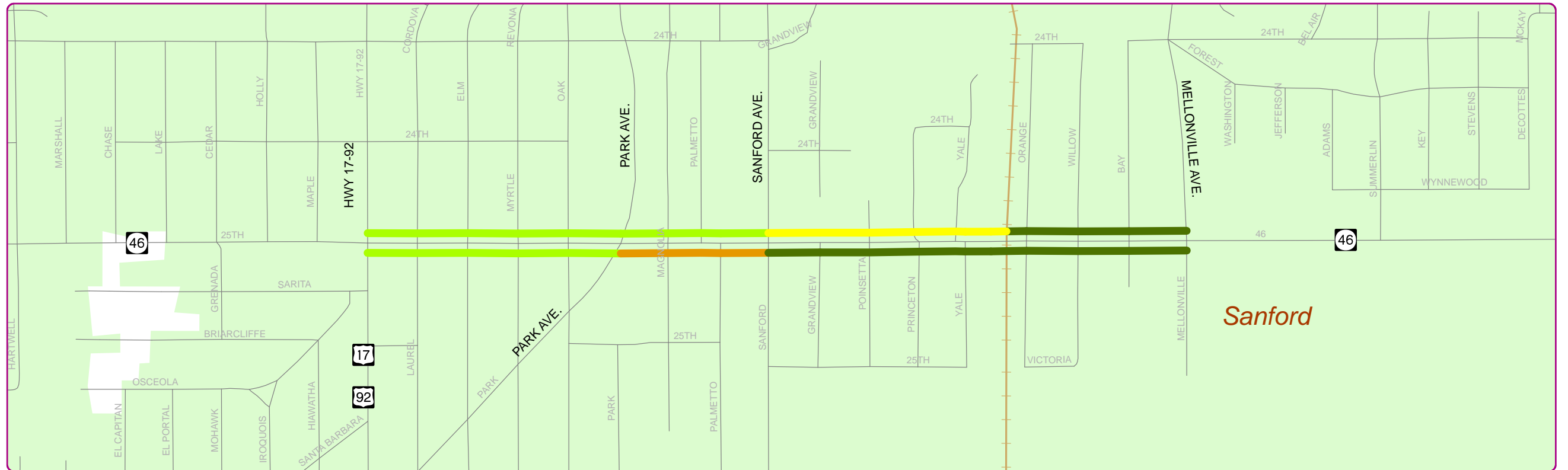
**After Condition**

Date of Collection: 5/12/2010  
Distance: 1.00 mile  
From: Mellonville Ave.  
To: US 17/92

Start Time: 7:15 AM  
End Time: 8:30 AM

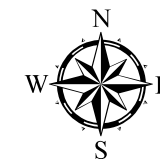
EB Avg Speed: 30.8 MPH  
EB Travel Time: 1.95 MIN  
EB Delay Time: 0.31 MIN

WB Avg Speed: 31.6 MPH  
WB Travel Time: 1.90 MIN  
WB Delay Time: 0.33 MIN



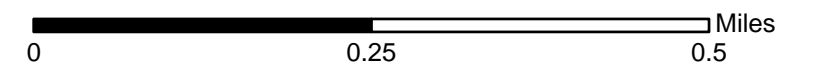
**Level of Services:**

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



**2010 METROPLAN ORLANDO**

*Travel Time Study*



**SR 46  
- PM Peak**

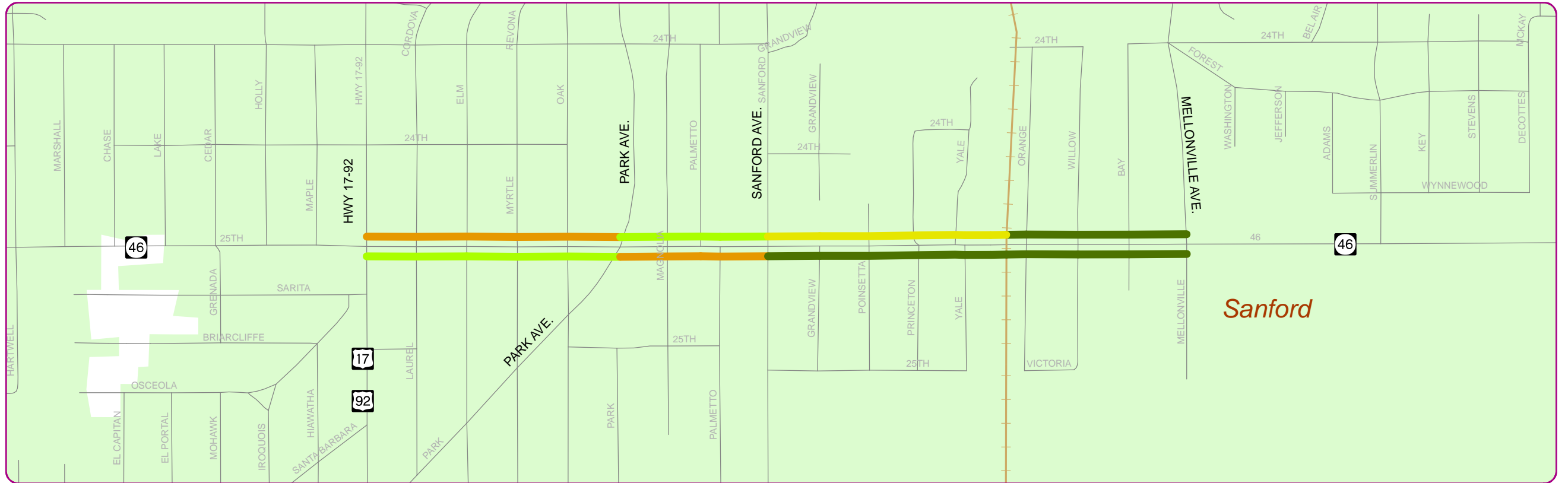
**Before Condition**

Date of Collection: 2/4/2010  
Distance: 1.00 mile  
From: Mellonville Ave.  
To: US 17/92

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

EB Avg Speed: 26.5 MPH  
EB Travel Time: 2.26 MIN  
EB Delay Time: 0.51 MIN

WB Avg Speed: 20.5 MPH  
WB Travel Time: 2.92 MIN  
WB Delay Time: 1.16 MIN



**SR 46  
- PM Peak**

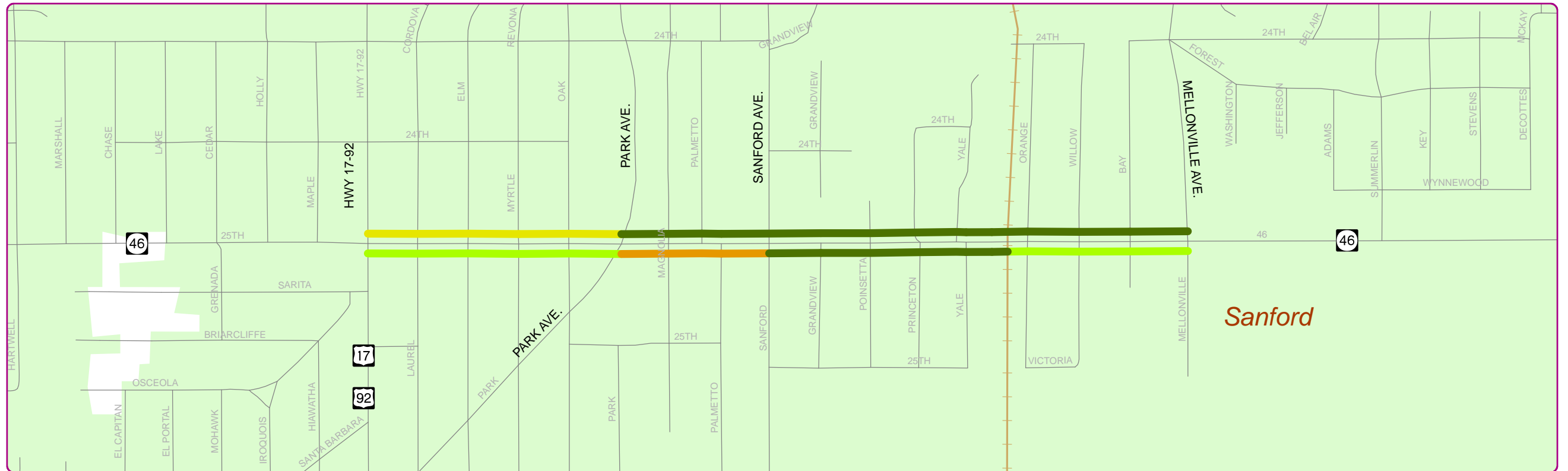
**After Condition**

Date of Collection: 5/12/2010  
Distance: 1.00 mile  
From: Mellonville Ave.  
To: US 17/92

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

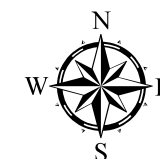
EB Avg Speed: 28.6 MPH  
EB Travel Time: 2.10 MIN  
EB Delay Time: 0.39 MIN

WB Avg Speed: 28.3 MPH  
WB Travel Time: 2.12 MIN  
WB Delay Time: 0.43 MIN



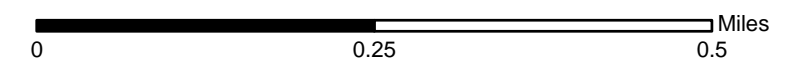
**Level of Services:**

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



**2010 METROPLAN ORLANDO**

*Travel Time Study*



**SR 46 : Park Dr to Sanford Ave : Before & After Study**  
**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)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
<b>Northbound/Eastbound - AM Peak Hour</b>						
568	152.4	48.0	23.6	0.0360	24.05	20.45
<b>Northbound/Eastbound - PM Peak Hour</b>						
941	135.6	30.6	26.5	0.0350	35.44	32.94
<b>Southbound/Westbound - AM Peak Hour</b>						
841	141.6	40.2	25.4	0.0350	33.08	29.44
<b>Southbound/Westbound - PM Peak Hour</b>						
612	175.2	69.6	20.5	0.0360	29.78	22.03

\*Traffic Volumes are obtained from the latest FDOT Counts

**SR 46 : Park Dr to Sanford Ave : Before & After Study**  
**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)	Total Travel Time (Veh-hour)	Total Fuel Consumption (in gallons)
<b>Northbound/Eastbound - AM Peak Hour</b>						
568	117.0	18.6	30.8	0.0350	18.46	19.88
<b>Northbound/Eastbound - PM Peak Hour</b>						
941	126.0	23.4	28.6	0.0350	32.94	32.94
<b>Southbound/Westbound - AM Peak Hour</b>						
841	114.0	19.8	31.6	0.0350	26.63	29.44
<b>Southbound/Westbound - PM Peak Hour</b>						
612	127.2	25.8	28.3	0.0360	21.62	22.03

\*Traffic Volumes are obtained from the latest FDOT Counts

**SR 46 : Park Dr to Sanford Ave : Before & After Study**  
**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)	57.12	45.09	65.23	54.56
Total Fuel Consumption (gallons)	49.88	49.32	54.97	54.97

BENEFITS	AM PEAK HOUR (7:30-9:00 AM)	PM PEAK HOUR (4:15-5:45 PM)
User Benefit Per Day	\$205.05	\$180.31
<b>Annual User Benefit</b>	<b>\$61,515.10</b>	<b>\$54,093.52</b>
<b>Total Annual User Benefit =</b>	<b>\$115,608.62</b>	
Total Signal Retiming Annual Cost	\$3,905.78	
<b>User Benefit / Cost Ratio</b>	<b>29.60</b>	

Notes:

- \* Value of Delay Time is \$16.90 per hour (\$15.47 from Mobility Data for Orlando for the year 2007 & grown 3% per year)
- \* Fuel consumption is valued to the rate of \$2.98 per gallon.
- \* 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.

**CR 46A**

**SR 417 NB Ramp to SR 417 SB Ramp**



**TABLE 22**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**CR 46A - Eastbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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		
<b>AM PEAK HOUR -BEFORE CONDITION</b>																	
Casa Verde Blvd. to SR 417 SB	Seminole	Arterial	Residential Area	0	2	1	40	898	8	Signal	14.4	0.0	II	42.5	A	1.06	
SR 417 SB to SR 417 NB	Seminole	Arterial	Residential Area	1	2	0	40	581	8	Signal	12.0	3.0	II	33.0	B	0.82	
SR 417 NB to Airport Blvd.	Seminole	Arterial	Residential Area	2	2	1	40	1,056	8	Signal	51.6	27.6	II	14.0	E	0.35	
<b>TOTAL</b>							40	2,534			78.0	30.6	II	22.2	C	0.55	0.017 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Casa Verde Blvd. to SR 417 SB	Seminole	Arterial	Residential Area	0	2	1	40	898	7	Signal	17.4	0.6	II	35.2	A	0.88	
SR 417 SB to SR 417 NB	Seminole	Arterial	Residential Area	1	2	0	40	581	7	Signal	10.8	0.0	II	36.7	A	0.92	
SR 417 NB to Airport Blvd.	Seminole	Arterial	Residential Area	2	2	1	40	1,056	7	Signal	45.6	19.2	II	15.8	E	0.39	
<b>TOTAL</b>							40	2,534			73.8	19.8	II	23.4	C	0.59	0.017 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 2010 METROPLAN Orlando Travel Time Study**  
**CR 46A - Westbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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		
<b>AM PEAK HOUR -BEFORE CONDITION</b>																	
Airport Blvd. to SR 417 NB	Seminole	Arterial	Residential Area	0	2	1	40	1,056	8	Signal	18.6	0.0	II	38.7	A	0.97	
SR 417 NB to SR 417 SB	Seminole	Arterial	Residential Area	1	2	0	40	581	8	Signal	9.0	0.0	II	44.0	A	1.10	
SR 417 SB to Casa Verde Blvd.	Seminole	Arterial	Residential Area	1	2	0	40	898	8	Signal	13.8	0.0	II	44.3	A	1.11	
<b>TOTAL</b>							40	2,534			41.4	0.0	II	41.7	A	1.04	0.016 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Airport Blvd. to SR 417 NB	Seminole	Arterial	Residential Area	0	2	1	40	1,056	7	Signal	39.0	13.8	II	18.5	D	0.46	
SR 417 NB to SR 417 SB	Seminole	Arterial	Residential Area	1	2	0	40	581	7	Signal	11.4	0.0	II	34.7	B	0.87	
SR 417 SB to Casa Verde Blvd.	Seminole	Arterial	Residential Area	1	2	0	40	898	7	Signal	13.2	0.0	II	46.4	A	1.16	
<b>TOTAL</b>							40	2,534			63.6	13.8	II	27.2	C	0.68	0.017 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 2010 METROPLAN Orlando Travel Time Study**  
**CR 46A - Eastbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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		
<b>AM PEAK HOUR -AFTER CONDITION</b>																	
Casa Verde Blvd. to SR 417 SB	Seminole	Arterial	Residential Area	0	2	1	40	898	21	Signal	18.6	1.2	II	32.9	B	0.82	
SR 417 SB to SR 417 NB	Seminole	Arterial	Residential Area	1	2	0	40	581	21	Signal	10.8	1.2	II	36.7	A	0.92	
SR 417 NB to Airport Blvd.	Seminole	Arterial	Residential Area	2	2	1	40	1,056	21	Signal	31.2	12.6	II	23.1	C	0.58	
<b>TOTAL</b>							40	2,534			60.6	15.0	II	28.5	B	0.71	0.017 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Casa Verde Blvd. to SR 417 SB	Seminole	Arterial	Residential Area	0	2	1	40	898	16	Signal	30.0	8.4	II	20.4	D	0.51	
SR 417 SB to SR 417 NB	Seminole	Arterial	Residential Area	1	2	0	40	581	16	Signal	13.2	0.0	II	30.0	B	0.75	
SR 417 NB to Airport Blvd.	Seminole	Arterial	Residential Area	2	2	1	40	1,056	16	Signal	22.8	3.6	II	31.6	B	0.79	
<b>TOTAL</b>							40	2,534			66.0	12.0	II	26.2	C	0.65	0.017 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 2010 METROPLAN Orlando Travel Time Study**  
**CR 46A - Westbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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		
<b>AM PEAK HOUR -AFTER CONDITION</b>																	
Airport Blvd. to SR 417 NB	Seminole	Arterial	Residential Area	0	2	1	40	1,056	12	Signal	17.4	0.0	II	41.4	A	1.03	
SR 417 NB to SR 417 SB	Seminole	Arterial	Residential Area	1	2	0	40	581	12	Signal	9.2	0.0	II	43.0	A	1.08	
SR 417 SB to Casa Verde Blvd.	Seminole	Arterial	Residential Area	1	2	0	40	898	12	Signal	13.8	0.0	II	44.3	A	1.11	
<b>TOTAL</b>							40	2,534			40.4	0.0	II	42.8	A	1.07	0.016 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Airport Blvd. to SR 417 NB	Seminole	Arterial	Residential Area	0	2	1	40	1,056	16	Signal	19.2	0.0	II	37.5	A	0.94	
SR 417 NB to SR 417 SB	Seminole	Arterial	Residential Area	1	2	0	40	581	16	Signal	13.2	3.0	II	30.0	B	0.75	
SR 417 SB to Casa Verde Blvd.	Seminole	Arterial	Residential Area	1	2	0	40	898	16	Signal	17.4	2.4	II	35.2	A	0.88	
<b>TOTAL</b>							40	2,534			49.8	5.4	II	34.7	B	0.87	0.016 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.

**CR 46A  
- PM Peak**

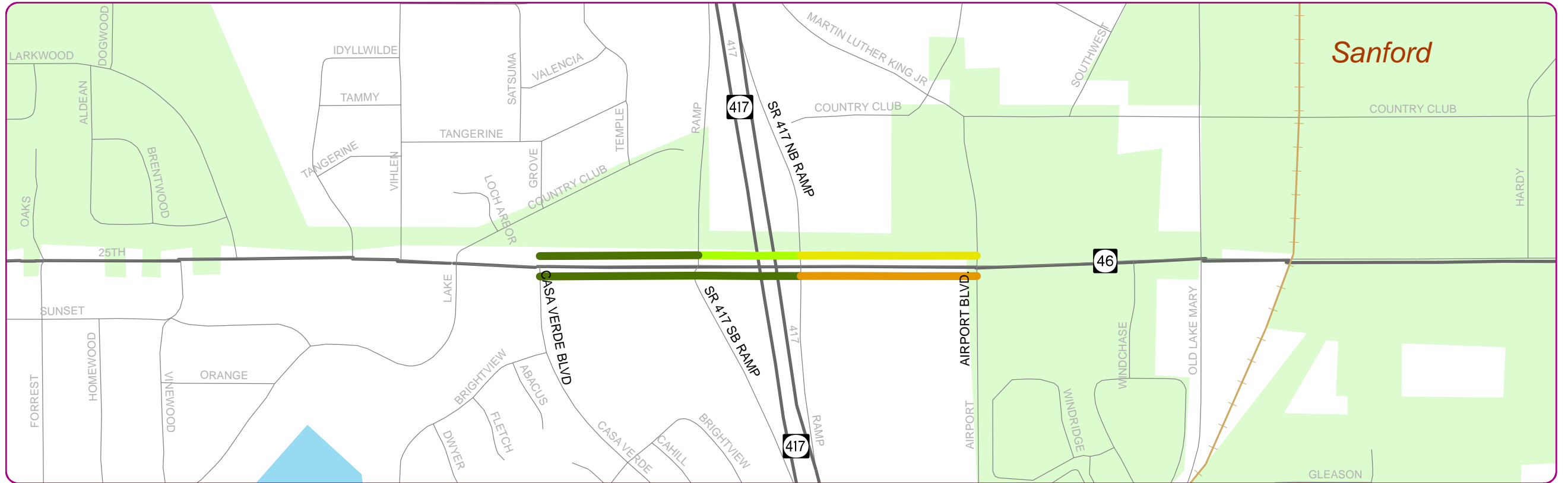
**Before Condition**

Date of Collection: 2/2/2010  
Distance: 0.48 miles  
From: Airport Blvd.  
To: Casa Verde Blvd

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

EB Avg Speed: 23.4 MPH  
EB Travel Time: 1.23 MIN  
EB Delay Time: 0.33 MIN

WB Avg Speed: 27.2MPH  
WB Travel Time: 1.06 MIN  
WB Delay Time: 0.23 MIN



**CR 46A  
- PM Peak**

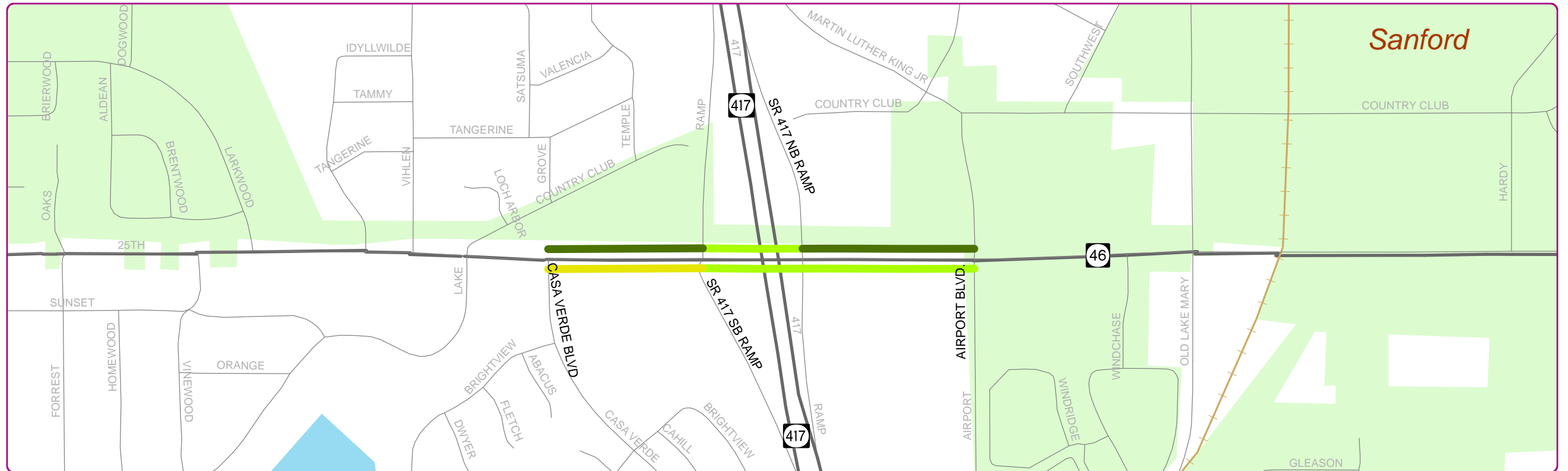
**After Condition**

Date of Collection: 4/21/2010  
Distance: 0.48 miles  
From: Airport Blvd.  
To: Casa Verde Blvd

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

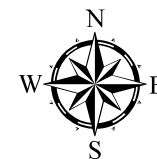
EB Avg Speed: 26.2 MPH  
EB Travel Time: 1.10 MIN  
EB Delay Time: 0.20 MIN

WB Avg Speed: 34.7 MPH  
WB Travel Time: 0.83 MIN  
WB Delay Time: 0.09 MIN



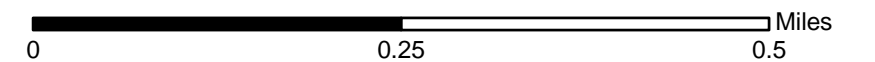
**Level of Services:**

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



**2010 METROPLAN ORLANDO**

*Travel Time Study*



**CR 46A  
- AM Peak**

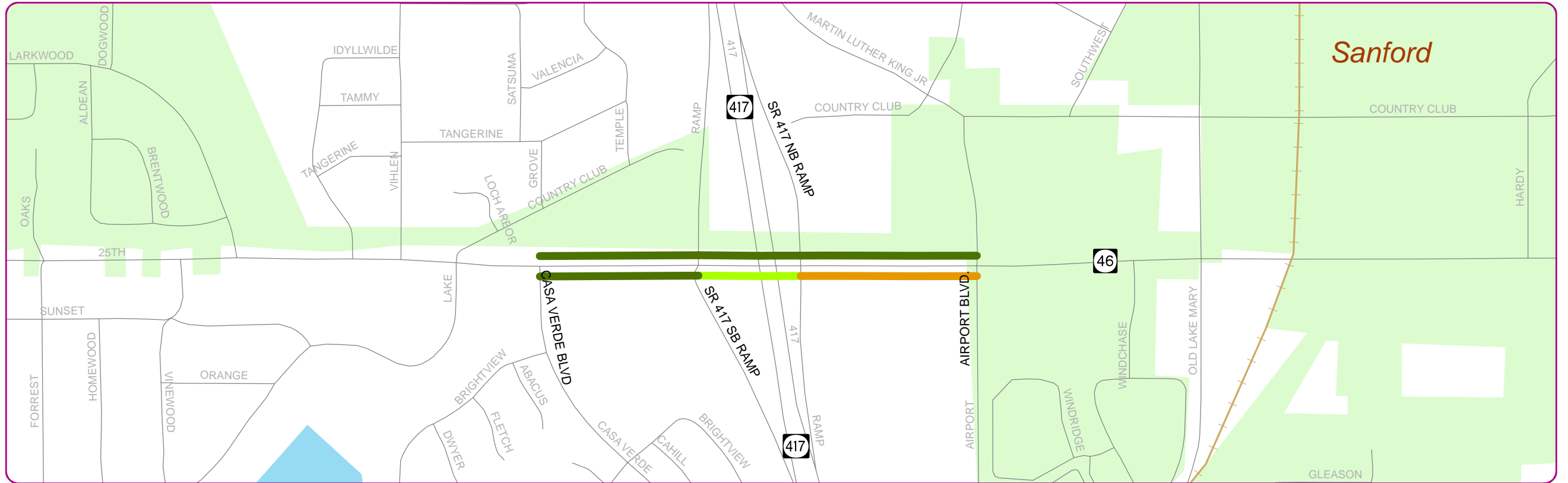
**Before Condition**

Date of Collection: 2/3/2010  
Distance: 0.48 miles  
From: Airport Blvd.  
To: Casa Verde Blvd

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

EB Avg Speed: 22.2MPH  
EB Travel Time: 1.30 MIN  
EB Delay Time: 0.51 MIN

WB Avg Speed: 41.7 MPH  
WB Travel Time: 0.69 MIN  
WB Delay Time: 0.00 MIN



**CR 46A  
- AM Peak**

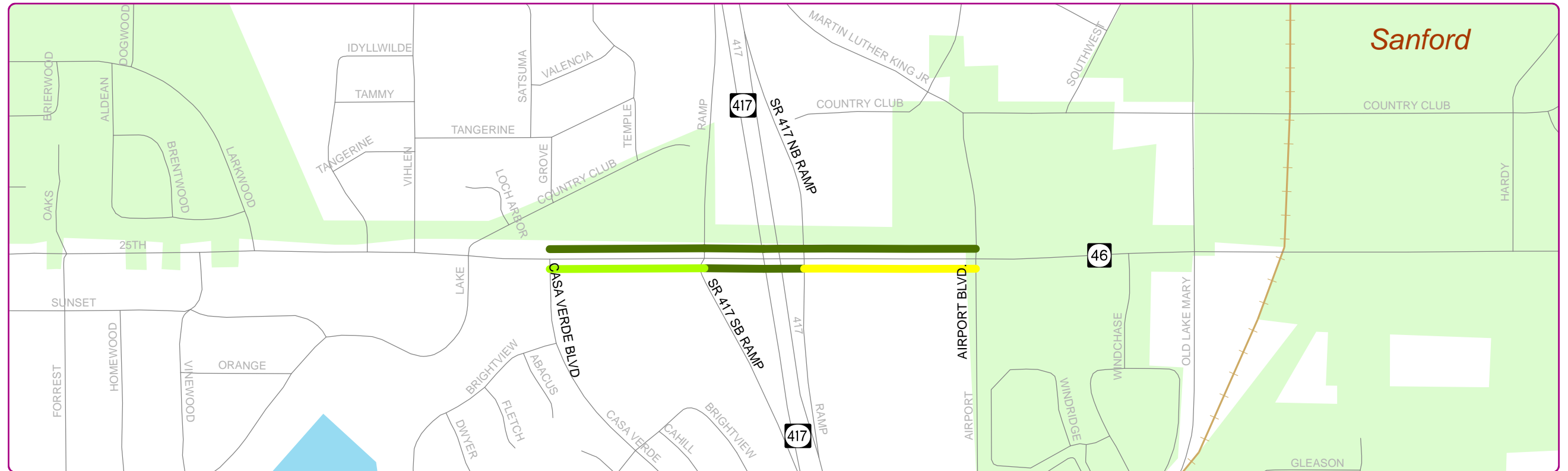
**After Condition**

Date of Collection: 4/21/2010  
Distance: 0.48 miles  
From: Airport Blvd.  
To: Casa Verde Blvd

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

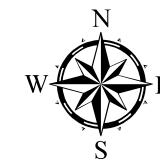
EB Avg Speed: 28.5 MPH  
EB Travel Time: 1.01 MIN  
EB Delay Time: 0.25 MIN

WB Avg Speed: 42.8 MPH  
WB Travel Time: 0.67 MIN  
WB Delay Time: 0.00 MIN



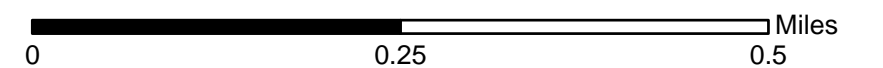
**Level of Services:**

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



**2010 METROPLAN ORLANDO**

*Travel Time Study*



## CR 46 A : SR 417 NB Ramp to SR 417 SB Ramp: Before & After Study

### 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						
764	78.0	30.6	22.2	0.0170	16.55	12.99
Northbound/Eastbound - PM Peak Hour						
1229	73.8	19.8	23.4	0.0170	25.19	20.89
Southbound/Westbound - AM Peak Hour						
995	41.4	0.0	41.7	0.0160	11.44	15.92
Southbound/Westbound - PM Peak Hour						
827	63.6	13.8	27.2	0.0170	14.61	14.06

\*Traffic Volumes are obtained from the 2009 Seminole County Counts

## CR 46 A : SR 417 NB Ramp to SR 417 SB Ramp: Before & After Study

### 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						
764	60.6	15.0	28.5	0.0170	12.86	12.99
Northbound/Eastbound - PM Peak Hour						
1229	66.0	12.0	26.2	0.0170	22.53	20.89
Southbound/Westbound - AM Peak Hour						
995	40.4	0.0	42.8	0.0160	11.17	15.92
Southbound/Westbound - PM Peak Hour						
827	49.8	5.4	34.7	0.0160	11.44	13.23

\*Traffic Volumes are obtained from the 2009 Seminole County Counts



**CR 46 A : SR 417 NB Ramp to SR 417 SB Ramp: Before & After Study**  
**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)	28.00	24.03	39.80	33.97
Total Fuel Consumption (gallons)	28.91	28.91	34.95	34.13

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$67.08	\$101.04
<b>Annual User Benefit</b>	<b>\$20,123.11</b>	<b>\$30,312.65</b>
<b>Total Annual User Benefit =</b>	<b>\$50,435.76</b>	
Total Signal Retiming Annual Cost	\$3,861.20	
<b>User Benefit / Cost Ratio</b>	<b>13.06</b>	

Notes:

- \* Value of Delay Time is \$16.90 per hour (\$15.47 from Mobility Data for Orlando for the year 2007 & grown 3% per year)
- \* Fuel consumption is valued to the rate of \$2.98 per gallon.
- \* 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**

**Old Howell Branch Rd to Dean Rd**

**TABLE 23**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 426 - Eastbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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		
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Old Howell Branch Rd.	Seminole	Arterial	Residential Area	1	2	0	45	475	8	Signal	17.4	6.6	II	18.6	D	0.41	
Old Howell Branch Rd. to Hall Rd./Howell Branch Rd.	Seminole	Arterial	Residential Area	1	2	0	45	1,214	8	Signal	58.8	31.8	II	14.1	E	0.31	
Hall Rd./Howell Branch Rd. to Trinity Prep. Sch.	Seminole	Arterial	Residential Area	1	2	0	45	2,112	8	Signal	34.8	0.0	II	41.4	A	0.92	
Trinity Prep. Sch. to Tuskawilla Rd.	Seminole	Arterial	Residential Area	2	2	0	45	2,693	8	Signal	44.4	0.0	II	41.4	A	0.92	
Tuskawilla Rd. to Deep Lake St.	Seminole	Arterial	Residential Area	1	2	1	45	1,373	8	Signal	28.2	0.0	II	33.2	B	0.74	
Deep Lake St. to SR 417 (W. Ramps)	Seminole	Arterial	Residential Area	0	2	1	45	845	8	Signal	14.4	0.0	II	40.0	A	0.89	
SR 417 (W. Ramps) to SR 417 (E. Ramps)	Seminole	Arterial	Residential Area	1	2	0	45	370	8	Signal	9.6	3.6	II	26.2	C	0.58	
SR 417 (E. Ramps) to Dean Rd.	Seminole	Arterial	Rural Area	1	2	1	45	2,851	8	Signal	49.8	5.4	II	39.0	A	0.87	
Dean Rd. to Median Opening	Seminole	Arterial	Rural Area	1	2	1	45	686	8	Signal	9.6	0.0	II	48.7	A	1.08	
<b>TOTAL</b>							45	12,619			267.0	47.4	II	32.2	B	0.72	0.082 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Old Howell Branch Rd.	Seminole	Arterial	Residential Area	1	2	0	45	475	7	Signal	20.4	6.6	II	15.9	E	0.35	
Old Howell Branch Rd. to Hall Rd./Howell Branch Rd.	Seminole	Arterial	Residential Area	1	2	0	45	1,214	7	Signal	56.4	22.2	II	14.7	E	0.33	
Hall Rd./Howell Branch Rd. to Trinity Prep. Sch.	Seminole	Arterial	Residential Area	1	2	0	45	2,112	7	Signal	42.6	7.2	II	33.8	B	0.75	
Trinity Prep. Sch. to Tuskawilla Rd.	Seminole	Arterial	Residential Area	2	2	0	45	2,693	7	Signal	47.4	2.4	II	38.7	A	0.86	
Tuskawilla Rd. to Deep Lake St.	Seminole	Arterial	Residential Area	1	2	1	45	1,373	7	Signal	42.6	16.2	II	22.0	D	0.49	
Deep Lake St. to SR 417 (W. Ramps)	Seminole	Arterial	Residential Area	0	2	1	45	845	7	Signal	15.6	0.0	II	36.9	A	0.82	
SR 417 (W. Ramps) to SR 417 (E. Ramps)	Seminole	Arterial	Residential Area	1	2	0	45	370	7	Signal	9.0	1.8	II	28.0	C	0.62	
SR 417 (E. Ramps) to Dean Rd.	Seminole	Arterial	Rural Area	1	2	1	45	2,851	7	Signal	76.8	25.2	II	25.3	C	0.56	
Dean Rd. to Median Opening	Seminole	Arterial	Rural Area	1	2	1	45	686	7	Signal	10.8	0.0	II	43.3	A	0.96	
<b>TOTAL</b>							45	12,619			321.6	81.6	II	26.8	C	0.59	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.

**TABLE 23**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**SR 426 - Westbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed (mph)	LOS	Avg Speed/Speed Limit	Avg. Fuel Consump.
<b>AM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Dean Rd.	Seminole	Arterial	Rural Area	0	2	1	45	686	8	Signal	48.6	30.6	II	9.6	F	0.21	
Dean Rd. to SR 417 (E. Ramps)	Seminole	Arterial	Rural Area	0	2	1	45	2,851	8	Signal	55.8	3.6	II	34.8	B	0.77	
SR 417 (E. Ramps) to SR 417 (W. Ramps)	Seminole	Arterial	Residential Area	1	2	0	45	370	8	Signal	11.4	2.4	II	22.1	C	0.49	
SR 417 (W. Ramps) to Deep Lake St.	Seminole	Arterial	Residential Area	1	2	1	45	845	8	Signal	24.0	3.6	II	24.0	C	0.53	
Deep Lake St.Tuskawilla Rd.	Seminole	Arterial	Residential Area	1	2	1	45	1,373	8	Signal	35.4	8.4	II	26.4	C	0.59	
Tuskawilla Rd. to Trinity Prep. Sch.	Seminole	Arterial	Residential Area	1	2	0	45	2,693	8	Signal	42.6	0.0	II	43.1	A	0.96	
Trinity Prep. Sch. to Hall Rd./Howell Branch Rd.	Seminole	Arterial	Residential Area	1	2	0	45	2,112	8	Signal	68.4	25.2	II	21.1	D	0.47	
Hall Rd./Howell Branch Rd. to Old Howell Branch Rd.	Seminole	Arterial	Residential Area	1	2	0	45	1,214	8	Signal	21.6	0.0	II	38.3	A	0.85	
Old Howell Branch Rd. to Median Opening	Seminole	Arterial	Residential Area	1	2	0	45	475	8	Signal	6.6	0.0	II	49.1	A	1.09	
<b>TOTAL</b>							45	12,619			314.4	73.8	II	27.4	C	0.61	0.085 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Median Opening to Dean Rd.	Seminole	Arterial	Rural Area	0	2	1	45	686	8	Signal	57.6	40.8	II	8.1	F	0.18	
Dean Rd. to SR 417 (E. Ramps)	Seminole	Arterial	Rural Area	0	2	1	45	2,851	8	Signal	57.6	4.8	II	33.7	B	0.75	
SR 417 (E. Ramps) to SR 417 (W. Ramps)	Seminole	Arterial	Residential Area	1	2	0	45	370	8	Signal	6.6	0.0	II	38.2	A	0.85	
SR 417 (W. Ramps) to Deep Lake St.	Seminole	Arterial	Residential Area	1	2	1	45	845	8	Signal	15.0	0.0	II	38.4	A	0.85	
Deep Lake St.Tuskawilla Rd.	Seminole	Arterial	Residential Area	1	2	1	45	1,373	8	Signal	33.0	3.0	II	28.4	B	0.63	
Tuskawilla Rd. to Trinity Prep. Sch.	Seminole	Arterial	Residential Area	1	2	0	45	2,693	8	Signal	43.8	0.0	II	41.9	A	0.93	
Trinity Prep. Sch. to Hall Rd./Howell Branch Rd.	Seminole	Arterial	Residential Area	1	2	0	45	2,112	8	Signal	45.6	9.0	II	31.6	B	0.70	
Hall Rd./Howell Branch Rd. to Old Howell Branch Rd.	Seminole	Arterial	Residential Area	1	2	0	45	1,214	8	Signal	19.8	0.0	II	41.8	A	0.93	
Old Howell Branch Rd. to Median Opening	Seminole	Arterial	Residential Area	1	2	0	45	475	8	Signal	6.6	0.0	II	49.1	A	1.09	
<b>TOTAL</b>							45	12,619			285.6	57.6	II	30.1	B	0.67	0.083 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 2010 METROPLAN Orlando Travel Time Study**  
**SR 426 - Eastbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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		
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Old Howell Branch Rd.	Seminole	Arterial	Residential Area	1	2	0	45	475	6	Signal	6.6	0.0	II	49.1	A	1.09	
Old Howell Branch Rd. to Hall Rd./Howell Branch Rd.	Seminole	Arterial	Residential Area	1	2	0	45	1,214	6	Signal	54.0	26.4	II	15.3	E	0.34	
Hall Rd./Howell Branch Rd. to Trinity Prep. Sch.	Seminole	Arterial	Residential Area	1	2	0	45	2,112	6	Signal	34.2	0.0	II	42.1	A	0.94	
Trinity Prep. Sch. to Tuskawilla Rd.	Seminole	Arterial	Residential Area	2	2	0	45	2,693	6	Signal	40.2	2.4	II	45.7	A	1.01	
Tuskawilla Rd. to Deep Lake St.	Seminole	Arterial	Residential Area	1	2	1	45	1,373	6	Signal	24.0	0.0	II	39.0	A	0.87	
Deep Lake St. to SR 417 (W. Ramps)	Seminole	Arterial	Residential Area	0	2	1	45	845	6	Signal	13.8	0.0	II	41.7	A	0.93	
SR 417 (W. Ramps) to SR 417 (E. Ramps)	Seminole	Arterial	Residential Area	1	2	0	45	370	6	Signal	6.0	0.0	II	42.0	A	0.93	
SR 417 (E. Ramps) to Dean Rd.	Seminole	Arterial	Rural Area	1	2	1	45	2,851	6	Signal	63.6	8.4	II	30.6	B	0.68	
Dean Rd. to Median Opening	Seminole	Arterial	Rural Area	1	2	1	45	686	6	Signal	10.8	0.0	II	43.3	A	0.96	
<b>TOTAL</b>							45	12,619			253.2	37.2	II	34.0	B	0.76	0.083 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Old Howell Branch Rd.	Seminole	Arterial	Residential Area	1	2	0	45	475	4	Signal	43.2	30.6	II	7.5	F	0.17	
Old Howell Branch Rd. to Hall Rd./Howell Branch Rd.	Seminole	Arterial	Residential Area	1	2	0	45	1,214	4	Signal	30.6	1.8	II	27.1	C	0.60	
Hall Rd./Howell Branch Rd. to Trinity Prep. Sch.	Seminole	Arterial	Residential Area	1	2	0	45	2,112	4	Signal	39.6	2.4	II	36.4	A	0.81	
Trinity Prep. Sch. to Tuskawilla Rd.	Seminole	Arterial	Residential Area	2	2	0	45	2,693	4	Signal	58.2	9.0	II	31.5	B	0.70	
Tuskawilla Rd. to Deep Lake St.	Seminole	Arterial	Residential Area	1	2	1	45	1,373	4	Signal	24.0	0.0	II	39.0	A	0.87	
Deep Lake St. to SR 417 (W. Ramps)	Seminole	Arterial	Residential Area	0	2	1	45	845	4	Signal	16.2	0.6	II	35.6	A	0.79	
SR 417 (W. Ramps) to SR 417 (E. Ramps)	Seminole	Arterial	Residential Area	1	2	0	45	370	4	Signal	6.0	0.0	II	42.0	A	0.93	
SR 417 (E. Ramps) to Dean Rd.	Seminole	Arterial	Rural Area	1	2	1	45	2,851	4	Signal	59.4	7.8	II	32.7	B	0.73	
Dean Rd. to Median Opening	Seminole	Arterial	Rural Area	1	2	1	45	686	4	Signal	12.0	0.0	II	39.0	A	0.87	
<b>TOTAL</b>							45	12,619			289.2	52.2	II	29.8	B	0.66	0.083 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 2010 METROPLAN Orlando Travel Time Study**  
**SR 426 - Westbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	Speed Limit (mph)	Distance (ft)	# Runs	Traffic Control Device	Travel Time (sec)	Stop Delay (sec)	Roadway Class	Roadway Segment		Roadway Summary	
														Average Speed (mph)	LOS	Avg Speed/Speed Limit	Avg. Fuel Consump.
<b>AM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Dean Rd.	Seminole	Arterial	Rural Area	0	2	1	45	686	7	Signal	9.0	0.0	II	52.0	A	1.16	
Dean Rd. to SR 417 (E. Ramps)	Seminole	Arterial	Rural Area	0	2	1	45	2,851	7	Signal	37.8	0.0	II	51.4	A	1.14	
SR 417 (E. Ramps) to SR 417 (W. Ramps)	Seminole	Arterial	Residential Area	1	2	0	45	370	7	Signal	5.4	0.0	II	46.7	A	1.04	
SR 417 (W. Ramps) to Deep Lake St.	Seminole	Arterial	Residential Area	1	2	1	45	845	7	Signal	21.0	7.8	II	27.4	C	0.61	
Deep Lake St.Tuskawilla Rd.	Seminole	Arterial	Residential Area	1	2	1	45	1,373	7	Signal	30.6	7.2	II	30.6	B	0.68	
Tuskawilla Rd. to Trinity Prep. Sch.	Seminole	Arterial	Residential Area	1	2	0	45	2,693	7	Signal	39.6	0.0	II	46.4	A	1.03	
Trinity Prep. Sch. to Hall Rd./Howell Branch Rd.	Seminole	Arterial	Residential Area	1	2	0	45	2,112	7	Signal	70.2	32.4	II	20.5	D	0.46	
Hall Rd./Howell Branch Rd. to Old Howell Branch Rd.	Seminole	Arterial	Residential Area	1	2	0	45	1,214	7	Signal	22.2	0.0	II	37.3	A	0.83	
Old Howell Branch Rd. to Median Opening	Seminole	Arterial	Residential Area	1	2	0	45	475	7	Signal	6.6	0.0	II	49.1	A	1.09	
<b>TOTAL</b>							45	12,619			242.4	47.4	II	35.5	A	0.79	0.081 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
Median Opening to Dean Rd.	Seminole	Arterial	Rural Area	0	2	1	45	686	5	Signal	34.2	20.4	II	13.7	E	0.30	
Dean Rd. to SR 417 (E. Ramps)	Seminole	Arterial	Rural Area	0	2	1	45	2,851	5	Signal	49.2	1.2	II	39.5	A	0.88	
SR 417 (E. Ramps) to SR 417 (W. Ramps)	Seminole	Arterial	Residential Area	1	2	0	45	370	5	Signal	6.6	0.0	II	38.2	A	0.85	
SR 417 (W. Ramps) to Deep Lake St.	Seminole	Arterial	Residential Area	1	2	1	45	845	5	Signal	18.0	1.2	II	32.0	B	0.71	
Deep Lake St.Tuskawilla Rd.	Seminole	Arterial	Residential Area	1	2	1	45	1,373	5	Signal	52.8	21.0	II	17.7	D	0.39	
Tuskawilla Rd. to Trinity Prep. Sch.	Seminole	Arterial	Residential Area	1	2	0	45	2,693	5	Signal	46.8	0.6	II	39.2	A	0.87	
Trinity Prep. Sch. to Hall Rd./Howell Branch Rd.	Seminole	Arterial	Residential Area	1	2	0	45	2,112	5	Signal	37.2	0.6	II	38.7	A	0.86	
Hall Rd./Howell Branch Rd. to Old Howell Branch Rd.	Seminole	Arterial	Residential Area	1	2	0	45	1,214	5	Signal	21.0	0.0	II	39.4	A	0.88	
Old Howell Branch Rd. to Median Opening	Seminole	Arterial	Residential Area	1	2	0	45	475	5	Signal	7.2	0.0	II	45.0	A	1.00	
<b>TOTAL</b>							45	12,619			273.0	45.0	II	31.5	B	0.70	0.083 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**

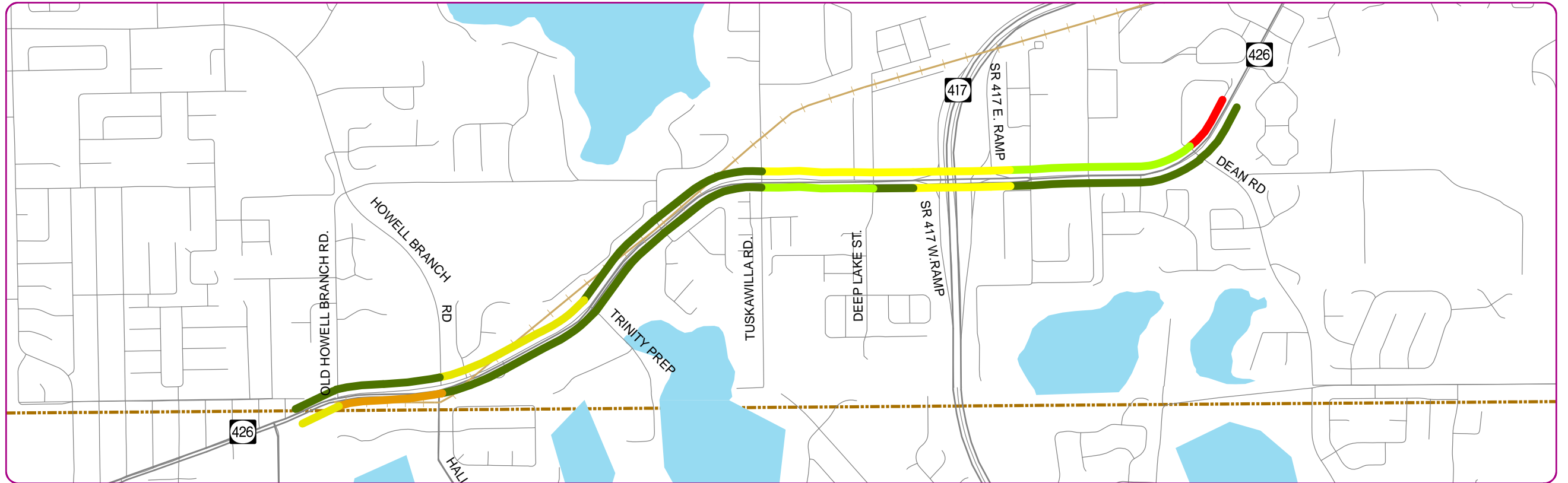
**Before Condition**

Date of Collection: 1/28/2010  
Distance: 2.39 miles  
From: Dean Rd.  
To: Old Howell Branch Rd.

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

EB Avg Speed: 32.2 MPH  
EB Travel Time: 4.45 MIN  
EB Delay Time: 0.79 MIN

WB Avg Speed: 27.4 MPH  
WB Travel Time: 5.24 MIN  
WB Delay Time: 1.23 MIN



**SR 426  
- AM Peak**

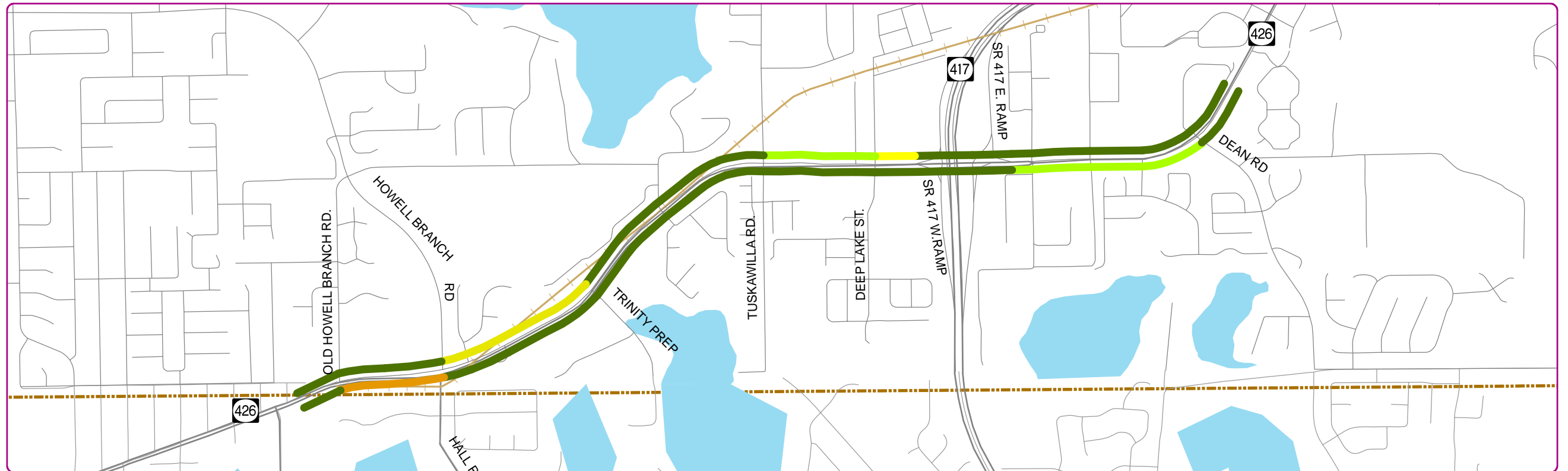
**After Condition**

Date of Collection: 5/6/2010  
Distance: 2.39 miles  
From: Dean Rd.  
To: Old Howell Branch Rd.

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

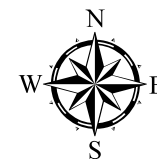
EB Avg Speed: 34.0 MPH  
EB Travel Time: 4.22 MIN  
EB Delay Time: 0.62 MIN

WB Avg Speed: 35.5 MPH  
WB Travel Time: 4.04 MIN  
WB Delay Time: 0.79 MIN



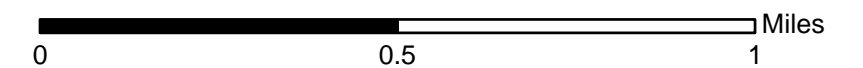
**Level of Services:**

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



**2010 METROPLAN ORLANDO**

*Travel Time Study*



**SR 426  
- PM Peak**

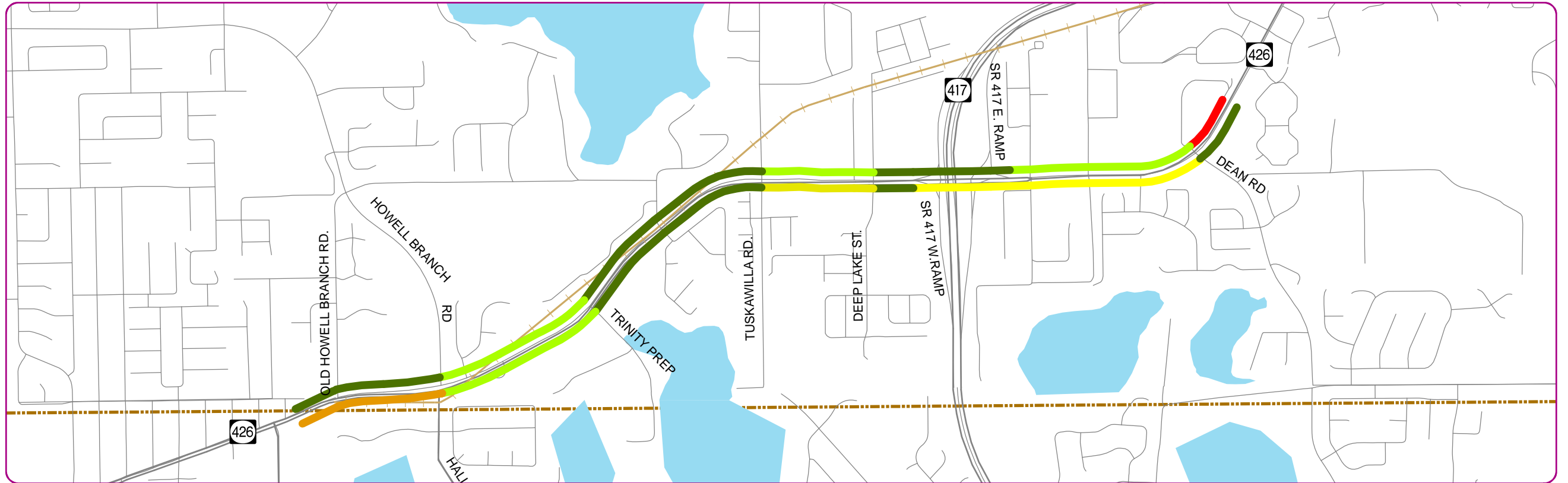
**Before Condition**

Date of Collection: 1/28/2010  
Distance: 2.39 miles  
From: Dean Rd.  
To: Old Howell Branch Rd.

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

EB Avg Speed: 26.8 MPH  
EB Travel Time: 5.36 MIN  
EB Delay Time: 1.36 MIN

WB Avg Speed: 30.1 MPH  
WB Travel Time: 4.76 MIN  
WB Delay Time: 0.96 MIN



**SR 426  
- PM Peak**

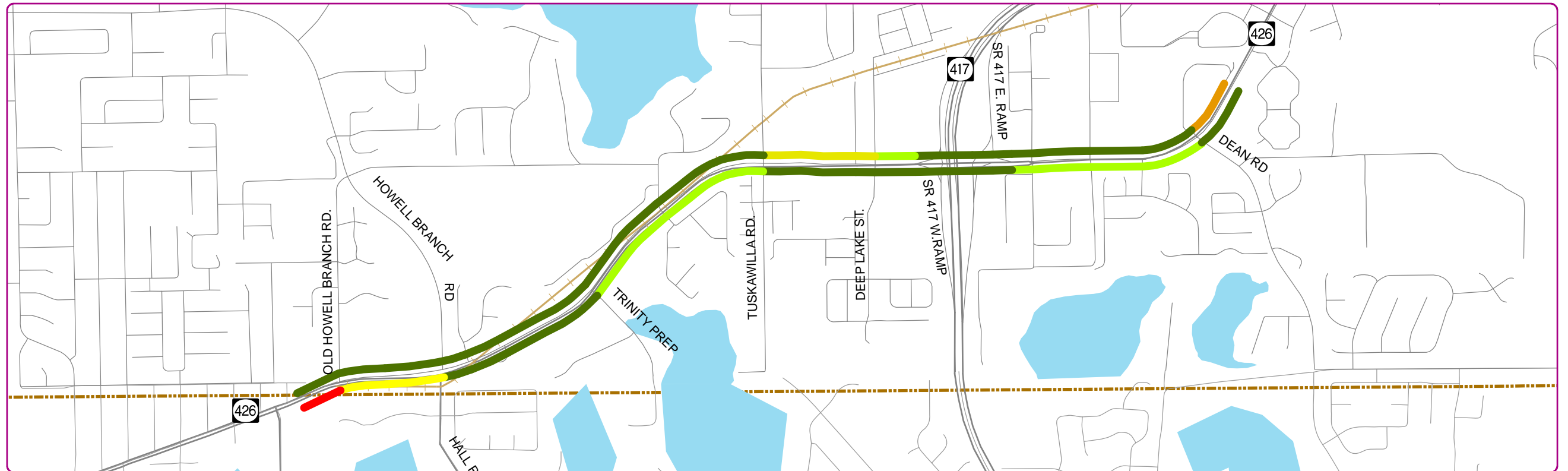
**After Condition**

Date of Collection: 3/31/2010  
Distance: 2.39 miles  
From: Dean Rd.  
To: Old Howell Branch Rd.

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

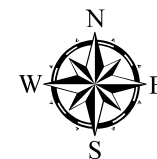
EB Avg Speed: 29.8 MPH  
EB Travel Time: 4.82 MIN  
EB Delay Time: 0.87 MIN

WB Avg Speed: 31.5 MPH  
WB Travel Time: 4.55 MIN  
WB Delay Time: 0.75 MIN



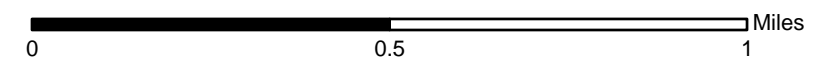
**Level of Services:**

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



**2010 METROPLAN ORLANDO**

*Travel Time Study*





## SR 426 : Old Howell Branch Rd to Dean Rd : Before & After Study

### 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						
1759	267.0	47.4	32.2	0.0820	130.46	144.24
Northbound/Eastbound - PM Peak Hour						
2076	321.6	81.6	26.8	0.0840	185.46	174.38
Southbound/Westbound - AM Peak Hour						
2090	314.4	73.8	27.4	0.0850	182.53	177.65
Southbound/Westbound - PM Peak Hour						
1792	285.6	57.6	30.1	0.0830	142.17	148.74

\*Traffic Volumes are obtained from the latest FDOT Counts

## SR 426 : Old Howell Branch Rd to Dean Rd : Before & After Study

### 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						
1759	253.2	37.2	34.0	0.0830	123.72	146.00
Northbound/Eastbound - PM Peak Hour						
2076	289.2	52.2	29.8	0.0830	166.77	172.31
Southbound/Westbound - AM Peak Hour						
2090	242.4	47.4	35.5	0.0810	140.73	169.29
Southbound/Westbound - PM Peak Hour						
1792	273.0	45.0	31.5	0.0830	135.89	148.74

\*Traffic Volumes are obtained from the latest FDOT Counts

**SR 426 : Old Howell Branch Rd to Dean Rd : Before & After Study**  
**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)	312.99	264.44	327.62	302.67
Total Fuel Consumption (gallons)	321.89	315.29	323.12	321.04

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$840.04	\$427.94
<b>Annual User Benefit</b>	<b>\$252,013.46</b>	<b>\$128,382.86</b>
<b>Total Annual User Benefit =</b>	<b>\$380,396.32</b>	
Total Signal Retiming Annual Cost	\$13,717.86	
<b>User Benefit / Cost Ratio</b>	<b>27.73</b>	

Notes:

- \* Value of Delay Time is \$16.90 per hour (\$15.47 from Mobility Data for Orlando for the year 2007 & grown 3% per year)
- \* Fuel consumption is valued to the rate of \$2.98 per gallon.
- \* 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.

**Red Bug Lake Rd**  
**SR 417 EB to SR 417 WB**

**TABLE 24**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Red Bug Lake Rd - Eastbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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		
<b>AM PEAK HOUR -BEFORE CONDITION</b>																	
Oviedo Market Pl. to SR 417 (W. Ramps)	Seminole	Arterial	Residential Area	0	3	1	45	1,373	10	Signal	28.8	4.8	II	32.5	B	0.72	
SR 417 (W. Ramps) to SR 417 (E. Ramps)	Seminole	Arterial	Residential Area	1	3	0	45	634	10	Signal	12.6	0.6	II	34.3	B	0.76	
SR 417 (E. Ramps) to SR 426	Seminole	Arterial	Residential Area	2	2	1	45	1,690	10	Signal	57.0	22.2	II	20.2	D	0.45	
<b>TOTAL</b>							45	3,696			98.4	27.6	II	25.6	C	0.57	0.025 gal/veh
<b>PM PEAK HOUR - BEFORE CONDITION</b>																	
Oviedo Market Pl. to SR 417 (W. Ramps)	Seminole	Arterial	Residential Area	0	3	1	45	1,373	8	Signal	27.6	3.0	II	33.9	B	0.75	
SR 417 (W. Ramps) to SR 417 (E. Ramps)	Seminole	Arterial	Residential Area	1	3	0	45	634	8	Signal	10.2	0.0	II	42.4	A	0.94	
SR 417 (E. Ramps) to SR 426	Seminole	Arterial	Residential Area	2	2	1	45	1,690	8	Signal	43.8	13.2	II	26.3	C	0.58	
<b>TOTAL</b>							45	3,696			81.6	16.2	II	30.9	B	0.69	0.024 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 24**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Red Bug Lake Rd - Westbound Direction Summary - Before Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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			
<b>AM PEAK HOUR -BEFORE CONDITION</b>																		
SR 426 to SR 417 (E. Ramps)	Seminole	Arterial	Residential Area	0	3	1	45	1,690	10	Signal	45.6	13.2	II	25.3	C	0.56		
SR 417 (E. Ramps) to SR 417 (W. Ramps)	Seminole	Arterial	Residential Area	0	3	1	45	634	10	Signal	11.4	0.0	II	37.9	A	0.84		
SR 417 (W. Ramps) tp Oviedo Market Pl.	Seminole	Arterial	Residential Area	1	3	1	45	1,373	10	Signal	22.8	2.4	II	41.1	A	0.91		
<b>TOTAL</b>							45	3,696			79.8	15.6	II	31.6	B	0.70	0.024 gal/veh	
<b>PM PEAK HOUR - BEFORE CONDITION</b>																		
SR 426 to SR 417 (E. Ramps)	Seminole	Arterial	Residential Area	0	3	1	45	1,690	8	Signal	41.4	10.8	II	27.8	C	0.62		
SR 417 (E. Ramps) to SR 417 (W. Ramps)	Seminole	Arterial	Residential Area	0	3	1	45	634	8	Signal	24.6	9.6	II	17.6	D	0.39		
SR 417 (W. Ramps) tp Oviedo Market Pl.	Seminole	Arterial	Residential Area	1	3	1	45	1,373	8	Signal	40.2	11.4	II	23.3	C	0.52		
<b>TOTAL</b>							45	3,696			106.2	31.8	II	23.7	C	0.53	0.025 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 24**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Red Bug Lake Rd - Eastbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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			
<b>AM PEAK HOUR -AFTER CONDITION</b>																		
Oviedo Market Pl. to SR 417 (W. Ramps)	Seminole	Arterial	Residential Area	0	3	1	45	1,373	12	Signal	27.6	3.0	II	33.9	B	0.75		
SR 417 (W. Ramps) to SR 417 (E. Ramps)	Seminole	Arterial	Residential Area	1	3	0	45	634	12	Signal	10.8	0.0	II	40.0	A	0.89		
SR 417 (E. Ramps) to SR 426	Seminole	Arterial	Residential Area	2	2	1	45	1,690	12	Signal	40.2	10.8	II	28.7	B	0.64		
<b>TOTAL</b>							45	3,696			78.6	13.8	II	32.1	B	0.71	0.024 gal/veh	
<b>PM PEAK HOUR - AFTER CONDITION</b>																		
Oviedo Market Pl. to SR 417 (W. Ramps)	Seminole	Arterial	Residential Area	0	3	1	45	1,373	8	Signal	26.4	1.2	II	35.5	A	0.79		
SR 417 (W. Ramps) to SR 417 (E. Ramps)	Seminole	Arterial	Residential Area	1	3	0	45	634	8	Signal	12.6	1.8	II	34.3	B	0.76		
SR 417 (E. Ramps) to SR 426	Seminole	Arterial	Residential Area	2	2	1	45	1,690	8	Signal	39.0	4.8	II	29.5	B	0.66		
<b>TOTAL</b>							45	3,696			78.0	7.8	II	32.3	B	0.72	0.025 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 24**  
**Year 2010 METROPLAN Orlando Travel Time Study**  
**Red Bug Lake Rd - Westbound Direction Summary - After Condition**

Roadway Segment	Jurisdiction	Facility Type <sup>1</sup>	Area Type <sup>1</sup>	Left Turn Lanes <sup>2</sup>	Thru Lanes <sup>2</sup>	Right Turn Lanes <sup>2</sup>	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.
<b>AM PEAK HOUR -AFTER CONDITION</b>																	
SR 426 to SR 417 (E. Ramps)	Seminole	Arterial	Residential Area	0	3	1	45	1,690	11	Signal	30.0	0.0	II	38.4	A	0.85	
SR 417 (E. Ramps) to SR 417 (W. Ramps)	Seminole	Arterial	Residential Area	0	3	1	45	634	11	Signal	9.6	0.0	II	45.0	A	1.00	
SR 417 (W. Ramps) tp Oviedo Market Pl.	Seminole	Arterial	Residential Area	1	3	1	45	1,373	11	Signal	24.6	1.8	II	38.0	A	0.85	
<b>TOTAL</b>							45	3,696			64.2	1.8	II	39.3	A	0.87	0.024 gal/veh
<b>PM PEAK HOUR - AFTER CONDITION</b>																	
SR 426 to SR 417 (E. Ramps)	Seminole	Arterial	Residential Area	0	3	1	45	1,690	9	Signal	25.8	0.0	II	44.6	A	0.99	
SR 417 (E. Ramps) to SR 417 (W. Ramps)	Seminole	Arterial	Residential Area	0	3	1	45	634	9	Signal	9.0	0.0	II	48.0	A	1.07	
SR 417 (W. Ramps) tp Oviedo Market Pl.	Seminole	Arterial	Residential Area	1	3	1	45	1,373	9	Signal	39.6	15.6	II	23.6	C	0.53	
<b>TOTAL</b>							45	3,696			74.4	15.6	II	33.9	B	0.75	0.024 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.



**RED BUG LAKE RD  
- AM Peak**

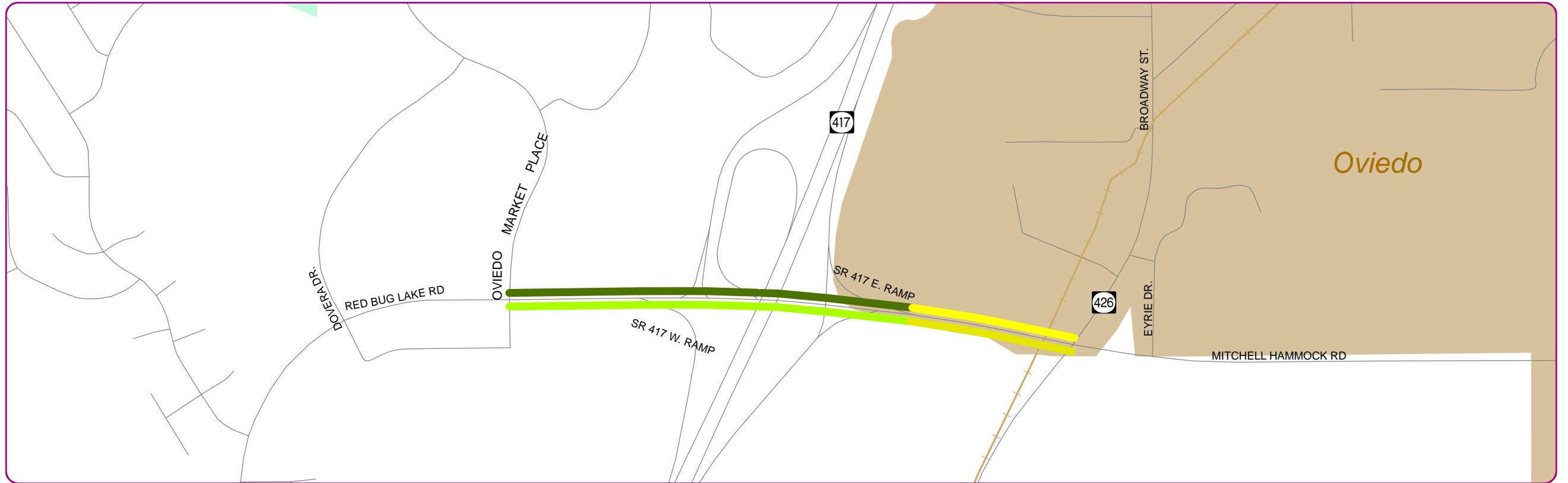
**Before Condition**

Date of Collection: 2/2/2010  
 Distance: 0.70 miles  
 From: SR 426  
 To: Oviedo Market Place

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

EB Avg Speed: 25.6 MPH  
 EB Travel Time: 1.64 MIN  
 EB Delay Time: 0.46 MIN

WB Avg Speed: 31.6 MPH  
 WB Travel Time: 1.33 MIN  
 WB Delay Time: 0.26 MIN



**RED BUG LAKE RD  
- AM Peak**

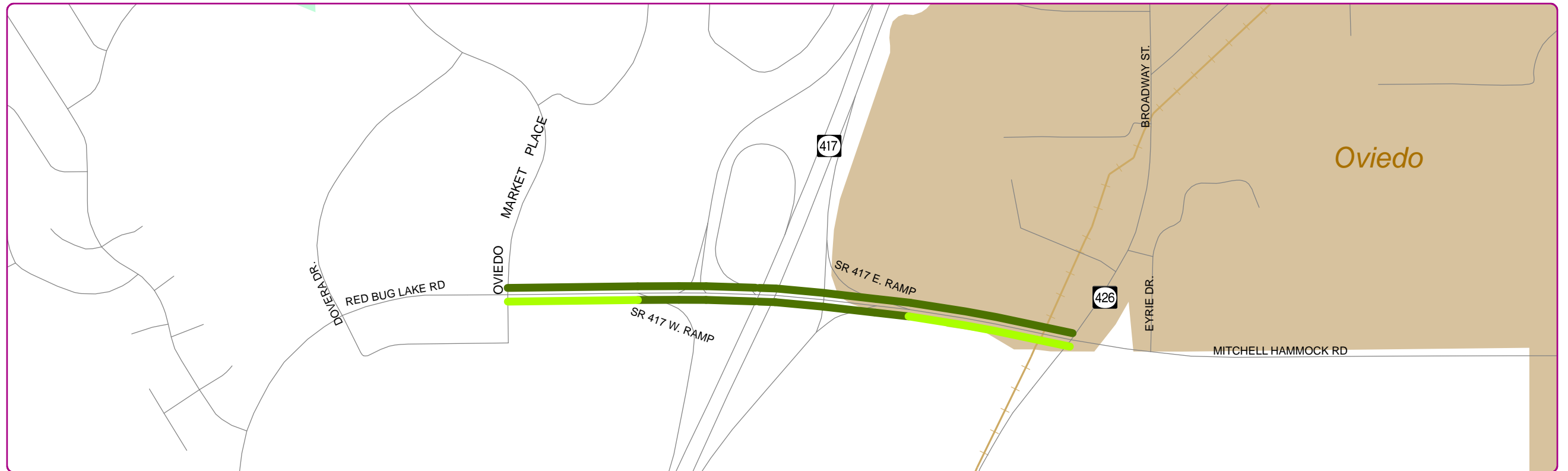
**After Condition**

Date of Collection: 4/15/2010  
 Distance: 0.70 miles  
 From: SR 426  
 To: Oviedo Market Place

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

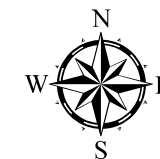
EB Avg Speed: 32.1 MPH  
 EB Travel Time: 1.31 MIN  
 EB Delay Time: 0.23 MIN

WB Avg Speed: 39.3 MPH  
 WB Travel Time: 1.07 MIN  
 WB Delay Time: 0.03 MIN



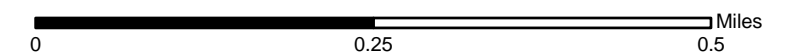
**Level of Services:**

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



**2010 METROPLAN ORLANDO**

*Travel Time Study*



**RED BUG LAKE RD  
- PM Peak**

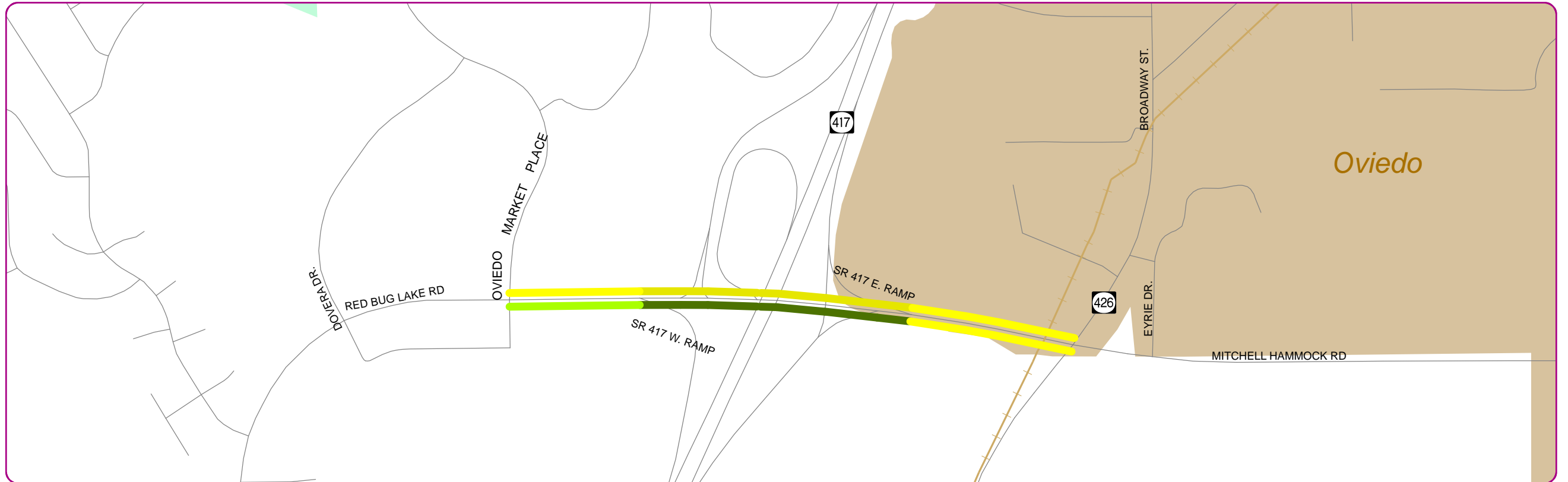
**Before Condition**

Date of Collection: 2/4/2010  
 Distance: 0.70 miles  
 From: SR 426  
 To: Oviedo Market Place

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

EB Avg Speed: 30.9 MPH  
 EB Travel Time: 1.36 MIN  
 EB Delay Time: 0.27 MIN

WB Avg Speed: 23.7 MPH  
 WB Travel Time: 1.77 MIN  
 WB Delay Time: 0.53 MIN



**RED BUG LAKE RD  
- PM Peak**

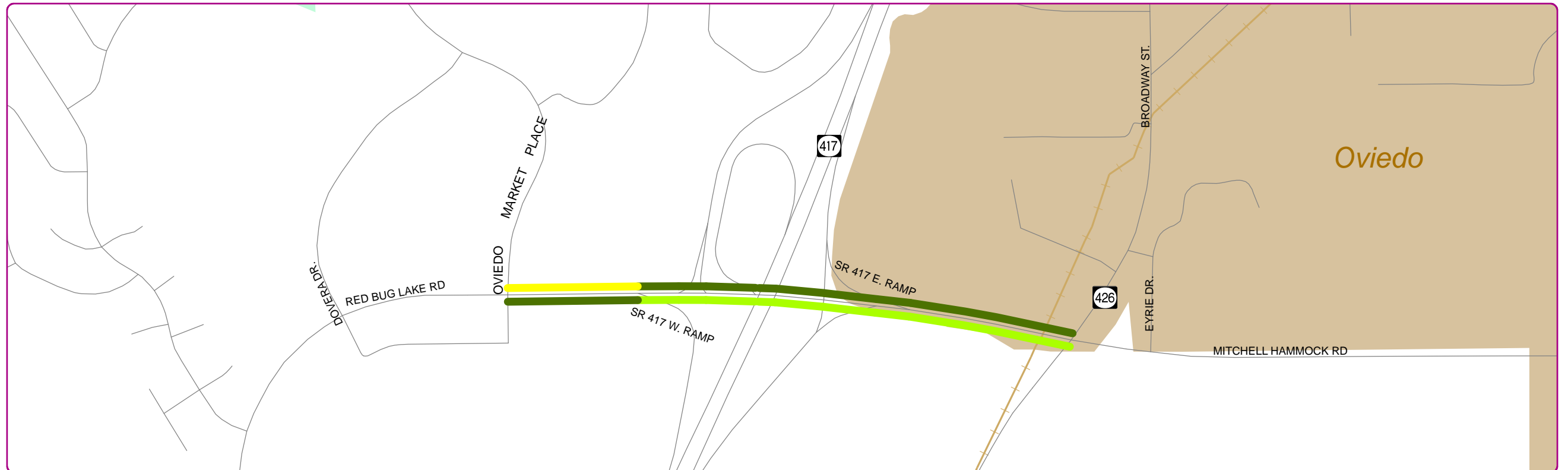
**After Condition**

Date of Collection: 4/15/2010  
 Distance: 0.70 miles  
 From: SR 426  
 To: Oviedo Market Place

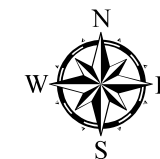
Start Time: 4:45 PM  
 End Time: 6:00 PM

EB Avg Speed: 32.3 MPH  
 EB Travel Time: 1.30 MIN  
 EB Delay Time: 0.13 MIN

WB Avg Speed: 33.9 MPH  
 WB Travel Time: 1.24 MIN  
 WB Delay Time: 0.26 MIN

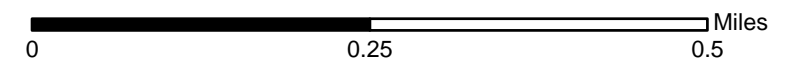


**Level of Services:**



**2010 METROPLAN ORLANDO**

*Travel Time Study*



## Red Bug Lake Rd : SR 417 NB Ramp to SR 417 SB Ramp: Before & After Study

### 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						
1383	98.4	27.6	25.6	0.0250	37.80	34.58
Northbound/Eastbound - PM Peak Hour						
1987	81.6	16.2	30.9	0.0240	45.04	47.69
Southbound/Westbound - AM Peak Hour						
1907	79.8	15.6	31.6	0.0240	42.27	45.77
Southbound/Westbound - PM Peak Hour						
1535	106.2	31.8	23.7	0.0250	45.28	38.38

\*Traffic Volumes are obtained from the 2009 Seminole County Counts

## Red Bug Lake Rd : SR 417 NB Ramp to SR 417 SB Ramp: Before & After Study

### 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						
1383	78.6	13.8	32.1	0.0240	30.20	33.19
Northbound/Eastbound - PM Peak Hour						
1987	78.0	7.8	32.3	0.0250	43.05	49.68
Southbound/Westbound - AM Peak Hour						
1907	64.2	1.8	39.3	0.0240	34.01	45.77
Southbound/Westbound - PM Peak Hour						
1535	74.4	15.6	33.9	0.0240	31.72	36.84

\*Traffic Volumes are obtained from the 2009 Seminole County Counts

**Red Bug Lake Rd : SR 417 NB Ramp to SR 417 SB Ramp: Before & After Study**  
**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)	80.07	64.20	90.32	74.78
Total Fuel Consumption (gallons)	80.34	78.96	86.06	86.52

BENEFITS	AM PEAK HOUR	PM PEAK HOUR
User Benefit Per Day	\$272.33	\$261.38
<b>Annual User Benefit</b>	<b>\$81,698.15</b>	<b>\$78,414.98</b>
<b>Total Annual User Benefit =</b>	<b>\$160,113.12</b>	
Total Signal Retiming Annual Cost	\$3,861.20	
<b>User Benefit / Cost Ratio</b>	<b>41.47</b>	

Notes:

- \* Value of Delay Time is \$16.90 per hour (\$15.47 from Mobility Data for Orlando for the year 2007 & grown 3% per year)
- \* Fuel consumption is valued to the rate of \$2.98 per gallon.
- \* 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 2007 Urban Mobility Report

## The Mobility Data for Orlando FL

Inventory Measures	2007	2006	2005	2004	2003	2002
<b>Urban Area Information</b>						
Population (1000s)	1,405	1,375	1,360	1,320	1,290	1,260
Rank	32	33	33	33	33	33
Urban Area (square miles)	725	720	715	715	680	680
Population Density (persons/sq mile)	1,938	1,910	1,902	1,846	1,897	1,853
Peak Travelers (1000s)	787	765	751	725	704	678
<b>Freeway</b>						
Daily Vehicle-Miles of Travel (1000s)	13,540	12,980	12,470	11,765	10,570	10,000
Lane-Miles	870	860	850	840	805	775
<b>Arterial Streets</b>						
Daily Vehicle-Miles of Travel (1000s)	17,000	16,595	16,770	16,530	17,000	17,000
Lane-Miles	2,240	2,140	2,100	2,075	2,060	2,060
<b>Public Transportation</b>						
Annual Psgr-Miles of Travel (millions)	159	163	160	144	147	144
Annual Unlinked Psgr Trips (millions)	26	25	25	23	23	22
<b>Cost Components</b>						
Value of Time (\$/hour)	15.47	15.06	14.58	14.10	13.73	13.43
Commercial Cost (\$/hour)	102.12	98.77	94.06	86.24	82.38	79.96
Fuel Cost (\$/gallon)	2.98	2.66	2.34	1.99	1.53	1.41
System Performance	2007	2006	2005	2004	2003	2002
Congested Travel (% of peak VMT)	74	72	70	68	69	71
Congested System (% of lane-miles)	69	68	66	65	65	67
Congested Time (number of "Rush Hours")	7.6	7.6	7.6	7.4	7.4	7.4
<b>Annual Increase Needed to Maintain Constant Congestion Level:</b>						
Lane-miles	78	57	87	97	106	112
Transit Riders or Carpoolers (millions)	26	20	30	33	35	37
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	27,842	27,455	26,342	25,754	25,657	26,094
Rank	23	23	23	23	22	21
Fuel per Peak Traveler (gallons)	35	36	35	36	36	38
Rank	9	9	10	7	7	6
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	41,791	41,682	40,990	40,463	40,835	41,038
Rank	22	22	22	22	21	21
Delay per Peak Traveler (person-hours)	53	55	55	56	58	61
Rank	6	6	6	4	4	2
Delay due to Incidents (percent)	53	53	53	53	53	53
<b>Travel Time Index</b>	1.30	1.31	1.30	1.30	1.31	1.32
Rank	17	14	19	14	10	9
<b>Congestion Cost</b>						
Total Cost (\$ millions)	850	818	766	716	688	675
Rank	22	22	22	22	21	21
Cost per Peak Traveler (\$)	1,080	1,070	1,020	988	976	995
Rank	8	8	7	5	4	3

Note: System Performance statistics for 2000 through 2007 data reflect the effects of operational treatments.

Note: Zeroes in the table reflect values less than 0.5.

# Appendix C

## Signal Retiming Project Costs



## Signal Retiming Project Costs

Roadway	From	To	Project Cost
Alafaya TI (SR 434)	Challenger Pkwy Intersection		*included with SR 50
Aloma Ave (SR 426)	Phelps Ave	Palmetto Ave	\$33,800
Colonial Dr E. (SR 50)	Murdock Blvd	Avalon Park Blvd	\$49,300
Conway Rd (SR 15)	Michigan Ave	Hoffner Ave	\$27,300
Goldenrod Rd (SR 551)	Bates Rd	Charlin Pkwy	\$41,700
Orange Ave (SR 527)	Drennen Rd	Nela Ave	\$42,800
Semoran Blvd (SR 436)	Aloma Ave	Baldwin Park St	\$21,900
Curry Ford Rd (SR 552)	Conway Rd	Woodgate Blvd	\$27,300
Hoffner Ave/Narcoossee Rd (SR 15)	Goldenrod Rd	Lee Vista Blvd	Next Year
Semoran Blvd (SR 436)	Dahlia Dr	T.G. Lee Blvd	\$76,200
Colonial Dr (SR 50)	Mills Ave	Old Cheney Hwy	\$57,600
Mills Ave (SR 15/600)	Marks St	Lake Shore Dr/Rollins St	Next Year
Central Blvd	Brown Ave	Mills Ave/Thorton Ave	Next Year
US 17/92 - US 441 - OBT	Osceola Pkwy	Columbia Ave	\$16,900
US 192 - US 441	Denn John Ln	Turnpike NB Ramp	\$30,600
US 17/92	SR 46 (1st St)	3rd St	*\$20,500
SR 434	Sand Lake Rd	Jamestown Blvd	*\$30,400
SR 434	Tollgate Trail	Wayman St	\$31,300
SR 434	Mitchell Hammock Rd	Palm Valley Dr	\$25,400
SR 436	Wilshire Dr	Casselton Dr	\$45,950
SR 46	Park Dr	Sanford Ave	*included with US 17/92
CR 46A	SR 417 NB Ramp	SR 417 SB Ramp	*included with SR 434
SR 426	Old Howell Branch Rd	Dean Rd	\$36,000
Red Bug Lake Rd	SR 417 EB	SR 417 WB	*included with SR 434

**Notes:**

1. The above project costs were provided by FDOT
2. The project cost (cells highlighted in the same color under the "Project Cost" column) for each project is prorated based on the number of signals on the study segment