

# *ORMOND BEACH MULTI- MODAL STRATEGY*

*Prepared by: Ormond Beach Planning Department  
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## TABLE OF CONTENTS

	<b>Page</b>
<b>1 Introduction</b>	<b>3</b>
<b>2. Strategies to implement the Roadway Vision Plan</b>	<b>3</b>
<b>a. Right-of-way preservation</b>	<b>5</b>
<b>b. Access management</b>	<b>5</b>
<b>c. Constrained roadways</b>	<b>6</b>
<b>3. Strategies to implement the Transit Vision Plans</b>	<b>7</b>
<b>a. Develop a transit funding strategy</b>	<b>7</b>
<b>b. Intergovernmental Coordination Strategy</b>	<b>7</b>
<b>4. Strategies to implement the Land Use Vision Plan</b>	<b>8</b>
<b>a. Development Review (short term)</b>	<b>9</b>
<b>b. Comprehensive Plan (long term)</b>	<b>9</b>
<b>5. Concurrency Strategy outside of Transportation Concurrency Exception Areas (TCEAs)</b>	<b>11</b>
<b>6. Connectivity Strategy</b>	<b>11</b>
<b>7. Strategies to Implement the Bicycle Vision Plan</b>	<b>15</b>
<b>8. Transit Oriented Design land use principles</b>	<b>16</b>
<b>9. Designing roadways to reflect urban character</b>	<b>17</b>
<b>10. Transit Demand Management (TDM) Strategies</b>	<b>17</b>
<b>11. Strategies to implement the multi-modal transportation system</b>	<b>18</b>
<b>a. Multi-modal component in traffic impact studies</b>	<b>18</b>
<b>b. Evaluation standards for transportation modes</b>	<b>19</b>
<b>c. Mobility report card</b>	<b>19</b>
<b>d. Parking</b>	<b>19</b>
<b>e. Multi-modal corridors</b>	<b>20</b>
<b>12. Financial Projections and Expenditures</b>	<b>20</b>
<b>13. Summary</b>	<b>21</b>

## TABLES, MAPS AND CHARTS

<b>Table 1 – Multi-modal strategies promoted by theme</b>	<b>4</b>
<b>Table 2 – ROW Preservation Strategy</b>	<b>5</b>
<b>Table 3 – Access Management Strategy</b>	<b>6</b>
<b>Table 4 – Constrained Road Strategy</b>	<b>7</b>

<b>Table 5 – Existing Transit Routes</b>	<b>7</b>
<b>Table 6 – Transit Funding Strategy</b>	<b>8</b>
<b>Table 7 – Intergovernmental Coordination Strategy</b>	<b>8</b>
<b>Maps 1 – Existing Transit Routes</b>	<b>8</b>
<b>Map 2 – Existing Bus Stops</b>	<b>8</b>
<b>Table 8 – Development Review Strategy</b>	<b>9</b>
<b>Table 9 – Votran Review Strategy</b>	<b>10</b>
<b>Table 10 – Transit Measures</b>	<b>11</b>
<b>Map 3 – Existing and Planned Sidewalks with Transit Stops</b>	<b>12</b>
<b>Chart 1 &amp; 2 – Sidewalk Needs and Estimated Costs</b>	<b>13-14</b>
<b>Map 4 – SR 40 Multi-use Trail</b>	<b>15</b>
<b>Map 5 – Thompson Creek Trail</b>	<b>15</b>
<b>Map 6 – Tomoka State Park Trail</b>	<b>16</b>
<b>Table 11-Traffic Mode Impact Summary</b>	<b>18</b>
<b>Table 12-CSD Applicable Summary</b>	<b>18</b>
<b>Table 13 – Available Transit Capacity</b>	<b>20</b>
<b>Table 14 – Cost per Person Trip</b>	<b>20</b>
<b>Table 15 – Mobility Fee Component</b>	<b>21</b>
<b>Table 16 – Projected Revenue</b>	<b>21</b>

### **LIST OF SUPPORT ATTACHMENTS**

<b>2007-2025 Near and Long Term Roadway Assessment</b>	<b>22-23</b>
<b>Projected 2010-25 Transportation based development trips</b>	<b>24</b>
<b>Projected 2010-25 Transit Usage due to VMT Reduction</b>	<b>25</b>
<b>VMT by Transit Corridor</b>	<b>26</b>
<b>2010-25 Projected Transit Revenue and Expenditures</b>	<b>27</b>
<b>2010-25 Projected Non-motorized Revenue and Expenditures</b>	<b>28</b>
<b>Projected 2010-25 New Development Trips subject to Transit and Non-motorized Fees</b>	<b>29</b>
<b>Projected 2003-08 Trip Distribution to roadway network</b>	<b>30</b>
<b>Most Likely 2010-25 Development Scenario of Proposed Land Use Category Entitlements</b>	<b>31</b>



## 1. Introduction

The Volusia County MPO will be completing the 2035 Fiscally Constrained Transportation Plan in 2010. Results from community “Make Your Mark” meetings and Long Range Transportation Plan (LRTP) Committee meetings indicate that the 2035 Fiscally Constrained Transportation Plan will not adequately meet projected county or Ormond Beach needs.

During the preparation of the City’s Evaluation Appraisal Report (EAR) to the Florida Department of Community Affairs, it was clear that the City, County and State could no longer afford to continue widening roads within Ormond Beach without substantial cost both in terms of right-of-way and business damages. As such, staff indicated that a more balanced approach to the future transportation needs of Ormond Beach was needed. Less emphasis on roadway capacity improvements and increased emphasis on making existing roads more efficient while improvements to transit and non-motorized modes as well better intermodal connections and network connectivity were needed.

In 2009, the Legislature passed SB 360ER. This bill designated dense urban land areas (DULAs) and one of the definitions of DULA was an area having over 1000 people per square mile. Pursuant to that bill, the Florida Legislative Office of Economic and Demographic Research transmitted to the Department of Community Affairs on July 1, 2009, a list of counties and municipalities including the City of Ormond Beach, as qualifying for DULA status. Ormond Beach as a DULA is automatically designated a Transportation Concurrency Exception Area (TCEA). A designation of a citywide TCEA means that state concurrency no longer applies to development provided the City has a multi-modal strategy approved and adopted in its Comprehensive Plan within two years of the bill’s passage. However, Ormond Beach can elect through its home rule powers to be more stringent.

The multi-modal strategy has been prepared as a balance between all roadway capacity improvements and all vehicle reduction strategies. **Table 1**, on Page 2 of this strategy, depicts a matrix cross-referencing transportation themes advocated in the Transportation Element of the draft 2025 Comprehensive Plan with the multi-modal strategies of increased roadway capacity, achieving more efficiency out of the existing roadway system, reducing vehicle miles traveled and most importantly land use considerations.

In summary, the multi-modal strategy advocated in this document is simplistic in planning terms. The strategy is to locate three Transportation Concurrency Exceptions Areas (TCEAs ) along three transit routes which are considered part of Votran’s Eastside spine network. These transit routes are on roadway corridors which the city considers constrained as it relates to capacity improvements. Widening of these roads would be inconsistent with the context sensitive design normally attributable to a city. One of three roadway corridors which traverse the downtown is currently operating at a lower level of service than the adopted level of service. To enhance service, the City intends to improve connectivity for non-motorized modes of travel through the adoption of sidewalk level of service standards. To increase the potential of ridership, the City is proposing to increase densities and intensities along the three roadway corridors by requiring mixed use, horizontal development, and build to line standards for new development. Adherence to FDOT Transit Oriented Design Guidelines along with Votran’s Transit Design Guidelines serves as guidelines for development along US1, SR 40, and A1A. A form based code is planned for that portion of SR40 which is in downtown. Enhanced transit, better connectivity, and increased attention to better form and land use are the foundation of the multi-modal strategy. In all other areas concurrency is required, and mitigation of impacts must occur. However, the only change is that mitigation may include transit options where before such an option did not exist. Finally to fund the strategy, a transit and non-motorized fee is advocated. Revenues and expenditures were projected based upon the amount of vacant land and expected development over the 15 year horizon of the Comprehensive Plan. Funds generated are less than the projected expenses but because transit routes have multiple jurisdictional benefits, the City’s share of the total costs is limited by its ability and funding capacity. While the fees are new fees, they replace the Proportionate Fair Share contribution required for mitigation on SR40, US1, and A1A.

## 2. Strategies to Implement the Roadway Vision Plan

Travel by auto, transit, and bicycle all rely on the roadway system, making the roadway a key element in Ormond Beach’s multi-modal transportation system. Consequently, a 2010-2025 Near and Long Term Roadway assessment was conducted of local, state, and county roadways within Ormond Beach to determine existing and projected conditions. (See **2010-2025 Near and Long Term Assessment attached to end of this strategy**). An earlier assessment from 2007-2017 was conducted as part of the City’s Evaluation Appraisal Report (EAR) which is required by DCA every 7 years. In 2007, the City had two road corridors which had at least one failing link. These roads were Clyde Morris Boulevard and Tymber Creek Road. Both of these roads are county roads but land use approvals are principally made in Ormond Beach. Volusia County and Ormond Beach funded improvements to Clyde Morris Boulevard which as been completed. Once Tymber Creek road is completed, all 2010 failing links will operate at acceptable LOS. Projected 2017 roadway deficiencies with at least one failing link includes A1A, US1, SR40, Hand Avenue, John Anderson Drive, Tymber Creek and Williamson

**Table 1- Multi-Modal Strategies Promoted by Theme**

Themes	Increased Roadway Capacity	Efficiencies out of existing roadway system	Vehicle Reduction Strategies	Land Use
ROW Preservation	x			
Access Management		x		
TCEA		x		
Multi-modal strategy			x	
Context sensitive design			x	
Transit Oriented Design				x
Concurrency	x	x	x	
Sidewalks & Trails			x	
TDM			x	

FDOT completed a 2008 SR40 Feasibility Study<sup>1</sup> and concluded that SR 40 currently operates at adverse conditions during the daily (Interstate 95 to Nova Road) and p.m. peak hour (Tymber Creek Road to Williamson Boulevard). The future YR 2025 roadway capacity analysis indicates that two (2) sections will operate adversely along SR 40 (Breakaway Trail to Williamson Boulevard and Clyde Morris Boulevard to Nova Road). The roadway network alternative #1 focused solely on the widening of SR 40 to alleviate the anticipated adversities. This analysis concluded that even an 8- lane section would still maintain an adverse condition in the YR 2025. Roadway network alternative #2 focused on creating a viable parallel corridor, Hand Avenue, to alleviate the adversities along SR 40. This analysis concluded that extending the 2-lane Hand Avenue across Interstate 95 would not by itself alleviate the adverse conditions on SR 40. Roadway network alternative #3 focused on creating Hand Avenue as a viable parallel corridor by widening to a 4-lane section, to alleviate the adversities along SR 40. This analysis concluded that the combined capacities of SR 40 (combination of 4 and 6 lane sections) and Hand Avenue (4-lane section) would accommodate the future YR 2025 traffic demand. Roadway network alternative #4 reduced alternatives #3 to the minimum number of lanes required to accommodate the future traffic demand. This analysis concluded that the combined capacities of S.R. 40 (combination of 4 and 6 lane sections) and Hand Avenue (combination of 2 and 4 lane sections) would accommodate the future YR 2025 traffic demand. Based on the conclusions of the analysis, it is recommended that future considerations to the widening of the S.R. 40 corridor would be consistent with the roadway network alternative #4A. This alternative would include the following modifications:

- S.R. 40 - Breakaway Trail to Williamson Boulevard (Widen to 6 Lanes)
- Hand Avenue - Clyde Morris Boulevard to Shangri La Drive (Widen to 4 Lanes)

<sup>1</sup> Transportation Feasibility Study for State Road 40. GMB Engineers & Planners, Inc. 2008

Hand Avenue Extension - Williamson Boulevard to Tymber Creek Road (New 4 Lane Section)  
 Tymber Creek Road- Hand Avenue Extension to S.R. 40 (Widen to 4 Lanes)

The Hand Avenue Extension is currently not in the Volusia County MPO Transportation Improvement Plan, because the exact alignment has not yet been determined. For the purposes of this analysis, two (2) alignments were considered: to align directly to Tymber Creek Road (roadway network alternative 4A), or to align with Old Tomoka Road (roadway network alternative 4B). Both roadway alignments resulted in approximately the same construction cost, but the southern connection directly to Tymber Creek Road would result in less impact to residential dwellings. Therefore it is recommended to construct the future extension of Hand Avenue directly to Tymber Creek Road. The City has set aside \$100,000 to jointly participate with Daytona Beach, Volusia County, and Consolidated Tomoka to prepare a Project Development and Environment (PD&E) Study for the Hand Avenue Extension. John Anderson, A1A, SR40, and US 1 are considered policy constrained either due to environmental conditions or right-of-way limitations. In addition, the Hunter's Ridge DRI is expected to pay a proportionate fair share amount to mitigate impacts due to a residential increase. Expected improvements as result of Hunter's Ridge second sufficiency response includes: funds to complete Tymber Creek Road from Peruvian Lane to Airport Road; increasing the lanes on SR40 from Tymber Creek Road to I95 interchange from a 4LD to 6LD divided facility; funds towards Hand Avenue Extension; and funds towards transit and non-motorized modes.

**a. Right-of-Way Preservation**

Corridor preservation, particularly for Hand Avenue Extension, provides numerous benefits to Ormond Beach, its taxpayers, and the public at large. Preserving rights-of-way for planned transportation facilities promotes orderly and predictable development. The decisions Ormond Beach continues to make regarding the location and design of its transportation network will have a lasting impact on growth patterns, community design, and modal alternatives. For these reasons, effective corridor preservation is critical to accomplishing a wide range of planning objectives. Another benefit of corridor preservation is that it minimizes damage to homes, businesses, and the corresponding costs of acquiring rights-of-way when improvements are made. Right-of-way costs often represent the single largest expenditure for a transportation improvement, particularly in growing urbanized areas where transportation improvement needs are the greatest. Consequently, preservation policies will need to be added to the Transportation Element of the Comprehensive Plan to ensure that should development occur and roadway corridors are depicted on the Future Traffic Circulation Map, then right-of way will be set aside. Policies should also be provided to permit temporary use of proposed rights-of-way but no permanent structures may be placed within these future right-of-way corridors. Corollary standards will need to be added to the Land Development Regulation.

**Table 2 – ROW Preservation Strategy**

Strategies/Actions	Type of Action	Priority
a. Right-of-way Preservation	Comp Plan Amendment	Incorporate into EAR-Based Amendment for 2010
	LDR amendment	Within 1 year of Plan adoption

**b. Access Management**

Costly improvements are not always the solution to safety and congestion issues. Roads, like other resources, also need to be carefully managed. Corridor access management strategies extend the useful life of roads at little or no cost to taxpayers. All development needing site plan, plat, rezoning, or a land use plan amendment shall be subject to access management. Previously this was not always true. Consequently, the City will identify a list of access management techniques applicable to a given proposed development and make the necessary changes in the Comprehensive Plan as well as in the Land Development Code as legislative support.

**Table 3 – Access Management Strategy**

Strategies/Actions	Type of Action	Priority
b. Access Management	Comp Plan Amendment	Incorporate into EAR based amendments for 2010
	LDR amendment	Within 1 year of Plan adoption

**c. Constrained Roadways**

In Ormond Beach, there are three roadway corridors which are considered constrained for road widening purposes only. These roadway corridors include A1A south of SR40; SR 40 from A1A to Williamson Boulevard; and US 1 from the south city line to Wilmette. In all cases, either right-of-way purchase or feasibility plans indicate the cost of improvement exceeds the resulting benefits or the improvement itself would not accommodate the traffic needed to meet the design year. Consequently, roadway improvements to expand capacity are not advocated. Improvements in the corridor for roadway efficiency such as better access management, signal optimization and coordination, and geometric improvements at intersections are needed and advocated. In addition, substantial capacity improvements are not affordable thus requiring the City to consider alternative modes such as increased transit usage. However to enhance transit usage, better connectivity and urban form with higher densities and intensities will be needed through redevelopment and infill.

To support frequency and span of service improvements, more “choice” ridership is needed. FDOT has indicated in the draft Transit Oriented Development Design Guidelines<sup>2</sup> that to affect a meaningful modal split, approximately 25 employees per acre is needed. In order to accomplish this modal split, a more intense land use pattern will be needed along with better connectivity. However, the establishment of Transportation Concurrency Exception Areas (TCEAs) for those roadway corridors which are considered constrained, with transit service, and where opportunities to cause redevelopment and infill at a higher density or intensity exist should be pursued.

The three commercial corridors which have TCEA potential are:

1. A1A from SR 40 to the city line (commercial redevelopment);
2. SR 40 from A1A to Williamson (includes downtown and the commercial corridor west of Orchard Street to Williamson; and
3. US 1 from Wilmette Avenue to the city line on the southern boundary (commercial redevelopment).

These corridors are being recommended because 1) Votran operates core bus service (Routes 18/19 and 3) along these corridors; and 2) the areas for the most part contain commercial corridor and downtown redevelopment opportunities that could benefit from a TCEA. Higher densities and intensities can support transit and assist Votran in their goal of reducing headways and extending service hours. Since much of the City of Ormond Beach is built out, outside of Ormond Crossings, the future of Ormond Beach depends on infill and redevelopment. The downtown has been an area of emphasis for years and success in redeveloping the downtown has been limited. The beach corridor at some time in the future will require a redevelopment strategy as well as portions of US 1 within the old section of Ormond Beach.

<sup>2</sup> FDOT Draft Transit Oriented Development Design Guidelines. Renaissance Planning Group April 2009

**Table 4 – Constrained Road Strategy**

Strategies/Actions	Type of Action	Priority
c. Constrained Roads	Comp Plan Amendment to establish TCEAs	Incorporate into EAR-Based amendments for 2010
	LDR amendment to include multi-modal strategy and fee	Within 1 year of Plan adoption

### 3. Strategies to Implement the Transit Vision Plan

The City of Ormond Beach is served by Votran through a number of transit routes. There are three roadway corridors within Ormond Beach which are considered constrained but served by public transit. In Votran’s East Side Transit Study Final Report<sup>3</sup>, Votran identified Routes 18/19, 1 and 3 as network spine routes that generated 49% of all the east side ridership in 2008. Between October 2007 and June 2008, Routes 1 and 3 were ranked 4 and 5 respectively out of 22 routes within the Votran eastern and southeastern system. Improvements for Route 3 and 18/19 were weekday frequency improvements as well as trolley service on the beach. The City’s goal is to decrease VMT in the short term by 10% (2013) and in long term by 15% (2017). The resultant increase in transit usage on the corridors is expected to be 2.8% and 4.2% respectively. **See VMT by Roadway corridor and Projected Transit Usage due to VMT reduction which is attached at the end of the report.**

**Table 5 – Existing Transit Routes**

Route	Roadway	Frequency/Span of Service
18/19	A1A/SR40/Williamson loop	1 Hour headway/ 7 am – 6 pm Weekday
3	US 1	1 Hour headway/6 am – 7:30 pm Weekday
6	Nova/Hand/Wilmette/SR 40	1 Hour headway/ 6:30 am – 6:30 pm Weekday
1, 1A	A1A	1 Hour headway/5:40 am – 6:30 pm Weekday, evening and Sunday

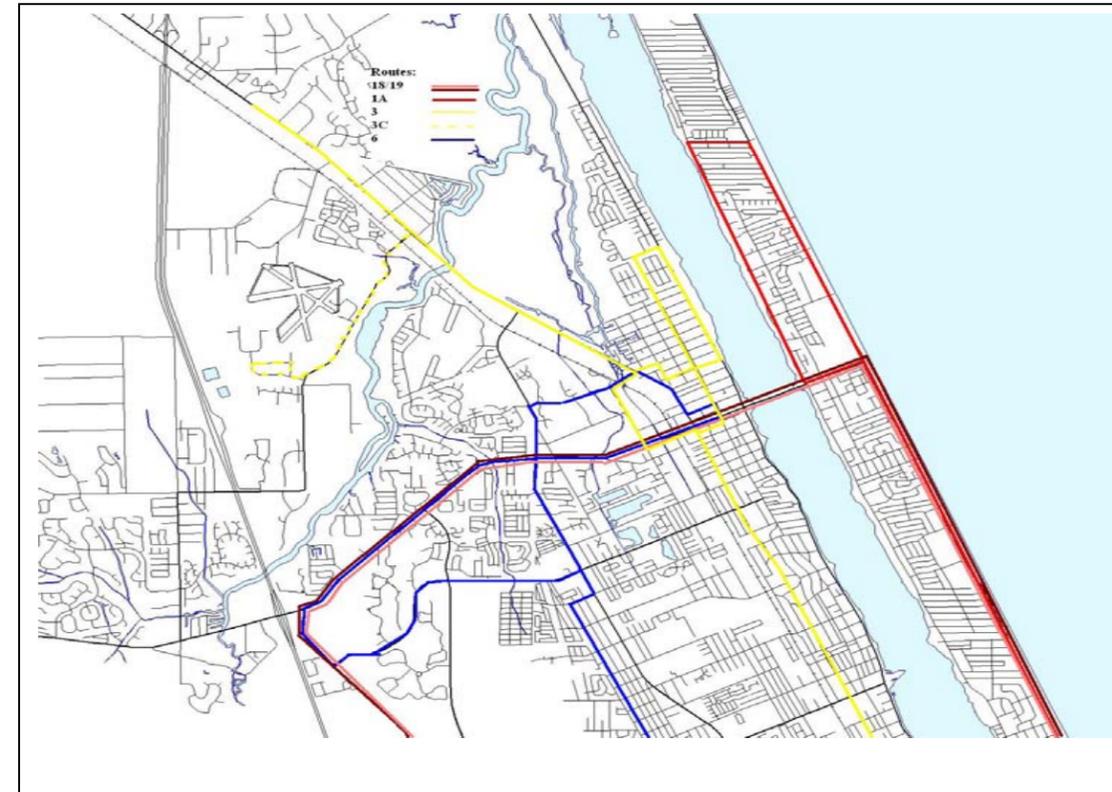
#### a. Develop a transit funding strategy

As a starting point, public transit serves Ormond Beach’s main roadway corridors. As funds are made available to enhance service, facility improvements to improve rider convenience as well as frequency and span of service improvements can be implemented. To expand bus service frequency on the A1A, US1 and SR40 routes, it is estimated that start-up capital costs is \$5.39 million while each year’s operating costs is \$4.3 million. Transit improvements are identified in the 2035 LRTP and Transit Development Plan which is currently undergoing an update. The City can enhance service and customer convenience by developing a transit fee component as part of a city mobility fee which would apply to city and state roads. The city does not want capacity improvements made on the constrained roadways. In addition, a non-motorized fee calculation will be required to support bike trails and sidewalks. Also proposed by staff is the establishment of CRA Districts for US 1 and A1A to principally fund multimodal activities such as capital improvements as well as operational improvements. There are no restrictions on the use of Tax Increment Financing funds for operations. A steady funding source for operating is needed until state law is amended to permit a mobility fee to pay for long term operations.

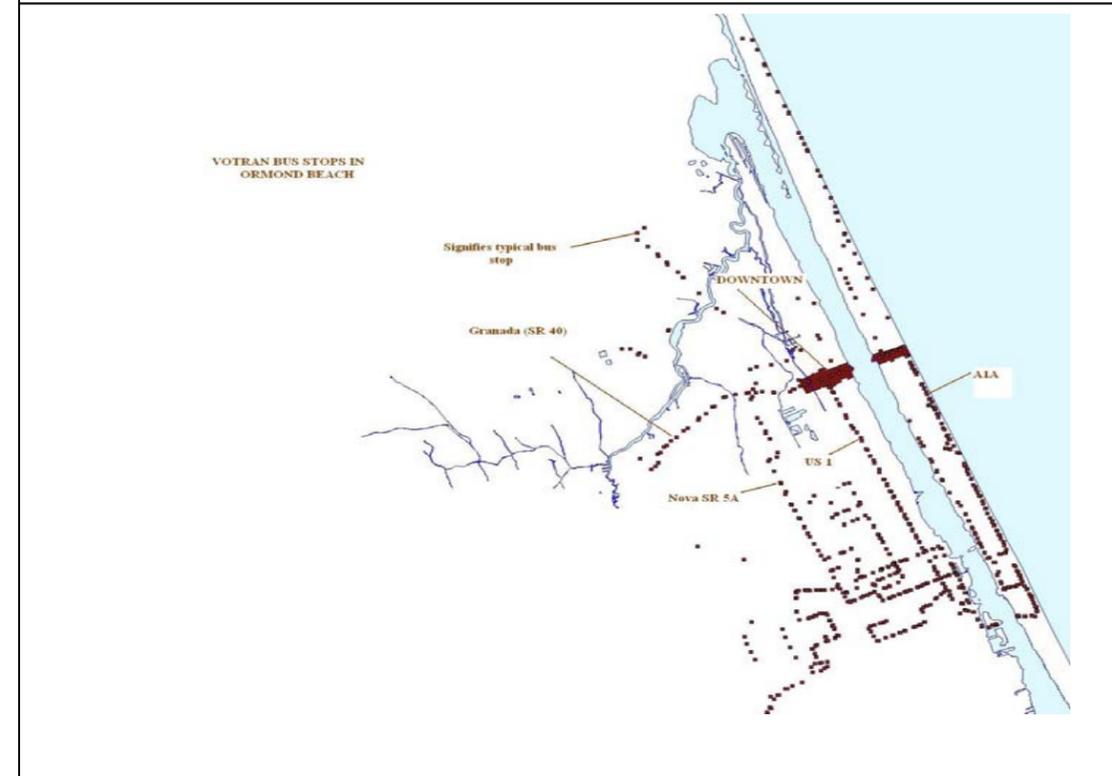
<sup>3</sup> Votran East Side Transit Study. Center for Urban Transportation Research. November 2008

**Table 6 – Transit Funding Strategy**

Strategies/Actions	Type of Action	Priority
Develop a long term transit funding strategy.	Transit and Non-motorized fee development	Initiate discussions with Votran and Volusia County immediately regarding transit fee structure design as well as assessment in lieu of road mitigation
Established CRA Districts along US 1 and A1A to support multi-modal activities.	Prepare CRA Plans for US 1 and A1A	Initiate discussions with Volusia County ED regarding the establishment of CRA TIF Districts. Upon plan adoption, integrate CRA Plans into the Comprehensive Plan.  Adopt the US 1 CRA Plan by 2012 Adopt the A1A CRA Plan by 2014



**Map 1- Existing Transit Routes and Map 2 - bus stops**



**b. Intergovernmental Coordination Strategy**

The City of Ormond Beach has adopted by reference in the draft Comprehensive Plan and in the Land Development Regulations (LDR) the Volusia County Transportation Impact Assessment Guidelines for traffic mitigation. While transit has always been a mitigation strategy, no such methodology exists to assist cities who want to use transit as mitigation. Consequently, a transit fee in lieu of road mitigation would require Volusia County concurrence through an Interlocal Agreement.

**Table 7 – Intergovernmental Coordination Strategy**

Strategies/Actions	Type of Action	Priority
Intergovernmental coordination	Develop an Interlocal Agreement	Initiate discussions with Volusia County immediately.

**4. Strategies to Implement the Land Use Vision Plan**

The best approach to implementing the multi-modal concept is to incorporate measures both in the development review process (short term) and in the Comprehensive Plan for land use planning (long term).

**a. Development Review Process (short term)**

An effective mobility plan should address not only modal improvements, but land use considerations. The Center for Urban Transportation Research prepared a Florida Mobility Fee Study<sup>4</sup> dated March 25, 2009. The study suggested that, an effective mobility plan must consider land use relative to design, density, and mix which in turn promotes walkable, mixed-use environments with relatively high densities that are connected by public transit. Of particular note, the study indicates that, “One way to foster growth that is sensitive to context is through the use of form-based codes that address the size and scale of buildings in relation to the public realm and each other.” In 2008, the City of Ormond Beach initiated an effort whereby all the blocks within the Downtown Overlay District were surveyed. The data collected along with the vision articulated in the approved 2007 Downtown Redevelopment Plan<sup>5</sup> is currently being used to transform the data into conceptual building layouts. Three cornerstones of the City’s form based code are mix use, vertical development, and build to lines. Form Based Codes have been found to be an effective approach to promoting higher density and mix use while design is through mandatory compliance with financial incentives provided through the Tax Increment Financing District. The downtown corridor is traversed by Granada Boulevard which is considered constrained but served by transit.

**Table 8 – Development Review Strategy**

Strategies/Actions	Type of Action	Priority
a. Development Review Process	Prepare a Form Based Code to implement the Downtown Redevelopment Plan	December 2010
	Apply the Transit Design Guidelines to A1A, SR 40 outside of downtown, and US1	December 2011

**b. Comprehensive Plan (long term)**

It has already been discussed previously that the City is projecting roadway deficiencies on roadway corridors which are considered constrained. These same roadways are currently served by transit and Votran desires to increase frequency and span of service on these corridors but ridership is needed as well as transit infrastructure to make ridership a convenience. Consequently, it is proposed that during receipt of a land use plan amendment along A1A, US1, or SR40 that may or may not be congested that a tiered strategy for transit improvements be required based upon the following four land use scenarios:

1. *FLUM consistent, no current or forecasted road congestion:* Development proposals that are consistent with the City’s Future Land Use Map (FLUM) in terms of both land use type and density or intensity and located along road corridors where congestion does not exist or is not forecasted to occur should be treated differently than development proposals which are inconsistent. Development proposals deemed consistent should include mitigation strategies that are tied to the size of development (VOTRAN thresholds) and include strategies that are basic to promoting multi-modal choices. Strategies most conducive to size of development include: access management, bike facilities, sidewalk connectivity, and review by VOTRAN during the development review process.
2. *FLUM consistent, road congestion exists or forecasted:* Development proposals that are consistent with the City’s FLUM in terms of land use type and density and intensity but are located along road corridors where congestion exists or is forecasted to occur would require transit facility improvements based upon the degree of the traffic problem.

<sup>4</sup> Florida Mobility Fee Report. Center for Urban and Transportation Research. March 2009

<sup>5</sup> Downtown Redevelopment Master Plan. Gladding Jackson. 2007

3. *FLUM inconsistent, no current or forecasted congestion:* Development proposals which are inconsistent with the City’s FLUM in terms of land use and density or intensity but are located along road corridors where no congestion exists or is projected would have a set of strategies applied related to the degree of the development’s inconsistency. The inconsistency would be measured comparing the trip generation factors for by-right development with the proposed development. All of the strategies identified in this section would apply to include either a Proportionate Fair Share Agreement to fund transit improvements or a specified contribution for operations to support existing or expanded transit service.

4. *FLUM inconsistent, road congestion exists or forecasted:* Development proposals which are inconsistent with the City’s FLUM in terms of land use and density or intensity and are located along road corridors where congestion exists or will exist should not be approved.

Using Votran’s Transit Guidelines<sup>6</sup> thresholds for Votran review, the above four land use plan amendment scenarios would be reviewed for transit opportunities and depending on findings, requirements to fund operation enhancements, construct capital transit infrastructure (i.e., bus shelters, etc) would be required. The measures are put forth as guidelines and are depicted in **Table 9**. These guidelines may be discussed as a part of the land use plan amendment approval or site plan negotiations dependent upon the scale of development and its relationship to the adopted Future Land Use Map. To improve transit access to office, residential developments, and commercial businesses, applicants may be required to subsidize transportation operations. The subsidy should also include provisions for adjusting the contributions annually by the CPI to account for inflation. All developments may be required to dedicate on-site easements to Votran and to construct associated roadway improvements adjacent to the site, such as bus bays if deemed needed by Votran.

On-site” shall be deemed to include the site itself and all adjacent areas related to the site, consistent with established practice in the City. All site plan development is required currently to provide secure bicycle storage facilities in a location convenient to office, commercial or residential development areas. The facilities shall be highly visible to the intended users and protected from precipitation. Depending upon the type of development, shower facilities may be required within the development as an amenity promoting bicycle or walking for commuting employees to the site. Whereas the previously discussed measures may be associated with typical site plan review approval and would be included in part in virtually all site plan reviews, measures which deal with off-site construction must be viewed as unique and must be addressed on a case-by-case basis. There will be instances where it will be mutually beneficial for the city and the developer to pursue off-site construction such as: a) improve pedestrian access between the site, Votran and other development; b) proposed developments may find it desirable to enhance the pedestrian system by widening sidewalks or providing connections or extensions and c) Bus shelter enhancements, where such enhancements do not currently exist at bus stops.

**Table 9** provides a menu of transit improvements based upon the Future Land Use Map Strategy Code. These types of improvements would vary according to the Strategy Code assigned based upon whether the land use plan amendment is consistent with the Comprehensive Plan policies and whether congestion currently exists or is projected to be congested in 2017. Discussions with Votran should be initiated immediately to ensure the transit measures proposed are compatible with Votran’s operation.

**Table 9 – Votran Review Strategy**

Strategies/Actions	Type of Action	Priority
a. Integrate Votran into the review of site plans that exceed recommended thresholds	Adopt a policy in the Comp Plan and implement through the LDC.	Immediately
b. Integrate LUPA decision matrix into Comprehensive Plan	Develop 4 tiered transit strategy based upon comprehensive plan consistency and congestion and amend the LDC.	Immediately

<sup>6</sup> Transit Development Design Guidelines. Votran. 2008

## 5. Concurrency Outside a TCEA

All development outside of the designated TCEAs shall be required to mitigate their impacts on city, county, and state roads. The City has adopted by policy the Volusia County MPO Transportation Impact Assessment Guidelines as the methodology by which impacts will be studied. Mitigation may be through the current Proportionate Share contribution process already adopted in the LDC. However, the prop-share money can be used for more than road improvements. It can be used to finance transit facility or operation enhancements, construct sidewalks and bike trails, finance transit demand management techniques, or other appropriate improvements which reduce vehicle miles traveled. This strategy was pursued by Ormond Crossings when it opted out of the DRI provisions.

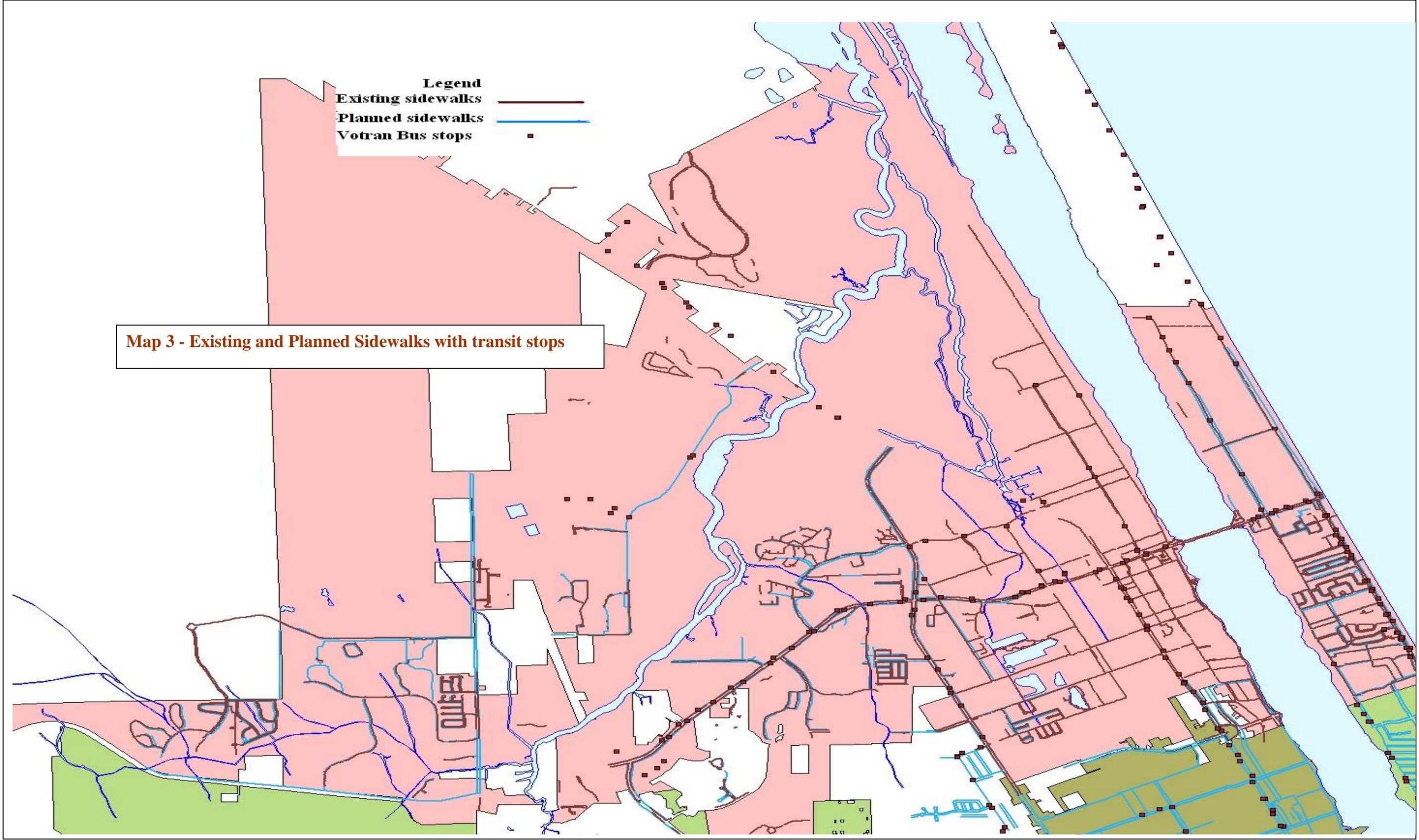
## 6. Connectivity Strategy

The City's multi-modal strategy is more than just public transit. LOSS policies are proposed for sidewalk coverage in the city. The concept is to connect residential areas to destination points such as shopping areas; public facilities such as libraries; parks and recreation; schools; and transit points. A pedestrian shed of a 1/4 mile of 75% of the road corridor's area population is proposed for connectivity. This represents the maximum distance a person is willing to walk. LOSS shall be adopted to include existing LOSS. Where the existing LOS is below the adopted LOS, sidewalk improvements will be required of development within the pedestrian shed that contains a substandard LOS. It is proposed that development not only build sidewalks on site, but they build sidewalks offsite or contribute cash in lieu of construction to enable the City to complete improvements. While much sidewalk work has been completed, there still is a current need for 59,000 linear feet of 5 foot sidewalk at a cost of approximately \$2 million dollars.<sup>7</sup> Once the LOSS is established for coverage, it is expected this cost will be higher. The development of sidewalk coverage LOSS shall be completed by 2011. Between 2007 and 2009<sup>8</sup>, Hoke Design, Incorporated was engaged by the MPO to prepare bike/pedestrian plans for students who reside within a 1 mile radius of their elementary school. Ormond Beach has five elementary schools of which four schools were studied and recommendations approved. The fifth school which is located in the downtown area is currently being studied by the consultant hired by the MPO. Missing sidewalk gaps were identified for Tomoka, Pathways, Pine Tree, and Osceola Elementary Schools. The total cost was estimated at \$7,213,925. A proto-type non-motorized fee is advocated of which one is attached to this report to demonstrate its funding capacity.

<sup>7</sup> OB Sidewalk Master Plan, Ghyabi Lassiter. 2002

<sup>8</sup> 2007 Pathway ES Bike/Ped Master Plan and 2008 Osceola, Tomoka and Pine Trail ES Bike/Ped Master Plans Hoke Design, Inc.

		Table 10 - Transit Measures			
		FLUMS Code			
		A	B	C	D
<b>I. Transit Operations</b>					
a.	Contribute to operation of a Votran transit route# _____ for _____ years.	o	x	o	x
<b>II. On Site Construction – New facilities</b>					
a.	Bike lockers, racks	o	x	x	x
b.	Shower facilities	o	x	x	x
c.	Bus stop improvements:				
	Local Stop to include all Table 9 Recommended and/or conditional improvements.	x	x	x	x
	Secondary Stop to include all Table 9 recommended and/or conditional improvements.	o	x	x	x
	Primary Stop to include all Table 9 recommended and/or conditional improvements.	o	x	x	x
<b>III. On or Off Site Enhancements to existing facilities.</b>					
a.	Park and Ride	o	x	o	x
b.	Bus shelter or contribute cash equivalency	o	x	x	x
c.	Bus Bays	o	x	x	x
d.	Bike Racks at existing Bus Shelters or contribute cash equivalency	x	x	x	x
e.	Bus Stop Signs or contribute cash equivalency	x	x	x	x
f.	Bus benches at existing bus stop signs or contribute cash equivalency	x	x	x	x
g.	Bus Stop leaning rails or contribute cash equivalency	x	x	x	x
h.	Trash receptacles at existing bus stop shelters or contribute cash equivalency	x	x	x	x
i.	Bus stop pads at existing bus stops without shelters or contribute cash equivalency	x	x	x	x
j.	Provide rights-of-way to accommodate bus stop improvements or contribute cash equivalency	o	x	x	x
k.	Install missing walkways with 1250 feet of the site or contribute cash equivalency	x	x	x	x
l.	Install ADA improvements to improve accessibility or contribute cash equivalency	o	x	x	x
<b>LEGEND</b>					
o = Not required					
x = Required					
<b>Future Land Use Map Strategy Code:</b>					
A = FLUM consistent, no projected LOS degradation below adopted standard.					
B = FLUM consistent, projected LOS degradation below adopted standard.					
C = FLUM amendment requested, no projected LOS degradation below adopted standard.					
D = FLUM amendment requested, projected LOS degradation below adopted standard.					
<b>Thresholds' to which TDM applies:</b>					
1. Commercial/Industrial (+ or >25,000 square feet of floor area or 10 acres).					
2. Residential/Mix Use (+ or > 500 MFD units; 100 acres; and all Senior, Low Income, Special Need, and 55+ age qualified housing)					
3. Medical (All hospital, 5,000 or more square feet for medical office or medical laboratory, and all urgent care facilities and dialysis centers)					
4. Recreational (Sports Complexes of 1,000+ occupancy, parks 10+ acres, and all entertainment and major area attractions).					
5. Government (All government offices, social service agencies, libraries, and community centers)					
6. Education (All public, private, and colleges exceeding 500 students)					
7. Road Construction (arterial or collector – new, rehab, extensions)					
8. Dries (all)					



**Map 3 - Existing and Planned Sidewalks with transit stops**

**Legend**  
Existing sidewalks ———  
Planned sidewalks ———  
Votran Bus stops ■

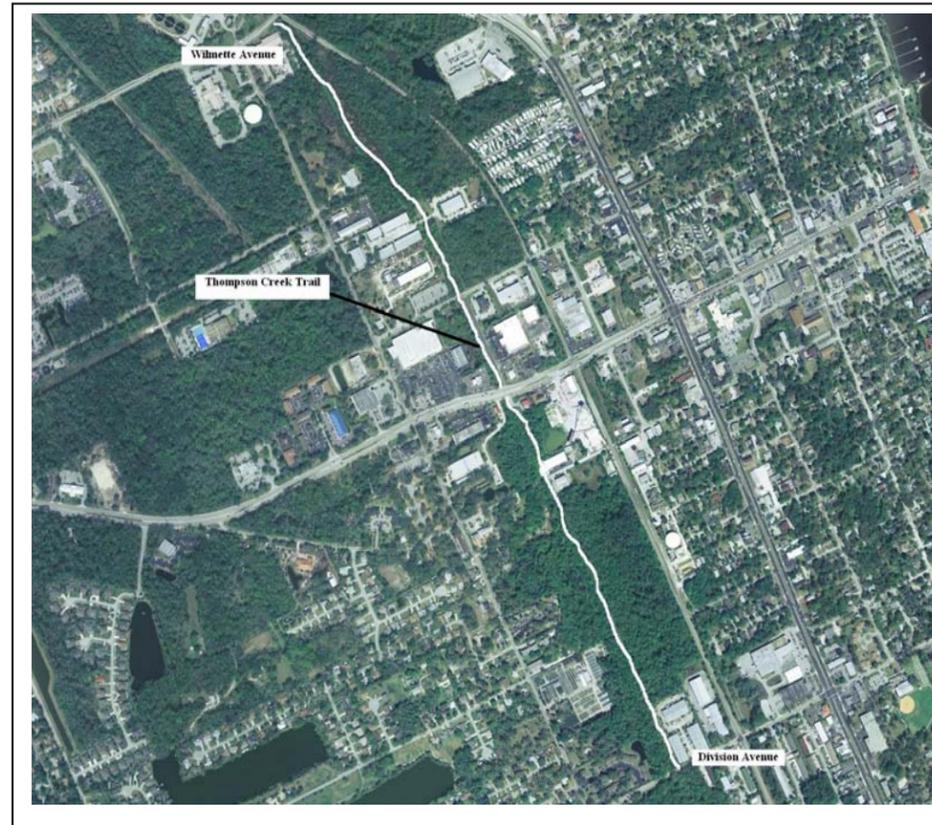
ROAD NAME	FROM	TO	SIDE	LINEAR FEET	WIDTH IN FEET	COST PER LINEAR FOOT'		SOURCE
						5 FT WIDE \$95	8 FT WIDE \$145	
1 Halifax Road	Amsden Road	SR 40	Right	6113	5	\$580,735		2008 Osceola ES Bike/Ped Master Plan
2 Rockefeller Drive	Riverside Drive	S. Atlantic	South	2551	5	\$242,345		2008 Osceola ES Bike/Ped Master Plan
3 Pinewood Street	Rockefeller Drive	River Beach	East	712	5	\$67,640		2008 Osceola ES Bike/Ped Master Plan
4 Flamingo Drive	Terminus of sidewalk	Pinewood Street	North	244	5	\$23,180		2008 Osceola ES Bike/Ped Master Plan
5 Calle Grande	Riviera Estates Blvd	S. Center Street	North	1818	5	\$172,710		2008 Osceola ES Bike/Ped Master Plan
						Sub Total	\$1,086,610	
1 Forest Hills Connector	Mayfield Terrace	Military Blvd	na	435	8		\$63,075	2008 Tomoka ES Bike/Ped Master Plan
	Mayfield Terrace	Existing Trail	na	1138	8		\$165,010	2008 Tomoka ES Bike/Ped Master Plan
2 Hidden Hills Drive	West end of terminus	SR 40	North	3201	5	\$304,095		2008 Tomoka ES Bike/Ped Master Plan
3 Main Trail	SR 40	Shady Branch Trl	North	1680	5	\$159,600		2008 Tomoka ES Bike/Ped Master Plan
4 Main Trail	Shady Branch Trl	Existing sidewalk	North	1313	5	\$124,735		2008 Tomoka ES Bike/Ped Master Plan
5 Shady Branch Trl	Existing trail	Twelve Oaks	North	894	5	\$84,930		2008 Tomoka ES Bike/Ped Master Plan
6 Main Trail	Rio Pinar Trl	East	East	896	5	\$85,120		2008 Tomoka ES Bike/Ped Master Plan
7 Rio Pinar Trl	Main Trail	Existing trail	North	511	5	\$48,545		2008 Tomoka ES Bike/Ped Master Plan
8 Main Tail	Irquois Trail	Nova	South	3004	5	\$285,380		2008 Tomoka ES Bike/Ped Master Plan
						Sub Total	\$1,092,405	\$228,085
1 Airport Road	Leeway Trail	Briargate to BWT gate	South	4555	5	\$432,725		2007 Pathway ES Bike/Ped Master Plan
2 Tymber Creek Road	Durrance Lane	Airport Road	East/West	15872	5	\$1,507,840		2007 Pathway ES Bike/Ped Master Plan
3 SR 40	I95	TCR	North	4025	8		\$583,625	2007 Pathway ES Bike/Ped Master Plan
4 SR 40	Old Tomoka Rd	Airport Road	North	6222	8		\$902,190	2007 Pathway ES Bike/Ped Master Plan
						Sub Total	\$1,940,565	\$1,485,815
1 Airport	Pine Trail ES	US 1	West	14531	5	\$1,380,445		2008 Pine Trail ES Bike/Ped Master Plan
						Sub Total	\$1,380,445	
						Total by width of sidewalk:	\$5,500,025	\$1,713,900
						Total:	\$7,213,925	
Description	Conditions	Cost Range						
5 foot wide concrete sidewalk, 4 " depth Typical	Minor drainage impacts, minimal clearing and grading within R/W	\$85 to \$95 per linear foot						
8 foot wide concrete sidewalk, 4" depth Typical	Minor drainage impacts, minimal clearing and grading within R/W	\$130 to \$145 per linear foot						

ROAD NAME	FROM	TO	SIDE	LINEAR FEET	WIDTH IN FEET	2002 Estimated Cost <sup>1</sup>	2009 CPI \$
Rosewood Ave	US1	N. Beach St	Either	2889	5	\$56,328	\$67,173
Sandcastle Drive	John Anderson Dr.	Ocean Shore Blvd	Left	2714	5	\$52,927	\$63,117
Riverside	Fluhart Dr	SR 40	Either	3709	5	\$165,064	\$196,845
Fleming Avenue	Sauls Street	US 1	Left	1150	5	\$22,434	\$26,753
Banyan Dr	N. Halifax Dr	St. Brendans	Either	1024	5	\$19,997	\$23,847
Tomoka Oaks Blvd	Nova	St. Andrews Dr	Right	635	5	\$12,373	\$14,755
McIntosh Road	St. Andrews Dr	Lindenwood Cir	Either	4553	5	\$88,782	\$105,875
S. Center St	Arroyo	Fleming Ave	Right	1256	5	\$24,487	\$29,202
Inglesa Ave	N. Beach St	Sanchez Trail	Either	775	5	\$15,119	\$18,029
S. Center St	Hand	Division	Right	1318	5	\$25,700	\$30,648
Lakebridge Plaza Dr	Shadow Lakes Blvd	Wilmette	Right	997	5	\$19,434	\$23,175
Booth	Old Tomoka Rd	SR40	Either	2201	5	\$42,927	\$51,192
Overbrook Dr	Northbrook Dr.	Beach St	Either	3306	5	\$64,469	\$76,882
Shadow Lakes Blvd	Nova Road	Lakebridge Plaza Dr	Left	340	5	\$6,627	\$7,902
Woodlands Blvd	Military	Nova	Either	1489	5	\$29,043	\$34,635
Peninsula Dr	Marvin Road	CCL	Either	1861	5	\$36,291	\$43,278
Arroyo Pkwy	Ridgewood Ave	Yonge St	Either	487	5	\$9,483	\$11,308
Military Blvd	Royal Rd	Woodland Blvd	Either	770	5	\$15,010	\$17,900
Tomoka Ave	SR 40	Bennett Lane	Either	799	5	\$35,556	\$42,401
Arroyo Pkwy	Nova	Santa Fe	Left	5668	5	\$252,208	\$300,767
Hand Ave	Spring Meadows	Clyde Morris Blvd	Right	1358	5	\$52,952	\$63,147
Hand Ave	Shangri La	Clyde Morris Blvd	Both	2716	5	\$135,104	161,116
Airport Road	TCR	Ormond Green Blvd	Either	3408	5	\$151,657	\$180,856
SR 40	TCR	I95	North	4565	8		\$316,650
US 1	Hernandez	Wilmette	Left	4241	5	\$82,701	\$98,624
US 1	Dix	Melrose	Right	2712	5	\$52,890	\$63,073
				56941			
<sup>1</sup> Note: Unless noted, all costs are sourced from the 2002 Ghyabei Lassiter OB Sidewalk Master Plan					Total	\$1,469,563	\$2,069,150

2009 McKim & Creed  
Estimate

## 7. Strategies to Implement the Bicycle Vision Plan

Currently the City has 5.62 miles of bike trail throughout the city. Based upon the adoption of the City of Ormond Beach 2005 Parks and Recreation Master Plan, another 2.34 miles of trails will be needed to meet the current population. Currently, the City is completing the Tomoka State Park Trail from Iglesia Avenue to the State Park along the Loop (5100 linear feet) and is under contract to build approximately 2 miles of 8 foot wide trail along SR40 which will contribute to meeting and improving bicycle travel options in Ormond Beach. But for the downtown, the Comprehensive Plan supports bike trails and requires 4 foot shoulder lanes to accommodate bike travel on roadways. Implementing additional improvements identified in the Parks and Recreation Plan is the next step to improving the bicycle system. Planned trails which require further approval include Thompson Creek Trail from Wilmette to Division Avenue.



← **Map 4 – SR 40 Multi-Use Trail**  
**Map 5 - Thompson Creek Trail** ↑  
**Map 6 – Tomoka State Park Trail** →



As part of the Transportation Element, staff is relying heavily on Votran's Transit Design Guidelines prepared in 2008 as well as FDOT's draft Transit Oriented Development Design Guidelines which form the basis from which transit oriented principles are required of development within the TCEAs.

Applicants for development approvals to include plat, site plan, zoning, and land use plan amendments which exceed the thresholds as determined by the Transit Design Guidelines, shall be required to meet the transit oriented design policies as well as make transit facility and/or operational improvements as recommended by Votran.

The following general land use considerations to support transit in the Downtown area and along US1, A1A, and that portion of SR 40 outside of the Downtown area shall be incorporated into the Comprehensive Plan:

1. In the Downtown, A1A, and SR40 the transit corridor housing densities shall reflect 8-15 units an acre to support premium transit service;
2. A mixed use pattern that places residential units above street level commercial uses without a corresponding decrease in commercial floor area;
3. Density should be organized to take advantage of transit service by being located along transit corridors and within a pedestrian shed of ¼ mile of transit stops;
4. Buildings should be moved closer to the street;
5. Pedestrian sheds should be established with connectivity to ensure transit area focus populations will not walk more than a ¼ mile to access transit.
6. Pedestrian systems should be continuous, barrier free walking surface with direct links to transit stops; and
7. Transit circulation for large scale developments should provide direct transit service through the center of the project.

Residential land use policies should be guided by the following policies:

8. To optimize transit operations, cluster development and promote multi-family structures in order to exceed 8 units a net acre;
9. A better commitment to network connectivity is needed. More efficient movement of buses through and between subdivisions is needed. Where street rights-of-way exist and the only obstacle is opening up the closed street, the city must do more to educate residents of the need for such connectivity; and
10. Transit facilities should be coordinated with Votran as part of the review of such single family developments.

Commercial land use principles should be implemented that promote the following:

11. A complimentary mix of retail and service uses should be provided offering the possibility of "chaining" trips;
12. Auto oriented uses such as vehicle sales and services, building material stores, drive-through businesses, and warehouse storage should be related to heavy commercial corridors;
13. Buildings should be moved to the front with parking located to the side or rear of the parcel;
14. Parking should be reduced through shared parking based upon am or pm characteristics of the user as well as whether transit exists on the corridor.

## **9. Designing roadways to reflect urban character**

Ormond Beach is defined by the roadway corridors leading into and through the City. SR 40, US 1, Nova Road, and A1A are landscaped and have been designed to be compatible with their surroundings. The City is working toward roadway design solutions that are compatible to surrounding land uses. Roadway widening should not be done for capacity improvements without understanding the urban area through which the road travels. Sign standard indexes which are suitable for I95 and other SIS roads should not also be used in downtown areas where sensitivity to

size and design should be paramount. The city’s effort in developing a form based code only strengthens sensitivity to context since its focus is on design and how it relates to the public surroundings and each other. Continued communication to FDOT on why on-street parking is vital to the downtown will continue. Bike lanes can be accommodated on parallel roads in more sensitive areas like the downtown, thereby improving the ability for the downtown to have landscaped medians, reducing speeds and improving safety for pedestrians and motorists alike.

Designing to reflect urban character or Context Sensitive Design promotes many specific changes in design of roadways that can support Transportation Demand Management strategies including calming traffic, traditional urbanism, and non-motorized transportation. **Table 11** depicts the potential traffic impacts as a result of Context Sensitive Design (CSD). Each impact depends on specific changes and how broadly they are applied by the responsible jurisdiction.

**Table 11 – Travel Mode Impact Summary**

<b>Impact</b>	<b>Comments</b>
Reduces total traffic.	Overall VMT reduced
Reduces peak period traffic.	Congestion reduced
Shifts automobile travel to alternative modes.	Efficiency of existing road capacity promoted
Improves access, reduces the need for travel.	More pedestrian friendly
Increased public transit.	Transit % of mode split increased
Increased cycling.	Non-motorized % of mode split increased
Increased walking.	“

CSD is appropriate in many areas of Ormond Beach. For example, the City’s downtown, residential neighborhoods and commercial corridors would be appropriate areas for CSD solutions when road improvements are initially planned. Since Ormond Beach has very few roads classified above local or residential of its own, CSD should also be applicable to FDOT Project Development & Environmental (PD&E) and Efficient Transportation Decision Management (ETDM) processes for federal and state highways respectively as well as to Volusia County for county roads. CSD if integrated into the City’s Comprehensive Planning process, provides the City a much better chance of ensuring federal, state and county road facilities are built considering community character and physical attributes.

**Table 12 – CSD Application Summary**

<b>Geographic</b>	<b>CSD Applicability</b>	<b>Organization</b>
Low density suburban/rural edge transition	Fair	FDOT/Volusia County
Downtown (SR 40)	Excellent	FDOT
Commercial corridors (A1A & US1)	Good	FDOT
Residential neighborhoods	Excellent	Ormond Beach

## **10. Transit Demand Management (TDM) Strategies**

Ormond Beach has limited ability to positively impact total VMT through TDM. However, Ormond Crossings has great potential for TDM strategies and there is sufficient industrial development within the City that a Transportation Management Initiative (TMI) could be coordinated either through the Chamber of Commerce or another entity that has an interest in business prosperity and economic development. Consequently, the city should support and foster a multi-jurisdictional effort possibly through the MPO as well as with other organizations.

The City could consider two approaches to TDM within the LDC. The first approach would be to directly require that some combination of a list of TDM measures be included in all development proposals of a given size (perhaps the threshold is the same as those thresholds contained in the Votran Transit Guidelines). The threshold for employees however could be as low as employers with having 10 or more employees and a goal for a percentage reduction in SOV trips is established. Alternatively, these regulations could be more optional. That is, they require a traffic impact assessment and provide a menu of TDM strategies as options for offsetting anticipated adverse traffic conditions. In both instances, the regulations should include the following features:

- a. Application of TDM requirements only to development above a given size either for a single use or a site with multiple uses congregated together;
- b. A requirement for a traffic impact assessment that includes a projection of number of SOV trips that would be generated by the development and an estimate of reduction in trips that could be achieved with TDM;
- c. A menu of acceptable TDM approaches that could be used to meet TDM requirements;
- d. A requirement for preparation and submittal of a TDM plan for the site that will serve as a commitment to a selected list of TDM measures;
- e. A process for allowing an applicant to request a waiver from the TDM regulation; and
- f. A statement of how the regulations will be enforced including a process for monitoring the implementation of the TDM plan.

For example, as an incentive to developers who use TDM and where a 15% reduction in SOV is projected using a variety of TDM measures, an applicant could get a comparable reduction in the number of required parking spaces.

## **11. Strategies to Implement the Multi-Modal Transportation System**

To ensure interaction between all transportation modes, a number of broad, multi-modal strategies are needed. These strategies are critical to the successful development of a multi-modal transportation system.

### **a. Multi-modal component in Traffic Impact Studies**

The City along with all other jurisdictions adopted the Volusia County Transportation Impact Assessment Guidelines. No multi-modal component exists within the Guidelines. The City and County through the MPO should include a multi-modal component in all traffic impact studies. In Ormond Beach, it is proposed traffic impact studies are required outside of the TCEAs and that transit also is a mitigation strategy. The multi-modal component should address impacts to pedestrians, bicycles, transit, and automobiles. TDM measures should also be incorporated into the assessment guidelines for SOV reduction.

### **b. Evaluation Standards for Transportation Modes**

The City should use multi-modal performance standards to ensure that adequate facilities are provided for all modes of travel. For bicycle, pedestrian and transit modes, level of service standards addressing sidewalk coverage from residential areas to major destination points (shopping, parks, transit stops, etc.) are proposed. For transit, pedestrian and bicycle accessibility to transit stops is the key component. Pedestrian sheds of ¼ mile containing sidewalk connectivity on at least one side of the street connecting residential to shopping, parks, and transit stop is the goal of the sidewalk LOSS coverage.

### c. Mobility Report Card

The City and Votran should conduct city-wide transportation mobility surveys on a periodic basis. The survey results can become the City’s report card on progress towards meeting the desired modal splits. Daily, peak hour, and transit ridership reports are conducted annually either through Annual Traffic Counts or through Comprehensive Operations Analyses (COA). Total VMT on the roadway corridors on which transit exists is attached to this strategy. **Table 13** depicts the annual seat capacity available on Votran routes. Reducing vehicle miles travelled in the range of 6-10% can result in an increase in transit usage from 2.8% to 5.6% on the multi-modal corridor Routes (18/19, 1, 3, and 6). The City has existing regulatory language for parking required from all new development but parking standards must be amended to support multi-modal objectives. The City’s proposed form based code permits shared parking between am and pm oriented users, 20% reduction if located along a transit route, and provides for parking waivers for uses having less than a certain amount square feet of floor area.

**Table 13 – Available Transit Capacity**

Route	Annual Passengers	Total Hours in Operation	Annual Seats Available	% of Capacity available
<b>1</b>	<b>318,565</b>	<b>12,706</b>	<b>494,710</b>	<b>36% or 176,145 seats</b>
<b>3</b>	<b>132,227</b>	<b>5,293</b>	<b>185,255</b>	<b>29% or 53,028 seats</b>
<b>Total</b>	<b>450,792</b>	<b>17,999</b>	<b>679,965</b>	<b>33% or 229,173</b>
				<b>% of Transit Increase</b>
<b>10%VMT Reduction</b>	<b>12,641</b>			<b>2.8%</b>
<b>15%VMT Reduction</b>	<b>19,058</b>			<b>4.2%</b>
<b>20%VMT Reduction</b>	<b>25,410</b>			<b>5.6%</b>

### d. Parking

The City has existing regulatory language for parking but the parking requirements are more suitable for a suburban style code and must be amended to support multi-modal objectives. The City’s proposed Form Based Code has been drafted to provide many options beyond on-site parking. Parking requirements for uses within the Downtown Overlay District as drafted vary according to the size of development, the location of public parking and transit availability. Where parking is required, parking may be provided through the use of shared parking, off-site valet or remote parking, a parking reduction study, a payment in lieu of on site parking, on site parking or a combination of these approaches. It also is not the intent to limit the alternative parking approaches to those just identified. Other alternative approaches which have been used successfully in other downtown areas similar to Ormond Beach which are rational and based upon applied science may be considered. Due to transit availability, and the existence of on-street parking and public parking lots in the River District, the first 2,000 square feet of floor area for any new development within the River District shall be exempt from the minimum parking requirements as calculated in Section 3-26 of the Land Development Code (LDC). All other Districts (Ocean and Creek) such parking may be reduced by 25% due to transit availability.

Alternative parking options to on-site parking provisions:

1. Valet or Remote parking: Upon application to the City, a business may utilize offsite valet parking or provide remote parking to meet the parking requirements. Valet or remote parking need not be located on the same side of the street of the use to be serviced by such parking. If valet parking is to be used, the applicant must provide the location and number of the valet parking spaces, or the location and size of the valet parking zone being requested; the location of the off street parking area the valet parking operation intends to use for the storing of the vehicles, and a signed contract or agreement showing that the valet parking has acquired the legal right to store the vehicles; and proof of insurance as required by the City.
2. Payment in lieu of Parking: An applicant may elect to make a payment in lieu of parking to the City. Such payment shall be based upon the current construction cost of one surface parking space times the number of parking spaces. Payments shall be deposited to the City Tax Increment Financing Account for construction of parking based upon demand;

3. Parking Study Reduction: A study prepared by a qualified transportation firm or individual may be used to support reduction of parking based upon the known characteristics of the use. It shall be at the City's discretion to accept all, a portion, or none of the parking supported by the study; and
4. Shared parking may be used, if feasible, to satisfy all or a portion of the minimum off-street parking requirements. Shared parking is permitted between different categories of uses or uses with different hours of operation provided the City acts as the broker, coordinator, and approving authority for the banking of parking arrangement. The Planning Director may authorize upon application the allocation, transfer and the use of public parking spaces and private spaces to another land use to serve as the required off-street parking based upon the percentage of required parking which is anticipated to be available by general use and time of day as indicated.

### e. Multi-modal Corridors

Regardless of TCEAs, the City should advocate the building of multi-modal corridors that combine higher density, mixed-use developments with complete streets that provide opportunities for travel by all modes. Multi-modal corridors should include adequate facilities for all modes of travel and should incorporate urban design that is conducive to both motorized and non-motorized travel. For a multi-modal corridor to be successful, surrounding land uses must include residential and non-residential uses and feature an increase in level of density and intensity. A1A, SR40, and US 1 are good candidates for multi-modal corridors due to transit availability, existing constraints which impede capacity improvements, and the land use includes the city's downtown as well as older commercial and beach side tourist corridors which could benefit from redevelopment.

## 12. Financial Projections and Expenditures

Financial revenues that could be available for implementing the multi-modal strategy are based upon two new fee components. The transit and non-motorized component combined with the City's local road impact fee forms the new mobility fee from which development and (re) development on city and state roads will be assessed. The City will need to negotiate and enter into some type of interlocal agreement as indicated earlier in this document with Volusia County to permit the city's mobility fee to be assessed to development on county roads. In the alternative, the City could also advocate a multi-modal component be put into the current Volusia County Transportation Impact Assessment Guidelines as appropriate mitigation in Ormond Beach.

The City developed two growth scenarios involving land use and transportation. **Table 14** depicts the land use and transportation based development trips and cost per person trip. Using the Land Use scenario that most likely could occur based upon the proposed land use category entitlements (page 31), it is estimated that 207,156 new trips will result over the next fifteen year development horizon of the City's Comprehensive Plan. A review of all of the approved traffic studies by the City from 2003-08 indicates 66% of the new trip distribution was to US 1, A1A and SR40 (page 31). SR40 remains the principal east-west corridor for purposes of the Plan's development horizon. Hand Avenue Extension is tentatively scheduled in the Volusia Transportation Planning Organization's draft 2035 LRTP for construction outside of the Comprehensive Plan's 15 year development horizon. Consequently, it seems reasonable that future traffic distribution trend will repeat the past distribution trend. As such, 136,761 new development trips are most likely subject to the proposed transit and non-motorized fee (page 29). The development trips were converted to person trips by multiplying an Average Vehicle Occupancy (AVO) factor by the development trips to obtain the number of person trips.

**Table 14 – Cost per Person Trips**

Scenario	Total Modal Need \$	Development Trips	AVO	Person Trips (PT)	Cost per PT	Comments
Land Use	\$13,435,422	136,761	1.502	205,415	\$65.40	See Pages 29-31
Transportation	\$13,435,422	114,680	1.502	172,249	\$77.82	See Pages 22-24
NOTE: Cost per person trip is derived by dividing Total Modal Need \$ by Person Trips by mode						

The land use scenario projects \$7,910,942 in transit fee revenues over the next fifteen years. Non-motorized fee revenues are projected to be \$4,091,867 over the same time period. Using the transportation scenario, the development trips are projected to be 114,680. In determining existing deficiency, the existing 2010 volume and capacity was compared to the projected 2025 capacity as projected by the 2010-2025 Long Term Roadway Assessment (pages 22-23). New growth was determined by subtracting the existing deficiency. Costs for each mode of travel were estimated based upon needs stated in this document for transit and sidewalks. New growth was multiplied by the travel mode costs to determine the percentage of cost attributed to growth. The 15 year growth of trips was multiplied by an AVO factor of 1.502. **Table 15** depicts each component of the mobility fee. **Table 16** provides the projected revenue available to each mode. Estimated revenues are slightly less than using the land use scenario but the fee per person trip is higher. For purposes of projecting potential revenue for 2010-2025, the transportation scenario is used for revenue projections. Regardless of revenue estimates, the City proposes to use its mobility fees to support improved transit amenities, new buses, expanded frequency of service on US 1, A1A, and SR40, construct trails, implement the Elementary School pedestrian/bike improvement studies, enhance existing sidewalks by widening the existing width from 5 feet to 8 feet and implement sidewalk connectivity from existing residential neighborhoods to transit stops, commercial shopping areas, public parks/ recreation facilities and other public facilities such as the library, etc. Revenues projected are less than the projected costs of transit service expansion. Only new capital, expanded bus service for three years are assumed to be eligible expenses from which the transit fee component can support. The City is planning the establishment of redevelopment districts on US1 and A1A to fund multi-modal activities but the rest of the funds will need to come from other communities who are on the transit routes that are also traversed by routes 1, 3, and 18/19. In addition, the county will need to find new revenues to support transit, both rail and bus, in the future. Discussions during the development of the draft 2035 LRTP include a ½ cent Local Option Sales Tax. (LOST). The revenues projected are tentative because it is based upon more robust development years than the period from 2008-2010. If projected development does not occur as depicted, then the expenditures will also be reduced to reflect the revenue.

**Table 15 – Mobility Fee Components**

Scenario	Roads	Transit	Non-Motorized	Mobility Fee
Transportation	\$9.40 per person trip	\$45.40 per person trip	\$23.02 per person trip	\$77.82 per person trip
Land Use	\$9.40 per person trip	\$38.00 per person trip	\$18.00 per person trip	\$65.40 per person trip

**Table 16 – Projected Revenue by Mode & Scenario**

Scenario	Roads (12%)	Transit (58%)	Bike-Ped (30%)
<u>Land Use</u>	<u>\$1,636,746.70</u>	<u>\$7,910,942.50</u>	<u>\$4,091,866.80</u>
<u>Transportation</u>	<u>\$1,612,250.60</u>	<u>\$7,792,544.80</u>	<u>\$4,030,626.60</u>

### 13. Summary

This document has been prepared to establish the City’s rationale for a multi-modal strategy in its 2008 EAR as well as meeting the multi-modal strategy requirements established in SB 360 in 2009. The strategy is simple. Ormond Beach is a city and there are certain areas within its corporate boundaries that should not look like suburban development. Multi-modal corridors have been identified based upon capacity constraints due to environmental, physical or policy considerations. Spine routes for transit exists on these constrained roadways and because they are considered a spine network to Votran, the likelihood that such a route will be discontinued is extremely unlikely. Transit stops are found all along the three multi-modal corridors however connectivity (pedestrian/bike) needs to improve so that all residents have the ability to walk to shopping, parks, and transit stops unimpeded. To support transit, land which has the greatest potential for redevelopment and infill was identified for redevelopment to higher densities and intensities. This is being done through either the City’s form based code for downtown or adherence to Votran’s Transit Guidelines based upon thresholds for areas outside of downtown. To put forth some cost feasible proposal for this multi-modal strategy, the City has developed a consumptive use transit fee and non-motorized fee for pedestrian/bike connectivity. However, it is realized that the fees are limited in the type of improvements that can be done. In conclusion, in the absence of specific guidelines regarding the development of the multi-modal strategy, the City believes this document is sufficient to support the limited multi-modal strategy proposed.

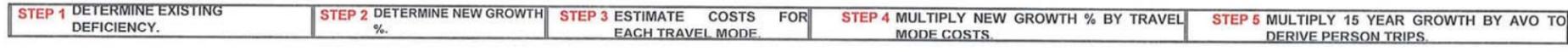
CITY OF ORMOND BEACH - Long Term Roadway Assessment - 2010-2025

Roadway Segment	Evacuation Route	Transit Route	Distance (miles)	Adopted LOS <sup>1</sup>	2009 LOS	2009 LOS Capacity <sup>2</sup>	2009 AADT <sup>3</sup>	2009 VC Ratio	2017 LOS	2017 LOS Capacity	2017 AADT	2017 VC Ratio	2025 LOS	2025 LOS Capacity	2025 AADT	2025 VC Ratio	Constrained Facility	Transportation Improvement Program or Capital Improvement Program
<b>SRA1A</b>																		
Flagler Co. Line to OM	yes		6.1	D	C	21,300	15,100	0.71	E	21,300	19,300	0.91	E	21,300	23000	1.08	ROW constrained	
OM to Neptune	yes		2.8	D	C	21,300	16,400	0.77	D	21,300	17,400	0.82	D	21,300	17400	0.82	ROW constrained	
Neptune to SR 40	yes		1.2	D	D	21,300	17,900	0.84	D	21,300	18,100	0.85	D	21,300	17800	0.84	ROW constrained	
SR 40 to Harvard	yes	Rt # 1a & b; 8; trolley	2	D	A	35,700	19,500	0.55	A	35,700	17,800	0.50	A	35,700	16400	0.46	ROW constrained	
<b>US1</b>																		
Flagler Co. to I-95	yes	no	1.5	D	A	61,800	15,200	0.25	A	61,800	26,000	0.42	A	61,800	33200	0.54		
I-95 to Airport Rd.	yes	Rt# 3a, 3c	2.5	D	B	35,700	21,500	0.60	D	35,700	29,700	0.83	E	35,700	35700	1.00		
Airport Rd. to Nova Rd.	yes	Rt# 3a, 3c	1.1	D	C	35,700	25,500	0.71	D	35,700	31,300	0.88	E	35,700	34600	0.97	Resolution 99-40	
Nova Rd. to SR 40	yes	Rt# 3a, 3c	1.75	D	A	35,700	17,000	0.48	A	35,700	19,400	0.54	A	35,700	20000	0.56	Resolution 99-40	
SR 40 to Hand Ave.	yes	Rt# 3	0.85	D	B	35,700	22,500	0.63	B	35,700	23,100	0.65	A	35,700	21200	0.59	Resolution 99-40	
Hand Ave. to Flomich St.	yes	Rt# 3	2.8	D	C	35,700	26,000	0.73	C	35,700	25,100	0.70	B	35,700	22700	0.64	Resolution 99-40	
<b>NOVA ROAD (SR5A)</b>																		
US 1 to Wilmette Ave.	no		1	D	A	35,700	13,400	0.38	A	35,700	14,100	0.39	A	35,700	15200	0.43		
Wilmette Ave. to SR 40	no	Rt# 6	0.5	D	A	53,500	23,000	0.43	A	53,500	23,500	0.44	A	53,500	24200	0.45		
SR 40 to Hand Ave.	no	Rt# 6	1.1	D	A	53,500	27,500	0.51	A	53,500	26,300	0.49	A	53,500	28500	0.53		
Hand Ave. to LPGA Blvd.	no	Rt# 6	1.3	D	A	53,500	29,000	0.54	A	53,500	28,700	0.54	A	53,500	30400	0.57		
<b>GRANADA BLVD. (SR40)</b>																		
Pinto Lane to Tymber Creek Rd.	yes		6.25	C - DOT	D	34,700	29,000	0.84	D	34,700	29,400	0.85	E	34,700	38400	1.11		
Tymber Creek Rd. to I-95	yes		0.8	C - DOT	D	34,700	29,000	0.84	E	34,700	34,000	0.98	E	34,700	38400	1.11		
I-95 to Clyde Morris Blvd.	yes	Rt# 1b	1.5	D	C	46,600	35,500	0.76	E	46,600	45,600	0.98	E	46,600	51900	1.11		
Clyde Morris Blvd. to Nova Rd.	yes	Rt# 1b	1	D	C	42,300	33,500	0.79	E	42,300	38,300	0.91	E	42,300	40200	0.95		
Nova Rd. to US 1	yes	Rt# 1b, 6	1.25	D	D	35,700	32,000	0.90	D	35,700	30,900	0.87	D	35,700	30500	0.85	ROW constrained	
US 1 to John Anderson	yes	Rt# 1b	1	E	E	35,700	34,500	0.97	D	35,700	30,500	0.85	C	35,700	26400	0.74	ROW constrained	
John Anderson Dr. to SR A1A	yes	Rt# 1a,b	0.5	E	C	31,065	22,000	0.71	D	31,065	26,500	0.85	E	31,065	28300	0.91		
<b>AIRPORT ROAD</b>																		
Tymber Creek Rd. to Pineland Trl.	no			D	A	10,080	5,630	0.56	A	10,080	5,200	0.52	A	10,080	4900	0.49		
Pineland Trl. To Ocean Pine Dr.	no			D	A	10,080	4,490	0.45	A	10,080	5,000	0.50	A	10,080	5200	0.52		
Ocean Pine Dr. to Bear Creek Path <sup>(12)</sup>	no	3c		D	A	12,400	7,190	0.58	B	12,400	7,600	0.61	C	12,400	8700	0.70		
Bear Creek Path to US 1 <sup>(12)</sup>	no	3c		D	A	13,800	7,190	0.52	A	13,800	7,200	0.52	A	13,800	7100	0.51		
<b>BEACH STREET</b>																		
Tomoka River Bridge to Inglesa Ave.	no			D	A	15,600	2,490	0.16	A	15,600	3,300	0.21	A	15,600	3900	0.25	Contrained	
Inglesa Ave. to Domicilio Ave.	no			D	A	15,600	6,390	0.41	A	15,600	6,300	0.40	A	15,600	6200	0.40	Contrained	
Domicilio Ave. to Wilmette Ave.	no	3b		D	A	15,600	6,390	0.41	A	15,600	6,400	0.41	A	15,600	6400	0.41	Contrained	
Wilmette Ave. to Hernandez Ave.	no	3b		D	B	15,600	9,840	0.63	B	15,600	10,100	0.65	B	15,600	10800	0.69	Contrained	
Dix Ave. to SR 40	no			D	B	15,600	9,840	0.63	C	15,600	11,200	0.72	C	15,600	11900	0.76	Contrained	
SR 40 to Division Ave.	no			D	A	15,600	7,770	0.50	B	15,600	9,900	0.63	B	15,600	10800	0.69	Contrained	
Division Ave. to Arroyo Pkwy	no			D	A	15,600	5,400	0.35	A	15,600	6,400	0.41	A	15,600	6600	0.42	Contrained	
Arroyo Pkwy to Plaza Grande Ave.	no			D	A	15,600	5,400	0.35	A	15,600	6,600	0.42	A	15,600	6900	0.44	Contrained	
<b>CLYDE MORRIS BLVD.</b>																		
SR 40 to South Forty Trl.	no			D	A	31,255	12,220	0.39	A	31,255	13,600	0.44	A	31,255	12700	0.41		
South Forty Trl. to Falls Way	no			D	A	31,255	12,220	0.39	A	31,255	14,500	0.46	A	31,255	14400	0.46		
Falls Way to Coquina Point Dr. <sup>(13)</sup>	no			D	C	15,600	12,220	0.78	A	32,900	14,600	0.44	A	32,900	15000	0.46		
Coquina Point Dr. to Hand Ave. <sup>(13)</sup>	no			D	C	15,600	12,220	0.78	A	32,900	15,600	0.47	A	32,900	16800	0.51		
Hand Ave. to Strickland Range Rd. <sup>(13)</sup>	no			D	C	15,600	11,970	0.77	A	32,900	14,800	0.45	A	32,900	15400	0.47		
<b>HALIFAX</b>																		
Standish Dr. to Amsden Rd.	no			D	A	10,080	1,650	0.16	A	10,080	1,500	0.15	A	10,080	0	0.00		
Amsden Rd. to Neptune	no			D	A	10,080	1,650	0.16	A	10,080	2,100	0.21	A	10,080	800	0.08		
Neptune Ave. to SR 40	no			D	B	10,080	6,620	0.66	B	10,080	6,200	0.62	A	10,080	5600	0.56		

Roadway Segment	Evacuation Route	Transit Route	Distance (miles)	Adopted LOS <sup>1</sup>	2009 LOS	2009 LOS Capacity <sup>2</sup>	2009 AADT <sup>3</sup>	2009 VC Ratio	2017 LOS	2017 LOS Capacity	2017 AADT	2017 VC Ratio	2025 LOS	2025 LOS Capacity	2025 AADT	2025 VC Ratio	Constrained Facility	TIP or CIP
<b>HAND AVENUE</b>																		
Williamson Blvd. to Spring Meadows Dr. <sup>(14)</sup>	no			D	A	15,330	7,110	0.46	C	15,330	11,300	0.74	E	15,330	13800	0.90		
Spring Meadows Dr. to Clyde Morris Blvd. <sup>(14)</sup>	no			D	A	15,330	7,110	0.46	B	15,330	10,500	0.68	D	15,330	12400	0.81		
Clyde Morris Blvd. to Shangri La Dr. <sup>(14)</sup>	no			D	C	15,330	11,880	0.77	>F	15,330	19,300	1.26	>F	15,330	23500	1.53		
Shangri La Dr. to Nova Rd.	no			D	A	25,200	13,750	0.55	D	25,200	21,800	0.87	F	25,200	26800	1.06		
Nova to Orchard Street	no			D	A	12,600	7,270	0.58	C	12,600	9,400	0.75	C	12,600	9200	0.73		
Nova to US 1	no			D	A	12,600	7,270	0.58	A	12,600	7,400	0.59	A	12,600	6300	0.50		
<b>JOHN ANDERSON</b>																		
Essex Dr. to Halifax Dr.	no			D	A	10,080	5,620	0.56	A	10,080	5,200	0.52	A	10,080	4200	0.42	Policy constrained	
Halifax Dr. to Amsden Dr.	no			D	A	10,080	3,350	0.33	A	10,080	3,600	0.36	A	10,080	2900	0.29	Policy constrained	
Amsden Dr. to SR 40	no			D	A	10,080	5,550	0.55	C	10,080	8,000	0.79	D	10,080	8800	0.87	Policy constrained	
<b>PINE TREE DRIVE</b>																		
US 1 to Village Dr.	no			D	A	10,080	2,500	0.25	A	10,080	3,300	0.33	A	10,080	3600	0.36		
Village Dr. to midpoint	no			D	A	9,600	1,890	0.20	A	9,600	2,300	0.24	A	9,600		0.00		
midpoint to Old Dixie Hwy	no			D	A	9,600	1,620	0.17	A	9,600	2,000	0.21	A	9,600		0.00		
<b>PINELAND TRAIL</b>																		
Airport Rd. to Harmony Ave.	no			D	A	9,600	700	0.07	A	9,600	853	0.09	A	9,600		0.00		
Harmony Ave. to US 1	no			D	A	9,600	280	0.03	A	9,600	341	0.04	A	9,600		0.00		
<b>TYMBER CREEK ROAD</b>																		
Broadway Ave. to Durrance Ln.	no			D	A	12,000	1,580	0.13	A	12,000	2,400	0.20	A	12,000	3300	0.28		
Durrance Ln. to Airport Rd.	no			D	A	12,600	1,580	0.13	A	12,600	5,900	0.47	B	12,600	8100	0.64		
Airport Rd. to Tymber Run <sup>(15)</sup>	no			D	B	12,600	8,440	0.67	A	32,800	12,200	0.37	A	32,800	14900	0.45		VC CIP 2LUD to 4LD from SR 40 to Puruvian Lane
Tymber Run to SR 40 <sup>(15)</sup>	no			D	F	12,600	13,470	1.07	A	32,800	19,100	0.58	C	32,800	23200	0.71		VC CIP 2LUD to 4LD from SR 40 to Puruvian Lane
SR 40 to Riverbend Rd.	no			D	A	12,600	670	0.05	A	12,600	800	0.06	A	12,600	800	0.06		
<b>WILLIAMSON BLVD.</b>																		
SR 40 to Hand	no			D	B	32,900	21,040	0.64	B	32,900	21,200	0.64	B	32,900	22300	0.68		
Hand Ave. to Strickland Range Rd	no			D	A	32,900	12,790	0.39	E	15,330	15,600	1.02	>F	15,330	17100	1.12		

**NOTES:**

1) Adopted LOS from Comprehensive Plan, Transportation Element, Objective 1.2. Adopted LOS for state roads established by FDOT.
2) Maximum Capacity: Capacities shown are from 2007 Volusia County Traffic counts, unless otherwise noted below.
3) AADT: Average annual daily traffic. Traffic data is provided by Volusia County Traffic Engineering for county roads and FDOT for state roads.
4) Traffic Flow Characteristics: VC <= .60 = A; .61-.70 = B; .71-.80 = C; .81-.90 = D; .91 - 1.00 = E; 1.01 - 1.10 = F; >1.10 = >F
5) 2017 AADT derived from FDOT's Traffic Trends Analysis Tool



2010 Existing		2025 Capacity	
Volume	Capacity	Future	Existing
15,100	21,300	21,300	21,300
16,400	21,300	21,300	21,300
17,900	21,300	21,300	21,300
19,500	35,700	35,700	35,700
15,200	61,800	61,800	61,800
21,500	35,700	35,700	35,700
25,500	35,700	35,700	35,700
17,000	35,700	35,700	35,700
22,500	35,700	35,700	35,700
26,000	35,700	35,700	35,700
13,400	35,700	35,700	35,700
23,000	53,500	53,500	53,500
27,500	53,500	53,500	53,500
29,000	53,500	53,500	53,500
29,000	34,700	34,700	34,700
29,000	34,700	34,700	34,700
35,500	46,600	46,600	46,600
33,500	42,300	42,300	42,300
32,000	35,700	35,700	35,700
34,500	35,700	35,700	35,700
34,500	31,065	31,065	31,065
22,000	10,080	10,080	10,080
5,630	10,080	10,080	10,080
4,490	12,400	12,400	12,400
7,190	13,800	13,800	13,800
7,190	15,600	15,600	15,600
2,490	15,600	15,600	15,600
6,390	15,600	15,600	15,600
6,390	15,600	15,600	15,600
9,840	15,600	15,600	15,600
9,840	15,600	15,600	15,600
9,840	15,600	15,600	15,600
7,770	15,600	15,600	15,600
5,400	15,600	31,255	15,600
5,400	31,255	31,255	31,255
12,220	31,255	32,900	31,255
12,220	15,600	32,900	15,600
12,220	15,600	32,900	15,600
12,220	15,600	10,080	15,600
11,970	10,080	10,080	10,080
1,650	10,080	10,080	10,080
1,650	10,080	15,330	10,080
6,220	10,080	15,330	10,080
7,110	15,330	15,330	15,330
7,110	15,330	25,200	15,330
11,880	15,330	12,600	15,330
13,750	25,200	12,600	25,200
7,270	12,600	10,080	12,600
7,270	12,600	10,080	12,600
5,620	10,080	10,080	10,080
3,550	10,080	10,080	10,080
5,550	10,080	9,600	10,080
2,590	10,080	9,600	10,080
700	9,600	9,600	9,600
280	9,600	9,600	9,600
1,580	9,600	12,000	9,600
1,580	12,000	12,000	12,000
8,440	12,600	32,800	12,600
13,470	12,600	32,800	12,600
670	12,600	12,600	12,600
21,040	12,600	32,900	12,600
21,040	32,900	15,330	32,900
12,790	32,900	32,900	32,900
	9,600	9,600	9,600

0.59239923 divided by 1.03414395 equals 0.57284 is the Existing Deficiency

Percentage for New Growth

42.7%

Estimated Costs      New Growth Costs

Roads	Local Road Impact Fee \$141.00/SFD or \$9.40 per person trip per trip	
Transit:		
Capital:	\$5,390,000	
Operating (3 years):	\$12,918,000	
	<u>\$18,308,000</u>	\$7,820,441.54
Non-motorized:	\$9,283,075	\$3,965,356.42
<b>Total Costs:</b>	<b>\$27,591,075</b>	<b>\$11,785,798</b>

**Goss:**  
Formula:  $1 - .5728 = .427$

**Goss:**  
Percentage for New Growth (42.7%) is multiplied by Estimated cost to derive new growth cost

**Goss:**  
These numbers come from the 2010-2017-2025 revised long term road assessment using FDOT's trend analysis tool

**Goss:**  
Existing Deficiency Formula:  $\frac{(\text{Existing Volume}) - (\text{Existing Capacity})}{(\text{Future Capacity}) - (\text{Existing Capacity})}$

Person Trips attributable to Growth

Horizon Year 2025	Base Year 2010	Growth	AVO 1.502	Person Trips
23,000	15,100	7,900	x AVO =	11,866
17,400	16,400	1,000	x AVO =	1,502
17,800	17,900	-100	x AVO =	-150
16,400	19,500	-3,100	x AVO =	-4,656
33,200	15,200	18,000	x AVO =	27,036
35,700	21,500	14,200	x AVO =	21,328
34,600	25,500	9,100	x AVO =	13,668
20,000	17,000	3,000	x AVO =	4,506
21,200	22,500	-1,300	x AVO =	-1,953
22,700	26,000	-3,300	x AVO =	-4,957
15,200	13,400	1,800	x AVO =	2,704
24,200	23,000	1,200	x AVO =	1,802
28,500	27,500	1,000	x AVO =	1,502
30,400	29,000	1,400	x AVO =	2,103
38,400	29,000	9,400	x AVO =	14,119
38,400	29,000	9,400	x AVO =	14,119
51,900	35,500	16,400	x AVO =	24,633
40,200	33,500	6,700	x AVO =	10,063
30,500	32,000	-1,500	x AVO =	-2,253
26,400	34,500	-8,100	x AVO =	-12,166
28,300	34,500	-6,200	x AVO =	-9,312
4,900	22,000	-17,100	x AVO =	-25,684
5,200	5,630	-430	x AVO =	-646
8,700	4,490	4,210	x AVO =	6,323
7,100	7,190	-90	x AVO =	-135
3,900	7,190	-3,290	x AVO =	-4,942
6,200	2,490	3,710	x AVO =	5,572
6,400	6,390	10	x AVO =	15
10,800	6,390	4,410	x AVO =	6,624
11,900	9,840	2,060	x AVO =	3,094
10,800	9,840	960	x AVO =	1,442
6,500	9,840	-3,240	x AVO =	-4,866
6,900	7,770	-870	x AVO =	-1,307
12,700	5,400	7,300	x AVO =	10,955
14,400	5,400	9,000	x AVO =	13,518
15,000	12,220	2,780	x AVO =	4,176
16,800	12,220	4,580	x AVO =	6,879
15,400	12,220	3,180	x AVO =	4,776
0	12,220	-12,220	x AVO =	-18,354
800	11,970	-11,170	x AVO =	-16,777
5,600	1,650	3,950	x AVO =	5,933
13,800	1,650	12,150	x AVO =	18,249
12,400	6,220	6,180	x AVO =	9,282
23,500	7,110	16,390	x AVO =	24,618
26,800	7,110	19,690	x AVO =	29,574
9,200	11,880	-2,680	x AVO =	-4,025
6,300	13,750	-7,450	x AVO =	-11,190
4,200	7,270	-3,070	x AVO =	-4,611
2,900	7,270	-4,370	x AVO =	-6,564
8,800	5,620	3,180	x AVO =	4,776
3,600	3,550	50	x AVO =	75
3,300	5,550	-2,250	x AVO =	-3,380
8,100	2,590	5,510	x AVO =	8,276
14,900	700	14,200	x AVO =	21,328
23,200	280	22,920	x AVO =	34,426
800	1,580	-780	x AVO =	-1,172
22,300	1,580	20,720	x AVO =	31,121
17,100	8,440	8,660	x AVO =	13,007
	13,470	-13,470	x AVO =	-20,232
	670	-670	x AVO =	-1,006
	21,040	-21,040	x AVO =	-31,602
	21,040	-21,040	x AVO =	-31,602
	12,790	-12,790	x AVO =	-19,211

**Goss:**  
The AVO is sourced from a FIU Doctorial Dissertation paper authorized by Kaiyu Liu in which the survey for VC indicated an AVO rate of 1.502 unadjusted for gender types.

965,700    851,020    114,680    172,249

**PROJECTED 2010-25 TRANSIT USAGE DUE TO VMT REDUCTION**

Corridor	Route	Total VMT	VMT Reduction			AVG VMT/car	Vehicle Reduction by VMT %			AVG Vehicle Occupancy (1.502)			Annual Passengers	Transit Usage Increase due to VMT Reduction		
			10%	15%	20%		10%	15%	20%	10%	15%	20%		10%	15%	20%
US1	3	61,692,685	6,169,269	9,253,903	12,338,537	2,285	2,700	4,050	5,400	4,055	6,083	8,110	318,568	1.3%	1.9%	2.5%
A1A	1	26,146,775	2,614,678	3,922,016	5,229,355	1,477	1,770	2,655	3,541	2,659	3,988	5,318	132,227	2.0%	3.0%	4.0%
SR 40	18/19	93,559,720	9,355,972	14,033,958	18,711,944	2,339	4,000	6,000	8,000	6,008	9,012	12,016	New Route.	Part of Route 1		
		181,399,180	18,139,918	27,209,877	36,279,836	2,034	8,470	12,705	16,940	12,722	19,083	25,444	450,795	2.8%	4.2%	5.6%

### TOTAL VMT BY ROADWAY CORRIDOR SERVED BY TRANSIT

Road Name	Limits (From - To)	Distance in Miles	2008 Number of Lanes	2008 AADT	2008 Daily VMT	Days in year	2008 Annual VMT	Total VMT by Corridor
US 1	I-95 to Airport Rd.	2.81	4	22,500	63,225.0	365	23,077,125.0	61,692,665.0
US 1	Airport Rd. to SR5A/Nova Rd.	1.13	4	29,000	32,770.0	365	11,961,050.0	
US 1	SR5A/Nova Rd. to SR 40	1.83	4	18,200	33,306.0	365	12,156,690.0	
US 1	SR 40 to Hand Ave.	0.84	4	23,500	19,740.0	365	7,205,100.0	
US 1	Hand Ave. to Plaza Blvd.	0.74	4	27,000	19,980.0	365	7,292,700.0	
SR A1A - Ocean Shore Blvd.	Ormond Mall to Neptune Ave	1.69	2	17,500	29,575.0	365	10,794,875.0	26,146,775.0
SR A1A - Ocean Shore Blvd.	Neptune Ave to SR 40 (Granada Blvd.)	0.70	2	17,100	11,970.0	365	4,369,050.0	
SR A1A - Atlantic Ave.	North SR 40 to Harvard Dr.	1.70	4	17,700	30,090.0	365	10,982,850.0	
SR 5A - Nova Rd.	US 1 to Wilmette Ave.	1.00	4	14,000	14,000.0	365	5,110,000.0	
SR 5A - Nova Rd.	Wilmette Ave. to SR 40	0.51	6	24,500	12,495.0	365	4,560,675.0	
SR 5A - Nova Rd.	SR 40 to Hand Ave.	1.15	6	29,000	33,350.0	365	12,172,750.0	
SR 5A - Nova Rd.	Hand Ave. to Golf Ave.	0.77	6	30,500	23,485.0	365	8,572,025.0	
SR 40	Rima Ridge Rd. to Tymber Creek Rd.	4.36	4	10,800	47,088.0	365	17,187,120.0	
SR 40	Tymber Creek Rd. to I-95	0.79	4	26,500	20,935.0	365	7,641,275.0	
SR 40	I-95 to Clyde Morris Blvd.	1.58	4	37,500	59,250.0	365	21,626,250.0	
SR 40	Clyde Morris Blvd. to SR 5A/Nova Rd.	1.06	4	35,000	37,100.0	365	13,541,500.0	93,559,720
SR 40	SR5A/Nova Rd. to US 1	1.33	4	32,000	42,560.0	365	15,534,400.0	
SR 40	US 1 to Halifax Ave.	1.11	4	36,500	40,515.0	365	14,787,975.0	
SR 40	Halifax Ave. to SR A1A	0.37	4	24,000	8,880.0	365	3,241,200.0	

## PROJECTED TRANSIT REVENUE AND EXPENDITURES

**Revenue:**

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Transit Fee	\$2,200	\$75,000	\$125,000	\$200,000	\$614,212	\$614,212	\$614,212	\$614,212	\$614,212	\$614,212	\$614,212	\$614,212	\$614,212	\$614,212	\$614,212	\$614,212	\$7,772,744
Funding by others							\$3,275,000	\$1,790,000	\$1,700,000	\$1,736,000	\$1,750,000	\$1,750,000	\$4,306,000	\$4,306,000	\$4,306,000	\$4,306,000	\$29,225,000

**Multi-modal Expenses:**

Transit Amenities	\$2,200	\$75,000	\$125,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$202,200
SR 40 corridor frequency of service improvements from 1 hour headways to 30																	
Capital	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,460,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,460,000
Operating	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	1,942,000	\$1,942,000	\$1,942,000	\$1,942,000	\$1,942,000	\$1,942,000	\$1,942,000	\$1,942,000	\$15,536,000
US 1 Corridor Frequency of Service improvements from 1 hour headways to 30																	
Capital	\$0	\$0	\$0	\$0	\$0	\$0	\$1,760,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,760,000
Operating	\$0	\$0	\$0	\$0	\$0	\$0	\$1,416,000	\$1,416,000	\$1,416,000	\$1,416,000	\$1,416,000	\$1,416,000	\$1,416,000	\$1,416,000	\$1,416,000	\$1,416,000	\$14,160,000
A1A corridor frequency of service improvements from 1 hour headways to 15																	
Capital	\$0	\$0	\$0	\$0	\$0	\$0	\$1,170,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,170,000
Operating	\$0	\$0	\$0	\$0	\$0	\$0	\$948,000	\$948,000	\$948,000	\$948,000	\$948,000	\$948,000	\$948,000	\$948,000	\$948,000	\$948,000	\$9,480,000
<b>Balance</b>	\$0	\$0	\$0	\$200,000	\$814,212	\$1,428,424	\$23,636	\$63,848	\$14,060	\$272	\$484	\$696	\$2,556,908	\$5,113,120	\$7,669,332	\$10,225,544	\$2,455,088

## PROJECTED NON-MOTORIZED REVENUE AND EXPENDITURES

### Revenue

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Non-mortorized Fee	\$0	\$30,000	\$285,758	\$285,758	\$285,758	\$285,758	\$285,758	\$285,758	\$285,758	\$285,758	\$285,758	\$285,758	\$285,758	\$285,758	\$285,758	\$285,758	\$4,030,612
Xu Funds			\$473,812														\$473,812

### Non-motorized expenses

Bike racks, storage lockers, etc			\$5,000	\$5,000	\$5,000			\$10,000				\$10,000	\$10,000	\$20,000	\$20,000	\$20,000	\$105,000
Tomoka Park Trail			\$473,812														\$473,812
SR 40 Trail Phase 3					\$570,000												\$570,000
Thompson Creek Trail																	\$0
Phase 1											\$1,250,000						\$0
Phase 2																\$950,000	\$950,000
Osceola/Ormond/Tomoka/Pathway/Pine Trail ES pedestrian/bike improvements			\$20,000	\$15,000		\$20,000	\$25,000	\$40,000				\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$220,000
Sidewalk enhancements from existing 5 foot wide to 8 foot wide			\$50,000	\$40,000	\$50,000	\$50,000	\$50,000	\$50,000				\$50,000	\$50,000	\$50,000	\$50,000	\$30,000	\$520,000
Sidewalk Connectivity																	
SR 40 Corridor			\$15,000	\$10,000	\$15,000	\$15,000	\$15,000	\$15,000				\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$135,000
US 1 Corridor			\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000				\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$140,000
A1A Corridor			\$15,000	\$10,000	\$15,000	\$15,000	\$15,000	\$15,000				\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$135,000
	\$0	\$30,000	\$195,758	\$386,516	\$2,274	\$173,032	\$338,790	\$479,548	\$765,306	\$1,051,064	\$86,822	\$262,580	\$438,338	\$604,096	\$769,854	\$5,612	\$11,224

**PROJECTED 2010-25 DEVELOPMENT  
TRIPS SUBJECT TO TRANSIT FEE**

<i>Maximum TGR for undeveloped land based upon land use classification in Comprehensive Plan:</i>	<b>510,353</b>
<i>Most likely TGR for undeveloped land based upon land development code provisions governing density and intensity:</i>	<b>207,156</b>
<i>Past trip distribution approved to US1, A1A and SR40 from 2003-08 :</i>	<b>66%</b>
<i>Maximum development related trips subject to transit fee:</i>	<b>336,926</b>
<i>Most likely development related trips subject to transit fee:</i>	<b>136,761</b>

**PROJECTED 2003-08 TRIP DISTRIBUTION**

Project	Type of		TGR	SR40	Trip Distribution		Date	
	Development				US1	A1A		
	NR	R						
1 Marshside @ Groverbranch		x	863	212	0	0	2006	
2 Hand Avenue Medical Office	x		764	78	0		2007	
3 Shoppes @ TCR	x		10,252	6,727	0	0	2007	
4 River Oaks		x	1,005	200	0	0	2003	
5 Courtyards	x	x	1,120		800		2005	
6 East Coast Community Bank	x		669	669			2006	
7 Granada Grande		x	1,852	1,600			2006	
8 Tomoka Christian Church			528	100	0	0	2007	
9 Tomoka Oaks Golf Village		x	773	77	77		2005	
10 S.R. Perrott	x		931	0	931	0	2007	
11 Root Commerce Park	x		1,305	209	927	0	2006	
12 Amsouth	x		942	942	0	0	2006	
13 Pineland		x	1,868	900	36	36	2008	
14 Calvary Church	x		2,178	2,178	0	0	2007	
15 Enclave		x	396	100	0	0	2006	
			8	7	25,446	13,992	2,771	36
					55%		11%	0%
								66%

**66% of all approved trips distributed to US 1, SR40, and A1A**

**Conclusion:** The above represents all traffic impact assessment studies received and approved from 2003 to 2008. Past development was mostly located in the west end of the city. Infill and redevelopment is projected along the roadway corridors. SR40 was and is projected to continue as the primary east-west road corridor. The traffic studies as a group indicate that approximately 66% of TGR was distributed to SR40, US 1 and A1A. Future distribution will mirror past trends.

## 2010-25 DEVELOPMENT SCENARIO OF PROPOSED LAND USE CATEGORY ENTITLEMENTS

Land Use Classification	Developed Property		Undeveloped Property		Total (Acres)	% of Total	Most likely		ITE Trip Generation Categories	Generation Rates	Proposed <sup>(1)</sup>
	Area (Acres)	% of Total	Area (acres)	% of Total			Density	FAR			
Institutional	849	95%	49	5%	898	4%	NA	0.2	General Office (710)	11.01	4,700
Office/Professional	263	62%	159	38%	421	2%	7.5	0.2	Medical Dental Office (720)	36.13	50,048
General Commercial	583	86%	92	14%	675	3%	15	0.2	Shopping Center (820)	42.94	34,417
Tourist Commercial	186	85%	34	15%	220	1%	32	1	Shopping Center (820)	42.94	63,596
Heavy Commercial	106	88%	14	12%	120	1%	18	0.2	Shopping Center (820)	42.94	5,237
Industrial/Utilities	371	59%	259	41%	630	3%		0.2	General Light Industrial (110)	6.97	15,727
Activity Center	1270	0%	1825	100%	3,095	14%	Per remedial amendments		Per remedial amendments		Per remedial amendments
High Density Residential	101	97%	3	3%	104	0.50%	12-32 upa	0.3	Apartments (220)	6.72	302
Medium Density Residential	1,027	81%	244	19%	1,271	6%	5-15 upa	0.3	Apartments (220)	6.72	12,298
Low Density Residential	4,505	90%	519	10%	5,024	22%	4.3	0.2	Single Family Homes (210)	9.57	14,900
Suburban Low Density Residential	1,152	77%	349	23%	1,501	7%	.2 to 6 upa	0.2	Single Family Homes (210)	9.57	5,845
Rural Estate	795	70%	348	30%	1,143	5%	1 unit per 5 acres	0.2	Single Family Homes (210)	9.57	70
Rural Residential	139	89%	17	11%	156	1%	1 unit per 1 acre	0.2	Single Family Homes (210)	9.57	17
Recreation/Open Space	N/A	N/A	N/A	N/A	532	2%	NA	0.5	NA	NA	NA
Open Space/Conservation	N/A	N/A	N/A	N/A	5,005	22%	NA	0.5	NA	NA	NA
Water bodies/ROW	N/A	N/A	N/A	N/A	2,204	10%	NA	NA	NA	NA	NA
Residential/Office/Retail	N/A	N/A	N/A	N/A	0	0%	10	0.6	NA	NA	NA
Heavy Industrial	N/A	N/A	N/A	N/A	0	0%	NA	0.75	NA	NA	NA
<b>Total</b>	<b>11,347</b>		<b>3,912</b>		<b>22,999</b>				<b>Maximum Potential Total AADT</b>		<b>207,156</b>

*(1) Proposed trips for nonresidential calculated by using undeveloped land multiplied by 43,560, then multiple times the most likely FAR, then divide by 1,000, then multiplied by the trip generation rate to obtain the maximum number of potential average daily trips. Proposed residential trips calculated by using undeveloped land multiplied by the most likely density permitted by the Land Development Code.*