



## Appendix A

# CONSTRAINED TREND SOCIOECONOMIC FORECAST METHODOLOGY







# 2040 Long Range Transportation Plan

2040 Constrained Trend  
Socioeconomic Data Forecast



Prepared by: Ghyabi & Associates, Inc.



## 1.1 Background

The purpose of the 2040 Constrained Trend Socioeconomic Forecast is to formulate a realistic population and employment projection for input to the transportation model to determine future transportation needs. The level of analysis used by the Florida Standard Urban Transportation Model Structure (FSUTMS) is the Traffic Analysis Zone (TAZ). TAZs vary widely in size based on the intensity of the land use and transportation network and can range from several acres to thousands of acres. The level of output for the dataset is the TAZ.

The most recent update to the socioeconomic data was for the 2035 Volusia TPO Long Range Transportation Plan, which used a base year of 2005. In the interim, an updated based year dataset for 2010 was produced.

The update of the socioeconomic data for the portions of Flagler County that are located within the boundaries of the River to Sea TPO is being accomplished by the Florida Department of Transportation (FDOT). This information will be merged with that for Volusia County once the reapportionment has been approved.

## 1.2 Control Totals

### *Population Control Totals*

The population component of the Constrained Trend Socioeconomic Forecast is informed by population projections produced by the University of Florida Bureau of Economic and Business Research (BEBR). The Central Florida Regional Planning Model Committee has recommended the use of the BEBR Medium projection for all member jurisdictions. The totals for employment categories and population totals are matched within an error range of approximately 10 persons to control totals. The numbers listed below are for Volusia County only.

#### **2035 LRTP Update:**

2000 Base Year population:	443,575
2005 Base Year population:	494,631
2035 Forecast population:	692,763

#### **Current Census/BEBR Estimates:**

2010 Census Estimate:	494,593
2010 Census Dwelling Units:	254,226
2013 BEBR Estimate:	498,978
2040 BEBR Med forecast:	592,700

The 2010 Base Year Data Set reported a higher population count than the 2010 Census estimate as well as a higher number of dwelling units than was represented by the 2010 Census, resulting in a higher total forecast population. In that the 2010 Base Year dwelling unit count was thoroughly reviewed on a parcel by parcel basis by the TPO, local jurisdictions and the TPO's consultant, the 2040 projection uses the higher 2010 base year population and assumes the same differential from the BEBR projection in future years.

**2040 LRTP Update:**

2010 Base Year Dwelling Units:	257,538
2010 Population Estimate:	510,189
2040 Population Forecast:	608,296

The 2010 base year population data set is based on permanent residents and excludes non-permanent residents (such as “snowbirds”). The estimated persons per household rate is 1.81 for multi-family dwelling units and 2.37 for single family dwelling units.

**Employment Control Totals**

The 2040 Control Totals for employment projections were drawn from Woods and Poole projections.

	<b>2010 Base</b>	<b>2040 Projection</b>	
IND:	21,421	29,898	jobs
COM:	50,306	64,167	jobs
SER:	126,985	194,190	jobs
<b>TOT:</b>	<b>198,712</b>	<b>288,255</b>	<b>jobs</b>

The categorization of Standard Industry Classification (SIC) data provided by Woods and Poole was the same used for the 2010 base year and is shown in Table 1:

**Table 1 – SIC Descriptions**

RETAIL TRADE EMPLOYMENT	COM
ACCOMMODATION and FOOD SERVICES EMPLOYMENT	COM
TRANSPORTATION and WAREHOUSING EMPLOYMENT	COM
MINING EMPLOYMENT	IND
MANUFACTURING EMPLOYMENT	IND
CONSTRUCTION EMPLOYMENT	IND
FARM EMPLOYMENT	IND
FORESTRY, FISHING, RELATED ACTIVITIES and OTHER EMPLOYMENT	IND
INFORMATION EMPLOYMENT	SER
FINANCE and INSURANCE EMPLOYMENT	SER
REAL ESTATE and RENTAL and LEASE EMPLOYMENT	SER
PROFESSIONAL and TECHNICAL SERVICES EMPLOYMENT	SER
MANAGEMENT of COMPANIES and ENTERPRISES EMPLOYMENT	SER
EDUCATIONAL SERVICES EMPLOYMENT	SER
HEALTH CARE and SOCIAL ASSISTANCE EMPLOYMENT	SER
OTHER SERVICES, EXCEPT PUBLIC ADMINISTRATION EMPLOYMENT	SER
FEDERAL CIVILIAN GOVERNMENT EMPLOYMENT	SER



FEDERAL MILITARY EMPLOYMENT	SER
STATE and LOCAL GOVERNMENT EMPLOYMENT	SER
WHOLESALE TRADE EMPLOYMENT	SER
ARTS, ENTERTAINMENT, and RECREATION EMPLOYMENT	SER
ADMINISTRATIVE and WASTE SERVICES EMPLOYMENT	SER
UTILITIES EMPLOYMENT	SER

### 1.3 Approach

The update to the trend forecast is a limited update at the TAZ level using the 2035 forecast as a guide. The socio-economic data is split into two sections: ZDATA1, consisting primarily of population data, and ZDATA2, consisting primarily of employment data.

- The 2035 socioeconomic data forecast is updated to take into account existing development that occurred between the development of the 2005 base year data and the present. The primary new available data is the 2010 base year. The primary goal is to identify TAZs where comparison of the new 2010 base year to the previous 2015 projection (from the 2035 forecast) would show in negative growth or to identify growth that was projected to happen by 2010 that did not actually occur. The future year projections for each TAZ are adjusted accordingly to anticipate any projected growth to occur later or earlier depending on the situation.
- In order to account for changes since the 2035 projection, rates of growth were calculated in units/jobs per year for both 2005-2010 and from the previous projection of 2005-2035. For TAZs where growth happened faster than anticipated, the rate of growth for 2005-2010 was used. Growth that was slower than anticipated was assumed to a result of the economic recession. This temporary slowdown is represented in the new 2010 base year.
- Growth capacity for each TAZ was limited to the highest dwelling units or job count in the 2035 LRTP or, where employment growth occurred in TAZs which was not anticipated in 2035 projections, the capacity was 2010 capacity plus 10% for IND or COM. Service employment was the only category where total 2040 employment exceeded the 2035 growth projection in the 2035 LRTP. As a result, the maximum capacity was used for SER employment in each TAZ plus a factor of 22.4% for those TAZs where unanticipated growth occurred from 2005-2010 to account for TAZs. This factor accounts for growth capacity that was not anticipated in the 2035 projections.
- The number of persons per household has been trending down for the last two decades. This trend was anticipated to continue, resulting in a 2040 persons per household of 2.26 for single-family and 1.79 for multi-family. Research shows that the number of households without children could be as high as 71% by 2030 (Source: Arthur C. Nelson, Metropolitan Research Center, University of Utah).
- Negative Growth: In TAZs where negative job growth occurred from 2005-2010 and negative growth was anticipated in the 2035 LRTP projection for 2005-2035, negative growth was projected for 2040 for jobs. The primary negative growth occurred under the IND category. Negative growth in dwelling units was

not permitted. Negative growth in population was permitted based on the anticipated change in persons per household.

- Vacancy rates are maintained as in the 2010 base year and vary by TAZ. Any TAZ which does have a vacancy rate in 2010 because it has no existing development is assigned the average permanent vacancy rate for the county.
- The only major new generator not anticipated in the 2035 plan was the Farmton development. Population and employment were first projected to the control totals without Farmton and then added in Farmton's projected units and jobs. Growth in each TAZ was then adjusted by a percentage to match the control totals as follows: IND: 96.4%, COM: 88.9%, SER: 100%; DU: 85.31%. This percentage was also applied to Farmton's projected growth.
- The LRTP committee and TCC members were requested to review the 2035 employment projections in detail and provide comments on adjustments that should be made. The population projections were previously reviewed in detail so it is requested that committee members focus their efforts on the employment data.
- The LRTP committee and TCC members were requested to provide information on any major developments or major future land use changes, such as DRIs that have been recently approved or withdrawn, that were not anticipated in the 2035 plan but should be taken into account in the 2040 projection. Volusia County provided detailed program information for the Farmton Development. Square footage was converted to jobs using the following conversion rates: SER: 300 SF / job; COM: 500 SF/job; IND 1000 SF/job. School Enrollment for colleges 450 SF / student.
- Because the population and employment projections for 2040 are lower than those projected in the 2035 forecast as well as the lack of growth in the 2005-2010 timeframe, no additional population and employment will need to be projected beyond those comments received from the committees. In order to meet the lower control total, the consultant will use the 2025 and 2030 forecast years from the 2035 LRTP to extrapolate an adjusted 2040 forecast that meets the control totals. Additional development included in the previous projection will be assumed to occur in 2045 or 2050, which extends beyond the study timeframe for the transportation model. Woods and Poole projections will be used to develop a new employment forecast control total.
- The total for school enrollment matched within 1,000 students to the 2035 forecast's projection for the year 2025 (122,618 students) because the prior 2025 population forecast total most closely matched the new 2040 overall population projection. School enrollment includes both K-12 grade schools as well as colleges and universities. Florida is anticipated to have approximately 15% of persons in grade school in 2040. This would result in approximately 88,000 grade school students based on the 2040 projected population. Total enrollment was projected as 121,543 students. Negative growth was permitted in TAZs for school enrollment consistent with the 2035 methodology and trends from 2005-2010 in some TAZs.
- As part of the update to the new model structure, the boundaries for some TAZ were changed. Therefore, the future projections from the 2035 LRTP were split into new TAZ boundaries for 50 TAZs. Thirteen of



these were related to the Farmton development. New growth capacity was split into new TAZs based on vacant land remaining and new growth between 2005-2010.

## 1.4 Results

The product will be a table showing population (ZDATA1) and employment (ZDATA2) data for each Traffic Analysis Zone (TAZ) in five year increments for year's 2015, 2020, 2025, 2030, 2035 and 2040.

## 1.5 Data Dictionary

A reference for abbreviations used in the methodology is included in Table 2.

**Table 2- Data Dictionary**

SF	Single Family
MF	Multi Family
HM	Hotel/Motel
DU	Dwelling Units
POP	Population
IND	Industrial Employment
COM	Commercial Employment (e.g. retail)
SER	Service Employment (e.g. office)
TOT	Total Employment
SCH	School Enrollment
_10	2010 base year
_40	2040 projection
10_40	growth between 2010 and 2040



**2040 Long Range  
Transportation Plan**  
2040 Constrained Trend Socioeconomic Data  
Forecast

 **RIVER TO SEA TPO**  
Transportation Planning Organization  
VISION - PLAN - IMPLEMENT

Prepared by: Ghyabi & Associates, Inc.







## Appendix B

# ALTERNATIVE LAND USE SOCIOECONOMIC FORECAST METHODOLOGY







# 2040 Long Range Transportation Plan

Alternative Land Use  
Forecast Methodology



Prepared by: Ghyabi & Associates, Inc.





## 1.0 Introduction

### 1.1 Land Use Goals and Approach

The goal of the 2040 Alternative Land Use Forecast is to formulate a realistic land use projection that will demonstrate: lower Vehicle Miles Traveled (VMT) and Vehicle Hours Traveled (VHT), reduced suburban sprawl, and use of investment in transit to the best advantage. To achieve these goals, the alternative land use will emphasize compact development along corridors, infill and redevelopment, mixing land uses, improved jobs to housing balance within compact urban travel sheds, and configurations that support multi-modal transportation.

The study emphasizes the use of transit and pedestrian-supportive intensities and a mix of uses in new medium or large projects and on key corridors as well as the inclusion of a jobs-to-housing balance. The study assumed the preservation of existing single family neighborhoods and did not attempt to make major changes to the pattern of industrial, light industrial and auto serviced existing land uses.

### 1.2 Notes on the LRTP process

The Long Range Transportation Plan is a federal requirement for Transportation Planning Organizations (TPO). The TPO uses expected population and employment growth to project what road and transit needs will be for a 25+ year planning horizon. This requires production of a Land Use dataset which describes the location of employees and residents in the target year. The usual method for forecasting these values is based on existing trends and local jurisdiction comprehensive plans; this is referred to as the Constrained Trend Scenario in this study. For the Alternative Land Use, Canin Associates is asked to envision a realistic future scenario where jobs and housing are located closer together to better utilize multimodal transportation options, including transit, walking and cycling, as well as any other land use techniques to improve efficient use of new and existing road networks. In short, the goal is to organize land uses to improve the efficiency of the transportation networks and mobility options for the public.

The level of analysis used by the Florida Standard Urban Transportation Model Structure (FSUTMS) is the Traffic Analysis Zone (TAZ). TAZs vary widely in size based on the intensity of the land use and transportation network. They can range from several acres to more than 10,000 acres. While some analyses may address smaller areas, the level of output for the dataset is the TAZ.

## 2.0 Characterization Framework

### 2.1 Purpose

The purpose of the Characterization Framework is two-fold. One purpose is to represent efforts to pursue a more sustainable land use by member jurisdictions in a common visual language. The other purpose is to aid in the development of the land use data forecast by serving as a tool to gather information from various member jurisdictions indicating where different land use approaches are appropriate. Areas are noted that

may be appropriate for a sustainable land use approach or that are already planned for sustainable land use by a local jurisdictions at a scale or in a location that is regionally significant.

Neither the Characterization Framework nor the Land Use Forecast have any regulatory authority. The Characterization Framework is used to communicate the methodology used in the production of the data as well as commonalities in approach across different jurisdictions. In order to be used for land use forecasting the Characterization must be overlaid on a developable land analysis identifying areas that are vacant or likely to redevelop. In general, existing residential neighborhoods are not forecast for growth or higher densities even where they are within a Sustainable Land Use characterization. Redevelopment is focused on low-density commercial properties.

## 2.2 Characterization Methodology

All land in the vacant and redevelopment land inventories is characterized based on key available data that influence appropriate and likely densities. Criteria include special generators, industrial future land use, rural service areas, distance from commuter rail or other proposed transit, acreage of contiguous vacant land, and other factors. The Land Use Characterization Map is developed in coordination with jurisdiction representatives on the Land Use Working Group.

### 2.2.1 Coordination with Land Use Working Group

Land Use Working Group Members are asked to assist in identifying, at a sketch level, areas where higher densities, walkable development, redevelopment, and transit oriented development may facilitate better modal split and shorter trips lengths. These areas may include existing downtowns, transit served corridors, aging commercial corridors, high demand areas, and areas with access to major employment centers.

Positive synergies of this coordination process include alerting jurisdiction staff as to where sustainable development corridors are discontinuous at jurisdictional borders. Jurisdictional staff may propose to extend corridors when such gaps were identified. Another synergy is to encourage internal coordination of jurisdictional land use and transportation consistent with the focus of the study on highlighting the important interplay between transportation and land use planning.

## 2.3 Approach

The Land Use Characterization Framework map illustrates the analysis of the study area guided by the Land Use Working Group to identify focal areas for sustainable development. Areas identified as sustainable development focus areas include mixed use development and redevelopment in corridors, planned mixed use areas, and transit-oriented nodes that are forecast for higher densities and horizontal or vertical mixed use development. In addition, areas where significant employment accessibility sheds overlap significant development parcels, mixed use developments are anticipated to serve employees of single-use employment areas. Sustainable Development corridors are corridors identified in conjunction with the Land Use Working Group as locations where higher density, mixed-use development is more likely to occur, be



beneficial to the region, and be serviceable by existing or future transit. These include redevelopment, infill and new development areas.

Characterization will be used as the basis for Capacity Assignment (Section 4.2.4). Land not otherwise characterized is identified as “trend” where conventional densities would be applied.

### 3.0 Density Overview

The Alternative Land Use Forecast includes examples of existing places in Florida that have characteristics consistent with compact, walkable communities. The densities of these places will be extrapolated to account for different parcel sizes and infrastructure needs.

While most jurisdictions across the nation use the seemingly simple measures of units per acre and Floor Area Ratio (FAR) to measure density and intensity, there are many factors affecting how those nominal densities are applied which can result in widely varying results in actual built product. These include how common open spaces and infrastructure are calculated in the density as well as wetlands and preserved areas. This is an especially current issue with the proliferation of mixed use zoning districts. Simple differences in how these densities are calculated can result in half or twice as much allowable density on a given site. As a result it is important for jurisdictions to consider achievability of nominal densities and the impact of mixing uses.

If net developable land is used to calculate allowable densities, then the more “net” the denominator is (i.e. the more types of acreage that are excluded from the net developable land) the lower the effective density will be given the same nominal density. The term “stacking allowed” refers to the practice of allowing the same acreage to be used to calculate residential density and commercial intensity; e.g. if 25 units per acre is permissible and 1.0 FAR is permissible then on 2 acres it would be possible to build 50 units and approximately 87,000 square feet. If stacking is not allowed then the yield on 2 acres would be 25 units and approximately 43,000 square feet (or some other combination that exchanges square feet for units).

Previous surveys of Florida jurisdictions have found a wide variation in achievable densities among the densities considered by different jurisdictions to be “sustainable” or “smart growth.” Many jurisdictions noted that the referenced mixed-use densities were for new land use categories that had not yet been applied to actual projects so in some cases staff has not yet determined in detail how the densities would be calculated.

## 4.0 Land Use Forecasting

### 4.1 Control Totals

The totals for employment categories and population totals are matched within an error range of approximately ten units to estimates approved by the appropriate subcommittee. The population Land Use Forecast is governed by population projections produced by the University of Florida Bureau of Economic and Business Research (BEBR).

## 4.2 Forecast Methodology

This land use forecast is performed in four basic phases: land inventory analysis, characterization, capacity assignment, and scaling. The overall process is as follows. The amount of land available for development in each TAZ is identified in the vacant land inventory and this land is initially characterized as rural service area or urban service area. In addition, lands most likely to redevelop are identified within specific sustainable development corridors and commuter rail station areas. All developable lands are characterized using a set of sustainable land use criteria including access to transit, location near major employment centers, redevelopment and infill corridors and identified urban expansion areas which jurisdictions are targeting for implementation of smart growth techniques. Characterization is used to assign densities and build-out rates. Development densities in smart growth areas are determined by a combination of Design Case Studies and research on existing densities in regional compact urban areas. A capacity for existing land areas is calculated by combining the Characterization of developable lands and the preferred Development Densities. Finally, in order to match county control totals, scaling steps are necessary if capacity exceeds the need based on the control totals. Through a combination of adjusting target densities and assuming percentage build out rates, the TAZ totals are brought in line with the county-wide control totals by land use.

### 4.2.1 Identifying Developable Land

For the 2040 forecast, the developable land analysis from the 2035 forecast will be updated using the developed land analysis used to create the 2010-year data.

### 4.2.2 Forecasting to the Characterization Framework

In general, TAZs that are identified for sustainable development in the alternative forecast are forecasted to have a higher velocity and density of growth than the trend. Areas that are not targeted for sustainable development are assumed to maintain the same densities as the trend and capture a smaller share of the overall development. The development forecast is constrained by the control total for population and employment by county. This is a statistical exercise which is summarized to the level of TAZs for the final dataset. The intent is generally not to identify specific properties for development or redevelopment except in the case of large properties that comprise one or more TAZs. New growth is only allocated in areas that are either vacant developable land or that are identified as a redevelopment focus area which assumes the preservation of existing residential neighborhoods.

Layered onto the Characterization Framework is distance from a major road. This criterion is particular important in larger areas such as major employment sheds where there is a larger variety of parcel types. Land with access to a major road is more likely to be appropriate for intensive development and to have more convenient transportation access both by private vehicle and by transit. In large characterization areas not all vacant lands are considered eligible for sustainable land use. Classification is based on the size of the property and proximity to a major road. Special Districts are tabulated separately and assigned development based on the Trend forecast. Table 1 below demonstrates a sample characterization

classification and the corresponding density category assigned to each category. Table 2 illustrates an example of density and intensity assignments for each density category.

**TABLE 1: EXAMPLE DENSITY ASSIGNMENTS**

Characterization	Density Category
Planned development	Model
Corridors	MedBal
CRA	MedLoJobs
Downtowns	Downtown Balanced
Industrial	Industrial Trend
Primary TOD	HiBal
Rural Service Area	Rural Trend
Other Urban Service Area	USA Trend
Major Employer Shed Maj*	MedLoRes
Major Employer Shed Off*	50% MedLoRes, 50% Lo
Special District	Special Generator Trend
Secondary TOD Off <sup>1</sup>	MedLoRes

<sup>1</sup> Maj = On Major Road; Off = Not on Major Road



TABLE 2: EXAMPLE DENSITIES AND INTENSITIES

Category:	Units/ac.	Office emp./ac.	Retail emp/ac.	Ind emp/ac.
Regional CBD	114	92	22	
High balanced	91	69	22	
Medium balanced	45	29	22	
Medium residential-based	61	10	5	
Med low balanced	28	18	14	
Med low residential-based	35	6	3	
Low (Residential Only)	6	0	0	
<i>New Districts:</i>				
Model	17	16	5	
<i>Rural:</i>				
Rural	trend	trend	trend	trend
<i>Trend:</i>				
Special Generators Trend	-	trend	trend	trend
General Trend	trend	trend	trend	trend
Industrial Trend	-	-	-	12

### 4.2.3 Corridors and Redevelopment

The Corridors to be identified within the Characterization Framework will be a mix of new development areas and redevelopment and infill areas. Only areas within the Urban Service Area are considered part of the corridors.

Redevelopment potential is estimated by isolating developed commercial properties within redevelopment eligible Characterization areas. A Building to Land Value ratio is calculated for these properties. Break points are identified wherein more acreage with a low building to land value ratio are counted as potential redevelopment than lands with a high ratio. This is because a low ratio represents properties where the land is worth substantially more than the building indicating that a more expensive building could likely be justified by market demand. The purpose of the analysis is to provide a rough percentage of properties that may be redeveloped rather than to identify specific properties. This is the “Scaling” step for Redevelopment.

The analysis of redevelopment potential is statistical in nature and is not intended to identify specific sites. In most cases it is not necessary to identify whether specific properties should be redeveloped. The focus is an approximate rate at which properties may be likely to redevelop.

### 4.2.4 Capacity Assignment

Because the developable land data is based on parcels which are net of roads and unrelated uses, it is necessary to adjust for a net to gross ratio for larger parcels which would require internal roads and amenities. Densities will then be applied to the “net” acreage after the deduction. This deduction on very large parcels accounts for roads, surface stormwater facilities, parks and open space and uses other than commercial, service or residential such as reservations for government or civic uses. Reductions applied to vacant land aggregations are described in Table 3.

**TABLE 3: GROSS TO NET ADJUSTMENTS BASED ON CONTIGUOUS ACREAGE**

Gross Acreage	Net Acreage Adjustment
< 5 acres	100%
5 – 40 acres	80%
40 – 160 acres	70%
160 + acres	50%

In order to match the 2040 Control Totals for population and employment categories, it is necessary to scale back from the build-out estimates. This is achieved by applying a percentage reduction to the build-out

capacity of raw land to be developed by sub-area. Scaling varied by sub-area in order to account for both the greater demand for land near the core business district and the sustainable approach of locating more development toward the central areas where jobs are located and where there is more opportunity for transit service.

## 5.0 Forecast Results

The primary data visualizations are created using a combined measure of “Units + Jobs” in order to represent mixed use density. Areas with the highest densities in the regional are also projected to be mixed use areas. The mixed use measure was determined to be the most useful method of representing the total built density and intensity of activity within a given TAZ for a previous alternative land use forecast project.

## 6.0 Land Use Working Group Preliminary Schedule

For the development of the Alternative Land Use, a Land-Use Working Group has been assembled, consisting of land-use planners and developers representing both the public and private sectors. The Land-Use Working Group will be involved in developing future year socio-economic data sets as well as growth and development alternatives.

## 7.0 Preliminary Schedule

### *September:*

#### *Week 2*

- September 12, 2024 – Land Use Working Group Meeting: General overview of the process.

#### *Week 3*

- Transmit a proposed density matrix & land use framework to primary committee.

#### *Week 4*

- September 26, 2014 – Land Use Working Group Meeting: Present and receive comments on proposed density matrix & land use framework from primary committee.

### *October:*

#### *Week 2*

- Deadline for Committee comments on density matrix and land use framework.

#### *Week 4*

- October 31, 2014 – Land Use Working Group Meeting: Present revised matrix and framework for committee approval.



*November:*

*Week 1*

- Distribute draft dataset.

*Week 2*

- November 14, 2014 – Land Use Working Group Meeting: Present draft dataset.

*Week 3*

- Deadline for committee comments on dataset.

*Week 4*

- Happy Thanksgiving!

*December:*

*Week 2*

- Provide revised dataset based on comments provided. Final data approval.



**2040 Long Range  
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**RIVER TO SEA TPO**  
Transportation Planning Organization  
VISION - PLAN - IMPLEMENT

Prepared by: Ghyabi & Associates, Inc.  
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## Appendix C

# ENVIRONMENTAL JUSTICE







# 2040 Long Range Transportation Plan

## Environmental Justice Analysis



Prepared by: Ghyabi & Associates, Inc.



## Overview

Executive Order 12898 (1994), Federal Actions to Address Environmental Justice in Minority and Low-Income Populations, reinforces Title VI of the 1964 Civil Right Act. Signed by President Clinton, the Order states “each Federal agency shall make achieving Environmental Justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.” Other relevant legislation includes: The National Environmental Policy Act (1969) (NEPA); Section 109 (h) of Title 23; The Uniform Relocation Assistance and Real Property Acquisition Policies Act (1970) (URA); The Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21); and other U.S. Department of Transportation (DOT) statutes and regulations.

On May 2, 2012, the USDOT issued an update to Departmental Order 5610.2(a). The Order states the purpose and authority of Environmental Justice policy, as well as data collection and analysis methods associated with Environmental Justice. The result of the past 47 years of Civil Rights related regulations, statutes, policies, technical advisories, and Executive Orders, is that nondiscrimination provisions apply to all programs and activities of Federal-aid recipients, sub recipients, and contractors.

Requirements of all the aforementioned statutes, orders, and regulations shall be administered so as to identify, early in the development of the program, policy, or activity, the risk of discrimination and disproportionately high and adverse effects so that positive corrective action can be taken. In implementing these requirements, the following data and information should be obtained where relevant, appropriate, and practical:

- Population served and/or affected by race, color, or national origin, and income level.
- Proposed steps to guard against disproportionately high and adverse effects on person on the basis of race, color, or national origin, and income level.
- Present and proposed membership by race, color, or national origin, in any planning or advisory body that is part of the program, policy, or activity.

Statutes governing operations will be administered in a manner that identifies and avoids discrimination and disproportionately high adverse effects on minority population and low-income populations by:

- Identifying and evaluating environmental, public health, and interrelated social and economic effects of DOT program, policies, and activities.
- Proposing measures to avoid, minimize and/or mitigate disproportionately high and adverse environmental and public health effects and interrelated social and economic effects, and providing offsetting benefits and opportunities to enhance communities, neighborhoods, and individuals affected by programs, policies, and activities, where permitted by law and that are consistent with Executive Order 12898 (1994).



- Considering alternatives to proposed programs, policies, and activities, where such alternatives would result in avoiding and/or minimizing disproportionately high and adverse human health impacts, consistent with Executive Order 12898 (1994).
- Eliciting public involvement opportunities and considering the results thereof, including soliciting input from affected minority and low-income populations in considering alternatives.

Transportation planning decisions both directly and indirectly influence the health of people and the environment. Decision-making and policy implementation affect air and water quality, noise, and inter/intra-neighborhood connections. This element of the 2040 Long Range Transportation Plan (LRTP) identifies Environmental Justice populations and their locations within the River to Sea Transportation Planning Organization's (TPO) Metropolitan Planning Area (MPA). The River to Sea TPO is the organization responsible for the planning and programming of all Federal and State transportation funds within the MPA coverage area. Further, the River to Sea TPO is the "primary forum within which member local governments and citizens voice concerns, identify priorities and plan for transportation improvements." Therefore, it is critical that the agency adopt and practice planning strategies that align with the principles of Environmental Justice. These principles are:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations.
- To ensure the full and fair participation by all potentially affected communities in the transportation decision making process.
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

An environmental Justice approach to transportation planning and project development recognizes the fair treatment of all groups within the community. This includes ensuring the involvement of the entire community in public outreach and participation efforts. The DOT is the lead agency charged with ensuring non-discrimination stemming from Environmental Justice issues, related to transportation planning. The statutory language of DOT Order 5610.2(a) focuses on minority and low-income populations. However, this 2040 LRTP recognizes the need to consider all affected populations when making responsible planning decisions, including those who are elderly and those without access to a personal vehicle. Steps shall be taken to provide the public, including members of minority populations and low-income populations, access to public information relevant to human health or environmental impacts stemming from programs, policies, and activities, including information that will address the concerns of minority and low-income populations regarding the health and environmental impacts of the proposed action.

## **Review and Comparison of Available Data**

The River to Sea TPO MPA includes Volusia County and southeastern portions of Flagler County, including Bunnell, Flagler Beach and Palm Coast. A survey of the River to Sea TPO MPA built environment shows population centers in the east and west, separated by wetlands and rural land uses in the center of the MPA. Table 1 displays population characteristics for Volusia and Flagler County communities within the MPA based upon data gathered from the 2010 US Census, 2012 American Community Survey (ACS), and 2013 Bureau of Economic and Business Research (BEBR).

- A majority of the population centers within the River to Sea TPO MPA witnessed population growth during the selected time periods.
- The most significant growth, in terms of absolute values, occurred in Palm Coast (1,888), DeLand (1,405), Port Orange (1,012) and Orange City (738). Decreases in population occurred in Beverly Beach (-3), Edgewater (-13), Holly Hill (-27) and Pierson (-48).
- If measured in terms of percentages, Orange City (+6.51%) and DeLand (+4.94%) experienced the River to Sea TPO MPAs greatest growth rate, while Pierson witnessed the greatest decline in population growth rate (-2.84%).

## **Population Density**

An important element of Environmental Justice analysis is the consideration of population density. Population density is the number of people per unit of defined measurement. By mapping the population density of the River to Sea TPO MPA, a baseline is established for detailing and comparing Environmental Justice populations. The River to Sea TPO MPA is comprised of varying residential densities reflecting the diverse land use and character of development throughout the MPA.

- The average population density within the River to Sea TPO MPA is 3.02 persons/acre as compared to the Florida statewide average of 0.44 persons/acre.
- The River to Sea TPO MPA population centers are generally located in the north, east, and west quadrants of the MPA.
- The remainder of the River to Sea TPO MPA is typically rural and population density figures are more comparable to the State of Florida average.
- The highest densities of population within the River to Sea TPO MPA are located in, or in close proximity to: Deltona; DeLand; Holly Hill; Daytona Beach Shores; Daytona Beach; Port Orange; Ormond Beach; Edgewater; and Palm Coast.
- In the western part of the MPA, areas to the east of Interstate-4 (I-4) and surrounding Saxon Boulevard in Deltona average between 6 and 9.7 persons/acre.
- High population densities in the western portion of the MPA are also found north of DeLand, along the US Highway (US) 17/92 and State Road (SR) 44 corridor.
- Some of the largest and most dense population centers in the MPA are found east of I-95, from Ormond Beach to south of Port Orange.

Table 1: River to Sea TPO MPA Population Data

Location	2013 BEBR Estimate	2010 Census	Total Change	Percent Change	2012 ACS 5-Year Est.	Margin of Error
<b>Flagler County</b>						
Beverly Beach	335	338	-3	-0.89%	416	+/- 131
Bunnell	2,686	2,676	10	0.37%	2,734	+/- 17
Flagler Beach	4,450	4,424	26	0.58%	4,606	+/- 41
Palm Coast	77,068	75,180	1,888	2.44%	75,143	+/- 45
Unincorporated	13,301	13,062	239	1.79%	-	-
<b>Flagler County Total</b>	<b>97,840</b>	<b>95,680</b>	<b>2,160</b>	<b>2.21%</b>	<b>82,899</b>	<b>-</b>
<b>Volusia County</b>						
Daytona Beach	61,998	61,005	993	1.6%	61,779	+/- 52
Daytona Beach Shores	4,292	4,247	45	1.04	4,275	+/- 16
DeBary	19,363	19,320	43	0.22%	19,246	+/- 37
DeLand	28,436	27,031	1,405	4.94%	27,013	+/- 41
Deltona	85,469	85,182	287	0.33%	84,973	+/- 36
Edgewater	20,737	20,750	-13	-0.06%	20,796	+/- 25
Holly Hill	11,632	11,659	-27	-0.23%	11,730	+/- 35
Lake Helen	2,630	2,624	6	0.22%	2,638	+/- 28
New Smyrna Beach	23,119	22,464	655	2.83%	22,658	+/- 48
Oak Hill	1,828	1,792	36	1.96%	1,918	+/- 382
Orange City	11,337	10,599	738	6.51%	10,653	+/- 27
Ormond Beach	38,557	38,137	420	1.08%	38,372	+/- 44
Pierson	1,688	1,736	-48	-2.84%	1,712	+/-320
Ponce Inlet	3,041	3,032	9	0.29%	3,034	+/-19
Port Orange	57,060	56,048	1,012	1.77%	56,242	+/- 37
South Daytona	12,431	12,252	179	1.43%	12,388	+/- 28
Unincorporated Volusia County	115,300	116,655	-1,355	-1.17%	-	-
<b>Volusia County Total</b>	<b>498,918</b>	<b>494,533</b>	<b>4,385</b>	<b>0.88%</b>	<b>379,427</b>	<b>-</b>
<b>MPA TOTAL</b>						
<b>MPA TOTAL</b>	<b>596,758</b>	<b>590,213</b>	<b>6,545</b>	<b>1.1%</b>	<b>462,326</b>	<b>-</b>

Source 2010 US Census, 2012 American Community Survey (ACS), &amp; 2013 Bureau of Economic and Business Research (BEBR)



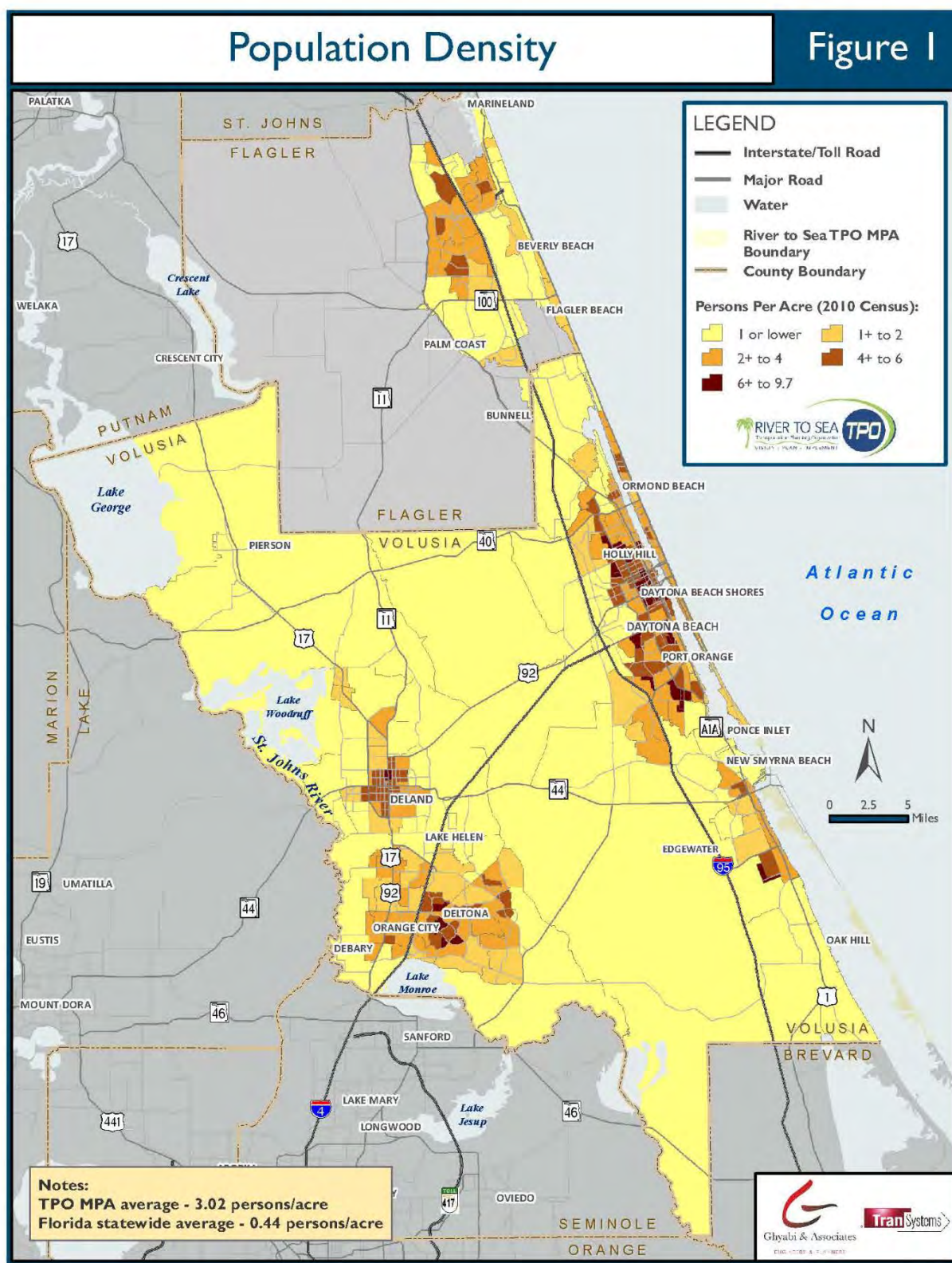


Figure 1: River to Sea TPO MPA Population Density

## Low-Income Populations

Low-income refers to a person whose median income is at or below the Department of Health and Human Service Agency poverty guidelines displayed to the right. A low-income population means any readily identifiable group of low-income person who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed DOT program, policy, or activity. A primary aspect of Environmental Justice analysis is the consideration and inclusion of low-income populations in the transportation planning decision-making process.

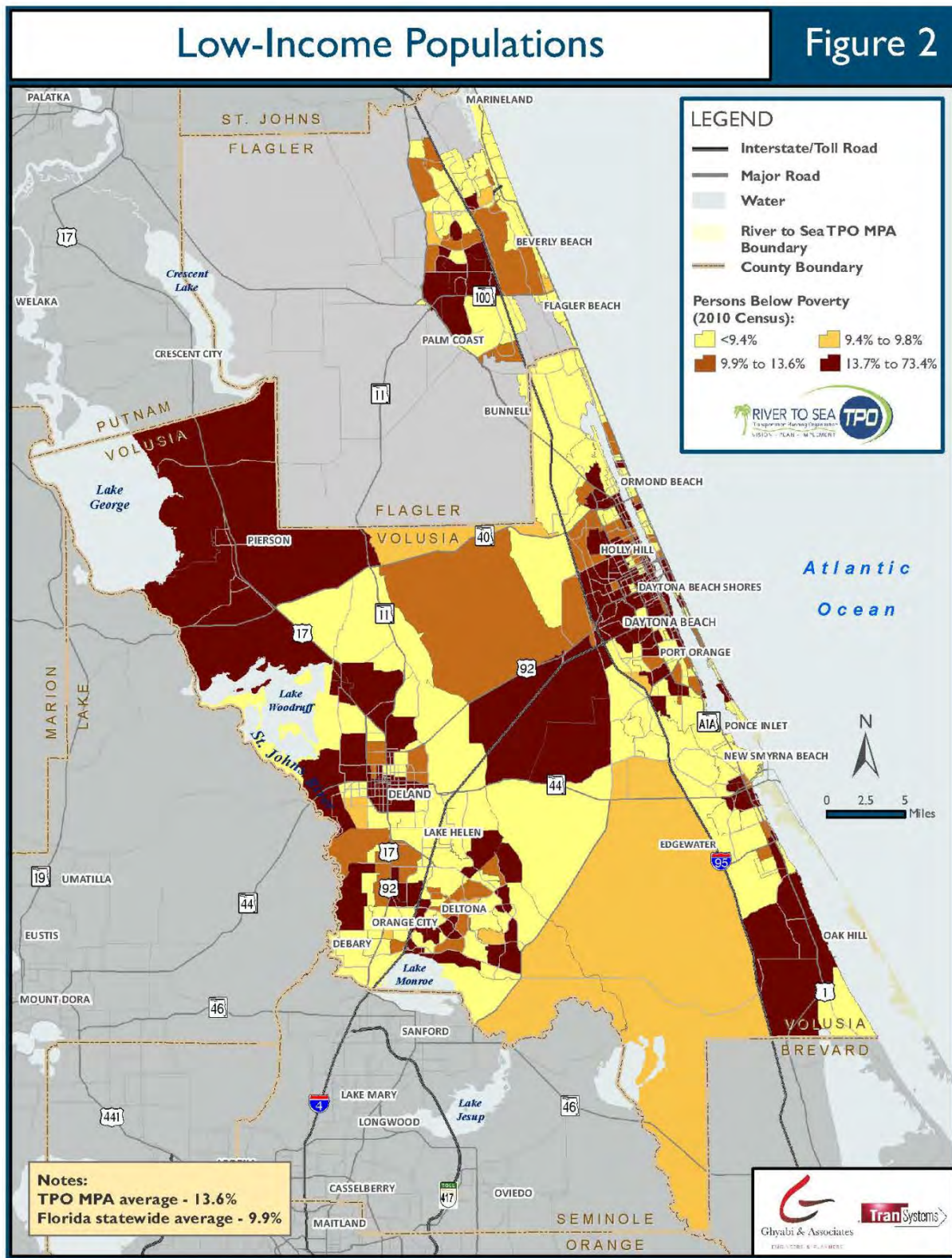
FAMILY SIZE	100%
1	11,670
2	15,730
3	19,790
4	23,850
5	27,910
6	31,970
7	36,030
8	40,090

*2014 Federally Recognized  
Poverty Levels*

As depicted in Figure 2, 13.6% of residents meet the low-income designation within the boundaries of the River to Sea TPO MPA. This figure is higher than the Florida average of 9.9%.

- One area of focus within the River to Sea TPO MPA identified as having a high average number of low-income residents is Bunnell. Areas west of I-95 and east of US 1 are highlighted by this Environmental Justice analysis as containing a large percentage of low-income residents. The primary roadway serving this portion of Flagler County is SR 100. Data taken from this area reflects an average of 18% of residents living below the poverty threshold.
- Moving south on I-95, the next examined portion of the River to Sea TPO MPA is east of I-95. Low-Income populations are located south of Ormond Beach, in and around the area where SR 5A and US 1 intersect.
- High percentages of low-income populations are also located east of I-95, south of SR 40, and are bisected by US 92. Cities within this examination area include Holly Hill, Daytona Beach and South Daytona. These areas of the TPO MPA are some the most heavily populated and house the highest percentages of low-income residents.
- The area south of US 92, west of SR 400, and east of SR 5A has an average below poverty population of 48%.
- Further south on the I-95 corridor, the areas with the highest poverty figures are in close proximity to the intersection of SR 44 and US 1.
- South of SR 44, 30.9% of residents currently live below the poverty level. A small pocket of low-income residents (14.25%) are located west of I-95 between Wilbur-by-the-Sea and Ponce Inlet.
- South of SR 442, east of I-95, and extending south to the Volusia – Brevard County line has a high percentage (20.44%) of low-income residents – generally the Oak Hill area along US 1.
- Low-income populations are also found in the western portions of the River to Sea TPO MPA. In the northern MPA, areas east of Lake George, on the Putnam - Volusia County line and extending east to SR 11 and south to Lake Woodruff and US 17 are pockets of low-income residents.





**Figure 2: River to Sea TPO MPA Low-Income Populations**



- These demographic patterns continue south along SR 11 into DeLand and west to the St. Johns River.
- Moving south along US 17/92, areas of low-income populations are located around the southwestern edge of the River to Sea TPO MPA. From Deltona in the west to Osteen in the east, low-income populations are adjacent to I-4, north of Lake Monroe and west of SR 415. The subarea within the aforementioned boundaries with the largest percentage of low-income residents is located south of Orange City and directly west of I-4. Over 34% of residents in this area live below the poverty level.
- The rural center of the River to Sea TPO MPA is also home to low-income populations. US 92 serves as the northern edge of a land area bordered by SR 44 in the south which extends from approximately five miles east of DeLand to I-95 in the west. Approximately 15% of residents in this area live below the poverty level.

Table 2 displays the number and percent of population living below the poverty level in several River to Sea TPO MPA communities. The largest percentage below the poverty level is found in Pierson (43.5%). Other large concentrations of residents, based on percentage, are located in Bunnell (33.3%), Holly Hill (27.6%), Daytona Beach (27.5%) and DeLand (21.2%). Measuring the population living below the poverty level in terms of absolute values, Daytona Beach (17,058), Palm Coast (15,656), and Deltona (14,229) reflect the three areas with the highest number of residents living below the poverty level.

Table 2: River to Sea TPO Population Below Poverty Level

Location	Total Population	Population Below Poverty Level	Percent Below Poverty Level
<b>Flagler County</b>			
Beverly Beach	416	38	11.3%
Bunnell	2,734	895	33.3%
Flagler Beach	4,606	251	5.6%
Palm Coast	75,143	15,656	20.3%
Unincorporated Flagler County	13,088	1,265	9.7%
<b>Flagler County Total</b>	<b>95,987</b>	<b>18,105</b>	<b>18.5</b>
<b>Volusia County</b>			
Daytona Beach	61,779	17,058	27.5%
Daytona Beach Shores	4,275	306	7.1%
DeBary	19,246	1,219	6.3%
DeLand	27,013	5,159	21.2%
Deltona	84,973	14,229	16.6%
Edgewater	20,796	2,537	12.2%
Holly Hill	11,730	3,211	27.6%
Lake Helen	2,638	308	11.7%
New Smyrna Beach	23,658	3,135	13.6%
Oak Hill	1,918	262	14.3%
Orange City	10,653	2,291	20.2%
Ormond Beach	38,372	4,239	10.9%
Pierson	1,712	734	43.5%
Ponce Inlet	3,034	84	2.7%
Port Orange	56,242	5,874	10.3%
South Daytona	12,388	2,760	22.2%
Unincorporated Volusia County	115,154	32,719	28.4%
<b>Volusia County Total</b>	<b>495,581</b>	<b>96,125</b>	<b>19.3%</b>
<b>MPA Total</b>	<b>591,568</b>	<b>114,230</b>	<b>19.31%</b>

Source: 2012 American Community Survey (ACS)

## Minority Populations

Minority populations are defined as those groups differing, especially in race, religion, or ethnic background from the majority of a population. For the purposes of this analysis the United States Census standards for identifying minorities will be used. This defines minorities as:

- Asian American: a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent
- Black: a person having origins in any of the black racial groups of Africa
- Hispanic or Latino: a person of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race
- Native Hawaiian and other Pacific Islander: a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands
- American Indian and Alaska Native: a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands

Environmental Justice analysis involves identifying groups of minority populations. The River to Sea TPO MPA is composed of approximately 25.1% minorities (as defined above). The State of Florida is composed of 40.9% minorities. The minority populations are depicted in Figure 3 and further described below.

- The highest percentage of minority populations within the River to Sea TPO MPA is located in the vicinity of Daytona Beach. Boundaries of the identified area include: SR 430 (north); local road Shady Place (south); SR 5A (west); and US 1 (east). Minority populations in this area reach as high as 97.6%. The average minority composition for this portion of Volusia County is approximated at 90.6%.
- Another area of attention, in regards to Environmental Justice analysis, is a large Hispanic/Latino minority population (34.7%) within the City of Deltona. This area is located directly adjacent and to the east of I-4. Local roads that serve these communities are Saxon Boulevard, Newmark Drive, Providence Boulevard, N. Normandy Boulevard, and E. Normandy Boulevard. The selected study area averages a 45.3% minority population, with the highest figure (51.5%) located between Providence Boulevard and Saxon Boulevard.
- South DeLand, from SR 44 in the north to SR 15 in the south, is a third Environmental Justice focus area identified by the 2040 LRTP. US 92 bisects the highlighted portion of DeLand. Of particular note are the neighborhoods east of South Adelle Avenue, south of West Beresford Avenue and northeast of Bon Air, in which minorities compose 93.8% of the total population. The minority composition in this area is primarily Black and Hispanic/Latino.
- Environmental Justice should also be a key consideration when undertaking planning efforts in the west, northwest, and southwest portions of Flagler County included in the River to Sea TPO MPA. This area is comprised of 65.8% minority populations. US 1 and SR 11 are the two primary roads that serve the southeast; SR 11 and Pine Meadows Drive in the west; and SR 100, North Bay Street, and Deen Road in the northeast.



- Another area that contains high numbers of minority populations is the area surrounding the intersection of SR 40 and SR 15, north of Glenwood, south of Seville, and east of Astor and Pierson. The total population of this area is 2,589 and reflects a 52% minority composition.
- An additional area of focus includes portions of New Smyrna Beach. Enterprise Avenue and Wayne Avenue serve as the south and north borders of the area of focus, while Halleck Street and US 1 are the east and west borders. The neighborhoods within these boundaries are comprised of 65% minorities.

Table 3 identifies the minority composition of several communities within the River to Sea TPO MPA. Based on percentages, the largest minority population is located in Pierson, a 52% majority of Hispanics or Latinos. Other high percentage concentrations of Hispanics or Latinos can be found in Deltona (34.7%) and Orange City (15.1%). The highest percentage of black residents can be found in Daytona Beach (34.6%), Bunnell (26.2%) and Oak Hill (23.7%). Measuring minority populations in terms of absolute values, the largest numbers of black residents within the River to Sea TPO MPA are located in Daytona Beach (21,260), Palm Coast (9,777), Deltona (5,947) and DeLand (4,398). Large Hispanic or Latino populations are found in Deltona (29,609), Palm Coast (8,134), Daytona Beach (4,865) and DeLand (3,633).

Table 3 – River to Sea TPO MPA Minority Populations

Location	White		Black		Hispanic or Latino		Asian		Amer. Indian or Alaska Native		Native Hawaiian/ Other Pacific Isl	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<b>Flagler County</b>												
Beverly Beach	377	90.6%	0	0.0%	0	0.0%	39	9.4%	0	0.0%	0	0.0%
Bunnell	1,800	65.8%	717	26.2%	206	7.5%	4	0.1%	0	0.0%	0	0.0%
Flagler Beach	4,469	97.0%	67	1.5%	57	1.2	13	0.3%	0	0.0%	0	0.0%
Palm Coast	58,566	73.2%	9,777	12.2%	8,134	10.2%	1,825	2.3%	0	0.0%	64	0.1%
<b>Total</b>	<b>65,212</b>	<b>-</b>	<b>10,561</b>	<b>-</b>	<b>8,397</b>	<b>-</b>	<b>1,881</b>	<b>-</b>	<b>0</b>	<b>-</b>	<b>64</b>	<b>-</b>
<b>Volusia County</b>												
Daytona Beach	32,269	52.6%	21,260	34.6%	4,865	7.9	1,373	2.2%	111	0.2%	76	0.1%
Daytona Beach Shores	4,071	95.2%	0	0.0%	131	3.1%	59	1.4%	14	0.3%	0	0.0%
DeBary	15,853	82.4%	739	3.8%	1,968	10.2%	455	2.4%	51	0.3%	0	0.0%
DeLand	17,556	65.0%	4,398	16.3%	3,633	13.4%	707	2.6%	16	0.1%	23	0.1%
Deltona	46,570	54.5%	5,947	7.0%	29,609	34.7%	1,292	1.5%	561	0.7%	249	0.3%
Edgewater	18,827	90.5%	633	3.0%	738	3.5%	160	0.8%	13	0.1%	35	0.2%
Holly Hill	8,993	76.7%	1,721	14.7%	619	5.3%	99	0.8%	52	0.4%	0	0.0%
Lake Helen	2,271	86.1%	251	9.5%	82	3.1%	13	0.5%	0	0.0%	0	0.0%
New Smyrna Beach	19,991	88.2%	1,405	6.2%	860	3.8%	204	0.9%	38	0.2%	0	0.0%
Oak Hill	1,421	74.1%	454	23.7%	0	0.0%	0	0.0%	4	0.2%	0	0.0%
Orange City	8,227	77.2%	707	6.6%	1,604	15.1%	53	0.5%	63	0.6%	0	0.0%
Ormond Beach	33,688	87.8%	1,467	3.8%	1,332	3.5%	1,359	3.5%	60	0.2%	0	0.0%
Pierson	708	41.4%	100	5.8%	891	52.0%	0	0.0%	0	0.0%	0	0.0%
Ponce Inlet	3,012	99.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Port Orange	50,662	89.5%	1,891	3.3%	1,903	3.4%	1,082	1.9	462	0.8%	0	0%
South Daytona	9,905	80.0%	1,234	10.0%	785	6.3%	108	0.9%	42	0.3%	44	0.4
<b>Total</b>	<b>274,024</b>	<b>-</b>	<b>42,207</b>	<b>-</b>	<b>49,020</b>	<b>-</b>	<b>6,964</b>	<b>-</b>	<b>1,487</b>	<b>-</b>	<b>427</b>	<b>-</b>
<b>MPA Total</b>	<b>339,236</b>	<b>-</b>	<b>52,768</b>	<b>-</b>	<b>57,417</b>	<b>-</b>	<b>8,845</b>	<b>-</b>	<b>1,487</b>	<b>-</b>	<b>491</b>	<b>-</b>

Source: 2012 American Community Survey; Note-Racial composition data for each city/town reflects a margin of error based upon a percentage of each population belonging to 2 or more racial groups







## **Elderly Populations**

Elderly populations, defined as individuals aged 65 years and older, are generally more transit-dependent than the population as a whole and may have special transportation needs, such as reliance upon public transportation or paratransit services. It is for these reasons that it is important to consider elderly populations when identifying Environmental Justice populations. This is especially relevant in the River to Sea TPO MPA due to the high number of elderly within the MPA boundary. The River to Sea TPO MPA is comprised of nearly 22% elderly residents which is approximately 5% higher than the State of Florida average.

Elderly population characteristics within the River to Sea TPO MPA are displayed in Figure 4 and further described below:

- High numbers of elderly residents are dispersed throughout the River to Sea TPO MPA. The rural center of the MPA is the one exception, with an elderly population comprising less than 16.9% of the total population.
- In the western portion of the MPA, between I-4 and US 17/92, elderly populations compose an average of greater than 24% of residents.
- This is also true north of DeLand, immediately north, east, and west of SR 11. SR 44 bisects the two aforementioned locations, with DeLand, Deltona and Orange City being the major population centers.
- The greatest percentage of elderly populations is located east of DeLeon Springs, home to an average of 45% elderly residents.
- The western portion of the River to Sea TPO MPA, located east of Lake George is another Environmental Justice attention area, with elderly population averages being approximately 22%.
- The eastern portion of the River to Sea TPO MPA contains high percentages of elderly populations. From Beverly Beach in the north to the Volusia-Brevard County line in the south, elderly populations are consistently above the 21.6% TPO MPA average or higher.
- This pattern follows US 1 from Oak Hill to New Smyrna Beach, through Ormond Beach and Flagler Beach. SR 415 serves as the western edge, from Edgewater to the northern boundary of the River to Sea TPO.

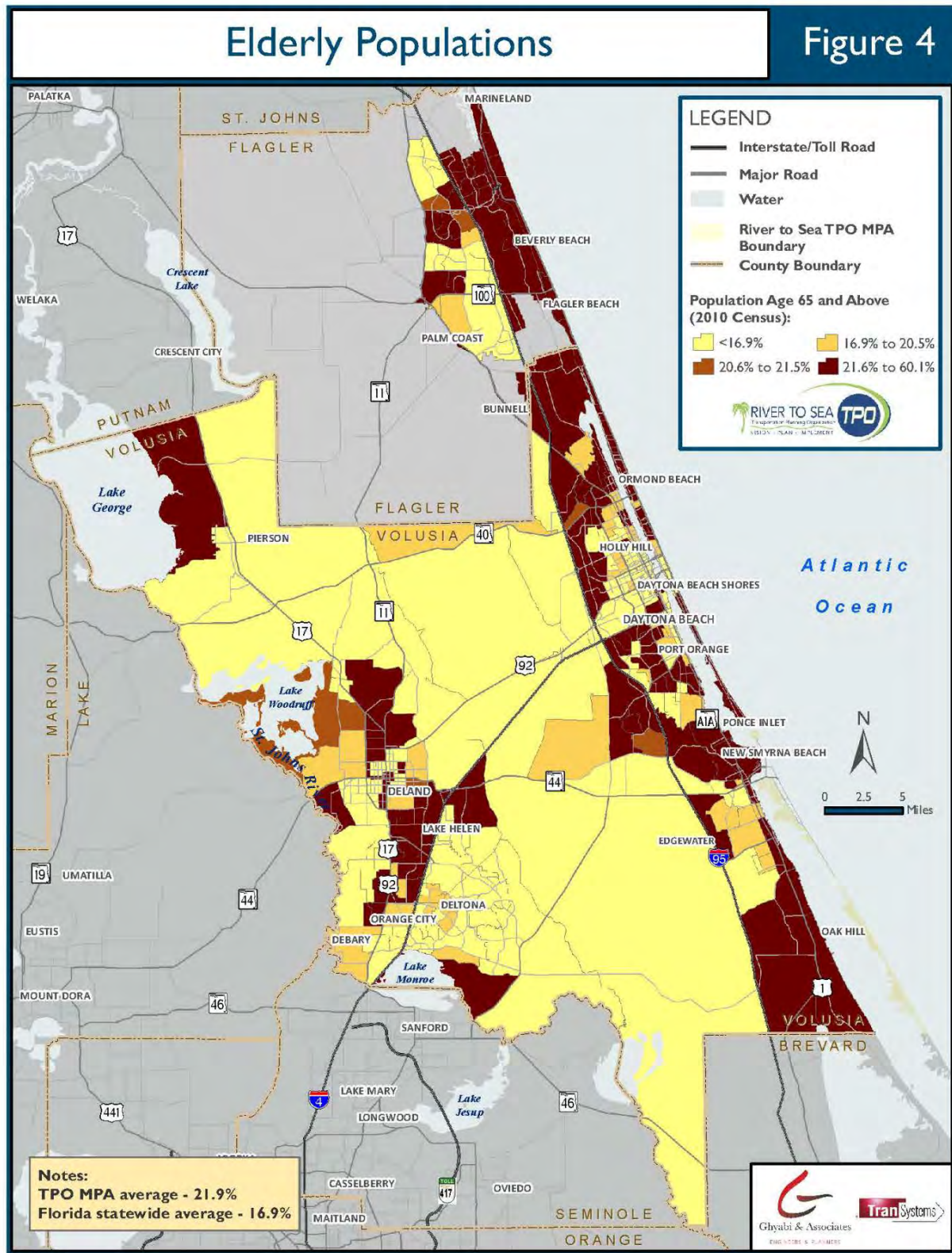


Figure 4: River to Sea TPO MPA Elderly Populations

## **Zero-Vehicle Households**

Providing reliable and affordable transportation options to people who cannot, or choose not to operate a personal vehicle in rural or urban areas is an important consideration when making transportation-related planning decisions. The average number of zero-vehicle households in the River to Sea TPO MPA (2.6%) is lower than the State of Florida average (6.5%). Information on this demographic is depicted in Figure 5 and further described below.

- DeLand and southwest DeLand are the first areas identified by this 2040 LRTP as having a large population percentage of zero-vehicle households. Areas both directly east and west of US 17/92 have large numbers of households with zero vehicles. South of SR 472, between US 17/92 and I-4, also houses a large population without personal vehicle access.
- There are also pockets of high numbers of zero-vehicle households in the eastern portion of the TPO MPA, most notably the area extending from south of Ormond Beach at the intersection of SR 5 and SR 5A. One hundred twenty one (121) of the total 750 households within this defined study area are classified as zero vehicle households.
- North of SR 92 and bisected by South Clyde Morris Boulevard, households with zero vehicles comprise a large percentage of the population. South of South Clyde Morris Boulevard, 27% of the 1,184 households have zero vehicles, while data collected on areas north of South Clyde Morris Boulevard shows that 29% of the 575 total households have zero vehicles.
- The largest percentage of zero vehicle households in the TPO MPA is situated directly east of SR 92 with 57% of 314 households in this area currently having zero vehicles.



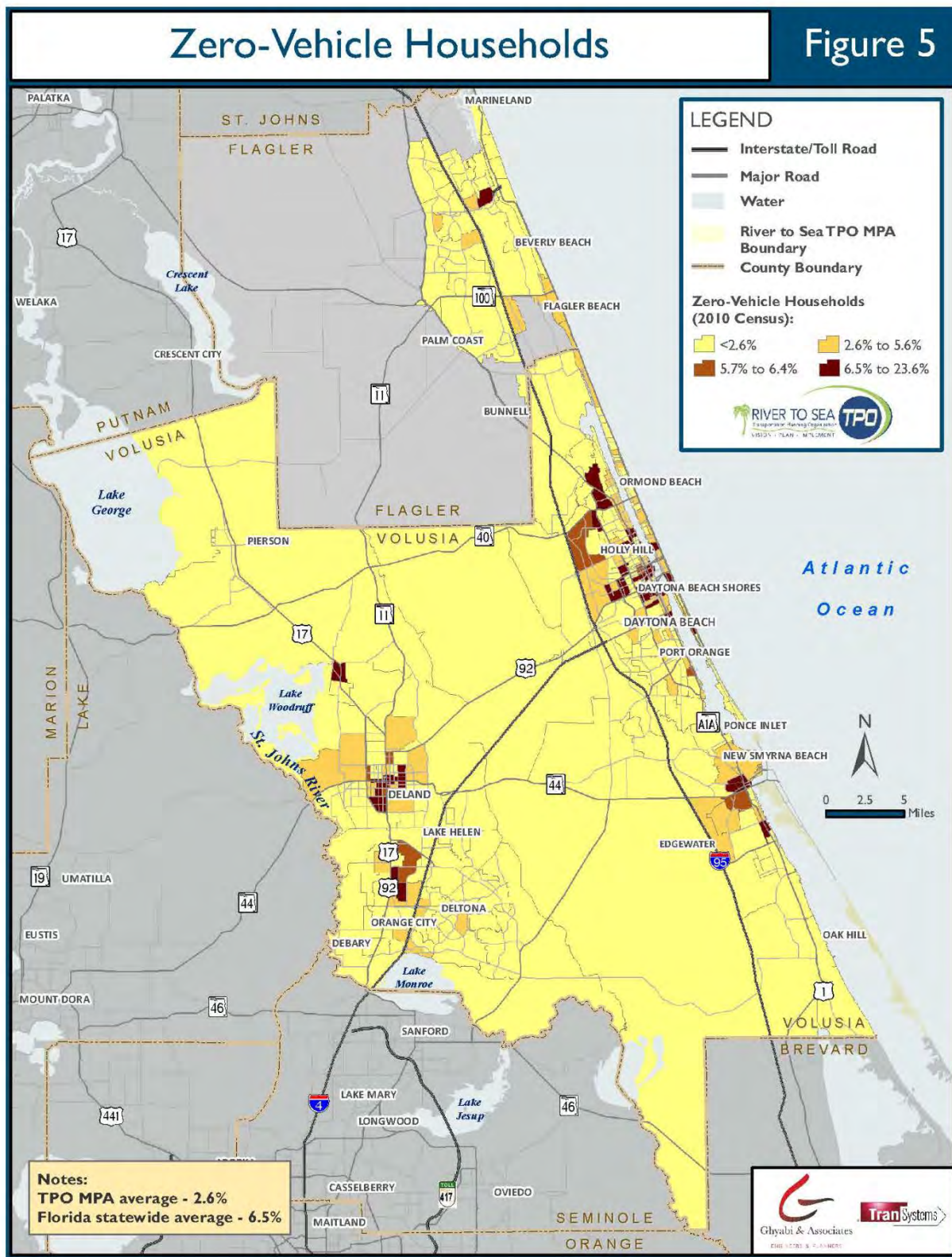


Figure 5: River to Sea TPO MPA Zero-Vehicle Households

## **Median Household Income**

The median household income is calculated by dividing the income distribution of a given area into two equal parts; one-half of households will fall below, and one-half will be above the median. For households, median income is determined by the distribution of the total number of households including those with no income. Tables 7 and 8 depict the distribution of household income for both Volusia and Flagler by county. The median household income in the TPO MPA is \$45,984 per household. This figure falls slightly below the Florida statewide number of \$47,661 per household.

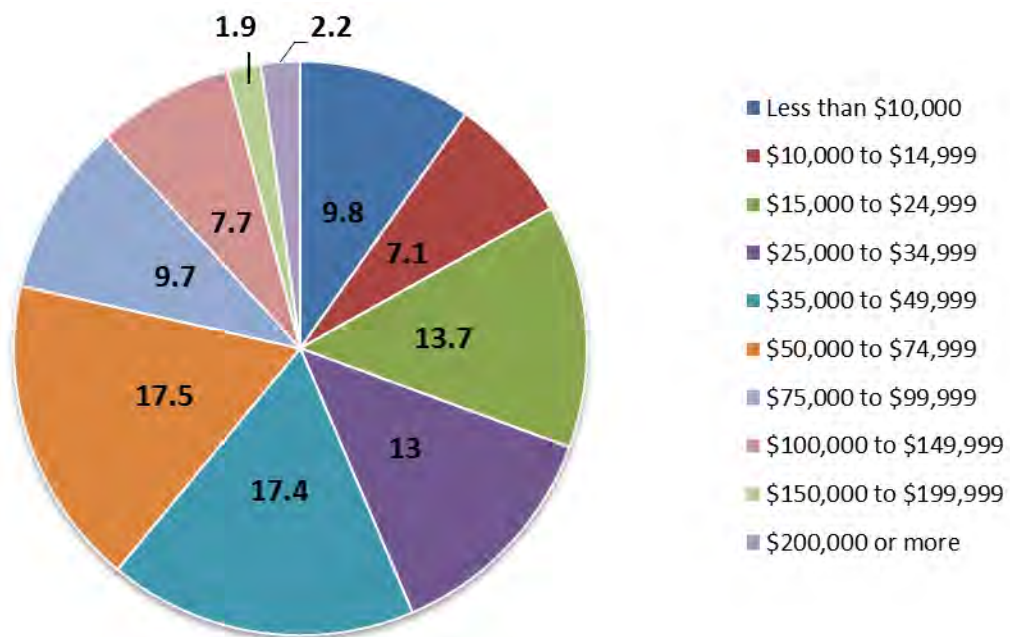
Median household income information for the entire River to Sea TPO MPA is depicted in Figure 6 and further described below.

- TPO MPA median household income numbers are highest in the areas directly north of Beverly Beach, located along the Atlantic Coast. South of Beverly Beach and east of I-95 extending down to the southern edge of the TPO MPA, a majority of resident households earn between \$25,001 and \$50,000.
- Pockets along this route, including areas in New Smyrna Beach, Ponce Inlet, Ormond Beach and Palm Coast average \$50,001 - \$75,000.
- In the southeastern edge of the TPO MPA, extending north from the Brevard-Volusia County line for approximately 5 miles, median household income levels average approximately \$75,001.

While low-income populations have already been identified in the low-income portion of this Environmental Justice document, it is important to reiterate income-based Environmental Justice areas. The following areas within the River to Sea TPO MPA reflect median household incomes between \$0 and \$25,000.

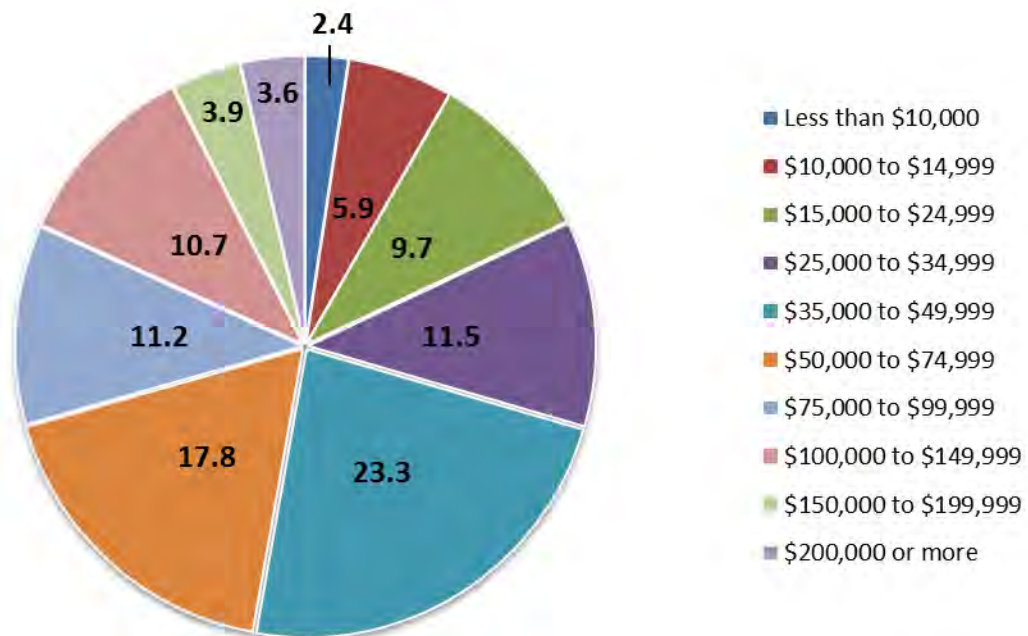
- Southeast of Orange City along Veterans Memorial Parkway is one of these low median household income areas.
- In the western portion of the TPO MPA, generally surrounding the intersection of US 17/92 and SR 44 in DeLand, median household income consistently falls between \$25,000 - \$30,000.
- Populations southeast of Orange City and generally west of I-4 also have median household incomes below \$25,000.
- Selected areas along the eastern edge of the TPO MPA contain high numbers of households with a household income level below \$25,000.
- The area located between US 1 and SR 5A serves as a reference point for low median household income areas near Holly Hill, South Daytona and Daytona Beach, most notably, the portion of the TPO MPA bordered by US 92 (north) and SR 400 (south). Ontario Court bisects two focus areas whose median household income is below \$10,000.

**Table 4: Volusia County Household Income Level**



Source: 2012 American Community Survey Estimates

**Table 5: Flagler County Household Income Level**



Source: 2012 American Community Survey Estimates



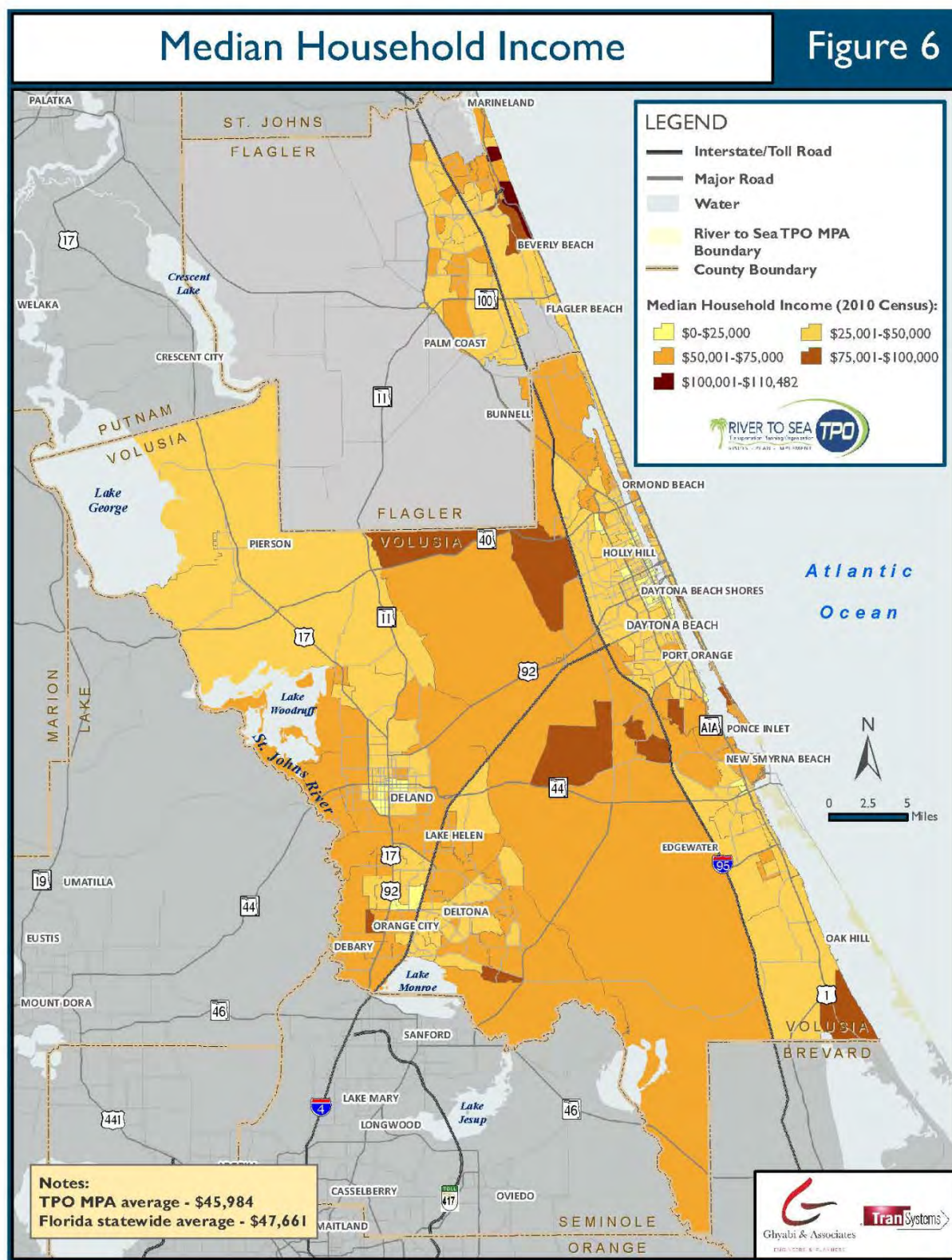


Figure 6: River to Sea TPO MPA Median Household Income

## Employment Density

The final topic in the Environmental Justice section of the *2040 LRTP* examines the employment density within the River to Sea TPO MPA. Employment density refers to the number of employed civilians per acre. When examining the data, it is apparent that cities within Volusia County that have the largest resident populations also have the highest employment densities. This includes areas in and around DeLand, Deltona, Orange City, Daytona Beach, Port Orange, Ormond Beach, New Smyrna Beach, and Edgewater. While heavily populated, Flagler County population centers, such as Palm Coast, have a lower employment density than their Volusia counterparts.

Employment density information for the entire River to Sea TPO MPA is depicted in Figure 7 and further described below.

- The area located closest to US 92 and SR 5A, and served by local road Mason Avenue in Daytona Beach has the highest employment density in the entire TPO MPA (> 5.1 employed civilians per acre).
- Surrounding areas from I-95 east to SR A1A, from Ormond Beach to Port Orange, average between 1.3 and 3.7 employed civilians per acre.
- Further south, SR 421 and SR 5A intersect at the northern boundary of another area representing high employment density. Taylor Road and Country Lane are the local roads that traverse this highlighted area.
- The final selected area in the eastern portion of the TPO MPA with a high employment density is west of SR 442 and served by Sabal Palm Drive (west) and Hibiscus Drive (east).
- The City of DeLand, primarily in the north, is also home to high employment density areas. Areas surrounding the intersection of SR 44 and US 17-92 average between 1.3 and 2.5 employed civilians per acre and reach as high as 3.8 – 5.0 / per acre.
- Data from Deltona, DeLand and DeBary shows similar employment density patterns. Saxon Boulevard and East Normandy Boulevard serve areas that average 2.6 to 3.7 employed civilians per acre.
- The highest employment densities in Flagler County are located west of I-95. Areas generally north of Royal Palms Parkway, east of Belle Terre Parkway, and extending to the northernmost point in the TPO MPA reflect employment density figures that average from 1.3 to 2.5 employed person per acre.



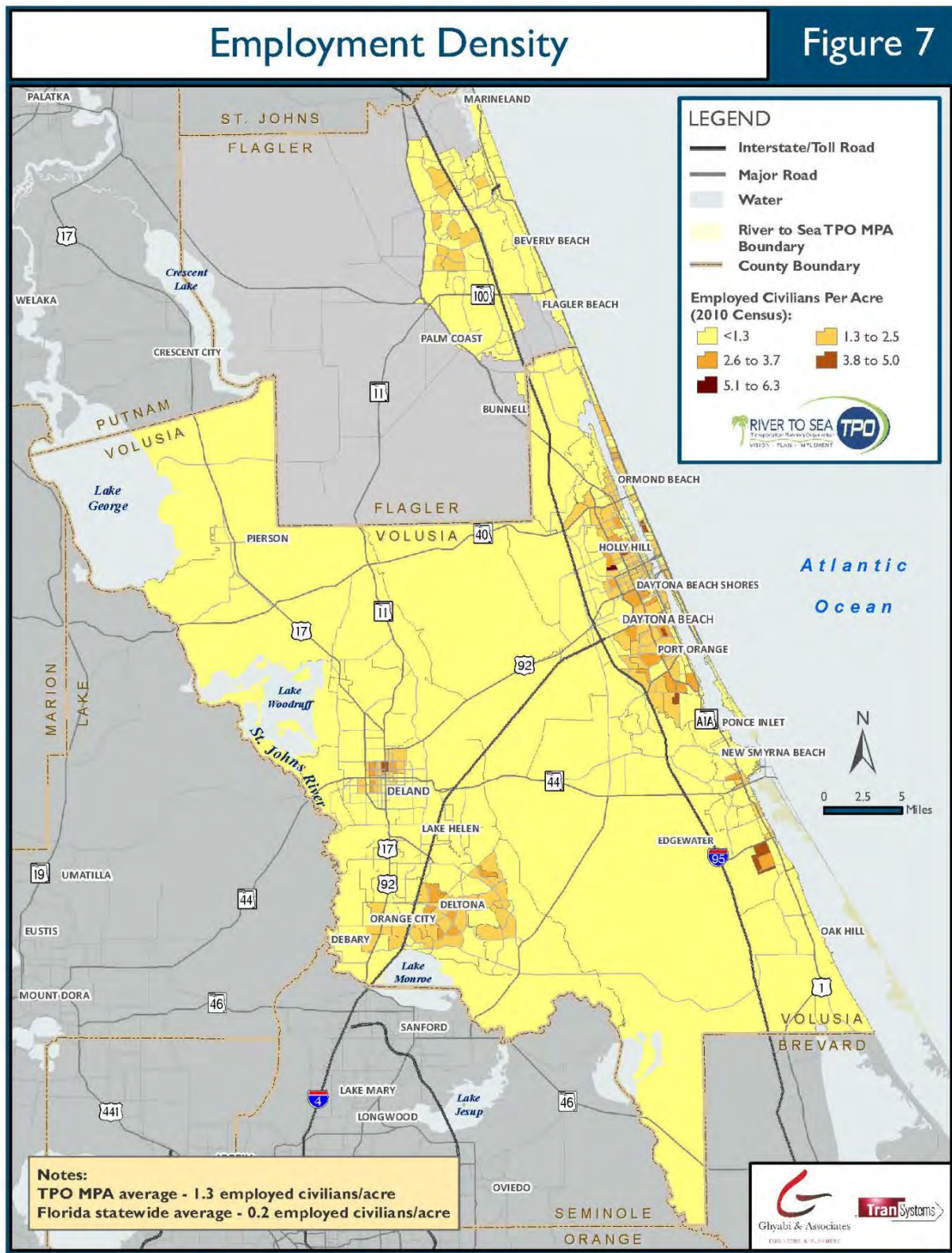


Figure 7: River to Sea TPO MPA Employment Density



## Summary of Findings

This summary of findings highlights critical areas within the River to Sea TPO MPA where Environmental Justice concerns should be considered before undertaking planning efforts. This section focuses on the two Environmental Justice categories that are covered by Executive Order 12898 and subsequent DOT statutes and regulations: low-income and minority populations. As each of these two populations has been previously detailed individually within the Environmental Justice report, this portion of the document identifies and defines any overlap between the two.

- An area of concern is Bunnell, at the intersection of SR 100 and US 1, bordered by Hyman Circle in the southeast and South Knight Street in the west. This portion of Flagler County has a median household income of \$28,594 and is composed of 65.8% minorities.
- Low-income, minority overlap is also prevalent in and around Daytona Beach. All of the following areas are located east of I-95: South of US 92, north of Beville Road, and west of Clyde Morris Boulevard, residents have a median income of \$29,583 and are comprised of 42% minorities.
- Bisected by US 92, areas east of SR 5A, west of US 1, and north of Shady Place, and south of 3<sup>rd</sup> Street have a median household income of approximately \$12,000 and average nearly 90% minority populations.
- North of US 92, west of SR 5A, east of Bill France Boulevard, and south of LPGA Boulevard between Jimmy Ann Drive and Derbyshire Road. This selected portion of the TPO MPA is comprised of 73.5% minority populations; with 26% of residents living below the poverty level.
- US 1 (east), Wayne Avenue (north), Milford Place (west), and SR 44 (south) are the borders for an area with low-income populations and which has a high minority percentage. Median income is approximately \$20,000 and minority populations average over 55%.
- Northwest of Deltona and southwest of Orange City is another area with an overlap of low-income and minority population. This area, with US 17-92 as the western edge and I-4 on the east, averages greater than 40% minority populations and less than \$25,000 in median household income. Saxon Boulevard in the southern edge of this defined area and East Graves Avenue is the northern border.
- Portions of DeLand also merit attention. US 17-92 bisects an area bordered by South Hill Avenue in the east and SR 15 in the west. Northern edges of this area are West Howry Avenue and East Wisconsin Avenue. Median income figures in this area are approximately \$24,000 and minority populations range from 45% to above 90%.

# **Appendix A**

## **Census Block Group Data**

## **Appendix A - Census Block Group Data**

The data presented in the following table is block group-level information obtained from the 2010 US Census. The data is broken down by block group and each row represents information for one block group. The following information is included:

- GEOID10 – 2010 Census Block Group ID
- HSE\_UNITS – Number of housing units located within the block group.
- ACRES – Total acreage of the block group.
- DENPOP2010 – Population density (number of people per acre) of each block group.
- PCT\_MNRTY – Percentage of people in each block group that are minorities.
- PCT\_65ABV – Percentage of people in each block group that are age 65 and older.
- MEDHHINC – Median household income in the past 12 months (in 2010 inflation-adjusted dollars) in each block group.
- PCT\_POV – Percentage of people in each block group who are living below the poverty level.
- PCT\_OVHCL – Percentage of households in each block group without a vehicle.
- PCT\_EMPLOY – Percentage of people (age 16 and older) in each block group who are employed in the civilian labor force.



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GEOID10	HSE_UNITS	ACRES	DENPOP2010	PCT_MNRTY	PCT_65ABV	MEDHHINC	PCT_POV	PCT_OVHCL	PCT_EMPLOY
121270907014	586	322.2	4.16	24.7	11.7	46406	6.8	1.5	45.3
121270904003	430	204.4	6.97	17.6	16.8	37807	7.3	4.8	70.5
121270904002	357	225.3	5.19	19.6	10.3	50781	3.0	1.0	49.6
121270904001	616	248.9	4.23	9.6	43.8	51172	5.3	7.0	31.1
121270904005	403	212.4	4.02	18.5	15.6	36261	11.5	1.3	73.0
121270904004	450	215.7	4.20	17.3	13.2	39125	22.9	1.0	41.1
121270905001	710	236.3	4.85	36.2	31.1	24688	16.8	18.0	23.3
121270830063	625	235.7	6.17	8.0	16.3	57891	8.2	0.0	64.1
121270830071	1293	5594.7	0.56	7.9	13.8	48698	8.5	1.1	41.9
121270901022	393	57565.8	0.01	22.6	21.6	47679	14.1	0.0	33.9
121270902032	570	1041.4	1.46	48.5	14.6	39340	15.7	0.9	37.4
121270903061	2041	5730.2	0.75	15.2	24.3	71378	6.3	0.3	44.9
121270903073	313	436.7	1.59	14.2	23.4	63201	0.0	0.0	63.2
121270905002	642	240.8	5.01	22.1	22.4	20682	20.7	10.8	35.5
121270908041	1140	1313.3	1.78	19.0	23.2	34750	12.6	0.0	49.2
121270902042	1990	7047.8	0.62	22.9	18.3	52970	14.1	3.9	40.0
120350601063	1047	2641.9	0.41	6.1	41.9	62333	2.7	0.0	68.5
120350602112	1071	693.5	3.01	25.0	40.9	42730	7.3	0.8	39.8
120350603011	1175	8761.0	0.24	18.1	28.5	30795	11.4	1.5	24.7
120350602143	1020	600.1	4.05	31.1	12.8	55395	18.3	2.1	47.6
120350602081	1374	6116.6	0.48	24.1	8.1	44565	8.0	0.7	44.8
120350602101	900	848.2	2.34	30.3	29.2	47813	9.5	1.2	34.8
120350602121	1176	731.1	3.73	34.1	17.3	36157	12.7	2.9	42.7
121270906001	702	436.1	3.83	51.5	10.4	23824	20.0	7.3	23.1
121270906002	595	275.6	5.72	68.4	14.1	24141	44.1	3.6	33.4
121270906003	279	176.5	4.18	46.2	35.4	30714	20.7	6.0	7.5
121270906004	464	251.9	4.23	85.9	13.2	19648	25.2	11.2	33.7
121270906005	363	169.8	5.11	56.7	9.9	40268	29.8	2.8	54.3
121270910051	848	19811.9	0.10	10.6	13.5	53347	9.5	1.2	47.9
121270910131	1149	658.0	3.87	41.9	13.2	47361	13.4	3.6	51.5
121270910133	920	1431.2	1.60	35.1	15.6	58487	4.5	0.0	45.6
121270910132	1034	2211.2	1.24	38.4	10.6	57561	18.7	1.5	50.0
121270909022	1793	1741.4	2.55	31.6	19.9	56926	5.7	0.7	31.7
121270910291	672	11434.4	0.10	10.8	32.0	53594	5.9	1.1	53.2

GEOID10	HSE_UNITS	ACRES	DENPOP2010	PCT_MNRTY	PCT_65ABV	MEDHHINC	PCT_POV	PCT_OVHCL	PCT_EMPLOY
121270910292	450	1086.4	1.06	27.9	10.2	78304	0.0	0.0	64.4
121270910251	823	610.1	3.81	39.8	9.0	56328	3.4	0.0	47.6
121270910252	823	654.3	3.35	37.9	7.6	49636	15.4	0.3	47.0
121270910191	739	573.7	2.99	49.7	12.4	47271	8.6	0.0	59.7
121270910192	545	302.1	5.15	48.7	6.9	54519	8.2	1.3	54.1
121270910261	1373	930.1	3.86	38.8	10.9	56364	9.7	0.3	51.1
121270910262	1391	1214.1	2.99	40.4	14.6	47210	9.2	0.7	41.3
121270830051	1105	753.4	3.03	11.4	22.6	40121	16.4	1.4	37.4
121270830032	1745	22372.7	0.14	13.9	24.6	41899	20.4	2.3	39.0
121270830031	1798	3172.5	0.91	3.1	49.8	44104	15.7	0.9	21.9
121270804002	350	321.2	2.19	5.0	25.8	96198	3.6	0.0	36.5
121270812002	1185	414.6	3.98	19.0	19.6	30133	10.5	3.9	35.5
121270812001	926	286.0	3.83	17.0	10.4	26583	16.9	3.8	45.7
121270812003	832	358.7	2.73	19.2	11.5	29063	20.6	2.8	27.3
121270813002	1104	361.8	3.84	15.2	13.2	35000	24.2	6.7	47.5
121270803003	1147	281.9	4.63	5.1	31.9	43500	17.3	5.0	47.2
121270803002	896	232.8	4.74	5.9	22.5	37417	7.4	1.7	58.9
121270910231	530	251.5	5.10	41.8	17.9	47191	19.2	3.2	46.8
121270910232	647	252.5	6.14	36.5	19.9	47036	0.0	0.6	59.6
121270910221	471	243.4	4.96	46.5	12.9	56681	2.5	0.0	32.4
121270832081	2081	1793.1	2.61	15.7	23.1	72833	2.5	0.9	38.6
121270832082	830	2139.4	0.76	5.1	27.6	63359	5.5	0.0	42.9
121270832083	968	936.5	1.75	4.2	40.4	87857	1.9	0.8	34.4
120350602072	933	2458.5	0.83	21.7	16.9	50161	16.9	0.0	45.9
120350603022	918	756.9	1.32	4.2	39.7	45327	0.0	2.9	22.8
120350603023	932	1124.7	1.15	5.5	23.2	48639	6.5	4.1	39.3
120350602062	797	120396. 1	0.02	18.9	15.6	36815	9.5	2.9	32.1
120350602063	1028	14204.5	0.16	7.5	11.1	38902	25.3	0.0	35.6
120350602093	1158	824.3	3.35	32.5	11.7	51319	10.1	0.6	36.8
120350602071	1191	67795.6	0.03	7.1	38.2	60278	6.6	0.5	34.2
120350602131	1197	2596.9	1.10	35.1	14.3	39600	18.5	1.6	37.2
120350602113	1031	612.9	3.66	33.2	24.1	48173	10.7	0.8	28.8
120350602041	522	2484.5	0.53	29.8	15.3	47857	13.5	2.3	41.3
120350602111	932	500.7	3.97	29.1	34.7	49388	14.3	0.0	42.5

GEOID10	HSE_UNITS	ACRES	DENPOP2010	PCT_MNRTY	PCT_65ABV	MEDHHINC	PCT_POV	PCT_OVHCL	PCT_EMPLOY
120350602052	1267	908.3	3.05	34.8	21.4	39816	8.6	1.3	41.0
120350602051	955	492.3	4.47	29.1	26.4	60833	5.9	0.0	29.9
120350602042	1251	765.9	4.17	30.8	14.6	43250	6.9	0.4	37.6
121270817003	488	127.3	9.73	87.3	12.4	47807	24.3	2.5	64.2
121270817004	826	275.5	5.67	53.6	20.0	15192	38.5	7.0	18.6
121270818002	632	402.4	3.77	78.7	16.8	28568	37.1	11.0	36.1
121270818001	272	161.6	4.25	79.5	11.9	29487	23.6	1.9	51.1
121270819002	371	109.7	7.91	97.6	11.6	25464	43.2	2.4	17.7
121270818003	238	159.6	3.29	78.3	19.2	45607	0.0	0.0	67.0
121270819001	552	231.4	6.61	95.9	11.2	14310	65.5	10.7	27.0
121270829034	566	196.4	5.69	65.0	22.5	20652	45.2	10.7	46.6
121270829042	1675	953.3	2.82	3.2	49.6	48813	3.6	4.2	27.2
121270902031	1252	5139.6	0.42	19.0	42.5	43550	14.2	2.1	36.7
121270910242	1253	3719.9	0.90	42.7	7.5	62596	2.9	0.0	47.3
121270910202	1192	836.8	3.99	43.7	7.7	54386	10.6	0.5	41.7
121270910211	949	2698.6	0.95	33.3	8.6	65481	13.9	0.2	42.7
121270910223	992	406.7	5.89	36.8	20.4	50929	11.0	1.6	51.1
121270903051	1431	8065.3	0.44	16.7	12.2	62139	7.3	1.0	50.3
121270802012	879	1547.3	0.78	6.4	44.8	46094	5.2	3.6	27.2
121270829022	1429	3176.2	0.85	7.9	25.4	42016	2.9	2.8	33.8
121270910012	928	2208.2	0.93	18.5	15.3	61299	8.6	0.2	61.4
121270907024	674	1097.2	1.45	25.5	15.3	53167	9.4	0.0	48.5
121270910183	611	448.6	3.05	35.9	15.9	35149	18.5	0.0	43.3
121270832031	1544	5189.3	0.73	12.1	15.0	67115	4.8	0.2	38.6
121270908031	715	4562.2	0.33	13.3	13.6	55954	17.2	0.8	43.8
121270830091	1663	2886.7	1.27	7.8	19.6	46622	3.5	1.1	44.4
121270801003	1001	1948.2	1.12	7.1	20.6	65481	5.6	0.0	37.9
121270807003	699	2706.2	0.56	10.0	25.1	61227	2.8	1.7	40.8
121270908051	1236	842.7	2.15	22.2	34.8	36773	7.2	0.9	20.4
121270908053	788	693.9	2.41	8.0	22.3	41280	10.6	0.0	46.6
121270910222	1469	2207.9	1.78	38.7	14.0	64524	6.1	0.5	46.5
121270802021	1135	468.7	3.17	6.5	35.6	42560	10.5	1.1	39.7
121270908062	1042	924.7	2.21	38.8	17.0	29415	28.1	9.8	55.2
121270824151	1602	414.4	5.97	19.2	35.3	29066	18.5	0.9	33.9



GEOID10	HSE_UNITS	ACRES	DENPOP2010	PCT_MNRTY	PCT_65ABV	MEDHHINC	PCT_POV	PCT_OVHCL	PCT_EMPLOY
121270832061	360	47410.4	0.09	37.1	3.5	63571	11.7	0.4	12.7
120350602142	920	502.0	4.26	32.0	15.5	57159	6.5	2.1	33.1
120350602141	988	654.6	3.66	37.1	10.6	34076	30.0	2.2	44.7
120350602092	1071	2006.4	0.93	18.0	22.8	45958	14.8	2.3	37.5
120350602091	1044	933.2	2.39	24.7	27.8	65820	16.1	0.0	44.7
120350601061	556	507.3	0.33	13.3	27.3	108906	0.0	0.0	0.0
120350601062	478	402.0	1.81	7.2	41.4	41354	6.9	2.5	18.3
120350603021	623	510.9	1.80	4.8	30.9	44778	9.5	5.1	55.6
120350603041	1341	7883.7	0.30	4.5	41.8	48779	8.3	3.1	28.7
120350602044	613	2039.1	0.77	28.9	13.1	65484	2.8	0.0	35.5
120350603031	789	771.1	1.08	2.5	49.9	44107	8.4	1.7	53.3
120350601052	896	381.9	4.22	13.7	33.6	53446	3.3	0.0	35.3
120350601051	418	170.5	2.53	13.0	25.1	74875	12.8	0.0	11.4
120350602073	443	3038.2	0.42	65.8	19.1	28594	42.1	2.5	29.1
120350602082	1251	2866.8	1.07	24.2	9.7	40049	11.1	0.4	38.1
120350601042	995	796.1	2.60	19.2	32.8	60089	3.6	0.0	29.9
121270820001	427	152.2	3.88	90.0	15.6	19879	32.0	15.2	23.7
121270820002	233	329.1	4.85	88.7	2.4	11782	61.7	0.0	24.4
121270821005	350	118.6	6.60	96.2	14.7	15962	45.7	22.9	40.5
121270821002	496	157.6	8.81	94.5	7.6	9573	65.4	15.8	29.0
121270821003	322	163.7	4.52	93.6	9.6	8487	73.4	3.4	12.8
121270821004	380	152.9	5.28	91.6	15.9	31875	32.2	12.6	50.2
121270808034	760	514.4	3.13	13.2	17.5	37358	9.1	0.8	45.0
121270808042	1364	943.0	2.79	17.5	16.9	37292	17.6	0.5	28.3
121270808061	1323	749.6	3.62	13.2	21.5	49643	8.2	0.0	40.2
121270811011	963	256.1	5.63	16.3	30.3	54420	1.6	1.9	66.8
121270811012	1266	344.5	3.12	13.6	36.3	48438	8.6	4.1	38.7
121270811022	898	469.3	2.70	9.0	22.8	36023	13.0	3.0	31.1
121270823013	1374	471.1	5.09	56.6	9.5	26682	21.9	13.0	48.6
121270824103	789	229.4	6.36	13.0	18.4	41477	15.7	2.1	41.0
121270824012	1362	938.7	2.14	35.2	13.5	37700	22.8	0.8	46.4
121270824131	1488	732.7	4.62	25.2	14.8	48421	6.1	0.4	53.1
121270825112	711	651.8	1.84	8.4	26.0	37734	9.2	5.8	41.9
121270825081	1155	939.9	3.05	7.8	15.9	76964	6.1	0.5	52.2

GEOID10	HSE_UNITS	ACRES	DENPOP2010	PCT_MNRTY	PCT_65ABV	MEDHHINC	PCT_POV	PCT_OVHCL	PCT_EMPLOY
121270829032	601	2314.0	0.53	6.3	11.4	47961	7.2	2.4	31.6
121270830072	406	147.0	6.25	8.4	18.3	62109	4.1	2.0	64.5
121270902033	357	657.5	1.66	57.2	11.1	51583	20.4	6.5	64.4
121270902041	1092	23258.0	0.11	8.3	21.3	62589	2.0	0.0	51.8
121270908052	1430	1543.2	1.47	6.9	60.1	31682	10.6	6.1	23.0
121270910293	1243	1355.2	1.70	28.9	17.7	45230	15.2	0.5	59.3
121270832032	1234	9590.8	0.33	11.5	18.3	75118	9.6	0.0	50.7
120350603032	1053	2168.8	0.60	6.6	48.0	110482	1.7	0.9	28.7
120350601064	905	1293.1	0.68	8.0	24.7	50809	7.7	0.0	40.6
121270822013	1430	470.8	4.65	43.2	11.8	21662	39.2	5.6	47.4
121270822011	834	160.7	6.30	31.0	27.1	20282	43.2	23.6	25.9
121270822012	402	131.7	5.13	39.9	24.3	39167	11.3	5.2	19.8
121270822021	803	513.0	3.10	27.5	28.1	45673	14.3	1.3	45.2
121270823012	449	172.8	4.73	69.1	16.6	31546	9.9	4.4	68.0
121270902023	528	1211.5	1.16	16.9	27.9	48720	10.6	0.0	39.5
121270902022	730	831.8	1.72	14.3	23.9	46691	1.1	0.0	44.8
121270824121	1470	355.8	6.74	21.5	24.0	40179	17.9	2.9	46.7
121270824112	581	1229.4	0.76	11.6	44.6	63393	0.0	1.9	48.0
121270824141	2386	897.5	3.75	11.3	36.5	28049	16.0	1.9	47.8
121270825101	563	721.4	1.25	5.1	25.4	23274	20.9	2.8	45.2
121270825111	834	743.1	1.83	8.7	20.0	27098	10.6	5.1	34.6
121270908043	1382	888.8	3.43	15.5	15.3	50160	10.8	2.8	36.1
121270908042	587	973.4	1.57	26.9	8.3	42465	2.3	2.4	46.5
120350602043	717	739.0	2.51	30.8	11.8	45694	12.4	0.4	42.5
120350601032	326	279.1	1.94	17.3	33.2	81406	0.0	0.0	9.2
120350603012	1439	1846.5	1.33	9.6	44.4	77283	2.6	0.9	27.8
120350602102	897	402.0	4.58	28.5	33.4	53520	5.0	2.7	28.2
120350602122	1030	934.9	2.69	28.2	21.4	49250	6.0	0.7	37.0
120350602132	1121	965.0	2.78	36.2	12.1	51591	20.1	0.0	43.0
121270902021	1314	1165.5	2.33	25.4	24.7	33949	21.6	1.4	43.4
121270902024	270	162.6	2.61	27.5	23.3	31361	29.5	6.1	64.2
121270907013	796	2854.0	0.48	6.7	27.8	53107	14.9	1.2	50.3
121270907011	365	772.9	1.16	14.8	15.9	63693	5.1	0.0	43.6
121270907012	542	1577.4	0.84	15.2	15.4	63202	9.6	0.0	62.7

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GEOID10	HSE_UNITS	ACRES	DENPOP2010	PCT_MNRTY	PCT_65ABV	MEDHHINC	PCT_POV	PCT_OVHCL	PCT_EMPLOY
121270825091	314	102.3	7.32	7.3	14.4	46250	10.6	0.0	54.6
121270825092	270	85.3	8.23	10.8	14.0	90556	0.0	0.0	60.5
121270825093	1196	2735.8	0.99	6.7	20.3	60055	5.2	0.3	49.7
121270826051	1052	631.5	1.82	9.2	30.9	38426	11.2	2.3	35.9
121270828011	1360	2840.3	0.91	5.9	25.9	51466	8.1	1.1	49.1
121270829041	1199	5278.5	0.39	4.3	41.2	73617	1.6	0.0	31.7
121270830052	953	548.0	2.72	2.3	60.0	41138	7.5	1.5	29.1
121270830061	1214	481.0	5.83	10.4	18.6	47780	8.7	0.7	44.2
121270830062	1058	441.6	5.55	7.7	18.5	50346	11.6	0.3	67.8
120350601072	1315	768.2	3.41	21.0	35.5	45787	7.7	1.1	35.2
120350601071	918	511.3	3.32	24.3	30.7	27433	16.7	4.4	31.6
120350602061	377	46242.5	0.02	13.8	21.7	46375	2.9	1.6	47.3
120350602053	1054	658.1	3.50	29.7	26.1	41042	8.3	1.6	29.9
120350601041	917	9440.8	0.20	26.1	27.0	57083	5.1	0.0	38.3
120350601053	909	754.1	2.15	12.4	43.0	54758	2.5	0.0	39.4
120350601031	1316	612.2	3.05	18.0	39.2	27067	9.7	11.9	34.7
121270809021	449	176.1	5.31	24.2	12.3	36285	13.2	0.0	43.5
121270809022	412	208.9	4.12	25.2	11.9	32250	2.3	2.4	57.0
121270907021	819	330.0	5.07	60.1	25.6	22841	36.8	10.4	23.7
121270907022	292	261.4	2.65	93.8	12.7	16563	36.7	11.7	16.7
121270907023	313	160.1	4.32	38.4	12.2	32019	30.1	4.2	26.6
121270909041	956	4647.3	0.47	11.4	19.7	57946	3.5	1.6	46.8
121270909042	844	543.4	3.82	20.4	12.9	72667	2.0	0.0	48.8
121270909043	495	303.3	3.47	9.4	17.4	51190	6.3	0.0	45.3
121079513003	653	30271.8	0.02	12.0	31.2	53906	11.1	0.5	45.4
121270825071	1083	645.6	3.36	12.2	30.3	63958	5.7	0.0	55.7
121270804003	423	233.1	2.55	10.9	22.6	47639	12.6	4.9	57.1
121270804004	849	465.2	2.91	6.7	34.2	53142	3.4	0.7	47.2
121270809011	901	254.1	6.98	49.5	11.6	27645	28.5	5.0	36.3
121270809012	343	292.6	2.68	11.2	13.6	34966	10.4	2.3	45.4
121270820003	363	353.4	1.62	24.3	50.8	19338	30.7	3.9	13.1
121270809023	555	164.5	6.41	26.2	14.8	59786	13.7	0.0	59.5
121270809024	341	130.1	5.70	29.8	14.2	51250	12.4	3.1	49.1
121270811021	374	268.3	2.47	15.8	20.2	37955	2.6	6.8	55.3



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GEOID10	HSE_UNITS	ACRES	DENPOP2010	PCT_MNRTY	PCT_65ABV	MEDHHINC	PCT_POV	PCT_OVHCL	PCT_EMPLOY
121270813001	570	293.2	2.53	9.6	35.0	46302	10.4	1.2	40.9
121270825102	1414	413.3	5.75	7.1	31.0	32077	12.3	1.0	43.7
121270825103	320	203.5	3.04	5.5	25.2	58520	0.0	0.0	29.4
121270825082	769	689.8	2.74	9.1	14.7	52132	13.8	1.5	52.1
121270925001	457	3122.6	0.75	41.9	2.1	29583	43.4	1.8	23.4
121270925002	654	575.0	2.09	19.1	16.5	35406	26.8	2.2	126.0
121270925003	1162	476.1	4.23	47.8	12.6	31952	7.5	4.9	43.0
121270808071	883	1474.1	0.99	16.0	30.7	27109	18.5	8.3	38.7
121270910181	926	560.9	3.77	48.5	14.3	38773	19.1	3.5	30.4
121270910182	456	676.9	1.51	49.0	12.3	32946	18.2	4.3	32.7
121270910184	951	729.2	3.19	46.8	14.0	49750	5.3	0.0	48.0
121270910171	570	220.8	6.53	50.1	14.5	61058	4.8	0.5	40.9
121270817002	567	204.5	6.65	65.3	15.5	36411	17.2	0.0	39.6
121270817001	700	268.1	5.01	32.4	17.6	33104	31.0	5.4	39.4
121270823011	1586	3223.6	0.88	38.6	26.2	28594	32.8	3.1	40.6
121270816001	547	175.3	6.28	72.7	9.0	31053	8.7	6.5	34.2
121270816002	551	203.0	5.55	67.5	14.3	32375	35.3	2.2	41.5
121270817005	520	256.4	5.27	80.6	17.2	33875	33.2	1.3	37.6
121270826052	2245	710.2	3.12	6.9	55.6	51164	10.3	8.7	33.2
121270826041	455	305.8	2.14	12.5	16.5	77396	0.0	2.0	59.1
121270826042	1169	426.7	2.18	11.6	21.9	38462	16.0	1.4	49.1
121270826043	1122	390.8	2.49	7.5	42.6	49167	8.1	3.2	31.6
121270826071	1246	334.8	2.78	5.8	38.5	58533	10.2	5.3	43.6
121270828021	641	445.5	2.39	7.3	25.1	43272	23.9	2.4	26.8
121270828023	609	264.5	3.63	9.6	23.5	34308	10.3	10.7	45.3
121270829031	492	172.9	4.89	44.3	20.2	20903	43.3	7.7	42.2
121270829033	416	242.4	3.17	39.1	23.0	34773	23.0	7.0	31.6
121270908032	701	571.0	3.04	20.3	7.7	51507	2.6	0.0	40.2
121270830082	536	245.9	3.78	6.7	31.7	34554	17.4	0.0	64.4
121270809013	1034	266.0	5.79	18.1	47.8	23438	14.0	11.7	37.2
121270815001	1166	358.9	5.54	34.0	16.4	18470	38.6	9.2	37.8
121270826072	1051	807.7	1.54	6.9	28.4	69205	8.3	1.0	33.7
121270828022	1223	2961.5	0.65	4.7	28.9	55443	8.5	2.8	59.0
121270832084	1660	1856.5	2.09	13.2	21.0	80671	3.1	0.6	45.0

GEOID10	HSE_UNITS	ACRES	DENPOP2010	PCT_MNRTY	PCT_65ABV	MEDHHINC	PCT_POV	PCT_OVHCL	PCT_EMPLOY
121270832092	540	28144.3	0.04	9.0	10.7	66987	6.7	0.0	61.0
121270832071	2135	3331.2	1.30	10.2	34.2	59659	5.6	1.3	47.7
121270832072	428	11530.7	0.08	5.0	18.5	83456	14.5	2.0	63.5
121270832073	424	28589.6	0.03	14.4	14.0	51097	15.0	0.0	33.1
121270832051	299	9969.8	0.08	19.6	13.8	90078	6.5	0.0	35.4
121270832052	749	4386.2	0.32	23.2	14.7	73068	12.8	1.3	60.3
121270903041	720	1834.7	0.84	16.2	17.5	43958	10.4	2.7	57.0
121270802022	907	396.1	3.19	6.7	32.8	38173	11.1	1.0	35.9
121270826061	1598	1650.1	1.11	4.7	32.5	71484	4.7	1.0	47.3
121270803001	761	167.8	5.22	4.7	25.0	32125	13.6	5.0	47.0
121270804001	437	511.7	1.47	5.7	41.3	74667	5.8	1.3	39.0
121270805002	1044	652.2	2.30	10.6	29.3	31273	6.3	4.2	37.2
121270805001	573	399.0	2.32	11.1	19.8	56023	19.7	0.0	52.1
121270801001	2788	13205.8	0.36	7.5	37.7	60754	6.6	0.0	33.8
121270801002	1019	3852.6	0.47	6.5	42.2	48839	6.2	1.4	32.3
121270807001	786	508.8	3.35	6.6	25.9	51875	9.4	3.5	59.0
121270808033	330	197.4	3.88	9.5	15.7	36398	11.4	0.0	66.4
121270808032	856	461.2	3.92	11.8	18.4	36786	11.7	2.3	56.3
121270826062	1318	873.6	1.37	4.3	45.9	81471	14.2	1.7	31.7
121270910011	1188	1948.7	1.57	39.2	10.2	68869	1.8	0.0	39.7
121270909031	1189	524.8	3.86	11.4	47.9	55485	2.3	0.8	35.1
121270909032	1019	784.5	2.80	12.6	30.9	78934	2.0	1.3	36.2
121270807002	561	248.4	5.08	8.5	21.9	39408	5.9	0.9	31.1
121270808041	2503	2850.3	1.52	19.7	39.1	36429	12.4	5.9	33.5
121270808052	657	211.9	6.59	16.0	14.0	35984	23.5	2.0	30.0
121270808051	1264	354.7	5.42	8.7	40.7	24661	10.6	7.2	35.0
121270808053	996	426.2	5.55	19.0	13.5	37857	14.4	0.0	56.9
121270810001	763	495.0	2.42	17.5	19.5	23491	12.2	9.1	44.9
121270810002	436	110.9	6.41	15.6	17.0	31213	15.4	1.8	48.5
121270808072	821	363.8	4.36	10.3	25.9	73000	16.3	0.7	47.2
121270808073	802	656.5	2.62	6.6	29.1	66023	10.3	0.0	42.5
121270910172	904	507.9	4.32	41.6	13.5	42003	19.1	0.0	52.8
121270908033	719	4580.3	0.40	20.3	9.5	55840	10.0	0.0	54.1
121270821001	382	135.4	6.29	91.3	10.1	11605	56.4	16.7	18.1

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GEOID10	HSE_UNITS	ACRES	DENPOP2010	PCT_MNRTY	PCT_65ABV	MEDHHINC	PCT_POV	PCT_OVHCL	PCT_EMPLOY
121270824111	1368	587.6	3.63	13.9	32.6	36295	14.7	0.8	46.9
121270910161	1016	346.1	6.50	46.4	14.0	34886	5.5	1.2	37.8
121270825061	1608	579.0	5.23	8.4	26.0	46179	10.8	1.5	61.9
121270810004	1093	262.8	3.61	17.9	14.1	20733	13.9	3.9	30.1
121270810003	514	404.5	2.50	23.2	14.0	47232	12.6	0.0	41.2
121270806001	762	589.4	2.57	12.9	25.5	42132	20.0	3.5	35.4
121270806002	1077	713.4	2.82	25.6	19.3	33750	19.5	3.5	45.2
121270808031	399	225.2	3.85	11.4	21.7	54844	0.0	1.6	50.5
121270830081	730	419.0	2.75	8.6	23.9	35307	11.3	6.7	30.6
121270830083	624	383.4	2.86	10.7	20.4	31228	8.0	3.0	46.0
121270827043	589	29078.5	0.02	6.3	27.3	76059	5.3	0.0	92.3
121270908061	1215	1294.4	1.55	43.0	27.4	21743	34.0	4.7	29.7
121270903071	880	789.6	2.54	35.3	21.3	28716	17.1	0.6	32.4
121270903072	1440	1145.0	2.43	24.2	17.0	37139	22.7	3.2	42.0
121270909021	989	2148.8	0.98	15.8	14.6	57500	7.9	0.6	56.5
121270909023	417	233.4	4.10	13.3	13.4	58021	9.8	0.0	41.6
121270909024	604	473.0	2.78	17.2	15.7	51136	10.5	2.1	50.5
121270825033	561	391.5	2.20	4.6	45.4	31607	6.1	1.6	11.6
121270824061	1140	530.7	4.78	9.8	20.4	55815	2.0	0.0	49.3
121270824102	926	296.2	4.67	9.0	47.9	31422	4.3	2.2	27.5
121270825062	800	608.7	2.25	14.1	21.8	44226	15.6	2.0	40.6
121270825072	1546	465.9	6.33	9.4	23.2	41917	15.7	3.3	43.0
121270825073	835	293.3	6.00	11.0	14.1	35887	20.7	2.5	47.1
121270909025	482	408.6	2.75	13.7	15.6	49079	8.4	2.7	53.4
121270910281	677	250.7	6.71	51.5	13.6	42552	18.6	2.3	48.4
121270910282	1081	850.9	3.15	47.4	15.3	52796	11.2	1.4	48.6
121270910241	1441	805.8	4.59	50.6	10.3	50909	16.1	2.0	42.1
121270910193	740	1510.6	1.23	38.0	15.3	37708	11.5	0.0	35.6
121270910201	1200	1929.2	1.74	49.1	7.0	48275	16.4	1.9	46.6
121270910151	1331	783.5	3.80	41.9	17.3	44661	11.8	2.4	38.4
121270910152	460	194.5	5.02	40.9	19.9	68900	16.7	1.4	50.7
121270824011	769	448.5	2.77	37.8	13.7	21857	20.0	15.3	38.0
121270824041	655	164.4	8.74	24.2	13.2	42379	11.5	1.4	56.6
121270910162	680	285.4	5.20	43.3	17.2	35128	8.0	0.7	50.9



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GEOID10	HSE_UNITS	ACRES	DENPOP2010	PCT_MNRTY	PCT_65ABV	MEDHHINC	PCT_POV	PCT_OVHCL	PCT_EMPLOY
121270910163	872	420.6	5.07	47.4	17.9	38900	14.2	2.0	31.7
121270910271	1214	774.8	3.96	41.9	13.6	53026	3.5	0.5	39.3
121270910272	1421	824.5	4.56	44.9	16.4	52160	9.4	1.0	40.9
121270832091	1850	127915. 1	0.03	9.4	12.7	69226	9.4	0.3	45.4
121270903031	643	7266.8	0.21	11.4	14.7	60000	8.9	0.0	47.0
121270903032	709	2465.1	0.52	24.3	27.5	33333	21.6	2.7	29.3
121270824042	666	343.7	3.61	14.6	20.1	35581	4.4	0.7	59.1
121270825034	914	427.8	4.08	11.8	25.8	34279	11.5	2.6	38.2
121270825031	856	370.7	4.98	11.6	11.7	46491	6.4	2.9	61.2
121270825032	610	337.2	3.92	17.2	16.7	37794	8.4	0.9	41.2
121270824053	757	249.7	4.72	12.0	36.2	29297	21.1	3.1	27.0
121270824052	307	97.0	7.17	12.2	19.6	46250	3.2	1.3	57.6
121270824051	670	193.4	6.92	13.3	18.8	38287	17.3	4.6	39.1
121270824054	343	137.6	5.53	6.2	23.5	48068	7.8	0.0	62.2
121270901011	930	24021.1	0.09	15.3	15.6	46335	5.0	0.0	47.5
121270901021	1295	39244.9	0.07	52.0	15.4	42641	14.8	1.1	39.3
121270901012	1027	44602.5	0.06	37.7	16.2	34900	36.6	1.6	36.5
121270824101	1327	798.0	3.55	15.7	13.8	46076	9.7	0.0	52.4
121270903042	584	266.2	4.43	26.0	15.6	44266	25.1	6.3	53.0
121270903043	800	467.9	3.77	16.3	15.9	44082	6.2	1.6	36.4
121270802011	1071	442.9	3.03	5.4	38.2	46036	1.4	1.0	45.5
121270829021	769	1800.8	0.88	5.7	17.7	39900	5.4	2.8	57.4
121270829023	613	1057.7	1.19	19.2	13.1	25763	30.9	6.2	72.9
121270910013	459	5715.2	0.15	6.0	32.7	35375	7.8	0.0	21.1
<b>AVERAGE</b>	<b>888.51</b>	<b>3526.10</b>	<b>3.02</b>	<b>25.1</b>	<b>21.86</b>	<b>45984</b>	<b>13.6</b>	<b>2.6</b>	<b>42.3</b>



# 2040 Long Range Transportation Plan Environmental Justice Analysis



Prepared by: Ghyabi & Associates, Inc.  
August 2014







## Appendix D



# REVENUE FORECAST







# 2040 Long Range Transportation Plan

## Revenue Forecast



Prepared by: Ghyabi & Associates, Inc.



November 2014



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## 1 INTRODUCTION

Federal guidance requires that all long-range transportation plans to be “cost-feasible.” In other words, the planning organization must identify the anticipated federal, state and local financial resources that will cover the estimated costs of the projects identified in the plan. The determination of cost feasibility requires planning agencies to develop reasonable and reliable revenue estimates as well as transportation project cost estimates.

This chapter summarizes the sources of revenue available for the 2040 LRTP. As required, the revenue estimates and project costs have been provided in “year-of-expenditure” values, separated into five-year time frames over the planning horizon.

This Financial Plan has been prepared as part of the River to Sea Transportation Planning Organization’s (TPO) 2040 Long Range Transportation Plan (LRTP). The following agencies and local governments coordinated efforts in the preparation of this report:

- River to Sea TPO;
- Florida Department of Transportation (FDOT);
- Florida’s Turnpike Enterprise;
- Volusia County;
- Flagler County;
- City of Palm Coast;
- Voltran

This report provides projections for the revenues which will potentially fund the projects within the 2040 Long Range Transportation Plan.

### 1.1 Report Organization

This technical report outlines the current financial resources available for transportation improvements in the River to Sea TPO Metropolitan Planning Area (MPA) for the period from 2014 to 2040. The existing financial resources include federal and state government grants and project funding, and local revenues, such as local gas taxes and transportation impact fees.

The analysis and documentation of the financial resources are organized into four sections:

- Introduction;
- Overview of Financial Sources: includes documentation of current sources and use of funds;
- Financial Projections: revenue projections to 2040 and analysis for each revenue source; and
- Summary: a summary of the various revenues projected to be available to fund the 2040 Transportation Plan.

## 2 OVERVIEW OF FINANCIAL SOURCES

The primary purpose of the 2040 LRTP is planning for the transportation needs within the current and expected financial constraints. This report provides a description and analysis of the financial resources available on the federal, state and local level. This section presents the financial resources which are presently being utilized in the River to Sea TPO MPA and the sustainability of those sources.

### 2.1 Current Revenue Sources

The public transportation system in Florida has several funding sources for development and maintenance. The major sources of transportation funds are fuel taxes levied at federal, state and local levels. Federal funds are collected and distributed to federal highway, rail and transit programs from which Florida receives funding for eligible programs. State funds are collected from state tax levies and distributed to state funding programs, with the State Transportation Fund receiving the bulk of these funds. These programs fund statewide projects, as well as distribute funds to counties and municipalities. On the local level, funds are collected from local tax levies, as well as state tax levies shared by the state and local entities. Table 1 outlines Florida's transportation tax sources and estimated transportation-related tax distribution for 2013.

#### 2.1.1 State/Federal Funds

The federal government imposes taxes on gasoline, diesel fuel, special fuels, compressed natural gas, gasohol, tires, truck and trailer sales and heavy vehicle use. Revenues from these federal taxes are deposited into either the Highway Account or the Mass Transit Account of the Federal Highway Trust Fund. The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) then distribute funds in these accounts to each state through a system of formula grants and discretionary allocations. The State of Florida, in spite of updated legislation, continues to be a "donor" state with regard to the receipt of funds from the Federal Highway Trust Fund. This means that Florida contributes a greater amount of taxes to the Federal Highway Trust than the allocation it receives in return to fund transportation projects. State highway fuel sales taxes are shared between the State of Florida Department of Transportation (FDOT) and Florida's county governments.

**Table 1 – Florida's Transportation Tax Sources**

Fund/Tax Source	Description	2013 Distribution (\$ in Millions)	2013 Rates & Fees
<b>FEDERAL</b>			
Federal Highway Administration	Highway fuel taxes and other excise and heavy vehicle use & sales taxes	\$1,825	Gasoline - 15.44¢/gallon Gasohol - 15.44¢/gallon Diesel - 21.44¢/gallon
Federal Aviation Administration Airport & Airway Trust Fund	Federal taxes on non-commercial aviation fuel, airline tickets, waybills, and international departures	\$188	Avgas - 19.3¢/gallon Jet Fuel - 21.8¢/gallon Ticket Tax - 7.5% Waybill Tax - 6.25%
Federal Transit Administration Highway Trust Fund	Federal highway fuel taxes	\$365	2.86¢/gal
Federal Rail Administration General Fund	Appropriations	\$0	N/A
<b>STATE – FOR STATE USE</b>			
Fuel Sales Tax	Highway and off-highway fuels (excluding alternative fuels)	\$1,149 \$14	Highway Fuel - 13.1¢/ gal Off-Highway Diesel - 6%
SCETS Tax	Highway fuels (including alternative fuels)	\$655	Gasoline - 5.8¢ to 6.9¢/gal Diesel - 6.9¢/gal
Aviation Fuel Tax	Aviation fuel	\$41	6.9¢/gal
Fuel Use Tax & Fee	ID decals & taxes on highway fuels consumed commercially	\$11	Decals - \$4.00/year Taxes - Prevailing Rates
Motor Vehicle License Fee	Annual vehicle registrations	\$484	Fee based on vehicle weight
Initial Registration Fee	Initial registration surcharge on specified vehicles	\$85	One-time Fee - \$225.00
Incremental Title Fee	Titles issued for newly registered and transferred vehicles	\$286	Fee - \$70.00 each
Rental Car Surcharge	Daily surcharge on leased/rented vehicles	\$116	Fee - \$2.00/day
<b>STATE – FOR LOCAL USE</b>			
Fuel Excise Taxes – Constitutional, County and Municipal Gas Taxes & Fuel Use Tax	All highway fuels	\$359	Constitutional- 2¢/gal County - 1¢/gal Municipal - 1¢/gal
<b>LOCAL</b>			
Ninth-cent Gas Tax	All highway fuels	\$78	Gasoline - 0¢-1¢/gal Diesel - 1¢/gal
Local Option Gas Tax	All highway fuels	\$691	Gasoline - 1¢-11¢/gal Diesel - 6¢/gal
<b>TOTAL</b>		\$6,347	

Source: Florida's Transportation Tax Sources, A Primer, January 2014



### 2.1.2 Local Funds

Local Governments have the ability to raise revenues through levying local taxes (see Table 2). The counties in the River to Sea TPO area generally use a combination of sales taxes, gas taxes and impact fees to pay for transportation projects. The taxes most frequently utilized are the Local Option Gas Tax (LOGT), the Constitutional Gas Tax, and the Local Government Infrastructure Surtax. The state collects and distributes the Constitutional Gas Tax, county and municipal gas taxes and fuel use taxes on behalf of Local Governments. In the past, a major revenue source for transportation-related projects has been transportation impact fees; however, the recent downturn in the economy has significantly reduced the flow of revenues from transportation impact fees. A more in-depth assessment of local taxes and fees is provided below.

**Constitutional Gas Tax** – The state Department of Revenue collects the Constitutional and county gas taxes and transfers the proceeds on a monthly basis to the State Board of Administration (SBA) for distribution to the counties. The SBA deducts administrative costs from the proceeds and calculates a monthly allocation for each county. The SBA manages, controls and supervises the proceeds. Once the proceeds have been allocated, revenues are distributed to each county's Board of County Commissioners to be used at the county's discretion for the intended purposes.

**Local Option Gas Tax** – Both Local Option Gas Taxes are levied by individual counties as a result of either a majority vote of the county's governing body or upon approval by referendum. The proceeds are distributed to the county and eligible municipalities based on transportation expenditures. Counties are required to share the proceeds with municipalities. The taxes are collected by retailers and remitted to the Department of Revenue. The Department of Revenue distributes the proceeds monthly to the county in which the tax was collected and then transfers the proceeds to the Local Option Gas Tax Trust Fund.

**Voted One-Cent (Ninth-Cent) Gas Tax** – The Ninth-Cent Gas Tax is levied according to the same rules as the Local Option Gas Taxes. County governments are not required to share the proceeds of the Ninth-Cent Gas Tax with municipalities, although some counties share revenues through participating in interlocal agreements with municipalities. Retailers collect the tax and then remit the proceeds to the Department of Revenue. The proceeds are transferred to the Ninth-Cent Gas Tax Trust Fund.

**Infrastructure Surtax** – The Local Government Infrastructure Surtax is enacted by a majority vote and approval by voters in a countywide referendum. The Department of Revenue is charged with the responsibility of collecting, administering and enforcing the infrastructure surtax. The proceeds of the tax are transferred to the Discretionary Sales Tax Trust Fund.

**Impact Fees** – Transportation impact fees (TIF) are imposed by local governments directly. An impact analysis is performed and the level of fees determined before the development occurs. Local governments collect, administer and control the fees.

**Table 2 – Local Government Revenue Sources**

<b>Fund/Tax Source</b>	<b>Description</b>	<b>Uses</b>	<b>Maximum Allowable Tax</b>
<b>State – For Local Use</b>			
Constitutional Gas Tax	State revenue shared source for counties only, funds are allocated to debt service managed by the State Board of Administration then surplus is distributed to County.	The acquisition, construction and maintenance of roads. Can be used as matching funds for state/federal funding for the above purposes	2¢/gallon
County Gas Tax	A gas tax levied on motor fuel at the wholesale level. Tax is administered by the State and redistributed to counties on a monthly basis.	Transportation-related expenses including the acquisition of rights-of-way, development and maintenance of transportation facilities, roads and bridges.	1¢/gallon
<b>Local</b>			
Local Option Gas (1)	This tax is imposed on every gallon of motor or special fuel sold at retail in a county.	The proceeds are to fund only transportation expenditures.	6¢/gallon
Local Option Gas (2)	This tax is imposed on every gallon of motor fuel sold at retail in a county.	Fund transportation expenditures needed to meet the requirements of the local government comprehensive plan.	5¢/gallon
9 <sup>th</sup> Cent Gas Tax	This tax is imposed on motor and special fuels sold within the county.	Expenses associated with the establishment, operation and maintenance of a transportation system and its facilities	1¢/gallon
Local Government Infrastructure Surtax	Applies to all transactions subject to the state tax imposed on sales, use, services, rentals, admissions and other transactions.	Financing, planning and construction of infrastructure. County may acquire land for public recreation or preservation.	1%
Charter County and Regional Transportation System Surtax	Applies to all transactions subject to the state tax imposed on sales, use, services, rentals, admissions and other transactions.	The development, construction, operation, and transit systems, roads and maintenance of bridges.	1%
Transportation Impact Fees	These fees are imposed on a project by project basis before development takes place.	Must be used to finance road and transportation-related projects within the collector district. Funds must be spent within six years of collection.	Varies with type of project

*Source: 2012 Local Government Financial Information Handbook.*



### 3 FINANCIAL PROJECTIONS

This section provides an analysis of available funds for the River to Sea TPO 2040 LRTP from current sources. FDOT provided funding projections for state and federal funds. Volusia County, Flagler County and the City of Palm Coast provided projections for future funding levels from their current funding sources. Further analysis of these projections was provided by Fishkind & Associates, a subconsultant to Ghyabi & Associates.

Summaries of the projections have been identified beginning with the year 2019 (FY 2018/2019) and ending at year 2040 (FY 2039/2040). Revenues through 2018 will have been used to fund committed projects and are not included in this analysis. The intent of this section is to identify only those sources not currently dedicated or obligated to other uses. In some cases, portions of the revenues have already been committed to either fund operations and maintenance, or complete projects already initiated but not fully funded using revenues through 2018. Where appropriate, commitments have been identified and subtracted from the total revenues to identify those revenues available for improvements in the Transportation Plan.

#### 3.1 Short-Range Revenue

The River to Sea TPO works closely with local partners and with the FDOT to coordinate a five-year plan of transportation projects. The TPO's plan is known as the Transportation Improvement Program (TIP) and the FDOT plan is called the Work Program. When transportation projects are included (or programmed) in these documents, the various phases of development (i.e. acquiring equipment, right-of-way, or completing the project design) are expected to be pursued until the project is complete. A continued commitment to projects in the near term reduces wasteful spending and creates stability in the development of our transportation systems.

When the TPO began developing the 2040 LRTP, a project schedule was established to ensure key activities such as modeling and revenue forecasting could be accomplished without overlap or gaps. Transportation projects and associated financial information for the period were established through the adopted TIP and Work Program. The TIP is subject to public review and is required by law to be fiscal balanced; therefore, a review of the financial resources identified to support these short-range projects was not completed as part of the long-range planning effort.

#### 3.2 State/Federal Funds

The FDOT developed revenue forecasts of state and federal transportation funds for River to Sea TPO through the year 2040. These forecasts are based on a statewide estimate of revenues that fund the state transportation program and are consistent with "Financial Guidelines for MPO 2040 Long Range Plans," adopted by the Metropolitan Planning Organization Advisory Council (MPOAC) in January 2013. All estimates are based in Year of Expenditure dollars.

Table 3 summarizes the projected state and federal revenues through 2040. Over the 22 year period from 2019 to 2040, \$1.9 billion in state and federal funds are projected for River to Sea TPO.

**Table 3 – Projected State & Federal Revenues for River to Sea TPO (\$ Millions)**

<b>Capacity Programs</b>	<b>2019-2020</b>	<b>2021-2025</b>	<b>2026-2030</b>	<b>2031-2040</b>	<b>Total (2040)</b>
SIS Highway Construction & ROW	\$200.7	-	\$557.4	\$428.7	\$1,186.7
Arterial Construction & ROW	\$45.6	\$101.9	\$96.3	\$210.8	\$454.6
Transit	\$22.2	\$57.3	\$60.2	\$126.2	\$265.9
Total Capacity Program	\$268.4	\$159.2	\$713.9	\$765.7	\$1,907.2
TMA Funds	\$9.4	\$23.6	\$23.6	\$47.2	\$103.7

Source: FDOT 2040 Forecast of State and Federal Revenues for Statewide and Metropolitan Plans; March 2014

### 3.3 Volusia County

Volusia County receives revenues from the local option fuel taxes, the Constitutional, County and municipal Fuel Taxes and collects transportation impact fees to fund its transportation needs. The projected revenues from these sources are identified in Table 4. Additional year-by-year detail regarding these projections is provided in Appendix A. Over the 22 year period from 2019 to 2040, over \$219 million in gas tax and \$48.1 million in impact fees are projected for transportation projects in Volusia County.

In addition to the revenues identified in Table 4, Volusia County levies the first Local Option Gas Tax (6¢ per gallon), the second Local Option Gas Tax (5¢ per gallon) and the 9<sup>th</sup> Cent Voted Gas Tax. These revenue sources are used to fund operations, maintenance and new road capacity. The County also receives funds from the Constitutional Gas Tax, the County Gas Tax and the Municipal Gas Tax – all of which are used for operations/maintenance/debt service for the county roadway system.

**Table 4 – Projected Volusia County Revenues**

<b>Fuel Taxes for O&amp;M</b>	<b>2019-2020</b>	<b>2021-2025</b>	<b>2026-2030</b>	<b>2031-2035</b>	<b>2036-2040</b>	<b>Total</b>
Constitutional (O&M)	\$8,744,090	\$21,086,647	\$20,026,115	\$19,018,922	\$18,062,384	\$86,938,159
County (O&M)	\$3,729,641	\$8,809,142	\$8,119,732	\$7,484,275	\$6,898,550	\$35,041,340
Municipal (O&M)	\$596,707	\$1,486,555	\$1,479,137	\$1,471,757	\$1,464,412	\$6,498,569
6-Cent Local Option (50% O&M)	\$7,241,055	\$18,135,670	\$18,182,957	\$18,230,368	\$18,277,902	\$80,067,953
1-Cent Local Option (50% O&M)	\$2,057,436	\$4,869,708	\$4,502,167	\$4,162,366	\$3,848,212	\$19,439,888
<b>Fuel Taxes for CIP</b>	<b>2019-2020</b>	<b>2021-2025</b>	<b>2026-2030</b>	<b>2031-2035</b>	<b>2036-2040</b>	<b>Total</b>
6-Cent Local Option (50% CIP)	\$7,241,055	\$18,135,670	\$18,182,957	\$18,230,368	\$18,277,902	\$80,067,953
5-Cent Local Option (CIP)	\$10,802,737	\$27,062,868	\$27,143,093	\$27,223,556	\$27,304,258	\$119,536,513
1-Cent Local Option (50% CIP)	\$2,057,436	\$4,869,708	\$4,502,167	\$4,162,366	\$3,848,212	\$19,439,888
<b>Total Fuel Taxes for CIP</b>	<b>\$20,101,228</b>	<b>\$50,068,246</b>	<b>\$49,828,218</b>	<b>\$49,616,291</b>	<b>\$49,430,372</b>	<b>\$219,044,354</b>
<b>Transportation Impact Fees</b>	<b>\$4,777,507</b>	<b>\$12,973,604</b>	<b>\$11,360,641</b>	<b>\$9,979,689</b>	<b>\$9,050,040</b>	<b>\$48,141,480</b>



### 3.4 Flagler County

Flagler County currently uses transportation impact fees and approximately 80 percent of the Constitutional Gas tax revenue to fund new transportation needs. The local option fuel taxes, County fuel tax and remainder of the Constitutional fuel taxes are used to fund operations and maintenance. The projected revenues from these sources are identified in Table 5 with additional detail provided in Appendix A. Over the 22-year period from 2019 to 2040, \$28.8 billion is projected for transportation in Flagler County.

**Table 5 – Projected Flagler County Revenues**

Fuel Taxes for O&M	2019-2020	2021-2025	2026-2030	2031-2035	2036-2040	Total
Constitutional (20%)	\$464,727	\$1,224,202	\$1,318,813	\$1,420,736	\$15,305,362	\$19,733,839
County	\$1,024,214	\$2,698,026	\$2,906,541	\$3,131,170	\$3,373,159	\$13,133,110
6-Cent Local Option	\$968,008	\$2,549,965	\$2,747,036	\$2,959,338	\$3,188,048	\$12,412,394
1-Cent Local Option	\$889,358	\$2,342,782	\$2,523,842	\$2,718,894	\$2,929,021	\$11,403,898
Fuel Taxes for CIP	2019-2020	2021-2025	2026-2030	2031-2035	2036-2040	Total
Constitutional (80%)	\$1,858,907	\$4,896,807	\$5,275,252	\$5,682,944	\$6,122,145	\$23,836,054
<b>Transportation Impact Fees</b>	\$353,211	\$988,552	\$1,091,441	\$1,205,039	\$1,330,461	\$4,968,704

In addition to fuel taxes, Flagler County also has a ½ Cent Small County Sales Tax that expires in 2032. As detailed in Table 6, almost \$36.6 million in infrastructure sales taxes is projected for collection by 2040. Currently the revenue generated from this tax is to be used for a new jail but there is potential that some of this revenue may be available in later years for road improvements.

**Table 6 – Projected Small County Sales Tax Revenue**

Sales Taxes	2019-2020	2021-2025	2026-2030	2031-2035	2036-2040	Total
½-Cent Small County Surtax	\$4,554,467	\$11,848,502	\$12,452,895	\$7,774,606	\$0	\$36,630,470

### 3.5 City of Palm Coast

Palm Coast receives a portion of the Local Option Gas Tax and also collects transportation impact fees to fund transportation needs. As detailed in Table 7, Over the 22 year period from 2019 to 2040, \$31.0 million in gas tax revenue and \$26.5 million in impact fee revenue is projected for transportation in the City of Palm Coast. Additional detail regarding these projections is provided in Appendix A.

**Table 7 – Projected City of Palm Coast Revenues**

Fuel Tax	2019-2020	2021-2025	2026-2030	2031-2035	2036-2040	Total
6-Cent Local Option (CIP)	\$3,113,113	\$7,514,441	\$7,146,166	\$6,795,937	\$6,462,869	\$31,032,527
Transportation Impact Fees	\$1,762,171	\$4,889,340	\$5,668,085	\$6,570,864	\$7,617,432	\$26,507,893
<b>TOTAL</b>	<b>\$4,875,284</b>	<b>\$12,403,781</b>	<b>\$12,814,251</b>	<b>\$13,366,802</b>	<b>\$14,080,301</b>	<b>\$57,540,420</b>

In addition to fuel taxes, Palm Coast also receives a portion of the County's ½ Cent Small County Sales Tax. Table 8 provides the projected revenue available to the County: approximately \$40.4 million in Small County sales taxes will be collected by 2040, none of which is currently being used for road improvements. This tax is set to expire in 2032.

**Table 8 – Projected Small County Sales Tax Revenue**

Sales Taxes	2019-2020	2021-2025	2026-2030	2031-2035	2036-2040	Total
½-Cent Small County Surtax	\$5,328,187	\$13,943,826	\$14,655,101	\$9,149,490	\$0	\$43,076,604

### 3.6 VOTRAN

The Volusia County Council created Volusia County's public transportation system, called Votran, in 1975. Votran operates as a service of Volusia County Government, providing transportation to all urban areas of the county with a fleet of 56 revenue-producing fixed route buses, four trackless trolleys, 29 van pools and 44 paratransit vehicles. Additional service is provided through contracts.

Votran services are supported by FDOT agreements that do not have a planned replacement match from Volusia County at this time. These funds provide for SunRail feeder bus routes and Route 3/4 corridor funds providing half hour frequency.

The revenue projections in Table 9 represent a virtual status quo level with increments linked to inflation and the financial agreement structure for SunRail. This results in an operating policy of indefinite deferral of any service expansion.

**Table 9 – Projected Votran Revenues<sup>1</sup>**

Type	2019-2020	2021-2025	2026-2030	2031-2035	2036-2040	Total
Volusia County Operating Budget for Votran	\$20,045,309	\$55,617,955	\$64,476,456	\$74,745,884	\$86,650,966	\$301,536,570
Volusia County Financial Support for SunRail	\$8,150,283	\$17,084,456	\$15,122,111	\$17,530,671	\$20,322,853	\$78,210,374
Total	\$28,195,592	\$72,702,411	\$79,598,567	\$92,276,555	\$106,973,818	\$379,746,944

Source: Votran

<sup>1</sup> Funding should be considered as dedicated, without discretion for any other purpose.

### 3.7 Flagler County Public Transportation

Flagler County Public Transportation (FCPT) is a pre-scheduled, demand-response transportation system. Demand centers on transportation for employment, education, non-emergency medical transportation, and quality of life trips.

Future funding for FCPT is under review as part of an update to the Transit Development Plan (TDP). In the next few months, decisions will be made regarding the expansion of service. This report will be updated at such time as this information is available.



## 4 SUMMARY

The River to Sea TPO 2040 Long Range Transportation Plan will be funded using a mixture of state, federal and local revenues. This report identifies the amount of projected funds by source for the period from 2019 through 2040. Revenues to fund the years prior to 2019 will be committed through the Transportation Improvement Program (TIP).

Table 10 summarizes the projected funding by system, agency and local government as well as the source of the funds (i.e., state/federal or local).

**Table 10 – Projected Revenues for the 2040 Long Range Transportation Plan (2019 – 2040)**

System, Agency, Local Government	State/Federal Funds	Local Revenues	Total
River to Sea TPO			
• Capacity Programs	\$1,907,200,000		\$1,907,200,000
• TMA Funds	\$103,700,000		\$103,700,000
Votran		\$379,746,944	\$379,746,944
Volusia County		\$219,044,354	\$219,044,354
Flagler County		\$28,804,758	\$28,804,758
City of Palm Coast		\$57,540,420	\$57,540,420
SunRail	\$0	\$0	\$0
<b>TOTAL</b>	<b>\$2,010,900,000</b>	<b>\$353,531,012</b>	<b>\$2,364,431,012</b>

In total, approximately \$2.36 billion is projected to be available to fund the transportation system through 2040. Of this total, approximately 85 percent (\$2.0 billion) is from state/federal sources and 15 percent (\$353.5 million) is from local revenues.

## 5 POTENTIAL REVENUE SOURCES UNDER CONSIDERATION

There are several revenue sources available to counties and cities within the River to Sea MPA that have as yet not been implemented. These are discussed in the following sections although this potential revenue is not included in the overall financial forecast.

### 5.1 Local Option Sales Tax

The local option sales tax is normally implemented by a county for specific purpose and for a specific time period. This tax is often implemented in ½ cent increments, with a 1-cent limit for infrastructure.

Volusia County has not levied the local option sale tax at any level. Table 11 provides a projection of potential revenues if the sales tax was to be implemented at either the ½ cent or 1 cent rate. If implemented at the higher rate, the sales tax could generate nearly \$919 million in infrastructure funds by 2040.

**Table 11 – Projected Local Option Sales Tax Revenue**

Sales Taxes	2019-2020	2021-2025	2026-2030	2031-2035	2036-2040	Total
½-Cent Local Option	\$33,992,401	\$91,111,134	\$100,594,054	\$111,063,964	\$122,623,590	\$459,385,143
1-Cent Local Option	\$67,984,802	\$182,222,268	\$201,188,108	\$222,127,928	\$245,247,181	\$918,770,284

Flagler County has levied the Small County local option sale tax at a ½ cent rate, as described previously in Section 3.4. Table 12 provides a projection of potential revenues if the sales tax was doubled to the 1 cent rate. This increased rate would provide the County with \$73.2 million in infrastructure funds by 2040.

**Table 12 – Projected Local Option Sales Tax Revenue**

Sales Taxes	2019-2020	2021-2025	2026-2030	2031-2035	2036-2040	Total
½-Cent Small County Surtax	\$4,554,467	\$11,848,502	\$12,452,895	\$7,774,606	\$0	\$36,630,470
1-Cent Local Option	\$9,108,933	\$23,697,004	\$24,905,790	\$15,549,212	\$0	\$73,260,940

The City of Palm Coast shares in the County's local option sale tax, as described previously in Section 3.4. Table 13 provides a projection of potential revenues if the sales tax was doubled to the 1 cent rate. This increased rate would provide the City with \$86 million in revenue by 2040, half of which could be used for infrastructure improvements.

**Table 13 – Projected Local Option Sales Tax Revenue**

Sales Taxes	2019-2020	2021-2025	2026-2030	2031-2035	2036-2040	Total
½-Cent Local Option	\$5,328,187	\$13,943,826	\$14,655,101	\$9,149,490	\$0	\$43,076,604
1-Cent Local Option	\$10,656,373	\$27,887,652	\$29,310,203	\$18,298,981	\$0	\$86,153,209

## 5.2 Mobility Fee

Another potential revenue source for transportation infrastructure is the mobility fee. A mobility fee is a charge on all new development to equitably provide mitigation for its impact on the transportation system. However, a mobility fee is not a substitute for site related improvements for safety, access and internal circulation, which may still be required under local land development regulations. As a charge on new development, the mobility fee has characteristics of an impact fee. Implementation of a mobility fee may involve adherence to the dual rational nexus test established in Florida case law, unless otherwise provided by the legislature.

Although a mobility fee is similar to an impact fee in that it is a charge on new development for its impacts on transportation facilities, the mobility fee as proposed in this report differs from an impact fee in significant ways, including:

- A mobility fee would be sensitive to vehicle or person miles traveled, encouraging shorter trips and reduction of total travel thereby promoting compact and mixed-use development;
- A mobility fee would fund multi-modal transportation improvements for roadways, transit, bikeway, and pedestrian walkways. This includes capital projects, system efficiency and congestion management improvements/strategies and transit capital and operating costs;
- A mobility fee could provide a charge for recouping a new development's share of transit operating costs for a short term period; and
- A mobility fee would be distributed among all the governmental entities responsible for maintaining impacted transportation facilities.

## 5.3 Miles Driven Fee

A new concept for paying for transportation impacts is a fee based upon the number of miles driven. This is part of the concept behind the mobility fee discussed above. The federal and state government currently levy fuel taxes on a cents-per-gallon basis, so real revenues will inevitably decline unless the per-gallon tax rates are periodically increased to offset the effects of both inflation and improved

fuel economy. As a result, fuel tax rates at the federal and state levels have stagnated, resulting in growing shortfalls in funding for surface transportation programs. Transportation funding shortfalls will grow even more acute in the coming years as improved vehicle fuel economy and the adoption of alternative-fuel vehicles reduce federal and state fuel tax revenues by billions of dollars per year. The miles-driven fee is designed to overcome these problems. Some key benefits of a miles-driven fee are:

- Key mileage fees to the amount of vehicle travel rather than to fuel consumption. This change should provide a more stable revenue stream in future decades;
- Improve driver experience through technology-based innovations;
- Collect detailed and anonymous travel data to support better planning and operations;
- Reduce traffic congestion by varying the per-mile charge based on time of day and travel location. Mileage fees could facilitate congestion pricing across all crowded segments of the road network;
- Reduce road wear. Heavy commercial trucks cause significantly more road damage than lighter passenger vehicles. To help reduce excessive road wear, mileage fees for trucks could vary based on axle weight (higher for trucks with fewer axles) and type of route (higher for travel on lightly engineered routes); and
- Reduce harmful emissions. Mileage fees could be set higher for more-polluting vehicles and lower for less-polluting vehicles.

#### 5.4 Rental Car Surtax

Florida Statutes provide for the lease or rental in Florida of a for hire passenger motor vehicle is subject to a surcharge of \$2.00 per day, or any part of a day, regardless whether the vehicle is licensed in Florida. The revenues generated by this surtax would not be a significant revenue source in Volusia or Flagler County for transportation infrastructure funding.



## **APPENDIX A – DOCUMENTATION**



# TRANSPORTATION REVENUES DOCUMENTATION REPORT

Prepared By:

Fishkind & Associates, Inc.  
12051 Corporate Boulevard

Orlando, Florida 32817

407-382-3256 [www.fishkind.com](http://www.fishkind.com)

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## APPENDIX A

### Transportation Revenues Documentation Report

#### 1.0 Introduction

River to Sea TPO (R2CTPO) is updating the long-range transportation plan for Volusia and Flagler Counties. Fishkind & Associates was retained to determine the gas tax, sales tax, impact fees and general revenues available for funding new transportation capital facilities through 2040. This Appendix provides the methodology used.

#### 2.0 Demographic Assumptions

##### 2.1 Population and Employment

The basis of all of the revenue calculations was the TPO's population, housing construction and employment projections by traffic analysis zones (TAZs). The TPO provided the data in 5-year increments. The average growth was calculated to project the year-by-year population and employment data. The final population projections were then used to calculate the per capita tax revenues.

The incremental change in single family and multifamily residential units was used to calculate the impact fees generated from growth.

The incremental employment changes were used to estimate the square feet of commercial development constructed each year. This information was then used to calculate the property tax and impact fees from non-residential development.

**Table 1: R2CTPO Demographic Data**

	2015- 2020	2021- 2025	2026- 2030	2031- 2035	2036- 2040	Total
<b><u>Volusia County</u></b>						
Single-family Units	8,655	7,555	6,329	5,203	4,483	32,225
Multifamily Units	6,134	5,379	4,483	3,698	3,170	22,864
Commercial Employees	2,080	2,037	1,990	1,940	1,883	9,930
Services Employees	10,502	11,201	11,937	12,709	13,514	59,863
Industrial Employees	1,292	1,321	1,341	1,371	1,391	6,716
Educational Employees	-649	-557	-478	-389	-301	(2,374)
<b><u>Flagler County</u></b>						
Single-family Units	6,403	8,017	7,432	6,777	5,896	34,525
Multifamily Units	1,943	2,442	2,253	2,052	1,789	10,479
Commercial Employees	1,136	1,512	1,774	2,086	2,454	8,962
Services Employees	1,649	2,198	2,565	3,017	3,573	13,002
Industrial Employees	306	398	473	547	660	2,384
Educational Employees	1,680	2,101	1,949	1,774	1,547	9,051

### 3.0 Gas Tax Calculations

#### 3.1 Motor Fuel

Fishkind researched the motor fuel gallons sold data for the past ten years for each county. The total number of gallons sold each year was divided by the population (University of Florida, BEBR) to calculate the gallons sold per capita. The change in per capita gallons was then calculated to determine the growth trend of motor fuel sales. These trends were used to project the annual motor fuel gallons sold through the year 2040 and ultimately the amount of gas tax revenue projected through 2040. The City of Palm Coast provided its own revenue projections. These were compared to the Fishkind projections to assure accuracy from both parties.

##### 3.1.1 Volusia County

**Six-Cents Local Option Fuel Tax:** Using the historical data, the growth trend for this tax was calculated to be 0.05 percent for Volusia County. It was determined that 50 percent of the local option revenues will be available for new capital improvements, the remainder is used for operations and maintenance.

**Five-Cents Local Option Fuel Tax:** Using the historical data, the growth trend for this tax was calculated to be 0.06 percent for Volusia County. It was determined that 100 percent of this local option revenue will be available for new capital improvements.

**Voted One-Cent Local Option Fuel Tax:** Using the historical data, the growth trend for this tax was calculated to be -1.56 percent for Volusia County. It was determined that 50 percent of this local option revenue will be available for new capital improvements with the remainder used for operations and maintenance.

**Constitutional Fuel Tax:** Using the historical data, the growth trend for this tax was calculated to be -1.03 percent for Volusia County. It was determined that 100 percent of this tax revenue will be used for operations and maintenance.

**County Fuel Tax:** Using the historical data, the growth trend for this tax was calculated to be -1.62 percent for Volusia County. It was determined that 100 percent of this tax revenue will be used for operations and maintenance.

**Municipal Fuel Tax:** Using the historical data, the growth trend for this tax was calculated to be -0.1 percent for Volusia County. It was determined that 100 percent of this tax revenue will be used for operations and maintenance.



Volusia County Fuel Tax Revenue Projections FY 2014-FY 2040							
Period	6-Cent Local Option Fuel Tax	5-Cent Local Option Fuel Tax	1-Cent Local Option Fuel Tax	Constitutiona l Fuel Tax	County Fuel Tax	Municipal Fuel Tax	Total
2013/14	\$7,220,343	\$5,383,810	\$2,242,861	\$4,627,333	\$2,039,641	\$300,000	\$21,813,988
2014/15	\$7,224,104	\$5,386,998	\$2,207,934	\$4,579,822	\$2,006,667	\$299,700	\$21,705,226
2015/16	\$7,227,868	\$5,390,188	\$2,173,551	\$4,532,799	\$1,974,226	\$299,400	\$21,598,032
2016/17	\$7,231,633	\$5,393,380	\$2,139,703	\$4,486,258	\$1,942,310	\$299,101	\$21,492,386
2017/18	\$7,235,400	\$5,396,574	\$2,106,383	\$4,440,196	\$1,910,910	\$298,802	\$21,388,264
2018/19	\$7,239,169	\$5,399,770	\$2,073,581	\$4,394,606	\$1,880,017	\$298,503	\$21,285,646
2019/20	\$7,242,941	\$5,402,967	\$2,041,290	\$4,349,484	\$1,849,624	\$298,204	\$21,184,511
2020/21	\$7,246,714	\$5,406,167	\$2,009,502	\$4,304,826	\$1,819,722	\$297,906	\$21,084,837
2021/22	\$7,250,489	\$5,409,368	\$1,978,209	\$4,260,626	\$1,790,303	\$297,608	\$20,986,605
2022/23	\$7,254,266	\$5,412,572	\$1,947,404	\$4,216,880	\$1,761,361	\$297,311	\$20,889,793
2023/24	\$7,258,045	\$5,415,777	\$1,917,078	\$4,173,584	\$1,732,885	\$297,013	\$20,794,382
2024/25	\$7,261,826	\$5,418,984	\$1,887,224	\$4,130,731	\$1,704,871	\$296,716	\$20,700,353
2025/26	\$7,265,609	\$5,422,193	\$1,857,835	\$4,088,319	\$1,677,309	\$296,420	\$20,607,685
2026/27	\$7,269,394	\$5,425,404	\$1,828,904	\$4,046,342	\$1,650,193	\$296,123	\$20,516,360
2027/28	\$7,273,181	\$5,428,617	\$1,800,423	\$4,004,796	\$1,623,515	\$295,827	\$20,426,360
2028/29	\$7,276,970	\$5,431,831	\$1,772,386	\$3,963,677	\$1,597,269	\$295,531	\$20,337,665
2029/30	\$7,280,761	\$5,435,048	\$1,744,786	\$3,922,980	\$1,571,446	\$295,236	\$20,250,257
2030/31	\$7,284,554	\$5,438,267	\$1,717,615	\$3,882,701	\$1,546,042	\$294,941	\$20,164,118
2031/32	\$7,288,348	\$5,441,487	\$1,690,867	\$3,842,836	\$1,521,047	\$294,646	\$20,079,232
2032/33	\$7,292,145	\$5,444,709	\$1,664,536	\$3,803,379	\$1,496,457	\$294,351	\$19,995,579
2033/34	\$7,295,944	\$5,447,934	\$1,638,615	\$3,764,328	\$1,472,265	\$294,057	\$19,913,143
2034/35	\$7,299,745	\$5,451,160	\$1,613,098	\$3,725,678	\$1,448,464	\$293,763	\$19,831,907
2035/36	\$7,303,547	\$5,454,388	\$1,587,978	\$3,687,425	\$1,425,047	\$293,469	\$19,751,854
2036/37	\$7,307,352	\$5,457,618	\$1,563,249	\$3,649,564	\$1,402,009	\$293,175	\$19,672,968
2037/38	\$7,311,159	\$5,460,850	\$1,538,905	\$3,612,092	\$1,379,344	\$292,882	\$19,595,232
2038/39	\$7,314,968	\$5,464,084	\$1,514,941	\$3,575,005	\$1,357,044	\$292,589	\$19,518,631
2039/40	\$7,318,778	\$5,467,319	\$1,491,349	\$3,538,299	\$1,335,106	\$292,297	\$19,443,148
Total	\$196,275,254	\$146,487,464	\$49,750,209	\$109,604,566	\$44,915,095	\$7,995,572	\$555,028,159

### 3.1.2 Flagler County

**Constitutional Fuel Tax:** Using the historical data, the growth trend for this tax was calculated to be 1.5 percent for Flagler County. Consensus agreement with County Staff was that 80 percent of the local option revenues will be available for capital improvements.

**Six-Cents Local Option Fuel Tax:** Using the historical data, the growth trend for this tax was calculated to be 1.5 percent for Flagler County. Consensus agreement with County Staff was that 100 percent of the revenues will be used for operations and maintenance.

**Voted One-Cent Local Option Fuel Tax:** Using the historical data, the growth trend for this tax was calculated to be 1.5 percent for Flagler County. Consensus agreement with County Staff was that 100 percent of the revenues will be used for operations and maintenance.

**County Fuel Tax:** Using the historical data, the growth trend for this tax was calculated to be 1.5 percent for Volusia County. Consensus agreement with County Staff was that 100 percent of the revenues will be used for operations and maintenance.

Six Cents Local Option Fuel Tax FY 2014-FY 2040					
Period	<u>6-Cent Local Option Fuel</u>	<u>1-Cent Local Option Fuel Tax</u>	<u>Constitutional Fuel Tax</u>	<u>County Fuel Tax</u>	<u>Total</u>
2013/14	\$445,937	\$409,705	\$1,070,440	\$471,830	\$2,397,912
2014/15	\$452,626	\$415,851	\$1,086,497	\$478,907	\$2,433,881
2015/16	\$459,415	\$422,088	\$1,102,794	\$486,091	\$2,470,389
2016/17	\$466,307	\$428,420	\$1,119,336	\$493,382	\$2,507,445
2017/18	\$473,301	\$434,846	\$1,136,126	\$500,783	\$2,545,056
2018/19	\$480,401	\$441,369	\$1,153,168	\$508,295	\$2,583,232
2019/20	\$487,607	\$447,989	\$1,170,465	\$515,919	\$2,621,981
2020/21	\$494,921	\$454,709	\$1,188,022	\$523,658	\$2,661,310
2021/22	\$502,345	\$461,530	\$1,205,843	\$531,513	\$2,701,230
2022/23	\$509,880	\$468,453	\$1,223,930	\$539,486	\$2,741,749
2023/24	\$517,528	\$475,479	\$1,242,289	\$547,578	\$2,782,875
2024/25	\$525,291	\$482,612	\$1,260,924	\$555,792	\$2,824,618
2025/26	\$533,170	\$489,851	\$1,279,838	\$564,129	\$2,866,987
2026/27	\$541,168	\$497,199	\$1,299,035	\$572,590	\$2,909,992
2027/28	\$549,285	\$504,656	\$1,318,521	\$581,179	\$2,953,642
2028/29	\$557,525	\$512,226	\$1,338,298	\$589,897	\$2,997,946
2029/30	\$565,888	\$519,910	\$1,358,373	\$598,745	\$3,042,916
2030/31	\$574,376	\$527,708	\$1,378,748	\$607,727	\$3,088,559
2031/32	\$582,992	\$535,624	\$1,399,430	\$616,843	\$3,134,888
2032/33	\$591,736	\$543,658	\$1,420,421	\$626,095	\$3,181,911
2033/34	\$600,612	\$551,813	\$1,441,727	\$635,487	\$3,229,640
2034/35	\$609,622	\$560,090	\$1,463,353	\$645,019	\$3,278,084
2035/36	\$618,766	\$568,492	\$1,485,304	\$654,694	\$3,327,256
2036/37	\$628,047	\$577,019	\$1,507,583	\$664,515	\$3,377,164
2037/38	\$637,468	\$585,674	\$1,530,197	\$674,482	\$3,427,822
2038/39	\$647,030	\$594,460	\$1,553,150	\$684,600	\$3,479,239
2039/40	\$656,736	\$603,376	\$1,576,447	\$694,869	\$3,531,428
Total	\$14,709,980	\$13,514,807	\$35,310,260	\$15,564,105	\$79,099,152

### 3.1.3 City of Palm Coast

**Six-Cents Local Option Fuel Tax:** Using the historical data, the growth trend for this tax was calculated to be -1.0 percent for the city. It was determined that 100 percent of the local option revenues will be available for new capital improvements.

Palm Coast Revenue Projections FY 2014-FY 2040			
<u>Period</u>	<u>6-Cent Local Option Fuel Tax</u>	<u>Transportation Impact Fees</u>	<u>State Revenue Sharing</u>
2013/14	\$1,645,000	\$870,000	\$1,680,000
2014/15	\$1,628,550	\$904,800	\$1,713,600
2015/16	\$1,612,265	\$940,992	\$1,747,872
2016/17	\$1,596,142	\$978,632	\$1,782,829
2017/18	\$1,580,180	\$1,017,777	\$1,818,486
2018/19	\$1,564,379	\$1,058,488	\$1,854,856
2019/20	\$1,548,735	\$1,100,828	\$1,891,953
2020/21	\$1,533,247	\$1,144,861	\$1,929,792
2021/22	\$1,517,915	\$1,190,655	\$1,968,388
2022/23	\$1,502,736	\$1,238,281	\$2,007,756
2023/24	\$1,487,710	\$1,287,813	\$2,047,911
2024/25	\$1,472,833	\$1,339,325	\$2,088,869
2025/26	\$1,458,105	\$1,392,898	\$2,130,646
2026/27	\$1,443,524	\$1,448,614	\$2,173,259
2027/28	\$1,429,089	\$1,506,559	\$2,216,724
2028/29	\$1,414,798	\$1,566,821	\$2,261,059
2029/30	\$1,400,650	\$1,629,494	\$2,306,280
2030/31	\$1,386,644	\$1,694,673	\$2,352,406
2031/32	\$1,372,778	\$1,762,460	\$2,399,454
2032/33	\$1,359,050	\$1,832,958	\$2,447,443
2033/34	\$1,345,460	\$1,906,276	\$2,496,392
2034/35	\$1,332,005	\$1,982,527	\$2,546,319
2035/36	\$1,318,685	\$2,061,828	\$2,597,246
2036/37	\$1,305,498	\$2,144,301	\$2,649,191
2037/38	\$1,292,443	\$2,230,073	\$2,702,175
2038/39	\$1,279,519	\$2,319,276	\$2,756,218
2039/40	\$1,266,724	\$2,412,047	\$2,811,342
Total	\$39,094,664	\$40,963,257	\$59,378,464

## 4.0 Impact Fee Calculation

### 4.1 General Methodology

County Property Appraisers use 99 different land uses. The MPOs provide socio-economic projections based upon 2 residential uses and 3 employment categories. The initial step was to allocate the square feet of each Property Appraiser land use to the categories used in the County's impact fee schedule. This procedure yielded the square feet and relative percent of development in each of 14+/- non-residential land uses.

The State's ES-202 employment data was then summarized to determine the number of employees in each of the 14+/- land use categories. The square feet of development for each land use was then divided by the number of employees in that land use to determine the square feet per employee.

The MPO employment data was then used to calculate the ratio of existing square feet of development with employment, providing square feet per employee.

The MPO employment projections for 2040 (and each 5-year increment provided) were then multiplied by the square feet per employee to calculate the total square feet of development in 2040 and each 5-year increment. The totals for each of the three MPO employment categories was then multiplied by the percentage of development for each of the 14+/- Impact Fee land uses. These totals were then divided by the total number of years to arrive at the average annual square feet of construction/absorption per year for each land use. This annual development was applied to the impact fee per-unit amount to acquire the annual transportation impact fee revenue projections.

### 4.2 Impact Fee Calculation

**Table 2: Volusia County Residential Units**

Years	Single Family	MultiFamily
2015-2020	4,050	1,924
2021-2025	3,539	1,682
2026-2030	2,955	1,406
2031-2035	2,443	1,160
2036-2040	2,074	984
	15,061	7,156

The incremental residential unit numbers were applied to the residential impact fees to calculate the impact fee revenue by phase.

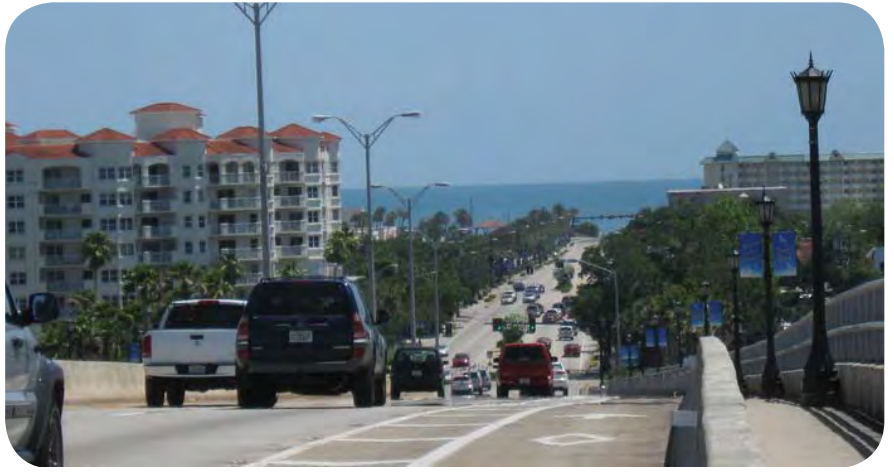
The projected square feet of new development was then applied to the applicable impact fee to calculate the total impact fee for each land use by phase.



Table 3: Volusia County Average Annual Non-Residential Development

	Volusia County Employment 2014	Volusia County Square Feet Development	Percent	Sq.Ft. Per EE	Employees 2015-2020	Sq Ft 2015- 2020	Employees 2021-2025	Sq Ft 2021- 2025
<b>Commercial</b>								
Neighborhood	24,249	6,241,768	65.3%			168,599		166,025
Community		2,448,995	25.6%			66,151		65,141
Regional		866,350	9.1%			23,401		23,044
<b>Commercial</b>	<b>24,249</b>	<b>9,557,112</b>		394.12	655	258,151	645	254,210
<b>Services</b>								
Restaurant Sit Down	19,134	1,339,708	4.6%			27,501.84		29,522.56
Restaurant Drive in		327,857	1.1%			6,730.33		7,224.84
Office	40,487	9,447,508	32.2%			193,940.67		208,190.61
Office Class A		2,827,510	9.6%			58,043.79		62,308.60
Hotel	22,497	3,545,038	12.1%			72,773.38		78,120.46
Recreation	3,363	1,468,173	5.0%			30,139.00		32,353.49
Govt	8,000	10,413,064	35.5%			213,761.83		229,468.15
<b>Services</b>	<b>93,481</b>	<b>29,368,858</b>		314.17	1,919	602,890.84	2,060	647,188.71
<b>Education</b>	<b>15,225</b>	<b>9,668,456</b>		635.04	1,083	687,746.33	955	606,461.44
Industrial	19,833	8,897,273	39%			84,931.44		90,969.22
Warehouse	2,271	13,651,521	61%			130,314.46		139,578.53
<b>Industrial</b>	<b>22,104</b>	<b>22,548,794</b>		1,020.12	211	215,245.91	226	230,547.75
<b>Total Employees</b>	<b>155,059</b>	<b>71,143,220</b>						

	Employees 2026-2030	Sq Ft 2026- 2030	Employees 2031-2035	Sq Ft 2031- 2035	Employees 2036-2040	Sq Ft 2036- 2040
<b>Commercial</b>						
Neighborhood		161,392		157,788		149,809
Community		63,323		61,909		58,778
Regional		22,401		21,901		20,793
<b>Commercial</b>	<b>627</b>	<b>247,116</b>	<b>613</b>	<b>241,598</b>	<b>582</b>	<b>229,380</b>
<b>Services</b>						
Restaurant Sit Down		31,328.31		33,306.03		36,172.30
Restaurant Drive in		7,666.75		8,150.74		8,852.18
Office		220,924.60		234,871.35		255,084.03
Office Class A		66,119.71		70,293.78		76,343.16
Hotel		82,898.70		88,132.01		95,716.52
Recreation		34,332.39		36,499.76		39,640.88
Govt		243,503.58		258,875.72		281,154.18
<b>Services</b>	<b>2,186</b>	<b>686,774.04</b>	<b>2,324</b>	<b>730,129.40</b>	<b>2,524</b>	<b>792,963.25</b>
<b>Education</b>	<b>791</b>	<b>502,315.19</b>	<b>655</b>	<b>415,950.00</b>	<b>538</b>	<b>341,650.53</b>
Industrial		88,554.11		92,176.78		98,617.08
Warehouse		135,872.90		141,431.34		151,313.00
<b>Industrial</b>	<b>220</b>	<b>224,427.01</b>	<b>229</b>	<b>233,608.12</b>	<b>245</b>	<b>249,930.08</b>
<b>Total Employees</b>						



## 2040 Long Range Transportation Plan Revenue Forecast



Prepared by: Ghyabi & Associates, Inc.  
November 2014







## Appendix E

# PUBLIC INVOLVEMENT PLAN



# 2040 Long Range Transportation Plan

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*Draft Public Involvement Plan  
River to Sea TPO*

**May 2014**

Prepared By:



1459 North US Highway 1, Suite 3  
Ormond Beach, FL 32174



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## 1 INTRODUCTION

The River to Sea Transportation Planning Organization (R2CTPO) is a federally authorized planning agency created to oversee the local transportation system of the Metropolitan Planning Area. For urbanized areas exceeding a population of 50,000, the existence of a Transportation/Metropolitan Planning Organization (TPO/MPO) is necessary to meet federal requirements for obtaining and expending federal transportation funds. Specifically, the federal government requires that each urbanized area, as a condition to the receipt of federal capital or operating assistance, have in place a continuing, cooperative, and comprehensive transportation (3-C) planning process. This 3-C process must result in plans and programs consistent with the comprehensively planned development of the urbanized area. In order to demonstrate that a 3-C planning process is being implemented, the River to Sea TPO must periodically prepare and adopt a 25-year long range transportation plan (per requirements of 23 CFR 450.306, 316 and 322).

During the development of the 2040 Long Range Transportation Plan (LRTP), the River to Sea TPO is developing a public involvement strategy to fully engage the public to inform them of transportation issues facing the community and provide ample opportunity for input on the planning solutions being considered. The importance of public outreach as a means to inform, educate, and involve citizens in the transportation decision-making processes that impact their daily lives cannot be underestimated. The primary purpose of this LRTP Public Involvement Plan (PIP) is to encourage early and continuous participation by the public in the development of the 2040 LRTP; by involving the public in ways that are meaningful and measurable, transportation planners are better able to ensure that the plans and programs developed reflect community values and benefit all segments of the population equally.

A successful outreach program includes efforts to reach and involve representatives from all walks of the community. The River to Sea TPO planning area includes a diverse population of almost 600,000 residents. With five institutions of higher education, there is an engaged and youthful population as well as a significant number of senior citizens and an active group of disabled advocates that seek to maintain independence for persons with disabilities. The TPO planning area covers rural communities and urbanized areas and includes an employment base consisting of agriculture, tourism and manufacturing.

Four primary activities are envisioned to meet the planning requirements outlined in Metropolitan Planning Rule (§450.316 and §450.322). These include: 1) creating a project website; 2) conducting a series of interactive planning sessions and meetings; 3) utilizing the results of meeting questionnaires and the independent Tell the TPO survey; and 4) utilizing the River to Sea TPO Advisory Committees. Each of these activities is described in greater detail in the following sections. In addition, the TPO will capitalize on other opportunities including press releases, direct mail lists, news media coverage and partner support to promote long range plan activities to the public.

## 2 ABOUT THE RIVER TO SEA TPO

The organization was formed and organized on January 18, 1977 as the Daytona Beach Urbanized Area MPO. Originally, it included only the Daytona Beach (coastal) area of Volusia County. In 1988, the metropolitan planning area boundary was expanded to include all of Volusia County recognizing that the Deltona-DeLand-DeBary area would be designated an urbanized area with the release of the 1990 Census data. In 2004, the renamed Volusia Metropolitan Organization (VCMPO) found it necessary to again expand the metropolitan planning area boundary, this time to include Flagler Beach and Beverly Beach in Flagler County which had been designated as part of the Daytona Beach – Port Orange Urbanized Area. On July 1, 2010, the Volusia County MPO changed its name to the Volusia Transportation Organization (VTPO) and effective April 23, 2014, officially changed its name to the River to Sea TPO (R2CTPO).

The R2CTPO planning area boundary currently encompasses approximately 1,437 square miles including all of Volusia County and its 16 cities: Daytona Beach, Daytona Beach Shores, DeBary, DeLand, Deltona, Edgewater, Holly Hill, Lake Helen, New Smyrna Beach, Oak Hill, Orange City, Ormond Beach, Pierson, Ponce Inlet, Port Orange, and South Daytona, as well as Beverly Beach and Flagler Beach in Flagler County. Title 23 U.S.C. 134(e), 49 U.S.C. 5303(e), 23 C.F.R. 450.312, and Chapter 339.175(2)(c), Florida Statutes prescribe the minimum requirements for delineating the metropolitan planning area boundary and for apportioning the voting membership of an MPO, as well as the procedure for the development and approval of such boundary and membership.

The Federal Register Volume 77, Number 59 (March 27, 2012) identified an expanded urbanized area contiguous to the Daytona Beach – Port Orange Urbanized Area, but extending beyond the VTPO's existing metropolitan planning area boundary. The new Urbanized Area is designated as the Palm Coast – Daytona Beach – Port Orange Urbanized Area. On November 2, 2012, the Florida Department of Transportation officially notified the VTPO that it was required to adjust its metropolitan planning area boundary outward to encompass the Palm Coast – Daytona Beach – Port Orange Urbanized Area based on the 2010 census. This proposed metropolitan planning area boundary adds to the current metropolitan planning area all areas of Flagler County that are within the Palm Coast – Daytona Beach – Port Orange Urbanized Area, as well as the contiguous areas that are expected to become urbanized within the 20-year forecast period. Both the Deltona Urbanized Area and the Palm Coast – Daytona Beach – Port Orange Urbanized Area are fully contained by the proposed metropolitan planning area boundary.

### 3 LONG RANGE TRANSPORTATION PLAN OVERVIEW

The LRTP is a federal requirement that addresses future transportation needs for a minimum of twenty years. The LRTP is updated every five years to confirm the validity of the transportation plan, ensure consistency with current and forecast transportation and land use conditions and to reflect the changing public and political sentiment. The LRTP is financially constrained and includes transportation projects for upgrading the transportation infrastructure within the next twenty five years.

The River to Sea TPO uses the LRTP to 1) estimate future needs and identify improvements in the pedestrian, bicycle, transit, highway and freight movement networks, 2) guide the expenditure of transportation funds, 3) ensure new transportation improvements meet community values, 4) prioritize transportation projects, and 5) promote safe and efficient transportation services. Local and state planning officials use the LRTP to select projects for inclusion in their work programs.

The specific areas addressed by the LRTP process include:

- Public Involvement Outreach Efforts
- Data Assembly and Review (Local and Regional)
- Goals, Objectives, Policies and Performance Measures
- Travel Demand Forecasting
- Financial Revenue Projections
- 25-Year Transportation System Needs Plan
- 25-Year Transportation System Cost Feasible Plan, including Interim Years
- Documentation

The success of the LRTP is dependent upon a successful public outreach effort that fosters community interaction. The process is guided by public sentiment about long term transportation investments to achieve the best possible mobility connections. The result is expanded public awareness of and support for the resulting LRTP.



## **4 PUBLIC OUTREACH PERFORMANCE MEASURES**

The Federal Highway Administration (FHWA) and the FDOT require the River to Sea TPO to continuously evaluate the effectiveness of public participation activities. By continuously evaluating these activities, it is possible to identify ineffective programs and subsequently discontinue those efforts. In addition, it is possible to identify successful or low cost strategies that should be utilized in the future. The following performance measures provide a standard framework with which to measure public involvement techniques that are consistent with the TPO's adopted public participation plan.

A successful outreach program will include activities that involve representatives from all walks of the community. Measures of success will include both quantitative and qualitative components, such as those listed below.

- Efforts should target input from at least 750 persons.
- Outreach should include activities in all geographic areas of the county.
- Input should be collected from various demographic groups:
  - ❖ Age
  - ❖ Income
  - ❖ Ethnicity
  - ❖ Education level
  - ❖ Interest groups (business, environmental, disabled community, etc.)
- Participants should rate the quality and/or effectiveness of their experience

## 5 PUBLIC INVOLVEMENT OUTREACH TOOLS

The PIP outlines the strategies to involve the general public in the development of the 2040 LRTP, including outreach and involvement of traditionally under-represented populations. In addition, the involvement of community stakeholders, agency representatives, planners, engineers, and other knowledgeable professionals in both the private and public sectors, will ensure that valuable input is obtained, key issues are identified, and solutions are generated, with the ultimate goal of achieving community consensus for the adopted LRTP.

Public outreach efforts include a need to both educate and solicit input from various members of the public. Since these efforts target people with various levels of education, interest, background, goals and desires, socio-economic status and available time, multiple public involvement outreach tools will be used for preparation of the River to Sea 2040 LRTP. Implementation procedures generally fall within the following categories:

- TPO Board and its committees
- Public Hearings
- Public Outreach Events and Workshops
- LRTP Website
- LRTP Social Media
- LRTP Newsletters, Brochures, Flyers
- Strategic Media Outreach (i.e. newspapers, television and/or radio)
- TPO's Public Involvement Contact List
- *Tell the TPO* Survey (independent work effort by the TPO)
- Press Releases

The primary tools anticipated to be used are described in the following sections.

### 5.1 Long Range Transportation Plan (LRTP) Website

The Internet is a major forum for the dissemination and exchange of information. The advantages of creating a project website are plentiful: it's relatively inexpensive to set up and maintain; it is simple to keep the information current; it can be entertaining to use; it can be accessed at any time; it provides an opportunity for people to offer input as well as become informed; and it can be updated and accessed routinely so that people can stay involved and informed throughout the development process.

The primary limitation of a project website is that the internet serves only those with access to it. This means that groups with lower utilization rates such as the elderly or low income may be less likely to access the planning process using this resource.

A website domain name, [www.R2CMobility2040.org](http://www.R2CMobility2040.org) was chosen by the LRTP Subcommittee. The website will be updated regularly throughout the long range planning process. The nature and extent of the information included on the website will include the following general information:

- A welcome message from the Executive Director explaining the challenges faced by our community and encouraging people to become involved in shaping our plan for the future;
- An overview of the long range transportation planning process and an explanation of the approaches used by the River to Sea TPO to develop a plan;
- Information about the geographical area included in the plan and the cities that lie within its jurisdiction;
- Links to the River to Sea TPO organizational website, to surveys used to collect public input, to various local government sites within the TPO planning area and relevant FDOT sites;
- A project schedule and calendar of events showing key activities, public meetings and River to Sea TPO committee meetings; and
- Various documents and transportation projects being considered and LRTP Subcommittee meeting agendas and summaries.

## **5.2 Make Your Mark in 2040 Interactive Planning Sessions**

Make Your Mark in 2040 (f.k.a. *Strings & Ribbons*) is an interactive planning activity that reinforces the concepts of long range planning, limited financial resources, compromising and building consensus. Preparation for the game involves limited education about transportation funding, project costs, transportation networks and planning strategies and impacted populations.

Participants are gathered into groups of six to eight members and provided with a map of the county and a limited amount of funding for projects. The group must select the projects that can be built with the available funding. The Make Your Mark activity requires participants to reach consensus regarding transportation projects and enlightens them on funding decisions that elected officials are faced with every budget cycle. Make Your Mark acts to break down social and economic barriers and encourages cooperation and collaboration among its participants.

The Make Your Mark in 2040 exercise has several advantages over more traditional public involvement. First, participants make a conscious decision which types of transportation are most important to receive funding. Second, each participant in the game experiences the constraints of budgeting as they begin to realize there are more needs than available funding. Third, people are confronted with the reality of dealing with population growth and land use development. Fourth, there are no specific skills, education or experience needed for participants to convey their opinions about transportation options and planning in their community. The small groupings and interactive nature of the exercise also encourages and empowers individuals to have a voice and offer ideas and opinions that would not typically occur in a traditional public forum. The activity also produces outcomes that serve as an influential driver of the plan's direction and project development.

Challenges associated with the activity include the required time commitment which may not appeal to some people; significant personnel resources required; and the number limited number of participants that can be accommodated in each event.

### **5.3 Tell the TPO Survey**

The *Tell the TPO* survey is an independent work effort by the River to Sea TPO to ascertain the transportation wants, needs, problems, preferences and suggestions from residents, business community, elected officials and other stakeholders. The results can be used to inform the LRTP work effort and serve as a baseline of data that the TPO can compare against future surveying efforts in order to ascertain changing needs of the region. The survey results also add to the TPO database of interested residents, businesses, and visitors that can be utilized for public outreach efforts.

Although the exchange of information in a survey is limited, the opportunity to reach a greater number of people is very beneficial. The electronic format is also easy to tabulate and results can provide direction that assists in decision-making. Drawbacks include the brief nature of surveys which make this tool less informative for participants and less interactive than other strategies. Even so, the survey responses augment other outreach efforts and reasonable conclusions can be drawn where responses are clear.

### **5.4 Public Meetings**

A series of public meetings will be scheduled throughout the planning area to inform citizens of the plan and to take comment on the transportation projects identified for the future. Notification for each of meeting will include a press release, notice on the LRTP project website as well as the Volusia TPO website, and e-mail notice to the River to Sea TPO Board and advisory committee members.

In addition, a public hearing will be tentatively scheduled as part of the River to Sea TPO Board meeting held on Tuesday, September 23, 2015. At this meeting, the TPO Board will vote to adopt the 2040 Long Range Transportation Plan.

### **5.5 River to Sea TPO Board and Committee Coordination**

A significant amount of public notice, representation and review for the development of the 2040 LRTP will also occur as part of the regular meetings of the River to Sea TPO Board, standing committees and the LRTP Subcommittee. These groups include citizen representatives, elected officials, local government staff and special interest advocates representing all portions of the planning area. In addition, public notice will be provided for each of the meetings in accordance with Florida Statutes and the adopted by-laws of the organization.

#### **5.5.1 TPO Board**



The River to Sea TPO Board membership consists of elected officials representing all local governments in the planning area, including municipal and county entities. As outlined in Florida Statutes, TPO Board is comprised of 19 voting members. In addition, there are six non-voting members that represent the Technical Coordinating Committee (TCC), Citizen's Advisory Committee (CAC), Bicycle/Pedestrian Advisory Committee (BPAC), FDOT District 5 Office and Volusia and Flagler County School Boards. These members are appointed primarily to provide information and recommendations to the River to Sea TPO Board.

The River to Sea TPO Board meets on the fourth Wednesday of every month at 9:00 a.m. and all meetings are properly noticed and open to the public. An agenda is developed in advance of the meetings and, in accordance with the adopted Bylaws of the TPO, each meeting agenda includes an opportunity for "citizens to comment or be heard on any matter pertinent to the urban transportation planning process." With respect to the 2040 LRTP, each agenda will describe the activities being considered or presented and provide an opportunity for citizens to address the TPO Board regarding any of these activities.

#### **5.5.2 Technical Coordinating Committee**

The Technical Coordinating Committee (TCC) membership consists of professional transportation planning and engineering staff as appointed by each of the TPO Board members. The TCC uses their professional education and experience to review transportation related studies and information and provide recommendations, as a committee, to the TPO board.

The TCC meets on the third Tuesday of every month at 3:00 p.m. and all meetings are properly noticed and open to the public. As with the TPO Board, an agenda is developed in advance of each meeting and there is an opportunity for citizens to provide comment or be heard on any matter pertinent to the business of the organization. With respect to the development of the 2040 LRTP, each agenda will describe the activities being considered or presented and provide an opportunity for citizens to address the committee regarding these activities.

#### **5.5.3 Citizens' Advisory Committee**

The Citizens' Advisory Committee (CAC) membership consists of representatives from the general public as appointed by each of the TPO Board members. The CAC use their knowledge of the local community, special interests and experiences to review transportation related studies and information and provide citizen based recommendations, as a committee, to the TPO board.

The CAC meets on the third Tuesday of every month at 1:30 p.m. and all meetings are properly noticed and open to the public. As with the TPO Board, an agenda is developed in advance of each meeting and there is an opportunity for other citizens to provide comment or be heard on any matter pertinent to the business of the organization. With respect to the development

of the 2040 LRTP, each agenda will describe the activities being considered or presented and provide an opportunity for citizens to address the committee regarding these activities.

#### **5.5.4 Bicycle and Pedestrian Advisory Committee**

The Bicycle and Pedestrian Advisory Committee (BPAC) membership consists of representatives from the public who serve as advocates for walking, cycling and other non-motorized activities. Members of the BPAC are appointed by each of the TPO Board members and use their knowledge of the local community, special interests and experiences to review transportation related studies and information and provide recommendations, as a committee, to the TPO board.

The BPAC meets on the second Wednesday of every month at 3:00 p.m. and all meetings are properly noticed and open to the public. As with the TPO Board, an agenda is developed in advance of each meeting and there is an opportunity for other citizens to provide comment or be heard on any matter pertinent to the business of the organization. With respect to the development of the 2040 LRTP, each agenda will describe the activities being considered or presented and provide an opportunity for citizens to address the committee regarding these activities.

#### **5.5.5 Transportation Disadvantaged Local Coordinating Board**

The Transportation Disadvantaged Local Coordinating Board (TDLCB) is comprised of various agency and non-agency members as outlined in Florida Statute 427 and Rule 41-2.012 of the Florida Administrative Code to represent persons who are transportation disadvantaged. Committee representatives are recommended from specific agencies or volunteers (for non-agency positions) and all are approved by the TPO Board. The purpose of the coordinating board is to assist the TPO in identifying local service needs and to provide information, advice, and direction to the Community Transportation Coordinator (CTC) regarding the coordination of services to be provided to the transportation disadvantaged. As such, the TDLCB provides a forum for the needs of the transportation disadvantaged to be heard. The TDLCB is recognized as an advisory body to the Commission for the Transportation Disadvantaged in its service area.

The TDLCB meets on the second Wednesday of every other month at 11:00 a.m. in the Volusia County Mobility Management Center at Votran and forwards all comments and recommendations to the TPO Board. All TDLCB meetings are properly noticed and are open to the public. In addition, each meeting agenda includes an opportunity for press and citizen comments. This provides time for citizens to address the TDLCB regarding an unlimited range of transportation disadvantaged related topics.

#### **5.5.6 LRTP-Specific Committees**

In addition to the above-referenced committees, a 2040 LRTP Subcommittee, Land-Use Subcommittee and Oversight Committee have been formed to guide the process of developing the 2040 LRTP. The management of these committees is essential to ensure a timely and coordinated process throughout the course of the 2040 LRTP.

These committees will meet as needed to review and provide input as data and information is being developed, and at key milestones. The TPO Project Manager will schedule the meetings to be held at the River to Sea TPO offices, unless circumstances require an alternate location. An attendance roster will be maintained and meeting summaries will be distributed to members prior to the following meeting. The 2040 LRTP Subcommittee, Land-Use Subcommittee and Oversight Committee each have key roles in the development of the plan and maintaining progress toward key milestones. The makeup of each committee has been established and their duties are described below:

- i) The **Oversight Committee** is composed of two (2) TPO Board members, the Chairman of the TCC, the Chairman of the CAC, the Chairman of the BPAC, Executive Director of the TPO (advisory), the TPO Project Manager (advisory), and a representative from the FDOT District 5 (advisory). The Oversight Committee will primarily be responsible for ensuring completion of key milestones required for plan development. Membership is included in Table 1. The committee will meet quarterly as needed.
- ii) The **2040 LRTP Subcommittee** is composed of volunteers appointed from the TCC, CAC and BPAC committees plus at least one member from the Transportation Disadvantaged Local Coordinating Board (TDLCB). Diverse representation helped to ensure that each aspect of the plan was developed with regard for a broad cross-section of the community. Membership is included in Table 2.

The LRTP Subcommittee will review the technical data involved in the development of the plan. Activities of the LRTP Subcommittee include establishing a project schedule, developing a vision and goals for the plan, reviewing technical documents and data, etc. The subcommittee was established in March 2014 and will typically meet on the fourth Friday of every month at 9:00 a.m. All meetings will be properly noticed and open to the public. As with other TPO committees, an agenda will be developed in advance of each meeting with an opportunity for citizens to provide comment or be heard on any matter pertinent to the business of the subcommittee.

- iii) The **Land-Use Subcommittee** consists of land-use planners and developers representing both the public and private sectors. The Land-Use Subcommittee will be involved in developing future year socio-economic data sets as well as growth and development alternatives.

**Table 1 – Membership of Oversight Committee**

<b>Name</b>	<b>Representing:</b>
Robert Gilliland	TPO Board
Marshall Shupe	TPO Board
Clay Ervin	TCC Chairman
Gilles Blais	CAC Chairman
Robert Storke	BPAC Chairman
Jean Parlow	TPO Staff (advisory)
Lois Bollenback	TPO Staff (advisory)
Claudia Calzaretta	FDOT (advisory)

**Table 2 – Membership of LRTP Subcommittee**

<b>Name</b>	<b>Representing:</b>
Patricia Antol	TDLCB
Mary Ellen Ottman	TDLCB
Bobby Ball	CAC
Bliss Jamison	CAC
Judy Craig	CAC
Gilles Blais	CAC
Jon Cheney	TCC
Tom Harowski	TCC
Heather Blanck	TCC
Colleen Nicoulin	BPAC
Bill Pouzar	BPAC
Wendy Hickey	BPAC



## **5.6 Brochure**

A brochure or handout will be developed to notify the public that the River to Sea TPO is engaged in a public outreach effort to seek input in developing the 2040 LRTP. The brochure will include information about the TPO, long range planning, transportation and land-use, the Make Your Mark activity, survey and website.

A brochure offers the advantage of literature that can be printed and distributed provides a greater opportunity to reach a broad audience. Brochures can also be tailored for certain audiences (i.e. Spanish language) and are low cost. It is difficult, however, to develop a brochure that is informative yet brief. Literature is a form of one-way communication that does not yield any direct input but only encourages additional activity.

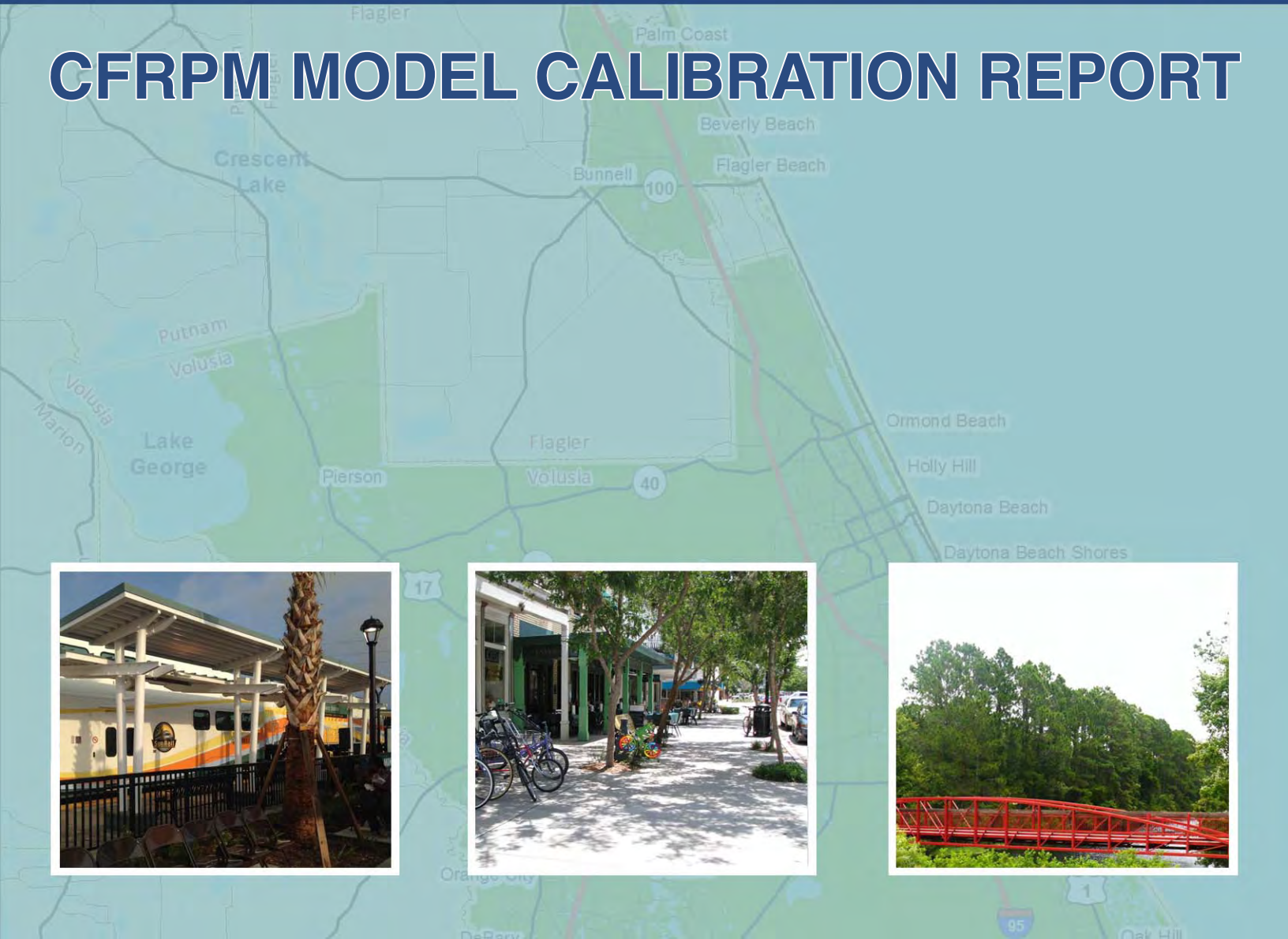
## **5.7 Miscellaneous Exposure**

In addition to the efforts above, it is anticipated that there will be news media coverage and articles to promote the long range planning efforts of the River to Sea TPO. Presentations and work sessions will also be conducted with interested groups as warranted, such as VCARD, FCARD, ISB Coalition, chambers of commerce, business associations, transportation providers, freight interests, education and health organizations, professional associations, and state, regional, and local government agencies.



## Appendix F

# CFRPM MODEL CALIBRATION REPORT



**Central Florida Regional Planning Model (CFRPM)  
Version 6.0**

**Technical Memorandum:  
Year 2010 Model Calibration and Validation**

**Prepared for:**

**FLORIDA DEPARTMENT OF TRANSPORTATION  
DISTRICT 5**



**Prepared by:**

**Leftwich Consulting Engineers, Inc.**

**October 16, 2014**



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## 1.0 Introduction

The Florida Department of Transportation (FDOT), District Five has contracted with Leftwich Consulting Engineers, Inc. to develop an update to the Central Florida Regional Planning Model (CFRPM) to year 2010 conditions. The model has both a Daily and Time-of-Day (TOD) travel demand component. The CFRPM Version 6.0 Daily Model is to be used in the development of the year 2040 Long Range Transportation Plans for the area Metropolitan Planning Organizations (MPOs) and Transportation Planning Organizations (TPOs) within FDOT District Five.

Specifically, the scope of services for the development of the new CFRPM v6.0 lists several new features to be added to the CFRPM Version 5.0 model (e.g. Household Income, Lifestyle Trip Generation for all counties, a Truck model, incorporating all of Polk County, and Time-of day assignments) to obtain a calibrated model to year 2010 conditions. The methodology builds on the existing CFRPM Version 5.0 Daily and CFRPM version 5.5 TOD models to develop the CFRPM Version 6.0 Model. The efforts have been divided into several tasks (across three Task Work orders) as outlined below:

- Incorporate Polk County into the CFRPM v6.0 Model
  - Development of Highway Network Expansion for Polk County
  - Update GIS Boundary File to include Polk County
  - Update External Trips/Special Attractors to include Polk County
- Lifestyle Model Enhancements
- Income Model Enhancements
- Time-of-Day Model Enhancements – Four Time periods (e.g. Morning, 6:30 AM to 9:00 AM, Midday, 9:00 AM to 3:30 PM, Afternoon, 3:30 PM to 6:30 PM, and Night 6:30 PM to 6:30 AM)
- Truck Model Enhancements – Light Trucks (FHWA classifications 5-7) and Heavy Trucks (FHWA classifications 8-13)
- Model Calibration and Validation

This Technical Memorandum entitled “Year 2010 Model Calibration and Validation” provides a summary of the results of the highway and transit model validation for the CFRPM Version 6.0 Model.

### 1.1 Task Overview

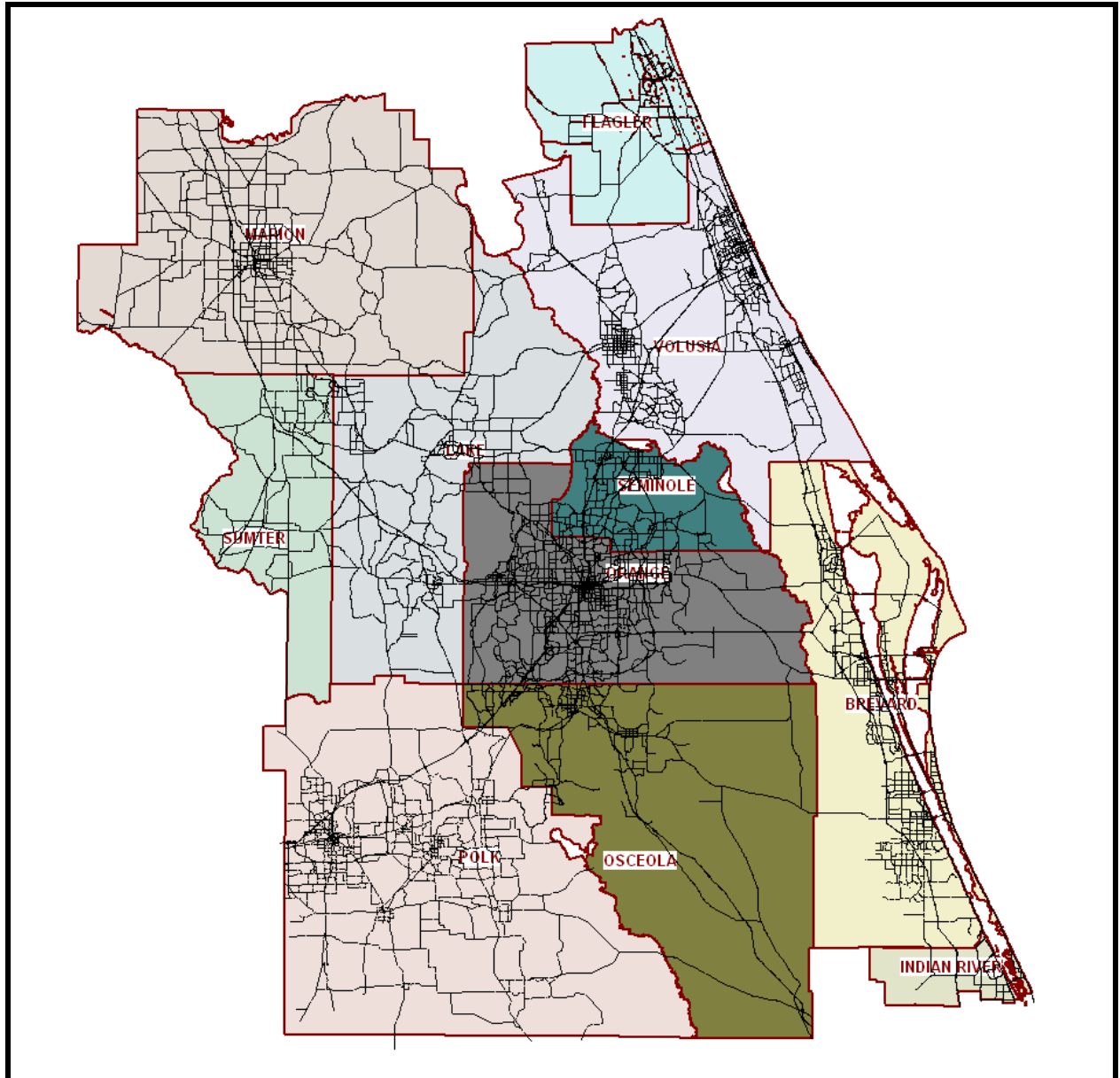
As mentioned above, the documentation of the results of the highway model calibration and validation are presented as part of this task. The following information is presented as part of the model calibration and validation efforts:

- Supporting Project Documentation
- Trip Generation Enhancements
- Daily and TOD Model Description
- External Stations
- Highway Network
- Model Distribution
- Highway and Transit Assignment

### 1.2 CFRPM Study Area

The CFRPM Model is a distinct model in that it encompasses a large area comprised of eleven (11) counties with varying densities and travel characteristics.

The model includes the nine counties represented by FDOT's District Five as follows: Brevard, Flagler, Lake, Marion, Orange, Osceola, Seminole, Sumter, and Volusia Counties. In addition, the CFRPM v6.0 Model contains all of Polk County and part of Indian River County for purposes of interactions with these areas. **Figure 1-1** shows the CFRPM 6.0 study area. Orange, Seminole, and Osceola are part of the Orlando Urban Area and are distinctly urbanized in both their population and their employment character. Volusia and Lake County are nearby counties with many of its residents traveling to the Orlando area for work. The other counties are more rural in character and thus have more inter-county travel patterns.



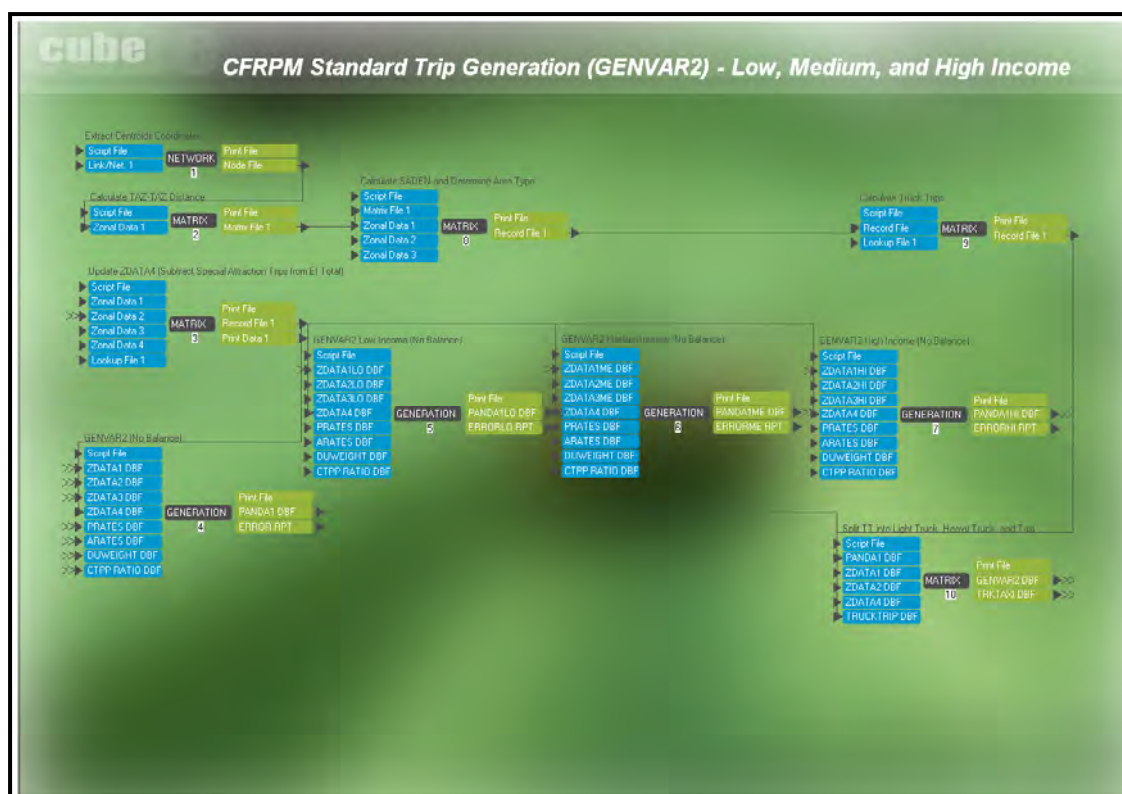
**Figure 1-1. Geographic Area Covered by CFRPM Model Version 6.0**



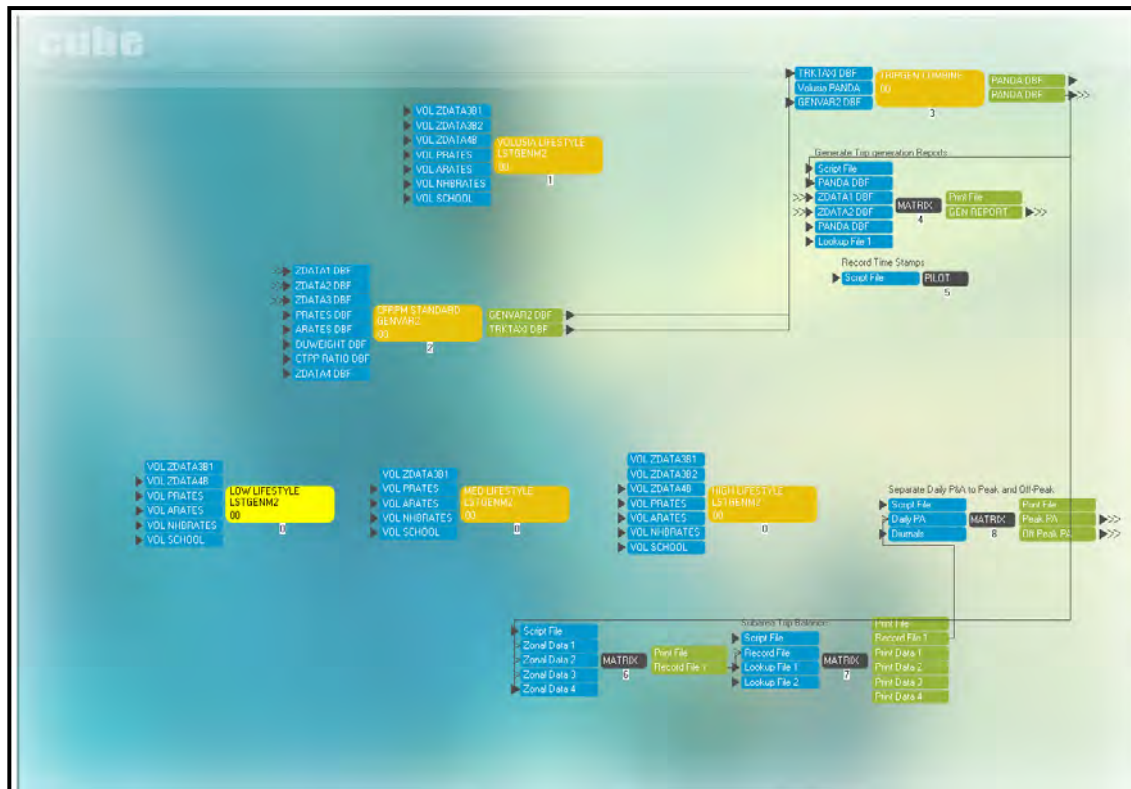
### 1.3 Trip Generation – Lifestyle and by Standard Low, Medium, and High Income

The original concept was to convert CFRPM 5.0 from only using Lifestyle Trip Generation procedure for Volusia County to all Counties in the model. At the same time, households were to be divided into Low, Medium, and High Income for the Standard Trip Generation and then the percentages of Household with and without workers, with and without children, and auto ownership (STP 60 file) was to be applied to end up with Lifestyle trip generation (Productions and Attractions by Trip Purpose) by Low, medium, and High income groups. The CUBE/voyager scripting was done as shown in **Figure 1-2** and testing was performed (under Task Work order 14) with preliminary files (refer to Technical Memorandum: CFRPM “Income” Model testing Summary<sup>8</sup>, for details). Under Task Work Order 17, a “Lifestyle” model framework was developed as a guide to incorporate into the CFRPM 6.0 Model (refer to Technical Memorandum: CFRPM “Lifestyle” Model Framework<sup>7</sup>, for more details).

During the actual validation work for CFRPM 6.0, the scripting was done to incorporate both the Income and Lifestyle procedures as shown in **Figure 1-3**. As testing was being done, it showed that the scripts were making the correct computations and that a set of Productions and Attractions (Ps and As) were available to combine with the Lifestyle generated Ps&As.



**Figure 1-2. Early testing version of Standard Trip Generation Process broken down into Low, Medium, and High Income Productions and Attractions**



**Figure 1-3. Early testing version of Lifestyle Trip Generation Process broken down into Low, Medium, and High Income Productions and Attractions**

However, during the CFRPM 6.0 validation work, using the actual 2010 input files created (Zdata1 and Zdata2 for all counties, split into Low, Medium, and High, based for Zdata2 (Attraction Variables) on percentages provided by FDOT from work done (under a separate contract) with DTS and for Zdata1 on percentages from parcel level land values, the model was not providing good results. In fact, using the Lifestyle Trip Generation process for all Counties did provide good results, but not when combined with the "Income" procedure. The decision was made to not use the "Income" model procedure and just maintain the "Lifestyle" model for the Trip Generation Module.



## 2.0 General Project Overview

This Technical Memorandum “Year 2010 Model Calibration and Validation” adds to a series of technical memoranda, which have been prepared for the CFRPM Version 2005 5.5 TOD Model development work. The individual technical memorandum (TM) provides documentation of specific components of the Model development. The following serves as an overview the technical memoranda and the role they each represent in the calibration and validation of the Version 5.5 Model, the base for the CFRPM v6.0 model:

- TM “Literature Review of TOD Models”: Documents the current TOD modeling efforts within Florida and nationally.
- TM “Development of TOD Framework”: Presents the model flowchart and framework for the CFRPM Version 5.5 TOD Model, along with an analysis of future data requirements.
- TM “Update CFRPM Model Structure and CUBE/Voyager Scripts”: Revises scripts and related programs to implement the recommended TOD model framework, along with assessment of quad versus dual-quad processor optimizations.
- TM “Development of Peak Periods”: Details the efforts involved in the selection and identification of the TOD periods to be used for the Version 5.5 Model.
- TM “Review Traffic Count Data in Current 2005 CFRPM Model Network”: Provides a review of traffic count locations in the CFRPM Version 5.0 base year 2005 model network along with adjustments made based on electronically collected TOD counts.
- TM “Surrogate Traffic Count Data for 2005 CFRPM Model”: Summarizes the procedures used to develop base year 2005 TOD counts for locations where only daily counts are available.
- TM “Model Calibration and Validation Performance Measures and Standards”: Outlines the standards which will be evaluated for the TOD model validation results.

In summary, the above documents served as the basis for the development of the CFRPM v6.0 Year 2010 Daily and TOD models and provided general direction and recommendation on validation performance evaluations and criteria utilized.

In addition to the technical memoranda, several other deliverables have also been prepared for the CFRPM Version 5.5 Model. These items relate to the development of travel corridor observed speeds and the development of BPR curves. Updated Friction Factor curves and other model input files have also been derived. Detailed descriptions of the additional components are provided as part of this Technical Memorandum “Model Calibration and Validation.”

## 3.0 Description of TOD Model

As indicated previously, several technical memoranda were prepared to develop the set-up for the CFRPM Version 5.5 TOD Model. Technical Memoranda “Development of TOD Framework” and “Update CFRPM Model Structure and CUBE/Voyager Scripts” provide a description of the scripts used by the Model for each of the FSUTMS modules. **Figure 3-1** shows the CFRPM Version 5.5 Model Flow Chart. The Technical Memorandum “Update CFRPM Model Structure and CUBE/Voyager Scripts” provides detailed review of the flow charts for individual Modules. As indicated in the figure, separate pathways are taken for the Daily model assignment and the TOD peak period assignments. A combined 24-hour model is also achieved by adding the individual time period highway assignments (four) into one.



### 3.1 TOD Peak Periods

The peak periods were developed in the Technical Memorandum “Literature Review of TOD Models.” The derivation of the four time periods was based on a thorough review of local traffic counts and the Trip Purposes from the 2008 National Household Travel Survey (NHTS) and their daily distribution patterns, along with LYNX transit service. Numerous Project Team meetings and correspondences were conducted in order to establish the time periods which best represents the CFRPM Version 5.5 TOD Model. Ultimately, the Orange County traffic count and the NHTS HBW distribution patterns were selected as the premise for the TOD periods, with verifications from the LYNX transit services and the CFRPM Version 5.5 travel speed corridor studies (including those associated with I-4). The following summarizes the TOD periods utilized by the CFRPM Version 5.5 Model:

- AM Period from 6:30 a.m. to 9:00 a.m.
- MD Period from 9:00 a.m. to 3:30 p.m.
- PM Period from 3:30 p.m. to 6:30 p.m.
- NT Period from 6:30 p.m. to 6:30 a.m.

The AM and PM Peak Periods are further referred to as the Peak Period and the MD and NT Periods are referred to as the Off-Peak Period. The Peak and Off-Peak Periods are utilized in the TOD Model through the Mode Choice Module, with the individual Periods used in the Highway Assignments. The same time periods have been utilized for CFRPM 6.0.

### 3.2 Model Trip Purposes

Version 6.0 Model includes the same Trip Purposes as Version 5.0 Model. They are as follows:

- Home-Based Work (HBW)
- Home-Based Shopping (HBSHOP)
- Home-Based Social Recreation (HBSOCREC)
- Home-Based Other (HBO)
- Non-Home Based (NHB)

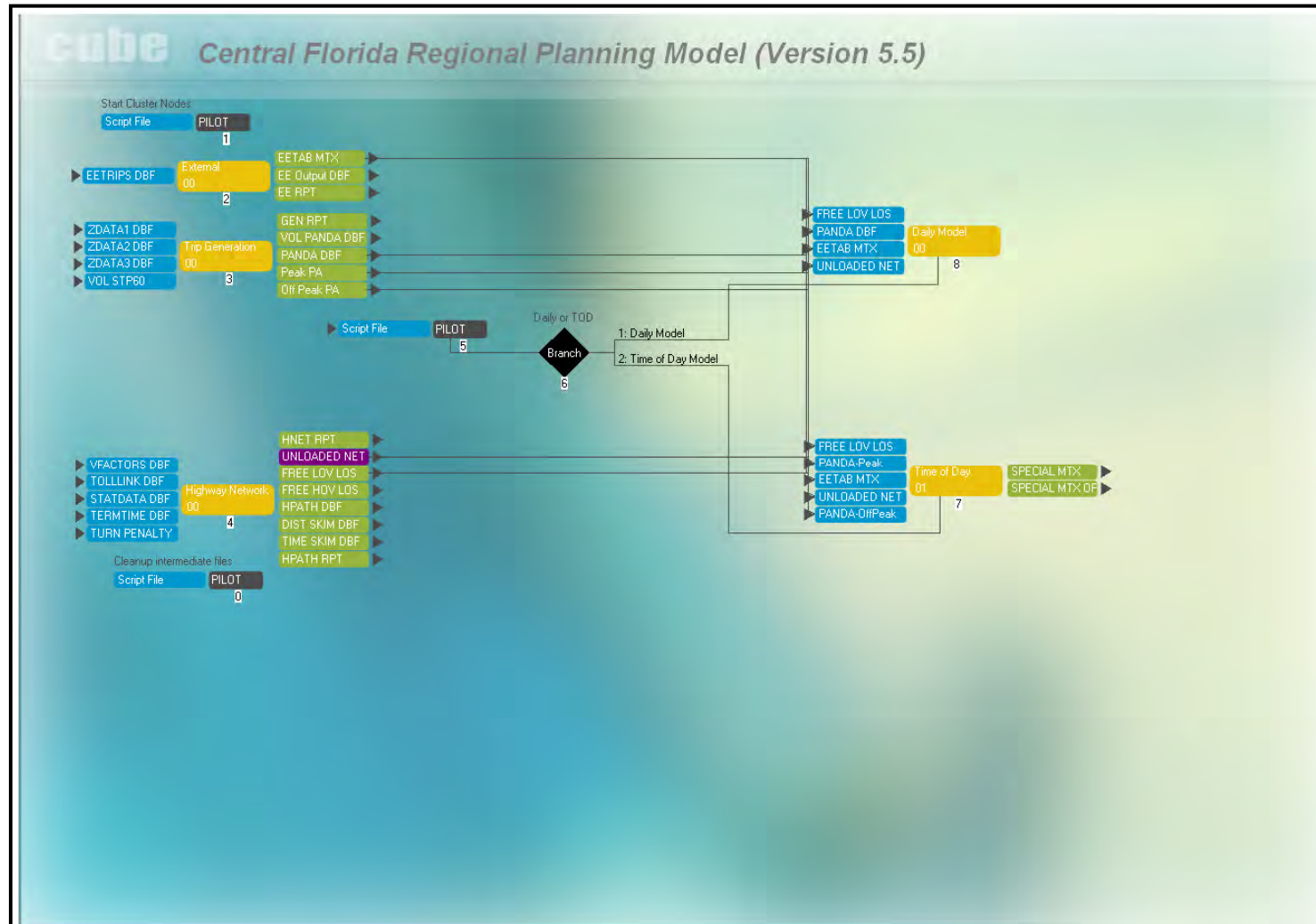


Figure 3-1. FSUTMS Model Flow Process used by CFRPM Version 5.5

- External-External (EE)
- External-Internal (EI)
- Light Truck Internal-Internal (LTII)
- Heavy Truck Internal-Internal (HTII)
- Taxi (Taxi)
- Airport Tourist (APT-T)
- Airport Resident (APT-R)
- Airport External-Internal (APT-EI)
- Orange County Convention Center Tourist (OCCC-T)
- Orange County Convention Center Resident (OCCC-R)
- Orange County Convention Center External-Internal (OCCC-EI)
- Universal Orlando Tourist (UNI-T)
- Universal Orlando Resident (UNI-R)
- Universal Orlando External-Internal (UNI-EI)
- SeaWorld Tourist (SEW-T)
- SeaWorld Resident (SEW-R)
- SeaWorld External-Internal (SEW-EI)
- Disney Tourist (DIS-T)
- Disney Resident (DIS-R)
- Disney External-Internal (DIS-EI)
- Kennedy Space Center Tourist (KSC-T)
- Kennedy Space Center (KSC-R)
- Kennedy Space Center External-Internal (KSC-EI)
- Port Canaveral Tourist (DIS-T)
- Port Canaveral Resident (DIS-R)
- Port Canaveral External-Internal (DIS-EI)

## 4.0 External Stations

External Stations exist in a model to represent the traffic entering and exiting the model boundary. There are two types of external trips, namely External-Internal and External-External trips. The External-Internal trips are those trips that start outside of a model network, entering at the roadway that crosses the model boundary, and are destined within the model network. External-External trips, on the other hand, are those trips that start outside and end outside of a model network, and as such are trips passing through the network without stopping inside.

Modeling external trips is accomplished in the External Module. Locations where external trips enter and exit the model network are referred to as external stations. A few changes were made to the external station locations to accommodate all of Polk County. The external stations are numbered sequentially in a clockwise direction starting at A1A in Indian River and ending at A1A in St. Johns County. **Table 4-1** provides a summary of the External Station locations and includes the County and roadway descriptions associated with each station. The External trips are summarized in **Table 4-2** and the External-External trip interchanges are presented in **Table 4-3**.

## 5.0 Highway Network

The Highway Network Module contains the information relating to the roadways simulated by the Model. Each roadway is represented by a set of nodes and links, which represent its physical location. Various attributes then describes the characteristics of the individual roadway

**Table 4-1**  
**CFRPM Version 6.0 External Station Locations**

TAZ	LOCATION	County
5351	A1A	Indian River County Line
5352	US 1	Indian River County Line
5353	58th Ave	Indian River County Line
5354	66th Ave	Indian River County Line
5355	82nd Ave	Indian River County Line
5356	I-95	Indian River County Line
5357	CR 512	Indian River County Line
5358	SR 60	Indian River County Line
5359	SR 91	Indian River County Line
5360	US 441	Indian River County Line
5361	CR 64	Polk County Line
5362	US 27	Polk County Line
5363	US 17	Polk County Line
5364	SR 37	Polk County Line
5365	CR 674	Polk County Line
5366	CR 540	Polk County Line
5367	CR 676	Polk County Line
5368	SR 50	Polk County Line
5369	OLD MUL	Polk County Line
5370	Medulla Rd	Polk County Line
5371	Fancy Farm Rd	Polk County Line
5372	Rice Rd	Polk County Line
5373	US 92	Polk County Line
5374	I-4	Polk County Line
5375	CR 582	Polk County Line
5376	Deeson Rd	Polk County Line
5377	US 98	Polk County Line
5378	SR 50	Hernando County Line
5379	US 301	Hernando County Line
5380	I-75	Hernando County Line
5381	CR 476	Hernando County Line
5382	CR 48	Citrus County Line
5383	SR 44	Citrus County Line
5384	SR 200	Citrus County Line
5385	US 41	Citrus County Line
5386	SR 40	Levy County Line
5387	CR 336	Levy County Line
5388	US 41	Levy County Line
5389	SR 464	Levy County Line
5390	CR 326	Levy County Line
5391	US 27	Levy County Line
5392	CR 318	Levy County Line
5393	CR 320	Levy County Line
5394	CR 329	Alachua County Line
5395	I-75	Alachua County Line
5396	US 441	Alachua County Line
5397	US 301	Alachua County Line
5398	SR 21	Putnam County Line
5399	CR 315	Putnam County Line
5400	SR 19	Putnam County Line
5401	US 17	Putnam County Line
5402	SR 20	Putnam County Line
5403	CR 13	St. Johns County Line
5404	I-95	St. Johns County Line
5405	US 1	St. Johns County Line
5406	A1A	St. Johns County Line



**Table 4-2  
CFRPM Version 6.0 Daily External Trip Summary**

TAZ	County	Location	EI/IE Trips	EE Trips	Total Trips	EI/IE Trips %	EE Trips %
5351	Indian River County Line	A1A	8,157	110	8,267	99	1
5352	Indian River County Line	US 1	6,820	1,796	8,616	79	21
5353	Indian River County Line	58th Ave	6,897	78	6,975	99	1
5354	Indian River County Line	66th Ave	7,785	86	7,871	99	1
5355	Indian River County Line	82nd Ave	298	0	298	100	0
5356	Indian River County Line	I-95	25,875	9,080	34,955	74	26
5357	Indian River County Line	CR 512	4000	0	4000	100	0
5358	Indian River County Line	SR 60	3,395	1,552	4,947	69	31
5359	Indian River County Line	SR 91	19,775	6,544	26,319	75	25
5360	Indian River County Line	US 441	1,456	1,034	2,490	58	42
5361	Polk County Line	CR 64	399	0	399	100	0
5362	Polk County Line	US 27	19,325	0	19,325	100	0
5363	Polk County Line	US 17	8,567	0	8,567	100	0
5364	Polk County Line	SR 37	2,286	0	2,286	100	0
5365	Polk County Line	CR 674	1,689	0	1,689	100	0
5366	Polk County Line	CR 540	6,171	0	6,171	100	0
5367	Polk County Line	CR 676	1,097	0	1,097	100	0
5368	Polk County Line	SR 50	16,431	0	16,431	100	0
5369	Polk County Line	OLD MUL	772	0	772	100	0
5370	Polk County Line	Medulla Rd	2,278	0	2,278	100	0
5371	Polk County Line	Fancy Farm Rd	82	0	82	100	0
5372	Polk County Line	Rice Rd	167	0	167	100	0
5373	Polk County Line	US 92	8,257	0	8,257	100	0
5374	Polk County Line	I-4	112,484	500	112,984	100	0
5375	Polk County Line	CR 582	5,324	0	5,324	100	0
5376	Polk County Line	Deeson Rd	7,073	0	7,073	100	0
5377	Polk County Line	US 98	7,933	0	7,933	100	0
5378	Hernando County Line	SR 50	5,094	182	5,276	97	3
5379	Hernando County Line	US 301	3,580	0	3,580	100	0
5380	Hernando County Line	I-75	22172	16132	38,304	58	42
5381	Hernando County Line	CR 476	2,583	0	2,583	100	0
5382	Citrus County Line	CR 48	4,750	0	4,750	100	0
5383	Citrus County Line	SR 44	8,791	0	8,791	100	0
5384	Citrus County Line	SR 200	13,132	1424	14,556	90	10
5385	Citrus County Line	US 41	18,337	1606	19,943	92	8
5386	Levy County Line	SR 40	1954	1134	3088	63	37
5387	Levy County Line	CR 336	1,111	562	1,673	66	34
5388	Levy County Line	US 41	2,842	1,356	4,198	68	32
5389	Levy County Line	SR 464	1,187	0	1,187	100	0
5390	Levy County Line	CR 326	1,384	0	1,384	100	0
5391	Levy County Line	US 27	4949	1033	5,982	83	17
5392	Levy County Line	CR 318	2,658	508	3,166	84	16
5393	Levy County Line	CR 320	406	0	406	100	0
5394	Alachua County Line	CR 329	1,148	37	1,185	97	3
5395	Alachua County Line	I-75	26,309	22993	49,302	53	47
5396	Alachua County Line	US 441	7,323	624	7,947	92	8
5397	Alachua County Line	US 301	6,194	5,038	11,232	55	45
5398	Putnam County Line	SR 21	617	438	1,055	58	42
5399	Putnam County Line	CR 315	1,304	438	1,742	75	25
5400	Putnam County Line	SR 19	2,149	142	2,291	94	6
5401	Putnam County Line	US 17	4,097	138	4,235	97	3
5402	Putnam County Line	SR 20	3,977	10	3,987	100	0
5403	St. Johns County Line	CR 13	3,081	0	3,081	100	0
5404	St. Johns County Line	I-95	43,285	8,569	51,854	83	17
5405	St. Johns County Line	US 1	9,721	1,552	11,273	86	14
5406	St. Johns County Line	A1A	2,984	0	2,984	100	0
<b>Total</b>			<b>491,912</b>	<b>84,696</b>	<b>576,608</b>	<b>85</b>	<b>15</b>

### Table 4-3

[illegible]

links (e.g. area type, facility type, capacities, traffic count, and speeds). A general overview of the CFRPM Version 6.0 Model network is described here.

## 5.1 Area Types and Facility Types

In CFRPM Version 6.0 as in CFRPM 5.0, “Area Types are one-digit codes used in the model to designate the type of adjacent land use development along a roadway or corridor.” As with CFRPM 5.0, version 6.0 includes a refinement to earlier versions which had the Area Types “hard coded” for each roadway link. The refined method is based on “activity density” for each TAZ (please refer to documentation for CFRPM Version 5.0 for further detail). Five Area Types are used in the Model. Table 5-1 summarizes the CFRPM v6.0 Area Types.

**Table 5-1**  
**CFRPM Version 6.0 Description of Area Types**

Area Type	Description
1	CBD (Old AT = 1, CBD)
2	High Density (Old AT = 2, CBD Fringe)
3	Medium Density (Old AT = 4, Outlying Business District)
4	Low Density (Old AT = 3, Residential)
5	Very Low Density (Old AT= 5, Rural)

The Facility Types utilized by the CFRPM Version 6.0 are based on adopted FDOT facility classifications and local comprehensive plans and relate to facilities designated as freeways, arterials, collectors, and centroid connectors. **Table 5-2** summaries the different facility types employed by the CFRPM Model. The Version 6.0 model network is consistent with the latest version of the CFRPM Version 5.0 Model.

**Table 5-3** illustrates the number of links by Area Type and Facility Type. **Table 5-4** provides the Total System Miles by Facility Type and Area Type. **Table 5-5** provides the Total Lane Miles by Facility Type and Area Type.

## 5.2 Capacities

**Table 5-6** provides the Average Capacities for individual links according to Area Type and Facility Type. CFRPM Version 6.0 uses the capacity lookup tables that have been updated based on the FDOT 2009 Level of Service (LOS) Handbook provided by FDOT Central Office modeling staff. The speeds coded in the network are based on actual Posted Speeds for each facility.

## 5.3 Traffic Counts

A critical component to the model calibration and validation is the identification of base year traffic counts. One of the parameters for evaluating the model results is the model’s ability to reasonably replicate in-field traffic counts for the base year. Since the CFRPM Version 6.0 Model has a TOD component, a separate task was assigned to develop traffic counts by TOD Peak Periods. Specifically, electronic versions of the counts were obtained from the various area agencies in 15-minute format, and when necessary 1-hour or daily formats. TOD counts by direction were coded into the 2010 network for the AM, MD, PM, and NT periods. **Table 5-7** summarizes the TOD traffic count statistics (e.g. percentage of links with counts) for CFRPM version 6.0 Model. **Table 5-8** shows the Daily Percentages of Links with Counts.

**Table 5-2**  
**CFRPM Version 6.0 Description of Facility Types**

Facility Type	Description
<b>1X -- Freeways and Expressways</b>	
11	Urban Freeway Group 1 (cities of 500,000 or more)
12	Other Freeway (not in Group 1)
16	Controlled Access Expressways
17	Controlled Access Parkways
<b>2X -- Divided Arterials</b>	
21	Divided Arterial Unsignalized (55 mph)
22	Divided Arterial Unsignalized (45 mph)
23	Divided Arterial Class I
24	Divided Arterial Class II
25	Divided Arterial Class III / IV
26	Divided Signalized Arterial with High Capacity
<b>3X -- Undivided Arterials</b>	
31	Undivided Arterial Unsignalized with Turn Bays
32	Undivided Arterial Class I with Turn Bays
33	Undivided Arterial Class II with Turn Bays
34	Undivided Arterial Class III / IV with Turn Bays
35	Undivided Arterial Unsignalized without Turn Bays
36	Undivided Arterial Class I without Turn Bays
37	Undivided Arterial Class II without Turn Bays
38	Undivided Arterial Class III / IV without Turn Bays
39	Undivided Signalized Arterial with High Capacity
<b>4X--Collectors</b>	
41	Major Local Divided Roadway
42	Major Local Undivided Roadway with Turn Bays
43	Major Local Undivided Roadway without Turn Bays
44	Other Local Divided Roadway
45	Other Local Undivided Roadway with Turn Bays
46	Other Local Divided Roadway without Turn Bays
47	Low Speed Local Collector
48	Very Low Speed Local Collector
<b>5X -- Centroid Connectors</b>	
51	Basic Centroid Connector
52	External Station Centroid Connector
53	Dummy Zone Centroid Connector
54	Dummy Link for Dummy Centroid
<b>6X -- One-Way Facilities</b>	
61	One-Way Facilities Unsignalized
62	One-Way Facilities Class I
63	One-Way Facilities Class II
64	One-Way Facilities Class III / IV
66	Frontage Road Class I
68	Frontage Road Class III / IV
<b>7X--Ramps</b>	
71	FreewayOn/OffRamp
72	Freeway On /Off Loop Ramp
73	OtherOn/OffRamp
74	Other On /Off Loop Ramp
75	Freeway-to-Freeway Ramp
<b>8X -- HOV Facilities</b>	
81	Freeway Group 1 HOV Lane (Barrier Separated)
82	Other Freeway HOV Lane (Barrier Separated)
83	Freeway Group 1 HOV Lane (Non-Barrier Separated)
84	Other Freeway HOV Lane (Non-Barrier Separated)
85	Non Freeway HOV Lane
86	AM & PM Peak HOV Ramp
87	AM Peak Only HOV Ramp
88	PM Peak Only HOV Ramp
89	AllDayHOVRamp
<b>9X -- Toll Facilities</b>	
91	Toll Facility-- Florida Turnpike
92	Toll Facility -- SR 408
93	Toll Facility -- SR 417
94	Toll Facility -- SR 429
95	Toll Facility--SR 528
96	Toll Facility--Osceola Parkway
97	Acceleration Lanes - Toll Facility
98	Deceleration Lanes - Toll Facility



**Table 5-3**  
**CFRPM Version 6.0 Number of Links by Area Types and by Facility Type**

Number of Links by Area Type and Facility Type						
Facility Type	CBD	High Density	Medium Density	Low Density	Very Low Density	Total
Freeways and Expressways	29	35	146	219	187	616
Divided Arterials	121	186	1,822	2,154	1,181	5,464
Undivided Arterials	102	78	478	1,048	1,040	2,746
Collectors	327	301	2,198	4,161	3,319	10,306
One-Way Facilities	89	32	64	145	63	393
Ramps	49	89	358	414	277	1,187
HOV Facilities	0	0	0	0	0	0
Toll Facilities	12	69	377	449	284	1,191
<b>Total</b>	<b>729</b>	<b>790</b>	<b>5,443</b>	<b>8,590</b>	<b>6,351</b>	<b>21,903</b>

**Table 5-4**  
**CFRPM Version 6.0 Total System Miles by Facility Type and Area Type**

System Miles by Facility Type and Area Type						
Facility Type	CBD	High Density	Medium Density	Low Density	Very Low Density	Total
Freeways and Expressways	30	29	118	225	293	694
Divided Arterials	28	52	492	615	476	1,663
Undivided Arterials	31	32	182	417	629	1,291
Collectors	88	92	720	1,502	1,658	4,060
One-Way Facilities	8	6	14	28	9	65
Ramps	7	25	95	109	57	293
HOV Facilities	0	0	0	0	0	0
Toll Facilities	6	19	148	232	245	651
<b>Total</b>	<b>196</b>	<b>255</b>	<b>1,769</b>	<b>3,129</b>	<b>3,367</b>	<b>8,716</b>

**Table 5-5**  
**CFRPM Version 6.0 Total Lane Miles by Facility Type and Area Type**

Lane Miles by Facility Type and Area Type						
Facility Type	CBD	High Density	Medium Density	Low Density	Very Low Density	Total
Freeways and Expressways	81	80	363	600	727	1,851
Divided Arterials	110	219	2,216	2,541	1,925	7,011
Undivided Arterials	71	76	416	908	1,319	2,790
Collectors	190	209	1,693	3,251	3,428	8,772
One-Way Facilities	23	14	32	58	16	143
Ramps	8	30	119	122	70	348
HOV Facilities	0	0	0	0	0	0
Toll Facilities	10	44	343	477	474	1,347
<b>Total</b>	<b>493</b>	<b>672</b>	<b>5,181</b>	<b>7,958</b>	<b>7,959</b>	<b>22,261</b>

**Table 5-6**  
**CFRPM Version 6.0 Highway Average Capacity by Area Type and Facility Type**

Average Capacity by Area Type and Facility Type							
FT	Description	CBD	High Density	Medium Density	Low Density	Very Low Density	Average
11	Urban Freeway Group 1 (cities of 500,000 or more)	2048	2048	2048	2048	1833	2005
12	Other Freeway (not in Group 1)	2048	2048	2048	2048	1833	2005
16	Controlled Access Expressways	2048	2048	2048	2048	1833	2005
17	Controlled Access Parkways	2048	2048	2048	2048	1833	2005
21	Divided Arterial Unsignalized (55 mph)	1788	1788	1788	1788	1560	1742
22	Divided Arterial Unsignalized (45 mph)	1788	1788	1788	1788	1560	1742
23	Divided Arterial Class I	968	968	968	968	795	933
24	Divided Arterial Class II	933	933	933	933	795	905
25	Divided Arterial Class III / IV	850	850	850	850	795	839
26	Divided Signalized Arterial with High Capacity	850	850	850	850	795	839
31	Undivided Arterial Unsignalized with Turn Bays	1703	1703	1703	1703	1480	1658
32	Undivided Arterial Class I with Turn Bays	920	920	920	920	1330	1002
33	Undivided Arterial Class II with Turn Bays	888	888	888	888	755	861
34	Undivided Arterial Class III/IV with Turn Bays	808	808	808	808	755	797
35	Undivided Arterial Unsignalized without Turn Bays	808	1345	1345	1345	1180	1205
36	Undivided Arterial Class I without Turn Bays	730	730	730	730	1060	796
37	Undivided Arterial Class II without Turn Bays	703	703	703	703	598	682
38	Undivided Arterial Class III/IV without Turn Bays	640	640	640	640	598	632
39	Undivided Signalized Arterial with High Capacity	640	640	640	640	598	632
41	Major Local Divided Roadway	768	838	838	838	1040	864
42	Major Local Undivided Roadway with Turn Bays	723	798	798	798	1040	831
43	Major Local Undivided Roadway without Turn Bays	555	608	608	608	1040	684
44	Other Local Divided Roadway	605	605	605	605	1040	692
45	Other Local Undivided Roadway with Turn Bays	575	575	575	575	1020	664
46	Other Local Divided Roadway without Turn Bays	458	458	458	458	1010	568
47	Low Speed Local Collector	458	458	458	458	1010	568
48	Very Low Speed Local Collector	458	458	458	458	1010	568
61	One-Way Facilities Unsignalized	770	1618	1618	1618	1348	1394
62	One-Way Facilities Class I	873	873	873	873	718	842
63	One-Way Facilities Class II	843	843	843	843	718	818
64	One-Way Facilities Class III / IV	770	770	770	770	718	760
66	Frontage Road Class I	873	873	873	873	718	842
68	Frontage Road Class III / IV	770	853	853	770	718	793
71	Freeway On /Off Ramp	1618	1618	1618	1618	1803	1655
72	Freeway On/Off Loop Ramp	770	843	873	843	1803	1026
73	Other On/Off Ramp	1618	1618	1618	1618	1803	1655
74	Other On/Off Loop Ramp	770	843	873	843	1803	1026
75	Freeway-to-Freeway Ramp	1618	1618	1618	1618	1803	1655
91	Toll Facility - Turnpike	2048	2048	2048	2048	1833	2005
92	Toll Facility - SR 408	2048	2048	2048	2048	1833	2005
93	Toll Facility - SR 417	2048	2048	2048	2048	1833	2005
94	Toll Facility - SR 429	1788	1788	1788	1788	1560	1742
95	Toll Facility - SR 528	1703	1703	1703	1703	1480	1658
96	Toll Facility - Osceola Parkway	1703	1703	1703	1703	1480	1658
97	Acceleration Lanes - Toll Facility	1618	1618	1618	1618	1803	1655
98	Deceleration Lanes - Toll Facility	1618	1618	1618	1618	1803	1655
<b>Average</b>		<b>1167</b>	<b>1206</b>	<b>1207</b>	<b>1204</b>	<b>1256</b>	<b>1208</b>

**Table 5-7**  
**CFRPM Version 6.0 Percentage of Links with TOD Counts**

TOD Percentage of Links with Counts						
Facility Type	CBD	High Density	Medium Density	Low Density	Very Low Density	Total
Freeway	51.70	28.60	29.50	33.80	27.30	<b>31.30</b>
Divided Arterial	20.70	25.80	34.10	27.60	19.70	<b>27.90</b>
Undivided Arterial	14.70	25.60	26.80	18.10	10.70	<b>16.90</b>
Collector	2.10	3.70	12.60	7.10	3.00	<b>6.70</b>
One Way Facilities	13.50	6.30	34.40	23.40	17.50	<b>20.60</b>
Ramps	16.30	16.90	15.60	12.30	10.80	<b>13.50</b>
Toll Facilities	8.30	10.10	15.90	15.40	9.90	<b>13.90</b>
<b>Average</b>	<b>11.40</b>	<b>14.30</b>	<b>22.20</b>	<b>15.30</b>	<b>8.90</b>	<b>15.00</b>

**Table 5-8**  
**CFRPM Version 6.0 Percentage of Links with Daily Counts**

24 HR Percentage of Links with Counts						
Facility Type	CBD	High Density	Medium Density	Low Density	Very Low Density	Total
Freeway	51.70	28.60	33.60	34.20	27.80	<b>32.60</b>
Divided Arterial	21.50	26.90	34.90	28.70	20.70	<b>28.80</b>
Undivided Arterial	19.60	30.80	28.70	21.50	15.30	<b>20.60</b>
Collector	2.40	4.30	16.70	10.20	5.20	<b>9.60</b>
One Way Facilities	14.60	6.30	35.90	24.80	20.60	<b>22.10</b>
Ramps	30.60	20.20	18.70	18.10	17.70	<b>18.90</b>
Toll Facilities	8.30	10.10	16.40	15.40	10.60	<b>14.20</b>
<b>Average</b>	<b>13.40</b>	<b>15.70</b>	<b>24.60</b>	<b>17.70</b>	<b>11.30</b>	<b>17.40</b>

## 5.4 Screenlines

The Screenlines are set to study the traffic patterns associated with traffic crossing a particular corridor and are usually located along major roadway facilities associated with the network. Cutlines, on the other hand, reflect a specific location where the travel patterns are reviewed for general reference. **Figure 5-1** illustrates the Screenlines and Cutlines utilized by the CFRPM 6.0 Model and are presented with respect to the link count locations (the original CFRPM Version 5.0 Model screenline and cutline figures are included in **Appendix A**). No adjustments have been made from the Version 5.0 Model in terms of the general location of screenlines/cutlines for CFRPM 6.0.

## 6.0 Model Distribution

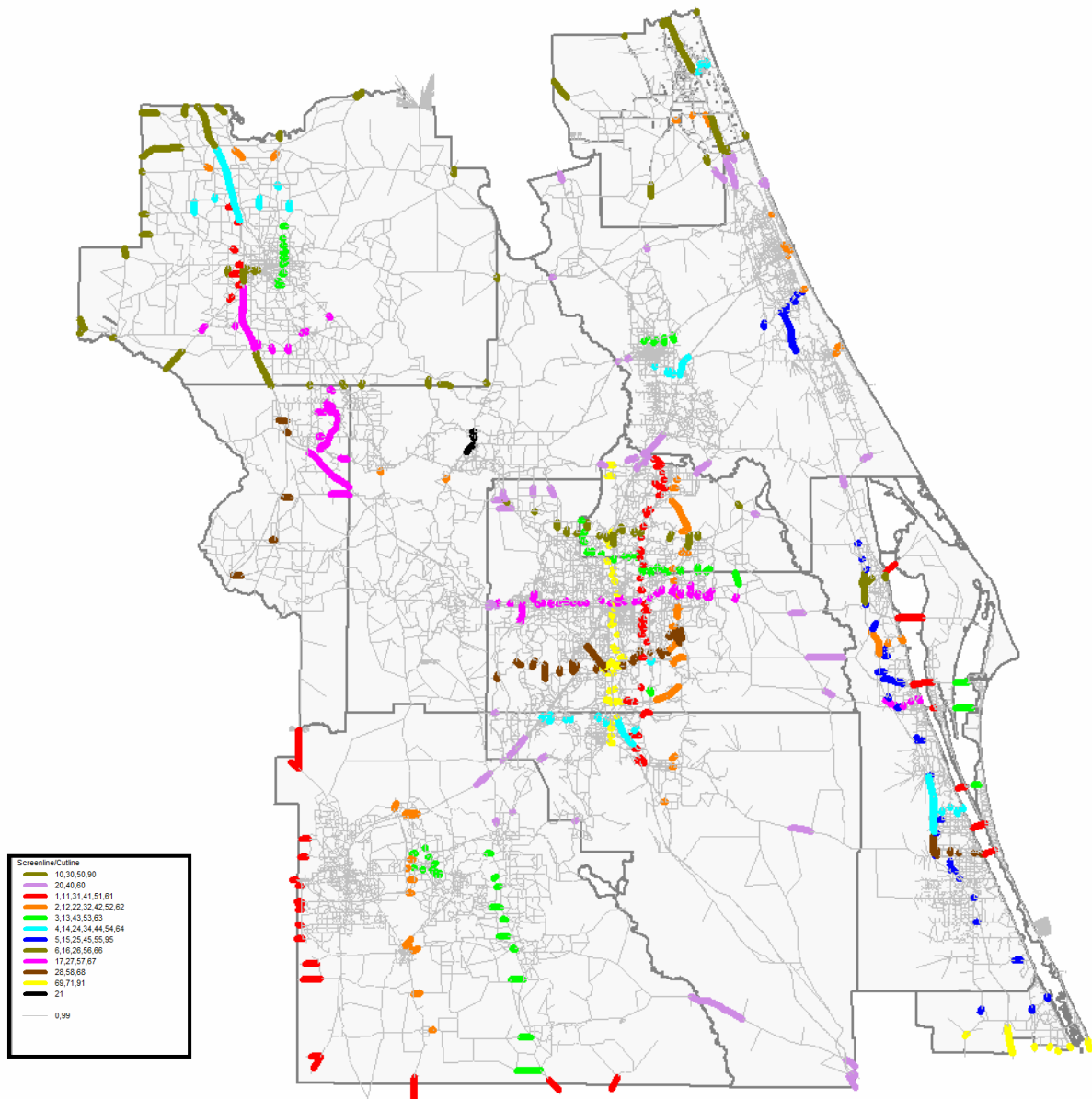
The following provides an overview of the Diurnal Factors, the Sub-Area Balancing, the Friction Factors, and the resulting average trip lengths associated with the CFRPM Version 6.0 Model.

### 6.1 Diurnal Factors

The Trip Distribution Module takes the trip productions and attractions generated in the Trip Generation Module and distributes the trips. For the CFRPM Version 5.5 TOD Model, the trip productions and attractions are based on Diurnal factors that serve to categorize daily trips into TOD period trips. For purposes of the trip distribution, the Diurnal-derived productions and attractions are initially distributed according to Peak and Off-Peak periods and do not distinguish between the individual time periods (e.g. AM, PM, MD, NT). The individual time period components of the Diurnal Factors are utilized during the Traffic Assignment Module.



**Figure 5-1**  
**CFRPM Version 6.0 Screenline/Cutline Locations**



**Table 6-1** summarizes the Diurnal Factors applied for each of the Purpose Types (HBW, HBNW, and NHB) according to Peak and Off-Peak Fractions (F\_PK, F\_OP) and individual period to corresponding Peak or Off-Peak Fractions (F\_AM, F\_MID, F\_PM, F\_NT), along with PA Factors for each TOD period (PA\_AMP, PA\_MID, PA\_PMP, PA\_NT). The trip purposes HBSHOP, HBSOSCREC, and HBO only need Peak and Off-Peak diurnal percentages because the factors for the HBNW (sum of three purposes) are used for the fractions and PA factors. The factors were derived from the 2008 National Household Travel Survey (NHTS) and take into account the travel characteristics reported by the surveyed households. The presented Original Diurnal Factors are the factors therefore derived directly from the NHTS survey. Minor refinements were made to the factors to ensure that the proper number of trips was distributed amongst the four time periods. This was achieved by comparing the ratio of the modeled traffic assignment to the observed traffic counts, in other words TOD model volume-to-count ratios, along with the TOD Vehicle-Mile-Traveled (VMT) volume-to-count ratios. The Final Validated Diurnal Factors represents the factors used by the CFRPM Version 6.0 TOD Model to achieve time-of-day trips.

Final Validated Diurnal Factors are also presented for Special Attractions, namely the Orlando Airport (MCO), the Orange County Convention Center (OCC), Universal Studios (UNI), SeaWorld (SEW), Disney (DIS), I-Drive (IDR), Kennedy Space Center (KSC), and Port Canaveral (PTC). The Diurnal Factors for the Special Attractions are based on data developed by HNTB for this project. The Special Attractions Diurnal Factors are used to designate the Special Attractions File from daily generations into TOD generations (see **Appendix B** for Special Attractions File).

Diurnal Factors for Taxi were set at 0.6 for F\_PK and at 0.4 for F\_OP. For EI trips, the factors were set at 0.45 for F\_PK and at 0.55 for F\_OP. LOV, HOV, LTRK, HTRK are used at the external stations to define Peak Period vehicle occupancy and truck traffic components.

## 6.2 Sub-Area Balancing

As CFRPM v 5.0, CFRPM Version 6.0 also utilizes Sub-Area Balancing for distribution of trips within the region. For HBW trips, the sub-areas are broken into the following four (4) subareas that are related to the HBW travel patterns of the region:

- Subarea 1: Seminole, Orange, Osceola, South Lake, West Volusia, and Polk
- Subarea 2: Flagler and East Volusia
- Subarea 3: Brevard and Indian River
- Subarea 4: Marion, Sumter and North Lake

For the HBNW trips, the following five (5) subareas are applied:

- Subarea 1: Seminole, Orange, Osceola, and Polk
- Subarea 2: Lake and Sumter
- Subarea 3: Brevard and Indian River
- Subarea 4: Marion
- Subarea 5: Volusia and Flagler

During the development of the CFRPM v5.5 model, a detailed assessment of the sub-areas was performed by reviewing the 2008 NHTS travel logs. The longitude and latitude pairs for each the beginning and the end of each trip was converted into equivalent Origin and Destinations (e.g. Traffic Analysis Zones), with distinction for the number of NHTS-weighted trips corresponding with each trip. **Figure 6-1** illustrates the HBW travel pairs and **Figure 6-2** illustrates the HBNW travel pairs, with distinction for the number of NHTS-weighted trips

corresponding with each trip. Included in the figures are the Version 5.5 Sub-Area Balancing subareas that have been colored to distinguish between the different categories.

**Table 6-1  
CFRPM Version 6.0 Diurnal Factors**

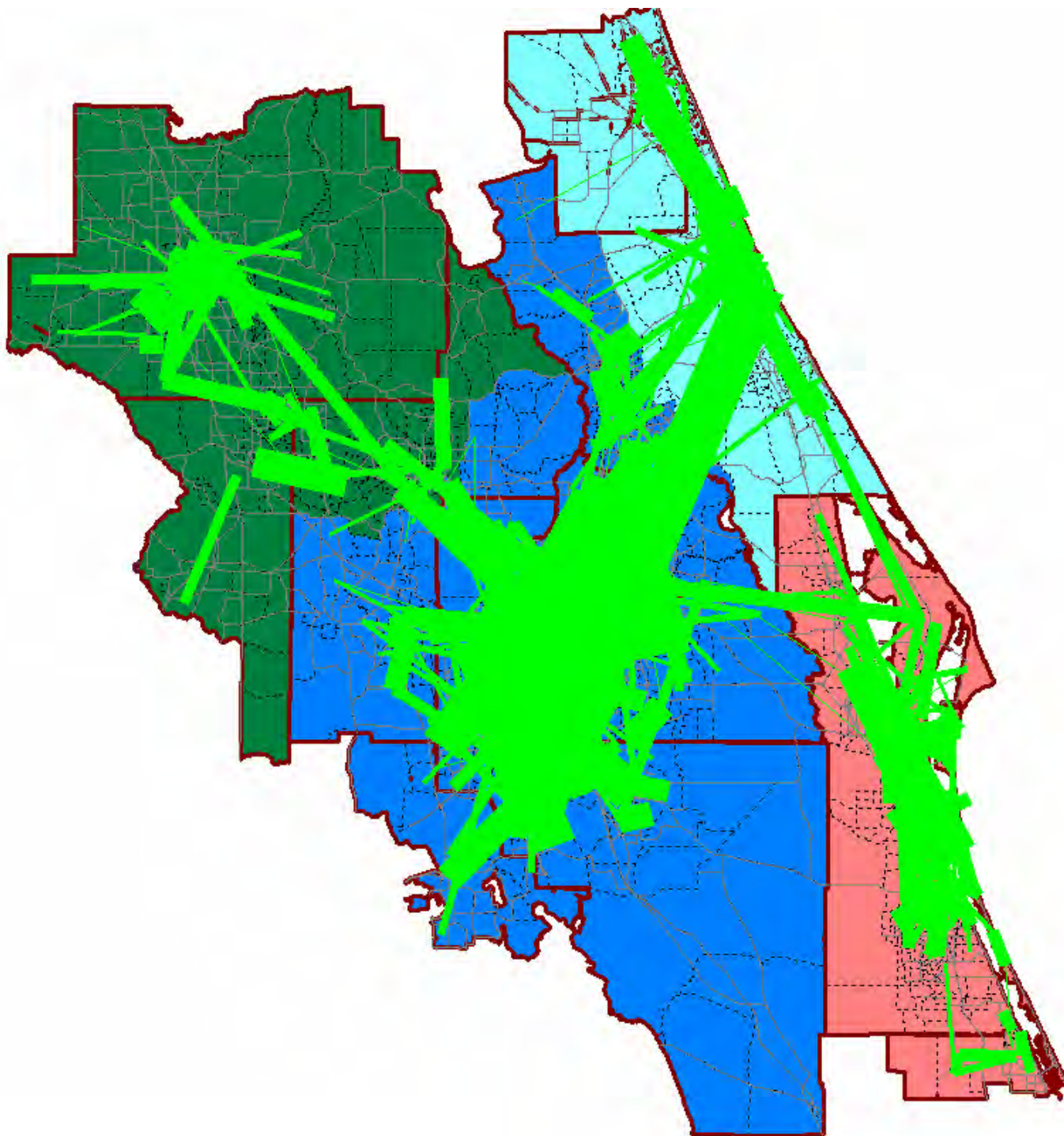
**Original 2008 NHTS Factors**

PURPOSE	PERIOD	F_PK	F_OP	F_AMP	F_MID	F_PMP	F_NT	PA_AMP	PA_MID	PA_PMP	PA_NT
HBW	PK			0.566		0.434		0.979		0.076	
HBW	OP				0.496		0.504		0.556		0.436
HBW	ALL	0.574	0.426								
HBNW	PK			0.375		0.625		0.754		0.407	
HBNW	OP				0.672		0.328		0.503		0.317
HBNW	ALL	0.370	0.630								
HBSH	ALL	0.297	0.703								
HBSR	ALL	0.291	0.709								
HBO	ALL	0.476	0.524								
NHB	PK			0.316		0.684		0.500		0.500	
NHB	OP				0.857		0.143		0.500		0.500
NHB	ALL	0.321	0.679								

**Final Validated Diurnal Factors**

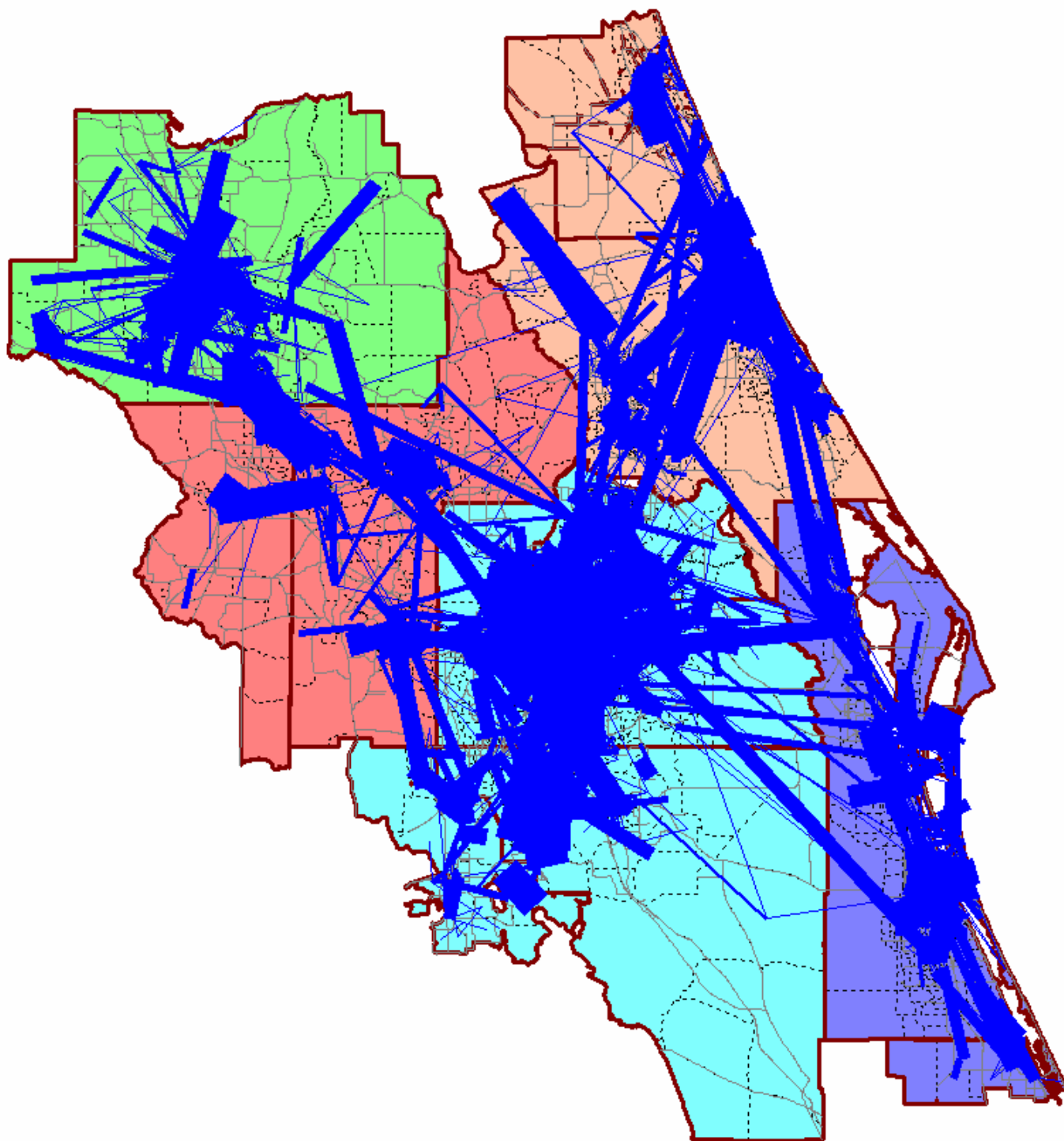
PURPOSE	PERIOD	F_PK	F_OP	F_AMP	F_MID	F_PMP	F_NT	PA_AMP	PA_MID	PA_PMP	PA_NT
HBW	PK			0.538		0.463		0.979		0.076	
HBW	OP				0.433		0.567		0.556		0.436
HBW	ALL	0.546	0.455								
HBNW	PK			0.357		0.644		0.754		0.407	
HBNW	OP				0.587		0.413		0.503		0.317
HBNW	ALL	0.352	0.649								
HBSH	ALL	0.282	0.718								
HBSR	ALL	0.277	0.724								
HBO	ALL	0.452	0.548								
NHB	PK			0.300		0.700		0.500		0.500	
NHB	OP				0.748		0.252		0.500		0.500
NHB	ALL	0.305	0.695								
Taxi	ALL	0.600	0.400								
EI	ALL	0.450	0.550								
SPEC	LOV			0.141	0.411	0.210	0.238	0.567	0.489	0.428	0.528
SPEC	HOV			0.141	0.411	0.210	0.238	0.567	0.489	0.428	0.528
SPEC	LTRK			0.172	0.466	0.191	0.172	0.567	0.489	0.428	0.528
SPEC	HTRK			0.140	0.441	0.147	0.272	0.567	0.489	0.428	0.528
MCO	ALL			0.111	0.463	0.221	0.205	0.500	0.500	0.500	0.500
OCC	ALL			0.048	0.608	0.206	0.138	0.500	0.500	0.500	0.500
UNI	ALL			0.077	0.483	0.281	0.158	0.500	0.500	0.500	0.500
SEW	ALL			0.056	0.482	0.273	0.189	0.500	0.500	0.500	0.500
DIS	ALL			0.110	0.456	0.255	0.179	0.500	0.500	0.500	0.500
IDR	ALL			0.300	0.200	0.300	0.200	0.500	0.500	0.500	0.500
KSC	ALL			0.000	0.612	0.384	0.004	0.500	0.500	0.500	0.500
PTC	ALL			0.022	0.808	0.141	0.029	0.500	0.500	0.500	0.500

**Figure 6-1**  
**CFRPM Version 5.5 Review of HBW Sub-Area Balancing Using 2008 NHTS**





**Figure 6-2**  
**CFRPM Version 5.5 Review of HBNW Sub-Area Balancing Using 2008 NHTS**



The figures show that the CFRPM Version 5.5 Sub-Area Balancing provides reasonable representation of the travel patterns within the region. The only area where a potential adjustment to the Sub-Area Balancing could be considered would be to include an additional eastern portion of Lake County with the HBW Orlando Urban Area grouping (e.g. Orange, Seminole, Osceola, South Lake, West Volusia, and Polk). No adjustment was made to the Sub-Areas, though, based on agreement by the Project Team.

### 6.3 Friction Factors

The model distribution step of the FSUTMS model chain is based on the gravity model. Essentially trip productions are balanced to trip attractions based on the weighted desirability of the attractions. Friction Factors are used in the gravity model to represent the effect of travel impedance. The 2008 NHTS travel data was reviewed for application to the CFRPM Version 5.5 TOD Model, as described below.

First Origin and Destination pairs were obtained by Trip Purpose from the NHTS data. Based on the NHTS Origin and Destination pairs, and their corresponding TAZ Production and Attractions, Friction Factor tables were developed by Trip Purpose and by Peak and Off-Peak periods. Separate Friction Factor curves were created for each for the six (6) Metropolitan Planning Organization's (MPOs) based Friction Factor sets contained in the original CFRPM Version 5.0 Model, as indicated below:

- Brevard and Indian River (previously BATS)
- Lake (previously LCTS)
- Marion (previously OATS)
- Orange, Osceola, Polk, and Seminole (previously OUATS)
- Sumter (previously CFRPM5.0 Sumter)
- Volusia and Flagler (previously VCATS)

The Friction Factor tables and corresponding curves obtained from the NHTS data is limited to 9,018 travel logs, which are then aggregated into the five (5) Trip Purposes (HBW, HBSHOP, HBSOCREC, HBO, and NHB) and into the two periods (Peak and Off-Peak). When combined with the six (6) MPO areas, there are in all 60 separate Friction Factor sets. The travel logs for the 60 sub-categories range from 5 to 584 entries, depending on the location and the individual Trip Purpose. Based on the NHTS trip purposes and trip locations, the AM Congested speed assignment was used to develop trip lengths for the Peak Origin and Destination pairs and the MD Free Flow speed assignment was used for the Off-Peak pairs. The model trip length were used because the NHTS responses were not deemed reliable. This is due to the fact that respondents do not always report accurate times and, in fact, tend to round off their trip lengths. Furthermore, terminal times are not being included in the NHTS travel survey times.

With the limited number of entries and the great variation in resulting trip lengths derived from the model for the Origin and Destination pairs, only 15 percent of the 60 Friction Factor curves could be accurately developed. In lieu of making manual adjustments to the other 85 percent, the reported NHTS trip lengths and their corresponding Peak-to-Off-Peak ratios were used, by Trip Purpose, to adjust the MPO based CFRPM Version 5.0 Friction Factors. In doing so, the original Friction Factors were established as the Off-Peak Friction Factors and the NHTS ratio of Peak-to-Off-Peak was applied to derive the Peak Friction Factors. **Table 6-2** presents the NHTS Peak-to-Off-Peak ratios, by MPO model area. The CFRPM Version 5.5 Peak and Off-Peak Friction Factor tables, along with the detailed NHTS trip length summations by MPO area and by Trip Purpose, are provided in **Appendix C**. The same friction factor files have been used for CFRPM 6.0.

**Table 6-2**  
**CFRPM Version 5.5 Referenced 2008 NHTS Trip Length Peak-to-Off-Peak Ratios**

PEAK	BATS	LAKE	MARION	OUATS	SUMTER	VCATS
HBW	21.5	31.8	17.8	30.1	39.5	23.7
HBSHOP	12.1	10.6	13.3	13.9	20.0	15.6
HBSOCREC	15.3	16.0	13.4	17.0	21.6	24.1
HBO	15.1	23.3	19.2	15.5	17.5	17.6
NHB	12.3	20.5	16.0	20.7	9.7	19.7

OFFPEAK	BATS	LAKE	MARION	OUATS	SUMTER	VCATS
HBW	18.0	26.3	19.9	26.7	21.3	22.9
HBSHOP	12.3	18.8	17.9	12.2	13.0	14.2
HBSOCREC	18.3	17.2	20.3	16.6	29.4	18.2
HBO	15.4	20.9	19.8	17.1	27.0	18.1
NHB	13.8	14.4	12.7	16.0	13.4	14.8

RATIO	BATS	LAKE	MARION	OUATS	SUMTER	VCATS
HBW	1.19	1.21	0.89	1.13	1.85	1.03
HBSHOP	0.98	0.56	0.74	1.14	1.54	1.10
HBSOCREC	0.84	0.93	0.66	1.02	0.73	1.32
HBO	0.98	1.11	0.97	0.91	0.65	0.97
NHB	0.89	1.42	1.26	1.29	0.72	1.33

## 6.4 Model Average Trip Lengths

Based on CFRPM Version 6.0 trip distribution, which uses the previously described input files as a basis for its gravity model balancing, average trip lengths were reported by the Model for each Trip Purpose. The trip lengths by Trip Purpose are presented in **Tables 6-3** and **6-4** for each the Off-Peak (Average Free Flow speeds) and the Peak (Congested speeds).

## 7.0 Highway Assignment

The results of the calibration and validation of the Model is herein presented in relation to the highway assignment statistics.

### 7.1 Validation Assignment Files

The VFACTOR and Capacity Factor files utilized by the Model are described along with their relationship to the Model's traffic assignment.

#### 7.1.1 VFACTORS File

The CFRPM Version 5.0 VFACTORS file was used as the basis for the development of a refined VFACTORS file for CFRPM 5.5 while taking into consideration observations made for the travel corridors (e.g. observed traffic speeds and volumes). The VFACTORS file is comprised of UROAD factors, BPR coefficients, and BPR exponents that are used by the model to relate volumes to delays for each of the model facility types based on a curvilinear relationship associated with the three components (e.g. BPR curves). The following illustrates the BPR curve equation:

$$S = S_f / (1 + \alpha (V/C)^\beta)$$

Where:

**S** is observed speed

**S<sub>f</sub>** is model free-flow speed

**α, β** are the coefficient and exponential parameters of the BPR curve

**C** is model capacity

**V** is observed traffic volume

As an overview, for CFRPM Version 5.5, the free-flow speed is based on a calculated equation that uses posted speeds and facility types. The model capacity is based on a look-up table, which references facility type and area type. Other components are derived based on the in-field observed data and the results of fitting the BPR curves based on the adjustment of the alpha and beta parameters. The final CFRPM 5.5 VFACTORS file was used for CFRPM 6.0.



**Table 6-3**  
**CFRPM Version 6.0 Off-Peak Average Length by Trip Purpose**

<b>Trip Purpose</b>	<b>Total Trips</b>	<b>Trip-Minutes</b>	<b>Average Minutes</b>	<b>Trip-Miles</b>	<b>Average Miles</b>
HBW	2,293,252	47,875,568	20.88	29,475,784	12.85
HBSH	1,456,719	22,847,901	15.68	13,496,561	9.27
HBSR	1,376,295	27,425,011	19.93	16,975,982	12.34
HBO	3,523,399	57,968,766	16.45	33,554,791	9.52
NHB	4,457,355	69,452,608	15.58	38,941,250	8.74
LTK	1,313,458	19,094,756	14.54	10,521,874	8.01
HTK	300,381	4,247,641	14.14	2,344,858	7.81
TAXI	14,582	209,371	14.36	113,788	7.80
IE	479,686	14,373,453	29.96	10,730,464	22.37

**Table 6-4**  
**CFRPM Version 6.0 Peak Average Trip Length by Trip Purpose**

<b>Trip Purpose</b>	<b>Total Trips</b>	<b>Trip-Minutes</b>	<b>Average Minutes</b>	<b>Trip-Miles</b>	<b>Average Miles</b>
HBW	2,293,252	66,053,517	28.80	31,376,158	13.68
HBSH	1,456,719	30,632,488	21.03	14,089,649	9.67
HBSR	1,376,295	38,177,560	27.74	18,185,659	13.21
HBO	3,523,399	76,214,003	21.63	34,993,990	9.93
NHB	4,457,355	94,247,916	21.14	41,078,060	9.22
LTK	1,313,458	25,314,110	19.27	11,062,457	8.42
HTK	300,381	5,667,444	18.87	2,451,779	8.16
TAXI	14,582	279,790	19.19	119,902	8.22
IE	479,686	16,060,732	33.48	10,896,036	22.72

The CFRPM Version 6.0 VFACTORS file (same as the CFRPM 5.5 version) is provided in **Table 7-1** and includes highlights for those facility types that were modified. Notably, the freeway Facility Types 11 and 12 were based on data gathered for the I-4 corridor. Since the travel speeds and travel volumes were not collected at the same time, a best fit was made using the data, which was available.

***UROAD Factors***

The UROAD factor component of the BPR curves is used to convert the “possible” capacity (LOS E) to a “practical” capacity (LOS C). Essentially, the volume-to-delay relationship and the UROAD factors work together. LOS C is used for the CFRPM Version 5.5 Model due to the fact that the Orlando Urban area and other areas of the region are not saturated in terms of capacity. The CFRPM uses factors ranging from 0.51 to 1.00 depending on the facility type. The same UROAD factors have been used for CFRPM 6.0.

***CONFAC Factors***

The CONFAC factors are the adjustments used during the BPR curve development to convert hourly model capacities to daily model capacities. The CFRPM Version 5.5 Model uses factors of 0.09 for Facility Types 11 and 12 and 0.10 for remaining facility types, and are consistent with the Version 5.0 Model. The same CONFAC factors have been used for CFRPM 6.0.

***BPR Coefficients and Exponents***

The BPR Coefficient represents the alpha value of the BPR curve and the BPR Exponent represents the beta value. The final BPR curve is achieved by adjusting these parameters until a fit is obtained for the curve in comparison to the corresponding data points for congested to uncongested speed and volume to capacity. **Table 7-1** includes the individual facility type BPR Coefficient and Exponent values. The same BPR coefficients and exponents have been used for CFRPM 6.0.

**7.1.2 Capacity Factors**

Traditionally, Capacity factors are contained in the FSUTMS Model to convert hourly model capacities into daily capacities. For purposes of this TOD Model, the Capacity factors represent the proportioning of the peak hour capacities to capacities associated with each individual Peak Period (e.g. AM, MD, PM, and NT). For the CFRPM Version 5.5 Model and also used for CFRPM 6.0, the capacity factors are named respectively the AMCAPFAC, MDCAPFAC, PMCAPFAC, and NTCAPFAC factors and are included in the “Key” area of CUBE/Voyager catalog. **Table 7-2** presents the Model TOD Capacity Factors.

**Table 7-1**  
**CFRPM Version 6.0 Adjusted VFACTOR File**

Facility Type	UROAD Factor	CONFAC Factor	BPR Coefficient	BPR Exponent	Facility Type	UROAD Factor	CONFAC Factor	BPR Coefficient	BPR Exponent
10	0.68000	0.10000	0.15000	6.50000	55	1.00000	0.10000	0.15000	4.50000
11	0.68000	0.09000	0.75000	8.50000	56	1.00000	0.10000	0.15000	4.50000
12	0.68000	0.09000	0.75000	8.50000	57	1.00000	0.10000	0.15000	4.50000
13	1.00000	0.10000	0.15000	6.50000	58	1.00000	0.10000	0.15000	4.50000
14	1.00000	0.10000	0.15000	6.50000	59	1.00000	0.10000	0.15000	4.50000
15	0.68000	0.10000	0.15000	6.50000	60	0.96000	0.10000	0.15000	4.50000
16	0.68000	0.10000	0.15000	6.50000	61	0.68000	0.10000	0.15000	4.50000
17	0.68000	0.10000	0.15000	6.50000	62	0.81000	0.10000	0.15000	4.50000
18	1.00000	0.10000	0.15000	6.50000	63	0.95000	0.10000	0.15000	4.50000
19	0.68000	0.10000	0.15000	6.50000	64	0.96000	0.10000	0.15000	4.50000
20	0.92000	0.10000	0.15000	5.50000	65	0.68000	0.10000	0.15000	4.50000
21	0.73000	0.10000	0.15000	8.50000	66	0.81000	0.10000	0.15000	4.50000
22	0.73000	0.10000	0.75000	4.50000	67	0.95000	0.10000	0.15000	4.50000
23	0.81000	0.10000	0.75000	4.50000	68	0.96000	0.10000	0.15000	4.50000
24	0.95000	0.10000	0.75000	4.50000	69	1.00000	0.10000	0.15000	4.50000
25	0.96000	0.10000	0.15000	8.50000	70	0.68000	0.10000	0.15000	6.50000
26	0.81000	0.10000	0.15000	8.50000	71	0.51000	0.10000	0.15000	6.50000
27	1.00000	0.10000	0.15000	5.50000	72	0.92000	0.10000	0.15000	6.50000
28	1.00000	0.10000	0.15000	5.50000	73	0.51000	0.10000	0.15000	6.50000
29	1.00000	0.10000	0.15000	5.50000	74	0.92000	0.10000	0.15000	6.50000
30	0.92000	0.10000	0.15000	4.50000	75	0.68000	0.09000	0.15000	6.50000
31	0.68000	0.10000	0.15000	8.50000	76	0.92000	0.10000	0.15000	6.50000
32	0.81000	0.10000	0.15000	8.50000	77	0.51000	0.10000	0.15000	6.50000
33	0.95000	0.10000	0.75000	4.50000	78	0.92000	0.10000	0.15000	6.50000
34	0.88000	0.10000	0.15000	4.50000	79	0.68000	0.09000	0.15000	6.50000
35	0.68000	0.10000	0.15000	4.50000	80	0.68000	0.10000	0.30000	8.50000
36	0.81000	0.10000	0.75000	4.50000	81	0.68000	0.10000	0.30000	8.50000
37	0.95000	0.10000	0.15000	4.50000	82	0.68000	0.10000	0.30000	8.50000
38	0.96000	0.10000	0.15000	4.50000	83	0.68000	0.10000	0.30000	8.50000
39	0.81000	0.10000	0.15000	4.50000	84	0.68000	0.10000	0.30000	8.50000
40	0.86000	0.10000	0.15000	4.50000	85	0.68000	0.10000	0.30000	8.50000
41	0.92000	0.10000	0.15000	8.50000	86	0.68000	0.10000	0.30000	8.50000
42	0.92000	0.10000	0.75000	8.50000	87	0.68000	0.10000	0.30000	8.50000
43	0.92000	0.10000	0.15000	8.50000	88	0.68000	0.10000	0.30000	8.50000
44	0.86000	0.10000	0.15000	4.50000	89	0.68000	0.10000	0.30000	8.50000
45	0.86000	0.10000	0.15000	4.50000	90	0.68000	0.10000	0.15000	6.50000
46	0.86000	0.10000	0.75000	4.50000	91	0.75000	0.10000	0.15000	3.00000
47	0.86000	0.10000	0.15000	4.50000	92	0.68000	0.09000	0.15000	6.50000
48	0.86000	0.10000	0.15000	4.50000	93	0.68000	0.09000	0.15000	6.50000
49	1.00000	0.10000	0.15000	4.50000	94	0.68000	0.09000	0.15000	6.50000
50	1.00000	0.10000	0.15000	4.50000	95	0.68000	0.09000	0.15000	6.50000
51	1.00000	0.10000	0.15000	4.50000	96	0.68000	0.10000	0.15000	5.50000
52	1.00000	0.10000	0.15000	4.50000	97	0.51000	0.10000	0.15000	6.50000
53	1.00000	0.10000	0.15000	4.50000	98	0.51000	0.10000	0.15000	6.50000
54	1.00000	0.10000	0.15000	4.50000	99	1.00000	0.10000	0.15000	6.50000

Modified for v5.5.

**Table 7-2**  
**CFRPM Version 6.0 Hourly-to-TOD Capacity Factors**

Catalog Key Name	Factor
AMCAPFAC	2.5
MDCAPFAC	6.0
PMCAPFAC	3.0
NTCAPFAC	10.0

## 7.2 General Validation Results

FDOT has established guidelines to be achieved for daily model highway assignments. The Traffic Assignment Accuracy Levels are defined in **Table 7-3** and serve as the general guidelines for evaluating the CFRPM Version 6.0 Model, with specific model standards having been developed for the TOD period evaluations.

**Table 7-3**  
**FDOT Traditional Daily Traffic Assignment Accuracy Levels**

Validation Check	Scale of Computation	Level of Accuracy
Assigned VMT/Count VMT	Area	± 5%
Assigned VHT/Count VHT	Area	± 5%
Volume-Count Ratio	Screenlines	± 10% (> 50,000 VPD) ± 20% (< 50,000 VPD)
Volume-Count Ratio	Cutlines	± 10% (> 50,000 VPD) ± 20% (< 50,000 VPD)
Assigned VMT/Count VMT	Facility Type, Area Type, No. of Lanes	± 15% (> 100,000 VPD) ± 25% (< 100,000 VPD)
Assigned VHT/Count VHT	Facility Type, Area Type, No. of Lanes	± 15% (> 20,000 VPD) ± 25% (< 20,000 VPD)
Percent Root Mean Square Error	Area	35% - 50%
Percent Root Mean Square Error	Link Volume Groups	± 10% (> 50,000 VPD) ± 20% (< 50,000 VPD)

### 7.2.1 Systemwide Statistics

Systemwide model statistics are reflected in the HASSIGN.RPT output file for the model assignment. Included in the statistics are information on links and corresponding mileage, Vehicle-Miles-Traveled (VMT) and Vehicle-Hours-Traveled (VHT), and average speeds. **Table 7-4** summarizes the overall systemwide statistics for the Daily model. The key items in the table are the VMT and VHT, which are 1.03 and 1.04, respectively. These are well within the +/- 5% requirement at the systemwide level.

Systemwide model statistics for each of the eleven (11) counties contained within the CFRPM 6.0 network are presented in **Table 7-5**. As indicated in **Table 7-5**, all of the counties meet the overall area standards for %RMSE. They range from a low of 29.07 (Flagler) to high of 38.35 (Volusia), well within the 35-50% standard previously shown in **Table 7-3**. Individual County ratios for VMT and VHT are within +/- 10 percent. For Volume-to-Count ratios, again all of the County ratios are within +/- 10%.



**Table 7-4**  
**CFRPM Version 6.0 Overall Systemwide Daily Model Statistics**

Measurement	Values Measured
	Daily
TOTAL_ NUMBER OF LINKS	21,903
TOTAL SYSTEM MILES	8,716.43
TOTAL LANE MILES	22,262.51
TOTAL DIRECTIONAL MILES	15,687.42
TOTAL VMT USING VOLUMES (LINKS WITH COUNTS)	45,487,935
TOTAL VMT USING COUNTS (LINKS WITH COUNTS)	44,370,976
TOTAL VMT V/C (LINKS WITH COUNTS)	1.03
TOTAL VHT USING VOLUMES (LINKS WITH COUNTS)	1,244,293
TOTAL VHT USING COUNTS (LINKS WITH COUNTS)	1,198,295
TOTAL VHT V/C (LINKS WITH COUNTS)	1.04
TOTAL VOLUMES ALL LINKS	287,402,573
AVERAGE TOTAL VOLUME	13,121.61
TOTAL VMT ALL LINKS	110,051,268
TOTAL VHT ALL LINKS	3,060,509
TOTAL ORIGINAL SPEED (MPH)	39.70
TOTAL CONGESTED SPEED (MPH)	36.50

**Table 7-5**  
**CFRPM Version 6.0 Systemwide Daily Model Statistics by County**

Description	Seminole	Orange	Osceola	Lake	Volusia	Brevard	Marion	Sumter	Flagler	Polk	Indian River	CFRPM Total
Total Number of Links	1,204	4,896	1,231	1,293	3,404	2,485	1,705	536	425	4477	247	<b>21,903</b>
Total System Miles	431	1,628	692	681	1,136	991	1,008	368	284	1395	103	<b>8,716</b>
Total Lane Miles	1,241	4,640	1,686	1,621	2,810	2,610	2,445	836	702	3439	234	<b>22,263</b>
VMT Using Volumes (000s)	4,219	14,889	2,672	2,024	5,140	7,007	3,158	1,788	1,298	3071	216	<b>45,487</b>
VMT Using Counts (000s)	4,088	14,006	2,465	1,881	5,044	7,333	3,183	1,854	1,385	2,915	211	<b>44,370</b>
Total VMT Ratio	1.03	1.06	1.08	1.08	1.02	0.96	0.99	0.96	0.94	1.05	1.02	<b>1.03</b>
VHT Using Volumes (000s)	128	493	104	55	129	153	61	29	21	62	4	<b>1,244</b>
VHT Using Counts (000s)	125	453	95	51	127	165	62	31	23	59	4	<b>1,198</b>
Total VHT Ratio	1.02	1.09	1.10	1.07	1.02	0.93	0.98	0.96	0.95	1.05	1.05	<b>1.04</b>
Original Speed (MPH)	39.77	40.17	41.89	41.18	37.27	39.44	40.60	41.97	46.53	39.00	42.15	<b>39.75</b>
Congested Speed (MPH)	34.52	33.61	36.29	37.69	35.67	37.94	39.10	41.21	45.14	37.44	40.34	<b>36.56</b>
Volume / Count Ratio	1.08	1.10	1.05	1.06	0.99	0.90	0.94	0.92	1.02	1.02	1.00	<b>1.03</b>
Percent RMSE	32.67	34.42	34.41	31.72	38.35	31.50	33.53	31.92	29.07	33.75	36.03	<b>34.72</b>

### 7.2.2 VMT and VHT by Area Type and Facility Type

For Vehicle Miles of travel (VMT) and Vehicle Hours of Travel (VHT) results, a summation by Area Type and by Facility Type has also been prepared. The VMT and VHT serve as useful measures for reviewing fuel consumption and is traditionally reported for travel demand forecasting models. **Tables 7-6** and **7-7** indicate the CFRPM Version 6.0 Daily model results for VMT and VHT, respectively.

## 7.3 Count Validation Results

The count validation results are provided relative to the model links, screenlines, and percent Root Mean Squared Error (RMSE).

### 7.3.1 Link Volume-to-Observed Count Ratios

In addition to systemwide statistics, detailed Model Volume-to-Observed Count ratios are calculated by Facility Type and Area Type. **Table 7-8** provides the Volumes-to-Count ratios for the Daily and 24-hour total (addition of four time periods). As indicated in the table, all but the High Density Area Type meet the volume-to-count ratio standard of plus or minus 10 percent for the Daily and 24HR model assignments.

Based on the Technical Memorandum “Model Calibration and Validation Performance Measures and Standards” literature review, the model statistics compare relatively to other TOD models which document volume-to-count ratios for TOD periods. The comparison to the Southeast Regional Planning Model (SERPM) Version 6.5<sup>3</sup>, Memphis<sup>4</sup>, and the Sacramento<sup>5</sup> TOD model results are provided in **Table 7-9**. CFRPM Version 6.0, along with SERPM Version 6.5, provides the best volume-to-count ratio statistic comparisons. Memphis also achieves reasonable volume results for all TOD periods with all periods less than nine (9) percent different from the traffic counts. Sacramento emphasizes the validation to its AM and PM peak periods.

### 7.3.2 Screenline Volume-to-Observed Count Ratios

Volume-to-Count ratios are also reported for Screenlines and Cutlines within the CFRPM 6.0 network. The FDOT daily standards for Screenlines and Cutlines are plus or minus 10 percent for over 50,000 vehicles per day and plus or minus 20 percent for less than 50,000 vehicles per day, as previously shown in **Table 7-3**. As shown in **Table 7-10**, the FDOT daily standard is achieved for a majority of the locations. Only 14 of the 42 Screenlines/Cutlines do not meet the daily standard. The overall V/C ratio for all screenlines is 1.03 and the system total V/C ratio is 1.03 for all links with counts.

**Table 7-6**  
**CFRPM Version 6.0 Total Vehicle Miles Traveled (VMT) for Daily Model**

Daily Total Vehicle Miles Traveled (VMT)						
Facility Type	CBD	High Density	Medium Density	Low Density	Very Low Density	Total
Freeways	864,709	1,179,227	4,914,541	6,406,520	7,876,600	<b>21,241,596</b>
Divided Arterials	557,402	1,507,751	15,482,668	14,199,065	9,323,486	<b>41,070,372</b>
Undivided Arterials	324,264	270,753	2,191,205	4,455,073	6,253,477	<b>13,494,773</b>
Collectors	374,775	613,164	5,856,933	7,414,841	5,947,416	<b>20,207,129</b>
One-Way Facilities	151,280	72,828	248,593	345,448	55,897	<b>874,046</b>
Ramps	66,123	244,865	671,059	570,116	319,632	<b>1,871,795</b>
Toll Facilities	59,827	358,148	3,342,322	4,197,495	3,333,764	<b>11,291,556</b>
<b>Total</b>	<b>2,398,379</b>	<b>4,246,736</b>	<b>32,707,322</b>	<b>37,588,559</b>	<b>33,110,271</b>	<b>110,051,268</b>

**Table 7-7**  
**CFRPM Version 6.0 Total Vehicle Hours Traveled (VMT) for Daily Model**

Daily Total Vehicle Hours Traveled (VHT)						
Facility Type	CBD	High Density	Medium Density	Low Density	Very Low Density	Total
Freeways	22,240	40,106	137,721	131,446	159,107	<b>490,620</b>
Divided Arterials	16,196	64,581	553,128	401,958	226,242	<b>1,262,104</b>
Undivided Arterials	9,835	8,296	62,685	116,095	138,512	<b>335,423</b>
Collectors	13,050	21,812	215,209	270,540	161,141	<b>681,752</b>
One-Way Facilities	6,354	2,637	11,832	11,575	1,664	<b>34,062</b>
Ramps	2,857	11,585	27,656	21,438	10,879	<b>74,417</b>
Toll Facilities	1,000	7,486	53,993	69,859	49,794	<b>182,132</b>
<b>Total</b>	<b>71,532</b>	<b>156,503</b>	<b>1,062,224</b>	<b>1,022,912</b>	<b>747,338</b>	<b>3,060,509</b>

**Table 7-8**  
**CFRPM Version 6.0 Daily Volume-to-Count Ratios**

Daily Volume to Count Ratios for Links with Counts						
Facility Type	CBD	High Density	Medium Density	Low Density	Very Low Density	Total
Freeways	0.88	0.94	0.96	0.98	1.02	<b>0.97</b>
Divided Arterials	1.04	1.20	1.07	0.98	0.95	<b>1.03</b>
Undivided Arterials	1.07	1.07	1.11	1.01	1.24	<b>1.10</b>
Collectors	0.76	1.38	1.15	0.95	1.02	<b>1.05</b>
One-Way Facilities	1.65	2.30	1.53	1.00	0.81	<b>1.21</b>
Ramps	1.34	1.15	1.00	1.05	1.23	<b>1.09</b>
Toll Facilities	0.88	1.00	0.96	1.02	1.00	<b>0.99</b>
<b>Total</b>	<b>1.03</b>	<b>1.13</b>	<b>1.07</b>	<b>0.98</b>	<b>1.02</b>	<b>1.03</b>

24HR Volume to Count Ratios for Links with Counts						
Facility Type	CBD	High Density	Medium Density	Low Density	Very Low Density	Total
Freeways	1.25	1.23	1.21	1.12	1.11	<b>1.17</b>
Divided Arterials	1.12	1.27	1.10	0.98	1.04	<b>1.06</b>
Undivided Arterials	1.04	0.98	1.03	0.98	1.14	<b>1.03</b>
Collectors	0.60	1.95	1.03	0.94	0.98	<b>0.99</b>
One-Way Facilities	1.18	1.73	1.53	0.96	0.72	<b>1.11</b>
Ramps	1.55	1.40	1.20	1.19	1.22	<b>1.24</b>
Toll Facilities	1.05	1.15	1.01	1.01	1.01	<b>1.02</b>
<b>Total</b>	<b>1.17</b>	<b>1.26</b>	<b>1.09</b>	<b>0.99</b>	<b>1.06</b>	<b>1.06</b>

**Table 7-9**  
**Comparison to Other TOD Model Volume-to-Count Ratios (by TOD Period)**

MODEL	AM	PM	MD	NT	Daily 24-Hour
CFRPM 6.0	1.06	1.01	1.07	1.08	1.04
CFRPM 5.5	0.98	0.94	1.00	1.00	0.98
SERPM 6.5	1.01	1.01	1.00		1.00
Memphis, Tennessee	1.09	1.05	0.93	0.94	0.99
Sacramento, California	1.03	1.01	0.88	0.78	0.92



**Table 7-10**  
**CFRPM Version 6.0 Daily Model Screenline/Cutlines Volume-to-Count Ratios**

Daily				
Screenline Number	Number of Links	Estimated Volume	Count	V/C Ratio
1	32	198,708	199,090	1.00
2	12	179,875	164,300	1.09
3	7	82,209	68,683	1.20
4	3	80,968	93,403	0.87
10	28	131,319	129,940	1.01
11	10	91,271	101,948	0.90
12	4	21,541	19,076	1.13
13	10	100,125	118,256	0.85
14	4	83,786	78,322	1.07
16	4	97,226	97,940	0.99
17	10	145,333	163,638	0.89
20	6	147,044	171,700	0.86
21	6	30,524	31,624	0.97
22	2	39,892	35,430	1.13
27	20	146,948	149,758	0.98
28	4	13,474	15,120	0.89
30	12	132,521	134,958	0.98
32	8	35,262	33,474	1.05
40	18	317,641	281,104	1.13
42	16	171,965	165,180	1.04
43	6	45,221	47,888	0.94
44	4	93,652	90,376	1.04
45	12	114,537	120,828	0.95
51	16	205,752	227,810	0.90
52	2	50,202	45,500	1.10
53	6	77,017	89,402	0.86
54	10	140,701	144,670	0.97
55	46	432,371	430,770	1.00
56	7	86,018	104,695	0.82
57	8	94,682	113,478	0.83
58	14	195,698	197,774	0.99
60	42	600,888	550,566	1.09
61	44	722,617	719,810	1.00
62	36	566,716	580,972	0.98
63	38	686,921	596,682	1.15
64	12	214,990	182,242	1.18
66	34	472,025	456,648	1.03
67	62	880,550	896,300	0.98
68	40	893,215	806,370	1.11
69	55	1,014,112	982,992	1.03
71	12	67,023	66,250	1.01
95	4	31,199	31,660	0.99
98	1,170	11,701,493	11,303,059	1.04
Screenline Totals	1,896	21,635,233	21,039,686	1.03
99	5,011	57,798,618	55,871,764	1.03
System Totals	6,907	79,433,851	76,911,450	1.03

### 7.3.3 Modeled-to-Observed Percent RMSE

Florida adheres to a set of percent RMSE standards for daily model validations, as demonstrated in **Table 7-11**. The standards are based on traffic count ranges from 1 to 500,000 daily volumes. For the count range from 1 to 5,000 daily volumes, no distinction is provided for lower count groups. Since the TOD period counts represent a component of the daily traffic counts, a significant number of the CFRPM Version 6.0 observed peak period traffic counts exist within this lower count range and therefore require guidelines that are more refined.

As documented in the Technical Memorandum “Model Calibration and Validation Performance Measures and Standards,” a set of RMSE guidelines for the TOD Peak Period assignments was established as referenced in **Table 7-12**. The TOD RMSE guidelines were refined to seven (7) individual lower count groups, as compared to the FDOT eleven (11) daily count groups, and were based on a general assessment of the “Add A Lane/Drop A Lane” premise associated with the accuracy level of traditional travel demand forecasts. A RMSE range for the overall TOD assignment was also prepared and represents a range of 42 to 90 Percent RMSE. In addition to the individual TOD periods, an overall %RMSE standard for the combined daily TOD assignment is established as being between 35 and 50, as documented in the technical memorandum. The reason for a different standard for the daily TOD assignment, as compared to the FDOT standard for non-TOD daily models, is the fact that the combined daily TOD assignment includes the various TOD period assignments. Specifically, the NT period assignment does not provide for adequate number of iterations to adjust for individual network routes and thus provides a less accurate assignment; especially as it relates to I-4. Therefore, it would be unrealistic to achieve a combined daily TOD assignment which could be compared directly to a daily only assignment (e.g. without TOD components). Finally, it should be noted that the presented %RMSE guidelines have not been designed to account for specific variations in individual peak period lengths (e.g. 2.5, 3, 6.5, and 12 hours for the AM, PM, MD, and NT periods, respectively), beyond the referenced higher Percent RMSEs for lower count groups and the overall TOD Peak period RMSE higher range. Potentially, separate Percent RMSE guidelines could exist for each TOD period. A similar set of guidelines was prepared for traffic assignment of Trucks in the “Central Florida Regional Planning Model Version 5.0 with Truck Component” Technical Memorandum “Model Calibration and Validation (Final) dated March 29, 2013, by Leftwich Consulting Engineers, Inc. for FDOT District Five<sup>9</sup>. **Table 7-13** shows the Guidelines derived for Truck %RMSE.

**Table 7-13** presents the CFRPM 6.0 Daily model (e.g. LOV, HOV, Light Truck, and Heavy Truck trip purposes) validation Percent RMSE statistics. The count ranges used are the same as those presented in **Table 7-11** with the FDOT Standards. As indicated, the individual count ranges for volume groups 3 through 10 are within the allowed %RMSE range. For Volume groups 1 and 2, the lowest count ranges, the Model %RMSE is 75.06% (allowed range is 45-55%) and 49.15% (allowed range is 35-45%), respectively. For Volume Group 11, the highest count range in the model, the %RMSE is 18.38% (allowed range is 14-15%). The overall %RMSE is 34.72%, well within the allowed range of 32-39%. The Daily model meets the guideline for model volume-to-count ratio with 1.03 (accepted range is 0.95 to 1.05).

In addition to %RMSE statistics for all vehicles, the CFRPM Version 6.0 Model's Truck Component (e.g. Light and Heavy Truck Purposes) statistics are presented in **Table 7-15**. These statistics are based on comparisons of truck volumes (Light and Heavy truck purposes combined into one) against Truck Counts (total truck count). As indicated in **Table 7-15**, the validated CFRPM Version 6.0 Model statistics for Trucks are well within the allowed ranges presented in **Table 7-13**.

**Table 7-11**  
**FDOT Daily Model Percent RMSE Standards**

Daily Group	Count Range		Allowed %RMSE Range	
1	1	5,000	45	55
2	5,000	10,000	35	45
3	10,000	20,000	27	35
4	20,000	30,000	24	27
5	30,000	40,000	22	24
6	40,000	50,000	20	22
7	50,000	60,000	18	20
8	60,000	70,000	17	18
9	70,000	80,000	16	17
10	80,000	90,000	15	16
11	90,000	100,000	14	15
12	100,000	500,000	Less than	14
All	1	500,000	32	39

**Table 7-12**  
**CFRPM Version 6.0 TOD Model Percent RMSE Standards**

TOD Group	Count Range		Allowed %RMSE Range	
1	1	500	60	160
2	500	1,250	50	140
3	1,250	2,500	44	94
4	2,500	5,000	38	60
5	5,000	10,000	32	42
6	10,000	20,000	27	35
7	20,000	50,000	Less than	27
TOD All	1	50,000	42	90
TOD Daily	1	500,000	35	50

**Table 7-13**  
**Truck Percent RMSE Derived Guidelines**

Count Group	Truck Volume Count Range		Allowed %RMSE Range	
1	1	1,250	50	140
2	1,250	2,500	44	94
3	2,500	5,000	38	60
4	5,000	10,000	32	42
5	10,000	20,000	27	35
6	20,000	50,000	Less than	27
TOD All	1	50,000	42	90

**Table 7-14**  
**CFRPM Version 6.0 Daily Model Percent RMSE Statistics – All Vehicles**

CFRPM6 v6.0 Daily Counts							
Vol Group	Count Range	Model %RMSE	Allowed RMSE Range	Volume	Count	Volume/Count	No of Links
1	1-5,000	75.06%	45 - 55%	7,453,920	6,478,237	1.15	1,796
2	5,000-10,000	49.15%	35 - 45%	16,783,788	15,533,502	1.08	2,136
3	10,000-20,000	29.02%	27 - 35%	31,625,659	31,212,820	1.01	2,186
4	20,000-30,000	22.22%	24 - 27%	14,273,279	13,838,456	1.03	582
5	30,000-40,000	15.03%	22 - 24%	3,781,668	3,979,018	0.95	116
6	40,000-50,000	19.40%	20 - 22%	788,500	848,284	0.93	19
7	50,000-60,000	5.84%	18 - 20%	999,395	997,914	1.00	18
8	60,000-70,000	14.41%	17 - 18%	1,114,197	1,174,721	0.95	18
9	70,000-80,000	10.63%	16 - 17%	1,265,822	1,338,590	0.95	18
10	80,000-90,000	12.68%	15 - 16%	1,189,186	1,327,908	0.90	16
11	90,000-100,000	18.38%	14 - 15%	158,411	182,000	0.87	2
ALL	1-500,000	34.72%	32 - 39%	79,433,825	76,911,450	1.03	6,907

**Table 7-15**  
**CFRPM Version 6.0 Daily Model Percent RMSE Statistics – Trucks**

CFRPM6 v6.0 Truck Daily Counts							
Vol Group	Count Range	Model %RMSE	Allowed RMSE Range	Volume	Count	Volume/Count	No of Links
1	1-1250	129.72%	50 -160%	215,197	109,170	1.97	110
2	1,250-2,500	76.87%	44 - 94%	239,153	167,093	1.43	98
3	2,500-5,000	29.34%	38 - 60%	253,733	275,900	0.92	77
4	5,000-10,000	21.55%	32 - 42%	436,679	476,486	0.92	72
5	10,000-20,000	n/a	27 - 35%	n/a	n/a	n/a	n/a
ALL	1-50,000	44.13%	42 - 90%	1,144,762	1,028,649	1.11	357



**Table 7-16** presents the CFRPM 6.0 TOD model validation Percent RMSE statistics for the four time periods (e.g. AM, MD, PM, and NT) and the 24HR sum. As indicated, the individual Peak Periods all meet the guidelines for model volume-to-count Percent RMSE comparisons for each of the count groups. The overall Percent RMSE is also met for each Peak Period and is respectively 45.56 percent, 43.97 percent, 38.00 percent, and 66.09 percent for the AM, MD, PM, and NT Peak Periods. For the Combined 24-Hour Daily assignment, it is 40.10 percent and is well below the 50 percent guideline.

A comparison is provided for the CFRPM Version 6.0 Model in relation to the limited number of TOD models available that report Percent RMSEs for lower count groups, based on the documented literature review for the Technical Memorandum “Model Calibration and Validation Performance Measures and Standards.” As indicated in **Table 7-17**, the validated CFRPM Version 6.0 Model statistics are relatively comparable to the reported Percent RMSEs for the Atlanta and Ohio TOD models<sup>6</sup> that include lower count ranges with their daily model statistics for percent RMSE. Further, the overall TOD Percent RMSEs for the individual Peak Periods are also consistent with the limited literature review data available for TOD model statistics (SERPM Version 6.5 and Sacramento TOD models) as demonstrated in **Table 7-18**. As indicated, the CFRPM 6.0 TOD higher NT Peak Period Percent RMSE compares closely to the results of the Sacramento TOD Model. All other Peak Periods are within the high-30 to lower-40 range for all reviewed TOD Models.

**Table 7-16**  
**CFRPM Version 6.0 Model Percent RMSE Statistics by Period and 24HR**

AM							
Vol Grp	Count Range	Model RMSE(%)	Allow RMSE Range	Volume	Count	Volume/Count	No of Links
1	1-500	140.61%	60 -160%	139,369	98,549	1.41	252
2	500-1,250	68.62%	50 -140%	1,545,009	1,398,999	1.10	1,566
3	1,250-2,500	44.83%	44 - 94%	3,816,623	3,659,031	1.04	2,036
4	2,500-5,000	34.80%	38 - 60%	3,670,441	3,456,150	1.06	1,049
5	5,000-10,000	27.95%	32 - 42%	848,226	855,724	0.99	133
6	10,000-20,000	21.31%	27 - 35%	547,631	504,657	1.09	41
7	20,000-50,000	0.00%	LT 27 %	0	0	0.00	0
ALL	1-50,000	45.56%	42 - 90%	10,567,299	9,973,110	1.06	5,077

MD							
Vol Grp	Count Range	Model RMSE(%)	Allow RMSE Range	Volume	Count	Volume/Count	No of Links
1	1-500	0.00%	60 -160%	0	0	0.00	0
2	500-1,250	103.65%	50 -140%	69,204	48,002	1.44	43
3	1,250-2,500	71.88%	44 - 94%	2,045,932	1,803,878	1.13	914
4	2,500-5,000	53.12%	38 - 60%	7,693,735	7,395,674	1.04	2,034
5	5,000-10,000	36.58%	32 - 42%	12,870,094	12,317,800	1.04	1782
6	10,000-20,000	28.22%	27 - 35%	3,645,740	3,189,723	1.14	260
7	20,000-50,000	22.93%	LT 27 %	1,586,973	1,354,309	1.17	48
ALL	1-50,000	43.97%	42 - 90%	27,911,678	26,109,386	1.07	5,081

PM							
Vol Grp	Count Range	Model RMSE(%)	Allow RMSE Range	Volume	Count	Volume/Count	No of Links
1	1-500	0.00%	60 -160%	0	0	0.00	0
2	500-1,250	65.47%	50 -140%	593,174	578,714	1.02	515
3	1,250-2,500	47.04%	44 - 94%	3,705,551	3,733,514	0.99	2,053
4	2,500-5,000	31.40%	38 - 60%	7,003,828	7,099,605	0.99	2,025
5	5,000-10,000	29.54%	32 - 42%	2,855,109	2,706,229	1.06	431
6	10,000-20,000	23.92%	27 - 35%	874,370	758,185	1.15	56
7	20,000-50,000	0.00%	LT 27 %	0	0	0.00	0
ALL	1-50,000	38.00%	42 - 90%	15,032,032	14,876,247	1.01	5,080

NT							
Vol Grp	Count Range	Model RMSE(%)	Allow RMSE Range	Volume	Count	Volume/Count	No of Links
1	1-500	139.63%	60 -160%	5,012	3,496	1.43	9
2	500-1,250	65.36%	50 -140%	749,550	739,136	1.01	749
3	1,250-2,500	66.47%	44 - 94%	3,486,001	3,402,659	1.02	1,876
4	2,500-5,000	45.94%	38 - 60%	6,335,833	6,220,606	1.02	1,799
5	5,000-10,000	43.15%	32 - 42%	4,025,872	3,640,228	1.11	554
6	10,000-20,000	59.33%	27 - 35%	1,240,374	934,893	1.33	68
7	20,000-50,000	58.16%	LT 27 %	839,103	568,642	1.48	25
ALL	1-50,000	66.09%	42 - 90%	16,681,745	15,509,660	1.08	5,080

24Hr							
Vol Grp	Count Range	Model RMSE(%)	Allow RMSE Range	Volume	Count	Volume/Count	No of Links
1	1-5,000	70.24%	45 - 55%	2,612,458	2,847,765	0.92	717
2	5,000-10,000	48.86%	35 - 45%	14,528,871	14,787,349	0.98	2,015
3	10,000-20,000	33.00%	27 - 35%	31,286,558	30,792,044	1.02	2,157
4	20,000-30,000	31.16%	24 - 27%	15,385,302	13,674,999	1.13	575
5	30,000-40,000	22.36%	22 - 24%	4,148,206	3,946,818	1.05	115
6	40,000-50,000	25.47%	20 - 22%	950,022	848,284	1.12	19
7	50,000-60,000	20.92%	18 - 20%	1,157,057	997,914	1.16	18
8	60,000-70,000	31.99%	17 - 18%	1,444,230	1,174,721	1.23	18
9	70,000-80,000	32.40%	16 - 17%	1,341,162	1,047,090	1.28	14
10	80,000-90,000	26.76%	15 - 16%	1,521,819	1,245,650	1.22	15
11	90,000-100,000	37.41%	14 - 15%	230,085	182,000	1.26	2
12	100,000-500,000	0.00%	LT 14 %	0	0	0.00	0
ALL	1-500,000	40.10%	32 - 39%	74,605,770	71,544,634	1.04	5,665

**Table 7-17**  
**Comparison to Other TOD Models Percent RMSE (by Version 5.5 Count Ranges)**

CFRPM Version 5.5 TOD RMSE Count Groups			Percent RMSE					
Group No.	Count Range		Atlanta*	Mid-Ohio*	CFRPM Version 5.5		CFRPM Version 6.0	
			Daily		AM	PM	AM	PM
1	1	500	306	220	103	115	141	n/a
2'	500	1,250	122	90	62	64	69	65
3'	1,250	2,500	80	58	40	42	45	47
4'	2,500	5,000	47-57	45-50	29	29	35	31
5'	5,000	10,000	38-44	34-44	30	23	28	30
6	10,000	20,000	23-35	23-32	18	19	21	24
7'	20,000	50,000	12-24	15-23	0	22	n/a	n/a

\*Source: "The Travel Forecasting Model Set for the Atlanta Region, 2008 Documentation", Atlanta Regional Commission.

References "MORPC Model Validation-Summary", Ohio Department of Transportation.

Reported %RMSE have been compiled into relative CFRPM5.5 count groupings, with low and high %RMSEs presented.

\*Note: Indicates Atlanta/Mid-Ohio count groups that are slightly different from CFRPM5.5 count groups.

**Table 7-18**  
**Comparison to Other TOD Models Percent RMSE (by TOD Periods)**

MODEL	AM	PM	MD	NT
CFRPM 6.0	45.6	38.0	44.0	66.1
CFRPM 5.5	41.8	35.1	38.0	65.5
SERPM 6.5	42.0	35.6	33.0	
Sacramento, California	39	38	37	60

## 8.0 Transit Assignment

The CFRPM version 6.0 model includes the mass transit systems in place in the year 2010 for LYNX in the Orlando Metro area, Space Coast Area Transit (SCAT) in Brevard County, Votran in Volusia County, LakeXpress in Lake County, and Suntran in Marion County). The CFRPM version 5.0 year 2005 bus routes were updated to 2010 routes (TROUTE\_10A.LIN file). The PCWALK\_10A.DAT (percent walk by TAZ) file was updated accordingly.

The model-wide observed ridership for 2010 was obtained from the different transit operators within the District (e.g. LYNX, SCAT, Votran, LakeXpress, and Suntran, GIS shapefiles and other system characteristics data was obtained for the year 2010 system. The total observed daily average transit ridership for 2010 was 101,047 and the model predicted ridership is 104,813 as shown in **Table 8-1**.

**Table 8-1**  
**CFRPM 6.0 Year 2010 Transit Ridership Summary**

Systemwide Transit	2010 Observed Daily Ridership	2010 Model Daily Ridership	Ratio (M/O)
<b>Totals</b>	<b>101,047</b>	<b>104,813</b>	<b>1.037</b>

The transit assignment ratio of Daily Model ridership to observed ridership is 1.037. This ratio is very close to the +/- 3% criteria set by FDOT for transit validation at the system wide level.

## 9.0 Summary of Model Calibration and Validation

Leftwich Consulting Engineers, Inc. has completed the model validation and calibration for the CFRPM Version 6.05 Daily and TOD Model. As documented in this report, the Version 6.0 Model provides a good model validation representation of year 2010 conditions, as confirmed by the following statistics:

### Daily Model:

- The Overall %RMSE for the Daily Model is 34.72.
- The Overall V/C Ratio for the Daily Model is 1.03.

### Time-of-day Model:

- Peak Period V/C Ratios for AM (1.06), MD (1.07), PM (1.01) and NT (1.08)
- Peak Period %RMSE for AM (45.6), MD (44.0), PM (38.00), and NT (66.1)
- The Overall %RMSE for the Combined 24-Hour Model is 40.1
- The Overall V/C Ratio for the Combined 24-Hour Model is 1.04

As indicated above, the Version 6.0 Daily and TOD Models meet all general guidelines for a validated model, based on traffic count comparisons.



This technical memorandum has been prepared as the final product for the CFRPM Version 6.0 Daily and TOD Model documentation. The CFRPM version 6.0 Model represents the current validated model for FDOT District Five.

## 10.0 Final Observations

The technical memorandum has documented the data and results of the CFRPM Version 6.0 Model with the main emphasis on year 2010 count data matching.

The CFRPM v6.0 daily model is ready to be utilized for its intended principal purpose, the development of the area MPOs/TPOs Long Range Transportation Plans for the year 2040.

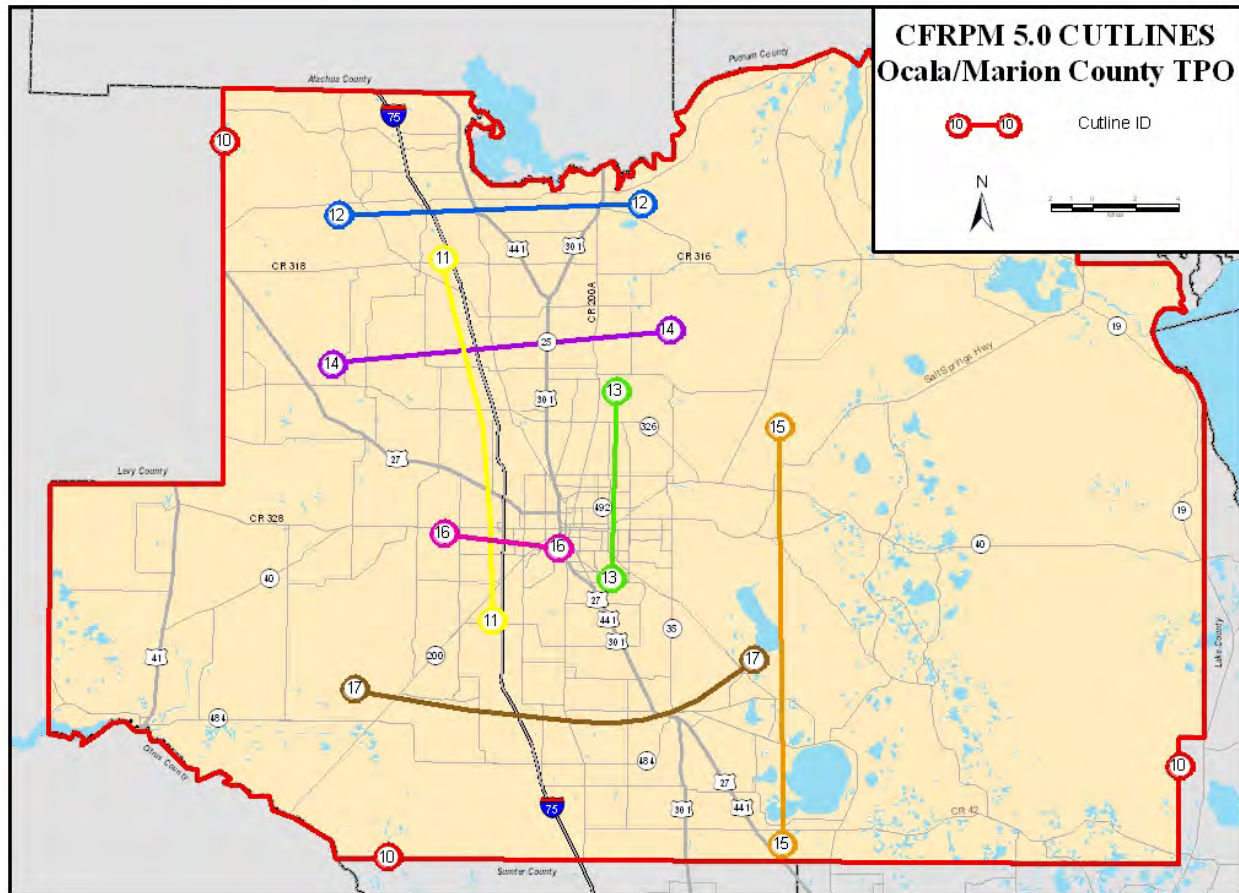
## References

1. [www.fsutmsonline.net](http://www.fsutmsonline.net)
2. **“Technical Memorandum CFRPM v5.0 Model Calibration and Validation Results”** CFRPM Model Version 5.0, Florida Department of Transportation District Five, prepared by Gannett Fleming, Inc. and AECOM Consult, Inc., September 2010.
3. **“Technical Reports 1 & 2: Model Data Calibration and Validation” for SERPM Version 6.5**, Florida Department of Transportation District Four, prepared by The Corradino Group, October 2008.
4. **“Appendix E-Travel Demand Model Technical Memorandum for 2030 Long-Range Transportation Plan”**, Memphis Metropolitan Planning Organization, Transportation Planning Section, prepared by Kimley-Horn and Associates, Inc., March 2008.
5. **“Sacramento Regional Travel Demand Model Version 2007 (SACMET 07): Model Reference Report, Review Draft”**, Sacramento Area Council of Governments, November 2008.
6. **“The Travel Forecasting Model Set for Atlanta Region, 2008 Documentation”**, Atlanta Regional Commission, 2008.
7. **“Technical Memorandum: CFRPM “Lifestyle” Model Framework (Final)” for CFRPM v6.0 Update**, Florida Department of Transportation District Five, prepared by Leftwich Consulting Engineers, Inc., March 14, 2012.
8. **“Technical Memorandum: CFRPM “Income” Model Testing Summary (Final)” for CFRPM v6.0 Update**, Florida Department of Transportation District Five, prepared by Leftwich Consulting Engineers, Inc., March 24, 2013.
9. **“Technical Memorandum: Model Calibration and Validation (Final)” for Central Florida Regional Planning Model Version 5.0 with Truck Component**, Florida Department of Transportation District Five, prepared by Leftwich Consulting Engineers, Inc., March 29, 2013.

## **APPENDICES**

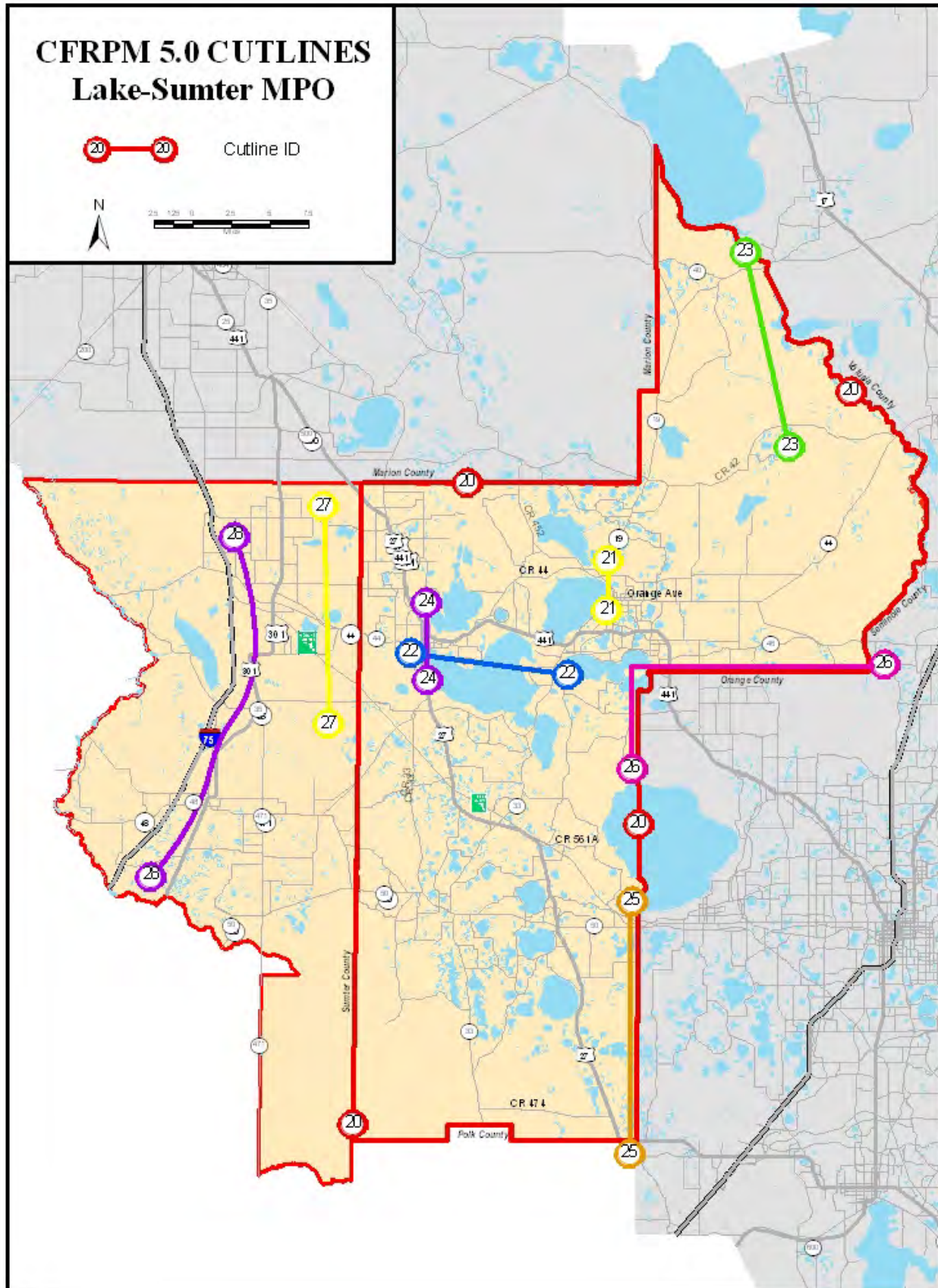
**Appendix A:  
CFRPM Version 5.0 Screenline/Cutline Location Maps**

## Appendix A 1 Ocala/Marion County TPO Cutlines

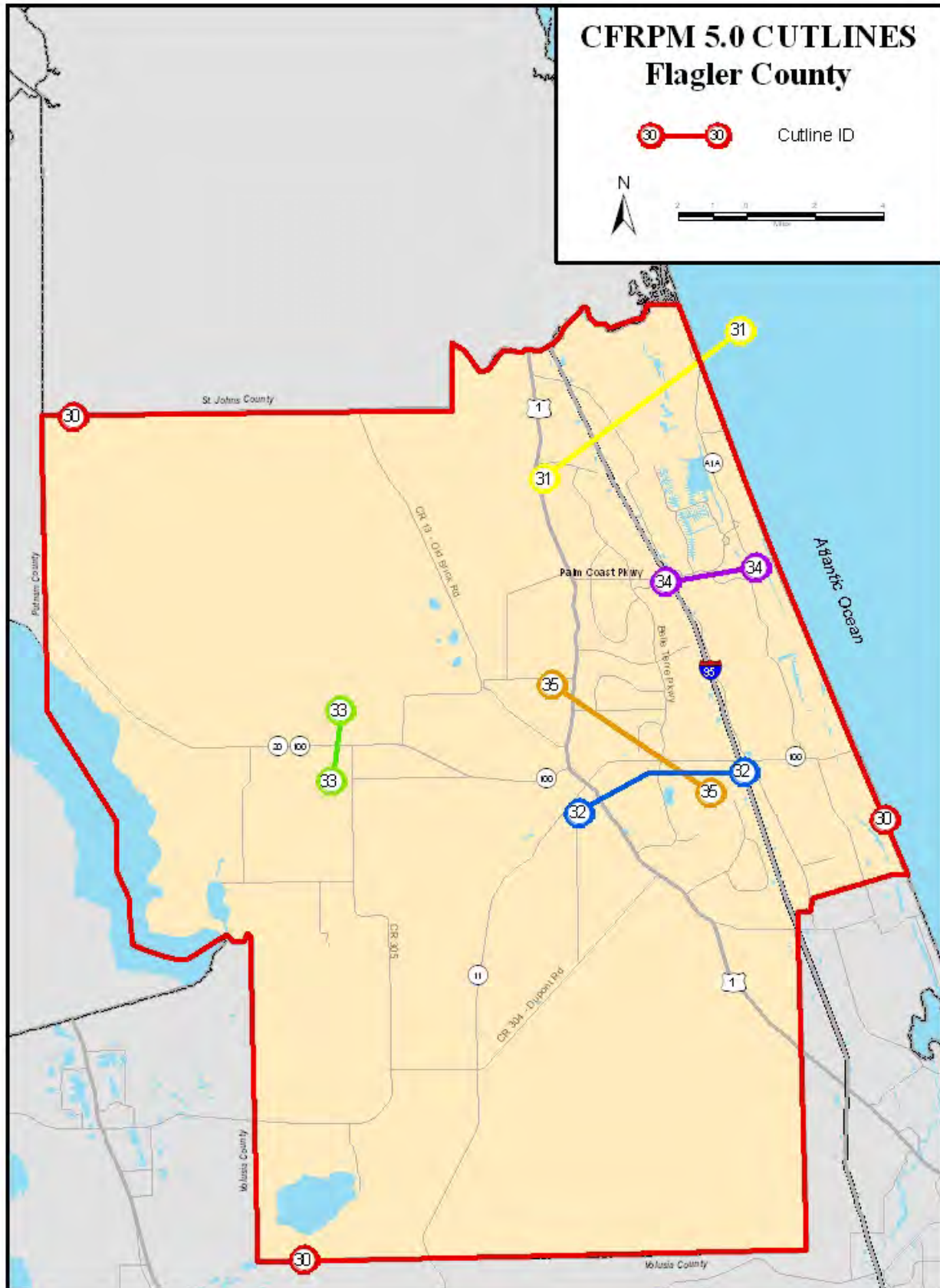




## Appendix A-2 Lake-Sumter MPO Cutlines

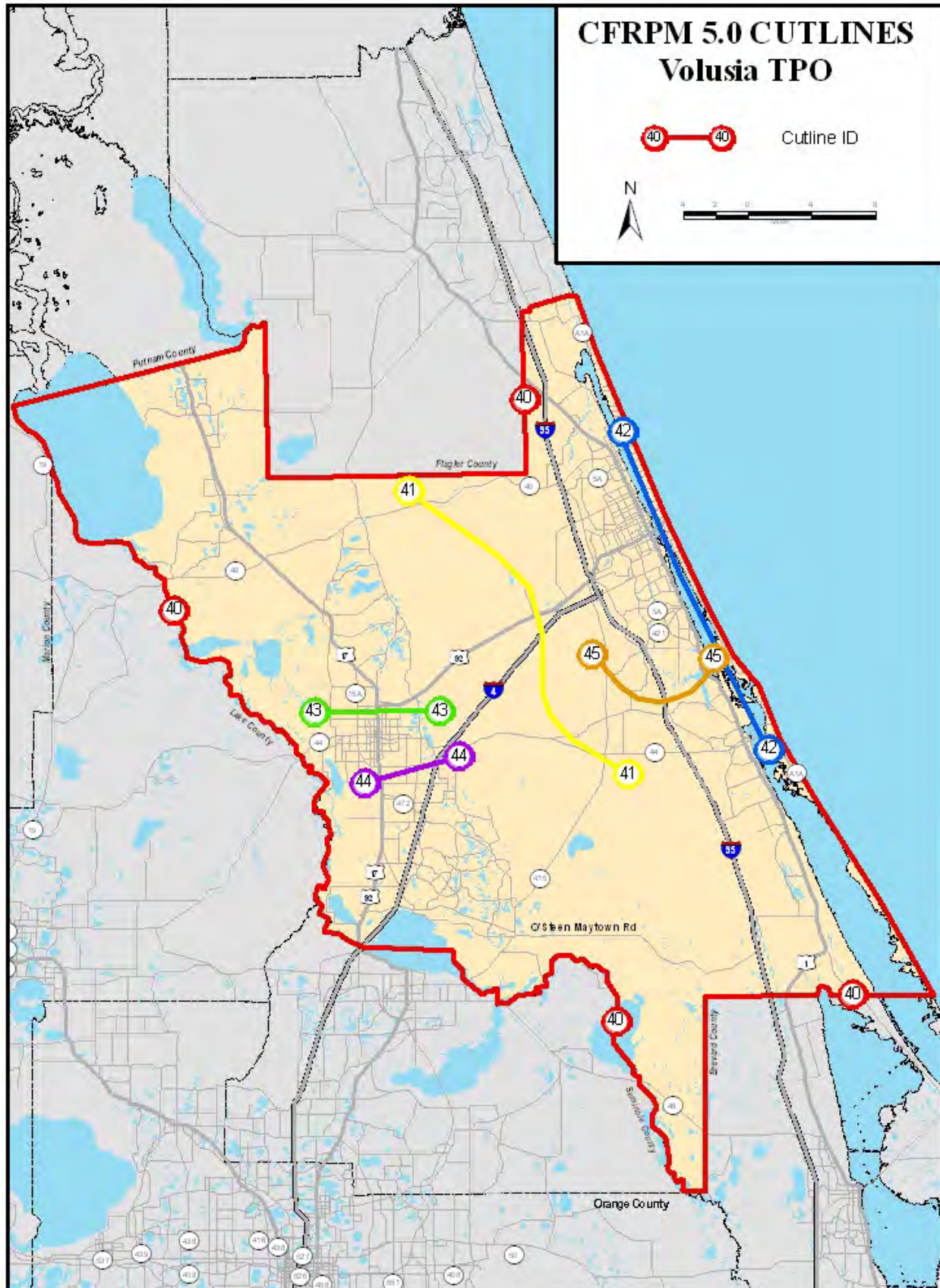


## Appendix A-3 Flagler County Cutlines

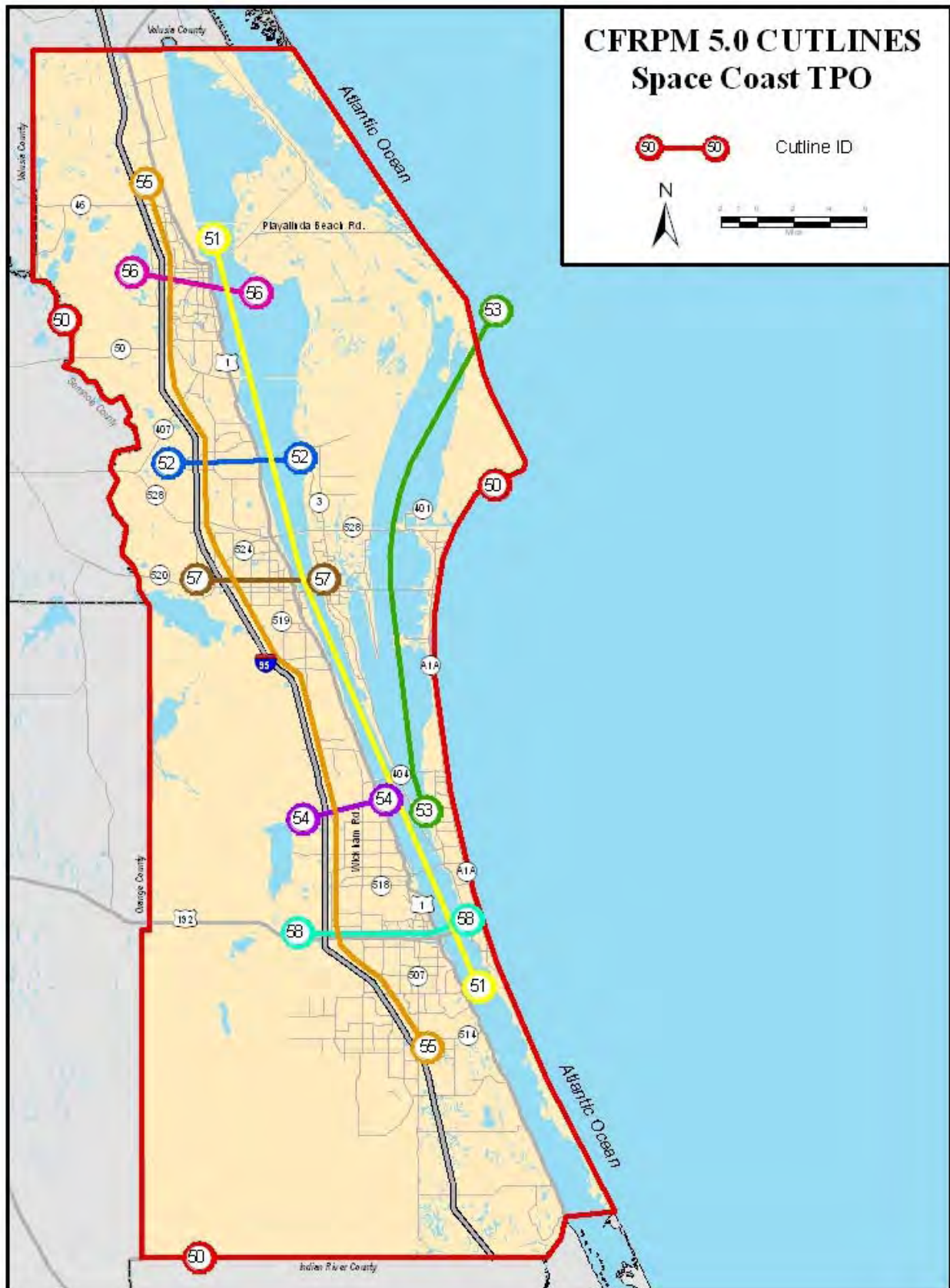




## Appendix A-4 Volusia TPO Cutlines

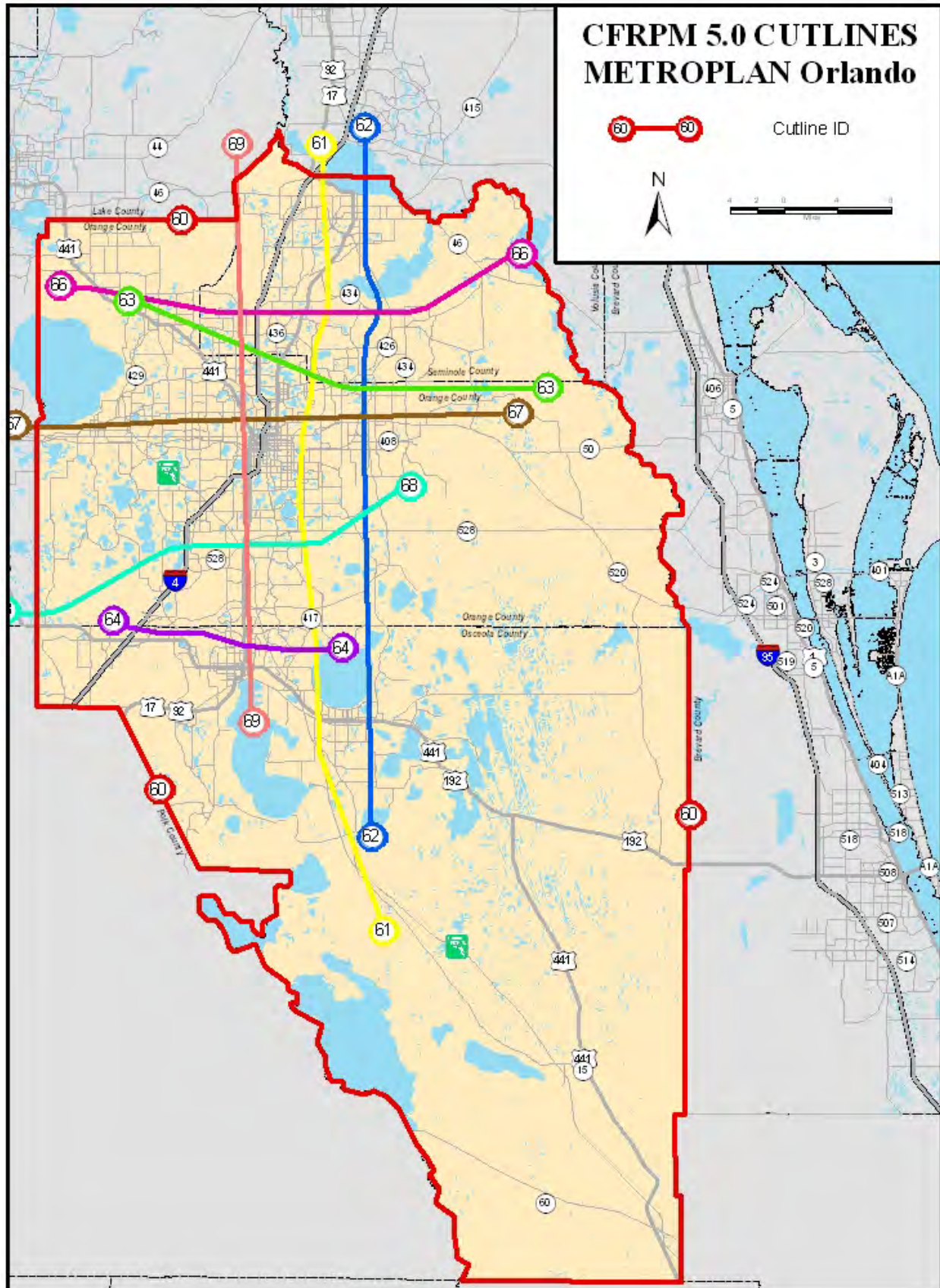


## Appendix A-5 Space Coast TPO Cutlines





## Appendix A-6 METROPLAN Orlando Cutlines





**Appendix B:  
Special Attractions File**

## Central Florida Regional Planning Model (CFRPM) Version 6.0

Tech Memo: Year 2010 Model Calibration and Validation

### Special Attractions File SPECATR1\_10A.dbf for CFRPM 6.0

COUNTER	ZONE	PRODS	VISRATE	RESRATE	EXTRATE	APTFLAG	DISTRICT	GROUP	DESCR
1	977	89,038	69.90%	26.81%	3.29%	1	1	1	Orlando International Airport
2	978	0	69.90%	26.81%	3.29%	2	1	1	Orlando International Airport exp
3	928	50,000	34.72%	38.47%	26.81%	0	2	2	Orange County Convention Center
4	927	0	34.72%	38.47%	26.81%	0	2	2	Orange County Convention Center exp
5	799	0	80.57%	10.92%	8.51%	0	3	3	Universal Orlando
6	801	84,770	80.57%	10.92%	8.51%	0	3	3	Universal Orlando Expansion
7	931	17,270	70.63%	16.98%	12.39%	0	4	4	Sea World
8	908	2,542	88.05%	4.98%	6.97%	0	5	5	Typhoon Lagoon
9	902	17,662	71.64%	22.64%	5.72%	0	6	5	Pleasure Island / Downtown Disney
10	905	15,709	94.44%	4.44%	1.12%	0	7	5	MGM Studios
11	900	13,105	91.61%	4.64%	3.75%	0	8	5	Animal Kingdom
12	903	31,450	91.44%	4.52%	4.05%	0	9	5	EPCOT Center
13	899	3,903	85.77%	8.30%	5.93%	0	10	5	Blizzard Beach
14	898	28,339	93.50%	4.02%	2.48%	0	11	5	Magic Kingdom
15	2,994	5,090	77.64%	11.53%	10.83%	0	12	6	Kennedy Space Center
16	3,182	15,336	36.87%	37.32%	25.81%	0	13	7	Port Canaveral

**Appendix C:**  
**Off-Peak and Peak Friction Factor Tables & 2008 NHTS Trip Lengths**  
**(BATS, LCTS, OATS, OUATS, Sumter, and VCATS MPO Areas)**

# Central Florida Regional Planning Model (CFRPM) Version 6.0

Tech Memo: Year 2010 Model Calibration and Validation

## Reported NHTS Trip Lengths

County	Trip Purpose	Trip (Logs)	Trips (Wgtd)	Avg Min (Logs)	Avg Min (Wgtd)	PK/OFF Ratio
BREVARD	HBO PK	140	34,252,234	15.9	15.1	
INDIAN RIVER	HBO PK	3	165,089	12.3	10.6	
<b>Total</b>	<b>HBO PK</b>	<b>143</b>	<b>34,417,323</b>	<b>15.9</b>	<b>15.1</b>	
BREVARD	HBO OFF	200	36,120,062	17.2	15.7	0.98
INDIAN RIVER	HBO OFF	15	2,485,393	16.8	10.8	
<b>Total</b>	<b>HBO OFF</b>	<b>215</b>	<b>38,605,455</b>	<b>17.2</b>	<b>15.4</b>	
BREVARD	HBSHOP PK	157	22,872,275	12.1	12.3	
INDIAN RIVER	HBSHOP PK	14	1,765,079	7.4	8.7	
<b>Total</b>	<b>HBSHOP PK</b>	<b>171</b>	<b>24,637,353</b>	<b>11.7</b>	<b>12.1</b>	
BREVARD	HBSHOP OFF	304	42,001,266	13.0	11.8	0.98
INDIAN RIVER	HBSHOP OFF	23	3,371,279	15.0	18.1	
<b>Total</b>	<b>HBSHOP OFF</b>	<b>327</b>	<b>45,372,545</b>	<b>13.1</b>	<b>12.3</b>	
BREVARD	HBSOCREC PK	39	8,664,279	16.0	17.5	
INDIAN RIVER	HBSOCREC PK	4	2,099,284	6.8	6.3	
<b>Total</b>	<b>HBSOCREC PK</b>	<b>43</b>	<b>10,763,563</b>	<b>15.2</b>	<b>15.3</b>	
BREVARD	HBSOCREC OFF	95	15,715,687	17.3	15.6	0.84
INDIAN RIVER	HBSOCREC OFF	11	2,646,117	17.7	34.6	
<b>Total</b>	<b>HBSOCREC OFF</b>	<b>106</b>	<b>18,361,804</b>	<b>17.3</b>	<b>18.3</b>	
BREVARD	HBW PK	150	43,330,723	20.7	21.7	
INDIAN RIVER	HBW PK	7	2,112,939	12.4	17.0	
<b>Total</b>	<b>HBW PK</b>	<b>157</b>	<b>45,443,662</b>	<b>20.3</b>	<b>21.5</b>	
BREVARD	HBW OFF	88	29,529,236	20.4	18.0	1.19
INDIAN RIVER	HBW OFF	5	889,079	17.0	15.1	
<b>Total</b>	<b>HBW OFF</b>	<b>93</b>	<b>30,418,315</b>	<b>20.2</b>	<b>18.0</b>	
BREVARD	NHB PK	140	33,789,343	13.0	11.9	
INDIAN RIVER	NHB PK	4	783,131	15.5	26.7	
<b>Total</b>	<b>NHB PK</b>	<b>144</b>	<b>34,572,474</b>	<b>13.1</b>	<b>12.3</b>	
BREVARD	NHB OFF	341	62,769,842	13.9	13.8	0.89
INDIAN RIVER	NHB OFF	45	7,383,012	15.6	14.0	
<b>Total</b>	<b>NHB OFF</b>	<b>386</b>	<b>70,152,853</b>	<b>14.1</b>	<b>13.8</b>	
<b>Area Total</b>	<b>PK</b>	<b>658</b>	<b>149,834,375</b>	<b>15.2</b>	<b>15.9</b>	
<b>Area Total</b>	<b>OFF</b>	<b>1127</b>	<b>202,910,972</b>	<b>15.2</b>	<b>14.8</b>	
<b>AREA TOTAL</b>	<b>ALL</b>	<b>1785</b>	<b>352,745,347</b>	<b>15.2</b>	<b>15.3</b>	
LAKE	HBO PK	39	8,752,009	23.3	23.3	1.11
LAKE	HBO OFF	66	10,066,454	19.5	20.9	
LAKE	HBSHOP PK	36	7,123,835	12.5	10.6	0.56
LAKE	HBSHOP OFF	114	17,175,887	16.6	18.8	
LAKE	HBSOCREC PK	24	3,014,506	15.0	16.0	0.93
LAKE	HBSOCREC OFF	44	4,619,733	12.4	17.2	
LAKE	HBW PK	41	11,916,304	28.4	31.8	1.21
LAKE	HBW OFF	29	7,418,682	26.1	26.3	
LAKE	NHB PK	44	8,925,783	19.6	20.5	1.42
LAKE	NHB OFF	133	19,872,729	14.9	14.4	
<b>Area Total</b>	<b>PK</b>	<b>184</b>	<b>39,732,437</b>	<b>20.4</b>	<b>22.4</b>	
<b>Area Total</b>	<b>OFF</b>	<b>386</b>	<b>59,153,485</b>	<b>16.8</b>	<b>18.5</b>	
<b>AREA TOTAL</b>	<b>ALL</b>	<b>570</b>	<b>98,885,922</b>	<b>17.9</b>	<b>20.0</b>	
MARION	HBO PK	83	22,529,901	17.8	19.2	0.97
MARION	HBO OFF	113	26,258,241	17.2	19.8	
MARION	HBSHOP PK	71	14,380,568	16.0	13.3	0.74
MARION	HBSHOP OFF	238	30,643,245	17.2	17.9	
MARION	HBSOCREC PK	36	4,475,197	13.5	13.4	0.66
MARION	HBSOCREC OFF	64	11,009,560	17.3	20.3	
MARION	HBW PK	62	15,918,377	21.3	17.8	0.89
MARION	HBW OFF	38	13,329,127	20.4	19.9	
MARION	NHB PK	66	15,760,131	16.2	16.0	1.26
MARION	NHB OFF	203	34,306,080	13.2	12.7	
<b>Area Total</b>	<b>PK</b>	<b>318</b>	<b>73,064,173</b>	<b>17.3</b>	<b>16.7</b>	
<b>Area Total</b>	<b>OFF</b>	<b>656</b>	<b>115,546,253</b>	<b>16.2</b>	<b>17.2</b>	
<b>AREA TOTAL</b>	<b>ALL</b>	<b>974</b>	<b>188,610,426</b>	<b>16.5</b>	<b>17.0</b>	



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## Reported NHTS Trip Lengths (Cont'd)

County	Trip Purpose	Trip (Logs)	Trips (Wgtd)	Avg Min (Logs)	Avg Min (Wgtd)	PK/OFF Ratio
ORANGE	HBO PK	163	56,836,122	17.5	16.0	
OSCEOLA	HBO PK	48	20,080,127	15.5	13.7	
POLK	HBO PK	12	4,259,376	17.9	20.2	
SEMINOLE	HBO PK	108	28,814,642	17.4	15.0	
<b>Total</b>	<b>HBO PK</b>	<b>331</b>	<b>109,990,267</b>	<b>17.2</b>	<b>15.5</b>	
ORANGE	HBO OFF	196	59,859,780	18.4	15.4	0.91
OSCEOLA	HBO OFF	44	12,697,219	23.6	24.9	
POLK	HBO OFF	13	3,608,501	21.3	33.5	
SEMINOLE	HBO OFF	145	35,060,596	16.6	15.6	
<b>Total</b>	<b>HBO OFF</b>	<b>398</b>	<b>111,226,095</b>	<b>18.4</b>	<b>17.1</b>	
ORANGE	HBSHOP PK	137	35,321,496	13.8	14.1	
OSCEOLA	HBSHOP PK	34	5,838,339	15.1	14.0	
POLK	HBSHOP PK	9	4,116,469	13.6	11.1	
SEMINOLE	HBSHOP PK	79	15,340,003	17.7	14.1	
<b>Total</b>	<b>HBSHOP PK</b>	<b>259</b>	<b>60,616,306</b>	<b>15.1</b>	<b>13.9</b>	
ORANGE	HBSHOP OFF	285	81,191,639	13.4	12.2	1.14
OSCEOLA	HBSHOP OFF	62	17,099,955	15.0	15.2	
POLK	HBSHOP OFF	57	10,526,622	15.7	11.7	
SEMINOLE	HBSHOP OFF	180	31,186,650	12.1	11.0	
<b>Total</b>	<b>HBSHOP OFF</b>	<b>584</b>	<b>140,004,866</b>	<b>13.4</b>	<b>12.2</b>	
ORANGE	HBSOCREC PK	52	13,453,946	18.3	14.0	
OSCEOLA	HBSOCREC PK	8	1,430,207	14.6	19.0	
POLK	HBSOCREC PK	5	494,302	25.8	36.2	
SEMINOLE	HBSOCREC PK	38	6,441,350	21.3	21.1	
<b>Total</b>	<b>HBSOCREC PK</b>	<b>103</b>	<b>21,819,805</b>	<b>19.5</b>	<b>17.0</b>	
ORANGE	HBSOCREC OFF	128	43,912,632	18.0	14.7	1.02
OSCEOLA	HBSOCREC OFF	22	6,082,617	13.7	20.9	
POLK	HBSOCREC OFF	11	576,934	11.8	10.8	
SEMINOLE	HBSOCREC OFF	74	10,628,642	23.5	22.6	
<b>Total</b>	<b>HBSOCREC OFF</b>	<b>235</b>	<b>61,200,824</b>	<b>19.0</b>	<b>16.6</b>	
ORANGE	HBW PK	213	80,165,277	28.4	29.3	
OSCEOLA	HBW PK	47	19,428,103	30.9	41.9	
POLK	HBW PK	10	2,997,818	45.7	55.2	
SEMINOLE	HBW PK	147	36,277,926	24.1	23.6	
<b>Total</b>	<b>HBW PK</b>	<b>417</b>	<b>138,869,124</b>	<b>27.6</b>	<b>30.1</b>	
ORANGE	HBW OFF	131	73,937,267	23.9	24.6	1.13
OSCEOLA	HBW OFF	41	16,460,614	25.0	33.3	
POLK	HBW OFF	8	1,011,821	35.8	34.6	
SEMINOLE	HBW OFF	82	27,581,603	24.4	28.2	
<b>Total</b>	<b>HBW OFF</b>	<b>262</b>	<b>118,991,305</b>	<b>24.6</b>	<b>26.7</b>	
ORANGE	NHB PK	165	54,862,882	18.1	20.8	
OSCEOLA	NHB PK	45	13,092,341	21.4	22.4	
POLK	NHB PK	14	4,153,476	27.0	18.3	
SEMINOLE	NHB PK	114	24,490,119	18.8	19.9	
<b>Total</b>	<b>NHB PK</b>	<b>338</b>	<b>96,598,818</b>	<b>19.1</b>	<b>20.7</b>	
ORANGE	NHB OFF	343	97,355,019	17.0	16.9	1.29
OSCEOLA	NHB OFF	107	27,903,941	14.9	14.6	
POLK	NHB OFF	62	7,658,253	15.0	13.3	
SEMINOLE	NHB OFF	194	42,648,523	15.7	15.3	
<b>Total</b>	<b>NHB OFF</b>	<b>706</b>	<b>175,565,736</b>	<b>16.2</b>	<b>16.0</b>	
<b>Area Total</b>	<b>PK</b>	<b>1448</b>	<b>427,894,320</b>	<b>20.4</b>	<b>21.2</b>	
<b>Area Total</b>	<b>OFF</b>	<b>2185</b>	<b>606,988,826</b>	<b>17.1</b>	<b>17.5</b>	
<b>AREA TOTAL</b>	<b>ALL</b>	<b>3633</b>	<b>1,034,883,146</b>	<b>18.5</b>	<b>19.1</b>	

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## Reported NHTS Trip Lengths (Cont'd)

County	Trip Purpose	Trip (Logs)	Trips (Wgtd)	Avg Min (Logs)	Avg Min (Wgtd)	PK/OFF Ratio
SUMTER	HBO PK	7	1,076,549	15.7	17.5	0.65
SUMTER	HBO OFF	18	1,820,635	25.8	27.0	
SUMTER	HBSHOP PK	17	1,851,490	15.4	20.0	1.54
SUMTER	HBSHOP OFF	57	4,898,108	12.9	13.0	
SUMTER	HBSOCREC PK	12	2,195,958	13.8	21.6	0.73
SUMTER	HBSOCREC OFF	32	5,657,419	15.8	29.4	
SUMTER	HBW PK	6	1,139,304	36.8	39.5	1.85
SUMTER	HBW OFF	5	1,213,813	22.4	21.3	
SUMTER	NHB PK	15	1,693,951	10.1	9.7	0.72
SUMTER	NHB OFF	46	3,740,457	13.1	13.4	
Area Total	PK	57	7,957,252	16.0	20.7	
Area Total	OFF	158	17,330,432	15.3	20.5	
AREA TOTAL	ALL	215	25,287,684	15.5	20.6	
FLAGLER	HBO PK	32	5,977,648	12.5	11.8	
VOLUSIA	HBO PK	94	22,297,256	18.1	19.1	
Total	HBO PK	126	28,274,905	13.6	17.6	
FLAGLER	HBO OFF	38	8,638,562	16.6	12.2	0.97
VOLUSIA	HBO OFF	135	29,111,341	19.7	19.8	
Total	HBO OFF	173	37,749,903	15.5	18.1	
FLAGLER	HBSHOP PK	31	3,480,623	16.6	12.8	
VOLUSIA	HBSHOP PK	122	19,980,873	16.6	16.1	
Total	HBSHOP PK	153	23,461,496	13.3	15.6	
FLAGLER	HBSHOP OFF	72	4,417,402	14.3	14.2	1.10
VOLUSIA	HBSHOP OFF	338	69,861,665	14.7	14.2	
Total	HBSHOP OFF	410	74,279,066	12.1	14.2	
FLAGLER	HBSOCREC PK	16	757,300	10.4	8.8	
VOLUSIA	HBSOCREC PK	31	6,542,206	21.5	25.9	
Total	HBSOCREC PK	47	7,299,506	14.4	24.1	
FLAGLER	HBSOCREC OFF	33	1,681,878	17.5	18.2	1.32
VOLUSIA	HBSOCREC OFF	93	18,485,742	17.1	18.2	
Total	HBSOCREC OFF	126	20,167,620	12.8	18.2	
FLAGLER	HBW PK	35	5,589,741	22.3	26.8	
VOLUSIA	HBW PK	127	36,643,002	25.8	23.2	
Total	HBW PK	162	42,232,743	20.3	23.7	
FLAGLER	HBW OFF	22	3,506,637	17.4	22.3	1.03
VOLUSIA	HBW OFF	52	14,526,220	25.0	23.1	
Total	HBW OFF	74	18,032,857	17.8	22.9	
FLAGLER	NHB PK	29	2,404,177	13.9	13.6	
VOLUSIA	NHB PK	94	21,578,596	18.0	20.4	
Total	NHB PK	123	23,982,773	13.9	19.7	
FLAGLER	NHB OFF	108	18,523,934	18.7	13.4	1.33
VOLUSIA	NHB OFF	339	61,268,043	14.0	15.3	
Total	NHB OFF	447	79,791,978	10.7	14.8	
Area Total	PK	611	125,251,423	15.4	20.1	
Area Total	OFF	1230	230,021,424	12.5	16.1	
AREA TOTAL	ALL	1841	355,272,847	13.5	17.5	
CFRPM TOTAL	PK	3276	823,733,979	18.1	19.7	
CFRPM TOTAL	OFF	5742	1,231,951,393	15.6	16.9	
CFRPM TOTAL	ALL	9018	2,055,685,372	16.5	18.0	





## Appendix G

# 2040 LRTP MODEL DEVELOPMENT OUTPUT





RIVER TO SEA TPO 2040 LRTP  
Highway Deficiencies for 2040 E+C, 2040 Highway Alternative, and 2040 Growth Volumes

Row No.	Roadway	From	To	CFRPM6.0 2010 BASE YEAR				CFRPM 6.0 2040 E+C NETWORK				CFRPM 6.0 2040 Highway Alt				CFRPM 6.0 2040 Transit Alt				2040 % Growth Rate on 2013 AADT Count								
				No. Lns	2010 Model AADT Count	2010 Model Vol	2010 Model V/Cnt	No. Lns	FDOT or County or City Cap	Model Adj Vol	Model Adj Vol/ Cap	No. Lns	FDOT or County or City Cap	Model Adj Vol	Model Adj Vol/ Cap	No. Lns	FDOT or County or City Cap	Model Adj Vol	Model Adj Vol/ Cap	2010 AADT Count	2013 AADT Count	Required % Annual Growth to Exceed Cap	Regression% Annual 2010-2013 Observed Growth	Regression Growth Meets Exceed% ?	2040 1% Annual Growth Vol	2040 1% Annual Growth Vol/ Cap	2040 2% Annual Growth Vol	2040 2% Annual Growth Vol/ Cap
1	I-95																											
2	I-95	Brevard CL	Maytown Rd (Hwy Alt New Interchange)	4	27,000	25,300	0.94	6	64,000	54,800	0.86	6	64,000	72,800	1.14	6	64,000	74,700	1.17	27,000	26,000	3.4%	-1.3%		36,392	0.57	48,907	0.76
2	I-95	Maytown Rd (Hwy Alt New Interchange)	SR 442/W Indian River Blvd	4	27,000	25,300	0.94	6	64,000	54,800	0.86	6	64,000	72,700	1.14	6	64,000	73,700	1.15	27,000	26,000	3.4%	-1.3%		36,392	0.57	48,907	0.76
3	I-95	SR 442/W Indian River Blvd	SR 44	4	35,900	36,400	1.01	6	93,000	73,000	0.78	6	93,000	72,200	0.78	6	93,000	72,700	0.78	35,900	32,500	4.0%	-3.3%		48,388	0.52	65,028	0.70
4	I-95	SR 44	Pioneer Tr (Hwy Alt New Interchange)	4	41,800	40,500	0.97	6	93,000	76,300	0.82	6	93,000	77,700	0.84	6	93,000	77,500	0.83	41,800	36,600	3.5%	-4.3%		56,340	0.61	75,715	0.81
4	I-95	Pioneer Tr (Hwy Alt New Interchange)	CR421/Taylor Rd	4	41,800	40,500	0.97	6	93,000	76,300	0.82	6	93,000	82,100	0.88	6	93,000	80,700	0.87	41,800	36,600	3.5%	-4.3%		56,340	0.61	75,715	0.81
5	I-95	CR421/Taylor Rd	US 92	4	46,000	49,000	1.07	6	113,000	74,100	0.66	6	113,000	117,900	1.04	6	113,000	116,400	1.03	46,000	45,000	3.5%	-0.7%		62,001	0.55	83,323	0.74
6	I-95	US 92	CR 4019/LPGA Blvd (11th St)	6	62,500	68,300	1.09	6	93,000	85,000	0.91	6	93,000	87,700	0.94	6	93,000	86,700	0.93	62,500	71,500	1.0%	4.6%	Yes	84,241	0.91	113,210	1.22
7	I-95	CR 4019/LPGA Blvd (11th St)	SR 40	6	68,300	71,400	1.05	8	143,500	96,300	0.67	8	143,500	95,300	0.66	8	143,500	91,900	0.64	68,300	70,000	2.7%	0.8%		92,058	0.64	123,716	0.86
8	I-95	SR 40	US 1	6	60,000	54,600	0.91	6	93,000	94,100	1.01	6	93,000	97,100	1.04	6	93,000	91,000	0.98	60,000	63,500	1.4%	1.9%	Yes	80,871	0.87	108,682	1.17
9	I-95	US 1	Old Dixie Hwy	6	60,000	52,100	0.87	6	93,000	81,600	0.88	6	93,000	84,500	0.91	6	93,000	81,300	0.87	60,000	69,500	1.1%	5.0%	Yes	80,871	0.87	108,682	1.17
10	I-95	Old Dixie Hwy	SR 100	6	50,000	47,400	0.95	6	64,000	66,300	1.04	6	64,000	67,700	1.06	6	64,000	65,700	1.03	50,000	40,500	1.7%	-6.8%		67,392	1.05	90,568	1.42
11	I-95	SR 100	Palm Coast Pkwy	6	63,400	48,600	0.77	6	111,800	78,400	0.70	6	111,800	79,200	0.71	6	111,800	77,700	0.69	63,400	65,100	2.0%	0.9%		85,454	0.76	114,840	1.03
12	I-95	* Palm Coast Pkwy	St. Johns CL	6	52,000	51,900	1.00	6	111,800	75,000	0.67	6	111,800	57,800	0.52	6	111,800	57,900	0.52	52,000	43,500	3.6%	-5.8%		70,088	0.63	94,191	0.84
13	I-4																											
14	I-4	Volusia/Seminole CL	Dirksen Dr	6	112,600	110,700	0.98	6	113,000	124,800	1.10	10	189,100	193,000	1.02	10	189,100	176,900	0.94	112,600	108,000	0.2%	-1.4%		151,768	1.34	203,959	1.80
15	I-4	Dirksen Dr	Saxon Blvd	6	102,600	100,000	0.97	6	93,000	112,600	1.21	10	155,600	175,500	1.13	10	155,600	160,300	1.03	102,600	96,300	-0.1%	-2.1%		138,289	1.49	185,846	2.00
16	I-4	Saxon Blvd	Rhode Island Slip Ramp	6	87,300	92,200	1.06	6	93,000	100,900	1.08	10	155,600	147,900	0.95	10	155,600	141,100	0.91	87,300	86,500	0.3%	-0.3%		117,667	1.27	158,132	1.70
16	I-4	Rhode Island Slip Ramp	SR 472	6	87,300	92,200	1.06	6	93,000	100,900	1.08	8	123,700	122,700	0.99	8	123,700	110,200	0.89	87,300	86,500	0.3%	-0.3%		117,667	1.27	158,132	1.70
17	I-4	SR 472	Orange Camp Rd	6	77,000	79,400	1.03	6	93,000	95,300	1.02	6	93,000	95,100	1.02	6	93,000	91,000	0.98	77,000	77,000	0.7%	0.0%		103,784	1.12	139,475	1.50
18	I-4	Orange Camp Rd	SR 44	6	64,100	69,000	1.08	6	93,000	84,800	0.91	6	93,000	86,500	0.93	6	93,000	84,900	0.91	64,100	60,500	1.6%	-1.9%		86,397	0.93	116,108	1.25
19	I-4	SR 44	US 92 Ramps (2.6 mi W of I-95)	4	56,400	56,900	1.01	6	93,000	88,400	0.95	6	93,000	90,000	0.97	6	93,000	89,100	0.96	56,400	55,000	2.0%	-0.8%		76,019	0.82	102,161	1.10
20	SR 430																											
21	SR 430	SR 483	N Beach St	4	18,100	35,300	1.95	4	32,400	18,700	0.58	4	32,400	20,300	0.63	4	32,400	20,100	0.62	18,100	17,800	2.2%	-0.6%		23,300	0.72	30,400	0.94
22	SR 430 EB	Peninsula Dr	Peninsula Dr	2	5,800	22,500	3.88	2	23,880	5,400	0.23	2	23,880	5,300	0.22	2	23,880	5,600	0.23	5,800	5,300	5.7%	-3.0%		6,900	0.29	9,000	0.38
23	SR 430 EB	Peninsula Dr	SR A1A	2	4,600	21,300	4.63	2	35,940	4,100	0.11	2	35,940	4,000	0.11	2	35,940	4,200										



RIVER TO SEA TPO 2040 LRTP  
Highway Deficiencies for 2040 E+C, 2040 Highway Alternative, and 2040 Growth Volumes

Row No.	Roadway	From	To	CFRPM6.0 2010 BASE YEAR				CFRPM 6.0 2040 E+C NETWORK				CFRPM 6.0 2040 Highway Alt				CFRPM 6.0 2040 Transit Alt				2040 % Growth Rate on 2013 AADT Count									
				No. Lns	2010 Model AADT Count	2010 Model Vol	2010 Model V/Cnt	No. Lns	FDOT or County or City Cap	Model Adj Vol	Model Adj Vol/ Cap	No. Lns	FDOT or County or City Cap	Model Adj Vol	Model Adj Vol/ Cap	No. Lns	FDOT or County or City Cap	Model Adj Vol	Model Adj Vol/ Cap	2010 AADT Count	2013 AADT Count	Required % Annual Growth to Exceed Cap	Regression% Annual 2010-2013 Observed Growth	Regression Growth Exceed% ?	2040 1% Annual Growth Vol	2040 1% Annual Growth Vol/ Cap	2040 2% Annual Growth Vol	2040 2% Annual Growth Vol/ Cap	
80	SR 5/US 1	Royal Palms Pkwy (Urban Boundary)	Palm Coast Pkwy	4	13,200	16,900	1.28	4	41,790	44,200	1.06	4	41,790	40,500	0.97	4	41,790	37,500	0.90	13,200	14,100	4.1%	2.2%		18,400	0.44	24,100	0.58	
81	SR 5/US 1	Palm Coast Pkwy	Matanzas Wood Pkwy	4	13,200	16,900	1.28	4	41,790	44,200	1.06	4	41,790	40,500	0.97	4	41,790	37,500	0.90	13,200	14,100	4.1%	2.2%		18,400	0.44	24,100	0.58	
82	SR 5/US 1	Matanzas Wood Pkwy	Old Kings Rd	4	9,100	9,600	1.05	4	65,600	25,048	0.38	4	65,600	28,100	0.43	4	65,600	27,500	0.42	9,100	8,900	7.7%	-0.7%		11,600	0.18	15,200	0.23	
83	SR 5/US 1	Old Kings Rd	St. Johns County Line	4	9,100	9,600	1.05	4	65,600	25,048	0.38	4	65,600	28,100	0.43	4	65,600	27,500	0.42	9,100	8,900	7.7%	-0.7%		11,600	0.18	15,200	0.23	
84	US 92																												
85	SR 600/US 92	US 17/SR 15	Old Daytona Rd (approx. Urban Boundry)	4	23,500	23,400	1.00	4	41,790	30,600	0.73	4	41,790	25,800	0.62	4	41,790	25,500	0.61	23,500	25,500	1.8%	2.8%	Yes	33,400	0.80	43,500	1.04	
86	SR 600/US 92	US 17/SR 15	Flightline Blvd	4	23,500	23,400	1.00	4	41,790	30,600	0.73	4	41,790	25,800	0.62	4	41,790	25,500	0.61	23,500	25,500	1.8%	2.8%	Yes	33,400	0.80	43,500	1.04	
87	SR 600/US 92	Flightline Blvd	Old Daytona Rd (approx. Urban Boundry)	4	23,300	23,700	1.02	4	41,790	30,686	0.73	4	41,790	26,100	0.62	4	41,790	25,600	0.61	23,300	22,500	2.3%	-1.2%		29,400	0.70	38,400	0.92	
88	SR 600/US 92	Old Daytona Rd (approx. Urban Boundary)	Red John Dr	4	16,400	26,900	1.64	4	40,300	28,800	0.71	4	40,300	29,400	0.73	4	40,300	28,300	0.70	16,400	13,000	4.3%	-7.5%		17,000	0.42	22,200	0.55	
89A	SR 600/US 92	Red John Dr	CR 415/Tomoka Farms Rd	4	22,300	33,300	1.49	4	35,700	35,200	0.99	4	35,700	36,000	1.01	4	35,700	34,700	0.97	22,300	19,800	2.2%	-3.9%		25,900	0.73	33,800	0.95	
89B	SR 600/US 92	CR 415/Tomoka Farms Rd	I-4 Eastbound Ramp	4	24,200	27,600	1.14	4	35,700	34,561	0.97	6	54,710	41,100	0.75	6	54,710	40,400	0.74	24,200	19,800	2.2%	-6.5%		25,900	0.73	33,800	0.95	
90	SR 600/US 92	I-4 Eastbound Ramp	SR 9/I-95	4	24,200	27,600	1.14	4	41,790	34,561	0.83	6	62,900	41,100	0.65	6	62,900	40,400	0.64	24,200	25,000	1.9%	1.1%		32,700	0.78	42,700	1.02	
91	SR 600/US 92	SR 9/I-95	Williamson Blvd	8	41,500	46,600	1.12	8	84,110	55,536	0.66	8	84,110	55,300	0.66	8	84,110	53,700	0.64	41,500	37,500	3.0%	-3.3%		49,100	0.58	64,000	0.76	
92	SR 600/US 92	Williamson Blvd	Bill France Blvd	8	44,400	55,900	1.26	8	84,110	56,400	0.67	8	84,110	54,900	0.65	8	84,110	54,400	0.65	44,400	42,000	2.6%	-1.8%		54,900	0.65	71,700	0.85	
93	SR 600/US 92	Bill France Blvd	SR 483/Clyde Morris Blvd	8	38,600	53,300	1.38	8	84,110	44,000	0.52	8	84,110	42,300	0.50	8	84,110	41,800	0.50	38,600	36,000	3.2%	-2.3%		47,100	0.56	61,400	0.73	
94	SR 600/US 92	SR 483/Clyde Morris Blvd	SR 5A/Nova Rd	6	39,300	41,200	1.05	6	62,900	43,429	0.69	6	62,900	42,000	0.67	6	62,900	42,600	0.68	39,300	36,000	2.1%	-2.9%		47,100	0.75	61,400	0.98	
95	SR 600/US 92	SR 5A/Nova Rd	SR 5/US 1	4	25,100	24,500	0.98	4	39,800	29,082	0.73	4	39,800	28,500	0.72	4	39,800	28,500	0.72	25,100	26,000	1.6%	1.2%		34,000	0.85	44,400	1.12	
96	SR 600/US 92	SR 5A/Nova Rd	MLK Blvd	4	25,100	24,500	0.98	4	39,800	29,082	0.73	4	39,800	28,500	0.72	4	39,800	28,500	0.72	25,100	26,000	1.6%	1.2%		34,000	0.85	44,400	1.12	
97	SR 600/US 92	MLK Blvd	SR 5/US 1	4	23,200	25,000	1.08	4	39,800	27,963	0.70	4	39,800	27,900	0.70	4	39,800	28,000	0.70	23,200	22,000	2.2%	-1.8%		28,800	0.72	37,600	0.94	
98	US 92	US 1	Beach Street	4	17,800	11,600	0.65	4	32,400	24,900	0.77	4	32,400	26,000	0.80	4	32,400	25,700	0.79	17,800	17,300	2.4%	-0.9%		22,600	0.70	29,500	0.91	
99	US 92	Beach St	Halifax Dr	4	15,200	7,000	0.46	4	65,600	27,800	0.42	4	65,600	26,400	0.40	4	65,600	27,400	0.42	15,200	13,200	6.1%	-4.6%		17,300	0.26	22,500	0.34	
100	US 92	Halifax Dr	SR A1A	4	9,200	5,800	0.63	4	32,400	22,000	0.68	4	32,400	21,300	0.66	4	32,400	20,900	0.65	9,200	9,900	4.5%	2.5%		13,000	0.40	16,900	0.52	
101	SR 44																												
102	SR 44	Lake County Line	Shell Rd	2	9,000	7,600	0.84	2	8,400	31,429	3.74	2	8,400	27,600	3.29	2	8,400	27,300	3.25	9,000	9,200	-0.3%	0.7%	Yes	12,000	1.43	15,700	1.87	
103	SR 44	CR 4053/Grand Ave	Old New York Ave	2	10,100	9,600	0.95	2	24,200	28,526	1.18	2	24,200	27,400	1.13	2	24,200	27,500	1.14	10,100	9,700	3.4%	-1.3%		12,700	0.52	1		

RIVER TO SEA TPO 2040 LRTP  
Highway Deficiencies for 2040 E+C, 2040 Highway Alternative, and 2040 Growth Volumes

Row No.	Roadway	From	To	CFRPM6.0 2010 BASE YEAR				CFRPM 6.0 2040 E+C NETWORK				CFRPM 6.0 2040 Highway Alt				CFRPM 6.0 2040 Transit Alt				2040 % Growth Rate on 2013 AADT Count									
				No. Lns	2010 Model AADT Count	2010 Model Vol	2010 Model V/Cnt	No. Lns	FDOT or County or City Cap	Model Adj Vol	Model Adj Vol/ Cap	No. Lns	FDOT or County or City Cap	Model Adj Vol	Model Adj Vol/ Cap	No. Lns	FDOT or County or City Cap	Model Adj Vol	Model Adj Vol/ Cap	2010 AADT Count	2013 AADT Count	Required % Annual Growth to Exceed Cap	Regression% Annual 2010-2013 Observed Growth	Regression Growth Exceed% ?	2040 1% Annual Growth Vol	2040 1% Annual Growth Vol/ Cap	2040 2% Annual Growth Vol	2040 2% Annual Growth Vol/ Cap	
162	US 17-92/SR 600/SR15	Debary Plantation Blvd	Saxon Blvd	4	26,200	26,800	1.02	4	41,790	34,118	0.82	4	41,790	23,600	0.56	4	41,790	24,900	0.60	26,200	26,000	1.8%	-0.3%		34,000	0.81	44,400	1.06	
163	US 17-92/SR 600/SR15	Saxon Blvd	Enterprise Rd	4	17,600	20,900	1.19	4	41,790	22,521	0.54	4	41,790	15,400	0.37	4	41,790	16,400	0.39	17,600	17,600	3.3%	0.0%		23,000	0.55	30,000	0.72	
164	US 17-92/SR 600/SR15	Enterprise Rd	Blue Springs Ave	4	31,800	27,500	0.86	4	41,790	38,023	0.91	4	41,790	32,700	0.78	4	41,790	33,300	0.80	31,800	30,500	1.2%	-1.4%		39,900	0.95	52,100	1.25	
165	US 17-92/SR 600/SR15	Blue Springs Ave	Graves Ave	4	28,200	26,400	0.94	4	39,800	33,936	0.85	4	39,800	28,800	0.72	4	39,800	29,500	0.74	28,200	29,000	1.2%	0.9%		37,900	0.95	49,500	1.24	
166	US 17-92/SR 600/SR15	Graves Ave	Wisconsin Ave	4	28,600	24,800	0.87	4	39,800	34,943	0.88	4	39,800	29,400	0.74	4	39,800	30,000	0.75	28,600	26,500	1.5%	-2.5%		34,700	0.87	45,200	1.14	
167	US 17-92/SR 600/SR15	Wisconsin Ave	SR 472	4	26,800	25,700	0.96	4	41,790	35,417	0.85	4	41,790	29,800	0.71	4	41,790	30,700	0.73	26,800	27,000	1.6%	0.2%		35,300	0.84	46,100	1.10	
168	US 17-92/SR 600/SR15	SR 472	SR 15A/Taylor Rd	6	42,100	47,600	1.13	6	62,900	58,319	0.93	8	84,100	55,700	0.66	8	84,100	54,700	0.65	42,100	45,000	1.2%	2.2%	Yes	58,900	0.94	76,800	1.22	
169	US 17-92/SR 600/SR15	SR 15A/Taylor Rd	Beresford Ave	4	26,300	25,400	0.97	4	41,790	31,959	0.76	4	41,790	30,900	0.74	4	41,790	30,500	0.73	26,300	27,000	1.6%	0.9%		35,300	0.84	46,100	1.10	
170	US 17-92/SR 600/SR15	Beresford Ave	Euclid Ave	2	16,900	15,300	0.91	2	15,540	18,132	1.17	2	15,540	18,000	1.16	2	15,540	17,800	1.15	16,900	16,600	-0.2%	-0.6%		21,700	1.40	28,300	1.82	
171	US 17-92/SR 600/SR15	Euclid Ave	SR 44/New York Ave	2	15,000	10,200	0.68	2	15,540	16,100	1.04	2	15,540	15,600	1.00	2	15,540	15,400	0.99	15,000	16,300	-0.2%	2.8%	Yes	21,300	1.37	27,800	1.79	
172	US 17-92/SR 600/SR15	SR 44/New York Ave	Plymouth Ave	2	16,300	9,900	0.61	2	15,540	17,200	1.11	2	15,540	16,500	1.06	2	15,540	16,100	1.04	16,300	16,300	-0.2%	0.0%		21,300	1.37	27,800	1.79	
173	US 17-92/SR 600/SR15	Plymouth Ave	Int'l Speedway Blvd	4	21,200	15,700	0.74	4	41,790	28,700	0.69	4	41,790	23,500	0.56	4	41,790	22,800	0.55	21,200	20,500	2.7%	-1.1%		26,800	0.64	35,000	0.84	
174	SR 15/US 17																												
175	SR 15/US 17	Int'l Speedway Blvd	Mercers Fernery Rd	4	28,400	21,300	0.75	4	41,790	34,700	0.83	4	41,790	33,100	0.79	4	41,790	32,800	0.78	28,400	29,000	1.4%	0.7%		37,900	0.91	49,500	1.18	
176	SR 15/US 17	Mercers Fernery Rd	Glenwood Rd	4	20,900	19,200	0.92	4	39,800	26,957	0.68	4	39,800	25,100	0.63	4	39,800	24,600	0.62	20,900	20,500	2.5%	-0.6%		26,800	0.67	35,000	0.88	
177	SR 15/US 17	Glenwood Rd	SR 15A	4	14,500	8,300	0.57	4	41,790	17,200	0.41	4	41,790	16,600	0.40	4	41,790	16,900	0.40	14,500	13,500	4.3%	-2.4%		17,700	0.42	23,000	0.55	
178	SR 15/US 17	SR 15A	Reynolds Rd	4	18,100	15,900	0.88	4	65,600	22,500	0.34	4	65,600	20,700	0.32	4	65,600	21,100	0.32	18,100	15,800	5.4%	-4.4%		20,700	0.32	27,000	0.41	
179A	SR 15/US 17	Reynolds Rd	Ponce Deleon Blvd	2	10,800	12,900	1.19	2	25,410	14,874	0.59	4	25,410	12,900	0.51	4	25,410	13,200	0.52	10,800	10,100	3.5%	-2.2%		13,200	0.52	17,200	0.68	
179B	SR 15/US 17	Spring Garden Ranch Blvd	Spring Garden Ranch Rd	2	10,800	12,900	1.19	2	25,410	14,874	0.59	4	68,900	12,900	0.19	4	68,900	13,200	0.19	10,800	10,100	3.5%	-2.2%		13,200	0.52	17,200	0.68	
180	SR 15/US 17	Spring Garden Ranch Rd	Lake Winona Rd	2	-	11,400	n/c	2	17,300	16,000	0.92	4	49,600	14,000	0.28	4	49,600	14,300	0.29	-	7,300	3.2%	n/a	n/a		9,500	0.55	12,500	0.72
181	SR 15/US 17	Lake Winona Rd	SR 40	2	7,500	11,200	1.49	2	8,400	12,000	1.43	4	40,300	10,200	0.25	4	40,300	10,600	0.26	7,500	7,300	0.5%	-0.9%		9,500	1.13	12,500	1.49	
182	SR 15/US 17	SR 40	Washington Ave	2	5,600	5,000	0.89	2	8,400	12,247	1.46	2	8,400	9,300	1.11	2	8,400	8,300	0.99	5,600	6,200	1.1%	3.5%	Yes	8,100	0.96	10,600	1.26	
183	SR 15/US 17	Washington Ave	CR 305/Lk George Rd	2	-	5,000	n/c	2	8,400	10,900	1.30	2	8,400	8,300	0.99	2	8,400	7,400	0.88	4,500	4,500	2.3%	0.0%		5,900	0.70	7,700	0.92	
184	SR 15/US 17	CR 305/Lk George Rd	Putnam County Line	2	-	4,200	n/c	2	8,400	8,100	0.96	2	8,400	8,100	0.96	2	8,400	8,100	0.96	4,400	4,400	2.4%	0.0%		5,800	0.69	7,500	0.89	
185	SR 11																												

RIVER TO SEA TPO 2040 LRTP  
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Row No.	Roadway	From	To	CFRPM6.0 2010 BASE YEAR				CFRPM 6.0 2040 E+C NETWORK				CFRPM 6.0 2040 Highway Alt				CFRPM 6.0 2040 Transit Alt				2040 % Growth Rate on 2013 AADT Count									
				No. Lns	2010 Model AADT Count	2010 Model Vol	2010 Model V/Cnt	No. Lns	FDOT or County or City Cap	Model Adj Vol	Model Adj Vol/ Cap	No. Lns	FDOT or County or City Cap	Model Adj Vol	Model Adj Vol/ Cap	No. Lns	FDOT or County or City Cap	Model Adj Vol	Model Adj Vol/ Cap	2010 AADT Count	2013 AADT Count	Required % Annual Growth to Exceed Cap	Regression% Annual 2010-2013 Observed Growth	Regression Growth Meets Exceed% ?	2040 1% Annual Growth Vol	2040 1% Annual Growth Vol/ Cap	2040 2% Annual Growth Vol	2040 2% Annual Growth Vol/ Cap	
243	SR 5A	Wilmette Ave	SR 5/US 1	4	12,300	13,500	1.10	4	41,790	16,727	0.40	4	41,790	15,500	0.37	4	41,790	15,100	0.36	12,300	12,300	4.6%	0.0%		16,100	0.39	21,000	0.50	
244	SR 442																												
New	SR 442 Extension	SR 442	Elkcam Blvd	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2	15,840	9,800	0.62	2	15,840	9,200	0.58	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
New	SR 442 Extension	SR 415	I-95	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	4	15,840	22,900	1.45	4	15,840	22,500	1.42	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
245	SR 442	I-95	Air Park Rd	4	10,600	11,600	1.09	4	35,700	20,826	0.58	4	35,700	28,600	0.80	4	35,700	28,600	0.80	10,600	9,525	5.0%	-3.5%		12,500	0.35	16,300	0.46	
246	SR 442	Air Park Rd	Queen Palm Dr	4	11,800	9,300	0.79	4	39,800	17,200	0.43	4	39,800	19,900	0.50	4	39,800	20,200	0.51	11,800	12,000	4.5%	0.6%		15,700	0.39	20,500	0.52	
247	SR 442	Queen Palm Dr	SR 5/US 1	4	17,100	10,400	0.61	4	34,020	19,800	0.58	4	34,020	19,800	0.58	4	34,020	20,000	0.59	17,100	16,100	2.8%	-2.0%		21,100	0.62	27,500	0.81	
248	SR 421																												
249/50	SR 421	W. of Williamson Blvd	Clyde Morris Blvd	6	35,500	25,700	0.72	6	62,900	47,900	0.76	6	62,900	46,600	0.74	6	62,900	45,700	0.73	35,500	38,500	1.8%	2.7%	Yes	50,400	0.80	65,700	1.04	
251	SR 421	Clyde Morris Blvd	Nova Rd	6	30,500	28,500	0.93	6	62,900	39,570	0.63	6	62,900	39,400	0.63	6	62,900	38,500	0.61	30,500	26,500	3.3%	-4.6%		34,700	0.55	45,200	0.72	
252	SR 421	Nova Rd	SR 5/US 1	4	29,300	20,600	0.70	4	41,790	35,200	0.84	4	41,790	34,600	0.83	4	41,790	35,200	0.84	29,300	28,000	1.5%	-1.5%		36,600	0.88	47,800	1.14	
253	SR 421	Nova Rd	Oak St	4	29,300	20,600	0.70	4	41,790	35,200	0.84	4	41,790	34,600	0.83	4	41,790	35,200	0.84	29,300	28,000	1.5%	-1.5%		36,600	0.88	47,800	1.14	
254	SR 421	Oak St	SR 5/US 1	4	26,400	17,000	0.64	4	41,790	32,500	0.78	4	41,790	31,700	0.76	4	41,790	32,300	0.77	26,400	25,500	1.8%	-1.1%		33,400	0.80	43,500	1.04	
255	SR 441																												
256	SR 441	SR A1A	Florida Shores Blvd	2	5,800	6,900	1.19	2	24,200	8,655	0.36	2	24,200	8,600	0.36	2	24,200	8,700	0.36	5,800	5,300	5.8%	-3.0%		6,900	0.29	9,000	0.37	
257	SR 441	Florida Shores Blvd	SR 600	2	9,100	11,000	1.21	2	17,700	14,500	0.82	2	17,700	15,000	0.85	2	17,700	15,500	0.88	9,100	9,400	2.4%	1.1%		12,300	0.69	16,000	0.90	
258	SR 483																												
259	SR 483	SR 400	SR 600/Int'l Speedway Blvd	4	30,100	23,800	0.79	4	41,790	34,300	0.82	6	41,790	41,900	1.00	6	41,790	41,900	1.00	30,100	27,000	1.6%	-3.6%		35,300	0.84	46,100	1.10	
260	SR 483	SR 600/Int'l Speedway Blvd	SR 430	4	17,600	22,300	1.27	4	41,790	20,300	0.49	4	41,790	21,300	0.51	4	41,790	21,900	0.52	17,600	18,100	3.1%	0.9%		23,700	0.57	30,900	0.74	
263	SR 600/US 92																												
264	SR 600/US 92	Beach St.	Halifax Dr	4	15,200	7,000	0.46	4	65,600	27,800	0.42	4	65,600	26,400	0.40	4	65,600	27,400	0.42	15,200	18,100	4.9%	6.0%	Yes	23,700	0.36	30,900	0.47	
265	SR 40																												
266	SR 40	Lake County Line	Emporia Rd	2	6,800	24,200	3.56	2	16,400	18,100	1.10	2	16,400	16,700	1.02	2	16,400	16,200	0.99	6,800	6,800	3.3%	0.0%		8,900	0.54	11,600	0.71	
267	SR 40	Emporia Rd	SR 15/US 17	2	6,500	24,500	3.77	2	16,400	9,000	0.55	2	16,400	8,700	0.53	2	16,400	8,500	0.52	6,500	6,600	3.4%	0.5%		8,600	0.52	11,300	0.69	
268AA	SR 40	SR 15/US 17	SR 11	2	5,800	20,900	3.60	2	8,400	8,100	0.96	4	40,300	14,300	0.35	4	40,300	14,000	0.35	5,800	5,400	1.6%	-2.4%		7,100	0.85	9,200	1.10	
268AB	SR 40	SR 11	Cone Rd	2	-	17,700	n/c	2	8,400	24,800	2.95	4	40,300	32,400	0.80	4	40,300	32,100	0.80	-	5,400	1.6%	n/c		7,100	0.85	9,200	1.10	
268B	SR 40	Cone Rd	Rima Ridge Rd (approx. Urban Boundary)	2	5,800	20,900	3.60	2	16,400	8,100	0.49	4	16,400	14,300	0.87	4	16,400	14,000	0.85	5,800	5,400	4.2%	-2.4%		7,100	0.43	9,200	0.56	
269A	SR 40	Rima Ridge Rd (approx. Urban Boundary)	Breakway Tr	4	9,900	19,100	1.93	4	41,790	17,700	0.42	4	41,790	25,200	0.60	4	41,790	24,200	0.58	9,900	9,400	5.7%	-1.7%		12,300	0.29	16,000	0	



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Row No.	Roadway	From	To	CFRPM6.0 2010 BASE YEAR				CFRPM 6.0 2040 E+C NETWORK				CFRPM 6.0 2040 Highway Alt				CFRPM 6.0 2040 Transit Alt				2040 % Growth Rate on 2013 AADT Count									
				No. Lns	2010 Model AADT Count	2010 Model Vol	2010 Model V/Cnt	No. Lns	FDOT or County or City Cap	Model Adj Vol	Model Adj Vol/ Cap	No. Lns	FDOT or County or City Cap	Model Adj Vol	Model Adj Vol/ Cap	No. Lns	FDOT or County or City Cap	Model Adj Vol	Model Adj Vol/ Cap	2010 AADT Count	2013 AADT Count	Required % Annual Growth to Exceed Cap	Regression% Annual 2010-2013 Observed Growth	Regression Growth Meets Exceed? %	2040 1% Annual Growth Vol	2040 1% Annual Growth Vol/ Cap	2040 2% Annual Growth Vol	2040 2% Annual Growth Vol/ Cap	
318	CR 92 (Intn'l Spdwy Blvd.)	Stone St. to US 17/92		4	15,200	10,500	0.69	4	30,420	23,000	0.76	4	30,420	16,000	0.53	4	30,420	15,300	0.50	14,870	14,510	2.8%	-0.8%		19,000	0.62	24,800	0.82	
419	Courtland Blvd																												
New	Courtland Blvd	Fort Smith Blvd to Howland Blvd		2	-	8,900	n/c	2	13,640	8,200	0.60	2	17,900	7,300	0.41	2	17,900	7,200	0.40	n/c	8,000	2.0%	n/a	n/a		10,500	0.77	13,700	1.00
419	Deltona Blvd																												
New	Deltona Blvd	Doyle Rd to Enterprise Rd		2	-	10,300	n/c	2	14,740	14,000	0.95	4	30,420	9,300	0.31	4	30,420	10,800	0.36	n/c	2,740	6.4%	n/a	n/a		3,600	0.24	4,700	0.32
319	Dirksen/DeBary/Doyle																												
320	Dirksen/DeBary/Doyle	US 17/92 to Sunrise Blvd.		2	-	21,600	n/c	2	13,640	29,800	2.18	2	13,640	13,500	0.99	2	13,640	14,400	1.06	6,270	6,190	3.0%	-0.4%		8,100	0.59	10,600	0.78	
321	Dirksen/DeBary/Doyle	Sunrise Blvd to WB I-4 Ramps		2	10,300	27,900	2.71	2	13,640	18,300	1.34	2	13,640	18,700	1.37	2	13,640	18,200	1.33	10,720	9,980	1.2%	-2.4%		13,100	0.96	17,000	1.25	
322	Dirksen/DeBary/Doyle	WB I-4 Ramps to EB I-4 Ramps		4	17,100	27,400	1.60	4	30,420	24,400	0.80	4	30,420	15,100	0.50	4	30,420	14,600	0.48	17,940	17,380	2.1%	-1.1%		22,700	0.75	29,700	0.98	
323	Dirksen/DeBary/Doyle	I-4 to Deltona Blvd.		4	24,400	30,800	1.26	4	30,420	31,800	1.05	4	30,420	28,800	0.95	4	30,420	28,500	0.94	25,730	25,480	0.7%	-0.3%		33,300	1.09	43,500	1.43	
324	Dirksen/DeBary/Doyle	Deltona Blvd. to Enterprise St.		4	16,000	19,500	1.22	4	30,420	19,900	0.65	4	30,420	21,400	0.70	4	30,420	19,700	0.65	17,220	17,240	2.1%	0.0%		22,600	0.74	29,400	0.97	
325	Dirksen/DeBary/Doyle	Enterprise St. to Main St.		4	21,400	26,200	1.22	4	30,420	31,500	1.04	4	30,420	30,700	1.01	4	30,420	28,400	0.93	22,090	22,400	1.1%	0.5%		29,300	0.96	38,200	1.26	
326	Dirksen/DeBary/Doyle	Main St. to Providence Blvd.		4	18,700	24,000	1.28	4	30,420	28,700	0.94	4	30,420	27,800	0.91	4	30,420	25,800	0.85	19,280	20,460	1.5%	2.0%	Yes	26,800	0.88	34,900	1.15	
327	Dirksen/DeBary/Doyle	Providence Blvd. to Garfield Rd.		2	10,500	17,500	1.67	2	13,640	16,100	1.18	4	30,420	21,200	0.70	4	30,420	18,500	0.61	10,670	11,890	0.5%	3.7%	Yes	15,600	1.14	20,300	1.49	
328	Dirksen/DeBary/Doyle	Garfield Rd. to Saxon Blvd.		2	7,600	8,900	1.17	2	13,640	11,624	0.85	4	30,420	15,900	0.52	4	30,420	13,800	0.45	7,590	9,220	1.5%	6.7%	Yes	12,100	0.89	15,700	1.15	
329	Dirksen/DeBary/Doyle	Saxon Blvd. to Courtland Blvd.		2	6,500	8,600	1.32	2	13,640	13,300	0.98	4	30,420	17,500	0.58	4	30,420	14,800	0.49	8,720	7,800	2.1%	-3.6%		10,200	0.75	13,300	0.98	
330	Dirksen/DeBary/Doyle	Courtland Blvd. to SR 415		2	-	6,600	n/c	2	13,640	11,400	0.84	4	30,420	15,900	0.52	4	30,420	13,700	0.45	5,800	5,680	3.3%	-0.7%		7,400	0.54	9,700	0.71	
331	Dunn/George Engram/Fairview/Main																												
333	Dunn/George Engram/Fairview/Main	Tomoka Farms Rd. to Williamson Blvd.		NIM	NIM	NIM	NIM	2	17,050	13,900	0.82	2	17,050	12,400	0.73	2	17,050	10,800	0.63	1,220	1,800	8.7%	13.8%	Yes	2,400	0.14	3,100	0.18	
334	Dunn/George Engram/Fairview/Main	Williamson Blvd. to Bill France Blvd.		2	6,100	4,000	0.66	2	17,050	15,100	0.89	4	37,970	15,200	0.40	4	37,970	15,500	0.41	6,150	6,760	3.5%	3.2%	Yes	8,800	0.52	11,500	0.67	
335	Dunn/George Engram/Fairview/Main	Bill France Blvd. to Clyde Morris Blvd.		2	13,100	4,300	0.33	2	14,040	15,900	1.13	4	37,970	16,600	0.44	4	37,970	16,800	0.44	12,740	11,350	0.8%	-3.8%		14,800	1.05	19,400	1.38	
336	Dunn/George Engram/Fairview/Main	Clyde Morris Blvd. to Nova Rd.		4	11,700	19,400	1.66	4	37,970	21,800	0.57	4	37,970	20,800	0.55	4	37,970	22,300	0.59	11,590	10,150	5.0%	-4.3%		13,300	0.35	17,300	0.46	
337	Dunn/George Engram/Fairview/Main	Nova Rd. to US 1		4	12,100	27,100	2.24	4	30,420	16,200	0.53	4	30,420	15,700	0.52	4	30,420	16,600	0.55	12,090	10,230	4.1%	-5.4%		13,400	0.44	17,500	0.58	
338	Dunn/George Engram/Fairview/Main	US 1 to Beach St		2	5,700	14,400	2.53	2	14,040	8,800	0.63	2	14,040	8,100	0.58	2	14,040	8,500	0.61	5,670	5,380	3.6%	-1.7%		7,000	0.50	9,200	0.66	
339	Dunn/George Engram/Fairview/Main	Beach St. to Peninsula Dr.		2	6,800	3,900	0.57	2	14,040	12,100	0.86	2	14,040	13,100	0.93	2	14,040	13,100	0.93	6,710	6,560	2.9%	-0.8%		8,600	0.61	11,200	0.80	
340	Dunn/George Engram/Fairview/Main	Peninsula Dr. to SR A1A		2	5,900	3,600	0.61	2	13,640	9,100	0.67	2	13,640	9,800	0.72	2	13,640	10,700	0.78	5,870	5,540	3.4%	-1.9%		7,200	0.53	9,500	0.70	
419	Elkcam Blvd																												

RIVER TO SEA TPO 2040 LRTP  
Highway Deficiencies for 2040 E+C, 2040 Highway Alternative, and 2040 Growth Volumes

Row No.	Roadway	From	To	CFRPM6.0 2010 BASE YEAR				CFRPM 6.0 2040 E+C NETWORK				CFRPM 6.0 2040 Highway Alt				CFRPM 6.0 2040 Transit Alt				2040 % Growth Rate on 2013 AADT Count								
				No. Lns	2010 Model AADT Count	2010 Model Vol	2010 Model V/Cnt	No. Lns	FDOT or County or City Cap	Model Adj Vol	Model Adj Vol/ Cap	No. Lns	FDOT or County or City Cap	Model Adj Vol	Model Adj Vol/ Cap	No. Lns	FDOT or County or City Cap	Model Adj Vol	Model Adj Vol/ Cap	2010 AADT Count	2013 AADT Count	Required % Annual Growth to Exceed Cap	Regression% Annual 2010-2013 Observed Growth	Regression Growth Meets Exceed% ?	2040 1% Annual Growth Vol	2040 1% Annual Growth Vol/ Cap	2040 2% Annual Growth Vol	2040 2% Annual Growth Vol/ Cap
391	Normandy Blvd.																											
392	Normandy Blvd.	Graves (old Howland) to Rhode Island Ave.		2	-	6,000	n/c	2	13,640	15,500	1.14	4	30,420	25,700	0.84	4	30,420	30,100	0.99	3,070	4,020	4.6%	9.4%	Yes	5,300	0.39	6,900	0.51
393A	Normandy Blvd.	Rhode Island Ave. to Firwood Dr		2	-	5,800	n/c	2	13,640	14,200	1.04	4	30,420	26,100	0.86	4	30,420	30,500	1.00	-	6,890	2.6%	n/a	n/a	9,000	0.66	11,800	0.87
393B	Normandy Blvd.	Firwood Dr to Elkcam Blvd.		2	6,900	5,800	0.84	2	30,420	14,300	0.47	4	30,420	20,500	0.67	4	30,420	18,600	0.61	-	6,890	5.7%	n/a	n/a	9,000	0.30	11,800	0.39
394	Normandy Blvd.	Elkcam Blvd. to Saxon Blvd		4	-	8,700	n/c	4	30,420	16,200	0.53	4	30,420	9,600	0.32	4	30,420	8,200	0.27	2,710	2,830	9.2%	1.5%		3,700	0.12	4,800	0.16
395	Normandy Blvd.	Saxon Blvd. to Deltona Blvd		2	-	5,300	n/c	2	13,640	7,600	0.56	2	13,640	4,400	0.32	2	13,640	4,700	0.34	2,840	3,040	5.7%	2.3%		4,000	0.29	5,200	0.38
396	Normandy Blvd.	Deltona Blvd. to Tivoli Dr.		2	-	3,900	n/c	2	13,640	4,800	0.35	2	13,640	4,000	0.29	2	13,640	3,900	0.29	3,920	4,710	4.0%	6.3%	Yes	6,200	0.45	8,000	0.59
397	Normandy Blvd.	Tivoli Dr. to Providence Blvd		2	-	2,600	n/c	2	13,640	3,200	0.23	2	13,640	2,500	0.18	2	13,640	2,700	0.20	5,300	5,150	3.7%	-1.0%		6,700	0.49	8,800	0.65
398	Normandy Blvd.	Providence Blvd. to Saxon Blvd		2	-	3,900	n/c	2	14,740	5,300	0.36	2	14,740	3,200	0.22	2	14,740	3,100	0.21	8,380	7,280	2.6%	-4.6%		9,500	0.64	12,400	0.84
399	Normandy Blvd.	Saxon Blvd. to Ft Smith Blvd		2	-	5,500	n/c	2	13,640	6,300	0.46	2	13,640	5,300	0.39	2	13,640	5,200	0.38	1,910	2,420	6.6%	8.2%	Yes	3,200	0.23	4,100	0.30
419	North Entrance Deland Airport - Industrial Park																											
New	N. Entrance Deland Airport	Industrial Dr to SR 11		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2	13,640	300	0.02	2	13,640	300	0.02	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
400	Old Dixie Hwy.																											
401	Old Dixie Hwy.	I-95 to Old Kings Rd.		2	8,300	8,900	1.07	2	13,640	17,103	1.25	2	13,640	16,600	1.22	2	13,640	16,500	1.21	7,750	7,260	2.4%	-2.2%		9,500	0.70	12,400	0.91
402	Old Dixie Hwy.	Old Kings Rd. to Walter Boardman Ln.		2	-	3,800	n/c	2	13,640	7,900	0.58	2	13,640	7,900	0.58	2	13,640	7,200	0.53	3,210	2,990	5.8%	-2.3%		3,900	0.29	5,100	0.37
403	Old Dixie Hwy.	Walter Boardman Ln. to Pine Tree Dr..		2	-	700	n/c	2	13,640	2,200	0.16	2	13,640	2,000	0.15	2	13,640	1,800	0.13	2,240	1,810	7.8%	-6.9%		2,400	0.18	3,100	0.23
404	Old Dixie Hwy.	Pine Tree Dr. to Tomoka River Bridge		2	-	700	n/c	2	13,640	2,600	0.19	2	13,640	2,400	0.18	2	13,640	1,900	0.14	2,170	1,710	8.0%	-7.6%		2,200	0.16	2,900	0.21
405	Old Dixie Hwy.	Tomoka River Bridge to Ingelsia		2	-	700	n/c	2	13,640	2,600	0.19	2	13,640	2,400	0.18	2	13,640	1,900	0.14	2,170	1,710	8.0%	-7.6%		2,200	0.16	2,900	0.21
New	Old Mission Rd/Mission Dr																											
New	Mission Dr	SR 44 to Old Mission Rd		#N/A	#N/A	#N/A	#N/A	4	37,970	12,000	0.32	4	37,970	11,700	0.31	4	37,970	9,600	0.25	12,420	11,780	4.4%	-1.7%		15,400	0.41	20,100	0.53
New	Old Mission Rd	Old Mission Rd to Josephine St		4	12,200	6,900	0.57	4	37,970	14,700	0.39	4	37,970	22,500	0.59	4	37,970	20,500	0.54	12,270	11,580	4.5%	-1.9%		15,100	0.40	19,800	0.52
New	Old Mission Rd	Josephine St to Park Ave		2	7,000	2,200	0.31	2	10,220	7,900	0.77	4	37,970	16,900	0.45	4	37,970	16,600	0.44	6,920	6,380	1.8%	-2.7%		8,300	0.81	10,900	1.07
New	Old Mission Rd	Park Ave to SR 442		2	-	900	n/c	2	13,640	7,100	0.52	2	13,640	10,900	0.80	2	13,640	10,600	0.78	4,190	4,030	4.6%	-1.3%		5,300	0.39	6,900	0.51
406	Orange/Silver Beach Ave.																											
407	Orange/Silver Beach Ave.	Nova Rd. to Dr Martin Luther King Jr Blvd.		2	11,300	12,700	1.12	2	14,740	14,554	0.99	2	14,740	14,900	1.01	2	14,740	15,100	1.02	10,930	7,980	2.3%	-10.0%		10,400	0.71	13,600	0.92
408	Orange/Silver Beach Ave.	Martin Luther King Jr Blvd. to Marion St.		4	7,500	10,500	1.40	4	14,740	11,200	0.76	4	14,740	11,600	0.79	4	14,740	12,200	0.83	7,270	6,220	3.2%	-5.1%		8,100	0.55	10,600	0.72
409	Orange/Silver Beach Ave.	Marion St. to US 1		4	7,800	7,000	0.90	4	30,420	14,333	0.47	4	30,420	14,300	0.47	4	30,420	15,400	0.51	7,530	6,160	6.1%	-6.5%		8,100	0.27	10,500	0.35
410	Orange/Silver Beach Ave.	US 1 to Beach St.		4	11,100	8,200	0.74	4	30,420	19,100	0.63	4	30,420	19,300	0.63	4	30,420	20,600	0.68	10,660	9,330	4.5%	-4.3%		12,200	0.40	15,900	0.52
411	Orange/Silver Beach Ave.	Beach St. to City Island Pkwy.		2	11,900	13,600	1.14	2	30,420	20,526																		



## RIVER TO SEA TPO 2040 LRTP

Row No.	Roadway	From	To	CFRPM6.0 2010 BASE YEAR				CFRPM 6.0 2040 E-C NETWORK				CFRPM 6.0 2040 Highway Alt				CFRPM 6.0 2040 Transit Alt				2040 % Growth Rate on 2013 AADT Count									
				No. Lns	2010 Model AADT Count	2010 Model Vol	2010 Model V/Cnt	No. Lns	FDOT or County or City Cap	Model Adj Vol	Model Adj Vol/ Cap	No. Lns	FDOT or County or City Cap	Model Adj Vol	Model Adj Vol/ Cap	No. Lns	FDOT or County or City Cap	Model Adj Vol	Model Adj Vol/ Cap	2010 AADT Count	2013 AADT Count	Required % Annual Growth to Exceed Cap	Regression% Annual 2010-2013 Observed Growth	Regression Growth Meets Exceed% ?	2040 1% Annual Growth Vol	2040 1% Annual Growth Vol/ Cap	2040 2% Annual Growth Vol	2040 2% Annual Growth Vol/ Cap	
448	Spruce Creek Rd.	Commonwealth Blvd. to SR5A/Nova Rd.		2	9,200	3,500	0.38	2	13,640	9,800	0.72	2	13,640	9,600	0.70	2	13,640	10,200	0.75	9,310	8,930	1.6%	-1.4%		11,700	0.86	15,200	1.11	
449	Spruce Creek Rd.	SR5A/Nova Rd. to Taylor Rd.		4	16,400	10,900	0.66	4	37,970	17,300	0.46	4	37,970	16,700	0.44	4	37,970	17,300	0.46	16,760	14,670	3.6%	-4.3%		19,200	0.51	25,000	0.66	
450	Summit Ave.																												
451	Summit Ave.	SR 44 to Lake Helen Northern City Limits		2	5,400	3,000	0.56	2	13,640	7,100	0.52	2	13,640	7,500	0.55	2	13,640	6,800	0.50	5,630	4,430	4.3%	-7.7%		5,800	0.43	7,600	0.56	
452	Summit Ave.	Lake Helen Northern City Limits to Main St.		2	5,400	3,000	0.56	2	13,640	7,100	0.52	2	13,640	7,500	0.55	2	13,640	6,800	0.50	5,630	4,430	4.3%	-7.7%		5,800	0.43	7,600	0.56	
455	Taylor Rd. (CO)																												
456	Taylor Rd. (CO)	Tomoka Farms Rd. to Spruce Creek Blvd.		2	10,500	14,400	1.37	2	17,050	8,800	0.52	2	17,050	7,900	0.46	2	17,050	7,400	0.43	7,510	7,110	3.3%	-1.8%		9,300	0.55	12,100	0.71	
457A	Taylor Rd. (CO)	Spruce Creek Blvd. to Forest Preserve Blvd.		2	9,800	16,500	1.68	2	17,050	8,000	0.47	4	37,790	7,100	0.19	4	37,790	6,600	0.17	10,610	9,570	2.2%	-3.4%		12,500	0.73	16,300	0.96	
457B	Taylor Rd. (CO)	Forest Preserve Blvd. to Crane Lake Blvd.		2	-	15,600	n/c	2	17,050	13,800	0.81	4	37,790	13,100	0.35	4	37,790	12,600	0.33	10,610	9,570	2.2%	-3.4%		12,500	0.73	16,300	0.96	
458	Taylor Rd. (CO)	Crane Lake Blvd. to Summertree Rd.		2	15,500	15,900	1.03	2	17,050	14,078	0.83	4	37,790	13,400	0.35	4	37,790	12,700	0.34	14,280	14,010	0.7%	-0.6%		18,300	1.07	23,900	1.40	
419	Tenth St																												
New	Tenth St	Old Mission to Tatum		2	5,800	4,700	0.81	2	13,640	9,259	0.68	4	30,420	7,700	0.25	4	30,420	5,400	0.18	n/c	n/c	n/c	n/a	n/a	n/c	n/c	n/c	n/c	
419	Tivoli Dr																												
New	Tivoli Dr	Saxon Blvd to Providence Blvd		2	-	12,100	n/c	2	13,640	10,400	0.76	2	17,900	12,600	0.70	2	17,900	11,400	0.64	n/c	n/c	n/c	n/a	n/a	n/c	n/c	n/c	n/c	
461	Tomoka Farms Rd.																												
462	Tomoka Farms Rd.	LPGA Blvd. (north end) to Dunn Ave.		2	-	700	n/c	2	24,975	8,000	0.32	2	24,975	9,100	0.36	2	24,975	8,700	0.35	3,810	4,000	7.0%	1.6%		5,200	0.21	6,800	0.27	
463	Tomoka Farms Rd.	Dunn Ave. to US 92		2	-	700	n/c	2	24,975	12,300	0.49	2	24,975	13,700	0.55	2	24,975	12,900	0.52	3,350	5,070	6.1%	14.8%	Yes	6,600	0.26	8,700	0.35	
464	Tomoka Farms Rd.	US 92 to Shunz Rd.		2	5,900	14,800	2.51	2	24,975	16,500	0.66	2	24,975	11,500	0.46	2	24,975	9,800	0.39	5,920	6,030	5.4%	0.6%		7,900	0.32	10,300	0.41	
465	Tomoka Farms Rd.	Shunz Rd. to Townwest Blvd		2	-	10,800	n/c	2	24,975	13,100	0.52	2	24,975	11,100	0.44	2	24,975	10,100	0.40	5,470	6,210	5.3%	4.3%		8,100	0.32	10,600	0.42	
466	Tomoka Farms Rd.	Townwest Blvd to Taylor Rd.		2	5,800	9,600	1.66	2	24,975	7,700	0.31	2	24,975	5,600	0.22	2	24,975	4,900	0.20	5,970	6,150	5.3%	1.0%		8,000	0.32	10,500	0.42	
467	Tomoka Farms Rd.	Taylor Rd. to Pioneer Tr		2	9,000	22,600	2.51	2	24,975	8,800	0.35	2	24,975	5,800	0.23	2	24,975	4,800	0.19	9,180	9,790	3.5%	2.2%		12,800	0.51	16,700	0.67	
468	Tomoka Farms Rd.	Pioneer Tr to SR 44		2	6,000	13,700	2.28	2	12,300	10,000	0.81	2	12,300	8,000	0.65	2	12,300	7,600	0.62	4,700	5,260	3.2%	3.8%	Yes	6,900	0.56	9,000	0.73	
New	Turnbull Bay Rd																												
New	Turnbull Bay Rd	Pioneer Tr to Williamson Rd.		2	-	2,400	n/c	2	13,640	2,900	0.21	2	13,640	2,500	0.18	2	13,640	2,400	0.18	3,340	2,860	6.0%	-5.0%		3,700	0.27	4,900	0.36	
New	Turnbull Bay Rd	Williamson Rd. to Industrial Park Ave.		2	-	2,100	n/c	2	13,640	2,200	0.16	2	13,640	1,800	0.13	2	13,640	1,800	0.13	3,350	3,140	5.6%	-2.1%		4,100	0.30	5,400	0.40	
New	Turnbull Bay Rd	Industrial Park Ave. to US 1		2	-	3,900	n/c	2	13,640	5,800	0.43	2	13,640	4,800	0.35	2	13,640	5,100	0.37	4,720	3,910	4.7%	-6.1%		5,100	0.37	6,700	0.49	
469	Tymber Creek Rd																												
New	Tymber Creek Rd	Broadway Ave/US 1 to Airport Rd		2	-	2,100	n/c	2	13,640	3,100	0.23	2	13,640	3,100	0.23	2	13,640	2,700	0.20	1,820	1,850	7.7%	0.5%		2,400	0.18	3,200	0.23	
471	Tymber Creek Rd	Airport Rd to Peruvian Ln		2	8,700	5,600	0.64	2	17,050	11,400	0.67	4	37,790	11,800	0.31	4	37,790	11,100	0.29	8,240	7,870	2.9%	-1.5%		10,300	0.60	13,400	0.79	
New	Tymber Creek Rd	Peruvian Ln to SR 40		2	12,900	9,700	0.75	4	17,050	14,200	0.83	4	17,050	15,100	0.89	4	17,050	14,500	0.85	12,320	12,670	1.1%	0.9%		16,600	0.97	21,600	1.27	
470A	Tymber Creek Rd	SR 40 to Riverbend Rd		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2	17,050	6,300	0.37	2	17,050	4,800	0.28	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
470B	Tymber Creek Rd	Riverbend Rd to LPGA Blvd		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2	17,050	7,400	0.43	2	17,050	5,200	0.30	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
472	W. Volusia Bltwy (Kepler Rd)																												
473	W. Volusia Bltwy (Kepler Rd)	Northern terminus to US 92		NIM	NIM	NIM	NIM	NIM	NIM	NIM	NIM	NIM	NIM	NIM	NIM	NIM	NIM	NIM	NIM	NIM	NIM	NIM	NIM	NIM	NIM	NIM	NIM	NIM	
474	W. Volusia Bltwy (Kepler Rd)	US 92 to Minnesota Ave.		2	-	14,600	n/c	2	17,050	15,800	0.93	4	37,790	35,900	0.95	4	37,790	35,200	0.93	12,820	12,110	1.3%	-1.9%		15,800	0.93	20,700	1.21	
475	W. Volusia Bltwy (Kepler Rd)	Minnesota Ave. to SR 44		2	-	12,200	n/c	2	17,050	13,100	0.77	4	37,790	27,200	0.72	4	37,790	25,200	0.67	13,890	14,110	0.7%	0.5%		18,500	1.09	24,100	1.41	
476	W. Volusia Bltwy (Kepler Rd)	SR 44 to Beresford Ave. Ext.		2	10,200	16,400	1.61	2	17,050	5,800	0.34	4	37,790	19,500	0.52	4	37,790	17,000	0.45	10,600	10,040	2.0%	-1.8%		13,100	0.77	17,100	1.00	
477	W. Volusia Bltwy (Dr MLK Jr)	Beresford Ave. Ext. to Taylor Rd.		2	-	16,200	n/c	2	17,050	11,800	0.69	4	37,790	26,300	0.70	4	37,790	24,100	0.64	10,370	9,890	2.0%	-1.6%		12,900	0.76	16,900	0.99	
478	W. Volusia Bltwy (Dr MLK Jr)	Taylor Rd. to Orange Camp Rd.		2	-	15,000	n/c	2	17,050	13,000	0.76	4	37,790	24,000	0.64	4	37,790	21,300	0.56	11,910	11,440	1.5%	-1.3%		15,000	0.88	19,500	1.14	
479	W. Volusia Bltwy (Dr MLK Jr)	Orange Camp Rd. to Cassadaga Rd.		2	10,600	8,000	0.75	2	17,050	14,600	0.86	4	37,790	31,100	0.82	4	37,790	29,300	0.78	11,040	10,320	1.9%	-2.2%		13,500	0.79	17,600	1.03	
480	W. Volusia Bltwy (Dr MLK Jr)	Cassadaga Rd. to SR 472		2	-	9,600	n/c	2	17,050	16,600	0.97	4	37,790	35,000	0.93	4	37,790	33,000	0.87	11,830	10,840	1.7%	-2.9%		14,200	0.83	18,500	1.09	
481	W. Volusia Bltwy (Kentucky Ave)	SR 472 to Graves Ave		2	8,700	11,800	1.36	2	17,050	11,100	0.65	4	37,790	18,100	0.48	4	37,790	18,900	0.50	9,110	9,050	2.4%	-0.2%		11,800	0.69	15,400	0.90	
482	W. Volusia Bltwy (Veteran's Memorial Pkwy)	Graves Ave. to Rhode Island Ave.		2	-	11,900	n/c	2	17,900	16,400	0.92	4	37,790	16,200	0.43	4	37,790	15,300	0.40	13,050	15,510	0.5%	5.9%	Yes	20,300	1.13	26,500	1.48	
483	W. Volusia Bltwy (Veteran's Memorial Pkwy)	Rhode Island Ave. to Harley Strickland Blvd.		2	5,400	13,400	2.48	2	17,050	9,100	0.53	4	37,790	11,300	0.30	4	37,790	8,900	0.24	15,530	18,000	-0.2%	5.0%	Yes	23,500	1.38	30,700	1.80	
484	W. Volusia Bltwy (Veteran's Memorial Pkwy)	Harley Strickland Blvd. to Saxon Blvd.		4	20,400	18,600	0.91	4	37,970	28,352	0.75	4	37,970	28,000	0.74	4	37,970	25,700	0.68	18,660	18,450	2.7%	-0.4%		24,100	0.63	31,500	0.83	
	Westside Pkwy																												
New	Westside Pkwy	Saxon Blvd to French Ave		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2	13,640	2,200	0.16	2	13,640	1,900	0.14	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
490	Williamson Blvd.																												
493	Williamson Blvd.	SR 40 to Hand Ave.		4	20,100	18,800	0.94	4	37,970	23,404	0.62	4	37,970	27,900	0.73	4	37,970	25,700	0.68	19,130	19,750	2.5%	1.1%		25,800	0.68	33,700	0.89	
494	Williamson Blvd.	Hand Ave. to LPGA Blvd.		2	12,900	17,700	1.37	2	17,050	14,700	0.86	4	37,970	24,300	0.64	4	37,970	20,400	0.54	13,010	12,860	1.1%	-0.4%		16,800	0.99	22,000	1.29	
495	Williamson Blvd.	LPGA Blvd. to Mason Ave.		2	15,300	13,600	0.89	4	37,970	27,978	0.74	4	37,970	27,800	0.73	4	37,970	24,400	0.64	14,650	14,610	3.6%	-0.1%		19,100	0.50	24,900	0.66	
496	Williamson Blvd.	Mason Ave. to Dunn Ave.		2	13,200	7,500	0.57	4	37,970	17,700	0.47	4	37,970	19,900	0.52	4	37,970	19,800	0.52	13,210	13,770	3.8%							

RIVER TO SEA TPO 2040 LRTP  
Highway Deficiencies for 2040 E+C, 2040 Highway Alternative, and 2040 Growth Volumes

Row No.	Roadway	From	To	CFRPM6.0 2010 BASE YEAR				CFRPM 6.0 2040 E+C NETWORK				CFRPM 6.0 2040 Highway Alt				CFRPM 6.0 2040 Transit Alt				2040 % Growth Rate on 2013 AADT Count									
				No. Lns	2010 Model AADT Count	2010 Model Vol	2010 Model V/Cnt	No. Lns	FDOT or County or City Cap	Model Adj Vol	Model Adj Vol/ Cap	No. Lns	FDOT or County or City Cap	Model Adj Vol	Model Adj Vol/ Cap	No. Lns	FDOT or County or City Cap	Model Adj Vol	Model Adj Vol/ Cap	2010 AADT Count	2013 AADT Count	Required % Annual Growth to Exceed Cap	Regression% Annual 2010-2013 Observed Growth	Regression Growth Exceed? %	2040 1% Annual Growth Vol	2040 1% Annual Growth Vol/ Cap	2040 2% Annual Growth Vol	2040 2% Annual Growth Vol/ Cap	
520	Belle Terre Parkway	Royal Palm Pkwy	East Hampton Blvd	4	-	10,900	n/c	4	35,800	28,400	0.79	4	35,800	25,500	0.71	4	35,800	25,000	0.70	n/c	24,000	1.5%	n/a	n/a	31,400	0.88	41,000	1.15	
521	Belle Terre Parkway	East Hampton Blvd	SR 100	4	-	8,800	n/c	4	35,800	18,800	0.53	4	35,800	17,600	0.49	4	35,800	17,500	0.49	n/c	24,100	1.5%	n/a	n/a	31,500	0.88	41,100	1.15	
522	Belle Terre Blvd	SR 100	Zebulas Tr	2	7,000	4,600	0.66	2	21,700	13,200	0.61	2	21,700	11,600	0.53	2	21,700	11,400	0.53	7,000	5,400	5.3%	-8.3%		7,100	0.33	9,200	0.42	
523	Belle Terre Blvd	Zebulas Tr	Zanu Tr	2	7,000	4,600	0.66	2	21,700	13,200	0.61	2	21,700	11,600	0.53	2	21,700	11,400	0.53	7,000	6,200	4.7%	-4.0%		8,100	0.37	10,600	0.49	
524	Belle Terre Blvd	Zanu Tr	Citation Pkwy	2	5,600	800	0.14	2	21,700	11,600	0.53	2	21,700	9,800	0.45	2	21,700	8,700	0.40	5,600	3,500	7.0%	-14.5%		4,600	0.21	6,000	0.28	
525	Belle Terre Blvd	Citation Pkwy	US 1	2	-	700	n/c	2	21,700	6,800	0.31	2	21,700	4,300	0.20	2	21,700	3,200	0.15	n/c	3,600	6.9%	n/a	n/a	4,700	0.22	6,100	0.28	
526	Colbert Lane																												
527	Colbert Ln	Flagler Urban Area Boundary Line	Palm Coast Pkwy	2	-	2,500	n/c	2	8,400	3,700	0.44	2	8,400	3,700	0.44	2	8,400	3,800	0.45	n/c	5,100	1.9%	n/a	n/a	6,700	0.80	8,700	1.04	
528	Colbert Ln	Palm Coast Pkwy (WB)	Palm Coast Pkwy (EB)	2	-	2,500	n/c	2	21,700	3,700	0.17	2	21,700	3,700	0.17	2	21,700	3,800	0.18	n/c	5,100	5.5%	n/a	n/a	6,700	0.31	8,700	0.40	
529	Colbert Ln	Palm Coast Pkwy (EB)	Waterside Pkwy (N)	2	-	2,700	n/c	2	21,700	4,900	0.23	2	21,700	4,600	0.21	2	21,700	4,100	0.19	n/c	6,900	4.3%	n/a	n/a	9,000	0.41	11,800	0.54	
530	Colbert Ln	Waterside Pkwy (N)	Waterside Park (S)	2	-	1,100	n/c	2	21,700	2,400	0.11	2	21,700	2,100	0.10	2	21,700	1,900	0.09	n/c	4,800	5.7%	n/a	n/a	6,300	0.29	8,200	0.38	
531	Colbert Ln	Waterside Park (S)	South Park Road	2	-	4,200	n/c	2	21,700	7,500	0.35	2	21,700	7,200	0.33	2	21,700	6,100	0.28	n/c	5,300	5.4%	n/a	n/a	6,900	0.32	9,000	0.41	
532	Colbert Ln	South Park Road	Roberts Road	2	-	5,600	n/c	2	21,700	9,300	0.43	2	21,700	9,000	0.41	2	21,700	8,000	0.37	n/c	5,200	5.4%	n/a	n/a	6,800	0.31	8,900	0.41	
533	Colbert Ln	Roberts Road	SR 100	2	-	5,400	n/c	2	21,700	8,900	0.41	2	21,700	8,700	0.40	2	21,700	7,700	0.35	n/c	3,500	7.0%	n/a	n/a	4,600	0.21	6,000	0.28	
534	Cypress Point Pkwy																												
535	Cypress Point Pkwy	Belle Terre Pkwy	Pine Cone Dr	4	-	23,100	n/c	4	29,200	32,800	1.12	4	29,200	26,300	0.90	4	29,200	25,500	0.87	n/c	19,500	1.5%	n/a	n/a	25,500	0.87	33,300	1.14	
536	Cypress Point Pkwy	Pine Cone Dr	Cypress Edge (S)	4	-	22,500	n/c	4	29,200	32,300	1.11	4	29,200	25,800	0.88	4	29,200	25,000	0.86	n/c	16,100	2.2%	n/a	n/a	21,100	0.72	27,500	0.94	
537	Cypress Point Pkwy	Cypress Edge (S)	Cypress Edge (N)	4	-	22,500	n/c	4	29,200	32,300	1.11	4	29,200	25,800	0.88	4	29,200	25,000	0.86	n/c	17,200	2.0%	n/a	n/a	22,500	0.77	29,400	1.01	
538	Cypress Point Pkwy	Cypress Edge (N)	Palm Coast Pkwy	4	-	25,200	n/c	4	29,200	34,200	1.17	4	29,200	28,100	0.96	4	29,200	27,300	0.93	n/c	30,100	-0.1%	n/a	n/a	39,400	1.35	51,400	1.76	
539	John Anderson Rd																												
540	John Anderson Rd	Flagler Urban Boundary Line	SR 100	2	n/c	2,200	n/c	2	8,300	3,200	0.39	2	8,300	3,100	0.37	2	8,300	3,800	0.46	n/c	n/c	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
541	Matanzas Woods Pkwy																												
542	Matanzas Woods Pkwy Extension	CBT	US 1	2	6,100	3,500	0.57	2	16,000	17,600	1.10	4	16,000	32,500	2.03	4	16,000	31,200	1.95	6,100	4,500	4.8%	-9.6%						
543	Matanzas Woods Pkwy	US 1	Belle Terre Pkwy	2	6,100	3,500	0.57	2	16,000	17,600	1.10	4	35,800	32,500	0.91	4	35,800	31,200	0.87	6,100	4,500	4.8%	-9.6%		5,900	0.37	7,700	0.48	
544	Matanzas Woods Pkwy	Belle Terre Pkwy	Bird of Paradise Dr	2	6,300	2,400	0.38	2	16,000	11,600	0.73	4	35,800	34,600	0.97	4	35,800	33,200	0.93	n/c	4,700	4.6%	n/a	n/a	6,100	0.38	8,000	0.50	
545A	Matanzas Woods Pkwy	Bird of Paradise Dr	I-95 SB Ramps	2	-	3,900	n/c	2	16,000	20,300	1.27	4	35,800	39,500	1.10	4	35,800	38,100	1.06	n/c	5,100	4.3%	n/a	n/a	6,700	0.42	8,700	0.54	
545B	Matanzas Woods Pkwy	I-95 SB Ramps	Old Kings Rd	2	-	3,900	n/c	2	16,000	15,900	0.99	4	35,800	20,300	0.57	4	35,800	18,700	0.52	n/c	5,100	4.3%	n/a	n/a	6,700	0.42	8,700	0.54	
546	Old Dixie Hwy.																												
547	Old Dixie Hwy.	Volusia County Line/I-95	US 1	2	n/c	2,500	n/c	2	8,300	9,700	1.17	2	8,300	7,000	0.84	2	8,300	6,700	0.81	n/c	n/c	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
548	Old Kings Hwy																												
549	Old Kings Hwy	US 1	Princess Place Preserve Entrance	2	-	1,700	n/c	2	21,700	6,200	0.29	2	21,700	1,700	0.08	2	21,700	1,700	0.08	n/c	1,900	9.4%							

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# 1.0 Introduction

The Florida Department of Transportation (FDOT), District Five has contracted with Leftwich Consulting Engineers, Inc. to develop an update to the Central Florida Regional Planning Model (CFRPM) to year 2010 conditions. The model has both a Daily and Time-of-Day (TOD) travel demand component. The CFRPM Version 6.0 Daily Model is to be used in the development of the year 2040 Long Range Transportation Plans for the area Metropolitan Planning Organizations (MPOs) and Transportation Planning Organizations (TPOs) within FDOT District Five.

Specifically, the scope of services for the development of the new CFRPM v6.0 lists several new features to be added to the CFRPM Version 5.0 model (e.g. Household Income, Lifestyle Trip Generation for all counties, a Truck model, incorporating all of Polk County, and Time-of day assignments) to obtain a calibrated model to year 2010 conditions. The methodology builds on the existing CFRPM Version 5.0 Daily and CFRPM version 5.5 TOD models to develop the CFRPM Version 6.0 Model. The efforts have been divided into several tasks (across three Task Work orders) as outlined below:

- Incorporate Polk County into the CFRPM v6.0 Model
  - Development of Highway Network Expansion for Polk County
  - Update GIS Boundary File to include Polk County
  - Update External Trips/Special Attractors to include Polk County
- Lifestyle Model Enhancements
- Income Model Enhancements
- Time-of-Day Model Enhancements – Four Time periods (e.g. Morning, 6:30 AM to 9:00 AM, Midday, 9:00 AM to 3:30 PM, Afternoon, 3:30 PM to 6:30 PM, and Night 6:30 PM to 6:30 AM)
- Truck Model Enhancements – Light Trucks (FHWA classifications 5-7) and Heavy Trucks (FHWA classifications 8-13)
- Model Calibration and Validation

This Technical Memorandum entitled “Year 2010 Model Calibration and Validation” provides a summary of the results of the highway and transit model validation for the CFRPM Version 6.0 Model.

## 1.1 Task Overview

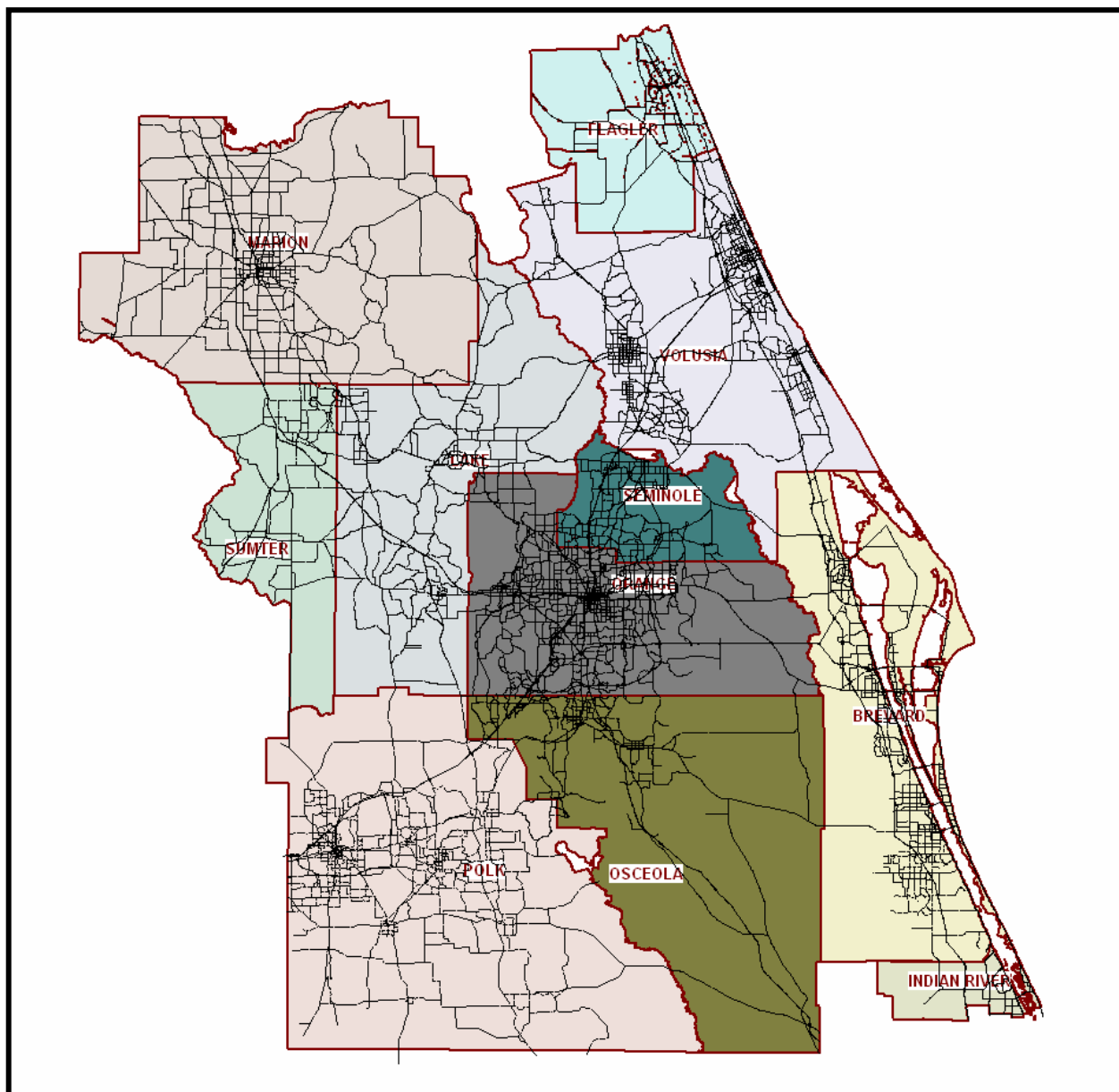
As mentioned above, the documentation of the results of the highway model calibration and validation are presented as part of this task. The following information is presented as part of the model calibration and validation efforts:

- Supporting Project Documentation
- Trip Generation Enhancements
- Daily and TOD Model Description
- External Stations
- Highway Network
- Model Distribution
- Highway and Transit Assignment

## 1.2 CFRPM Study Area

The CFRPM Model is a distinct model in that it encompasses a large area comprised of eleven (11) counties with varying densities and travel characteristics.

The model includes the nine counties represented by FDOT's District Five as follows: Brevard, Flagler, Lake, Marion, Orange, Osceola, Seminole, Sumter, and Volusia Counties. In addition, the CFRPM v6.0 Model contains all of Polk County and part of Indian River County for purposes of interactions with these areas. **Figure 1-1** shows the CFRPM 6.0 study area. Orange, Seminole, and Osceola are part of the Orlando Urban Area and are distinctly urbanized in both their population and their employment character. Volusia and Lake County are nearby counties with many of its residents traveling to the Orlando area for work. The other counties are more rural in character and thus have more inter-county travel patterns.

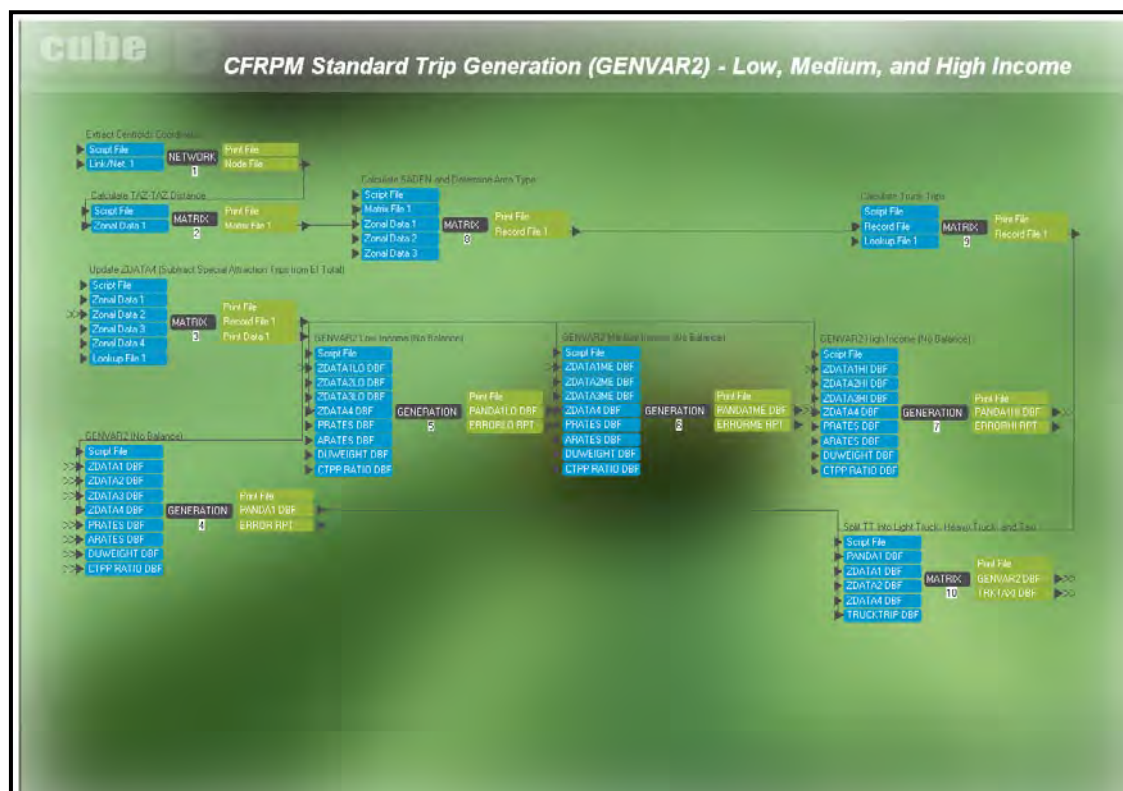


**Figure 1-1. Geographic Area Covered by CFRPM Model Version 6.0**

### 1.3 Trip Generation – Lifestyle and by Standard Low, Medium, and High Income

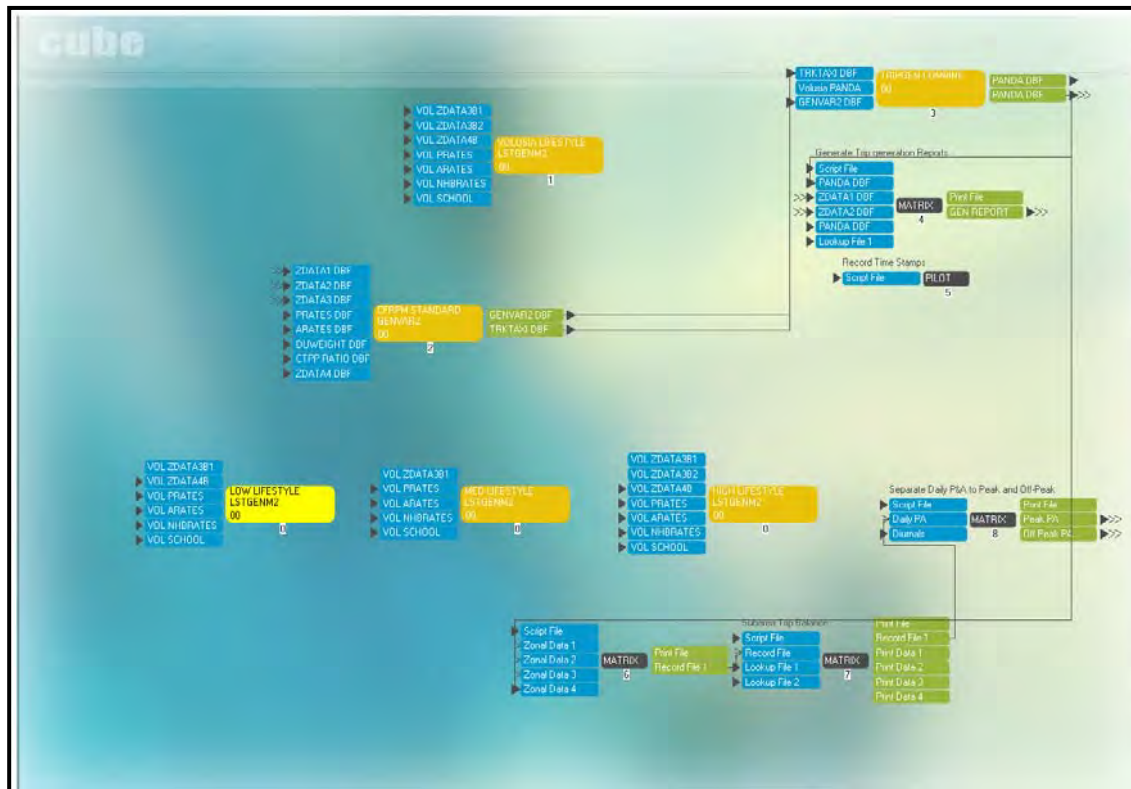
The original concept was to convert CFRPM 5.0 from only using Lifestyle Trip Generation procedure for Volusia County to all Counties in the model. At the same time, households were to be divided into Low, Medium, and High Income for the Standard Trip Generation and then the percentages of Household with and without workers, with and without children, and auto ownership (STP 60 file) was to be applied to end up with Lifestyle trip generation (Productions and Attractions by Trip Purpose) by Low, medium, and High income groups. The CUBE/voyager scripting was done as shown in **Figure 1-2** and testing was performed (under Task Work order 14) with preliminary files (refer to Technical Memorandum: CFRPM “Income” Model testing Summary<sup>8</sup>, for details). Under Task Work Order 17, a “Lifestyle” model framework was developed as a guide to incorporate into the CFRPM 6.0 Model (refer to Technical Memorandum: CFRPM “Lifestyle” Model Framework<sup>7</sup>, for more details).

During the actual validation work for CFRPM 6.0, the scripting was done to incorporate both the Income and Lifestyle procedures as shown in **Figure 1-3**. As testing was being done, it showed that the scripts were making the correct computations and that a set of Productions and Attractions (Ps and As) were available to combine with the Lifestyle generated Ps&As.



**Figure 1-2. Early testing version of Standard Trip Generation Process broken down into Low, Medium, and High Income Productions and Attractions**





**Figure 1-3. Early testing version of Lifestyle Trip Generation Process broken down into Low, Medium, and High Income Productions and Attractions**

However, during the CFRPM 6.0 validation work, using the actual 2010 input files created (Zdata1 and Zdata2 for all counties, split into Low, Medium, and High, based for Zdata2 (Attraction Variables) on percentages provided by FDOT from work done (under a separate contract) with DTS and for Zdata1 on percentages from parcel level land values, the model was not providing good results. In fact, using the Lifestyle Trip Generation process for all Counties did provide good results, but not when combined with the "Income" procedure. The decision was made to not use the "Income" model procedure and just maintain the "Lifestyle" model for the Trip Generation Module.

## 1.4 CFRPM 6.0 Modeling Process

The model calibration and validation performed for the CFRPM Version 5.5 TOD Model was a supplement to the CFRPM Version 5.0 Daily Model and its validation. The validated Version 5.0 Model served as the starting point for the Version 5.5 TOD Model, and was subsequently refined to incorporate TOD input files and resulting validation refinements. Information such as general discussions of the CFRPM Model and the 2005 base year socio-economic data should be referenced from the FDOT document “Technical Memorandum CFRPM v5.0 Model Calibration and Validation Results” dated September 2010<sup>2</sup>. Both of these models were used as Starting point for the development of the CFRPM v6.0 model.

The CFRPM Version 6.0 Model generally follows the Florida Standard Urbanized Transportation Modeling Structure (FSUTMS)<sup>1</sup>. There is a Daily and a TOD component that applies the general modules of External Trips (EXTERNAL Module), Trip Generation (TRIP GENERATION Module), Highway Network and Build Highway Paths (HIGHWAY NETWORK Module); then for the Daily version, it does Trip Distribution (DISTRIBUTION Module), Build Transit Networks and Build Transit Paths (TRANSIT Module), Mode Choice (MODE CHOICE Module), Transit Assignment (TRANSIT ASSIGNMENT Module), and finally the Highway Assignment (HIGHWAY ASSIGNMENT Module). For the TOD Version, it then does modules of Trip Distribution (DISTRIBUTION Module), Build Transit Networks and Build Transit Paths (TRANSIT Module), Mode Choice (MODE CHOICE Module), Transit Assignment (TRANSIT ASSIGNMENT Module), and finally the Highway Assignment (HIGHWAY ASSIGNMENT Module). The highway Assignment module does a period assignment for AM, MD, PM, and NT time periods and then combines the four assignments into a 24HR assignment that is different from the “Daily” assignment developed in the Daily Model.

Figure 1-4 illustrates the individual modules of the FSUTMS daily modeling process.

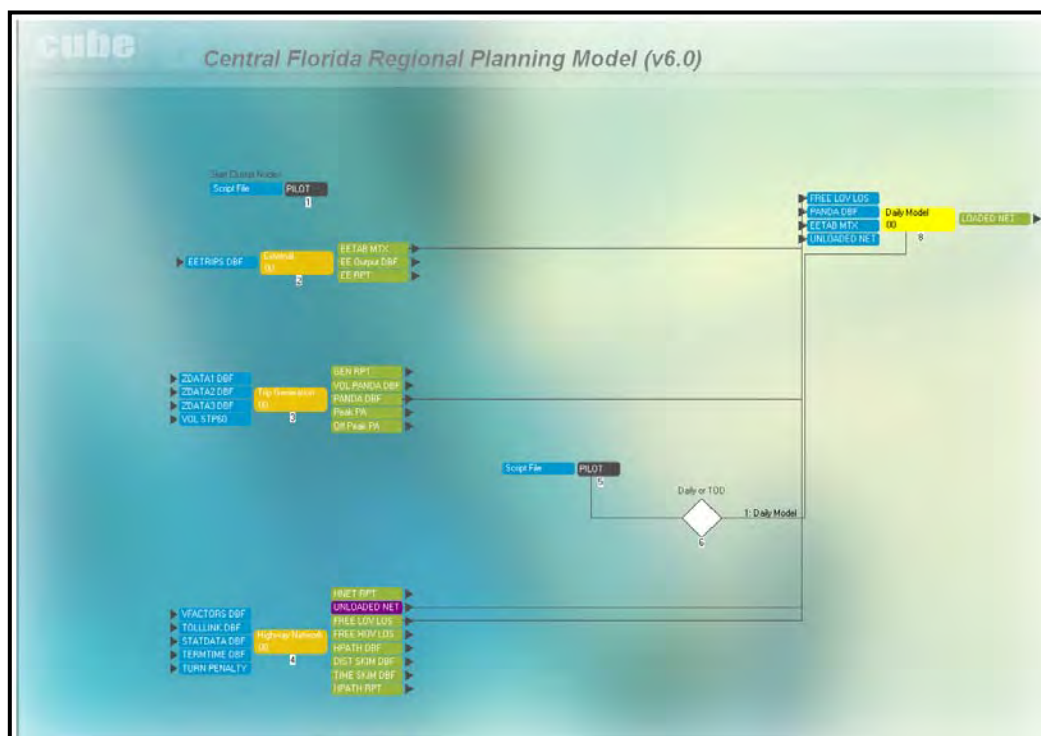


Figure 1-4. FSUTMS Model Flow Process used by CFRPM Version 6.0

## 2.0 General Project Overview

This Technical Memorandum “Year 2010 Model Calibration and Validation” adds to a series of technical memoranda, which have been prepared for the CFRPM Version 2005 5.5 TOD Model development work. The individual technical memorandum (TM) provides documentation of specific components of the Model development. The following serves as an overview the technical memoranda and the role they each represent in the calibration and validation of the Version 5.5 Model, the base for the CFRPM v6.0 model:

- TM “Literature Review of TOD Models”: Documents the current TOD modeling efforts within Florida and nationally.
- TM “Development of TOD Framework”: Presents the model flowchart and framework for the CFRPM Version 5.5 TOD Model, along with an analysis of future data requirements.
- TM “Update CFRPM Model Structure and CUBE/Voyager Scripts”: Revises scripts and related programs to implement the recommended TOD model framework, along with assessment of quad versus dual-quad processor optimizations.
- TM “Development of Peak Periods”: Details the efforts involved in the selection and identification of the TOD periods to be used for the Version 5.5 Model.
- TM “Review Traffic Count Data in Current 2005 CFRPM Model Network”: Provides a review of traffic count locations in the CFRPM Version 5.0 base year 2005 model network along with adjustments made based on electronically collected TOD counts.
- TM “Surrogate Traffic Count Data for 2005 CFRPM Model”: Summarizes the procedures used to develop base year 2005 TOD counts for locations where only daily counts are available.
- TM “Model Calibration and Validation Performance Measures and Standards”: Outlines the standards which will be evaluated for the TOD model validation results.

In summary, the above documents served as the basis for the development of the CFRPM v6.0 Year 2010 Daily and TOD models and provided general direction and recommendation on validation performance evaluations and criteria utilized.

In addition to the technical memoranda, several other deliverables have also been prepared for the CFRPM Version 5.5 Model. These items relate to the development of travel corridor observed speeds and the development of BPR curves. Updated Friction Factor curves and other model input files have also been derived. Detailed descriptions of the additional components are provided as part of this Technical Memorandum “Model Calibration and Validation.”

## 3.0 Description of TOD Model

As indicated previously, several technical memoranda were prepared to develop the set-up for the CFRPM Version 5.5 TOD Model. Technical Memoranda “Development of TOD Framework” and “Update CFRPM Model Structure and CUBE/Voyager Scripts” provide a description of the scripts used by the Model for each of the FSUTMS modules. **Figure 3-1** shows the CFRPM Version 5.5 Model Flow Chart. The Technical Memorandum “Update CFRPM Model Structure and CUBE/Voyager Scripts” provides detailed review of the flow charts for individual Modules. As indicated in the figure, separate pathways are taken for the Daily model assignment and the TOD peak period assignments. A combined 24-hour model is also achieved by adding the individual time period highway assignments (four) into one.

### 3.1 TOD Peak Periods

The peak periods were developed in the Technical Memorandum “Literature Review of TOD

Models.” The derivation of the four time periods was based on a thorough review of local traffic counts and the Trip Purposes from the 2008 National Household Travel Survey (NHTS) and their daily distribution patterns, along with LYNX transit service. Numerous Project Team meetings and correspondences were conducted in order to establish the time periods which best represents the CFRPM Version 5.5 TOD Model. Ultimately, the Orange County traffic count and the NHTS HBW distribution patterns were selected as the premise for the TOD periods, with verifications from the LYNX transit services and the CFRPM Version 5.5 travel speed corridor studies (including those associated with I-4). The following summarizes the TOD periods utilized by the CFRPM Version 5.5 Model:

- AM Period from 6:30 a.m. to 9:00 a.m.
- MD Period from 9:00 a.m. to 3:30 p.m.
- PM Period from 3:30 p.m. to 6:30 p.m.
- NT Period from 6:30 p.m. to 6:30 a.m.

The AM and PM Peak Periods are further referred to as the Peak Period and the MD and NT Periods are referred to as the Off-Peak Period. The Peak and Off-Peak Periods are utilized in the TOD Model through the Mode Choice Module, with the individual Periods used in the Highway Assignments. The same time periods have been utilized for CFRPM 6.0.

### 3.2 Model Trip Purposes

Version 6.0 Model includes the same Trip Purposes as Version 5.0 Model. They are as follows:

- Home-Based Work (HBW)
- Home-Based Shopping (HBSHOP)
- Home-Based Social Recreation (HBSOCREC)
- Home-Based Other (HBO)
- Non-Home Based (NHB)



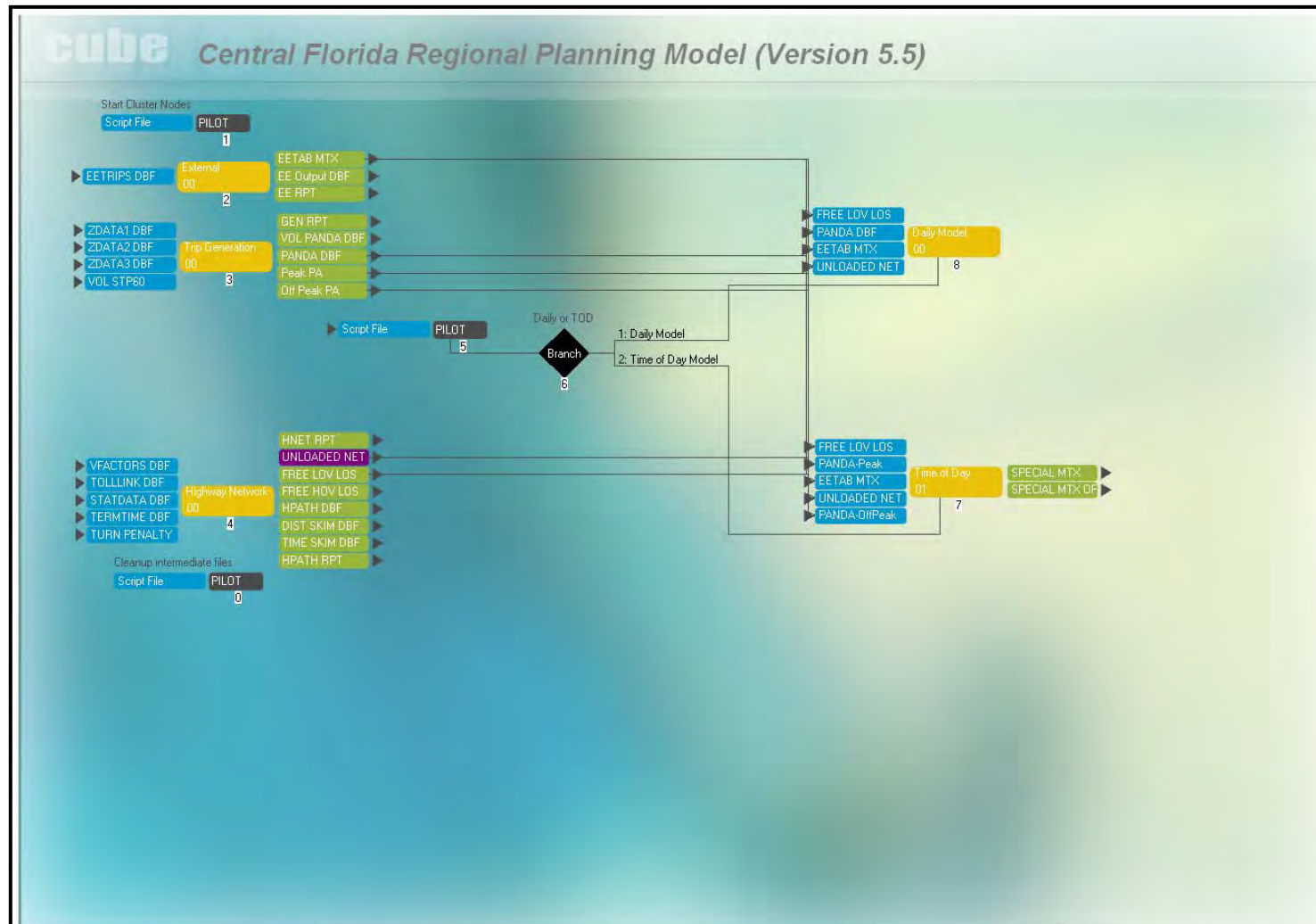


Figure 3-1. FSUTMS Model Flow Process used by CFRPM Version 5.5

- External-External (EE)
- External-Internal (EI)
- Light Truck Internal-Internal (LTII)
- Heavy Truck Internal-Internal (HTII)
- Taxi (Taxi)
- Airport Tourist (APT-T)
- Airport Resident (APT-R)
- Airport External-Internal (APT-EI)
- Orange County Convention Center Tourist (OCCC-T)
- Orange County Convention Center Resident (OCCC-R)
- Orange County Convention Center External-Internal (OCCC-EI)
- Universal Orlando Tourist (UNI-T)
- Universal Orlando Resident (UNI-R)
- Universal Orlando External-Internal (UNI-EI)
- SeaWorld Tourist (SEW-T)
- SeaWorld Resident (SEW-R)
- SeaWorld External-Internal (SEW-EI)
- Disney Tourist (DIS-T)
- Disney Resident (DIS-R)
- Disney External-Internal (DIS-EI)
- Kennedy Space Center Tourist (KSC-T)
- Kennedy Space Center (KSC-R)
- Kennedy Space Center External-Internal (KSC-EI)
- Port Canaveral Tourist (DIS-T)
- Port Canaveral Resident (DIS-R)
- Port Canaveral External-Internal (DIS-EI)

## 4.0 External Stations

External Stations exist in a model to represent the traffic entering and exiting the model boundary. There are two types of external trips, namely External-Internal and External-External trips. The External-Internal trips are those trips that start outside of a model network, entering at the roadway that crosses the model boundary, and are destined within the model network. External-External trips, on the other hand, are those trips that start outside and end outside of a model network, and as such are trips passing through the network without stopping inside.

Modeling external trips is accomplished in the External Module. Locations where external trips enter and exit the model network are referred to as external stations. A few changes were made to the external station locations to accommodate all of Polk County. The external stations are numbered sequentially in a clockwise direction starting at A1A in Indian River and ending at A1A in St. Johns County. **Table 4-1** provides a summary of the External Station locations and includes the County and roadway descriptions associated with each station. The External trips are summarized in **Table 4-2** and the External-External trip interchanges are presented in **Table 4-3**.

## 5.0 Highway Network

The Highway Network Module contains the information relating to the roadways simulated by the Model. Each roadway is represented by a set of nodes and links, which represent its physical location. Various attributes then describes the characteristics of the individual roadway

**Table 4-1**  
**CFRPM Version 6.0 External Station Locations**

TAZ	LOCATION	County
5351	A1A	Indian River County Line
5352	US 1	Indian River County Line
5353	58th Ave	Indian River County Line
5354	66th Ave	Indian River County Line
5355	82nd Ave	Indian River County Line
5356	I-95	Indian River County Line
5357	CR 512	Indian River County Line
5358	SR 60	Indian River County Line
5359	SR 91	Indian River County Line
5360	US 441	Indian River County Line
5361	CR 64	Polk County Line
5362	US 27	Polk County Line
5363	US 17	Polk County Line
5364	SR 37	Polk County Line
5365	CR 674	Polk County Line
5366	CR 540	Polk County Line
5367	CR 676	Polk County Line
5368	SR 50	Polk County Line
5369	OLD MUL	Polk County Line
5370	Medulla Rd	Polk County Line
5371	Fancy Farm Rd	Polk County Line
5372	Rice Rd	Polk County Line
5373	US 92	Polk County Line
5374	I-4	Polk County Line
5375	CR 582	Polk County Line
5376	Deeson Rd	Polk County Line
5377	US 98	Polk County Line
5378	SR 50	Hernando County Line
5379	US 301	Hernando County Line
5380	I-75	Hernando County Line
5381	CR 476	Hernando County Line
5382	CR 48	Citrus County Line
5383	SR 44	Citrus County Line
5384	SR 200	Citrus County Line
5385	US 41	Citrus County Line
5386	SR 40	Levy County Line
5387	CR 336	Levy County Line
5388	US 41	Levy County Line
5389	SR 464	Levy County Line
5390	CR 326	Levy County Line
5391	US 27	Levy County Line
5392	CR 318	Levy County Line
5393	CR 320	Levy County Line
5394	CR 329	Alachua County Line
5395	I-75	Alachua County Line
5396	US 441	Alachua County Line
5397	US 301	Alachua County Line
5398	SR 21	Putnam County Line
5399	CR 315	Putnam County Line
5400	SR 19	Putnam County Line
5401	US 17	Putnam County Line
5402	SR 20	Putnam County Line
5403	CR 13	St. Johns County Line
5404	I-95	St. Johns County Line
5405	US 1	St. Johns County Line
5406	A1A	St. Johns County Line

**Table 4-2  
CFRPM Version 6.0 Daily External Trip Summary**

TAZ	County	Location	EI/IE Trips	EE Trips	Total Trips	EI/IE Trips %	EE Trips %
5351	Indian River County Line	A1A	8,157	110	8,267	99	1
5352	Indian River County Line	US 1	6,820	1,796	8,616	79	21
5353	Indian River County Line	58th Ave	6,897	78	6,975	99	1
5354	Indian River County Line	66th Ave	7,785	86	7,871	99	1
5355	Indian River County Line	82nd Ave	298	0	298	100	0
5356	Indian River County Line	I-95	25,875	9,080	34,955	74	26
5357	Indian River County Line	CR 512	4000	0	4000	100	0
5358	Indian River County Line	SR 60	3,395	1,552	4,947	69	31
5359	Indian River County Line	SR 91	19,775	6,544	26,319	75	25
5360	Indian River County Line	US 441	1,456	1,034	2,490	58	42
5361	Polk County Line	CR 64	399	0	399	100	0
5362	Polk County Line	US 27	19,325	0	19,325	100	0
5363	Polk County Line	US 17	8,567	0	8,567	100	0
5364	Polk County Line	SR 37	2,286	0	2,286	100	0
5365	Polk County Line	CR 674	1,689	0	1,689	100	0
5366	Polk County Line	CR 540	6,171	0	6,171	100	0
5367	Polk County Line	CR 676	1,097	0	1,097	100	0
5368	Polk County Line	SR 50	16,431	0	16,431	100	0
5369	Polk County Line	OLD MUL	772	0	772	100	0
5370	Polk County Line	Medulla Rd	2,278	0	2,278	100	0
5371	Polk County Line	Fancy Farm Rd	82	0	82	100	0
5372	Polk County Line	Rice Rd	167	0	167	100	0
5373	Polk County Line	US 92	8,257	0	8,257	100	0
5374	Polk County Line	I-4	112,484	500	112,984	100	0
5375	Polk County Line	CR 582	5,324	0	5,324	100	0
5376	Polk County Line	Deeson Rd	7,073	0	7,073	100	0
5377	Polk County Line	US 98	7,933	0	7,933	100	0
5378	Hernando County Line	SR 50	5,094	182	5,276	97	3
5379	Hernando County Line	US 301	3,580	0	3,580	100	0
5380	Hernando County Line	I-75	22172	16132	38,304	58	42
5381	Hernando County Line	CR 476	2,583	0	2,583	100	0
5382	Citrus County Line	CR 48	4,750	0	4,750	100	0
5383	Citrus County Line	SR 44	8,791	0	8,791	100	0
5384	Citrus County Line	SR 200	13,132	1424	14,556	90	10
5385	Citrus County Line	US 41	18,337	1606	19,943	92	8
5386	Levy County Line	SR 40	1954	1134	3088	63	37
5387	Levy County Line	CR 336	1,111	562	1,673	66	34
5388	Levy County Line	US 41	2,842	1,356	4,198	68	32
5389	Levy County Line	SR 464	1,187	0	1,187	100	0
5390	Levy County Line	CR 326	1,384	0	1,384	100	0
5391	Levy County Line	US 27	4949	1033	5,982	83	17
5392	Levy County Line	CR 318	2,658	508	3,166	84	16
5393	Levy County Line	CR 320	406	0	406	100	0
5394	Alachua County Line	CR 329	1,148	37	1,185	97	3
5395	Alachua County Line	I-75	26,309	22993	49,302	53	47
5396	Alachua County Line	US 441	7,323	624	7,947	92	8
5397	Alachua County Line	US 301	6,194	5,038	11,232	55	45
5398	Putnam County Line	SR 21	617	438	1,055	58	42
5399	Putnam County Line	CR 315	1,304	438	1,742	75	25
5400	Putnam County Line	SR 19	2,149	142	2,291	94	6
5401	Putnam County Line	US 17	4,097	138	4,235	97	3
5402	Putnam County Line	SR 20	3,977	10	3,987	100	0
5403	St. Johns County Line	CR 13	3,081	0	3,081	100	0
5404	St. Johns County Line	I-95	43,285	8,569	51,854	83	17
5405	St. Johns County Line	US 1	9,721	1,552	11,273	86	14
5406	St. Johns County Line	A1A	2,984	0	2,984	100	0
<b>Total</b>			<b>491,912</b>	<b>84,696</b>	<b>576,608</b>	<b>85</b>	<b>15</b>



### Table 4-3

[illegible]

links (e.g. area type, facility type, capacities, traffic count, and speeds). A general overview of the CFRPM Version 6.0 Model network is described here.

## 5.1 Area Types and Facility Types

In CFRPM Version 6.0 as in CFRPM 5.0, “Area Types are one-digit codes used in the model to designate the type of adjacent land use development along a roadway or corridor.” As with CFRPM 5.0, version 6.0 includes a refinement to earlier versions which had the Area Types “hard coded” for each roadway link. The refined method is based on “activity density” for each TAZ (please refer to documentation for CFRPM Version 5.0 for further detail). Five Area Types are used in the Model. Table 5-1 summarizes the CFRPM v6.0 Area Types.

**Table 5-1**  
**CFRPM Version 6.0 Description of Area Types**

Area Type	Description
1	CBD (Old AT = 1, CBD)
2	High Density (Old AT = 2, CBD Fringe)
3	Medium Density (Old AT = 4, Outlying Business District)
4	Low Density (Old AT = 3, Residential)
5	Very Low Density (Old AT= 5, Rural)

The Facility Types utilized by the CFRPM Version 6.0 are based on adopted FDOT facility classifications and local comprehensive plans and relate to facilities designated as freeways, arterials, collectors, and centroid connectors. **Table 5-2** summaries the different facility types employed by the CFRPM Model. The Version 6.0 model network is consistent with the latest version of the CFRPM Version 5.0 Model.

**Table 5-3** illustrates the number of links by Area Type and Facility Type. **Table 5-4** provides the Total System Miles by Facility Type and Area Type. **Table 5-5** provides the Total Lane Miles by Facility Type and Area Type.

## 5.2 Capacities

**Table 5-6** provides the Average Capacities for individual links according to Area Type and Facility Type. CFRPM Version 6.0 uses the capacity lookup tables that have been updated based on the FDOT 2009 Level of Service (LOS) Handbook provided by FDOT Central Office modeling staff. The speeds coded in the network are based on actual Posted Speeds for each facility.

## 5.3 Traffic Counts

A critical component to the model calibration and validation is the identification of base year traffic counts. One of the parameters for evaluating the model results is the model’s ability to reasonably replicate in-field traffic counts for the base year. Since the CFRPM Version 6.0 Model has a TOD component, a separate task was assigned to develop traffic counts by TOD Peak Periods. Specifically, electronic versions of the counts were obtained from the various area agencies in 15-minute format, and when necessary 1-hour or daily formats. TOD counts by direction were coded into the 2010 network for the AM, MD, PM, and NT periods. **Table 5-7** summarizes the TOD traffic count statistics (e.g. percentage of links with counts) for CFRPM version 6.0 Model. **Table 5-8** shows the Daily Percentages of Links with Counts.

**Table 5-2**

## CFRPM Version 6.0 Description of Facility Types

Facility Type	Description
<b>1X -- Freeways and Expressways</b>	
11	Urban Freeway Group 1 (cities of 500,000 or more)
12	Other Freeway (not in Group 1)
16	Controlled Access Expressways
17	Controlled Access Parkways
<b>2X -- Divided Arterials</b>	
21	Divided Arterial Unsignalized (55 mph)
22	Divided Arterial Unsignalized (45 mph)
23	Divided Arterial Class I
24	Divided Arterial Class II
25	Divided Arterial Class III / IV
26	Divided Signalized Arterial with High Capacity
<b>3X -- Undivided Arterials</b>	
31	Undivided Arterial Unsignalized with Turn Bays
32	Undivided Arterial Class I with Turn Bays
33	Undivided Arterial Class II with Turn Bays
34	Undivided Arterial Class III / IV with Turn Bays
35	Undivided Arterial Unsignalized without Turn Bays
36	Undivided Arterial Class I without Turn Bays
37	Undivided Arterial Class II without Turn Bays
38	Undivided Arterial Class III / IV without Turn Bays
39	Undivided Signalized Arterial with High Capacity
<b>4X--Collectors</b>	
41	Major Local Divided Roadway
42	Major Local Undivided Roadway with Turn Bays
43	Major Local Undivided Roadway without Turn Bays
44	Other Local Divided Roadway
45	Other Local Undivided Roadway with Turn Bays
46	Other Local Divided Roadway without Turn Bays
47	Low Speed Local Collector
48	Very Low Speed Local Collector
<b>5X -- Centroid Connectors</b>	
51	Basic Centroid Connector
52	External Station Centroid Connector
53	Dummy Zone Centroid Connector
54	Dummy Link for Dummy Centroid
<b>6X -- One-Way Facilities</b>	
61	One-Way Facilities Unsignalized
62	One-Way Facilities Class I
63	One-Way Facilities Class II
64	One-Way Facilities Class III / IV
66	Frontage Road Class I
68	Frontage Road Class III / IV
<b>7X--Ramps</b>	
71	FreewayOn/OffRamp
72	Freeway On /Off Loop Ramp
73	OtherOn/OffRamp
74	Other On /Off Loop Ramp
75	Freeway-to-Freeway Ramp
<b>8X -- HOV Facilities</b>	
81	Freeway Group 1 HOV Lane (Barrier Separated)
82	Other Freeway HOV Lane (Barrier Separated)
83	Freeway Group 1 HOV Lane (Non-Barrier Separated)
84	Other Freeway HOV Lane (Non-Barrier Separated)
85	Non Freeway HOV Lane
86	AM & PM Peak HOV Ramp
87	AM Peak Only HOV Ramp
88	PM Peak Only HOV Ramp
89	AllDayHOVRamp
<b>9X -- Toll Facilities</b>	
91	Toll Facility-- Florida Turnpike
92	Toll Facility -- SR 408
93	Toll Facility -- SR 417
94	Toll Facility -- SR 429
95	Toll Facility--SR 528
96	Toll Facility--Osceola Parkway
97	Acceleration Lanes - Toll Facility
98	Deceleration Lanes - Toll Facility

**Table 5-3**  
**CFRPM Version 6.0 Number of Links by Area Types and by Facility Type**

Number of Links by Area Type and Facility Type						
Facility Type	CBD	High Density	Medium Density	Low Density	Very Low Density	Total
Freeways and Expressways	29	35	146	219	187	616
Divided Arterials	121	186	1,822	2,154	1,181	5,464
Undivided Arterials	102	78	478	1,048	1,040	2,746
Collectors	327	301	2,198	4,161	3,319	10,306
One-Way Facilities	89	32	64	145	63	393
Ramps	49	89	358	414	277	1,187
HOV Facilities	0	0	0	0	0	0
Toll Facilities	12	69	377	449	284	1,191
<b>Total</b>	<b>729</b>	<b>790</b>	<b>5,443</b>	<b>8,590</b>	<b>6,351</b>	<b>21,903</b>

**Table 5-4**  
**CFRPM Version 6.0 Total System Miles by Facility Type and Area Type**

System Miles by Facility Type and Area Type						
Facility Type	CBD	High Density	Medium Density	Low Density	Very Low Density	Total
Freeways and Expressways	30	29	118	225	293	694
Divided Arterials	28	52	492	615	476	1,663
Undivided Arterials	31	32	182	417	629	1,291
Collectors	88	92	720	1,502	1,658	4,060
One-Way Facilities	8	6	14	28	9	65
Ramps	7	25	95	109	57	293
HOV Facilities	0	0	0	0	0	0
Toll Facilities	6	19	148	232	245	651
<b>Total</b>	<b>196</b>	<b>255</b>	<b>1,769</b>	<b>3,129</b>	<b>3,367</b>	<b>8,716</b>

**Table 5-5**  
**CFRPM Version 6.0 Total Lane Miles by Facility Type and Area Type**

Lane Miles by Facility Type and Area Type						
Facility Type	CBD	High Density	Medium Density	Low Density	Very Low Density	Total
Freeways and Expressways	81	80	363	600	727	1,851
Divided Arterials	110	219	2,216	2,541	1,925	7,011
Undivided Arterials	71	76	416	908	1,319	2,790
Collectors	190	209	1,693	3,251	3,428	8,772
One-Way Facilities	23	14	32	58	16	143
Ramps	8	30	119	122	70	348
HOV Facilities	0	0	0	0	0	0
Toll Facilities	10	44	343	477	474	1,347
<b>Total</b>	<b>493</b>	<b>672</b>	<b>5,181</b>	<b>7,958</b>	<b>7,959</b>	<b>22,261</b>



**Table 5-6**  
**CFRPM Version 6.0 Highway Average Capacity by Area Type and Facility Type**

Average Capacity by Area Type and Facility Type							
FT	Description	CBD	High Density	Medium Density	Low Density	Very Low Density	Average
11	Urban Freeway Group 1 (cities of 500,000 or more)	2048	2048	2048	2048	1833	2005
12	Other Freeway (not in Group 1)	2048	2048	2048	2048	1833	2005
16	Controlled Access Expressways	2048	2048	2048	2048	1833	2005
17	Controlled Access Parkways	2048	2048	2048	2048	1833	2005
21	Divided Arterial Unsignalized (55 mph)	1788	1788	1788	1788	1560	1742
22	Divided Arterial Unsignalized (45 mph)	1788	1788	1788	1788	1560	1742
23	Divided Arterial Class I	968	968	968	968	795	933
24	Divided Arterial Class II	933	933	933	933	795	905
25	Divided Arterial Class III / IV	850	850	850	850	795	839
26	Divided Signalized Arterial with High Capacity	850	850	850	850	795	839
31	Undivided Arterial Unsignalized with Turn Bays	1703	1703	1703	1703	1480	1658
32	Undivided Arterial Class I with Turn Bays	920	920	920	920	1330	1002
33	Undivided Arterial Class II with Turn Bays	888	888	888	888	755	861
34	Undivided Arterial Class III/IV with Turn Bays	808	808	808	808	755	797
35	Undivided Arterial Unsignalized without Turn Bays	808	1345	1345	1345	1180	1205
36	Undivided Arterial Class I without Turn Bays	730	730	730	730	1060	796
37	Undivided Arterial Class II without Turn Bays	703	703	703	703	598	682
38	Undivided Arterial Class III/IV without Turn Bays	640	640	640	640	598	632
39	Undivided Signalized Arterial with High Capacity	640	640	640	640	598	632
41	Major Local Divided Roadway	768	838	838	838	1040	864
42	Major Local Undivided Roadway with Turn Bays	723	798	798	798	1040	831
43	Major Local Undivided Roadway without Turn Bays	555	608	608	608	1040	684
44	Other Local Divided Roadway	605	605	605	605	1040	692
45	Other Local Undivided Roadway with Turn Bays	575	575	575	575	1020	664
46	Other Local Divided Roadway without Turn Bays	458	458	458	458	1010	568
47	Low Speed Local Collector	458	458	458	458	1010	568
48	Very Low Speed Local Collector	458	458	458	458	1010	568
61	One-Way Facilities Unsignalized	770	1618	1618	1618	1348	1394
62	One-Way Facilities Class I	873	873	873	873	718	842
63	One-Way Facilities Class II	843	843	843	843	718	818
64	One-Way Facilities Class III / IV	770	770	770	770	718	760
66	Frontage Road Class I	873	873	873	873	718	842
68	Frontage Road Class III / IV	770	853	853	770	718	793
71	Freeway On /Off Ramp	1618	1618	1618	1618	1803	1655
72	Freeway On/Off Loop Ramp	770	843	873	843	1803	1026
73	Other On/Off Ramp	1618	1618	1618	1618	1803	1655
74	Other On/Off Loop Ramp	770	843	873	843	1803	1026
75	Freeway-to-Freeway Ramp	1618	1618	1618	1618	1803	1655
91	Toll Facility - Turnpike	2048	2048	2048	2048	1833	2005
92	Toll Facility - SR 408	2048	2048	2048	2048	1833	2005
93	Toll Facility - SR 417	2048	2048	2048	2048	1833	2005
94	Toll Facility - SR 429	1788	1788	1788	1788	1560	1742
95	Toll Facility - SR 528	1703	1703	1703	1703	1480	1658
96	Toll Facility - Osceola Parkway	1703	1703	1703	1703	1480	1658
97	Acceleration Lanes - Toll Facility	1618	1618	1618	1618	1803	1655
98	Deceleration Lanes - Toll Facility	1618	1618	1618	1618	1803	1655
<b>Average</b>		<b>1167</b>	<b>1206</b>	<b>1207</b>	<b>1204</b>	<b>1256</b>	<b>1208</b>

**Table 5-7**  
**CFRPM Version 6.0 Percentage of Links with TOD Counts**

TOD Percentage of Links with Counts						
Facility Type	CBD	High Density	Medium Density	Low Density	Very Low Density	Total
Freeway	51.70	28.60	29.50	33.80	27.30	<b>31.30</b>
Divided Arterial	20.70	25.80	34.10	27.60	19.70	<b>27.90</b>
Undivided Arterial	14.70	25.60	26.80	18.10	10.70	<b>16.90</b>
Collector	2.10	3.70	12.60	7.10	3.00	<b>6.70</b>
One Way Facilities	13.50	6.30	34.40	23.40	17.50	<b>20.60</b>
Ramps	16.30	16.90	15.60	12.30	10.80	<b>13.50</b>
Toll Facilities	8.30	10.10	15.90	15.40	9.90	<b>13.90</b>
<b>Average</b>	<b>11.40</b>	<b>14.30</b>	<b>22.20</b>	<b>15.30</b>	<b>8.90</b>	<b>15.00</b>

**Table 5-8**  
**CFRPM Version 6.0 Percentage of Links with Daily Counts**

24 HR Percentage of Links with Counts						
Facility Type	CBD	High Density	Medium Density	Low Density	Very Low Density	Total
Freeway	51.70	28.60	33.60	34.20	27.80	<b>32.60</b>
Divided Arterial	21.50	26.90	34.90	28.70	20.70	<b>28.80</b>
Undivided Arterial	19.60	30.80	28.70	21.50	15.30	<b>20.60</b>
Collector	2.40	4.30	16.70	10.20	5.20	<b>9.60</b>
One Way Facilities	14.60	6.30	35.90	24.80	20.60	<b>22.10</b>
Ramps	30.60	20.20	18.70	18.10	17.70	<b>18.90</b>
Toll Facilities	8.30	10.10	16.40	15.40	10.60	<b>14.20</b>
<b>Average</b>	<b>13.40</b>	<b>15.70</b>	<b>24.60</b>	<b>17.70</b>	<b>11.30</b>	<b>17.40</b>

## 5.4 Screenlines

The Screenlines are set to study the traffic patterns associated with traffic crossing a particular corridor and are usually located along major roadway facilities associated with the network. Cutlines, on the other hand, reflect a specific location where the travel patterns are reviewed for general reference. **Figure 5-1** illustrates the Screenlines and Cutlines utilized by the CFRPM 6.0 Model and are presented with respect to the link count locations (the original CFRPM Version 5.0 Model screenline and cutline figures are included in **Appendix A**). No adjustments have been made from the Version 5.0 Model in terms of the general location of screenlines/cutlines for CFRPM 6.0.

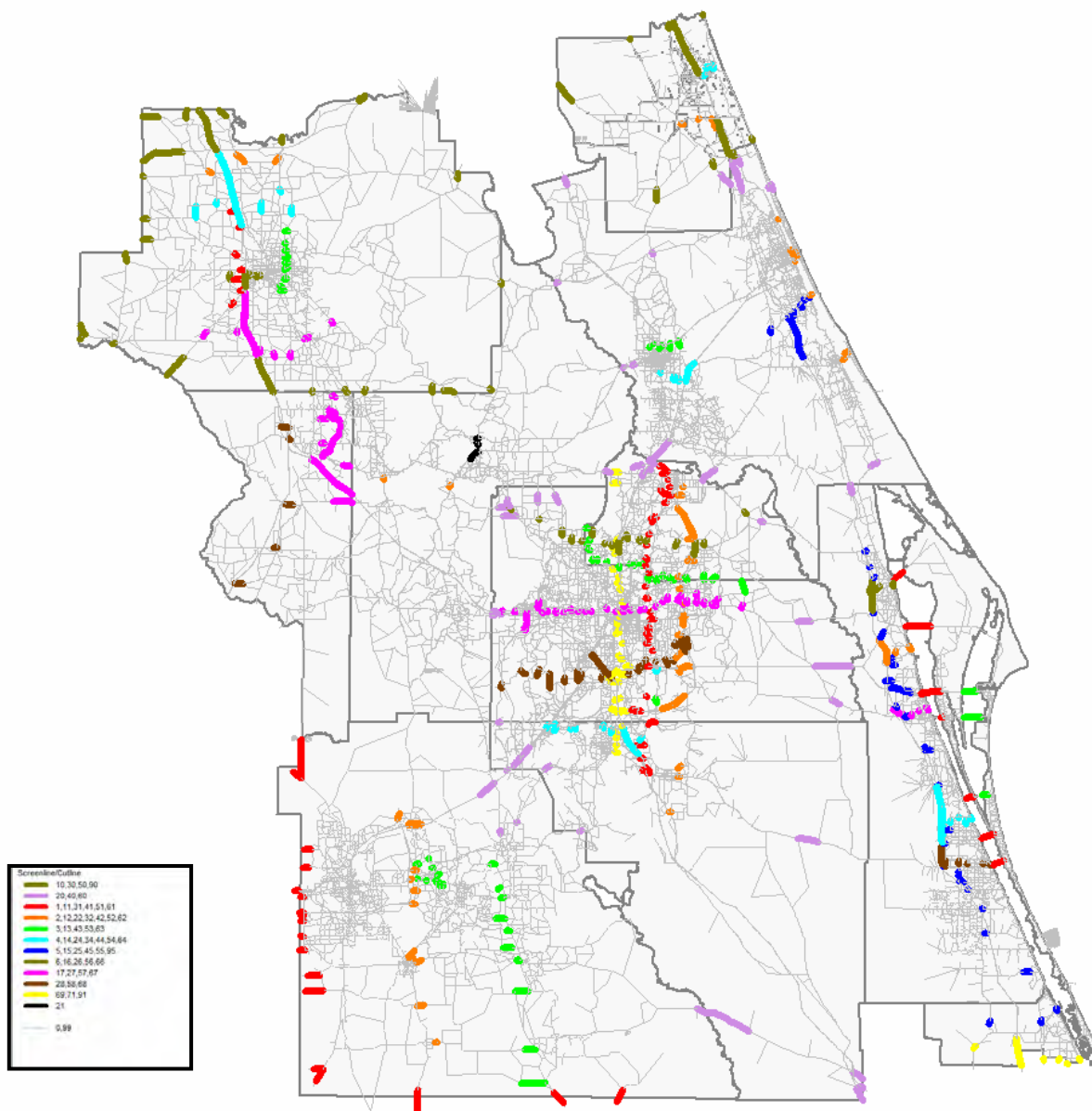
## 6.0 Model Distribution

The following provides an overview of the Diurnal Factors, the Sub-Area Balancing, the Friction Factors, and the resulting average trip lengths associated with the CFRPM Version 6.0 Model.

### 6.1 Diurnal Factors

The Trip Distribution Module takes the trip productions and attractions generated in the Trip Generation Module and distributes the trips. For the CFRPM Version 5.5 TOD Model, the trip productions and attractions are based on Diurnal factors that serve to categorize daily trips into TOD period trips. For purposes of the trip distribution, the Diurnal-derived productions and attractions are initially distributed according to Peak and Off-Peak periods and do not distinguish between the individual time periods (e.g. AM, PM, MD, NT). The individual time period components of the Diurnal Factors are utilized during the Traffic Assignment Module.

Figure 5-1  
CFRPM Version 6.0 Screenline/Cutline Locations





**Table 6-1** summarizes the Diurnal Factors applied for each of the Purpose Types (HBW, HBNW, and NHB) according to Peak and Off-Peak Fractions (F\_PK, F\_OP) and individual period to corresponding Peak or Off-Peak Fractions (F\_AM, F\_MID, F\_PM, F\_NT), along with PA Factors for each TOD period (PA\_AMP, PA\_MID, PA\_PMP, PA\_NT). The trip purposes HBSHOP, HBSOSCREC, and HBO only need Peak and Off-Peak diurnal percentages because the factors for the HBNW (sum of three purposes) are used for the fractions and PA factors. The factors were derived from the 2008 National Household Travel Survey (NHTS) and take into account the travel characteristics reported by the surveyed households. The presented Original Diurnal Factors are the factors therefore derived directly from the NHTS survey. Minor refinements were made to the factors to ensure that the proper number of trips was distributed amongst the four time periods. This was achieved by comparing the ratio of the modeled traffic assignment to the observed traffic counts, in other words TOD model volume-to-count ratios, along with the TOD Vehicle-Mile-Traveled (VMT) volume-to-count ratios. The Final Validated Diurnal Factors represents the factors used by the CFRPM Version 6.0 TOD Model to achieve time-of-day trips.

Final Validated Diurnal Factors are also presented for Special Attractions, namely the Orlando Airport (MCO), the Orange County Convention Center (OCC), Universal Studios (UNI), SeaWorld (SEW), Disney (DIS), I-Drive (IDR), Kennedy Space Center (KSC), and Port Canaveral (PTC). The Diurnal Factors for the Special Attractions are based on data developed by HNTB for this project. The Special Attractions Diurnal Factors are used to designate the Special Attractions File from daily generations into TOD generations (see **Appendix B** for Special Attractions File).

Diurnal Factors for Taxi were set at 0.6 for F\_PK and at 0.4 for F\_OP. For EI trips, the factors were set at 0.45 for F\_PK and at 0.55 for F\_OP. LOV, HOV, LTRK, HTRK are used at the external stations to define Peak Period vehicle occupancy and truck traffic components.

## 6.2 Sub-Area Balancing

As CFRPM v 5.0, CFRPM Version 6.0 also utilizes Sub-Area Balancing for distribution of trips within the region. For HBW trips, the sub-areas are broken into the following four (4) subareas that are related to the HBW travel patterns of the region:

- Subarea 1: Seminole, Orange, Osceola, South Lake, West Volusia, and Polk
- Subarea 2: Flagler and East Volusia
- Subarea 3: Brevard and Indian River
- Subarea 4: Marion, Sumter and North Lake

For the HBNW trips, the following five (5) subareas are applied:

- Subarea 1: Seminole, Orange, Osceola, and Polk
- Subarea 2: Lake and Sumter
- Subarea 3: Brevard and Indian River
- Subarea 4: Marion
- Subarea 5: Volusia and Flagler

During the development of the CFRPM v5.5 model, a detailed assessment of the sub-areas was performed by reviewing the 2008 NHTS travel logs. The longitude and latitude pairs for each the beginning and the end of each trip was converted into equivalent Origin and Destinations (e.g. Traffic Analysis Zones), with distinction for the number of NHTS-weighted trips corresponding with each trip. **Figure 6-1** illustrates the HBW travel pairs and **Figure 6-2** illustrates the HBNW travel pairs, with distinction for the number of NHTS-weighted trips

corresponding with each trip. Included in the figures are the Version 5.5 Sub-Area Balancing subareas that have been colored to distinguish between the different categories.

**Table 6-1  
CFRPM Version 6.0 Diurnal Factors**

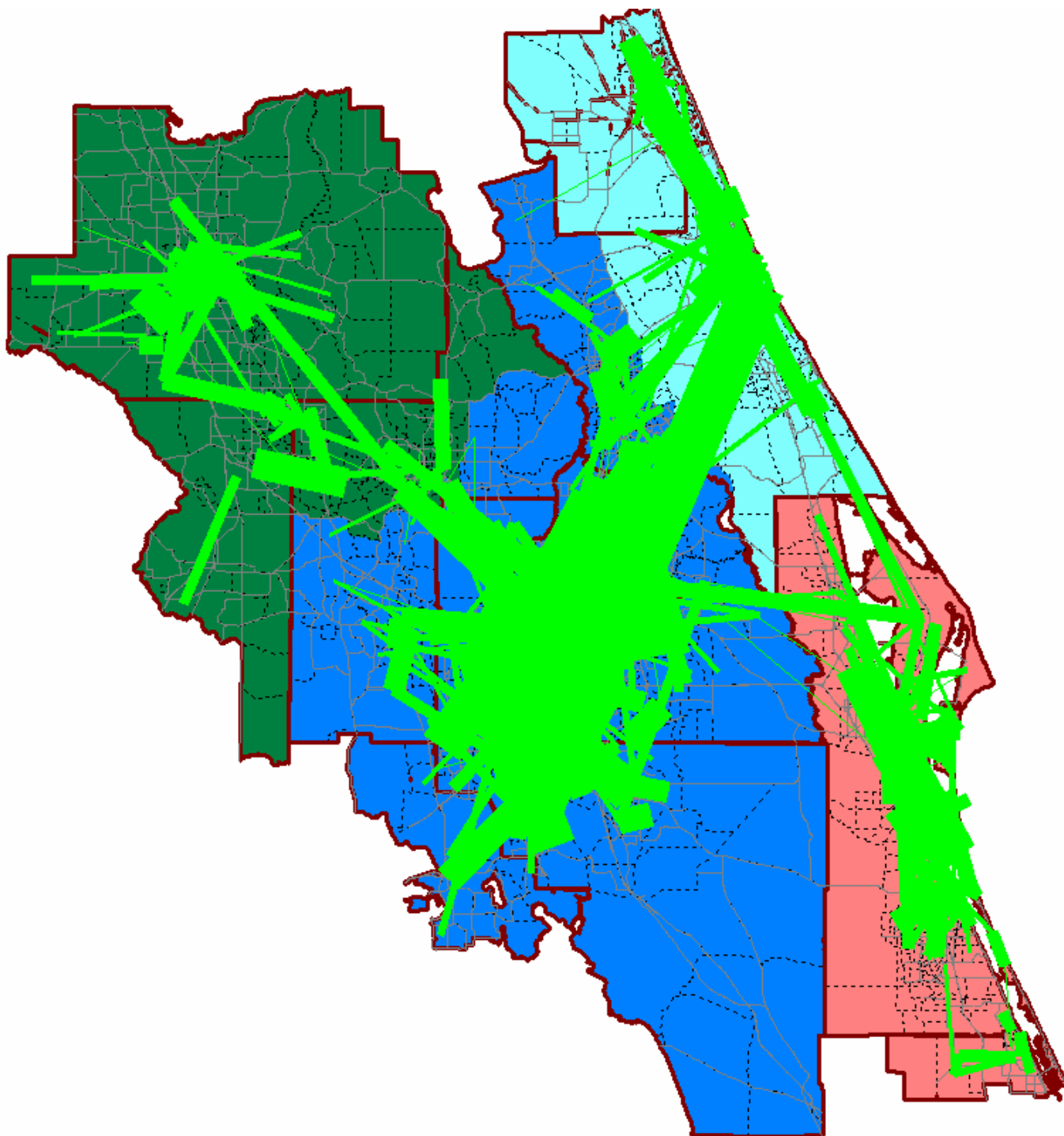
**Original 2008 NHTS Factors**

PURPOSE	PERIOD	F_PK	F_OP	F_AMP	F_MID	F_PMP	F_NT	PA_AMP	PA_MID	PA_PMP	PA_NT
HBW	PK			0.566		0.434		0.979		0.076	
HBW	OP				0.496		0.504		0.556		0.436
HBW	ALL	0.574	0.426								
HBNW	PK			0.375		0.625		0.754		0.407	
HBNW	OP				0.672		0.328		0.503		0.317
HBNW	ALL	0.370	0.630								
HBSH	ALL	0.297	0.703								
HBSR	ALL	0.291	0.709								
HBO	ALL	0.476	0.524								
NHB	PK			0.316		0.684		0.500		0.500	
NHB	OP				0.857		0.143		0.500		0.500
NHB	ALL	0.321	0.679								

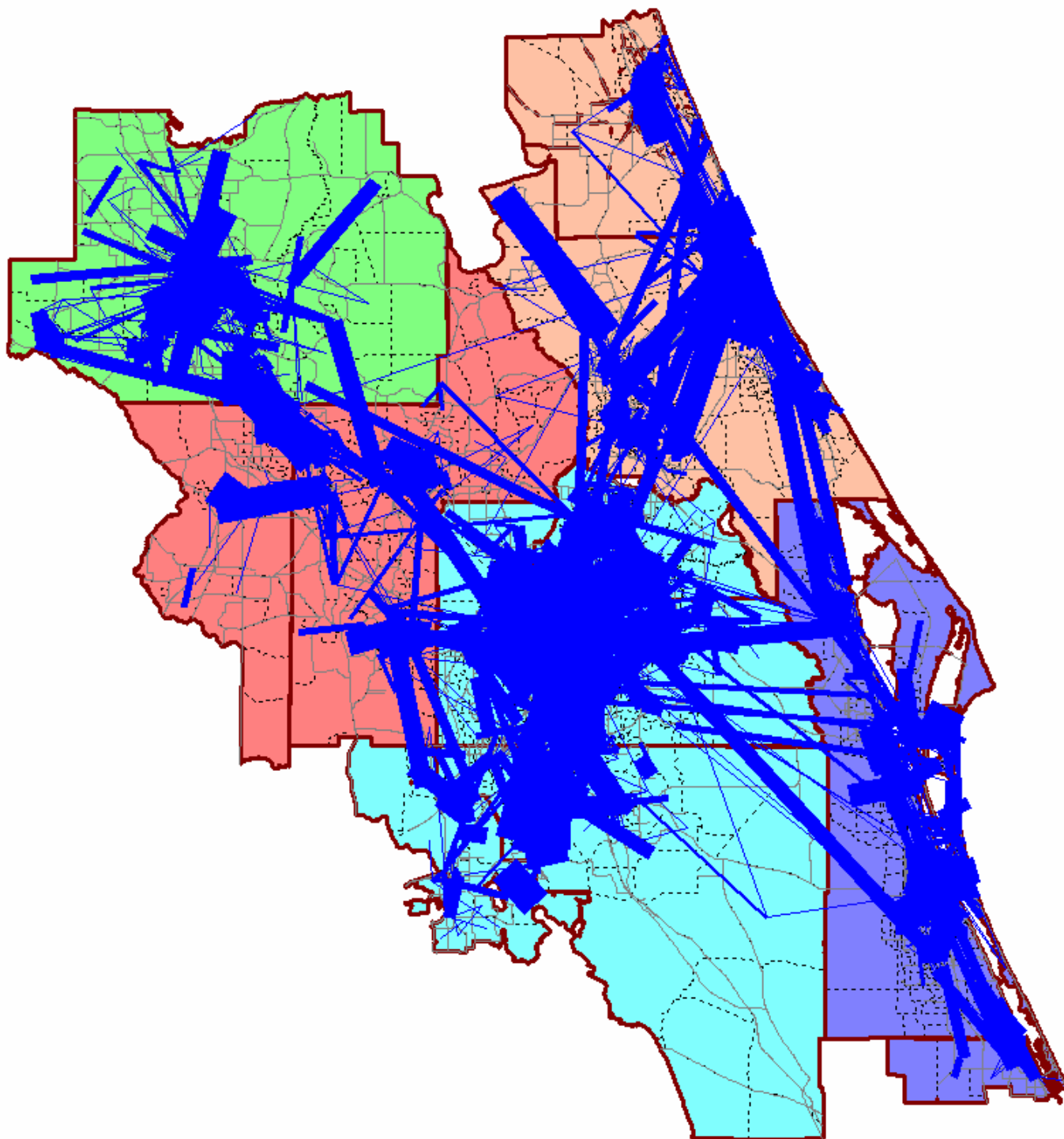
**Final Validated Diurnal Factors**

PURPOSE	PERIOD	F_PK	F_OP	F_AMP	F_MID	F_PMP	F_NT	PA_AMP	PA_MID	PA_PMP	PA_NT
HBW	PK			0.538		0.463		0.979		0.076	
HBW	OP				0.433		0.567		0.556		0.436
HBW	ALL	0.546	0.455								
HBNW	PK			0.357		0.644		0.754		0.407	
HBNW	OP				0.587		0.413		0.503		0.317
HBNW	ALL	0.352	0.649								
HBSH	ALL	0.282	0.718								
HBSR	ALL	0.277	0.724								
HBO	ALL	0.452	0.548								
NHB	PK			0.300		0.700		0.500		0.500	
NHB	OP				0.748		0.252		0.500		0.500
NHB	ALL	0.305	0.695								
Taxi	ALL	0.600	0.400								
EI	ALL	0.450	0.550								
SPEC	LOV			0.141	0.411	0.210	0.238	0.567	0.489	0.428	0.528
SPEC	HOV			0.141	0.411	0.210	0.238	0.567	0.489	0.428	0.528
SPEC	LTRK			0.172	0.466	0.191	0.172	0.567	0.489	0.428	0.528
SPEC	HTRK			0.140	0.441	0.147	0.272	0.567	0.489	0.428	0.528
MCO	ALL			0.111	0.463	0.221	0.205	0.500	0.500	0.500	0.500
OCC	ALL			0.048	0.608	0.206	0.138	0.500	0.500	0.500	0.500
UNI	ALL			0.077	0.483	0.281	0.158	0.500	0.500	0.500	0.500
SEW	ALL			0.056	0.482	0.273	0.189	0.500	0.500	0.500	0.500
DIS	ALL			0.110	0.456	0.255	0.179	0.500	0.500	0.500	0.500
IDR	ALL			0.300	0.200	0.300	0.200	0.500	0.500	0.500	0.500
KSC	ALL			0.000	0.612	0.384	0.004	0.500	0.500	0.500	0.500
PTC	ALL			0.022	0.808	0.141	0.029	0.500	0.500	0.500	0.500

**Figure 6-1**  
**CFRPM Version 5.5 Review of HBW Sub-Area Balancing Using 2008 NHTS**



**Figure 6-2**  
**CFRPM Version 5.5 Review of HBNW Sub-Area Balancing Using 2008 NHTS**



The figures show that the CFRPM Version 5.5 Sub-Area Balancing provides reasonable representation of the travel patterns within the region. The only area where a potential adjustment to the Sub-Area Balancing could be considered would be to include an additional eastern portion of Lake County with the HBW Orlando Urban Area grouping (e.g. Orange, Seminole, Osceola, South Lake, West Volusia, and Polk). No adjustment was made to the Sub-Areas, though, based on agreement by the Project Team.

### 6.3 Friction Factors

The model distribution step of the FSUTMS model chain is based on the gravity model. Essentially trip productions are balanced to trip attractions based on the weighted desirability of the attractions. Friction Factors are used in the gravity model to represent the effect of travel impedance. The 2008 NHTS travel data was reviewed for application to the CFRPM Version 5.5 TOD Model, as described below.

First Origin and Destination pairs were obtained by Trip Purpose from the NHTS data. Based on the NHTS Origin and Destination pairs, and their corresponding TAZ Production and Attractions, Friction Factor tables were developed by Trip Purpose and by Peak and Off-Peak periods. Separate Friction Factor curves were created for each for the six (6) Metropolitan Planning Organization's (MPOs) based Friction Factor sets contained in the original CFRPM Version 5.0 Model, as indicated below:

- Brevard and Indian River (previously BATS)
- Lake (previously LCTS)
- Marion (previously OATS)
- Orange, Osceola, Polk, and Seminole (previously OUATS)
- Sumter (previously CFRPM5.0 Sumter)
- Volusia and Flagler (previously VCATS)

The Friction Factor tables and corresponding curves obtained from the NHTS data is limited to 9,018 travel logs, which are then aggregated into the five (5) Trip Purposes (HBW, HBSHOP, HBSOCREC, HBO, and NHB) and into the two periods (Peak and Off-Peak). When combined with the six (6) MPO areas, there are in all 60 separate Friction Factor sets. The travel logs for the 60 sub-categories range from 5 to 584 entries, depending on the location and the individual Trip Purpose. Based on the NHTS trip purposes and trip locations, the AM Congested speed assignment was used to develop trip lengths for the Peak Origin and Destination pairs and the MD Free Flow speed assignment was used for the Off-Peak pairs. The model trip length were used because the NHTS responses were not deemed reliable. This is due to the fact that respondents do not always report accurate times and, in fact, tend to round off their trip lengths. Furthermore, terminal times are not being included in the NHTS travel survey times.

With the limited number of entries and the great variation in resulting trip lengths derived from the model for the Origin and Destination pairs, only 15 percent of the 60 Friction Factor curves could be accurately developed. In lieu of making manual adjustments to the other 85 percent, the reported NHTS trip lengths and their corresponding Peak-to-Off-Peak ratios were used, by Trip Purpose, to adjust the MPO based CFRPM Version 5.0 Friction Factors. In doing so, the original Friction Factors were established as the Off-Peak Friction Factors and the NHTS ratio of Peak-to-Off-Peak was applied to derive the Peak Friction Factors. **Table 6-2** presents the NHTS Peak-to-Off-Peak ratios, by MPO model area. The CFRPM Version 5.5 Peak and Off-Peak Friction Factor tables, along with the detailed NHTS trip length summations by MPO area and by Trip Purpose, are provided in **Appendix C**. The same friction factor files have been used for CFRPM 6.0.



**Table 6-2**  
**CFRPM Version 5.5 Referenced 2008 NHTS Trip Length Peak-to-Off-Peak Ratios**

PEAK	BATS	LAKE	MARION	OUATS	SUMTER	VCATS
HBW	21.5	31.8	17.8	30.1	39.5	23.7
HBSHOP	12.1	10.6	13.3	13.9	20.0	15.6
HBSOCREC	15.3	16.0	13.4	17.0	21.6	24.1
HBO	15.1	23.3	19.2	15.5	17.5	17.6
NHB	12.3	20.5	16.0	20.7	9.7	19.7

OFFPEAK	BATS	LAKE	MARION	OUATS	SUMTER	VCATS
HBW	18.0	26.3	19.9	26.7	21.3	22.9
HBSHOP	12.3	18.8	17.9	12.2	13.0	14.2
HBSOCREC	18.3	17.2	20.3	16.6	29.4	18.2
HBO	15.4	20.9	19.8	17.1	27.0	18.1
NHB	13.8	14.4	12.7	16.0	13.4	14.8

RATIO	BATS	LAKE	MARION	OUATS	SUMTER	VCATS
HBW	1.19	1.21	0.89	1.13	1.85	1.03
HBSHOP	0.98	0.56	0.74	1.14	1.54	1.10
HBSOCREC	0.84	0.93	0.66	1.02	0.73	1.32
HBO	0.98	1.11	0.97	0.91	0.65	0.97
NHB	0.89	1.42	1.26	1.29	0.72	1.33

## 6.4 Model Average Trip Lengths

Based on CFRPM Version 6.0 trip distribution, which uses the previously described input files as a basis for its gravity model balancing, average trip lengths were reported by the Model for each Trip Purpose. The trip lengths by Trip Purpose are presented in **Tables 6-3** and **6-4** for each the Off-Peak (Average Free Flow speeds) and the Peak (Congested speeds).

## 7.0 Highway Assignment

The results of the calibration and validation of the Model is herein presented in relation to the highway assignment statistics.

### 7.1 Validation Assignment Files

The VFACTOR and Capacity Factor files utilized by the Model are described along with their relationship to the Model's traffic assignment.

#### 7.1.1 VFACTORS File

The CFRPM Version 5.0 VFACTORS file was used as the basis for the development of a refined VFACTORS file for CFRPM 5.5 while taking into consideration observations made for the travel corridors (e.g. observed traffic speeds and volumes). The VFACTORS file is comprised of UROAD factors, BPR coefficients, and BPR exponents that are used by the model to relate volumes to delays for each of the model facility types based on a curvilinear relationship associated with the three components (e.g. BPR curves). The following illustrates the BPR curve equation:

$$S = S_f / ( 1 + \alpha ( V / C )^\beta )$$

Where:

**S** is observed speed

**S<sub>f</sub>** is model free-flow speed

**α, β** are the coefficient and exponential parameters of the BPR curve

**C** is model capacity

**V** is observed traffic volume

As an overview, for CFRPM Version 5.5, the free-flow speed is based on a calculated equation that uses posted speeds and facility types. The model capacity is based on a look-up table, which references facility type and area type. Other components are derived based on the in-field observed data and the results of fitting the BPR curves based on the adjustment of the alpha and beta parameters. The final CFRPM 5.5 VFACTORS file was used for CFRPM 6.0.

**Table 6-3**  
**CFRPM Version 6.0 Off-Peak Average Length by Trip Purpose**

<b>Trip Purpose</b>	<b>Total Trips</b>	<b>Trip-Minutes</b>	<b>Average Minutes</b>	<b>Trip-Miles</b>	<b>Average Miles</b>
HBW	2,293,252	47,875,568	20.88	29,475,784	12.85
HBSH	1,456,719	22,847,901	15.68	13,496,561	9.27
HBSR	1,376,295	27,425,011	19.93	16,975,982	12.34
HBO	3,523,399	57,968,766	16.45	33,554,791	9.52
NHB	4,457,355	69,452,608	15.58	38,941,250	8.74
LTK	1,313,458	19,094,756	14.54	10,521,874	8.01
HTK	300,381	4,247,641	14.14	2,344,858	7.81
TAXI	14,582	209,371	14.36	113,788	7.80
IE	479,686	14,373,453	29.96	10,730,464	22.37

**Table 6-4**  
**CFRPM Version 6.0 Peak Average Trip Length by Trip Purpose**

<b>Trip Purpose</b>	<b>Total Trips</b>	<b>Trip-Minutes</b>	<b>Average Minutes</b>	<b>Trip-Miles</b>	<b>Average Miles</b>
HBW	2,293,252	66,053,517	28.80	31,376,158	13.68
HBSH	1,456,719	30,632,488	21.03	14,089,649	9.67
HBSR	1,376,295	38,177,560	27.74	18,185,659	13.21
HBO	3,523,399	76,214,003	21.63	34,993,990	9.93
NHB	4,457,355	94,247,916	21.14	41,078,060	9.22
LTK	1,313,458	25,314,110	19.27	11,062,457	8.42
HTK	300,381	5,667,444	18.87	2,451,779	8.16
TAXI	14,582	279,790	19.19	119,902	8.22
IE	479,686	16,060,732	33.48	10,896,036	22.72

The CFRPM Version 6.0 VFACTORS file (same as the CFRPM 5.5 version) is provided in **Table 7-1** and includes highlights for those facility types that were modified. Notably, the freeway Facility Types 11 and 12 were based on data gathered for the I-4 corridor. Since the travel speeds and travel volumes were not collected at the same time, a best fit was made using the data, which was available.

#### ***UROAD Factors***

The UROAD factor component of the BPR curves is used to convert the “possible” capacity (LOS E) to a “practical” capacity (LOS C). Essentially, the volume-to-delay relationship and the UROAD factors work together. LOS C is used for the CFRPM Version 5.5 Model due to the fact that the Orlando Urban area and other areas of the region are not saturated in terms of capacity. The CFRPM uses factors ranging from 0.51 to 1.00 depending on the facility type. The same UROAD factors have been used for CFRPM 6.0.

#### ***CONFAC Factors***

The CONFAC factors are the adjustments used during the BPR curve development to convert hourly model capacities to daily model capacities. The CFRPM Version 5.5 Model uses factors of 0.09 for Facility Types 11 and 12 and 0.10 for remaining facility types, and are consistent with the Version 5.0 Model. The same CONFAC factors have been used for CFRPM 6.0.

#### ***BPR Coefficients and Exponents***

The BPR Coefficient represents the alpha value of the BPR curve and the BPR Exponent represents the beta value. The final BPR curve is achieved by adjusting these parameters until a fit is obtained for the curve in comparison to the corresponding data points for congested to uncongested speed and volume to capacity. **Table 7-1** includes the individual facility type BPR Coefficient and Exponent values. The same BPR coefficients and exponents have been used for CFRPM 6.0.

### **7.1.2 Capacity Factors**

Traditionally, Capacity factors are contained in the FSUTMS Model to convert hourly model capacities into daily capacities. For purposes of this TOD Model, the Capacity factors represent the proportioning of the peak hour capacities to capacities associated with each individual Peak Period (e.g. AM, MD, PM, and NT). For the CFRPM Version 5.5 Model and also used for CFRPM 6.0, the capacity factors are named respectively the AMCAPFAC, MDCAPFAC, PMCAPFAC, and NTCAPFAC factors and are included in the “Key” area of CUBE/Voyager catalog. **Table 7-2** presents the Model TOD Capacity Factors.

**Table 7-1**  
**CFRPM Version 6.0 Adjusted VFACTOR File**

Facility Type	UROAD Factor	CONFAC Factor	BPR Coefficient	BPR Exponent	Facility Type	UROAD Factor	CONFAC Factor	BPR Coefficient	BPR Exponent
10	0.68000	0.10000	0.15000	6.50000	55	1.00000	0.10000	0.15000	4.50000
11	0.68000	0.09000	0.75000	8.50000	56	1.00000	0.10000	0.15000	4.50000
12	0.68000	0.09000	0.75000	8.50000	57	1.00000	0.10000	0.15000	4.50000
13	1.00000	0.10000	0.15000	6.50000	58	1.00000	0.10000	0.15000	4.50000
14	1.00000	0.10000	0.15000	6.50000	59	1.00000	0.10000	0.15000	4.50000
15	0.68000	0.10000	0.15000	6.50000	60	0.96000	0.10000	0.15000	4.50000
16	0.68000	0.10000	0.15000	6.50000	61	0.68000	0.10000	0.15000	4.50000
17	0.68000	0.10000	0.15000	6.50000	62	0.81000	0.10000	0.15000	4.50000
18	1.00000	0.10000	0.15000	6.50000	63	0.95000	0.10000	0.15000	4.50000
19	0.68000	0.10000	0.15000	6.50000	64	0.96000	0.10000	0.15000	4.50000
20	0.92000	0.10000	0.15000	5.50000	65	0.68000	0.10000	0.15000	4.50000
21	0.73000	0.10000	0.15000	8.50000	66	0.81000	0.10000	0.15000	4.50000
22	0.73000	0.10000	0.75000	4.50000	67	0.95000	0.10000	0.15000	4.50000
23	0.81000	0.10000	0.75000	4.50000	68	0.96000	0.10000	0.15000	4.50000
24	0.95000	0.10000	0.75000	4.50000	69	1.00000	0.10000	0.15000	4.50000
25	0.96000	0.10000	0.15000	8.50000	70	0.68000	0.10000	0.15000	6.50000
26	0.81000	0.10000	0.15000	8.50000	71	0.51000	0.10000	0.15000	6.50000
27	1.00000	0.10000	0.15000	5.50000	72	0.92000	0.10000	0.15000	6.50000
28	1.00000	0.10000	0.15000	5.50000	73	0.51000	0.10000	0.15000	6.50000
29	1.00000	0.10000	0.15000	5.50000	74	0.92000	0.10000	0.15000	6.50000
30	0.92000	0.10000	0.15000	4.50000	75	0.68000	0.09000	0.15000	6.50000
31	0.68000	0.10000	0.15000	8.50000	76	0.92000	0.10000	0.15000	6.50000
32	0.81000	0.10000	0.15000	8.50000	77	0.51000	0.10000	0.15000	6.50000
33	0.95000	0.10000	0.75000	4.50000	78	0.92000	0.10000	0.15000	6.50000
34	0.88000	0.10000	0.15000	4.50000	79	0.68000	0.09000	0.15000	6.50000
35	0.68000	0.10000	0.15000	4.50000	80	0.68000	0.10000	0.30000	8.50000
36	0.81000	0.10000	0.75000	4.50000	81	0.68000	0.10000	0.30000	8.50000
37	0.95000	0.10000	0.15000	4.50000	82	0.68000	0.10000	0.30000	8.50000
38	0.96000	0.10000	0.15000	4.50000	83	0.68000	0.10000	0.30000	8.50000
39	0.81000	0.10000	0.15000	4.50000	84	0.68000	0.10000	0.30000	8.50000
40	0.86000	0.10000	0.15000	4.50000	85	0.68000	0.10000	0.30000	8.50000
41	0.92000	0.10000	0.15000	8.50000	86	0.68000	0.10000	0.30000	8.50000
42	0.92000	0.10000	0.75000	8.50000	87	0.68000	0.10000	0.30000	8.50000
43	0.92000	0.10000	0.15000	8.50000	88	0.68000	0.10000	0.30000	8.50000
44	0.86000	0.10000	0.15000	4.50000	89	0.68000	0.10000	0.30000	8.50000
45	0.86000	0.10000	0.15000	4.50000	90	0.68000	0.10000	0.15000	6.50000
46	0.86000	0.10000	0.75000	4.50000	91	0.75000	0.10000	0.15000	3.00000
47	0.86000	0.10000	0.15000	4.50000	92	0.68000	0.09000	0.15000	6.50000
48	0.86000	0.10000	0.15000	4.50000	93	0.68000	0.09000	0.15000	6.50000
49	1.00000	0.10000	0.15000	4.50000	94	0.68000	0.09000	0.15000	6.50000
50	1.00000	0.10000	0.15000	4.50000	95	0.68000	0.09000	0.15000	6.50000
51	1.00000	0.10000	0.15000	4.50000	96	0.68000	0.10000	0.15000	5.50000
52	1.00000	0.10000	0.15000	4.50000	97	0.51000	0.10000	0.15000	6.50000
53	1.00000	0.10000	0.15000	4.50000	98	0.51000	0.10000	0.15000	6.50000
54	1.00000	0.10000	0.15000	4.50000	99	1.00000	0.10000	0.15000	6.50000

Modified for v5.5.

**Table 7-2**  
**CFRPM Version 6.0 Hourly-to-TOD Capacity Factors**

Catalog Key Name	Factor
AMCAPFAC	2.5
MDCAPFAC	6.0
PMCAPFAC	3.0
NTCAPFAC	10.0



## 7.2 General Validation Results

FDOT has established guidelines to be achieved for daily model highway assignments. The Traffic Assignment Accuracy Levels are defined in **Table 7-3** and serve as the general guidelines for evaluating the CFRPM Version 6.0 Model, with specific model standards having been developed for the TOD period evaluations.

**Table 7-3**  
**FDOT Traditional Daily Traffic Assignment Accuracy Levels**

Validation Check	Scale of Computation	Level of Accuracy
Assigned VMT/Count VMT	Area	± 5%
Assigned VHT/Count VHT	Area	± 5%
Volume-Count Ratio	Screenlines	± 10% (> 50,000 VPD) ± 20% (< 50,000 VPD)
Volume-Count Ratio	Cutlines	± 10% (> 50,000 VPD) ± 20% (< 50,000 VPD)
Assigned VMT/Count VMT	Facility Type, Area Type, No. of Lanes	± 15% (> 100,000 VPD) ± 25% (< 100,000 VPD)
Assigned VHT/Count VHT	Facility Type, Area Type, No. of Lanes	± 15% (> 20,000 VPD) ± 25% (< 20,000 VPD)
Percent Root Mean Square Error	Area	35% - 50%
Percent Root Mean Square Error	Link Volume Groups	± 10% (> 50,000 VPD) ± 20% (< 50,000 VPD)

### 7.2.1 Systemwide Statistics

Systemwide model statistics are reflected in the HASSIGN.RPT output file for the model assignment. Included in the statistics are information on links and corresponding mileage, Vehicle-Miles-Traveled (VMT) and Vehicle-Hours-Traveled (VHT), and average speeds. **Table 7-4** summarizes the overall systemwide statistics for the Daily model. The key items in the table are the VMT and VHT, which are 1.03 and 1.04, respectively. These are well within the +/- 5% requirement at the systemwide level.

Systemwide model statistics for each of the eleven (11) counties contained within the CFRPM 6.0 network are presented in **Table 7-5**. As indicated in **Table 7-5**, all of the counties meet the overall area standards for %RMSE. They range from a low of 29.07 (Flagler) to high of 38.35 (Volusia), well within the 35-50% standard previously shown in **Table 7-3**. Individual County ratios for VMT and VHT are within +/- 10 percent. For Volume-to-Count ratios, again all of the County ratios are within +/- 10%.

**Table 7-4**  
**CFRPM Version 6.0 Overall Systemwide Daily Model Statistics**

Measurement	Values Measured
	Daily
TOTAL_ NUMBER OF LINKS	21,903
TOTAL SYSTEM MILES	8,716.43
TOTAL LANE MILES	22,262.51
TOTAL DIRECTIONAL MILES	15,687.42
TOTAL VMT USING VOLUMES (LINKS WITH COUNTS)	45,487,935
TOTAL VMT USING COUNTS (LINKS WITH COUNTS)	44,370,976
TOTAL VMT V/C (LINKS WITH COUNTS)	1.03
TOTAL VHT USING VOLUMES (LINKS WITH COUNTS)	1,244,293
TOTAL VHT USING COUNTS (LINKS WITH COUNTS)	1,198,295
TOTAL VHT V/C (LINKS WITH COUNTS)	1.04
TOTAL VOLUMES ALL LINKS	287,402,573
AVERAGE TOTAL VOLUME	13,121.61
TOTAL VMT ALL LINKS	110,051,268
TOTAL VHT ALL LINKS	3,060,509
TOTAL ORIGINAL SPEED (MPH)	39.70
TOTAL CONGESTED SPEED (MPH)	36.50

**Table 7-5**  
**CFRPM Version 6.0 Systemwide Daily Model Statistics by County**

Description	Seminole	Orange	Osceola	Lake	Volusia	Brevard	Marion	Sumter	Flagler	Polk	Indian River	CFRPM Total
Total Number of Links	1,204	4,896	1,231	1,293	3,404	2,485	1,705	536	425	4477	247	<b>21,903</b>
Total System Miles	431	1,628	692	681	1,136	991	1,008	368	284	1395	103	<b>8,716</b>
Total Lane Miles	1,241	4,640	1,686	1,621	2,810	2,610	2,445	836	702	3439	234	<b>22,263</b>
VMT Using Volumes (000s)	4,219	14,889	2,672	2,024	5,140	7,007	3,158	1,788	1,298	3071	216	<b>45,487</b>
VMT Using Counts (000s)	4,088	14,006	2,465	1,881	5,044	7,333	3,183	1,854	1,385	2,915	211	<b>44,370</b>
Total VMT Ratio	1.03	1.06	1.08	1.08	1.02	0.96	0.99	0.96	0.94	1.05	1.02	<b>1.03</b>
VHT Using Volumes (000s)	128	493	104	55	129	153	61	29	21	62	4	<b>1,244</b>
VHT Using Counts (000s)	125	453	95	51	127	165	62	31	23	59	4	<b>1,198</b>
Total VHT Ratio	1.02	1.09	1.10	1.07	1.02	0.93	0.98	0.96	0.95	1.05	1.05	<b>1.04</b>
Original Speed (MPH)	39.77	40.17	41.89	41.18	37.27	39.44	40.60	41.97	46.53	39.00	42.15	<b>39.75</b>
Congested Speed (MPH)	34.52	33.61	36.29	37.69	35.67	37.94	39.10	41.21	45.14	37.44	40.34	<b>36.56</b>
Volume / Count Ratio	1.08	1.10	1.05	1.06	0.99	0.90	0.94	0.92	1.02	1.02	1.00	<b>1.03</b>
Percent RMSE	32.67	34.42	34.41	31.72	38.35	31.50	33.53	31.92	29.07	33.75	36.03	<b>34.72</b>

### 7.2.2 VMT and VHT by Area Type and Facility Type

For Vehicle Miles of travel (VMT) and Vehicle Hours of Travel (VHT) results, a summation by Area Type and by Facility Type has also been prepared. The VMT and VHT serve as useful measures for reviewing fuel consumption and is traditionally reported for travel demand forecasting models. **Tables 7-6** and **7-7** indicate the CFRPM Version 6.0 Daily model results for VMT and VHT, respectively.

## 7.3 Count Validation Results

The count validation results are provided relative to the model links, screenlines, and percent Root Mean Squared Error (RMSE).

### 7.3.1 Link Volume-to-Observed Count Ratios

In addition to systemwide statistics, detailed Model Volume-to-Observed Count ratios are calculated by Facility Type and Area Type. **Table 7-8** provides the Volumes-to-Count ratios for the Daily and 24-hour total (addition of four time periods). As indicated in the table, all but the High Density Area Type meet the volume-to-count ratio standard of plus or minus 10 percent for the Daily and 24HR model assignments.

Based on the Technical Memorandum “Model Calibration and Validation Performance Measures and Standards” literature review, the model statistics compare relatively to other TOD models which document volume-to-count ratios for TOD periods. The comparison to the Southeast Regional Planning Model (SERPM) Version 6.5<sup>3</sup>, Memphis<sup>4</sup>, and the Sacramento<sup>5</sup> TOD model results are provided in **Table 7-9**. CFRPM Version 6.0, along with SERPM Version 6.5, provides the best volume-to-count ratio statistic comparisons. Memphis also achieves reasonable volume results for all TOD periods with all periods less than nine (9) percent different from the traffic counts. Sacramento emphasizes the validation to its AM and PM peak periods.

### 7.3.2 Screenline Volume-to-Observed Count Ratios

Volume-to-Count ratios are also reported for Screenlines and Cutlines within the CFRPM 6.0 network. The FDOT daily standards for Screenlines and Cutlines are plus or minus 10 percent for over 50,000 vehicles per day and plus or minus 20 percent for less than 50,000 vehicles per day, as previously shown in **Table 7-3**. As shown in **Table 7-10**, the FDOT daily standard is achieved for a majority of the locations. Only 14 of the 42 Screenlines/Cutlines do not meet the daily standard. The overall V/C ratio for all screenlines is 1.03 and the system total V/C ratio is 1.03 for all links with counts.

**Table 7-6  
CFRPM Version 6.0 Total Vehicle Miles Traveled (VMT) for Daily Model**

Daily Total Vehicle Miles Traveled (VMT)						
Facility Type	CBD	High Density	Medium Density	Low Density	Very Low Density	Total
Freeways	864,709	1,179,227	4,914,541	6,406,520	7,876,600	<b>21,241,596</b>
Divided Arterials	557,402	1,507,751	15,482,668	14,199,065	9,323,486	<b>41,070,372</b>
Undivided Arterials	324,264	270,753	2,191,205	4,455,073	6,253,477	<b>13,494,773</b>
Collectors	374,775	613,164	5,856,933	7,414,841	5,947,416	<b>20,207,129</b>
One-Way Facilities	151,280	72,828	248,593	345,448	55,897	<b>874,046</b>
Ramps	66,123	244,865	671,059	570,116	319,632	<b>1,871,795</b>
Toll Facilities	59,827	358,148	3,342,322	4,197,495	3,333,764	<b>11,291,556</b>
<b>Total</b>	<b>2,398,379</b>	<b>4,246,736</b>	<b>32,707,322</b>	<b>37,588,559</b>	<b>33,110,271</b>	<b>110,051,268</b>

**Table 7-7  
CFRPM Version 6.0 Total Vehicle Hours Traveled (VHT) for Daily Model**

Daily Total Vehicle Hours Traveled (VHT)						
Facility Type	CBD	High Density	Medium Density	Low Density	Very Low Density	Total
Freeways	22,240	40,106	137,721	131,446	159,107	<b>490,620</b>
Divided Arterials	16,196	64,581	553,128	401,958	226,242	<b>1,262,104</b>
Undivided Arterials	9,835	8,296	62,685	116,095	138,512	<b>335,423</b>
Collectors	13,050	21,812	215,209	270,540	161,141	<b>681,752</b>
One-Way Facilities	6,354	2,637	11,832	11,575	1,664	<b>34,062</b>
Ramps	2,857	11,585	27,656	21,438	10,879	<b>74,417</b>
Toll Facilities	1,000	7,486	53,993	69,859	49,794	<b>182,132</b>
<b>Total</b>	<b>71,532</b>	<b>156,503</b>	<b>1,062,224</b>	<b>1,022,912</b>	<b>747,338</b>	<b>3,060,509</b>

**Table 7-8**  
**CFRPM Version 6.0 Daily Volume-to-Count Ratios**

Daily Volume to Count Ratios for Links with Counts						
Facility Type	CBD	High Density	Medium Density	Low Density	Very Low Density	Total
Freeways	0.88	0.94	0.96	0.98	1.02	<b>0.97</b>
Divided Arterials	1.04	1.20	1.07	0.98	0.95	<b>1.03</b>
Undivided Arterials	1.07	1.07	1.11	1.01	1.24	<b>1.10</b>
Collectors	0.76	1.38	1.15	0.95	1.02	<b>1.05</b>
One-Way Facilities	1.65	2.30	1.53	1.00	0.81	<b>1.21</b>
Ramps	1.34	1.15	1.00	1.05	1.23	<b>1.09</b>
Toll Facilities	0.88	1.00	0.96	1.02	1.00	<b>0.99</b>
<b>Total</b>	<b>1.03</b>	<b>1.13</b>	<b>1.07</b>	<b>0.98</b>	<b>1.02</b>	<b>1.03</b>

24HR Volume to Count Ratios for Links with Counts						
Facility Type	CBD	High Density	Medium Density	Low Density	Very Low Density	Total
Freeways	1.25	1.23	1.21	1.12	1.11	<b>1.17</b>
Divided Arterials	1.12	1.27	1.10	0.98	1.04	<b>1.06</b>
Undivided Arterials	1.04	0.98	1.03	0.98	1.14	<b>1.03</b>
Collectors	0.60	1.95	1.03	0.94	0.98	<b>0.99</b>
One-Way Facilities	1.18	1.73	1.53	0.96	0.72	<b>1.11</b>
Ramps	1.55	1.40	1.20	1.19	1.22	<b>1.24</b>
Toll Facilities	1.05	1.15	1.01	1.01	1.01	<b>1.02</b>
<b>Total</b>	<b>1.17</b>	<b>1.26</b>	<b>1.09</b>	<b>0.99</b>	<b>1.06</b>	<b>1.06</b>

**Table 7-9**  
**Comparison to Other TOD Model Volume-to-Count Ratios (by TOD Period)**

MODEL	AM	PM	MD	NT	Daily 24-Hour
CFRPM 6.0	1.06	1.01	1.07	1.08	1.04
CFRPM 5.5	0.98	0.94	1.00	1.00	0.98
SERPM 6.5	1.01	1.01	1.00		1.00
Memphis, Tennessee	1.09	1.05	0.93	0.94	0.99
Sacramento, California	1.03	1.01	0.88	0.78	0.92



**Table 7-10**  
**CFRPM Version 6.0 Daily Model Screenline/Cutlines Volume-to-Count Ratios**

Daily				
Screenline Number	Number of Links	Estimated Volume	Count	V/C Ratio
1	32	198,708	199,090	1.00
2	12	179,875	164,300	1.09
3	7	82,209	68,683	1.20
4	3	80,968	93,403	0.87
10	28	131,319	129,940	1.01
11	10	91,271	101,948	0.90
12	4	21,541	19,076	1.13
13	10	100,125	118,256	0.85
14	4	83,786	78,322	1.07
16	4	97,226	97,940	0.99
17	10	145,333	163,638	0.89
20	6	147,044	171,700	0.86
21	6	30,524	31,624	0.97
22	2	39,892	35,430	1.13
27	20	146,948	149,758	0.98
28	4	13,474	15,120	0.89
30	12	132,521	134,958	0.98
32	8	35,262	33,474	1.05
40	18	317,641	281,104	1.13
42	16	171,965	165,180	1.04
43	6	45,221	47,888	0.94
44	4	93,652	90,376	1.04
45	12	114,537	120,828	0.95
51	16	205,752	227,810	0.90
52	2	50,202	45,500	1.10
53	6	77,017	89,402	0.86
54	10	140,701	144,670	0.97
55	46	432,371	430,770	1.00
56	7	86,018	104,695	0.82
57	8	94,682	113,478	0.83
58	14	195,698	197,774	0.99
60	42	600,888	550,566	1.09
61	44	722,617	719,810	1.00
62	36	566,716	580,972	0.98
63	38	686,921	596,682	1.15
64	12	214,990	182,242	1.18
66	34	472,025	456,648	1.03
67	62	880,550	896,300	0.98
68	40	893,215	806,370	1.11
69	55	1,014,112	982,992	1.03
71	12	67,023	66,250	1.01
95	4	31,199	31,660	0.99
98	1,170	11,701,493	11,303,059	1.04
Screenline Totals	1,896	21,635,233	21,039,686	1.03
99	5,011	57,798,618	55,871,764	1.03
System Totals	6,907	79,433,851	76,911,450	1.03

### 7.3.3 Modeled-to-Observed Percent RMSE

Florida adheres to a set of percent RMSE standards for daily model validations, as demonstrated in **Table 7-11**. The standards are based on traffic count ranges from 1 to 500,000 daily volumes. For the count range from 1 to 5,000 daily volumes, no distinction is provided for lower count groups. Since the TOD period counts represent a component of the daily traffic counts, a significant number of the CFRPM Version 6.0 observed peak period traffic counts exist within this lower count range and therefore require guidelines that are more refined.

As documented in the Technical Memorandum “Model Calibration and Validation Performance Measures and Standards,” a set of RMSE guidelines for the TOD Peak Period assignments was established as referenced in **Table 7-12**. The TOD RMSE guidelines were refined to seven (7) individual lower count groups, as compared to the FDOT eleven (11) daily count groups, and were based on a general assessment of the “Add A Lane/Drop A Lane” premise associated with the accuracy level of traditional travel demand forecasts. A RMSE range for the overall TOD assignment was also prepared and represents a range of 42 to 90 Percent RMSE. In addition to the individual TOD periods, an overall %RMSE standard for the combined daily TOD assignment is established as being between 35 and 50, as documented in the technical memorandum. The reason for a different standard for the daily TOD assignment, as compared to the FDOT standard for non-TOD daily models, is the fact that the combined daily TOD assignment includes the various TOD period assignments. Specifically, the NT period assignment does not provide for adequate number of iterations to adjust for individual network routes and thus provides a less accurate assignment; especially as it relates to I-4. Therefore, it would be unrealistic to achieve a combined daily TOD assignment which could be compared directly to a daily only assignment (e.g. without TOD components). Finally, it should be noted that the presented %RMSE guidelines have not been designed to account for specific variations in individual peak period lengths (e.g. 2.5, 3, 6.5, and 12 hours for the AM, PM, MD, and NT periods, respectively), beyond the referenced higher Percent RMSEs for lower count groups and the overall TOD Peak period RMSE higher range. Potentially, separate Percent RMSE guidelines could exist for each TOD period. A similar set of guidelines was prepared for traffic assignment of Trucks in the “Central Florida Regional Planning Model Version 5.0 with Truck Component” Technical Memorandum “Model Calibration and Validation (Final) dated March 29, 2013, by Leftwich Consulting Engineers, Inc. for FDOT District Five<sup>9</sup>. **Table 7-13** shows the Guidelines derived for Truck %RMSE.

**Table 7-13** presents the CFRPM 6.0 Daily model (e.g. LOV, HOV, Light Truck, and Heavy Truck trip purposes) validation Percent RMSE statistics. The count ranges used are the same as those presented in **Table 7-11** with the FDOT Standards. As indicated, the individual count ranges for volume groups 3 through 10 are within the allowed %RMSE range. For Volume groups 1 and 2, the lowest count ranges, the Model %RMSE is 75.06% (allowed range is 45-55%) and 49.15% (allowed range is 35-45%), respectively. For Volume Group 11, the highest count range in the model, the %RMSE is 18.38% (allowed range is 14-15%). The overall %RMSE is 34.72%, well within the allowed range of 32-39%. The Daily model meets the guideline for model volume-to-count ratio with 1.03 (accepted range is 0.95 to 1.05).

In addition to %RMSE statistics for all vehicles, the CFRPM Version 6.0 Model's Truck Component (e.g. Light and Heavy Truck Purposes) statistics are presented in **Table 7-15**. These statistics are based on comparisons of truck volumes (Light and Heavy truck purposes combined into one) against Truck Counts (total truck count). As indicated in **Table 7-15**, the validated CFRPM Version 6.0 Model statistics for Trucks are well within the allowed ranges presented in **Table 7-13**.

**Table 7-11**  
**FDOT Daily Model Percent RMSE Standards**

Daily Group	Count Range		Allowed %RMSE Range	
1	1	5,000	45	55
2	5,000	10,000	35	45
3	10,000	20,000	27	35
4	20,000	30,000	24	27
5	30,000	40,000	22	24
6	40,000	50,000	20	22
7	50,000	60,000	18	20
8	60,000	70,000	17	18
9	70,000	80,000	16	17
10	80,000	90,000	15	16
11	90,000	100,000	14	15
12	100,000	500,000	Less than	14
All	1	500,000	32	39

**Table 7-12**  
**CFRPM Version 6.0 TOD Model Percent RMSE Standards**

TOD Group	Count Range		Allowed %RMSE Range	
1	1	500	60	160
2	500	1,250	50	140
3	1,250	2,500	44	94
4	2,500	5,000	38	60
5	5,000	10,000	32	42
6	10,000	20,000	27	35
7	20,000	50,000	Less than	27
TOD All	1	50,000	42	90
TOD Daily	1	500,000	35	50

**Table 7-13**  
**Truck Percent RMSE Derived Guidelines**

Count Group	Truck Volume Count Range		Allowed %RMSE Range	
1	1	1,250	50	140
2	1,250	2,500	44	94
3	2,500	5,000	38	60
4	5,000	10,000	32	42
5	10,000	20,000	27	35
6	20,000	50,000	Less than	27
TOD All	1	50,000	42	90

**Table 7-14**  
**CFRPM Version 6.0 Daily Model Percent RMSE Statistics – All Vehicles**

CFRPM6 v6.0 Daily Counts							
Vol Group	Count Range	Model %RMSE	Allowed RMSE Range	Volume	Count	Volume/Count	No of Links
1	1-5,000	75.06%	45 - 55%	7,453,920	6,478,237	1.15	1,796
2	5,000-10,000	49.15%	35 - 45%	16,783,788	15,533,502	1.08	2,136
3	10,000-20,000	29.02%	27 - 35%	31,625,659	31,212,820	1.01	2,186
4	20,000-30,000	22.22%	24 - 27%	14,273,279	13,838,456	1.03	582
5	30,000-40,000	15.03%	22 - 24%	3,781,668	3,979,018	0.95	116
6	40,000-50,000	19.40%	20 - 22%	788,500	848,284	0.93	19
7	50,000-60,000	5.84%	18 - 20%	999,395	997,914	1.00	18
8	60,000-70,000	14.41%	17 - 18%	1,114,197	1,174,721	0.95	18
9	70,000-80,000	10.63%	16 - 17%	1,265,822	1,338,590	0.95	18
10	80,000-90,000	12.68%	15 - 16%	1,189,186	1,327,908	0.90	16
11	90,000-100,000	18.38%	14 - 15%	158,411	182,000	0.87	2
ALL	1-500,000	34.72%	32 - 39%	79,433,825	76,911,450	1.03	6,907

**Table 7-15**  
**CFRPM Version 6.0 Daily Model Percent RMSE Statistics – Trucks**

CFRPM6 v6.0 Truck Daily Counts							
Vol Group	Count Range	Model %RMSE	Allowed RMSE Range	Volume	Count	Volume/Count	No of Links
1	1-1250	129.72%	50 -160%	215,197	109,170	1.97	110
2	1,250-2,500	76.87%	44 - 94%	239,153	167,093	1.43	98
3	2,500-5,000	29.34%	38 - 60%	253,733	275,900	0.92	77
4	5,000-10,000	21.55%	32 - 42%	436,679	476,486	0.92	72
5	10,000-20,000	n/a	27 - 35%	n/a	n/a	n/a	n/a
ALL	1-50,000	44.13%	42 - 90%	1,144,762	1,028,649	1.11	357

**Table 7-16** presents the CFRPM 6.0 TOD model validation Percent RMSE statistics for the four time periods (e.g. AM, MD, PM, and NT) and the 24HR sum. As indicated, the individual Peak Periods all meet the guidelines for model volume-to-count Percent RMSE comparisons for each of the count groups. The overall Percent RMSE is also met for each Peak Period and is respectively 45.56 percent, 43.97 percent, 38.00 percent, and 66.09 percent for the AM, MD, PM, and NT Peak Periods. For the Combined 24-Hour Daily assignment, it is 40.10 percent and is well below the 50 percent guideline.

A comparison is provided for the CFRPM Version 6.0 Model in relation to the limited number of TOD models available that report Percent RMSEs for lower count groups, based on the documented literature review for the Technical Memorandum “Model Calibration and Validation Performance Measures and Standards.” As indicated in **Table 7-17**, the validated CFRPM Version 6.0 Model statistics are relatively comparable to the reported Percent RMSEs for the Atlanta and Ohio TOD models<sup>6</sup> that include lower count ranges with their daily model statistics for percent RMSE. Further, the overall TOD Percent RMSEs for the individual Peak Periods are also consistent with the limited literature review data available for TOD model statistics (SERPM Version 6.5 and Sacramento TOD models) as demonstrated in **Table 7-18**. As indicated, the CFRPM 6.0 TOD higher NT Peak Period Percent RMSE compares closely to the results of the Sacramento TOD Model. All other Peak Periods are within the high-30 to lower-40 range for all reviewed TOD Models.



**Table 7-16**  
**CFRPM Version 6.0 Model Percent RMSE Statistics by Period and 24HR**

AM							
Vol Grp	Count Range	Model RMSE(%)	Allow RMSE Range	Volume	Count	Volume/Count	No of Links
1	1-500	140.61%	60 -160%	139,369	98,549	1.41	252
2	500-1,250	68.62%	50 -140%	1,545,009	1,398,999	1.10	1,566
3	1,250-2,500	44.83%	44 - 94%	3,816,623	3,659,031	1.04	2,036
4	2,500-5,000	34.80%	38 - 60%	3,670,441	3,456,150	1.06	1,049
5	5,000-10,000	27.95%	32 - 42%	848,226	855,724	0.99	133
6	10,000-20,000	21.31%	27 - 35%	547,631	504,657	1.09	41
7	20,000-50,000	0.00%	LT 27 %	0	0	0.00	0
ALL	1-50,000	45.56%	42 - 90%	10,567,299	9,973,110	1.06	5,077

MD							
Vol Grp	Count Range	Model RMSE(%)	Allow RMSE Range	Volume	Count	Volume/Count	No of Links
1	1-500	0.00%	60 -160%	0	0	0.00	0
2	500-1,250	103.65%	50 -140%	69,204	48,002	1.44	43
3	1,250-2,500	71.88%	44 - 94%	2,045,932	1,803,878	1.13	914
4	2,500-5,000	53.12%	38 - 60%	7,693,735	7,395,674	1.04	2,034
5	5,000-10,000	36.58%	32 - 42%	12,870,094	12,317,800	1.04	1782
6	10,000-20,000	28.22%	27 - 35%	3,645,740	3,189,723	1.14	260
7	20,000-50,000	22.93%	LT 27 %	1,586,973	1,354,309	1.17	48
ALL	1-50,000	43.97%	42 - 90%	27,911,678	26,109,386	1.07	5,081

PM							
Vol Grp	Count Range	Model RMSE(%)	Allow RMSE Range	Volume	Count	Volume/Count	No of Links
1	1-500	0.00%	60 -160%	0	0	0.00	0
2	500-1,250	65.47%	50 -140%	593,174	578,714	1.02	515
3	1,250-2,500	47.04%	44 - 94%	3,705,551	3,733,514	0.99	2,053
4	2,500-5,000	31.40%	38 - 60%	7,003,828	7,099,605	0.99	2,025
5	5,000-10,000	29.54%	32 - 42%	2,855,109	2,706,229	1.06	431
6	10,000-20,000	23.92%	27 - 35%	874,370	758,185	1.15	56
7	20,000-50,000	0.00%	LT 27 %	0	0	0.00	0
ALL	1-50,000	38.00%	42 - 90%	15,032,032	14,876,247	1.01	5,080

NT							
Vol Grp	Count Range	Model RMSE(%)	Allow RMSE Range	Volume	Count	Volume/Count	No of Links
1	1-500	139.63%	60 -160%	5,012	3,496	1.43	9
2	500-1,250	65.36%	50 -140%	749,550	739,136	1.01	749
3	1,250-2,500	66.47%	44 - 94%	3,486,001	3,402,659	1.02	1,876
4	2,500-5,000	45.94%	38 - 60%	6,335,833	6,220,606	1.02	1,799
5	5,000-10,000	43.15%	32 - 42%	4,025,872	3,640,228	1.11	554
6	10,000-20,000	59.33%	27 - 35%	1,240,374	934,893	1.33	68
7	20,000-50,000	58.16%	LT 27 %	839,103	568,642	1.48	25
ALL	1-50,000	66.09%	42 - 90%	16,681,745	15,509,660	1.08	5,080

24Hr							
Vol Grp	Count Range	Model RMSE(%)	Allow RMSE Range	Volume	Count	Volume/Count	No of Links
1	1-5,000	70.24%	45 - 55%	2,612,458	2,847,765	0.92	717
2	5,000-10,000	48.86%	35 - 45%	14,528,871	14,787,349	0.98	2,015
3	10,000-20,000	33.00%	27 - 35%	31,286,558	30,792,044	1.02	2,157
4	20,000-30,000	31.16%	24 - 27%	15,385,302	13,674,999	1.13	575
5	30,000-40,000	22.36%	22 - 24%	4,148,206	3,946,818	1.05	115
6	40,000-50,000	25.47%	20 - 22%	950,022	848,284	1.12	19
7	50,000-60,000	20.92%	18 - 20%	1,157,057	997,914	1.16	18
8	60,000-70,000	31.99%	17 - 18%	1,444,230	1,174,721	1.23	18
9	70,000-80,000	32.40%	16 - 17%	1,341,162	1,047,090	1.28	14
10	80,000-90,000	26.76%	15 - 16%	1,521,819	1,245,650	1.22	15
11	90,000-100,000	37.41%	14 - 15%	230,085	182,000	1.26	2
12	100,000-500,000	0.00%	LT 14 %	0	0	0.00	0
ALL	1-500,000	40.10%	32 - 39%	74,605,770	71,544,634	1.04	5,665

**Table 7-17**  
**Comparison to Other TOD Models Percent RMSE (by Version 5.5 Count Ranges)**

CFRPM Version 5.5 TOD RMSE Count Groups			Percent RMSE					
Group No.	Count Range		Atlanta*	Mid-Ohio*	CFRPM Version 5.5		CFRPM Version 6.0	
			Daily		AM	PM	AM	PM
1	1	500	306	220	103	115	141	n/a
2'	500	1,250	122	90	62	64	69	65
3'	1,250	2,500	80	58	40	42	45	47
4'	2,500	5,000	47-57	45-50	29	29	35	31
5'	5,000	10,000	38-44	34-44	30	23	28	30
6	10,000	20,000	23-35	23-32	18	19	21	24
7'	20,000	50,000	12-24	15-23	0	22	n/a	n/a

\*Source: "The Travel Forecasting Model Set for the Atlanta Region, 2008 Documentation", Atlanta Regional Commission.

References "MORPC Model Validation-Summary", Ohio Department of Transportation.

Reported %RMSE have been compiled into relative CFRPM5.5 count groupings, with low and high %RMSEs presented.

\*Note: Indicates Atlanta/Mid-Ohio count groups that are slightly different from CFRPM5.5 count groups.

**Table 7-18**  
**Comparison to Other TOD Models Percent RMSE (by TOD Periods)**

MODEL	AM	PM	MD	NT
CFRPM 6.0	45.6	38.0	44.0	66.1
CFRPM 5.5	41.8	35.1	38.0	65.5
SERPM 6.5	42.0	35.6	33.0	
Sacramento, California	39	38	37	60

## 8.0 Transit Assignment

The CFRPM version 6.0 model includes the mass transit systems in place in the year 2010 for LYNX in the Orlando Metro area, Space Coast Area Transit (SCAT) in Brevard County, Votran in Volusia County, LakeXpress in Lake County, and Suntran in Marion County). The CFRPM version 5.0 year 2005 bus routes were updated to 2010 routes (TROUTE\_10A.LIN file). The PCWALK\_10A.DAT (percent walk by TAZ) file was updated accordingly.

The model-wide observed ridership for 2010 was obtained from the different transit operators within the District (e.g. LYNX, SCAT, Votran, LakeXpress, and Suntran, GIS shapefiles and other system characteristics data was obtained for the year 2010 system. The total observed daily average transit ridership for 2010 was 101,047 and the model predicted ridership is 104,813 as shown in **Table 8-1**.

**Table 8-1**  
**CFRPM 6.0 Year 2010 Transit Ridership Summary**

Systemwide Transit	2010 Observed Daily Ridership	2010 Model Daily Ridership	Ratio (M/O)
<b>Totals</b>	<b>101,047</b>	<b>104,813</b>	<b>1.037</b>

The transit assignment ratio of Daily Model ridership to observed ridership is 1.037. This ratio is very close to the +/- 3% criteria set by FDOT for transit validation at the system wide level.

## 9.0 Summary of Model Calibration and Validation

Leftwich Consulting Engineers, Inc. has completed the model validation and calibration for the CFRPM Version 6.05 Daily and TOD Model. As documented in this report, the Version 6.0 Model provides a good model validation representation of year 2010 conditions, as confirmed by the following statistics:

### Daily Model:

- The Overall %RMSE for the Daily Model is 34.72.
- The Overall V/C Ratio for the Daily Model is 1.03.

### Time-of-day Model:

- Peak Period V/C Ratios for AM (1.06), MD (1.07), PM (1.01) and NT (1.08)
- Peak Period %RMSE for AM (45.6), MD (44.0), PM (38.00), and NT (66.1)
- The Overall %RMSE for the Combined 24-Hour Model is 40.1
- The Overall V/C Ratio for the Combined 24-Hour Model is 1.04

As indicated above, the Version 6.0 Daily and TOD Models meet all general guidelines for a validated model, based on traffic count comparisons.

This technical memorandum has been prepared as the final product for the CFRPM Version 6.0 Daily and TOD Model documentation. The CFRPM version 6.0 Model represents the current validated model for FDOT District Five.

## 10.0 Final Observations

The technical memorandum has documented the data and results of the CFRPM Version 6.0 Model with the main emphasis on year 2010 count data matching.

The CFRPM v6.0 daily model is ready to be utilized for its intended principal purpose, the development of the area MPOs/TPOs Long Range Transportation Plans for the year 2040.

## References

1. [www.fsutmsonline.net](http://www.fsutmsonline.net)
2. **“Technical Memorandum CFRPM v5.0 Model Calibration and Validation Results”** CFRPM Model Version 5.0, Florida Department of Transportation District Five, prepared by Gannett Fleming, Inc. and AECOM Consult, Inc., September 2010.
3. **“Technical Reports 1 & 2: Model Data Calibration and Validation” for SERPM Version 6.5**, Florida Department of Transportation District Four, prepared by The Corradino Group, October 2008.
4. **“Appendix E-Travel Demand Model Technical Memorandum for 2030 Long-Range Transportation Plan”**, Memphis Metropolitan Planning Organization, Transportation Planning Section, prepared by Kimley-Horn and Associates, Inc., March 2008.
5. **“Sacramento Regional Travel Demand Model Version 2007 (SACMET 07): Model Reference Report, Review Draft”**, Sacramento Area Council of Governments, November 2008.
6. **“The Travel Forecasting Model Set for Atlanta Region, 2008 Documentation”**, Atlanta Regional Commission, 2008.
7. **“Technical Memorandum: CFRPM “Lifestyle” Model Framework (Final)” for CFRPM v6.0 Update**, Florida Department of Transportation District Five, prepared by Leftwich Consulting Engineers, Inc., March 14, 2012.
8. **“Technical Memorandum: CFRPM “Income” Model Testing Summary (Final)” for CFRPM v6.0 Update**, Florida Department of Transportation District Five, prepared by Leftwich Consulting Engineers, Inc., March 24, 2013.
9. **“Technical Memorandum: Model Calibration and Validation (Final)” for Central Florida Regional Planning Model Version 5.0 with Truck Component**, Florida Department of Transportation District Five, prepared by Leftwich Consulting Engineers, Inc., March 29, 2013.

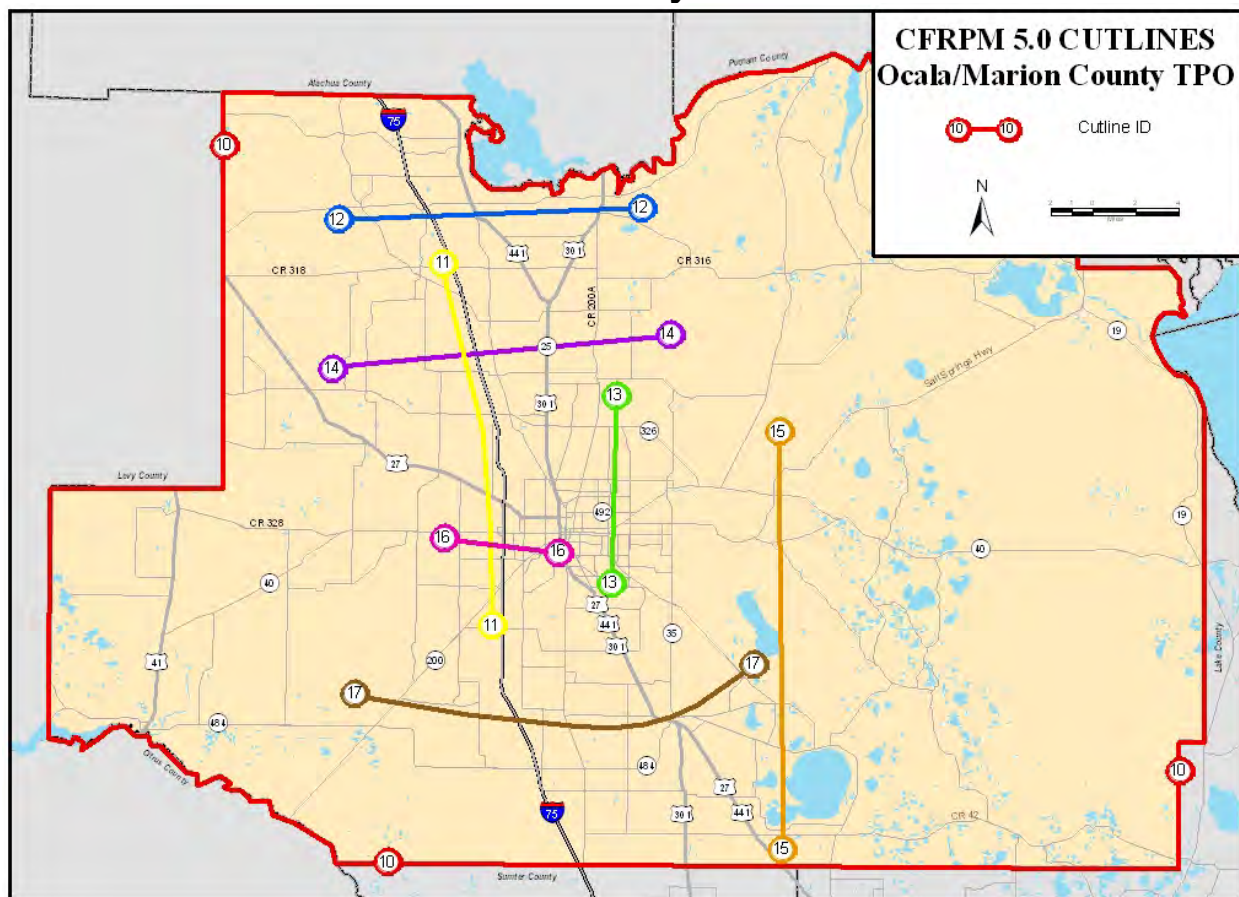


## **APPENDICES**

**Appendix A:**  
**CFRPM Version 5.0 Screenline/Cutline Location Maps**

## Appendix A 1

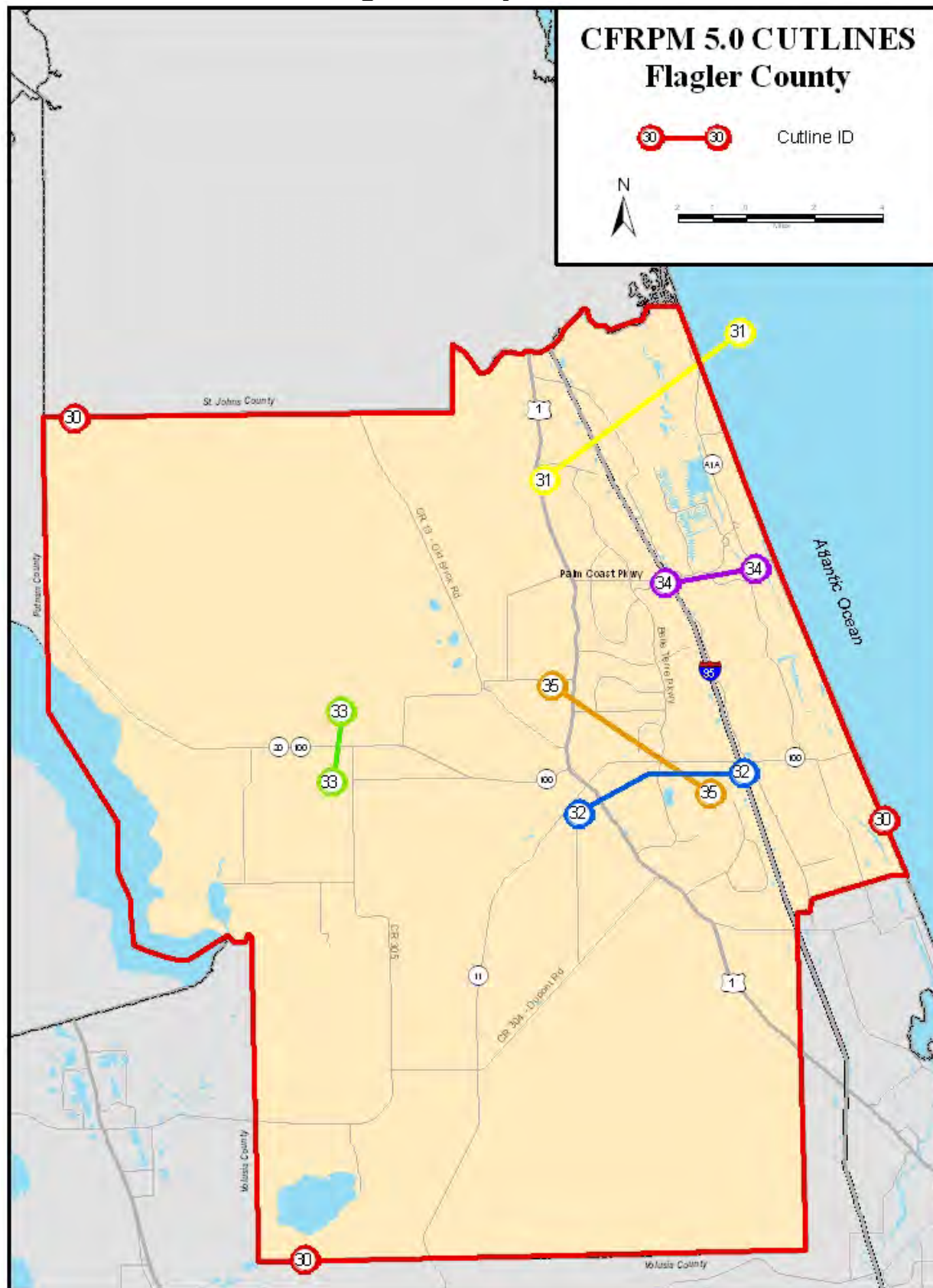
### Ocala/Marion County TPO Cutlines





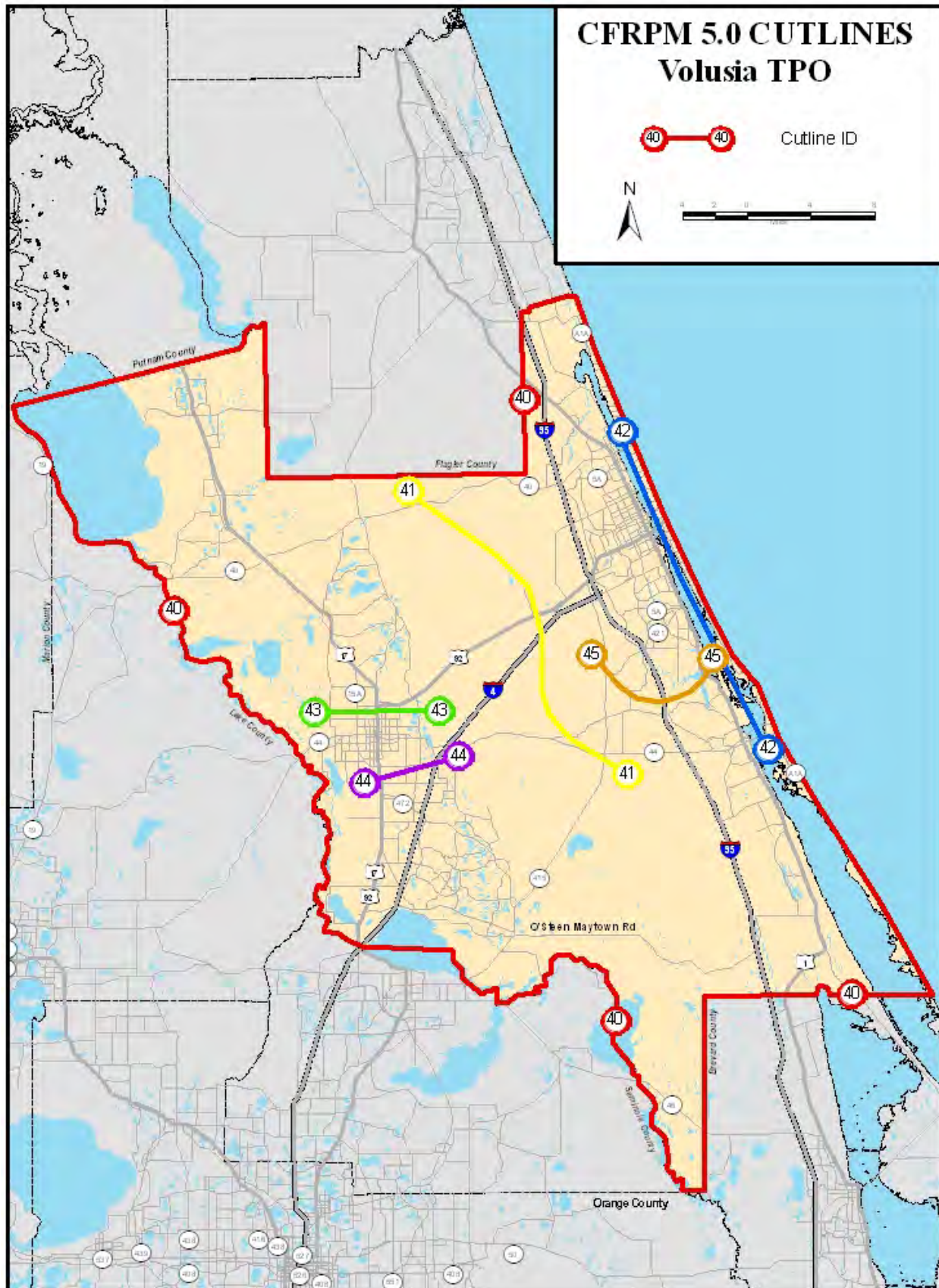


## Appendix A-3 Flagler County Cutlines

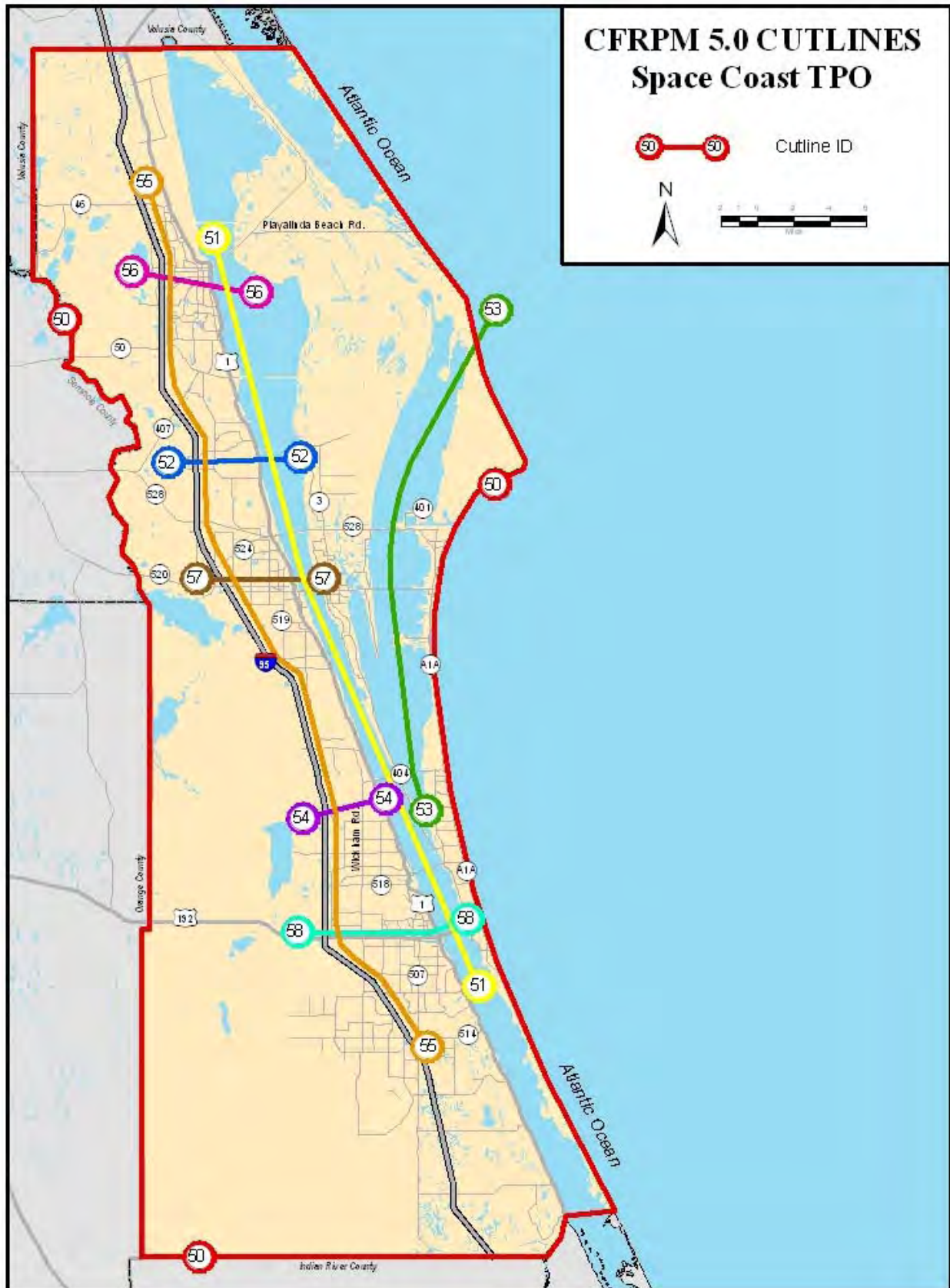




## Appendix A-4 Volusia TPO Cutlines



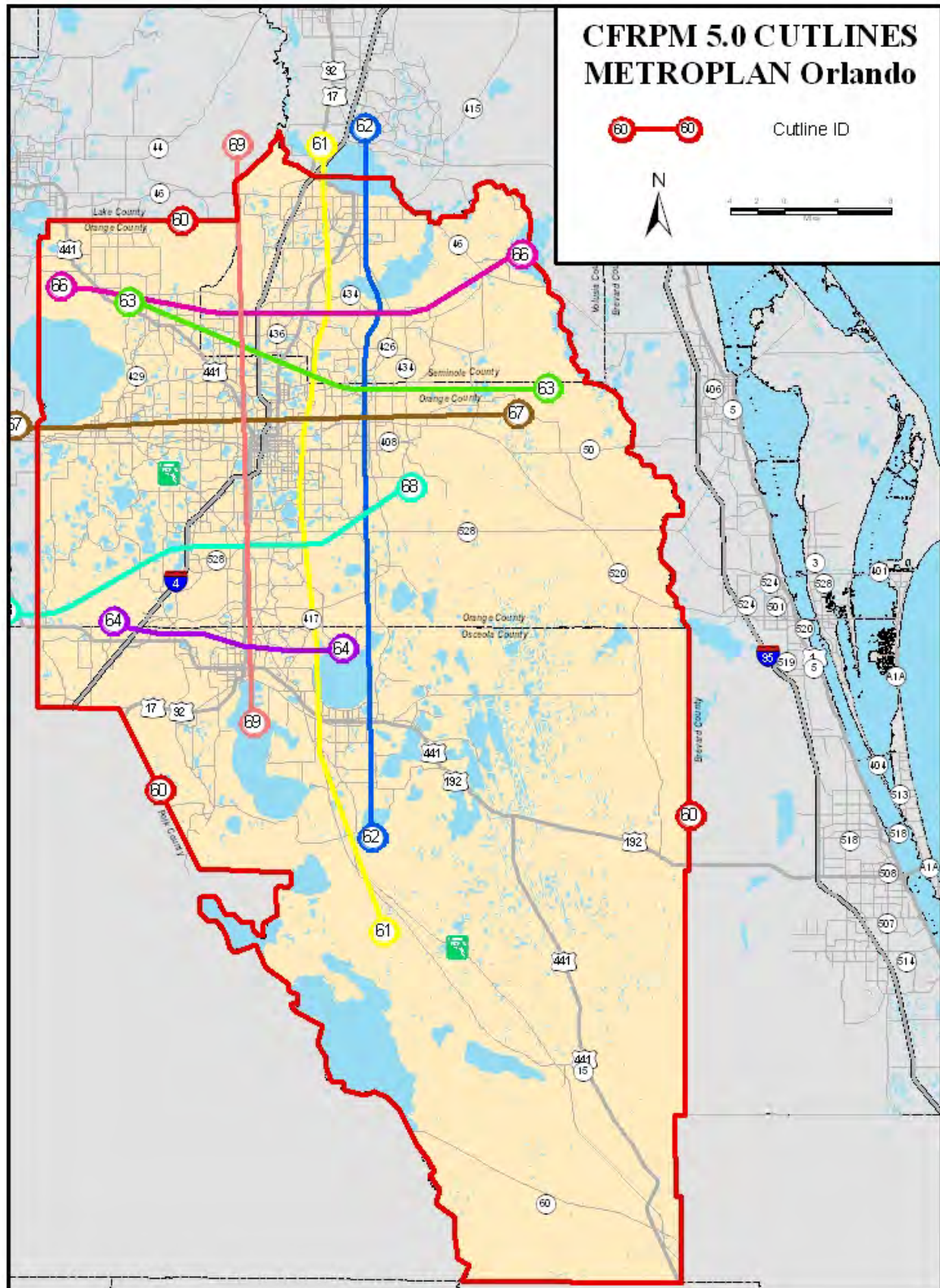
## Appendix A-5 Space Coast TPO Cutlines





## CFRPM 5.0 CUTLINES

### METROPLAN Orlando



**Appendix B:  
Special Attractions File**

## Central Florida Regional Planning Model (CFRPM) Version 6.0

Tech Memo: Year 2010 Model Calibration and Validation (Draft)

### Special Attractions File SPECATR1\_10A.dbf for CFRPM 6.0

COUNTER	ZONE	PRODS	VISRATE	RESRATE	EXTRATE	APTFLAG	DISTRICT	GROUP	DESCR
1	977	89,038	69.90%	26.81%	3.29%	1	1	1	Orlando International Airport
2	978	0	69.90%	26.81%	3.29%	2	1	1	Orlando International Airport exp
3	928	50,000	34.72%	38.47%	26.81%	0	2	2	Orange County Convention Center
4	927	0	34.72%	38.47%	26.81%	0	2	2	Orange County Convention Center exp
5	799	0	80.57%	10.92%	8.51%	0	3	3	Universal Orlando
6	801	84,770	80.57%	10.92%	8.51%	0	3	3	Universal Orlando Expansion
7	931	17,270	70.63%	16.98%	12.39%	0	4	4	Sea World
8	908	2,542	88.05%	4.98%	6.97%	0	5	5	Typhoon Lagoon
9	902	17,662	71.64%	22.64%	5.72%	0	6	5	Pleasure Island / Downtown Disney
10	905	15,709	94.44%	4.44%	1.12%	0	7	5	MGM Studios
11	900	13,105	91.61%	4.64%	3.75%	0	8	5	Animal Kingdom
12	903	31,450	91.44%	4.52%	4.05%	0	9	5	EPCOT Center
13	899	3,903	85.77%	8.30%	5.93%	0	10	5	Blizzard Beach
14	898	28,339	93.50%	4.02%	2.48%	0	11	5	Magic Kingdom
15	2,994	5,090	77.64%	11.53%	10.83%	0	12	6	Kennedy Space Center
16	3,182	15,336	36.87%	37.32%	25.81%	0	13	7	Port Canaveral



**Appendix C:  
Off-Peak and Peak Friction Factor Tables & 2008 NHTS Trip Lengths  
(BATS, LCTS, OATS, OUATS, Sumter, and VCATS MPO Areas)**

# Central Florida Regional Planning Model (CFRPM) Version 6.0

Tech Memo: Year 2010 Model Calibration and Validation (Draft)

## Reported NHTS Trip Lengths

County	Trip Purpose	Trip (Logs)	Trips (Wgtd)	Avg Min (Logs)	Avg Min (Wgtd)	PK/OFF Ratio
BREVARD	HBO PK	140	34,252,234	15.9	15.1	
INDIAN RIVER	HBO PK	3	165,089	12.3	10.6	
<b>Total</b>	<b>HBO PK</b>	<b>143</b>	<b>34,417,323</b>	<b>15.9</b>	<b>15.1</b>	
BREVARD	HBO OFF	200	36,120,062	17.2	15.7	0.98
INDIAN RIVER	HBO OFF	15	2,485,393	16.8	10.8	
<b>Total</b>	<b>HBO OFF</b>	<b>215</b>	<b>38,605,455</b>	<b>17.2</b>	<b>15.4</b>	
BREVARD	HBSHOP PK	157	22,872,275	12.1	12.3	
INDIAN RIVER	HBSHOP PK	14	1,765,079	7.4	8.7	
<b>Total</b>	<b>HBSHOP PK</b>	<b>171</b>	<b>24,637,353</b>	<b>11.7</b>	<b>12.1</b>	
BREVARD	HBSHOP OFF	304	42,001,266	13.0	11.8	0.98
INDIAN RIVER	HBSHOP OFF	23	3,371,279	15.0	18.1	
<b>Total</b>	<b>HBSHOP OFF</b>	<b>327</b>	<b>45,372,545</b>	<b>13.1</b>	<b>12.3</b>	
BREVARD	HBSOCREC PK	39	8,664,279	16.0	17.5	
INDIAN RIVER	HBSOCREC PK	4	2,099,284	6.8	6.3	
<b>Total</b>	<b>HBSOCREC PK</b>	<b>43</b>	<b>10,763,563</b>	<b>15.2</b>	<b>15.3</b>	
BREVARD	HBSOCREC OFF	95	15,715,687	17.3	15.6	0.84
INDIAN RIVER	HBSOCREC OFF	11	2,646,117	17.7	34.6	
<b>Total</b>	<b>HBSOCREC OFF</b>	<b>106</b>	<b>18,361,804</b>	<b>17.3</b>	<b>18.3</b>	
BREVARD	HBW PK	150	43,330,723	20.7	21.7	
INDIAN RIVER	HBW PK	7	2,112,939	12.4	17.0	
<b>Total</b>	<b>HBW PK</b>	<b>157</b>	<b>45,443,662</b>	<b>20.3</b>	<b>21.5</b>	
BREVARD	HBW OFF	88	29,529,236	20.4	18.0	1.19
INDIAN RIVER	HBW OFF	5	889,079	17.0	15.1	
<b>Total</b>	<b>HBW OFF</b>	<b>93</b>	<b>30,418,315</b>	<b>20.2</b>	<b>18.0</b>	
BREVARD	NHB PK	140	33,789,343	13.0	11.9	
INDIAN RIVER	NHB PK	4	783,131	15.5	26.7	
<b>Total</b>	<b>NHB PK</b>	<b>144</b>	<b>34,572,474</b>	<b>13.1</b>	<b>12.3</b>	
BREVARD	NHB OFF	341	62,769,842	13.9	13.8	0.89
INDIAN RIVER	NHB OFF	45	7,383,012	15.6	14.0	
<b>Total</b>	<b>NHB OFF</b>	<b>386</b>	<b>70,152,853</b>	<b>14.1</b>	<b>13.8</b>	
<b>Area Total</b>	<b>PK</b>	<b>658</b>	<b>149,834,375</b>	<b>15.2</b>	<b>15.9</b>	
<b>Area Total</b>	<b>OFF</b>	<b>1127</b>	<b>202,910,972</b>	<b>15.2</b>	<b>14.8</b>	
<b>AREA TOTAL</b>	<b>ALL</b>	<b>1785</b>	<b>352,745,347</b>	<b>15.2</b>	<b>15.3</b>	
LAKE	HBO PK	39	8,752,009	23.3	23.3	1.11
LAKE	HBO OFF	66	10,066,454	19.5	20.9	
LAKE	HBSHOP PK	36	7,123,835	12.5	10.6	0.56
LAKE	HBSHOP OFF	114	17,175,887	16.6	18.8	
LAKE	HBSOCREC PK	24	3,014,506	15.0	16.0	0.93
LAKE	HBSOCREC OFF	44	4,619,733	12.4	17.2	
LAKE	HBW PK	41	11,916,304	28.4	31.8	1.21
LAKE	HBW OFF	29	7,418,682	26.1	26.3	
LAKE	NHB PK	44	8,925,783	19.6	20.5	1.42
LAKE	NHB OFF	133	19,872,729	14.9	14.4	
<b>Area Total</b>	<b>PK</b>	<b>184</b>	<b>39,732,437</b>	<b>20.4</b>	<b>22.4</b>	
<b>Area Total</b>	<b>OFF</b>	<b>386</b>	<b>59,153,485</b>	<b>16.8</b>	<b>18.5</b>	
<b>AREA TOTAL</b>	<b>ALL</b>	<b>570</b>	<b>98,885,922</b>	<b>17.9</b>	<b>20.0</b>	
MARION	HBO PK	83	22,529,901	17.8	19.2	0.97
MARION	HBO OFF	113	26,258,241	17.2	19.8	
MARION	HBSHOP PK	71	14,380,568	16.0	13.3	0.74
MARION	HBSHOP OFF	238	30,643,245	17.2	17.9	
MARION	HBSOCREC PK	36	4,475,197	13.5	13.4	0.66
MARION	HBSOCREC OFF	64	11,009,560	17.3	20.3	
MARION	HBW PK	62	15,918,377	21.3	17.8	0.89
MARION	HBW OFF	38	13,329,127	20.4	19.9	
MARION	NHB PK	66	15,760,131	16.2	16.0	1.26
MARION	NHB OFF	203	34,306,080	13.2	12.7	
<b>Area Total</b>	<b>PK</b>	<b>318</b>	<b>73,064,173</b>	<b>17.3</b>	<b>16.7</b>	
<b>Area Total</b>	<b>OFF</b>	<b>656</b>	<b>115,546,253</b>	<b>16.2</b>	<b>17.2</b>	
<b>AREA TOTAL</b>	<b>ALL</b>	<b>974</b>	<b>188,610,426</b>	<b>16.5</b>	<b>17.0</b>	

# Central Florida Regional Planning Model (CFRPM) Version 6.0

Tech Memo: Year 2010 Model Calibration and Validation (Draft)

## Reported NHTS Trip Lengths (Cont'd)

County	Trip Purpose	Trip (Logs)	Trips (Wgtd)	Avg Min (Logs)	Avg Min (Wgtd)	PK/OFF Ratio
ORANGE	HBO PK	163	56,836,122	17.5	16.0	
OSCEOLA	HBO PK	48	20,080,127	15.5	13.7	
POLK	HBO PK	12	4,259,376	17.9	20.2	
SEMINOLE	HBO PK	108	28,814,642	17.4	15.0	
<b>Total</b>	<b>HBO PK</b>	<b>331</b>	<b>109,990,267</b>	<b>17.2</b>	<b>15.5</b>	
ORANGE	HBO OFF	196	59,859,780	18.4	15.4	0.91
OSCEOLA	HBO OFF	44	12,697,219	23.6	24.9	
POLK	HBO OFF	13	3,608,501	21.3	33.5	
SEMINOLE	HBO OFF	145	35,060,596	16.6	15.6	
<b>Total</b>	<b>HBO OFF</b>	<b>398</b>	<b>111,226,095</b>	<b>18.4</b>	<b>17.1</b>	
ORANGE	HBSHOP PK	137	35,321,496	13.8	14.1	
OSCEOLA	HBSHOP PK	34	5,838,339	15.1	14.0	
POLK	HBSHOP PK	9	4,116,469	13.6	11.1	
SEMINOLE	HBSHOP PK	79	15,340,003	17.7	14.1	
<b>Total</b>	<b>HBSHOP PK</b>	<b>259</b>	<b>60,616,306</b>	<b>15.1</b>	<b>13.9</b>	
ORANGE	HBSHOP OFF	285	81,191,639	13.4	12.2	1.14
OSCEOLA	HBSHOP OFF	62	17,099,955	15.0	15.2	
POLK	HBSHOP OFF	57	10,526,622	15.7	11.7	
SEMINOLE	HBSHOP OFF	180	31,186,650	12.1	11.0	
<b>Total</b>	<b>HBSHOP OFF</b>	<b>584</b>	<b>140,004,866</b>	<b>13.4</b>	<b>12.2</b>	
ORANGE	HSOCREC PK	52	13,453,946	18.3	14.0	
OSCEOLA	HSOCREC PK	8	1,430,207	14.6	19.0	
POLK	HSOCREC PK	5	494,302	25.8	36.2	
SEMINOLE	HSOCREC PK	38	6,441,350	21.3	21.1	
<b>Total</b>	<b>HSOCREC PK</b>	<b>103</b>	<b>21,819,805</b>	<b>19.5</b>	<b>17.0</b>	
ORANGE	HSOCREC OFF	128	43,912,632	18.0	14.7	1.02
OSCEOLA	HSOCREC OFF	22	6,082,617	13.7	20.9	
POLK	HSOCREC OFF	11	576,934	11.8	10.8	
SEMINOLE	HSOCREC OFF	74	10,628,642	23.5	22.6	
<b>Total</b>	<b>HSOCREC OFF</b>	<b>235</b>	<b>61,200,824</b>	<b>19.0</b>	<b>16.6</b>	
ORANGE	HBW PK	213	80,165,277	28.4	29.3	
OSCEOLA	HBW PK	47	19,428,103	30.9	41.9	
POLK	HBW PK	10	2,997,818	45.7	55.2	
SEMINOLE	HBW PK	147	36,277,926	24.1	23.6	
<b>Total</b>	<b>HBW PK</b>	<b>417</b>	<b>138,869,124</b>	<b>27.6</b>	<b>30.1</b>	
ORANGE	HBW OFF	131	73,937,267	23.9	24.6	1.13
OSCEOLA	HBW OFF	41	16,460,614	25.0	33.3	
POLK	HBW OFF	8	1,011,821	35.8	34.6	
SEMINOLE	HBW OFF	82	27,581,603	24.4	28.2	
<b>Total</b>	<b>HBW OFF</b>	<b>262</b>	<b>118,991,305</b>	<b>24.6</b>	<b>26.7</b>	
ORANGE	NHB PK	165	54,862,882	18.1	20.8	
OSCEOLA	NHB PK	45	13,092,341	21.4	22.4	
POLK	NHB PK	14	4,153,476	27.0	18.3	
SEMINOLE	NHB PK	114	24,490,119	18.8	19.9	
<b>Total</b>	<b>NHB PK</b>	<b>338</b>	<b>96,598,818</b>	<b>19.1</b>	<b>20.7</b>	
ORANGE	NHB OFF	343	97,355,019	17.0	16.9	1.29
OSCEOLA	NHB OFF	107	27,903,941	14.9	14.6	
POLK	NHB OFF	62	7,658,253	15.0	13.3	
SEMINOLE	NHB OFF	194	42,648,523	15.7	15.3	
<b>Total</b>	<b>NHB OFF</b>	<b>706</b>	<b>175,565,736</b>	<b>16.2</b>	<b>16.0</b>	
<b>Area Total</b>	<b>PK</b>	<b>1448</b>	<b>427,894,320</b>	<b>20.4</b>	<b>21.2</b>	
<b>Area Total</b>	<b>OFF</b>	<b>2185</b>	<b>606,988,826</b>	<b>17.1</b>	<b>17.5</b>	
<b>AREA TOTAL</b>	<b>ALL</b>	<b>3633</b>	<b>1,034,883,146</b>	<b>18.5</b>	<b>19.1</b>	

# Central Florida Regional Planning Model (CFRPM) Version 6.0

Tech Memo: Year 2010 Model Calibration and Validation (Draft)

## Reported NHTS Trip Lengths (Cont'd)

County	Trip Purpose	Trip (Logs)	Trips (Wgtd)	Avg Min (Logs)	Avg Min (Wgtd)	PK/OFF Ratio
SUMTER	HBO PK	7	1,076,549	15.7	17.5	0.65
SUMTER	HBO OFF	18	1,820,635	25.8	27.0	
SUMTER	HBSHOP PK	17	1,851,490	15.4	20.0	1.54
SUMTER	HBSHOP OFF	57	4,898,108	12.9	13.0	
SUMTER	HBSOCREC PK	12	2,195,958	13.8	21.6	0.73
SUMTER	HBSOCREC OFF	32	5,657,419	15.8	29.4	
SUMTER	HBW PK	6	1,139,304	36.8	39.5	1.85
SUMTER	HBW OFF	5	1,213,813	22.4	21.3	
SUMTER	NHB PK	15	1,693,951	10.1	9.7	0.72
SUMTER	NHB OFF	46	3,740,457	13.1	13.4	
Area Total	PK	57	7,957,252	16.0	20.7	
Area Total	OFF	158	17,330,432	15.3	20.5	
AREA TOTAL	ALL	215	25,287,684	15.5	20.6	
FLAGLER	HBO PK	32	5,977,648	12.5	11.8	
VOLUSIA	HBO PK	94	22,297,256	18.1	19.1	
Total	HBO PK	126	28,274,905	13.6	17.6	
FLAGLER	HBO OFF	38	8,638,562	16.6	12.2	0.97
VOLUSIA	HBO OFF	135	29,111,341	19.7	19.8	
Total	HBO OFF	173	37,749,903	15.5	18.1	
FLAGLER	HBSHOP PK	31	3,480,623	16.6	12.8	
VOLUSIA	HBSHOP PK	122	19,980,873	16.6	16.1	
Total	HBSHOP PK	153	23,461,496	13.3	15.6	
FLAGLER	HBSHOP OFF	72	4,417,402	14.3	14.2	1.10
VOLUSIA	HBSHOP OFF	338	69,861,665	14.7	14.2	
Total	HBSHOP OFF	410	74,279,066	12.1	14.2	
FLAGLER	HBSOCREC PK	16	757,300	10.4	8.8	
VOLUSIA	HBSOCREC PK	31	6,542,206	21.5	25.9	
Total	HBSOCREC PK	47	7,299,506	14.4	24.1	
FLAGLER	HBSOCREC OFF	33	1,681,878	17.5	18.2	1.32
VOLUSIA	HBSOCREC OFF	93	18,485,742	17.1	18.2	
Total	HBSOCREC OFF	126	20,167,620	12.8	18.2	
FLAGLER	HBW PK	35	5,589,741	22.3	26.8	
VOLUSIA	HBW PK	127	36,643,002	25.8	23.2	
Total	HBW PK	162	42,232,743	20.3	23.7	
FLAGLER	HBW OFF	22	3,506,637	17.4	22.3	1.03
VOLUSIA	HBW OFF	52	14,526,220	25.0	23.1	
Total	HBW OFF	74	18,032,857	17.8	22.9	
FLAGLER	NHB PK	29	2,404,177	13.9	13.6	
VOLUSIA	NHB PK	94	21,578,596	18.0	20.4	
Total	NHB PK	123	23,982,773	13.9	19.7	
FLAGLER	NHB OFF	108	18,523,934	18.7	13.4	1.33
VOLUSIA	NHB OFF	339	61,268,043	14.0	15.3	
Total	NHB OFF	447	79,791,978	10.7	14.8	
Area Total	PK	611	125,251,423	15.4	20.1	
Area Total	OFF	1230	230,021,424	12.5	16.1	
AREA TOTAL	ALL	1841	355,272,847	13.5	17.5	
CFRPM TOTAL	PK	3276	823,733,979	18.1	19.7	
CFRPM TOTAL	OFF	5742	1,231,951,393	15.6	16.9	
CFRPM TOTAL	ALL	9018	2,055,685,372	16.5	18.0	





## Appendix H

# LOCAL PROJECT NEEDS CANDIDATE SUBMITTAL FORM





River to Sea TPO - 2040 LRTP Local Transportation Projects Form	
GENERAL INFORMATION	
Contact Name	
Contact Agency	
Address	
Phone	
Email	
Project Type: Roadway, Bike, Ped, Transit (etc): _____	
Project Name	
General Location*	
From	
To	
Project Description *	
Project Purpose and Need*	
Is the project included in the local jurisdictions Comprehensive Plan ?	
Potential Communities Served	
Is it on a transit route (if yes, specify)?	
Include additional sheets as necessary.	

\*If useful, please attach a map showing the vicinity and additional information to explain the project description and purpose/need.

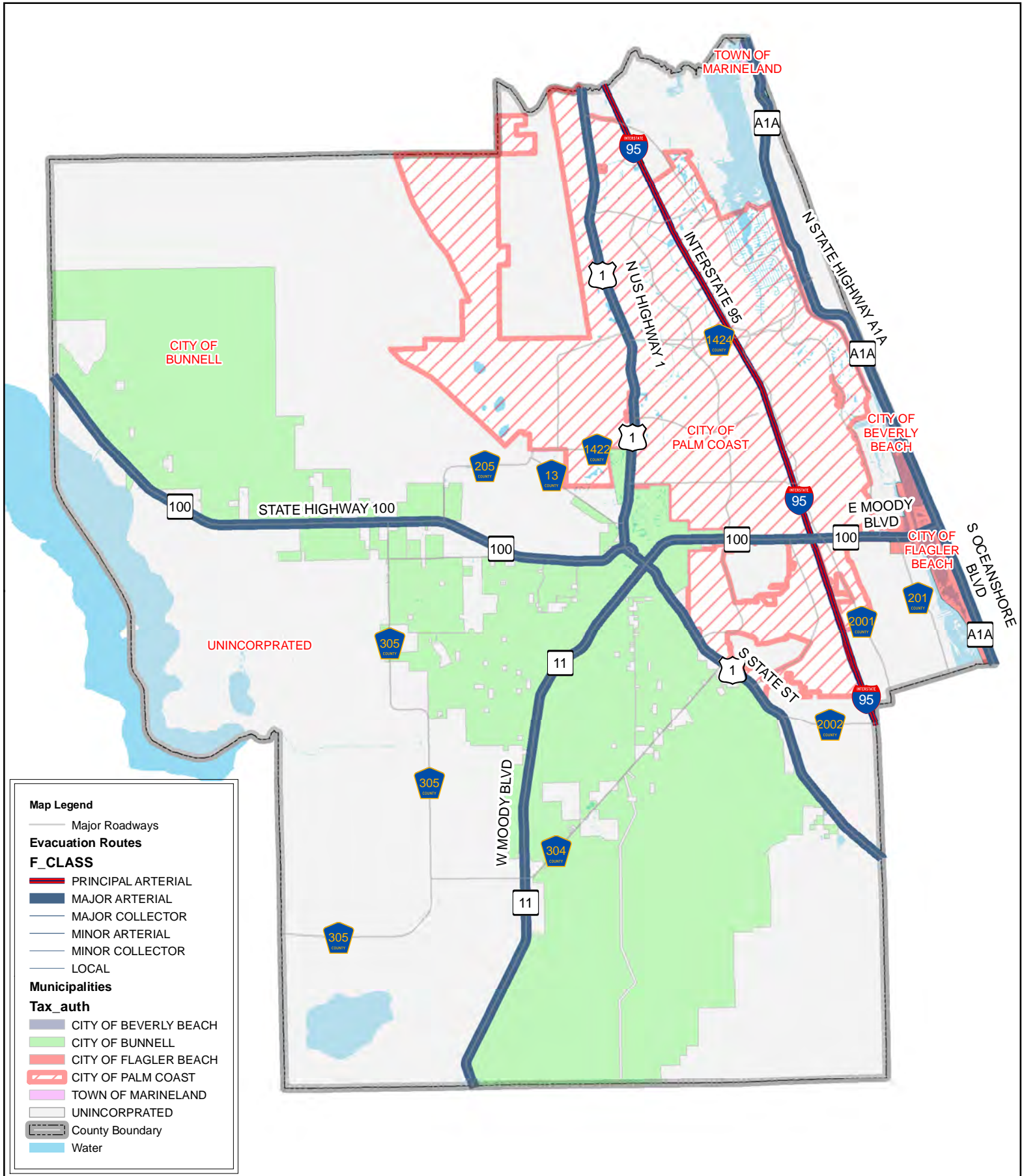


# Appendix I

## EVACUATION ROUTES

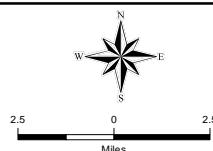






## Flagler Evacuation Routes Map

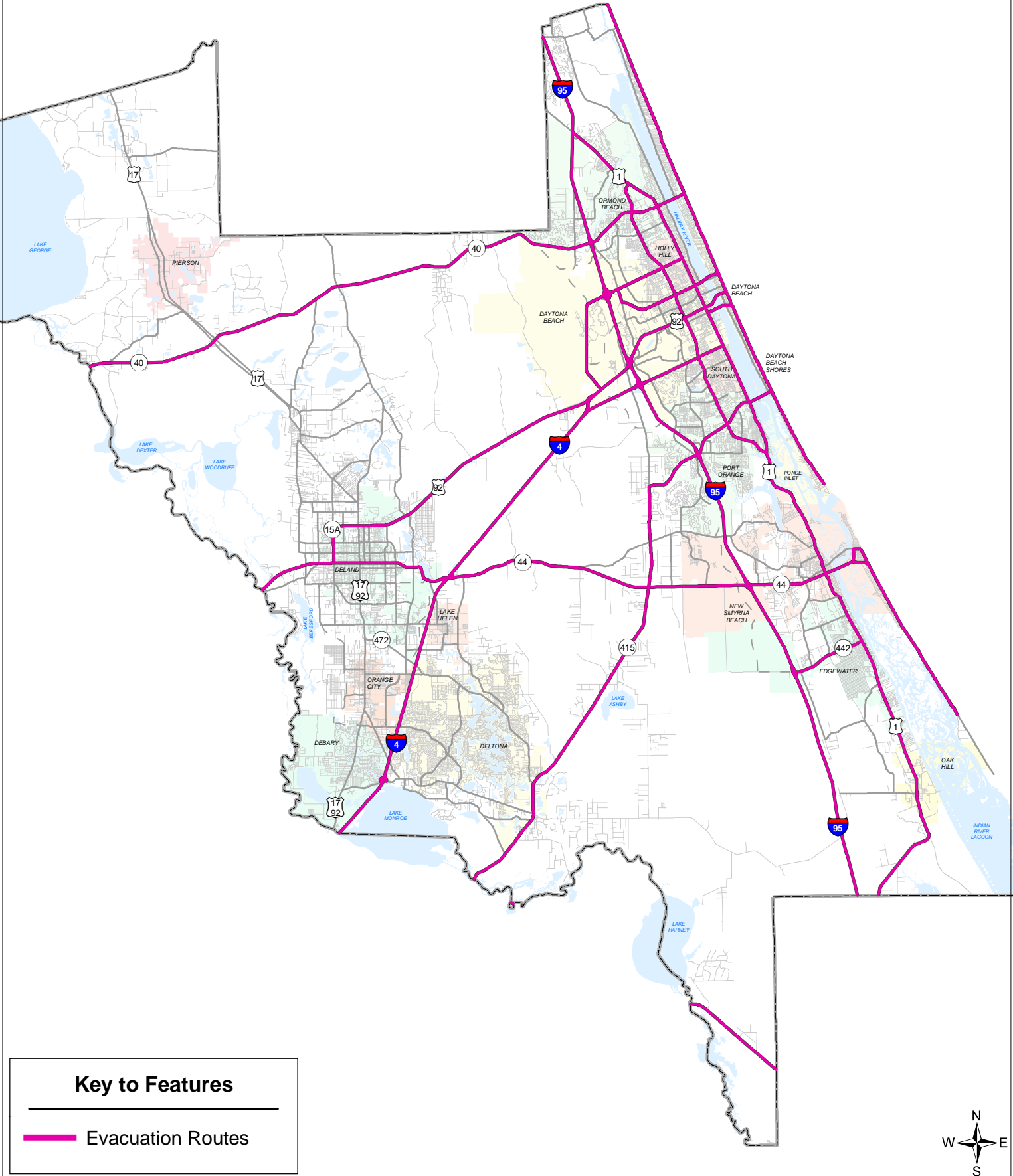
Prepared by: Victoria Denson	Checked by: Victoria Denson	Approved by: Kevin Guthrie
Date: 11/13/2015	Date: 11/13/2015	Date: 11/13/2015
Source: FLAGLER COUNTY EMERGENCY MANAGEMENT SERVICES		
Source: FLAGLER COUNTY GIS		
Revisions:		
Revisions:		



Disclaimer: "This map is for reference only. Data provided are derived from multiple sources with varying levels of accuracy. Putnam County and its employees disclaim all responsibility for the accuracy or completeness of the data shown hereon."



**Figure 2-7**  
**Designated Evacuation Routes 2025**  
**Volusia County, Florida**







## Appendix J


# CONGESTION MANAGEMENT PROCESS







# Congestion Management Process



Prepared by: Ghyabi & Associates, Inc.



August 26, 2015



## **EXECUTIVE SUMMARY**

The River to Sea Transportation Planning Organization (R2CTPO) has developed a Congestion Management Process (CMP) in concert with its 2040 Long Range Transportation Plan (LRTP). The CMP was adopted by the TPO Board on August 26, 2015 by Resolution 2015-16. The adopted 2040 LRTP will include the CMP by reference.

Development and maintenance of a CMP is a requirement for all MPOs under Florida law and for all MPOs in Transportation Management Areas (TMAs) under federal law. A CMP is of great benefit to the community because it provides a systematic, transparent and continuous method to identify congestion and to prioritize improvements that alleviate it.

The CMP and the LRTP share the same goals and objectives but the CMP provides performance measures where applicable to measure the success of the CMP over time. Performance measures include elements that address safety, roadway improvements, public transit, bicycle/pedestrian/multi-use trail facilities, travel demand management (TDM) and movement of goods (freight).

### ***Vision Statement for the 2040 Long Range Transportation Plan***

*Our transportation system will provide a safe and accessible range of options that enhances existing communities while providing mobility in a fiscally responsible, energy efficient, and environmentally compatible manner. This integrated system will support economic development, allowing for the effective movement of all people, goods, and services necessary to maintain and enhance our quality of life.*

The R2CTPO has designed the CMP to be an integral part of the current planning process that develops the LRTP and TIP transportation plans. The process incorporates the following important highlights:

- Data collection, system assessment, and the establishment of a baseline state of the system based on performance measures.
  - Identification of deficient network and congestion mitigation strategies
  - Creation of a CMP Review Team with knowledge in the areas of traffic engineering and ITS, intersection analysis, access management, roadway design standards, transit planning, land use planning, concurrency, transportation planning, bicycle and
-

pedestrian planning, and roadway construction costs to evaluate potential projects and strategies..

- Coordination with the LRTP Subcommittee and the CMP Review Team, technical staff and the public in order to determine and prioritize potential improvements.
- Consideration of long range planning/evaluation tools (such as the Florida ITS Evaluation (FITSEVAL) tool and Transportation Systems Management & Operations (TSM&O)) to support the CMP.
- A process to move recommended strategies into the appropriate plans for implementation.
- A consistent analysis of data collected over time to assess the effectiveness of the CMP.

The CMP is intended to be a dynamic tool that continually researches, updates, and moves strategies forward to implementation.

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## **Appendices**

Appendix A - Traffic Data and Sources for V/C
Appendix B – TIP Selection Criteria



## 1 INTRODUCTION

Traffic congestion is a nationwide issue that results in high quantities of wasted fuel, time and money. It is addressed within the Congestion Management Process (CMP), which is a process conducted by Transportation Planning Organizations (TPOs), such as the River to Sea TPO (R2CTPO), to provide a systematic, transparent and continuous method to improve traffic operations and safety. A CMP employs strategies that assist in reducing travel demand, encourage multi-modal transportation, and help identify operational improvements. Therefore, it is imperative that the CMP is considered as part of the overall transportation management system.

The R2CTPO developed the CMP in concert with the *2040 Long Range Transportation Plan*. Development and maintenance of a CMP is a requirement for all MPOs under Florida law and for all MPOs in Transportation Management Areas (TMAs) under federal law. The Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21) designates areas with populations of 200,000 or greater as Transportation Management Areas (TMA's) and furthermore, requires that these areas have a Congestion Management System (CMS) as part of the transportation planning process. Consistent with federal guidance, the intent of the CMP is to "address congestion management through a process that provides for safe and effective integrated management and operation of the multi-modal transportation system."

*"The CMP uses a number of analytic tools to define and identify congestion within a region, corridor and activity center or project area, and to develop and select appropriate strategies to reduce congestion or mitigate the impacts of congestion." – FHWA Congestion Management Process: A Guidebook (2011)*

The CMP is intended to serve as a systematic process that provides information for decision makers to plan for safe and effective transportation system. An effective CMP includes:

- Development of congestion management objectives;
- Establishment of measures of multimodal transportation system performance;
- Collection of data and system performance monitoring to define the extent and duration of congestion and determine the causes of congestion;
- Identification of congestion management strategies;

- Implementation activities, including identification of an implementation schedule and possible funding sources for each strategy; and
- Evaluation of the effectiveness of implemented strategies.

A vibrant congestion management process can serve a valuable role in identifying a region's transportation needs. A CMP is beneficial because it provides information essential to the determination of transportation improvements in a regional system. The elements of a successful CMP are defined in the Federal Highway Administration's (FHWA) Process Model, which includes eight *actions* or *steps* which are crucial for developing a comprehensive CMP. The R2CTPO CMP closely follows these eight actions as defined by FHWA and listed below:

1. Develop Regional Objectives for Congestion Management
2. Define CMP Network
3. Develop Multimodal Performance Measures
4. Collect Data/Monitor System Performance
5. Analyze Congestion Problems and Needs
6. Identify and Assess Strategies
7. Program and Implement Strategies
8. Evaluate Strategy Effectiveness

By following this process, the resulting information is intended to be used by several groups of stakeholders including elected officials, engineers, planners, developers and consultants, as future planning documents such as Long Range Transportation Plans, Master Plans, local government development orders, Florida Department of Transportation (FDOT) Work Programs, and Transportation Improvement Programs (TIP's) are developed. The resulting plans will then be grounded in values representative of the planning area and representative of the visions of individual transportation plans for the R2CTPO planning area.

**Figure 1** presents a broader look at how the CMP fits into the transportation planning process. Strong similarities exist between the activities in both the CMP and the overall transportation planning process, which serves to facilitate the integration of the CMP into the overall planning process. The development of regional objectives for the CMP responds to the goals and vision for the region established early in the transportation planning process. As part of the CMP, congestion management deficiencies are identified, assessed and documented. Those activities occur for all types of improvement strategies in the transportation planning process and are reflected in the elements shown in **Figure 1**. The connections provide opportunities for conducting the CMP in conjunction with the overall metropolitan transportation planning process.

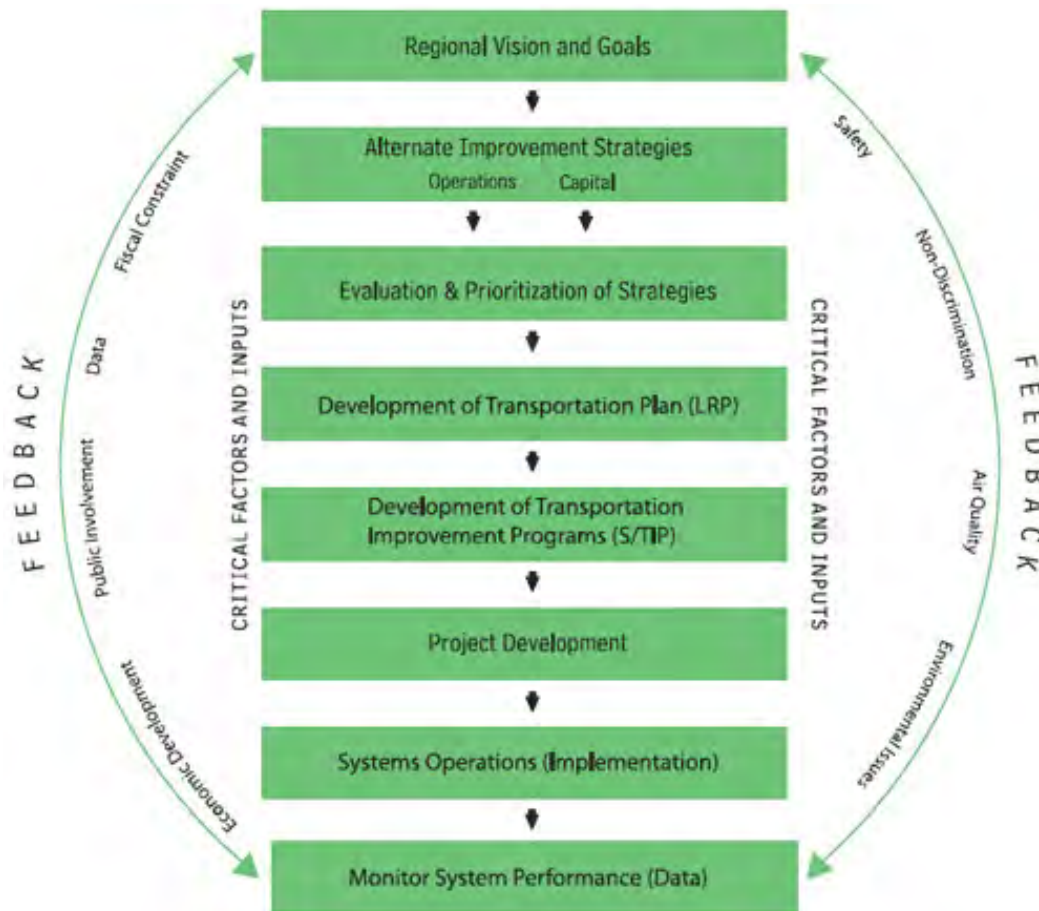


Figure 1 – The Transportation Planning Process

Source: U.S Department of Transportation, FHWA and FTA "The Transportation Planning Process: Key Issues – A Briefing Book for Transportation Decision makers, Officials, and Staff," Updated September 2007, Publication Number: FHWA-HEP-07-039.

The CMP is an “objectives-driven” process which defines clear goals, determines viable congestion management strategies, and provides framework for the future implementation of those strategies. A CMP is beneficial because it provides information needed to prioritize improvements and alleviate congestion issues within the R2CTPO planning area. The CMP is fully integrated into the planning process and is meant to be an ongoing process.

Key highlights of the R2CTPO CMP include:

- Establishment of a baseline *state of the system* based on performance measures;
- The identification of deficient network to be considered for the Transportation Improvement Program (TIP);
- Creation of a CMP Review Team with knowledge in the areas of traffic engineering and ITS, intersection analysis, access management, roadway design standards, transit planning, land use planning, concurrency, transportation planning, bicycle and pedestrian planning, and roadway construction costs to evaluate potential projects and strategies; and
- Coordination with the LRTP Subcommittee and the CMP Review Team, technical staff and the public in order to determine and prioritize potential improvements.
- Acknowledges efforts by FDOT District 5 to utilize long range planning/evaluation tools (such as the Florida ITS Evaluation Tool (FITSEVAL) and Transportation Systems Management & Operations (TSM&O)) to support the CMP. The R2CTPO encourages the use of these tools to assist with analysis of Benefits and Costs of ITS/CMS/safety strategies and options and to support travel time goals & project prioritization in both the short and long term planning horizon.

## **2 FEDERAL AND STATE CMS REQUIREMENTS**

The legislation under which the state and federal governments direct the R2CTPO to institute and manage a Congestion Management System (CMS) is identified below.

### **2.1 FEDERAL REQUIREMENTS**

Federal regulations define a CMS as a systematic process that provides information on transportation system performance and alternative strategies to alleviate congestion and enhance the mobility of persons and goods.

The federal regulations for the development and implementation of CMS's were provided in the Code of Federal Regulations (CFR) Part 599 and 626, Management and Monitoring Systems, Subpart E – Traffic Congestion Management System, published December 1, 1993. A summary of relevant information from these regulations is provided below.

- Each state shall develop, establish, and implement, on a continuing basis, a CMS that results in the identification and implementation of strategies that provide the most efficient use of existing and future transportation facilities in all areas of the state, including metropolitan and non-metropolitan areas, where congestion is occurring or is expected to occur.
- In both metropolitan and non-metropolitan areas, consideration shall be given to strategies that reduce single occupant vehicle (SOV) travel and improve existing transportation system efficiency. Where the addition of general purpose lanes is determined to be an appropriate strategy, explicit consideration shall be given incorporating appropriate features into the SOV project to facilitate further demand management and operational improvement strategies to maintain the functional integrity of those lanes.
- Transportation corridors or facilities with existing or potential recurring congestion shall be identified and an assessment of the level of the current or potential congestion shall be made on a continuing basis.

The federal regulations define the CMS components as follows:

- Performance Measures – Parameters shall be defined that will provide a measure of the extent of congestion and permit the evaluation of the effectiveness of congestion



reduction and mobility enhancement strategies for the movement of people and goods.

- Data collection and systems monitoring – A continuous program of data collection and system monitoring shall be established to determine and monitor the duration and magnitude of congestion and to evaluate the effectiveness of implemented actions.
- Identification and evaluation of proposed strategies – The anticipated performance and expected benefits of traditional and nontraditional strategies that will contribute to the more efficient use of existing and future transportation systems shall be identified and evaluated based upon the established performance measures. The CMP will utilize a CMP Review Team to efficiently formulate and evaluate proposed strategies.

Strategies, or combinations of strategies, to be appropriately considered include, but are not limited to:

- Transportation demand management measures, such as carpooling, vanpooling, alternative work hours, telecommuting, and parking management;
- Traffic operational improvements, such as intersection and roadway widening, channelization, traffic surveillance and control systems, motorist information systems, ramp metering, traffic control centers, and computerized signal systems;
- Measures to encourage high occupancy vehicle (HOV) use, such as HOV lanes, guaranteed ride home programs, and employer trip reduction ordinances;
- Public transit capital improvements, such as exclusive rights-of-way (rail, bus ways, bus lanes) bus bypass ramps, park and ride and mode changes facilities, and paratransit services;
- Public transit operational improvements, such as service enhancements or expansions, traffic signal preemption, fare reductions, and transit information systems;
- Measures to encourage the use of non-traditional modes such as bicycle facilities, pedestrian facilities, and ferry service;
- Congestion pricing;
- Growth Management and activity center strategies;
- Access management techniques;
- Incident Management;

- Intelligent vehicle highway system and advanced public transportation system technology, and
  - The addition of general purpose lanes.
  - Transportation Systems Management strategies (detailed in Section 8)
- Implementation of strategies – For each strategy (or combination of strategies) proposed for implementation, an implementation schedule, implementation responsibilities, and possible funding sources shall be identified.
- Evaluation of the effectiveness of implemented strategies – A process for periodic assessment of the effectiveness of implemented strategies, in terms of the area’s established performance measures, shall be implemented. The results of this evaluation shall be provided to decisions makers to provide guidance on selection of effective strategies for future implementation.

MAP-21 continues the requirement for MPOs to address congestion management as provided for in the Intermodal Surface Transportation Efficiency Act (ISTEA), passed in 1991, and successor laws including the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21). With the “Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users” (SAFETEA-LU), signed into effect in August 2005, the requirements guiding congestion management evolved to make the CMS an ongoing process and not a static document. This legislation redefined the Congestion Management System with a new title, “Congestion Management Process,” indicating the intent to change perspective and practice to address congestion through effective management and operations, better links to the planning process based reduced travel demand and operational management strategies as well as capacity increases. Aside from the name, the CMP requirements did change substantially from the CMS requirements.

The CMP is intended to be a dynamic tool that continually researches, updates, and moves strategies forward to implementation.

## **2.2 STATE REQUIREMENTS**

Relevant portions of the applicable Florida Statutes are provided below. These requirements guide the development and application of the R2CTPO Congestion Management Process.

- Chapter Title XXVI, Chapter 339.175 (2002), Metropolitan Planning Organization “In order to provide recommendations to the department and local government entities regarding transportation plans and programs, each MPO shall prepare a congestion

management system for the metropolitan area and cooperate with the department in the development of all other transportation management systems required by state or federal law.”

- Chapter Title XXVI, Chapter 339.177 (2002), Transportation Management Programs “Each MPO within the state must develop and implement a congestion management system.” It continues that the CMS “should be developed and implemented so as to provide the information needed to make informed decisions regarding the proper allocation of transportation resources.” The CMS “must use appropriate data gathered at the state or local level to define problems, identify needs, analyze alternatives, and measure effectiveness.”

### 3 CMP GOALS AND OBJECTIVES

The R2CTPO is currently developing their Long Range Plan, titled *2040 LRTP for the River to Sea TPO*. Adoption is expected by September 30, 2015 and will include this CMP as an important component of the plan. The LRTP and the CMP are part of the same planning process and as such will share the same goals and objectives. The Vision Statement for the LRTP, as detailed below, applies to the CMP and guides the intent of the CMP as it evolves.

#### ***Vision Statement for the 2040 Long Range Transportation Plan***

*Our transportation system will provide a safe and accessible range of options that enhances existing communities while providing mobility in a fiscally responsible, energy efficient, and environmentally compatible manner. This integrated system will support economic development, allowing for the effective movement of all people, goods, and services necessary to maintain and enhance our quality of life.*

#### 3.1 GOALS FOR CMP

As stated previously, the LRTP and CMP share a common set of goals which guide the planning process. These shared goals are listed as follows:

- Goal 1: Provide a Balanced and Efficient Multimodal Transportation System
- Goal 2: Support Economic Development
- Goal 3: Enhance Connectivity and Transportation Choices
- Goal 4: Improve Safety and Security
- Goal 5: Continue to Provide and Create New Quality Places
- Goal 6: Provide Transportation Equity and Encourage Public Participation

#### 3.2 OBJECTIVES FOR CMP

In accordance with FHWA guidelines, the CMP is also an “objectives-driven” process, which ensures that investment decisions are made with a clear focus on desired outcomes. In order to be consistent with regional plans, the objectives for the CMP were selected from the 2040 LRTP objectives and a performance measure is assigned to each objective, to be updated as the CMP evolves.

**Goal 1: Provide a Balanced and Efficient Multimodal Transportation System**

**Objective 1.1 – Balanced Multimodal System**

Develop a multimodal transportation system that improves the accessibility and mobility to economic centers for all users (vehicle, bicycle and pedestrian) as well as the movement of goods.

**Objective 1.2 – Roadway Efficiency**

Minimize congestion and delay on roadways and intersections through projects that improve capacity, provide more efficient use and operation of existing transportation facilities, and reduce transportation demand.

**Objective 1.3 – Transit Efficiency**

Provide public transit systems that deliver efficient and convenient transit service.

**Objective 1.4 – Financial Efficiency**

Develop a Plan that maximizes use of all available existing and alternative revenue sources and is financially feasible.

**Objective 1.5 – Cost Effectiveness**

Incorporate measures that give priority to projects that provide high benefit-to-cost considerations.

**Goal 2: Support Economic Development**

**Objective 2.1 – Economic Benefit**

Develop a transportation system that supports regional and local economic growth and diversity and improves the economic competitiveness of the region.

**Objective 2.2 – Freight Movement**

Identify and support safe and efficient truck routes and other facilities that improve freight and goods movement.

**Objective 2.3 – Access to Intermodal Facilities**

Improve connectivity and access to rail, port and airport facilities.

**Objective 2.4 – Transit Access to Employment**

Support funding of transit service that improves access to employment centers.



### **Goal 3: Enhance Connectivity and Transportation Choices**

#### **Objective 3.1 – Multimodal Transportation Options**

Provide a range of transportation alternatives to improve mobility for all citizens with special consideration for the elderly, people with disabilities, and those unable to drive.

#### **Objective 3.2 – Interconnectivity Between Modes**

Maximize the interconnectivity of roadways, sidewalks, bicycle facilities, trails, transit and other transportation system components to provide safe and convenient pedestrian, bicycle, transit and motor vehicle mobility.

#### **Objective 3.3 – Connectivity Between Activity Centers**

Enhance regional connectivity to employment, education, health, entertainment and other major activity centers.

#### **Objective 3.4 – Connectivity Between Jurisdictions**

Enhance connectivity between local government jurisdictions within the region.

### **Goal 4: Improve Safety and Security**

#### **Objective 4.1 – Roadway System Safety**

Identify and prioritize improvements to reduce the frequency and severity of crashes, and minimize injuries and fatalities.

#### **Objective 4.2 – Bicycle and Pedestrian Safety**

Identify and implement safety programs and enhancements to improve the safety of pedestrian and bicycle facilities.

#### **Objective 4.3 – Transit System Security and Safety**

Enhance security of transit systems through appropriate design, monitoring and enforcement programs.

#### **Objective 4.4 – Emergency Evacuation**

Develop a transportation plan that supports emergency evacuation, response and post-disaster recovery; and improves national, state and local security and emergency management functions.

**Goal 5: Continue to Provide and Create New Quality Places**

**Objective 5.1 – Land Use Efficiency**

Promote compact, walkable, mixed use development and redevelopment opportunities that encourage a range of transportation options and maximize the effectiveness of the transportation system.

**Objective 5.2 – Preserve and Enhance Existing Communities**

Develop a transportation plan with components planned and designed to preserve and enhance existing urban areas and communities.

**Objective 5.3 – Comprehensive Planning**

Support local visioning and planning principles by developing a Plan that is consistent with local government comprehensive plans to the maximum extent feasible.

**Objective 5.4 – Natural Resource Protection**

Locate and design transportation facilities to avoid or minimize the impact to natural resources including environmentally sensitive areas, and critical lands, waters and habitats.

**Objective 5.5 – Air & Water Quality Protection**

Develop and support a multimodal transportation system that maintains or reduces vehicle greenhouse gas emissions and pollutants that degrade water quality.

**Goal 6: Provide Transportation Equity and Encourage Public Participation**

**Objective 6.1 – Public Involvement**

Provide opportunities for public participation that is open, inclusive and accessible for all citizens; and develop outreach programs to engage citizens of all jurisdictions and the traditionally under-served and under-represented.

**Objective 6.2 – Transportation Equity**

Include provisions to identify the needs of low income and minority populations and ensure that projects in the Plan do not disproportionately burden low income and minority populations, and include measures to avoid, minimize or mitigate adverse impacts.

**Objective 6.3 – Transit Access to Low Income and Transit Dependent Populations**

Support transportation investments that improve public transit services for low income and transit dependent populations to gain access to jobs, schools, health services, and other needed services.

**3.3 NEXUS OF CMP AND LRTP GOALS AND OBJECTIVES**

The CMP and the LRTP share the same goals and objectives but the CMP will provide performance measure where applicable to measure the success of the CMP over time. **Table 1**, CMP Objectives, lists the Objectives by Goal and the reasoning, or nexus, behind the association of the objective with the CMP. Performance measures and targets are detailed in Section 5.

In addition, it should be noted that there are long range planning/evaluation tools that support the CMP. Transportation Systems Management & Operations (TSM&O), a program based on measuring performance, actively managing the multimodal transportation network, and delivering positive safety and mobility outcomes to the travelling public, can be used to support travel time goals and project prioritization. Also available is the Florida ITS Evaluation tool (FITSEVAL) which can be used to analyze the Benefits and Costs of ITS/CMS/safety strategies and options which can assist the TPO with ITS/CMS/safety alternative selection in both the short and long term planning horizon. Both tools utilize performance measures to rank and prioritize projects and can be useful/valuable in fulfilling the requirements of several Goals and Objectives (e.g. Objectives 1.5, 4.1, etc.).

**Table 1 – CMP Objectives**

Goals	Objective	Description	Nexus to CMP
<b>Goal 1: Provide a Balanced and Efficient Multimodal Transportation System</b>	1.1	Balanced Multimodal System	A balanced, multimodal system should reduce delay on the overall network.
	1.2	Roadway Efficiency	CMP should show an increase in roadway efficiency.
	1.3	Transit Efficiency	Transit ridership should increase as a strategy to reduce congestion.
	1.4	Financial Efficiency	The CMP will assist in selecting projects based on cost benefit analysis.
	1.5	Cost Effectiveness	The CMP will assist in selecting projects based on cost benefit analysis.
<b>Goal 2: Support Economic Development</b>	2.1	Economic Benefit	The CMP will assist in selecting projects based on cost benefit analysis.
	2.2	Freight Movement	A reduction in congestion should reduce delay on the overall network.
	2.3	Access to Intermodal Facilities	Data collection plan for targeted areas.
	2.4	Transit Access to Employment	Transit ridership should increase as a strategy to reduce congestion.
<b>Goal 3: Enhance Connectivity and Transportation Choices</b>	3.1	Multimodal Transportation Options	Transit ridership should increase as a strategy to reduce congestion.
	3.2	Interconnectivity Between Modes	Transit ridership should increase as a strategy to reduce congestion.
	3.3	Connectivity Between Activity Centers	A reduction in congestion should reduce delay on the overall network.
	3.4	Connectivity Between Jurisdictions	A reduction in congestion should reduce delay on the overall network.

**Table 1 – CMP Objectives (continued)**

Goals	Objective	Description	Nexus to CMP
<b>Goal 4: Improve Safety and Security</b>	4.1	Roadway System Safety	Safety mitigation measures should reduce crash rates.
	4.2	Bicycle and Pedestrian Safety	Safety mitigation measures should reduce crash rates.
	4.3	Transit System Security and Safety	Not measurable in reference to congestion.
	4.4	Emergency Evacuation	Not measurable in reference to daily congestion.
<b>Goal 5: Continue to Provide and Create New Quality Places</b>	5.1	Land Use Efficiency	Not measurable in reference to daily congestion.
	5.2	Preserve and Enhance Existing Communities	A reduction in congestion should reduce delay on the overall network.
	5.3	Comprehensive Planning	The CMP will support this, but cannot be measured in terms of congestion.
	5.4	Natural Resource Protection	Not measurable in reference to congestion.
	5.5	Air & Water Quality Protection	A reduction in congestion should improve air quality.
<b>Goal 6: Transportation Equity and Public Participation</b>	6.1	Public Involvement	As the CMP evolves, more public involvement will be instituted.
	6.2	Transportation Equity	A reduction in congestion should reduce delay on the overall network.
	6.3	Transit Access to Low Income and Transit Dependent Populations	The CMP will support this, but cannot be measured in terms of congestion.



## **4 CMP NETWORK IDENTIFICATION**

The area of application for the R2CTPO CMP is the designated TPO Metropolitan Planning Area (MPA) as shown in **Figure 2**. The MPA includes all of Volusia County, Beverly Beach, Flagler Beach and portions of the cities of Palm Coast and Bunnell, as well as portions of unincorporated Flagler County. The network includes a mix of roadway, bicycle, pedestrian and transit facilities that are maintained by state, county, and local municipal agencies.

The R2CTPO CMP addresses the multimodal transportation network, consistent with federal guidelines. In addition to the road network, **Figure 3** shows the current fixed route transit service area within the R2CTPO. Transit service is provided by Votran in Volusia County. Within Flagler County, Flagler County Public Transportation (FCPT) provides a pre-scheduled, demand-response transportation system that focuses on elderly persons and persons with disabilities.

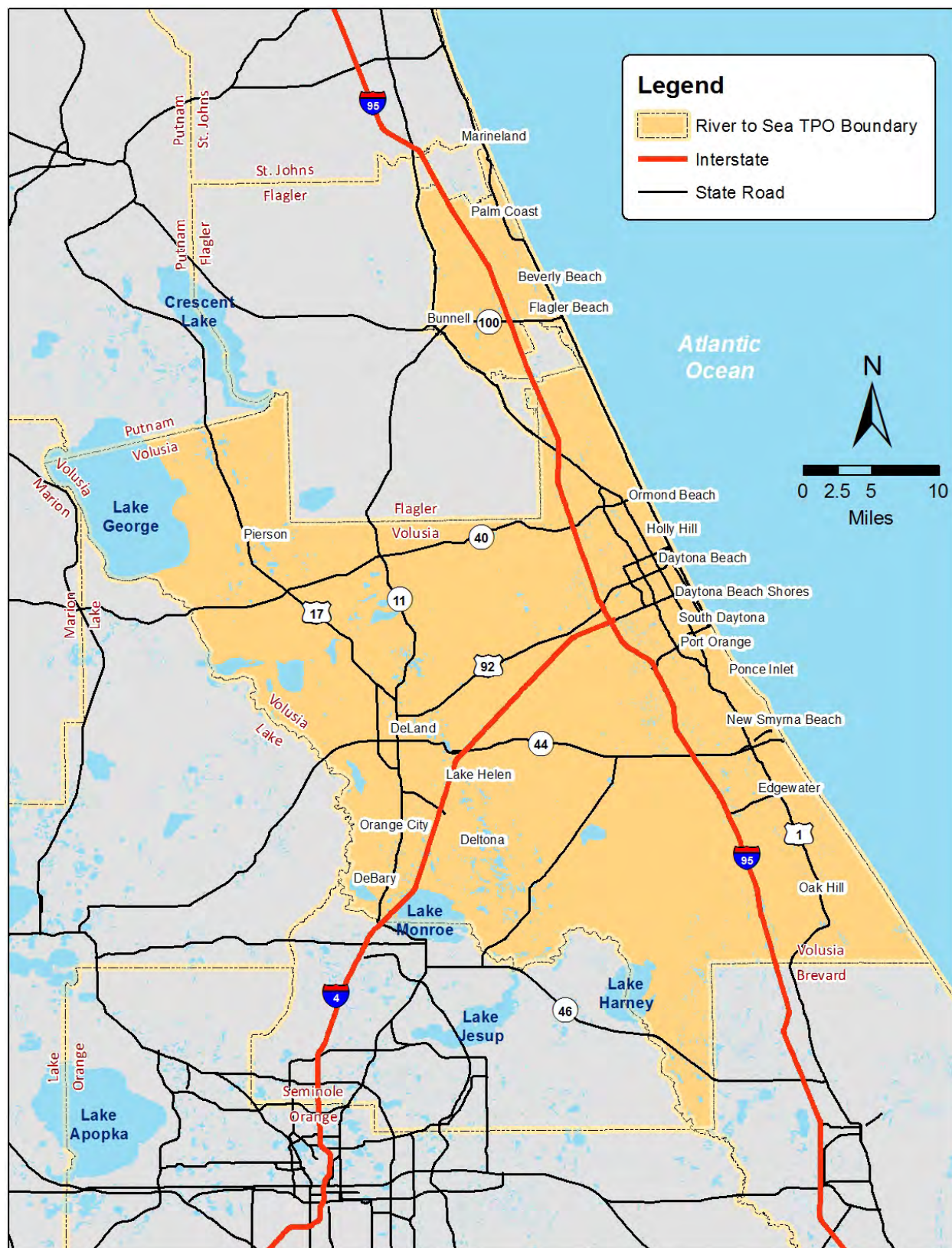


Figure 2 – River to Sea TPO Metropolitan Planning Area



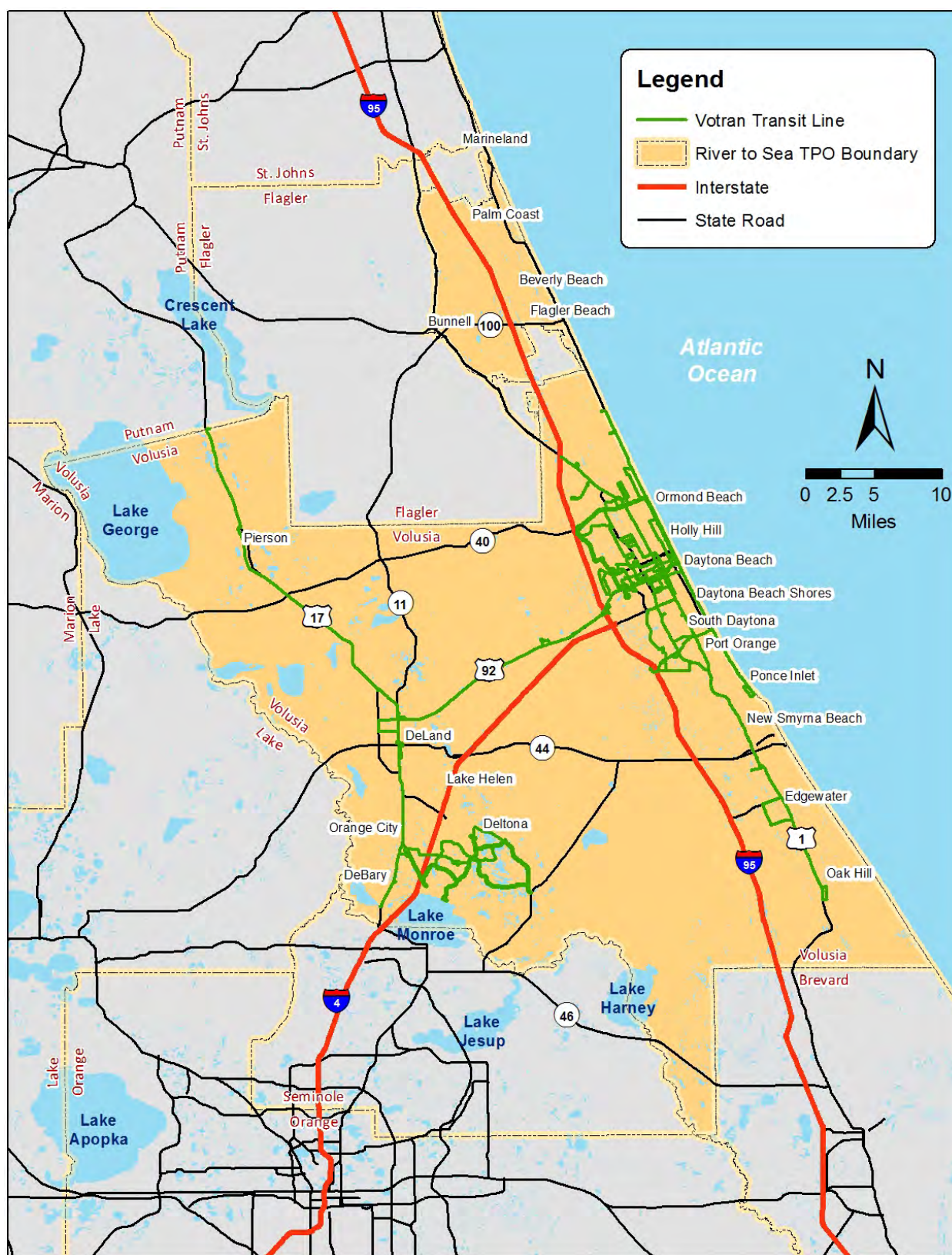


Figure 3 – Transit Routes within the MPA

## 5 MULTIMODAL PERFORMANCE MEASURES

The purpose of using performance measures is to characterize current and future conditions of the multimodal transportation system throughout the MPA. Performance measures are used at both the Regional Level to measure performance of the regional transportation system and at the Local (Corridor, Segment, Intersection) Level to identify locations with congestion problems and to measure the performance of individual segments or system elements.

There is a wide range of measures that are used to measure congestion. Those selected should encompass the four dimensions of congestion:

- **Intensity** – The relative severity of congestion that affects travel. Intensity has traditionally been measured through indicators such as V/C ratios or LOS measures that consistently relate the different levels of congestion experienced on roadways.
- **Duration** – The amount of time the congested conditions persist before returning to an uncongested state.
- **Extent** – The number of system users or components (e.g. vehicles, pedestrians, transit routes, lane miles) affected by congestion, for example the proportion of system network components (roads, bus lines, etc.) that exceed a defined performance measure target.
- **Variability** – The changes in congestion that occur on different days or at different times of day. When congestion is highly variable due to non-recurring conditions, such as a roadway with a high number of traffic accidents causing delays, this has an impact on the reliability of the system.

The measures should also be in compliance with the federal direction to use measures that cover a multimodal network. The measures include elements that address safety, roadway improvements, public transit, bicycle/pedestrian/multi-use trail facilities, travel demand management (TDM), and goods movement.

The performance measures selected for the R2CTPO were identified through monitoring activities by various local and state agencies within the MPA. **Table 2** relates the objectives identified in Section 2 with the CMP performance measures and identified targets. Some targets are designated as To Be Determined (TBD) and will be set as the CMP evolves.

Table 2 – CMP Performance Measures and Targets

Goals	Objective	Description	Performance Measure	Target
Goal 1: Provide a Balanced and Efficient Multimodal Transportation	1.1	Balanced Multimodal System	Average Delay, Mode Shift, V/C ratio, Average Trip Length	Reduce delay (TBD), Reduce V/C 5% by 2025
	1.2	Roadway Efficiency	Average Delay, V/C ratio, Average Trip Length	Reduce delay (TBD), Reduce V/C 5% by 2025
	1.3	Transit Efficiency	Transit Ridership	Increase transit ridership (TBD)
	1.4	Financial Efficiency	Cost Benefit Analysis	TBD
	1.5	Cost Effectiveness	Cost Benefit Analysis	TBD
Goal 2: Support Economic Development	2.1	Economic Benefit	Cost Benefit Analysis	TBD
			Average number of workers that can reach major employment center by auto in 45 minutes in the AM peak period	Improved access to jobs, encouraging growth in private sector, employment, workforce
			Average number of workers that can reach major employment center by auto in 45 minutes in the PM peak period	Improved access to jobs, encouraging growth in private sector, employment, workforce
			Land use planning – Identified population and employment scenario for future	Get inputs for planning of intermodal facilities and the modes of transport
	2.2	Freight Movement	Average Delay, V/C ratio, Average Trip Length on specific truck routes	Reduce delay (TBD), Reduce V/C on specific truck routes (TBD)
	2.3	Access to Intermodal Facilities	Average Delay, V/C ratio, Average Trip Length on intermodal connections	Reduce delay (TBD), Reduce V/C on intermodal connections (TBD)
	2.4	Not Applicable		
Goal 3: Enhance Connectivity and Transportation Choices	3.1	Multimodal Transportation Options	Transit Ridership, Mode Shift, % new sidewalk, % new bike facilities, Connectivity Index	Increase transit ridership (TBD), % new sidewalk (TBD), % new bike facilities (TBD)
	3.2	Interconnectivity Between Modes	Transit Ridership, Mode Shift	Increase transit ridership (TBD)
	3.3	Connectivity Between Activity Centers	Average Delay, V/C ratio, Average Trip Length on specific corridors between activity centers	Reduce delay (TBD), Reduce V/C on specific corridors between activities centers (TBD)
	3.4	Connectivity Between Jurisdictions	Average Delay, V/C ratio, Average Trip Length on specific corridors between jurisdictions	Reduce delay (TBD), Reduce V/C on specific corridors between jurisdictions (TBD)



Table 2 – CMP Performance Measures and Targets (continued)

Goals	Objective	Description	Performance Measure	Target
Goal 4: Improve Safety and Security	4.1	Roadway System Safety	Crash rates per million VMT, Total number of fatalities/severe injuries	Reduce crash rates (TBD)
	4.2	Bicycle and Pedestrian Safety	Crash Rates for bike and pedestrians	Reduce crash rates (TBD)
	4.3	Not Applicable		
	4.4	Not Applicable		
Goal 5: Continue to Provide and Create New Quality Places	5.1	Not Applicable		
	5.2	Preserve and Enhance Existing Communities	Average Delay, V/C ratio, Average Trip Length	Reduce delay (TBD), Reduce V/C 5% by 2025
	5.3	Comprehensive Planning	Coordinate with local comprehensive plans	Is CMP consistent with local comprehensive plans
	5.4	Not Applicable		
	5.5	Air & Water Quality Protection	Average Delay, V/C ratio, Average Trip Length	Reduce delay (TBD), Reduce V/C 5% by 2025
Goal 6: Transportation Equity and Public Participation	6.1	Public Involvement	Public Participation	Double public participation for next CMP
	6.2	Transportation Equity	Average Delay, V/C ratio, Average Trip Length	Reduce delay (TBD), Reduce V/C 5% by 2025
	6.3	Not Applicable		

## **6 COLLECT DATA/MONITOR SYSTEM PERFORMANCE**

FHWA identifies congestion monitoring as just one transportation system performance aspect that leads to more effective investment decisions for transportation improvements. Safety, physical condition, environmental quality, economic development, quality of life and customer satisfaction are among others that require monitoring. The Final Rule on Metropolitan Transportation Planning calls for a coordinated data program “to assess the extent of congestion, to contribute in determining the causes of congestion, and evaluate the efficiency and effectiveness of implemented actions.” It also indicates that “to the extent possible, this data collection program should be coordinated with existing data sources and coordinated with operations managers in the metropolitan area.”

It is the intent of the R2CTPO CMP to develop an ongoing system that relies primarily on data already collected throughout the TPO. The components of the plan include roadways, public transit, bicycle/pedestrian/trail, Transportation Demand Management (TDM), and goods movement where:

- Roadways are monitored through annual Level of Service (LOS) analysis using traffic counts and other data constantly collected throughout the region.
- Crashes are monitored to help measure non-recurring congestion.
- Transit performance is monitored continuously through various operating and capital plans.
- Bike and pedestrian network data is monitored and updated via various city and county databases.
- Significant goods movement corridors are evaluated to address mobility needs of the goods movement providers.

Significant data can be provided by FDOT to address metropolitan and statewide performance measurement reporting requirements of MAP-21. Specific types and sources of data to be utilized in the CMP are detailed in **Table 3** and further discussed below.

The CMP data collection efforts will evolve with the update of the CMP. The R2CTPO will update the Congestion Management System Report biannually. Every other year the R2CTPO will update the develop map of congested roadways with the data collected and categorized via the CMP.

**Table 3 – CMP Data and Data Sources**

<b>Data to be Utilized in CMP</b>	<b>Data Sources</b>	<b>Specific Data</b>
Existing Traffic Volumes	FDOT, Volusia County, Flagler County, Local Municipalities	FDOT Annual Count Program, Volusia Annual Count Program, Palm Coast Annual Count Program
Level of Service Data	FDOT, Volusia County, Flagler County, Local Municipalities	FDOT Annual Count Program, Volusia Annual Count Program, Palm Coast Annual Count Program, location of traffic signals and other traffic control devices
Quality of Service for Transit	Transit Data	Votran's Transit Development Plan (TDP), transit ridership, stop locations
Quality of Service for Bike and Pedestrian Network	Bicycle/Pedestrian Advisory Committee (BPAC), R2CTPO	Bicycle/Pedestrian Plan, Pedestrian Safety Enforcement Program
Crash Data	Crash Data from FDOT	Crash collected by FDOT and available through CARS system
Travel Time Data	Data collection for targeted corridors to be determined	Data collection for targeted corridors to be determined
Freight Data	FDOT Freight and Systems Planning Offices	Movement of goods, truck volumes.
Land Use Data, U.S. Census Data	Volusia County, Flagler County, Local Municipalities, U.S. Census Bureau	Zoning data, Population and employment
Corridor Level Analysis	Aerial photography survey agency	Aerial photographs
Travel Behavior Factors	U.S. Census Bureau, Household Travel Survey	Trip purpose, mode of transportation, length of the trip and time of day

- a. **Existing Traffic Volumes** – Traffic volumes are routinely collected throughout the R2CTPO by state and local agencies. These counts are collected in the same location each year, offering a historical trend of the facility being counted.
- b. **Level of Service (LOS) data** – LOS is a calculated grade from A-F that gives an overall idea of the congestion levels a roadway may be experiencing. It is calculated from several factors, the main factor being the amount of capacity used, which is determined by the actual traffic volumes (from annual traffic count program). The R2CTPO CMP will utilize the FDOT Quality/Level of Service Handbook for assessing LOS on roadway links.

An inventory of the location and type of the traffic signals and other control devices, such as speed limit signs, yield and stop signs, may be helpful to correlate with maximum LOS.

- c. **Quality of Service for Transit** – Transit is not measured so much for a level of service but rather for a quality of service. Several factors can determine the LOS, such as frequency of transit, hours of operation, and accessibility to transit stops. The R2CTPO CMP will utilize the FDOT Quality/Level of Service Handbook for assessing QOS for transit.
- d. **Quality of Service for Bike and Pedestrian Network** – Similar to transit services, bike and pedestrian facilities are measured for a quality of service more so than a level of service. Several factors can determine the LOS, but the main determination for bike and pedestrian facilities is coverage of network and connectivity of the system. The R2CTPO CMP will utilize the FDOT Quality/Level of Service Handbook for assessing QOS for bike and pedestrian facilities.
- e. **Crash Data** – Crash data is typically assessed by utilizing an average crash rate, which is determined by using the rate per million vehicles on a roadway facility. The average crash rate is analyzed for the top 50 crash locations within the R2CTPO and compared to the state-wide average crash rate of that specific facility type. The FDOT documents crashes on state facilities and the data is available to the R2CTPO through the FDOT CARS database.
- f. **Travel Time Data** – Travel time data is a useful measurement of how a corridor behaves during different times of the day. In future CMPs, the R2CTPO will identify congested corridors and collect travel time data via pilot car techniques, Bluetooth

data collection, or through several existing commercial data sets available for purchase.

- g. Freight Data** – The CMP will utilize two available metrics for freight data collection: the volume of trucks on the network and the volume of goods moved on the network. The truck volumes are collected as part of annual count programs. The volume of goods metric will be obtained from the FDOT freight and systems planning offices.
- h. Aerial Photography Based Congestion Data** – Aerial photography can be used for corridor level analysis for recurring congestion by helping to identify the number and density of vehicles along a corridor at a given time. This data can be purchased from an aerial photography survey agency.
- i. Travel Survey Data** – This data helps to understand the travel behavior factors as well as trends over time such as: what is the trip purpose, what type of mode of transportation to be used, length of the trip and time of day of travel. This data can be downloaded from the American Community survey (ACS) and house hold survey.
- j. Land Use And Census Data** – Land use data can be used to help analyze the pattern of land use in a particular area – whether it is residential, commercial or industrial – and how supportive and connected it is to transit, bicycle and pedestrian modes of transportation. The R2CTPO may create a metric of accessibility, such as the Connectivity Index, to help identify the need for transportation inputs in future.

Also, using census data, the job-housing balance in a particular area can be identified and analyzed for work trip lengths.



## 7 ANALYZE CONGESTION PROBLEMS AND NEEDS

Once the raw data is collected, it will be analyzed in order to provide meaningful information. The data will be utilized in order to identify particular corridors and particular areas within the R2CTPO that have congestion or safety issues. In addition, the possible causes of these congestion issues will be determined. Due to the interrelatedness and complexity of congestion issues, it can be difficult to isolate the cause(s) for a particular issue.

The purpose of the CMP is to provide data to assist in identifying actual projects. The CMP involves selecting congested corridors to be evaluated for potential projects/programs that could be implemented to reduce the congestion identified.

Biannual monitoring will review the level of service on the roads to identify recurring congestion. Roadways that are congested today or forecasted to be congested in five years are considered for review through the CMP. Corridors are identified in the following three categories:

- **Not Congested** – Roadways with a volume to capacity ratio of less than 0.85 are deemed *Not Congested*. These roadway links are utilizing less than 85 percent of available capacity and are not currently to be analyzed unless significant crashes are indicated.
- **Congested in the Near Future** – Roadways with a volume to capacity ratio of 0.85 to 0.98 are deemed to be *Congested in the Near Future*. These roadway links are utilizing from 85 percent up to 99 percent of the available capacity and are to be analyzed for potential projects.
- **Currently Congested** – Roadways with a volume to capacity ratio of 0.99 and greater are deemed to be *Currently Congested*. These roadway links are utilizing 99 percent or greater of available capacity and will be analyzed for potential projects first.

For this initial CMP, **Table 4** shows those roadways in the *Congested in the Near Future* and *Currently Congested* categories. **Figure 4** graphically displays these categories.

The current roadway system includes 13 roadway segments in the *Currently Congested* category, totaling 20.02 miles of roadway. These 13 roadway segments represent less than 1 percent (0.0083%) of the 2,401.4 miles of roadway within the MPA. The current roadway system also includes 20 roadway segments in the *Congested in the Near Future* category, totaling 30.89 miles of roadway. These 20 roadway segments represent less than 2 percent

(0.0128%) of the 2,401.4 miles of roadway within the MPA. Together, both congested categories, based on V/C ratios, represent a little over 2 percent (0.0211%) of the roadways within the MPA.

The traffic data and sources used to determine the V/C for the categorized links is located in Appendix A. Future CMPs will enhance the selection process based on crash data and travel time data. Specific CMP corridors will be identified for corridor specific data collection efforts.

Table 4 – Congested Links

County	Road Name	Limits	V/C Ratio	2013 AADT	Number of Lanes	Length (miles)
Flagler	Cypress Point Parkway	Cypress Edge (N) to Palm Coast Parkway	0.93	30,100	4	0.12
Flagler	SR 9/I-95	Volusia County Line to Urban Boundary (just s/o SR 100)	1.09	69,500	6	4.60
Flagler	SR 5/US 1	Railroad St to Moody Blvd	1.19	11,800	4	0.43
Flagler	SR 5/US 1	Moody Blvd to SR 20/SR 100	1.84	18,200	4	0.77
Volusia	I-4	SR 46 to Volusia County	0.95	107,500	6	1.90
Volusia	I-4	Seminole County to Dirksen Dr	1.16	108,000	6	3.58
Volusia	I-4	Dirksen Dr to Saxon Blvd	1.04	96,400	6	2.79
Volusia	I-4	Saxon Blvd to SR 472	0.95	88,500	6	3.15
Volusia	I-4	SR 44 to US 92 Connector	0.89	55,000	4	10.31
Volusia	US 1	SR 430 (Mason Ave) to Fairview/Main St	0.85	27,500	4	0.54
Volusia	US 1	US 92/ISB to Orange Ave	0.90	29,000	4	0.30
Volusia	US 17	SR 40 to Lake Winona Rd	0.87	7,300	2	4.93
Volusia	US 17/92	Plymouth Ave to SR 44 (New York Ave)	1.04	16,300	2	1.01
Volusia	US 17/92	SR 44 (New York Ave) to Euclid Ave	1.04	16,300	2	0.49
Volusia	US 17/92	Euclid Ave to Beresford Ave	1.01	16,600	2	0.49
Volusia	SR 40	US 1 to Halifax Ave	1.05	34,000	4	1.11
Volusia	SR 44	Blue Lake Ave to Kepler Rd	0.90	15,900	2	0.94
Volusia	SR 44	Kepler Rd to Summit Ave	1.02	18,000	2	1.18
Volusia	Catalina Blvd	Howland Blvd to Sixma Rd	0.86	11,700	2	0.50
Volusia	Dirksen Dr/DeBary Ave/Doyle Rd	Providence Blvd to Garfield Rd	0.87	11,890	2	1.20
Volusia	Graves Ave/CR 4145	Veterans Memorial Parkway to Kentucky Ave	0.94	16,750	2	0.30
Volusia	Howland Blvd	Providence Blvd to Elkcam Blvd	1.11	15,150	2	2.10
Volusia	LPGA Blvd	Jimmy Ann Dr to Derbyshire Rd	1.28	18,010	2	0.25
Volusia	Providence Blvd	Elkcam Blvd to Ft. Smith Blvd	0.96	13,070	2	0.80
Volusia	Providence Blvd	Normandy Blvd to Anderson Dr	0.96	13,150	2	0.80
Volusia	Providence Blvd	Anderson Dr to Doyle Rd	0.86	11,780	2	0.55
Volusia	Saxon Blvd	FDOT Park & Ride to I-4	0.96	36,440	4	0.30
Volusia	Saxon Blvd	I-4 to Finland Dr	0.91	34,420	4	0.35
Volusia	Saxon Blvd	Finland Dr to Normandy Blvd	0.86	32,490	4	0.35
Volusia	Taylor Rd	Dunlawton Ave to Clyde Morris Blvd	0.90	12,270	2	0.55

Table 4 – Congested Links (continued)

County	Road Name	Limits	V/C Ratio	2013 AADT	Number of Lanes	Length (miles)
Volusia	W. Volusia Bltwy (Veterans Memorial Pkwy)	Graves Ave to Rhode Island Ave	0.87	15,510	2	1.50
Volusia	W. Volusia Bltwy (Veterans Memorial Pkwy)	Rhode Island Ave to Harley Strickland Blvd	1.06	18,000	2	1.22
Volusia	Williamson Blvd	SR 400/Beville Rd to Madeline Ave	0.85	14,430	2	1.50
	Category 1 – V/C 0.85-0.98					
	Category 2 – V/C 0.99 and up					





## 8 IDENTIFY AND ASSESS STRATEGIES

The CMP will prioritize and identify a set of recommended solutions which will mitigate congestion and improve safety for the community. The selection and implementation of these solutions will help to achieve the CMP objectives and will provide opportunities for both short and long term congestion management. These strategies will be partially identified through public outreach efforts and will be sensitive to the context of the location.

### 8.1 CMP Review Team

Since congestion mitigation strategies cannot be implemented for all of the congested facilities simultaneously, and congestion management strategies are not one size fits all, the projects and strategies must be evaluated logically. The congested roadways or intersections must be examined carefully to determine which management strategy will best address the particular problems. Strategies can be selected and evaluated by a CMP Review Team.

The review team will be set up and guided by R2CTPO staff and include technically qualified staff members from local government with knowledge in the areas of traffic engineering and ITS, intersection analysis, access management, roadway design standards, transit planning, land use planning, concurrency, transportation planning, bicycle and pedestrian planning, and roadway construction costs. The review team will evaluate congested roadways and intersections as requested by the R2CTPO and its advisory committees. The review team will evaluate projects and strategies using a systematic method for determining which congested facilities should be evaluated for inclusion in plan updates. A process to evaluate and prioritize projects for evaluation and inclusion in the TIP, LRTP and other plans is detailed in **Figure 5**.

### 8.2 Transportation Systems Management

The Transportation Systems Management (TSM) (source: *Reference Sourcebook for Reducing Greenhouse Gas Emissions from Transportation Sources* – FHWA February 2012) approach to congestion mitigation seeks to identify improvements to enhance the capacity of existing systems of an operational nature. Through better management and operation of existing transportation facilities, these techniques are designed to improve traffic flow, air quality, and movement of vehicles and goods, as well as enhance system accessibility and safety.

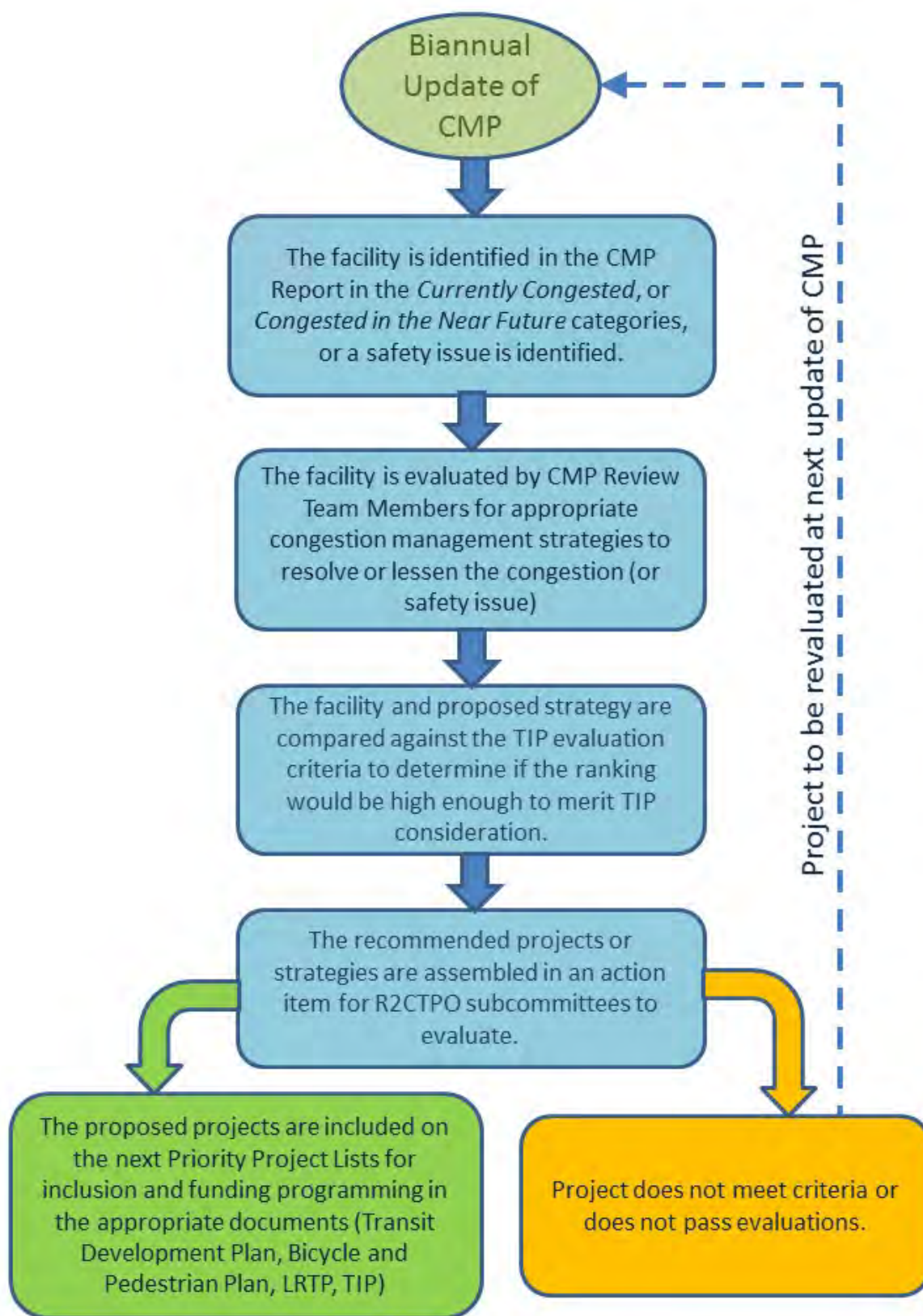


Figure 5 – Project Evaluation Process

The R2CTPO CMP and designated CMP Review Team will utilize TSM as a guide to strategies for congestion mitigation and for optimizing the performance of existing infrastructure through the implementation of systems, services, and projects designed to preserve capacity and improve security, safety, and reliability. Areas and specific strategies where TSM can be implemented to create a more efficient, safe, and mobile transportation facility are listed in the following sections.

Note that consideration should also be given to utilizing long range planning/evaluation tools (such as FITSEVAL and TSM&O) to support travel time goals and project prioritization and to analyze the Benefits and Costs of ITS/CMS/Safety strategies and options. These tools can assist with both the short and long term planning horizon.

**A. Transportation System Management Strategies**

1. Traffic Signalization and Control
  - New Signal Installation
  - Modifying Signal Phase Sequences
  - Signal Re-timing/Updating Timing Plans
  - Signal Hardware Updates/Updating Equipment
  - Signal Interconnection
  - Demand-responsive Signal Systems
  - Eliminate Unnecessary Traffic Control Signs
2. Intersection and Street Improvements
  - Intersection/Street Widening
  - Lane Assignment Changes/Re-striping
  - Install Turn Lanes
  - Turning Movement and Lane Use Restrictions
  - Bus Loading Bays
3. Bottleneck Removal
  - Re-striping
  - Install Signage
  - Add Lanes
  - Reduce Merging and Weaving
4. Special Events
  - Traffic Management Plans
  - Signal Re-timing Plans
  - Dynamic Lane Assignments

5. Access Management
  - Turn Lanes
  - Close Driveways/Driveway Spacing
  - Access Spacing
  - Median Treatments

**B. Travel Demand Strategies**

1. Improve Transportation Options
  - Alternative Work Schedules/Flex Time
  - Commute Trip Reduction Programs
  - Carpooling
  - Telework/Telecommute
  - Vanpooling
  - HOV Priority/Managed Lanes
  - Park and Ride
  - Shuttle Services
  - Bicycle and Pedestrian Improvements
  - Transit Improvements
  - Car Sharing/Ride Leasing/Station Car
  - Taxi Service Improvements
  - On-Site Employee Services
  - Live Near Your Work
  - Worksite Locations and Design
  - Real-Time Commuter Services
  - Advanced Route Planning
2. Incentives to Use Alternative Modes
  - Commuter Financial Incentives
  - Parking Management/Share Parking
  - Congestion Pricing/Road Pricing
  - Distance-Based Pricing/Pay-As-You-Drive Insurance
  - Guaranteed Ride Home
  - Parking – Time of Day Pricing
3. Sustainable Development
  - Transit Oriented Development (TOD)
  - Land Use Density and Clustering
  - Location Efficient Development
  - Bike/Transit System Integration
  - Pedestrianized Streets
  - Bicycle Parking Facilities

4. Policy and Institution Reform
  - Asset Management
  - Car-Free Parking
  - Context Sensitive Design
  - Road Space Reallocation
  - Speed Reduction
  - Street Reclaiming
5. TDM Marketing and Education
  - TDM Marketing to Schools (K-12)
  - Walking and Cycling Encouragement
  - Transit and Alternative Mode Encouragement
  - TDM Marketing/Ride Matching Services
  - Transportation Management Associations (TMA)
6. TDM Planning and Evaluation
  - Auto Dependency
  - Land Use Evaluation
  - Parking Evaluation
  - Evaluating Pricing Strategies
  - Evaluating Effectiveness of TDM Programs

**C. Intelligent Transportation System Strategies**

1. Archived Data Management
  - ITS Data Mart
  - ITS Data Warehouse
  - ITS Virtual Data Warehouse
2. Public Transportation
  - Transit Vehicle Tracking
  - Transit Fixed-Route Operations
  - Demand Response Transit Operations
  - Transit Passenger and Fare Management
  - Transit Security
  - Transit Maintenance
  - Multimodal Coordination
  - Transit Traveler Information
3. Traveler Information
  - Broadcast Traveler Information
  - Interactive Traveler Information
  - Autonomous Route Guidance



- Dynamic Route Guidance
  - Information Service Provider Based Trip Planning and Route Guidance
  - Integrated Transportation Management/Route Guidance
  - Yellow Pages and Reservations
  - Dynamic Ridesharing
  - In-Vehicle Signing
4. Traffic Management
- Network Surveillance
  - Probe Surveillance
  - Surface Street Control
  - Freeway Control
  - HOV/Managed Lane Management
  - Traffic Information Dissemination Regional Traffic Control
5. Traffic Incident Management System
- Traffic Forecast and Demand Management
  - Electronic Toll Collection
  - Emissions Monitoring and Management
  - Virtual TMC and Smart Probe Data
  - Standard Railroad Grade Crossing
  - Advanced Railroad Grade Crossing
  - Parking Facility Management
  - Regional Parking Management
  - Reversible Lane Management
  - Speed Monitoring
  - Roadway Closure Management
  - Vehicle Safety Monitoring
  - Driver Safety Monitoring
  - Longitudinal Safety Warning
  - Lateral Safety Warning
  - Intersection Safety Warning
  - Pre-Crash Restraint Development
  - Driver Visibility Improvement
  - Advanced Vehicle Longitudinal Control
  - Advanced Vehicle Lateral Control
  - Intersection Collision Avoidance
  - Automated Highway System
6. Commercial Vehicle Operations
- Fleet Administration
  - Freight Administration

- Electronic Clearance
  - Commercial Vehicle Administrative Process
  - Weigh-In Motion
  - Roadside Commercial Vehicle Operation Safety
  - On-Board Commercial Vehicle Operation and Freight Safety and Security
  - Commercial Vehicle Operation Maintenance
  - Hazardous Materials Management
  - Roadside Hazardous Materials Security Detection and Mitigation
  - Commercial Vehicle Driver Security Administration
  - Freight Assignment Tracking
7. Emergency Management
- Emergency Call-Taking and Dispatch
  - Emergency Routing
  - Mayday and Alarms Support
  - Roadside Service Patrols
  - Transportation Infrastructure Protection
  - Wide-Area Alert
  - Early Warning System
  - Disaster Response and Recovery
  - Evacuation and Reentry Management
  - Disaster Traveler Information
8. Maintenance and Construction Management
- Maintenance and Construction Vehicle and Equipment Tracking
  - Maintenance and Construction Vehicle Maintenance
  - Road Weather Data Collection
  - Weather Information Processing and Distribution
  - Roadway Automated Treatment
  - Roadway Maintenance and Construction
  - Work Zone Management
  - Work Zone Safety
  - Maintenance and Construction Activity Coordination

## 9 PROGRAM AND IMPLEMENT STRATEGIES

The CMP will assist in planning for implementation, as well as possible sources of funding, for each of the identified improvement strategies. Implementation of identified strategies occurs at the regional (system), corridor, and project levels. Regional level implementation occurs through the integration of strategies into the regional Transportation Improvement Program (TIP) and into the Long Range Transportation Plan (LRTP). At the corridor level, specific strategies such as pedestrian improvement projects can be implemented using federal funding streams, state, local, or other funding sources. The CMP project selection process, the CMP Review Team, will utilize the R2CTPO TIP selection criteria. The TIP will be updated to include the CMP in the 'Consistency with Other Plans' section of future TIP documents. It is the intent that the CMP will become an integral part of the TIP selection process in future TIPs. A summary of the selection criteria is detailed below and the TIP selection criteria details are located in **Appendix B**.

The priority selection criteria are listed below and then further described.

1. Location
2. Project Readiness
3. Mobility and Operational Benefits
4. Safety Benefits
5. Comprehensive Plan and Economic Benefits
6. Infrastructure Impacts
7. Local Matching Funds > 10%

***Selection Criteria 1 – Location*** looks at the classification of the roads that will benefit from a proposed project. This criterion gives more points to projects that provide a benefit on roads that are classified at a higher level. If a project benefits more than one road, the road that has the highest classification will be used to allocate points.

***Selection Criteria 2 – Project Readiness*** looks at the amount of work required to develop the project and get it ready for construction. The closer a project is to the construction phase, the higher its points eligibility.

***Selection Criteria 3 – Mobility and Operational Benefits*** determines the extent of traffic operational benefits that will be derived from a proposed project.

***Selection Criteria 4 – Safety Benefits*** reviews the extent of safety benefits that will be derived from a proposed project. The crash data from the CMP will be part of this criterion.

***Selection Criteria 5 – Comprehensive Plan and Economic Benefits*** looks at the degree to which the proposed project will contribute to the satisfaction of one or more of the local government's adopted comprehensive plan goals or objectives, and the degree to which it supports economic development.

***Selection Criteria 6 – Infrastructure Impacts*** looks at impacts to adjoining public or private infrastructure, which may be in the way of the project.

***Selection Criteria 7 – Local Matching Funds > 10%*** identifies other funding sources that can be utilized for project funding.

## **10 EVALUATE STRATEGY EFFECTIVENESS**

Essential to a successful CMP is evaluation of implemented strategies to determine their effectiveness. A data collection plan that identifies specific elements such as type, frequency of data collection, data collection sites, and historical trending are essential for determining the effectiveness of the CMP over time.

It is the intent of the R2CTPO CMP to develop an ongoing system that relies primarily on data already collected throughout the TPO. The components of the plan include roadways, public transit, bicycle/pedestrian/trail, Transportation Demand Management (TDM), and goods movement where:

- Roadways are monitored through annual Level of Service (LOS) analysis using traffic counts and other data constantly collected throughout the region.
- Crashes are monitored to help measure non-recurring congestion.
- Transit performance is monitored continuously through various operating and capital plans.
- Bike and pedestrian network data is monitored and updated via various city and county databases.
- Significant goods movement corridors are evaluated to address mobility needs of the goods movement providers.

Data collection for the listed performance measures included in the CMP is also being conducted by the FDOT annually to address metropolitan and statewide performance measurement reporting requirements of MAP-21. The CMP will include a consistent data set of performance measures to be tracked and evaluated over time.

The CMP will use the data collected on roadways before and after strategies are implemented to determine the effectiveness of the CMP. Area wide measures such as overall Vehicle Miles Traveled and Vehicle Hours Traveled can offer a big picture snapshot for comparison over time. Travel times collected on specific corridors can be tracked over time to evaluate the congestion levels. As the CMP evolves and the data collected yields historical tracking information, the evaluation of strategies implemented will assist in determining the effectiveness of those strategies.



# **APPENDIX A**

## **Traffic Data and Sources for V/C**

Volusia County 2013 Average Annual Daily Traffic & Historical Counts																															
Road Name	Limits (From - To)	Count Station Number	2013 SRS Facility	Cycle 10-2 Execution Route	Roadway Maintaining Agency	Roadway on County Thoroughfare	Distance (in miles)	No. of Lanes	Posted Speed	Direction	2013 Facility Type	Federal Functional Classification	2000													2013 Vol. Co. Allowable LOS	DAILY 2013 Capacity	DAILY 2013 V/C Ratio	DAILY 2013 LOS	PEAK 2013 LOS	2013 Peak Hourly Capacity
													2004 AADT	2005 AADT	2006 AADT	2007 AADT	2008 AADT	2009 AADT	2010 AADT	2011 AADT	2012 AADT	2013 AADT									
R4	SR 46 to Volusia Co.	0266-S	Yes	Yes	FDOT	Yes	1.90	6	65	E+W	UA FWS 6L + ALUX	Rural Principal Arterial - Interstate	103,000	112,500	112,000	113,000	111,000	108,000	115,000	109,500	103,000	107,500	C	113,000	0.95	C	10,170				
R4	Seminole Co. to SR 46	0266-S	Yes	Yes	FDOT	Yes	3.58	6	65	E+W	UA FWS 6L + ALUX	Rural Principal Arterial - Interstate	111,500	118,000	118,000	118,000	115,000	112,000	110,000	108,000	105,000	103,000	107,500	C	113,000	0.95	C	10,170			
F4	Dirksen Dr. to Saxon Blvd.	9906	Yes	Yes	FDOT	Yes	2.79	6	70	E+W	UA FWS 6L	Urban Principal Arterial - Interstate	82,000	97,500	96,600	95,300	92,578	94,700	95,400	93,600	93,900	96,400	C	93,000	1.04	D	8,370				
F4	Saxon Blvd. to SR 472	1003	Yes	Yes	FDOT	Yes	3.16	6	70	E+W	UA FWS 6L	Urban Principal Arterial - Interstate	70,000	83,500	86,500	89,000	86,000	85,300	85,400	79,500	88,000	88,500	C	93,000	0.99	C	8,370				
F4	SR 472 to Orange Connector	486	Yes	Yes	FDOT	Yes	2.12	6	70	E+W	UA FWS 6L	Urban Principal Arterial - Interstate	60,000	57,500	59,500	61,500	58,000	57,000	56,000	76,000	70,500	77,000	C	93,000	0.83	C	8,370				
F4	Orange Lamp Rd. to SR 44	497	Yes	Yes	FDOT	Yes	1.01	6	70	E+W	UA FWS 6L	Urban Principal Arterial - Interstate	62,000	67,500	67,500	67,500	67,500	67,500	67,500	67,500	67,500	67,500	C	93,000	0.83	C	8,370				
F4	SR 44 to US 92 Connector	485	Yes	Yes	FDOT	Yes	10.31	4	70	E+W	UA FWS 4L	Urban Principal Arterial - Interstate	47,500	49,500	53,500	54,500	56,000	56,000	56,000	54,000	54,000	55,000	C	61,500	0.89	C	5,540				
F4	US 92 Connector to I-95	491	Yes	Yes	FDOT	Yes	3.52	4	70	E+W	UA FWS 4L	Urban Principal Arterial - Interstate	35,500	36,500	37,500	37,500	42,500	47,500	45,500	43,000	45,000	40,000	C	61,500	0.89	B	5,540				
C95	N. of Volusia/Fagler Co. Line	292-F	Yes	Yes	FDOT	Yes	1.45	6	70	N+S	UA FWS 6L	Rural & Urban Principal Arterial - Interstate	60,600	63,000	65,000	-	57,700	63,200	64,700	62,500	63,200	65,100	C	93,000	0.70	B	8,370				
C95	Fagler Co. Line/Old Dixie to US 1	496	Yes	Yes	FDOT	Yes	5.06	6	70	N+S	UA FWS 6L	Rural & Urban Principal Arterial - Interstate	62,500	68,500	68,500	68,500	53,000	66,000	67,000	60,500	64,500	69,500	C	93,000	0.78	C	8,370				
C95	US 1 to SR 40	495	Yes	Yes	FDOT	Yes	5.55	6	70	N+S	UA FWS 6L	Rural & Urban Principal Arterial - Interstate	60,500	60,000	60,000	60,000	55,000	65,000	67,000	62,500	66,500	63,500	C	93,000	0.68	B	8,370				
C95	SR 40 to LPGA Blvd.	534	Yes	Yes	FDOT	Yes	2.58	6	65	N+S	UA FWS 6L + ALUX	Urban Principal Arterial - Interstate	75,000	75,000	75,000	75,000	73,000	75,000	75,000	70,500	70,500	71,500	C	93,000	0.68	B	8,370				
C95	LPGA Blvd. to US 92	494	Yes	Yes	FDOT	Yes	3.56	6	65	N+S	UA FWS 6L + ALUX	Urban Principal Arterial - Interstate	74,500	75,000	80,000	74,000	68,000	70,000	70,500	74,500	71,500	71,500	C	93,000	0.7	C	8,370				
C95	US 92 to Seville Rd./I-4	484	Yes	Yes	FDOT	Yes	1.26	6	65	N+S	UA FWS 6L + ALUX	Urban Principal Arterial - Interstate	75,000	91,000	119,000	56,000	57,000	70,000	70,500	74,500	71,500	71,500	C	113,000	0.63	C	10,170				
C95	Seville Rd./I-4 to SR 421 (Dunlawton Ave.)	492	Yes	Yes	FDOT	Yes	4.92	4	65	N+S	UA FWS 4L	Urban Principal Arterial - Interstate	40,500	40,500	40,500	44,500	42,500	41,000	42,500	31,000	31,000	32,000	C	61,500	0.73	C	5,540				
C95	SR 421 (Dunlawton Ave.) to SR 44	133	Yes	Yes	FDOT	Yes	6.99	4	70	N+S	UA FWS 4L	Urban Principal Arterial - Interstate	40,082	41,000	40,400	40,119	36,377	37,400	38,000	36,600	36,900	36,600	C	61,500	0.60	B	5,540				
C95	SR 44 to SR 442 (Indian River Blvd.)	533	Yes	Yes	FDOT	Yes	4.84	4	70	N+S	UA FWS 4L	Rural & Urban Principal Arterial - Interstate	30,000	34,000	28,500	33,500	34,000	32,000	32,000	31,000	31,000	32,500	C	61,500	0.53	B	5,540				
C95	SR 442 (Indian River Blvd.) to Brevard Co.	0435-B	Yes	Yes	FDOT	Yes	1.45	4	70	N+S	RUA FWS 4L	Rural Principal Arterial - Interstate	24,500	27,500	31,500	27,000	24,500	25,000	24,500	30,500	30,000	29,500	B	43,000	0.63	B	4,450				
US 1	N. of Volusia/Fagler Co. Line	0263-F	Yes	Yes	FDOT	Yes	1.45	4	65	N+S	TA UHF 2W 4L D WL	Rural Principal Arterial - Other	12,235	13,600	17,100	15,135	13,680	12,100	11,600	11,200	10,700	10,700	C	49,600	0.22	B	4,450				
US 1	Fagler Co. to I-95	536	Yes	Yes	FDOT	Yes	1.53	4	60	N+S	UA UHF 2W 4L D WL	Urban Principal Arterial - Other	15,400	17,100	18,300	19,800	16,800	15,200	15,400	15,100	14,300	14,300	D	65,600	0.24	B	5,900				
US 1	I-95 to Airport Rd.	351	Yes	Yes	FDOT	Yes	2.81	4	65	N+S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	20,600	22,500	23,000	23,000	22,500	21,500	21,500	20,200	20,200	20,200	D	39,800	0.51	C	3,580				
US 1	Airport Rd. to Nova Rd.	1042	Yes	Yes	FDOT	Yes	1.23	4	55	N+S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	24,000	34,500	30,000	31,000	29,000	25,500	25,500	26,000	22,500	25,500	D	39,800	0.64	C	3,580				
US 1	Nova Rd. to SR 40	1019	Yes	Yes	FDOT	Yes	1.83	4	55	N+S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	20,000	19,600	19,800	18,800	18,200	17,000	16,000	16,300	16,400	16,600	D	39,800	0.42	C	3,580				
US 1	SR 40 to Hand Ave.	1040	Yes	Yes	FDOT	Yes	0.86	4	55	N+S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	20,000	19,600	19,800	18,800	18,200	17,000	16,000	16,300	16,400	16,600	D	39,800	0.42	C	3,580				
US 1	Hand Ave. to LPGA Blvd.	1018	Yes	Yes	FDOT	Yes	2.00	4	60	N+S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	30,000	29,000	28,500	28,500	27,000	26,000	26,000	26,000	21,500	24,000	D	39,800	0.60	C	3,580				
US 1	LPGA Blvd. to SR 403 (Mason Ave.)	1018	Yes	Yes	FDOT	Yes	1.47	4	35	N+S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	30,000	28,500	28,500	28,500	27,000	26,000	26,000	26,000	21,500	24,000	D	32,400	0.74	D	2,920				
US 1	SR 403 (Mason Ave.) to Fairview/Main St.	5074	Yes	Yes	FDOT	Yes	0.58	4	35	N+S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	25,000	25,000	25,000	25,000	24,000	23,000	23,000	22,000	21,000	21,000	D	32,400	0.85	D	2,920				
US 1	Fairview/Main St. to US 92/SB	5071	Yes	Yes	FDOT	Yes	0.68	4	35	N+S	UA SSA2 2W 4L D WL	Urban Principal Arterial - Other	29,000	32,000	32,000	32,000	29,000	28,000	27,000	27,000	24,000	25,000	D	32,400	0.80	D	2,920				
US 1	US 92/SB to Orange Ave.	5070	Yes	Yes	FDOT	Yes	0.30	4	35	N+S	UA SSA2 2W 4L D WL	Urban Principal Arterial - Other	30,000	35,000	32,000	30,000	30,000	29,000	28,000	28,000	26,000	29,000	D	32,400	0.90	D	2,920				
US 1	Orange Ave. to Belvedere Ave.	5062	Yes	Yes	FDOT	Yes	0.72	4	35	N+S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	36,000	35,000	35,000	35,000	30,500	28,500	28,500	28,000	26,000	28,000	D	39,800	0.70	C	3,580				
US 1	Belvedere Ave. to SR 400/Bellvue Rd.	5065	Yes	Yes	FDOT	Yes	1.09	4	35	N+S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	30,000	31,000	31,000	30,000	30,000	28,500	28,500	28,000	26,000	28,000	D	39,800	0.74	C	3,580				
US 1	SR 400/Bellvue Rd. to Belvedere Ave.	5063	Yes	Yes	FDOT	Yes	0.27	4	40	N+S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	35,500	35,000	33,000	30,500	30,000	28,000	28,000	28,000	27,500	26,000	D	39,800	0.68	C	3,580				
US 1	Belvedere Ave. to Big Tree Rd.	5062	Yes	Yes	FDOT	Yes	0.45	4	40	N+S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	35,500	34,000	31,000	29,500	30,000	28,000	27,500	26,500	24,500	27,000	D	39,800	0.68	C	3,580				
US 1	Big Tree Rd. to Reed Canal Rd.	5061	Yes	Yes	FDOT	Yes	1.11	4	40	N+S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	35,500	34,000	31,000	29,500	30,000	28,000	27,500	26,500	24,500	27,000	D	39,800	0.67	C	3,580				
US 1	Reed Canal Rd. to SR 421 (Dunlawton Ave.)	213	Yes	Yes	FDOT	Yes	1.18	4	40	N+S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	34,000	33,500	29,500	31,000	27,500	26,000	25,500	24,500	24,500	24,500	E	39,800	0.62	C	3,790				
US 1	SR 421 (Dunlawton Ave.) to Commonwealth to Nova Rd.	5057	Yes	Yes	FDOT	Yes	1.37	4	40	N+S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	25,000	24,500	23,500	22,500	22,500	20,500	20,100	20,500	19,800	20,500	E	39,800	0.51	C	3,790				
US 1	Commonwealth to Nova Rd.	152	Yes	Yes	FDOT	Yes	0.45	4	50	N+S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	15,000	15,000	15,000	15,000	14,500	14,000	13,500	14,000	13,500	13,500	D	39,800	0.38	C	3,580				
US 1	Nova Rd. to Art Center Ave.	13	Yes	Yes	FDOT	Yes	3.19	4	45	N+S	UA UHF 2W 4L D WL	Urban Principal Arterial - Other	25,500	22,500	23,500	22,000	21,500	20,900	20,200	19,400	19,800	20,500	D	65,600	0.31	B	5,900				
US 1	Art Center Ave. to Turnbull Bay Rd.	5159	Yes	Yes	FDOT	Yes	2.24	4	55	N+S	UA SFA1 2W 4L D WL	Urban Principal Arterial - Other	27,000	26,000	29,000	24,500	23,500	11,600	22,500	23,500	23,500	23,500	D	39,800	0.59	C	3,580				
US 1	Turnbull Bay Rd. to Canal St. (Bk. SR 4)	5160	Yes	Yes	FDOT	Yes	2.31	4	55	N+S	UA SFA1 2W 4L D WL	Urban Principal Arterial - Other	27,000	26,000	29,000	24,500	23,500	11,600	22,500	23,500	23,500	23,500	D	39,800	0.59	C	3,580				
US 1	Canal St. (Bk. SR 44) to 10th Ave.	5154	Yes	Yes	FDOT	Yes	1.52	4	35	N+S	UA SSA2 2W 4L D WL	Urban Principal Arterial - Other	28,500	28,500	28,500	27,000	26,000	25,000	24,000	22,000	21,500	18,600	D	32,400	0.57	D	2,920				
US 1	10th Ave. to Park Ave.	5168	Yes	Yes	FDOT	Yes	1.00	4	45	N+S	UA SFA1 2W 4L D WL	Urban Principal Arterial - Other	32,000	32,000	32,000	29,000	28,000	27,000	28,000	27,000	25,500	25,000	D	39,800	0.63	C	3,580				
US 1	Park Ave. to SR 442 (Indian River Blvd.)	5170	Yes	Yes	FDOT	Yes	1.49	4	45	N+S	UA SFA1 2W 4L D WL	Urban Principal Arterial - Other	31,500	31,500	31,500	29,000	29,000	27,000	27,000	26,500	25,500	25,000	D	39,800	0.63	C	3,580				
US 1	SR 442 (Indian River Blvd.) to Volco Rd.	5172	Yes	Yes	FDOT	Yes	1.40	4	45	N+S	UA SFA1 2W 4L D WL	Urban Principal Arterial - Other	31,500	31,500	31,500	29,000	29,000	27,000	27,000	26,500	25,500	25,000	D	39,800	0.63	C	3,580				
US 1	Volco Rd. to H.H. Birch Rd.	9629	Yes	Yes	FDOT	Yes	3.70	4	45	N+S	UA SFA1 2W 4L D WL	Urban Principal Arterial - Other	13,105	13,094	12,980	12,872	11,843	11,700	11,400	11,000											

Volusia County 2013 Average Annual Daily Traffic & Historical Counts																											
Road Name	Limits (From - To)	Count Station/Facility	2013 SIS Facility	Cycle 10-2 Evacuation Route	Roadway Maintaining Agency	Roadway on County's Thruway?	Distance (in miles)	2013 No. of Lanes	Posted Speed	Direction	2013 Facility Type	2000 Federal Functional Classification	2004 AADT	2005 AADT	2006 AADT	2007 AADT	2008 AADT	2009 AADT	2010 AADT	2011 AADT	2012 AADT	2013 AADT	Vol. Co. Allowable LOS	DAILY 2013 LOS Capacity	DAILY 2013 V/C Ratio	DAILY 2013 LOS	PEAK 2way LOS Capacity
SR A1A - Ocean Shore Blvd.	S. 23rd St. to Volusia Co. Line	0210-F		Yes	FDOT	Yes		45		N/S	UA UHF 2W 2L U WL	Urban Principal Arterial - Other	7,600	7,300	7,200	7,500	7,500	7,600	7,500	7,500	7,500	7,500	1,000	1,000	0.21	B	2,170
SR A1A - Ocean Shore Blvd.	Flagler Co Line to High Bridge Rd	368		Yes	FDOT	Yes	1.26	2	55	N/S	UA UHF 2W 2L U WL	Urban Principal Arterial - Other	11,400	10,500	16,300	17,100	17,300	15,100	15,700	15,500	15,300	15,800	D	24,200	0.65	C	2,170
SR A1A - Ocean Shore Blvd.	High Bridge Rd to Ormond Mall	368		Yes	FDOT	Yes	6.42	2	55	N/S	UA UHF 2W 2L U WL	Urban Principal Arterial - Other	11,400	10,500	16,300	17,100	17,300	15,100	15,700	15,500	15,300	15,800	D	24,200	0.65	C	2,170
SR A1A - Ocean Shore Blvd.	Ormond Mall to Neptune Ave	1,690		Yes	FDOT	Yes	1.69	2	40	N/S	UA UHF 2W 2L U WL	Urban Principal Arterial - Other	21,500	17,600	16,500	17,600	16,400	15,900	15,500	15,100	14,400	14,500	D	24,200	0.64	C	2,170
SR A1A - Ocean Shore Blvd.	Neptune Ave to SR 40 (Granada Blvd.)	5125		Yes	FDOT	Yes	0.70	35	N/S	UA UHF 2W 2L U WL	Urban Principal Arterial - Other	22,500	17,600	16,400	18,100	17,100	19,900	16,800	15,800	12,300	14,000	D	24,200	0.58	C	2,170	
SR 40 - Atlantic Ave. North	SR 40 to Harvard Dr.	5124		Yes	FDOT	Yes	1.70	4	35	N/S	UA SSA2 2W 4L D WL	Urban Principal Arterial - Other	20,500	19,700	19,100	18,800	17,700	19,500	16,500	16,600	17,600	16,400	D	39,800	0.41	D	2,920
SR A1A - Atlantic Ave. North	Harvard Dr. to SR430/Seabreeze Blvd.	5121		Yes	FDOT	Yes	2.53	4	35	N/S	UA SSA2 2W 4L D WL	Urban Principal Arterial - Other	18,900	21,900	20,000	24,000	20,000	18,500	17,000	17,100	16,400	17,800	D	39,800	0.45	D	2,920
SR A1A - Atlantic Ave. North	SR 430/Seabreeze Blvd. to SR430/Cedar	5117		Yes	FDOT	Yes	0.12	4	35	N/S	UA SSA2 2W 4L D WL	Urban Principal Arterial - Other	18,500	17,700	16,700	24,300	16,600	17,900	19,800	20,800	17,100	19,200	D	39,800	0.38	D	2,920
SR A1A - Atlantic Ave. North	SR 430/Oakridge Blvd. to US 92/ISS	5115		Yes	FDOT	Yes	0.90	4	35	N/S	UA SSA2 2W 4L D WL	Urban Principal Arterial - Other	15,300	16,000	15,500	21,500	23,500	17,400	17,800	15,200	16,500	17,300	D	39,800	0.43	D	2,920
SR A1A - Atlantic Ave. South	US 92 to Silver Beach Ave	5112		Yes	FDOT	Yes	0.69	4	35	N/S	UA SSA2 2W 4L D WL	Urban Principal Arterial - Other	13,200	14,600	13,300	15,400	13,300	12,800	12,200	11,200	12,000	12,200	D	39,800	0.32	C	2,920
SR A1A - Atlantic Ave. South	Silver Beach Ave. to Florida Shores	436		Yes	FDOT	Yes	2.34	4	35	N/S	UA SSA2 2W 4L D WL	Urban Principal Arterial - Other	18,000	16,000	19,500	18,900	10,500	11,400	10,100	10,700	10,400	12,500	D	39,800	0.31	C	2,920
SR A1A - Atlantic Ave. South	Florida Shores to Van Ave	5179		Yes	FDOT	Yes	1.29	4	35	N/S	UA SSA2 2W 4L D WL	Urban Principal Arterial - Other	14,400	15,500	13,900	14,900	16,900	11,800	16,000	13,800	11,400	12,800	D	39,800	0.32	C	2,920
SR A1A - Atlantic Ave. South	Van Ave. to SR A1A/Dunlawton Ave.	477		Yes	FDOT	Yes	1.05	4	35	N/S	UA SSA2 2W 4L D WL	Urban Principal Arterial - Other	23,500	17,400	18,800	13,000	16,700	15,800	15,500	13,700	11,200	12,500	D	39,800	0.31	C	2,920
SR A1A - Dunlawton Ave.	SR A1A/Atlantic Ave. to US 1	427		Yes	FDOT	Yes	1.25	4	35	E/W	UA SSA2 2W 4L D WL	Urban Principal Arterial - Other	28,000	28,500	29,000	29,500	30,000	27,000	27,000	26,000	25,000	26,000	E	39,800	0.65	D	3,040
SR 5A - Nova Rd.	US 1 to Wilmette Ave.	459		Yes	FDOT	Yes	1.00	4	45	N/S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	10,600	11,800	15,900	14,700	14,000	13,400	12,800	12,300	12,400	D	39,800	0.31	C	3,580	
SR 5A - Nova Rd.	Wilmette Ave. to SR 40	518		Yes	FDOT	Yes	0.51	6	45	N/S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	21,500	21,500	24,500	26,000	24,500	23,000	23,000	24,000	23,500	23,500	D	39,800	0.39	C	3,580
SR 5A - Nova Rd.	SR 40 to Hand Ave	510		Yes	FDOT	Yes	1.15	6	45	N/S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	19,000	23,500	29,000	29,500	29,000	27,500	28,500	24,000	28,500	27,500	D	39,800	0.46	C	3,580
SR 5A - Nova Rd.	Hand Ave. to LPGA Blvd.	526		Yes	FDOT	Yes	2.06	6	45	N/S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	20,500	25,000	31,000	31,000	30,500	29,000	29,000	28,000	28,000	26,000	D	39,800	0.43	C	3,580
SR 5A - Nova Rd.	LPGA Blvd. to SR 430/Mason Blvd	568		Yes	FDOT	Yes	1.47	6	45	N/S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	24,500	32,500	31,500	31,000	32,500	30,000	29,500	27,500	27,000	25,500	D	39,800	0.43	C	3,580
SR 5A - Nova Rd.	SR 430/Mason Ave. to US 92/ISS	5088		Yes	FDOT	Yes	1.22	6	45	N/S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	34,000	36,000	35,000	35,000	32,000	33,500	32,000	30,000	30,000	31,000	D	39,800	0.52	C	3,580
SR 5A - Nova Rd.	US 92/ISS to Bellevue Ave.	5090		Yes	FDOT	Yes	1.07	6	45	N/S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	38,000	41,000	38,500	38,000	34,500	35,000	32,000	32,000	33,000	31,000	D	39,800	0.55	C	3,580
SR 5A - Nova Rd.	Bellevue Ave. to SR 400/Beville Rd.	348		Yes	FDOT	Yes	1.00	6	50	N/S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	38,000	40,000	39,000	38,000	37,000	34,500	35,000	34,000	33,000	33,000	D	39,800	0.55	C	3,580
SR 5A - Nova Rd.	SR 400/Beville Rd. to Big Tree	363		Yes	FDOT	Yes	0.70	6	50	N/S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	28,500	30,000	30,000	28,500	29,000	27,500	28,500	27,000	25,500	26,500	D	39,800	0.44	C	3,580
SR 5A - Nova Rd.	Big Tree to Madeline Ave	363		Yes	FDOT	Yes	1.81	6	50	N/S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	28,500	30,000	30,000	28,500	29,000	27,500	28,500	27,000	25,500	26,500	D	39,800	0.53	C	3,580
SR 5A - Nova Rd.	Madeline Ave. to SR 421/Dunlawton Ave	1013		Yes	FDOT	Yes	1.30	4	45	N/S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	23,000	25,000	26,000	26,000	26,500	26,500	27,000	26,500	25,500	26,000	D	39,800	0.65	C	3,580
SR 5A - Nova Rd.	SR 421/Dunlawton Ave. to Spruce Creek	1016		Yes	FDOT	Yes	1.08	4	45	N/S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	23,500	23,500	25,500	24,500	24,500	25,000	25,500	23,500	25,000	24,500	D	39,800	0.62	C	3,580
SR 5A - Nova Rd.	Spruce Creek Rd. to US 1	458		Yes	FDOT	Yes	1.44	4	45	N/S	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	10,500	16,400	17,400	16,500	17,100	16,700	16,500	16,300	16,800	16,300	D	39,800	0.42	C	3,580
SR 11	CR 304 (in Flagler Co.) to SR 40	0009-F			FDOT	Yes	2.42	2	60	N/S	RUUA UHF 2W 2L U WL	Rural Principal Arterial - Other	3,100	3,100	3,000	3,200	2,600	2,400	2,200	2,000	2,200	2,100	C	6,300	0.33	B	590
SR 11	SR 40 to CR 15A	527			FDOT	Yes	9.18	2	60	N/S	RUUA UHF 2W 2L U WL	Rural Principal Arterial - Other	2,700	3,200	3,000	3,100	2,700	2,600	2,600	2,700	2,700	2,800	C	6,300	0.44	B	590
SR 11	CR 15A to US 17	4			FDOT	Yes	2.45	2	55	N/S	UA UHF 2W 2L U WL	Urban Principal Arterial - Other	6,500	7,200	7,200	6,800	6,500	6,400	6,000	6,100	6,000	6,300	D	24,200	0.26	B	2,170
SR 15A	US 17 to Glenwood Rd.	466	Yes		FDOT	Yes	1.11	4	50	N/S	UA SSA1 2W 4L D WL	Urban Minor Arterial	11,000	11,600	10,900	11,400	10,600	10,800	10,700	10,300	10,200	10,600	C	37,500	0.28	C	3,420
SR 15A	Glenwood Rd. to CR 62	463			FDOT	Yes	1.20	4	50	N/S	UA SSA1 2W 4L D WL	Urban Minor Arterial	13,700	15,000	13,700	15,100	13,800	14,000	13,800	13,800	13,100	13,600	C	37,500	0.36	C	3,420
SR 15A	CR 62 to Plymouth Ave.	537	Yes		FDOT	Yes	0.83	4	55	N/S	UA SSA1 2W 4L D WL	Urban Minor Arterial	21,000	24,000	23,000	23,500	22,500	22,500	22,500	22,500	21,800	21,500	C	37,500	0.37	C	3,420
SR 15A	Plymouth Ave. to SR 44/New York Ave.	463	Yes		FDOT	Yes	1.01	4	45	N/S	UA SSA1 2W 4L D WL	Urban Minor Arterial	26,000	26,000	27,000	26,000	26,500	25,500	23,500	21,800	23,000	23,000	C	37,500	0.61	C	3,420
SR 15A	SR 44/New York Ave. to Bereford Ave.	474	Yes		FDOT	Yes	1.00	4	45	N/S	UA SSA1 2W 4L D WL	Urban Minor Arterial	27,500	25,500	24,500	24,500	23,500	22,500	22,500	21,500	21,000	22,000	C	37,500	0.58	C	3,420
SR 15A	Bereford Ave. to New Hampshire Ave.	458	Yes		FDOT	Yes	0.58	4	45	N/S	UA SSA1 2W 4L D WL	Urban Minor Arterial	22,500	22,500	22,500	21,000	21,000	21,000	21,000	21,000	20,500	20,500	C	37,500	0.54	C	3,420
SR 15A	New Hampshire Ave. to US 17/92	1005	Yes		FDOT	Yes	1.17	4	45	N/S	UA SSA1 2W 4L D WL	Urban Minor Arterial	20,000	22,000	22,500	22,000	21,000	21,000	19,100	19,100	20,500	20,500	C	37,500	0.54	C	3,420
SR 40	W. of the St. Johns River	0050-L	Yes	Yes	FDOT			2	45	E/W	RDA UHF 2W 2L U WL	Rural Principal Arterial - Other	8,400	8,800	8,700	8,300	7,200	7,500	7,100	6,800	6,400	7,300	C	16,400	0.45	B	1,550
SR 40	Lake County to Emporia Rd.	533	Yes		FDOT	Yes	0.86	2	55	E/W	RDA UHF 2W 2L U WL	Rural Principal Arterial - Other	7,600	7,300	7,600	7,700	7,600	7,700	6,800	7,000	6,800	7,300	C	16,400	0.38	B	1,550
SR 40	Emporia Rd. to US 17	344	Yes		FDOT	Yes	5.58	2	55	E/W	RDA UHF 2W 2L U WL	Rural Principal Arterial - Other	6,600	6,900	7,500	8,300	7,200	7,000	6,500	6,500	6,000	5,900	C	16,400	0.36	B	1,550
SR 40	US 17 to SR 11	530	Yes		FDOT	Yes	6.69	2	60	E/W	RDA UHF 2W 2L U WL	Rural Principal Arterial - Other	5,400	5,600	5,800	6,000	5,800	5,700	6,000	4,800	5,400	5,500	C	16,400	0.34	B	1,550
SR 40	SR 11 to Pinto Lane	530	Yes		FDOT	Yes	6.63	2	60	E/W	RDA UHF 2W 2L U WL	Rural Principal Arterial - Other	5,400	5,600	5,800	6,000	5,800	5,700	6,000	4,800	5,400	5,500	C	16,400	0.34	B	1,550
SR 40	Pinto Lane to Rima Ridge Rd (urban boulevard)	523	Yes		FDOT	Yes	1.25	4	60	E/W	UA SSA1 2W 4L D WL	Rural & Urban Principal Arterial - Other	12,400	13,500	13,500	11,200	10,800	10,800	10,000	10,600	9,400	9,400	C	37,500	0.25	C	3,420
SR 40	Rima Ridge Rd to Tymber Creek Rd	499	Yes		FDOT	Yes	4.36	4	60	E/W	UA SSA1 2W 4L D WL	Urban Principal Arterial - Other	30,000	28,500	28,000	28,500	28,500	29,000	27,000	27,000	26,500	27,000	C	37,500	0.71	C	3,420
SR 40	Tymber Creek Rd. to I-95	499</																									

Volusia County 2013 Average Annual Daily Traffic & Historical Counts																													
Road Name	Limits (From - To)	Count Station Number	2013 SIS Facility	Cycle 10-2 Evacuation Route	Roadway Maintaining Agency	2013 Roadway on County's Thoroughfare	Distance (in miles)	2013 No. of Lanes	Posted Speed	Direction	2013 Facility Type	2000 Federal Functional Classification	2004 AADT	2005 AADT	2006 AADT	2007 AADT	2008 AADT	2009 AADT	2010 AADT	2011 AADT	2012 AADT	2013 AADT	Vol. Co. Allowable LOS	DAILY 2013 LOS Capacity	DAILY 2013 VIC Ratio	DAILY 2013 LOS	PEAK 2013 LOS Capacity		
SR 430 - Mason Ave.	SR 483/Clyde Morris Blvd to SR 5A/Nov	5197	Yes	FDOT	Yes		0.99	4	35	E+W	JA SSAC2 2W 4L U DL	Urban Minor Arterial	21,500	21,000	19,600	20,300	20,300	20,100	18,200	18,200	17,800	18,200	D	24,300	0.75	D	2,190		
SR 430 - Mason Ave.	SR 5A/Nov Rd. to US 1	5197	Yes	FDOT	Yes		1.08	4	35	E+W	JA SSAC2 2W 4L U DL	Urban Minor Arterial	21,500	21,000	19,600	20,300	20,300	20,100	18,200	18,200	17,800	18,200	D	24,300	0.75	D	2,190		
SR 430 - Mason Ave.	US 1 to Beach St	5197	Yes	FDOT	Yes		0.30	4	35	E+W	JA SSAC2 2W 4L U DL	Urban Minor Arterial	21,500	21,000	19,600	20,300	20,300	20,100	18,200	18,200	17,800	18,200	D	24,300	0.68	D	2,190		
SR 430 - Oakridge Blvd. - EB	Beach St. to Peninsula Dr	5194		FDOT	Yes		0.70	2	40	E+W	JA SSAC1 1W 2L D WL	Urban Minor Arterial	6,300	6,800	6,700	6,400	7,000	6,800	6,000	5,500	5,500	5,500	D	23,880	0.23	C	2,190		
SR 430 - Oakridge Blvd. - EB	Peninsula Dr to SR 1A1A/Atlantic	5195		FDOT	Yes		0.28	2	40	E+W	JA SSAC1 1W 2L D WL	Urban Minor Arterial	4,500	5,300	4,600	5,300	5,000	5,500	4,800	4,700	3,600	4,100	D	23,880	0.17	C	2,190		
SR 430 - Seabreeze Bridge - WB	Beach St. to Peninsula Dr	5196	Yes	FDOT	Yes		1.01	2	40	E+W	JA SSAC1 1W 2L D WL	Urban Minor Arterial	11,000	11,500	10,000	10,500	11,000	11,000	9,900	17,800	16,800	16,800	D	23,880	0.75	C	2,190		
SR 430 - Seabreeze Bridge - WB	Peninsula Dr to SR 1A1A/Atlantic	5191	Yes	FDOT	Yes		0.29	2	30	E+W	JA SSAC2 2W 2L U DL	Urban Minor Arterial	5,500	5,500	4,800	5,900	6,500	6,300	5,000	5,300	4,900	4,900	D	19,440	0.25	C	1,400		
SR 441 - Peninsula Dr.	US 92/ISB to Silver Beach Ave	5187		FDOT	Yes		0.65	2	35	N+S	JA SSAC1 2W 2L U WL	Urban Minor Arterial	11,200	12,200	12,100	11,100	10,600	9,900	9,400	8,700	9,400	9,300	D	17,700	0.53	C	1,600		
SR 441 - Peninsula Dr.	Silver Beach Ave. to Florida Shores	5187		FDOT	Yes		2.34	2	35	N+S	JA SSAC1 2W 2L U WL	Urban Minor Arterial	11,200	12,200	12,100	11,100	10,600	9,900	9,400	8,700	9,400	9,300	D	17,700	0.53	C	1,600		
SR 441 - Peninsula Dr.	Florida Shores to SR 1A1A/Dunlawton	5188		FDOT	Yes		2.42	2	40	N+S	JA SSAC1 2W 2L U WL	Urban Minor Arterial	6,400	7,000	7,100	6,700	6,800	6,100	6,000	5,600	5,300	5,400	D	17,700	0.31	C	1,600		
SR 442 - Indian River Blvd.	US to Air Park Rd.	710	Yes	FDOT	Yes		2.09	4	55	E+W	IA SSAC1 2W 4L D WL	Rural Minor Arterial	9,379	9,700	10,000	9,647	8,972	9,200	9,300	8,900	9,500	9,620	C	35,500	0.28	C	3,060		
SR 442 - Indian River Blvd.	Air Park Rd. to US 1	5150	Yes	FDOT	Yes		1.65	4	45	E+W	JA SSAC1 2W 4L D WL	Urban Minor Arterial	18,400	18,800	20,200	17,300	17,800	16,800	17,700	16,400	16,100	16,800	D	39,800	0.42	C	3,580		
SR 472	US 17/92 to CR 4101/MLK Blvd	472		FDOT	Yes		2.31	4	60	E+W	UA UHF 2W 4L D WL	Urban Principal Arterial - Other	19,200	20,100	21,400	20,800	18,900	19,200	20,200	19,700	20,100	21,000	D	65,600	0.32	B	5,900		
SR 472	CR 4101/MLK Blvd to LA end of state rd	535		FDOT	Yes		1.10	4	60	E+W	UA SSAC1 2W 4L D WL	Urban Principal Arterial - Other	23,500	27,000	28,000	27,000	25,500	24,000	24,500	22,000	24,500	24,000	D	39,800	0.60	C	3,580		
SR 483 - Clyde Morris Blvd.	SR 430 (Mason Ave.) to US 92/ISB	5182		FDOT	Yes		1.20	4	45	N+S	JA SSAC1 2W 4L U WL	Urban Principal Arterial - Other	21,500	22,000	20,500	20,500	18,400	17,700	18,300	20,000	18,100	18,000	D	37,800	0.50	C	3,400		
SR 483 - Clyde Morris Blvd.	US 92/ISB to Avallion Cir Pkwy/Belleve	5193		FDOT	Yes		1.20	4	45	N+S	JA SSAC1 2W 4L U WL	Urban Principal Arterial - Other	34,000	34,000	34,000	32,000	31,500	26,500	31,000	30,500	27,000	26,000	D	37,800	0.69	C	3,400		
SR 483 - Clyde Morris Blvd.	Avallion Cir Pkwy/Belleve to SR 400/3A	5193		FDOT	Yes		0.98	4	45	N+S	JA SSAC1 2W 4L U WL	Urban Principal Arterial - Other	34,000	34,000	34,000	32,000	31,500	26,500	31,000	30,500	27,000	26,000	D	37,800	0.69	C	3,400		
6th St.	Derbyshire Rd. to SR 5A/Nov Rd	11	County	No			0.50	2	30	E+W	JA NSSRC2 2W 2L U DL	Urban Collector	3,480	3,580	3,470	3,640	2,970	2,610	2,820	2,980	2,780	2,710	E	13,640	0.20	C	1,020		
6th St.	Derbyshire Rd. to SR 5A/Nov Rd	21	City	No			0.50	2	30	E+W	JA NSSRC2 2W 2L U DL	Urban Collector	4,270	3,670	3,670	3,950	3,330	3,090	2,850	2,790	2,530	-	E	13,640	-	-	1,020		
13th St.	Derbyshire Rd. to SR 5A/Nov Rd	31	County	No			0.50	2	30	E+W	JA NSSRC2 2W 2L U DL	Urban Collector	2,980	2,610	2,250	2,520	2,360	1,900	2,060	2,090	1,600	1,700	E	13,640	0.12	C	1,020		
Adelle Ave.	Beresford Ave. to New Hampshire Ave.	43	County	No			0.50	2	30	N+S	JA NSSRC2 2W 2L U DL	Urban Collector	2,930	3,120	2,970	3,540	2,310	2,850	2,290	2,530	2,410	2,650	E	13,640	0.19	C	1,020		
Adelle Ave.	New Hampshire Ave. to SR 15A	41	County	No			0.50	2	30	N+S	JA NSSRC2 2W 2L U DL	Urban Collector	700	660	650	780	590	300	270	320	320	330	E	13,640	0.02	C	1,020		
Air Park Rd.	Park Ave. to Rags Rd	52	County	Yes			0.87	2	40	N+S	JA UHF 2W 2L U DL	n/c	1,030	1,470	1,410	920	2,080	2,030	1,700	2,030	2,100	2,270	E	24,975	0.09	B	2,240		
Air Park Rd.	Rags Rd. to SR 442	50	County	Yes			0.56	2	40	N+S	JA UHF 2W 2L U DL	n/c	710	1,000	910	1,440	1,340	1,840	1,470	1,840	2,060	2,060	E	24,975	0.08	B	2,240		
Airport Rd. (OB)	Timber Creek Rd. to Pineland Tr.	60	County	Yes			2.05	2	35	E+W	JA UHF 2W 2L U DL	Urban Collector	6,300	6,310	4,930	5,500	4,910	5,630	5,290	5,020	5,680	5,230	E	24,975	0.21	B	2,240		
Airport Rd. (OB)	Pineland Tr. to Sunshine Blvd.	62	County	Yes			1.40	2	45	N+S	JA UHF 2W 2L U DL	Urban Collector	6,650	5,520	4,760	4,970	4,360	4,490	4,460	4,400	5,040	4,670	E	24,975	0.19	B	2,240		
Airport Rd. (OB)	Sunshine Blvd. to US 1	63	County	Yes			0.30	2	35	E+W	JA UHF 2W 2L U DL	Urban Collector	8,050	7,830	6,330	6,700	7,380	7,190	6,640	6,780	7,640	7,090	E	24,975	0.28	C	2,240		
Airport Rd. (PO)	Williamson Blvd to Pioneer Tr.	64	County	Yes			2.50	2	45	N+S	JA UHF 2W 2L U WL	Urban Collector	3,310	5,000	5,200	6,330	5,430	5,440	6,000	6,160	6,040	6,000	E	33,300	0.18	B	2,900		
Airport Rd. (NSB)	Pioneer Tr. to Luna Bella Ln	67	City	Yes			3.30	2	45	N+S	JA UHF 2W 2L D WL	n/c	-	-	-	-	-	2,730	2,690	3,110	3,300	3,320	E	34,965	0.09	B	3,140		
Airport Rd. (NSB)	Luna Bella Ln to SR 44	68	City	Yes			3.30	2	45	N+S	JA UHF 2W 2L D WL	n/c	-	-	-	-	-	2,730	1,040	2,250	2,170	2,770	E	34,965	0.08	B	3,140		
Arnella Ave.	US 92 to Plymouth Ave.	77	County	Yes			0.85	2	35	N+S	JA NSSRC2 2W 2L U WL	Urban Collector	7,010	7,030	7,370	6,960	7,710	7,920	7,340	6,610	6,080	6,700	E	14,040	0.48	D	1,270		
Arnella Ave.	Plymouth Ave. to Minnesota Ave.	75	County	Yes			0.50	2	30	N+S	JA NSSRC2 2W 2L U WL	Urban Collector	13,080	13,850	11,950	12,920	12,620	11,570	10,610	10,230	10,990	E	14,040	0.75	D	1,270			
Arnella Ave.	Minnesota Ave. to Ohio Ave.	74	County	Yes			0.15	2	30	N+S	JA NSSRC2 2W 2L U WL	Urban Collector	12,570	13,550	12,500	11,680	12,300	11,440	10,310	10,260	10,380	E	13,640	0.76	D	1,020			
Arnella Ave.	Ohio Ave. to SR 44	73	County	Yes			0.15	4	30	N+S	JA NSSRC2 2W 4L U WL	Urban Collector	13,150	13,340	12,420	13,300	11,080	11,900	10,810	10,380	10,580	E	22,820	0.47	D	2,060			
Arnella Ave.	SR 44 to Voomhis Ave.	71	City	No			0.25	4	30	N+S	JA NSSRC2 2W 4L U DL	Urban Collector	10,840	11,010	10,610	9,750	8,950	9,570	9,820	8,590	8,680	E	22,820	0.42	C	2,060			
Arnella Ave.	Voomhis Ave. to Beresford Ave.	70	City	No			0.75	2	30	N+S	JA NSSRC2 2W 2L U DL	Urban Collector	5,250	5,580	5,390	5,970	6,770	7,280	6,650	7,000	7,070	5,940	E	13,640	0.51	D	1,020		
Anderson Dr./Cloverleaf Blvd.	Cloverleaf Blvd. to Providence Blvd.	85	County	No			1.00	2	35	N+S	JA NSSRC2 2W 2L U DL	n/c	3,200	3,260	3,250	2,943	-	-	-	-	-	DELT	-	E	13,640	-	-	1,020	
Anel Rd.	Beacon Light Rd. to US 1	91	County	No			1.20	2	35	E+W	IA NSSRC2 2W 2L U DL	Rural Local	650	730	680	590	530	530	500	560	540	540	E	10,220	0.05	C	920		
Arredondo Grant Rd.	Spring Garden Ranch Rd. to James St	100	County	Yes			0.60	2	30	E+W	RUA UHF 2W 2L U DL	Rural Major Collector & Urban Collector	790	590	1,160	1,090	980	1,130	1,050	1,100	1,140	1,020	C	6,300	0.16	B	590		
Arredondo Grant Rd.	James St. to SR 11	101	County	Yes			2.00	2	35	E+W	RUA UHF 2W 2L U DL	Rural Collector	2,840	230	590	550	460	460	450	510	580	600	C	6,300	0.10	B	590		
Atlantic Ave. (DBS)	SR 1A1A/Dunlawton Ave. to Phillips Ave.	115	Yes	County	Yes		0.40	4	35	N+S	JA NSSRC2 2W 4L D WL	Urban Collector	13,670	13,010	17,620	14,180	11,530	12,400	14,380	9,170	13,680	13,050	E	30,420	0.43	C	2,740		
Atlantic Ave. (DBS)	Phillips Ave. to Marcella Ave.	113	Yes	County	Yes		0.75	2	35	N+S	JA NSSRC2 2W 2L U WL	Urban Collector	11,270	11,340	13,370	11,280	9,360	10,110	12,930	8,250	11,990	11,760	E	14,740	0.80	D	1,330		
Atlantic Ave. (DBS)	Marcella Ave. to Major St	112	Yes	County	Yes		1.30	2	35	N+S	JA NSSRC2 2W 2L U DL	Urban Collector	9,760	10,350	10,470	9,800	8,020	8,580	10,480	6,780	9,420	9,420	E	13,640	0.69	D	1,020		
Atlantic Ave. (PH)	Major St to Beach St	110	Yes	County	Yes		2.80	2	35	N+S	JA NSSRC2 2W 2L U DL	Urban Collector	2,950	1,580	2,760	2,900	2,330	2,410	3,190	1,760	2,930	2,910	E	13,640	0.21	C	1,020		
Atlantic Ave/Turtle Mound Rd.	Flagler Ave. (N. Causeway) to 6th Ave.	123	Yes	City	Yes		1.25	2	35	N+S	JA NSSRC2 2W 2L D WL	Urban Principal Arterial - Other	3,620	3,090	4,190	3,760	5,020	3,410	3,860	2,760	3,350	-	E	14,740	-	-	1,330		
Atlantic Ave/Turtle Mound Rd.	6th Ave. to 27th Ave.	122	Yes	County	Yes		1.48	4	45	N+S	JA NSSRC1 2W 4L D WL	Urban Principal Arterial - Other	17,530	14,800	18,250	19,070	13,580	16,840	16,200	13,430	16,510	14,660	E	37,970	0.38	C	3,470		
Atlantic Ave/Turtle Mound Rd.	27th Ave. to Hiles Blvd.	120	Yes	County	Yes		1.55	2	45	N+S	JA NSSRC1 2W 2L U WL																		

Volusia County 2013 Average Annual Daily Traffic & Historical Counts																												
Route Name	Limits (From - To)	Count Station Number	2013 SIS Facility	Cycle 10-2 Evacuation Route	Roadway Maintaining Agency	2013 County's Thoroughfare	Distance (in miles)	2013 No. of Lanes	Posted Speed	Direction	2013 Facility Type	2000 Federal Functional Classification	2004 AADT	2005 AADT	2006 AADT	2007 AADT	2008 AADT	2009 AADT	2010 AADT	2011 AADT	2012 AADT	2013 AADT	Vol. Co. Allowable LOS	DAILY 2013 LOS Capacity	DAILY 2013 V/C Ratio	DAILY 2013 LOS	PEAK 2way 2013 LOS Capacity	
Big Tree Rd.	Magdolna Ave. to Kenilworth Ave.	195	Yes		County	Yes	0.45	2	35	E-W	UA NSSR2C 2W 2L D WL	Urban Collector	9,850	13,710	12,120	13,530	11,640	11,180	11,310	10,850	10,160	9,290	E	14,740	0.63	D	1,330	
Big Tree Rd.	Kenilworth Ave. to US 1	196	Yes		County	Yes	0.55	2	35	E-W	UA NSSR2C 2W 2L D WL	Urban Collector	10,020	9,190	8,400	9,450	9,260	8,190	7,010	7,270	6,790	6,570	E	14,740	0.45	C	1,330	
Bill France Blvd.	Clyde Morris Blvd. to Mason Ave.	202	Yes		City	No	0.38	4	45	N+S	UA NSSR1C 2W 4L D WL	Urban Collector	5,550	7,330	6,630	7,680	7,050	5,750	5,650	5,230	4,970	5,140	E	37,970	0.14	C	3,410	
Bill France Blvd.	Mason Ave. to Dunn Ave.	201	Yes		City	No	0.63	4	40	N+S	UA NSSR1C 2W 4L D WL	Urban Collector	9,600	11,150	10,560	11,820	11,290	8,930	8,900	7,960	7,790	7,950	E	37,970	0.21	C	3,410	
Bill France Blvd.	Dunn Ave. to US 92	200	Yes		City	No	0.60	4	35	N+S	UA NSSR2C 2W 4L D WL	Urban Collector	12,450	16,110	13,740	15,020	13,920	10,260	11,410	10,250	10,750	11,210	E	28,600	0.39	C	2,600	
Blackburn Rd.	CR 3 to Emporia Rd.	211			County	No	1.25	2	35	N+S	RUA UFH 2W 2L U OL	Rural Minor Collector	590	680	680	750	660	730	680	550	550	550	C	6,300	0.09	B	590	
Blackwelder Rd.	Lake Winona Rd. to SR 11	221			County	No	3.25	2	35	E+W	RUA UFH 2W 2L U OL	Rural Local	210	270	400	420	200	240	190	180	180	170	C	6,300	0.03	B	590	
Blue Lake Ave.	Plymouth Ave. to Minnesota Ave.	237			County	Yes	1.00	2	40	N+S	UA NSSR1C 2W 2L U OL	Urban Collector	4,270	4,900	3,960	7,690	5,460	5,090	5,100	5,780	5,380	5,200	E	13,640	0.38	C	1,230	
Blue Lake Ave.	Minnesota Ave. to SR 44	236			County	Yes	0.55	2	30	N+S	UA NSSR2C 2W 2L U OL	Urban Collector	2,760	3,430	3,650	3,530	4,230	3,920	3,760	4,330	4,190	4,060	E	13,640	0.30	C	1,020	
Blue Lake Ave.	SR 44 to Voomie Ave.	235			County	Yes	0.25	2	30	N+S	UA NSSR2C 2W 2L U OL	Urban Collector	2,660	3,250	2,900	3,760	3,200	3,260	3,200	3,480	3,520	3,370	E	13,640	0.25	C	1,020	
Blue Lake Ave.	Voomie Ave. to Beresford Ave.	234			County	Yes	0.75	2	30	N+S	UA NSSR2C 2W 2L U OL	Urban Collector	3,600	4,160	3,710	4,690	4,140	3,950	3,940	4,160	4,310	4,010	E	13,640	0.29	C	1,020	
Blue Lake Ave.	Beresford Ave. to Taylor Rd.	232			County	Yes	1.05	2	45	N+S	UA NSSR1C 2W 2L U OL	Urban Collector	4,000	4,860	4,840	6,280	5,280	4,970	4,890	5,200	5,730	5,440	E	13,640	0.40	C	1,230	
Blue Lake Ave.	Taylor Rd. to Orange Camp Rd.	231			County	Yes	1.05	2	45	N+S	UA NSSR1C 2W 2L U WL	Urban Collector	4,040	4,550	3,440	5,440	4,290	4,190	4,130	4,110	4,250	3,980	E	17,050	0.23	C	1,540	
Blue Springs Av (West)	Sparkman Dr to Lawton Dr	239			County	No	0.60	2	35	E-W	UA NSSR2C 2W 2L U OL	Urban Collector	-	-	-	7,260	6,940	7,710	6,120	5,830	5,410	5,080	E	13,640	0.37	C	1,020	
Brownlee Rd.	Raulerson Rd. #1 to Raulerson Rd.	240			County	No	1.70	2	35	N+S	RUA UFH 2W 2L U OL	Urban Collector	190	210	210	250	140	100	260	140	180	180	C	6,300	0.03	B	590	
Captain Dr.	Lake Helen-Osteen Rd. to Snow Dr	DLT-15-000			City	No	0.50	2	35	E+W	UA NSSR2C 2W 2L U OL	Urban Local	4,370	4,630	4,700	6,115	4,912	-	-	-	-	-	E	13,640	-	-	1,020	
Captain Dr.	Snow Dr to Courtland Blvd	DLT-15-010			City	No	1.00	2	35	E+W	UA NSSR2C 2W 2L U OL	Urban Local	2,620	2,190	2,240	3,562	3,340	-	-	-	-	-	E	13,640	-	-	1,020	
Cardinal Blvd	SR 421/Dunbarton Ave. to Marcella Ave	260			County	No	0.15	2	30	N+S	UA NSSR2C 2W 2L U OL	Urban Collector	4,770	2,590	2,780	3,370	4,530	4,630	5,090	5,160	4,740	E	13,640	0.35	C	1,020		
Cardinal Blvd	Marcella Ave to Major St.	261			County	No	2.00	2	30	N+S	UA NSSR2C 2W 2L U OL	Urban Collector	1,530	-	430	1,120	1,100	940	940	790	870	730	E	13,640	0.05	C	1,020	
Carter Rd.	SR 11 to Marsh Rd.	270			County	No	1.75	2	40	E+W	UA NSSR1C 2W 2L U OL	Urban Collector	1,440	1,500	1,540	1,340	1,400	1,470	1,540	1,400	1,460	1,420	E	13,640	0.10	C	1,230	
Cassadaga Rd.	W. Volusia Bldwy. to Macy Ave.	280			County	Yes	1.80	2	30	N+S	UA NSSR2C 2W 2L U OL	Urban Collector	2,340	2,490	2,410	2,380	1,670	2,170	2,100	1,970	2,190	2,010	E	13,640	0.15	C	1,020	
Catalina Blvd	Howland Blvd. to Sigma Rd.	DLT-20-020			City	No	0.50	2	35	N+S	UA NSSR2C 2W 2L U OL	Urban Local	9,560	11,560	12,750	15,799	12,089	-	-	-	-	-	11,700	E	13,640	0.86	E	1,020
Catalina Blvd	Sigma Rd. to Lake Helen-Osteen Rd.	DLT-20-030			City	No	0.40	2	35	N+S	UA NSSR2C 2W 2L U OL	Urban Local	8,440	9,700	10,120	9,400	10,733	-	-	-	-	-	9,780	E	13,640	0.72	D	1,020
Clara Ave.	Beresford Ave. to New Hampshire Ave.	303			County	No	0.50	2	30	N+S	UA NSSR2C 2W 2L U OL	Urban Collector	2,870	2,690	2,490	2,840	2,390	1,350	1,910	2,070	2,040	2,270	E	13,640	0.17	C	1,020	
Clara Ave.	New Hampshire Ave. to SR 15A	301			County	No	0.50	2	30	N+S	UA NSSR2C 2W 2L U OL	Urban Collector	1,630	1,710	1,570	1,800	1,760	1,410	1,540	1,640	1,640	1,850	E	13,640	0.14	C	1,020	
Clifton Rd.	Lake Winona Rd. to SR 11	311			County	No	1.70	2	30	E+W	RUA UFH 2W 2L U OL	Rural Local	150	140	180	250	180	200	180	190	160	170	C	6,300	0.03	B	590	
Clyde Morris Blvd	SR 40 to Hand Ave.	348			County	Yes	0.80	4	35	N+S	UA NSSR2C 2W 4L D WL	Urban Principal Arterial - Other	15,160	16,050	16,390	18,450	12,060	12,220	13,030	12,340	11,940	11,230	E	30,420	0.37	C	2,740	
Clyde Morris Blvd	Hand Ave. to LPGA Blvd.	343			County	Yes	1.50	4	50	N+S	UA NSSR1C 2W 4L D WL	Urban Principal Arterial - Other	13,960	15,090	15,640	17,560	11,790	11,970	13,060	14,070	13,560	12,880	E	37,970	0.32	C	3,410	
Clyde Morris Blvd	LPGA Blvd. to Bill France Blvd.	341			County	Yes	1.25	4	50	N+S	UA NSSR1C 2W 4L D WL	Urban Principal Arterial - Other	18,110	15,430	15,020	17,890	12,700	12,660	13,060	13,450	12,990	12,290	E	37,970	0.32	C	3,410	
Clyde Morris Blvd	Bill France Blvd. to Mason Ave.	340			County	Yes	0.60	4	45	N+S	UA NSSR1C 2W 4L D WL	Urban Principal Arterial - Other	13,330	14,470	14,390	16,700	12,420	12,610	13,630	13,140	12,310	11,990	E	37,970	0.32	C	3,410	
Clyde Morris Blvd/SR 483	SR 430/Mason Ave. to US 92	5182			FDOT	Yes	1.20	4	45	N+S	UA SSAC1 2W 4L U WL	Urban Principal Arterial - Other	21,500	22,000	20,500	20,500	18,400	17,700	18,300	20,000	18,100	18,000	D	37,800	0.50	C	3,400	
Clyde Morris Blvd /SR 483	US 92 to Killeen Rd.	5193			FDOT	Yes	2.00	4	45	N+S	UA SSAC1 2W 4L U WL	Urban Principal Arterial - Other	34,000	34,000	34,000	32,000	31,500	28,500	31,000	30,500	27,000	26,000	D	37,800	0.69	C	3,400	
Clyde Morris Blvd	Beville Rd. to Big Tree Rd.	337			County	Yes	0.90	4	45	N+S	UA NSSR1C 2W 4L D WL	Urban Principal Arterial - Other	26,000	25,570	25,470	28,340	24,640	23,350	23,290	24,600	22,880	21,790	E	37,970	0.57	C	3,410	
Clyde Morris Blvd	Big Tree Rd. to Madeline Ave.	335			County	Yes	1.00	4	45	N+S	UA NSSR1C 2W 4L D WL	Urban Principal Arterial - Other	23,870	25,290	25,040	27,880	22,640	21,970	23,010	24,200	22,260	20,800	E	37,970	0.55	C	3,410	
Clyde Morris Blvd	Madeline Ave. to Willow Run Blvd.	333			County	Yes	0.90	4	45	N+S	UA NSSR1C 2W 4L D WL	Urban Principal Arterial - Other	24,820	24,860	24,690	27,250	25,290	21,200	22,130	22,750	21,460	20,000	E	37,970	0.53	C	3,410	
Clyde Morris Blvd	Willow Run Blvd. to SR 421/Dunbarton Ave	332			County	Yes	0.65	4	45	N+S	UA NSSR1C 2W 4L D WL	Urban Principal Arterial - Other	25,150	22,850	22,850	24,710	22,850	19,810	21,310	19,060	18,420	16,940	E	37,970	0.48	C	3,410	
Clyde Morris Blvd	SR 421/Dunbarton Ave. to Taylor Rd.	330			County	Yes	0.95	2	40	N+S	UA NSSR2C 2W 2L U WL	Urban Minor Arterial	11,980	11,440	11,390	12,670	8,730	10,300	10,530	10,060	9,900	9,190	E	17,050	0.54	C	1,540	
Commonwealth Blvd.	Sprouce Creek Rd. to Orange Ave.	360			County	No	0.55	2	30	E+W	UA NSSR2C 2W 2L U OL	Urban Local	4,810	6,010	5,900	6,410	6,620	5,210	5,380	5,250	5,450	5,220	E	13,640	0.38	C	1,020	
Commonwealth Blvd.	Orange Ave. to US 1	361			County	No	0.35	2	30	E+W	UA NSSR2C 2W 2L U OL	Urban Local	5,420	4,130	3,730	4,120	3,970	3,460	3,590	3,670	3,540	3,530	E	13,640	0.26	C	1,020	
CR 3	US 17 to Washington Ave.	386			County	Yes	2.20	2	35	N+S	RUA UFH 2W 2L U OL	Rural Local	1,120	1,130	1,200	1,320	1,250	1,220	1,200	1,040	1,100	1,060	C	12,300	0.09	B	1,160	
CR 3	Washington Ave. to Emporia Rd.	384			County	Yes	1.20	2	30	N+S	RUA UFH 2W 2L U OL	Rural Local	2,020	1,990	2,070	2,320	1,740	1,980	1,870	1,650	1,680	1,660	C	12,300	0.13	B	1,160	
CR 3	Emporia Rd to SR 40	382			County	Yes	3.40	2	45	N+S	RUA UFH 2W 2L U OL	Rural Local	950	890	860	1,100	760	880	760	700	680	720	C	12,300	0.06	B	1,160	
CR 3	SR 40 to Lake Winona Rd.	380			County	Yes	5.04	2	35	N+S	RUA UFH 2W 2L U OL	Urban Collector	940	910	1,050	1,150	770	680	690	670	610	680	C	12,300	0.06	B	1,160	
CR 3	Lake Winona Rd. to Ponce DeLeon Blvd	380			County	Yes	0.45	2	45	N+S	UA NSSR2C 2W 2L U OL	Urban Collector	940	910	1,050	1,150	770	680	690	670	610	680	E	13,640	0.05	C	1,120	
CR 15A	US 17 to Airport Rd.	440			County	Yes	0.90	2	50	N+S	UA UFH 2W 2L U OL	Urban Minor Arterial	4,280	4,970	4,100	4,320	4,700	4,380	4,300	4,220	4,160	3,980	E	24,975	0.16	B	2,240	
CR 15A	Airport Rd. to SR 11	441			County	Yes	1.25	2	40	E+W	UA UFH 2W 2L U OL	Urban Minor Arterial	2,200	2,770	2,420	2,530	2,530	2,230	2,150	2,190	2,060	2,070	E	24,975	0.08	B	2,240	
CR 92 (Intnl Spdwy Blvd.)	SR 15A to Stone St.	450		Yes	County	Yes	0.25	4	45	E+W	UA NSSR1C 2W 4L D WL	Urban Minor Arterial	11,790	12,600	14,030	14,900	13,810	12,350	12,040	11,970	11,770	12,070	E	37,970	0.32	C	3,410	
CR 92 (Intnl Spdwy Blvd.)	Stone St. to US 17/92	452		Yes	County	Yes	0.75	4	35	E+W	UA NSSR2C 2W 4L D WL	Urban																



Volusia County 2013 Average Annual Daily Traffic & Historical Counts																											
Road Name	Limits (From - To)	Count Station Number	2013 SIS Facility	Cycle 10-12 Evacuation Route	Roadway Maintaining Agency	2013 Roadway on County's Thoroughfare	Distance (in miles)	2013 No. of Lanes	Posted Speed	Direction	2013 Facility Type	2000 Federal Functional Classification	2004 AADT	2005 AADT	2006 AADT	2007 AADT	2008 AADT	2009 AADT	2010 AADT	2011 AADT	2012 AADT	2013 AADT	Vol. Co. Allowable LOS	DAILY 2013 LOS Capacity	DAILY 2013 V/C Ratio	DAILY 2013 LOS	PEAK 2way 2013 LOS Capacity
Orkney/DaBarry/Doyle	Providence Blvd. to Garfield Rd.	455			County	Yes	1.20	2	40	E-W	JA NSSRCL 2W 2L U OL	Urban Minor Arterial	14,300	13,510	12,340	13,250	11,660	11,570	10,670	11,700	12,400	11,890	E	13,640	0.87	C	1,230
Orkney/DaBarry/Doyle	Garfield Rd. to Saxon Blvd.	530			County	Yes	1.50	2	40	E-W	JA NSSRCL 2W 2L U OL	Urban Minor Arterial	9,950	10,260	10,030	10,780	9,120	9,670	7,590	9,420	9,580	9,220	E	13,640	0.68	C	1,230
Orkney/DaBarry/Doyle	Saxon Blvd. to Courtland Blvd.	531			County	Yes	2.58	2	45	E-W	JA NSSRCL 2W 2L U OL	Urban Minor Arterial	9,190	9,360	9,170	9,020	8,180	8,720	7,880	8,020	7,800	8,020	E	13,640	0.57	C	1,230
Orkney/DaBarry/Doyle	Courtland Blvd. to SR 415	533			County	Yes	1.50	2	40	E-W	JA NSSRCL 2W 2L U OL	Urban Minor Arterial	6,150	5,770	5,730	6,700	5,830	6,370	5,800	6,020	5,950	5,680	E	13,640	0.42	C	1,230
Dunn/George Engram/Fairview/Mc	Tomoka Farms Rd. to Williamson Blvd.	716			County	Yes	0.78	2	40	E-W	JA NSSRCL 2W 2L U WL	n/c	-	-	-	-	-	-	-	-	1,220	1,660	E	17,050	0.11	C	1,540
Dunn/George Engram/Fairview/Mc	Williamson Blvd. to Bill France Blvd.	717			County	Yes	1.00	2	40	E-W	JA NSSRCL 2W 2L U WL	n/c	-	-	-	-	-	-	-	-	1,220	1,660	E	17,050	0.40	C	1,540
Dunn/George Engram/Fairview/Mc	Bill France Blvd. to Clyde Morris Blvd.	719(0B-54)			County	Yes	0.65	2	35	E-W	JA NSSRCL 2W 2L U WL	n/c	13,776	13,512	16,618	19,922	13,264	12,430	12,740	11,350	11,530	11,890	E	14,040	0.81	D	1,270
Dunn/George Engram/Fairview/Mc	Clyde Morris Blvd. to Nova Rd.	719(0B-46)			County	Yes	1.00	4	40	E-W	JA NSSRCL 2W 4L D WL	n/c	14,080	13,440	13,190	13,780	13,770	11,410	11,580	10,550	10,400	10,150	E	37,970	0.27	C	3,410
Dunn/George Engram/Fairview/Mc	Nova Rd. to US 1	720			County	Yes	1.20	4	35	E-W	JA NSSRCL 2W 4L D WL	Urban Principal Arterial - Other	12,130	12,210	11,760	12,880	11,330	11,790	12,090	10,430	10,310	10,230	E	30,420	0.34	C	2,740
Dunn/George Engram/Fairview/Mc	US 1 to Beach St.	551			County	Yes	0.40	2	30	E-W	JA NSSRCL 2W 2L U WL	Urban Principal Arterial - Other	9,270	5,990	5,640	6,200	5,590	5,500	5,670	5,370	5,060	5,380	E	14,040	0.38	C	1,270
Dunn/George Engram/Fairview/Mc	Beach St. to Peninsula Dr.	1170			County	Yes	0.60	2	30	E-W	JA NSSRCL 2W 2L U WL	Urban Principal Arterial - Other	10,700	7,530	7,080	7,650	7,050	6,220	6,710	6,980	6,330	6,560	E	14,040	0.47	C	1,270
Dunn/George Engram/Fairview/Mc	Peninsula Dr. to SR A1A	1171			County	Yes	0.35	2	30	E-W	JA NSSRCL 2W 2L U WL	Urban Minor Arterial	10,420	6,750	6,250	6,770	6,640	5,360	5,870	6,010	5,700	5,540	E	13,640	0.41	D	1,020
Ekcam Blvd.	Normandy Blvd. to Ft. Smith Blvd.	DLT-45-000			City	No	1.50	2	35	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	11,870	12,570	-	10,133	5,142	-	-	-	-	-	E	13,640	0.55	D	1,020
Ekcam Blvd.	Ft. Smith Blvd. to Providence Blvd.	DLT-45-010			City	No	1.00	2	35	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	8,530	8,890	-	7,158	4,805	-	-	-	-	-	E	13,640	0.45	D	1,020
Ekcam Blvd.	Providence Blvd. to Monticello Ave.	DLT-45-020			City	No	1.05	2	35	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	12,890	13,360	-	11,751	11,772	-	-	-	-	-	E	13,640	0.74	D	1,020
Ekcam Blvd.	Monticello Ave. to Howland Blvd.	DLT-45-040			City	No	1.00	2	35	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	12,140	12,590	-	5,591	10,554	-	-	-	-	-	E	13,640	0.73	D	1,020
Ekcam Blvd.	Howland Blvd. to Lake Helen-Osteen Rd.	DLT-45-050			City	No	0.15	2	35	E-W	JA NSSRCL 2W 2L D WL	Urban Collector	13,280	13,980	-	6,098	13,768	-	-	-	-	-	E	14,740	0.71	D	1,330
Ekcam Blvd.	Lake Helen-Osteen Rd. to Courtland Blvd.	DLT-45-060			City	No	0.70	2	35	E-W	JA NSSRCL 2W 2L D WL	Urban Collector	11,160	11,960	-	4,736	8,571	-	-	-	-	-	E	13,640	0.51	D	1,020
Ekcam Blvd.	Courtland Blvd. to Riverhead Rd.	DLT-45-080			City	No	0.50	2	30	E-W	JA NSSRCL 2W 2L U OL	n/c	620	680	-	592	943	-	-	-	-	-	E	13,640	0.04	C	1,020
Emporia Rd.	SR 40 to Peterson/Blackburn	560			County	Yes	3.00	2	40	N-S	RLUA UHF 2W 2L U OL	Rural Minor Collector	840	790	920	1,030	800	850	860	690	720	690	C	6,300	0.11	B	590
Emporia Rd.	Peterson/Blackburn to US 17	564			County	Yes	1.45	2	40	E-W	RLUA UHF 2W 2L U OL	Rural Minor Collector	1,390	1,330	1,540	1,640	1,210	1,420	1,880	1,280	1,230	1,320	C	6,300	0.21	B	590
Enterprise Ave. (NSB)	Pioneer Tr. to Hallock St.	570			County	Yes	0.10	2	35	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	7,410	7,480	7,400	7,110	7,500	7,210	7,640	7,460	7,000	7,440	E	13,640	0.57	D	1,020
Enterprise Rd.	US 17/92 to Harley Strickland Blvd.	586			County	Yes	0.50	4	35	N-S	JA NSSRCL 2W 4L D WL	Urban Minor Arterial	23,070	22,530	24,250	23,270	23,090	23,210	22,160	22,090	20,900	19,330	E	30,420	0.64	D	2,740
Enterprise Rd.	Harley Strickland Blvd. to Saxon Blvd.	585			County	Yes	0.50	4	45	N-S	JA NSSRCL 2W 4L D WL	Urban Minor Arterial	23,530	23,030	24,650	23,570	23,560	23,540	23,250	22,750	20,710	19,330	E	37,970	0.55	C	3,410
Enterprise Rd.	Saxon Blvd. to Highbanks Rd.	584			County	Yes	1.55	4	45	N-S	JA NSSRCL 2W 4L D WL	Urban Minor Arterial	21,340	21,140	20,510	23,720	23,150	24,490	23,470	23,460	23,750	21,590	E	37,970	0.57	C	3,410
Enterprise Rd.	Highbanks Rd. to Deltona Blvd.	582			County	Yes	0.50	4	35	N-S	JA NSSRCL 2W 4L D WL	Urban Minor Arterial	14,560	14,360	14,090	15,750	14,720	14,990	12,530	15,330	14,620	14,110	E	30,420	0.46	D	2,740
Enterprise Rd.	Deltona Blvd. to Main St.	581			County	Yes	1.10	2	35	N-S	JA NSSRCL 2W 2L U WL	Urban Collector	6,270	6,290	6,310	6,560	5,590	6,100	7,030	7,800	7,150	7,270	E	14,040	0.52	D	1,270
Enterprise-Osteen Rd.	Providence to Garfield Rd.	600			County	Yes	1.50	2	30	E-W	JA NSSRCL 2W 2L U OL	Rural Local	2,830	2,840	2,970	2,790	2,580	2,480	2,570	2,690	2,470	2,470	E	10,220	0.24	C	920
Enterprise-Osteen Rd.	Garfield Rd. to Reed Ellis Rd.	601			County	Yes	1.70	2	35	E-W	JA NSSRCL 2W 2L U OL	Rural Local	1,930	1,910	1,960	2,020	1,870	1,840	1,750	1,850	1,690	1,690	E	10,220	0.17	C	920
Enterprise-Osteen Rd.	Reed Ellis Rd. to SR 415	602			County	Yes	2.50	2	35	E-W	JA NSSRCL 2W 2L U OL	Rural Local	1,320	1,330	1,270	1,350	1,150	1,210	1,050	1,160	1,080	1,160	E	10,220	0.11	C	920
Euclid Ave.	Grand to Fello Rd.	610			County	No	0.25	2	35	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	1,680	1,670	1,570	1,860	1,200	1,220	1,190	1,190	1,080	1,150	E	13,640	0.08	C	1,020
Euclid Ave.	Fello Rd. to Woodward Ave.	611			County	No	0.25	2	35	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	1,520	1,770	1,640	1,960	1,370	1,380	1,340	1,360	1,270	1,330	E	13,640	0.10	C	1,020
Euclid Ave.	Woodward Ave. to SR 15A	612			County	No	0.50	2	30	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	3,130	2,990	2,860	3,400	2,300	2,300	2,270	2,310	2,300	2,290	E	13,640	0.17	C	1,020
Euclid Ave.	SR 15A to Adelle Ave.	613			County	No	0.75	2	30	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	3,210	3,000	2,790	3,310	2,500	2,740	2,520	2,440	2,510	2,430	E	13,640	0.18	C	1,020
Euclid Ave.	Adelle Ave. to US 17/92	614			County	No	0.50	2	30	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	2,360	2,095	1,850	2,140	2,080	1,940	2,180	2,150	2,200	2,150	E	13,640	0.16	C	1,020
Euclatave Ave.	Catalina Blvd. to Providence Blvd.	DLT-55-010			City	No	0.85	2	30	E-W	JA NSSRCL 2W 2L U OL	n/c	4,310	4,610	-	3,639	4,199	-	-	-	-	-	E	13,640	0.26	C	1,020
Flagler Ave. (NSB)	N. Causeway to Peninsula Ave.	540			FDOT	Yes	0.40	2	35	E-W	JA NSSRCL 2W 2L U OL	Urban Minor Arterial	6,630	6,670	8,310	7,950	7,820	8,820	9,100	8,560	9,500	-	E	13,640	-	-	1,020
Flagler Ave. (NSB)	Peninsula Ave. to Atlantic Ave.	641			City	Yes	0.40	2	20	E-W	JA NSSRCL 2W 2L U OL	Urban Minor Arterial	9,790	9,420	4,740	4,500	4,740	5,120	5,420	5,050	4,130	-	E	13,640	-	-	1,020
Florida St.	Dorchester Rd. to SR 5A/Nova Rd.	650			County	Yes	0.30	2	30	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	5,420	5,520	5,600	6,210	5,890	4,980	5,520	5,450	5,570	5,430	E	13,640	0.40	D	1,020
Florida St.	SR 5A/Nova Rd. to US 1				City	No	1.40	2	25	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	-	-	-	-	-	-	-	-	-	-	E	13,640	-	-	1,020
Fort Florida Rd.	Highbanks Rd. to Ft. Florida Point Rd.	661			City	No	1.75	2	35	N-S	JA NSSRCL 2W 2L U OL	Urban Collector	790	1,080	1,190	1,130	950	1,150	970	1,090	1,080	1,170	E	13,640	0.09	C	1,020
Fort Florida Rd.	Ft. Florida Point Rd. to Warwick Rd.	662			City	No	2.25	2	35	N-S	JA NSSRCL 2W 2L U OL	Rural Minor Collector	780	410	480	980	270	290	260	260	270	260	E	10,220	0.07	C	920
Fort Florida Rd.	Warwick Rd. to US 17/92	660			City	No	0.60	2	35	E-W	JA NSSRCL 2W 2L U OL	Rural Minor Collector	1,140	1,140	1,130	1,130	1,040	980	960	1,340	1,350	1,260	E	10,220	0.12	C	1,020
Fort Smith Blvd.	Ekcam Blvd. to Providence Blvd.	DLT-60-000			City	No	1.00	2	30	N-S	JA NSSRCL 2W 2L U OL	Urban Collector	3,220	2,910	-	3,180	3,280	-	-	-	-	-	E	13,640	0.16	C	1,020
Fort Smith Blvd.	Providence Blvd. to Newmark Dr.	DLT-60-020			City	No	0.50	2	35	N-S	JA NSSRCL 2W 2L D WL	Urban Collector	12,680	12,590	-	11,901	13,676	-	-	-	-	-	E	14,740	0.71	D	1,330
Fort Smith Blvd.	Newmark Dr. to Normandy Blvd.	DLT-60-030			City	No	0.85	2	35	N-S	JA NSSRCL 2W 2L D WL	Urban Collector	8,140	7,470	-	7,576	7,010	-	-	-	-	-	E	14,740	0.58	D	1,330
Fort Smith Blvd.	Normandy Blvd. to India Blvd.	DLT-60-050			City	No	0.55	2	35	N-S	JA NSSRCL 2W 2L D WL	Urban Collector	14,410	13,530	-	14,262	13,768	-	-	-	-	-	E	14,740	0.78	D	1,330
Fort Smith Blvd.	India Blvd. to Courtland Blvd.	DLT-60-070			City	No	2.25	2	35	N-S	JA NSSRCL 2W 2L D WL	Urban Collector	7,400	6,880	-	7,154	7,550	-	-	-	-	-	E	14,740	0.42	C	1,330
Fort Smith Blvd.	Courtland Blvd. to Howland Blvd.	DLT-60-100			City	No	0.75	2	35	E-W	JA NSSRCL 2W 2L D WL	Urban Collector	5,670	4,760	-	7,398	8,497	-	-	-	-	-	E	14,740</			

Volusia County 2013 Average Annual Daily Traffic & Historical Counts																													
Route Name	Limits (From - To)	Count Station Number	2013 SIS Facility	Cycle 10-12 Evacuation Route	Roadway Maintaining Agency	2013 Roadway on County's Thoroughfare	Distance (in miles)	2013 No. of Lanes	Posted Speed	Direction	2013 Facility Type	2000 Federal Functional Classification	2004 AADT	2005 AADT	2006 AADT	2007 AADT	2008 AADT	2009 AADT	2010 AADT	2011 AADT	2012 AADT	2013 AADT	Vol. Co. Allowable LOS	DAILY 2013 LOS Capacity	DAILY 2013 V/C Ratio	DAILY 2013 LOS	PEAK 2way LOS Capacity		
Haystack Blvd	Enterprise Rd. to Veteran's Memorial Pk	841			City	No	1.35	2	35	E+W	JA NSSRCC 2W 2L U WL	n/c	10,200	11,420	11,460	13,760	12,190	12,110	12,770	12,390	11,850	11,760	E	14,040	0.84	D	1,270		
Hazen Rd	Mercers Ferry Rd. to Plymouth Ave	852			County	Yes	1.50	2	35	N+S	JA NSSRCC 2W 2L U WL	n/c	790	680	850	880	620	630	590	720	700	800	E	13,640	0.06	C	1,020		
Hazen Rd	Plymouth Ave. to SR 44	850			County	Yes	1.00	2	40	N+S	JA NSSRCC 2W 2L U WL	n/c	1,120	1,190	1,370	1,480	1,190	1,130	1,130	1,050	1,240	1,250	E	13,640	0.09	C	1,230		
Highbanks Rd	Fort Florida Rd. to Westside Connector	860			County	No	1.75	2	40	E+W	JA NSSRCC 2W 2L U WL	Urban Collector	2,200	1,930	1,950	1,980	2,100	2,260	1,880	1,810	1,840	2,120	E	13,640	0.16	C	1,230		
Highbanks Rd	Westside Connector to US 17/92	861			County	No	1.00	2	35	E+W	JA NSSRCC 2W 2L U WL	Urban Collector	10,550	10,810	10,850	10,550	9,700	10,380	9,600	10,010	9,840	9,860	E	13,640	0.72	D	1,020		
Highbanks Rd	US 17/92 to Enterprise Rd	863			County	No	1.45	2	40	E+W	JA NSSRCC 2W 2L U WL	Urban Collector	5,060	7,350	7,420	7,990	7,420	7,070	6,600	7,360	7,370	7,380	E	13,640	0.54	C	1,230		
Highbridge Rd	Walter Boardman Ln. to John Anderson	871			County	Yes	1.60	2	30	E+W	TA NSSRCC 2W 2L U WL	Rural Major Collector	2,400	2,340	2,010	2,010	1,950	2,370	2,130	1,830	2,100	1,750	E	10,220	0.17	C	920		
Highbridge Rd	John Anderson Dr. to SR A1A	872			County	Yes	0.20	2	30	E+W	JA NSSRCC 2W 2L U WL	Rural Major Collector	1,910	1,950	1,580	1,610	1,580	1,920	1,730	1,520	1,780	1,490	E	10,220	0.15	C	920		
Hill Ave./Jacobs Rd.	US 92 to Plymouth Ave.	890			County	Yes	0.85	2	40	N+S	JA NSSRCC 2W 2L U WL	Urban Collector	4,160	4,340	4,910	5,770	5,580	5,100	6,190	5,870	5,190	5,820	E	13,640	0.43	C	1,230		
Hill Ave.	Plymouth Ave. to Minnesota Ave.	885			City	Yes	0.50	2	30	N+S	JA NSSRCC 2W 2L U WL	Urban Collector	4,520	4,730	4,980	5,590	4,410	4,700	4,340	5,240	5,020	4,890	E	13,640	0.36	C	1,020		
Hill Ave.	Minnesota Ave. to SR 44	883			City	Yes	0.50	2	30	N+S	JA NSSRCC 2W 2L U WL	Urban Collector	3,910	4,020	4,380	4,680	3,690	3,810	4,060	4,010	3,810	4,010	E	13,640	0.28	C	1,020		
Hill Ave.	SR 44 to Voochis Ave.	882			County	Yes	0.25	2	30	N+S	JA NSSRCC 2W 2L U WL	Urban Collector	2,290	2,540	2,760	2,870	2,230	2,290	2,400	2,530	2,780	2,540	E	13,640	0.19	C	1,020		
Hill Ave.	Voochis Ave. to Beresford Ave.	881			County	Yes	0.75	2	30	N+S	JA NSSRCC 2W 2L U WL	Urban Collector	1,960	2,150	2,310	2,450	2,050	2,080	2,130	2,310	2,370	2,200	E	13,640	0.16	C	1,020		
Hill Ave.	Beresford Ave. to Taylor Rd.	878 - NEW			County	Yes	1.00	2	30	N+S	JA NSSRCC 2W 2L U WL	n/c	-	-	-	-	-	-	-	-	-	430	480	550	E	13,640	0.94	C	1,020
Horton Rd	Old New York Ave. to Botts Landing Rd.	891			County	No	1.15	2	40	N+S	JA NSSRCC 2W 2L U WL	Urban Collector	3,140	3,520	3,330	3,570	2,990	2,930	2,930	3,050	2,840	2,820	C	13,640	0.21	C	1,090		
Horton Rd	Botts Landing Rd. to end of road	890			County	No	2.00	2	35	N+S	JA NSSRCC 2W 2L U WL	Urban Collector	760	1,080	980	1,060	850	780	920	870	790	840	C	13,640	0.06	C	470		
Howland Blvd	I-4/SR 472 to Wolf Pack Run	901			FDOT	Yes	0.40	4	45	E+W	JA NSSRCC 2W 4L D WL	Urban Minor Arterial	26,180	29,420	34,200	31,910	29,950	28,290	30,330	30,490	29,890	27,480	E	37,970	0.72	C	3,410		
Howland Blvd	Wolf Pack Run to Catalina Blvd.	903			County	Yes	1.15	4	45	N+S	JA NSSRCC 2W 4L D WL	Urban Minor Arterial	21,920	26,100	30,200	28,610	26,660	25,260	27,840	28,010	27,440	25,280	E	37,970	0.67	C	3,410		
Howland Blvd	Catalina Blvd. to Providence Blvd.	905			County	Yes	0.35	4	45	N+S	JA NSSRCC 2W 4L D WL	Urban Minor Arterial	17,100	19,850	23,670	22,680	20,700	19,640	21,390	22,110	21,930	20,070	E	37,970	0.53	C	2,440		
Howland Blvd	Providence Blvd. to Elkcam Blvd.	906			County	Yes	2.10	2	45	N+S	JA NSSRCC 2W 2L U WL	Urban Minor Arterial	12,670	14,380	14,610	16,590	14,620	13,380	15,390	16,990	14,140	15,160	E	37,970	1.11	F	3,410		
Howland Blvd	Elkcam Blvd. to Lake Helen-Osteen Rd.	908			County	Yes	0.30	4	45	N+S	JA NSSRCC 2W 4L D WL	Urban Minor Arterial	15,520	16,610	18,200	17,460	15,020	15,250	15,030	15,300	15,620	14,220	E	37,970	0.37	C	3,410		
Howland Blvd	Lake Helen-Osteen Rd. to Newmark Dr.	909			County	Yes	0.70	4	40	N+S	JA NSSRCC 2W 4L D WL	Urban Minor Arterial	18,660	19,200	21,180	20,890	17,810	16,330	19,340	20,950	19,330	18,330	E	37,970	0.51	C	3,410		
Howland Blvd	Newmark Dr. to Courtland Blvd.	911			County	Yes	1.15	4	45	N+S	JA NSSRCC 2W 4L D WL	Urban Minor Arterial	14,650	14,850	16,560	16,820	14,850	13,640	16,250	16,540	15,600	14,500	E	37,970	0.41	C	3,410		
Howland Blvd	Courtland Blvd. to Ft Smith Blvd.	913			County	Yes	1.80	2	45	N+S	JA NSSRCC 2W 2L U WL	Urban Minor Arterial	9,160	9,300	11,280	12,690	11,160	11,570	12,820	13,280	12,920	11,770	E	17,050	0.69	C	1,540		
Howland Blvd	Ft Smith Blvd. to SR 415	915			County	Yes	0.65	2	45	N+S	JA NSSRCC 2W 2L U WL	Urban Minor Arterial	7,750	7,770	8,220	11,730	11,870	11,580	12,770	12,550	12,180	12,530	E	17,050	0.73	C	1,540		
India Blvd	Fort Smith Blvd. to Humphrey Blvd.	DLT-80-000			City	No	2.06	2	35	E+W	JA NSSRCC 2W 2L U WL	n/c	6,560	6,120	-	6,108	3,750	-	-	-	-	3,520	E	13,640	0.26	C	1,020		
Indian Lake Rd	Tiger Bay Rd. to US 92	935			County	No	0.80	2	40	N+S	TA NSSRCC 2W 2L U WL	Rural Local	-	5,650	5,880	7,250	6,340	5,380	5,020	6,090	5,550	5,180	E	13,640	0.38	C	1,120		
Jimmy Ann Dr	LPGA Blvd. to Clyde Morris Blvd.	962			City	No	0.30	2	45	N+S	JA NSSRCC 2W 2L U WL	Urban Collector	8,120	7,170	7,430	8,330	8,660	7,890	8,470	7,520	7,650	7,680	E	13,640	0.56	C	1,230		
Jimmy Ann Dr	Clyde Morris Blvd. to Mason Ave.	960			City	No	0.15	2	45	N+S	JA NSSRCC 2W 2L U WL	Urban Collector	7,680	5,650	5,730	4,760	4,700	4,460	4,900	4,380	4,000	4,070	E	13,640	0.30	C	1,230		
John Anderson Dr	Highbridge Rd. to Lynnhurst	974			County	Yes	7.40	2	35	N+S	JA NSSRCC 2W 2L U WL	Urban Collector	4,960	5,300	4,420	5,180	5,430	4,080	3,880	3,590	3,960	4,570	E	13,640	0.34	C	1,020		
John Anderson Dr	Lynnhurst to Halifax Dr.	972			County	Yes	0.85	2	30	N+S	JA NSSRCC 2W 2L U WL	Urban Collector	6,710	6,970	6,150	6,890	5,550	5,620	5,320	5,390	5,520	6,730	E	13,640	0.49	D	1,020		
John Anderson Dr	Halifax Dr. to Neptune	971			County	Yes	0.30	2	25	N+S	JA NSSRCC 2W 2L U WL	Urban Collector	5,020	5,350	4,510	5,070	3,690	3,560	3,610	3,950	2,970	-	E	13,640	-	-	1,020		
John Anderson Dr	Neptune to SR 40	970			City	Yes	1.00	2	25	N+S	JA NSSRCC 2W 2L U WL	Urban Collector	8,340	6,780	5,460	7,120	4,430	5,550	5,110	5,090	5,930	-	E	13,640	-	-	1,020		
John Anderson Hwy	Walter Boardman Lane to Flagler Co.	990			County	Yes	1.00	2	5 NB / 30 S	N+S	TA NSSRCC 2W 2L U WL	Rural Minor Collector	1,440	1,480	1,060	1,060	1,110	1,040	960	1,000	1,140	900	E	13,640	0.07	C	1,120		
Josephine St/10th St	Old Mission Rd. to Tatum Blvd.	1000			County	Yes	0.30	2	30	E+W	JA NSSRCC 2W 2L U WL	Urban Collector	4,400	6,050	6,310	6,370	5,610	6,370	6,000	5,810	5,860	5,910	E	13,640	0.43	D	1,020		
Josephine St/10th St	Tatum Blvd. to US 1	1002			City	Yes	1.80	2	35	E+W	JA NSSRCC 2W 2L U WL	Urban Collector	3,250	7,460	6,930	6,920	6,870	7,400	7,310	7,350	7,140	-	E	14,040	0.00	00	1,270		
Kathy Dr. (N. Penin.)	John Anderson Dr. to SR A1A	1011			County	No	0.44	2	30	E+W	JA NSSRCC 2W 2L U WL	Urban Local	250	550	400	390	430	420	470	420	460	470	E	13,640	0.03	C	1,020		
Kennedy Pkwy (Old SR 3)	US 1 to Park Entrance	1020			Federal	No	4.00	2	55	E+W	RUA UFH 2W 2L U WL	Rural Major Collector	1,140	1,090	950	830	1,000	930	1,040	700	860	-	C	6,300	-	-	590		
Kicklighter Rd	Macy Ave. to Lake Helen-Osteen/Prevatt	1051			County	Yes	0.75	2	30	E+W	JA NSSRCC 2W 2L U WL	Urban Local	1,270	1,550	1,520	1,640	1,760	1,930	2,080	1,910	1,690	E	13,640	0.12	C	1,020			
Lake George Rd	Bream Dr. to US 17	1062			County	No	3.90	2	30	E+W	RUA UFH 2W 2L U WL	Rural Local	1,430	1,220	940	1,080	990	1,010	780	860	820	740	C	6,300	0.12	B	590		
Lake Helen-Osteen Rd	Kicklighter Rd. to Captain Dr.	1078			County	Yes	1.40	2	40	N+S	JA NSSRCC 2W 2L U WL	Urban Collector	7,820	7,760	7,810	8,290	6,290	7,310	7,020	7,030	6,570	6,850	E	13,640	0.49	C	1,230		
Lake Helen-Osteen Rd	Captain Dr. to Catalina Blvd.	1073			County	Yes	0.40	2	45	N+S	JA NSSRCC 2W 2L U WL	Urban Collector	7,920	8,050	8,090	8,610	6,700	6,990	7,390	7,410	7,090	6,740	E	13,640	0.50	C	1,230		
Lake Helen-Osteen Rd	Catalina Blvd. to Haudiver Blvd.	1072			County	Yes	0.50	4	45	N+S	JA NSSRCC 2W 4L D WL	Urban Collector	9,440	9,430	9,490	10,130	9,560	9,430	10,220	10,320	9,740	9,570	E	13,640	0.70	C	1,230		
Lake Helen-Osteen Rd	Haudiver Blvd. to Elkcam Blvd.	1071			County	Yes	1.75	2	45	N+S	JA NSSRCC 2W 2L U WL	Urban Collector	7,790	7,900	7,920	8,230	6,720	7,000	7,470	7,690	7,540	7,220	E	13,640	0.53	C	1,230		
Lake Helen-Osteen Rd	Elkcam Blvd. to Howland Blvd.	1070			County	Yes	0.40	2	35	E+W	JA NSSRCC 2W 2L U WL	Urban Collector	3,470	3,420	3,400	3,660	2,920	3,440	5,490	6,140	6,050	6,060	E	13,640	0.44	D	1,020		
Children's Way/Lakeshore Dr.	Main St. to Providence Blvd.	1090			County	Yes	0.70	2	30	E+W	JA NSSRCC 2W 2L U WL	Urban Local	2,430	2,340	2,380	2,220	2,000	2,080	1,220	1,000	960	900	E	13,640	0.07	C	1,020		
Lakeshore Dr	Providence Blvd. to Garfield Rd	1092			County	Yes	0.45	2	30	E+W	TA NSSRCC 2W 2L U WL	Rural Local	2,050	3,200	3,350	3,100	3,070	2,860	2,680	2,590	2,610	2,520	E	10,220	0.25	C	920		
Lakeview Dr	New York Ave. to Main St.	1101			County	No	0.25	2	30	N+S	JA NSSRCC 2W 2L U WL	Urban Collector	1,100	1,270	1,250	1,440	1,320	1,080	1,100	1,130	1,190	1,							

Volusia County 2013 Average Annual Daily Traffic & Historical Counts																											
Road Name	Limits (From - To)	Count Station Number	2013 SIS Facility	Cycle 10-2 Evacuation Route	Roadway Maintaining Agency	2013 Roadway on County's Thoroughfare	Distance (in miles)	2013 No. of Lanes	Posted Speed	Direction	2013 Facility Type	2000 Federal Functional Classification	2004 AADT	2005 AADT	2006 AADT	2007 AADT	2008 AADT	2009 AADT	2010 AADT	2011 AADT	2012 AADT	2013 AADT	Vol. Co. Allowable LOS	DAILY 2013 LOS Capacity	DAILY 2013 VIC Ratio	DAILY 2013 LOS	2013 LOS Capacity
Mason Ave.	Feintress Blvd. to Bill France Blvd.	1191			County	Yes	0.50	2	40	E-W	JA NSSRCL 2W 2L D WL	Urban Minor Arterial	12,086	12,470	11,660	11,550	10,700	10,680	10,580	9,320	9,760	11,660	E	37,970	0.47	C	1,520
Mason Ave.	Bill France Blvd. to Jimmy Ann Dr	1193			County	Yes	0.30	4	40	E-W	JA NSSRCL 2W 4L D WL	Urban Minor Arterial	14,530	14,240	13,750	13,830	13,250	12,140	12,900	11,750	12,520	11,660	E	37,970	0.31	C	3,410
Mason Ave.	Jimmy Ann Dr. to SR 483/Clyde Morris	1194			County	Yes	0.50	4	40	E-W	JA NSSRCL 2W 4L D WL	Urban Minor Arterial	15,590	15,140	14,650	16,330	13,510	13,150	13,630	12,120	12,330	11,940	E	37,970	0.31	C	3,410
Maytown Rd.	New Smyrna Blvd. to Pell Rd.	1198			County	No	5.60	2	50	E-W	RDA UHF 2W 2L U OL	Rural Minor Collector	-	3,720	3,450	3,370	3,120	3,360	3,120	3,350	3,270	3,120	C	12,300	0.25	B	1,160
Maytown Rd.	Pell Rd. to Beacon Light Rd.	1199			County	No	12.90	2	45	E-W	RUA UHF 2W 2L U OL	Rural Minor Collector	-	1,200	1,110	720	660	670	660	730	600	700	C	6,300	0.11	B	590
Maytown Rd./Hallfax Ave. (OH)	Beacon Light Rd. to US 1	790			County	Yes	1.10	2	35	E-W	RDA UHF 2W 2L U OL	Rural Minor Collector	1,900	1,960	1,770	1,990	1,380	1,650	1,650	1,770	1,680	1,620	C	12,300	0.13	B	1,160
McBride Rd.	US 17 to Lake George Rd.	1200			County	No	3.00	2	35	N-S	RUA UHF 2W 2L U OL	Rural Local	330	350	380	380	270	290	310	300	220	220	C	6,300	0.03	B	590
McGregor Rd.	Westside Con. J. also to Spring Garden A	1210 - NEW			County	Yes	0.70	2	40	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	-	-	-	-	-	-	-	1,800	1,600	1,570	E	13,640	0.12	C	1,230
McGregor Rd.	Spring Garden Ave. to US17/92	1211			County	Yes	1.40	2	40	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	4,930	5,800	5,440	5,580	4,990	4,730	4,600	8,110	8,850	6,250	E	13,640	0.46	C	1,230
Mercedes Ferry Rd.	Genwood Rd. to SR 15A	1221			County	Yes	1.45	2	35	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	980	1,010	2,340	2,380	830	910	860	980	950	1,010	E	13,640	0.07	C	1,020
Mercedes Ferry Rd.	SR 15A to US 17	1223			County	Yes	1.25	2	35	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	1,150	1,300	1,470	1,530	1,170	1,350	1,370	1,560	1,520	1,470	E	13,640	0.11	C	1,020
Midway Ave.	Williamson Blvd. to US 92	1230			County	Yes	2.00	4	40	E-W	JA NSSRCL 2W 4L D WL	Urban Collector	3,020	3,110	2,840	3,210	3,310	2,420	2,630	2,380	2,440	2,630	E	37,970	0.07	C	3,410
Minnesota Ave. (DeLand)	Grand Ave. to SR 15A	1245			County	Yes	1.35	2	35	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	1,790	1,740	1,860	1,950	2,230	2,670	2,670	2,650	2,850	2,800	E	13,640	0.21	C	1,020
Minnesota Ave. (DeLand)	SR 15A to US 17/92	1247			County	Yes	1.25	2	30	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	1,780	1,790	1,840	1,990	1,110	1,240	1,090	1,100	900	970	E	13,640	0.07	C	1,020
Minnesota Ave. (DeLand)	Amelia Ave. to Hill Ave.	1249			County	Yes	0.75	2	30	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	2,360	2,270	1,690	1,850	1,970	2,280	2,170	2,300	2,110	2,060	E	13,640	0.15	C	1,020
Minnesota Ave. (DeLand)	Hill Ave. to Blue Lake Ave.	1250			County	Yes	0.50	2	30	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	3,060	2,780	2,070	2,230	2,630	2,840	2,680	2,770	2,650	2,520	E	13,640	0.18	C	1,020
Minnesota Ave. (DeLand)	Blue Lake Ave. to Kepler Rd.	1251			County	Yes	0.85	2	40	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	4,340	3,890	3,370	3,550	4,270	4,500	3,530	4,530	4,170	4,000	E	13,640	0.29	C	1,230
Minnesota Ave. (Orange City)	Sparkman Ave. to US 17/92	1241			County	No	0.50	2	30	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	1,790	1,900	2,040	2,280	2,090	1,860	1,810	1,930	1,950	2,090	E	13,640	0.15	C	1,020
Minnesota Ave. (Orange City)	US 17/92 to Leavitt Ave.	1242			County	No	0.50	2	25	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	1,180	1,510	1,520	1,700	1,500	1,400	1,470	1,360	1,390	1,410	E	13,640	0.10	C	1,020
Minnesota Ave. (Orange City)	Leavitt Ave. to SR 472	1243			County	No	0.50	2	30	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	1,380	960	1,320	1,430	1,430	1,340	1,430	1,170	1,180	1,230	E	13,640	0.09	C	1,020
New Hampshire Ave.	SR 15A to Adelle Ave.	1270			County	No	0.15	2	30	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	2,650	2,730	2,550	2,670	2,080	2,110	2,210	2,280	2,260	2,470	E	13,640	0.18	C	1,020
New Hampshire Ave.	Adelle Ave. to Clara Ave.	1271			County	No	0.50	2	30	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	3,220	3,320	3,050	3,200	2,550	2,540	2,480	2,630	2,780	2,760	E	13,640	0.20	C	1,020
New Hampshire Ave.	Clara Ave. to US 17/92	1272			County	No	0.25	2	30	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	3,500	3,500	3,200	3,390	2,580	2,640	2,640	2,790	2,850	2,780	E	13,640	0.21	C	1,020
Newmark Dr.	Fl Smith Blvd. to Humphrey Blvd.	DLT-100-000			City	No	1.60	2	35	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	8,770	8,700	-	8,098	7,061	-	-	-	-	6,060	E	13,640	0.44	D	1,020
Newmark Dr.	Humphrey Blvd. to Howland Blvd.	DLT-100-020			City	No	0.90	2	35	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	7,440	7,010	-	7,046	6,452	-	-	-	-	6,370	E	13,640	0.47	D	1,020
Newmark Dr.	Howland Blvd. to Courtland Blvd.	DLT-100-040			City	No	0.75	2	35	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	2,490	2,540	-	6,975	1,434	-	-	-	-	1,110	E	13,640	0.08	C	1,020
New York Ave. (Orange City)	Westside Pkwy/Hamilton Ave. to Sparkman Ave.	1281			County	No	0.50	2	30	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	3,500	4,030	4,340	4,730	4,490	3,750	3,850	4,230	3,880	3,990	E	13,640	0.29	C	1,020
New York Ave. (Orange City)	Sparkman Ave. to Carpenter Ave.	1283			County	No	0.30	2	30	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	4,880	5,390	5,160	5,700	5,350	4,560	4,770	5,230	4,990	4,850	E	13,640	0.36	C	1,020
New York Ave. (Orange City)	Carpenter Ave. to US 17/92	1284			County	No	0.25	2	30	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	5,970	6,402	6,320	6,500	6,030	5,300	5,580	6,090	5,640	5,770	E	13,640	0.42	D	1,020
New York Ave. (Lake Helen)	Summit Ave. to Lakeview Dr.	1285			County	No	0.50	2	30	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	1,080	1,110	1,100	1,160	910	850	920	800	970	890	C	13,640	0.07	C	470
Normandy Blvd.	Graves (old Howland) to Rhode Island A	DLT-105-000			City	No	1.25	2	45	N-S	JA NSSRCL 2W 2L U OL	Urban Collector	6,360	6,710	-	6,786	4,411	-	-	-	-	7,100	E	13,640	0.52	C	1,230
Normandy Blvd.	Rhode Island Ave. to Elkcam Blvd.	DLT-105-000			City	No	0.50	2	30	N-S	JA NSSRCL 2W 4L D WL	Urban Collector	6,700	7,550	-	6,439	4,893	-	-	-	-	6,890	E	30,420	0.23	C	2,740
Normandy Blvd.	Elkcam Blvd. to Saxon Blvd.	DLT-105-030			City	No	1.00	4	35	N-S	JA NSSRCL 2W 4L D WL	Urban Collector	13,940	14,930	-	13,100	10,694	-	-	-	-	7,530	E	30,420	0.25	C	2,740
Normandy Blvd.	Saxon Blvd. to Deltona Blvd.	DLT-105-050			City	No	0.70	2	35	N-S	JA NSSRCL 2W 2L U OL	Urban Collector	13,630	14,370	-	12,715	10,998	-	-	-	-	10,230	E	13,640	0.74	D	1,020
Normandy Blvd.	Deltona Blvd. to Twill Dr.	DLT-105-070			City	No	1.10	3	30	N-S	JA NSSRCL 2W 2L U OL	Urban Minor Arterial	13,740	14,360	-	12,843	11,929	-	-	-	-	9,560	E	13,640	0.70	D	1,020
Normandy Blvd.	Twill Dr. to Providence Blvd.	DLT-105-090			City	No	0.90	3	35	N-S	JA NSSRCL 2W 2L U OL	Urban Minor Arterial	9,560	10,360	-	12,069	8,305	-	-	-	-	6,850	E	13,640	0.50	D	1,020
Normandy Blvd.	Providence Blvd. to Saxon Blvd.	DLT-105-120			City	No	1.00	2	35	N-S	JA NSSRCL 2W 2L D WL	Urban Minor Arterial	12,440	10,940	-	8,662	6,148	-	-	-	-	10,020	E	14,740	0.48	D	1,330
Normandy Blvd.	Saxon Blvd. to Ft Smith Blvd.	DLT-105-140			City	No	0.75	2	35	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	12,400	13,310	-	7,640	11,230	-	-	-	-	10,720	E	13,640	0.78	D	1,020
Ohio Ave. (LH)	Macy Ave. to Lakeview Dr.	1320			County	Yes	0.20	2	30	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	640	730	710	790	690	610	710	640	730	680	C	13,640	0.05	C	470
Old Dixie Hwy.	I-95 to Old Kings Rd.	1334			County	Yes	0.60	2	45	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	8,500	8,360	8,380	8,230	7,720	7,250	7,750	7,480	7,430	7,260	E	13,640	0.53	C	1,230
Old Dixie Hwy.	Old Kings Rd. to Waller Boardman Ln.	1333			County	Yes	0.58	2	45	E-W	JA NSSRCL 2W 2L U OL	Rural Major Collector	4,450	4,420	3,750	3,870	3,300	3,490	3,210	3,080	3,390	2,990	E	13,640	0.22	C	1,120
Old Dixie Hwy.	Waller Boardman Ln. to Pine Tree Dr.	1332			County	Yes	5.10	2	45	N-S	JA NSSRCL 2W 2L U OL	Rural Major Collector	3,160	3,178	2,480	2,680	2,090	2,340	2,240	1,990	2,060	1,810	E	13,640	0.13	C	1,120
Old Dixie Hwy.	Pine Tree Dr. to Ingolia	1330			County	Yes	1.60	2	35	N-S	JA NSSRCL 2W 2L U OL	Rural Major Collector & Urban Minor Arterial	2,280	2,270	2,240	2,280	2,040	1,970	2,170	1,910	1,890	1,710	E	13,640	0.23	C	1,020
Old Kings Rd.	Flagler Co. to Old Dixie Hwy.	1340			County	Yes	0.60	2	50	N-S	JA NSSRCL 2W 2L U OL	Urban Collector	3,910	3,980	4,180	4,120	3,290	3,110	2,980	3,050	3,150	2,960	E	13,640	0.22	C	1,230
Old Mission Rd.	SR 44/Mission Dr. to Old Mission Rd	1356			County	Yes	0.60	2	40	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	-	1,160	870	800	1,220	-	1,120	1,100	1,080	1,120	E	13,640	0.08	C	1,230
Old New York Ave.	SR 44 to Hontoon Rd.	1360			County	Yes	1.40	2	40	E-W	RDA UHF 2W 2L U OL	Rural Major Collector	1,200	1,280	1,110	1,190	870	720	870	940	810	820	C	12,300	0.07	B	1,160
Old New York Ave.	Hontoon Rd. to Lakeview Dr.	1361			County	Yes	0.40	2	40	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	4,190	4,120	3,850	4,190	3,570	2,820	3,250	3,540	3,190	3,170	C	13,640	0.23	C	1,090
Old New York Ave.	Lakeview Dr. to Grand Ave.	1362			County	Yes	0.50	2	40	E-W	JA NSSRCL 2W 2L U OL	Urban Collector	6,210	5,080	5,050	5,390	3,970	3,860	4,130	4,210	3,950	4,010	E	13,640	0.29	C	1,230
Old New York Ave.	Grand Ave. to SR 44	1364			County	Yes	0.91	2	40	E-W	JA NSSRCL 2W 2L U OL																

Volusia County 2013 Average Annual Daily Traffic & Historical Counts																											
Road Name	Limits (From - To)	Count Station Number	2013 SIS Facility	Cycle 10-2 Evacuation Route	Roadway Maintaining Agency	2013 Roadway on County's Thoroughfare	Distance (in miles)	2013 No. of Lanes	Posted Speed	Direction	2013 Facility Type	2000 Federal Functional Classification	2004 AADT	2005 AADT	2006 AADT	2007 AADT	2008 AADT	2009 AADT	2010 AADT	2011 AADT	2012 AADT	2013 AADT	Vol. Co. Allowable LOS	DAILY 2013 LOS Capacity	DAILY 2013 VIC Ratio	DAILY 2013 LOS	PEAK 2way LOS Capacity
Enterprise Ave. to Jungle Rd		1474			County	Yes	0.52	2	35	N+S	JA NSSR2C 2W 2L U OL	Urban Collector	1,270	8,510	8,850	9,410	8,600	8,870	8,380	8,220	7,300	7,280	E	13,640	0.53	D	1,020
Pioneer Tr.	Jungle Rd to Canal St.	1475			County	Yes	0.25	2	35	N+S	JA NSSR2C 2W 2L U OL	Urban Collector	2,630	2,310	2,120	2,080	2,390	2,630	1,910	1,940	2,120	2,420	E	13,640	0.18	C	1,020
Wallace Rd.	Canal St to SR 44	1465			County	Yes	0.25	3	35	N+S	JA NSSR2C 2W 2L D WL	Urban Collector	6,300	6,300	7,610	6,750	8,020	8,260	7,700	7,550	7,540	7,600	E	14,740	0.52	D	1,330
Mission Dr.	SR 44 to Old Mission Rd.	1281			County	Yes	0.75	4	40	N+S	JA NSSR1 2W 4L D WL	Urban Collector	13,380	14,040	14,920	15,200	14,310	14,180	12,420	11,730	11,780	11,780	E	37,970	0.31	C	3,410
Old Mission Rd./Mission Rd.	Old Mission Rd. to Josephine St.	1354			County	Yes	0.75	4	40	N+S	JA NSSR1 2W 4L D WL	Urban Collector	9,860	12,570	12,470	13,630	12,250	12,570	12,270	11,920	11,390	11,580	E	37,970	0.30	C	3,410
Josephine St.	Josephine St. to Park Ave.	1353			County	Yes	1.70	2	35	N+S	JA NSSR1 2W 2L U OL	Urban Collector	7,040	7,530	7,430	8,040	7,530	7,250	6,920	7,230	6,280	6,360	E	10,220	0.62	D	960
Old Mission Rd.	Park Ave. to SR 442	1351			County	Yes	2.00	2	45	N+S	JA NSSR1 2W 2L U OL	Rural Minor Collector	4,380	4,880	4,640	5,480	4,400	4,380	4,190	4,250	3,920	4,030	E	13,640	0.30	C	1,120
Plantation Oaks Blvd.	Old Dixie Highway				County	No	1.92	0	35	E+W	JA NSSR2C 2W 2L U WL	n/c	-	-	-	-	-	-	-	-	-	-	E	14,040	Built NOT Open	-	-
Piazza Dr. (N. Penn.)	John Anderson Dr. to SR A1A	1481			County	No	1.00	2	30	E+W	JA NSSR2C 2W 2L U OL	n/c	200	240	240	200	200	190	280	370	230	370	E	13,640	0.03	C	1,020
Plymouth Ave.	Grand Ave. to Hazen Rd.	1490			County	Yes	1.00	2	40	E+W	JA NSSR1 2W 2L U OL	Urban Collector	1,260	1,290	1,440	1,710	1,360	1,280	1,150	1,080	1,030	1,020	E	13,640	0.07	C	1,230
Plymouth Ave.	Hazen Rd. to SR 15A	1491			County	Yes	0.75	2	40	E+W	JA NSSR1 2W 2L U OL	Urban Collector	4,370	4,550	4,860	5,480	5,520	5,790	5,830	5,760	5,120	5,600	E	13,640	0.41	C	1,230
Plymouth Ave.	SR 15A to Stone St.	1493			County	Yes	0.50	2	35	E+W	JA NSSR2C 2W 2L U OL	Urban Collector	10,020	9,450	10,010	10,540	10,180	9,970	10,320	10,050	9,380	9,070	E	13,640	0.66	D	1,020
Plymouth Ave.	Stone St. to Clara Ave.	1495			County	Yes	0.50	2	35	E+W	JA NSSR2C 2W 2L U OL	Urban Collector	11,090	9,500	10,590	11,050	10,280	10,780	10,460	10,490	10,040	9,560	E	13,640	0.70	D	1,020
Plymouth Ave.	Clara Ave. to US 17/92	1497			County	Yes	0.20	2	35	E+W	JA NSSR2C 2W 2L U WL	Urban Collector	13,320	11,530	12,210	12,980	12,200	12,340	11,990	12,110	11,460	10,910	E	14,040	0.78	D	1,270
Plymouth Ave.	US 17/92 to Amelia Ave.	1498			County	Yes	0.20	2	30	E+W	JA NSSR2C 2W 2L U WL	Urban Collector	9,900	8,850	9,150	9,750							E	14,040			1,270
Plymouth Ave.	Amelia Ave. to Garfield Ave.	1500			County	Yes	0.20	2	30	E+W	JA NSSR2C 2W 2L U OL	Urban Collector	7,360	6,460	7,040	7,460	7,100	6,960	7,090	6,440	5,850	5,850	E	13,640	0.43	D	1,020
Plymouth Ave.	Garfield Ave. to Blue Lake Rd./Jacobs D	1502			County	Yes	0.75	2	30	E+W	JA NSSR2C 2W 2L U OL	Urban Collector	6,650	5,600	5,900	6,680	6,250	6,170	6,370	5,900	5,270	5,410	E	13,640	0.40	D	1,020
Ponce DeLeon Blvd.	CR 3 to US 17	1511			County	Yes	0.85	2	35	N+S	JA NSSR2C 2W 2L U OL	Urban Local	2,560	3,000	3,440	3,880	2,590	2,890	2,400	2,500	2,260	2,350	E	13,640	0.17	C	1,020
Phrevert Ave.	SR 44 to Lake Pearl Dr.	1523			County	Yes	1.80	2	55	N+S	JA NSSR1 2W 2L U WL	Rural Major Collector	3,690	4,000	3,930	4,310	3,610	4,960	4,130	4,630	4,230	4,470	E	15,600	0.29	C	1,400
Phrevert Ave.	Lake Pearl Dr. to Koolhaizer Rd.	1520			County	Yes	1.50	2	40	N+S	JA NSSR1 2W 2L U WL	Urban Collector	4,540	4,420	4,360	4,970	3,940	5,020	4,500	4,800	4,300	4,570	C	17,950	0.27	C	1,360
Providence Blvd.	Howland Blvd. to Elkcam Blvd.	1542			County	Yes	1.70	2	35	N+S	JA NSSR2C 2W 2L U WL	Urban Minor Arterial	8,820	9,440	12,530	14,270	12,870	12,200	10,940	11,990	10,790	11,290	E	14,040	0.80	D	1,270
Providence Blvd.	Elkcam Blvd. to P Smith Blvd.	1541			County	Yes	0.80	2	35	N+S	JA NSSR2C 2W 2L U OL	Urban Minor Arterial	14,100	14,810	16,210	17,880	15,820	15,160	13,630	14,520	13,070	13,570	E	13,640	0.96	E	1,020
Providence Blvd.	P Smith Blvd. to Tiroll Dr.	1539			County	Yes	0.05	4	35	N+S	JA NSSR2C 2W 4L D WL	Urban Minor Arterial	21,070	22,350	21,480	24,150	20,380	20,830	17,850	19,350	17,300	17,020	E	30,420	0.56	D	2,740
Providence Blvd.	Tiroll Dr. to Saxon Blvd.	1538			County	Yes	0.80	2	35	N+S	JA NSSR2C 2W 2L D WL	Urban Minor Arterial	10,270	10,550	11,030	12,210	9,400	9,950	8,670	9,600	9,000	8,510	E	14,740	0.58	D	1,330
Providence Blvd.	Saxon Blvd. to Normandy Blvd	1535			County	Yes	0.70	2	35	N+S	JA NSSR2C 2W 2L U OL	Urban Minor Arterial	11,680	12,110	11,080	12,320	8,490	9,080	8,930	9,860	9,310	8,900	E	13,640	0.65	D	1,020
Providence Blvd.	Normandy Blvd. to Anderson Dr.	1534			County	Yes	0.80	2	35	N+S	JA NSSR2C 2W 2L U OL	Urban Minor Arterial	18,960	18,820	19,880	21,680	18,440	18,440	13,440	14,440	13,140	13,140	E	13,640	0.96	E	1,020
Providence Blvd.	Anderson Dr. to Doyle Rd.	1530			County	Yes	0.55	2	35	N+S	JA NSSR2C 2W 2L U OL	Urban Minor Arterial	13,530	13,760	13,250	14,630	11,680	11,670	10,900	12,270	12,020	11,780	E	13,640	0.86	E	1,020
Raulerson Rd. #1	US 17 to Browlee Rd.	1550			County	No	1.20	2	35	E+W	RUA UHF 2W 2L U OL	Rural Local	240	310	310	330	300	310	310	250	250	280	C	6,300	0.04	B	590
Raulerson Rd.	US 17 to Bunnell Rd./CR 305	1552			County	No	1.70	2	30	E+W	RUA UHF 2W 2L U OL	Rural Local	540	440	470	500	350	320	380	250	300	300	C	6,300	0.05	B	590
Reed Canal Rd.	Chyle Morris Blvd. to SRSA/Nova Rd.	1561			County	Yes	0.80	2	35	E+W	JA NSSR2C 2W 2L U OL	Urban Collector	8,490	7,430	7,640	8,070	6,100	5,850	5,890	5,810	6,040	5,870	E	13,640	0.43	D	1,020
Reed Canal Rd.	SRSA/Nova Rd. to Sauls St.	1562			County	Yes	0.65	2	35	E+W	JA NSSR2C 2W 2L U OL	Urban Collector	14,040	11,160	11,230	11,690	11,110	10,200	9,960	9,490	9,600	8,960	E	13,640	0.66	D	1,020
Reed Canal Rd.	Sauls St. to US 1	1564			County	Yes	0.90	2	35	E+W	JA NSSR2C 2W 2L U OL	Urban Collector	11,010	10,390	10,460	10,860	8,780	9,280	8,850	8,570	8,080	8,000	E	13,640	0.59	D	1,020
Reed Ellis Rd.	Enterprise-Osteen Rd. to SR 415	1571			County	Yes	2.10	2	45	E+W	JA NSSR1 2W 2L U OL	n/c	1,700	1,650	1,660	1,450	1,470	1,510	1,470	1,510	1,510	1,640	E	13,640	0.12	C	1,120
Reetta St.	Grand Ave. to US 17	1580			County	Yes	0.15	2	30	E+W	JA NSSR2C 2W 2L U OL	Urban Collector	850	910	860	880	860	890	840	750	730	770	E	13,640	0.06	C	1,020
Reynolds Rd.	US 17 to SR 11	1590			County	Yes	4.40	2	35	E+W	RUA UHF 2W 2L U OL	Urban & Rural Local	1,630	1,570	1,420	1,320	1,360	1,450	1,410	1,160	1,250	1,470	E	6,300	0.20	B	2,030
Rhode Island Ave.	Westside Connector to Sparkman Ave	1598			County	Yes	1.00	2	35	E+W	JA NSSR2C 2W 2L D WL	n/c	-	-	-	-	-	-	4,520	5,360	5,140	5,280	E	14,740	0.38	C	1,330
Rhode Island Ave.	Sparkman Ave. to Carpenter Ave	1599			County	Yes	1.00	2	35	E+W	JA NSSR2C 2W 2L D WL	n/c	-	-	-	-	-	-	6,360	7,000	6,480	6,680	E	14,740	0.47	C	1,330
Rhode Island Ave.	Carpenter Ave. to US 17/92	1600			County	Yes	1.00	2	35	E+W	JA NSSR2C 2W 2L D WL	n/c	-	-	-	-	-	-	6,540	7,080	6,280	6,350	E	14,740	0.43	C	1,330
Rhode Island Ave.	US 17/92 to Veterans Memorial Hwy.	1601			City	No	2.80	2	40	E+W	JA NSSR1 2W 2L U OL	Urban Collector	6,710	8,110	8,240	9,010	8,040	7,060	7,280	8,990	8,790	8,650	E	13,640	0.63	C	1,230
Rhode Island Ave.	Veteran's Memorial Hwy. to Normandy				County	Yes	1.80	0		E+W	JA NSSR1 2W 2L U OL	n/c	-	-	-	-	-	-	-	-	-	-	E	13,640	-	-	1,230
Riley Pridgen Rd.	Peterson Rd. to SR 40	1610			County	No	2.55	2	35	N+S	RUA UHF 2W 2L U OL	Rural Local	320	870	910	1,080	410	430	490	480	450	450	C	6,300	0.07	B	590
River Dr.	John Anderson Dr. to SR A1A	1621			County	No	0.50	2	30	E+W	JA NSSR2C 2W 2L U OL	Urban Local	400	330	360	420	230	270	270	310	290	340	E	13,640	0.02	C	1,020
Riverside Dr. (NSB)	SR 44 (N. Causeway) to SR A1A (S. Ca	1635			City	No	0.20	2	25	N+S	JA NSSR2C 2W 2L U OL	Urban Collector	3,060	4,200	4,040	3,870	4,160	3,850	2,800	3,640	3,800	-	E	13,640	-	-	1,020
Rutland/Riverside Dr. (PO)	Dunlawton Ave. to Commonwealth Ave	804			City	No	1.55	2	25	N+S	JA NSSR2C 2W 2L U OL	Urban Collector	1,320	1,230	1,400	1,580	1,110	1,350	1,850	1,650	1,990	-	E	13,640	-	-	1,020
Rutland Dr. (PO)	Commonwealth Ave. to Main St	1638			City	No	1.20	2	25	N+S	JA NSSR2C 2W 2L U OL	Urban Collector	790	1,030	840	960	760	640	720	590	600	-	E	13,640	-	-	1,020
Samsula Dr.	Pioneer Tr. to SR 44	1651			County	Yes	2.60	2	45	N+S	JA NSSR1 2W 2L U OL	Rural Minor Collector	1,310	1,740	1,500	1,570	1,270	1,280	1,330	1,430	1,160	1,160	E	13,640	0.09	C	1,120
Sandra Dr.	John Anderson Dr. to SR A1A	1661			County	No	1.00	2	30	E+W	JA NSSR2C 2W 2L U OL	n/c	220	290	220	270	260	250	270	270	270	250	E	13,640	0.02	C	1,020
Saxon Blvd.	Rail Station to Westside Connector				County	Yes	0.62	0	40	E+W	JA NSSR1 2W 2L D WL	n/c	-	-	-	-	-	-	-	-	-	-	E	17,900	-	-	1,620
Saxon Blvd.	Westside Connector to US 17/92				County	Yes	1.30	0	40	E+W	JA NSSR1 2W 2L D WL	n/c	-	-	-	-	-	-	-	-	-	-	E	17,900	-	-	1,620



Volusia County 2013 Average Annual Daily Traffic & Historical Counts																												
Road Name	Limits (From - To)	Count Station Number	2013 SIS Facility	Cycle 10-12 Evacuation Route	Roadway Maintaining Agency	2013 Roadway on County's Thoroughfare	Distance (in miles)	2013 No. of Lanes	Posted Speed	Direction	2013 Facility Type	2000 Federal Functional Classification	2004 AADT	2005 AADT	2006 AADT	2007 AADT	2008 AADT	2009 AADT	2010 AADT	2011 AADT	2012 AADT	2013 AADT	Vol. Co. Allowable LOS	DAILY 2013 LOS Capacity	DAILY 2013 VIC Ratio	DAILY 2013 LOS	PEAK 2013 LOS Capacity	
Sugar Mill Dr	Pioneer Tr. to SR 44	1781			County	Yes	1.30	2	45	N+S	UA NSRRC1 2W 2L U OL	n/c	2,580	3,340	3,130	2,760	2,370	2,520	2,450	2,370	2,450	2,760	E	13,640	0.20	C	1,230	
Burnett Ave.	SR 44 to Main St.	1791			County	Yes	2.20	2	50	N+S	UA NSRRC1 2W 2L U OL	Urban Minor Arterial	4,640	3,000	2,980	3,180	4,690	4,660	5,630	5,280	4,780	4,430	E	13,640	0.32	C	1,230	
Surfside Dr	John Anderson Dr. to SR A1A	1801			County	No	0.35	2	30	E+W	UA NSRRC2 2W 2L U OL	Urban Local	410	430	340	370	370	330	450	350	340	300	E	13,640	0.02	C	1,020	
Taylor Rd. (CO)	Tomoka Farms Rd. to Spruce Creek Blvd.	1810		Yes	County	Yes	0.70	2	45	E+W	UA NSRRC1 2W 2L U WL	Urban Principal Arterial - Other	7,620	8,300	8,670	8,520	7,460	8,800	7,810	7,170	6,890	7,110	E	17,050	0.42	C	1,540	
Taylor Rd. (CO)	Spruce Creek Blvd. to Crane Lake Blvd.	1811		Yes	County	Yes	1.10	2	50	E+W	UA NSRRC1 2W 2L U WL	Urban Principal Arterial - Other	11,140	12,400	12,770	12,480	10,860	10,700	10,610	9,790	9,660	9,570	E	17,050	0.56	C	1,540	
Taylor Rd. (CO)	Crane Lake Blvd. to Summerlee Rd.	1812		Yes	County	Yes	0.75	2	50	E+W	UA NSRRC1 2W 2L U WL	Urban Principal Arterial - Other	15,500	16,890	19,390	16,660	16,670	13,880	14,280	14,570	14,300	14,010	E	17,050	0.82	C	1,540	
Taylor Rd. (CO)	Summerlee Rd. to Williamson Blvd.	1813		Yes	County	Yes	0.20	4	45	E+W	UA NSRRC1 2W 4L D WL	Urban Principal Arterial - Other	9,980	20,590	20,960	20,330	16,340	14,630	15,160	14,600	13,700	12,910	E	37,970	0.36	C	2,410	
Taylor Rd. (CO)	Williamson Blvd. to I-95 (at Dunlawton A)	1814		Yes	County	Yes	0.15	5	45	E+W	UA NSRRC1 2W 5L D WL	Urban Principal Arterial - Other	30,510	37,390	38,740	37,180	33,230	33,660	36,960	36,170	38,000	35,490	E	47,560	0.75	C	4,280	
Taylor Rd. (PO)	Dunlawton Ave. to Clyde Morris Blvd.	1822			County	Yes	0.55	2	35	E+W	UA NSRRC2 2W 2L U OL	Urban Collector	11,590	14,160	14,300	12,910	13,490	12,880	12,860	12,840	12,270	12,270	E	13,640	0.90	E	1,020	
Taylor Rd. (PO)	Clyde Morris Blvd. to Hensel Rd.	1824			County	Yes	0.50	4	45	E+W	UA NSRRC1 2W 4L D WL	Urban Collector	18,850	21,300	21,810	19,480	19,670	19,620	18,590	19,530	19,350	19,280	E	37,970	0.48	C	3,410	
Taylor Rd. (PO)	Hensel Rd. Spruce Creek Rd.	1826			County	Yes	1.00	4	45	E+W	UA NSRRC1 2W 4L D WL	Urban Collector	15,160	17,420	18,110	14,980	16,620	15,720	15,270	15,600	15,050	14,330	E	37,970	0.38	C	3,410	
Taylor Rd. (DL)	US 17/92 to Stratford Dr.	1816			County	Yes	0.80	2	35	E+W	UA NSRRC1 2W 2L U OL	Urban Collector	5,660	5,770	5,500	5,680	6,590	6,240	5,620	5,740	6,690	5,630	E	13,640	0.42	D	1,020	
Taylor Rd. (DL)	Stratford Dr. to Blue Lake Ave.	1818			County	Yes	0.95	2	50	E+W	UA NSRRC1 2W 2L U WL	Urban Collector	4,290	4,520	4,130	4,280	4,590	5,180	4,710	4,750	5,070	4,780	E	17,050	0.28	C	1,540	
Taylor Rd. (DL)	Blue Lake Ave. to Martin Luther King Jr.	1819			County	Yes	0.80	2	50	E+W	UA NSRRC1 2W 2L U OL	Urban Collector	3,800	4,280	3,960	4,120	5,180	4,790	4,590	4,730	4,960	4,810	E	13,640	0.35	C	1,230	
Taylor Rd. (NSB)	Glencoe Rd. to Mission Rd.	1821			County	No	0.75	2	30	E+W	UA NSRRC2 2W 2L U OL	n/c	1,550	1,770	1,450	1,500	1,550	1,340	1,480	1,550	1,500	1,500	E	13,640	0.12	C	1,020	
Thvill Dr.	Saxon Blvd. to Providence Blvd.	DLT-125.020			City	No	0.85	2	30	N+S	UA NSRRC2 2W 2L U OL	Urban Collector	12,990	12,890	-	12,272	13,736	-	-	-	-	-	-	E	13,640	0.81	E	1,020
Tomoka Farms Rd.	LPGA Blvd. (north end) to Dunn Ave.	1849			County	Yes	1.90	2	40	N+S	UA UHF 2W 2L U OL	n/c	3,730	4,040	4,090	3,630	3,700	3,390	3,810	3,770	4,000	-	E	24,975	-	-	2,240	
Tomoka Farms Rd.	Dunn Ave. to US 92	1848			County	Yes	1.90	2	40	N+S	UA UHF 2W 2L U OL	n/c	1,840	1,830	1,890	2,470	2,660	3,080	3,350	3,550	4,380	5,070	E	24,975	0.20	B	2,240	
Tomoka Farms Rd.	US 92 to Shurz Rd.	1847			County	Yes	3.02	2	40	N+S	UA UHF 2W 2L U OL	Urban Minor Arterial	6,170	6,410	6,740	6,560	7,200	6,110	5,920	5,300	5,780	6,030	E	24,975	0.24	B	2,240	
Tomoka Farms Rd.	Shurz Rd. to Townwest Blvd.	1848			County	Yes	1.50	2	40	N+S	UA UHF 2W 2L U OL	Urban Minor Arterial	4,380	4,580	4,810	4,630	5,470	4,310	4,470	5,870	5,160	5,270	E	24,975	0.25	B	2,240	
Tomoka Farms Rd.	Townwest Blvd. to Taylor Rd.	1844			County	Yes	1.45	2	50	N+S	UA UHF 2W 2L U OL	Urban Minor Arterial	5,770	6,480	6,800	5,030	6,550	5,500	5,970	5,780	5,720	6,150	E	24,975	0.25	B	2,240	
Tomoka Farms Rd.	Taylor Rd. to Pioneer Tr.	1843		Yes	County	Yes	2.80	2	50	N+S	UA UHF 2W 2L U OL	Urban Minor Arterial	8,140	8,520	8,850	9,050	9,590	7,910	9,180	9,330	8,810	8,790	E	24,975	0.39	C	2,240	
Tomoka Farms Rd.	Pioneer Tr. to SR 44	1840		Yes	County	Yes	2.20	2	50	N+S	RDA UHF 2W 2L U OL	Rural Minor Arterial	5,640	5,310	5,550	5,280	6,740	5,000	4,700	4,510	5,110	5,250	C	12,300	0.43	B	1,160	
Town West Blvd.	Tomoka Farms Rd. to Williamson Blvd.	1850			City	No	1.50	2	40	E+W	UA NSRRC1 2W 2L U OL	n/c	-	-	-	-	-	-	14,200	3,240	3,670	3,920	4,370	E	17,900	0.24	C	1,620
Turnbull Bay Rd.	Pioneer Tr. to Williams Rd.	1863			County	Yes	2.90	2	45	N+S	UA NSRRC1 2W 2L U OL	Urban Collector	2,870	3,120	3,130	3,290	3,020	3,210	3,340	2,950	2,900	2,860	E	13,640	0.21	C	1,230	
Turnbull Bay Rd.	Williams Rd. to Industrial Park Ave.	1865			County	Yes	1.20	2	45	N+S	UA NSRRC1 2W 2L U OL	Urban Collector	3,580	4,130	3,640	4,390	3,810	3,140	3,380	3,080	3,100	3,140	E	13,640	0.23	C	1,230	
Turnbull Bay Rd.	Industrial Park Ave. to US 1	1867			County	Yes	0.85	2	30	E+W	UA NSRRC2 2W 2L U OL	Urban Collector	4,940	4,810	4,550	4,790	4,560	4,510	4,720	4,090	3,890	3,910	E	13,640	0.29	C	1,020	
Timber Creek Rd.	Broadway Ave./US 1 to Airport Rd.	1883			County	Yes	4.20	2	40	N+S	TA NSRRC1 2W 2L U OL	n/c	1,380	1,440	2,090	2,530	1,450	1,580	1,820	1,750	1,780	1,850	E	13,640	0.14	C	1,120	
Timber Creek Rd.	Airport Rd. to Timber Run	1882			County	Yes	0.90	2	40	N+S	UA NSRRC1 2W 2L U WL	Urban Collector	3,960	3,980	3,980	9,930	7,290	8,440	8,240	8,000	8,280	7,870	E	17,050	0.48	C	1,540	
Timber Creek Rd.	Timber Run to SR 40	1881			County	Yes	0.50	2	40	N+S	UA NSRRC1 2W 2L U OL	Urban Collector	13,910	13,810	13,990	15,090	13,020	13,470	12,320	12,860	13,450	12,870	E	17,050	0.74	C	1,540	
Timber Creek Rd.	SR 40 to Riverbend Rd.	1880			County	Yes	0.45	2	30	N+S	UA NSRRC2 2W 2L U OL	n/c	740	1,000	800	840	800	740	740	770	680	740	E	13,640	0.05	C	1,020	
Van Ave.	Peninsula Dr. to SR A1A	1890			County	No	0.20	2	25	E+W	UA NSRRC2 2W 2L U OL	n/c	520	620	580	700	660	500	420	630	630	550	E	13,640	0.04	C	1,020	
Volco Rd.	Cow Creek Rd. to Beacon Light Rd.	1920			County	Yes	2.50	2	30	N+S	RUA UHF 2W 2L U OL	n/c	320	290	260	230	240	150	220	270	220	230	C	6,300	0.04	B	500	
Volco Rd.	Beacon Light Rd. to 39th St.	1921			County	Yes	1.40	2	45	N+S	TA NSRRC1 2W 2L U OL	Rural & Urban Local	360	420	370	330	390	410	400	460	420	480	E	13,640	0.04	C	1,120	
Volco Rd.	39th St. to US 1	1922			County	Yes	0.50	2	35	E+W	UA NSRRC2 2W 2L U OL	Urban Local	1,690	1,780	1,640	1,470	1,410	1,520	1,420	1,850	1,840	1,930	E	13,640	0.14	C	1,020	
Voornis Ave.	US 17/92 to Amelia Ave.	1931			County	Yes	0.20	2	30	E+W	UA NSRRC2 2W 2L U OL	Urban Collector	5,090	5,230	5,000	5,300	4,130	4,030	3,780	3,940	3,670	3,500	E	13,640	0.26	C	1,020	
Voornis Ave.	Amelia Ave. to Hill Ave.	1933			County	Yes	1.00	2	30	E+W	UA NSRRC2 2W 2L U OL	Urban Collector	3,130	3,440	3,430	3,980	3,240	3,260	3,000	3,060	3,000	2,780	E	13,640	0.28	C	1,020	
Voornis Ave.	Hill Ave. to Blue Lake Ave.	1934			County	Yes	0.50	2	35	E+W	UA NSRRC2 2W 2L U OL	Urban Collector	3,150	3,390	3,200	3,760	3,100	3,130	2,960	3,100	3,290	3,290	E	13,640	0.20	C	1,020	
Voornis Ave.	Blue Lake Ave. to SR 44	1935			County	Yes	0.50	2	35	E+W	UA NSRRC2 2W 2L U OL	Urban Collector	3,350	3,390	3,420	3,770	3,200	3,300	3,130	3,340	3,280	3,110	E	13,640	0.23	C	1,020	
Walter Boardman Ln.	Old Dixie Hwy. to Hightbridge Rd.	1960			County	Yes	1.20	2	30	E+W	TA UHF 2W 2L U OL	Rural Major Collector	3,180	3,330	2,740	2,830	2,590	2,920	2,630	2,390	2,730	2,270	E	24,975	0.09	B	2,240	
Wayne Ave. (NSB)	Halleck St. to US 1	1970			County	Yes	1.00	2	30	E+W	UA NSRRC2 2W 2L U OL	Urban Collector	6,030	6,030	6,390	6,000	6,400	6,400	6,430	6,390	5,970	6,010	E	13,640	0.44	D	1,020	
Westside Parkway (new/Fatio)	ex. termini south of SR 44 to Beresford Ave.	1979			County	Yes	1.00	2	40	N+S	UA NSRRC1 2W 2L U OL	n/c	160	130	190	190	-	90	110	80	120	80	E	13,640	0.01	C	1,230	
Westside Parkway (Fatio Rd.)	Beresford Ave. to McGregor Rd.	1978			County	Yes	2.00	2	40	N+S	UA NSRRC1 2W 2L U OL	Urban Local	1,430	1,570	1,570	1,650	1,640	1,500	1,370	1,450	1,470	1,460	E	13,640	0.11	C	1,230	
Westside Parkway (new)	McGregor Rd. to existing Hamilton/Fatio	1977			County	Yes	2.00	0	40	N+S	UA NSRRC1 2W 2L U OL	n/c	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,090	
Westside Parkway (Hamilton Ave.)	Hamilton Ave. (north end) to French Ave.	1976			County	Yes	1.20	2	35	N+S	UA NSRRC2 2W 2L U OL	n/c	-	2,340	2,680	2,580	2,680	2,400	2,300	2,430	2,560	2,410	E	13,640	0.18	C	1,020	
Westside Parkway (Lawton Ave.)	French Ave. to Rhode Island Ave.	1975			County	Yes	1.25	0	25	N+S	UA NSRRC2 2W 2L U OL	n/c	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Westside Parkway (new)	Rhode Island Ave. to DeBarry Plantation	1974			County	Yes	1.40	0	35	N+S	UA NSRRC2 2W 2L U OL	n/c	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Westside Parkway (Don Smith Blvd.)	DeBarry Plantation Blvd. to Hightbanks Rd.	1972			County	Yes	1.2	2	35	N+S	UA NSRRC2 2W 2L U OL	n/c	-	5,880	6,060	1,120	1,490	1,760	1,710	1,870	1,860	1,810	E	13,640	0.13	C		



Volusia County 2013 Average Annual Daily Traffic & Historical Counts																											
Road Name	Limits (From - To)	Count Station Number	2013 SIS Facility	Cycle 10-2 2013 Evacuation Route	Roadway Maintaining Agency	2013 Roadway on County's Thoroughfare	Distance (in miles)	2013 No. of Lanes	Posted Speed	Direction	2013 Facility Type	2000 Federal Functional Classification	2004 AADT	2005 AADT	2006 AADT	2007 AADT	2008 AADT	2009 AADT	2010 AADT	2011 AADT	2012 AADT	2013 AADT	2013 Vol. Co. Allowable LOS	DAILY 2013 LOS Capacity	DAILY 2013 V/C Ratio	DAILY 2013 LOS	PEAK 2Way 2013 LOS Capacity
Woodward Ave.	SR 44 to Euclid Ave.	2030			County	No	0.50	2	30	N+S	JA NSSRC2_2W_2L_U_OL	Urban Collector	1,000	960	1,050	1,140	710	720	770	750	740	E	13,640	0.05	C	1,020	
Woodward Ave.	Euclid Ave. to Berensford Ave.	2031			County	No	0.50	2	30	N+S	JA NSSRC2_2W_2L_U_OL	Urban Collector	910	840	990	1,100	720	740	750	830	800	740	E	13,640	0.05	C	1,020
Yorktown Blvd.	Willow Run to Hidden Lake Dr.				City	Yes	0.50	0	25	N+S	JA NSSRC2_2W_2L_U_WL	n/c	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Yorktown Blvd.	Hidden Lake Dr. to SR 421/Dunlawton A	2080			City	Yes	1.00	2	40	N+S	JA NSSRC1_2W_2L_U_WL	n/c	-	-	6,010	7,100	7,970	7,380	7,640	7,250	6,920	6,780	E	17,050	-	-	1,540

<b>Area Types</b>		<b>Centerline Miles</b>
UA	= Urbanized Areas	
TA	= Transitioning Urbanized Areas	SIS Rds = 133
RDA	= Rural Developed Areas	non-SIS Rds = 217
RUA	= Rural Undeveloped Areas	All State Rds = 350
	<b>County</b>	
<b>Facility Types - Urban/Transitioning</b>		TFare Rds = 381
FWIS	= Freeways - Interchange Spacing Group 1 (spacing >= 2 miles apart)	
FW	= Freeways - Transitioning & Rural	731
UFH	= Uninterrupted Flow Highways	
SSAC1	= State Signalized Arterial Class 1	
SSAAC2	= State Signalized Arterial Class 2	
NSSRC1	= Non-State Signalized Road Class 1	
NSSRC2	= Non-State Signalized Road Class 2	
<b>Facility Types - Rural Developed</b>		
FW	= Freeways - Transitioning & Rural	
UFH	= Uninterrupted Flow Highways	
IFH	= Interrupted Flow Highways	
<b>Facility Types - Rural Undeveloped</b>		
FW	= Freeways - Transitioning & Rural	
UFH	= Uninterrupted Flow Highways	
ISIS	= Isolated Signalized Intersections	
<b>One-Way/Two-Way</b>		
1W	= One-way Directional Volumes	
2W	= Two-way Directional Volumes	
<b>Number of Lanes</b>		
2L, 4L, 5L, etc.	= Number of Roadway Lanes	
<b>Divided/Undivided</b>		
D	= Divided	
U	= Undivided	
<b>Left Turn Bays</b>		
WL	= Left Turn Bays	
OL	= No Left Turn Bays	

Daily VMT													
Florida DOT													
SIS Rds =		4,992,118	5,245,558	5,403,051	5,335,606	5,155,047	5,186,090	5,263,250	5,118,011	5,126,566	5,145,738		
non-SIS Rds =		3,827,456	3,913,120	3,951,019	3,913,799	3,781,767	3,665,724	3,593,107	3,514,105	3,432,313	3,542,360		
All State Rds =		8,819,574	9,158,678	9,354,070	9,249,405	8,936,814	8,851,814	8,846,357	8,632,116	8,558,879	8,688,098		
County	TFare Rds =	2,465,351	2,569,594	2,595,206	2,685,440	2,409,657	2,313,351	2,317,178	2,293,413	2,313,033	2,263,405		
TOTAL =		11,284,925	11,728,272	11,949,276	11,934,845	11,346,471	11,165,165	11,163,535	10,925,529	10,871,912	10,951,503		
% of Daily VMT													
Florida DOT													
SIS Rds =		44%	45%	45%	45%	45%	46%	47%	47%	47%	47%		
non-SIS Rds =		34%	33%	33%	33%	33%	33%	32%	32%	32%	32%		
All State Rds =		78%	78%	78%	77%	79%	79%	79%	79%	79%	79%		
County	TFare Rds =	22%	22%	22%	23%	21%	21%	21%	21%	21%	21%		
1-Year Change in Daily VMT													
Florida DOT													
1-Yr SIS % Chg =		2.73%	5.08%	3.00%	-1.25%	-3.38%	0.60%	1.30%	-2.57%	0.17%	0.37%		
1-Yr non-SIS % Chg =		2.10%	2.24%	0.97%	-0.94%	-3.37%	-3.07%	-1.98%	-2.20%	-2.33%	3.21%		
1 Yr All SR % Chg =		2.45%	3.84%	2.13%	-1.12%	-3.38%	-0.95%	-0.06%	-2.42%	-0.85%	1.51%		
County	1-Yr Tfare % Chg =	0.80%	4.23%	1.00%	3.48%	-10.27%	-4.00%	0.17%	-1.03%	0.86%	-2.15%		
1-Yr All Significant Roads % Chg =		2.09%	3.93%	1.88%	-0.12%	-4.93%	-1.60%	-0.01%	-2.13%	-0.49%	0.73%		
3-Year Change in Daily VMT													
Florida DOT													
3-Yr SIS % Chg =								-1.54%	-0.72%	-1.15%	-2.05%		
3-Yr non-SIS % Chg =								-8.19%	-7.08%	-6.37%	-1.41%		
3-Yr All SR % Chg =								-4.36%	-3.41%	-3.31%	-1.79%		
County	3-Yr Tfare % Chg =							-13.71%	-4.82%	-0.01%	-2.32%		
3-Yr All Significant Roads % Chg =								-6.46%	-3.71%	-2.63%	-1.90%		

Transportation Facility Status Report			April 4, 2014																																				
Link	Facility	Facility Type	Classification	Length (miles)	Number of Lanes	Divided	Turn Left	Lanes Right	Signals	Signals / Mile	Speed Limit	2013 AADT	Day of Count	K (actual)	Background Growth %	PMPH Trips	PMPH Vested Trips	Total PMPH Trips	FDOT Current Service Volumes (2012)					Adopted LOS	LOS w/o Vested Trips	LOS with Vested Trips													
Belle Terre Parkway																			A	B	C	D	E																
1200	Matanzas Woods Parkway to Bird of Paradise Drive	Arterial	Class 1	1.86	4	Yes	Yes	Yes	5	1.28	45	7,400	9/24/2013	0.092	3.3%	681	577	1,258	*	**	3,420	3,580	***	D	C	C													
1205	Bird of Paradise Drive to Pine Lakes Parkway (North)			0.71								15,300	9/26/2013	0.085	5.0%	1,301	675	1,976							C	C													
1210	Pine Lakes Parkway (North) to Bellaire Drive			0.85								15,800	4/9/2013	0.088	1.4%	1,390	348	1,738							C	C													
1215	Bellaire Drive to Palm Coast Parkway(WB)			0.48								18,700	9/17/2013	0.082	1.0%	1,533	523	2,056							C	C													
	Segment Length:			3.90																																			
1220	Palm Coast Parkway (WB) to Palm Coast Parkway (EB)	Arterial	Class 1	0.22	4	Yes	Yes	Yes	5	8.06	45	18,500	10/22/2013	0.085	1.3%	1,573	371	1,944	*	**	3,420	3,580	***	D	C	C													
1225	Palm Coast Parkway (EB) to Cypress Point Parkway			0.13								21,300	4/11/2013	0.079	2.6%	1,683	761	2,444							C	C													
1230	Cypress Point Parkway to Pine Lakes Parkway (South)			0.27								32,400	4/11/2013	0.080	1.0%	2,592	717	3,309							C	C													
	Segment Length:			0.62																																			
1240	Pine Lakes Parkway (South) to Parkview Drive			1.03								24,000	4/11/2013	0.078	1.0%	1,872	608	2,480							C	C													
1245	Parkview Drive to White View Parkway	1.02	24,200	9/17/2013	0.082	1.0%	1,984	464	2,448	C	C																												
1250	White View Parkway to Rymfire Drive	0.92	22,200	4/16/2013	0.083	1.6%	1,843	475	2,318	C	C																												
1252	Rymfire Drive to Royal Palms Parkway	0.53	25,100	4/16/2013	0.085	3.8%	2,134	474	2,608	C	C																												
1254	Royal Palms Parkway to East Hampton Boulevard	0.52	24,000	4/16/2013	0.083	2.1%	1,992	570	2,562	C	C																												
1260	East Hampton Boulevard to SR 100	1.04	24,100	9/19/2013	0.084	4.8%	2,024	291	2,315	C	C																												
	Segment Length:	5.06																																					
Belle Terre Blvd.																																							
1263	SR 100 to Zebulas Trail	Arterial	UFH	0.21	2	No	n.a.	n.a.	n.a.	n.a.	50	5,400	4/18/2013	0.09	1.0%	486	142	628	*	770	1,530	2,170	2,990	D	B	B													
1265	Zebulas Trail to Zaun Trail			0.84								6,200	9/12/2013	0.091	2.8%	564	122	686							B	B													
1270	Zaun Trail to Citation Parkway			1.37								3,500	4/18/2013	0.093	3.9%	326	122	448							B	B													
1275	Citation Parkway to US 1			1.31								3,600	4/18/2013	0.096	3.8%	346	122	468							B	B													
	Segment Length:			3.73																																			
Bird of Paradise Drive																																							
2420	Matanzas Woods Parkway to Birchwood Drive	Collector	UFH	1.31	2	No	n.a.	n.a.	n.a.	n.a.	30	2,200	9/24/2013	0.09	1.0%	198	1	199	*	770	1,530	2,170	2,990	D	B	B													
2430	Birchwood Drive to Belle Terre Parkway			1.01								4,100	9/5/2013	0.085	1.4%	349	45	394							B	B													
	Segment Length:			2.32																																			
Bulldog Drive																																							
4300	SR 100 to Central Avenue	Collector	Class 2	0.54	2	No	No	No	1	1.11	25	1,700	4/23/2013	0.104	1.0%	177	167	344	*	**	660	1,330	1,410	D	C	C													
4310	Central Avenue to Lake Avenue			0.28																																			
4320	Lake Avenue to terminus			0.08																																			
	Segment Length:			0.90																																			
Central Avenue																																							
4400	Belle Terre Parkway to Market Avenue	Collector	Class 2	0.35	4	Yes	Yes	No	2	2.90	25	4,900	9/24/2013	0.115	1.0%	564	215	779	*	**	1,310	2,920	3,040	D	C	C													
4410	Market Avenue to Lake Avenue			0.11								2,200	4/23/2013	0.094	1.0%	207	215	422							C	C													
4420	Lake Avenue to Landings Blvd.			0.23								2,200	4/23/2013	0.094	1.0%	207	215	422							C	C													
	Segment Length:			0.69																																			
4430	Landings Blvd to Park Street	Collector	Class 2	0.33	2	no	no	no	0	0.00	20	2,300	4/23/2013	0.094	1.0%	216	215	431	*	**	660	1,330	1,410	D	C	C													
4440	Park Street to Bulldog Drive			0.16								2,300	4/23/2013	0.093	1.0%	214	215	429							C	C													
4450	Bulldog Drive to Brookhaven Drive			0.29								1,500	4/23/2013	0.11	1.0%	165	215	380							C	C													
4460	Brookhaven Drive to Town Center Blvd.			0.41								1,500	4/23/2013	0.108	1.0%	162	215	377							C	C													
	Segment Length:			1.19																																			
Citation Parkway																																							
3312	Belle Terre Parkway to Laguna Forest Lane	Collector	UFH	0.77	2	No	n.a.	n.a.	n.a.	n.a.	35	200	4/18/2013	0.099	1.0%	20	0	20	*	770	1,530	2,170	2,990	D	B	B													
3315	Seminole Woods Parkway to Sesame Boulevard			0.41								40	2,900	4/18/2013	0.088	1.0%	255	0							255	B	B												
	Segment Length:			1.18																																			
Club House Drive																																							
1300	Palm Harbor Parkway to Palm Coast Parkway (WB)	Collector	Class 2	1.65	2	No	Yes	No	1	0.56	35	2,900	4/16/2013	0.081	1.0%	235	192	427	*	**	660	1,330	1,410	D	C	C													
1310	Palm Coast Parkway (WB) to Palm Coast Parkway (EB)			0.15								3,100	5/28/2013	0.073	1.0%	226	118	344							C	C													
	Segment Length:			1.80																																			
Colbert Lane																																							
3105	Palm Coast Parkway (WB) to Palm Coast Parkway (EB)	Arterial	Class 2	0.20	2	No	n.a.	n.a.	n.a.	n.a.	30	5,100	8/29/2013	0.07	1.4%	357	98	455	*	**	660	1,330	1,410	D	C	C													
3110	Palm Coast Parkway (EB) to Waterside Parkway (N)			1.70							45	6,900	8/29/2013	0.079	1.0%	545	99	644							B	B													
3120	Waterside Parkway (N) to Waterside Park (S)		1.40	55							4,800	8/29/2013	0.081	1.0%	389	99	488	B							B														
3125	Waterside Park (S) to South Park Road		0.60								5,300	8/29/2013	0.085	1.0%	451	114	565	B							B														
3130	South Park Road to Roberts Road		1.87								5,200	8/29/2013	0.088	1.0%	458	124	582	B							B														
3135	Roberts Road to SR 100		1.29								3,500	10/22/2013	0.069	1.0%	242	124	366	B							B														
	Segment Length:		7.06																																				
Cypress Point Parkway																																							
4200	Belle Terre Parkway to Pine Cone Drive	Arterial	Class 2	0.22	4	Yes	Yes	No	3	3.80	35	19,500	9/24/2013	0.08	1.0%	1,560	105	1,665	*	**	1,310	2,920	3,040	D	D	D													
4205	Pine Cone Drive to Cypress Edge (S)			0.29								16,100	9/24/2013	0.076	1.0%	1,224	76	1,300							C	C													
4210	Cypress Edge (S) to Cypress Edge (N)			0.16								17,200	10/22/2013	0.083	1.0%	1,428	65	1,493							D	D													
4215	Cypress Edge (N) to Palm Coast Parkway			0.12								30,100	9/24/2013	0.079	1.0%	2,378	58	2,436							D	D													
	Segment Length:	0.79																																					
Farmsworth Drive																																							
2716	Old Kings Road to Florida Park Drive	Collector	Class 2*	0.90	2	No	n.a.	n.a.	n.a.	n.a.	30	2,000	5/16/2013	0.083	1.0%	166	34	200	*	**	600	1,200	1,270	D	C	C													
Farragut Drive																																							
2717	Old Kings Road to Florida Park Drive	Collector	Class 2*	0.97	2	No	n.a.	n.a.	n.a.	n.a.	30	260	5/14/2013	0.111	1.0%	29	0	29	*	**	600	1,200	1,270	D	C	C													

Link	Facility	Facility Type	Classification	Length (miles)	Number of Lanes	Divided	Turn Lanes Left	Right	Signals	Signals / Mile	Speed Limit	2013 AADT	Day of Count	K (actual)	Background Growth %	PMPH Trips	PMPH Vested Trips	Total PMPH Trips	FDOT Current	A	B	C	D	E	Adopted LOS	LOS w/o Vested Trips	LOS with Vested Trips															
Fleetwood Drive																																										
2714	Old Kings Road to Florida Park Drive	Collector	Class 2*	0.94	2	No	n.a.	n.a.	n.a.	n.a.	30	920	5/14/2013	0.095	1.0%	87	0	87	*	**	600	1,200	1,270	D	C	C																
Florida Park Drive																																										
2090	Palm Harbor Parkway to Forest Hill Drive	Collector	Class 1	0.32	2	No	Yes	No	1	0.52	30	5,400	5/14/2013	0.085	1.0%	459	36	495	*	**	660	1,330	1,410	D	C	C																
2100	Forest Hill Drive to Fleetwood Drive			0.64								6,300	11/7/2013	0.09	1.0%	567	31	598							C	C																
2105	Fleetwood Drive to Farragut Drive			0.25								7,800	5/14/2013	0.089	1.0%	694	57	751							D	D																
2110	Farragut Drive to Palm Coast Parkway (WB)			0.63								8,500	12/4/2013	0.095	1.0%	808	43	851							D	D																
2120	Palm Coast Parkway (WB) to Palm Coast Parkway (EB)			0.08								5,200	9/5/2013	0.093	1.0%	484	82	566							C	C																
				Segment Length:	1.92																																					
Forest Grove Drive																																										
4000	Old Kings Road (W) to Old Kings Road (E)	Collector	Class 2*	0.59	2	No	n.a.	n.a.	n.a.	n.a.	30	3,500	5/14/2013	0.081	1.0%	284	454	738	*	**	600	1,200	1,270	D	C	D																
4010	Old Kings Road (E) to Palm Harbor Parkway			0.41								4,700	5/16/2013	0.094	1.0%	442	289	731							C	D																
				Segment Length:	1.00																																					
Frontier Drive																																										
2712	Old Kings Road (E) to Palm Harbor Parkway	Collector	Class 2*	1.14	2	No	n.a.	n.a.	n.a.	n.a.	30	1,400	10/9/2013	0.07	1.0%	98	0	98	*	**	600	1,200	1,270	D	C	C																
Hargrove Grade Road																																										
3707	US 1 to RR Xing	Collector	Class 2*	1.00	2	No	n.a.	n.a.	n.a.	n.a.	35	3,500	10/9/2013	0.111	1.0%	389	732	1,121	*	**	600	1,200	1,270	D	C	D																
I-95 (SR 9)																																										
251	Palm Coast City Limit to Palm Coast Parkway	Arterial	Freeway	7.64	6	Yes	n.a.	n.a.	n.a.	n.a.	70	45,000	2012		1.0%	-	75	75	*	6,130	8,370	10,060	11,100	C																		
292	Palm Coast Parkway to SR 100			5.80								63,200	2012	1.5%	-	995	995																									
255	SR 100 to Old Dixie Highway			5.26								39,000	2012	1.7%	-	824	824																									
				Segment Length:								18.70																														
Lakeview Boulevard																																										
3925	London Drive to Matanzas Woods Parkway	Collector	UFH	1.33	2	No	n.a.	n.a.	n.a.	n.a.	n.a.	3,200	5/30/2013	0.096	1.0%	307	35	342	*	770	1,530	2,170	2,990	D	B	B																
Landings Blvd.																																										
4500	SR 100 to Central Avenue	Collector	UFH	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.				1.0%	-	0	-																								
4510	Central Avenue to Lake Avenue			n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.			1.0%	-	0	-																								
Lake Avenue																																										
4550	Market Avenue to Landings Blvd.	Collector	UFH	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.				1.0%	-	0	-																								
4560	Landings Blvd to City Place Drive			n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.			1.0%	-	0	-																								
4570	City Place Drive to Town Center Blvd.			n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.			1.0%	-	0	-																								
Market Avenue																																										
4600	Belle Terre Parkway to Central Avenue	Collector	UFH	0.28	2	No	n.a.	n.a.	n.a.	n.a.	25	280	9/4/2013	0.096	1.0%	27	0	27	*	770	1,530	2,170	2,990	D	B	B																
4610	Central Avenue to Lake Avenue														1.0%	-	0	-																								
				Segment Length:	0.28																																					
Matanzas Woods Parkway																																										
2400	US 1 to Belle Terre Parkway	Arterial	Class 1	1.06	2	No	Yes	No	1	0.33	45	4,500	5/30/2013	0.1	5.8%	450	795	1,245	*	**	1,510	1,600	***	D	C	C																
2410	Belle Terre Parkway to Bird of Paradise Drive			0.80								4,700	5/30/2013	0.075	1.0%	353	305	658							C	C																
2415	Bird of Paradise Drive to Old Kings Road			1.14								5,100	5/30/2013	0.07	3.1%	357	372	729							C	C																
				Segment Length:								3.00																														
Old Kings Road																																										
2700	US 1 to Princess Place Preserve Entrance	Arterial	UFH	1.55	2	No	n.a.	n.a.	n.a.	n.a.	55	1,900	5/16/2013	0.103	1.0%	196	61	257	*	770	1,530	2,170	2,990	D	B	B																
2702	Princess Place Preserve Entrance to Forest Grove Drive			3.01								2,000	5/16/2013	0.098	1.0%	196	86	282							B	B																
2705	Forest Grove Drive to Farmsworth Drive			1.55								3,600	5/21/2013	0.079	5.5%	284	384	668							B	B																
2707	Farmsworth Drive to Frontier Drive			0.39								8,000	10/9/2013	0.087	6.0%	696	452	1,148							B	C																
2710	Frontier Drive to Fleetwood Drive			0.46								10,500	5/21/2013	0.079	1.0%	830	440	1,270							C	C																
2715	Fleetwood Drive to Farragut Drive			0.65								12,600	5/21/2013	0.077	1.0%	970	454	1,424							C	C																
				Segment Length:								7.61																														
2720	Farragut Drive to Palm Coast Parkway			Arterial								Class 1	0.39	4	Yes	Yes	Yes	1							2.56	35	15,600	5/21/2013	0.072	1.0%	1,123	468	1,591	*	**	3,420	3,580	**	D	C	C	
				Segment Length:	0.39																																					
2730	Palm Coast Parkway to Utility Drive	Arterial	UFH	0.63	2	No	n.a.	n.a.	n.a.	n.a.	35	8,400	10/9/2013	0.08	1.3%	672	396	1,068	*	770	1,530	2,170	2,990	D	B	C																
2735	Utility Drive to Oak Trails Boulevard			0.25								7,300	9/12/2013	0.086	1.7%	628	376	1,004							B	C																
2740	Oak Trails Boulevard to Town Center Boulevard			3.55								6,700	9/12/2013	0.083	4.2%	556	572	1,128							B	C																
2745	Town Center Boulevard to SR 100			1.61								6,500	5/23/2013	0.081	2.6%	527	1,009	1,536							*	3,300	4,660	5,900	6,530	B	B											
2750	SR 100 to Palm Coast City Limit			0.30								8,400	5/23/2013	0.091	4.4%	764	122	886							*	770	1,530	2,170	2,990	B	C											
				Segment Length:	6.34																																					
Palm Coast Parkway																																										
2800	US 1 to Pine Lakes Parkway	Arterial	Class 1	0.53	4	Yes	Yes	Yes	1	1.89	45	10,400	4/30/2013	0.084	1.3%	874	2,360	3,234	*	**	3,420	3,580	***	D	C	C																
Palm Coast Parkway (Eastbound)																																										
2815	Pine Lakes Parkway to Belle Terre Parkway	Arterial	Class 1 (One	1.22	2	One Way	Yes	No	2	1.00	45	10,200	9/19/2013	0.089	1.0%	908	1,393	2,301	*	**	2,050	2,150	***	D	C	F																

Link	Facility	Facility Type	Classification	Length (miles)	Number of Lanes	Divided	Turn Lanes Left	Turn Lanes Right	Signals	Signals / Mile	Speed Limit	2013 AADT	Day of Count	K (actual)	Background Growth %	PMPH Trips	PMPH Vested Trips	Total PMPH Trips	FDOT Current Service Volumes (2012)					Adopted LOS	LOS w/o Vested Trips	LOS with Vested Trips
																			A	B	C	D	E			
2825	Belle Terre Parkway to Cypress Point Parkway	Arterial	Class 1 (One Way)	0.66	3	One Way	Yes	No	2	1.00	40	16,300	10/22/2013	0.078	1.0%	1,271	965	2,236	*	**	3,150	3,240	***	D	C	C
	Segment Length:			1.88																						
	<b>Palm Coast Parkway (Westbound)</b>																									
2820	Cypress Point Parkway to Belle Terre Parkway	Arterial	Class 1 (One Way)	0.65	3	One Way	Yes	No	2	1.10	40	17,700	10/22/2013	0.085	1.0%	1,505	973	2,478	*	**	3,150	3,240	***	D	C	C
2810	Belle Terre Parkway to Pine Lakes Parkway			1.16	2	One Way	Yes	No	2	1.10	45	9,800	4/31/2013	0.075	1.0%	735	1,393	2,128	*	**	2,050	2,150	***		C	D
	Segment Length:			1.81																						
	<b>Palm Coast Parkway</b>																									
2826	Cypress Point Parkway to I-95 South Bound Ramps	Arterial	Class 1	0.27	6	Yes	Yes	Yes	3	3.33	40	42,600	10/22/2013	0.077	1.0%	3,280	1,323	4,603	*	**	5,250	5,390	***	D	C	C
2827	I-95 South Bound Ramps to I-95 North Bound Ramps			0.39								41,600	5/7/2013	0.077	1.0%	3,203	837	4,040							C	C
2830	I-95 North Bound Ramps to Old Kings Road			0.24								42,600	5/7/2013	0.075	1.0%	3,195	822	4,017							C	C
	Segment Length:			0.90																						
	<b>Palm Coast Parkway (Eastbound)</b>																									
2845	Old Kings Road to Florida Park Drive	Arterial	Class 1 (One Way)	0.34	2	One Way	Yes	Yes	3	1.69	45	15,000	4/30/2013	0.086	1.0%	1,290	474	1,764	*	**	3,150	3,240	***	D	C	C
2855	Florida Park Drive to Club House Drive			0.26								11,800	4/30/2013	0.088	1.0%	1,038	502	1,540							C	C
2865	Club House Drive to Colbert Lane			0.25								9,500	5/9/2013	0.079	1.0%	751	342	1,093							C	C
2875	Colbert Lane to Palm Harbor Parkway			0.93								6,000	5/9/2013	0.076	1.0%	456	283	739							C	C
	Segment Length:			1.78																						
	<b>Palm Coast Parkway (Westbound)</b>																									
2870	Palm Harbor Parkway to Colbert Lane	Arterial	Class 1 (One Way)	0.65	2	One Way	Yes	No	3	1.90	40	6,600	5/9/2013	0.078	1.9%	515	283	798	*	**	2,050	2,150	***	D	C	C
2860	Colbert Lane to Club House Drive			0.32								9,400	5/9/2013	0.071	1.0%	667	323	990							C	C
2850	Club House Drive to Florida Park Drive			0.28								11,800	4/30/2013	0.072	1.0%	850	441	1,291							C	C
2840	Florida Park Drive to Old Kings Road			0.33		One Way	Yes	No	3	1.90	40	15,400	5/7/2013	0.075	1.0%	1,155	448	1,603							C	C
	Segment Length:			1.58																						
	<b>Palm Coast Parkway (Hammock Dunes Parkway)</b>																									
2880	Palm Harbor Parkway to SR A1A	Arterial	Class 1	1.11	2	No	Yes	Yes	1	0.90	45	10,400	5/9/2013	0.071	1.0%	738	152	890	*	**	1,510	1,600	***	D	C	C
	Segment Length:																									
	<b>Palm Harbor Parkway</b>																									
2900	Forest Grove Drive to Florida Park Drive	Collector	UFH	1.61	2	No	n.a.	n.a.	n.a.	n.a.	45	4,900	9/4/2013	0.077	4.1%	377	271	648	*	770	1,530	2,170	2,990	D	B	B
2910	Florida Park Drive to Club House Drive			1.78								4,400	9/4/2013	0.081	1.0%	356	333	689							B	B
	Segment Length:			3.39																						
2920	Club House Drive to Palm Coast Parkway	Collector	Class 2	0.75	2	No	No	No	2	2.67	35	5,200	9/4/2013	0.086	1.0%	447	339	786	*	**	660	1,330	1,410	D	C	C
	Segment Length:																									
	<b>Pine Lakes Parkway</b>																									
3000	Belle Terre Parkway (N) to Palm Coast Parkway	Collector	Class 1	1.21	2	No	Yes	Yes	2	0.40	45	3,600	10/22/2013	0.093	2.8%	335	221	556	*	**	1,510	1,600	***	D	C	C
3002	Palm Coast Parkway to Commerce Boulevard			0.15								9,000	5/30/2013	0.079	1.2%	711	126	837							C	C
3010	Commerce Boulevard to White Mill Drive			1.85								8,500	10/22/2013	0.087	1.0%	740	126	866							C	C
3020	White Mill Drive to Belle Terre Parkway (S)			1.81								12,300	5/30/2013	0.077	1.0%	947	107	1,054							C	C
	Segment Length:			5.02																						
	<b>Ravenwood Drive</b>																									
3911	White View Parkway to Rymfire Drive	Collector	UFH	0.56	2	No	n.a.	n.a.	n.a.	n.a.	45	4,500	4/30/2013	0.083	4.6%	374	0	374	*	770	1,530	2,170	2,990	D	B	B
	Segment Length:																									
	<b>Royal Palms Parkway</b>																									
3200	US 1 to Rymfire Drive	Arterial	Class 1	0.68	2	No	Yes	No	1	0.23	55	5,400	10/9/2013	0.098	5.9%	529	550	1,079	*	**	1,510	1,600	***	D	C	C
3210	Rymfire Drive to Belle Terre Parkway			2.05								5,200	5/23/2013	0.077	5.4%	400	576	976							C	C
3212	Belle Terre Parkway to Town Center Boulevard			1.57								7,000	10/9/2013	0.09	1.0%	630	416	1,046							C	C
	Segment Length:			4.30																						
	<b>Rymfire Drive</b>																									
3215	Royal Palms Parkway to Ravenwood Drive	Collector	UFH	1.71	2	No	n.a.	n.a.	n.a.	0.00	45	3,300	4/18/2013	0.078	1.0%	257	0	257	*	770	1,530	2,170	2,990	D	B	B
3225	Ravenwood Drive to Belle Terre Parkway			1.34								5,000	4/18/2013	0.088	1.0%	440	0	440							B	B
	Segment Length:			3.05																						
	<b>Seminole Woods Parkway</b>																									
3325	SR 100 to Ulaturn Place	Collector	UFH	0.95	4	Yes	n.a.	n.a.	n.a.	n.a.	50	7,600	4/25/2013	0.086	1.0%	654	327	981	*	3,300	4,660	5,900	6,530	D	B	B
3300	Ulaturn Place to Citation Parkway			1.45								5,500	4/25/2013	0.089	1.0%	490	231	721							B	B
3310	Citation Parkway to Sesame Boulevard			1.15	2	No						4,000	4/25/2013	0.094	1.0%	376	180	556	*	770	1,530	2,170	2,990		B	B
3305	Sesame Boulevard to US 1			1.37								4,200	5/7/2013	0.097	1.0%	407	173	580							B	B
	Segment Length:			4.92																						
	<b>Sesame Boulevard</b>																									
3320	Seminole Woods Parkway to terminus	Collector	UFH	2.92	2	No	n.a.	n.a.	n.a.	n.a.	45	1,300	5/23/2013	0.092	1.0%	120	0	120	*	770	1,530	2,170	2,990	D	B	B
	Segment Length:																									
	<b>State Road 100</b>																									
3560	John Anderson Drive to Colbert Lane	Arterial	State Class 1	1.17	4	Yes	Yes	No	2	0.74	55	17,500	6/4/2013	0.077	1.5%	1,348	426	1,774	*	**	3,420	3,580	***	D	C	C
3550	Colbert Lane to Tuscany Blvd.			0.46								18,200	6/4/2013	0.077	1.0%	1,401	742	2,143							C	C
3540	Tuscany Blvd. to Old Kings Road			1.07								18,500	6/4/2013	0.077	1.0%	1,425	1,136	2,561							C	C
	Segment Length:			2.70																						
3530	Old Kings Road to I-95	Arterial	State Class 1																							

Link	Facility	Facility Type	Classification	Length (miles)	Number of Lanes	Divided	Turn Left	Turn Right	Signals	Signals / Mile	Speed Limit	2013 AADT	Day of Count	K (actual)	Background Growth %	PMPH Trips	PMPH Vested Trips	Total PMPH Trips	FDOT Current Service Volumes (2012)					Adopted LOS	LOS w/o Vested Trips	LOS with Vested Trips											
3505	Landings Blvd. to Belle Terre Parkway			0.45	4	Yes	n.a.	n.a.	n.a.	n.a.	25	26,100	12/19/2013	0.08	1.4%	2,088	439	2,527	A	B	C	D	E	D	C	C											
3500	Belle Terre Parkway to Palm Coast City Limits			0.45								17,900	9/12/2013	0.085	1.0%	1,522	352	1,874							C	C											
	Segment Length:			3.06																																	
	Town Center Blvd.																																				
4100	SR 100 to Hospital Drive	Collector	UFH	0.29	4	Yes	n.a.	n.a.	n.a.	n.a.	25	3,800	4/25/2013	0.074	1.0%	281	571	852	*	3,300	4,660	5,900	6,530	D	B	B											
4110	Hospital Drive to Central Avenue			0.39								4,000	4/25/2013	0.086	1.0%	344	636	980							B	B											
4120	Central Avenue to Lake Avenue			0.30	4,400	9/12/2013						0.083	1.0%	365	300	665	B	B																			
4130	Lake Avenue to Royal Palm Parkway			0.59	4,300	9/12/2013						0.082	1.0%	353	492	845	B	C																			
4140	Royal Palm Parkway to Old Kings Road			0.25	6,900	9/19/2013						0.086	1.0%	593	728	1,321	B	C																			
	Segment Length:			1.82																																	
	Tuscany Blvd.																																				
4145	Old Kings Road to SR100	Collector	Class 1	2.01	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.				1.0%	-	0	-																			
	US1 (SR5)																																				
3700	St. Johns County Line to Old Kings Road	Arterial	State Class 1	0.76	4	Yes	Yes	No	3	0.25	60	11,300	8/20/2013	0.103	5.3%	1,164	710	1,874	*	**	3,420	3,580	***	D	C	C											
3702	Old Kings Road to Matanzas Woods Parkway			2.61								10,000	8/20/2013	0.103	3.4%	1,030	989	2,019							C	C											
3705	Matanzas Woods Parkway to Palm Coast Parkway			3.65								8,900	8/20/2013	0.1	1.1%	890	2,526	3,416							C	C											
3710	Palm Coast Parkway to White View Parkway			2.11								13,000	8/20/2013	0.091	1.0%	1,183	1,040	2,223							C	C											
3720	White View Parkway to Royal Palms Parkway			1.78								14,400	8/22/2013	0.086	1.0%	1,238	1,543	2,781							C	C											
3725	Royal Palms Parkway to Espanola Road			1.07								15,200	8/22/2013	0.09	1.0%	1,368	942	2,310							C	C											
	Segment Length:			11.98																																	
101	Palm Coast City Limit to Belle Terre Parkway	Arterial	State Class 1	0.57	4	Yes	Yes	No	2	0.69	60	10,200	8/22/2013	0.09	1.4%	918	470	1,388	*	**	3,420	3,580	***	D	C	C											
3750	Belle Terre Parkway to DuPont Road			0.9								12,700	9/12/2013	0.09	1.6%	1,143	490	1,633							C	C											
3755	DuPont Road to Seminole Woods Parkway			1.04								12,700	8/22/2013	0.09	2.8%	1,143	420	1,563							C	C											
235	Seminole Woods Parkway to Palm Coast City Limit			0.37								13,400	8/27/2013	0.098	1.0%	1,313	490	1,803							C	C											
	Segment Length:			2.88																																	
	White Mill Drive																																				
3915	Pine Lakes Parkway to White View Parkway	Collector	UFH	0.39	2	No	n.a.	n.a.	n.a.	n.a.	40	3,300	4/30/2013	0.091	2.6%	300	66	366	*	770	1,530	2,170	2,990	D	B	B											
	White View Parkway																																				
3920	US 1 to White Mill Drive	Arterial	Class 1	0.88	4	Yes	Yes	No	1	0.28	45	5,300	8/27/2013	0.093	3.9%	493	121	614	*	**	3,420	3,580	***	D	C	C											
3910	White Mill Drive to Belle Terre Parkway			1.53	50	6,100					8/27/2013	0.084	4.8%	512	30	542	*	**	1,510	1,600	***		C		C												
3900	Belle Terre Parkway to Pritchard Drive			1.11	45	2,900					8/27/2013	0.089	2.6%	258	14	272							C		C												
	Segment Length:			3.52																																	
Freeway = Interstate Highway, State = State Highway, UFH = Uninterrupted Flow Highway, Class 1 = 40 mph or higher speed limit, Class 2 = 35 mph or lower speed limit, PMPH = P.M. Peak Hour, K (actual) = Measured Peak Hour Factor.																																					

Freeway = Interstate Highway, State = State Highway, UFH = Uninterrupted Flow Highway, Class 1 = 40 mph or higher speed limit, Class 2 = 35 mph or lower speed limit, PMPH = P.M. Peak Hour, K (actual) = Measured Peak Hour Factor.



## VOLUSIA COUNTY (79)

Date of last update =

5/27/2015

## VOLUSIA COUNTY LOS SPREADSHEET

Note: LOS\_ALL is a planning tool for determining general operating conditions. Segment characteristics in this table represent general conditions only and actual conditions may vary (i.e., posted speeds, number of lanes, area type, constraint, etc.) A more detailed analysis is necessary to confirm operating conditions. According to 9J.019 F.A.C., the local government can set the adopted level of service (LOS) standard for state roads other than those on the Florida Intrastate Highway System (FIHS) or the Strategic Intermodal System (SIS). The local government's adopted LOS standard may be different from the FDOT's adopted standard. For more information, you should contact the local government that has jurisdiction over the requested roadway segment.

Section No.	Count Station ID #	State Road No.	From	From M.P.	To	To M.P.	Section Length	SIS	TCEA	Within 500 K Pop.	Area Type	1-way or 2-way	Fac. Type 2013	Class	Thru Lanes	2013	2013	No. of Signals	Sig./ Mile	2013 Divided	2013	2013	FDOT LOS Std.	Non-Adjusted Std.	Adjusted LOS Std.	% of LOS Std.	LOS	
																Posted Speed	AADT				Left-Turn Bays	Right-Turn Bays						
79001000	790501	SR 400	SR 91-95	0.000	SR 483/Clyde Morris Blvd	2.181	2.18	N	Y	N	U	2	A	1	4	55	27,500	2	0.92	Y	Y	Y	D	39,800	41,790	65.81	C	
79001000	790501	SR 400	SR 91-95	0.000	Pelican Bay Dr	0.946	0.95	N	Y	N	U	2	A	1	4	55	26,500	1	1.06	Y	Y	Y	D	39,800	41,790	63.41	C	
79001000	795189	SR 400	Pelican Bay Dr	0.946	SR 483/Clyde Morris Blvd	2.181	1.24	N	Y	N	U	2	A	1	4	55	28,500	1	0.81	Y	Y	Y	D	39,800	41,790	68.20	C	
79001000	790511	SR 400	SR 483/Clyde Morris Blvd	2.181	US1/SR 5	4.216	2.04	N	Y	N	U	2	A	1	4	45	24,900	5	2.46	Y	Y	Y	D	39,800	41,790	59.58	C	
79001000	790511	SR 400	SR 483/Clyde Morris Blvd	2.181	SR 5A/Novia Rd	2.852	0.67	N	Y	N	U	2	A	1	4	45	33,000	2	2.98	Y	Y	Y	D	39,800	41,790	78.97	C	
79001000	790502	SR 400	SR 5A/Novia Rd	2.852	Golfview Blvd	3.846	0.99	N	N	N	U	2	A	1	4	45	24,500	2	2.01	Y	Y	Y	D	39,800	41,790	58.63	C	
79001000	790011	SR 400	Golfview Blvd	3.846	US1/SR 5	4.216	0.37	N	Y	N	U	2	A	2	4	35	17,200	1	2.70	Y	Y	Y	D	32,400	34,020	50.56	D	
79002000	700436	SR 91-95	Brevard County Line	0.000	SR 442	11.469	11.47	Y	N	N	R	2	F	2	4	70	26,500	0	0.00	Y	N	N/A	C	43,000	43,000	61.63	B	
79002000	790503	SR 91-95	SR 442	11.469	Urban Boundary	14.354	2.89	Y	N	N	T	2	F	2	4	70	32,500	0	0.00	Y	N	N/A	C	57,600	57,600	56.42	B	
79002000	790133	SR 91-95	Urban Boundary	14.354	SR 421/Dunlawton Ave	23.253	8.90	Y	N	N	U	2	F	2	4	70	36,600	0	0.00	Y	N	N/A	D	74,400	74,400	49.19	B	
79002000	790492	SR 91-95	SR 421/Dunlawton Ave	23.253	I-4/SR 400	27.879	4.63	Y	N	N	U	2	F	2	4	70	45,000	0	0.00	Y	N	N/A	D	74,400	74,400	60.48	B	
79002000	790492	SR 91-95	I-4/SR 400	27.879	SR 600/US 92	29.136	1.26	Y	N	N	U	2	F	2	6	65	45,000	0	0.00	Y	N	N/A	D	111,800	111,800	40.25	B	
79002000	790494	SR 91-95	US 92	29.136	LPGA Blvd (11th St)	32.633	3.50	Y	Y	N	U	2	F	2	6	65	71,500	0	0.00	Y	N	N/A	D	111,800	111,800	63.95	C	
79002000	790534	SR 91-95	LPGA Blvd (11th St)	32.633	SR 40	35.319	2.69	Y	Y	N	U	2	F	2	6	65	70,000	0	0.00	Y	N	N/A	D	111,800	111,800	62.61	C	
79002000	790495	SR 91-95	SR 40	35.319	US 1	40.965	5.65	Y	N	N	U	2	F	2	6	70	63,500	0	0.00	Y	N	N/A	D	111,800	111,800	56.80	B	
79002000	790496	SR 91-95	SR 5/US 1	40.965	Flagler County Line	45.742	4.78	Y	N	N	U	2	F	2	6	70	69,500	0	0.00	Y	N	N/A	D	111,800	111,800	62.16	C	
79010000	700404	SR 5/US 1	Brevard County Line	0.000	Kennedy Pkwy	3.979	3.98	N	N	N	T	2	H	1	4	65	3,100	0	0.00	Y	Y	N/A	C	40,300	40,300	7.69	B	
79010000	790531	SR 5/US 1	Kennedy Pkwy	3.979	Halifax Ave	6.164	2.19	N	N	N	T	2	H	1	4	55	3,400	0	0.00	Y	Y	N/A	C	49,600	49,600	6.82	B	
79010000	790531	SR 5/US 1	Kennedy Pkwy	3.979	Putnam Grove Dr	5.595	1.62	N	N	N	T	2	H	1	4	55	3,100	0	0.00	Y	Y	N/A	C	49,600	49,600	6.25	B	
79010000	790001	SR 5/US 1	Putnam Grove Dr	5.595	Halifax Ave	6.172	0.58	N	N	N	T	2	H	1	4	45	3,600	0	0.00	Y	Y	N/A	C	49,600	49,600	7.26	B	
79010000	790002	SR 5/US 1	Halifax Ave	6.172	H H Birch Rd	8.220	2.05	N	N	N	T	2	H	1	4	55	5,200	1	0.49	Y	Y	N/A	C	49,600	49,600	10.48	B	
79010000	790003	SR 5/US 1	H H Birch Rd	8.220	SR 442	14.178	5.96	N	N	N	U	2	A	1	4	55	12,200	3	0.50	Y	Y	Y	D	39,800	41,790	29.13	C	
79010000	790003	SR 5/US 1	H H Birch Rd	8.220	Ariel Rd	8.821	0.60	N	N	N	U	2	H	1	4	55	6,800	0	0.00	Y	Y	N/A	D	65,600	65,600	10.37	B	
79010000	799929	SR 5/US 1	Ariel Rd	8.821	Volco Rd	11.908	3.09	N	N	N	U	2	H	1	4	55	11,100	0	0.00	Y	Y	N/A	D	65,600	65,600	16.92	B	
79010000	790027	SR 5/US 1	Volco Rd	11.908	SR 442	14.178	2.27	N	N	N	U	2	A	1	4	55	18,800	3	1.32	Y	Y	Y	D	39,800	41,790	44.99	C	
79010000	795170	SR 5/US 1	SR 442	14.178	Turnbullbay Rd	19.519	5.34	N	N	N	U	2	A	1	4	40	22,700	7	1.31	Y	Y	Y	N	D	39,800	39,800	37.94	C
79010000	795170	SR 5/US 1	SR 442	14.178	Turgot Ave	14.879	0.70	N	N	N	U	2	A	1	4	45	25,000	0	0.00	Y	Y	Y	D	39,800	41,790	59.82	C	
79010000	795168	SR 5/US 1	Turgot Ave	14.879	10th St	16.663	1.78	N	N	N	U	2	A	1	4	45	25,000	2	1.12	Y	Y	Y	D	39,800	41,790	59.82	C	
79010000	795154	SR 5/US 1	10th St	16.663	Canal St/SR 44	18.186	1.52	N	N	N	U	2	A	1	4	40	18,600	2	1.31	Y	Y	Y	N	D	39,800	39,800	46.73	C
79010000	795155	SR 5/US 1	Canal St/SR 44	18.186	Turnbullbay Rd	19.524	1.34	N	N	N	U	2	A	1	4	40	22,000	3	2.24	Y	Y	Y	N	D	39,800	39,800	55.28	C
79010000	795159	SR 5/US 1	Turnbullbay Rd	19.524	SR 421/Dunlawton Ave	27.573	8.05	N	N	N	U	2	A	1	4	55	19,600	5	0.62	Y	Y	Y	D	39,800	41,790	46.90	C	
79010000	795159	SR 5/US 1	Turnbullbay Rd	19.524	Art Center Ave	21.779	2.26	N	N	N	U	2	H	1	4	55	23,500	0	0.00	Y	Y	N/A	D	65,600	65,600	35.82	B	
79010000	790013	SR 5/US 1	Art Center Ave	21.779	SR 5A/Novia Rd	24.972	3.19	N	N	N	U	2	A	1	4	45	20,500	1	0.31	Y	Y	Y	N	D	39,800	39,800	51.51	C
79010000	790152	SR 5/US 1	SR 5A/Novia Rd	24.972	Commonwealth Blvd	26.202	1.23	N	N	N	U	2	A	1	4	45	13,900	1	0.81	Y	Y	Y	D	39,800	41,790	33.26	C	
79010000	795057	SR 5/US 1	Commonwealth Blvd	26.202	SR 421/Dunlawton Ave	27.573	1.37	N	N	N	U	2	A	1	4	45	20,300	3	2.19	Y	Y	Y	D	39,800	41,790	48.58	C	
79010000	790213	SR 5/US 1	SR 421/Dunlawton Ave	27.573	SR 400/Beville Rd	30.640	3.07	N	N	N	U	2	A	1	4	40	26,000	7	2.28	Y	Y	Y	N	D	39,800	39,800	65.33	C
79010000	790213	SR 5/US 1	SR 421/Dunlawton Ave	27.573	Reed Canal Rd	28.747	1.17	N	N	N	U	2	A	1	4	45	24,500	3	2.56	Y	Y	Y	D	39,800	41,790	58.63	C	
79010000	795061	SR 5/US 1	Reed Canal Rd	28.747	Big Tree Rd	29.920	1.17	N	N	N	U	2	A	1	4	40	26,500	2	1.71	Y	Y	Y	N	D	39,800	39,800	66.58	C
79010000	795062	SR 5/US 1	Big Tree Rd	29.920	Bellewood Ave	30.367	0.45	N	N	N	U	2	A	1	4	40	27,000	0	0.00	Y	Y	Y	N	D	39,800	39,800	67.84	C
79010000	795063	SR 5/US 1	Bellewood Ave	30.367	SR 400/Beville Rd	30.640	0.27	N	N	N	U	2	A	1	4	40	26,000	2	7.33	Y	Y	Y	N	D	39,800	39,800	65.33	C
79010000	790452	SR 5/US 1	SR 400/Beville Rd	30.640	SR 600/US 92/Int'l Speedway Blvd	32.696	2.06	N	Y	N	U	2	A	1	4	40	28,800	5	2.43	Y	Y	Y	N	D	39,800	39,800	72.36	C
79010000	790452	SR 5/US 1	SR 400/Beville Rd	30.640	Bellevue Ave	31.682	1.04	N	Y	N	U	2	A	1	4	40	29,500	2	1.92	Y	Y	Y	D	39,800	41,790	70.59	C	
79010000	795066	SR 5/US 1	Bellevue Ave	31.682	Magnolia Ave	32.557	0.88	N	Y	N	U	2	A	1	4	40	28,000	2	2.29	Y	Y	Y	N	D	39,800	39,800	70.35	C
79010000	795070	SR 5/US 1	Magnolia Ave	32.557	SR 600/US 92/Int'l Speedway Blvd	32.696	0.14	Y	Y	N	U	2	A	2	4	35	29,000	1	7.19	Y	Y	Y	N	D	32,400	32,400	89.51	D
79030000	795071	SR 5/US 1	SR 600/US 92	0.000	SR 430	1.192	1.19	N	Y	N	U	2	A	2	4	35	26,800	6	5.03	Y	Y	Y	N	D	32,400	32,400	62.72	

## VOLUSIA COUNTY LOS SPREADSHEET

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Section No.	Count Station ID #	State Road No.	From	From M.P.	To	To M.P.	Section Length	SIS	TCEA	Within 500 K Pop.	Area Type	1-way or 2-way	Fac. Type 2013	Class	2013 Thru Lanes	Posted Speed	2013 AADT	No. of Signals	Sig./ Mile	2013 Divided	2013 Left-Turn Bays	2013 Right-Turn Bays	FDOT LOS Std.	Non-Adjusted Std.	Adjusted LOS	% of LOS Std.	LOS
79040000	790101	SR 600/SR 15	Fort Florida Rd	1.236	Enterprise Rd	6.068	4.83	Y	N	N	U	2	A	1	4	45	21,900	6	1.24	Y	Y	Y	D	39,800	41,790	52.40	C
79040000	790101	SR 600/SR 15	Fort Florida Rd	1.236	Benson Junction Rd/Dirksen Dr	1.968	0.73	Y	N	N	U	2	A	1	4	50	23,000	1	1.37	Y	Y	Y	D	39,800	41,790	55.04	C
79040000	790479	SR 600/SR 15	Benson Junction Rd/Dirksen Dr	1.968	Valencia Rd	3.009	1.04	Y	N	N	U	2	H		4	50	21,500	0	0.00	Y	Y	N	D	65,600	65,600	32.77	B
79040000	790007	SR 600/SR 15	Valencia Rd	3.009	Highbanks Rd	3.743	0.73	Y	N	N	U	2	A	1	4	40	21,500	1	1.36	Y	Y	N	D	39,800	39,800	54.02	C
79040000	790008	SR 600/SR 15	Highbanks Rd	3.743	Debary Plantation Blvd	4.659	0.92	Y	N	N	U	2	A	1	4	45	22,000	2	2.18	Y	Y	Y	D	39,800	41,790	52.64	C
79040000	790509	SR 600/SR 15	Debary Plantation Blvd	4.659	Saxon Blvd	5.269	0.61	Y	N	N	U	2	A	1	4	45	26,000	1	1.64	Y	Y	Y	D	39,800	41,790	62.22	C
79040000	790539	SR 600/SR 15	Saxon Blvd	5.269	Enterprise Rd	6.068	0.80	Y	N	N	U	2	A	1	4	45	17,600	1	1.25	Y	Y	Y	D	39,800	41,790	42.12	C
79040000	790444	SR 600/SR 15	Enterprise Rd	6.068	SR 472	9.567	3.50	Y	N	N	U	2	A	1	4	45	26,300	7	2.20	Y	Y	N	D	39,800	39,800	71.11	C
79040000	790444	SR 600/SR 15	Enterprise Rd	6.068	Blue Springs Ave	7.442	1.37	Y	N	N	U	2	A	1	4	45	30,500	3	2.18	Y	Y	Y	D	39,800	41,790	72.96	C
79040000	795165	SR 600/SR 15	Blue Springs Ave	7.442	Graves Ave	7.826	0.38	Y	N	N	U	2	A	1	4	45	29,000	1	2.60	Y	Y	N	D	39,800	39,800	72.86	C
79040000	795166	SR 600/SR 15	Graves Ave	7.826	Wisconsin Ave	8.570	0.74	Y	N	N	U	2	A	1	4	40	26,500	1	1.34	Y	Y	N	D	39,800	39,800	66.58	C
79040000	790445	SR 600/SR 15	Wisconsin Ave	8.570	SR 472	9.567	1.00	Y	N	N	U	2	A	1	4	55	27,000	2	2.01	Y	Y	Y	D	39,800	41,790	64.61	C
79040000	791004	SR 600/SR 15	SR 472	9.567	SR 15A/Taylor Rd	11.322	1.76	Y	N	N	U	2	A	1	6	45	45,000	3	1.71	Y	Y	Y	D	59,900	62,900	71.54	C
79040000	791006	SR 600/SR 15	SR 15A/Taylor Rd	11.322	Beresford Ave	12.338	1.02	N	N	N	U	2	A	1	4	40	27,000	2	1.97	Y	Y	Y	D	39,800	41,790	64.61	C
79040000	795173	SR 600/SR 15	Beresford Ave	12.338	Plymouth Ave	14.349	2.01	N	N	N	U	2	A	2	2	30	16,400	9	4.48	Y	Y	N	D	14,800	15,540	105.53	F
79040000	795173	SR 600/SR 15	Beresford Ave	12.338	Euclid Ave	12.833	0.50	N	N	N	U	2	A	2	2	35	16,600	0	0.00	Y	Y	N	D	14,800	15,540	106.82	F
79040000	795004	SR 600/SR 15	Euclid Ave	12.833	SR 44/New York Ave	13.324	0.49	N	N	N	U	2	A	2	2	30	16,300	3	6.11	Y	Y	N	D	14,800	15,540	104.89	E
79040000	795008	SR 600/SR 15	SR 44/New York Ave	13.324	Plymouth Ave	14.349	1.03	N	N	N	U	2	A	2	2	30	16,300	6	5.85	Y	Y	N	D	14,800	15,540	104.89	E
79040000	790066	SR 600/SR 15	Plymouth Ave	14.349	Intrl Speedway Blvd	15.172	0.82	N	N	N	U	2	A	1	4	45	20,500	2	2.43	Y	Y	Y	D	39,800	41,790	49.05	C
79050000	791000	SR 15/US 17	Intrl Speedway Blvd	0.000	Glenwood Rd	1.198	1.20	N	N	N	U	2	A	1	4	55	24,900	2	1.97	Y	Y	N	D	39,800	39,800	62.91	C
79050000	791000	SR 15/US 17	Intrl Speedway Blvd	0.000	Mercers Ferry Rd	0.682	0.68	N	N	N	U	2	A	1	4	45	29,000	1	1.47	Y	Y	Y	D	39,800	41,790	69.35	C
79050000	790069	SR 15/US 17	Mercers Ferry Rd	0.682	Glenwood Rd	1.198	0.52	N	N	N	U	2	A	1	4	55	20,500	1	1.94	Y	Y	N	D	39,800	39,800	51.51	C
79050000	790236	SR 15/US 17	Glenwood Rd	1.198	SR 15A	2.824	1.63	N	N	N	U	2	A	1	4	55	13,500	1	0.62	Y	Y	Y	D	39,800	41,790	32.30	C
79050000	790476	SR 15/US 17	SR 15A	2.824	Reynolds Rd	5.601	2.78	Y	N	N	U	2	H		4	55	15,800	0	0.00	Y	Y	N/A	D	65,600	65,600	24.09	B
79050000	790519	SR 15/US 17	Reynolds Rd	5.601	Lake Winona Rd	7.250	1.65	Y	N	N	U	2	H		4	55	8,300	0	0.00	Y	Y	N/A	D	34,200	35,410	34.24	B
79050000	790519	SR 15/US 17	Reynolds Rd	5.601	Spring Garden Ranch Rd	6.690	1.09	Y	N	N	U	2	H		2	55	10,100	0	0.00	Y	Y	N/A	D	24,200	25,410	39.75	C
79050000	790104	SR 15/US 17	Spring Garden Ranch Rd	6.690	Lake Winona Rd	7.250	0.56	Y	N	N	T	2	H		2	55	7,300	0	0.00	N	Y	N/A	C	17,300	17,300	42.20	B
79050000	790104	SR 15/US 17	Lake Winona Rd	7.250	SR 40	12.170	4.92	Y	N	N	R	2	H		2	60	7,300	1	0.20	N	Y	N	C	8,400	8,400	86.90	C
79050000	790448	SR 15/US 17	SR 40	12.170	Putnam County Line	25.873	13.70	Y	N	N	R	2	H		2	60	5,000	3	0.22	N	Y	N/A	C	8,400	8,400	59.52	C
79050000	790448	SR 15/US 17	SR 40	12.170	Washington Ave	17.194	5.02	Y	N	N	R	2	H		2	60	6,200	2	0.40	N	Y	N/A	C	8,400	8,400	73.81	C
79050000	790046	SR 15/US 17	Washington Ave	17.194	CR 305/Lk George Rd	22.491	5.30	Y	N	N	R	2	H		2	60	4,500	1	0.19	N	Y	Y	C	8,400	8,400	53.57	B
79050000	790280	SR 15/US 17	CR 305/Lk George Rd	22.491	Putnam County Line	25.873	3.38	Y	N	N	R	2	H		2	55	4,400	0	0.00	N	Y	Y	C	8,400	8,400	52.38	B
79060000	791001	SR 600/US 92	US 17/SR 15	0.000	Old Daytona Rd (approx. Urban Boundry)	3.958	3.96	N	N	N	U	2	A	1	4	55	24,000	5	1.26	Y	Y	Y	D	39,800	41,790	52.43	C
79060000	791001	SR 600/US 92	US 17/SR 15	0.000	Flightline Blvd	1.089	1.09	N	N	N	U	2	A	1	4	45	25,500	2	1.84	Y	Y	Y	D	39,800	41,790	61.02	C
79060000	790005	SR 600/US 92	Flightline Blvd	1.089	Old Daytona Rd (approx. Urban Boundry)	3.958	2.87	N	N	N	U	2	A	1	4	55	22,500	3	1.05	Y	Y	Y	D	39,800	41,790	53.84	C
79060000	799925	SR 600/US 92	Old Daytona Rd (approx. Urban Boundry)	3.958	Red John Dr	11.134	7.18	N	N	N	R	2	H		4	65	13,000	0	0.00	Y	Y	N/A	C	40,300	40,300	32.28	B
79060000	790478	SR 600/US 92	Red John Dr	11.134	I-4 Eastbound Ramp	13.514	2.38	N	N	N	T	2	A	1	4	65	19,800	1	0.42	Y	Y	Y	C	34,000	35,700	55.46	C
79060000	790532	SR 600/US 92	I-4 Eastbound Ramp	13.514	SR 91-95	16.010	2.50	N	Y	N	U	2	A	1	4	55	25,000	2	0.80	Y	Y	Y	D	39,800	41,790	59.82	C
79060000	790508	SR 600/US 92	SR 91-95	16.010	SR 5A/Novia Rd	19.597	3.59	Y	Y	N	U	2	A	1	8	50	37,800	14	3.90	Y	Y	Y	D	80,100	84,110	45.06	C
79060000	790508	SR 600/US 92	SR 91-95	16.010	Williamson Blvd	16.704	0.69	Y	Y	N	U	2	A	1	8	50	37,500	4	5.76	Y	Y	Y	D	80,100	84,110	44.58	C
79060000	795172	SR 600/US 92	Williamson Blvd	16.704	Bill France Blvd	17.820	1.12	Y	Y	N	U	2	A	1	8	50	42,000	4	3.58	Y	Y	Y	D	80,100	84,110	49.93	C
79060000	795094	SR 600/US 92	Bill France Blvd	17.820	SR 483/Clyde Morris Blvd	18.670	0.85	Y	Y	N	U	2	A	1	8	50	36,000	3	3.53	Y	Y	Y	D	80,100	84,110	42.80	C
79060000	795096	SR 600/US 92	SR 483/Clyde Morris Blvd	18.670	SR 5A/Novia Rd	19.597	0.93	Y	Y	N	U	2	A	1	6	45	36,000	3	3.24	Y	Y	Y	D	59,900	62,900	57.23	C
79060000	795099	SR 600/US 92	SR 5A/Novia Rd	19.597	SR 5/US 1	20.766	1.17	Y	Y	N	U	2	A	1	4	40	24,000	6	5.13	Y	Y	N	D	39,800	39,800	60.30	C
79060000	795099	SR 600/US 92	SR 5A/Novia Rd	19.597	MLK Blvd	20.372	0.77	Y	Y	N	U	2	A	1	4	40	26,000	3	3.87	Y	Y	N	D	39,800	39,800	65.33	C
79060000	795104	SR 600/US 92	MLK Blvd	20.372	SR 5/US 1	20.766	0.39	Y	Y	N	U	2	A	1	4	40	22,000	3	7.61	Y	Y	N	D	39,800	39,800	55.28	C
79080001	790337	US 92	Beach St	0.000	Hallfax Dr	0.770	0.77	N	N	N	U	2	H		4	40	13,200	1	1.30	Y	Y	N	D	65,600	65,600	20.12	B
79070000	791007	SR 44	Lake County Line	0.000	Shell Rd	1.193	1.19	N	N	N	R	2	H		2	55	9,200	0	0.00	N	Y	Y	C	8,400	8,400	109.52	D
79070000	790290	SR 44	CR 4053/Grand Ave	2.454	Old New York Ave	3.154	0.70	N	N	N	U	2	H		2	55	9,700	0	0.00	N	Y	N/A	D	24,200	24,200	40.08	C
79070000	790274	SR 44	Old New York Ave	3.154	Amelia Ave	5.375	2.22	N	N	N	U	2	A	1	2	40	10,400	7	3.15	N	Y	N	D	17,700	17,700	58.76	C
79070000	790274	SR 44	Old New York Ave	3.154	SR 15A/Spring Garden Ave	3.862	0.71	N	N	N	U	2	A	1	2	40	11,700	1	1.41	N	Y	N	D	17,700	17,700	66.10	C
79070000	790447	SR 44	SR 15A/Spring Garden Ave	3.862	Stone St	4.361	0.50	N	N	N	U	2	A	1	2	40	10,600	1	2.00	N	Y	Y					

## VOLUSIA COUNTY LOS SPREADSHEET

Note: LOS\_ALL is a planning tool for determining general operating conditions. Segment characteristics in this table represent general conditions only and actual conditions may vary (i.e., posted speeds, number of lanes, area type, constraint, etc.) A more detailed analysis is necessary to confirm operating conditions. According to 9J5.019 F.A.C., the local government can set the adopted level of service (LOS) standard for state roads other than those on the Florida Intrastate Highway System (FIHS) or the Strategic Intermodal System (SIS). The local government's adopted LOS standard may be different from the FDOT's adopted standard. For more information, you should contact the local government that has jurisdiction over the requested roadway segment.

Section No.	Count Station ID #	State Road No.	From	From M.P.	To	To M.P.	Section Length	SIS	TCEA	Within 500 K Pop.	Area Type	1-way or 2-way	Fac. Type 2013	Class	Thru Lanes	2013 Posted Speed	2013 AADT	No. of Signals	Sig./ Mile	2013 Divided	2013 Left-Turn Bays	2013 Right-Turn Bays	FDOT LOS Std.	Non-Adjusted Std.	Adjusted LOS	% of LOS Std.	LOS
79070009	790480	SR 44	Begin Realignment	0.000	End Realignment	0.511	0.51	N	N	N	U	2	A	1	4	50	19,900	1	1.96	Y	Y	Y	D	39,800	41,790	47.62	C
79070000		Old SR 44	SR 44	9.085	End of Roadway	9.651	0.57	N	N	N	U	2	A	2	2	30		0	0.00	N	N	N	D	14,800	14,800	0.00	N/A
79070000	790480	SR 44	Begin of Section	10.200	Prewatt Ave	10.728	0.53	N	N	N	T	2	A	1	4	50	19,900	1	1.89	Y	Y	Y	C	34,000	35,700	55.74	C
79070000	790041	SR 44	Prewatt Ave	10.728	Pioneer Trl	16.650	5.92	N	N	N	R	2	H		4	65	16,700	0	0.00	Y	Y	Y	C	40,300	40,300	41.44	B
79070000	791011	SR 44	Pioneer Trl	16.650	SR 415	20.202	3.55	N	N	N	R	2	H		4	65	12,200	1	0.28	Y	Y	N/A	C	40,300	40,300	30.27	B
79070000	791012	SR 44	SR 415	20.202	Samsula Dr	21.348	1.15	N	N	N	R	2	H		4	65	15,700	0	0.00	Y	Y	N/A	C	40,300	40,300	38.96	B
79070000	790423	SR 44	Samsula Dr	21.348	Urban Boundary	22.500	1.15	N	N	N	T	2	H		4	65	18,300	0	0.00	Y	Y	N/A	C	49,600	49,600	36.90	B
79070000	790423	SR 44	Urban Boundary	22.500	I-95	25.103	2.60	N	N	N	U	2	H		4	65	18,300	1	0.38	Y	Y	N/A	D	65,600	65,600	27.90	B
79070000	790515	SR 44	I-95	25.103	Mission Dr/Wallace Rd	27.928	2.83	N	N	N	U	2	A	1	4	55	30,000	4	1.42	Y	Y	Y	D	39,800	41,790	71.79	C
79070000	790514	SR 44	Mission Dr/Wallace Rd	27.928	6th Ave	31.310	3.38	N	N	N	U	2	A	1	4	45	20,800	7	2.07	Y	Y	N	D	39,800	39,800	52.26	C
79070000	790514	SR 44	Mission Dr/Wallace Rd	27.928	Palmetto St	29.156	1.23	N	N	N	U	2	A	1	4	45	19,600	4	3.26	Y	Y	Y	D	39,800	41,790	46.90	C
79070000	790207	SR 44	Palmetto St	29.156	Peninsula Ave	30.504	1.35	N	N	N	U	2	A	1	4	50	26,500	1	0.74	Y	Y	Y	D	39,800	41,790	63.41	C
79070000	795180	SR 44	Peninsula Ave	30.504	Saxon Dr/Horton St	30.866	0.36	N	N	N	U	2	A	1	4	40	23,000	1	2.76	Y	Y	N	D	39,800	39,800	57.79	C
79070000	790543	SR 44/SR A1A	Saxon Dr/Horton St	30.866	6th Ave	31.310	0.44	N	N	N	U	2	A	1	4	40	14,200	1	2.25	Y	Y	N	D	39,800	39,800	35.68	C
79070001	790516	SR 44/CANAL ST.	Lytle St	0.000	SR 5	0.934	1.08	N	N	N	U	2	A	2	2	35	11,500	1	0.93	N	Y	N	D	14,800	14,800	77.70	D
79070001	790516	SR 44/CANAL ST.	Lytle St	0.000	Pioneer Tr	0.151	0.15	N	N	N	U	2	A	1	2	40	11,300	0	0.00	Y	Y	N	D	17,700	18,590	60.79	C
79070001	790111	SR 44/CANAL ST.	Pioneer Tr	0.151	SR 5	0.934	0.78	N	N	N	U	2	A	2	2	35	11,600	1	1.28	N	Y	Y	D	14,800	15,540	74.65	D
79070002	790516	SR 44/LYTL AVE.	Canal St	0.000	Lytle St	0.142	0.14	N	N	N	U	2	A	1	2	45	11,300	0	0.00	N	Y	Y	D	17,700	18,590	60.79	C
79070005	791007	SR 44	Shell Rd	0.000	S. Grand Ave	1.261	1.26	N	N	N	U	2	H		2	50	9,200	0	0.00	N	Y	Y	D	24,200	24,200	38.02	C
79080000	795105	US 92	US 1	0.000	Beach Street	0.230	0.23	N	Y	N	U	2	A	2	4	30	15,200	2	8.70	Y	Y	N	D	32,400	32,400	46.91	D
79080000	795109	US 92	Halifax Dr	1.407	SR A1A	1.059	0.35	N	Y	N	U	2	A	2	4	30	8,200	3	8.62	Y	Y	N	D	32,400	32,400	25.31	C
79080000	795116	SR A1A	US 92	1.407	SR 40/Granada Blvd	6.643	5.24	N	Y	N	U	2	A	2	4	35	16,700	17	3.28	Y	Y	N	D	39,800	39,800	81.94	B
79080000	795115	SR A1A	US 92	1.407	SR 430/Oakridge Blvd	2.298	0.89	N	Y	N	U	2	A	2	4	35	17,300	6	6.73	Y	Y	N	D	32,400	32,400	53.40	D
79080000	795117	SR A1A	SR 430/Oakridge Blvd	2.298	SR 430/Seabreeze Blvd	2.421	0.12	N	Y	N	U	2	A	2	4	35	15,200	1	8.13	Y	Y	N	D	32,400	32,400	46.91	D
79080000	795121	SR A1A	SR 430/Seabreeze Blvd	2.421	Harvard Dr	4.962	2.54	N	Y	N	U	2	A	2	4	35	17,800	7	2.75	Y	Y	N	D	32,400	32,400	54.94	D
79080000	795124	SR A1A	Harvard Dr	4.962	SR 40/Granada Blvd	6.643	1.68	N	N	N	U	2	A	2	4	35	16,400	3	1.78	Y	Y	Y	D	32,400	34,020	48.21	D
79080000	795125	SR A1A	SR 40/Granada Blvd	6.643	Ommond Mall	9.000	2.36	N	N	N	U	2	A	1	2	40	14,700	2	0.85	N	Y	N	D	17,700	17,700	83.05	C
79080000	795125	SR A1A	SR 40/Granada Blvd	6.643	Arnsden Rd	7.809	1.17	N	N	N	U	2	A	2	2	35	14,000	1	0.86	N	Y	Y	D	14,800	15,540	90.09	D
79080000	790174	SR A1A	Arnsden Rd	7.809	Ommond Mall	9.000	1.19	N	N	N	U	2	A	1	2	40	15,400	1	0.84	N	Y	Y	D	17,700	18,590	82.84	C
79080000	790368	SR A1A	Ommond Mall	9.000	Highbridge Rd	15.425	6.43	N	N	N	U	2	H		2	45	15,800	0	0.00	N	Y	N/A	D	24,200	24,200	65.29	C
79080000	730010	SR A1A	Highbridge Rd	15.425	Flagler County Line	16.726	1.30	N	N	N	U	2	H		2	55	5,100	0	0.00	N	N	N/A	D	24,200	24,200	21.07	B
79080001	790337	SR 600	Beach St	0.000	Halifax Dr	0.770	0.77	N	N	N	U	2	H		4	40	13,200	1	1.30	Y	N	N/A	D	65,600	65,600	20.12	B
79090000	790004	SR 11	CR 15/US 17	0.000	CR 15A	2.376	2.38	N	N	N	U	2	H		2	55	6,300	0	0.00	N	Y	N/A	D	24,200	24,200	26.03	B
79090000	790527	SR 11	CR 15A	2.376	SR 40	11.586	9.21	N	N	N	R	2	H		2	60	2,800	0	0.00	N	N	N/A	C	8,400	8,400	33.33	B
79090000	730009	SR 11	SR 40	11.586	Flagler County Line	14.316	2.73	N	N	N	R	2	H		2	60	2,100	0	0.00	N	N	N/A	C	8,400	8,400	25.00	B
79100000	790533	SR 40	Lake County Line	0.000	Rima Ridge Rd (approx. Urban Boundary)	21.190	21.19	Y	N	N	R	2	H		2	60	5,900	1	0.05	N	Y	N/A	C	8,400	8,400	70.24	C
79100000	790533	SR 40	Lake County Line	0.000	Emporia Rd	0.855	0.86	Y	N	N	R	2	H		2	55	6,300	0	0.00	N	Y	N/A	C	8,400	8,400	75.00	C
79100000	790344	SR 40	Emporia Rd	0.855	SR 15/US 17	6.469	5.61	Y	N	N	R	2	H		2	55	5,900	1	0.18	N	Y	Y	C	8,400	8,400	70.24	C
79100000	790530	SR 40	SR 15/US 17	6.469	Rima Ridge Rd (approx. Urban Boundary)	21.190	14.72	Y	N	N	R	2	H		2	60	5,500	0	0.00	N	Y	N/A	C	8,400	8,400	65.48	C
79100000	790523	SR 40	Rima Ridge Rd (approx. Urban Boundary)	21.190	SR 91-95	26.342	5.15	Y	N	N	U	2	A	1	4	60	18,200	4	0.78	Y	Y	Y	D	39,800	41,790	43.55	C
79100000	790523	SR 40	Rima Ridge Rd (approx. Urban Boundary)	21.190	Timber Creek Rd	25.482	4.29	Y	N	N	U	2	A	1	4	60	9,400	2	0.47	Y	Y	Y	D	39,800	41,790	22.49	C
79100000	790499	SR 40	Timber Creek Rd	25.482	SR 91-95	26.342	0.86	Y	N	N	U	2	A	1	4	50	27,000	2	2.33	Y	Y	Y	D	39,800	41,790	74.61	C
79100000	790522	SR 40	SR 91-95	26.342	SR 5A/Novia Rd	28.895	2.55	N	N	N	U	2	A	1	4	45	32,800	6	2.35	Y	Y	N	D	39,800	39,800	82.41	C
79100000	790522	SR 40	SR 91-95	26.342	Clyde Morris Blvd	27.855	1.51	N	N	N	U	2	A	1	4	50	33,500	3	1.98	Y	Y	Y	D	39,800	41,790	80.16	C
79100000	790489	SR 40	Clyde Morris Blvd	27.855	SR 5A/Novia Rd	28.895	1.04	N	N	N	U	2	A	1	4	50	32,000	3	2.88	Y	Y	Y	D	39,800	41,790	76.57	C
79100000	791020	SR 40	SR 5A/Novia Rd	28.895	US 1/SR 5	30.240	1.35	N	N	N	U	2	A	1	4	45	30,000	2	1.49	Y	Y	N	D	39,800	39,800	75.38	C
79100000	790484	SR 4001-4	Seminole County Line	0.000	Dirksen Dr (approx. Urban Boundary)	3.563	3.56	Y	N	N	U	2	F	2	6	65	108,000	0	0.00	Y	N	N/A	D	111,800	111,800	96.60	D
79100000	799906	SR 4001-4	Dirksen Dr (approx. Urban Boundary)	3.563	Saxon Blvd	6.337	2.77	Y	N	N	U	2	F	2	6	70	96,400	0	0.00	Y	N	N/A	D	111,800	111,800	86.23	D
79100000	791003	SR 4001-4	Saxon Blvd	6.337	SR 472	9.515	3.18	Y	N	N	U	2	F	2	6	70	88,500	0	0.00	Y	N	N/A	D	111,800	111,800	79.16	C
79100000	790485	SR 4001-4	SR 472	9.515	SR 44	14.200	4.69	Y	N	N	U	2	F	2	6	70	68,800	0	0.00	Y	N	N/A	D	111,800	111,800	61.54	C
79100000	790485	SR 4001-4	SR 472	9.515	Orange Camp Rd	11.607	2.09	Y	N	N	U	2	F	2	6	70	77,000	0	0.00	Y	N	N/A	D	111,800	111,800	68.87	C
79100000	790497	SR 4001-4	Orange Camp Rd	11.607	SR 44	14.141	2.53	Y	N	N	U	2	F	2	6	70	60,500	0	0.00	Y	N	N/A	D	111,800	111,800	54.11	B
79100000	790486	SR 4001-4	SR 44	14.141	I-4 Connector to US 92	24.505	10.36	Y	N	N	R	2	F	2	4	70	55,000	0	0.00	Y	N	N/A	C	43,000	43,0		

## VOLUSIA COUNTY LOS SPREADSHEET

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Section No.	Count Station ID #	State Road No.	From	From M.P.	To	To M.P.	Section Length	SIS	TCEA	Within 500 K Pop.	Area Type	1-way or 2-way	Fac. Type 2013	Class	2013 Thru Lanes	Posted Speed	2013 AADT	No. of Signals	Sig./ Mile	2013 Divided	2013 Left-Turn Bays	2013 Right-Turn Bays	FDOT LOS Std.	Non-Adjusted Std.	Adjusted LOS	% of LOS Std.	LOS
79120000	791009	SR 415	Twin Lake Ave / Urban Boundary	6.890	SR 44	17.590	10.70	N	N	N	R	2	H	2	55	8,400	1	0.09	N	Y	N/A	C	8,400	8,400	100.00	C	
79120000	790009	SR 415	Twin Lake Ave / Urban Boundary	6.890	Colony Rd/Lk Ashby Rd	12.277	5.39	N	N	N	R	2	H	2	55	7,700	0	0.00	N	Y	N/A	C	8,400	8,400	91.67	C	
79120000	791009	SR 415	Colony Rd/Lk Ashby Rd	12.277	SR 44	17.590	5.31	N	N	N	R	2	H	2	55	9,000	1	0.19	N	Y	N/A	C	8,400	8,400	107.14	D	
79140000	700416	SR 46	Brevard County Line	0.000	Seminole County Line	5.436	5.44	N	N	N	R	2	H	2	55	5,600	0	0.00	N	N	N/A	C	8,400	8,400	66.67	C	
79150000	790171	SR 40	SR 5/US 1	0.000	SR A1A	1.481	1.48	N	N	N	U	2	A	2	4	35	26,600	5	3.38	Y	Y	N	D	32,400	32,400	81.79	D
79150000	790171	SR 40	SR 5/US 1	0.000	Halifax Dr	1.110	1.11	N	N	N	U	2	A	2	4	35	34,000	4	3.60	Y	Y	Y	D	32,400	34,020	99.94	D
79150000	795128	SR 40	Halifax Dr	1.110	SR A1A	1.481	0.37	N	N	N	U	2	A	2	4	35	18,900	1	2.70	Y	Y	Y	D	32,400	34,020	55.56	D
79160000	791005	SR 15A	SR 15/SR 600/US 17	0.000	W. Beresford Ave	1.748	1.75	Y	N	N	U	2	A	1	4	45	20,800	1	0.57	Y	Y	N	D	39,800	39,800	52.26	C
79160000	791005	SR 15A	SR 15/SR 600/US 17	0.000	New Hampshire Ave	1.151	1.15	Y	N	N	U	2	A	1	4	45	20,500	0	0.00	Y	Y	Y	D	39,800	41,790	49.05	C
79160000	790006	SR 15A	New Hampshire Ave	1.151	W. Beresford Ave	1.748	0.60	Y	N	N	U	2	A	1	4	45	21,000	1	1.68	Y	Y	Y	D	39,800	39,800	52.76	C
79160000	790474	SR 15A	W. Beresford Ave	1.748	CR 92/Intl Speedway Blvd	4.571	2.82	Y	N	N	U	2	A	1	4	45	22,200	5	1.77	Y	Y	N	D	39,800	39,800	55.78	C
79160000	790474	SR 15A	W. Beresford Ave	1.748	SR 44/New York Ave	2.748	1.00	Y	N	N	U	2	A	1	4	45	22,000	2	2.00	Y	Y	Y	D	39,800	39,800	55.28	C
79160000	790463	SR 15A	SR 44/New York Ave	2.748	Plymouth Ave	3.750	1.00	Y	N	N	U	2	A	1	4	45	23,000	2	2.00	Y	Y	Y	D	39,800	39,800	57.79	C
79160000	790537	SR 15A	Plymouth Ave	3.750	CR 92/Intl Speedway Blvd	4.571	0.82	Y	N	N	U	2	A	1	4	50	21,500	1	1.22	Y	Y	Y	D	39,800	41,790	51.45	C
79160000	790465	SR 15A	CR 92/Intl Speedway Blvd	4.571	SR 15/US 17	6.899	2.33	Y	N	N	U	2	A	1	4	55	12,100	2	0.86	Y	Y	Y	D	39,800	41,790	28.95	C
79160000	790465	SR 15A	CR 92/Intl Speedway Blvd	4.571	Glenwood Rd	5.787	1.22	Y	N	N	U	2	A	1	4	55	13,600	1	0.82	Y	Y	Y	D	39,800	39,800	34.17	C
79160000	790466	SR 15A	Glenwood Rd	5.767	SR 15/US 17	6.899	1.13	Y	N	N	U	2	A	1	4	55	10,600	1	0.88	Y	Y	Y	D	39,800	41,790	25.36	C
79170000	790421	SR 44/North Causeway	Riverside Dr	0.000	Desoto Dr	1.000	1.00	N	N	N	U	2	A	1	2	40	10,200	2	2.00	Y	Y	Y	D	17,700	19,470	52.39	C
79170000	790421	SR 44	Desoto Dr	0.000	Peninsula Dr	0.437	0.44	N	N	N	U	2	A	2	2	35	10,200	1	2.29	Y	Y	Y	D	14,800	15,540	65.64	D
79180000	790427	SR A1A	SR 5/US 1	0.000	Atlantic Ave / Dunlawton Ave	1.239	1.24	N	N	N	U	2	A	1	4	45	26,000	2	1.61	Y	Y	Y	D	39,800	41,790	62.22	C
79180000	790477	SR A1A	Dunlawton Ave / Atlantic Ave	1.239	Florida Shores Blvd	3.565	2.33	N	N	N	U	2	A	2	4	35	12,700	1	0.43	Y	Y	N	D	32,400	32,400	39.20	C
79180000	790477	SR A1A	Dunlawton Ave / Atlantic Ave	1.239	Van Ave	2.273	1.03	N	N	N	U	2	A	2	4	35	12,500	0	0.00	Y	Y	Y	D	32,400	32,400	38.58	C
79180000	795179	SR A1A	Van Ave	2.273	Florida Shores Blvd	3.565	1.29	N	N	N	U	2	A	2	4	35	12,800	1	0.77	Y	Y	Y	D	32,400	32,400	39.51	C
79180000	790436	SR A1A	Florida Shores Blvd	3.565	SR 600/US 92	6.801	3.24	N	N	N	U	2	A	2	4	35	12,800	4	1.36	Y	Y	Y	D	32,400	32,400	38.89	C
79180000	790436	SR A1A	Florida Shores Blvd	3.565	Silver Beach Ave	5.882	2.32	N	N	N	U	2	A	2	4	35	12,500	3	1.29	Y	Y	Y	D	32,400	32,400	38.58	C
79180000	795112	SR A1A	Silver Beach Ave	5.882	SR 600/US 92	6.801	0.72	N	Y	N	U	2	A	2	4	35	12,700	1	1.39	Y	Y	Y	D	32,400	32,400	39.20	C
79181000	790472	SR 472	SR 600	0.378	End of Road	3.782	3.41	N	N	N	U	2	A	1	4	60	22,800	4	1.17	Y	Y	Y	D	39,800	41,790	53.84	C
79181000	790472	SR 472	SR 600	0.378	CR 4101/MLK Blvd	2.687	2.31	N	N	N	U	2	A	1	4	60	21,000	2	0.87	Y	Y	Y	D	39,800	41,790	59.25	C
79181000	790535	SR 472	CR 4101/MLK Blvd	2.687	End of Road	3.782	1.10	N	N	N	U	2	A	1	4	60	24,000	2	1.83	Y	Y	Y	D	39,800	41,790	57.43	C
79190000	790458	SR 5A	SR 5/US 1	0.000	SR 421/Dunlawton Ave	2.521	2.52	N	N	N	U	2	A	1	4	45	20,700	3	1.19	Y	Y	Y	D	39,800	41,790	49.53	C
79190000	790458	SR 5A	SR 5/US 1	0.000	Spruce Creek Rd	1.434	1.43	N	N	N	U	2	A	1	4	45	16,800	1	0.70	Y	Y	Y	D	39,800	41,790	40.20	C
79190000	791016	SR 5A	Spruce Creek Rd	1.434	SR 421/Dunlawton Ave	2.521	1.09	N	N	N	U	2	A	1	4	45	24,500	2	1.84	Y	Y	Y	D	39,800	41,790	58.63	C
79190000	791017	SR 5A	SR 421/Dunlawton Ave	2.521	SR 400	6.127	3.61	N	N	N	U	2	A	1	4	45	26,300	5	1.36	Y	Y	Y	D	39,800	39,800	66.08	C
79190000	791017	SR 5A	SR 421/Dunlawton Ave	2.521	Reed Canal Rd	4.568	2.05	N	N	N	U	2	A	1	4	45	26,000	3	1.47	Y	Y	Y	D	39,800	41,790	62.22	C
79190000	790363	SR 5A	Reed Canal Rd	4.568	SR 400	6.127	1.56	N	N	N	U	2	A	1	4	45	26,500	2	1.28	Y	Y	Y	D	39,800	39,800	66.58	C
79190000	790348	SR 5A	SR 400	6.127	SR 430/Mason Ave	9.411	3.28	N	Y	N	U	2	A	1	6	50	32,300	7	2.13	Y	Y	Y	D	59,900	62,900	51.25	C
79190000	790348	SR 5A	SR 400	6.127	Bellevue Rd	7.124	1.00	N	Y	N	U	2	A	1	6	50	33,000	1	1.00	Y	Y	Y	D	59,900	62,900	52.46	C
79190000	795090	SR 5A	Bellevue Rd	7.124	SR 600/US 92	8.192	1.07	N	Y	N	U	2	A	1	6	50	33,000	2	1.87	Y	Y	Y	D	59,900	59,900	55.09	C
79190000	795088	SR 5A	SR 600/US 92	8.192	SR 430/Mason Ave	9.411	1.22	N	Y	N	U	2	A	1	6	45	31,000	4	3.28	Y	Y	Y	D	59,900	59,900	51.75	C
79190000	790367	SR 5A	SR 430/Mason Ave	9.411	LPGA Blvd	10.894	1.49	N	Y	N	U	2	A	1	6	45	29,000	4	2.68	Y	Y	Y	D	59,900	59,900	48.41	C
79190000	790367	SR 5A	SR 430/Mason Ave	9.411	Brentwood Dr	9.619	0.21	N	Y	N	U	2	A	1	6	45	29,000	1	4.81	Y	Y	Y	D	59,900	59,900	48.41	C
79190000	790367	SR 5A	Brentwood Dr	0.000	10th St	1.030	1.03	N	Y	N	U	2	A	1	6	45	29,000	3	2.91	Y	Y	Y	D	59,900	59,900	48.41	C
79190000	794002	SR 5A (Old)	3rd St	9.791	8th St	10.389	0.60	N	Y	N	U	2	A	1	2	45	9,000	1	1.67	N	N	N	D	17,700	14,160	63.56	C
79190000	794002	SR 5A (Old)	3rd St	9.791	6th St	10.145	0.35	N	Y	N	U	2	A	1	2	45	1,000	0	0.00	N	N	N	D	17,700	17,700	5.65	C
79190000	794003	SR 5A (Old)	6th St	10.145	8th St	10.389	0.24	N	N	N	U	2	A	1	2	45	400	0	0.00	N	N	N	D	17,700	17,700	2.26	C
79190000	790366	SR 5A	10th St	10.642	LPGA Blvd	10.894	0.25	N	N	N	U	2	A	1	6	45	25,500	1	3.97	Y	Y	Y	D	59,900	59,900	42.57	C
79190000	790528	SR 5A	LPGA Blvd	10.894	Wilmette Ave	14.605	3.71	N	N	N	U	2	A	1	6	45	25,700	11	2.96	Y	Y	Y	D	59,900	59,900	42.80	C
79190000	790528	SR 5A	LPGA Blvd	10.894	Hand Ave	12.952	2.06	N	N	N	U	2	A	1	6	45	26,000	6	2.92	Y	Y	Y	D	59,900	59,900	43.41	C
79190000	790510	SR 5A	Hand Ave	12.952	SR 40/Granada Blvd	14.101	1.15	N	N	N	U	2	A	1	6	45	27,500	4	3.48	Y	Y	Y	D	59,900	59,900	45.91	C
79190000	790518	SR 5A	SR 40/Granada Blvd	14.101	Wilmette Ave	14.605	0.50	N	N	N	U	2	A	1	6	45	23,500	1	1.98	Y	Y	Y	D	59,900	62,900	37.36	C
79190000	790459	SR 5A	Wilmette Ave	14.605	SR 5/US 1	15.606	1.00	N	N	N	U	2	A	1	4	45	12,400	1	1.00	Y	Y	Y	D	39,800	41,790	29.67	C
79190000	794002	SR 5A	SR 5A	0.000	Nova Rd	0.022	0.02	N	N	N	U	2	A	1	2	50	1,000	0	0.00	Y	Y	Y	D	17,700	18,590	5.38	C
79190000	790367	SR 5A	Brentwood Dr	0.000	10th St	1.030	1.03	N	Y	N	U	2	A	1	6	45	29,000										

# VOLUSIA COUNTY LOS SPREADSHEET

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79220001	795196	SR 430 EB	N Beach St	0.000	SR A1A	0.983	0.98	N	N	N	U	1	A	1	2	40	5,600	3	3.05	Y	N	N	D	39,800	23,880	23.45	C
79220001	795194	SR 430 EB	N Beach St	0.000	Halifax Ave	0.620	0.62	N	N	N	U	1	A	1	2	40	5,600	1	1.61	Y	N	N	D	39,800	23,880	23.45	C
79220001	795194	SR 430 EB	Halifax Ave	0.620	Peninsula Dr	0.703	0.08	N	Y	N	U	1	A	1	3	40	5,600	1	12.05	Y	N	N	D	59,900	35,940	15.58	C
79220001	795195	SR 430 EB	Peninsula Dr	0.703	SR A1A	0.983	0.28	N	Y	N	U	1	A	1	3	40	4,100	1	3.57	Y	Y	Y	D	59,900	35,940	11.41	C
79220002	795191	SR 430 WB	SR A1A	0.000	N Beach St	0.997	1.00	N	N	N	U	1	A	1	2	40	10,000	6	6.02	Y	N	N	D	39,800	23,880	41.88	C
79220002	795191	SR 430 WB	SR A1A	0.000	Peninsula Dr	0.285	0.29	N	Y	N	U	1	A	2	2	30	4,900	4	14.04	Y	N	N	D	32,400	19,440	25.21	C
79220002	795186	SR 430 WB	Peninsula Dr	0.285	Halifax Ave	0.367	0.08	N	Y	N	U	1	A	2	2	30	7,200	1	12.20	Y	N	N	D	32,400	19,440	37.04	C
79220002	795196	SR 430 WB	Halifax Ave	0.367	N Beach St	0.997	0.63	N	N	N	U	1	A	1	2	40	18,000	1	1.59	Y	Y	N	D	39,800	23,880	75.38	C
79230000	790517	SR 421	W. of Williamson Blvd	0.000	Nova Rd	2.382	2.38	N	N	N	U	2	A	1	6	50	37,000	8	3.36	Y	Y	Y	D	59,900	62,900	58.82	C
79230000	790517	SR 421	W. of Williamson Blvd	0.000	Clyde Morris Blvd	1.068	1.07	N	N	N	U	2	A	1	6	50	45,500	5	4.68	Y	Y	Y	D	59,900	62,900	72.34	C
79230000	791014	SR 421	Clyde Morris Blvd	1.068	Nova Rd	2.382	1.31	N	N	N	U	2	A	1	6	50	28,500	3	2.28	Y	Y	Y	D	59,900	62,900	45.31	C
79230000	791015	SR 421	Nova Rd	2.382	SR 5/US 1	4.001	1.62	N	N	N	U	2	A	1	4	45	26,300	2	1.24	Y	Y	Y	D	39,800	41,790	62.93	C
79230000	791015	SR 421	Nova Rd	2.382	Oak St	2.965	0.58	N	N	N	U	2	A	1	4	45	27,500	0	0.00	Y	Y	Y	D	39,800	41,790	65.81	C
79230000	795181	SR 421	Oak St	2.965	SR 5/US 1	4.001	1.04	N	N	N	U	2	A	1	4	45	25,000	2	1.93	Y	Y	Y	D	39,800	41,790	59.82	C
79260000	795188	SR 441	SR A1A	0.000	Florida Shores Blvd	2.419	2.42	N	N	N	U	2	H		2	35	5,400	0	0.00	N	Y	N/A	D	24,200	24,200	22.31	B
79260000	795187	SR 441	Florida Shores Blvd	2.419	SR 600	5.409	2.99	N	Y	N	U	2	A	1	2	40	9,300	3	1.00	N	Y	N	D	17,700	17,700	52.54	C
79270000	795193	SR 483	SR 400	0.000	SR 430	3.377	3.38	N	Y	N	U	2	A	1	4	45	22,500	10	2.96	Y	Y	Y	D	39,800	41,790	53.94	C
79270000	795193	SR 483	SR 400	0.000	SR 600/Int'l Speedway Blvd	2.179	2.18	N	Y	N	U	2	A	1	4	40	26,000	6	2.75	Y	Y	Y	D	39,800	41,790	62.22	C
79270000	795182	SR 483	SR 600/Int'l Speedway Blvd	2.179	SR 430	3.377	1.20	N	Y	N	U	2	A	1	4	40	18,900	4	3.34	Y	Y	Y	D	39,800	41,790	45.23	C

	aggregated segment
	single-count segment that makes up an aggregated segment
	single-count segment not part of an aggregated segment



FLAGLER COUNTY (73)

Date of last update =

5/27/2015

FLAGLER COUNTY LOS SPREADSHEET

Note: LOS\_ALL is a planning tool for determining general operating conditions. Segment characteristics in this table represent general conditions only and actual conditions may vary (i.e., posted speeds, number of lanes, area type, constraint, etc.) A more detailed analysis is necessary to confirm operating conditions. According to 9J5.019 F.A.C., the local government can set the adopted level of service (LOS) standard for state roads other than those on the Florida Intrastate Highway System (FIHS) or the Strategic Intermodal System (SIS). The local government's adopted LOS standard may be different from the FDOT's adopted standard. For more information, you should contact the local government that has jurisdiction over the requested roadway segment.

Section No.	Count Station ID #	State Road No.	From	From M.P.	To	To M.P.	Section Length	SIS	TCEA	Within 500 K Pop.	Area Type	1-way or 2-way	Fac. Type 2013	Class	Thru Lanes	Posted Speed	AADT	No. of Signals	Sig./ Mile	2013 Divided	2013 Left-Turn Bays	2013 Right-Turn Bays	FDOT LOS Std.	Non-Adjusted Std.	Adjusted LOS Std.	% of LOS Std.	LOS
73001000	730496	SR 9H-95	Volusia County Line	0.000	Urban Boundary	4.600	4.60	Y	N	N	R	2	F	2	6	70	69,500	0	0.00	Y	N	N/A	C	64,000	64,000	108.59	D
73001000	730292	SR 9H-95	Urban Boundary	4.600	Palm Coast Pkwy	11.054	6.45	Y	N	N	U	2	F	2	6	70	65,100	0	0.00	Y	N	N/A	D	111,800	111,800	58.23	B
73001000	730251	SR 9H-95	Palm Coast Pkwy	11.054	St. Johns County Line	18.729	7.68	Y	N	N	U	2	F	2	6	70	43,500	0	0.00	Y	N	N/A	D	111,800	111,800	38.91	B
73010000	730263	SR 5/US 1	Volusia County Line	0.000	Old Dixie Highway	4.764	4.76	N	N	N	T	2	H		4	65	10,700	1	0.21	Y	Y	N/A	C	49,600	49,600	21.57	B
73010000	730235	SR 5/US 1	Old Dixie Highway	4.764	Dupont Rd/CR 304	6.917	2.15	N	N	N	T	2	H		4	65	12,800	0	0.00	Y	Y	N/A	C	49,600	49,600	25.81	B
73010000	730101	SR 5/US 1	Dupont Rd/CR 304	6.917	Railroad St	9.908	2.99	N	N	N	T	2	H		4	60	9,700	0	0.00	Y	Y	N/A	C	49,600	49,600	19.56	B
73010000	735003	SR 5/US 1	Railroad St	9.908	SR 20/SR 100	10.779	0.87	N	N	N	T	2	A	2	4	35	15,000	2	2.30	Y	Y	N	C	9,900	9,900	151.52	D
73010000	735003	SR 5/US 1	Railroad St	9.908	Moody Blvd	10.333	0.43	N	N	N	T	2	A	2	4	35	11,800	1	2.35	Y	Y	N	C	9,900	9,900	119.19	D
73010000	730013	SR 5/US 1	Moody Blvd	10.333	SR 20/SR 100	11.103	0.77	Y	N	N	T	2	A	2	4	35	18,200	1	1.30	Y	Y	N	C	9,900	9,900	183.84	D
73010000	730004	SR 5/US 1	SR 20/SR 100	11.103	Royal Palms Pkwy (Urban Boundary)	12.764	1.66	N	N	N	T	2	H		4	55	16,800	0	0.00	Y	Y	N/A	C	49,600	49,600	33.87	B
73010000	730005	SR 5/US 1	Royal Palms Pkwy (Urban Boundary)	12.764	Palm Coast Pkwy	16.631	3.87	N	N	N	U	2	A	1	4	60	14,100	1	0.26	Y	Y	Y	D	39,800	41,790	33.74	C
73010000	730102	SR 5/US 1	Palm Coast Pkwy	16.631	St. Johns County Line	23.673	7.04	N	N	N	U	2	H		4	65	8,900	0	0.00	Y	Y	N/A	D	65,600	65,600	13.57	B
73020000	730033	SR 100	US 1/SR 5/SR 100	0.000	Inside City (Urban)	1.289	1.29	Y	N	N	T	2	A	1	2	45	11,500	0	0.00	Y	Y	Y	C	14,400	15,840	72.60	C
73020000	730054	SR 100	Inside City (Urban)	1.289	Belle Terre Pkwy	2.429	1.14	Y	N	N	U	2	A	1	4	55	13,700	1	0.88	Y	Y	Y	D	39,800	41,790	32.78	C
73020000	730002	SR 100	Belle Terre Pkwy	2.429	SR 9H-95	4.679	2.25	Y	N	N	U	2	A	1	4	55	22,300	5	2.22	Y	Y	Y	D	39,800	41,790	53.36	C
73020000	730002	SR 100	Belle Terre Pkwy	2.429	Seminole Woods Pkwy	4.113	1.68	Y	N	N	U	2	A	1	4	55	16,600	3	1.78	Y	Y	Y	D	39,800	41,790	44.51	C
73020000	730006	SR 100	Seminole Woods Pkwy	4.113	SR 9H-95	4.679	0.57	Y	N	N	U	2	A	1	4	55	26,000	2	3.53	Y	Y	Y	D	39,800	41,790	62.22	C
73020000	730262	SR 100	SR 9H-95	4.679	Palm Coast City Limits	5.590	0.91	N	N	N	U	2	A	1	4	55	20,700	1	1.10	Y	Y	N	D	39,800	39,800	52.01	C
73020000	730262	SR 100	SR 9H-95	4.679	Old Kings Rd	4.995	0.32	N	N	N	U	2	A	1	4	50	22,500	1	3.16	Y	Y	Y	D	39,800	41,790	53.94	C
73020000	730335	SR 100	Old Kings Rd	4.995	Palm Coast City Limits	5.590	0.60	N	N	N	U	2	A	1	4	55	18,800	0	0.00	Y	Y	Y	D	39,800	41,790	44.99	C
73020000	730335	SR 100	Palm Coast City Limits	5.590	CR 201/John Anderson Hwy	7.004	1.41	N	N	N	T	2	A	1	4	55	18,800	2	1.41	Y	Y	Y	C	34,000	35,700	52.66	C
73020000	731009	SR 100	CR 201/John Anderson Hwy	7.004	SR A1A	8.191	1.19	N	N	N	U	2	A	1	4	45	13,100	2	1.68	Y	Y	Y	D	39,800	41,790	36.13	C
73020000	731000	SR 100	CR 201/John Anderson Hwy	7.004	Flagler Ave	7.971	0.97	N	N	N	U	2	A	1	4	45	17,300	1	1.03	Y	Y	Y	D	39,800	41,790	41.40	C
73020000	735012	SR 100	Flagler Ave	7.971	SR A1A	8.191	0.22	N	N	N	U	2	A	2	4	35	12,900	1	4.55	Y	Y	Y	D	32,400	34,020	37.92	C
73030000	730010	SR A1A	Volusia County Line	0.000	0.088 mi N. of Pelican Ln	8.000	8.00	N	N	N	U	2	A	1	2	45	6,400	1	0.13	N	N	N	D	17,700	14,180	45.20	C
73030000	730010	SR A1A	Volusia County Line	0.000	9th St S.	3.637	3.64	N	N	N	U	2	H		2	45	5,100	0	0.00	N	N	N/A	D	24,200	24,200	21.07	B
73030000	731001	SR A1A	9th St S.	3.637	SR 100/Moody Blvd	4.008	0.37	N	N	N	U	2	A	2	2	35	8,800	1	2.70	N	Y	N	D	14,800	14,800	59.46	D
73030000	731002	SR A1A	SR 100/Moody Blvd	4.008	14th St N.	4.884	0.88	N	N	N	U	2	H		2	45	6,500	0	0.00	N	N	N/A	D	24,200	24,200	26.86	B
73030000	730246	SR A1A	14th St N.	4.884	0.088 mi N. of Pelican Ln (city boundary)	8.000	3.12	N	N	N	U	2	H		2	45	5,200	0	0.00	N	N	N/A	D	24,200	24,200	21.49	B
73030000	730258	SR A1A	0.088 mi N. of Pelican Ln (city boundary)	8.000	St. Johns Ave	11.171	3.17	N	N	N	T	2	H		2	55	4,600	0	0.00	N	Y	N/A	C	17,300	17,300	26.59	B
73030000	730257	SR A1A	St. Johns Ave	11.171	0.521 mi N. of 16th Rd (city boundary)	14.182	3.01	N	N	N	U	2	H		2	55	6,400	0	0.00	N	Y	N/A	D	24,200	24,200	26.45	B
73030000	730257	SR A1A	0.521 mi N. of 16th Rd (city boundary)	14.182	W. of old A1A	16.545	2.36	N	N	N	T	2	H		2	50	6,400	0	0.00	N	Y	N/A	C	17,300	17,300	36.99	B
73030000	730261	SR A1A	0.4 S. of Beachside Dr	17.450	St. Johns County Line	18.595	1.15	N	N	N	T	2	H		2	55	3,400	0	0.00	N	Y	N/A	C	17,300	17,300	19.65	B
73030001	730264	SR A1A	W. of old A1A	0.000	0.4 S. of Beachside Dr	0.940	0.94	N	N	N	T	2	H		4	55	3,200	0	0.00	Y	Y	N/A	C	49,600	49,600	6.45	B
73040000	730039	SR 20/SR 100	Putnam County Line	0.000	CR 205	12.150	12.15	Y	N	N	RD	2	H		2	60	4,100	0	0.00	N	N	N/A	C	16,400	16,400	25.00	B
73040000	730003	SR 20/SR 100	CR 205	12.150	SR 5/US 1	17.684	5.53	Y	N	N	RD	2	H		2	60	6,900	1	0.18	N	N	N/A	C	16,400	16,400	42.07	B
73050000	730009	SR 11	Volusia County Line	0.000	CR 304	5.970	5.97	N	N	N	RD	2	H		2	60	2,100	0	0.00	N	N	N/A	C	16,400	16,400	12.80	B
73050000	730104	SR 11	CR 304	5.970	Old Haw Creek Rd/CR 2003	14.979	9.01	N	N	N	RD	2	H		2	60	2,500	0	0.00	N	N	N/A	C	16,400	16,400	15.24	B
73050000	735009	SR 11	Old Haw Creek Rd/CR 2003	14.979	SR 5/US 1	15.477	0.50	N	N	N	T	2	A	1	2	60	4,000	1	2.01	N	N	N	C	14,400	11,520	34.72	C

	aggregated segment
	single-count segment that makes up an aggregated segment
	single-count segment not part of an aggregated segment

# **APPENDIX B**

## **TIP Selection Criteria**

# **APPENDIX I**

## **2014 PRIORITY CRITERIA**

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## 2014 Priority Ranking Criteria For XU Traffic Operations/ITS/Safety Projects

### Criteria Summary

Priority Criteria	Points
(1) Location	5
(2) Project Readiness	15
(3) Mobility and Operational Benefits	30
(4) Safety Benefits	20
(5) Comprehensive Plan and Economic Benefits	10
(6) Infrastructure Impacts	20
(7) Local Matching Funds > 10%	10
<b>Total</b>	<b>110</b>

### Criteria Definitions

#### (1) Location (5 points max.)

This criterion looks at the classification of the roads that will benefit from a proposed project. This criterion gives more points to projects that provide a benefit on roads that are classified at a higher level. If a project benefits more than one road, the road that has the highest classification will be used to allocate points.

Project located on a ...			Maximum Points
Non-Federal Functionally Classified Road	Select only one	<input type="checkbox"/>	0
Local Road (Federal Functional Classification)		<input type="checkbox"/>	0
Rural Minor Collector (Federal Functional Classification)		<input type="checkbox"/>	0
Urban Minor Collector Road (Federal Functional Classification)		<input type="checkbox"/>	2
Major Collector Road (Federal Functional Classification)		<input type="checkbox"/>	3



Minor Arterial Road (Federal Functional Classification)		<input type="checkbox"/>	4
Principal Arterial Road (Federal Functional Classification)		<input type="checkbox"/>	5
<b>Subtotal</b>			<b>5</b>

**(2) Project Readiness (15 points max.)**

This criterion looks at the amount of work required to develop the project and get it ready for construction. The closer a project is to the construction phase, the more points it is eligible for.

Phasing Already Completed or Not Required <sup>1</sup>		Completed	Not Required	Required But Not Completed (no points)	Unknown or TBD (no points)	Points
Feasibility Study/Conceptual Design/Cost Estimate	Check only one in each row	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0 - 3
PE (Design)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0 - 3
Environmental		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0 - 3
Right-of-Way Acquisition		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0 - 3
Permitting		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0 - 3
<b>Subtotal</b>						<b>0 - 15</b>

<sup>1</sup> Since XU funding is Federal funding, all activities or work, including that which is done in advance of applying for Federal funds, must comply with all applicable Federal statutes, rules and regulations.

**(3) Mobility and Operational Benefits (30 points max.)**

This criterion looks at the extent of traffic operational benefits that will be derived from a proposed project.

Mobility and Operational Benefits		Points	
Existing volume to capacity ratio (i.e., existing congestion severity)	Select only one	< 0.75	<input type="checkbox"/> 0
		0.75 to 0.99	<input type="checkbox"/> 3
		1.00 to 1.25	<input type="checkbox"/> 4
		> 1.25	<input type="checkbox"/> 5
Mobility Enhancements (i.e., level of increased mobility that a project will provide)	Select all that apply	- None	<input type="checkbox"/> 0
		- Bike, Pedestrian or Transit	<input type="checkbox"/> 0 - 5
		- Access Management, ITS, Critical Bridge, Intersection Improvement, or Traffic Signal Retiming <sup>1</sup>	<input type="checkbox"/> 0 - 10
Approved signal warrant (new signals only), left turn phase warrant, left turn lane warrant, street light warrant or widening justification <sup>2</sup> , access management or ITS improvements <sup>3</sup>	Select only one	No	<input type="checkbox"/> 0
		Yes	<input type="checkbox"/> 0 - 5
Hurricane evacuation route upgrade including, but not limited to, converting critical traffic signal to mast arm or other operational improvements <sup>4</sup>	Select only one	No	<input type="checkbox"/> 0
		Yes	<input type="checkbox"/> 0 - 5
Subtotal			0 - 30

<sup>1</sup> Attach Traffic Signal Timing Study.

<sup>2</sup> Attach Warrant Study to application; otherwise VTPO staff will assume that a Warrant Study justifying the improvement has not been completed.

<sup>3</sup> Access management and ITS improvements include, but are not limited to, addition of non-traversable median greater than 50% project length, addition of curb/gutter at intersection or greater than 50% project length, closure of minor intersections or crossovers, reduction of the number of access points (driveways or driveway widths), elimination of existing at-grade RR crossing, elimination of existing on-street parking, provision of traffic signal preemption for emergency vehicles, connection of three or more traffic signals, and new connection of traffic signal system to computerized signal control.

<sup>4</sup> The term "other operational improvements" includes any improvement that will likely result in a significant: a) increase in vehicular capacity or b) reduction in the probable occurrence or severity of traffic delay and/or disruption from signal failure, lane blockage, etc.

**(4) Safety Benefits (20 points max.)**

This criterion looks at the extent of safety benefits that will be derived from a proposed project. The distinction between the categories of benefits will be coordinated with the Community Traffic Safety Teams (CTST).

<b>Safety Benefits<sup>1</sup></b>			<b>Points</b>
The specific project location is on FDOT's High Crash List or has otherwise been identified as having an overrepresentation of severe crashes? (Provide supporting documentation (e.g., intersection crashes per million entering vehicles <sup>2</sup> , corridor crashes per million vehicle miles <sup>2</sup> , Community Traffic Safety Team report, etc.)	Select all that apply	<input type="checkbox"/>	0 - 5
The "problem" described on page 1 of this application is a safety issue that falls within one or more of the eight Emphasis Areas identified in the [forthcoming] 2012 Florida Strategic Highway Safety Plan (i.e., distracted driving, vulnerable road users, intersection crashes, lane departure crashes, aging road users and teen drivers, impaired driving, and traffic records) or does contribute to the ability of emergency response vehicles to effectively respond to an incident.		<input type="checkbox"/>	0 - 5
The proposed project represents a strategy that is professionally recognized as being effective in reducing the frequency and/or severity of traffic accidents.		<input type="checkbox"/>	0 - 10
<b>Subtotal</b>			<b>0 - 20</b>

<sup>1</sup> If an application scores very high in this criterion, the VTPO may submit application to either the East or West Volusia CTST for Safety Fund consideration.

<sup>2</sup> Applicant must use crash rate calculation methodology provided by VTPO.

**(5) Comprehensive Plan and Economic Development (10 points max.)**

This criterion looks at the degree to which the proposed project will contribute to the satisfaction of one or more of the local government's adopted comprehensive plan goals or objectives, and the degree to which it supports economic development. Points should be awarded in proportion to how well the project will show direct, significant and continuing positive influence. Temporary effects related to project construction, such as the employment of construction workers, will not be considered.

Comprehensive Plan Compliance and Economic Development			Maximum Points
Directly contributes to the satisfaction of one or more goals/objectives in the adopted comprehensive plan	Select all that apply	<input type="checkbox"/>	0 - 5
Directly supports economic development (e.g., supports community development in major development areas, supports business functionality, and/or supports creation or retention of employment opportunities)		<input type="checkbox"/>	0 - 5
Subtotal			0 - 10

**(6) Infrastructure Impacts (20 points max.)**

This criterion looks at impacts to adjoining public or private infrastructure, which may be in the way of the project. The less existing infrastructure is impacted the more points a project will score.

Infrastructure Impacts			Points
Major Drainage Impact – relocating or installing new curb inlets or other extensive drainage work is required, or drainage impact has not yet been determined <sup>1</sup>	Select only	<input type="checkbox"/>	0
Minor Drainage Impact – extending pipes, reconfiguring swales or other minor work is required		<input type="checkbox"/>	0 - 2
No Drainage Impact – no drainage work required		<input type="checkbox"/>	0 - 4
Relocation of private gas utility or fiber optic communication cable is not required <sup>2</sup>	Select all that apply	<input type="checkbox"/>	0 - 4
Relocation of public/private water or sewer utility is not required <sup>2</sup>		<input type="checkbox"/>	0 - 4
Relocation of telephone, power, cable TV utilities is not required <sup>3</sup>		<input type="checkbox"/>	0 - 4
No specimen or historic trees ≥ 18” diameter will be removed or destroyed		<input type="checkbox"/>	0 - 4
Subtotal			0 - 20

<sup>1</sup> ADA pedestrian crossings at intersections may impact drainage significantly. Attached Traffic Study should address drainage impacts.

<sup>2</sup> Typically, these are underground utilities that can only be determined by a complete set of plans. Attach plans showing no impacts; otherwise, assumption is in urban area utilities will be affected.

<sup>3</sup> Typically, above ground utilities are not affected except for widening and turn lane projects.

**(7) Local Matching Funds > 10% (10 points max.)**

This criterion looks at impacts to adjoining public or private infrastructure, which may be in the way of the project. The less existing infrastructure is impacted the more points a project will score.

Local Matching Funds > 10%		Points
Is a local matching fund package greater than 10% of the estimated project cost documented for the project?		
10.0% < Local Matching Funds < 12.5%	<input type="checkbox"/>	1
12.5% ≤ Local Matching Funds < 15.0%	<input type="checkbox"/>	2
15.0% ≤ Local Matching Funds < 17.5%	<input type="checkbox"/>	3
17.5% ≤ Local Matching Funds < 20.0%	<input type="checkbox"/>	4
20.0% ≤ Local Matching Funds < 22.5%	<input type="checkbox"/>	5
22.5% ≤ Local Matching Funds < 25.0%	<input type="checkbox"/>	6
25.0% ≤ Local Matching Funds < 27.5%	<input type="checkbox"/>	7
27.5% ≤ Local Matching Funds < 30.0%	<input type="checkbox"/>	8
30.0% ≤ Local Matching Funds < 32.5%	<input type="checkbox"/>	9
32.5% ≤ Local Matching Funds	<input type="checkbox"/>	10
<b>Subtotal</b>		<b>0 - 10</b>



**2014 Priority Ranking Criteria For  
XU Bicycle/Pedestrian Projects**

**Criteria Summary**

<b>Priority Criteria</b>	<b>Maximum Points</b>
(1) Proximity to community assets	30
(2) Connectivity	30
(3) Safety	25
(4) Public support/special considerations	5
(5) Local matching funds > 10%	10
(6) Value-Added Tie Breaker (if necessary)	variable
<b>Total</b> (excluding Value-Added Tie Breaker)	<b>100</b>

## Criteria Definitions

### (1) Proximity to Community Assets (30 points max.)

This measure will estimate the potential demand of bicyclists and pedestrians based on the number of productions or attractions the facility may serve within a 1 mile radius for Trail/Side-paths or a ½ mile radius for Sidewalks. A maximum of 30 points will be assessed overall, and individual point assignments will be limited as listed below.

Proximity to Community Assets	Check All That Apply	Maximum Points
Residential developments, apartments, community housing	<input type="checkbox"/>	5
Activity centers, town centers, office parks, post office, city hall/government buildings, shopping plaza, malls, retail centers	<input type="checkbox"/>	5
Parks, trail facilities, recreational facilities	<input type="checkbox"/>	5
Medical/health facilities, nursing homes, assisted living, rehabilitation center	<input type="checkbox"/>	5
School bus stop	<input type="checkbox"/>	5
Schools	<input type="checkbox"/>	5
<b>Maximum Point Assessment</b>		<b>30</b>

### (2) Connectivity (30 points max.)

This criterion considers the gaps that exist in the current network of bike lanes, bike paths and sidewalks. The measurement will assess points based on the ability of the proposed project to join disconnected networks or complete fragmented facilities.

Network Connectivity	Check All That Apply	Maximum Points
Project provides access to a transit facility	<input type="checkbox"/>	5
Project extends an existing bicycle/pedestrian facility (at one end of the facility)	<input type="checkbox"/>	5
Project provides a connection between two existing or planned/programmed bicycle/pedestrian facilities	<input type="checkbox"/>	10
Project has been identified as “needed” in an adopted document (i.e. a comprehensive plan, master plan, arterial study)	<input type="checkbox"/>	10
<b>Maximum Point Assessment</b>		<b>30</b>

**(3) Safety (25 points max.)**

This measure provides additional weight to applications that have included safety as a component of the overall project and includes school locations identified as hazardous walking/biking zones and areas with significant number of safety concerns.

<b>Safety</b>	<b>Check All That Apply</b>	<b>Maximum Points</b>
The project is located in an area identified as a hazardous walk/bike zone by Volusia or Flagler County School District Student Transportation Services and within the Volusia TPO planning area.	<input type="checkbox"/>	15
The project will remove or reduce potential conflicts (bike/auto and pedestrian/auto). There is a pattern of bike/pedestrian crashes along the project route.	<input type="checkbox"/>	10
<b>Maximum Point Assessment</b>		<b>25</b>

**(4) Public Support/Special Considerations (5 points max.)**

This is an opportunity for applicant to provide other relevant data that may provide additional information as related to the project application.

<b>Special Considerations</b>	<b>Check All That Apply</b>	<b>Maximum Points</b>
Is documented public support provided for the project? Are there any special issues or concerns?	<input type="checkbox"/>	5
<b>Maximum Point Assessment</b>		<b>5</b>

**(5) Local Matching Funds > 10% (10 points max.)**

If local matching funds greater than 25% of the estimated project cost are available, describe the local matching fund package in detail.

Local Matching Funds > 10%	Check All That Apply	Maximum Points
Is a local matching fund package greater than 10% of the estimated project cost documented for the project?		
10.0% < Local Matching Funds < 12.5%	<input type="checkbox"/>	1
12.5% ≤ Local Matching Funds < 15.0%	<input type="checkbox"/>	2
15.0% ≤ Local Matching Funds < 17.5%	<input type="checkbox"/>	3
17.5% ≤ Local Matching Funds < 20.0%	<input type="checkbox"/>	4
20.0% ≤ Local Matching Funds < 22.5%	<input type="checkbox"/>	5
22.5% ≤ Local Matching Funds < 25.0%	<input type="checkbox"/>	6
25.0% ≤ Local Matching Funds < 27.5%	<input type="checkbox"/>	7
27.5% ≤ Local Matching Funds < 30.0%	<input type="checkbox"/>	8
30.0% ≤ Local Matching Funds < 32.5%	<input type="checkbox"/>	9
32.5% ≤ Local Matching Funds	<input type="checkbox"/>	10
<b>Maximum Point Assessment</b>		<b>10</b>

**(6) Value-Added Tie Breaker (if necessary) (variable points)**

Projects with equal scores after evaluations using the five Project Proposal Criteria are subject to the Value-Added Tie Breaker. The BPAC and Project Review Subcommittee are authorized to award tie breaker points based on the additional value added by the project. A written explanation of the circumstances and amount of tie breaker points awarded for each project will be provided.

**2014 Priority Ranking Criteria For  
Transportation Alternatives**

<b>Priority Criteria</b>	<b>Maximum Points</b>
(1) Safety/Security	25
(2) Contribution to “Livability” and Sustainability in the Community	20
(3) Enhancements to the Transportation System	20
(4) Demand/Accessibility	15
(5) Project Readiness	10
(6) Matching Funds > 20% Provided	10
<b>Total</b>	<b>100</b>

**Criteria Definitions**

**(1) Safety/Security (25 points max.)**

Describe how and to what extent the proposed facility would enhance safety conditions for motorized travelers, non-motorized travelers, or the community. Provide documentation that illustrates how it does.

- How does the project address a hazardous, unsafe or security condition/issue?
- How does the project remove or reduce potential conflicts (bicyclist/automobile and pedestrian/automobile)?
- Does the project eliminate or abate a hazardous, unsafe, or security condition in a school walk zone as documented in a school safety study or other relevant study?

**(2) Contributions to “Livability” and Sustainability in the Community (20 points max.)**

Describe how the project positively impacts the “Livability” and Sustainability in the community that is being served by that facility. Depict assets on a project area map in relation to a one-half mile buffer around the project.

- Project includes traffic calming measures.



- Project is located in “gateway” or entrance corridor as identified in a local government of applicant’s master plan, or other approved planning document.
- Project removes barriers and/or bottlenecks for bicycle and/or pedestrian movements.
- Project includes features which improve the comfort, safety, security, enjoyment or well-being for bicyclists, pedestrians, and/or transit users.
- Project improves transfer between transportation modes.
- Project achieves a significant reduction of non-renewable energy usage.
- Project supports infill and redevelopment consistent with transit-oriented design principals and strategies are in place making it reasonably certain that such infill and redevelopment will occur.
- Project supports a comprehensive travel demand management strategy that will likely significantly advance one or more of the following objectives: 1) reduce average trip length, 2) reduce single occupancy vehicle trips, 3) increase transit and non-motorized trips, 4) reduce motorized vehicle parking, reduce personal injury and property damage resulting from vehicle crashes
- Project significantly enhances “walkability” and “bikeability”. The following are key indicators of walkability and bikeability:
  - Are there safe walking spaces? (smooth, unobstructed, separated from traffic, crossings with appropriate signs and signals)
  - Are there places to bicycle safely? (on the road, sharing the road with motor vehicles or an off road path or trail)
  - Can pedestrians and bicyclists see and detect traffic (oncoming vehicles) day and night?
  - Are the surfaces adequate for walking or bike riding? (free of cracked or broken concrete/pavement, slippery when wet, debris)
  - Is there enough time to cross streets and intersections?
  - Is there access to well-designed sidewalks and crossings?
  - Are there signs and markings designating routes? (including crosswalk markings, way finding and detour signs)
  - Are there continuous facilities? (sidewalks and trails free from gaps, obstructions and abrupt changes in direction or width)
  - Is driver behavior conducive to safe walking or biking? (yielding to pedestrians in crosswalks, maintaining at least 3’ passing distance from bicyclists)

**(3) Enhancements to the Transportation System (20 points max.)**

This criterion considers the demonstrated and defensible relationship to surface transportation.

Describe how this project fits into the local and regional transportation system. Depict this on the map where applicable.

- Is the project included in an adopted plan?
- Does local government have Land Development Code requirements to construct sidewalks?
- Does the project relate to surface transportation? Some factors that can help establish this relationship include:
  - Is the project near a highway or a pedestrian/bicycle corridor?
  - Does the project enhance the aesthetic, cultural, or historic aspects of the travel experience?

- Does it serve a current or past transportation purpose?
- Does the project improve mobility between two or more different land use types located within 1/2 mile of each other, including residential and employment, retail or recreational areas?
- Does the project benefit transit riders by improving connectivity to existing or programmed pathways or transit facilities? Does it conform to TOD principals?
- Is the project an extension or phased part of a larger beautification/redevelopment effort in corridor/area?

**(4) Demand/Accessibility (15 points max.)**

Describe indications of existing demand (e.g., photographs of worn pathways that demonstrate ground wear from use) and the degree to which the project will satisfy that demand. Describe expressions of community support and include supporting documentation (e.g., letters of support or petitions from community groups, homeowners associations, school administrators, etc.) Describe how the project improves accessibility to activity centers, town centers, office parks, post office, city hall/government buildings, shopping centers, employment centers, trail facilities, recreational and cultural facilities, schools and other points of concentrated activity.

- Is there a documented obvious indication of demand?
- Is documentation of public support for the project provided?
- Does the project enhance mobility or community development for disadvantaged groups, including children, the elderly, the poor, those with limited transportation options and the disabled? Documentation that will help determine a score include school access routes, proximity to public housing or public facilities that can currently only be accessed by roadways.

**(5) Project “Readiness” (10 points max.)**

Describe.

- Is there an agreement and strategy for maintenance once the project is completed, identifying the responsible party?
- Project has been completed through design. Only construction dollars are being sought.
- Is right-of-way readily available and documented for the project?

**(6) Matching Funds > 20% Provided (10 points max.)**

Local matching funds equal to twenty percent (20%) of the total project cost are required. A greater match will be viewed as an expression of the Applicant’s dedication and commitment to the project. Therefore, points may be awarded in proportion to the amount of match over the required 20%. Applicants and/or project sponsors should demonstrate the availability of the match for project. In lieu of a cash match,

Applicant/project sponsor match may include other valuable services such as planning, engineering, design, construction or environmental activities approved by the U.S. Department of Transportation and right-of-way donations by private parties. Applicants must demonstrate the feasibility of such in-kind arrangements in their applications. Applicants must specify the amount, origin and availability of matching funds.

Check one:

Is the Applicant committing to a local match greater than 20% of the estimated project cost?	Check One	Max. Points
20.0% < local match < 22.5%	<input type="checkbox"/>	1
22.5% ≤ local match < 25.0%	<input type="checkbox"/>	2
25.0% ≤ local match < 27.5%	<input type="checkbox"/>	3
27.5% ≤ local match < 30.0%	<input type="checkbox"/>	4
30.0% ≤ local match < 32.5%	<input type="checkbox"/>	5
32.5% ≤ local match < 35.0%	<input type="checkbox"/>	6
35.0% ≤ local match < 37.5%	<input type="checkbox"/>	7
37.5% ≤ local match < 40.0%	<input type="checkbox"/>	8
40.0% ≤ local match < 42.5%	<input type="checkbox"/>	9
42.5% ≤ local match	<input type="checkbox"/>	10



## Congestion Management Process



Prepared by: Ghyabi & Associates, Inc.  
August 26, 2015







# Appendix K



## RESOLUTION 2015-18





## **RIVER TO SEA TRANSPORTATION PLANNING ORGANIZATION**

### **RESOLUTION 2015-18**

#### **RESOLUTION OF THE RIVER TO SEA TRANSPORTATION PLANNING ORGANIZATION ADOPTING THE YEAR 2040 LONG RANGE TRANSPORTATION PLAN (LRTP)**

---

**WHEREAS**, Florida Statutes 339.175; 23 U.S.C. 134; and 49 U.S.C. 5303 require that the urbanized area, as a condition to the receipt of federal capital or operating assistance, have a continuing, cooperative, and comprehensive transportation planning process that results in plans and programs consistent with the comprehensively planned development of the urbanized area; and

**WHEREAS**, the River to Sea Transportation Planning Organization (TPO) is the duly designated and constituted metropolitan planning organization responsible for carrying out the urban transportation planning and programming process for Volusia County and portions of Flagler County inclusive of the cities of Flagler Beach, Beverly Beach, and portions of Palm Coast and Bunnell; and

**WHEREAS**, Florida Statutes 339.175; 23 U.S.C. 134; and 49 U.S.C. 5303; and 23 CFR 450.322 require that each metropolitan planning organization shall prepare and update a transportation plan for its metropolitan planning area that addresses at least a 20-year planning horizon; and

**WHEREAS**, the River to Sea TPO has developed a Year 2040 Long Range Transportation Plan that is consistent with the Moving Ahead for Progress in the 21st Century Act of 2012 (MAP-21) and the local governments' comprehensive plans; and

**WHEREAS**, the River to Sea TPO's Technical Coordinating Committee (TCC), Citizens' Advisory Committee (CAC), Bicycle/Pedestrian Advisory Committee (BPAC), and Transportation Disadvantaged Local Coordinating Board (TDLCB) have been participating in the development of this update through a subcommittee called the 2040 Long Range Transportation Plan Subcommittee; and

**WHEREAS**, the BPAC, TCC and CAC have reviewed the Year 2040 Long Range Transportation Plan and have recommended its approval by the Board of the River to Sea TPO; and

**WHEREAS**, the Year 2040 Long Range Transportation Plan has been available for public review and comment under a legally required time period of 30 days and has been made available for public review at various workshops conducted at key points throughout the development of the Plan; and

**WHEREAS**, all public comments received regarding the Year 2040 Long Range Transportation Plan have been reviewed, documented, incorporated as appropriate, and responded to;

**NOW, THEREFORE, BE IT RESOLVED**, by the River to Sea TPO that the:

1. the Year 2040 Long Range Transportation Plan is consistent with MAP-21 and the local governments' comprehensive plans; and
2. the public and the local governments have been actively involved in the development of the Year 2040 Long Range Transportation Plan; and
3. the Year 2040 Long Range Transportation Plan (as delineated in Attachment "A") is hereby endorsed and adopted; and
4. the River to Sea TPO Chairman (or his designee) is hereby directed and authorized to submit the Year 2040 Long Range Transportation Plan to:
  - a. the Governor, State of Florida;
  - b. the Florida Department of Transportation;
  - c. the Federal Highway Administration, via the Florida Department of Transportation;
  - d. the Federal Transit Administration, via the Florida Department of Transportation; and the
  - e. the Division of Community Development

**DONE AND RESOLVED** at the regular meeting of the River to Sea TPO held on the 23<sup>rd</sup> day of September, 2015.

RIVER TO SEA TRANSPORTATION PLANNING ORGANIZATION

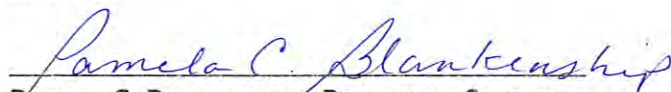


**VOLUSIA COUNTY COUNCIL MEMBER PAT PATTERSON  
CHAIRMAN, RIVER TO SEA TPO**

**CERTIFICATE:**

The undersigned duly qualified and acting Recording Secretary of the River to Sea TPO certified that the foregoing is a true and correct copy of a resolution, adopted at a legally convened meeting of the River to Sea TPO held on September 23, 2015.

**ATTEST:**



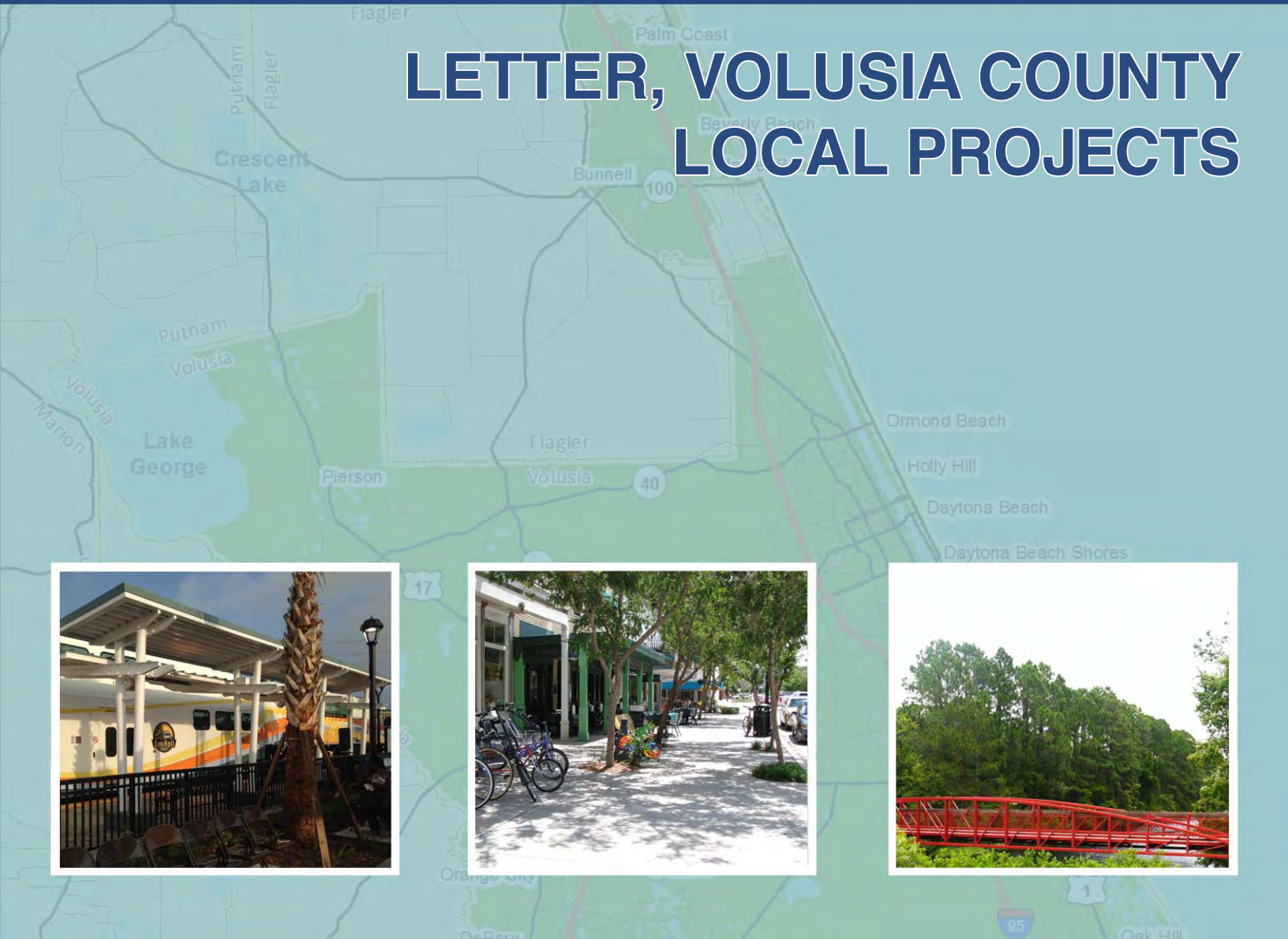
**PAMELA C. BLANKENSHIP, RECORDING SECRETARY  
RIVER TO SEA TRANSPORTATION PLANNING ORGANIZATION**





## Appendix L

# LETTER, VOLUSIA COUNTY LOCAL PROJECTS







Lois Bollenback  
Executive Director  
River to Sea Transportation Planning Organization  
2570 W International Speedway Blvd, Suite 100  
Daytona Beach, Florida 32114

November 16, 2015

Dear ~~Lois~~ Lois,

Volusia County is pleased to submit our Long Range Transportation Plan for inclusion within the River to Sea Transportation Planning Organization's 2040 Long Range Transportation Plan. We hope it's understood that this information is for informational purposes.

To develop the list, the County used information gathered from years of county-city coordination and county road program development. Projects from these efforts were then prioritized within each impact fee zone based upon funding availability, safety, traffic volumes, and highest priority to completion of gaps between multi-laned highways (ie., the widening of two-laned roads adjacent to four-laned roads. For example, Williamson Blvd between Hand Ave and LPGA Blvd).

If you have any questions, please contact me or Melissa Winsett.

Sincerely,

A handwritten signature in blue ink that reads "Jon Cheney". The signature is fluid and cursive, with a long horizontal stroke at the end.

Jon Cheney, P.E.  
Volusia County Traffic Engineering Division Director

Cc: Jean Parlow, R2C TPO  
Martha Moore, Ghyabi  
Melissa Winsett





## Appendix M

# EXISTING + COMMITTED (E+C) PROJECTS





Existing + Committed (E+C) Projects <sup>1</sup>																														
Impr. No.	Roadway Project	From	To	Improvement	Ex. or Comm.	Comment	FY 2009/10 to FY 2012/13				FY 2013/14				FY 2014/15				FY 2015/16				FY 2016/17				FY 2017/18			
							ENV	PE	ROW	CST	ENV	PE	ROW	CST	ENV	PE	ROW	CST	ENV	PE	ROW	CST	ENV	PE	ROW	CST	ENV	PE	ROW	CST
Existing Projects																														
A	DeBary Ave	I-4	Providence Blvd	Realign/Widen to 4 lanes	E	CST 08/09																								
B	LPGA Blvd	Old Kings Rd	Nova Rd	Widen to 4 lanes	E	CST 08/09																								
C	Rhode Island Ext	Westside Pkwy	US 17/92	New 2 lane road	E	CST 08/09																								
D	Yorktown Blvd Ext	Dunlawton Ave	Taylor Rd	New 4 lane road	E	CST 09/10																								
E	SR 472	Howland Blvd	I-4	Widen to 4 lanes	E	Already constructed before 2008																								
F	Taylor Rd	Summer Trees Blvd	Williamson Blvd	Widen to 4 lanes	E	Opened to traffic 2008																								
G	Williamson Blvd	Dunn Ave	N of LPGA	Widen to 4 lanes	E	CST 10/11																								
H	Dunn Ave	CR 4150	Williamson Blvd	New 2 lane road	E	Constructed as part of ARRA																								
I	Normandy Blvd	Saxon Blvd	Firwood Dr	Widen to 4 lanes	E	Open to traffic in 2009																								
Committed Projects																														
J	LPGA Blvd (431928-1)	Jimmy Ann Rd	Derbyshire Rd	Widen to 4 lanes	C	Planned CST 13/14; CST funded in FY 14/15		\$438,970	\$2,500,000		\$0	\$0	\$0	\$2,040,737																
K	I-95 (406869-6)	North of SR 44	South of I-4	Widen to 6 lanes	C	Planned CST 14/15 CST underway	\$408,478	\$55,339	\$1,285,617	\$0		\$6,843	\$365,830			\$582			\$10,095									\$487,952		
L	Indian River Extension	Current terminus of SR 442	One mile west of current terminus	New 4 lane road	C	Planned CST 13/14																								
M	Orange Camp Road/Frontage Stubout	I-4 Frontage Rd	Martin Luther King Blvd	Widen to 4 lanes	C	Planned CST 14/15; Construction funded in FY 16/17																								
N	Colony Park Road Extension	SR 44	Pioneer Trail	New 2 lane road	C	Planned CST 14/15; Completed						\$168,000				\$826,333														
O	Coraci Blvd Extension	Carmody Lake Dr	SR 44	New 2 lane road	C	Planned CST 16/17																								
P	Yorktown Blvd Ext (north)	South of B-19 Tributary #1	Willow Run Blvd	New 4 lane road	C	Planned CST 14/15																								
Q	Willow Run Blvd	Williamson Blvd	Yorktowne Blvd Extension	Widen to 4 lanes	C	Planned CST 14/15																								
R	Howland Blvd (431916-1)	Courtland Blvd	SR 415	Widen to 4 lanes	C	Planned CST 13/14; Construction underway 8/15		\$762,647	\$530,000	\$10,750,000																				
S	I-4 (408464-1)	SR 44	East of I-95	Widen to 6 lanes	C	CST 12/13; Under construction - estimated completion 5/1/16		\$497,034	\$443,014	\$140,617,549		\$1,541		\$4,183,426				\$5,317,507												
T	I-95 (406869-4)	SR-406 Brevard Line	North of SR 44	Widen to 6 lanes	C	CST 15/16; Under construction - 2016 Completion	\$4,541,861	\$40,074	\$207,335		\$1,322,385																	\$556,000		
U	SR 415 (407355-3)	Seminole County Line	Reed Ellis Rd	Widen to 4 lanes	C	CST 12/13 Estimated completion 3/16		\$685,258	\$973	\$29,198,944				\$285,313				\$467,352				\$214,792								
V	SR 415 (407355-4)	Reed Ellis Rd	Acorn Lake Rd	Widen to 4 lanes	C	CST 11/12 Complete		\$503,161	\$8,006,246	\$19,593,238		\$569	\$592,365	\$361,698		\$3,195	\$114,559	\$696,477		\$7,039	\$62,021	\$327,999								
W	I-4/I-95 System Interchange Widening/Reconfiguration (242715-2)	North of SR 44	1.6 miles north of US 92	See I-4/I-95/US 92 Systems Interchange Concept Design for Ramp Widenings and Reconfigurations	C	Planned CST 14/15; CST underway; estimated completion 1/1/18	\$1,658,596	\$79,852	\$3,586,918	\$0	\$0	\$1,186,644	\$586,062	\$62		\$101,059	\$46,057	\$213,733,877		\$55,989	\$4,212,308	\$2,863,643		\$6,659,069	\$3,820,000			\$414,386		
X	Tymber Creek Rd	Peruvian Lane	SR 40	Widen to 4 lanes	C	CST 09/10; Under construction 01/14; Completed 9/14																								
Y	Saxon Blvd (429757-1)	Enterprise Rd	I-4	Widen to 6 lanes	C	Under construction 01/14; Completed				\$2,887,452																				
Z	Orange Ave/Veterans Memorial Bridge (242172-1)	City Island Pkwy	SR 441	Bridge conversion from draw bridge to fixed span	C	Retain 2 lane roadway w/ shoulders	\$19,783	\$3,101,957				\$34,995				\$40,596		\$42,845,000		\$3,804		\$1,305,950								
AA	S Williamson Blvd	Airport Blvd	Pioneer Trail	New 4 lane road	C	Planned CST 13/14; Construction underway 8/15						\$738,000						\$8,562,000												
BB	10th Street (NSB/Edgewater)	Myrtle Ave	US 1	Widen to 4 lanes	C	Planned CST 13/14; waiting for Railroad approvals																								
CC	Mason Ave (435753-1)	From terminus	Dunn Ave	New 2 lane road	C	Planned CST 14/15								\$3,068,126																
DD	Palm Harbor Parkway Ext.	Fernmill Dr	Matanzas Woods Pkwy	New 2 lane road	C	Under construction																\$2,950,000								
EE	I-95 @ Matanzas Woods Pkwy (411959-2)	Interchange (Diamond)	1-Lane ramps	New Interchange	C	Under construction	\$1,271,898	\$623,369				\$13,350				\$1,954		\$9,965,364		\$6,469		\$10,695						\$40,000		
FF	Old Kings Rd Extension (415962-2)	Forest Grove Dr	Matanzas Woods Pkwy	Widen to 4 lanesNew 4-lane road	C	Under construction												\$6,289,496												
GG	Palm Coast Parkway (415963-1)	Boulder Rock Dr	Florida Park Dr	Widen to 6 Lanes	C	Under construction		\$1,174,751	\$197,957	\$11,640,138				\$1,822,717				\$2,719												

<sup>1</sup> The Existing Plus Committed (E+C) project listing includes projects that are also included in the adopted Transportation Improvement Plan (TIP). The first three (3) fiscal years included in this table are shown for informational purposes only. Projects funded in FY 2016, 2017 & 2018 represent the first three (3) years of 2040 Cost Feasible Plan. Cost Feasible projects planned beyond the E+C/TIP horizon are represented in Table 29 of the LRTP report.



## Appendix N

# INCORPORATING FAST ACT REQUIREMENTS INTO THE LONG RANGE TRANSPORTATION PLAN





## Background of the Transportation Planning Rule

Pursuant to the Moving Ahead for Progress in the 21st Century Act (MAP-21) Act enacted in 2012 and the Fixing America's Surface Transportation (FAST) Act enacted in 2015, state Departments of Transportation (DOTs) and Metropolitan/Transportation Planning Organizations (M/TPOs) must incorporate certain planning activities into the planning processes of the organization and they must apply a transportation performance management approach in carrying out their federally required transportation planning and programming activities.

On May 27, 2016, the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) issued the Statewide and Nonmetropolitan/Metropolitan Transportation Planning Final Rule (The Planning Rule). This rule details how state DOTs and MPOs must implement new MAP-21 and FAST Act transportation planning requirements, including the incorporation of new planning factors, planning activities and transportation performance management provisions. Additional guidance has been provided by the FHWA Florida Division and the Florida DOT Office of Policy Planning.

### Long Range Planning Activities

During development of the 2040 LRTP, the River to Sea TPO considered eight planning factors as established by federal requirements. Goals established in the plan were linked to these planning factors (*See Chapter 2 – Table 2, Page 13*). At that time, the new planning rules had been established, however, guidance had not been provided regarding the implementation of these new requirements. The new planning factors include:

- Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation
- Enhance travel and tourism

Additional planning activities are also required by the new planning rule. These include:

- Incorporating intermodal facilities that support intercity transportation, including intercity buses and intercity bus facilities and commuter vanpool providers.
- Including public ports and intercity bus operators, and employer-based commuting programs, such as carpool or vanpool programs, transit benefit programs, parking cash-out programs, shuttle programs, or telework programs, to the list of interested parties for the MPO's Public Participation Plan.
- Add tourism and natural disaster risk reduction agencies to the list of agencies the MPO should consult with when developing the LRTP and TIP.

The following few sections of this appendix address the planning factors, as well as the additional planning considerations as they've been incorporated into the planning activities of the River to Sea TPO.

### **Improving Resiliency and Reliability**

The River to Sea TPO planning area is shaped by the presence of water; the Atlantic Ocean, Intracoastal Waterway, St. Johns River and numerous canals, springs and lakes weave through our communities. Proximity to these beautiful waterways is what attracts many of us to live here and encourages so many others to visit. In planning for our communities, it's important that we monitor, predict, plan for, and live with the water that surrounds us.

In October 2016, the coastal area was hit by Hurricane Matthew. The resulting storm surge caused significant damage to SR A1A in Flagler County and northern Volusia County, which left the road impassable in many locations. Emergency management organizations responded immediately to secure the area. FDOT also worked quickly to stabilize the shoreline, construct temporary travel lanes and re-open the road in record time. The damage caused by Hurricane Matthew and the subsequent response provide a valuable example of effective cooperation, communication and action.

Severe weather events are predicted to become more commonplace in future years. If these predictions are correct, the strength and success of our community will be defined by our ability to respond effectively to unpredictable and potentially disruptive events. Severe weather events include flooding from rising tides and extreme rainfall, significant fluctuations in temperature, high winds, heatwaves, droughts and windstorms (including tornadoes and tropical storms). The consequences of these events can include damage and deterioration of existing infrastructure, interference with evacuation plans, reduced effectiveness of storm water systems, limited access to property and reduced bridge clearances for vessels. Preparing for future events will require adaptation and resiliency. Adaptation involves changing or modifying our community to suit new conditions in order to reduce potential negative effects. Resiliency is the ability to anticipate, prepare for, and withstand changing conditions and recover rapidly from disruptions.

Creating more adaptive and resilient communities will require a variety of actions involving planning efforts, infrastructure changes, operations and response activities, and proactive governance. The River to Sea TPO has been proactive in addressing issues of transportation resiliency and reliability including the following activities:

- **Project Ranking Criteria in the 2040 LRTP (January 2016)** – Emergency evacuation in response to crisis events has been an emphasis area for the River to Sea TPO for many years. In the assessment of prioritization of projects considered for the 2040 LRTP, the TPO considered additional weighting for improvements to evacuation routes identified by local emergency agencies (see Chapter 6, Table 21 and Appendix I).
- **2016 Sea Level Rise Vulnerability Assessment (August 2016)** – In partnership with the East Central Florida Regional Planning Council, the River to Sea TPO completed an initial and conservative assessment of the potential vulnerabilities of the planning area for issues associated with sea level rise.
- **River to Sea TPO Fiscal Year 2015/16 Annual Report (December 2016)** – In a follow-up to coastal damage resulting from flooding and storm surge, the annual report was used as a mechanism to promote awareness of resiliency and system reliability.
- **River to Sea TPO Annual Planning Retreat (March 3, 2017)** - In partnership with Volusia/Flagler Association for Responsible Development (V/FCARD), the River to Sea TPO held a planning workshop to discuss transportation issues associated with sea level rise.
- **2017 Resilient Volusia County Assessment (September 2017)** - In partnership with the East Central Florida Regional Planning Council, the River to Sea TPO analyzed impact areas resulting from 100-year coastal flooding levels inclusive of storm surge based on sea level rise projections from the Sea Level Scenario Sketch Planning Tool, identified a resiliency stakeholder working group, and identified implementation strategies and educational materials to enhance community resiliency.
- **2018 Resilient Flagler County Assessment (September 2018)** - In partnership with the Northeast Florida Regional Council, the River to Sea TPO analyzed impact areas resulting from 100-year coastal

flooding levels inclusive of storm surge based on sea level rise projections from the Sea Level Scenario Sketch Planning Tool, identified a resiliency stakeholder working group, and identified implementation strategies and educational materials to enhance community resiliency.

- **Interagency Partnering (Ongoing)** – The River to Sea TPO continues to partner with local Emergency Management agencies/departments, local governments, regional planning councils, and other agencies that meet periodically to review and assess resiliency efforts.
- **Incorporation of Resiliency in Project Ranking Criteria (January 2019)** – In updates currently being considered by the TPO transportation improvement projects that address resiliency have been added to the project application criteria used to rank projects during the annual call for projects.

### **Enhancing Travel and Tourism**

Tourism represents a significant portion of the local and state economy. The River to Sea TPO has considered tourism as an integral part of the transportation planning efforts of the organization and actively partners with local tourism agencies during the development of the LRTP. The following activities represent the efforts of the River to Sea TPO to ensure transportation matters involving travel and tourism are considered in the transportation planning activities of the TPO:

- Considerations in the 2040 LRTP (January 2016)
  - Project Ranking Criteria for access and connectivity to Activity Centers has been an emphasis area for the River to Sea TPO for many years. In the assessment of prioritization of projects considered for the 2040 LRTP, the TPO considered additional weighting for multimodal improvements to corridors providing access to designated activity centers.
  - Presentations and Stakeholder involvement for agencies directly related to tourism such as the Convention and Visitors Bureau and the Lodging & Hospitality Association.
- Partnering with the Lodging & Hospitality Association in the dissemination of the “Tell the TPO Survey”
- Presentations regarding Tourism in Transportation to the River to Sea TPO Board and the International Speedway Boulevard Coalition
- Participation and support in various events such as: the Annual Tourism and Travel Recognition Celebration and the Annual Bike Florida Tour event.
- Participation in the Central Florida Regional Visitor Study (estimated completion Spring 2019)

### **Additional Planning Considerations**

The River to Sea TPO recognizes the value of integrating additional planning considerations into the planning activities of the organization. The following information outlines the planning activities pursued by the River to Sea TPO with regards to the planning considerations.

#### **Incorporating Intermodal Facilities**

Intercity Bus, Intercity/Commuter Rail and Commuter Vanpools are important elements in supporting a healthy transportation system. These services provide important intercity travel choices for residents and visitors. They also help play a role in reducing congestion, pollution, and energy consumption through automobile vehicle trip reductions, fuel savings and lower emissions. Identifying intermodal facilities that support intercity transportation, including intercity buses, intercity bus facilities and commuter vanpool



providers can be important to the long term success of these services. The River to Sea TPO has been engaged in efforts to support these services as follows:

- **Participation in the Intermodal Transit Station Study (March 2014)** – Completed by Florida Department of Transportation (FDOT) in collaboration with Votran, the City of Daytona Beach, Volusia County, International Speedway Boulevard (ISB) Coalition and other stakeholders to support the development of an integrated multimodal transportation system which is economically efficient and safely moves people and goods in an energy-efficient manner.
- **Considerations were included in the 2040 LRTP (January 2016)** - In the assessment of prioritization of projects considered for the 2040 LRTP, the TPO considered additional weighting for projects that improved access and connectivity to the Designated Intermodal Terminal.
- **Partnering with ReThink Your Commute (Ongoing)** – The River to Sea TPO collaborates with reThink Your Commute to promote ridesharing transportation solutions and to incorporate ride sharing into the planning processes of the TPO.
- **Participation in the Volusia County Transit Connector Study (February 2017)** - Completed by FDOT in collaboration with Votran, Volusia County, and other stakeholders to evaluate the potential for developing a premium transit connection between SunRail and Daytona Beach (including a multimodal hub).
- **Outreach to various providers (Ongoing)** – The R2CTPO maintains an open dialogue with existing service providers such as SunRail, Greyhound, and Daytona Beach International Airport as well as potential service providers such as Brightline.

#### **Expanding the Stakeholders in Public Participation**

Additional planning considerations include involving intercity bus operators and commuting programs such as carpool or vanpool programs in the planning activities of the TPO and adding them to the list of interested parties as part of the TPO's Public Participation Plan. Public outreach requirements also include adding tourism and natural disaster risk reduction agencies to the list of agencies the MPO should consult with when developing the LRTP.

As stated previously, the River to Sea TPO has routinely collaborated with reThink Your Commute, with the Lodging & Hospitality Association and with the Convention and Visitors Bureau on planning activities, including the development of the 2040 LRTP. These activities are documented in Chapter 5 of the 2040 LRTP titled "Public Outreach" and in Appendix E. As a key component of the local economy, tourism activities (including the employees who support the industry) are central to many of the transportation considerations in the planning area. The TPO has also worked with emergency management teams from Volusia and Flagler Counties as part of resiliency planning efforts. Members of emergency management are also represented on the Technical Coordinating Committee, an advisory committee of the TPO board. The TPO has had limited communication with intercity bus providers who often communicate with FDOT Central Office staff regarding state-wide planning needs and capital funding opportunities.

Long range transportation planning activities will begin in 2019 as the River to Sea TPO updates the metropolitan transportation plan and extends the planning horizon to the year 2045. The update will continue to build on previous practices of the TPO in considering the added planning factors of resiliency and tourism. In keeping with the spirit and intent of the FAST Act, the public outreach activities will be expanded and more clearly documented to demonstrate the inclusion of interested parties such as intercity bus operators, commuter program managers, tourism agencies and natural disaster risk reduction agencies.

## Transportation Performance Management

Performance Management is a strategic approach to connect investment and policy decisions in order to help achieve performance goals. Performance measures are quantitative criteria used to evaluate progress. Performance measure targets are the benchmarks against which collected data is gauged. The Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21) required State DOTs and MPOs to conduct performance-based planning by tracking performance measures and setting data-driven targets to improve those measures. Performance-based planning ensures the most efficient investment of federal transportation funds by increasing accountability, transparency, and providing for better investment decisions that focus on key outcomes related to national goals including:

- Improving Safety;
- Maintaining Infrastructure Condition;
- Reducing Traffic Congestion;
- Improving the Efficiency of the System and Freight Movement;
- Protecting the Environment; and,
- Reducing Delays in Project Delivery.

Fixing America's Surface Transportation (FAST) Act supplements the MAP-21 legislation by establishing timelines for State DOTs and MPOs to comply with the requirements of MAP-21. State DOTs are required to establish statewide targets and MPOs have the option to support the statewide targets or adopt their own.

There are several milestones related to the required content of the System Performance Report:

- In any LRTP adopted on or after May 27, 2018, the System Performance Report must reflect Highway Safety (PM1) measures;
- In any LRTP adopted on or after October 1, 2018, the System Performance Report must reflect Transit Asset Management measures
- In any LRTP adopted on or after May 20, 2019, the System Performance Report must reflect the Bridge Condition Measures and Pavement Condition Measures (PM-2) and the System Performance Measures (travel time reliability, PM-3)

The River to Sea TPO recognizes the importance of linking goals, objectives, and investment priorities to stated performance objectives, and that establishing this link is critical to the achievement of national transportation goals and statewide and regional performance targets. As such, the LRTP directly reflects the goals, objectives, performance measures, and targets as they are described in other public transportation plans and processes, including:

- **Project Ranking Criteria in the 2040 LRTP (January 2016)** – Improving transportation safety has been an emphasis area for the River to Sea TPO for many years. In the assessment of prioritization of projects considered for the 2040 LRTP, the TPO considered additional weighting for improvements that address safety concerns on the transportation network (see Chapter 2 and 6 of the 2040LRTP).
- **Incorporation of Measures in Project Ranking Criteria (Ongoing)** – The TPO has a long history of emphasizing safety in the prioritization of transportation projects as a weighted factor in the criteria used to rank projects during the annual call for projects.
- **Interagency Partnering (Ongoing)** – For many years, the River to Sea TPO has participated in various partnerships to promote safety awareness and to identify and address safety concerns throughout the community. This includes involvement in the Community Traffic Safety Teams and Safe KidsCoalition.

- **Congestion Management Process and Plan (October 2018)** - The congestion management process requires the establishment and use of a coordinated, performance-based approach to transportation decision-making to support national goals for the federal-aid highway and public transportation programs. In addition to congestion resulting from traffic volume, this report incorporated additional transportation measures used in performance management.
- **Roadway Safety Evaluation & Improvement Study (September 2018)** – Building upon a crash analysis performed in 2017, this study developed a process to identify and mitigate the causes of crashes at high crash locations throughout the planning area.

### **Safety Performance Measures (PM-1)**

Safety is the first national goal identified in the FAST Act. In March of 2016, the Highway Safety Improvement Program (HSIP) and Safety Performance Management Measures Rule (Safety PM Rule) was finalized and published in the *Federal Register*. The rule requires MPOs to set targets for the following safety-related performance measures and report progress to the State DOT:

- Fatalities;
- Serious Injuries;
- Nonmotorized Fatalities and Serious Injuries;
- Rate of Fatalities per 100M Vehicle Miles Traveled (VMT); and
- Rate of Serious Injuries per 100M VMT.

The 2016 Florida Strategic Highway Safety Plan (SHSP) is the statewide plan focusing on how to accomplish the vision of eliminating fatalities and reducing serious injuries on all public roads. The SHSP was developed in coordination with Florida's 27 metropolitan planning organizations (MPOs) through Florida's Metropolitan Planning Organization Advisory Council (MPOAC). The SHSP development process included review of safety-related goals, objectives, and strategies in MPO plans. The SHSP guides FDOT, MPOs, and other safety partners in addressing safety and defines a framework for implementation activities to be carried out throughout the state.

The Florida SHSP and the Florida Transportation Plan (FTP) both highlight the commitment to a vision of zero deaths. The FDOT Florida Highway Safety Improvement Program (HSIP) Annual Report documents the statewide interim performance measures that move the state toward the vision of zero deaths. The River to Sea Transportation Planning Organization has had a longstanding commitment to improving transportation safety, which is demonstrated through planning and programming activities. Activities included in the Unified Planning Work Program (UPWP), such as the completion of school safety studies for all elementary and middle schools within the planning area, pedestrian law enforcement training and exercises, health and safety partnerships with local agencies, participation on the Community Traffic Safety Teams and helmet distribution programs, have led to increased safety awareness and project specific recommendations to reduce injuries and fatalities throughout the planning area.

In January 2018, the River to Sea TPO adopted safety performance targets in support of FDOT's 2018 safety targets. The TPO targets include a decrease in each of the safety measurements of 2% per year. In order to achieve the reduction established by the safety targets, the TPO has evaluated projects that fall into specific investment categories established by the TPO in the project application, evaluation, and ranking process. The River to Sea TPO recognizes the limitations of their role in affecting transportation safety. At this point, the TPO has not set long range targets for crash reduction, but has signaled support for the FDOT goal of zero.

The TPO has long utilized an annual project ranking criteria that identifies and prioritizes projects aimed at improving transportation safety. The ranking criteria are updated annually and are included in the appendices of the TIP. Going forward, the project evaluation and prioritization processes used in the LRTP and the TIP will continue to use a data-driven strategy that considers stakeholder input to evaluate projects that have an anticipated effect of reducing both fatal and injury crashes. The following information reflects the data and goals approved by the River to Sea TPO in January 2018.

**Fatalities:** This target reflects a two percent (2%) annual reduction in the number of fatalities from the year 2016. This sets a target of reducing the annual fatalities to 136 with a resulting five-year rolling average of 123.3 in 2018.

**Number: 136**

**5-Year Rolling Average: 123.3**

**Serious Injuries:** This target reflects a two percent (2%) annual reduction in the number of serious injuries from the year 2016. This sets a target of reducing the annual serious injuries to 743 with a five-year rolling average of 722.0 in 2018.

**Number: 743**

**5-Year Rolling Average: 722.0**

**Fatalities Rate\*:** This target reflects a two percent (2%) annual reduction in the fatalities rate from the year 2016. This sets a target of reducing the fatality rate to 1.929 with a five-year rolling average of 1.783 in 2018.

**Number: 1.929**

**5-Year Rolling Average: 1.783**

**Serious Injuries Rate\*:** This target reflects a two percent (2%) annual reduction in the serious injuries rate from the year 2016. This sets a target of reducing the serious injuries rate to 10.343 with a five-year rolling average of 10.256 in 2018.

**Number: 10.343**

**5-Year Rolling Average: 10.256**

**Non-Motorized Serious Injuries and Fatalities:** This target reflects a two percent (2%) annual reduction in the number of non-motorized serious injuries and fatalities from the year 2016. This sets a target of reducing the non-motorized serious injuries and fatalities to 108 with a five-year rolling average of 102.9 in 2018.

**Number: 108**

**5-Year Rolling Average: 102.9**

*\*VMT specific to the planning area is not currently available, which includes all of Volusia County and a portion of Flagler County. As such, the fatalities rate was calculated using the data available for the entirety of Volusia and Flagler County, pending the provision of data at the planning area level.*

The TPO's goal of reducing fatal and serious injury crashes is linked to the LRTP and the TIP and the process used in prioritizing the projects is consistent with federal requirements.

## Transit Asset Performance Measures

On July 26, 2016, FTA published the final Transit Asset Management rule. This rule applies to all recipients and sub-recipients of Federal transit funding that own, operate, or manage public transportation capital assets. The rule defines the term “state of good repair,” requires that public transportation providers develop and implement Transit Asset Management (TAM) plans, and establishes state of good repair standards and performance measures for four asset categories as shown in the following table. The rule became effective on October 1, 2018.

Asset Category	Performance Measure
Equipment	Percentage of non-revenue, support-service and maintenance vehicles that have met or exceeded their useful life benchmark
Rolling Stock	Percentage of revenue vehicles within a particular asset class that have either met or exceeded their useful life benchmark
Infrastructure	Percentage of track segments with performance restrictions
Facilities	Percentage of facilities within an asset class rated below condition 3 on the TERM scale

To support progress towards TAM performance targets, transit investment and maintenance funding in the River to Sea TPO 2040 LRTP totals \$265.9 million, approximately 14 percent of total LRTP funding. In addition, the TPO allocates 30% of the Transportation Management Area (TMA) funding or roughly \$31 million to assist local transit agencies in meeting their State of Good Repair (SGR) goals.

### ***TAM Plans and Targets***

The Transit Asset Management (TAM) rule requires that every transit provider receiving federal financial assistance under 49 U.S.C. Chapter 53 develop a TAM plan or be a part of a group TAM plan prepared by a sponsor (i.e. FDOT). As part of the TAM plan, public transportation agencies are required to set and report transit targets annually. Transit providers or their sponsors must also share these targets with each M/TPO in which the transit provider’s projects and services are programmed in the M/TPOs TIP. M/TPOs can either agree to support the TAM targets, or set their own separate regional TAM targets for the M/TPOs planning area.

The River to Sea TPO planning area is served by three (3) transit service providers: Flagler County Public Transportation (FCPT), Votran, and SunRail. Votran and SunRail are considered Tier I providers and, as such, each must develop a TAM Plan. FCPT is considered a Tier II provider and thus is included in a group TAM plan developed by the FDOT Public Transit Office in Tallahassee.

The River to Sea TPO will continue to collaborate in transit planning activities and provide support to transit providers including continued inclusion in long range planning activities and transit asset management. The following tables represent the transit data reported by each transit agency for each of the applicable Asset Categories along with the 2019 targets.



**FDOT - Statewide Tier II Group Report**  
**Flagler County Public Transportation – Bus Service**

Asset Category Performance Measure	Asset Class	Asset Class Condition	2019 Target	2020 Target
<b>Rolling Stock</b>				
Age - % of revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB)	Automobile	55%	55%	45%
	Bus	15%	15%	13%
	Cutaway Bus	28%	28%	28%
	Mini-Bus	31%	31%	28%
	Mini-Van	13%	13%	11%
	SUV	0%	0%	0%
	Van	47%	47%	34%
<b>Equipment</b>				
Age - % of non-revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB)	Non-Revenue/Service Automobile	67%	67%	67%
	Trucks and other Rubber Tire Vehicles	50%	50%	40%
	Maintenance Equipment	50%	50%	50%
	Route & Scheduling Software	100%	100%	100%
<b>Facilities</b>				
Condition - % of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale	Administration	0%	0%	9%
	Maintenance	6%	6%	12%

NOTE: FCPT inventory includes one revenue service vehicle in poor condition (an automobile)

## Votran – Bus Service

Asset Category Performance Measure	Asset Class	Asset Class Condition	2019 Target	2020 Target
<b>Rolling Stock</b>				
Age - % of revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB)	Bus	28%	23%	20%
	Cutaway Bus	32%	23%	20%
	Mini-Van	0%	1%	1%
<b>Equipment</b>				
Age - % of non-revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB)	Non-Revenue/Service Automobile	100%	10%	10%
	Trucks and other Rubber Tire Vehicles	100%	10%	1%
	Route & Scheduling Software	86%	15%	15%
	Maintenance Equipment/Hardware	92%	20%	20%
	Security	100%	20%	20%
<b>Facilities*</b>				
Condition - % of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale	Administration	4.0	10%	10%
	Maintenance	2.1	10%	10%
	Parking Structures	3.3	10%	10%
	Passenger Facilities	3.6	10%	10%
	Administration/Maintenance	3.0	10%	5%
	Storage	3.5	10%	2%

\*The Votran TAM plan lists the Transit Economic Requirements Model (TERM) rating but not the % at or above the target

## SunRail - Fixed Guideway

Asset Category Performance Measure	Asset Class	Useful Life Benchmark	Asset Class Condition	2019 Target
<b>Rolling Stock</b>				
Age - % of revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB)	Locomotives	43 years	23 years	0%
	Coach Cars	39 years	3 years	0%
	Cab Cars	39 years	3 years	0%
<b>Equipment*</b>				
Age - % of non-revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB)	Non-Revenue/Service Automobile	n/a	n/a	n/a
	Trucks & Other Rubber Tire Vehicles	n/a	n/a	n/a
<b>Infrastructure</b>				
% of track segments with performance restrictions (as applicable)	Rail fixed guideway track	n/a	2% DRM with speed restriction**	< 3% DRM with speed restriction
<b>Facilities</b>				
Condition - % of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale	Administration	n/a	n/a	n/a
	Maintenance & Operating Center	> 3 on TERM Scale	New	100% ≥ 3
	Maintenance (VSLMF)***	> 3 on TERM Scale	New	100% ≥ 3
	Stations	> 3 on TERM Scale	New	100% ≥ 3
	Park & Ride Lots	> 3 on TERM Scale	New	100% ≥ 3

\*Equipment is provided through the operations contract and is not reported as a federally funded asset.

\*\*DRM is Directional Route Miles

\*\*\*VSLMF is the Vehicle Storage & Light Maintenance Facility

In support of the transit providers, the River to Sea TPO adopted these targets on October 24, 2018. Adoption of the transit asset targets represents an agreement by the TPO to plan and program projects in the LRTP and the TIP that will, once implemented, make progress toward achieving the transit provider targets.

The TPO's goal of supporting local transit providers to achieve transit asset condition targets is linked to this investment plan, and the process used to prioritize the projects within the TIP is consistent with federal requirements.

### Bridge and Pavement Condition Measures (PM-2)

The bridge and pavement condition performance measures rules issued by Federal Highway Administration (FHWA) became effective on May 20, 2017, establishing measures to assess the condition of the pavements and bridges on the National Highway System (NHS). On October 24, 2018 the River to Sea TPO approved measures and targets associated with these facilities utilizing data provided by the FDOT. The data and targets are reflected in the following tables.

Performance Measure	# of Bridges	Total Deck Area	% Deck Area	2-year Target	4-year Target
% of NHS bridges classified as in <i>Good</i> condition by deck area	58	1,199,517	52%	≥ 50%	≥ 50%
% of NHS bridges classified as in <i>Poor</i> condition by deck area	1	1,742.5	0.08%	≤ 10%	≤ 10%

### Pavement Performance Measures and Targets

Performance Measure	% of Pavement	2-year Target	4-year Target
% of <u>Interstate</u> pavements in <i>Good</i> condition*	100%	Not Required	≥ 60%
% of <u>Interstate</u> pavements in <i>Poor</i> condition*	0%	Not Required	≤ 5%
% of <u>non-Interstate NHS</u> pavements in <i>Good</i> condition	100%	≥ 40%	≥ 40%
% of <u>non-Interstate NHS</u> pavements in <i>Poor</i> condition	0%	≤ 5%	≤ 5%

NOTE: 25% of the Interstate system was not measured due to ongoing construction projects.

Ratings categorized as "GOOD" suggest that no major investment is needed. Facilities rated as "POOR" indicate that major investments are needed.

### System Performance Management Measures (PM-3)

The third category of performance measures rules issued by Federal Highway Administration (FHWA) became effective on May 20, 2017, establishing measures to assess the performance of the National Highway System (NHS), freight movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program (CMAQ). Air quality in the River to Sea TPO planning area is above thresholds required for the CMAQ program and therefore monitoring and reporting is not required.

On October 24, 2018 the River to Sea TPO approved measures and targets associated with these facilities utilizing data provided by the FDOT. The data and targets are reflected in the following table.

### System Performance Management Measures and Targets

Performance Measure	Current TTR	2-year Target	4-year Target
% of person-miles traveled on the Interstate that are reliable	100%	≥ 75%	≥ 70%
% of person-miles traveled on the non-Interstate NHS that are reliable	51%	Not Required	≥ 50%
Truck travel time reliability ratio (TTR) on the Interstate	1.12	≤ 2.0	≤ 1.75

Travel time reliability seeks to assess how reliable the highway network is by creating a ratio (called level of travel time reliability, or LOTTR) that compares the worst travel times on a road against the travel time that is typically experienced. Road miles with a LOTTR less than 1.5 are considered reliable. It does not mean that there is not congestion on the road. It means that the amount of time a trip will take is predictable. This calculation is completed for the Interstate system, the National Highway System (NHS) and for Freight traffic utilizing the Interstate system.

### Closing Statements

The River to Sea TPO recognizes that ongoing efforts must be made to continue incorporating new planning requirements and transportation system performance into the institutional decision-making and documents of the organization. This includes expanding stakeholder involvement, documenting the added planning factors of resiliency and tourism, and further incorporating transportation performance management. The TPO will continue to coordinate with FHWA, FTA, FDOT, and area transit providers to take the actions to further incorporate performance measures as they are established and are more fully understood. As further guidance is provided and transportation data reports are developed, the TPO expects to continue expanding its planning and public outreach activities and strengthening the connection between project programming and improved performance of the transportation system as required.





**RIVER TO SEA**

Transportation Planning Organization

VISION - PLAN - IMPLEMENT



# 2040 Long Range Transportation Plan

Jean Parlow, Project Manager  
River to Sea TPO

Martha L. Moore, P.E., Project Manager  
Ghyabi & Associates, Inc.

