STRATEGIC MOBILITY PLAN
MOVING FORWARD SARASOTA/MANATEE

SARASOTA/MANATEE METROPOLITAN PLANNING ORGANIZATION
OFFICIAL MPO SEAL 1978

SARASOTA / MANATEE

2040 LONG RANGE TRANSPORTATION PLAN

prepared for: Sarasota/Manatee Metropolitan Planning Organization | December 2015

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Electronic Appendix can be found in the USB flash drive below and at the following webpage:

http://www.mympo.org/2040-long-range-transportation-plan

FEDERAL PLANNING REQUIREMENTS REFERENCE GUIDE

Federal Planning Requirements	Location in Strategic Mobility Plan
Identify transportation facilities that should function as an integrated metropolitan transportation system, giving emphasis to those facilities that serve important national and regional transportation functions. [23 U.S.C. 134(i)(2)(A); 49 U.S.C. 5303(i)(2)(A); 23 C.F.R. 450.322(f)(2)]	Section 4. Implementation Approach (pp. 4-4, 4-7 to 4-8) Section 5. Financially Feasible Plan (Map 1 and Tables 1 - 8) Section 6. Map Series (p. 6-5)
Include no less than a 20-year planning horizon [23 C.F.R. 450.322(a)]	Section 1. Introduction (pp.1-2, 1-3) Section 2. Challenges & Opportunities (p. 2-17) Section 3. Goals, Objectives, Performance Measures & Targets (p. 3-1) Section 4. Implementation Approach (p. 4-2)
Describe the performance measures and targets used in assessing the performance of the transportation system in accordance with 23 U.S.C. 134(h)(2) and 49 U.S.C. 5303(h) (2). [23 U.S.C. 134(i)(2)(B); 49 U.S.C. 5303(i)(2)(B)]	Section 3. Goals, Objectives, Performance Measures & Targets (pp. 3-1 to 3-8)
Include a report evaluating the condition and performance of the transportation system with respect to the targets described in 23 U.S.C. 134(h)(2) and 49 U.S.C. 5303(h)(2), including progress achieved in meeting the targets in comparison with system performance recorded in previous reports. [23 U.S.C. 134(i)(2)(C); 49 U.S.C. 5303(i)(2)(C)]	Section 3. Goals, Objectives, Performance Measures & Targets (pp. 3-4 to 3-8)
Include discussion of the types of environmental mitigation activities and areas to carry them out, including activities that may have the greatest potential to restore and maintain the environmental functions affected by the plan. Federal, state, and tribal, wildlife, land management, and regulatory agencies should be included. [23 U.S.C. 134(i)(2)(D); 49 U.S.C. 5303(i)(2)(D); 23 C.F.R. 450.322(f)(7)]	Section 2. Challenges & Opportunities (p. 2-19) Section 3. Goals, Objectives, Performance Measures & Targets (pp. 3-2 to 3-3) Section 4. Implementation Approach (p. 4-11)
A financial plan that shows the adopted plan can be implemented and indicates public/private resources available to carry out the plan. This may include, for illustrative purposes, additional projects that would be included in the adopted plan if additional resources were available. Projects in the financial plan are required to be expressed in Year of Expenditure costs. [23 U.S.C. 134(i) (2)(E); 49 U.S.C. 5303(i)(2)(E); 23 C.F.R. 450.322(f)(10)]	Section 5. Financially Feasible Plan (Tables 1 - 8)
Include operational and management strategies to improve the performance of existing transportation facilities to relieve vehicular congestion and maximize the safety and mobility of people and goods. [23 U.S.C. 134(i)(2)(F); 49 U.S.C. 5303(i)(2)(F); 23 C.F.R. 450.322(f)(3)]	Section 3. Goals, Objectives, Performance Measures & Targets (pp. 3-7) Section 4. Implementation Approach (pp. 4-5 to 4-7) Section 5. Financially Feasible Plan (Tables 1 - 8)
Include capital investment and other strategies to preserve the existing and future system and provide for multimodal capacity increases based on regional priorities and needs. [23 U.S.C. 134(i)(2)(G); 49 U.S.C. 5303(i)(2)(G); 23 C.F.R. 450.322(f)(5)]	Section 4. Implementation Approach (pp. 4-5 to 4-7) Section 5. Financially Feasible Plan (Tables 1 - 8)
Include proposed transportation and transit enhancement activities. [23 U.S.C. 134(i)(2)(H); 49 U.S.C. 303(i)(2)(H); 23 C.F.R. 450.322(f)(9)]	Section 4. Implementation Approach (pp. 4-5 to 4-7) Section 5. Financially Feasible Plan (Tables 1 - 8)

Federal Planning Requirements	Location in Strategic Mobility Plan
Within Transportation Management Areas (TMAs), the plan should address congestion management through a metropolitan-wide strategy of new and existing transportation facilities and the use of travel demand reduction and operational management strategies. [23 U.S.C. 134(k)(3); 49 U.S.C. 5303(k)(3); 23 C.F.R. 450.322(f)(4)]	Section 4. Implementation Approach (pp. 4-3, 4-5) Section 5. Financially Feasible Plan (Table 3)
In formulating the transportation plan, the MPO shall consider subsection (h) as the factors that relate to a 20-year forecast period [23 USC 134(i)(2)(A)(ii); 49 USC 5303(i)(2)(A)(ii)]	Section 1. Introduction (p.1-2)
Include both long and short range strategies/actions that lead to the development of an integrated multimodal transportation system to facilitate the safe and efficient movement of people/goods in addressing current/future transportation demand. When updating the Plan use the latest available estimates and assumptions for population, land use, travel, employment, congestion, and economic activity. [23 C.F.R. 450.322(e)][23 C.F.R. 450.322(b)]	Section 4. Implementation Approach Appendix 3. Socioeconomic Data Forecasts Methodology Appendix 4. Plan development Appendix 5. Freight Plan Resources, Freight and Logistics Overview
Identify the projected transportation demand of persons and goods in the metropolitan planning area over the period of the plan. [23 C.F.R. 450.322(f)(1)]	Appendix 3. Socioeconomic Data Forecasts Methodology Appendix 4. Plan development Appendix 5. Freight Plan Resources, Freight and Logistics Overview
Include the results of the congestion management process in TMAs, including the identification of Single Occupancy Vehicle (SOV) projects that result from a congestion management process in TMAs that are nonattainment for ozone or carbon monoxide. [23 C.F.R. 450.322(f)(4)]	Section 4. Implementation Approach (pp. 4-3, 4-5) Section 5. Financially Feasible Plan
Describe proposed improvements in sufficient detail to develop cost estimates, e.g. design concept and design scope descriptions. [23 C.F.R. 450.322(f)(6)]	Section 4. Implementation Approach (p. 4-4) Appendix 4. Needs Plan
Identify pedestrian walkway and bicycle transportation facilities in accordance with 23 U.S.C. 217(g). [23 C.F.R. 450.322(f)(8)]	Section 4. Section 4. Implementation Approach (p. 4-4) Appendix 4. Plan development – 2040 Needs Bicycle Pedestrian Network
Include a safety element incorporating the priorities, goals, countermeasures, or projects for the MPA contained in the SHS Plan required under [23 U.S.C. 148], as well as (as appropriate) emergency relief and disaster preparedness plans and strategies/policies supporting homeland security (as appropriate) and safeguard the personal security of all motorized and non-motorized users. [23 C.F.R. 450.322(h)]	Section 1. Introduction (p.1-2) Section 3. Goals, Objectives, Performance Measures & Targets (p. 3-4)

The preparation of this report has been financed in part through funds from the Federal Highway Administration and Federal Transit Administration, U.S. Department of Transportation, under the State Planning and Research Program, Section 505 [or Metropolitan Planning Program, Section 104(f)] of Title 23, U.S. Code. "The contents of this report do not necessarily reflect the official views or policy of the U.S. Department of Transportation."

WHAT IS THIS PLAN AND WHY IS IT IMPORTANT?

Led by the Sarasota/Manatee Metropolitan Planning Organization (MPO), the *Strategic Mobility Plan* is the 2040 Long Range Transportation Plan (LRTP) update for Sarasota and Manatee Counties. This plan update builds on the solid multimodal foundation of previous plans from the last 15 years. Key initiatives were advanced with each of those plans to create a more seamless multimodal transportation network in the two counties. With the 2040 update, the MPO faces two new challenges – addressing the new federal context that emphasizes an outcome-based, performance-driven planning process; and a new role in the management and operation of the transportation system with a prioritization process that links goals and objectives to project funding. Solutions to these challenges require a clearly defined set of desired outcomes, roles, and responsibilities of each of the MPO's planning, funding, and operating partners.

The Strategic Mobility Plan presents the Sarasota/Manatee MPO with an excellent opportunity to focus on achieving important outcomes that will sustain and fulfill the region's promise.

The *Strategic Mobility Plan* provides a framework of goals and objectives to guide the multimodal transportation investments. This framework aligns plans and actions to clarify federal, state, regional, and local responsibilities to support an overall vision for transportation, economic development, and livability. The elements depend on a skillful and creative communications strategy to help tell the story about the MPO's role and how transportation supports the region's economic development and community livability objectives. The plan update, guided by the inter-agency and public engagement process, focused on these five key statements:

- What is the problem?
- Where have we been?
- Where are we now?
- What do we do next?
- How do we work toward the future?

WHO IS THE SARASOTA/MANATEE MPO AND WHAT IS AN LRTP?

The Sarasota/Manatee MPO is a regional transportation-planning agency that provides a forum for cooperative decision-making to encourage and promote the implementation of transportation facilities. This includes all modes of transportation coordinated in a manner that will maximize the mobility of people and goods. MPOs are established by state and federal laws and through interlocal agreement to provide a process for local governments within the region to coordinate with the Florida Department of Transportation, the Federal Highway Administration (FHWA), and the Federal Transit Administration.

By federal law, the MPO must develop and update its LRTP, which identifies and assesses infrastructure improvements to the transportation network over the next 25 years with key required considerations for the eight federally required factors (box to the right).

EIGHT FEDERALLY REQUIRED FACTORS FOR MPO PLANNING

Since the late 1990s, MPOs' have had to address key factors through their planning process:

1. Support economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity and efficiency;
2. Increase safety of the transportation system for motorized and non-motorized users;
3. Increase the security of the transportation system for motorized and non-motorized users;
4. Increase accessibility and mobility of people and freight
5. Protect and enhance the environment, promote energy conservation, improve the quality of life and promote consistency between transportation improvement and state and local planned growth and economic development patterns;
6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
7. Promote efficient system management and operation; and
8. Emphasize the preservation of the existing system.

Source: The Innovative MPO http://t4america.org/maps-tools/the-innovative-mpo/

The most recent federal transportation legislation, ***Moving Ahead for Progress in the 21st Century (MAP-21)***, brought several critical changes to the metropolitan planning process including:

- Increased emphasis on performance measurement within the federal transportation programs and within planning, through Performance-based Planning and Programming.[1]
- Consolidation of transportation funding programs from several dozen to six core programs: Surface Transportation, National Highway Performance, Transportation Alternatives, Highway Safety Improvement, Congestion Mitigation and Air Quality, and the Transportation Infrastructure Finance and Innovation Act (TIFIA) loans.[2]
- Alignment with national goals in the following areas: safety, infrastructure condition, congestion reduction, system reliability, freight movement and economic vitality, environmental sustainability, and reduced project delivery delays.

[1] http://www.fhwa.dot.gov/planning/performance_based_planning/
[2] https://www.fhwa.dot.gov/map21/

HOW WAS THIS PLAN DEVELOPED?

This LRTP update builds on the solid multimodal foundation the MPO laid in prior plans, including the *2002 Public Transportation System Analysis* and the Long Range Plans adopted for 2030 and 2035. Each of these plan advanced the discussion and key initiatives to create a more seamless multimodal transportation network in the two counties.

SARASOTA/MANATEE MPO MISSION

To develop a future plan, through cooperation with our member governments and the general public, for a safe, efficient, financially feasible, environmentally sensitive, regional, integrated multi-modal transportation system that supports sustainable, livable communities and economic development.

The key to this LRTP update is a focus on developing a 10 and 15-year interim planning horizon to help move the MPO toward a desired 2040 vision and set of goals. Current funding is already committed to projects through 2018. This plan starts from 2018 as a baseline and works towards 2040 and builds upon targeted economic development areas and residential development hot spots. The 10-year focus establishes the "what's next" for funding for the years 2021 through 2025 to enable productive conversations about management and operations and make the most of the region's existing and committed transportation network.

The LRTP process includes a balance of technical analysis, public engagement and local agency coordination/decision making to reflect a technically sound and community-supported vision of the future of Sarasota and Manatee Counties.

TECHNICAL ANALYSIS SUMMARY

The technical component of LRTP includes several types of information gathering and data generation:

- **Existing and committed transportation investment***:* identify and build upon the current Transportation Improvement Program and the existing and committed transportation projects for the horizon year of 2040 to understand what may already be supporting the plans vision.
- **Socio-economic estimates and forecasts:** identify where future residents and workers are projected to live and work to contextualize the transportation needs in light of regional change. The MPO and its partners collectively worked through to truth-test the official forecast and to identify where this population and employment growth was likely to occur.
- **Existing plan review**: understand what other non-transportation trends, data, and plans may affect the transportation system to ensure this and future plans all work towards similar goals.
- **Financial Resources memo***:* estimate and forecast the financial resources available from key transportation funding programs to identify how much money will be available for plan implementation and from what sources.
- **Needs Plan**: identify the transportation projects needed over the next 25 years and chart a strategic direction for how the MPO, its member agencies and partners will achieve important mobility and accessibility goals.
- **Application of FHWA's Performance Based Planning and Programming Guidebook:** set a strategic direction through goals and objectives, performance measures, planning analysis, trends and targets, strategies and alternatives analysis, and the development of investment priorities. [3]

This technical analysis lays the groundwork for engaging the public effectively in decision-making.

[3] http://www.fhwa.dot.gov/planning/performance_based_planning/

PUBLIC INVOLVEMENT

Strategic Mobility Plan Public Workshop, March 2015. Photo Credit: Sarasota/Manatee MPO

The people who drive, walk, bike, or take transit in the region have vital experience-based feedback on what may and may not work in the region. Engaging the public throughout the plan's development was important to the MPO as a result. A critical component of public involvement was to educate and inform the public about the LRTP planning process and the connection between projects and regional goals and objectives. Public involvement occurred through a number of forums including focus group discussions, a public workshop, and an online public engagement website hosted by MindMixer (Table 1-1, and Figure 1-1). More detail is available in the Appendix.

Figure 1-1: Results of the Mindmixer Website, From January 2015 to November 2015

Table 1-1: Public Involvement Matrix

	Focus Groups	Public Meeting	MindMixer
Who?	Organizations, interest groups, and individual stakeholders	General public	General public, especially residents who were unable to attend meetings or workshops in person
What?	Small group discussions and individual interviews made participants more comfortable expressing their opinions	Open house style meeting	Online platform solicited feedback from the general public on issues including mode choice, improvements needed, and project prioritization
Why?	Identified common values and priorities, and communicated considerations for the transportation planning process	Presented initial data and information to the public and solicited feedback on transportation system expansion priorities	Supplemented in-person public engagement opportunities, and allowed residents to weigh in online even if they were unable to attend meetings
When & Where?	Various times and locations throughout the region	March 12, 2015 from 4 pm to 7:30 pm at the Dan McClure Airport Auditorium	Participants weighed in from the comfort of their homes at times most convenient for them
How?	Four-question surveys helped to kick off the discussion. Additional questions were posed from there	Attendees reviewed maps congestion; prioritized projects; and regional roadways, and filled out questionnaires and workshop evaluations	Topics were updated monthly and solicited feedback via open-ended questions; surveys; polls; and maps. Elected officials and MPO Board members reviewed responses and provided a direct contact for participants
What resulted?	Support for more transportation options; improved coordination among jurisdictions; improved traffic technology; and a holistic vision for the region	More than30 members of the public attended the meeting	Feedback helped the MPO to develop and fund a plan that accommodates future travel demand across all modes

AGENCY COORDINATION/DECISIONMAKING

Meeting with the Citizens Advisory Committee. Photo Credit: Sarasota/Manatee MPO

The LRTP Steering Committee guided this effort and included representatives from the MPO's standing Technical Advisory Committee (TAC). They met on a monthly basis to review key work products and provide feedback to ensure all jurisdictions and transportation modes were well represented. The review and approval by the Steering Committee of draft work products was the first step of approval before presenting to the general public, the MPO Advisory Committees, and the MPO Board. Table 1-2 outlines the key sections of this plan as well as those decision made by ether MPO.

Table 1-2: Key Milestones and Decision Points

Plan Section	Key Resources	Decision	When
Introduction	Plan Kickoff	Plan launched	August 2014
Challenges and Opportunities	Existing and committed transportation investments	Approval of the Steering Committee, CAC, TAC, and MPO Board	Winter 2014/2015
	Socio-economic estimates and forecasts	Approval of the Steering Committee, CAC, TAC, and MPO Board	Winter 2014/2015
	Existing plan review	None needed	Spring 2015
	Financial Resources memo	Approval of the Steering Committee, CAC, TAC, and MPO Board	Spring 2015
	Needs Plan	Approval of the Steering Committee, CAC, TAC, and MPO Board	Spring-Summer 2015
	Public Meeting	None needed	Spring 2015
	Focus Groups	None needed	Spring-Summer 2015
	Website	None needed	Winter 2014-Fall 2015
Vision and Strategies	Goals and Objectives	Approval of the Steering Committee, CAC, TAC, and MPO Board	Spring 2015
	Performance Measures and Targets	Approval of the Steering Committee, CAC, TAC, and MPO Board	Fall 2015
Implementation Plan	Financially Feasible Plan	Approval of the Steering Committee, CAC, TAC, and MPO Board	Fall 2015
	Transit-Readiness	None needed	Fall 2015

OUR REGION CONTINUES TO GROW AND CHANGE

Our beautiful beaches are a regional draw for residents and tourists. Photo credit: Sarasota/Manatee MPO

Like all places, the Sarasota/Manatee region is experiencing continuous demographic, economic and other changes that make it a unique place to live, work, and visit. Each of these characteristics affect the transportation system – who uses it, why, and where are they going – and informs planning decisions and prioritization of different transportation investments.

TAMPA BAY REGION TRENDS

Sarasota and Manatee Counties are part of the larger Tampa Bay Region, a region that is rapidly changing. To better understand the potential implications for counties, it is useful to understand the regional trends. (see Figure 2-1).

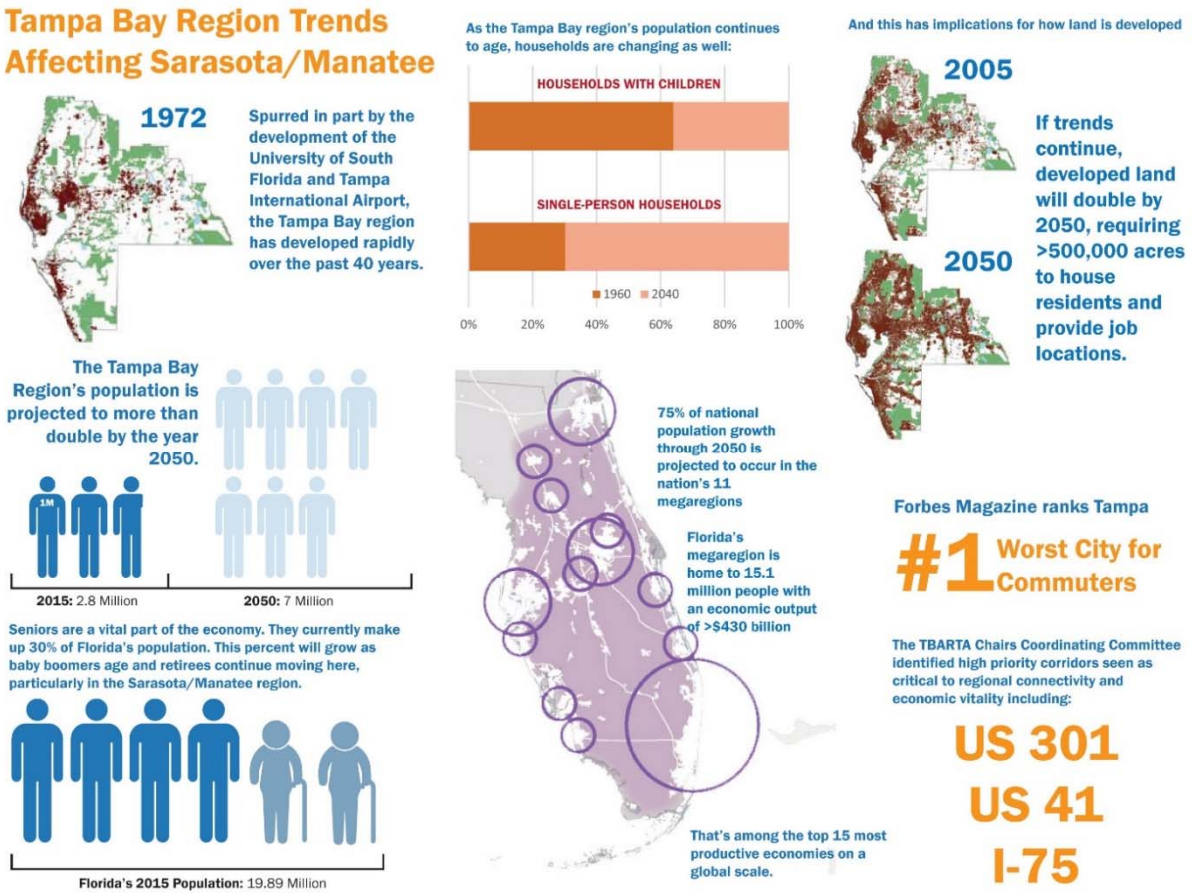


Figure 2-1: Tampa Bay Region Trends Sources: Hillsborough County 2040 Long Range Transportation Plan; One Bay, Tampa Bay Regional Planning Council.

HEALTHY POPULATION AND EMPLOYMENT GROWTH

The Sarasota/Manatee region contains two counties with nine cities and numerous unincorporated communities. Like much of Florida, the region has experienced substantial population growth over the last 40 years. While the Great Recession of 2007-2009 slowed the rate of growth significantly, especially from people moving in from other states, recent years have seen a gradual return to higher levels of growth. This fits with the long-term trend forecasted for the region's population growth of 1-2 percent per year (see Figure 2-2). Both counties are projecting half a million people by 2040.

POPULATION

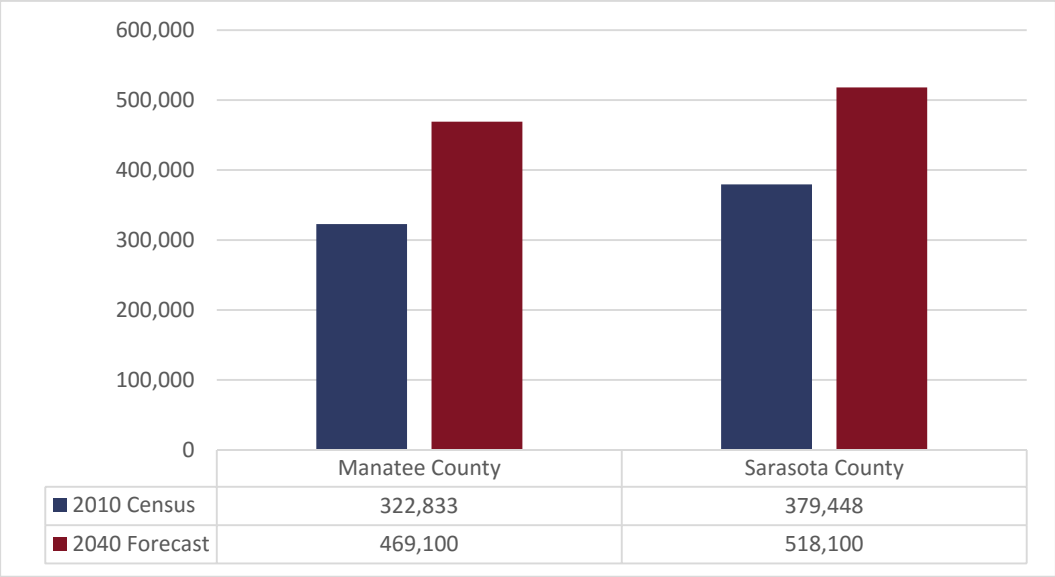


Figure 2-2: Current Population and Projected 2040Forecasts

Using population and employment forecasts and in collaboration with the LRTP Steering Committee, the population and employment maps geo-locate this growth by following the current local comprehensive plans, development trends, and approved developments. The socioeconomic forecast methodology used to study these relationships is included in the Appendix[1].

Population growth in both counties is projected to expand east of I-75, much of which is currently open greenfields. This spread of growth further east is particularly pronounced in Manatee County. Additionally population growth is projected to occur south of the City of Bradenton and also in unincorporated Parrish in north Manatee County. In Sarasota County, population growth is projected to occur near the City of Sarasota's downtown, east of I-75 between Fruitville Road and Bee Ridge Road, the City of Venice, and the City of North Port. This growth is shown in the population growth map on the following page (Figure 2-3).

[1] http://www.mympo.org/2040-long-range-transportation-plan

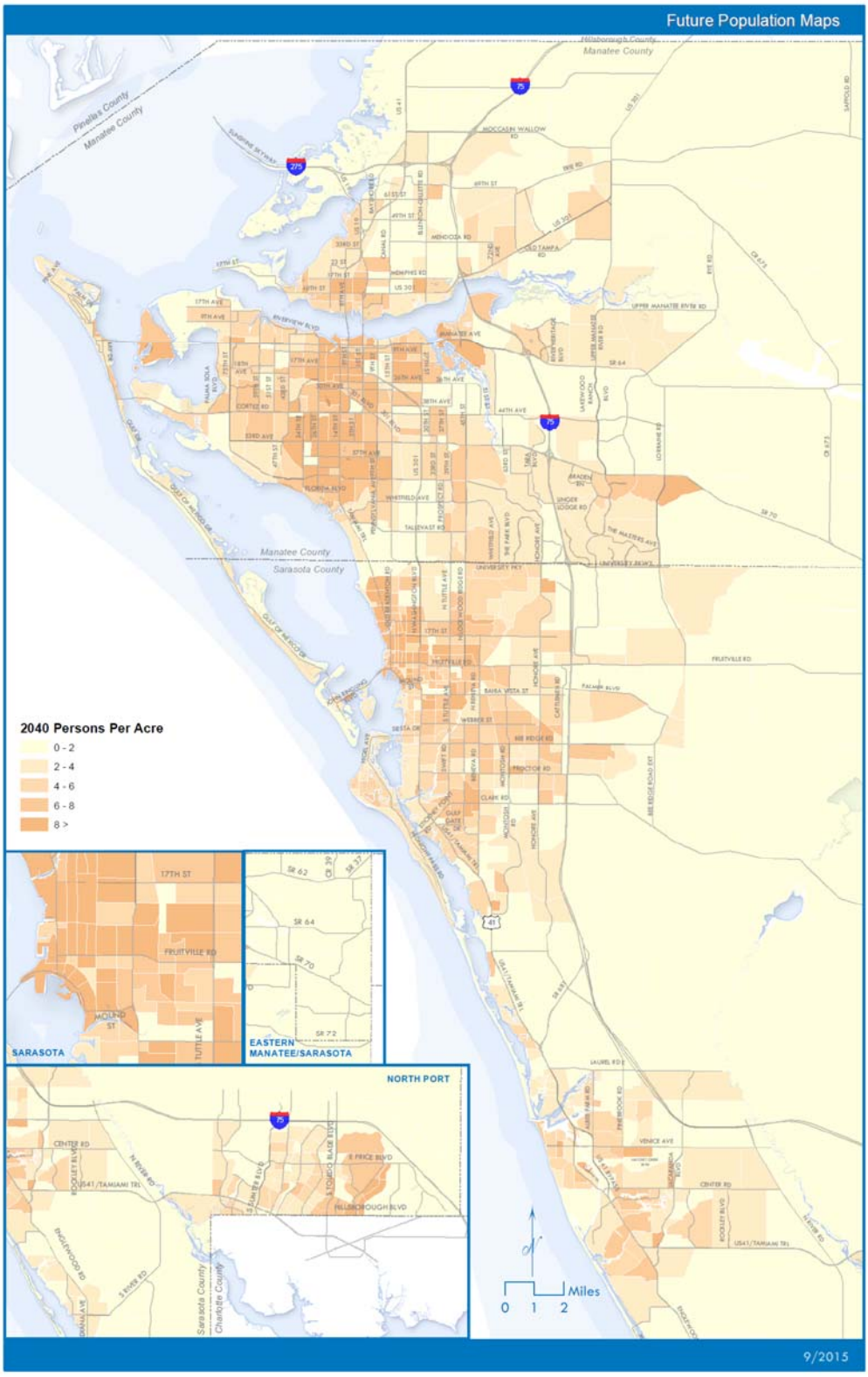


Figure 2-3: Forecasted Population Growth

EMPLOYMENT

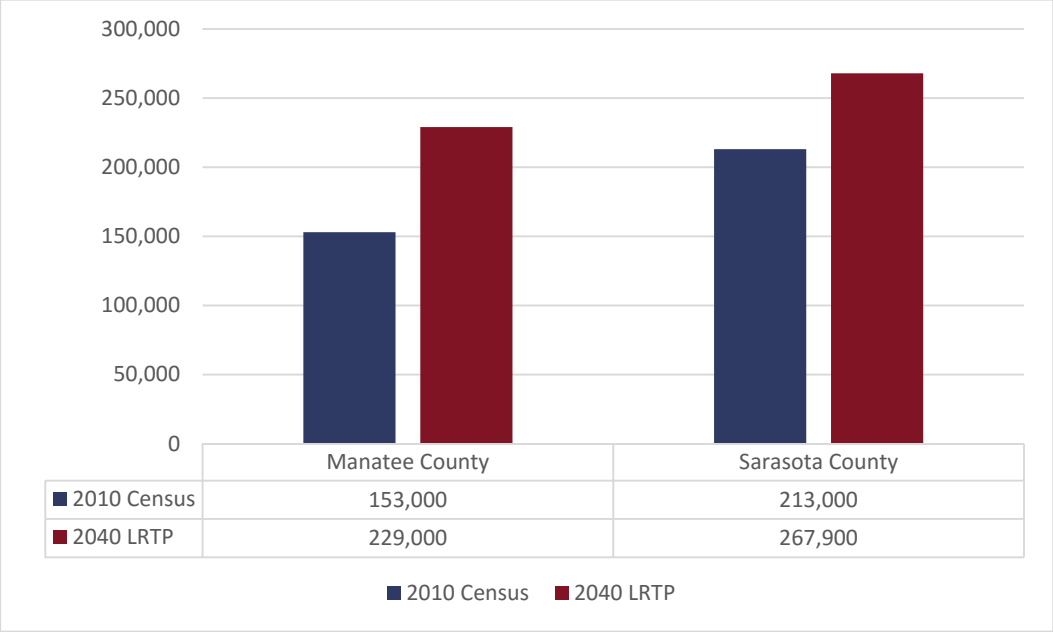


Figure 2-4: Current Employment and Projected 2040 Employment Forecasts

Employment growth in the region has been negative in recent years because of the Great Recession (see Figure 2-4). While the local economy has been slowly moving toward recovery, the number of jobs is still below where it was a decade ago in most cities and in the two counties as a whole. Over the long term, the regional employment base will expand in parallel with the population. Growth is projected to occur in both downtown Bradenton and Sarasota, as expected. In Manatee County, employment growth is projected to occur along the US 301 corridor near Parrish and near Oneco. In Sarasota County, employment is projected between Fruitville Road and University Parkway, along the inner coastal, Nokomis, Venice, and Plantation. Other pockets of employment growth are projected similar to areas of population growth in areas of North Port and South Sarasota County. A lack of employment growth projected east of I-75, where much of the population growth is projected for both counties which will put additional strain on the transportation network.

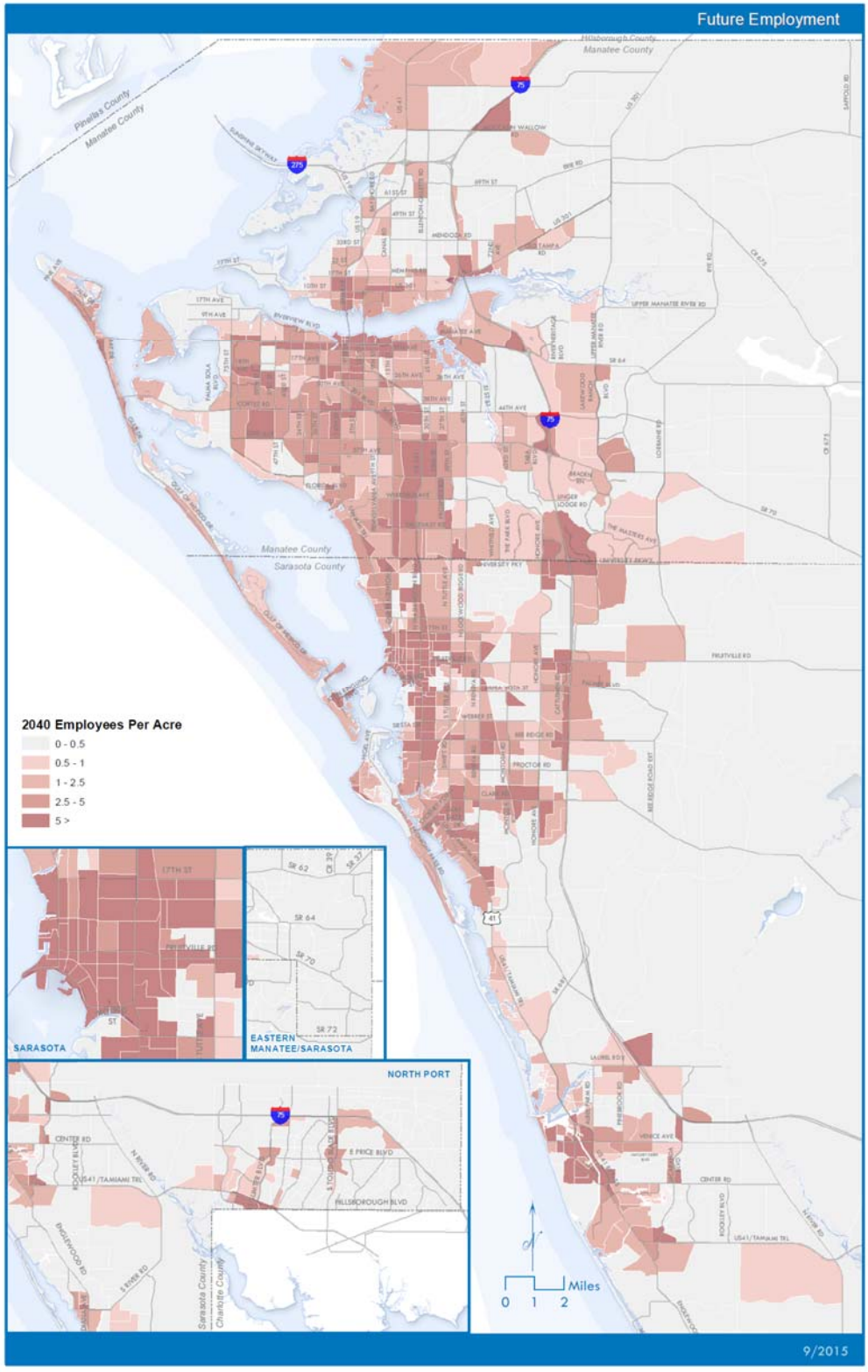


Figure 2-5: Forecasted Employment Growth

CONTINUING TO ATTRACT OLDER AMERICANS

Florida is a retirement destination. Retirees from all over the U.S. and from other countries are drawn to Southwest Florida's warm climate, beautiful beaches, and recreational opportunities. Sarasota County has one of the oldest populations among Florida counties, and Manatee County's population is also older than many counties and the U.S. as a whole. The 2010 Census found a median age of 52.5 years in Sarasota County and 45.6 years in Manatee County compared to 37.2 years for the nation as a whole.

By 2040, three or four out of every 10 people living in the region will be over 65

Source: University of Florida Bureau of Economic and Business Research

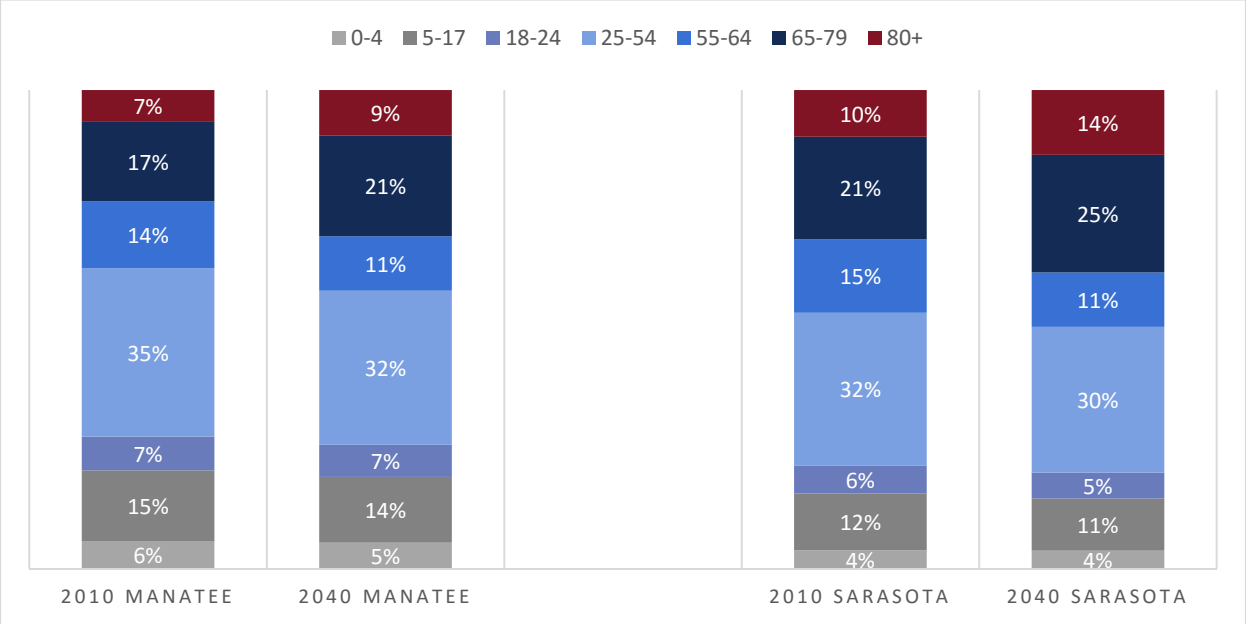


Figure 2-6: Age Distribution (Source: Woods and Poole Economics)

Mobility options for seniors will need to be expanded as the population continues to grow. Photo credit: Sarasota/Manatee MPO

Between 2010 and 2040, the population aged 65 and older is projected to go from 24 percent to 30 percent in Manatee County, and from 31 percent to 39 percent in Sarasota County (Figure 2-6). The over 85 population within that group almost doubles in size, an unprecedented demographic change both nationally and in the region. Although many of these people plan to age in place, it is not clear how transportation demands will change. A lack of transportation options will further isolate this group and driving can put them and others at risk.

Another key change associated with age is the changing habits of the millennial generation, roughly defined as people currently in their early-20s to mid-30s. Many Millennials prefer places that are more urban in character, with a mix of uses and the ability to walk, bike, and/or ride transit to accomplish many of their regular activities. This emerging trend, coupled with the decisions many Millennials are making to delay

homeownership and starting families, are key elements in making personal transportation choices. As the largest single age group with the majority of the region's workers and parents, this age group will be making most of the daily transportation and related decisions that affect the Sarasota/Manatee region.

A 2014 national survey of Millennials found that:

- 80% said it's important to have a wide range of transportation options
- 66% said that access to high quality transportation is one of the top three criteria they would weight when deciding where to live
- 54% would consider moving to another city if it had more and better options for getting around.

Source: Rockefeller Foundation and Transportation for America http://t4america.org/wp-content/uploads/2014/04/RF-Millennials-Survey-Topline.pdf

BECOMING MORE WEALTHY

As the region's population grows and ages, it is also projected to become more affluent, as shown in Figure 2-7. This goes in parallel with a growing economy, but also reflects the large number of affluent retirees who move to the area from other parts of the country.

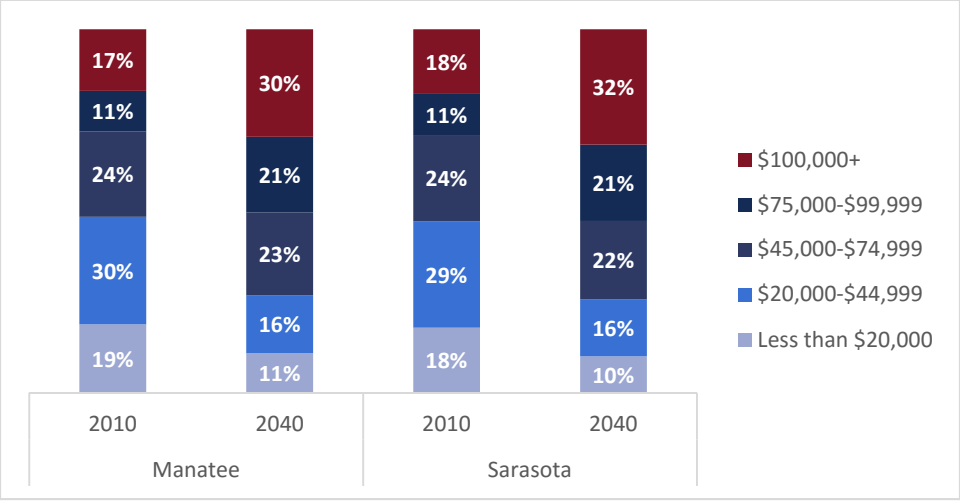


Figure 2-7: Households by Income Group (Source: Woods and Poole Economics)

As the number of affluent households increases, a persistent number of low-income households remain. While they are projected to become a lower percentage of the total in both counties, the most vulnerable households (those earning under $20,000) still represent a significant number of residents. From 2010 to 2040, the number of these households decreases only slightly in Manatee County from 25,619 to 23,559. The decrease in Sarasota County is larger, going from 31,542 households to 23,286, but the 2040 figure is similar to Manatee County's. Meanwhile, the share of households earning more than $100,000 nearly doubles over the same time.

INCREASING HISPANIC POPULATION

Following national trends, the Hispanic population continues to grow rapidly in this region – potentially doubling in both counties by 2040 while the Caucasian population drops (Figure 2-8). Nationally, Hispanics are less likely to have a driver's license, potentially making non-automobile or ridesharing options more important.[2]

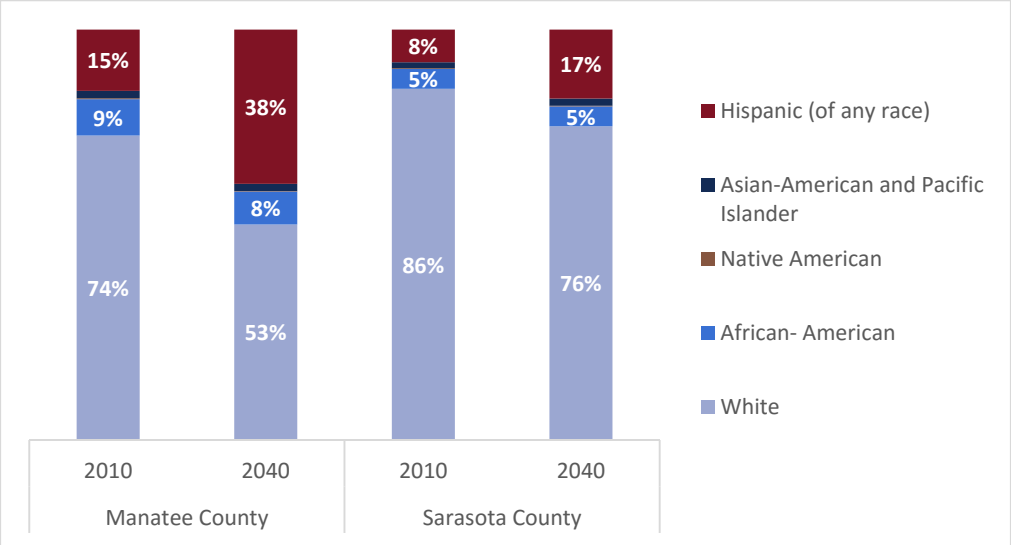


Figure 2-8: Ethnic Composition (Source: Woods and Poole Economics)

STABLE ECONOMIC INDUSTRIES

The industries within both counties appear stable through 2040. Changes in employment industry forecasts in Manatee County show a small increase in construction; education and health services; and leisure and hospitality and a reduction in natural resources; manufacturing; trade, transportation, and utilities; professional and business services; and government. Sarasota County shows an increase in financial activities and professional and business services, but a decline in trades, transportation, and utilities, and government.

TOP 3 SUPER-SECTOR GROWTH INDUSTRIES

Manatee County – Information, Leisure and Hospitality; and Other

Sarasota County – Information, Professional and Business Services, and Natural Resources

Source: Wood and Poole Economics

[2] http://traveltrends.transportation.org/Documents/B7_Vehicle%20and%20Transit%20Availability_CA07-4_web.pdf

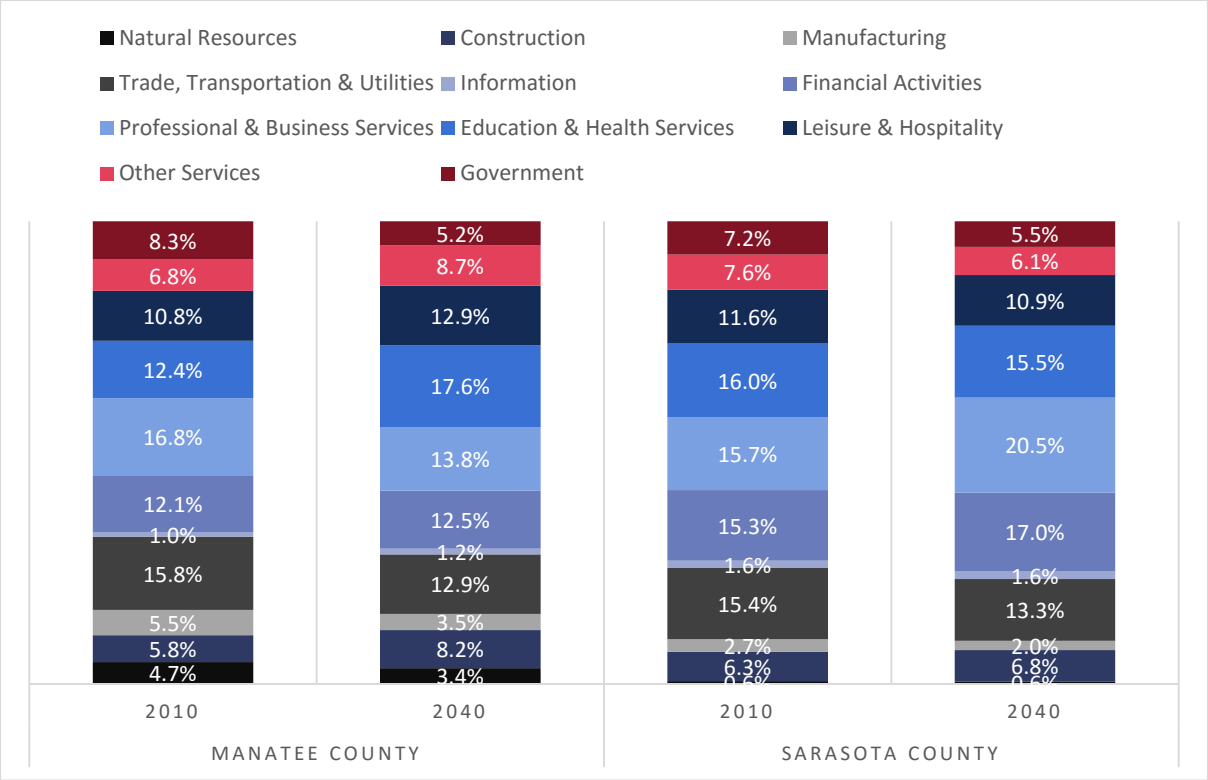


Figure 2-9: Employment by Industry Super-Sector (Source: Woods and Poole Economics)

KEY TAKEAWAYS FOR 2040

- Doubling of population and jobs, but not in the same areas
- Older, wealthier, and more ethnically diverse community but a persistent lower-income divide
- Potential for large shifts in transportation mode demands with aging population and millennials
- Stable economy and growth in white-collared professions

SIGNIFICANT CHANGES IN TRAVEL DEMANDS ACROSS MODES

TRANSPORTATION DEMANDS ARE INCREASING AND CONTINUE TO OUTSTRIP AVAILABLE FUNDING

The region has seen significant growth in traffic congestion over the past few years, spurred in part to a growing population. According to the Texas Transportation Institute's 2014 Annual Urban Mobility Report[3], the Sarasota-Bradenton area experienced 14 million hours of delay in 2014, an almost two percent increase from the previous year. This amounted to a total congestion cost of $312 million for the region, which translates to losses in workforce productivity. Figure 2-10 shows the projected delays that would occur in 2040 if no transportation improvements were made beyond those already scheduled for construction.

[3] Texas Transportation Institute, 2014 Urban Mobility Scorecard. http://mobility.tamu.edu/ums/congestion-data/central-map/

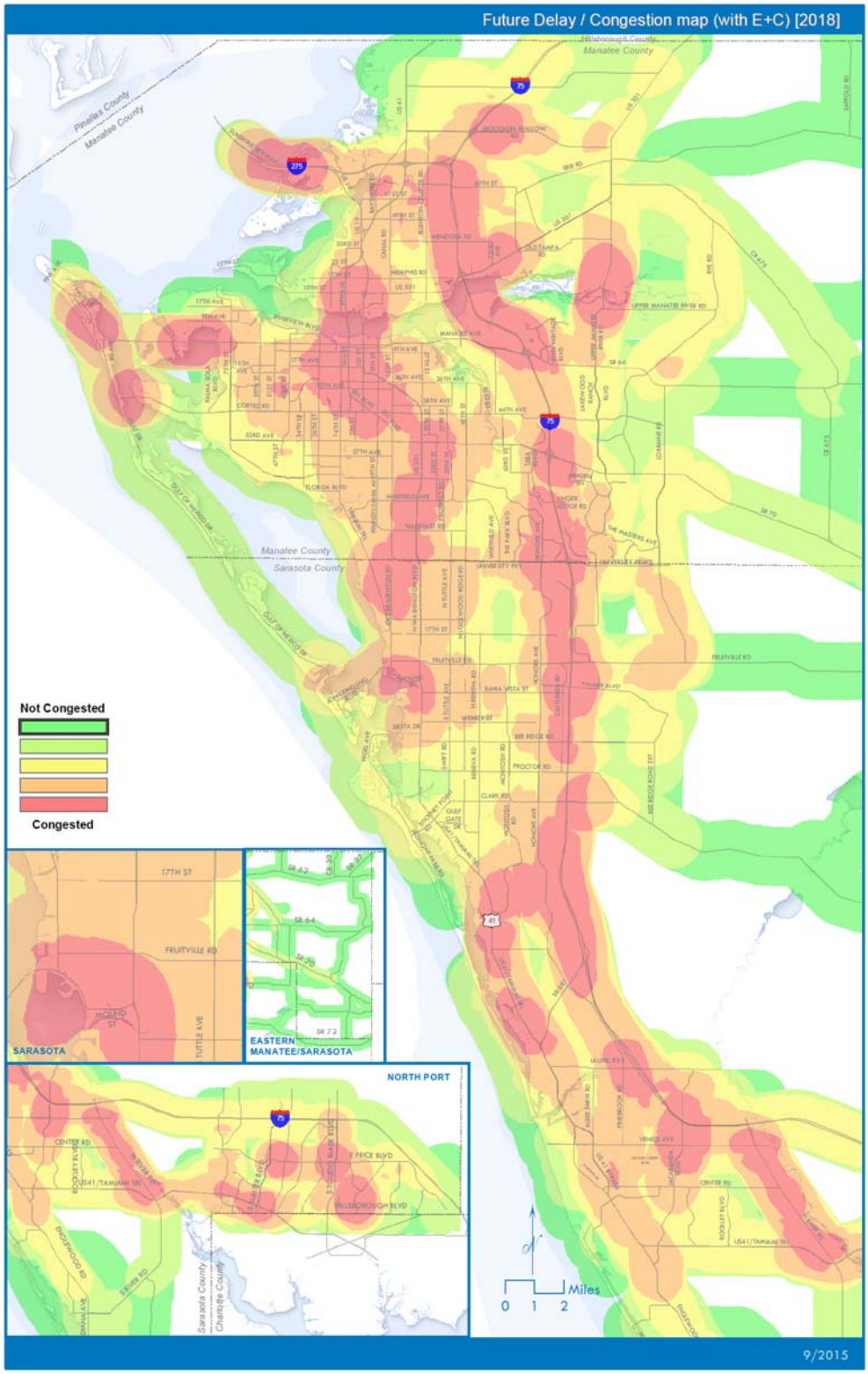


Figure 2-10: 2040 Future Delay/Congestion

PROJECTED TRANSPORTATION NEEDS ("NEEDS PLAN")

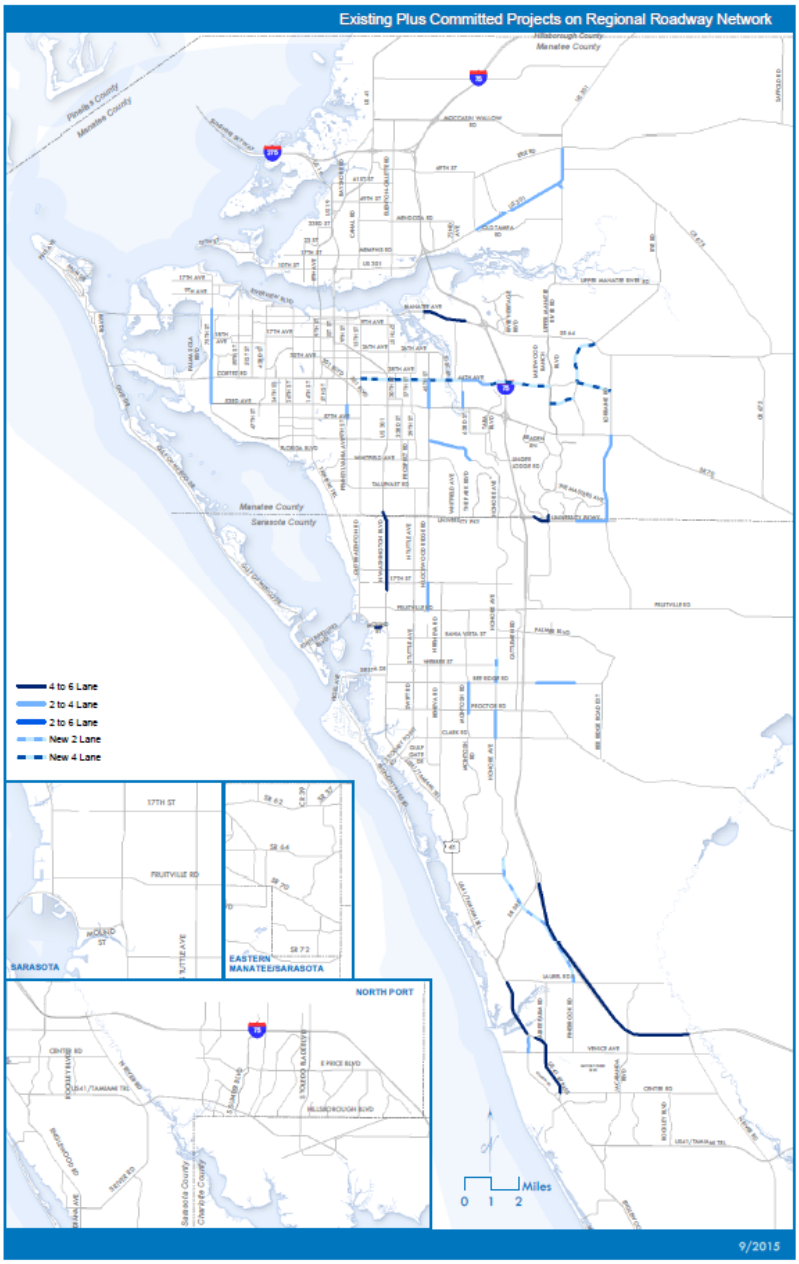


Figure 2-11: Existing + Committed (E+C) Map

To determine the projected transportation demand, it is important to understand the status of the existing network and improvements forthcoming in the near future (through 2020[4]), as illustrated in the "existing-plus-committed" (E+C) map to the left. This represents a minimum investment scenario that, when simulated against 2040 demand, highlights network deficiencies.

A major aspect of this LRTP process is to identify the current and future transportation needs ("Needs Plan") for the counties, based on the locations of projected population and employment forecasts and the outcomes of the E+C map.

The Needs Plan excludes projects that have specific constraints – either physical (environmental or geographic reasons) or policy (environmental justice or local policies/planning).

The Sarasota/Manatee MPO has followed a policy consistent with the local comprehensive plans.

[4] Committed improvements are defined as those improvements fully funded in the 5-year work program, or TIP.

The Needs Plan was developed through an iterative process, testing five alternatives with the travel demand model and the socioeconomic data. This helped to identify which projects had a significant impact on reducing congestion or no effect at all. The LRTP Steering Committee was critical in the development of the Needs Plan and recommended roadway projects to test based on priority projects for their respective jurisdictions. The five network alternatives tested include roadway and transit projects using the FDOT travel demand model. The different alternatives tested various groupings of MPO project priorities to assess the influence of each project on the transportation system. The details methodology and development is included in the Appendix and is consistent with what the MPO and local governments established.

WHAT THE PUBLIC SAID

WE NEED….

- A bike share system
- Bus rapid transit: between Sarasota & Bradenton, Bradenton & St. Pete
- Improved connectivity of bicycle and pedestrian facilities
- Other public transit options besides buses, such as trolleys, water ferries
- Expanded multimodal trail network
- Better enforcement of traffic laws and violations by and against bicyclists and pedestrians
- More complete streets and more walkable communities
- Longer transit operating times: 18+ hours per day/7 days per week and more frequency
- Focused transit service on busiest corridors

District 1 of the Florida Department of Transportation has been working with neighboring districts and FDOT Central Office to develop a comprehensive plan for the movement of freight and goods. This work is incorporated into the freight needs map located in the Appendix.

The Needs Plan represents $2.5 billion in transportation improvements over the next 25 years. The 49 roads projects included in the Needs Plan alone total $2.2 billion in needed transportation investments. The over seventy bicycle and pedestrian projects included in the Needs Plan total $172 million in unfunded needs. The transit needs for both Sarasota County Area Transit (SCAT) and Manatee County Area Transit (MCAT) total over $182 million and include infrastructure, operations and maintenance, and transit fleet.

The MPO Board would like to explore multimodal options that would help to alleviate congestion on the region's constrained roadways. This is particularly important to the MPO Board on the barrier islands, which experience high congestion levels but are unable to increase capacity due to limitations in right of way available. As an example, The Florida Department of Transportation (FDOT) is working on a Central Manatee Network Alternatives Analysis (CMNAA) to identify short and long range mobility strategies geared towards the Transportation Alternatives (TA) program. The barrier islands will be looking into mobility options through a similar study to address the congested and constrained facilities impacting their mobility. Transportation Alternative funds would help these roads that are unable to be widened. The MPO Board would like to work together as a region to explore options for using regional TA funds for multimodal projects, such as trails, to supplement the multimodal options and help alleviate congestion. Additionally, the transit supportive development recommendations included in the Appendix are useful to help prepare these congested and constrained roadways for land uses that support a more robust transit system.

The two figures below reference the roadway and transit needs. The Bicycle and Pedestrian Masterplan can be found in the Appendix.

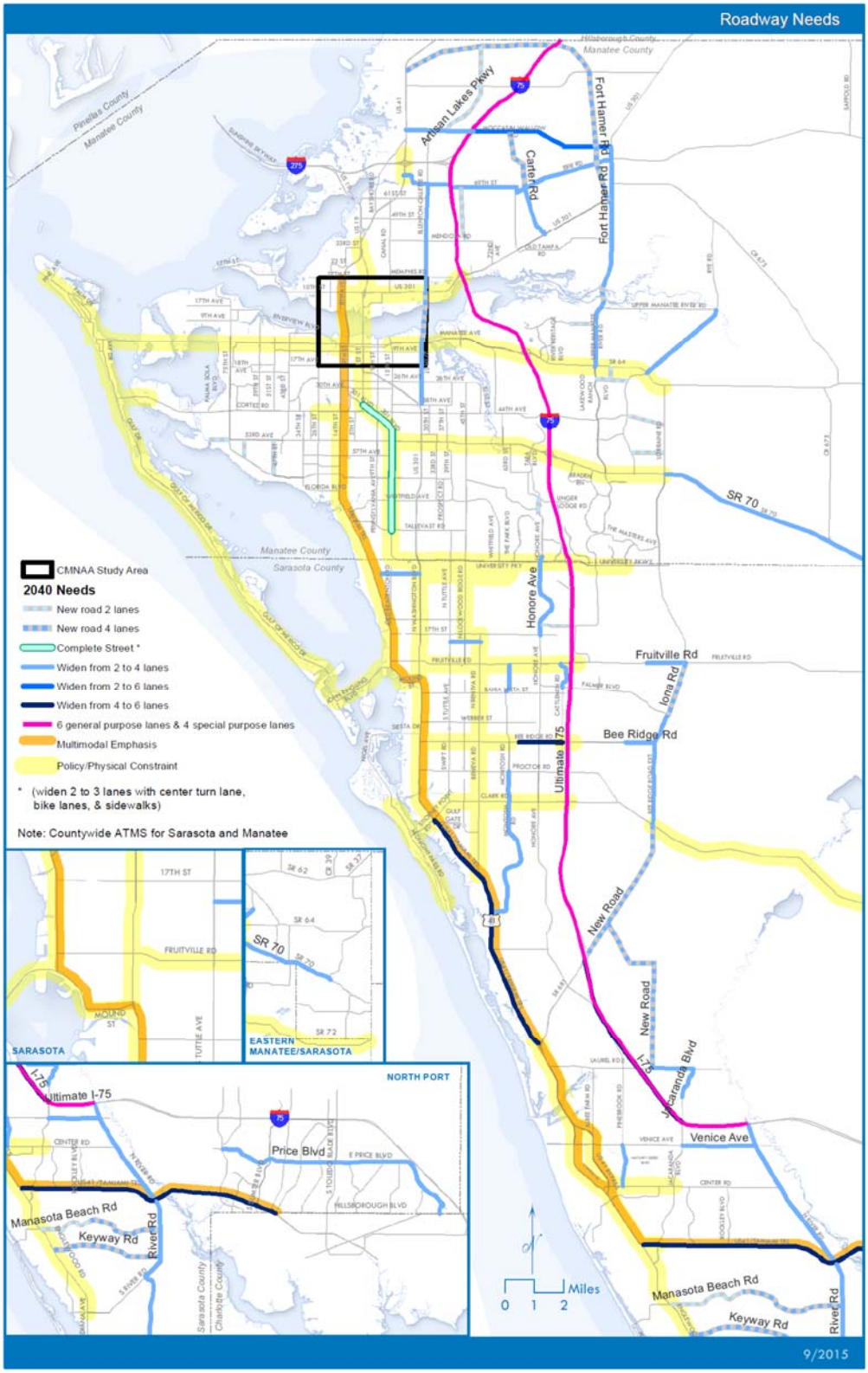


Figure 2-12a: Roadway Needs Plan Map

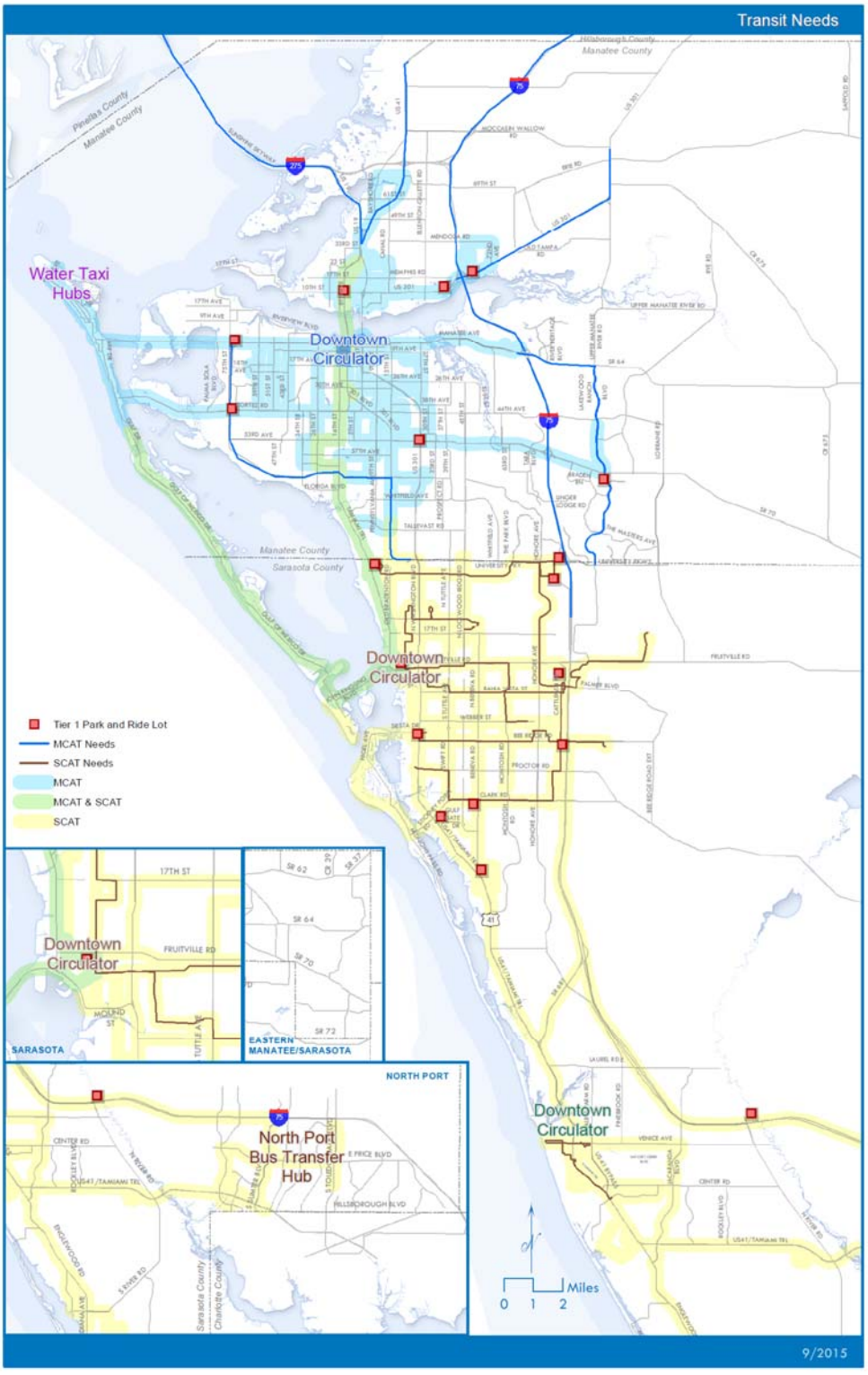


Figure 2-13b: Transit Needs Plan Map

AVAILABLE FINANCIAL RESOURCES

The financial resources/revenue projections present an estimate of potentially available transportation revenues from federal and state programs, state-distributed fuel tax revenues, local option fuel tax revenues, local infrastructure sales surtaxes, local transit revenues, and local transportation impact fees. While the sum total indicates a potential revenue of about $1.8 billion from federal/state sources and $4.4 billion from state-distributed and local sources for Fiscal Years (FY) 2016-2040, only a portion of the state-distributed and local revenue would be available to the MPO for new capital projects. Strategic Intermodal System (SIS) funds are prioritized and allocated at the states' discretion and federal transit funds are only enough to maintain the current system (Table 2-1). A more detailed description of the revenue forecasts provided by the state and local revenue estimates can be found in the Appendix.[5]

Table 2-1: Sarasota/Manatee MPO Federal/State Revenue Estimates (in millions of dollars, Year of Expenditure) [6]

Revenue Source	2021-25	2026-30	2031-35	2036-40	25-Year Total
SIS Highways Construction/Right of Way (ROW) – Manatee County	79.4	186.8	11.3	11.3	288.9
SIS Highways Construction/ROW – Sarasota County	109.6	288.6	0.0	0.0	401.2
Other Arterial Construction/ROW	122.7	116.0	126.9	126.9	547.5
Transportation Alternatives	21.6	21.6	21.6	21.6	95.0
Transportation Management Area (TMA) Funds	43.4	43.4	43.5	43.5	191.1
Transit	69.0	72.5	76.0	76.0	320.3
TOTAL FEDERAL/STATE	445.7	728.9	279.3	279.3	1,844.0

It is important to note that each one of these programs are used to fund certain types of projects:

- **"SIS Highways Construction/ROW"** includes programmed projects in the 2014 edition of the Strategic Intermodal System Funding Strategy. This includes construction, improvements, and associated right of way on SIS highways (i.e., Interstate, the Turnpike system, other toll roads, and other facilities designed to serve interstate and regional commerce including SIS Connectors).
- "**Other Arterials"** revenues can be used for construction, improvements, and associated right of way on State Highway System roadways not designated as part of the SIS.
- "**Transportation Management Area"** funds can be programmed for use among the various categories in the FDOT revenue forecast. These include Other Arterials Construction & ROW, Product Support (e.g., Planning, PD&E studies, Engineering Design, Construction Inspection, etc.), SIS Highways Construction & ROW, Transit Capital, etc.

[5] http://www.mympo.org/2040-long-range-transportation-plan
[6] These financial resources estimates are derived from the "2040 Revenue Forecast Handbook" provided by the Florida Department of transportation.

- **"Transportation Alternatives Program"** was created through MAP-21 to fund programs and projects defined as transportation alternatives, including on- and off-road pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation, enhanced mobility, community improvement activities, and environmental mitigation; recreational trail program projects; safe routes to school projects; and projects for planning, designing, or constructing boulevards and other roadways largely in the right-of-way of former Interstate System routes or other divided highways.
- **"Transit"** revenues may be used for technical and operating/capital assistance for transit, paratransit, and rideshare programs.

Unfortunately, this is less money than was available in the last LRTP. Although federal and state funds have increased, the others are all less, except transit, which holds steady.

Overall, there were 1% less Other Arterial funds and 30% less TMA funds available for this plan than the 2035 update. Because of this shortfall, the MPO is unable to fund the annually updated list of Project Priorities completely. Funding constraints will continue into the future, given declining gas tax revenues and changing habits of driving. In addition, a lack of consistency from existing sources, such as with transit, makes it difficult to plan beyond next year's budget and to support greater strategic investment.

KEY TAKEAWAY FOR 2040

There are many, many needs including a new bridge crossing the Manatee River and new north/south regional facilities to complement and provide alternatives to I-75 and US41, such as River Road and Bee Ridge Road Extension. At the same time, there are declining traditional funding resources.

It is imperative to explore new implementation strategies, funding streams and non-transportation solutions.

TRANSPORTATION INVESTMENTS MUST DO MORE TO ADVANCE COMMUNITY GOALS

The transportation system does more than just facilitate trips. It is the backbone of every community, connecting people with other people, jobs, goods, housing, entertainment, and other opportunities. The transportation system is impacted by the environment and the economy, and vice-versa, the environment and the economy are impacted by the transportation system. Increasing roadway capacity to reduce congestion is not enough – more can be done to improve regional mobility and local accessibility.

ENVIRONMENT AND PUBLIC HEALTH

With the increasing frequency of severe weather incidents and rising sea water levels affecting many coastal communities, policy officials and transportation professionals are giving greater attention to the effects of climate change. In Florida, California, Oregon, and Washington, MPOs are responding to state laws enacted to address climate change. MPOs in Florida in particular, with the annual threat of hurricanes and the imminent threat of sea rise, need to think more broadly of the linkages between transportation and the environment. The federal planning factors give all MPOs a responsibility to ensure that security, resiliency, and emergency management are considered in developing plans and prioritizing projects and in retrofitting or replacing critical infrastructure to withstand future events while meeting the current needs of motorized and non-motorized users.

Multimodal investments will improve the safety of bicyclists and pedestrians. Photo credit: Sarasota/Manatee MPO

There has been a national push toward integrating health into transportation planning, recognizing how transportation affects many health outcomes:

- **Safety:** Motor vehicle crashes are a leading cause of death. This is particularly important for vulnerable road users like pedestrians, bicyclists, children, and older adults.
- **Air Quality:** Transportation planning that reduces vehicle emissions improves air quality for everyone.
- **Physical Activity:** Incorporating bicycle and pedestrian (active transportation and recreation) infrastructure and facilities promotes physical activity. There is strong evidence that this activity can lower the risk of early death, heart disease, stroke, high blood pressure, and type 2 diabetes.
- **Noise:** Alternatives can be designed to reduce noise and thereby prevent or reduce adverse health effects like hearing loss, sleep disturbances, cardiovascular problems, performance reduction, annoyance responses, and adverse social behavior.[7]

[7] http://www.fhwa.dot.gov/planning/health_in_transportation/faq/

EQUITY AND ACCESS TO OPPORTUNITY

Many of the socio-economic trends discussed earlier, if not considered, can lead to significant equity issues. One example is the forecasts that illustrate that population growth is not going to be located near employment growth, which fuels the need for increased vehicle travel across the region. This highlights the need to create transportation and land use plans in a coordinated way through a regional vision so that future growth areas coincide with existing transportation facilities.

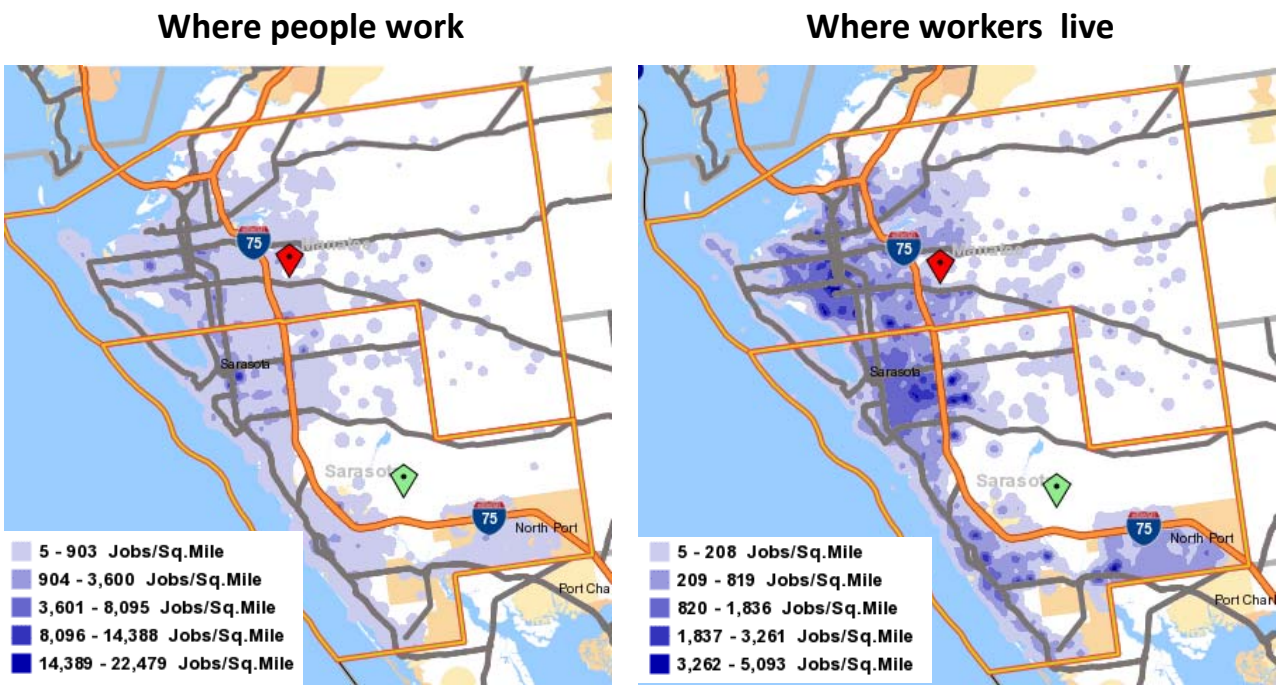


Figure 2-14: Jobs/Housing Imbalance. Source: U.S. Census Bureau, Longitudinal Employer-Household Dynamics, On the Map

Other equity issues include ensuring those that cannot drive or do not have access to automobiles still have access to opportunities. This includes those who cannot physically drive, potentially due to age or other limitations, as well as those who cannot afford an automobile, such as those living in low-income households.

> *"We cannot build our way out of traffic congestion. We need to focus on moving people, not vehicles."*
>
> *Source: Comment from MindMixer participant*

Diversifying the transportation options available to people in the region and between regions is a priority. North-south and east-west roadways are relatively limited at key pinch points like the Manatee River and around existing developed areas. A more resilient transportation network can accommodate travelers during unusual events like storms or severe crashes. Other options to driving are needed to connect people beyond the MPO planning area.

ECONOMIC DEVELOPMENT

KEY TAKEAWAY FOR 2040

The LRTP process must advance many community goals – both transportation and non-transportation related.

Florida is a freight mobility and international trade state. Freight mobility, or the movement of goods and commodities, is a significant driver in Florida's economy. Freight mobility was a key factor in building Florida's economy and will continue to be the driving force in maintaining and creating jobs for Floridians. Freight movement provides goods and services to not just the residents and visitors of Florida, but also to other states and countries. Freight's impact on Florida is due to Florida's large population, geographic location, and existing infrastructure and industries. The Strategic Mobility Plan has identified needs consistent with the Freight Implementation Plan (in the Appendix), and has identified additional needs that will complement the movement of freight and goods within the MPO.

As noted in a recent white paper published by FHWA, "land use, transportation, and economic development are integrally related."[8] This relationship is increasingly being recognized in the preparation of regional transportation plans. Transportation infrastructure and services, and the mobility and accessibility they provide to people and businesses, are fundamental elements of a competitive regional economy. Case study research has shown that MPOs, through the Long Range Transportation Plan and their other planning duties, can contribute to economic development success through coordination, technical analysis, and funding, including:

- Collaboration with regional economic development organizations
- Using performance-based planning standards to advance transportation projects with the greatest economic development potential
- Focusing on specific locations for investment that maximize economic development outcomes
- Emphasizing freight projects within the prioritization process

An MPO may not play the leading role in fostering economic development, but the importance of transportation in regional growth means that a key supporting role is both vital and productive.

[8] *A Multi-Modal Approach to Economic Development in the Metropolitan Area Transportation Planning Process.* Volpe National Transportation Systems Center. August 2014.

VISION AND GOALS

This LRTP identifies and assesses infrastructure improvements to the transportation network over the next 25 years. The federal guidance on performance-based planning provides a strategic framework to articulate and structure the implementation and achievement of a successful planning process (Figure 3-1).

Source: Federal Highway Administration

Figure 3-1: Strategic Direction and Analysis

The framework includes:

- **Goals and Objectives**: Stemming from a state or region's vision, goals address key desired outcomes, and supporting objectives (specific, measureable statements that support achievement of goals) play a key role in shaping planning priorities.
- **Performance Measures**: Performance measures support objectives and serve as a basis for comparing alternative improvement strategies (investment and policy approaches) and for tracking results over time.
- **Targets:** Preferred trends (direction of results) or targets (specific levels of performance desired to be achieved within a certain timeframe) are established for each measure to provide a basis for comparing alternative packages of strategies. This step relies upon baseline data on past trends, tools to forecast future performance, and information on possible strategies, available funding, and other constraints.

VISION STATEMENT

The Strategic Mobility Plan will develop a financially feasible transportation plan that creates a well-connected regional transportation system to facilitate the safe and efficient movement of people and goods on a variety of modes while considering the changing demographics of the region to support a growing regional economy.

The vision described above outlines the final desired result for the plan as a whole. Each goal represents a specific, important component of the transportation system. Each objective enables adequate measurement of how well each goal and its associated objectives are being achieved, both on a project-by-project basis and for the transportation system as a whole. Taken together, the goals and objectives guided all aspects of the development of this plan, and will continue to guide this plan as projects are tracked and measured and new projects are added. These goals also encompass the seven new national goals identified by the federal transportation legislation, Moving Ahead for Progress in the 21st Century Act (MAP-21).

MAP-21 NATIONAL PERFORMANCE GOALS

- Goal 1 – Safety
- Goal 2 – Infrastructure Condition
- Goal 3 – Congestion Reduction
- Goal 4 – System Reliability
- Goal 5 – Freight Movement and Economic Vitality
- Goal 6 – Environmental Sustainability
- Goal 7 – Reduced Project Delivery Delays

Source: Federal Highway Administration

The Strategic Mobility Plan goals, objectives, performance measures, and targets were developed with the help of the LRTP Steering Committee and approved by the MPO Board. The MPO identified 5 goals and 15 objectives to guide the plan towards this vision, in alignment with MAP-21 (Table 3-1).

Table 3-1: Strategic Mobility Plan Goals Alignment with MAP-21

	Safety	Infrastructure Condition	Congestion Reduction	System Reliability	Freight Movement & Economic Vitality	Environmental Sustainability	Reduce Project Delivery Delays
Improve the safety and security of the transportation system for all users							
Improve accessibility and multimodal connectivity through promoting proximity to jobs and efficient movement of freight and goods							
Promote economic vitality and viability through regional coordination of intermodal system							
Improve management, operations and coordination to promote an efficient transportation system locally and regionally							
Improve environmental sustainability and community livability in coordination with local government comprehensive plans							

GOALS, OBJECTIVES, PERFORMANCE MEASURES, AND TARGETS

1. IMPROVE THE SAFETY AND SECURITY OF THE TRANSPORTATION SYSTEM FOR ALL USERS

1.1 Create and maintain a transportation system that respects and accommodates all modes of transportation to ensure the personal safety of all users, in all modes, and on all facilities through education, enforcement, engineering, and evaluation.

1.2 Consistent with Florida's Strategic Highway Safety Plan, ensure the safe and secure accommodation of motorized and non-motorized traffic on area roadways to reduce crash rates, protect the safety of emergency responders and roadway workers within the right-of-way, and maintain and improve operating conditions on emergency evacuation routes.

Measure:	**Total crashes and crash rate by mode (auto, bike, pedestrian, transit & freight)**
Targets:	% reduction in fatalities involving all modes
	% reduction in Auto crashes and rate
	% reduction in Bicycle crashes and rate
	% reduction in Pedestrian crashes and rate
	% reduction in crashes on transit corridors
	% reduction in crashes on freight corridors
	% reduction in crashes on evacuation corridors

Safety	Infrastructure Condition	Congestion Reduction	System Reliability	Freight Movement & Economic Vitality	Environmental Sustainability	Reduce Project Delivery Delays
						

2. IMPROVE ACCESSIBILITY AND MULTIMODAL CONNECTIVITY BY PROMOTING PROXIMITY TO JOBS AND EFFICIENT MOVEMENT OF FREIGHT AND GOODS

2.1 Maintain high level and quality of service on all facilities for all modes, and ensure equitable provisions of resources to transit, bicyclists, pedestrians, motorists, freight, and transportation disadvantaged.

2.2 Coordinate transportation projects with land use plans to maximize connectivity and efficiency of the transportation network to key destinations, such as employment centers, residential areas, and downtown business districts through coordination with land use.

2.3 Improve the multimodal mobility of residents, tourists and visitors through access improvements and connections to downtown business districts, beaches, employment centers, and other key destinations.

Measure:	**System wide travel time and delay on significant corridors**	
	Targets:	% reduction Vehicle Mile of Travel (VMT) per person
		% reduction in travel time per person
		% reduction in delay on regional roadway system
		% reduction delay on freight corridors
		% reduction in delay on evacuation corridors

Safety	Infrastructure Condition	Congestion Reduction	System Reliability	Freight Movement & Economic Vitality	Environmental Sustainability	Reduce Project Delivery Delays
						

3. PROMOTE ECONOMIC VITALITY AND VIABILITY THROUGH REGIONAL COORDINATION OF INTERMODAL SYSTEM

3.1 Strengthen regional access to the economic engines, including Port Manatee, Sarasota-Bradenton International Airport, passenger and freight intermodal hubs, the central business districts, economic energy zones, and other major employment centers, to support and sustain job creation.

3.2 Improve travel and operating efficiency for intermodal and economic priority corridors through Intelligent Transportation Systems that help reduce delays in the system and improves emergency response times.

3.3 Develop and maintain a financially feasible transportation system that meets the future needs of the Sarasota/Manatee area.

Measure:	**Accessibility to economic engines and major employment centers**
Targets:	% increase in households within 20 minutes of economic engine / employment center
	% increase in Bicycle and Pedestrian facilities within 5 miles of economic engine / employment centers
	% increase in transit revenue hours accessing economic engines / employment centers

Safety	Infrastructure Condition	Congestion Reduction	System Reliability	Freight Movement & Economic Vitality	Environmental Sustainability	Reduce Project Delivery Delays
						

4. IMPROVE MANAGEMENT, OPERATIONS AND COORDINATION TO PROMOTE AN EFFICIENT TRANSPORTATION SYSTEM LOCALLY AND REGIONALLY

4.1 Maintain roadway capacity, optimize operating efficiency, enhance safety of transportation facilities, and reduce delays through the application of Intelligent Transportation Systems (ITS), system management and demand management strategies, particularly in areas where increasing capacity is constrained.

4.2 Enhance intergovernmental coordination and joint planning to ensure efficient use of resources, protect transportation investments, and preserve right-of-way for future rail, road, or multimodal improvements.

4.3 Take appropriate steps to involve the entire community, including those traditionally underserved by the transportation planning process, commercial and industrial business stakeholders, and residents in the development of plans, projects, and programs.

Measure:	**Roadway congestion and duration of congestion on significant corridors**
Targets:	% decrease in congested lane miles
	% decrease in duration of congestion

Safety	Infrastructure Condition	Congestion Reduction	System Reliability	Freight Movement & Economic Vitality	Environmental Sustainability	Reduce Project Delivery Delays
						

5. IMPROVE ENVIRONMENTAL SUSTAINABILITY AND COMMUNITY LIVABILITY IN COORDINATION WITH LOCAL GOVERNMENT COMPREHENSIVE PLANS.

5.1 Enhance community livability by minimizing transportation impacts on neighborhoods and employing context sensitive design of transportation facilities.

5.2 Preserve and enhance agricultural and open space, improve air quality, and minimize adverse impacts of transportation capital projects on natural, cultural, and human resources.

5.3 Support, strengthen, and create multimodal walkable centers that serve as attractive community focal points and encourage redevelopment of established corridors, centers, and neighborhoods to reduce sprawl, expand jobs and housing choices, support transit service, and improve pedestrian safety and accessibility.

5.4 Support and develop energy efficient transportation solutions that make use of new energy technologies, infrastructure, and policies to support improved public health, low impact development, use of low speed vehicles, and alternative fuel sources.

Measure:	**Miles of multimodal, complete streets or transportation alternatives**	
	Targets:	% increase in miles of multimodal, complete streets or transportation alternatives
		$'s invested in multimodal projects and transportation alternatives
		% of Transportation Improvement program in multimodal and transportation alternatives
Measure:	**Minimize impacts to environmental and socio-cultural areas**	
	Targets:	maintain or improve environment and socio-cultural areas
		% increase of energy efficient transportation solutions (park n ride, electric vehicle fueling stations & multimodal improvements)
		% of dollars invested inside the urbanized area
		% of dollars invested in traditionally underserved areas (transportation disadvantaged)

Safety	Infrastructure Condition	Congestion Reduction	System Reliability	Freight Movement & Economic Vitality	Environmental Sustainability	Reduce Project Delivery Delays
						

FRAMEWORK

To meet the regional vision and achieve the related goals, it is important to develop an implementation approach with three key components:

- Execute the financially feasible plan, which are those projects that will be funded through existing funding sources.
- Create transit-supportive development through policies, plans, and partnerships – aligning all the regional partners and activities to create livable communities.
- Encourage the use of broader community scorecards.

This approach contributes to a balanced and integrated approach to enhancing and augmenting local mobility and regional accessibility throughout the region reflecting key stakeholder inputs (Figure 4-1 and 4-2)

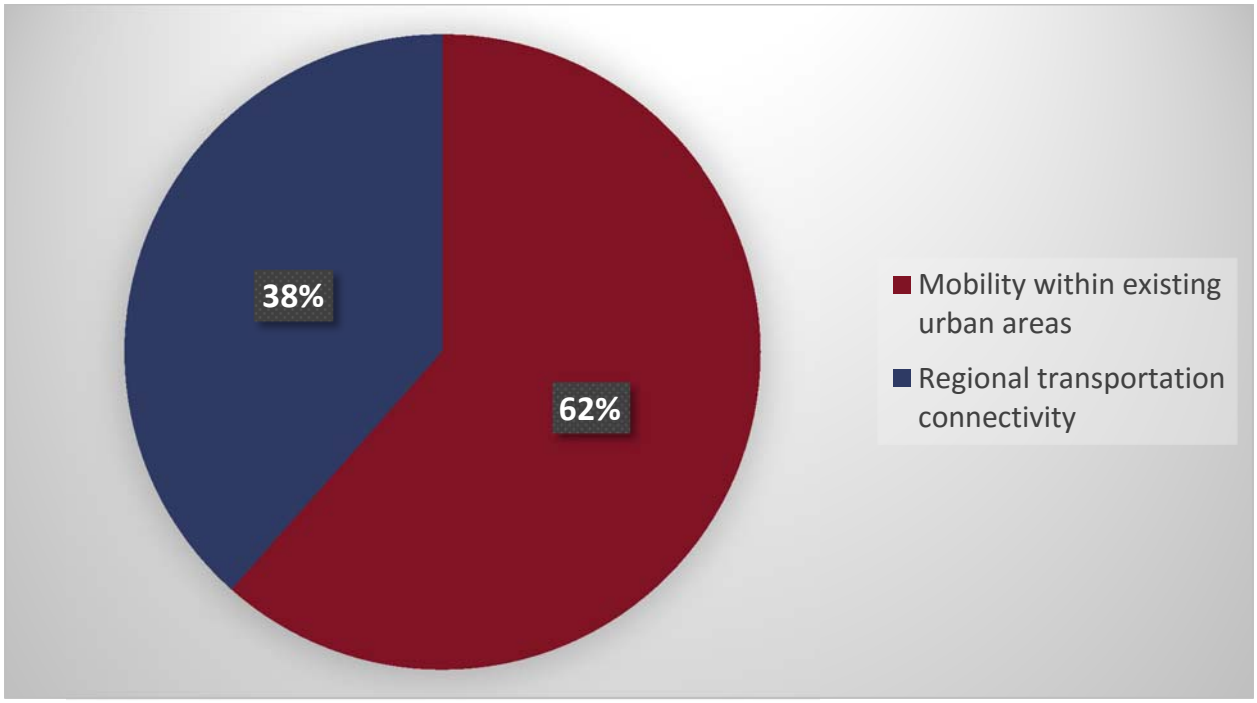


Figure 4-1: MindMixer "Of these two options, which do you think the MPO should invest in?"

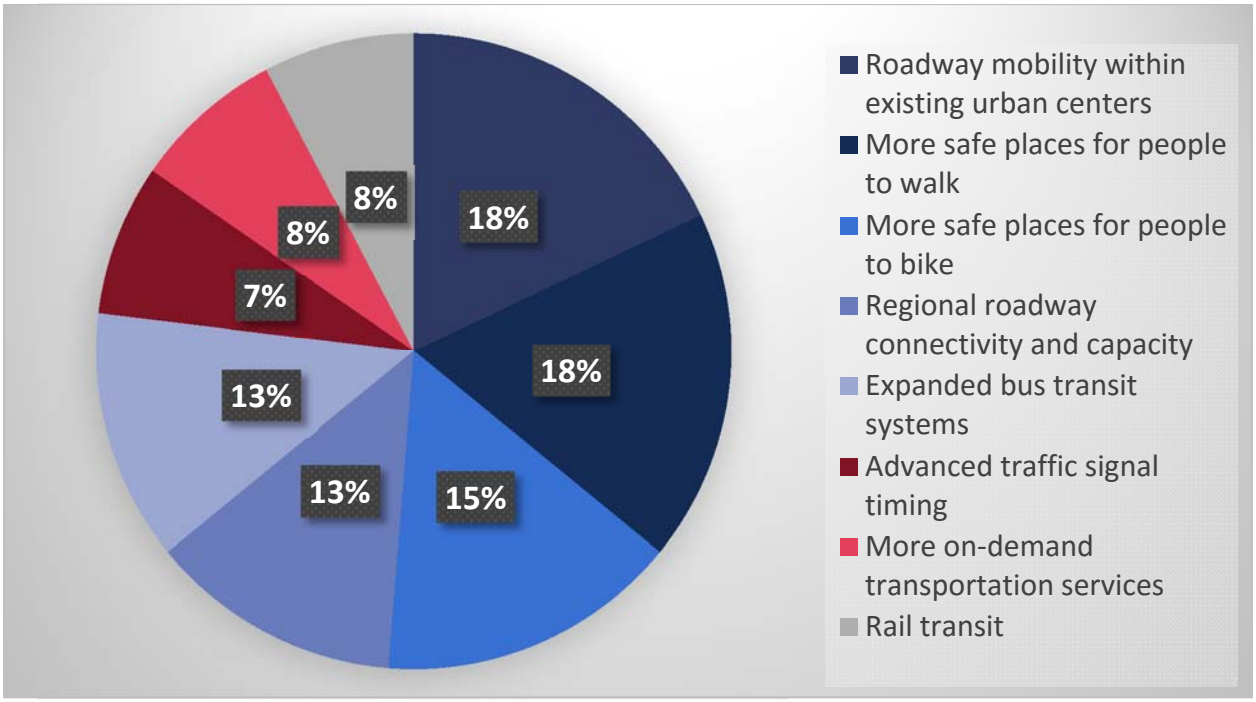


Figure 4-2: MindMixer "What types of transportation investments do you think are most important for the future of our region?"

EXECUTE THE FINANCIALLY FEASIBLE TRANSPORTATION PLAN

With less revenues forecasted for the 2040 LRTP, the plan uses all available resources to foster multimodal accessibility and regional mobility. Development of the Financially Feasible Plan (also known as the Cost Affordable Plan by Federal Highway Administration) required a number of trade-offs and matching of funding sources to ensure that a coherent and logical set of transportation projects could be funded within the planning horizon for a more interconnected system. The Strategic Mobility Plan goals, objectives, performance measures, and targets provide the framework that guides the MPO in the process of achieving its mission through plans, programs, and project prioritization. In addition, the financial feasibility of the Needs Plan projects was weighed against estimated project cost, as well as purpose and need, before a recommendation was developed for the complete financially feasible list.

One way to make the decisions and tradeoffs more tangible to elected officials and the public was the use of 10-15 year planning horizons that built upon the current Transportation Improvement Program (TIP) and targeted economic development areas and development hot spots. This enabled productive conversations about management and operations to make the most of the region's existing and committed transportation network. The approved Financially Feasible Plan represents a total investment of $1.6

The 2040 Strategic Mobility Plan builds upon the multimodal foundation created in past plans. Photo credit: Sarasota/Manatee MPO

billion in transportation investments in the region over the next 25 years.

The Financially Feasible Plan identifies all multimodal projects from the Project Priorities List that can be funded through the year 2040. The list includes projects that can be funded with Federal & State revenues and projects that are anticipated to be completed using Local Impact Fee or Mobility Fee revenues or Developer Commitments.

KEY PRINCIPLES USED TO DEVELOP THE FINANCIALLY FEASIBLE PLAN

- **Allocating the portion of federal and state funding available to the MPO to regionally significant projects that enhance regional mobility and local accessibility**.
  - As with the local comprehensive plans, transportation improvements that are not regionally significant will be paid for by new development impact fees, mobility fees, or by the local governments. Those projects that are regionally significant will be paid for primarily by federal and state monies.
- **Continuing to support multimodal accessibility and congestion management** with the Urban Flexible funds and TMA funds, particularly for the Multimodal Emphasis Corridor Program.
- Other Arterial funds should go towards **regional roads.**
- Transportation Alternatives should fund other Multimodal projects not in the MMEC to **fund regional trails and multimodal projects.**
- **Transit funds will continue to maintain the current system** (no expansion).

The final Financially Feasible Plan advances a balanced and integrated approach to enhancing and augmenting multimodal mobility and accessibility throughout the region, despite the limited funding available for transit service expansion at this time. Regional accessibility is furthered through key roadway projects designed to improve regional mobility, efficient movement of freight, and access to economic centers. Local mobility is facilitated through local roadway improvements and multimodal projects.

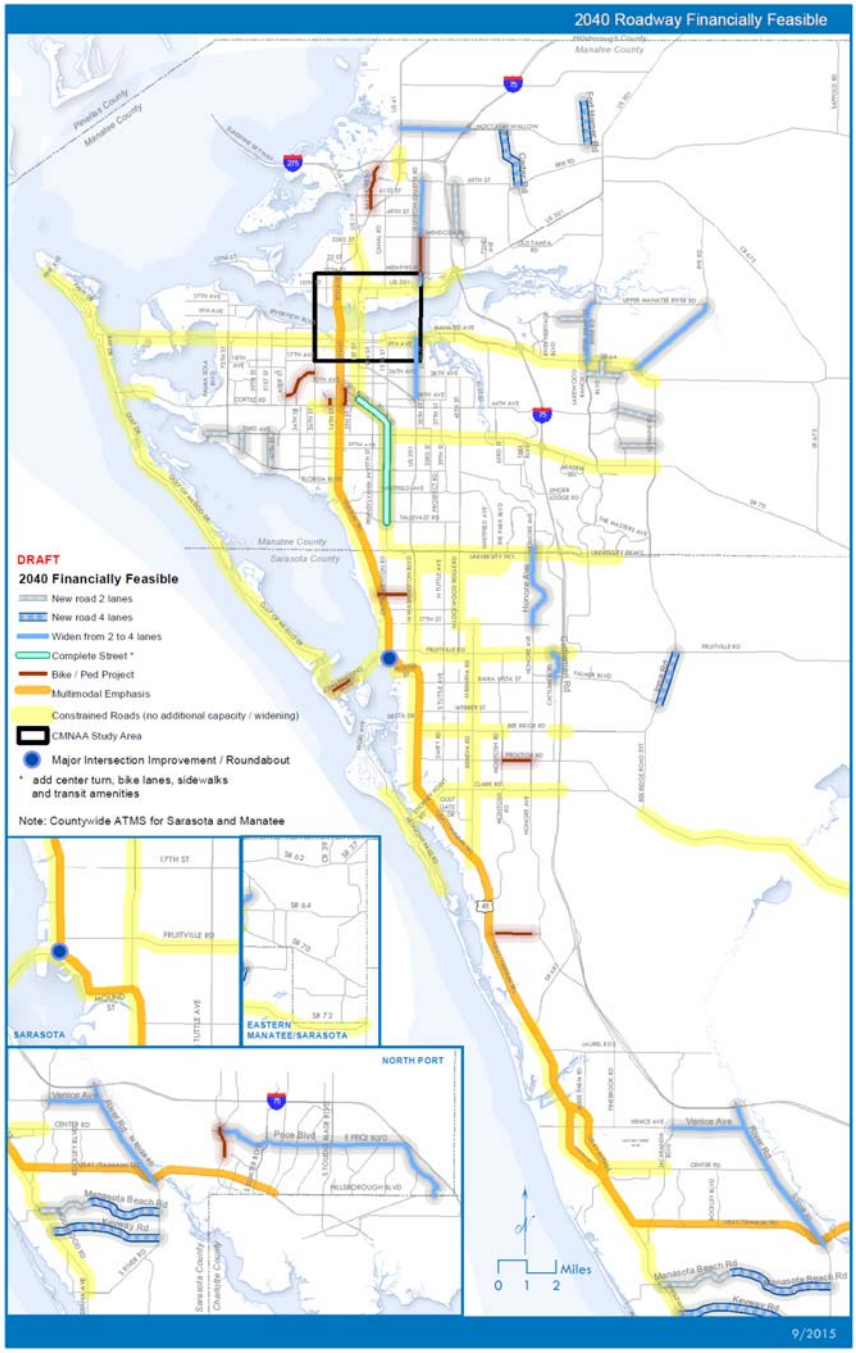


Figure 4-3: Financially Feasible Plan

Below the specifics of each funding program and what types of projects it can or will fund are outlined.

CONGESTION MANAGEMENT PROCESS

The Congestion Management Process identifies significant congestion problems and, near-term, lower cost strategies for multimodal mobility management and corridor or intersection congestion mitigation. The integration of the Congestion Management Process and the LRTP highlights the MPO's comprehensive, continuing, and coordinated metropolitan planning process. Assuming projected revenues are realized, each county will receive $1 million per year from the boxed TMA Funds to pay for congestion management projects.

Projects must meet certain eligibility requirements, including having right-of-way issues resolved at the time of funding, and having a completed design. Cities and counties may submit applications to the MPO each year for funding through a competitive selection process. Congestion constrained corridors, which are constrained due to policy or physical barriers and unable to receive added capacity, will receive priority for these funds. This remains in line with the MPO's program for setting aside "boxed" funds in both counties for lower cost, quick-start congestion management projects, such as intersection modifications and related operational and access improvements.

MULTIMODAL EMPHASIS CORRIDOR PROGRAM (US 41)

The US 41 Multimodal Emphasis Corridor (MMEC) concept was developed during the 2035 LRTP update as a means of redeveloping and revitalizing the corridor, which is designated as a scenic highway. The 2035 LRTP identified the corridor from 17th Street in Palmetto to the Charlotte County line, including Business 41 in Bradenton and Venice and the Venice Bypass. This project provides a renewed focus on urban revitalization of the US 41/Tamiami Trail scenic highway corridor through both counties, increasing network connectivity through a complete streets approach, regional connections to the Tampa/St. Petersburg area to the north, Charlotte County to the south, and freight connections to the interstate highway system.

The US 41 corridor continues to have focused multimodal improvements. Photo credit: Sarasota/ Manatee MPO

The development of the MMEC will be continued with this LRTP update with $15 million in boxed TMA funds designated for both Sarasota and Manatee Counties assuming if revenues are realized. Qualifying projects include pedestrian and bicycle facility improvements, multi-use trails, traffic calming, major transit infrastructure, transit shelter/stop improvements, ITS improvements, intersection improvements (including roundabouts), access management, and landscaping. However, projects must be completed as a total package for a segment rather than individual projects scattered along the corridor. The goal is to fund a package of mobility enhancement strategies for a defined segment that would directly relate to land use/redevelopment plans prepared and approved by a member local government. The key to the program is establishing a linkage along the Tamiami Trail (US 41) between land use and transportation strategies through urban design that improves walking, bicycling and transit accessibility conditions.

TRANSPORTATION ALTERNATIVES PROGRAM INVESTMENTS

Multimodal improvements in both counties, which include regional trails, bicycle and pedestrian projects, will be funded through Transportation Alternatives Program (TAP) funds. Authorized under MAP-21, TAP provides funding for transportation alternatives, including on- and off-road pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation and enhanced mobility, community improvement activities, and environmental mitigation; recreational trail program projects; safe routes to school projects; and projects for planning, designing, or constructing boulevards and other roadways largely in the right-of-way of former Interstate System routes or other divided highways.

These investments will cover projects not included in the US 41 MMEC. As stated in the Challenges and Opportunities section, there are significantly more available funds forecast for the 2040 LRTP than the 2035 LRTP due to increased funding through MAP-21. The MPO will commit $600,000 total for the region per year towards multimodal projects and priorities plus a local contribution towards project completion.

REGIONAL ROADWAY INVESTMENTS

The regional roadway system are roads that facilitate accessibility to the region's economic anchors, such as the downtowns, the port, and other key economic hot spots. As directed by the MPO Board, roadway improvements on regional roads and Advanced Traffic Management System (ATMS) will be funded with Other Arterial funds. The primary purpose of the Other Arterials program is to fund improvements on segments of the State Highway System (SHS) not designated as Strategic Intermodal System (SIS) including construction and improvement projects and right-of-way on state roadways not included in the SIS. These are the highest priority regional projects. The regional roadway projects that are financially feasible are shown in the tables below.

In addition, both Manatee and Sarasota County will receive $20 million for ATMS projects to designate as they see fit. This includes a fiber optic network, infrared cameras to monitor traffic conditions and traffic signal modifications to improve flow and respond more rapidly to incidents.

Table 4-1: Manatee County Other Arterial-Funded Projects

Facility	From	To	Project	Current Cost
Manatee County ATMS			ATMS Expansion	$20 million
15th St E/301 Blvd E	Tallevast Rd	US 41	Multimodal Improvements - Add center turn lane, bike lane, multiuse trail and transit amenities	$73 million
Central Manatee Alternatives Analysis			Projects from Central Manatee Network Alternatives Analysis (CMNAA) project (FDOT)	$12 million
Upper Manatee River Rd	Fort Hamer Rd	SR 64	Widen from 2 lanes to 4 lanes with multimodal improvements	$57.61 million

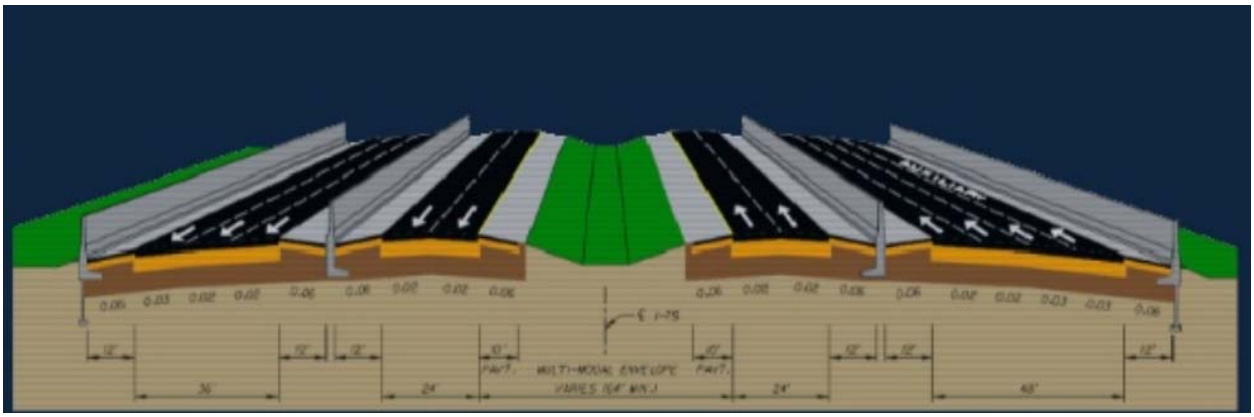
Table 4-2: Sarasota County Other Arterial-Funded Projects

Facility	From	To	Project	Current Cost
River Rd	US 41	West Villages	Widen from 2 lanes to 4 lanes with multimodal improvements	$37.20 million
River Rd	West Villages	Center Rd	Widen from 2 lanes to 4 lanes with multimodal improvements	$28.40 million
River Rd	Center Rd	I-75	Widen from 2 lanes to 4 lanes with multimodal improvements	$31.38 million
Price Blvd	Cranberry	Sumter	Widen from 2 lanes to 4 lanes with multimodal improvements	$33.37 million
Honore Ave	University Parkway	17th St	Widen from 2 lanes to 4 lanes with multimodal improvements	$63.07 million

STATE INVESTMENTS

State investments in the Sarasota Manatee region will go towards funding projects on Florida's Strategic Intermodal System (SIS). Florida's SIS was created by the Florida Legislature in 2003 to designate a statewide network of high priority transportation facilities critical to Florida's economic competitiveness and quality of life. These include highways, airports, spaceports, deepwater seaports and waterways, freight and rail terminals, interregional bus terminals, rail corridors, and urban fixed guideway transit corridors. The SIS, Florida's highest statewide priority for transportation capacity movements, focuses on regional, statewide, interstate, and international facilities that move people and freight. The SIS portion of FDOT revenues is programmed by FDOT for their highest priority transportation improvements which are incorporated into the 2040 Financially Feasible Plan*.

Across the state, FDOT is investing in adding capacity to its key interstates to facilitate freight goods movements and support economic development. For this 2040 LRTP, the Ultimate I-75 project will be funded with FDOT SIS funds. The project will add capacity to the interstate through both counties.



*Additional projects may be included but FDOT is currently updating its SIS prioritization plan.

LOCAL INVESTMENTS

Each county also identified prioritized projects to be funded with impact fees, mobility fees, or developer contributions. Within Manatee County, the county government, the City of Bradenton, and the City of Palmetto charge impact fees or mobility fees on new development to fund transportation facilities. Within Sarasota County, the county government, the City of Sarasota, and the City of North Port charge such fees. The City of Venice and the Town of Longboat Key have interlocal agreements in place with the county to charge the county's impact fees within their jurisdictions. Because these fees are dedicated to funding capital improvements related to transportation, projections of this revenue source are based on the 2040 forecasts of population and employment used in the regional travel demand model. Current fee rates were used to project future revenue even if a jurisdiction has enacted a moratorium or discount on transportation impact/mobility fees at the present time. The new mobility fee recently adopted by Sarasota County was also assumed to be implemented and that Venice and Longboat Key opted into it.

Manatee County is estimated to generate $200 million and Sarasota County is estimated to generate $308 million. These estimates are based on 2040 LRTP Population and Employment forecasts, which are documented in the Financial Resources Appendix. The projects recommended by each county are listed in the Financially Feasible packet at the end of this document.

TRANSIT INVESTMENTS

Forecasts estimate there are more transit funds available in the 2040 LRTP than the 2035 LRTP. Even with an increase, however, the estimate will only maintain the current service for both agencies. Therefore, transit funds identified in the Strategic Mobility Plan with federal fundswill continue to maintain the current system for both Manatee County Area Transit (MCAT) and Sarasota County Area Transit (SCAT) with no expansion. However, the Transit Development Plans (TDP) for both systems have identified service expansion, enhancements and capital improvements if additional funding becomes available.

***** Reference TDP links in appendix*****

MAP-21 ALIGNMENT

The below matrix demonstrates how the projects in the Financially Feasible Plan comply with the MAP-21 goals.

Transportation Project Funding Programs	Safety	Infrastructure Condition	Congestion Reduction	System Reliability	Freight Movement & Economic Vitality	Environmental Sustainability	Reduce Project Delivery Delays
Congestion Management Process							
Multimodal Emphasis Corridor							
Multimodal Investments							
Regional Roadway Investments							
State Investments							
Local Investments							
Transit Investments							

CREATE TRANSIT-SUPPORTIVE AND TRANSIT-ORIENTED DEVELOPMENT

The difference in funding between the Needs Plan and the Financially Feasible Plan illustrates the pressing need to develop and explore supplemental strategies to achieve the 2040 LRTP goals and objectives. In addition, there is ongoing community agreement that the region needs a more robust transit system to provide a viable alternative transportation option and reduce the demands placed on the region's roadways. While upgrading and expanding Manatee County Area Transit (MCAT) and Sarasota County Area Transit (SCAT) is not financially feasible at this time, there are ways to prepare the region for more transit when there are more funds available for expansion. The way in which the region grows and how and where development is allowed to occur can either support or inhibit an improved transit system. Transit Oriented Development (TOD) is a mix of housing, retail, commercial development and amenities in a walkable neighborhood with high-quality public transportation.[1] Although transportation is a key component, TOD requires a much broader set of policies, programs priorities, strategies, and partnerships. Some key points of collaboration include:

- Develop a regional transit and land use vision.
- Assess the TOD readiness of existing corridors
- Re-evaluate project prioritization process and legacy projects.
- Continue to prioritize the MMEC as a regional corridor.
- Explore a regional TOD funding program.
- Enact Transit Supportive Development Guidelines and Policies

These are all complementary and some can be combined into one larger undertaking.

DEVELOP A REGIONAL TOD/TRANSIT AND LAND USE VISION.

Developing this vision can ensure that the many important components of TOD come together in a way that makes sense for the Sarasota/Manatee region. It requires an understanding of the real estate market, major employment centers, and travel patterns in combination with key coordination across existing and future plans for growth, transit, housing, jobs, and more. At the system-level, the transit system should provide adequate north-south and east-west regional access.

The 2035 LRTP identified core transit areas/corridors and support areas based on a number of variables including measures of physical form such as land use diversity, density/intensity, and pedestrian conditions; and also demographic factors such as age and income. These core transit areas are concentrated around Bradenton and Sarasota and places in between. These corridors already serve large numbers of residents and workers and connect economic centers around the region, or have the potential to facilitate regional trips connecting with surrounding counties to the north and south. The North-South corridors that transit supportive development should be focused near include I-75 (Manatee/Hillsborough County line to Bee Ridge Road) and US 41 (particularly the section between Downtown Bradenton and Downtown Sarasota). The East-West corridors to focus transit supportive development on include SR 64, 44th Ave/SR 70/University Parkway, and Fruitville Rd/Bee Ridge Rd/Clark.

[1] TOD 204: Planning for TOD at the Regional Scale: The Big Picture. http://www.reconnectingamerica.org/resource-center/browse-research/2011/tod-204-planning-for-tod-at-the-regional-scale/

OTHER REGIONAL PLANS SUPPORT A TRANSIT AND LAND USE/TOD VISION…..

- **Promote Smart Growth** where residential communities are linked with job centers through transit, carpooling, or other high occupancy vehicle transportation. (Southwest Florida Regional Planning Council's (RPC) 2002 Strategic Regional Policy Plan
- **Recognize and promote regional activity centers as a growth management tool** (Tampa Bay RPC 2005 Strategic Regional Policy Plan)
- **Develop a plan for the design and funding of a multimodal, interconnected transportation system** that sustains local livability and serves regional hubs for global, national, and state distribution of goods and movement of people. (Southwest Florida RPC Comprehensive Economic Development Strategy 2012-2017)
- **To promote a regional perspective on multi-modal transportation system for people, goods, and services** that includes transit, highway, seaport, airport, rail, broadband, and multi-use trail planning and development. (Tampa Bay RPC Comprehensive Economic Development Strategy 2012-2017

ASSESS THE TOD READINESS OF EXISTING CORRIDORS

TOD occurs when development and transit are integrated, allowing people to meet their daily needs without a car. A network of developments connected by premium transit allows people to seamlessly travel between developments within the network to access home, work, and recreation on a system that is comparable to vehicles in terms of efficiency. There are opportunities to change zoning and land development codes to prepare existing and future development along key corridors to be in locations and densities that will support future transit expansion and creates markets for transit.

- **Densities:** Transit supportive densities are needed to support the various levels of TOD. Buses with 30 minute headways require a minimum of 7 dwelling units per acre while buses with 10 minute headways require residential densities of 15 dwelling units per acre. Light rail services require even higher, at 20 to 30 dwelling units per acre.
- **Mix of Uses:** In addition to densities, local government codes should incorporate a mix of uses both horizontally throughout the area as well as allowing a mix-of-uses vertically within the same building. TOD station areas often focus on providing either residential density or jobs, but both will be present within the station area development.
- **Compact Development:** The station areas should contain compact development, which includes higher density and intensity development with a mix of uses centered on the transit station. Transit riders will be more likely to walk to their destination if it is close to the transit stop.
- **Streets and Blocks:** In addition to properly calibrating uses, the design of the development plays a key role in TOD success. TOD relies on an interconnected network of streets and blocks to facilitate walking and biking to and from transit and nearby uses. Local governments can adopt regulations to reduce block size and encourage or require road connections as well as sidewalk and bike connections throughout the station area. New developments in Greenfield areas can be required to provide well-designed streets and adequate connectivity supportive of transit and transit riders who may walk or bike from the bus stop to their destination.

Not all corridors and areas are equally prepared to support transit. The previous recommendation focuses on a vision, but this strategy identifies what is necessary to implement TOD in certain corridors.

Some key factors used to assess these corridors include:

- Total jobs and jobs by type
- Housing Units per acre
- People per acre
- Land use diversity
- Street intersection diversity
- Jobs within Jobs within a 45 min. transit ride
- Transit to working-age population

The US 41 corridor between Downtown Bradenton and Downtown Sarasota has the largest potential for implementing transit supportive development policies. Photo credit: Sarasota/Manatee MPO

This can help to develop a framework for understanding the different challenges associated with creating the demand for TOD and better transit service. Of the major corridors in the region, the US 41 corridor between Sarasota and Bradenton has the largest potential to create TOD. Increasing densities and intensities along the corridor would help to strengthen and foster investments in transit. The corridor provides more consistent transit access to jobs than any other corridor in the region. Transit serves the two centers of activity in the corridor: Downtown Bradenton and Downtown Sarasota.

A summary table of the corridor is provided in Table 4-3. An analysis of other major corridors in the region is provided in the Appendix.

Table 4-3: US 41 from Downtown Bradenton to Downtown Sarasota TOD Readiness Assessment Existing Conditions

Data Variables	Results
Total Jobs	• 88,690
Jobs by Type	• Health care, public administration, education, retail, manufacturing
Housing Units per Acre	• Very low 0.2 up to 19 • Average 2.9
People per Acre	• Generally 2 to 10 • Pockets of more around Bradenton and near Sarasota
Land Use Diversity[2] (Range from 0 – 1)	• .08 to .91 • Capitalize on and expand existing diverse areas
Street Intersection Density[3] (Range from 0 – 250+)	• 6 to 247 • Greater around Bradenton and Sarasota; in the 100s
Jobs within a 45 min. transit ride (Range from 1 – 535,000)	• Low weighted jobs in corridor from Bradenton to Sarasota (2,000 to 4,000) • Sarasota has increasing jobs within 45 min transit ride up to 9,000 in the core area
Accessibility Index: Transit to Jobs[4] 0=least accessible to jobs 1=most accessible to jobs	• Along US 301 near Bradenton: 0.08 to 0.5 • Higher as you travel south into downtown Sarasota. • Up to 1.0 in Sarasota • Majority of the corridor is 0.0
Accessibility Index: Transit to working-age population[5] 0=least accessible to workers 1=most accessible to workers	• Up to 1.0 in Sarasota • Majority of the corridor is 0.0

[2] An index of the mixture of land use at the block group scale, using job counts by employment category and housing unit counts as proxies for land use types. Ranges from 0 – 1

[3] Intersections per square mile. An indicator of street connectivity from the perspective of pedestrian and bicycle travel. 3-way intersections are given reduced weight. Highways and high-speed arterials are given zero weight.

[4] An index measure of the relative centrality of a block group compared to other block groups within the same metropolitan region, as measured by travel time to jobs via transit. Values closer to 1 are more central.

[5] An index measure of the relative centrality of a block group compared to other block groups within the same metropolitan region, as measured by travel time to working-age population via transit. Values closer to 1 are more central.

RE-EVALUATE PROJECT PRIORITIZATION PROCESS AND LEGACY PROJECTS

One of the challenges with the 2040 LRTP is that the most recent funding monies of the *Transportation Improvement Program* were already allocated towards the 2035 LRTP unfunded needs. With MAP-21 legislation and the MPO's focus on multimodal accessibility, an update in the project prioritization process will immediate follow the adoption of the *Strategic Mobility Plan*. The new process will look at all the roadway needs and multimodal needs as a combined prioritization to develop a more mode-neutral process that links to the *Strategic Mobility Plan* and moves priorities into the *Transportation Improvement Program*. This new process will confirm whether the current projects are still priorities or if they are legacy projects that may no longer be priorities.

NEW STARTS PROJECT CRITERIA

TOD readiness can help applications for federal grant monies, such as New Starts, the federal government's primary method for supporting locally planned, implemented, and operated major transit capital investments. The following lists the criteria used to evaluate proposed New Starts projects.

- Mobility Improvements (travel time benefits per project passenger mile, low-income households served, and employment near stations.)
- Environmental Benefits (regional pollutant emissions, change in regional energy consumption, and EPA air quality designation)
- Cost Effectiveness (cost per hour of travel time saved)
- Operating Efficiencies (system operating cost per passenger mile.)
- Transit Supportive Land Use & Future Patterns (existing land use, transit supportive plans and policies and performance, and impacts of policies.)
- Other (optional factors such as projected economic impact of project.
- Local Financial Commitment, including share, financing plan, and operations funding.

Source: http://www.fta.dot.gov/12304_2607.html

EXPLORE A REGIONAL TOD FUNDING PROGRAM.

There is a great deal of variety in TOD funding programs across the country. In some cases, smaller grants support the completion of many station-area plans, while in other places larger loans are used to advance catalytic development projects. Some programs target public agencies, while others provide resources directly to private and non-profit developers. Regardless, once a TOD corridor and strategy is chosen, funding needs to be identified. This strategy should focus not only on government resources (although those can be critical), but also on exploring how best to capture the value of the associated transit improvements to fund future TOD expansion. In some cases this can also be a way to support the necessary local level planning to support TOD or to ensure that the investment policies across all levels of government in the region explore return-on-investment analysis that clarify the public benefits of TOD supportive decisions. If coupled with housing program coordination and environmental investments, this can be a particularly strategic way to support TOD outside of the current funding streams.

ENACT TRANSIT SUPPORTIVE DEVELOPMENT GUIDELINES AND POLICIES

This can cover a wide variety of different types of policies, such as:

- **Complete streets policies**: Streets that are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities.
- **Transit access design guidelines**: Ensure all transit facilities support pedestrian and bicycle access.
- **Access management programs and policies**: Help streamline access points to improve the street experience.
- **Parking assessments and management:** Ensure the supply and demand for parking match up.
- **Tax incentives assessment**: Identify and address tax incentives or barriers that inhibit TOD.

ENCOURAGE THE USE OF BROADER COMMUNITY SCORECARDS

While transportation goals, objectives, performance measures, and targets are important, it is also important to ensure these investments serve the broader community goals (both transportation and non-transportation related goals). Table 4-4 outlines some key indicators that are readily accessible and nationally regarded, along with the state and national averages to illustrate points of comparison. Scorecards can be great mechanisms to benchmark community quality of life.

Table 4-4: Potential Sarasota/Manatee region Community Scorecard[6]

Indicator	Manatee County	Sarasota County	Florida	United States
Transportation				
Commute mode share percentage (non-single-occupant vehicle)	4%	5%	6%	10%
Mean travel time to work (minutes)	24	22	26	26
Housing				
Percent of households with housing costs greater than 30% of income	39%	38%	41%	36%
Equity				
Poverty rate	15.1%	12%	16.3%	15.4%
Share of income held by top 5% of households	21.6%	25%	23.6%	22.4%
Economic Development				
Unemployment	11.3%	11%	11.7%	9.6%
Share of the population with a college degree	27%	31%	26%	29%
Income				
Median household income	$47,876	$49,052	$46,956	$53,046

[6] Note: these may not match up with data in Section 2, because they are from a different source/year.

OTHER ACCESSIBLE LIVABILITY SCORECARD OPTIONS

In addition to the Partnership for Sustainable Communities, Sustainable Hot Reports in Table 4-4, some other readily accessible options exist:

- Sustainable Communities Regional Planning Grant Program's Flagship Sustainability Indicators which also covers food access, green space, etc. http://portal.hud.gov/hudportal/documents/huddoc?id=OSHCPerfMeasFlagSustInd.pdf
- American Association of Retired Persons Livability Index, which also includes civic engagement and public safety. https://livabilityindex.aarp.org/

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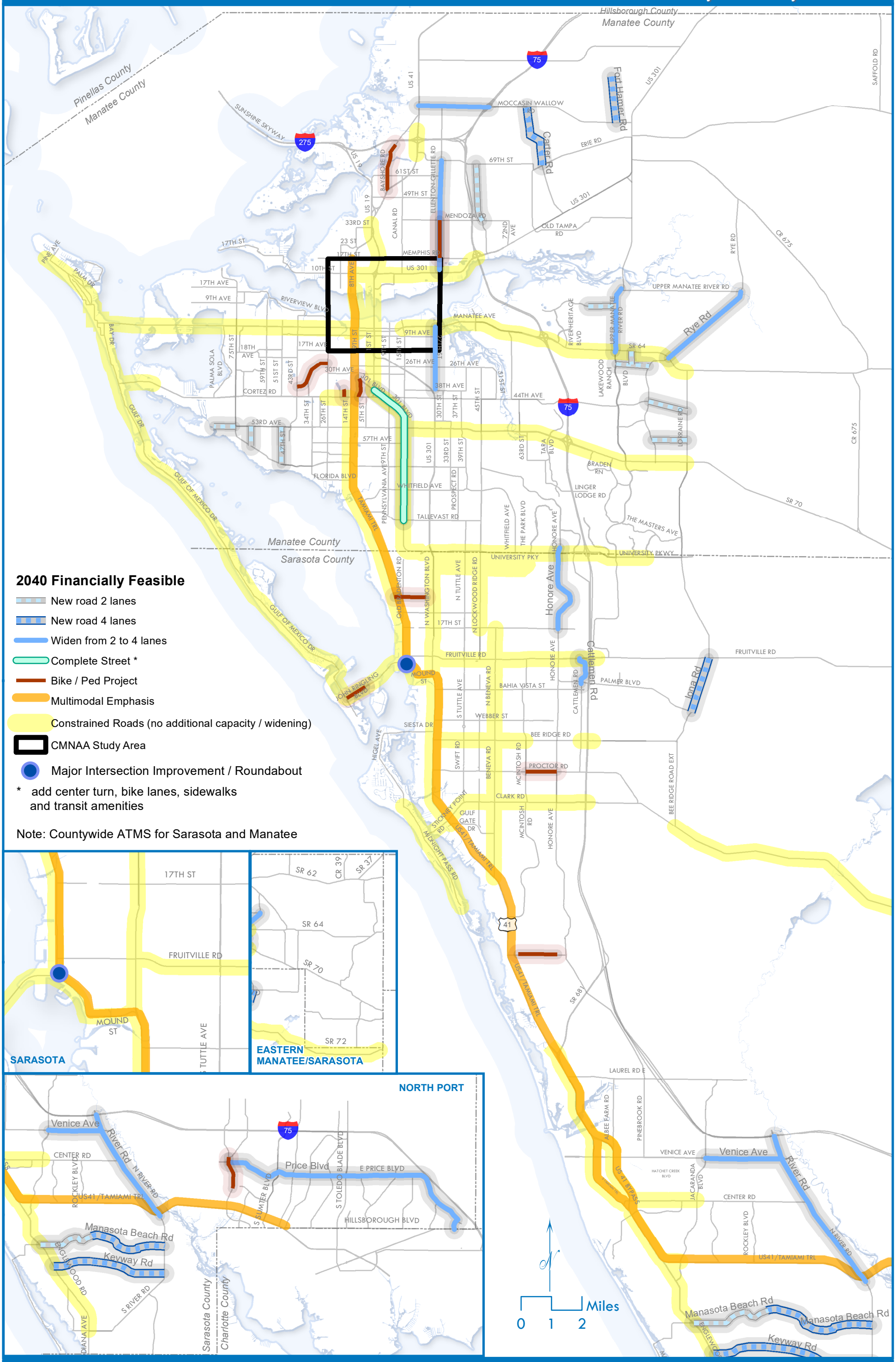
- Table 6 – Manatee County – Locally Funded Projects
- Table 7 – Sarasota County – Locally Funded Projects
- Table 8 – State Strategic Intermodal System (SIS) Plan

Adopted December 14, 2015

2040 Roadway Financially Feasible



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Adopted December 14, 2015

Sarasota / Manatee MPO - Financially Feasible Projects

Table 1 - Manatee County - Other Arterial (State / Federal Funds)

Facility	From	To	Type	Project	Current Cost (In Millions)	Year of Expenditure Cost (In Millions)	Currently Funded Phase (TIP)	Phase to be Funded (2021 - 2025)	Phase to be Funded (2026 - 2030)	Phase to be Funded (2031 - 2040)	Unfunded
Manatee County ATMS					$ 20.00	$ 20.00	ATMS $3.4 million	ATMS Expansion $5 million	ATMS Expansion $5 million	ATMS Expansion $10 million	-
15th St E/301 Blvd E	Tallevast Rd	US 41	Roadway - Widening	Multimodal Improvements - Add center turn lane, bike lane, multiuse trail and transit amenities	$ 80.00	$ 100.00	PE $1 million	ROW $25 million	CST $75 million	-	-
Central Manatee Alternatives Analysis				Projects from Central Manatee Network Alternatives Analysis (CMNAA) project (FDOT)	$ 12.00	$ 12.00	CMNAA Study $3 million	CMNAA Projects $3 million	CMNAA Projects $3 million	CMNAA Projects $6 million	-
Upper Manatee River Rd	Fort Hamer Rd	SR 64	Roadway - Widening	Widen from 2 lanes to 4 lanes with multimodal improvements	$ 57.61	$ 95.96	-	-	PD&E $3.26 million	PE / ROW / CST $92.7 million	-
				Total	$ 169.61	$ 227.96					
				Manatee Other Arterial		$ 246.25					
				Balance (+ / -)		$ 18.29					

Table 2 - Sarasota County - Other Arterial (State / Federal Funds)

Facility	From	To	Type	Project	Current Cost (In Millions)	Year of Expenditure Cost (In Millions)	Currently Funded Phase (TIP)	Phase to be Funded (2021 - 2025)	Phase to be Funded (2026 - 2030)	Phase to be Funded (2031 - 2040)	Unfunded
Sarasota County ATMS					$ 20.00	$ 20.00	ATMS $3.4 million	ATMS Expansion $5 million	ATMS Expansion $5 million	ATMS Expansion $10 million	-
River Rd	US 41	West Villages	Roadway - Widening	Widen from 2 lanes to 4 lanes with multimodal improvements	$ 37.20	$ 47.19	PD&E / PE County	ROW / CST $47.19 million	-	-	-
River Rd	West Villages	Center Rd	Roadway - Widening	Widen from 2 lanes to 4 lanes with multimodal improvements	$ 28.40	$ 41.50	PD&E / PE County	ROW / CST $2.2 million	CST $39.3 million	-	-
River Rd	Center Rd	I-75	Roadway - Widening	Widen from 2 lanes to 4 lanes with multimodal improvements	$ 31.38	$ 58.09	PD&E / PE County	-	ROW $3.5 million	CST $54.59 million	-
Price Blvd	Cranberry	Sumter	Roadway - Widening	Widen from 2 lanes to 4 lanes with multimodal improvements	$ 33.37	$ 57.46	PD&E / PE City	-	ROW $11.88 million	CST $45.58 million	-
Honore Ave	University Parkway	17th St	Roadway - Widening	Widen from 2 lanes to 4 lanes with multimodal improvements	$ 63.07	$ 29.21	-	-	PD&E / PE $11.84 million	ROW $17.37 million	CST $120 million
				Total	$ 213.43	$ 253.45					
				Sarasota Other Arterial		$ 253.61					
				Balance (+ / -)		$ 0.16					

Adopted December 14, 2015

Sarasota / Manatee MPO - Financially Feasible Projects

Table 3 - MPO Area - Transportation Management Area (Federal Funds)

Facility			Type	Project	Current Cost (In Millions)	Total Investment (In Millions)	Boxed Funds (Prioritized Annually)
Manatee County Congestion Management System (CMS)			Box TMA Funds	Congestion Management	$ 5.0	$ 20.0	$1 Million per year
Manatee County Multimodal Emphasis Corridor (MMEC)			Box TMA Funds	Multimodal Emphasis Projects: 10th Ave from Riverside Dr. to 17th St US 41 from 69th Ave (Bay Drive) to Cortez Road US 41 from Edwards Dr. to Braden Ave. US 41 at Bayshore Gardens Pkwy US 41 from Sarasota/Manatee County Line to 26th Ave W, Bike Infrastructure Business US 41 (14th St W) 39th Ave W to 26th Ave W	$ 15.0	$ 60.0	$3 Million per year
Sarasota County Congestion Management System (CMS)			Box TMA Funds	Congestion Management	$ 5.0	$ 20.0	$1 Million per year
Sarasota County Multimodal Emphasis Corridor (MMEC)			Box TMA Funds	Multimodal Emphasis Projects: US 41 @ Myrtle St & Martin Luther King Jr Roundabout US 41 @ Gulfstream Roundabout US 41 @ Fruitville Roundabout US 41 @ Main Roundabout US 41 @ Orange Roundabout US 41 from Beneva Rd to Stickney Pt Road US 41 @ Ringling Blvd Roundabout US 41 from Hillview to Webber US 41 and University Pkwy Intersection	$ 15.0	$ 60.0	$3 Million per year
				Total	$ 40.00	$ 160.00	
				Transportation Management Area (TMA)		$ 173.80	
				Balance (+ / -)		$ 13.80	

Table 4 - MPO Area - Transportation Alternatives (Federal Funds)

Facility	From	To	Type	Project	Current Cost	Total Investment (In Millions)	Prioritized Annually
Multimodal Project not on MMEC or Regional Roadway				MPO will commit $600,000 per year towards multimodal projects and priorities plus a local contribution towards project completion.	$ 0.60	$ 12.00	$600,000 per year with local contributions
				Total	$ 0.60	$ 12.00	
				Transportation Alternative		$ 22.40	
				Balance (+ / -)		$ 10.40	

Table 5 - MPO Area - Transit (Federal Funds)

Facility	From	To	Type	Project	
Manatee County Area Transit (MCAT)				Existing Operations	Fund Existing System
				Service expansion, enhancements, and capital improvements from Transit Development Plan (linked in Appendix)	
Sarasota County Area Transit (SCAT)				Existing Operations	Fund Existing System
				Service expansion, enhancements, and capital improvements from Transit Development Plan (linked in Appendix)	

Adopted December 14, 2015

Sarasota / Manatee MPO - Financially Feasible Projects

Table 6 - Manatee County - Impact Fee / Mobility Fee / Developer Funded (Local Funds)

Facility	From	To	Type	Project	Current Cost (in millions)	Year of Expenditure Cost (in millions)	Source of Funding
Manatee County				*** Countywide Local Estimates*** **Impact Fees / Mobility Fees / Developer Contributions = $200 Million** Estimates are generated based on Population and Employment forecasts documented in Financial Resources Section of Long Range Transportation Plan			
27th St. East	38th Street East	SR 64	Manatee County	Widen from 2 lanes to 4 lanes with multimodal improvements	$ 33.51		Funded with Impact Fee / Mobility Fee / Developer
Rangeland Parkway	White Eagle Bld	Lorraine Rd	Manatee County	New 2 lane roadway with multimodal improvements	$ 18.79		Funded with Impact Fee / Mobility Fee / Developer
44th Ave E	White Eagle Blvd	Lorraine Rd	Manatee County	New 2 lane roadway with multimodal improvements	$ 21.92		Funded with Impact Fee / Mobility Fee / Developer
Rye Rd	SR 64	Upper Manatee River Road	Manatee County	New 4 lane roadway with multimodal improvements	$ 47.68		Funded with Impact Fee / Mobility Fee / Developer
Moccasin Wallow Road	US 41	Artisan Lakes Parkway	Manatee County	New 4 lane roadway with multimodal improvements	$ 28.98		Funded with Impact Fee / Mobility Fee / Developer
Ellenton -Gillette Rd	US 301	69th Street East	Manatee County	New 4 lane roadway with multimodal improvements	$ 55.48		Funded with Impact Fee / Mobility Fee / Developer
51st St West	El Conquistador Parkway	53rd Ave East	Manatee County	New 2 lane roadway with multimodal improvements	$ 18.79		Funded with Impact Fee / Mobility Fee / Developer
66th Street West	El Conquistador Parkway	53rd Ave East	Manatee County	New 2 lane roadway with multimodal improvements	$ 8.14		Funded with Impact Fee / Mobility Fee / Developer
50th Ave West	86th Street West	75th Street West	Manatee County	New 2 lane roadway with multimodal improvements	$ 11.12		Funded with Impact Fee / Mobility Fee / Developer
60th Ave East	Mendoza	69th Ave	Manatee County	Widen from 2 lanes to 4 lanes with multimodal improvements	$ 31.45		Funded with Impact Fee / Mobility Fee / Developer
Ft Hamer Rd	Moccasin Wallow Road	one mile north of Moccasin Wallow Road	Manatee County	New 2 lane roadway with multimodal improvements	$ 31.40		Funded with Impact Fee / Mobility Fee / Developer
Port Harbor Parkway	Golden Harbor Trail	Upper Manatee River Road	Manatee County	New 2 lane roadway with multimodal improvements	$ 15.97		Funded with Impact Fee / Mobility Fee / Developer
Gate wood Drive	Lakewood Ranch Blvd	White Eagle Blvd	Manatee County	New 2 lane roadway with multimodal improvements	$ 16.91		Funded with Impact Fee / Mobility Fee / Developer
117th Street East	Gatwood Drive	SR 64	Manatee County	New 2 lane roadway with multimodal improvements	$ 8.14		Funded with Impact Fee / Mobility Fee / Developer
Carter Road	Erie Road	Moccasin Wallow Road	Manatee County	New 2 lane roadway with multimodal improvements	$ 32.73		Funded with Impact Fee / Mobility Fee / Developer
				Total	$ 381.02	$ -	

Adopted December 14, 2015

Sarasota / Manatee MPO - Financially Feasible Projects

Table 7 - Sarasota County - Impact Fee / Mobility Fee / Developer Funded(Local Funds)

Facility	From	To	Type	Project	Current Cost (in millions)	Year of Expenditure Cost (in millions)	
Sarasota County				*** Countywide Local Estimates*** **Impact Fees / Mobility Fees / Developer Contributions = $308 Million** Estimates are generated based on Population and Employment forecasts documented in Financial Resources Section of Long Range Transportation Plan			
US 41 @ Gulfstreem			City of Sarasota	Major Intersection Improvement / Roundabout	$ 32.63		Funded with Impact Fee / Mobility Fee / Developer
Price Blvd	Toledo Blade	Cranberry	City of North Port	Widen from 2 lanes to 4 lanes with multimodal improvements	$ 35.66		Funded with Impact Fee / Mobility Fee / Developer
Price Blvd	Hillsborough Blvd	Toledo Blade	City of North Port	Widen from 2 lanes to 4 lanes with multimodal improvements	$ 52.44		Funded with Impact Fee / Mobility Fee / Developer
Price Blvd	Sumter	Biscayne Dr	City of North Port	Widen from 2 lanes to 4 lanes with multimodal improvements	$ 142.62		Funded with Impact Fee / Mobility Fee / Developer
Keyway Rd	SR 776	River Rd	Sarasota County	New 4 lane roadway with multimodal improvements	$ 211.81		Funded with Impact Fee / Mobility Fee / Developer
Manasota Beach Rd	SR 776	Sarasota County/North Port boundary	Sarasota County	New 2 lane roadway with multimodal improvements	$ 44.90		Funded with Impact Fee / Mobility Fee / Developer
Manasota Beach Rd	Sarasota County/North Port boundary	River Rd	Sarasota County	New 4 lane roadway with multimodal improvements	$ 99.25		Funded with Impact Fee / Mobility Fee / Developer
Cattlemen Rd	Fruitville Rd	Palmer Blvd	Sarasota County	Widen from 2 lanes to 4 lanes with multimodal improvements	$ 16.91		Funded with Impact Fee / Mobility Fee / Developer
Iona Rd	Fruitville Rd	Palmer Blvd	Sarasota County	New 4 lane roadway with multimodal improvements	$ 10.42		Funded with Impact Fee / Mobility Fee / Developer
Venice Ave	Jacaranda Blvd	River Rd	Sarasota County	Widen from 2 lanes to 4 lanes with multimodal improvements	$ 39.84		Funded with Impact Fee / Mobility Fee / Developer
				Total	$ 653.85	$ -	

Sarasota / Manatee MPO - Financially Feasible Projects

Table 8 - State SIS Projects (http://floridatransportationplan.com/sis.html)

Facility	From	To	Type	Project	Currently Funded Phase (2016-2020)	Phase to be Funded (2021 - 2025)	Phase to be Funded (2026 - 2040)	Unfunded
Interstate 75	At Bee Ridge Road		Interchange	Modify Interchange	PE / ROW $ 4.32 million	PD &E / ROW $ 17.0 million	CST $ 73.0 million	
Interstate 75	At SR 64		Interchange	Modify Interchange	PE $ 0.23 million	CST $ 50.7 million		
Interstate 75	At SR 70		Interchange	Modify Interchange	PE $ 0.02 million	CST $ 123.8 million		
Interstate 75	At Fruitville Road		Interchange	Modify Interchange	PE $ 0.13 million		ROW / CST $ 116.7 million	
Interstate 75	At Clarke Road		Interchange	Modify Interchange	PE $ 0.70 million		CST $ 98.8 million	
State Road 70	Lorraine Rd	Singletary Rd	Widening	Widen from 2 lanes to 4 lanes with multimodal improvements	PD&E $ 1.63 million		PE $ 8.7 million	ROW / CST
State Road 70	Singletary Rd	Americon Legion Dr	Widening	Widen from 2 lanes to 4 lanes with multimodal improvements			PD&E / PE $ 13.9 million	ROW / CST

Total $ -

SIS Revenues

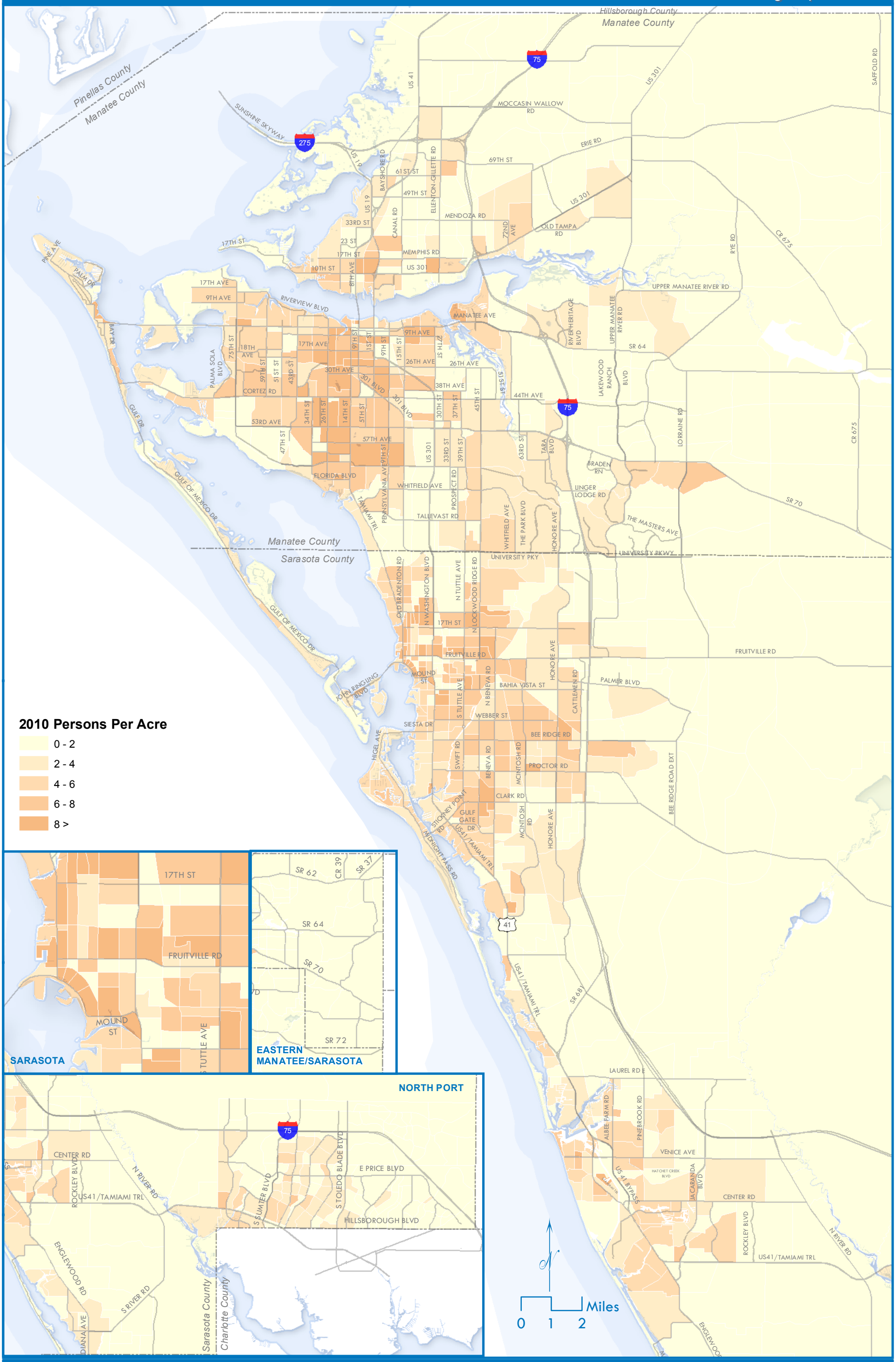
Balance (+ / -)

** From FDOT**

CONTENTS

- Existing Population Maps
- Existing Employment Maps
- Future Population Maps
- Future Employment Maps
- Regional Roadway Network (with constrained roads and SIS)
- Existing Transit Map
- Major Multimodal Trails and Facilities Map
- Existing Delay/Congestion Map
- Existing Plus Committed Project on Regional Roadway Network
- Future Delay/Congestion Map with Existing Plus Committed
- Roadway Needs
- Transit Needs
- Multimodal Needs (Bike Ped Master Plan)
- Multimodal Needs (Priorities)
- Freight Needs (from D7 and D1) with Rail Corridors and Rail Preservation
- Environmentally Protected Areas
- Multimodal Emphasis Corridor (with description and segments)
- Financially Feasible Map and Tables

Exisitng Population



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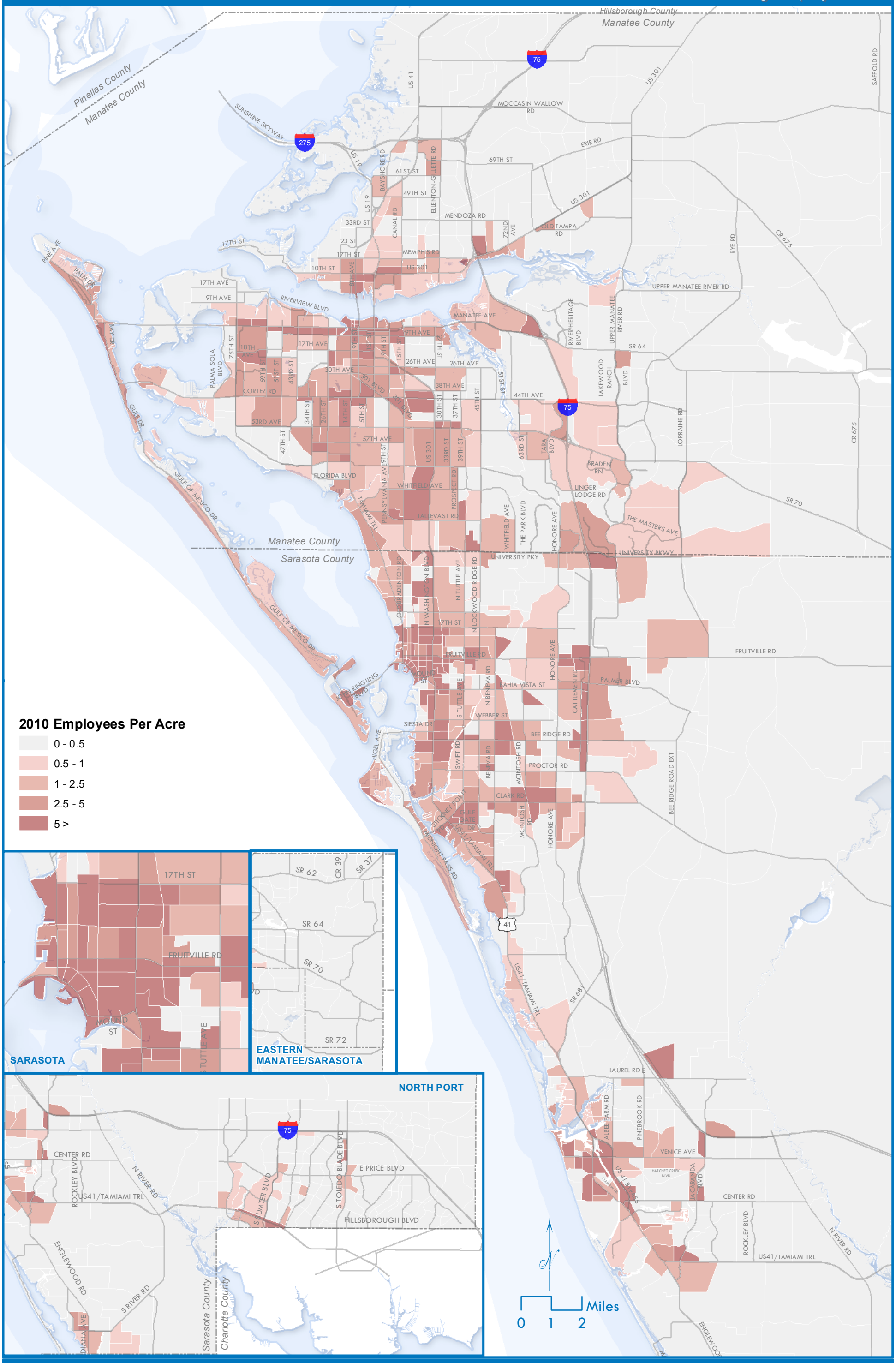
Exisitng Employment



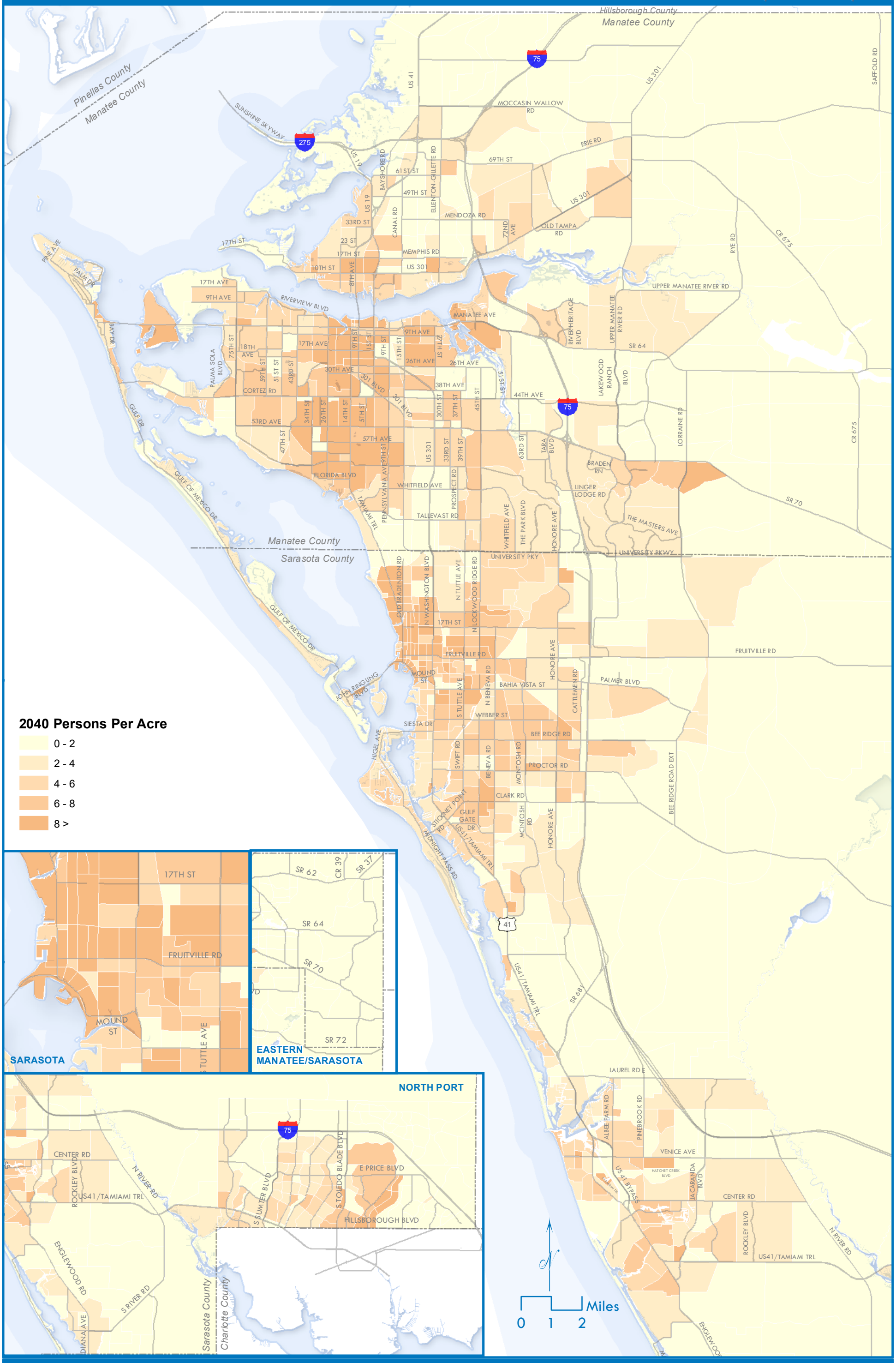
2010 Employees Per Acre

- 0 - 0.5
- 0.5 - 1
- 1 - 2.5
- 2.5 - 5
- 5 >

9/2015

6 - 2

Future Population Maps



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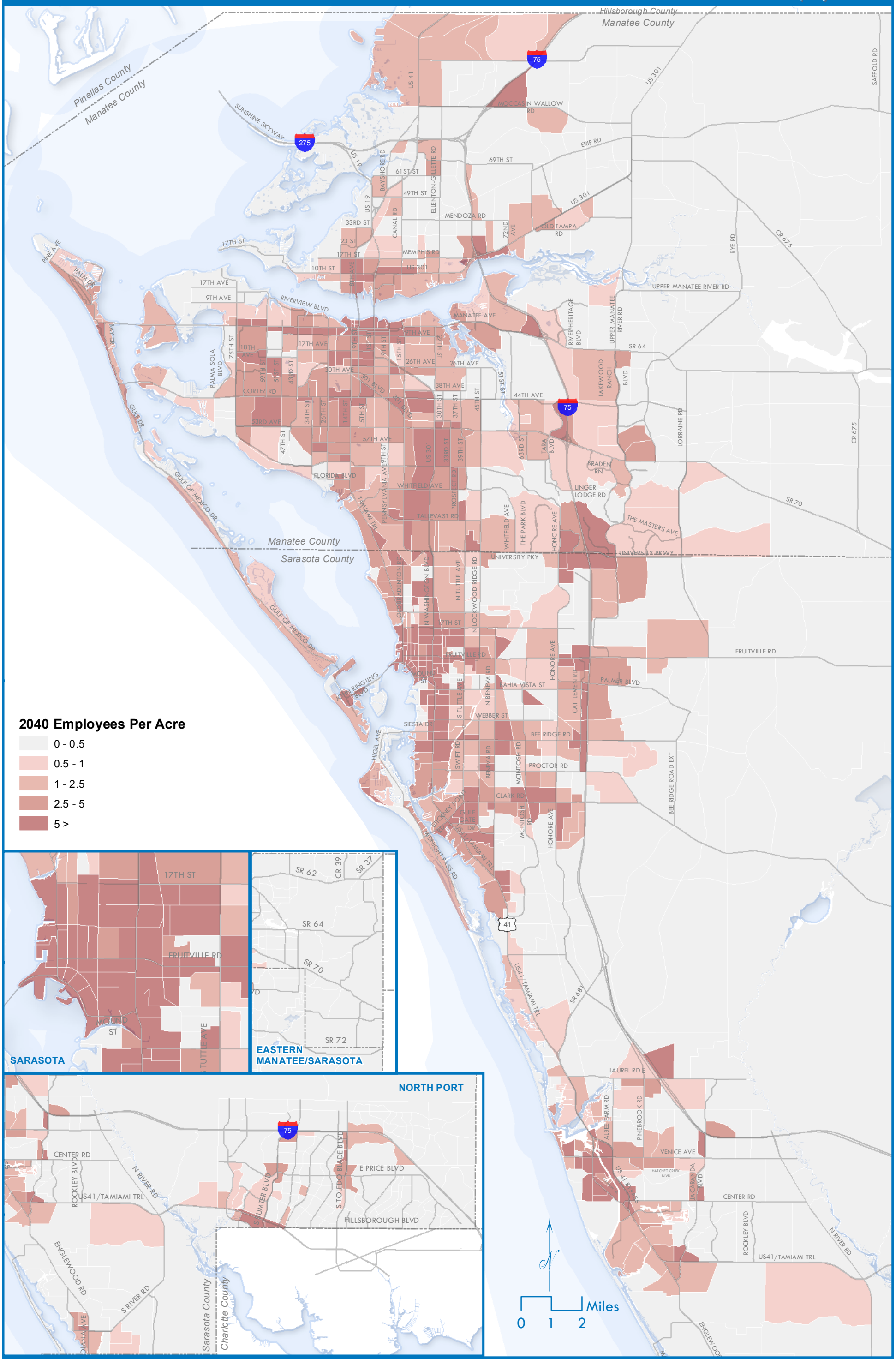
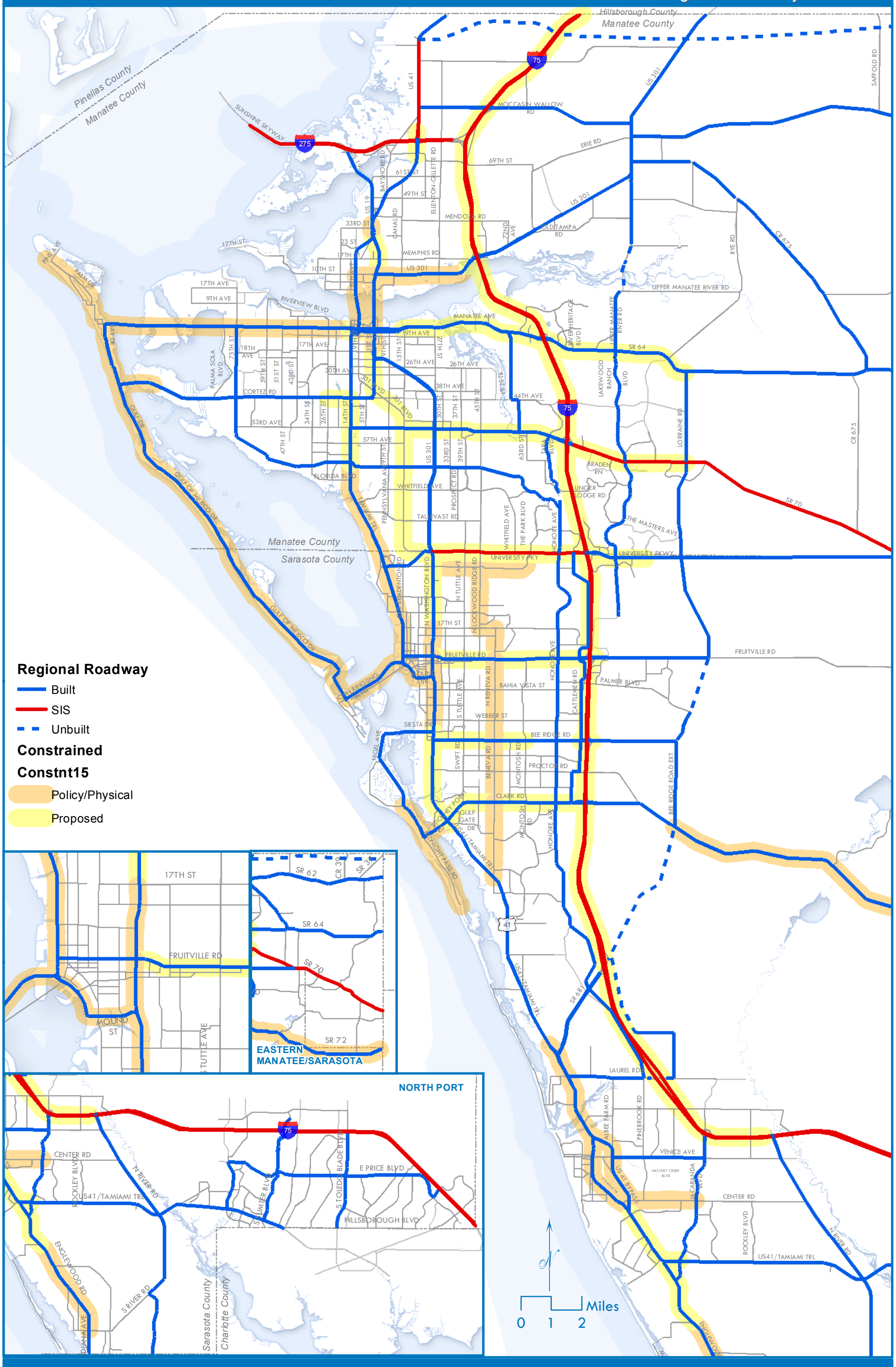
Future Employment



9/2015

Regional Roadway Network



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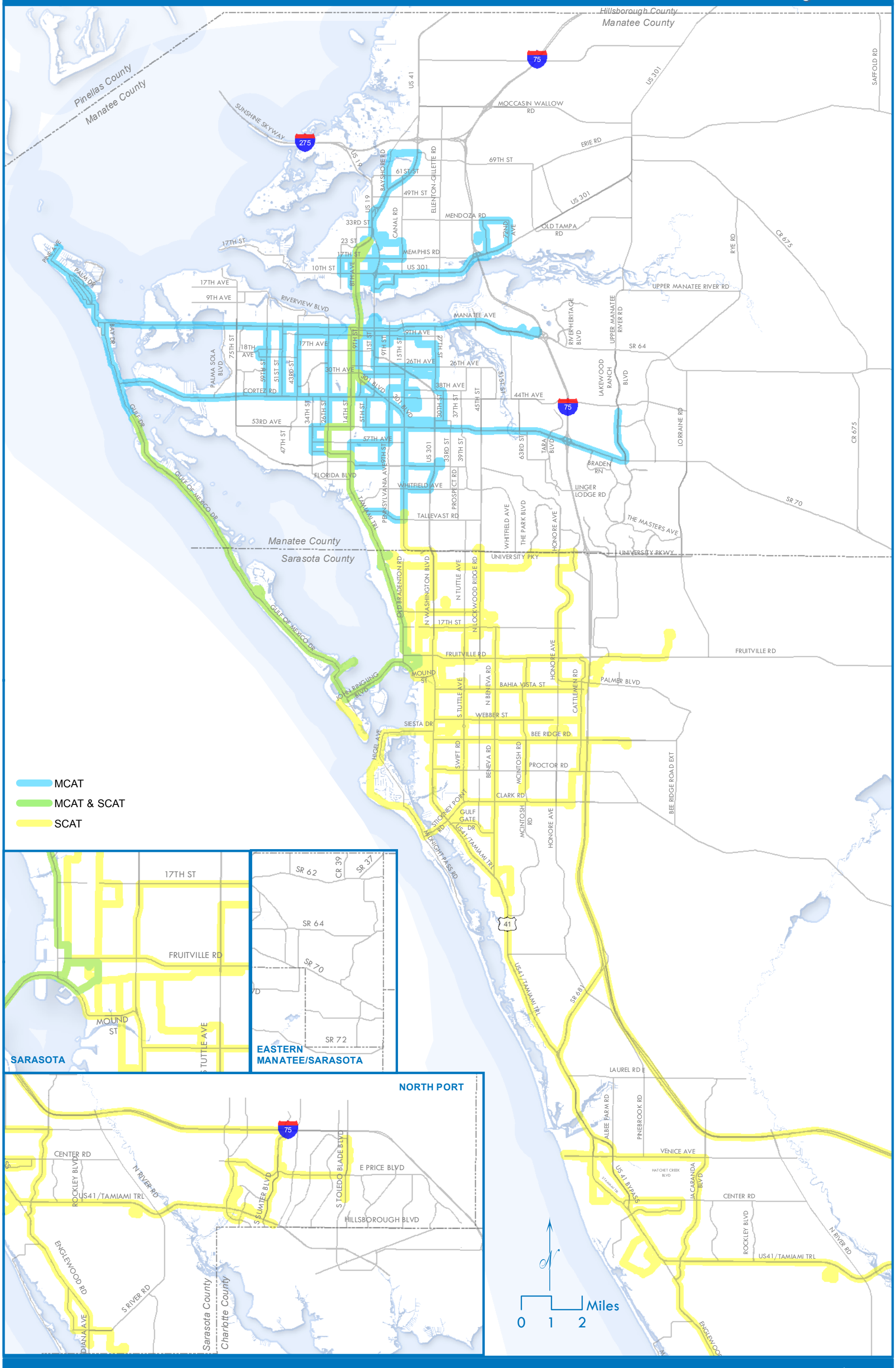
Existing Transit



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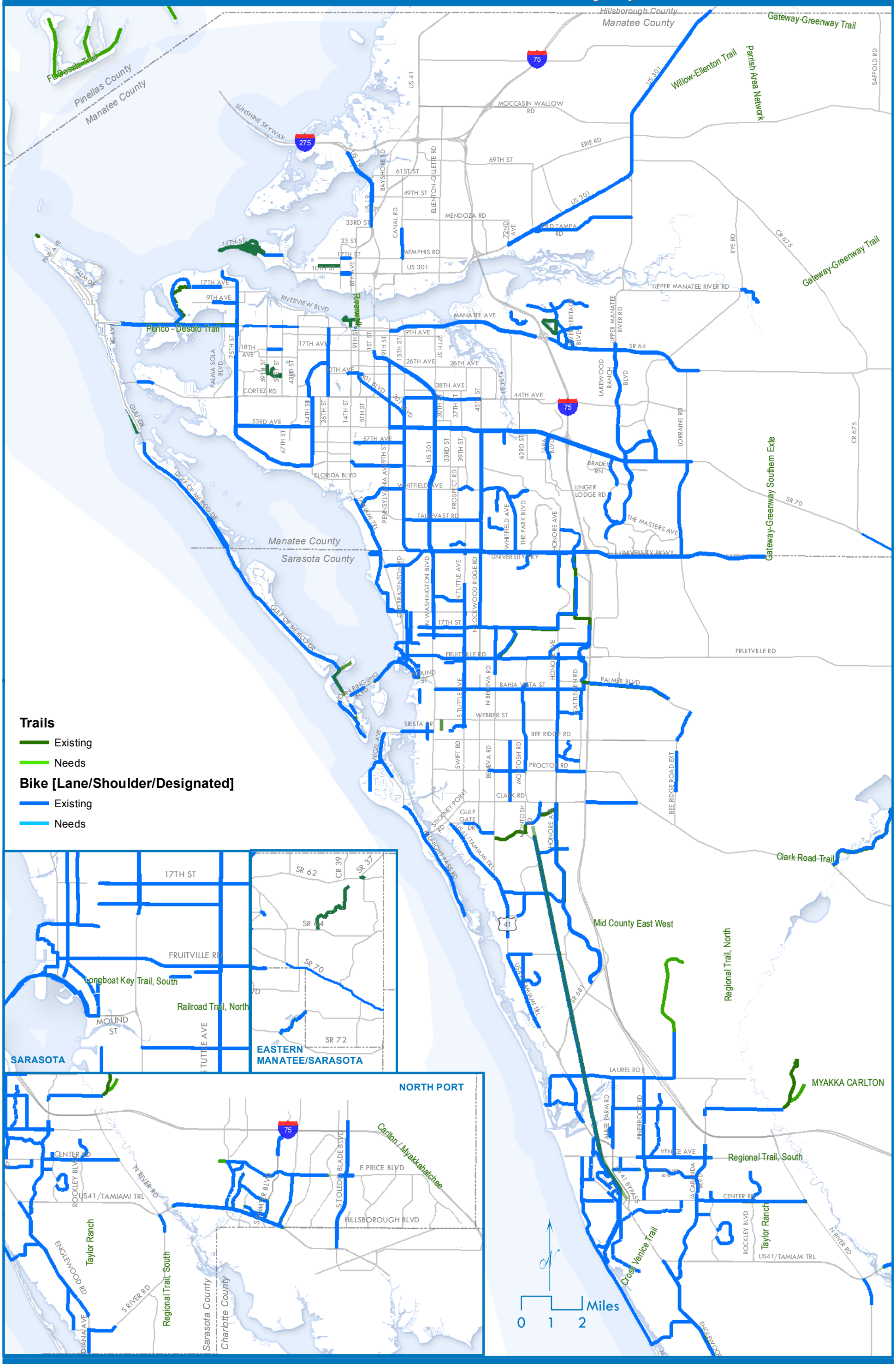
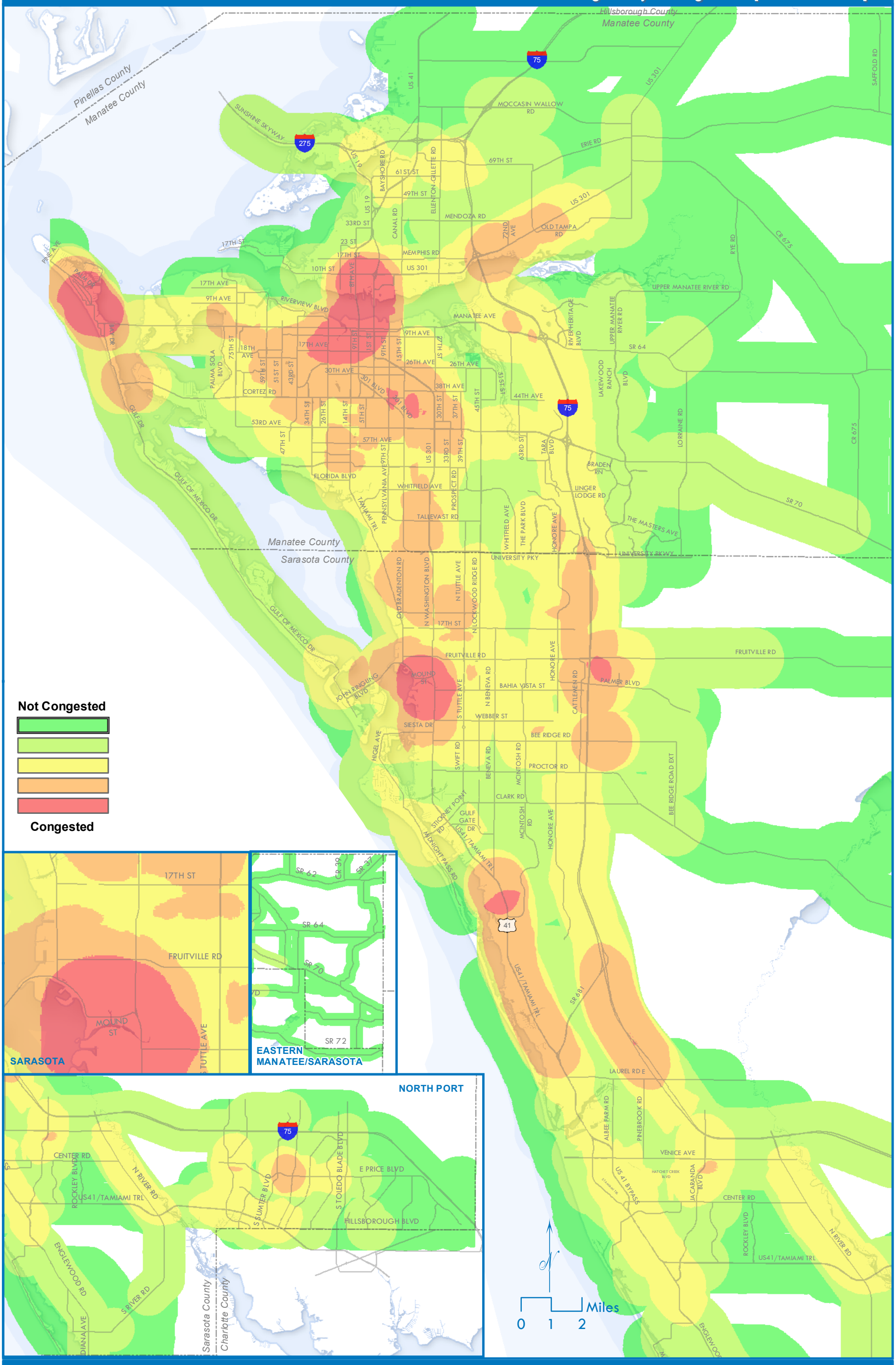
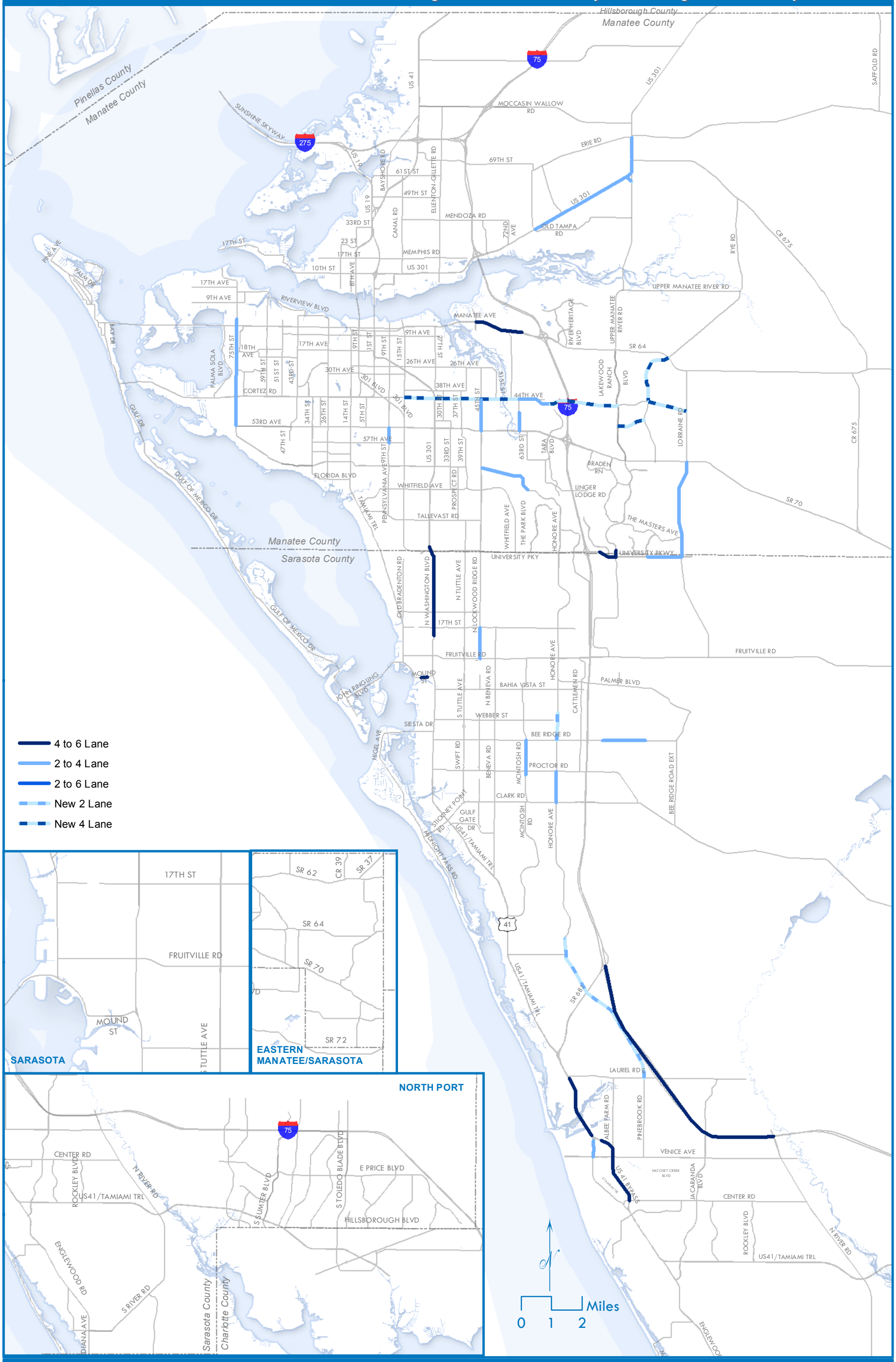
Existing Major Multimodal Trails & Facilities



Existing Delay / Congestion [2010 Network]



Existing Plus Committed Projects on Regional Roadway Network



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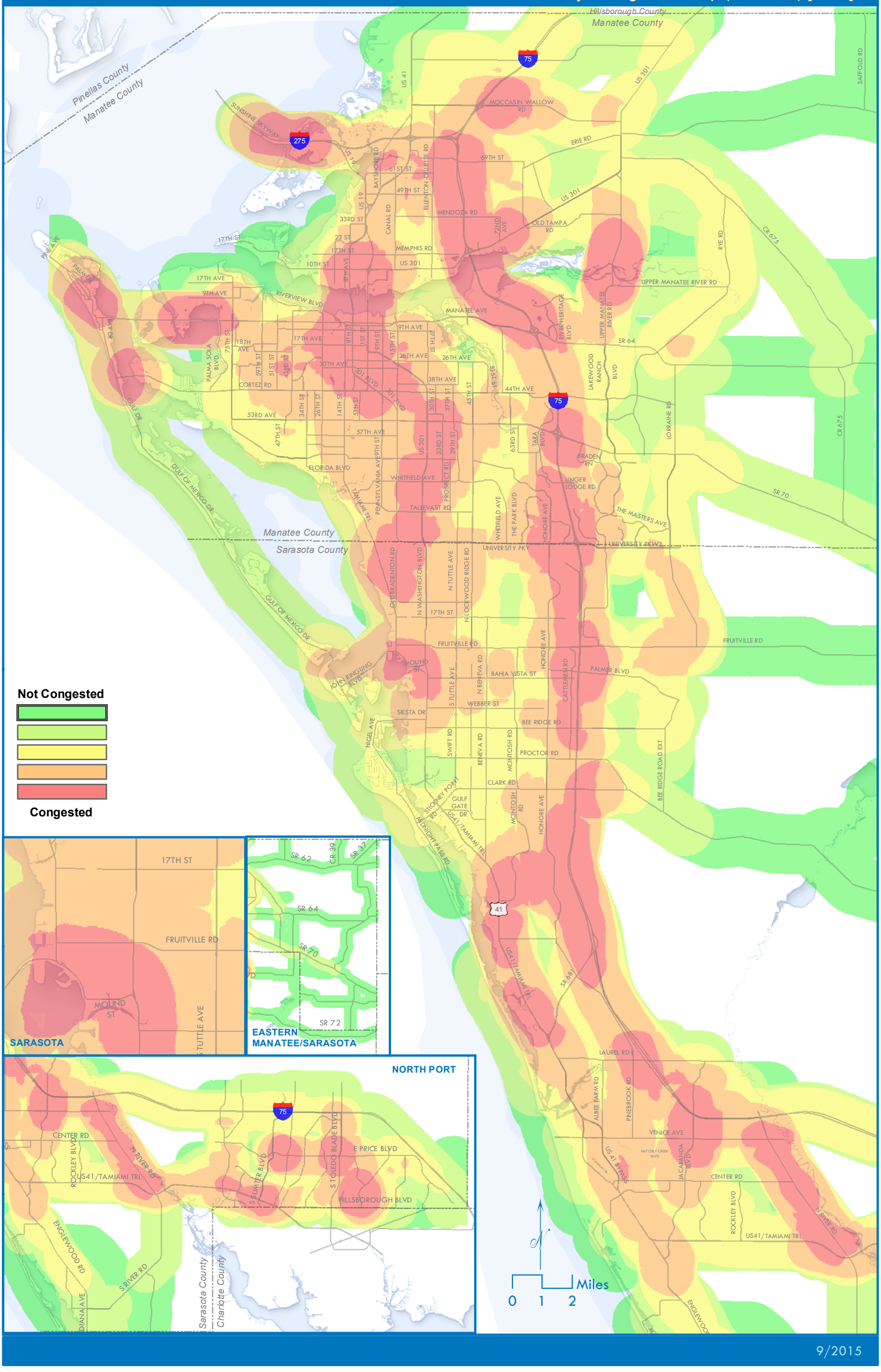
6 - 9

Future Delay / Congestion map (with E+C) [2018]



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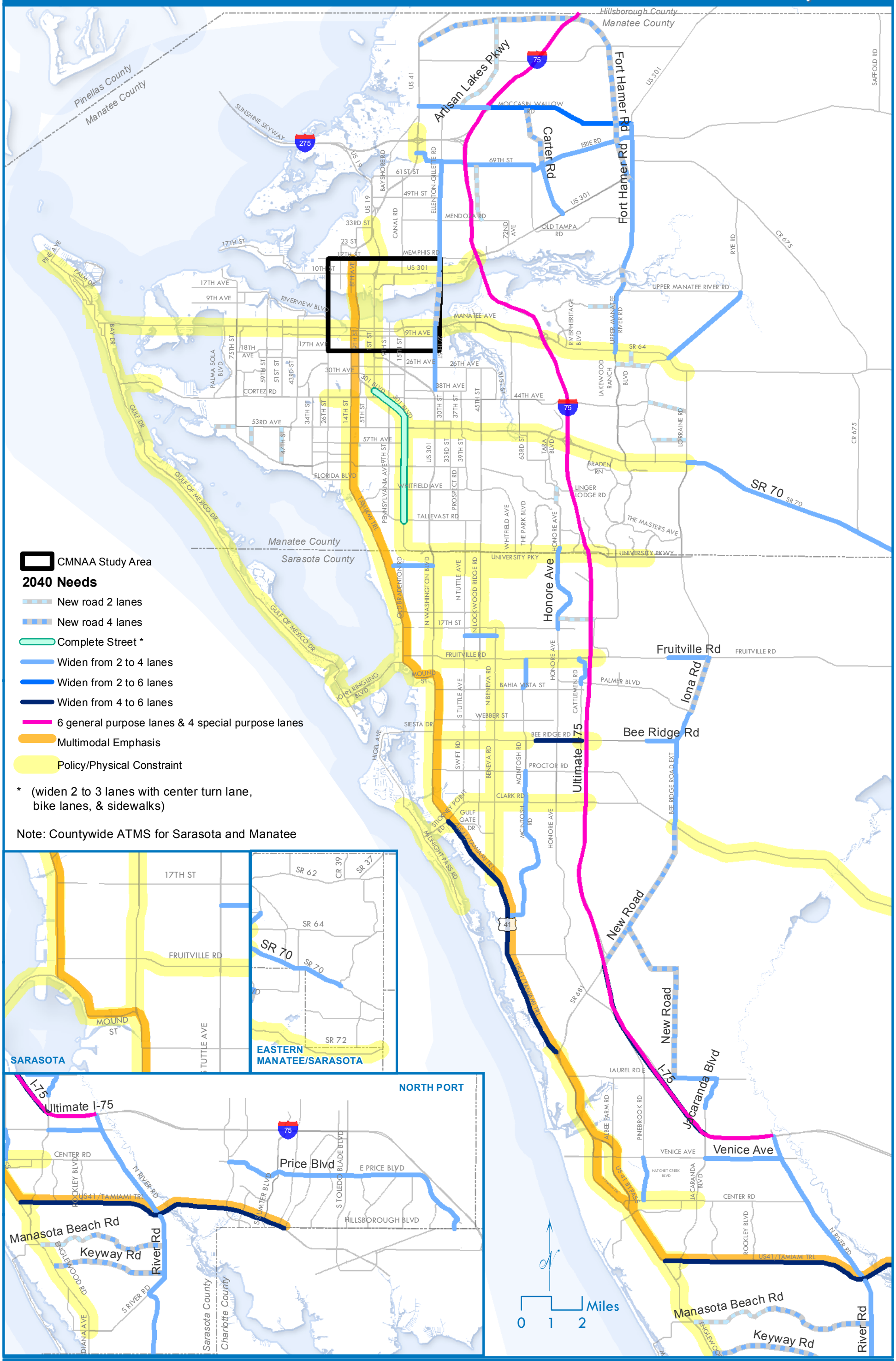
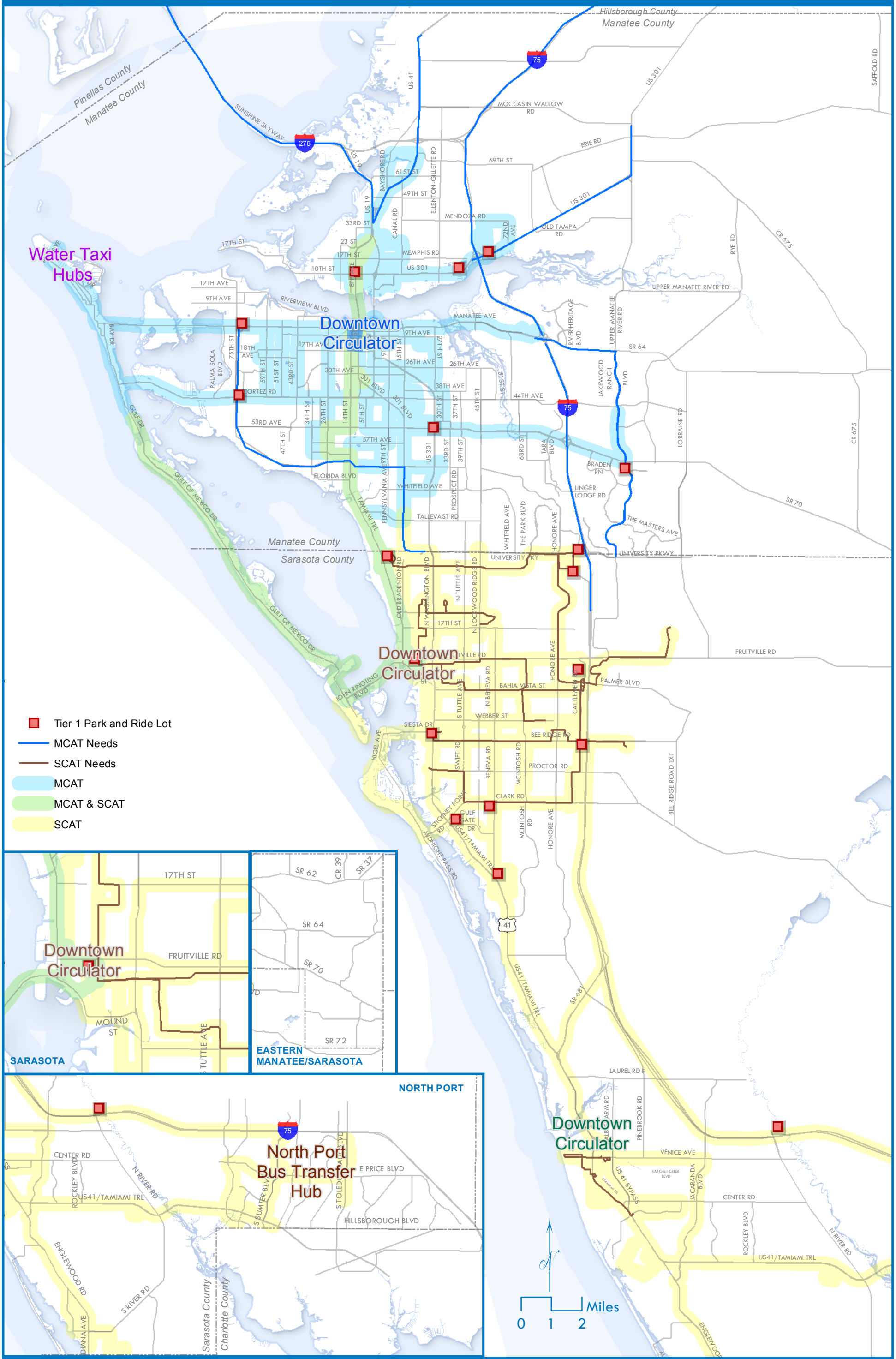
Roadway Needs

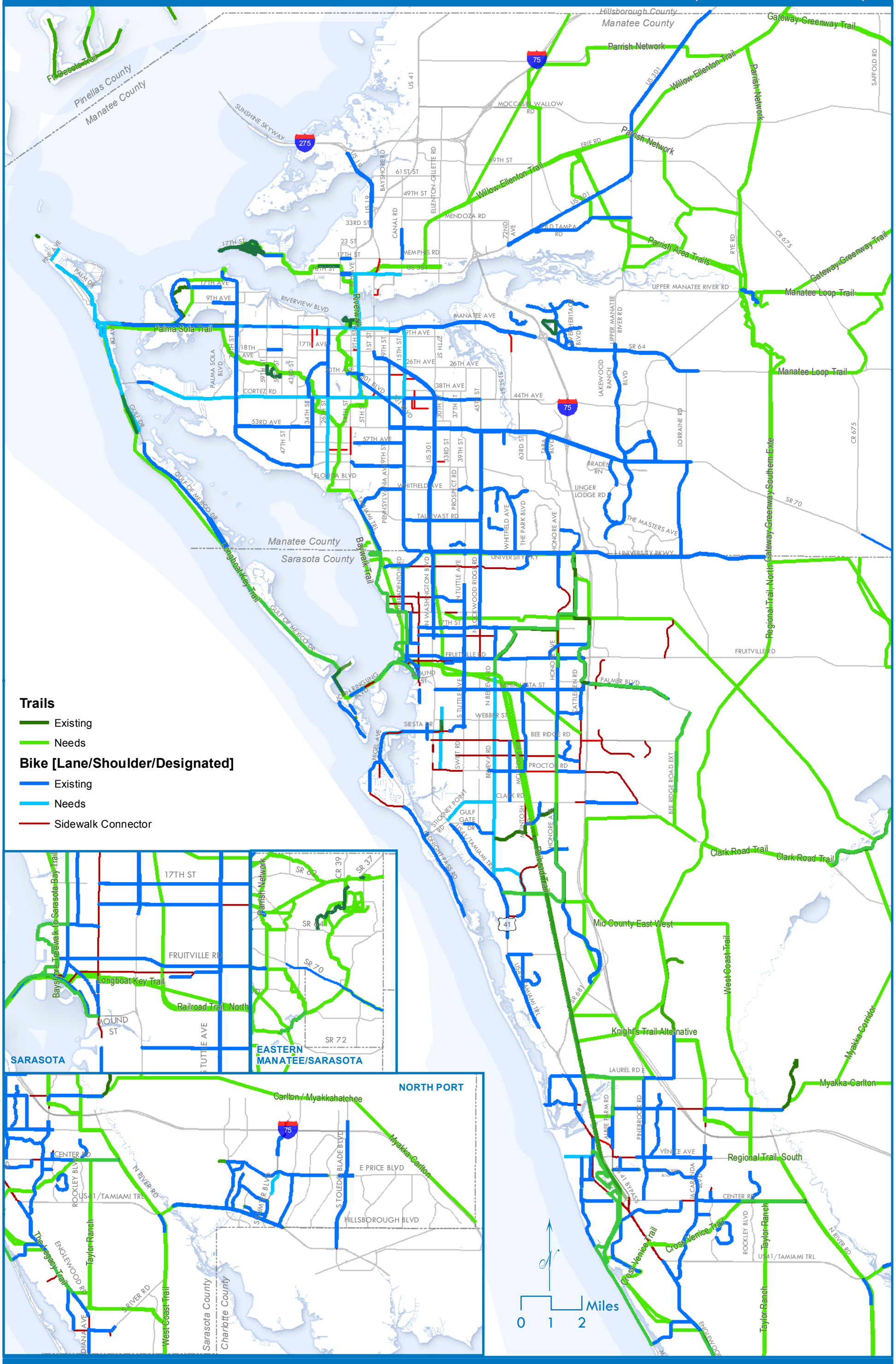


Transit Needs



6 - 12

Multimodal Needs (Bike Ped Master Plan)



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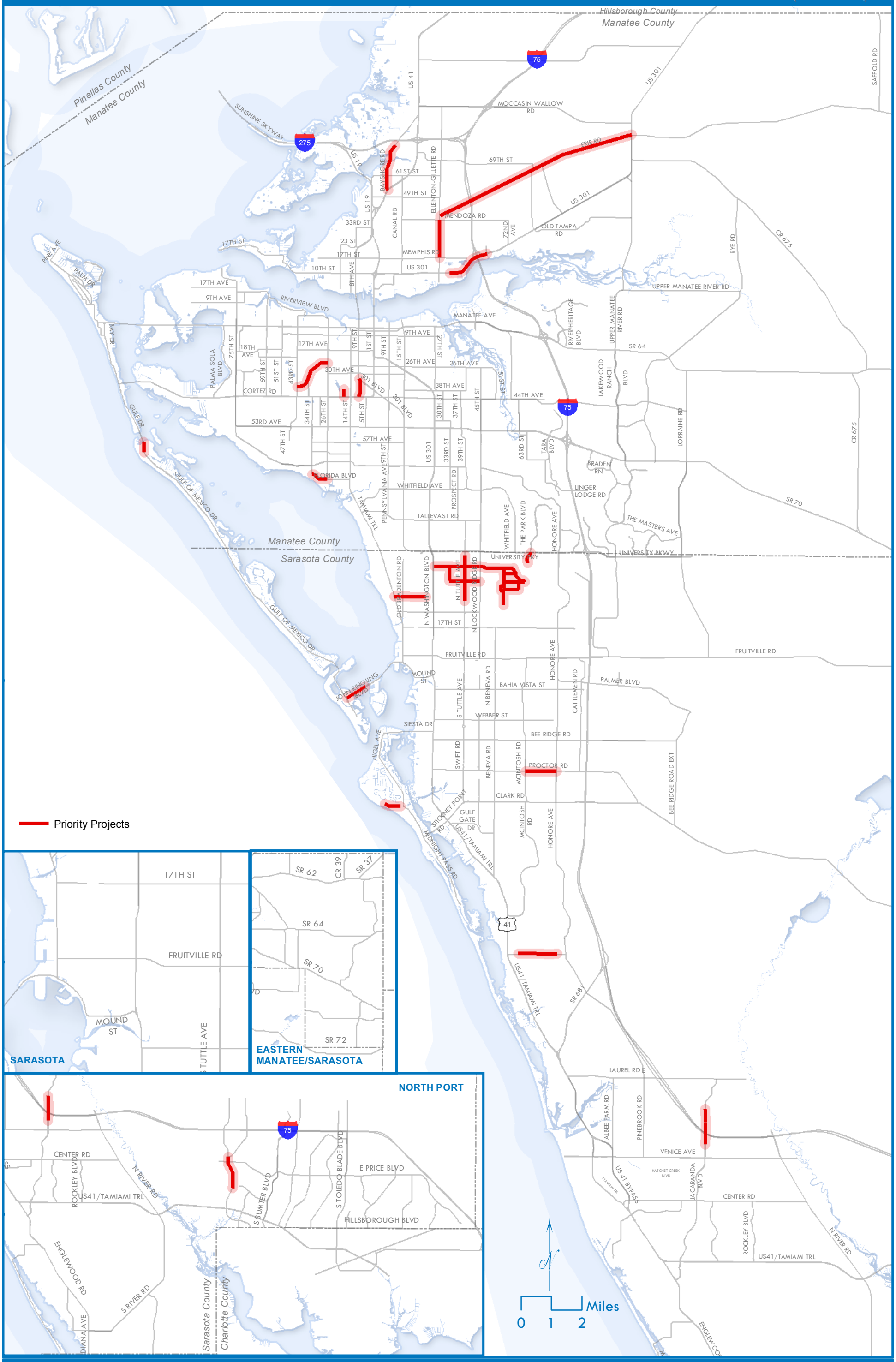
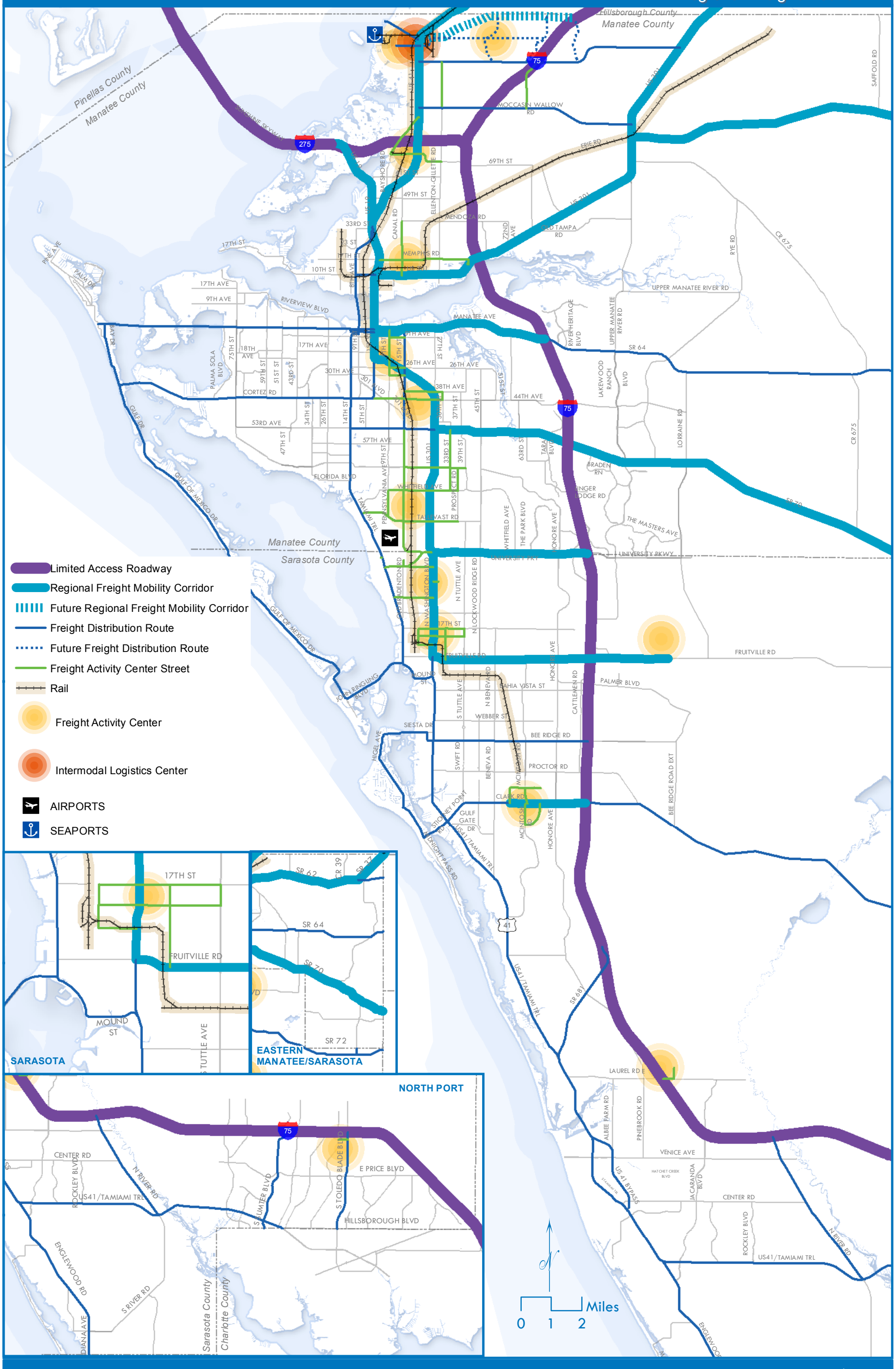
Multimodal Needs (Priorities)



9/2015

6 - 14

Regional Freight Network



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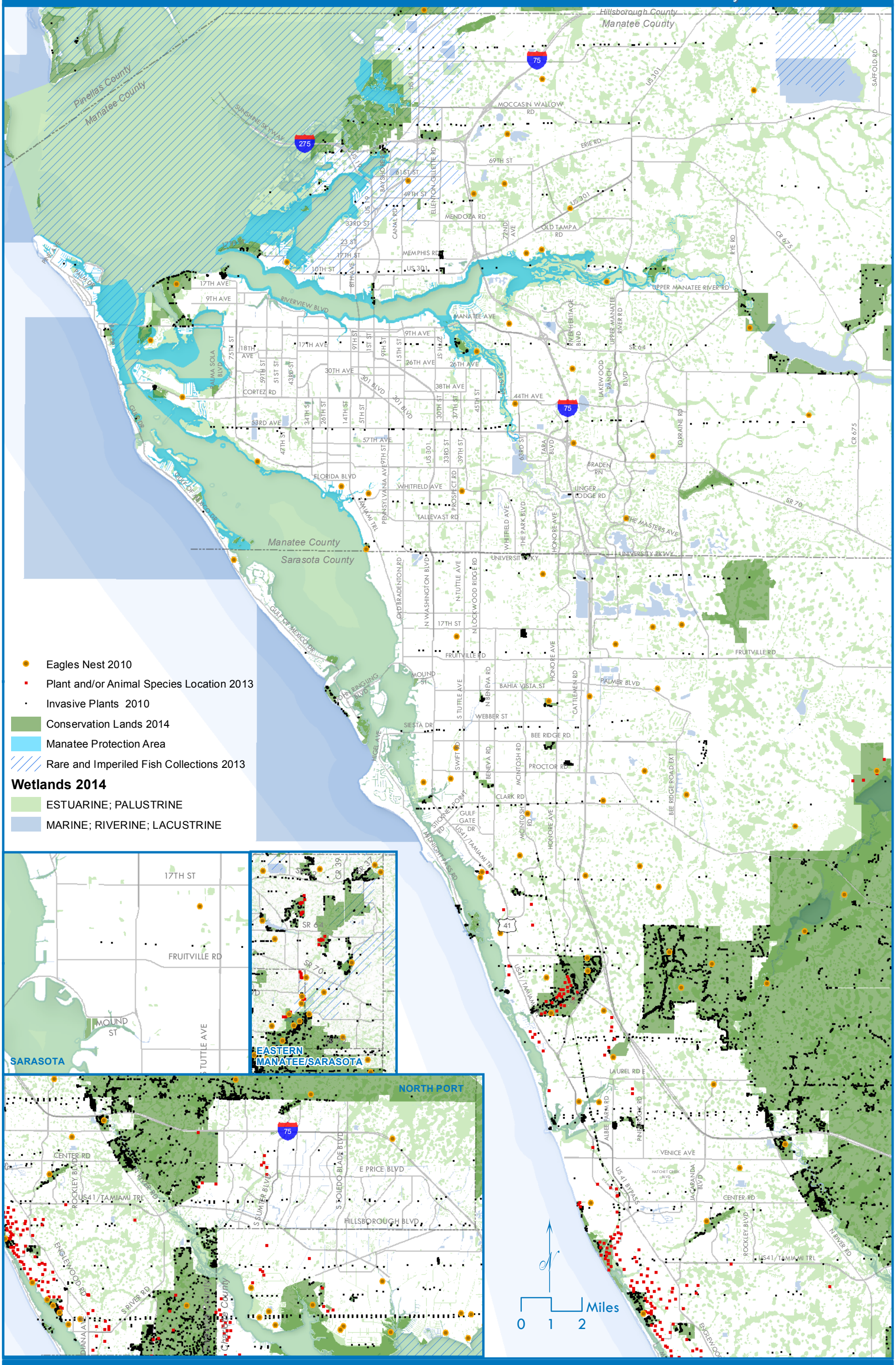
Environmentally Protected Areas



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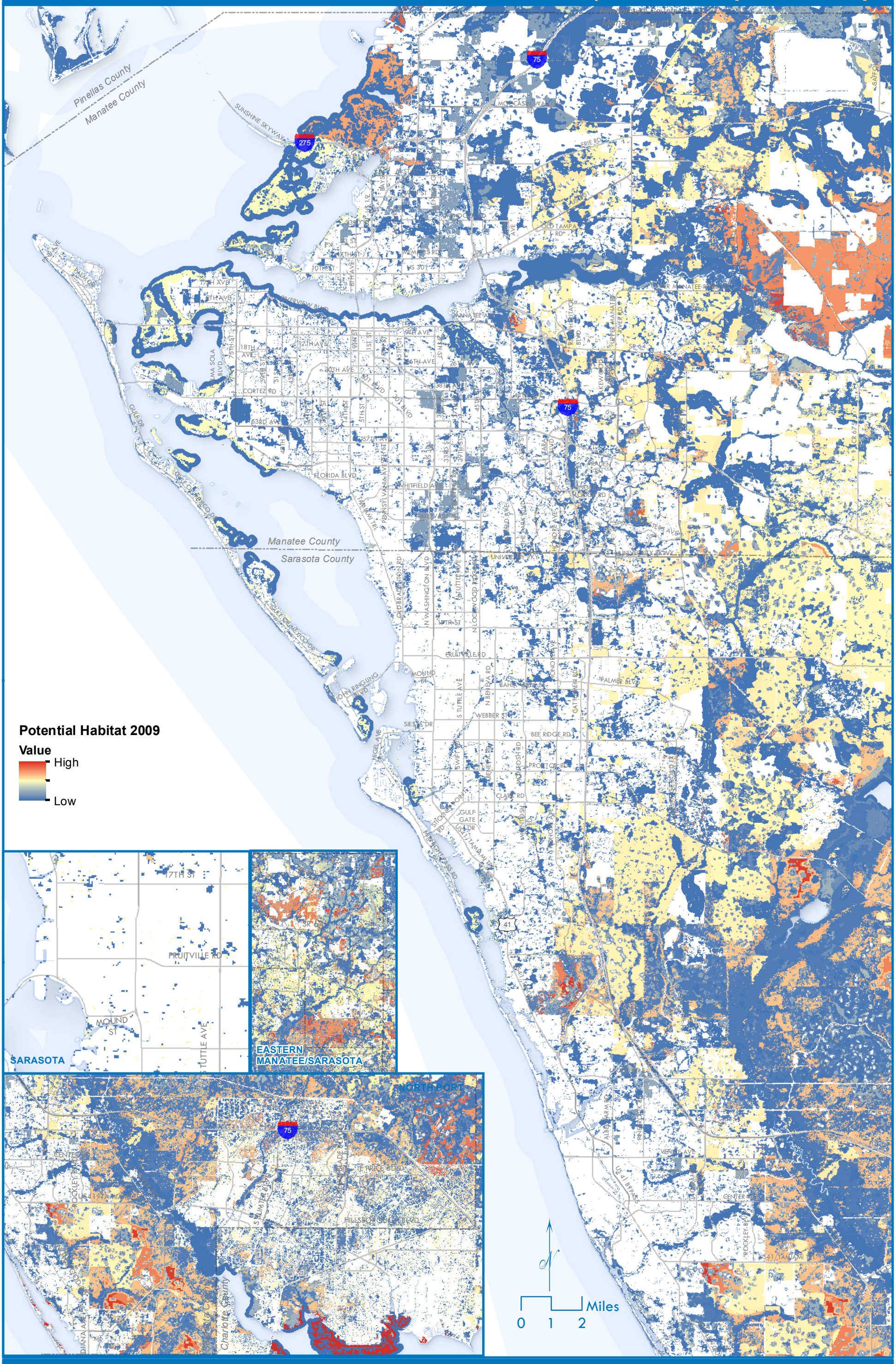
Environmentally Protected Areas [Potential Habitat]



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A VISION FOR CORRIDOR TRANSFORMATION, ACCESSIBILITY AND SUSTAINABLE ECONOMIC PROSPERITY

Tamiami Trail

US 41 Multimodal Emphasis Corridor

CORRIDOR - WIDE ENHANCEMENTS:

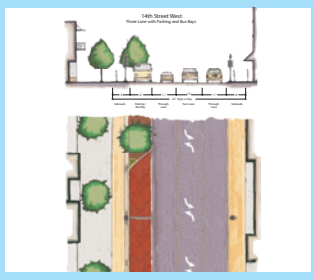
- 15-minute bus frequency and limited stop, express bus service during AM and PM peak period
- Enhanced bus stops (benches, shelters, lighting, kiosks)
- Continuous sidewalks (fill in gaps; widen to minimum 6')

T = Bus Transfer Facility

8th Avenue from north of 17th Street to Riverside - lane reduction with medians, enhanced pedestrian crossings, and wider sidewalks

US 41 Business/Green Bridge Shared Use Path

14th Street W: convert 4 lane undivided to 2 lane divided, with on-street parking and wider sidewalks, and roundabout at 9th Avenue W. 8th Avenue



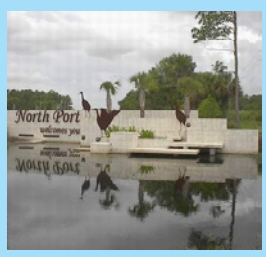
USF Sarasota-Manatee to 14th Street: Roundabout series, reduce lane width, enhanced pedestrian crossings, on-street bike lanes and 10' Multi-use Recreational Trail

Downtown Sarasota-Bayfront Connectivity Plan (14th Street to Osprey Ave): Roundabout series, reduce lane with, bike lane from 10th Street to 14th Street, enhanced pedestrian crossings, wider sidewalks, Multi-use Recreational Trail connections

Mound Sreet to Bee Ridge Road: add medians, reduce lane width and add pedestrian enhancements

Osprey: Maintain 4 lanes on US 41, reduce lane width, add 12' shared-use path, landscaping and pedestrian crossing enhancements

North Port: Reduce lane width, add landscaping and enhance pedestrian crossings at key intersections



RENAISSANCE PLANNING GROUP 5.21.10

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CONTENTS

- A1 Public Involvement
- A2 Plans reviewed
- A3 Socioeconomic data and forecasting
- A4 Needs Plan development
- A5 Freight Plan Resources
- A6 Financial Resources
- A7 TOD Readiness Assessment

PUBLIC INVOLVEMENT SUMMARY

Engaging the public in the development of this plan was important to the MPO because the people who drive, walk, bike, or take transit in the region know where there are deficiencies and where there are solutions. This insight was vital in helping the MPO develop a financially feasible plan that accommodates future travel demands across all modes and ensures the projects that are funded are addressing the requests and recommendations of the public. Educating and informing people about the MPO process and how the steps in that process are advancing projects toward achieving the goals and objectives for the region was a critical component on the public involvement process.

This update included a substantial public involvement effort to engage residents on how to improve the region's transportation system through a number of forums including: monthly Steering Committee meetings, a public workshop, 21 focus group meetings, and an online public engagement website hosted through MindMixer.

FOCUS GROUP DISCUSSIONS

One of the ways the Sarasota Manatee MPO engaged the public was through focus groups discussions with organizations and interest groups throughout the region. The benefit of focus group discussions are their small-group nature, which allows participants to feel more comfortable in expressing their opinions on a given topic. The objectives of the focus group discussions and stakeholder interviews were to identify values and priorities and communicate information and issues to be considered in the transportation planning process.

Focus group participants were given a four-question survey to help kickoff discussions. The comments received during the focus group discussions focused on increasing transportation options through more frequent transit, safer bicycle and pedestrian facilities, and other modes like water taxis. Participants also recommended developing a holistic vision for the region, studying proposed developments for their long-term impacts on traffic congestion, improving

MAP OF FOCUS GROUP LOCATIONS

coordination among the many jurisdictions in the region, and improving traffic technology.

The focus groups held included:

- City of Palmetto - Community Redevelopment Agency
- City of Bradenton – Central Community Redevelopment Agency
- Manatee County - Lakewood Ranch Business Association
- Manatee County – Federation of Homeowner Associations
- Manatee County – Parrish Civic Association
- Manatee County – Lakewood Ranch District Directors
- Manatee County – Local Coordinating Board for Transportation Disadvantaged
- Manatee County - Manatee Chamber of Commerce
- City of Sarasota - North Sarasota and Newtown
- City of Sarasota - City Council of Neighborhood Associations
- City of Sarasota - Condominiums on the Bay Association
- City of Sarasota - Downtown Condominium Association
- Sarasota County - Greater Sarasota Chamber of Commerce
- Sarasota County – Local Coordinating Board for Transportation Disadvantaged
- Sarasota County – Englewood Community Redevelopment Agency
- Sarasota County – Council of Neighborhood Associations
- City of Venice - Chamber of Commerce
- City of North Port - Chamber of Commerce
- Focus Group for Local and Regional Environmental Interests
- Focus Group for Local and Regional Freight Interests
- Sarasota/Manatee MPO's Bicycle Pedestrian Trails Advisory Committee

PUBLIC WORKSHOP

An "open house" style public workshop was held on March 12, 2015 from 4 pm to 7:30 pm at the Dan McClure Airport Auditorium to present initial data and information to the public and solicit feedback on how the region might expand the transportation system. About 30 people attended the workshop. The materials presented for review and comment included four maps (2010 and 2040 congestion delays, 2014 MPO Transportation Project Priorities, and Regional Roadways), a participant questionnaire, and a workshop evaluation.

MINDMIXER

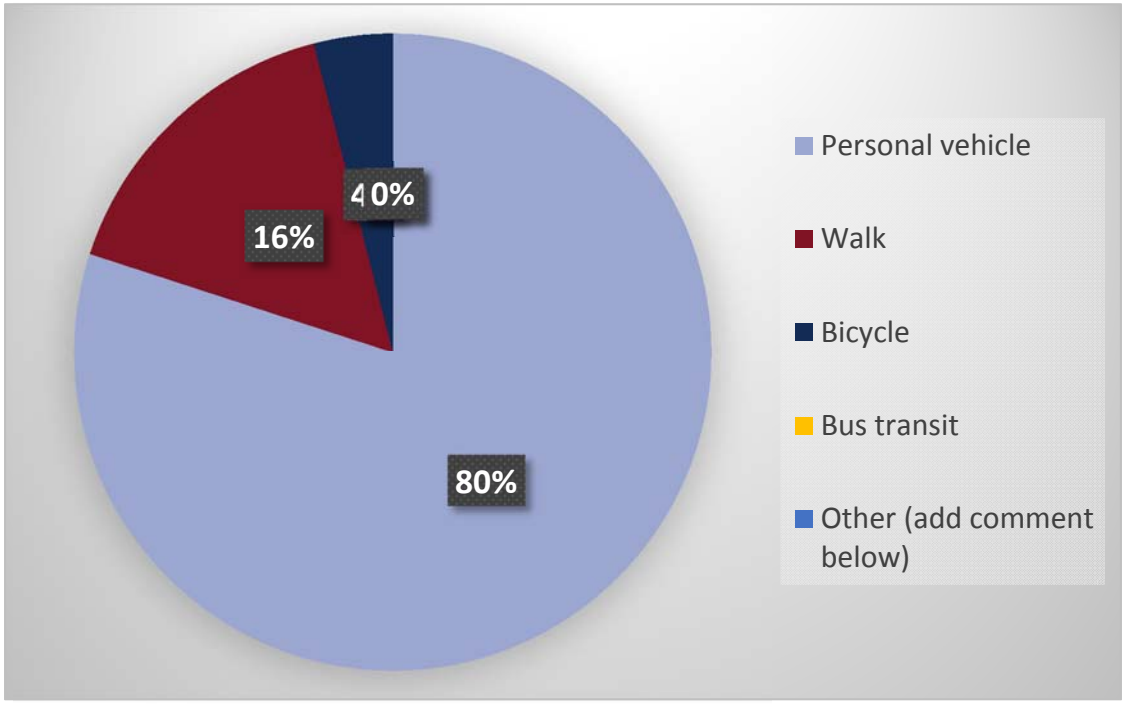
An additional way the MPO engaged residents in the conversation of improving the region's transportation was through the use of a MindMixer website. The MindMixer website is an online platform open to the public that posed questions to participants on a range of issues, including transportation preferences, major issues, ways to improve transportation, and project prioritization. The questions were updated every month over the course of eight months and came in different formats, such as open-ended, surveys, polls, and map-related questions. Using this technology was beneficial in reaching people who may not be able to attend meetings or workshops in person. It also supplements the in-person public engagement opportunities by allowing people to contribute their ideas and weigh in from the comfort of their homes at any time. The Sarasota/Manatee region is very large and this website allowed those residents living far away from meetings or unable to attend meetings to participate online and have their opinions be heard. Several elected officials and members of the MPO Board participated in the website through the "Who's

Listening" page in which they reviewed residents' responses and residents could directly contact their elected officials.

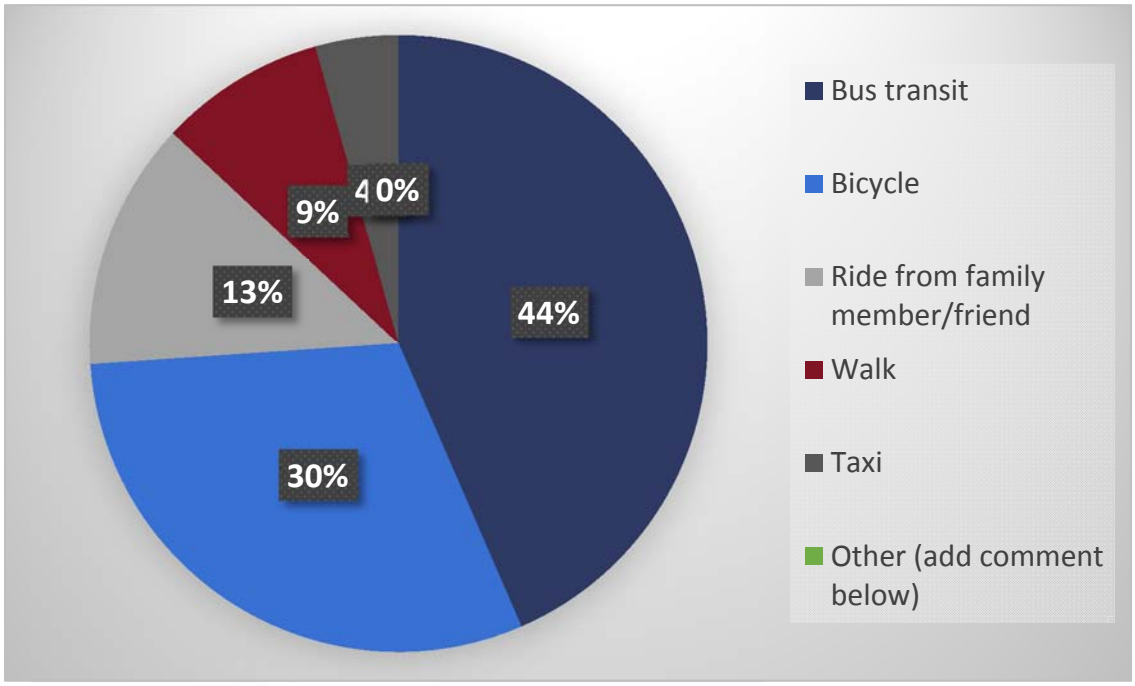
The graphs on the following pages summarize the results from each of the questions posed during the monthly updates of the site.

JANUARY

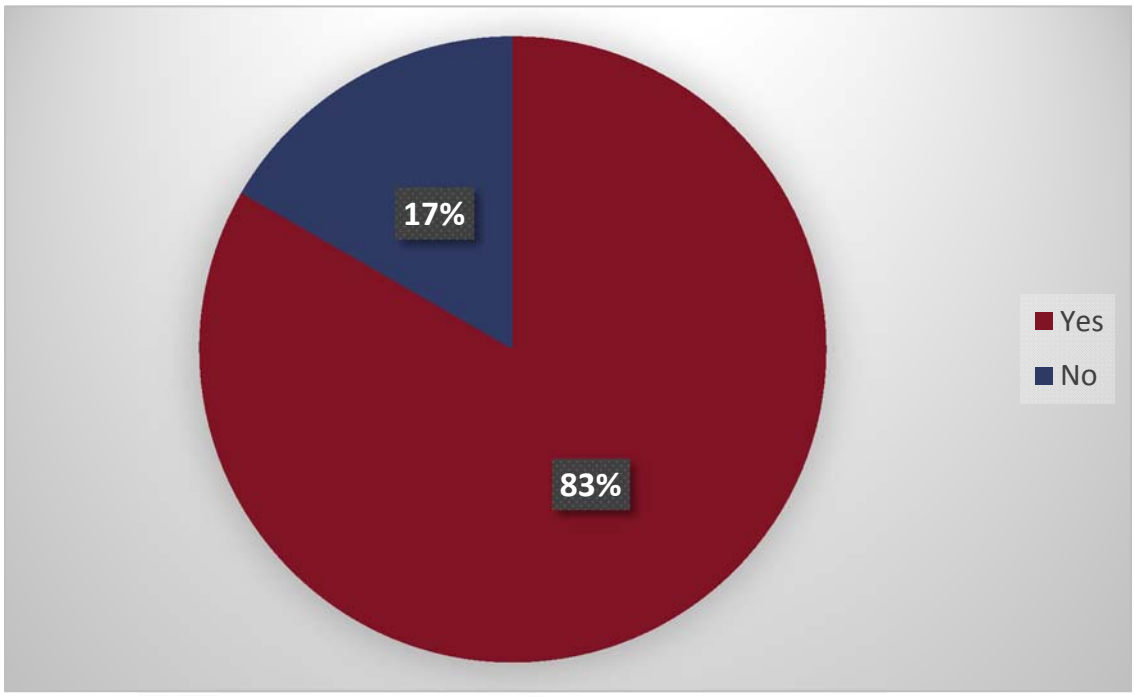
WHAT MODE OF TRANSPORTATION DO YOU USE MOST?



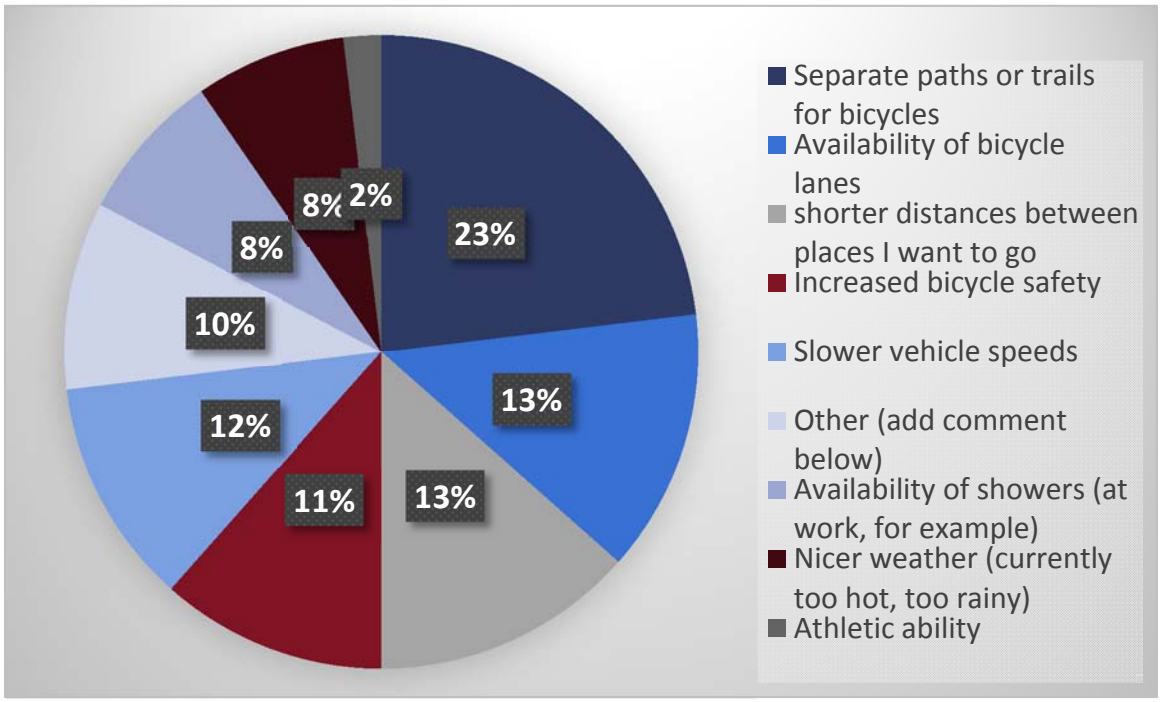
WHAT ALTERNATIVE MODE OF TRANSPORTATION WOULD YOU USE IF YOU WERE UNABLE TO DRIVE?



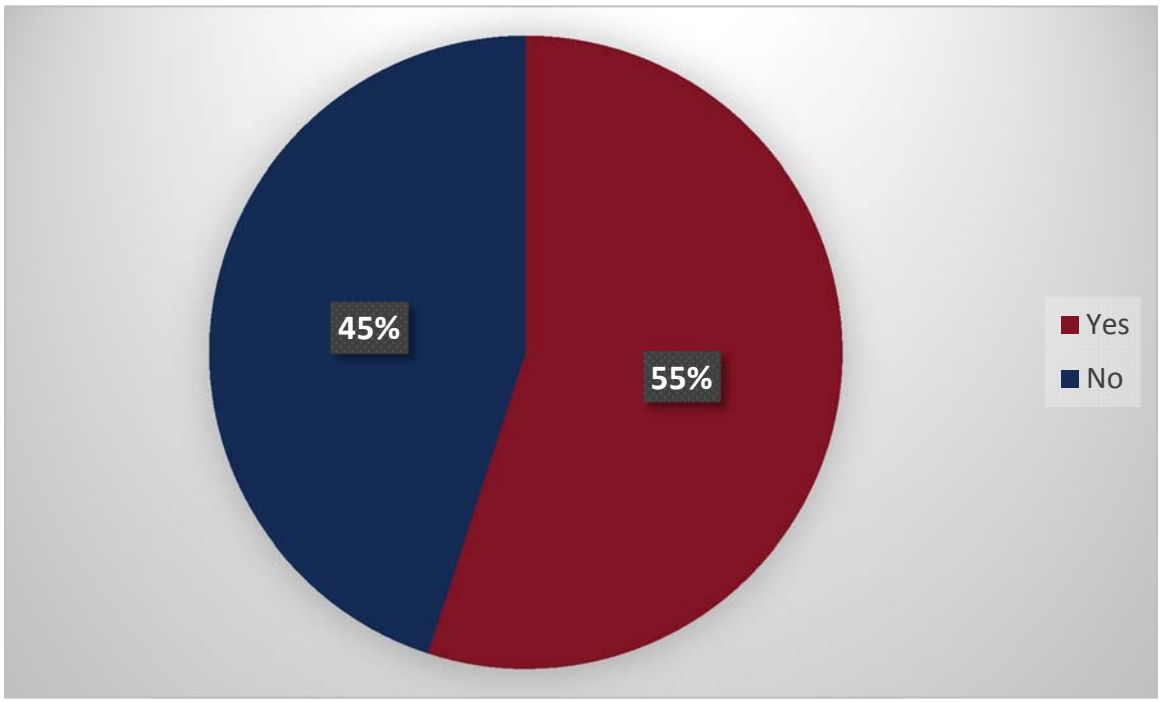
IF RIDING A BICYCLE IN SARASOTA/MANATEE WAS EASIER, I WOULD DO IT.



THE FOLLOWING THINGS WOULD MAKE BICYCLING IN SARASOTA & MANATEE COUNTIES EASIER FOR ME:



HAVE YOU NOTICED AN INCREASE IN TRAFFIC/CONGESTION AROUND THE NEW MALL AT THE UNIVERSITY TOWN CENTER?



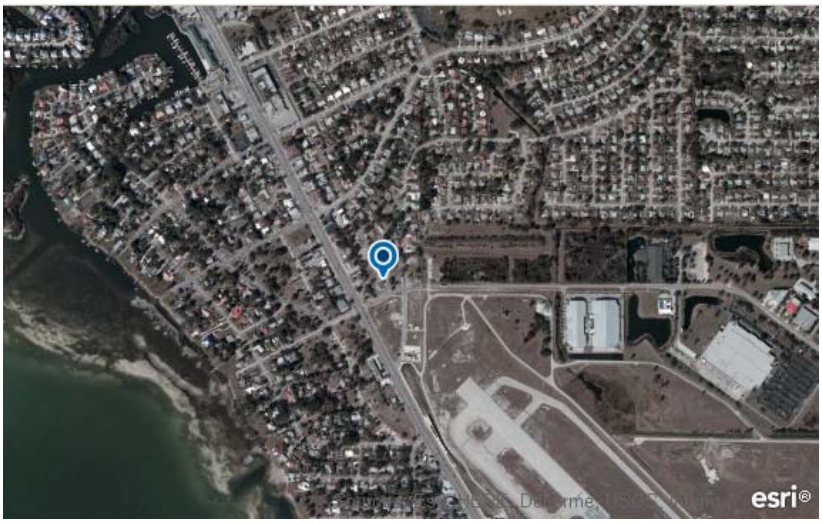
FEBRUARY

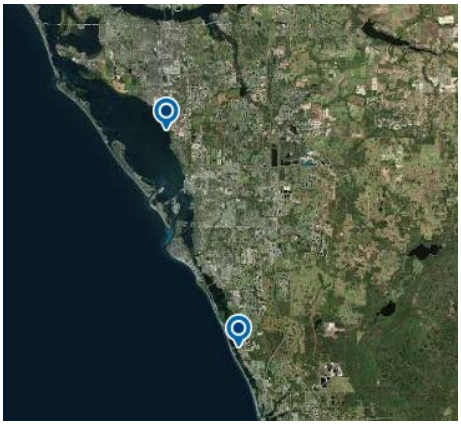
SHOW US A CITY WITH GREAT MOBILITY

Berlin-Karlshorst S-Bahn Station. Note bus stop designated by the circled H (Haltestelle). Tram stop (not shown) is located on the roadway under and perpendicular to the elevated railway (S-Bahn) seen in the background.

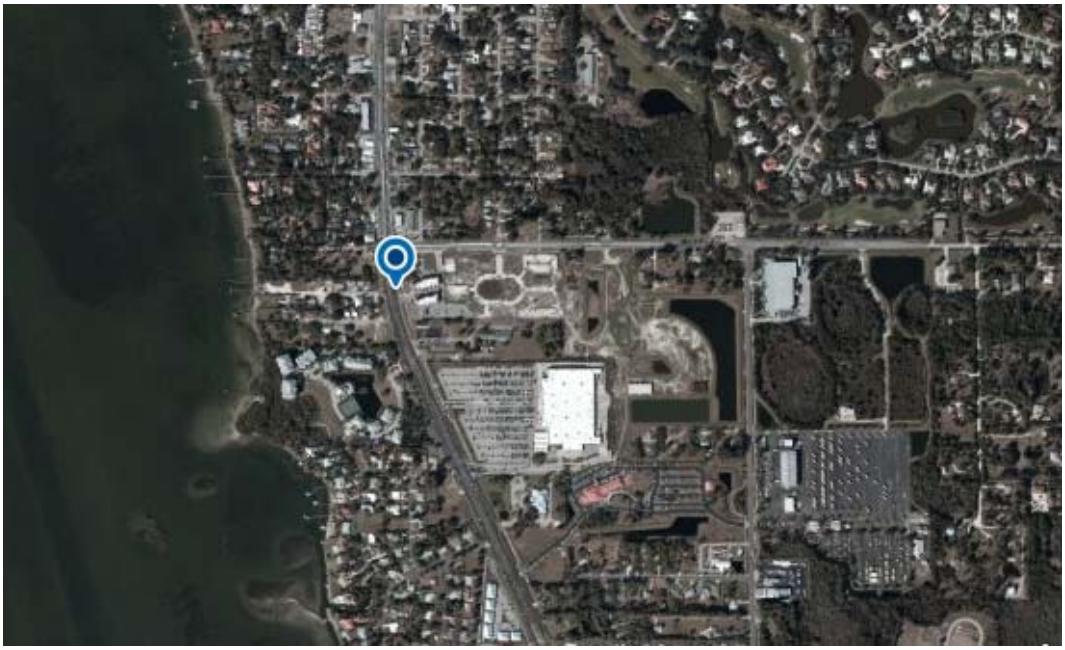
Love the DC Metro!

WHAT BIG CHANGE COULD WE MAKE TO IMPROVE THE PEDESTRIAN EXPERIENCE IN OUR REGION?



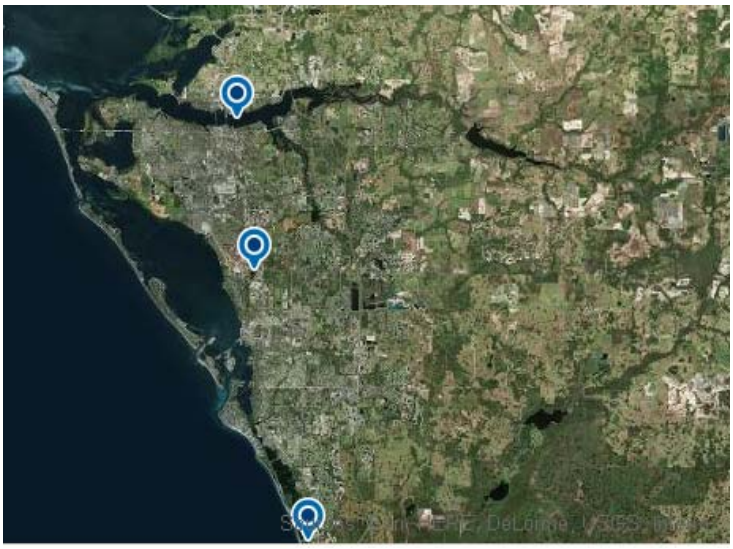


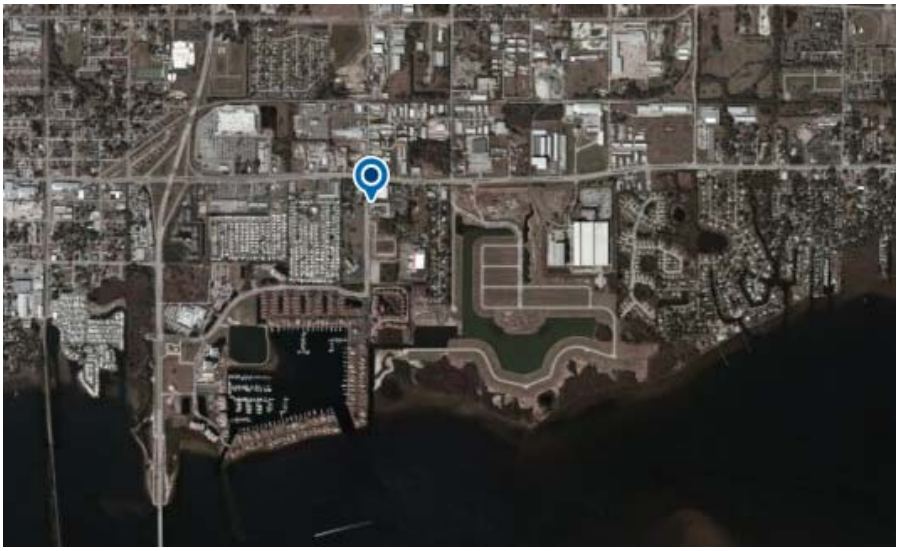
Develop a neighborhood open space to provide local business to serve a neighborhood within walking/biking distance of homes



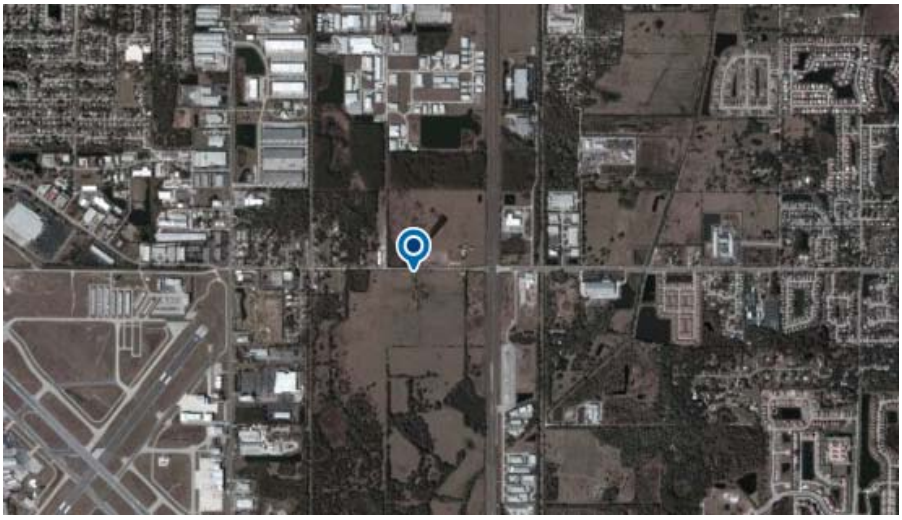
Many people living in historic Osprey walk to nearby Walmart and Post Office. However, there is a 1-block missing sidewalk segment at the corner of US 41 and Bay St that is badly needed.

WHAT BIG CHANGE COULD WE MAKE TO IMPROVE THE SIDEWALKS IN OUR REGION?

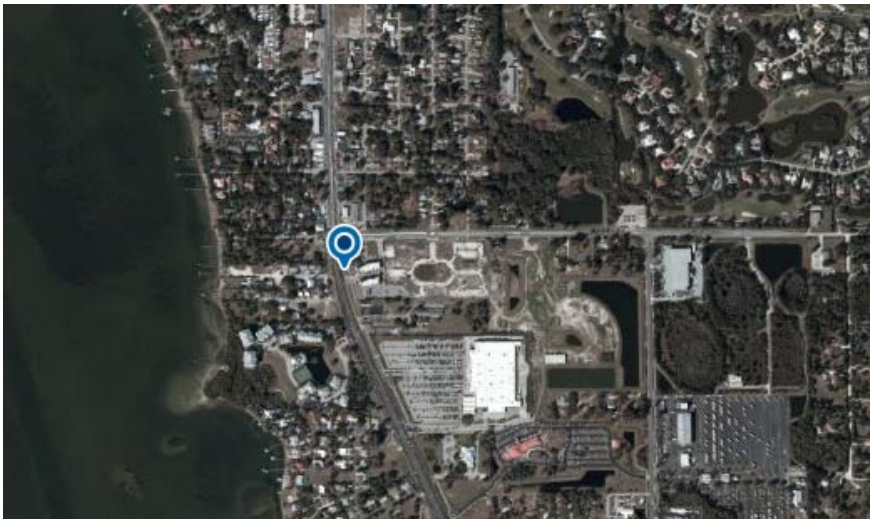




Add sidewalks on both sides of US 301 from Haben Blvd to I-75



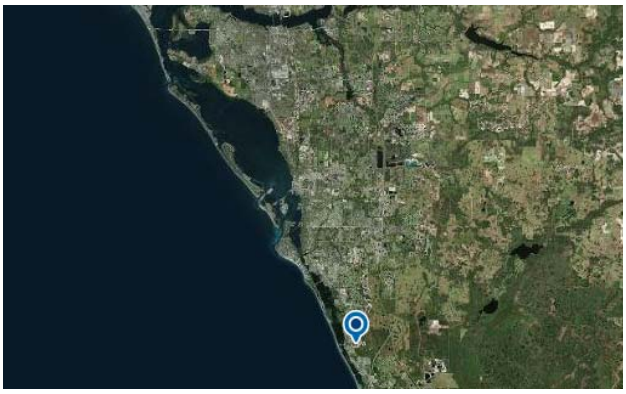
Require vegetated buffers with trees between all sidewalks and the streets

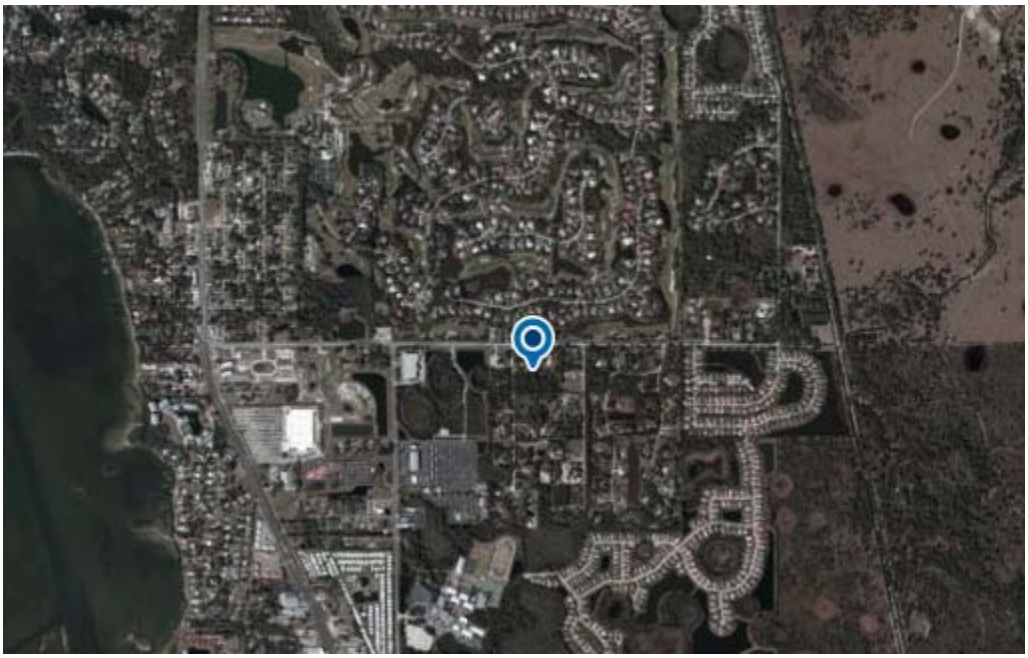


There is a missing sidewalk for about ½ block at the corner of Bay St and US 41, making pedestrians walks through the grass

This 3 mile stretch of 6 lane 45 mph highway has incomplete sidewalks. Bus Route 99, the most popular line by far in both counties runs on this roadway. The gaps must be filled in. Apparently newly developed properties were required to install sidewalks

WHAT BIG CHANGE COULD WE MAKE TO IMPROVE THE INFRASTRUCTURE FOR **BICYCLISTS** IN OUR REGION?



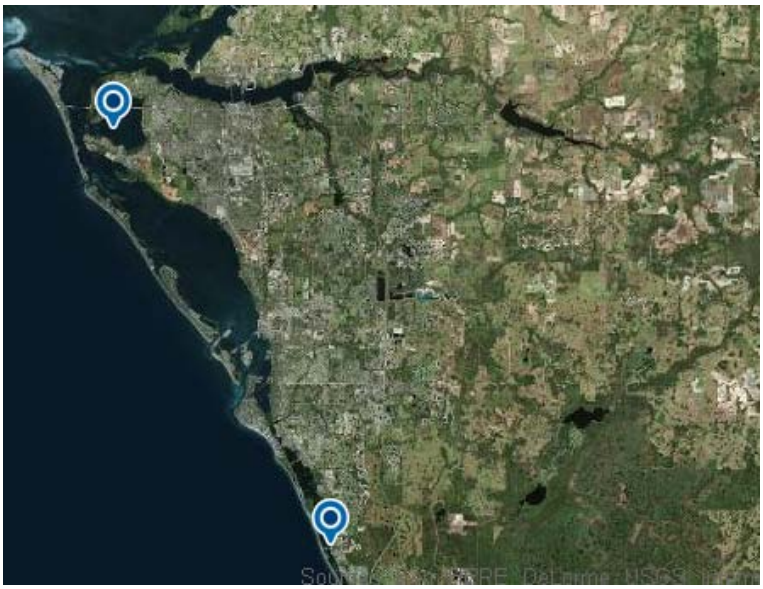


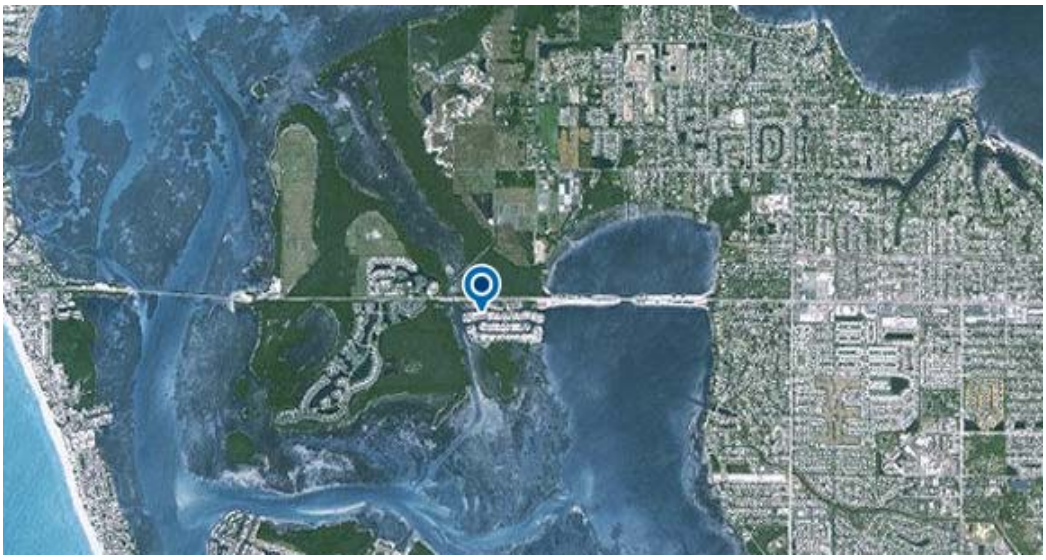
Bike lanes and/or a multi-use path is needed along Bay St from US 41 to the Osprey Junction trailhead and the Legacy Trail.

Other Ideas (not location-specific):

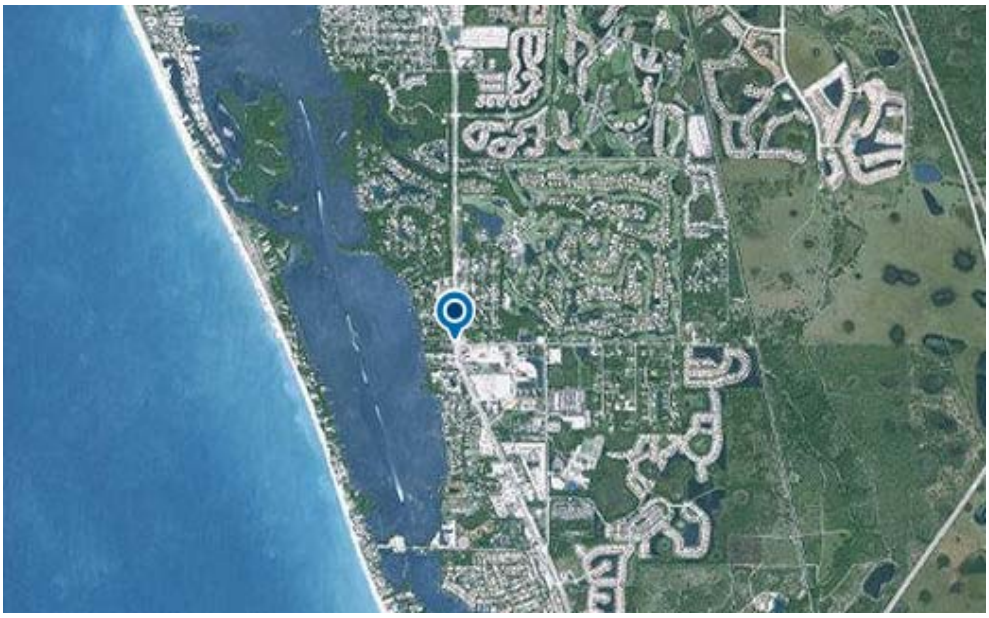
- Paint current bike lanes green
- Protected bike lanes at key intersections and wherever possible

WHAT BIG CHANGE COULD WE MAKE TO IMPROVE PUBLIC TRANSPORTATION IN OUR REGION?



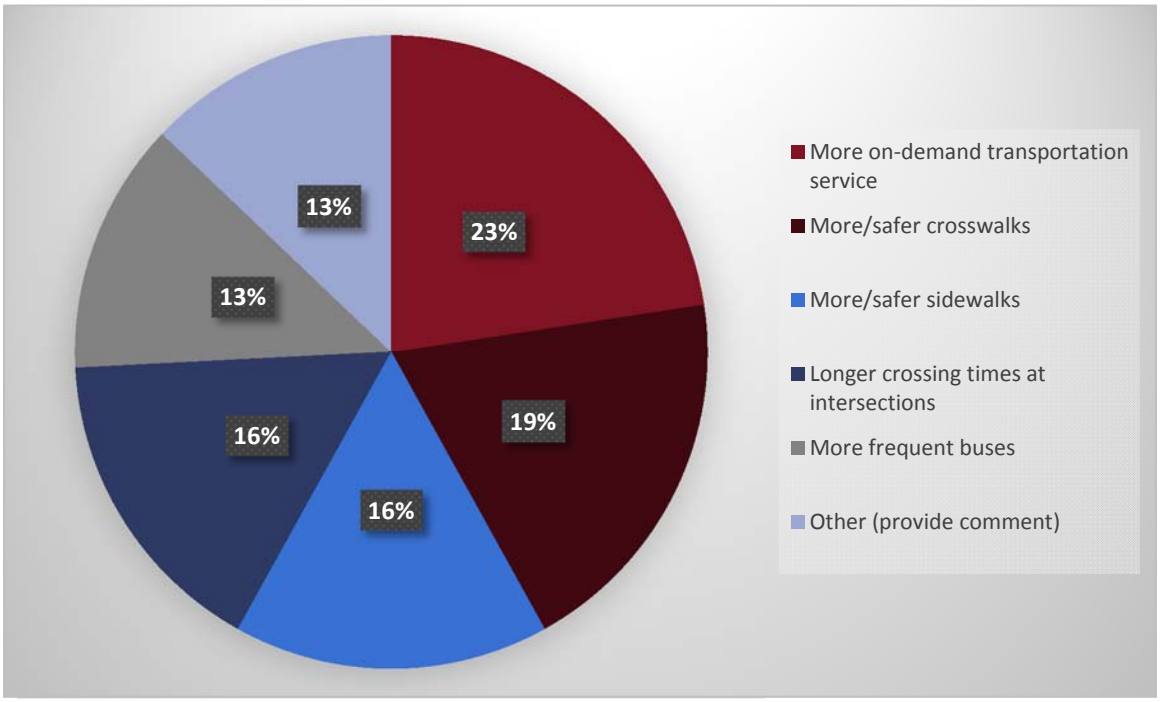


During season, free bus service should be provided along Manatee and Cortez to Anna Maria Island to encourage more people to take transit rather than drive.



The 9:15 pm southbound departure of Rt. 17 should run all the way to Venice so people living in Osprey and beyond can use SCAT to go to downtown Sarasota in the evenings.

HOW CAN WE PROVIDE BETTER TRANSPORTATION OPTIONS FOR THE SENIORS IN OUR REGION?



- Reduce speeds on roads known to have high concentrations of elderly populations

- Merge MCAT & SCAT, have shorter headways, longer operating hours, shorter travel times, rationally placed bus stops, signalized crossing points, covered & well-lit shelters, complete street designs, shade trees
- Bus routes need to be adapted to the needs of Seniors; needs of workers going to jobs and seniors do not match

HOW CAN WE IMPROVE OUR TRANSPORTATION SYSTEM TO BE MORE PREPARED FOR MAJOR EMERGENCIES?

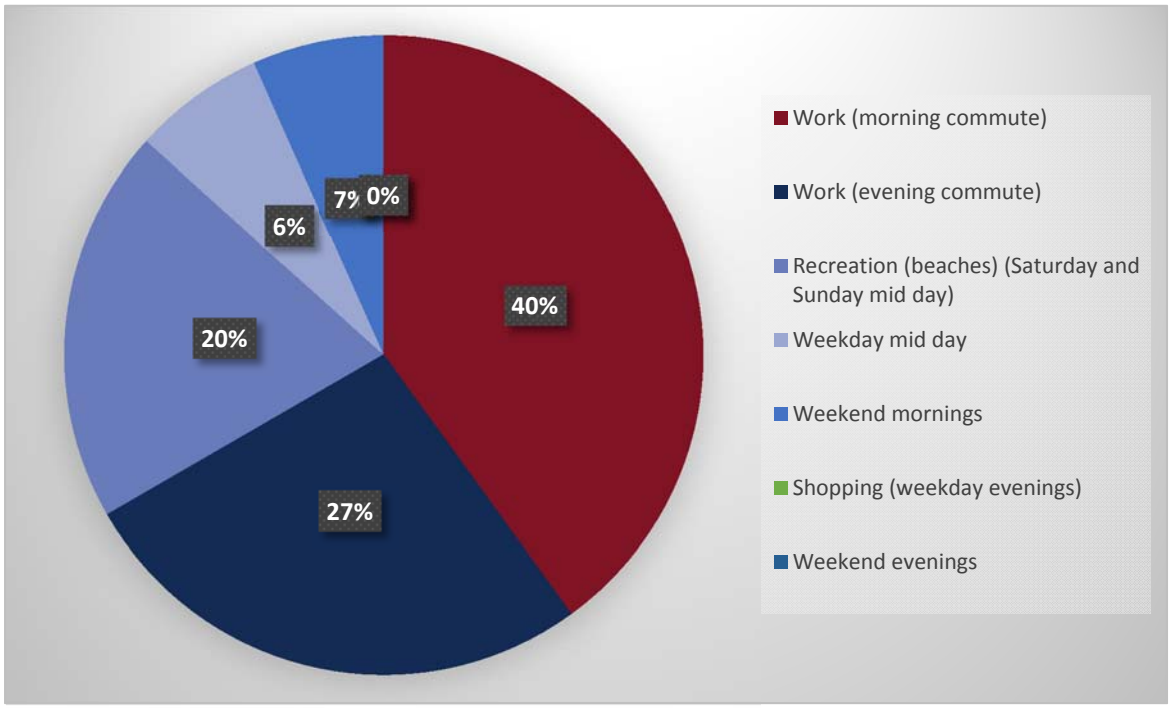
No comments received

MARCH

WHAT ARE YOUR CONCERNS ABOUT MOBILITY FOR SENIORS AND YOUR SUGGESTED SOLUTIONS TO ADDRESS THOSE CONCERNS?

- Look for an example of senior transportation service to model after
- Decrease public transit wait times to 30 minutes
- Run buses on Sundays, later in the day on week days
- Allow golf carts on sidewalks
- Larger letters on signage, better lighting for signage
- Traffic signal management
- Move light posts out of the sidewalks

DURING WHICH OF THE FOLLOWING ACTIVITIES DO YOU EXPERIENCE THE MOST REGULAR CONGESTION?



SHARE WITH US A PHOTO OF A TRANSPORTATION SAFETY CONCERN YOU HAVE IN THE SARASOTA/MANATEE REGION.

"Rye Rd/SR 64 intersection needs a traffic light immediately; waiting in traffic is annoying but SAFETY comes first."

SHARE WITH US A PHOTO OF A ROAD INFRASTRUCTURE ISSUE IN OUR REGION

3/25/15 Accident evidences how poorly constructed the intersection at Rye Rd/SR 64 intersection is

ON AVERAGE, HOW MANY MORE MINUTES EACH DAY DOES IT TAKE YOU TO GET TO YOUR DESTINATIONS BECAUSE OF CONGESTION?

- 10 minutes longer for a 25 minute commute near Downtown Bradenton intersections
- In season, 30-45 minutes longer. Off-season 5-10 minutes longer
- 5-10 minutes longer

APRIL

HOW CAN WE IMPROVE THE RELATIONSHIP BETWEEN LAND USE AND TRANSPORTATION TO CREATE BETTER COMMUNITIES?

- Bring traffic data to the table. Review crash data before reviewing the site plan. Place parking lots, driveways, and buildings in the right places, and not being reactive once the building is up. Be on the front end of safety and health
- Don’t forget about older neighborhoods. New/improved transportation appears in new developments first. Refocus on older neighborhoods.
- Compact development causes less traffic and need for roads.
- Mix land uses. Less segregation of land uses. Improve proximity and more travel options (bike, ped, transit) become viable
- Provide incentives to builders who build where there is existing infrastructure

DO YOU THINK TRANSIT ORIENTED DEVELOPMENT MAKES SENSE FOR CERTAIN PLACES IN THE REGION? IF SO, WHERE?

- The beaches and barrier islands. They have limited space for “conventional” transportation to succeed.
- Close off Main St and make fully walkable with retailers
- In three locations: 1) in the downtown areas of existing towns and cities, where this type of development originally existed; 2) anywhere there is opportunity for redevelopment along existing transit lines; and 3) anywhere a large scale parcel of land is being developed contiguous to other development.

IF YOU HAD THE MONEY, WHAT IS THE ONE TRANSPORTATION IMPROVEMENT YOU WOULD MAKE HAPPEN IN THE NEXT FIVE YEARS?

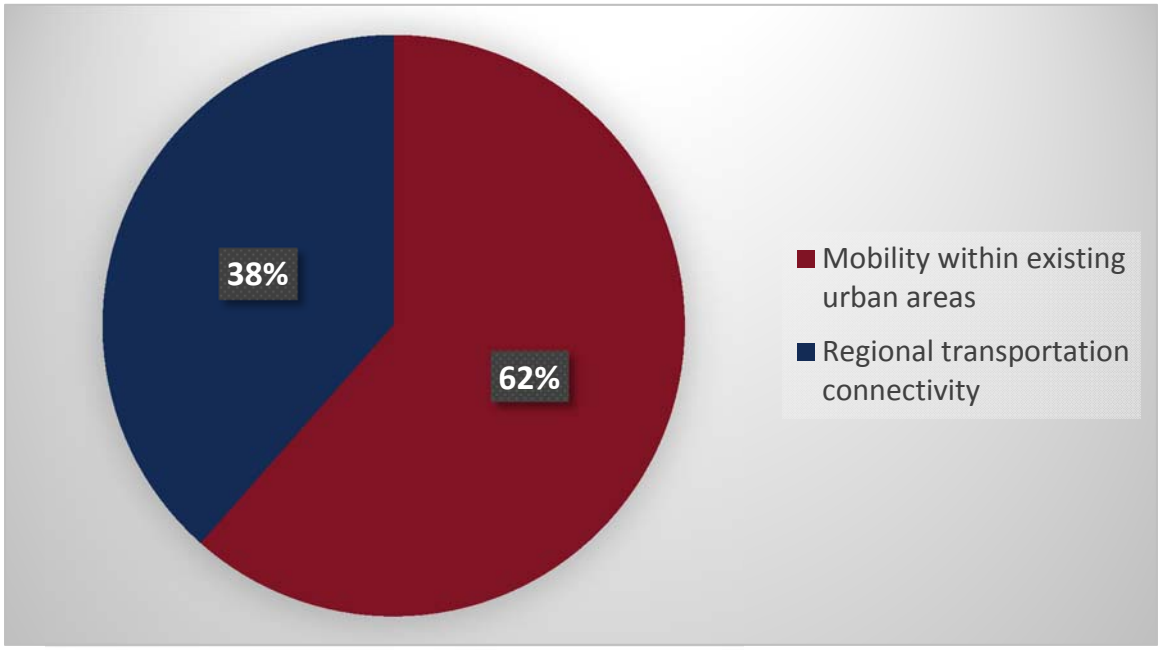
- A ferry system for each Key with parking on main land and trolley, bus, & bikes available at the dock
- Real-time responsiveness for traffic signal timing
- Move the street light posts off the Bee Ridge sidewalk
- Extend University Blvd to SR 70. Help spread out traffic area east of Lorraine Rd
- Randomly close roads – Fruitville westbound from 6 am to 9 am, eastbound from 4 pm to 7 pm

WHAT ONE STEP COULD WE TAKE TO MAKE OUR ROADS SAFER FOR ALL ROAD USERS?

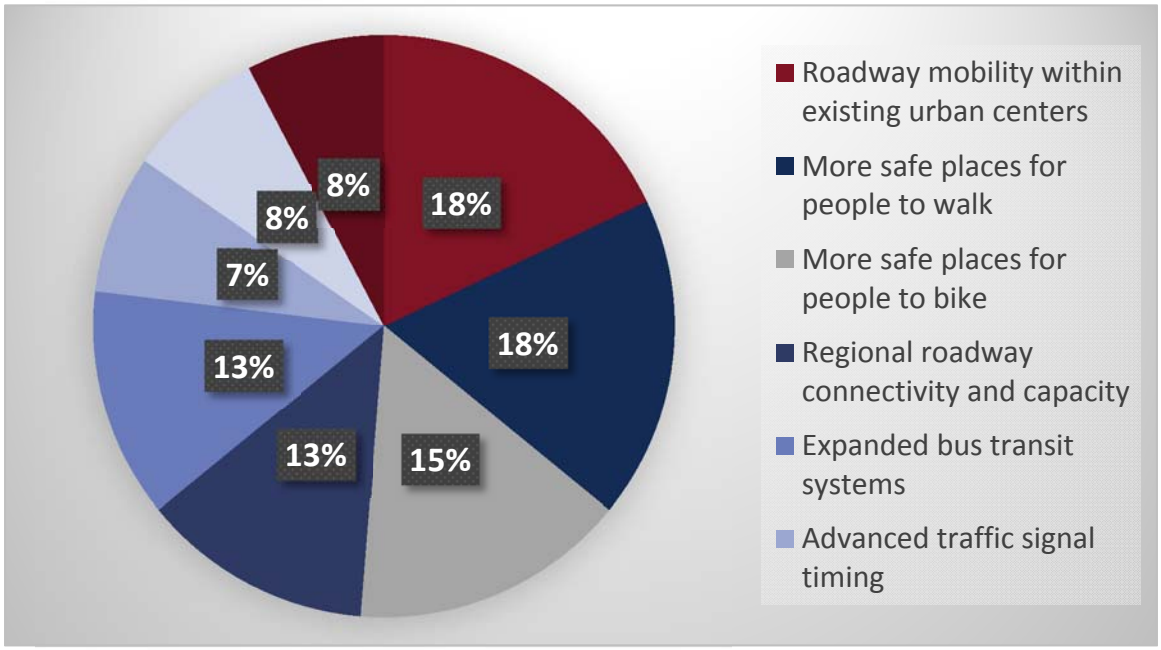
- Less cars on the road. Make bicycling and walking the norm. Mass transit needs help.
- Traffic calming techniques
- Reduce number of lanes & lower speed limits

MAY

OF THESE TWO OPTIONS, WHICH DO YOU THINK THE MPO SHOULD INVEST IN?



WHAT TYPES OF TRANSPORTATION INVESTMENTS DO YOU THINK ARE MOST IMPORTANT FOR THE FUTURE OF OUR REGION?



WHY IS IT IMPORTANT FOR OUR COMMUNITY TO HAVE A VARIETY OF PUBLIC TRANSPORTATION OPTIONS?

- We have to make it easier for people to come to work in Sarasota, to make our residents and tourists happy. At the same time we should decrease the # of cars in town by offering attractive, frequent reliable public transportation between the keys, town and points of interest such Mote, Ringling, WBTT etc.
- Equity of access to transportation
- Look at more North South corridors across Manatee River, also look at better use of our water ways to move people to islands
- Need to focus on moving people not vehicles. Cannot build our way out of congestion
- Can help decrease the traffic on our roads. Vehicles can fill the gap when other options are not available.
- Supporting elderly population who rely on this mode. Without a quality transit system (and the land use densities to support it), numerous residents will become increasingly homebound, limiting the ability to interact with society in a meaningful manner and creating additional physical and mental health issues

WHERE DO WE NEED TO IMPROVE OR EXPAND ON THE NON-MOTORIZED TRAILS AROUND OUR REGION?

- Maximize connections to beaches, parks, & activity centers
- Connecting east-west & north-south. Connect some urban trail to the eastern trails.
- Urban areas to encourage walkability
- Legacy Trail extension through North Sarasota

JUNE

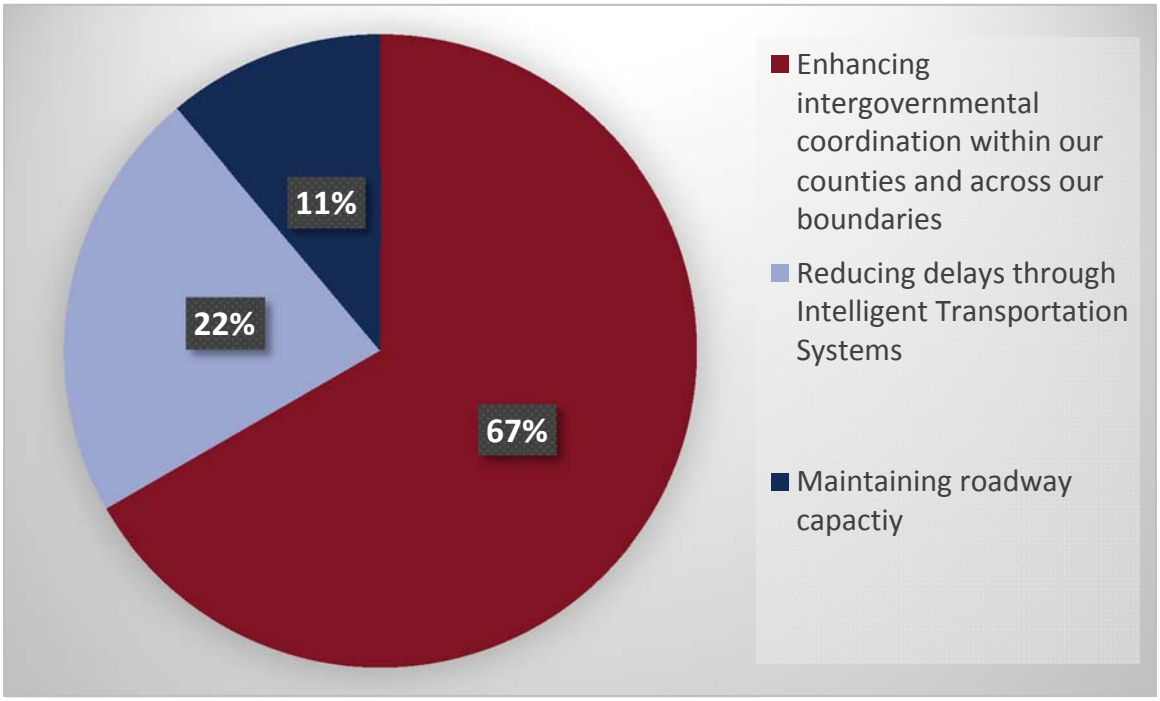
No new questions posted

JULY

WHAT ARE SOME WAYS WE SHOULD TRACK IMPROVEMENTS IN THE SAFETY OF OUR TRANSPORTATION SYSTEM OVER TIME?

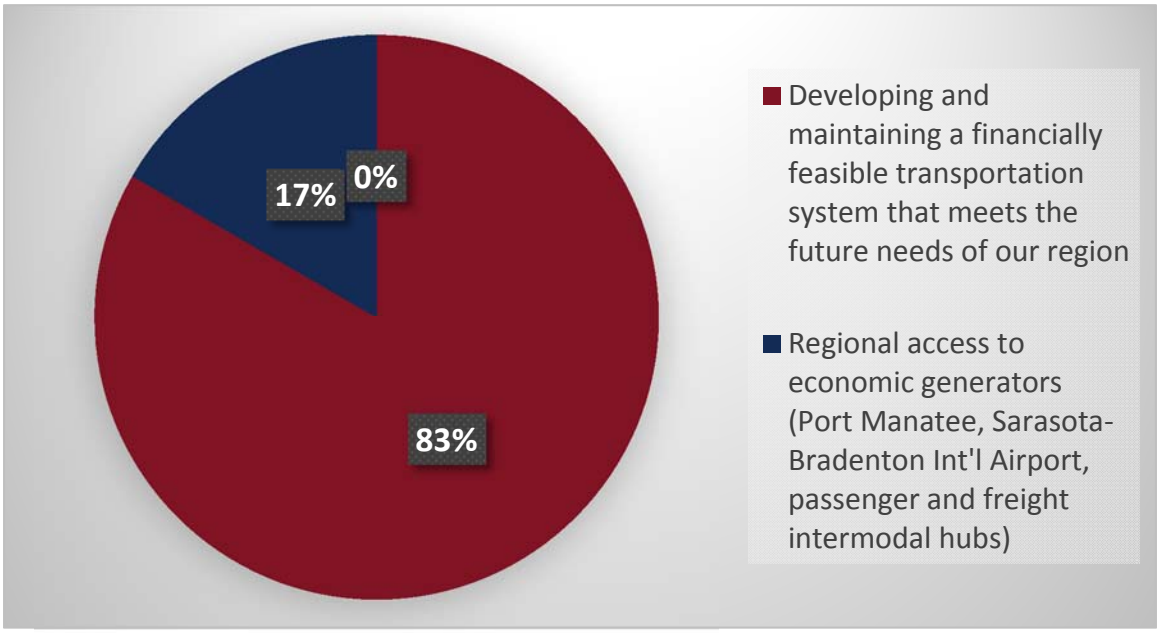
- Track the number of dedicated bicycle lane miles added each year
- Count the number of bicycle-related deaths and injuries in each county each year. We need safer bike lanes and transport options that get people out of the chair and into the world exercising and appreciating our beautiful area!

WHAT IS MOST IMPORTANT FOR IMPROVING THE EFFICIENCY OF OUR TRANSPORTATION SYSTEM? (COULD ONLY SELECT ONE ANSWER)



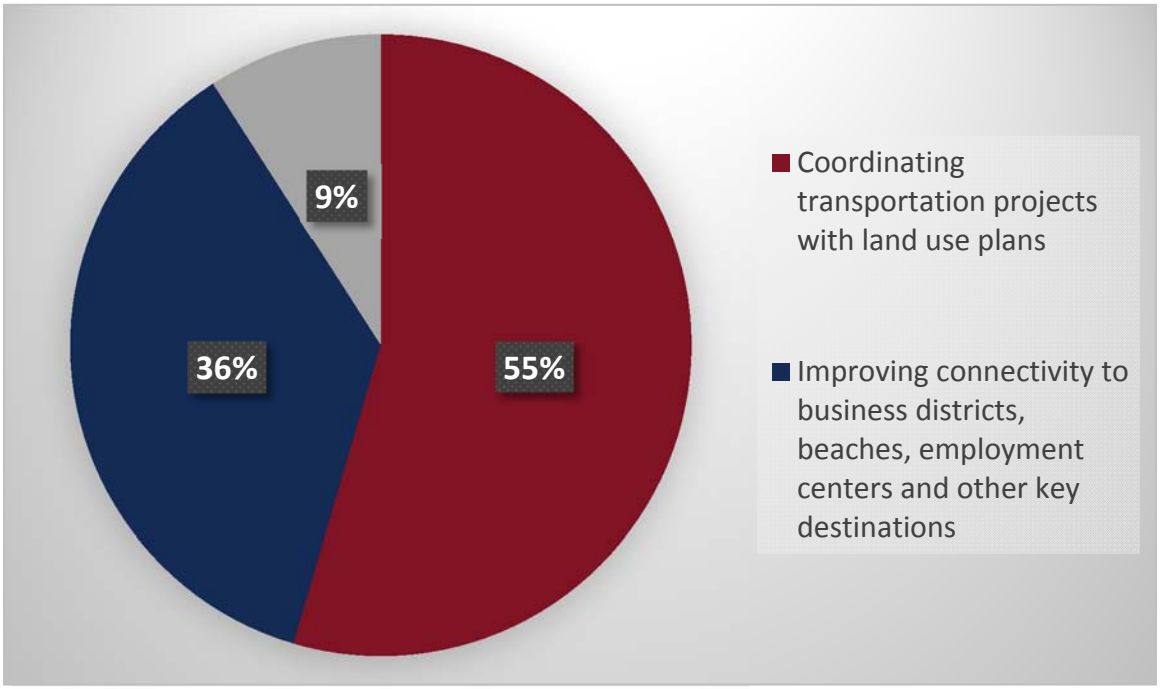
- ITS deployments must actually work, however. They are not the solution for every transportation problem and the technology must be thoughtfully used and monitored for effectiveness

WHICH OF THE FOLLOWING FACTORS IS MOST IMPORTANT FOR SELECTING TRANSPORTATION PROJECTS TO PROMOTE ECONOMIC VITALITY? (COULD ONLY SELECT ONE ANSWER)



- All 3 are important but we may not have had the need for them if adequate future planning had taken place starting in the 50s. Let's don't push future planning off until tomorrow.

WHAT IS MOST IMPORTANT FOR IMPROVING ACCESSIBILITY AND MULTIMODAL CONNECTIVITY? (COULD ONLY SELECT ONE ANSWER)

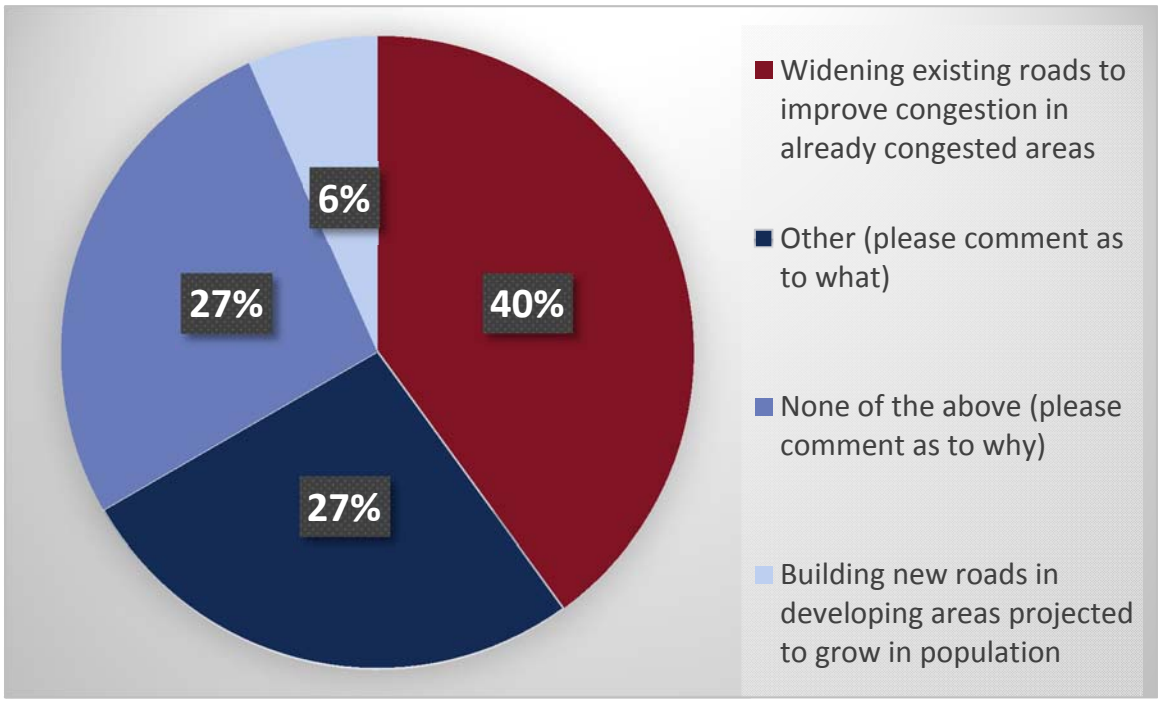


WHAT IS MOST IMPORTANT FOR IMPROVING ACCESSIBILITY AND MULTIMODAL CONNECTIVITY?

- This will have impact into the future of this area. With existing data, problem areas are predictable and modifications to site plans can be made to encourage the least amount of added impact on high traffic and crash areas. It's a no brainer. But could be called benign neglect at present not connecting the data to development in terms of safety issues.
- Reduce the time between upgrading infrastructure needed to address added strains imposed by new developments. Perhaps securing a percentage of impact fees upfront and applying the funds toward rendering designs for the improvements.
- Grid planning lends itself to public transit; gated communities and cul de sacs do not. Land use devoted to business indicates jobs and a need for transportation.
- This is forward logical thinking that deals with prevention on the front end.

AUGUST

IN YOUR OPINION, WHICH TYPES OF ROADWAY PROJECTS SHOULD RECEIVE FUNDING PRIORITY?



- Improving mass transit will help alleviate congestion
- Give priority to road projects that fill in missing links for safe, continuous bicycle network. Restripe existing roads to add designated bike lanes.
- Need more North and South routes from Sarasota to North Port
- Needs assessment should determine ranking of projects. Look at crash data and projected population density in area of concentration

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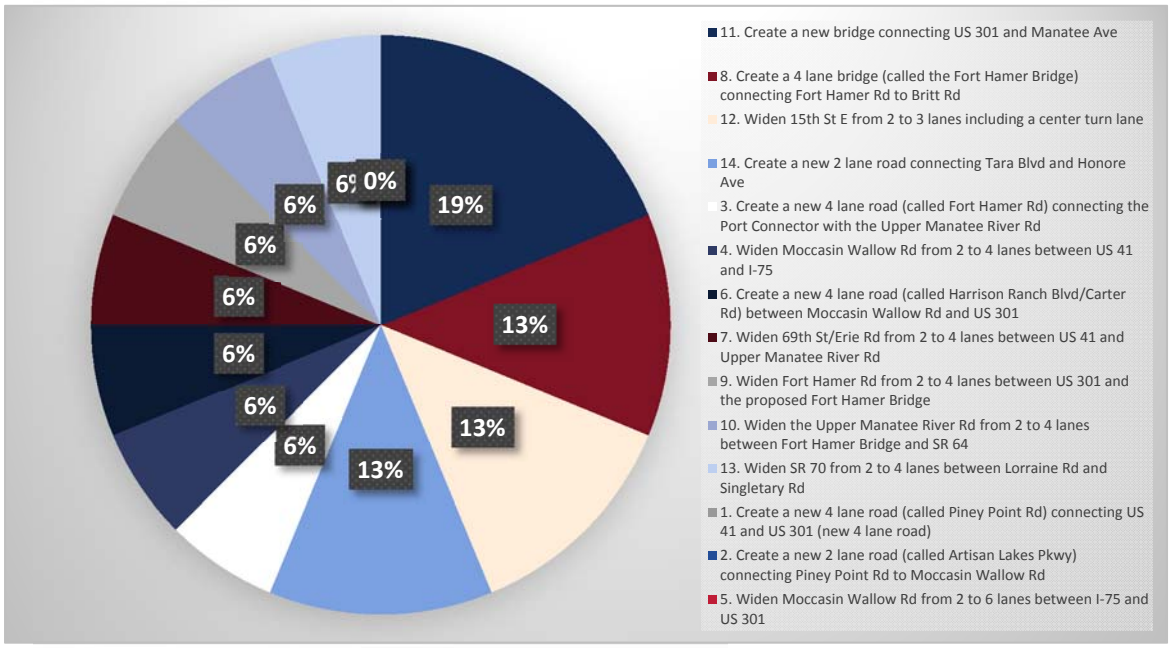
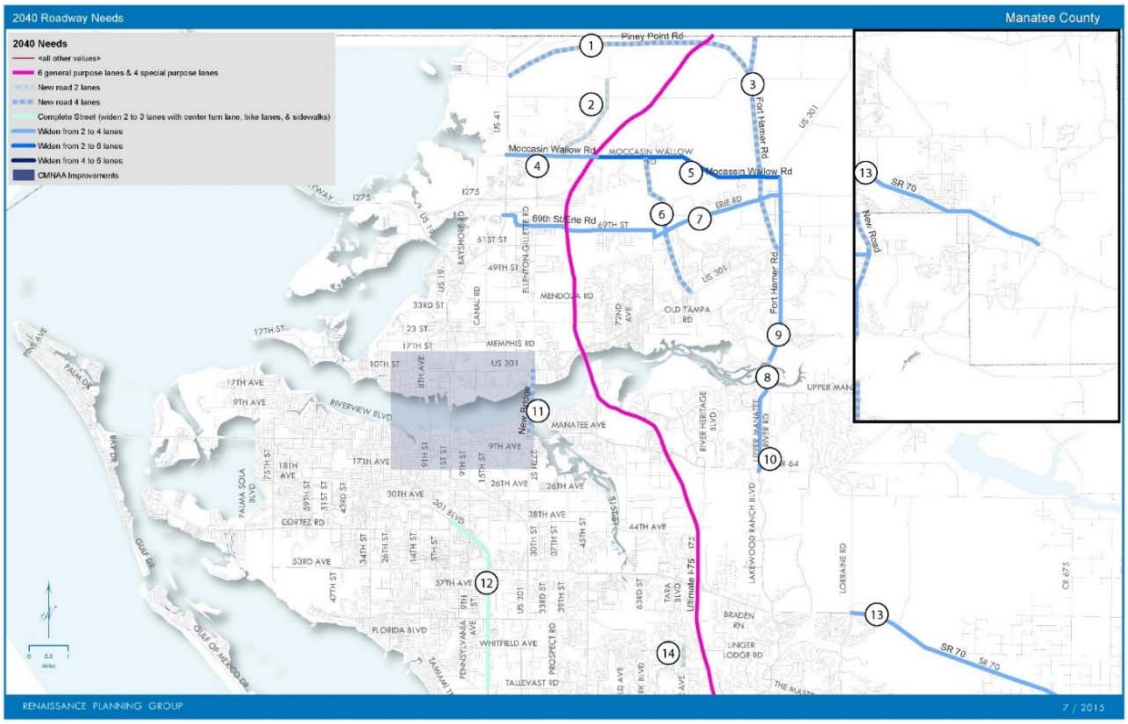
- Needs assessment should determine ranking of projects. Look at crash data and projected population density in area of consideration

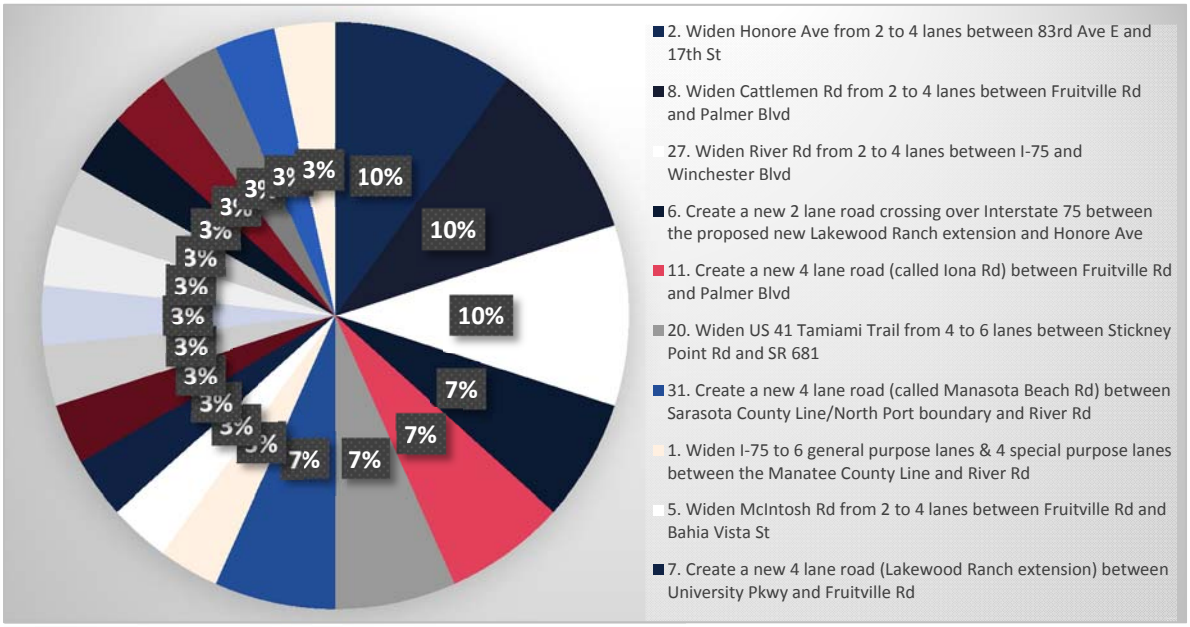
PLEASE CHOOSE YOUR TOP 5 ROADWAY IMPROVEMENTS NEEDED IN MANATEE COUNTY



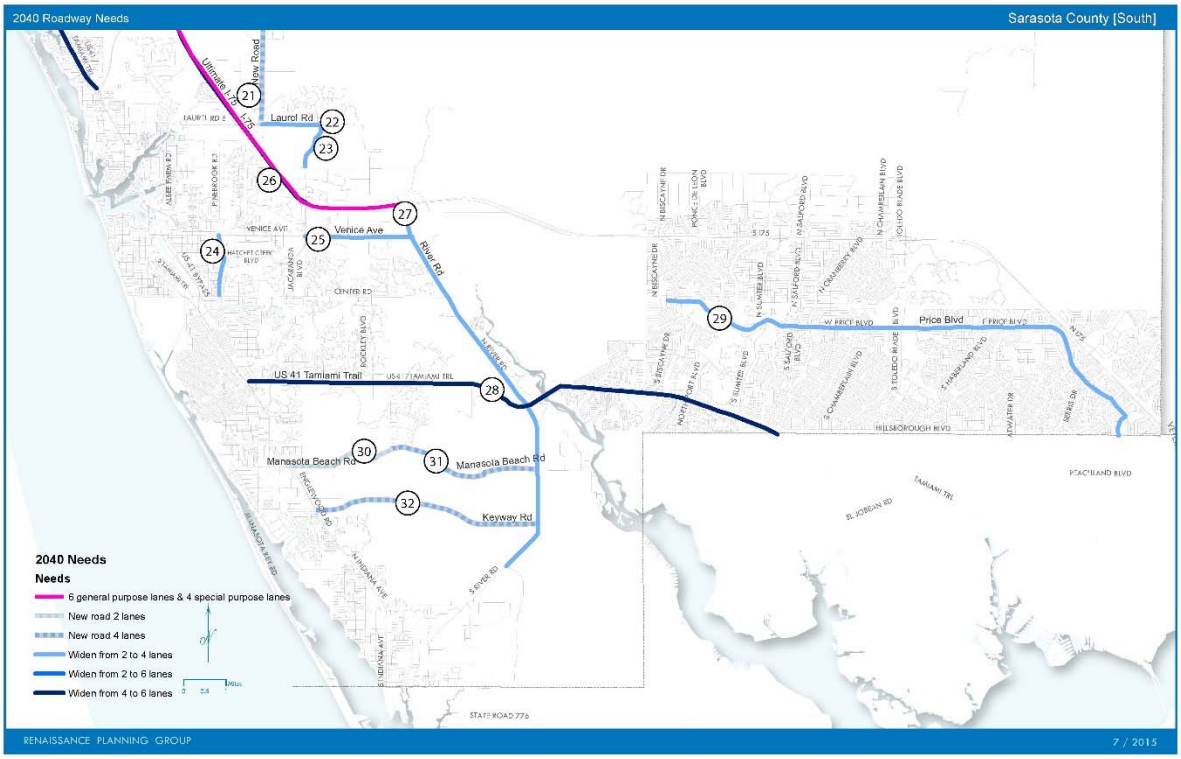
MANATEE COUNTY ROADWAY NEEDS: IN YOUR OPINION, WHICH TYPES OF ROADWAY PROJECTS SHOULD RECEIVE FUNDING PRIORITY?

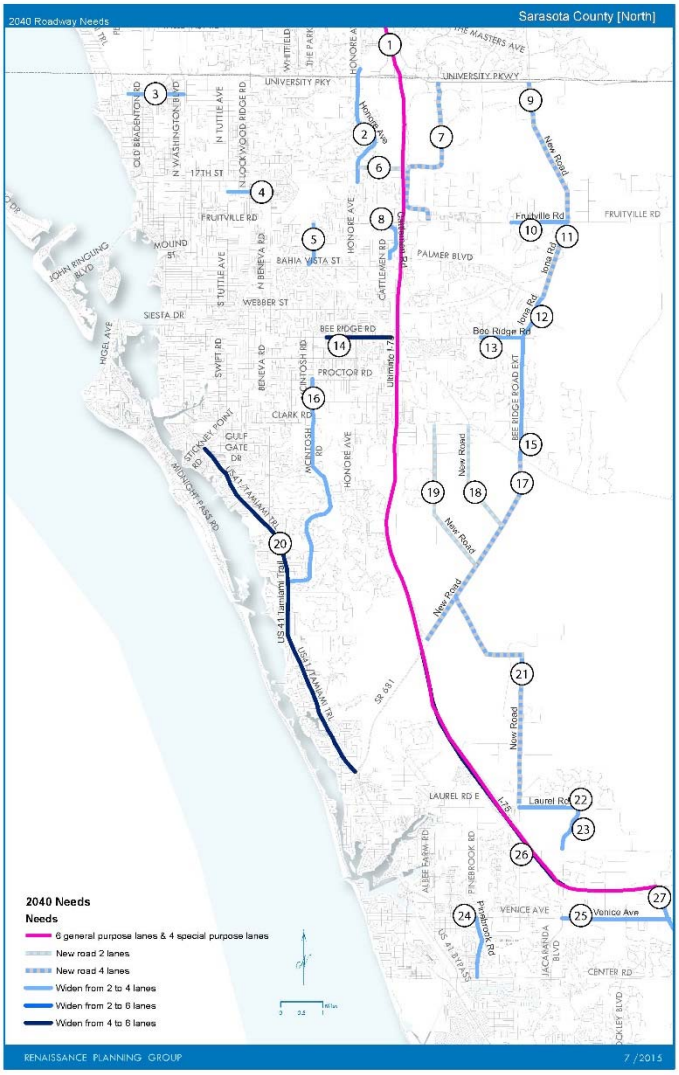


PLEASE CHOOSE YOUR TOP 5 ROADWAY IMPROVEMENTS NEEDED IN SARASOTA COUNTY



PLEASE CHOOSE YOUR TOP 5 ROADWAY IMPROVEMENTS NEEDED IN SARASOTA COUNTY




2040 Roadway Needs
Sarasota County [North]
2040 Needs
Needs
6 general purpose lanes & 4 special purpose lanes
New road 2 lanes
New road 4 lanes
Widen from 2 to 4 lanes
Widen from 2 to 6 lanes
Widen from 4 to 6 lanes
RENAISSANCE PLANNING GROUP
7/2015

PLAN REVIEW

Plans from federal, state, and local/regional levels of government were reviewed to ensure consistency between the LRTP goals and objectives and those of the various plans and policies. This review was done primarily to comply with the federal rules and regulations that govern the LRTP update process and content. Relevant policies and priorities from other agencies' plans must be considered, if not included in the LRTP process,. These include:

- TBARTA Transit Vision http://www.tbarta.com/en/master-plan
- CCC Regional Roads and Trails http://www.mympo.org/images/PDF/ccc/Regional-Roads-2035.pdf & http://www.mympo.org/images/PDF/ccc/west-central-fl-reg-trails-june-2014.pdf
- FDOT SIS plan http://www.dot.state.fl.us/planning/sis/Strategicplan/
- Southwest Florida and Tampa Bay Regional Planning Councils Strategic Regional Policy Plans and Comprehensive Economic Development Strategies http://www.flfuturecorridors.org/tampa_background.htm
- Public Transportation Systems Analysis & Report/Regional Transit Assessment - Final Report http://www.mympo.org/public-transportation-systems-analysis-report
- Tampa Bay Regional Strategic Freight Plan http://tampabayfreight.com/strategic-plan/tampa-bay-strategic-freight-plan/
- Central Manatee Area Network Alternatives Analysis http://www.mympo.org/images/PDF/SM-MPO_Workshop_Presentation_Sept_18_2013final-delivered.pdf
- Manatee County Transit Development Plan https://www.mymanatee.org/home/government/departments/public-works/transit-paratransit/planning.html
- Sarasota County Transit Development Plan https://www.scgov.net/SCAT/Pages/TransitDevelopmentPlan.aspx
- Smart Connect Transit Study http://www.mympo.org/smart-connect-transit-study
- 2013 Park and Ride Study http://www.mympo.org/images/PDF/ParkandRide_ImplementationPlan_123013.pdf
- University Parkway & University Town Center http://www.mympo.org/PDF/13_001_02_I_75_at_University_MASTER_DRAFT.pdf
- Water district management plans
- Sarasota County Comprehensive Plan transportation element https://www.scgov.net/compplan/Pages/default.aspx
- Manatee County Comprehensive Plan transportation element https://www.mymanatee.org/home/government/departments/building-and-development-services/planning-zoning/comprehensive-planning-section/comprehensive-plan.html
- Bicycle Pedestrian Masterplan http://www.mympo.org/images/PDF/bptac/SMMPO-BikePedTrails-Master.pdf
- Water taxi study http://www.mympo.org/PDF/final_report2.pdf
- Bradenton Downtown Mobility Study http://www.mympo.org/PDF/Reports/BradPalmDTMS_FinalReport.pdf
- Sarasota Downtown Mobility Study http://www.sarasotagov.com/InsideCityGovernment/Content/Engineering/projects/MobilityStudy.html
- Venice Mobility Study

https://www.scgov.net/email/Lists/Submitted%20E-mail%20Records/Attachments/8002/Venice_ParkingSection_Draft_140409_v1.pdf

- Port Manatee Masterplan http://www.portmanatee.com/About-Us/Master-Plan
- Tampa Bay Regional Planning Council Emergency Evacuation Plan http://www.tbrpc.org/tampabaydisaster/hurricane_guides2015.shtml

SOCIOECONOMIC DATA FORECASTS METHODOLOGY

The Bureau of Economic and Business Research (BEBR) at the University of Florida develops and maintains demographic forecasts through the year 2040 for counties to use in individual budgeting, planning and policy analysis. Data is maintained by municipality and county. Using the BEBR control totals for 2040 for each county, growth was allocated to high growth areas following each county's comprehensive plan, recent approved developments, and economic development visions.

Working in concert with individual City and County staffs, allocations were then refined based on current planning documents and studies to represent the anticipated growth per Traffic Analysis Zone (TAZ). After the population and employment growth was agreed upon by the LRTP Committee, the Technical Advisory Committee and Local Planning Staff, the population and employment data was converted into the Florida Standard Urbanized Transportation Modeling Structure (FSUTMS) for Zdata using census demographic trends and future land use maps. Population was broken down into single family and multifamily population.

Dwelling units were then estimated based on the persons per household numbers from the 2010 census. Employment forecasts were broken down into Industrial, Commercial and Service employment based on the future land use of the TAZ and development approvals. Additionally school enrollment was forecasted using the population growth and working with both the Manatee County and Sarasota County School districts. Future hotel and motel room growth was projected using the service employment and local development approvals for use in the travel forecast model to generate peak season traffic.

PLAN DEVELOPMENT

Five network alternatives were developed that included roadway and transit projects to be modeled in the travel demand model. Adding and removing the MPO established priorities to determine where and how the project benefited the multimodal system. Projects on the regional network and major local were tested and brought forward by the Long Range Transportation Plan Committee, Technical Advisory Committee and local governments consistent with local comprehensive plans or adopted mobility plans.

Transit needs were modeled and follow the Manatee County Area Transit (MCAT) Transit Development Plan and Sarasota County Area Transit (SCAT) Transit Development Plan, pulling projects that the agencies are planning to implement over the next 10 to 14 years.

Bike/ ped needs were derived from Bicycle and Pedestrian Masterplan developed to provide an overall framework of the multimodal system. A subset of the top bicycle, pedestrian and trails needs from the project priorities were the main focus for the Long Range Plan.

District 1 of the Florida Department of Transportation has been working with neighboring districts and central office to develop a comprehensive plan for the movement of freight and goods. This work is incorporated in to the fright needs map located in the appendix and is consistent with the needs established by the MPO and local governments.

The transportation needs plan was developed through help from the steering committee, and project priorities from previous LRTP update.

- Builds upon committed projects and the Transportation Improvement Program
- Constrained Needs Plan
- Identify Physical, Policy or Financially Constrained corridors
- Identify Transportation Deficiencies with tools and analysis
- NOT a get the red out plan

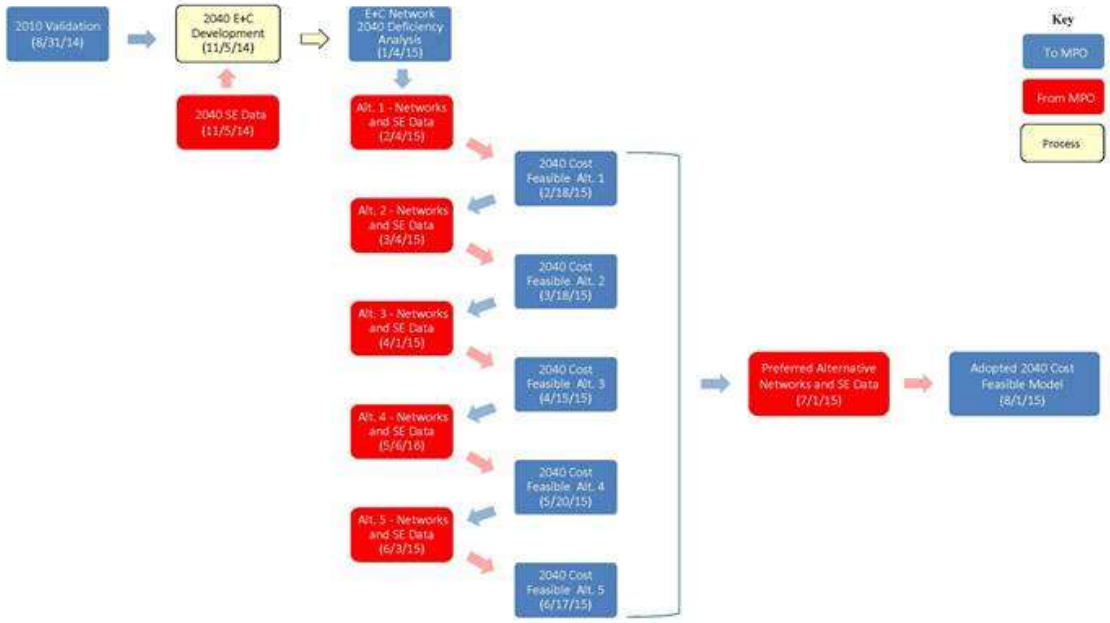
Five (5) Alternatives were tested using a combination of needs projects with I-75 expansion.

Each of the transportation projects defined through the needs assessment process has been coded into the regional travel demand model (covering Sarasota, Manatee and Charlotte Counties) to compare transportation network performance against the existing plus committed (E+C) transportation network with estimated 2035 population and employment totals.

The E+C network only includes new transportation projects that will be constructed in the next five years.

Below outlines the FDOT District 1 framework for this process.

District One - 2040 Cost Feasible LRTP Model Development Process and Schedule



Below are the five different alternatives tested.

Map represents the congestion levels with 2040 forecasted traffic on the D1RPM 2040 Cost Feasible Model Alternative One roadway network.

Manatee County

VC

- 0-0.75
- 0.75 – 1.05
- 1.05 – 1.20
- 1.20+

Special Purpose Lanes

- 0-0.75
- 0.75 – 1.05
- 1.05 – 1.20
- 1.20+
- Policy/Physical Constraint

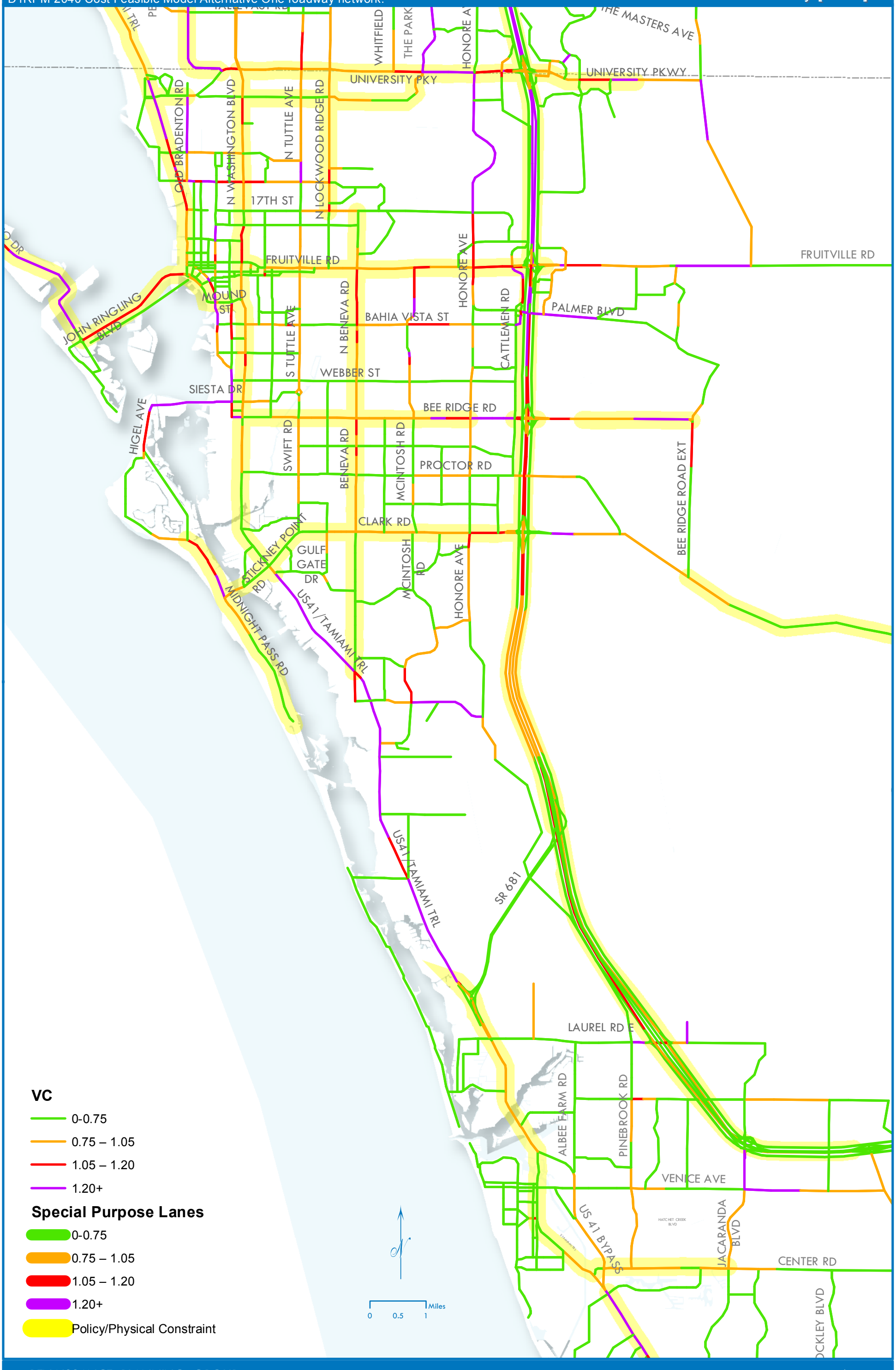
0 0.5 1 Miles

RENAISSANCE PLANNING GROUP

4 / 2015

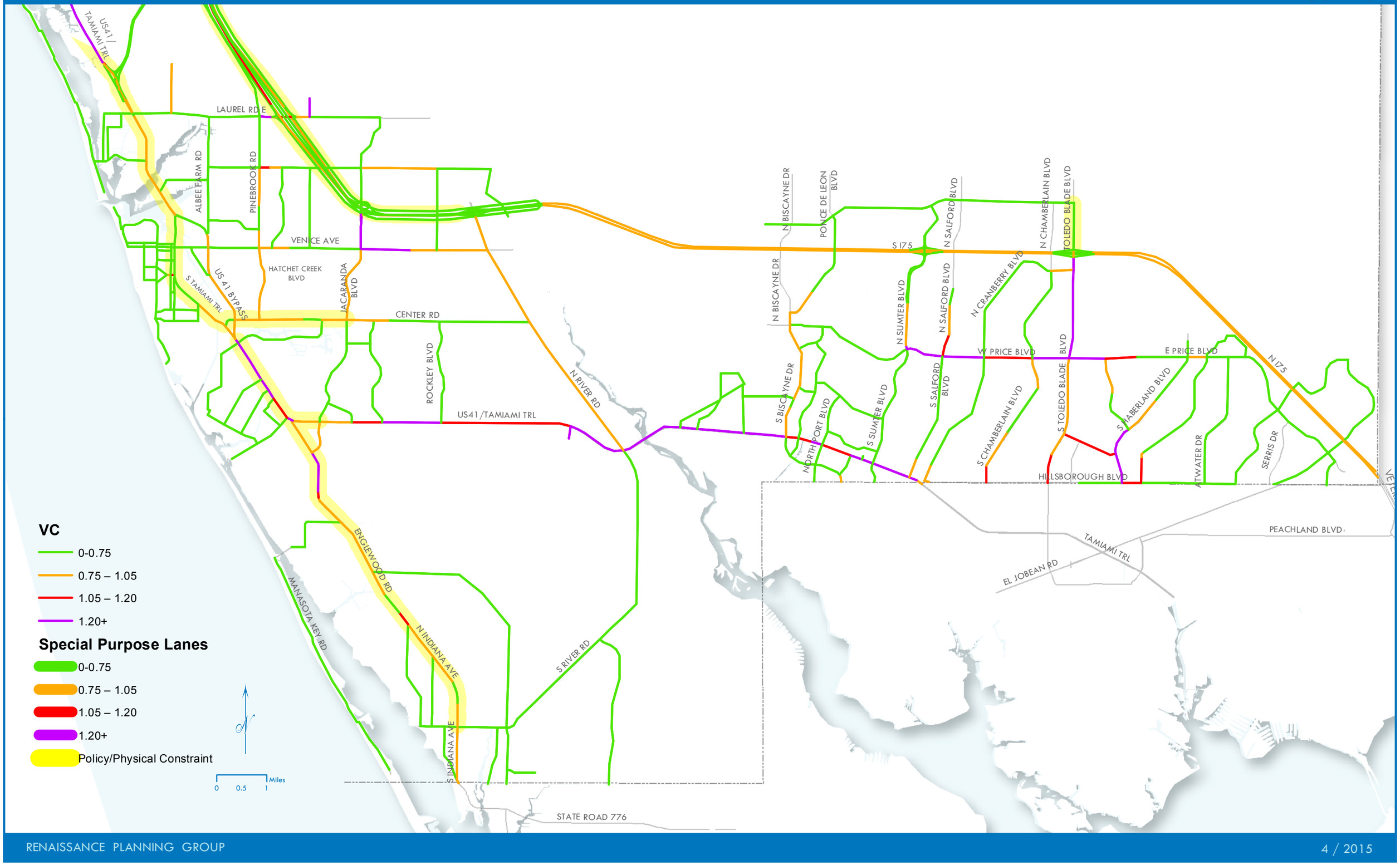
Map represents the congestion levels with 2040 forecasted traffic on the D1RPM 2040 Cost Feasible Model Alternative One roadway network.

Sarasota County [North]



Map represents the congestion levels with 2040 forecasted traffic on the D1RPM 2040 Cost Feasible Model Alternative One roadway network.

Sarasota County [South]



Map represents the congestion levels with 2040 forecasted traffic on the D1RPM 2040 Cost Feasible Model Alternative Two roadway network.

Manatee County

VC

- 0-0.75
- 0.75 – 1.05
- 1.05 – 1.20
- 1.20+

Special Purpose Lanes

- 0-0.75
- 0.75 – 1.05
- 1.05 – 1.20
- 1.20+
- Policy/Physical Constraint

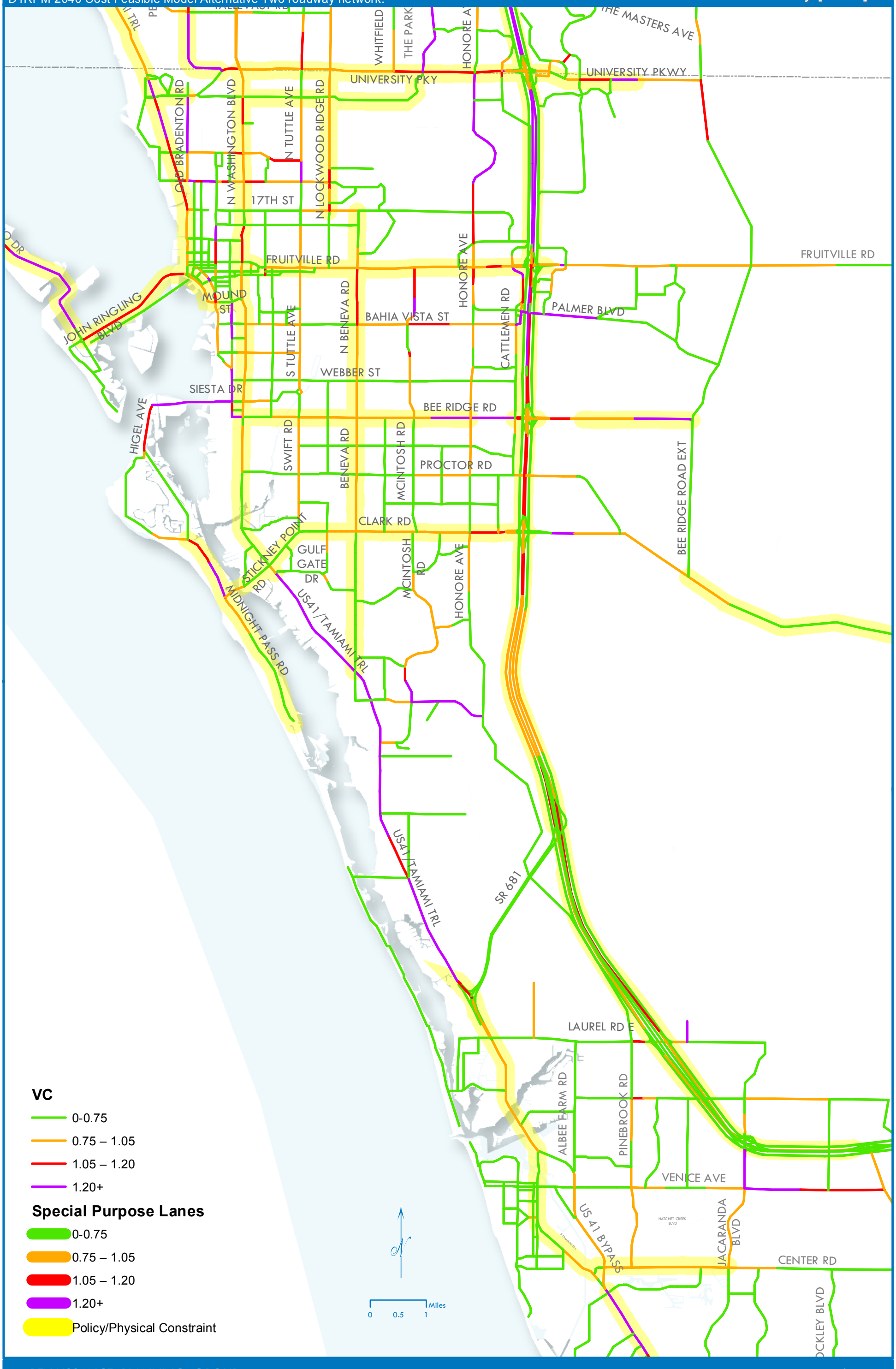
0 0.5 1 Miles

RENAISSANCE PLANNING GROUP

4 / 2015

Map represents the congestion levels with 2040 forecasted traffic on the D1RPM 2040 Cost Feasible Model Alternative Two roadway network.

Sarasota County [North]



VC

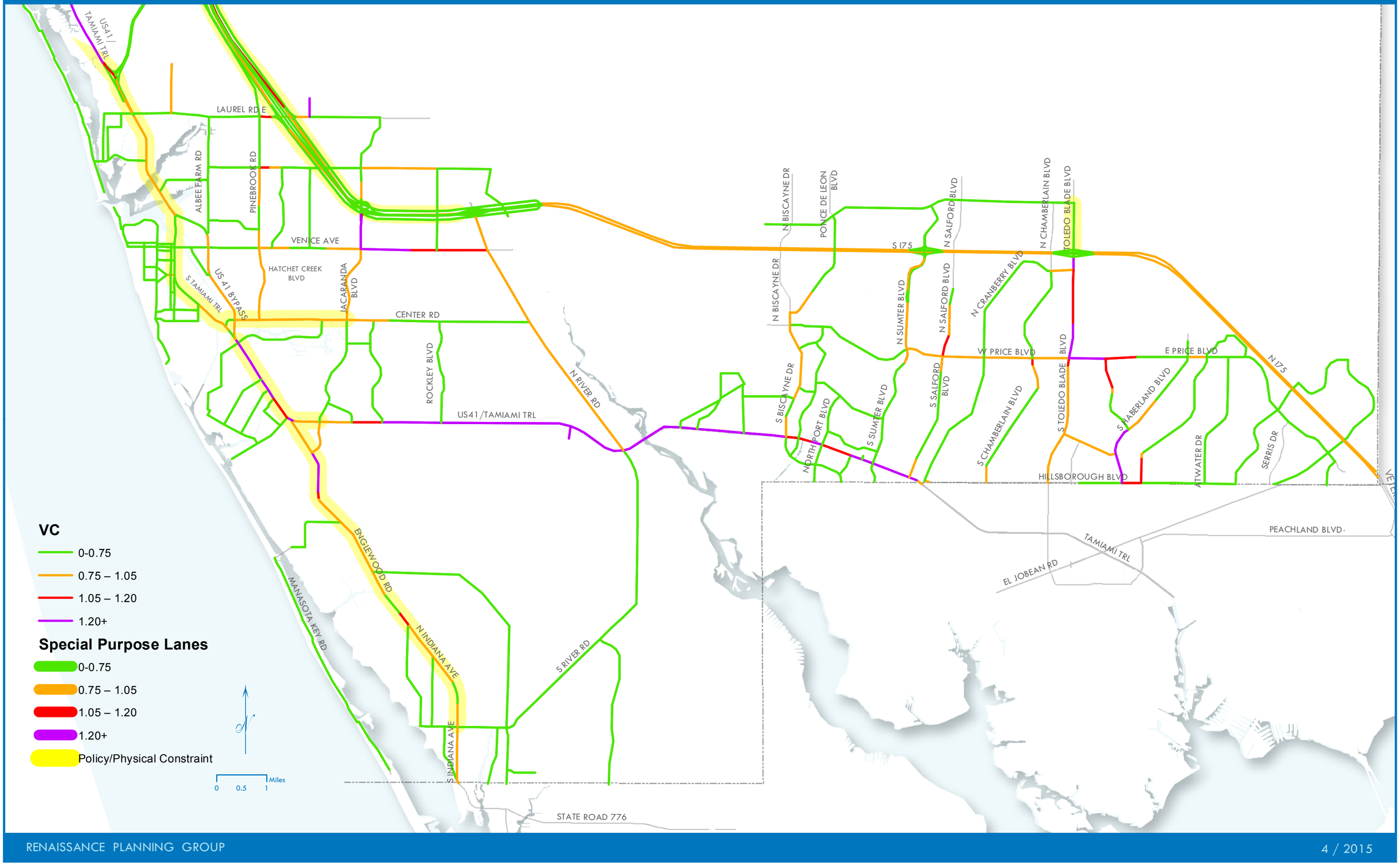
- 0-0.75
- 0.75 – 1.05
- 1.05 – 1.20
- 1.20+

Special Purpose Lanes

- 0-0.75
- 0.75 – 1.05
- 1.05 – 1.20
- 1.20+
- Policy/Physical Constraint

Map represents the congestion levels with 2040 forecasted traffic on the D1RPM 2040 Cost Feasible Model Alternative Two roadway network.

Sarasota County [South]



Map represents the congestion levels with 2040 forecasted traffic on the D1RPM 2040 Cost Feasible Model Alternative Three roadway network.

Manatee County

VC

- 0-0.75
- 0.75 – 1.05
- 1.05 – 1.20
- 1.20+

Special Purpose Lanes

- 0-0.75
- 0.75 – 1.05
- 1.05 – 1.20
- 1.20+
- Policy/Physical Constraint

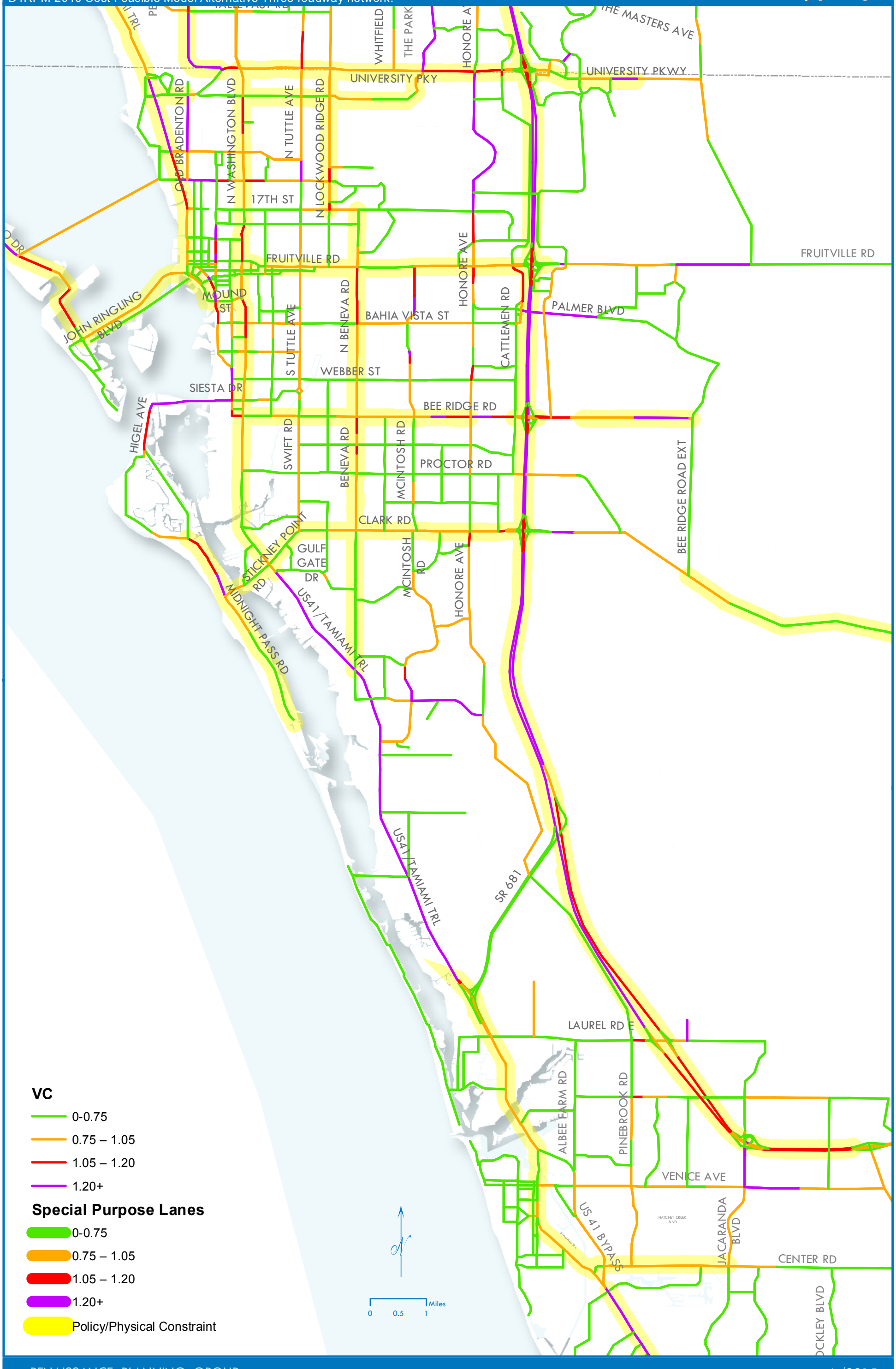
0 0.5 1 Miles

RENAISSANCE PLANNING GROUP

4 / 2015

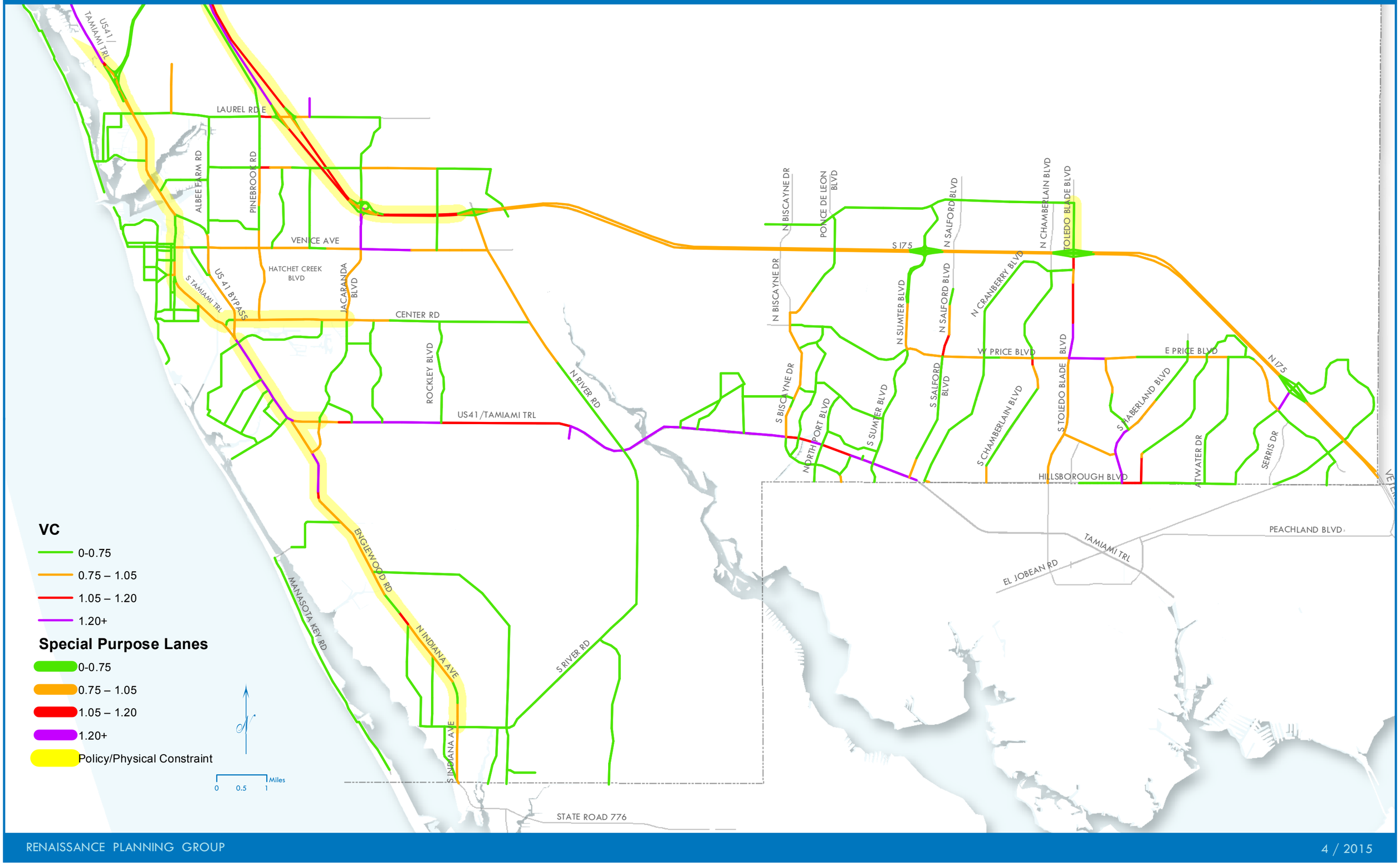
Map represents the congestion levels with 2040 forecasted traffic on the D1RPM 2040 Cost Feasible Model Alternative Three roadway network.

Sarasota County [North]



Map represents the congestion levels with 2040 forecasted traffic on the D1RPM 2040 Cost Feasible Model Alternative Three roadway network.

Sarasota County [South]



Map represents the congestion levels with 2040 forecasted traffic on the D1RPM 2040 Cost Feasible Model Alternative 4 roadway network.

Manatee County

VC

- 0-0.75
- 0.75 - 1.05
- 1.05 - 1.20
- 1.20+

Special Purpose Lanes

- 0-0.75
- 0.75 – 1.05
- 1.05 – 1.20
- 1.20+
- Policy/Physical Constraint

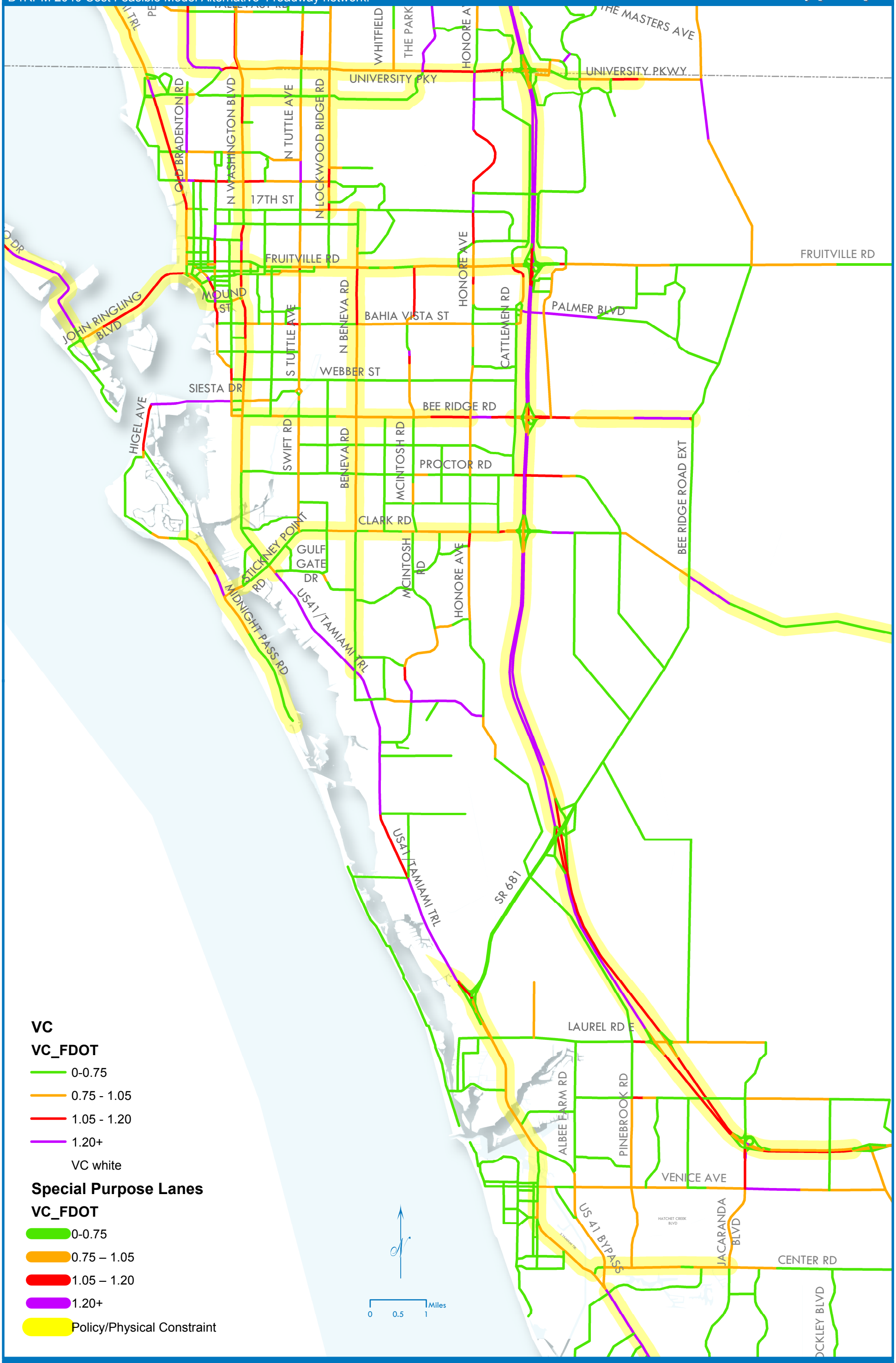
0 0.5 1 Miles

RENAISSANCE PLANNING GROUP

5 / 2015

Map represents the congestion levels with 2040 forecasted traffic on the D1RPM 2040 Cost Feasible Model Alternative 4 roadway network.

Sarasota County [North]



VC

VC_FDOT

- 0-0.75
- 0.75 - 1.05
- 1.05 - 1.20
- 1.20+
- VC white

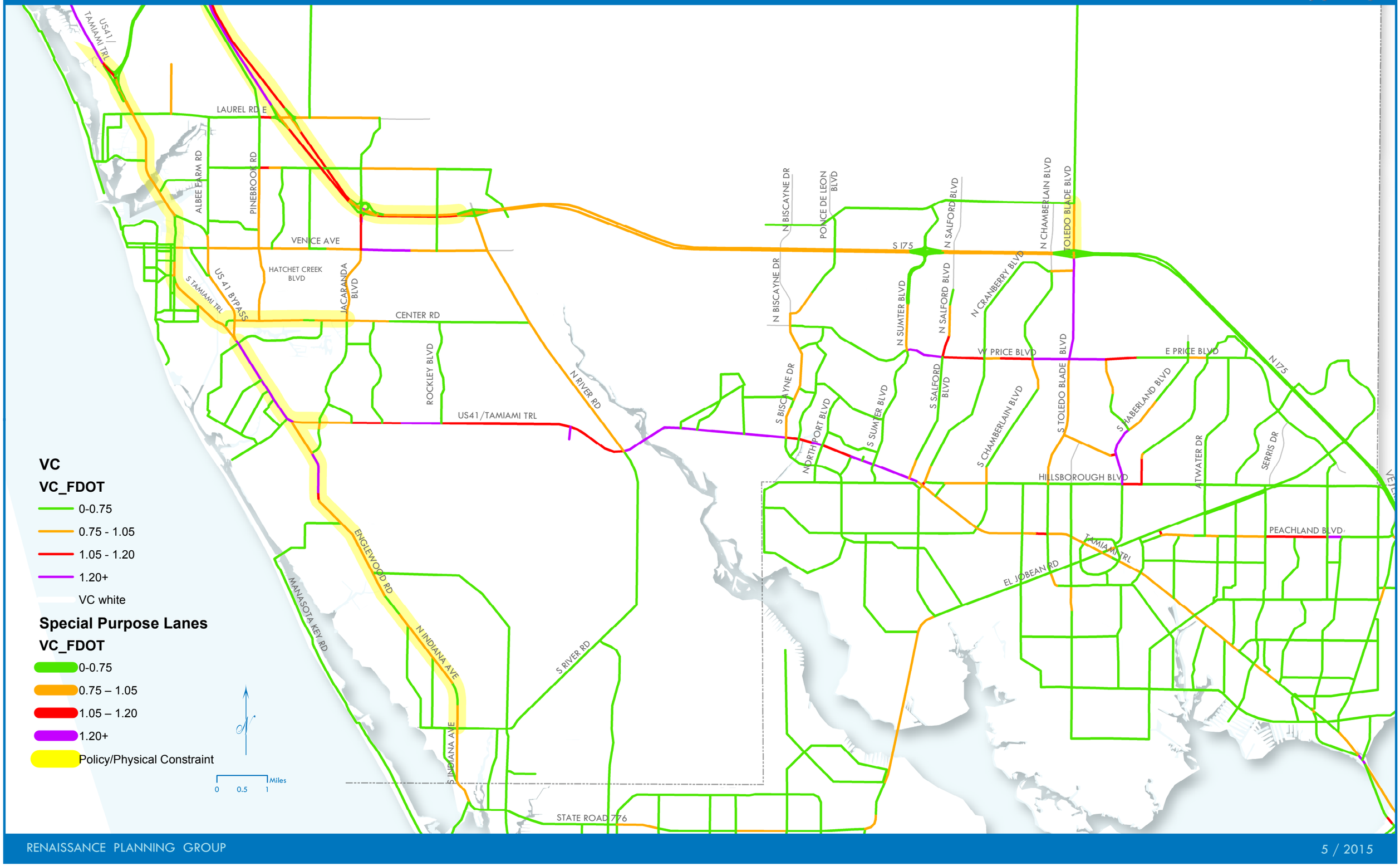
Special Purpose Lanes

VC_FDOT

- 0-0.75
- 0.75 – 1.05
- 1.05 – 1.20
- 1.20+
- Policy/Physical Constraint

Map represents the congestion levels with 2040 forecasted traffic on the D1RPM 2040 Cost Feasible Model Alternative 4 roadway network.

Sarasota County [South]



Map represents the congestion levels with 2040 forecasted traffic on the D1RPM 2040 Cost Feasible Model Alternative 5 roadway network.

Manatee County

VC

- 0-0.75
- 0.75 - 1.05
- 1.05 - 1.20
- 1.20+

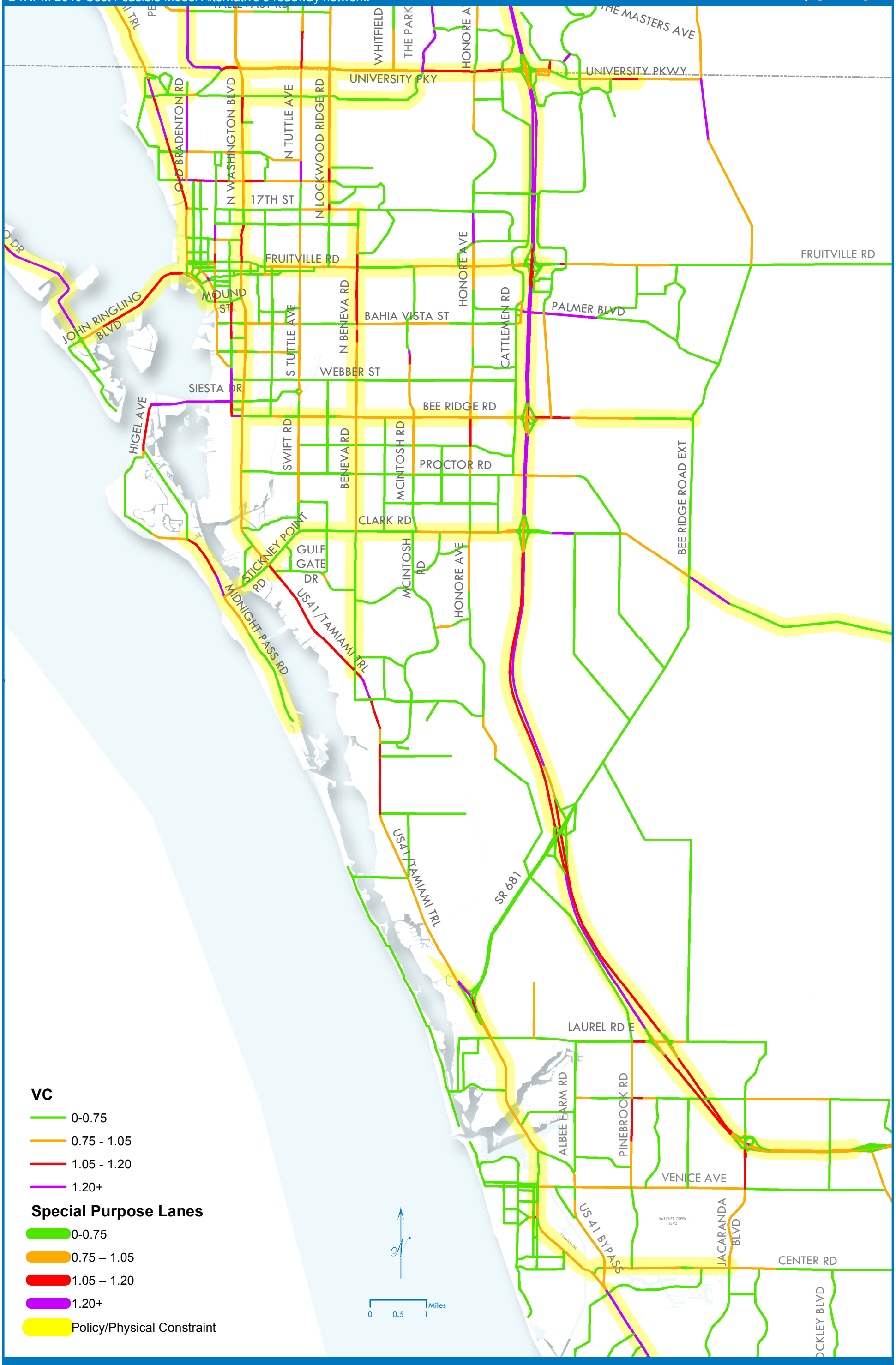
Special Purpose Lanes

- 0-0.75
- 0.75 – 1.05
- 1.05 – 1.20
- 1.20+
- Policy/Physical Constraint

0 0.5 1 Miles

Map represents the congestion levels with 2040 forecasted traffic on the D1RPM 2040 Cost Feasible Model Alternative 5 roadway network.

Sarasota County [North]



VC

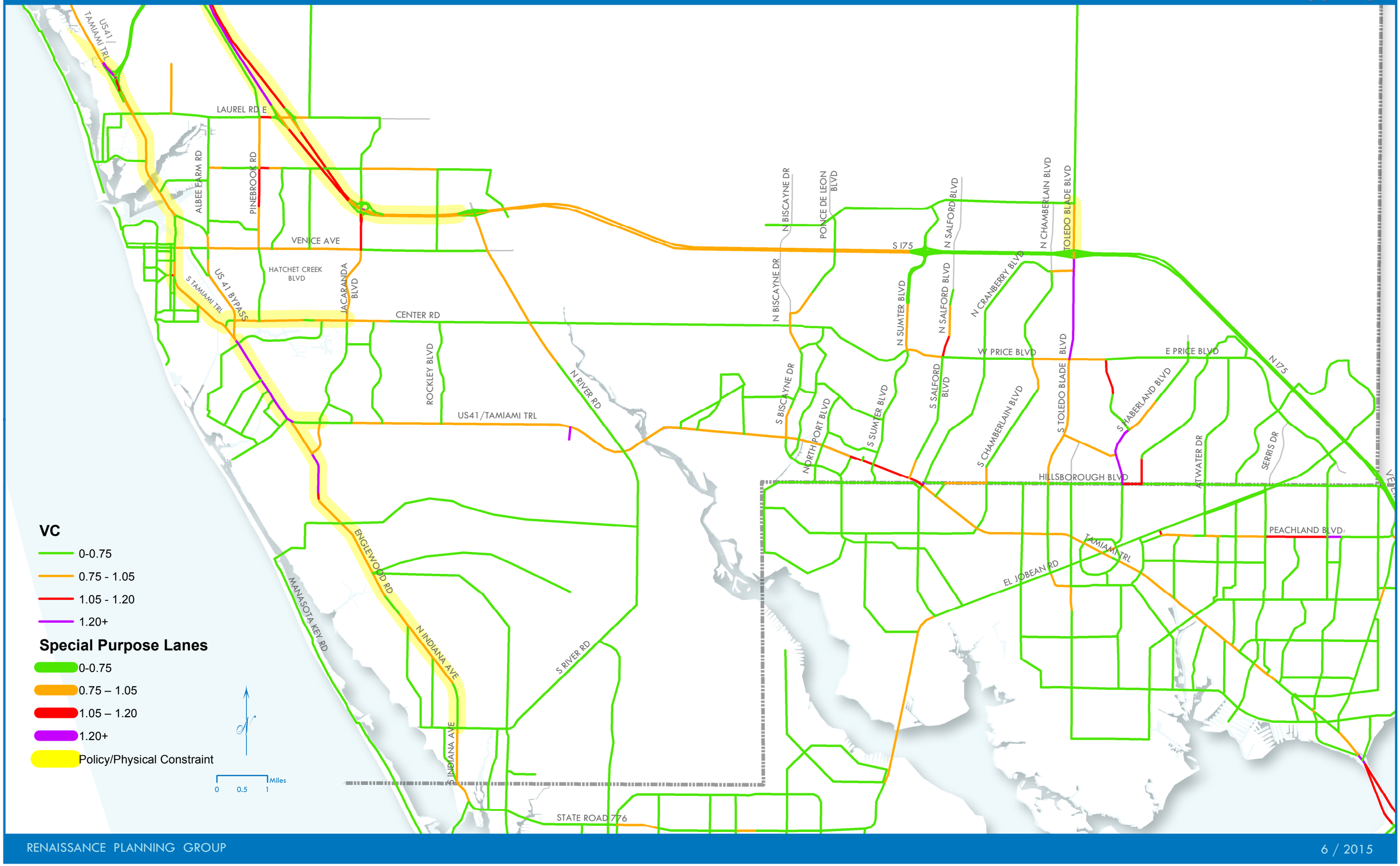
- 0-0.75
- 0.75 - 1.05
- 1.05 - 1.20
- 1.20+

Special Purpose Lanes

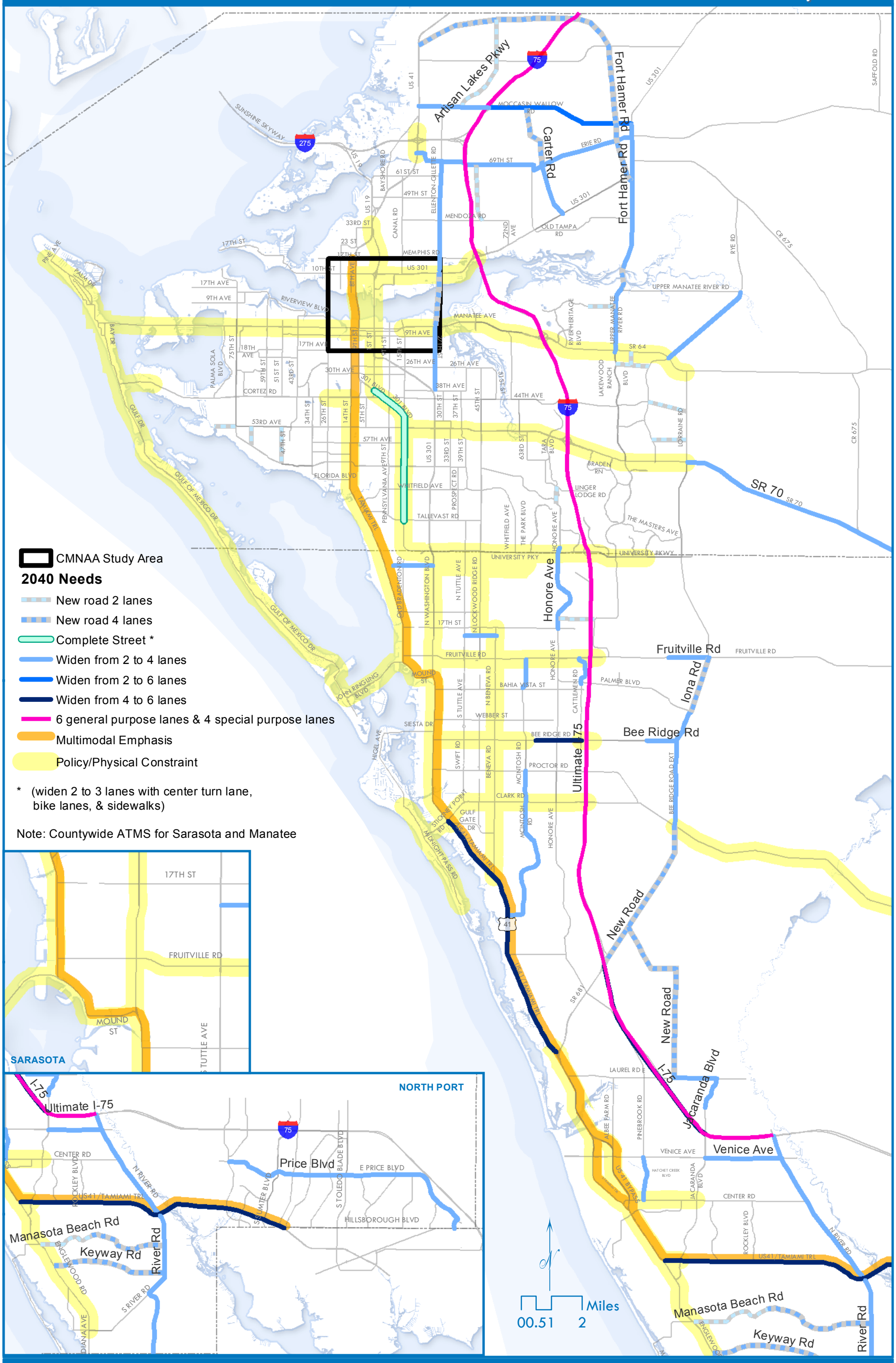
- 0-0.75
- 0.75 – 1.05
- 1.05 – 1.20
- 1.20+
- Policy/Physical Constraint

Map represents the congestion levels with 2040 forecasted traffic on the D1RPM 2040 Cost Feasible Model Alternative 5 roadway network.

Sarasota County [South]



2040 Roadway Needs



RENAISSANCE PLANNING GROUP

8/2015

2040 Draft Needs Transit Network

Water Taxi Hubs

Downtown Circulator

Downtown Circulator

Downtown Circulator

Downtown Circulator

North Port Bus Transfer Hub

EASTERN MANATEE/SARASOTA

SARASOTA

NORTH PORT

SOUTH VENICE

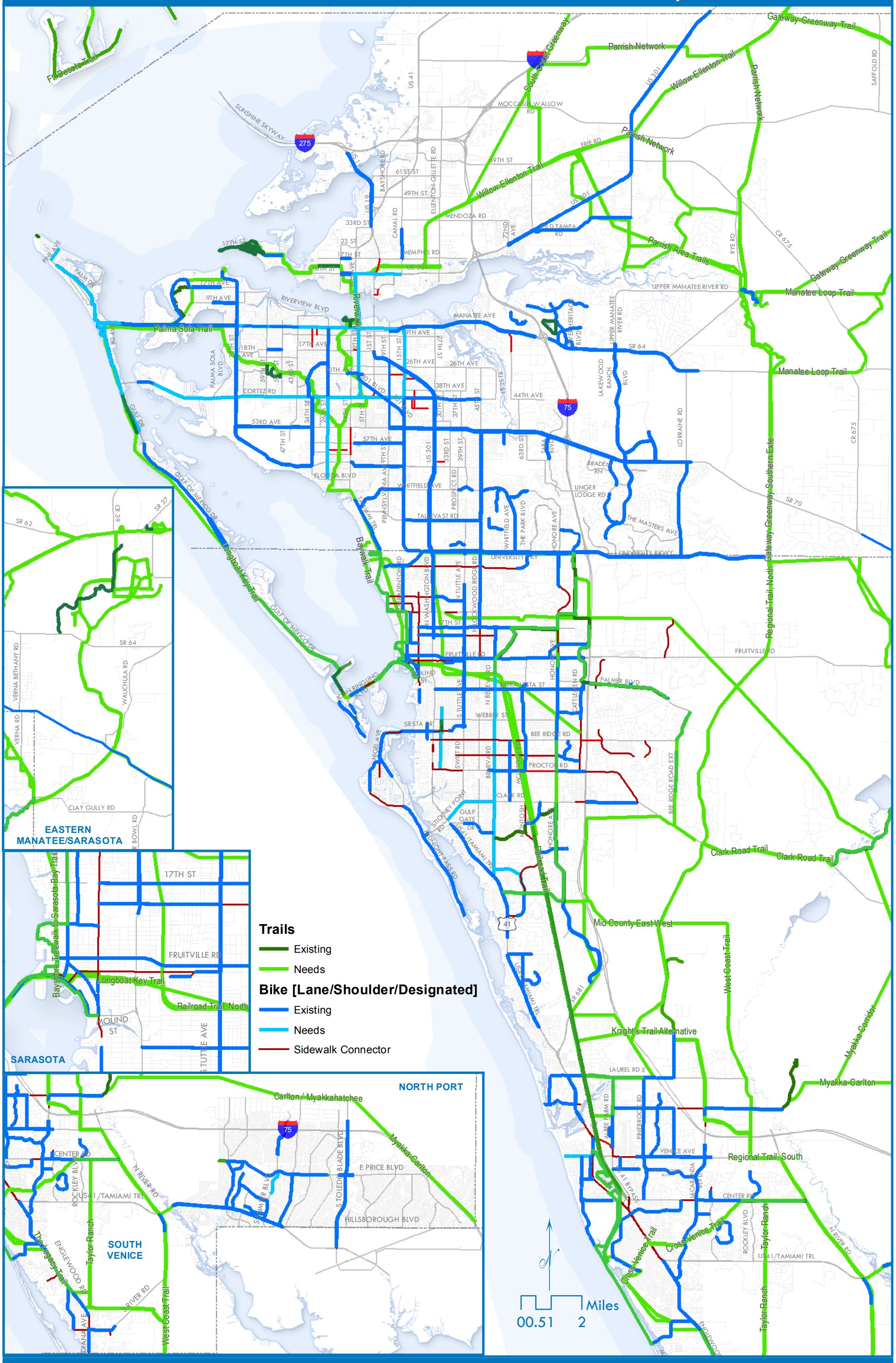
- Tier 1 Park and Ride Lot
- MCAT Needs
- SCAT Needs
- MCAT
- MCAT & SCAT
- SCAT

Miles
0 0.5 1 2

RENAISSANCE PLANNING GROUP

7/2015

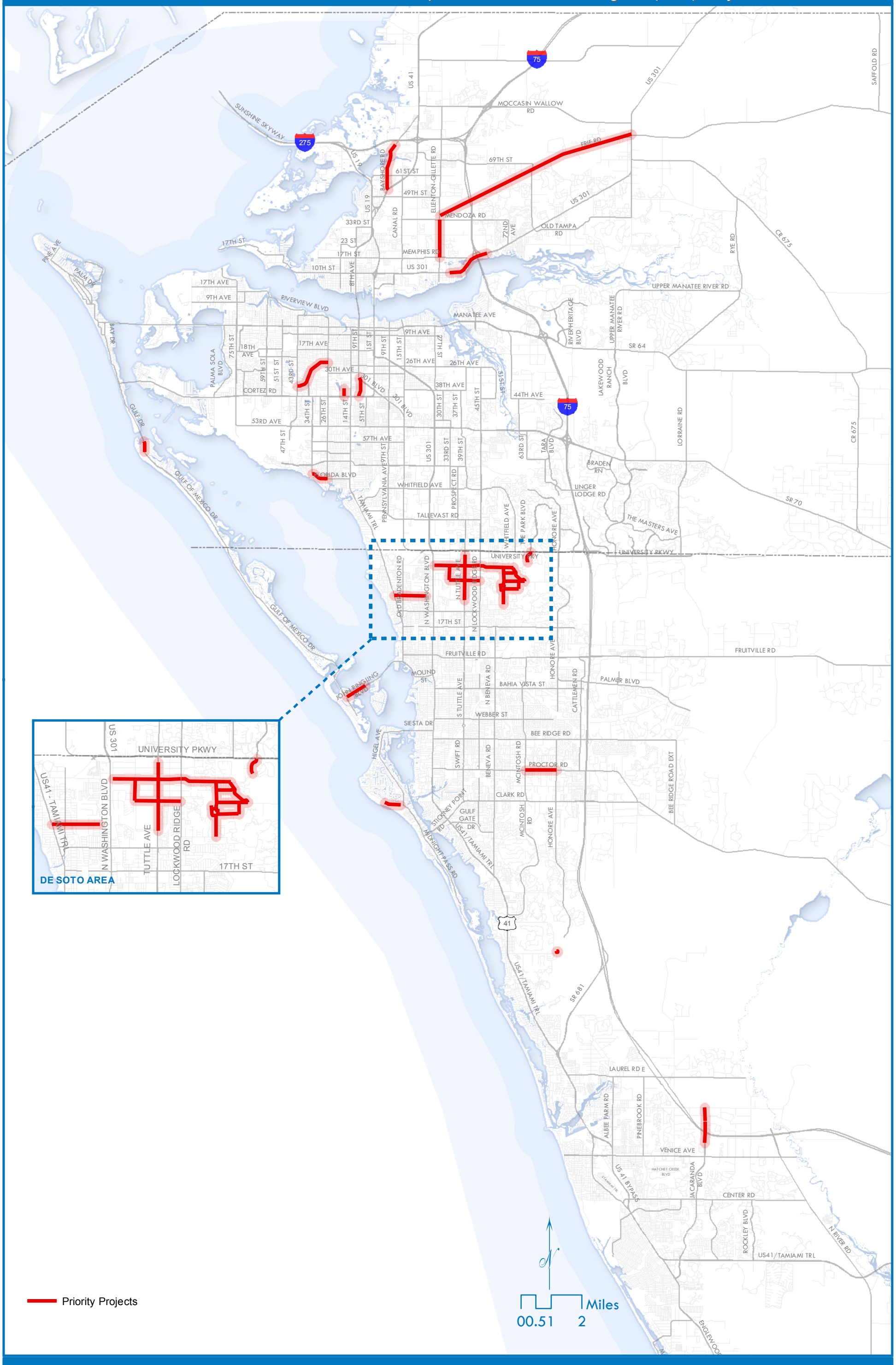
2040 Needs Bicycle / Pedestrian Network



RENAISSANCE PLANNING GROUP

7/22/2015

Transportation Alternative Program (TAP) Project Priorities 2015



Manatee County Needs & Costs

Roadway Projects

FF Status	Facility	From	To	Lanes / Length / Units		Type	Project	ROW Cost (Millions)	LRE Estimate (Millions)	Subtotal [LRE + MOT + Mob + CEI] (Millions)	Project Unknowns - 25% (Millions)	Total Construction	Total Cost (Millions)
M-OA3	Central Manatee Alternatives Analysis			0			Projects from Central Manatee Network Alternatives Analysis (CMNAA) project (FDOT)						$ 3.00
M-OA1	Manatee County ATMS												$ 2.25
	Fort Hamer Bridge	Fort Hamer Rd	Britt Rd	0	0.86 Miles	Bridge - Low Level	2-Lane Undivided Bridge with 4' Bike Lanes and 6' Sidewalks	$ 4.45	$ 29.81	$ 30.25	$ 8.06	$ 38.31	$ 42.76
	Tara Bridge	Tara Blvd	Honore Ave	0	0.59 Miles	Bridge - Low Level	2-Lane Undivided Bridge with 4' Bike Lanes and 6' Sidewalks	$ 3.05	$ 34.66	$ 46.79	$ 11.70	$ 58.49	$ 61.54
	EZ Flyover	US 41	Port / Port Connector		0.5 Miles	Bridge - Low Level	2-Lane Undivided Bridge	$ 2.00	$ 30.00	$ 37.50	$ 9.38	$ 46.88	$ 48.88
	new bridge	US 301	Manatee Ave	0	1.82 Miles	Bridge - Mid Level	4-Lane Twin Span Bridge (28' Median) with 4' Bike Lanes and 6' Sidewalks	$ 19.41	$ 120.65	$ 162.88	$ 40.72	$ 203.60	$ 223.01
	27th St. East	38th Street East	SR 64	0	2.14 Miles	Roadway - New Construction	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 12.65	$ 13.44	$ 18.14	$ 4.54	$ 22.68	$ 35.33
	44th Ave E	White Eagle Blvd	Lorraine Rd	0	1.4 Miles	Roadway - New Construction	2-Lane Undivided Roadway with 6' Sidewalk, 4' Bike Lane and Curb & Gutter	$ 8.28	$ 8.79	$ 11.87	$ 2.97	$ 14.83	$ 23.11
	50th Ave West	86th Street West	75th Street West	0	0.71 Miles	Roadway - New Construction	2-Lane Undivided Roadway with 6' Sidewalk, 4' Bike Lane and Curb & Gutter	$ 4.20	$ 4.46	$ 6.02	$ 1.51	$ 7.52	$ 11.72
	51st Street West	El Conquistorador Parkway	53rd Ave East	0	1.2 Miles	Roadway - New Construction	2-Lane Undivided Roadway with 6' Sidewalk, 4' Bike Lane and Curb & Gutter	$ 7.09	$ 7.54	$ 10.17	$ 2.54	$ 12.72	$ 19.81
	66th Street West	El Conquistorador Parkway	53rd Ave East	0	0.52 Miles	Roadway - New Construction	2-Lane Undivided Roadway with 6' Sidewalk, 4' Bike Lane and Curb & Gutter	$ 3.07	$ 3.27	$ 4.41	$ 1.10	$ 5.51	$ 8.58
	117th Street East	Gatewood Drive	SR 64	0	0.52 Miles	Roadway - New Construction	2-Lane Undivided Roadway with 6' Sidewalk, 4' Bike Lane and Curb & Gutter	$ 3.07	$ 3.27	$ 4.41	$ 1.10	$ 5.51	$ 8.58
	Artisan Lakes Parkway	Port Connector N	Moccasin Wallow Rd	0	2.5 Miles	Roadway - New Construction	2-Lane Undivided Roadway with 6' Sidewalk, 4' Bike Lane and Curb & Gutter	$ 14.78	$ 15.70	$ 21.19	$ 5.30	$ 26.49	$ 41.27
	Carter Road	Erie Road	Moccasin Wallow Road	0	2.09 Miles	Roadway - New Construction	2-Lane Undivided Roadway with 6' Sidewalk, 4' Bike Lane and Curb & Gutter	$ 12.36	$ 13.13	$ 17.71	$ 4.43	$ 22.15	$ 34.50
	Ft Hamer Road	One mile north of Moccasin Wallow Road	Port Connector	0	1 Miles	Roadway - New Construction	4-Lane Roadway (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved	$ 15.63	$ 10.15	$ 13.71	$ 3.43	$ 17.14	$ 32.77
	Fort Hamer Road	Moccasin Wallow Road	one Mile North of Moccasin Wallow Road	0	1 Miles	Roadway - New Construction	4-Lane Roadway (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved	$ 15.63	$ 10.15	$ 13.71	$ 3.43	$ 17.14	$ 32.77
	Fort Hamer Road	US 301	Moccasin Wallow Road	0	2 Miles	Roadway - New Construction	4-Lane Roadway (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved	$ 31.26	$ 20.31	$ 27.42	$ 6.85	$ 34.27	$ 65.53
	Gatewood Drive	Lakewood Ranch Blvd	White Eagle Blvd	0	1.08 Miles	Roadway - New Construction	2-Lane Undivided Roadway with 6' Sidewalk, 4' Bike Lane and Curb & Gutter	$ 6.38	$ 6.78	$ 9.15	$ 2.29	$ 11.44	$ 17.83
	New road	Port Connector	Upper Manatee River Rd	0	5.76 Miles	Roadway - New Construction	4-Lane Roadway (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved	$ 90.02	$ 58.49	$ 78.97	$ 19.74	$ 98.71	$ 188.73
	Port Connector	US 41	US 301	0	6.64 Miles	Roadway - New Construction	4-Lane Roadway (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved	$ 103.78	$ 67.43	$ 91.03	$ 22.76	$ 113.79	$ 217.57
	Port Harbour Parkway	Golden Harbour Trail	Upper Manatee River Road	0	1.02 Miles	Roadway - New Construction	2-Lane Undivided Roadway with 6' Sidewalk, 4' Bike Lane and Curb & Gutter	$ 6.03	$ 6.41	$ 8.65	$ 2.16	$ 10.81	$ 16.84
	Rangeland Parkway	White Eagle Bld	Lorraine Rd	0	1.2 Miles	Roadway - New Construction	2-Lane Undivided Roadway with 6' Sidewalk, 4' Bike Lane and Curb & Gutter	$ 7.09	$ 7.54	$ 10.17	$ 2.54	$ 12.72	$ 19.81
M-OA2	15th St E/301 Blvd E	Tallevast Rd	US 41	2	4.85 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 25.00	$ 8.25	$ 40.00	$ 10.00	$ 50.00	$ 75.00
	60th Ave East	Mendoza	69th Ave	2	2.8 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 5.00	$ 23.00	$ 31.05	$ 5.75	$ 36.80	$ 41.80
	69th St/Erie Rd	US 41	Upper Manatee River Rd	2	7.49 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 37.97	$ 47.88	$ 64.64	$ 16.16	$ 80.80	$ 118.77
	Ellenton-Gillette Road	US 301	69th Street East	2	3.7 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 18.76	$ 23.65	$ 31.93	$ 7.98	$ 39.91	$ 58.67
	Fort Hamer Road	Ft Hamer Bridge	US 301	0		Roadway - Widening	4-Lane Roadway (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved	$ 48.92	$ 81.44	$ 109.95	$ 20.36	$ 130.31	$ 179.24
	Harrison Ranch Blvd	Erie Road	US 301	2	1 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ -	$ 29.91	$ 33.88	$ 6.47	$ 40.35	$ 40.35
	Moccasin Wallow Rd	US 41	Artisan Lakes Parkway	2	1.28 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 6.65	$ 14.38	$ 19.42	$ 4.85	$ 24.27	$ 30.92
	Moccasin Wallow Rd	Artisan Lakes Parkway	I-75	2	1 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 5.07	$ 6.39	$ 8.63	$ 2.16	$ 10.79	$ 15.86
	Moccasin Wallow Rd	I-75	US 301	2	4.67 Miles	Roadway - Widening	4-Lane Roadway to 6 Lanes (45 mph Design speed) with 5' Sidewalk, 4' Bike Lanes, and Curb & Gutter (Includes milling and resurfacing of existing pavement)	$ 5.92	$ 30.54	$ 41.23	$ 10.31	$ 51.54	$ 57.46
	Rye Rd	SR 64	Upper Manatee River Road	2	3.18 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 16.12	$ 20.33	$ 27.44	$ 6.86	$ 34.30	$ 50.43
	SR 70	Lorraine Rd	Singletary Rd	2	15.87 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 45.44	$ 98.25	$ 132.64	$ 33.16	$ 165.80	$ 211.24
	Upper Manatee River Rd	US 301	Fort Hamer Bridge	2	4.75 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 24.08	$ 30.37	$ 40.99	$ 10.25	$ 51.24	$ 75.32
M-OA4	Upper Manatee River Rd	Fort Hamer Rd	SR 64	2	2.19 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 29.25	$ 14.00	$ 18.90	$ 4.73	$ 23.63	$ 52.88

Bike / Pedestrian / Trails Projec

TA1	Southern Parkway Bicycle Path	Bradenton					Add bicycle path on Southern Parkway.	$ 0.28	$ 0.56	$ 0.76	$ 0.14	$ 0.90	$ 1.18
TA4	Ellenton-Gillette Road Sidewalk	Manatee County					Construct sidewalk on the east side of the roadway from 17th Street East to Mendoza Road	$ 0.23	$ 0.46	$ 0.62	$ 0.12	$ 0.74	$ 0.97
TA6	Bayshore Road Sidewalk	Palmetto					Construct sidewalk from 17th St W to US 41 on west side.	$ 0.06	$ 0.13	$ 0.17	$ 0.03	$ 0.21	$ 0.27
TA8	9th Street West Sidewalk	Manatee County					Construct sidewalk from Cortez Rd to 301 Blvd on west side.	$ 0.07	$ 0.14	$ 0.18	$ 0.03	$ 0.22	$ 0.28
TA10	18th Street West Sidewalk	Manatee County					Construct sidewalk from Cortez Rd to 38th Ave W on east side.	$ 0.06	$ 0.12	$ 0.16	$ 0.03	$ 0.18	$ 0.24
TA11	Florida Blvd Sidewalk	Manatee County					Construct sidewalk from 26th St W to 34th St W to fill gap along north side.	$ 0.05	$ 0.11	$ 0.14	$ 0.03	$ 0.17	$ 0.22
	US 301 Sidewalk (West Phase)	Manatee County					Construct sidewalk on north side of US 301 from 41st Ave E. to 51st Ave E.	$ 0.23	$ 0.46	$ 0.62	$ 0.12	$ 0.74	$ 0.97
	US 301 Sidewalk (East Phase)	Manatee County					Construct sidewalk on the north side of US 301 from 51st Ave E. to 60th Ave. E.	$ 0.23	$ 0.46	$ 0.62	$ 0.12	$ 0.74	$ 0.97
	Willow Ellenton Greenway Multiuse Trail	Manatee County					Construct a multi-use trail from US 301 (Ellenton) to US 301 (Parrish), predominantly within existing FPL railroad right of way.	$ 1.35	$ 2.70	$ 3.65	$ 0.68	$ 4.32	$ 5.67

Transit Projects

	New operations & maintenance facility			1	Bus	Station/Facility	Bus Facility (Administration, Operation, and Maintenance)	$ -	$ 30.00	$ 30.00	$ 7.50	$ 37.50	$ 37.50
	capital for additional services			10	Bus	Station/Facility	Local Bus Stops - Shelters & Amenities	$ -	$ 0.30	$ 0.30	$ 0.08	$ 0.38	$ 0.38
	Infrastructure, technology, and planning			10	Bus	Station/Facility	Local Bus Stops - Shelters & Amenities	$ -	$ 0.30	$ 0.30	$ 0.08	$ 0.38	$ 0.38
	beachway Plaza park n ride			1	Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 2.50	$ 0.63	$ 3.13	$ 3.13
	Ellenton Premium Outlets/Kmart park n ride			1	Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 2.50	$ 0.63	$ 3.13	$ 3.13
	Gulf Coast Corporate Park Park N Ride			1	Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 2.50	$ 0.63	$ 3.13	$ 3.13
	I-75 and 301 N park n ride			1	Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 2.50	$ 0.63	$ 3.13	$ 3.13
	Lakewood Ranch park n ride			1	Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 2.50	$ 0.63	$ 3.13	$ 3.13
	Palmetto Public park n ride			1	Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 2.50	$ 0.63	$ 3.13	$ 3.13
	Paradise Bay Plaza park n ride			1	Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 2.50	$ 0.63	$ 3.13	$ 3.13
	ST 64 and Upper Manatee River Rd park n ride			1	Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 2.50	$ 0.63	$ 3.13	$ 3.13
	US 301 & CR 575 Park n ride			1	Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 2.50	$ 0.63	$ 3.13	$ 3.13
	US 301 and SR 70			1	Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 2.50	$ 0.63	$ 3.13	$ 3.13
	Manatee Ave on Route 3						Existing Bus Route					$ 0.59	$ 11.84
	Route 6/Cortez Rd & SR 70						Existing Bus Route					$ 1.18	$ 23.68
	Route 99						Existing Bus Route					$ 0.59	$ 11.84
	Sunday Service						Existing Bus Route					$ 0.35	$ 6.96
	Lakewood Ranch						New Bus Route					$ 0.53	$ 10.69
	SR 70 Extension by way of Route 6						New Bus Route					$ 0.53	$ 10.69

Sarasota County Needs & Costs

Roadway Projects

	Facility	From	To	Lanes / Length / Units		Type	Project	ROW Cost (Millions)	LRE Estimate (Millions)	Subtotal [LRE + MOT + Mob + CEI] (Millions)	Project Unknowns - 25% (Millions)	Total Construction Cost (Millions)
5-OA1	Sarasota County ATMS											$ 2.25
	North-South Roadway A	SR 72	I-75	0	5.07 Miles	Roadway - New Construction	4-Lane Roadway (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved	$ 45.51	$ 51.49	$ 69.51	$ 17.38	$ 132.39
	Iona Rd	Fruitville Rd	Palmer Blvd	0	1.92 Miles	Roadway - New Construction	4-Lane Roadway (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved	$ 37.51	$ 19.50	$ 26.32	$ 6.58	$ 70.41
	Keyway Rd	SR 776	River Rd	0	3.8 Miles	Roadway - New Construction	4-Lane Roadway (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved	$ 101.98	$ 53.01	$ 71.56	$ 17.89	$ 191.43
	Lakewood Ranch	Communications Parkway	Fruitville Rd	0	4.48 Miles	Roadway - New Construction	4-Lane Roadway (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved	$ 87.52	$ 45.50	$ 61.42	$ 15.35	$ 164.30
	Manasota Beach Rd	SR 776	Sarasota County/North Port boundary	0	2.62 Miles	Roadway - New Construction	2-Lane Undivided Roadway with 6' Sidewalk, 4' Bike Lane and Curb & Gutter	$ 19.37	$ 16.45	$ 22.21	$ 5.55	$ 47.12
	Manasota Beach Rd	Sarasota County/North Port boundary	River Rd	0	3.66 Miles	Roadway - New Construction	4-Lane Roadway (45mph Design Speed) with 5' Sidewalk, 4' Bike Lane, and Curb & Gutter	$ 49.28	$ 32.19	$ 43.45	$ 10.86	$ 103.59
	Lorraine Road	University Pkwy	Fruitville Rd	0	3.55 Miles	Roadway - New Construction	4-Lane Roadway (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved	$ 22.49	$ 36.05	$ 48.67	$ 12.17	$ 83.33
	Knights Trail Road	North-South Roadway A	Laurel Rd	0	5 Miles	Roadway - New Construction	4-Lane Roadway (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved	$ 117.22	$ 60.93	$ 82.26	$ 20.56	$ 220.04
	12th St	Tuttle Ave	Beneva Rd	2	1.02 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 6.46	$ 6.52	$ 8.80	$ 2.20	$ 17.47
	Bee Ridge Extension	Bee Ridge Rd	SR 72	2	2.92 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 10.79	$ 18.67	$ 25.20	$ 6.30	$ 42.29
	Bee Ridge Rd	Bond Pl	I-75	4	1.47 Miles	Roadway - Widening	4-Lane Roadway to 6 Lanes (50mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 11.64	$ 10.27	$ 13.86	$ 3.47	$ 28.97
	Bee Ridge Rd	Bent Tree Rd	Bee Ridge Rd extension	2	0.96 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 6.08	$ 6.14	$ 8.28	$ 2.07	$ 16.44
	Cattlemen Rd	Fruitville Rd	Palmer Blvd	2	1.04 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 6.59	$ 6.65	$ 8.98	$ 2.24	$ 17.81
	Desoto Rd	US 301	University Pkwy	2	1.27 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 8.05	$ 8.12	$ 10.96	$ 2.74	$ 21.75
	Fruitville Rd	Debrecen Rd	new road	2	1.29 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 8.17	$ 8.25	$ 11.13	$ 2.78	$ 22.09
5-OA6	Honore Ave	University Parkway	17th St	2	3.09 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 11.58	$ 19.75	$ 24.67	$ 6.67	$ 42.91
	Iona Rd	Palmer Blvd	Bee Ridge Rd	2	1.05 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ -	$ 6.71	$ 9.06	$ 2.27	$ 11.33
	Jacaranda Blvd	Laurel Rd E	Border Rd	2	1.1 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 6.97	$ 7.03	$ 9.49	$ 2.37	$ 18.84
	Laurel Rd	Haul Rd	Jacaranda Blvd	2	1.37 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 8.68	$ 8.76	$ 11.82	$ 2.96	$ 23.46
	McIntosh Rd	Fruitville Rd	Bahia Vista St	2	1.02 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 6.46	$ 6.52	$ 8.80	$ 2.20	$ 17.47
	McIntosh Rd	Proctor Rd	US 41/Tamiami Tr	2	5.82 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ -	$ 37.21	$ 50.23	$ 12.56	$ 62.78
	Pinebrook Rd	Venice Ave	Center Rd	2	1.48 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 9.38	$ 9.46	$ 12.77	$ 3.19	$ 25.34
	Price Blvd	Hillsborough Blvd	Toledo Blade	2	6.8 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 43.08	$ 43.47	$ 86.56	$ 21.64	$ 108.19
	Price Blvd	Toledo Blade	Cranberry	2	1.7 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 10.77	$ 10.87	$ 21.64	$ 5.41	$ 27.05
5-OA5	Price Blvd	Cranberry	Sumter	2	1.5 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 9.50	$ 9.59	$ 19.09	$ 4.77	$ 23.87
	Price Blvd	Sumter	Biscayne Dr	2	2.5 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 15.84	$ 15.98	$ 31.82	$ 7.96	$ 39.78
5-OA2	River Rd	US 41	West Villages	2	1.4 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 0.20	$ 23.00	$ 31.05	$ 5.75	$ 37.00
5-OA3	River Rd	West Villages	Center Rd	2	1.8 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 2.20	$ 15.00	$ 20.25	$ 3.75	$ 26.20
5-OA4	River Rd	Center Rd	I-75	2	2.39 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 2.80	$ 15.28	$ 20.63	$ 5.16	$ 28.58
	River Rd	Winchester Blvd	US 41/Tamiami Tr	2	0.96 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 25.98	$ 26.21	$ 35.38	$ 8.85	$ 70.21
	Winchester Blvd	SR 776	River Rd	2	0.96 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 6.08	$ 6.14	$ 8.28	$ 2.07	$ 16.44
	US 41 Tamiami Tr	Stickney Point Rd	SR 681	4	8.85 Miles	Roadway - Widening	4-Lane Roadway to 6 Lanes (50mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 70.09	$ 61.82	$ 83.46	$ 20.87	$ 174.42
	US 41 Tamiami Tr	Englewood Rd	Hillsborough Blvd	4	12.56 Miles	Roadway - Widening	4-Lane Roadway to 6 Lanes (50mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 99.48	$ 87.74	$ 118.45	$ 29.61	$ 247.54
	US 41 @ Gulfstreem					Roadway - Widening	Major Intersection Improvement / Roundabout	$ 15.00	$ 5.00	$ 6.75	$ 14.69	$ 36.44
	Venice Ave	Jacaranda Blvd	River Rd	2	2.45 Miles	Roadway - Widening	2-Lane Roadway to 4 Lanes (55mph Design Speed) with 5' Sidewalk, 6.5' Bike Lane , and Curb & Gutter with 4' Inside Shoulder Paved (Includes milling and resurfacing of existing pavement)	$ 15.52	$ 15.66	$ 21.14	$ 5.29	$ 41.95

Bike / Pedestrian / Trails Projects

	Facility	From	To	Lanes / Length / Units		Type	Project	ROW Cost (Millions)	LRE Estimate (Millions)	Subtotal [LRE + MOT + Mob + CEI] (Millions)	Project Unknowns - 25% (Millions)	Total Construction Cost (Millions)
TA2	Myrtle St Enhancements	Sarasota County					Roadway reconstruction, bike lanes, additional sidewalks on north side and storm water improvements.	$ 0.50	$ 1.00	$ 1.35	$ 0.25	$ 2.10
TA3	Sarasota Trail Coon Key Section	Sarasota					John Ringling Blvd from western end of Coon Key Bridge to Washington Drive.	$ 0.30	$ 0.60	$ 0.12	$ 0.03	$ 0.45
TA5	Biscayne Drive Bicycle Lanes	North Port					Extend bicycle lanes from Elynton Dr. to Ponce de Leon with connection to existing bicycle lanes or paved shoulders.	$ 0.32	$ 0.63	$ 0.25	$ 0.06	$ 0.63
TA7	Osprey Park Trailhead (Regional Trail Project)	Sarasota County					Design and construct a 10 ft. wide multi-use trail connecting Legacy Trail to Osprey Park.	$ 1.00	$ 2.00	$ 0.08	$ 0.02	$ 1.10
TA9	Proctor Rd Sidewalks	Sarasota County					Design and construct a sidewalk on the north side of Proctor Road from Honore Avenue to McIntosh Road.	$ 0.08	$ 0.17	$ 0.35	$ 0.09	$ 0.52
	Desoto Area Sidewalks Phase 1a	Sarasota County					Construct sidewalks on Desoto Rd (east of Lockwood Ridge)	$ 0.32	$ 0.64	$ 0.79	$ 0.20	$ 1.30
	Desoto Area Sidewalks Phase 1b	Sarasota County					Construct sidewalks on Mink St and 42nd (east of Lockwood Ridge)	$ 0.29	$ 0.59	$ 0.76	$ 0.19	$ 1.25
	Desoto Area Sidewalks Phase 1c	Sarasota County					Construct remainder of sidewalks in Desoto Area east of Lockwood Ridge	$ 0.54	$ 1.07	$ 0.71	$ 0.18	$ 1.43
	Desoto Area Sidewalks Phase 2a	Sarasota County					Construct sidewalks on Desoto Rd (west of Lockwood Ridge)	$ 0.31	$ 0.61	$ 0.69	$ 0.17	$ 1.16
	Desoto Area Sidewalks Phase 2b	Sarasota County					Construct sidewalks on Tuttle (west of Lockwood Ridge)	$ 0.46	$ 0.92	$ 0.36	$ 0.09	$ 0.90
	Desoto Area Sidewalks Phase 2c	Sarasota County					Construct sidewalks on 47th (west of Lockwood Ridge)	$ 0.32	$ 0.64	$ 4.91	$ 1.23	$ 6.46
	Tuttle Ave Enhancement	Sarasota County					Construct bicycle lanes and sidewalks from Myrtle St to 61st St.	$ 1.81	$ 3.63	$ 2.01	$ 0.50	$ 4.33
	Jacaranda Blvd Sidewalks Phase 1	Sarasota County					Construct sidewalks on Jacaranda from Border Rd to I-75.	$ 0.26	$ 0.51	$ 3.14	$ 0.79	$ 4.18
	Jacaranda Blvd Sidewalks Phase 2	Sarasota County					Construct sidewalks on Jacaranda from I-75 to Commerce Drive.	$ 0.20	$ 0.40	$ 0.22	$ 0.06	$ 0.48
	Jacaranda Blvd Sidewalks Phase 3	Sarasota County					Construct sidewalks on Jacaranda from Commercial Court to Executive Drive.	$ 0.22	$ 0.43	$ 3.84	$ 0.96	$ 5.02

Sarasota County Needs & Costs

Transit Projects

	Facility	From	To	Lanes / Length / Units	Type	Project	ROW Cost (Millions)	LRE Estimate (Millions)	Subtotal [LRE + MOT + Mob + CEI] (Millions)	Project Unknowns - 25% (Millions)	Total Construction Cost (Millions)	
	Englewood Hosmer Ave Transfer Point			Bus	Station/Facility	At Grade Bus Station	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	Lakewood Ranch Transfer Center (DRI) developer agreement			Bus	Station/Facility	At Grade Bus Station	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	North Port - Super Stop			Bus	Station/Facility	At Grade Bus Station	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	North Port transfer station			Bus	Station/Facility	At Grade Bus Station	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	Sarasota Bradenton International Airport Transfer Point			Bus	Station/Facility	At Grade Bus Station	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	Siesta Dr Southgate Transfer Point			Bus	Station/Facility	At Grade Bus Station	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	South Venice Walmart Transfer Point			Bus	Station/Facility	At Grade Bus Station	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	Bus Wash Facilties			Bus	Station/Facility	Bus Facility (Administration, Operation, and Maintenance)	$ -	$ 30.00	$ 40.50	$ 10.13	**$ 50.63**	
	Training facility relocation			Bus	Station/Facility	Bus Facility (Administration, Operation, and Maintenance)	$ -	$ 30.00	$ 40.50	$ 10.13	**$ 50.63**	
	3 shelters on SB US 41 at Whitaker Gateway and Centennial Parkway and NB US 41			Bus	Station/Facility	Local Bus Stops - Shelters & Amenities	$ -	$ 0.03	$ 0.04	$ 0.01	**$ 0.05**	
	Bus stop shelters			Bus	Station/Facility	Local Bus Stops - Shelters & Amenities	$ -	$ 3.00	$ 4.05	$ 1.01	**$ 5.06**	
	Lakewood Ranch coporate park			Bus	Station/Facility	Local Bus Stops - Shelters & Amenities	$ -	$ 0.03	$ 0.04	$ 0.01	**$ 0.05**	
	South County satellite garage and maintenance facility			Bus	Station/Facility	Local Bus Stops - Shelters & Amenities	$ -	$ 0.03	$ 0.04	$ 0.01	**$ 0.05**	
	US 41 & Blackburn Point Rd pull off			Bus	Station/Facility	Local Bus Stops - Shelters & Amenities	$ -	$ 0.03	$ 0.04	$ 0.01	**$ 0.05**	
	US 41 & Laurel Rd			Bus	Station/Facility	Local Bus Stops - Shelters & Amenities	$ -	$ 0.03	$ 0.04	$ 0.01	**$ 0.05**	
	US 41 high frequency corridor infrastructure			Bus	Station/Facility	Local Bus Stops - Shelters & Amenities	$ -	$ 0.03	$ 0.04	$ 0.01	**$ 0.05**	
	bee Ridge Square park n ride			Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	Beneva Village Shoppes			Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	Downtown Sarasota park n ride			Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	Englewood Center park n ride			Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	Fruitville Rd and I-75 park n ride			Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	I-75 & Laurel Rd park n ride			Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	I-75 & N River Rd park n ride			Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	I-75 & N Sumter Blvd			Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
TA20	I-75 & University Parkway			Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	Lakewood Ranch Park n Ride			Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	Nokomis			Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	Park and Ride I-75 and Toledo			Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	Peace River Regional North Port HealthPark park n ride			Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
TA25	River Rd & I-75 park and ride			Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	Sarasota Bradenton International Airport Park n Ride			Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	Sarasota Outlet Center park n ride			Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	Sarasota Square Mall park n ride			Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
TA24	Southgate mall park n ride			Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	SR 70 and Verna Bethnay Rd park n ride			Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	State College of Florida Venice campus park n ride			Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
TA22	US 41 and Stickney Point Rd park n ride			Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	Venice Wal-Mart			Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	Venice Wal-Mart			Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	West Sawgrass Rd Park n Ride			Park & Ride	Station/Facility	Park & Ride - At Grade	$ -	$ 2.50	$ 3.38	$ 0.84	**$ 4.22**	
	Extended Express Service				Bus	Existing Bus Route	$ -	$ -	$ -	$ -	**$ 0.57**	**$ 11.33**
	Route 14				Bus	Existing Bus Route	$ -	$ -	$ -	$ -	**$ 0.34**	**$ 6.80**
	Route 14A				Bus	Existing Bus Route	$ -	$ -	$ -	$ -	**$ 0.34**	**$ 6.80**
	Route 3				Bus	Existing Bus Route	$ -	$ -	$ -	$ -	**$ 0.38**	**$ 7.69**
	Route 7				Bus	Existing Bus Route	$ -	$ -	$ -	$ -	**$ 0.37**	**$ 7.42**
	Cattlemen/University Pkwy East				Bus	New Bus Route	$ -	$ -	$ -	$ -	**$ 0.42**	**$ 8.37**
	Downtown Circulator A				Bus	New Bus Route	$ -	$ -	$ -	$ -	**$ 0.88**	**$ 17.55**
	Downtown Circulator B				Bus	New Bus Route	$ -	$ -	$ -	$ -	**$ 0.88**	**$ 17.55**
	Dr. Martin Luther King, Jr. Way Connector				Bus	New Bus Route	$ -	$ -	$ -	$ -	**$ 0.79**	**$ 15.77**
	Laurel/Knights Trail				Bus	New Bus Route	$ -	$ -	$ -	$ -	**$ 0.39**	**$ 7.77**
	LWR Village				Bus	New Bus Route	$ -	$ -	$ -	$ -	**$ 0.84**	**$ 16.74**
	Route 1B				Bus	New Bus Route	$ -	$ -	$ -	$ -	**$ 0.38**	**$ 7.69**
	Route 33				Bus	New Bus Route	$ -	$ -	$ -	$ -	**$ 0.09**	**$ 1.84**
	US 41 Limited				Bus	New Bus Route	$ -	$ -	$ -	$ -	**$ 0.88**	**$ 17.55**
	Venice Island Circulator				Bus	New Bus Route	$ -	$ -	$ -	$ -	**$ 0.14**	**$ 2.79**
	Webber Route				Bus	New Bus Route	$ -	$ -	$ -	$ -	**$ 0.40**	**$ 8.08**
	Route 1S				Bus	Sunday Bus Service	$ -	$ -	$ -	$ -	**$ 0.06**	**$ 1.20**

FREIGHT PLAN RESOURCES

Below are two overview documents that outline freight information for each county.

A key input was the *Florida Freight Mobility and Trade Plan:*

http://www.freightmovesflorida.com/freight-mobility-and-trade-plan

Another great resource for identifying and addressing freight needs in the region is the Freight Moves Tampa Bay implementation page:

http://tampabayfreight.com/implementation/

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A message from Governor Scott on the future of Florida's Freight and Trade

MANATEE COUNTY
FREIGHT & LOGISTICS OVERVIEW

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US House of Representatives
District 17, Thomas Rooney
Phone (202) 225-5792

STATE LEGISLATIVE CONTACTS:

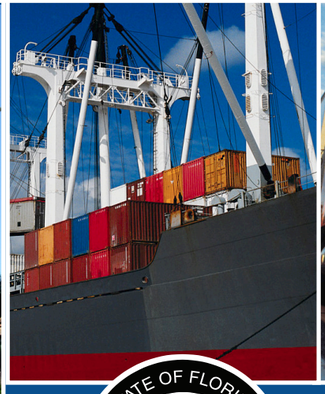
Florida Senate
District 19, Arthenia Joyner
Phone (850) 487-5019

Florida Senate
District 26, Bill Galvano
Phone (850) 487-5026

Florida House of Representatives
District 70, Daryl Ervin Rouson
Phone (850) 717-5070

Florida House of Representatives
District 71, Jim Boyd
Phone (850) 717-5071

Florida House of Representatives
District 73, Gregory W. Steube
Phone (850) 717-5073



FDOT MISSION:
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Freight Mobility and Trade Plan

In recognition of the significant role that freight mobility plays as an economic driver for the state, an Office of Freight, Logistics and Passenger Operations has been created at FDOT. This office has been tasked with meeting the requirements of legislation in Florida House Bill 599, as well as meeting national freight guidance offered in H.R. 4348, the Moving Ahead for Progress in the 21st Century Act (MAP-21).

HB599 requires FDOT to lead the development of a plan to "enhance the integration and connectivity of the transportation system across and between transportation modes throughout the state." For this reason, Florida is already on schedule to meet MAP-21 guidelines and has become a leader in freight issues through its ongoing work in developing a Freight Mobility and Trade Plan. For more information, please see **www.freightmovesflorida.com**.

January 2013

Manatee County

FREIGHT & LOGISTICS OVERVIEW

COUNTY SEAT	LARGEST CITY	AREA	POPULATION	POPULATION GROWTH RATE
Bradenton, FL	Bradenton, FL	723 square miles	322,833	22.03% (2000-2010)

Primary Economic Development Contact: http://www.manateeedc.com/

- Manatee County supports a booming tourism and retirement industry with nearly half of the workforce employed in local service or retail trade.
- Port Manatee houses over one million square feet of public warehousing, 2,000 feet of refrigerated space, and 30,000 square feet of freezer space.
- Manatee County has developed a reputation for being a business friendly region by assisting prospective businesses in their relocation efforts, and working with area businesses to devise financial incentives, development agreements, and other programs to make the county hospitable to new industry.

Top 5 Growing Industries

INDUSTRY	NET JOB CREATION
1. Administrative Support, Water Management, and Remediation Services	3,409
2. Agriculture, Forestry, Fishing, and Hunting	829
3. Educational Services	386
4. Health Care and Social Assistance	250
5. Information	240

Source: Florida Department of Economic Opportunity. Labor Market Statistics Center. LEHD State of Florida County Reports-Quarterly Workforce Indicators 2010-2011

Largest Industry Sectors by Employment

INDUSTRY SECTORS	% OF WORKFORCE
1. Trade, Transportation, and Utilities	27.0%
2. Education and Health Services	7.5%
3. Professional and Business Services	3.3%

Source: Enterprise Florida

Major Private Sector Employers

EMPLOYER	BUSINESS LINE	NUMBER OF EMPLOYEES
1. Manatee County School Board	Public Education	7,000
2. Tropicana Products, Inc.	Orange Juice and Juice Products	1,660
3. Beall's, Inc.	Corporate Headquarters, Distribution	1,550
4. Manatee Memorial Healthcare System	Hospital	1,050
5. Blake Medical Center	Hospital	1,050

Source: Enterprise Florida

Florida infrastructure moves 762 million tons of freight traffic annually.

The state highway system sees 195,755 million annual vehicle miles of travel.

Truck travel accounted for approximately 11% of vehicle miles traveled on the SIS in 2010.

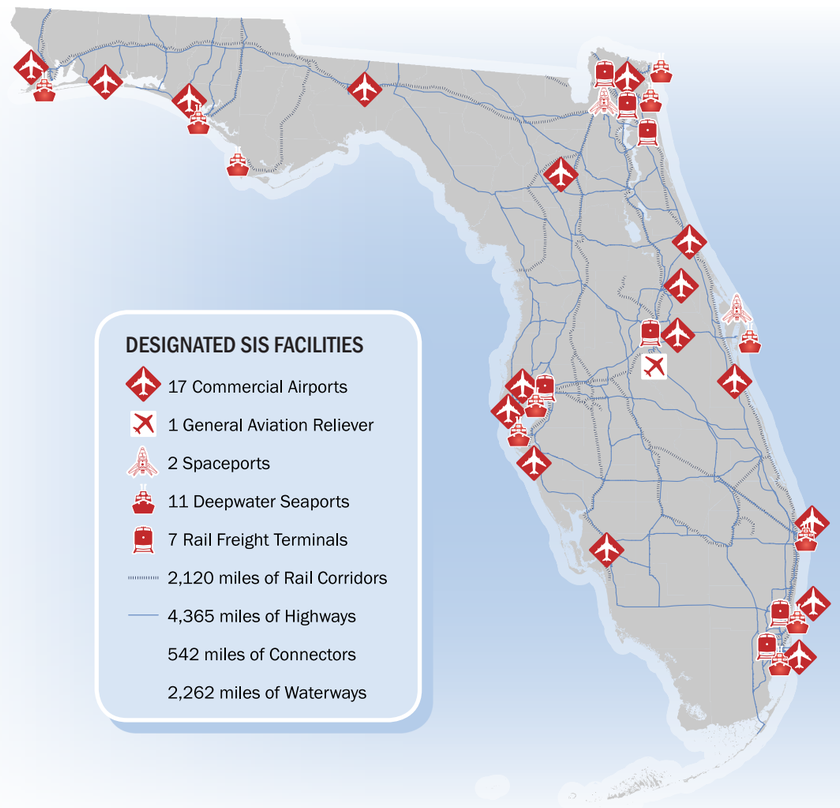
Florida has over 2,700 miles of rail lines, which move over 98 million tons of freight annually.

Florida's Strategic Intermodal System (SIS)

- **Strategic** – Consists of statewide and regionally significant facilities and services
- **Intermodal** – Contains all forms of transportation for moving both people and goods, including linkages for smooth and efficient transfers between modes and major facilities
- **System** – Integrates individual facilities, services, forms of transportation (modes) and linkages into a single, integrated transportation network

The SIS was established to:

- Efficiently serve the mobility needs of Florida's citizens, businesses and visitors
- Help Florida become a worldwide economic leader, enhance economic prosperity and competitiveness, enrich quality of life and reflect responsible environmental stewardship



Florida has 784 aviation facilities, 129 public use, and 19 have commercial service.

The state boasts 2 spaceports and 5 active launch facilities.

Florida's 15 deepwater seaports moved 106.4 million tons of cargo and handled 2.8 million TEU's (20 foot equivalent container unit) in 2010.

Seven of the 15 seaports in Florida carried 12.7 million passengers, 12.1 million of which sailed on multi-day cruises in 2010.

100% of SIS waterborne freight in Florida is on a coastal or international shipping route.

16 Fortune 500 companies have their headquarters in Florida.

Florida

FREIGHT & LOGISTICS OVERVIEW

POPULATION	POPULATION RANK	AREA	AREA RANK	POPULATION GROWTH RATE
18.8 million	4th	53,625 sq. mi.	22nd	17.6% (2000-2010)

Chamber of Commerce website: **http://www.flchamber.org**

Top Employment Sectors

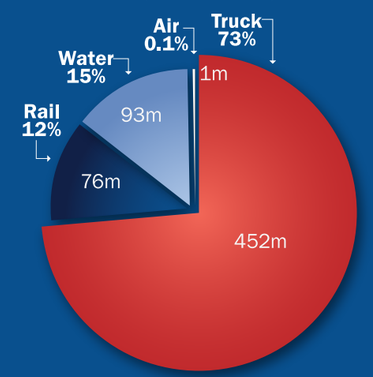
(Nonagricultural Business Groups by Industry)

1. Trade, Transportation, and Utilities
2. Education and Health Services
3. Government Services
4. Professional and Business Services
5. Healthcare and Social Assistance
6. Leisure and Hospitality

Source: Department of Economic Opportunity-Current Employment Statistics (2012)

DOMESTIC AND INTERNATIONAL MODAL MIX

(millions of tons)



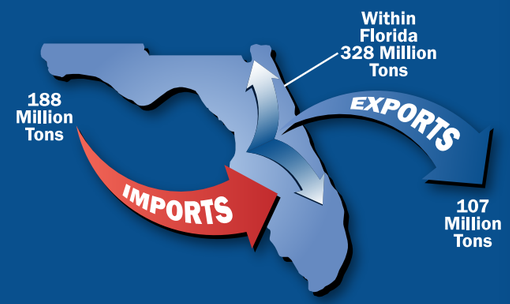
Source: Trade & Logistics Study, Florida Chamber 2009

Top Business Sector Initiatives for Retention and Promotion

1. Clean Energy
2. Information Technology
3. Life Sciences
4. Aviation/ Aerospace
5. Homeland Security/ Defense
6. Financial/ Professional Services

Source: Florida Chamber of Commerce

TOTAL FREIGHT FLOWS



Source: Trade & Logistics Study, Florida Chamber 2009

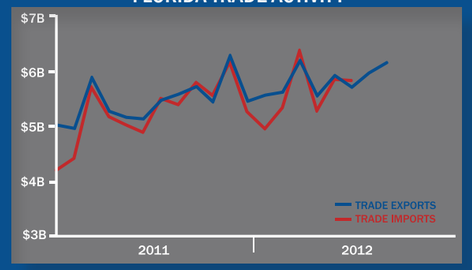
Top International Trade Partners

The state of Florida is a major international hub accounting for approximately $149 billion in international trade activity in 2011.

EXPORTS	IMPORTS
1. Switzerland	1. China
2. Brazil	2. Mexico
3. Venezuela	3. Japan
4. Canada	4. Canada
5. Colombia	5. Colombia

Source: Trade & Logistics Study, Florida Chamber 2009

FLORIDA TRADE ACTIVITY



Key Transportation and Freight Facilities

STRATEGIC INTERMODAL SYSTEM (SIS) HIGHWAYS	I-75, I-275, US 41, US 301, SR 70
SIS RAILROADS	CSX Transportation
SIS AIRPORTS	Sarasota/Bradenton International Airport, Tampa International Airport
SIS SEAPORTS	Port Manatee, Port of Tampa
NON SIS STATE HIGHWAYS	SR 70, SR 64, SR 62, SR 684, SR 789
GENERAL AVIATION AIRPORTS	Airport Manatee

Top Imports

INBOUND FREIGHT	TRUCK TONNAGE
1. Petroleum or Coal Products	6,250,397
2. Nonmetallic Minerals	3,304,082
3. Bulk Movement in Boxcars	913,082
4. Food or Kindred Products	683,114
5. Clay, Concrete, Glass or Stone	382,426

Source: IHS Global Inc.'s Transearch, 2011

Top Exports

OUTBOUND FREIGHT	TRUCK TONNAGE
1. Farm Products	804,386
2. Bulk Movement in Boxcars	535,441
3. Nonmetallic Minerals	530,804
4. Clay, Concrete, Glass or Stone	369,329
5. Food or Kindred Products	233,254

Source: IHS Global Inc.'s Transearch, 2011

Top Trading Partners

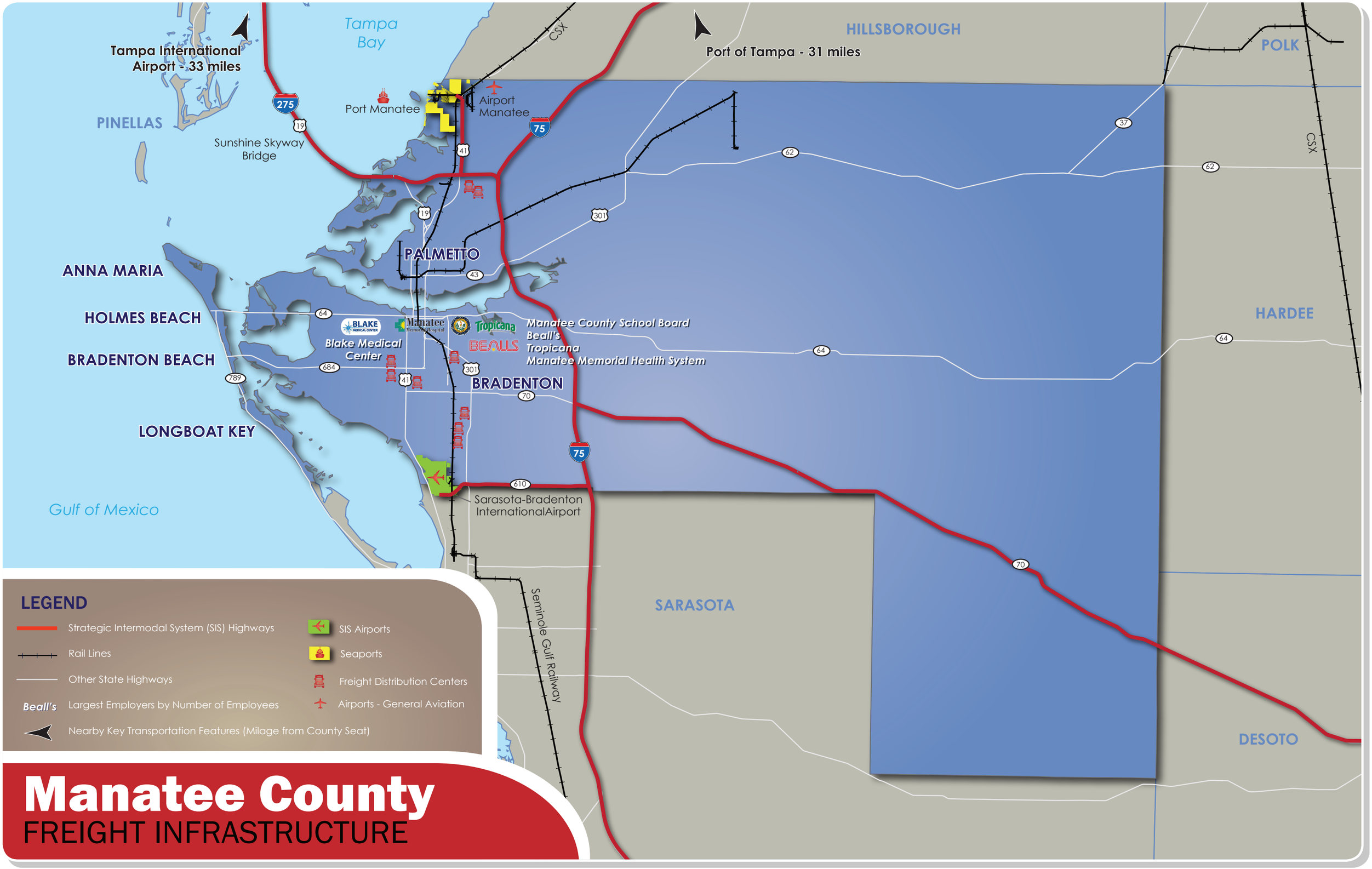
IMPORTS	TRUCK TONNAGE
Galveston County, TX	1,764,984
Jackson County, MS	1,233,468
St. James Parish, LA	1,166,441
Hillsborough County, FL	887,313
St. Charles Parish, LA	703,302

Source: IHS Global Inc.'s Transearch, 2011

Top Trading Partners

EXPORTS	TRUCK TONNAGE
Miami-Dade County, FL	318,091
Pinellas County, FL	251,832
Sarasota County, FL	216,813
Lee County, FL	199,614
Hillsborough County, FL	162,697

Source: IHS Global Inc.'s Transearch, 2011



Manatee County
FREIGHT INFRASTRUCTURE

136 S. Bronough Street
Tallahassee, Florida 32301

800 N. Magnolia Avenue, Suite 1100
Orlando, Florida 32803
(407) 956-5600

1580 Waldo Palmer Lane, Suite 1
Tallahassee, Florida 32308
(850) 921-1119

A message from Governor Scott on the future of Florida's Freight and Trade

SARASOTA COUNTY
FREIGHT & LOGISTICS OVERVIEW

FLORIDA DEPARTMENT OF TRANSPORTATION

FDOT CONTACTS

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Juan Flores
Administrator, Freight Logistics & Passenger Operations
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Juan.Flores@dot.state.fl.us

Richard Biter
Assistant Secretary for Intermodal Systems Development
Phone (850) 414-5235
Richard.Biter@dot.state.fl.us

Billy Hattaway
District 1, Secretary
Phone (863) 519-2300
Billy.Hattaway@dot.state.fl.us

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United States Senate
Marco Rubio
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US House of Representatives
District 13, Vern Buchanan
Phone (202) 225-5015

STATE LEGISLATIVE CONTACTS:

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Florida House of Representatives
District 70, Daryl Rouson
Phone (850) 717-5070

Florida House of Representatives
District 71, Jim Boyd
Phone (850) 717-5071

Florida House of Representatives
District 72, Ray Pilon
Phone (850) 717-5072

Florida House of Representatives
District 73, Greg Steube
Phone (850) 717-5073

Florida House of Representatives
District 74, Doug Holder
Phone (850) 717-5074

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January 2013

Sarasota County

FREIGHT & LOGISTICS OVERVIEW

COUNTY SEAT	LARGEST CITY	AREA	POPULATION	POPULATION GROWTH RATE
Sarasota, FL	North Port, FL	725 square miles	379,448	16.4% (2000-2010)

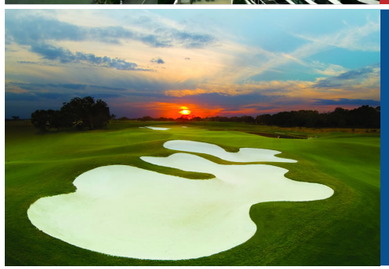
Primary Economic Development Contact: http://www.edcsarasotacounty.com

- Sarasota County is credited with a number of honors ranking 11th in Forbes Magazine as one the "Best Cities for Jobs" and 7th in Money Magazines rankings of "Top Places to Retire Young".
- Siesta Key has been voted as America's "Best Beach".
- Sarasota is home to a thriving art community, and along with its neighbors Manatee and Charlotte counties is one of the largest affluent markets in Florida.

Top 5 Growing Industries

INDUSTRY	NET JOB CREATION
1. Accommodation & Food Services	1,043
2. Manufacturing	978
3. Administrative Support, Water Management, and Remediation Services	951
4. Health Care and Social Assistance	753
5. Other Services (except Public Administration)	530

Source: Florida Department of Economic Opportunity. Labor Market Statistics Center. LEHD State of Florida County Reports-Quarterly Workforce Indicators 2010-2011



Largest Industry Sectors by Employment

INDUSTRY SECTORS	% OF WORKFORCE
1. Trade, Transportation, and Utilities	21.2%
2. Education and Health Services	18.8%
3. Manufacturing	14.6%

Source: Enterprise Florida

Major Private Sector Employers

EMPLOYER	BUSINESS LINE	NUMBER OF EMPLOYEES
1. Publix	Grocery Store Chain	1,519
2. Venice Regional Medical Center	Hospital	871
3. PGT Industries	Window & Door Manufacturer	724
4. FCCI Insurance	Insurance	680
5. Sun Hydraulics Corporation	Manufacturer-Hydraulic Cartridge Valves	590

Source: Enterprise Florida

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Florida has over 2,700 miles of rail lines, which move over 98 million tons of freight annually.

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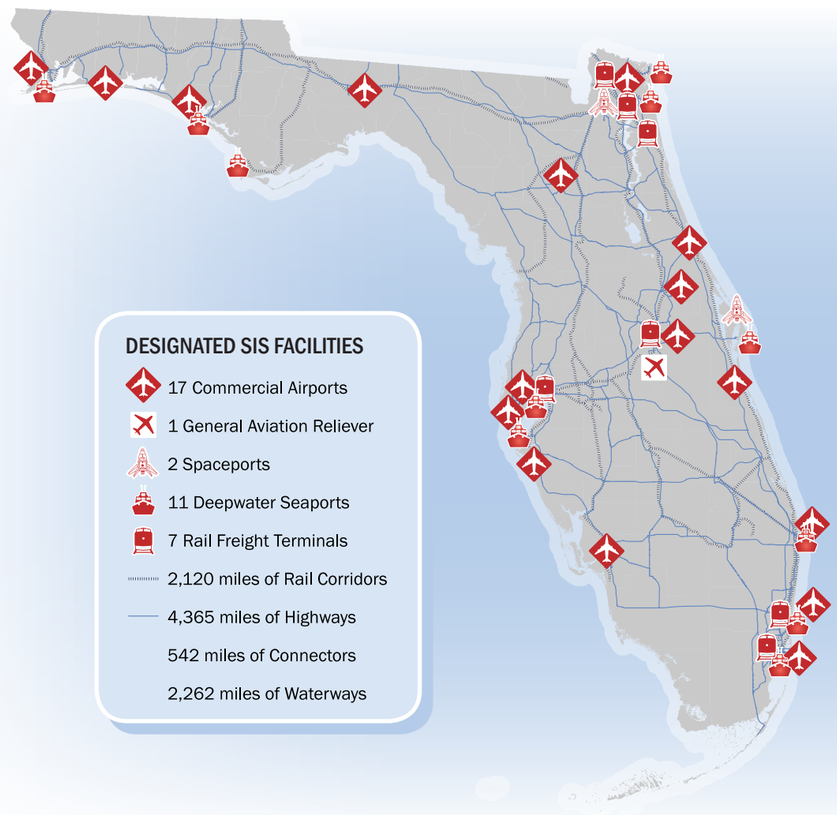

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Florida

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Top Employment Sectors

(Nonagricultural Business Groups by Industry)

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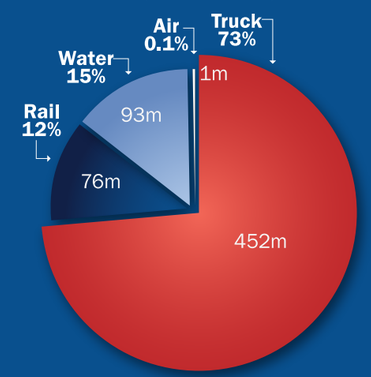
2. Education and Health Services
3. Government Services
4. Professional and Business Services
5. Healthcare and Social Assistance
6. Leisure and Hospitality

Source: Department of Economic Opportunity-Current Employment Statistics (2012)

DOMESTIC AND INTERNATIONAL MODAL MIX

(millions of tons)



Source: Trade & Logistics Study, Florida Chamber 2009

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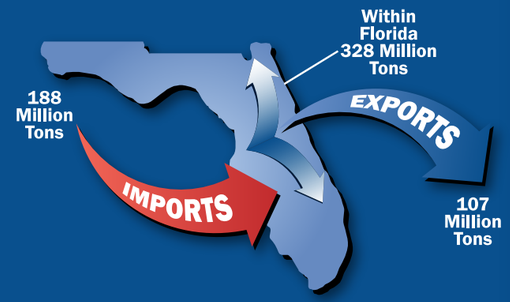
2. Information Technology
3. Life Sciences
4. Aviation/ Aerospace
5. Homeland Security/ Defense
6. Financial/ Professional Services

Source: Florida Chamber of Commerce

TOTAL FREIGHT FLOWS



Source: Trade & Logistics Study, Florida Chamber 2009

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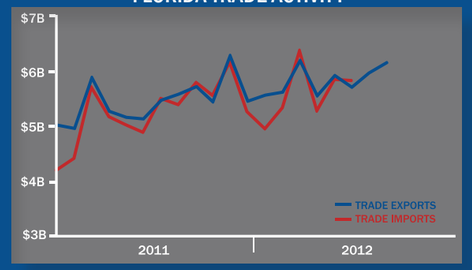
The state of Florida is a major international hub accounting for approximately $149 billion in international trade activity in 2011.

EXPORTS	IMPORTS
1. Switzerland	1. China
2. Brazil	2. Mexico
3. Venezuela	3. Japan
4. Canada	4. Canada
5. Colombia	5. Colombia

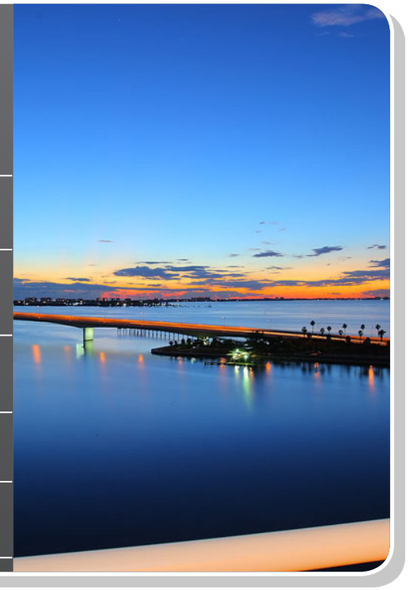
Source: Trade & Logistics Study, Florida Chamber 2009

FLORIDA TRADE ACTIVITY



Key Transportation and Freight Facilities

STRATEGIC INTERMODAL SYSTEM (SIS) HIGHWAYS	I-75, University Parkway
RAILROADS	Seminole Gulf Railway
SIS AIRPORTS	Sarasota-Bradenton International Airport
SEAPORTS	Port Manatee
NON SIS STATE HIGHWAYS	US 41, SR 72
GENERAL AVIATION AIRPORTS	Venice Municipal Airport, Buchanan Airport



Top Imports

INBOUND FREIGHT	TRUCK TONNAGE
1. Bulk Movement in Boxcars	1,234,581
2. Petroleum or Coal Products	968,494
3. Nonmetallic Minerals	856,948
4. Clay, Concrete, Glass or Stone	669,193
5 Food or Kindred Products	527,566

Source: IHS Global Inc.'s Transearch, 2011

Top Exports

OUTBOUND FREIGHT	TRUCK TONNAGE
1. Bulk Movement in Boxcars	857,789
2. Nonmetallic Minerals	483,862
3. Waste or Scrap Materials	273,948
4. Clay, Concrete, Glass or Stone	185,632
5. Fabricated Metal Products	115,956

Source: IHS Global Inc.'s Transearch, 2011

Top Trading Partners

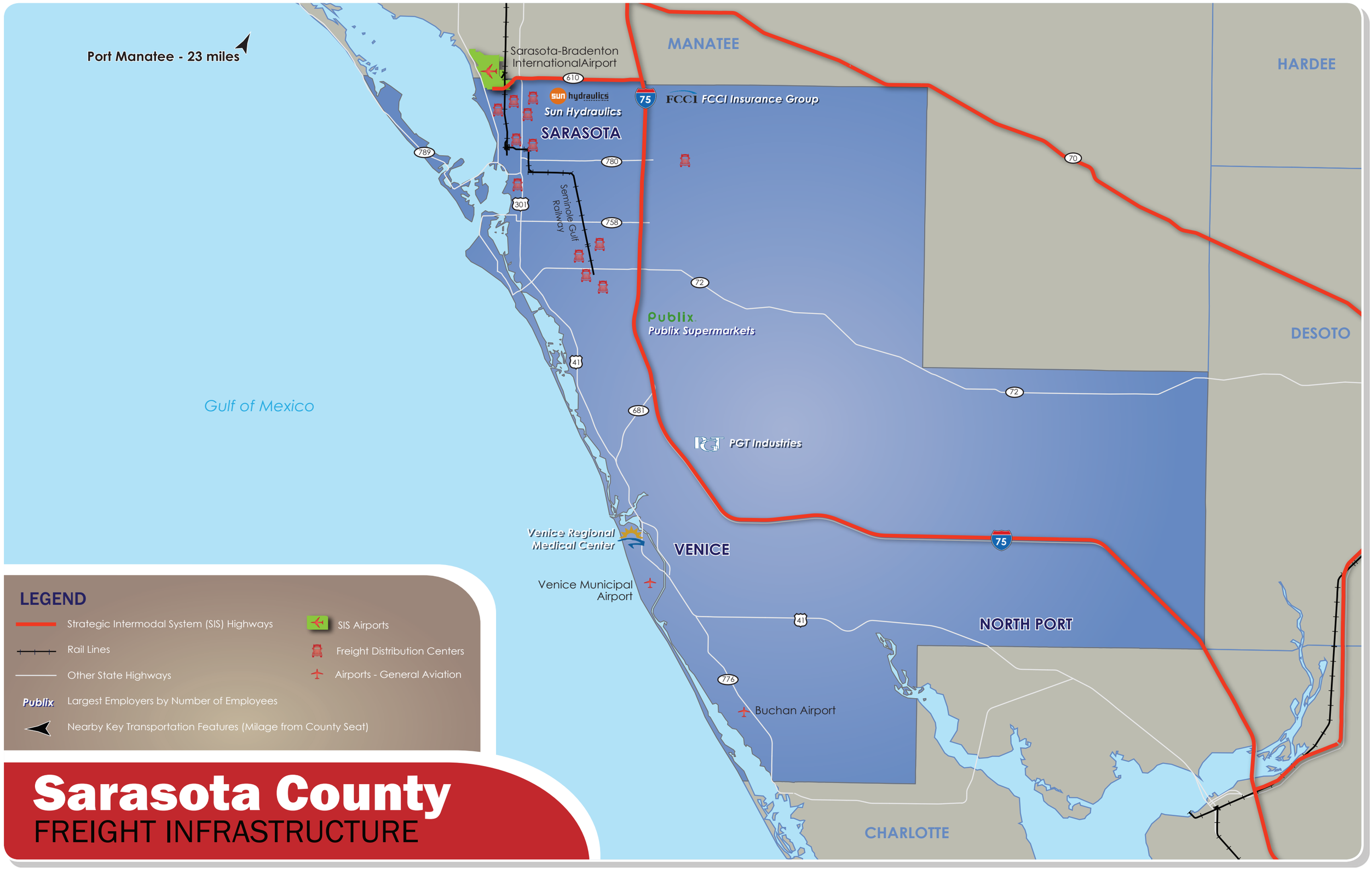
IMPORTS	TRUCK TONNAGE
Broward County, FL	851,959
Charlotte County, FL	655,795
Miami-Dade County, FL	602,724
Hillsborough County, FL	418,088
Polk County, FL	293,190

Source: IHS Global Inc.'s Transearch, 2011

Top Trading Partners

EXPORTS	TRUCK TONNAGE
Hillsborough County, FL	367,168
Polk County, FL	244,283
Miami-Dade County, FL	239,164
Broward County, FL	144,698
Lee County, FL	121,429

Source: IHS Global Inc.'s Transearch, 2011



Sarasota County
FREIGHT INFRASTRUCTURE

REVENUE PROJECTIONS, SARASOTA/MANATEE 2040 LRTP

The purpose of this analysis is to begin to document the financial resources and revenues available for consideration in developing the Financially Feasible element of the Sarasota/Manatee Metropolitan Planning Organization's (MPO's) 2040 Long Range Transportation Plan (LRTP). This technical memorandum presents a preliminary estimate of potentially available transportation revenues from federal, state, and local sources.

The revenue estimates are presented in five-year Fiscal Year increments starting in FY 2016, and are expressed in year of expenditure (YOE) dollars to reflect an assumed rate of inflation. Inflation may fluctuate from year to year, but the assumptions are intended to represent an average across the long-term horizon. The projections for most revenues are adjusted for inflation according to FDOT guidelines, which assume a long term inflation factor of 3.3 percent per year in most years. Future impact fee revenue is not adjusted for inflation, as discussed later in this memo.

Estimates are provided for federal and state sources, state-distributed fuel taxes, and local sources. The federal and state revenue estimates were obtained from the Florida Department of Transportation. Estimates of state-distributed fuel tax revenues and most local revenues were based on county-level population estimates prepared by the University of Florida's Bureau of Economic and Business Research (BEBR), adjusted by Renaissance Planning Group to incorporate plans and projections prepared by local governments. The rate of increase for these funding sources was assumed to be tied to population growth, so actual revenue collections from previous fiscal years, adjusted for inflation, provided the basis for future projections. The revenue collections data were obtained from the *Local Government Financial Information Handbook* prepared by the Legislative Committee on Intergovernmental Relations (LCIR).

OVERVIEW OF PROJECTIONS

The tables on the following three pages present a summary of the preliminary revenue projections for each of the evaluated revenue sources, which include federal and state programs, state-distributed fuel tax revenues, local option fuel tax revenues, local infrastructure sales surtaxes, local transit revenues, and local transportation impact fees. While the sum of each of these sources indicates a potential revenue total of about $1.8 billion from federal/state sources and $4.4 billion from state-distributed and local sources for FY 2016-2040, only a portion of the state-distributed and local revenue would be available for new capital projects.

While the sum of each of these sources indicates a potential revenue total of about $1.8 billion from federal/state sources and $4.4 billion from state-distributed and local sources for FY 2016-2040, only a portion of the state-distributed and local revenue would be available for new capital projects.

FEDERAL/STATE REVENUE SOURCES

Table 1 presents revenue projections of federal and state sources available to the MPO as provided in the *2040 Revenue Forecast Handbook* (July 2013 supplement) prepared by FDOT. "SIS Highways Construction/ROW" represents programmed projects in the 2014 edition of the *Strategic Intermodal System Funding Strategy*. The "Other Arterials" revenues can be applied to non-SIS State Highway System roadways for capacity and non-capacity programs. The "Transportation Alternatives" funds in the table are used for locally defined projects providing enhancements, typically for bicycle and pedestrian projects. "Transit" revenues may be used for technical and operating/capital assistance for transit, paratransit, and rideshare programs. "TMA Funds" may be used for any of the above categories.

There are two other pools of revenue the State of Florida may allocate to projects located within the MPO. In addition to funds specifically dedicated to the Sarasota/Manatee MPO, the State also allocates funds from the Transportation Regional Incentive Program (TRIP) and New Starts/Small Starts for transit. TRIP funds apply to improvements on facilities designated as regionally significant, and funds are allocated within each FDOT District based on regional project prioritization processes. The State also receives federal funding for new transit programs. These New Starts/Small Starts are available to transit agencies statewide. Table 5 below summarizes these available discretionary federal and state revenue sources. The TRIP funds and New Starts/Small Starts are not included in the totals in Tables 1 through 4 due to their discretionary nature.

Table 1: Sarasota/Manatee MPO Federal/State Revenue Estimates

(in millions of dollars, Year of Expenditure)

Revenue Source	2016-20*	2021-25	2026-30	2031-35	2036-40	25-Year Total
SIS Highways Construction/ROW – Manatee County	0.0	79.4	186.8	11.3	11.3	288.9
SIS Highways Construction/ROW – Sarasota County	3.0	109.6	288.6	0.0	0.0	401.2
Other Arterial Construction/ROW	55.0	122.7	116.0	126.9	126.9	547.5
Transportation Alternatives	8.6	21.6	21.6	21.6	21.6	95.0
TMA Funds	17.4	43.4	43.4	43.5	43.5	191.1
Transit	26.8	69.0	72.5	76.0	76.0	320.3
TOTAL FEDERAL/STATE	**110.8**	**445.7**	**728.9**	**279.3**	**279.3**	**1,844.0**

** Includes only FY 2020 revenues; earlier years are already committed to projects*

STATE-DISTRIBUTED FUEL TAXES

There are three types of fuel taxes collected at the state level that are distributed to local governments. These taxes are not part of the local option taxes, and are collected for every gallon of fuel sold in the state. For each gallon of motor fuel sold, the Constitutional Fuel Tax yields two cents per gallon, and the County Fuel Tax yields one cent per gallon. The Municipal Fuel Tax is a one-cent per gallon tax, and each municipality may dedicate a percentage of its Municipal Revenue Sharing Program funds for certain types of transportation projects.

CONSTITUTIONAL FUEL TAX

Each county is eligible for revenues through an allocation formula used by the State that is based on the certified fuel gallons sold and a distribution factor calculated using the county's population, land area, and tax collected in the previous fiscal year. The actual revenue distributions by year and BEBR population estimates for those years were used to calculate per capita revenue values for each county from 2009-2013, and the average of those past values was used for the base year (2015) projection. Future years were projected out to 2040 using this average per capita value and adjusting for inflation.

COUNTY FUEL TAX

The County Fuel Tax allocation to counties is determined by the State using the same methodology as the Constitutional Fuel Tax. For this analysis, the five-year average per capita distribution and future projections were calculated in the same manner described above.

MUNICIPAL FUEL TAX

This tax is a one-cent per gallon tax on motor fuel sold within the state's municipalities, and is collected within the Municipal Revenue Sharing Program trust fund. Each municipality's share of the funds is calculated based on an adjusted municipal population, municipal sales tax collections, and a municipality's relative ability to raise revenue. The Municipal Fuel Tax's portion of the trust fund is determined by the Department of Revenue, and varies each year depending on tax collections.

As with the Constitutional and County fuel taxes, the five-year average per capita distribution for each municipality was calculated from actual municipal distributions in each county from 2009-2013. The expected percentage allocated to each municipality was obtained from each year's *Local Government Financial Handbook*. The per capita values were adjusted for inflation and multiplied by the municipal population projections prepared by Renaissance to project future tax revenues. For simplicity, the total Municipal Fuel Tax revenues projected for all of the cities in each county and the MPO planning area are shown in Tables 2 through 4.

EXISTING LOCAL REVENUE SOURCES

One of the means by which local governments are able to raise funds for transportation projects is through the implementation of local option fuel taxes. These taxes must be approved by the county governing body, or by voter approval in a countywide referendum. Sarasota and Manatee Counties currently use the maximum rate of local optional fuel taxes available.

Other existing local revenue sources include sales surtaxes for infrastructure, the locally generated revenues of the two county transit agencies, and local transportation impact fees charged to new development projects.

LOCAL OPTION FUEL TAXES

All Florida counties have the option to raise additional revenues by augmenting the State's taxes on highway fuels that are discussed above. Local governments are authorized to collect up to an additional 12 cents (ninth-cent fuel tax and maximum local option fuel taxes) per gallon, which may be spent on local or state transportation projects.

NINTH CENT FUEL TAX

This tax is collected on both regular and diesel fuel, and is used to fund transportation expenditures. Applied at a rate of one cent per gallon, the counties do not share the Ninth Cent Fuel Tax with the municipalities within their jurisdictions. The projection methodology, therefore, is similar to that used for the Constitutional Fuel Tax.

SIX-CENT AND FIVE-CENT LOCAL OPTION FUEL TAXES

These are two separate local fuel taxing options that are collected and distributed in the same manner. The 6-cent Fuel Tax is levied at a rate of six cents for each gallon of fuel, both regular and diesel, sold within a county. The 5-cent Fuel Tax is not applied to diesel fuel. The 6-cent tax may be used for general transportation expenditures, while the 5-cent tax may only be used for transportation expenditures needed to meet the requirements of the capital improvement element of an adopted local government comprehensive plan and other capacity-adding projects. The 5-cent tax may not be used for operating and maintenance expenditures.

In Sarasota County, the collected revenues are distributed to each local government based on interlocal agreements between the County and its municipalities that are updated annually for the coming fiscal year. The distribution formula is based on the annual population estimates prepared by BEBR. According to the *Local Government Financial Information Handbook*, Manatee County does not distribute local option fuel tax revenues to its municipalities.

Revenues were projected for each of these two fuel taxes using similar methodologies as described above. The LCIR provided actual revenue distributions from 2009-2013 for the two counties, and BEBR population estimates for those years were used to derive annual per capita distributions. Using the population projections for the counties prepared by Renaissance, and adjusting the average per capita values for inflation, future revenue projections for each county were calculated by multiplying the two figures. Municipal distributions were calculated using the same per capita methodology and the municipal allocation percentages provided in the *Local Government Financial Handbook*.

DISCRETIONARY SALES SURTAX

Sarasota County currently imposes an additional 1.0 percent sales tax on goods and services, above the six percent standard sales tax, as a revenue stream for local government infrastructure. Fees collected may be used to finance, plan, and construct infrastructure, which includes transportation infrastructure (and now also land purchases for affordable housing). It may also be used to purchase land for public recreation, conservation, or protection of natural resources. The tax is effective until December 31, 2024. Sarasota

County issued revenue bonds in 2008 supported by the infrastructure surtax in the amount of $143.89 million.

Manatee County currently does not impose a discretionary surtax for infrastructure, although it has in the past.

Revenue projections for the existing Sarasota County surtax were calculated based on the average of actual surtax revenues that were collected from 2009-2013 based on figures obtained from the LCIR, plus information from County finance staff. Like the methodology for the local option fuel taxes, the collected tax receipts are normally distributed to each unit of local government in the county according to the standard allocation formula used by the Department of Revenue. However, each county has the option to set a different allocation formula with its municipalities through an interlocal agreement, which Sarasota County currently has in place that distributes part of the revenue from the existing surtax to the Sarasota County School Board.

FUEL TAX AND SALES SURTAX REVENUE BONDS

Sarasota County issued fuel tax revenue bonds in 2005 to raise money for transportation projects. These bonds will be paid off in 2025, and until they mature a portion of the County's 5-Cent Local Option Fuel Tax revenue will be used to pay the debt service. Sarasota County also issued revenue bonds in 2008 supported by the infrastructure sales surtax whose debt service will be paid by surtax revenues. The annual principal and interest payments starting in 2016 for all of these bonds were obtained from the County's *2013 Debt Report* and County finance staff and included in the revenue estimates, which reduces the amount of revenue that will be available for other transportation uses.

TRANSIT REVENUES

Sarasota County Area Transit (SCAT) and Manatee County Area Transit (MCAT) are the primary public transportation providers within the MPO planning area. The two transit agencies receive both operating and capital revenues from federal, state, and local sources (Table 2 and Table 3). Local operating and capital revenue estimates were collected from the most recent *Transit Development Plan* (TDP) of each agency. SCAT provided estimates of operating and capital revenues through FY 2024, while MCAT provided projections through FY 2023. Projections for subsequent years were prepared using FDOT's inflation guidelines. All federal and state revenue assumptions in the TDPs, for both the capital and operating categories, were not included in the analysis, in order to reduce the likelihood of double-counting potential federal and state revenues. State and federal transit funding figures from the *2040 Revenue Forecast Handbook* were used instead (see Table 5).

Projections to 2040 were estimated by dividing the TDP-estimated local operating and capital revenues for each transit provider by the population of the respective counties to obtain per capita revenue values for the fiscal years addressed in the TDP. For subsequent years, the annual increase in revenue was tied to the increase in population and the inflation factor recommended by FDOT. To project revenues for future years, the average for per capita revenues for the last five fiscal years in the TDP was set as the base per capita value from which to calculate annual inflation-adjusted values. These per capita values were in turn applied to the population projections of the two counties to yield annual local transit revenues.

Table 2: Manatee County State-Distributed and Local Revenue Estimates (in millions of dollars, Year of Expenditure)

Revenue Source	2016-20	2021-25	2026-30	2031-35	2036-40	25-Year Total
State-Distributed Fuel Tax Revenues						
Constitutional Fuel Tax	17.8	22.3	28.3	36.2	45.2	149.8
County Fuel Tax	7.8	9.8	12.5	16.0	19.9	66.0
Municipal Fuel Tax	3.6	4.6	5.7	7.2	8.9	30.1
TOTAL STATE FUEL TAXES	**29.2**	**36.7**	**46.5**	**59.4**	**74.1**	**245.9**
Local Fuel Tax Revenues						
Ninth Cent	9.1	11.4	14.5	18.5	23.1	76.5
6-cent Local Option (County)	50.3	63.2	80.2	102.7	128.2	424.7
5-cent Local Option (County)	37.1	46.5	59.1	75.6	94.4	312.7
TOTAL LOCAL FUEL TAXES	**96.5**	**121.1**	**153.8**	**196.9**	**245.7**	**813.9**
Local Transit Revenues						
Local Operating Revenues	41.3	52.5	66.7	85.4	106.6	352.5
Local Capital Revenues	0.3	0.4	0.5	0.7	0.9	2.8
TOTAL TRANSIT REVENUES	**41.7**	**52.9**	**67.2**	**86.1**	**107.4**	**355.3**
Local Transportation Impact Fees						
County	43.2	43.2	43.2	43.2	43.2	216.1
Municipalities	6.6	6.6	6.6	6.6	6.6	32.9
TOTAL IMPACT FEES	**49.8**	**49.8**	**49.8**	**49.8**	**49.8**	**249.0**
Total State-Distributed and Local Revenues						
STATE-DISTRIBUTED/LOCAL TOTAL	**217.2**	**260.5**	**317.3**	**392.2**	**477.0**	**1,664.2**

Note: future impact fee revenue is not adjusted for inflation

Table 3: Sarasota County State-Distributed and Local Revenue Estimates (in millions of dollars, Year of Expenditure)

Revenue Source	2016-20	2021-25	2026-30	2031-35	2036-40	25-Year Total
State-Distributed Fuel Tax Revenues						
Constitutional Fuel Tax	15.9	22.1	27.7	34.5	42.9	143.1
County Fuel Tax	7.7	9.6	12.1	15.0	18.7	63.1
Municipal Fuel Tax	5.9	7.5	9.6	12.2	15.6	50.9
TOTAL STATE FUEL TAXES	**29.5**	**39.3**	**49.3**	**61.7**	**77.2**	**257.1**
Local Fuel Tax Revenues						
Ninth Cent	8.2	11.3	14.1	17.6	21.9	73.2
6-cent Local Option (County)	29.2	40.6	50.7	63.2	78.7	262.3
6-cent Local Option (Municipalities)	18.4	23.7	30.4	38.8	49.5	160.8
5-cent Local Option (County)	21.9	30.0	36.8	45.1	55.2	188.9
5-cent Local Option (Municipalities)	13.3	17.2	22.2	28.3	36.2	117.2
TOTAL LOCAL FUEL TAXES	**91.0**	**107.4**	**134.5**	**167.9**	**209.5**	**802.4**
Discretionary Sales Surtax						
TOTAL SALES SURTAX	**174.8**	**159.7**	**0.0**	**0.0**	**0.0**	**334.5**
Fuel Tax and Sales Surtax Revenue Bonds						
TOTAL DEBT SERVICE	**(100.8)**	**(83.7)**	**0.0**	**0.0**	**0.0**	**(184.5)**
Local Transit Revenues						
Local Operating Revenues	130.3	167.8	208.9	260.3	324.3	1,091.6
Local Capital Revenues	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL TRANSIT REVENUES	**130.3**	**167.8**	**208.9**	**260.3**	**324.3**	**1,091.6**
Local Transportation Impact Fees						
Unincorporated County	20.5	20.5	20.5	20.5	20.5	102.5
Municipalities	56.7	56.7	56.7	56.7	56.7	283.3
TOTAL IMPACT FEES	**77.2**	**77.2**	**77.2**	**77.2**	**77.2**	**385.8**

Total State-Distributed and Local Revenues						
STATE-DISTRIBUTED/LOCAL TOTAL	**402.0**	**482.9**	**489.6**	**592.2**	**720.2**	**2,686.9**

Note: future impact fee revenue is not adjusted for inflation

Table 4: Total MPO State-Distributed and Local Revenue Estimates

(in millions of dollars, Year of Expenditure)

Revenue Source	2016-20	2021-25	2026-30	2031-35	2036-40	25-Year Total
State-Distributed Fuel Tax Revenues						
Constitutional Fuel Tax	33.7	44.4	56.0	70.7	88.2	292.9
County Fuel Tax	15.5	19.5	24.5	31.0	38.6	129.2
Municipal Fuel Tax	9.5	12.1	15.4	19.4	24.5	80.9
TOTAL STATE FUEL TAXES	**58.7**	**76.0**	**95.9**	**121.1**	**151.3**	**503.0**
Local Fuel Tax Revenues						
Ninth Cent	17.3	22.7	28.6	36.1	45.0	149.7
6-cent Local Option (Counties)	79.5	103.7	130.9	165.9	206.9	687.0
6-cent Local Option (Municipalities)	18.4	23.7	30.4	38.8	49.5	160.8
5-cent Local Option (Counties)	59.0	76.5	95.9	120.7	149.6	501.6
5-cent Local Option (Municipalities)	13.3	17.2	22.2	28.3	36.2	117.2
TOTAL LOCAL FUEL TAXES	**187.5**	**243.8**	**307.9**	**389.8**	**487.2**	**1,616.3**
Discretionary Sales Surtax						
TOTAL SALES SURTAX	**174.8**	**159.7**	**0.0**	**0.0**	**0.0**	**334.5**
Fuel Tax and Sales Surtax Revenue Bonds						
TOTAL DEBT SERVICE	**(100.8)**	**(83.7)**	**0.0**	**0.0**	**0.0**	**(184.5)**
Local Transit Revenues						
Local Operating Revenues	171.6	220.3	275.6	345.7	430.9	1,444.1
Local Capital Revenues	0.3	0.4	0.5	0.7	0.9	2.8
TOTAL TRANSIT REVENUES	**172.0**	**220.7**	**276.1**	**346.4**	**431.7**	**1,447.0**
Local Transportation Impact Fees						
Counties	63.7	63.7	63.7	63.7	63.7	318.6
Municipalities	63.2	63.2	63.2	63.2	63.2	316.2
TOTAL IMPACT FEES	**127.0**	**127.0**	**127.0**	**127.0**	**127.0**	**634.8**
Total State-Distributed and Local Revenues						
STATE-DISTRIBUTED/LOCAL TOTAL	**619.2**	**743.4**	**806.9**	**984.4**	**1,197.2**	**4,351.1**

Note: future impact fee revenue is not adjusted for inflation

Table 5: Discretionary Federal/State Revenue Sources (in millions of dollars, Year of Expenditure)

Revenue Source	2016-20	2021-25	2026-30	2031-35	2036-40	25-Year Total
Districtwide TRIP Funds	0.9	6.7	6.7	6.7	6.7	27.7
Statewide New Starts Funds	63.3	174.3	174.3	174.3	174.3	760.5

IMPACT FEES/MOBILITY FEES

Within Manatee County the County government, the City of Bradenton, and the City of Palmetto charge impact fees or mobility fees on new development to fund transportation facilities. Within Sarasota County the County government, the City of Sarasota, and the City of North Port charge such fees. The City of Venice and Town of Longboat Key have interlocal agreements in place with the County to charge the County's impact fees within their jurisdictions. Because these fees are dedicated to funding capital improvements related to transportation, Renaissance prepared projections of this revenue source based on the 2040 forecasts of population and employment that are used in the regional travel demand model. Given the inherent uncertainty of forecasting future development, these projections are intended to be conservative and a starting point for discussion. Current fee rates were used to project future revenue even if a jurisdiction has enacted a moratorium or discount on transportation impact/mobility fees at the present time. We also assumed the new mobility fee currently under consideration by Sarasota County is implemented and that Venice and Longboat Key opt into it.

Renaissance examined the currently available impact fee schedules for the relevant jurisdictions and calculated average fees per dwelling unit (for residential land uses) or per 1,000 square feet (for non-residential land uses) using selected property type categories that were determined to be generally representative of that land use. Residential land uses were classified as single-family or multifamily. The non-residential land uses analyzed were classified as industrial, commercial, or service to conform to the employment categories used in the regional travel demand model. The property types selected to calculate the average impact fee rates are generally described as follows:

- Single-Family Residential: single-family homes, small to moderately sized if broken out by square footage
- Multifamily Residential: townhouses, duplexes, and condominiums, small to moderately sized if broken out by square footage
- Industrial: warehouse and light industrial
- Commercial: general shopping center, retail of 100,000 square feet or less
- Service: general office of 100,000 square feet or less, office/business park, medical office

The average impact fee assumptions per land use for each jurisdiction are shown in Table 6 below.

Table 6: Impact/Mobility Fee Rate Assumptions

Jurisdiction	Single-Family Residential	Multifamily Residential	Industrial	Commercial	Service
Impact Fees					
Manatee County	$3,600	$1,585	$590	$7,152	$1,823
Bradenton	$1,875	$1,264	$581	$4,247	$2,422
Palmetto	$1,211	$848	$606	$3,634	$2,423
North Port	$6,487	$4,551	$3,360	$14,275	$16,211
Mobility Fees					
Sarasota	$5,014	$2,828	$1,613	$7,699	$10,230
Sarasota County:					
Standard	$3,963	$2,801	$1,890	$6,604	$4,028
Mixed-Use	$2,972	$2,101	$1,417	$4,953	$3,021
Infill	$2,081	$1,471	$992	$3,467	$2,115
Venice:					
Standard	$3,963	$2,801	$1,890	$6,604	$4,028
Mixed-Use	$2,972	$2,101	$1,417	$4,953	$3,021
Longboat Key	n/a	n/a	n/a	n/a	n/a

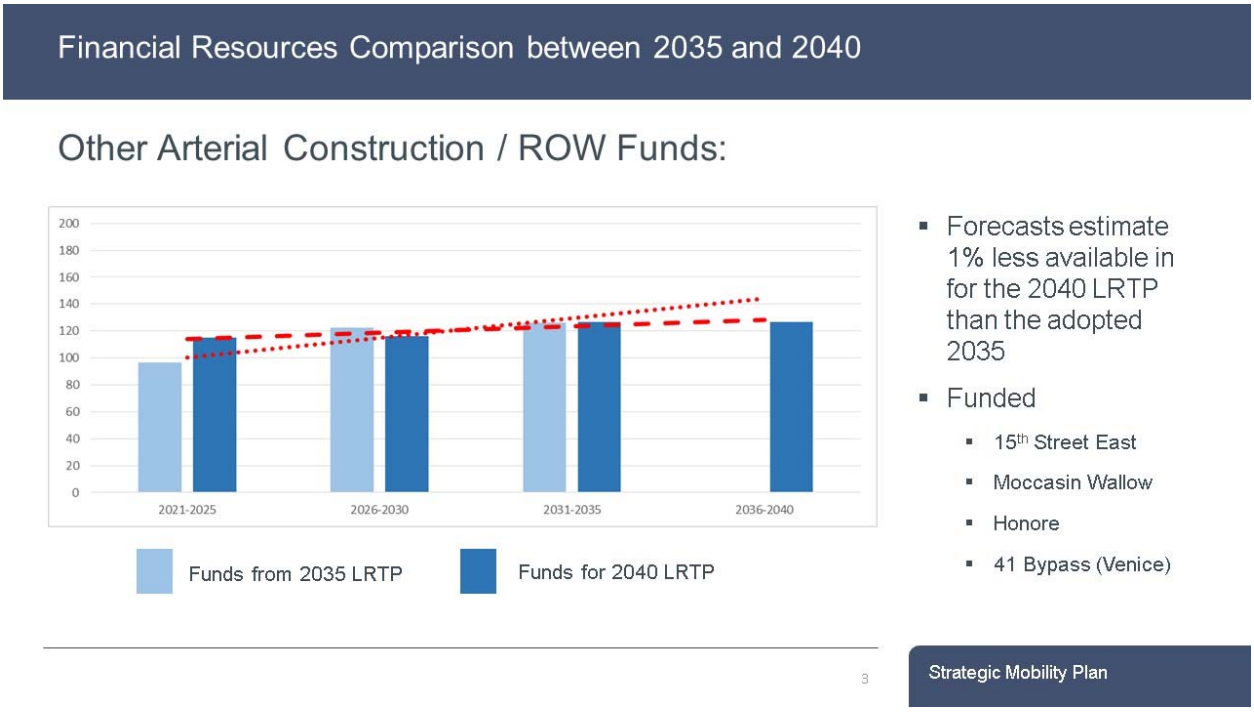
Note: Residential uses are per dwelling unit, non-residential uses are per 1,000 square feet. Longboat Key would charge the Sarasota County mobility fee but is assumed to not generate significant fee revenue.

In order to convert the non-residential impact fee rates from per-1,000-square-feet to per-worker, Renaissance assumed building space usage of one employee per 1,000 square feet for industrial, two employees per 1,000 square feet for commercial, and three employees per 1,000 square feet for service.

As shown in Table 6, the proposed Sarasota County mobility fee has three tiers of fee rates depending on the type of development being assessed: standard, mixed-use, and urban infill. The mixed-use and urban infill fee rates are lower than the standard rate due to adjustments for internal capture and reduced trip lengths, and they would be applied to specific projects with mixed-use characteristics and/or development located within designated infill areas. For the purposes of our projections, we assumed that future development within unincorporated Sarasota County would be 25 percent standard development, 50 percent mixed-use, and 25 percent urban infill. Because Venice would be charging the County mobility fee, we assumed that 75 percent of the City's future development would be standard and 25 percent would be mixed-use. Longboat Key would also charge the County mobility fee, but because of the small size and minimal level of development activity expected in the Town we assumed that it would not generate any significant mobility fee revenue.

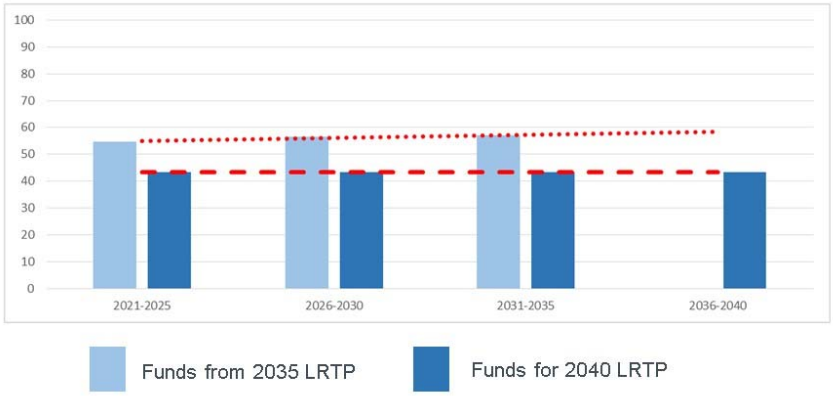
The average annual number of new dwelling units and workers forecast for each jurisdiction from 2010-2040 was multiplied by the relevant fee rate assumption for that jurisdiction to estimate the annual revenue from transportation impact/mobility fees. Furthermore, the non-residential fee estimates were reduced by 25 percent to account for new jobs that "backfill" into existing building space rather than locate within newly developed building space. Unlike the other revenue sources discussed in this memo, future impact/mobility fee revenues were not adjusted for inflation because the fee rates are not changed on an annual basis and also to produce a more conservative estimate.

The following graphs show the differences in each of the major funding sources between the 2035 LRTP and the 2040 LRTP, the direction given by the MPO Board on how to expend the funds, and how much is going towards each transportation program.



Financial Resources Comparison between 2035 and 2040

Transportation Management Area (TMA):



- Forecasts estimate 30% less available in for the 2040 LRTP than the adopted 2035
- Used to fund CMS program and MMEC Program

4

Strategic Mobility Plan

Financial Resources Comparison between 2035 and 2040

Enhancement Funds / Transportation Alternatives:

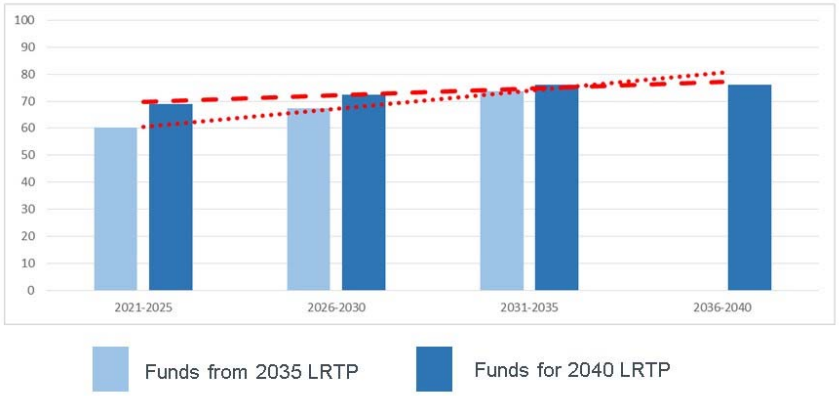
- Forecasts estimate significantly more for the 2040 LRTP than the adopted 2035 with MAP-21
- Funded regional trails and Multimodal Projects

5

Strategic Mobility Plan

Financial Resources Comparison between 2035 and 2040

Transit Funds:



- Forecasts estimate 3% more available in for the 2040 LRTP than the adopted 2035
- With increase the estimates will only maintain the current service for both Transit Agencies

6

Strategic Mobility Plan

Development of Financially Feasible Plan

Policy Direction from Board: Continued Multimodal Focus

- TMA funds will continue to fund Congestion Management and Multimodal Emphasis Corridor
- Transportation Alternatives will fund other Multimodal projects not in MMEC
- Other Arterial Construction / ROW funds allocated to the Regional Roadway Network
- Non Regional Roads will utilize local funding sources

- Transit funds will continue to maintain the current system (no expansion)

2

Strategic Mobility Plan

Strategic Mobility Plan – Draft Financially Feasible Plan

- Multimodal Emphasis Corridor - $3 million per year for each county
- Congestion Management - $1 million per year for each County
- Transportation Alternatives - $600,000 per year per county
- Roadway Projects:
  - Continued ATMS funding for expansion of system
  - 15th Street Complete Street Project
  - River Road Major Regional Multimodal facility
  - Central Manatee Network Analysis
  - Price Boulevard Multimodal improvements
- Transit – Park n Ride lots and multimodal infrastructure
  *****(no funding for service / operations expansion)****

TRANSIT SUPPORTIVE DEVELOPMENT ANALYSIS

One of the key comments heard over and over through the public involvement process was that the region needs a more robust transit system to provide a viable alternative transportation option and reduce the demands placed on the region's roadways. While upgrading and expanding Manatee County Area Transit (MCAT) and Sarasota County Area Transit (SCAT) is not financially feasible at this time, there are ways to prepare the region for more transit in the future when more funds available for expansion. The way in which the region grows and how and where development is allowed to occur can either support or inhibit an improved transit system. Transit Oriented Development (TOD) is a concept where development and transit are integrated, allowing people to meet their daily needs without a car. A network of developments connected by premium transit allows people to seamlessly and efficiently travel between developments within the network, accessing home, work, and recreational activities. There are opportunities to change zoning and land development codes to prepare existing and future development to be in locations, and have densities that will support future transit expansion and creates markets for transit.

Stakeholders within a community or region can plan for TOD at several scales: the system level, corridor level, and the station level. System level planning involves reviewing development patterns to determine where concentrations of activity, such as residences or businesses, are planned or already exist and considers potential transit types that will operate. System level planning can also consider and incorporate existing transit infrastructure. Corridor level planning helps refine transit types and connections, and develop station spacing and locations. Station level planning is concerned with station area design, parking, and development potential. Station areas are compact, moderate to high density and intensity development, with a mix of uses, and are located up to one mile from a transit stop or station. The review suggests general considerations for stakeholders from a system and corridor perspective within each corridor. Additional details on the technical analysis and individual corridor recommendations are provided starting on page A8-4 .

There are several common elements that need to be considered in creating transit supportive development. These general characteristics should be considered by the jurisdictions within the region to determine the most appropriate places for transit-supportive development and how to create these places.

- **Vision** A TOD or transit vision can be incorporated into the system, corridor and station area planning efforts. The vision for the area, created and agreed upon by all stakeholders, outlines the community's desirable growth patterns. The common vision can be used as a foundation to move forward with plans for the system, corridors and ultimately station areas. The goal is for individual local government comprehensive plans and development regulations to align with the transit vision.
- **Densities** Transit supportive densities are needed to support the various levels of TOD. Buses with 30 minute headways require a minimum of 7 dwelling units per acre while buses with 10 minute headways require residential densities of 15 dwelling units per acre. Light rail services require even higher, at 20 to 30 dwelling units per acre.
- **Mix of Uses** In addition to densities, local government codes should incorporate a mix of uses both horizontally throughout the area as well as allowing a mix-of-uses vertically within the same building. TOD station areas often focus on providing either residential density or jobs, but both will be present within the station area development.

- **Compact Development** The station areas should contain compact development, which includes higher density and intensity development with a mix of uses centered on the transit station. Transit riders will be more likely to walk to their destination if it is close to the transit stop.
- **Streets and Blocks** In addition to properly calibrating uses, the design of the development plays a key role in TOD success. TOD relies on an interconnected network of streets and blocks to facilitate walking and biking to and from transit and nearby uses. Local governments can adopt regulations to reduce block size and encourage or require road connections as well as sidewalk and bike connections throughout the station area. New developments in Greenfield areas can be required to provide well-designed streets and adequate connectivity supportive of transit and transit riders who may walk or bike from the bus stop to their destination.

SYSTEM-LEVEL RECOMMENDATIONS

At the system-level, the transit system should provide adequate north-south and east-west regional access. Existing population and employment centers are a good starting point for considering TOD improvements including increased densities and intensities. The 2035 LRTP identified core transit areas and support areas based on a number of variables including measures of physical form such as land use diversity, density/intensity, and pedestrian conditions; and also demographic factors such as age and income. These core transit areas are concentrated around Bradenton and Sarasota and places in between. Transit supportive development standards should be implemented in these core transit areas.

Greenfield development occurring in rural areas could include focus policies and regulations to increase clustered development with increased densities and intensities to support future transit investments. New developments are occurring east of I-75 where much of the land is still rural. This presents an opportunity to ensure new developments adhere to transit supportive development guidelines. Regardless of whether transit ends up reaching these new developments, the guidelines are good practices for developments to create more sustainable and functional developments. Local governments should update their land development codes to provide guidelines for designing transit supportive developments.

CORRIDOR-LEVEL RECOMMENDATIONS

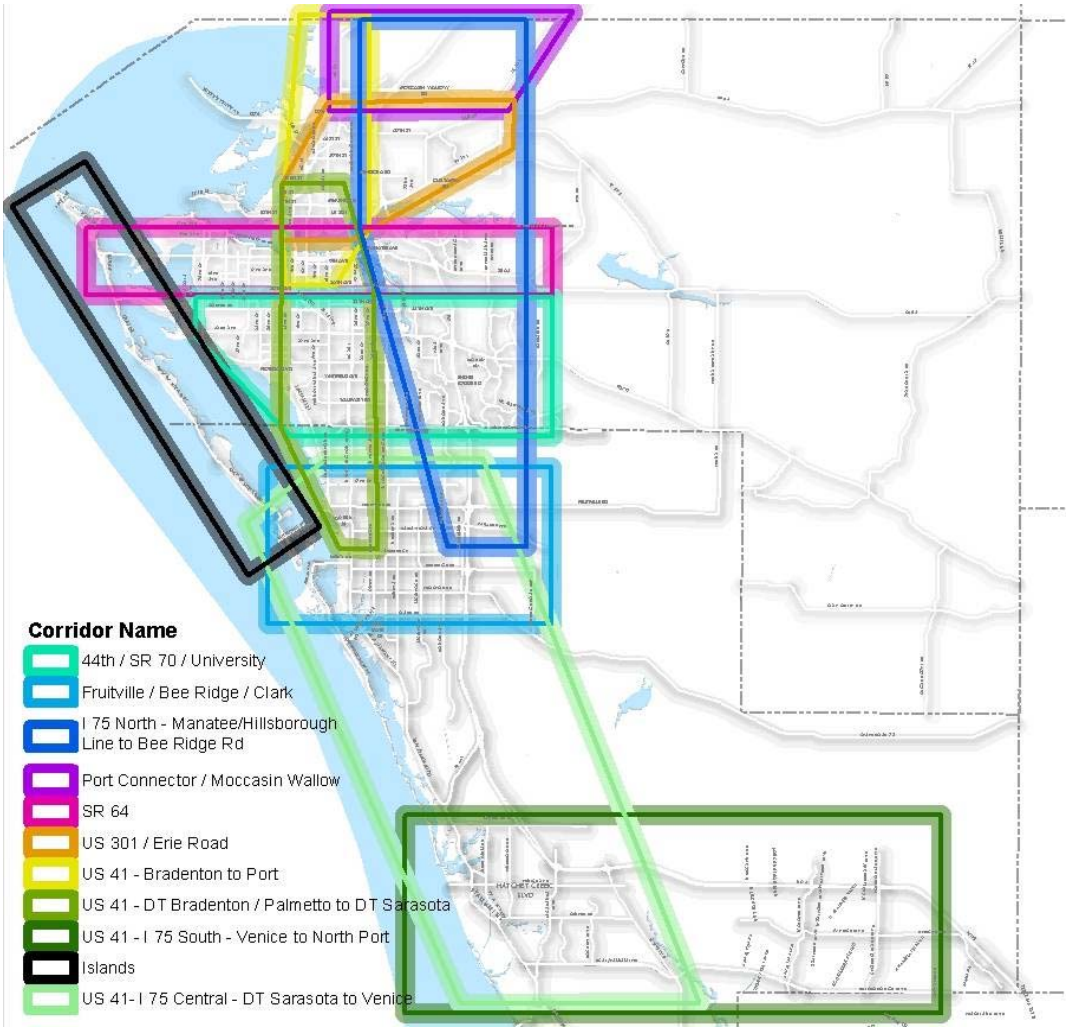
There are existing regional roadways that transit supportive development should be focused on. These corridors already serve large numbers of residents and workers and connect economic centers around the region, or have the potential to facilitate regional trips connecting with surrounding counties to the north and south. The North-South corridors that transit supportive development should be focused near include I-75 (Manatee/Hillsborough County line to Bee Ridge Road) and US 41 (particularly the section between Downtown Bradenton and Downtown Sarasota). The East-West corridors to focus transit supportive development on include SR 64, 44th Ave/SR 70/University Parkway, and Fruitville Rd/Bee Ridge Rd/Clark. Specific recommendations for each corridor are providedbeginning on page A8-4.

STATION LEVEL

Local governments electing to develop a transit vision could use the vision to describe where station areas should be located, what size station area is anticipated, and what type of transit is anticipated to serve the new development. The vision could then be used as a basis for updates to the future land use map, comprehensive plan and land development regulations.

The following provides a breakdown of the transit supportive development analysis and specific recommendations for the corridors to focus transit supportive development on. The analysis used the US Census Bureau's On the Map tool and the US Environmental Protection Agency's Smart Location Database for the detailed review of current employment numbers and development variables. The boundaries for each corridor studied match the Mobility Corridors identified in the 2035 LRTP, shown in the map below. Data was extracted for the corridors with the highest potential for transit supportive development, which included US 41, I-75 between Manatee/Hillsborough County line to Bee Ridge Road, SR 64, 44th Ave/SR 70/University Parkway, and Fruitville Rd/Bee Ridge Rd/Clark Rd.

The corridors not analyzed, were not included because the land uses and transit service within the corridors do not warrant analysis. The land uses are rural and not likely to change much in the coming years and transit service is limited. These corridors are not good candidates for transit oriented development. The Islands corridor was also not included because it is a unique case and warrants a different study. The barrier islands are already built out and the areas not developed are environmentally protected. The barrier islands would benefit instead from more multimodal options such as walking and bicycling, improved transit facilities, and better connections between the islands and the main land.



US 41 DOWNTOWN BRADENTON (PALMETTO TO DOWNTOWN SARASOTA)

This corridor has the largest potential in the region to create TOD in the near future. Increasing densities and intensities along the corridor would help to strengthen and foster investments in transit. The corridor provides more consistent transit access to jobs than any other corridor in the region and along the US 41 corridor. Transit serves the two centers of activity in the corridor: Downtown Bradenton and Downtown Sarasota. Summary tables of the corridor, Downtown Sarasota and Downtown Bradenton are provided below.

DOWNTOWN SARASOTA

Data Variables	Results
Total Jobs	• 13,811 jobs
Jobs by Type	• 11.9% in Finance and Insurance • 12.9% in Professional, Scientific, and Technical Services • 36.6% in Public Administration
Housing Units per Acre	• 4.4 (east) to 10.34 (west) housing units per acre
People per Acre	• 9.14 (east) to 11.4 (west) people per acre
Land Use Diversity[1] **(Range from 0 – 1)**	• 0.6 (east) to 0.85 (west) land use diversity
Street Intersection Density[2] **(Range from 0 – 250+)**	• 122 – 144
Jobs within a 45 min. transit ride[3] **(Range from 1 – 535,000)**	• Approximately 8,800 – 9,100 Jobs
Accessibility Index: Transit to Jobs[4] **0=least accessible to jobs** **1=most accessible to jobs**	• 0.96 to 1

[1] An index of the mixture of land use at the block group scale, using job counts by employment category and housing unit counts as proxies for land use types. Ranges from 0 – 1

[2] Intersections per square mile. An indicator of street connectivity from the perspective of pedestrian and bicycle travel. 3-way intersections are given reduced weight. Highways and high-speed arterials are given zero weight.

[3] Portrays aggregate frequency of public transit service per square mile for each census block group. Specifically, it measures combined hourly frequency of service for all transit routes that stop within 0.4 km (0.25 miles) of the block group. Frequency reflects service during weekday afternoon peak commute period (4:00 – 7:00 pm). Data availability is limited to communities served by transit agencies that share their data in GTFS format.

[4] An index measure of the relative centrality of a block group compared to other block groups within the same metropolitan region, as measured by travel time to jobs via transit. Values closer to 1 are more central.

Accessibility Index: Transit to working-age population[5] **0=least accessible to workers** **1=most accessible to workers**	• 0.56 on the west side and 0.99 on the east side

DOWNTOWN BRADENTON

Data Variables	Results
Total Jobs	• 15,729
Jobs by Type	• 40.4% in Educational Services • 18.8% in Health Care and Social Services • 22.5% in Public Administration
Housing Units per Acre	• 5.34 housing units per acre
People per Acre	• 6.35 people per acre
Land Use Diversity **(Range from 0 – 1)**	• 0.68 land use diversity
Street Intersection Density **(Range from 0 – 250+)**	• 109.77
Jobs within a 45 min. transit ride **(Range from 1 – 535,000)**	• 4,663.74 jobs
Accessibility Index: Transit to Jobs **0=least accessible to jobs** **1=most accessible to jobs**	• 0.51
Accessibility Index: Transit to working-age population **0=least accessible to workers** **1=most accessible to workers**	• 0.15

[5] An index measure of the relative centrality of a block group compared to other block groups within the same metropolitan region, as measured by travel time to working-age population via transit. Values closer to 1 are more central.

US-41 CORRIDOR (DOWNTOWN SARASOTA TO DOWNTOWN BRADENTON)

Data Variables	Results
Total Jobs	• 88,690
Jobs by Type	• Health care, public administration, education, retail, manufacturing
Housing Units per Acre	• Very low 0.2 up to 19 • Average 2.9
People per Acre	• Generally 2 to 10 • Pockets of more around Bradenton and near Sarasota
Land Use Diversity **(Range from 0 – 1)**	• .08 to .91 • Capitalize on and expand existing diverse areas
Street Intersection Density **(Range from 0 – 250+)**	• 6 to 247 • Greater around Bradenton and Sarasota; in the 100s
Jobs within a 45 min. transit ride **(Range from 1 – 535,000)**	• Low weighted jobs in corridor from Bradenton to Sarasota (2,000 to 4,000) • Sarasota has increasing jobs within 45min trans ride up to 9000 in the core area
Accessibility Index: Transit to Jobs **0=least accessible to jobs** **1=most accessible to jobs**	• Along US 301 near Bradenton: 0.08 to 0.5 • Higher as you travel south into downtown Sarasota. • Up to 1.0 in Sarasota • Majority of the corridor is 0.0
Accessibility Index: Transit to working-age population **0=least accessible to workers** **1=most accessible to workers**	• Up to 1.0 in Sarasota • Majority of the corridor is 0.0

KEY TAKE AWAYS

- Within the corridor, some areas contain the densities capable of supporting a wide range of transit services from Local Bus service to Premium bus service (1 bus every 10 minutes), but most of the corridor contains between 1 and 3 dwelling units per acre. Local governments should work together to make the corridor more dense by amending land uses and zoning. Local codes should support increasing density along the US 41 corridor to at least 15 dwelling units per acre, if not higher, to ensure that investments in premium transit services are fully-utilized. Coordinated transit station areas could help bridge the gap between Sarasota and Bradenton, focus development densities and intensities, and preserve existing neighborhoods. Jurisdictions within the two counties should update their respective comprehensive plans and land development codes to identify areas targeted for transit oriented development and change regulations to support this kind of development.

- Rail transit has been considered as an additional future transit option. Rail transit station areas require even greater densities, which should be permitted and encouraged adjacent to proposed rail stops. Light rail service, for example, requires between 20 and 30 dwelling units per acre.

Visioning and planning exercises can establish the right locations for the station areas. Planning and development can begin soon thereafter to build upon visioning efforts and to achieve the vision for the area. Planning for transit station areas now will make passenger rail more attractive in the future. Station areas locations in Downtown Bradenton and Downtown Sarasota should be considered. These areas contain the densest areas in the corridor and are close to the existing railroad tracks. These areas also contain densest accumulation of jobs within the corridor. Downtown Sarasota currently has the greatest accessibility to jobs from transit and the highest 'transit-to-jobs accessibility score' possible using the EPA Smart Location Database tool.

- In addition to developing a vision for station areas and increasing density, communities within the corridor should increase the mix of uses within the corridor to support transit vision and investments. Uses can be mixed vertically within a building and horizontally across the land. Development regulations that focus on improving land use diversity, particularly vertically in mixed-use buildings, should be encouraged, especially in planned station areas. This corridor in particular should Capitalize on and expand existing diverse areas. Not all transit oriented development is the same and there is no prescription for the appropriate mix of uses. Mixed-use development should provide essential services within walking or biking distance at a minimum, while other services are accessible via quick and reliable transit service.

I-75 NORTH (MANATEE/HILLSBOROUGH LINE TO BEE RIDGE RD)

The I-75 North corridor, which connects regional roadways and provides access to regional centers of employment and residences, also has potential to develop as a transit corridor with transit supportive development. Corridor improvements that include increased density and intensity focused in key locations along the corridor will prepare the corridor should express regional bus or rail transit come to fruition. I-75 intersects with many of the other corridors, some with planned BRT and existing Local Express Bus (SCAT), and existing local bus within the corridor. This provides an opportunity for enhanced coordination between multimodal opportunities and associated transit service leading to better regional mobility.

OVERVIEW OF TRANSIT SUPPORTIVE DEVELOPMENT VARIABLES

Data Variables	Results
Total Jobs	• 38,017
Jobs by Type	• 15.9% Retail Trade • 15.0% Accommodation and Food Services • 9.8% Healthcare and Social Assistance • 8.6% Construction • 7.9% administration & Support, waste management and remediation
Housing Units per Acre	• Primarily less than 1 unit per acre • Some small areas with 4-5 units per acre
People per Acre	• Primarily between 1 and 2 people per acre • Some small areas with up to 4 - 7.8 people per acre

Land Use Diversity[6] **(Range from 0 – 1)**	• Large swath 0.66 to 0.89 • South of Bradenton along I-75 has good large pockets of diversity • Up to 0.98 along Fruitville Rd
Street Intersection Density[7] **(Range from 0 – 250+)**	• Ranges from approximately 9-34 (low)
Jobs within a 45 min. transit ride[8] **(Range from 1 – 535,000)**	• Most of the corridor is 0.0 • Some transit access west of I-75 in Sarasota (around 1,000 up to 3,000)
Accessibility Index: Transit to Jobs[9] **0=least accessible to jobs** **1=most accessible to jobs**	• Up to 1.0 in Sarasota • Majority of the corridor is 0.0 – 0.2
Accessibility Index: Transit to working-age population[10] **0=least accessible to workers** **1=most accessible to workers**	• Up to 1.0 in Sarasota • Majority of the corridor is 0.0 – 0.2

KEY TAKE AWAYS

- The demand for creating new development provides an excellent opportunity for establishing policies and regulations that create transit supportive development patterns. Residential densities within the corridor are less than the housing densities required to support Intermediate Bus TOD with 30 minute headways. Generally, the corridor contains less than one dwelling unit per acre, although some areas within the corridor contain four to five dwelling units per acre. A minimum of seven dwelling units per acre is the minimum recommended density to support intermediate bus TOD with 30 minute headways.

- Planning for transit also requires a mix of uses both horizontally and vertically. North of the Manatee River, densities are generally very low and the land is characterized by rural uses although some subdivisions have been constructed or are under construction. These developments are sprawling

[6] An index of the mixture of land use at the block group scale, using job counts by employment category and housing unit counts as proxies for land use types. Ranges from 0 – 1

[7] Intersections per square mile. An indicator of street connectivity from the perspective of pedestrian and bicycle travel. 3-way intersections are given reduced weight. Highways and high-speed arterials are given zero weight.

[8] Portrays aggregate frequency of public transit service per square mile for each census block group. Specifically, it measures combined hourly frequency of service for all transit routes that stop within 0.4 km (0.25 miles) of the block group. Frequency reflects service during weekday afternoon peak commute period (4:00 – 7:00 pm). Data availability is limited to communities served by transit agencies that share their data in GTFS format.

[9] An index measure of the relative centrality of a block group compared to other block groups within the same metropolitan region, as measured by travel time to jobs via transit. Values closer to 1 are more central.

[10] An index measure of the relative centrality of a block group compared to other block groups within the same metropolitan region, as measured by travel time to working-age population via transit. Values closer to 1 are more central.

single use developments. South of the Manatee River, some locations have high land use diversity with the uses mixed horizontally across the landscape. While the mix of uses is encouraging, the diversity may be attributable to the transitional land development pattern. Agricultural uses are prevalent alongside single-use single family home developments and commercial development has been established uses to serve the residents. The mix of uses are generally not clustered and do not typically support walking or biking between the uses. The mixing of uses is encouraged and focused policies and regulations can help build upon encouraging mixing of uses.

- The street intersection diversity, or the number of street connections, is also very low throughout the corridor, indicating a lack of connectivity. Policies and regulations, especially subdivision regulations, can require small blocks and an interconnected street network. A regional transit vision can help establish locations where small blocks and connected streets are appropriate and where this type of development can support existing and planned transit infrastructure and mobility.

- New Greenfield development is occurring within the I-75 corridor. A transit vision for the region should be developed to take advantage of the clean slate and demand for new development. Plans should be developed quickly, but thoroughly, to be able to take advantage of TOD opportunities throughout the corridor. Local governments electing to develop a transit vision could use the vision to describe where station areas should be located, what size station area is anticipated, and what type of transit is anticipated to serve the new development. The vision could then be used as a basis for updates to the future land use map, comprehensive plan and land development regulations.

SR 64

OVERVIEW OF TRANSIT SUPPORTIVE DEVELOPMENT VARIABLES

Data Variables	Results
Total Jobs	• 38,946
Jobs by Type	• Healthcare, public administration, education, retail
Housing Units per Acre	• Bradenton, predominately 2 but patches up to 8 • To the east of Bradenton along the 64 corridor, there are less than 1 unit per acre
People per Acre	• Highest 11 in downtown Bradenton • Is around the average in Bradenton area 7 • To the east around I-75 and further east 0.18
Land Use Diversity (Range from 0 – 1)	• Big 0.86 patch around I-75 • Scattered around Bradenton
Street Intersection Density (Range from 0 – 250+)	• Wide ranging in downtown Bradenton from 50 to 229 • Fairly low along the remainder of the corridor • Decent throughout the peninsula but poor around I75 and east of I-75
Jobs within a 45 min. transit ride	• Low in downtown (~2,000 up to 4,000) • 0 in remainder of the corridor

(Range from 1 – 535,000)	
Accessibility Index: Transit to Jobs **0=least accessible to jobs** **1=most accessible to jobs**	• Low (0.2) in downtown Bradenton up to 0.5 in one area • in remainder of the corridor
Accessibility Index: Transit to working-age population **0=least accessible to workers** **1=most accessible to workers**	• Gradient from 0.2 to 1.0 • is within downtown Bradenton

KEY TAKEAWAYS:

- The SR 64 corridor runs east-west and is essentially two separate corridors divided by the City of Bradenton.

- Typical densities west of Bradenton do not meet the density threshold to be considered TOD-supportive. Densities within approximately 5 miles of downtown Bradenton are primarily 1 to 2 dwelling units per acre with some areas with slightly higher densities of up to 4.6 dwelling units per acre. The corridor needs to increase transit supportive densities.

- The western portion of the Corridor serves as a commuter corridor. To supplement the Intelligent Transportation Systems, Bus Rapid Transit and enhanced fixed route bus service along the western portion of the corridor, local governments should consider developing a series of transit station areas each containing increased densities and a mix of uses. These locations could be used as transit hubs to provide enhanced service for commuters. In addition, the transit station areas could help meet the daily needs of people in the surrounding area reducing roadway congestion further and would provide additional jobs. The smallest type of station area should contain a minimum of 10 dwelling units per acre within its core and a minimum intensity of 0.5 Floor Area Ratio (FAR). The surround areas should also contain increased densities and intensities of at least 6 dwelling units per acre and 0.5 FAR.

- The western portion of the corridor should have regulations that enable and require an interconnected network of streets and small block sizes to encourage use of the multimodal network. Regulations should ensure that new development is as compact as possible, especially in core transit areas.

- The station area planning effort could include and support a bicycle and pedestrian mobility strategy.

- The eastern portion of the corridor is highly constrained and a bicycle/pedestrian strategy is needed for the corridor. Additional facilities would greatly increase non-motorized travel to the island. Along the corridor, the City could work to develop regulations that allow more intense and dense development within the corridor with an appropriate urban form, and require that adequate bicycle and pedestrian facilities are installed during redevelopment and substantial improvements. The City could also consider reducing parking requirements for businesses, with appropriate multimodal mitigation.

- Within the corridor local governments should work to connect existing streets when possible. Street intersection density within the corridor varies greatly and an effort to connect streets could help relieve congestion.

- Accessibility from transit to jobs is low within Downtown Bradenton and nil in the remainder of the corridor. To promote transit within the corridor, local governments must establish a plan and vision for the corridor and must work together to achieve that vision. The planning and visioning effort will establish a foundation on which new development can occur that is in line with the transit and multimodal vision.

44TH AVE / SR 70 / UNIVERSITY PARKWAY

OVERVIEW OF TRANSIT SUPPORTIVE DEVELOPMENT VARIABLES

Data Variables	Results
Total Jobs	• 48,927 jobs
Jobs by Type	• Retail, manufacturing, healthcare, accommodation
Housing Units per Acre	• Typically low density, mostly between 1 and 3 dwelling units per acre • Pockets of 7 units per acre and one area of 19 units per acre • Lower densities around I-75 and east of 1-75, less than 1 dwelling unit per acre
People per Acre	• The south end of the corridor has 0 – 5 people per acre • Around I-75 and east very low density of less than 2 people per acre • Remainder of area has 5 – 12 people per acre with the highest density being directly south of Bradenton
Land Use Diversity **(Range from 0 – 1)**	• The south end of the corridor has a pocket of high land use diversity 0.85 along the coast and at the far south east end of the corridor is a pocket of 0.74 • The entire corridor has a mix of land use diversity scores which seems to center around 0.3 to 0.6
Street Intersection Density **(Range from 0 – 250+)**	• Most of the corridor has a street intersection density of 57 at the high end down to 5, possibly lower, at the low end • There is much better street intersection density south of Bradenton with scores ranging from 80 to 274
Jobs within a 45 min. transit ride **(Range from 1 – 535,000)**	• Mostly score of 0.0 • Along SR 70 the scores are 701 to 3,000
Accessibility Index: Transit to Jobs **0=least accessible to jobs** **1=most accessible to jobs**	• Most of the corridor has a score of 0 • Similar to the above criteria, along the 45 corridor, there is limited accessibility. Scores range from 0.1 to 0.38 and increase towards the north and south ends of the corridor which are closer to the cities (Bradenton and Sarasota)

Accessibility Index: Transit to working-age population **0=least accessible to workers** **1=most accessible to workers**	• The auto accessibility factor shows a much more uniform index pattern across the corridor. • The east side of the corridor has an accessibility score that hovers around 7 • The score diminishes as you travel east through the corridor although to the far east of the corridor, accessibility drops to around 0.5

KEY TAKEAWAYS:

- This east-west corridor connects several economic engines: the airport, employment centers, the beach, and Lakewood Ranch. These economic engines can serve as areas to build transit station areas. These areas can serve as links in the transit network.

- Residential densities within this corridor are low and are generally less than two dwelling units per acre although the corridor does have moderate to high land use diversity in many places.

- This corridor has low street intersection densities. That means there could be a lack of connectivity in most places. TOD requires interconnected, compact, mixed use development. A good starting point for the corridor would be to develop station area visioning and plans with increased residential densities and intensities in a compact urban form and greater street network connections. Potential station areas can build on the strong commercial activities and moderate mix of uses in the corridor, to develop successful transit routes.

- This corridor also contains a portion of the US 41 Corridor, which was previously identified as the corridor with the greatest opportunity for creating functional TOD by building upon the strengths of Downtown Bradenton and Downtown Sarasota. Potential station areas in this corridor could develop synergies with proposed US41 Corridor plans and improvements and provide greater access throughout the region.

- Most of this corridor has a transit accessibility score of 0.0. There is existing transit accessibility along the US41 corridor (albeit this is limited; scored 2,000 on a scale up to 535,000). The corridor is fairly accessible to jobs via automobile with scores, generally, between 5 and 7 on a scale of 1 to 10. The auto accessibility scores are promising, in light of the lack of transit in the corridor, and could be a harbinger of transit accessibility.

FRUITVILLE RD/BEE RIDGE RD/CLARK RD

OVERVIEW OF TRANSIT SUPPORTIVE DEVELOPMENT VARIABLES

Data Variables	Results
Total Jobs	• 81,944
Jobs by Type	• Professional, Scientific and Technical 7.1% • Finance and Insurance 4.5%
Housing Units per Acre	• Downtown Sarasota has the greatest housing units per acre, especially along the waterfront with 10.2

	• Away from the Sarasota waterfront, the corridor becomes lower density of 1-4 dwelling units per acre • East of I-75 is less than 1 dwelling unit per acre
People per Acre	• Similar pattern to houses per acre • 10-12 in downtown • 4-8 elsewhere • Less than 1 in area east of I-75
Land Use Diversity **(Range from 0 – 1)**	• Patchwork quilt of LU diversity • 8-9 in downtown Sarasota • Fruitville area west of and adjacent to I-75 is very diverse with 0.92 up to 0.98 • 0.79 -0.84 east of 95 to the north • Remainder is around 0.5 with some very small pockets of low diversity (0.10)
Street Intersection Density **(Range from 0 – 250+)**	• East of I-75 has low intersection density 2.3 • Generally, the intersection density increases as you travel from I-75 west to the coast • Around 66 in the middle then • Up to 189 in downtown
Jobs within a 45 min. transit ride **(Range from 1 – 535,000)**	• Travelling from east to west along the corridor the jobs within 45 mins of transit score increases significantly. However, the highest score, even in downtown is relatively low when compared with the top end score of the scale. • The scores decrease in 'rings' around Sarasota. o O o 1500 o 3000 o 5000 o 9000 (clustered around Sarasota)
Accessibility Index: Transit to Jobs **0=least accessible to jobs** **1=most accessible to jobs**	• Highest possible score in downtown Sarasota and decreases in rings from the center of the city • Drops quickly as you move east until you get to I-75, east of I-75
Accessibility Index: Transit to working-age population **0=least accessible to workers** **1=most accessible to workers**	• Same general pattern as transit accessibility but higher scores all over • Highest score in downtown is around 0.85, larger area with this score than the 1.0 for transit above • Decreases more slowly than transit with .7-.8 outside • Then a ring of 0.5 and 0.6 • East of I-75 scores are still elevated with scores around 0.4

KEY TAKEAWAYS:

- These east-west corridors contain existing transit accessibility to jobs. Typical housing densities within the corridor are with a range of 2 to 3 dwelling units per acre and lower as you move to the east end of the corridor, there are some pockets of higher densities on the east end of the corridor, especially into Downtown Sarasota. Some areas in the corridor also have excellent land use diversity including areas along Fruitville Road, and Bee Ridge Road. One area along Fruitville Road has a scored a 0.98 land use diversity on a scale from 0 to 1. Local governments in the corridor can locate examples of diverse land use patterns and develop plans to build upon the strengths in the corridor to achieve successful TOD.

- Recommendations include developing a vision for station areas where development will have increased densities and intensities, and a mix of uses, vertically and horizontally, in a compact area, with multiple road connections throughout the station area core. Outside of the core, densities and intensities may gradually drop off. This provides a range of housing and non-residential options within a small area and provides an ideal location to extend and improve transit service.

- Transit access to jobs is best in Downtown Sarasota and decreases in rings around the city. A transit station area within the other.

- Best opportunities for creating TOD are west of I-75 that have a good mix of land uses, are served by existing transit, and have good road connectivity.

US 41/I-75 CENTRAL (DOWNTOWN SARASOTA TO VENICE)

OVERVIEW OF TRANSIT SUPPORTIVE DEVELOPMENT VARIABLES

Data Variables	Results
Total Jobs	• 98,752
Jobs by Type	• Health care and social assistance, retail, accommodation/food service
Housing Units per Acre	• This “corridor” is massive • East of 75 less than 1 du per acre • West of 75, generally 2- 4 dwelling units per acre. Some pockets of less or more. No exceptional areas except for downtown Sarasota and downtown Venice • Downtown Venice has one small area of 11 per acre
People per Acre	• 4-8 people per acre in Venice area • For Sarasota area, see previous analysis • Remainder of area (in between Sarasota and Venice and along the I-75 corridor there is less than 1 du per acre
Land Use Diversity **(Range from 0 – 1)**	• East of 75 there is high land use diversity 0.71 • Between Venice and Sarasota generally 0.3 to 0.5 • For Sarasota analysis see above. • Venice has a cluster of high land use diversity from 0.8s up to 0.93 along SR or US 45 and 41

Street Intersection Density **(Range from 0 – 250+)**	• Venice has areas some small areas with high intersection density 90s to 150s • North of Venice characterized by 11 – 20 (low intersection density) • East of I-75 – 0.5 • As you travel north into Sarasota area, intersection densities get higher. See analysis above.
Jobs within a 45 min. transit ride **(Range from 1 – 535,000)**	• Venice area has 500 – 1000 in the area around the city and up the US 41 corridor • To the north of Venice outside of the US 41 corridor is 0.0 until Sarasota area. See above for Sarasota analysis.
Accessibility Index: Transit to Jobs **0=least accessible to jobs** **1=most accessible to jobs**	• Same idea as jobs description above but very low transit accessibility • 0.07 – 0.1 within Venice area and the US 41 Corridor
Accessibility Index: Transit to working-age population **0=least accessible to workers** **1=most accessible to workers**	• From Venice north the auto accessibility to jobs is around 0.3 to 0.4 which is fairly low. • East of I-75 it is 0.05 • On the outskirts of Sarasota the figures begin to increase. 0.44 and 0.54 around Vamo

KEY TAKEAWAYS:

- Development should be centered around existing developments, including Downtown Venice. Densities east of I-75 are too low to support transit. Best opportunities for creating TOD are west of I-75 that have a good mix of land uses, are served by existing transit, and have good road connectivity.

- Recommendations include developing a vision for station areas where development will have increased densities and intensities, and a mix of uses, vertically and horizontally, in a compact area, with multiple road connections throughout the station area core. Outside of the core, densities and intensities may gradually drop off. This provides a range of housing and non-residential options within a small area and provides an ideal location to extend and improve transit service.

US 41 – I-75 SOUTH (VENICE TO NORTH PORT)

OVERVIEW OF TRANSIT SUPPORTIVE DEVELOPMENT VARIABLES

Data Variables	Results
Total Jobs	• 27,398

Jobs by Type	• Health care, social assistance, retail, accommodation/food service
Housing Units per Acre	• Venice Maximum in one small area 12 • 1-2 dus per acre along the US 41 corridor and along the coast and around North Port • Majority of area is less than 1
People per Acre	• Venice maximum density 8 • Small pockets of up to 5-6 scattered throughout • Around 2-3 in the US 301 corridor and around North Port • Predominately less than 1 per acre
Land Use Diversity **(Range from 0 – 1)**	• Venice 0.93 – 0.24 – relatively small area primarily clustered where 41 and 45 split apart • Very low in south Venice 0.13 • 0.48 - .60 in Laurel and Nokomis • Generally Low towards the east of the corridor with small pockets of up to .7 around North Port • Large area to the North and east of I-75 is 0.71
Street Intersection Density **(Range from 0 – 250+)**	• Venice – 158 – 39 • 109 in Nokomis • 89 in Laurel • Higher street densities clustered around US 41 • North Port 90 – 130 and 60s to the east between SR 93 and the Countyline
Jobs within a 45 min. transit ride **(Range from 1 – 535,000)**	• Between 500 and 900 in Venice • 48 to 108 around North Port • Most of the corridor is 0.0
Accessibility Index: Transit to Jobs **0=least accessible to jobs** **1=most accessible to jobs**	• 0.15 and less in Venice • Northport barely registers with 0.01 • Remainder of to the corridor is 0.0
Accessibility Index: Transit to working-age population **0=least accessible to workers** **1=most accessible to workers**	• 0.35 and less in Venice • Higher along US41, up to 0.4 • Areas surrounding Venice 0.22, .15 and less • To the north and east of I-75 – 0.05

KEY TAKEAWAYS:

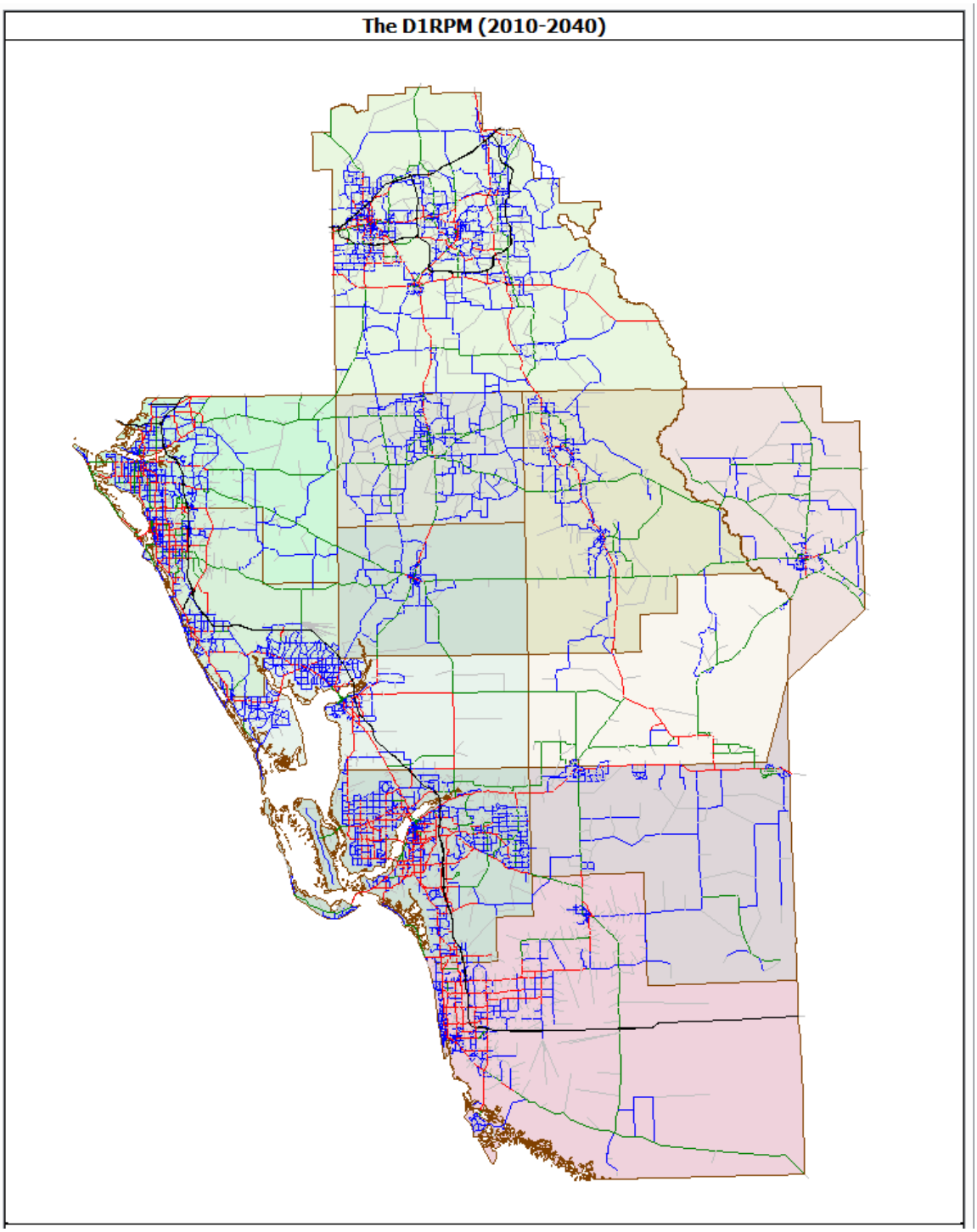
- Development should be centered around existing developments, including Downtown Venice and Downtown North Port. Densities east/north of I-75 are too low to support transit. Best opportunities for creating TOD are west of I-75 that have a good mix of land uses, are served by existing transit, and have good road connectivity.

- Recommendations include developing a vision for station areas where development will have increased densities and intensities, and a mix of uses, vertically and horizontally, in a compact area, with multiple road connections throughout the station area core. Outside of the core, densities and intensities may gradually drop off. This provides a range of housing and non-residential options within a small area and provides an ideal location to extend and improve transit service.

DRAFT

TM-1 Executive Summary
District One Regional Model (2010-2040)

December 2015



DRAFT

This report: *"TM-1 Executive Summary of the D1RPM"* provides an overall review of the model's performance for the validation year of 2010. A companion report, *"TM-2 D1RPM Model Validation Report"* provides a more detailed review related to the development and calibration of the model; and *"TM-3 D1RPM Technical Resource Guide"* provides technical users/model developers with a more detailed review of steps (and associated scripts) within the model.

The D1RPM performance was compared to standards of validation presented within several documents: The "*Model Validation and Reasonableness Checking Manual 2nd Edition"*, Travel Model Improvement Program Federal Highway Administration, March 2014; the *"Model Calibration Standards"*, a presentation to the FDOT Model Task Force, CSI, December, 2007, and; "*The FSUTMS model update, phase II - Task C report"*, FDOT Systems Planning, 1998.

D1RPM meets or exceeds every standard measure of model validation presented below.:

OVERVIEW

The District One Regional Planning Model (D1RPM), shown on the cover of this report, is one of the larger models in the state of Florida. With 5,600 traffic analysis zones (TAZ) covering 12,400 square miles in a 12 county area, it represents the travel characteristics of a population of approximately 4.1million. And, since all of District One is now represented in one model, it is possible to forecast regional highway and transit alternatives. This is also the first time one model has been used, simultaneously, by all Metropolitan Planning Organizations for their Long Range Transportation Plans (LRTP).

The D1RPM is a Florida Standard Urban Transportation Structure (FSUTMS) four-step, trip-based model that has been updated with many of the recommendations provided by the FDOT Transit Model Update project. Sponsored by FDOT Systems Planning, in 2012: "The purpose of the Transit Modeling Update project is to specify, within FSUTMS and associated support systems, the changes necessary to improve the preparation of transit demand forecasts to a point consistent with federal expectations, and to incorporate state of the practice techniques and tools through a prototype model application.[1]

TMU model included:

- New (Florida) trip generation rates from 2010 from ACS, NHTS and Census data.
- New trip purposes split trips into 47 "travel markets".
- Diurnal factors split highway assignment into four time periods (AM, MD, PM, NT).
- A travel time feedback loop allows congested speeds from highway assignment to be utilized in trip distribution.
- New CUBE processes to replace the AUTOCON program -- requiring the use of CUBE 6.1, but eliminating the need to customize CUBE resource files.

There are also features included in the D1RPM that are not in the TMU model:

- A procedure for generating and distributing vehicle trips at Southwest Florida International Airport, previously incorporated into the Lee/Collier model, is now used for Sarasota-Bradenton Airport (SRQ).
- The D1RPM incorporates heavy-truck trips from the Florida Statewide Model. This model, with complex procedures for estimating tons of goods movement by water, rail and highway to/from Florida (from the U.S. and from around the world) provided a truck trip matrix, which, by using a zone-to-zone equivalency, table provided origins-destinations for truck trips in the D1RPM.
- Florida's unemployment rate (10.9 percent in 2010) was much higher than Florida's historical long-term unemployment rate of about 5 percent, and the downturn in the economy did result in fewer vehicle trips in 2010. With no corresponding decrease in employment provided by InfoUSA a procedure for addressing unemployment and correcting for under-estimation of vehicle trips in future years, has been included.
- A mode choice calibration feature is included.

Development of the model was achieved within the CUBE/Voyager transportation planning environment, version 6.1.0, as mentioned above, incorporation of new auto-access to transit procedures means that the model will NOT run in earlier versions of this software. A Windows based program, the model is run via a graphical user interface (GUI) whereby a mouse-click or a function key, would activate a "pop up" window or menu from which the user will choose options to run the model. Programs and features which are part of CUBE/Voyager are well documented and an internal help function is available.

[1] Trip Generation Review and Recommended Model Development Guidance, Parsons Corp, May, 2012.

DATA DEVELOPMENT

Network

The D1RPM model was created from all of the individual MPO and County model networks previously developed in 2007. These models were stitched-together and updated as follows:

Traffic Count Data

The validation of any travel demand model relies upon the existence of validation year traffic count data. The volume-to-count ratio generated by the model is the measure used to evaluate the ability of the travel demand model to simulate known traffic conditions. Traffic counts are needed for a variety of different roadway categories distributed throughout the study area in order to validate highway assignment performance among screen-lines and cut-lines The FSUTMS standard is for the model to assign trips to the highway network for peak-season weekday average daily traffic (PSWADT). Count sources included: The 2007 Florida Traffic Information CD from FDOT, County MPOs (for non-state roads) and The Florida Turnpike Enterprise.

2010 Statistic:				
Facility Type		Number of Links	Number of Counts	Percent of Links
Freeway	10	721	97	13%
Major Art	20	10,963	1,850	17%
Minor Art	30	4,855	697	14%
Collector	40	28,305	2,156	8%

Additionally, peak hour counts on the FDOT traffic count CD for 2010 were matched to 1,266 links on the 2010 network and merged together by period: AM (6AM-9AM), MD (9AM-3PM), PM (3PM-6PM) and NT (remainder) to guide for the adjustment of diurnal factors by period and by trip purpose. There was an insufficient number of peak-hour counts to be able to validate each individual peak period. Lastly, counts of heavy-truck volumes were included, however, as mentioned, earlier, a separate off-model procedure was utilized to estimate heavy-truck volumes from the FLSWM.

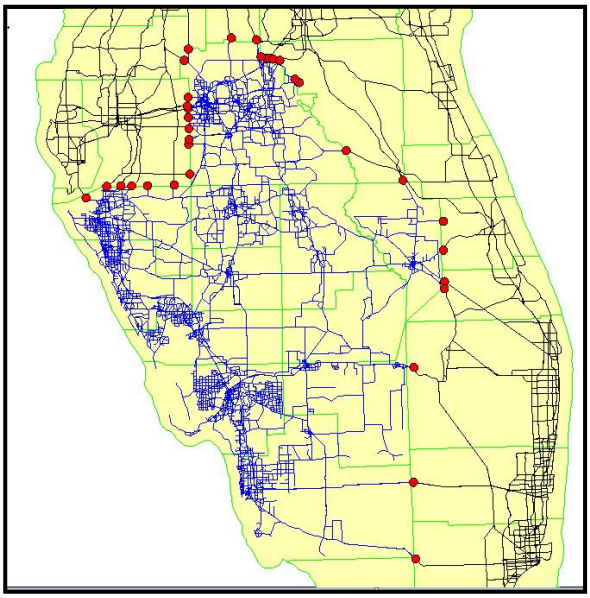
Screen-lines and Cut-lines

Screen-lines and cut-lines are drawn across a model network to measure travel flows, as an aggregate volume between sub-areas within the model. Screen lines and/or cut lines typically follow natural features, major transportation facilities, or political boundaries. As shown, below, the D1RPM excelled in all categories, when compared to "Model Calibration Standards", FDOT Model Task Force, CSI, November, 2007:

2010 Statistic:			
SL	Location	Links	V/C
1	South of I-4	24	1.01
2	South of SR 60	12	1.16
3	North of Hardee/Highlands	6	1.13
4	South of SR 64	46	0.86
5	South of SR 72 / SR 70	22	1.01
6	North of Lee CL	12	0.92
7	North of Collier CL	12	0.90
8	North of CR 856	12	0.86
9	East Highlands CL	8	1.21
10	East of US 27 (urban)	18	1.13
11	East of US 27 (rural)	27	1.03
12	East of US 17 (urban)	34	0.97
13	East of US 17 (rural)	8	0.72
14	East Manatee CL	18	0.90
15	East of I-75 (SM)	18	0.98
16	Bridge/Causeway	32	1.07
17	East of N River Rd	10	1.09
18	East of I-75 (LC)	24	1.06
	Districtwide		1.00

External Trips

Development of a model also requires that volumes be assigned to roadways that exit the study area at "external stations" (shown to the right). Discussion and coordination with adjacent FDOT districts (4, 5, 7) yielded a loaded model network, for the most recently available forecast year (2035-2040). From these we obtained forecast volumes for SOV, HOV and TRUCK trip purposes. These data were tabulated and in consultation with each MPO appropriate traffic volumes at these locations were selected.



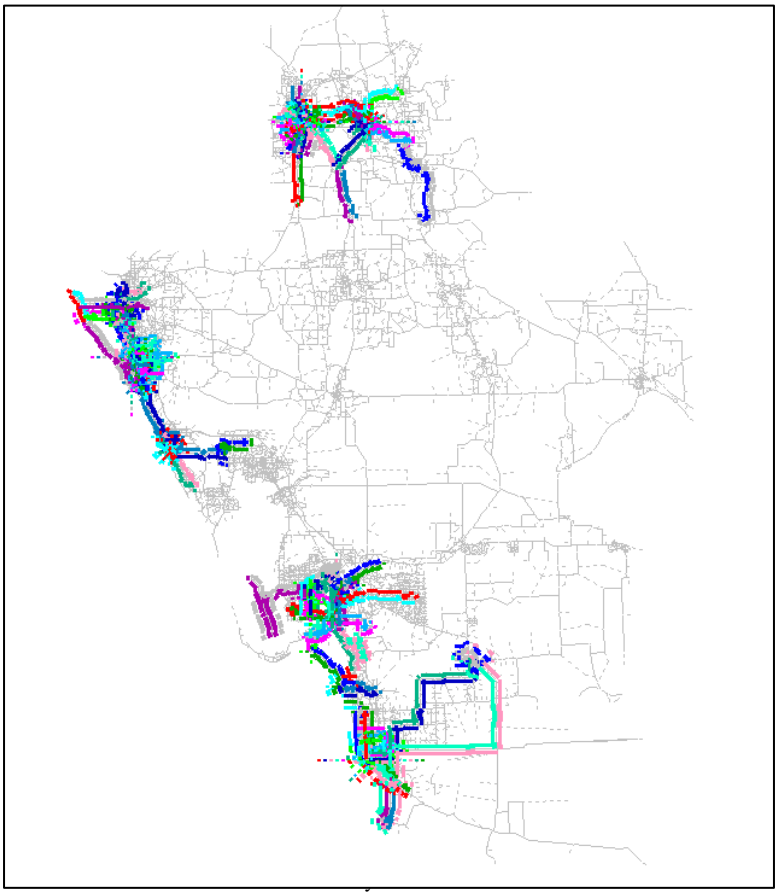
The D1RPM external trip tables account for a significant number of autos and trucks for the following categories:

External-to-External or "through trips":

- I-4 east-to-west vehicle trips (autos and trucks),
- I-275-to-I-75 vehicle trips (autos and trucks),
- I-75 north-to-south vehicle trips

Internal-to-External vehicle trips to attractions near the model area:

- NE Polk County, where about 20% of the home-based trips are attracted to Orange County's Theme-Parks.
- Manatee County, where HBW trips are attracted towards Pinellas County and Hillsborough County.
- Trips from Rural Areas head East, towards the Florida Coast on SR 70, US 98 and US 27.



Transit Routes

The 2010 model also contains 183 line-haul bus-transit routes as shown: The service providers, daily boarding's, and model estimation are indicated below: Note that Charlotte County, did not have line-haul transit services to be coded into the 2010 model.

2010 Transit Services:

Service Area	Operator	Transit Service	Riders
Lakeland	1	Citrus Connection	4,367
Winter Haven	2	WHAT	860
Polk County	3	PCTS	544
Collier County	4	CAT	3,498
Lee County	5	LeeTran	11,696
Charlotte County	6	CCTS	
Manatee County	7	MCAT	4,147
Sarasota County	8	SCAT	9,011
		total	34,123

Socioeconomic Data

Household data from the 2010 US Census was supplemented with ACS 5 year household surveys and imported into a geographic information system (GIS) for processing. Employment data, obtained from FDOT and InfoUSA were also imported into a GIS, and processed as described below:

- As the D1RPM, is an aggregation of nine independent FSUTMS models, the D1RPM model traffic analysis zones (TAZ) were carefully adjusted to match census block and tract boundaries. This resulted in a model with 5,628 zones for which data must be prepared.
- Census block and tract data points were laid upon the new D1RPM model's traffic analysis zones (TAZ), from which tabulations were computed for each zone in the model. A similar procedure was use to check and develop zonal employment totals.

A summary of the model's socioeconomic data follows:

2010 Population and Employment:

Census	(grphome)	Population		BEBR (medium)	Employment
159,978	3,172	156,798	Charlotte	64,776	64,749
321,520	4,546	315,030	Collier	173,832	173,678
34,862	3,794	33,915	DeSoto	13,504	13,486
12,884	3,097	12,637	Glades	4,561	4,542
27,731	377	26,753	Hardee	11,260	11,210
39,140	2,026	37,229	Hendry	18,698	18,659
98,786	222	95,046	Highlands	38,093	40,306
618,754	8,328	606,332	Lee	285,831	283,431
322,833	3,154	319,923	Manatee	154,595	153,500
39,996	0	34,959	Okeechobee	14,132	14,037
602,095	12,261	586,882	Polk	256,795	255,593
379,448	7,041	374,086	Sarasota	213,156	212,623
2,658,027	48,018	2,599,590	District 1	1,249,233	1,245,814

2010 MODEL PERFORMANCE

Trip Generation

The trip generation model, was developed for the TMU project[2] uses a combination of techniques to estimate the number of trips bound to, or destined from, each Traffic Analysis Zone determined by multiplying the appropriate trip generation rate by the number of occupied dwelling units in each market segment and then summing the market segment totals together.

2010 Household Rates:

	Area	Low	High	D1RPM
Pop/HH	Model	2.00	2.70	1.75
Emp/HH	Model	0.45	0.75	0.87
Autos/HH	Model	1.75	2.10	0.91
Pop/TAZ	Model		3,000	587

2010 Statistic:

Trip Purpose	Low	High	D1RPM
% HBW	12	24	18
% HBSH	10	20	13
% HBSR	9	12	11
% HBSC	5	8	5
% HBO	14	28	16
% HBNW	45	60	49
% NHB	20	33	24

[2] *"Task 06, Transit Modeling Update, Technical Memorandum 1, Trip Generation Review and Recommended Model Development Guidance, Florida Standard Urban Travel Model System, May 2011"*

A trip's purpose is important in determining trip length during the trip distribution module. For example, people generally do not travel as far on a shopping trip as they would commuting to work. Trip purpose also plays a significant part during the modal choice module. When estimating transit use, the propensity to use public transit and carpools is higher for work trips than for other trip purposes. When converting person-trips to vehicle-trips in the modal choice module, average vehicle occupancies differ by trip purpose. For example, people commonly drive alone to work although they rarely drive alone to the beach or other recreational activities. In the traffic assignment module, trip purpose has been used in some specialized models to help time-of-day travel estimates. Analysis for toll roads and high-occupancy vehicle facilities often focuses on work trips, which predominate during peak hours. Additionally, the D1RPM uses different trip rates for seasonal and permanent populations.

Trip Distribution

Trip distribution relies on a "Gravity Model" (which parallels Newton's gravitational law) to distribute trips. All trips starting in a TAZ are attracted to all other TAZ, proportional to the number of attractions and inversely proportional to the distance. Friction factors control the probability of making a certain length trip, for a certain trip purpose. For instance, going to work is relatively insensitive to how long the trip is while shopping depends much more on travel time in selecting possible destinations. These factors are developed based on observed trip lengths for the local population and come from Census and survey data As shown below, calibration of the Trip Distribution step is accomplished via a comparison of average trip lengths generated by the model with data from household travel time surveys.

2010 Statistic:			
Avg Trip Length	Low	High	D1RPM
% HBW	12	35	14
% HBSH	9	19	13
% HBSR	11	19	15
% HBSC	7	16	10
% HBO	8	20	13
% NHB	6	19	12
% IE	26	58	42

Mode Choice

The "TRANSITMODEL" developed by AECOM for FDOT in 2008[3] was retained by the TMU project. It consists of three parts: a *Transit Prep module*, which links transit routes to the model's highway network; a *Transit Path* module, which generates zone-to-zone transit paths, transit skims, transit fares; and a *Mode Choice* module, which is a multi-path/single-period "nested-logit" sub-model.

Most of the effort in validating the transit accessibility and path building focused on ensuring that the transit network was up to date and accurately reflected base year conditions. In addition, walk access links are checked in order to ensure adequate connectivity. Calibration of Mode Choice is twofold: First, auto occupancy rates are compared with other household travel time surveys, and, as can be seen in this table, the D1RPM performs admirably. Secondly, estimated transit ridership is compared to actual reported ridership for each service provider.

Auto Occupancy:	Benchmark			
Purpose	1988 FLSWM	2001 NHTS FL	2001 NHTS US	D1RPM
HBW	1.30	1.06	1.10	1.15
HBO	1.50	1.90	1.70	1.60
NHB	1.58	1.82	1.71	1.44

2010 Transit Services:				
Service Area	Operator	Transit Service	Riders	Estimate
Lakeland	1	Citrus Connection	4,367	4,361
Winter Haven	2	WHAT	860	1,308
Polk County	3	PCTS	544	357
Collier County	4	CAT	3,498	3,331
Lee County	5	LeeTran	11,696	8,355
Charlotte County	6	CCTS		
Manatee County	7	MCAT	4,147	6,240
Sarasota County	8	SCAT	9,011	7,770
		total	34,123	31,720

Highway Assignment

Vehicle trips are split into four time-of-day matrices AM (6am-9am), MD (9am-3 pm), PM (3pm-6pm) and NT (remaining hours) using Diurnal Factors. D1RPM model calibration began with the diurnal factors from the TMU project, and these were refined with ACS household travel surveys and FDOT traffic counts.

[3] Please refer to the *"FSUTMS Transit Model Application Guide, AECOMM, 2008"*.

Next, the Highway Assignment module loads trips onto the highway network, selecting the most efficient route choice for all. This results in traffic estimates on individual links to simulate general vehicular travel throughout the study area. Validation of the highway assignment involved the adjustment of the speeds, capacities, penalties and other parameters related to travel time. Trips are loaded onto the network by means of an iterative equilibrium highway load program based on an all or nothing capacity restrained assignment. A feedback loop is utilized, whereby, congested speeds from the initial highway assignment are fed back into the next trip distribution-mode-transit-highway processes. This minimize differences in congested speed amongst all of these modules. Convergence criteria were compared until the differences in travel time and travel distance were minimized, by looping through the model three times

Comparison of Volume to Count statistics by Facility Type gives a good indication of model performance, as shown below:

Volume-over-Count Performance:	Benchmark					
Facility	Acceptable		Preferable		D1RPM	
Freeway Volume-over-Count	±	7%	±	6%	±	0%
Arterial Volume-over-Count	±	15%	±	10%	±	2%
Collector Volume-over-Count	±	25%	±	20%	±	1%
Frontage Road Volume-over-Count	±	25%	±	25%	±	3%
Freeway Peak Volume-over-Count	±	20%	±	10%	±	7%
Major Arterial Peak Volume-over-Count	±	30%	±	15%	±	24%
Assigned VMT-over-Count Areawide	±	5%	±	2%	±	1%
Assigned VHT-over-Count Areawide	±	5%	±	2%	±	0%
Assigned VMT-over-Count by FT/AT/NL	±	25%	±	15%	±	1%
Assigned VHT-over-Count by FT/AT/NL	±	25%	±	15%	±	0%

Note: The above table's benchmarks are in terms of deviation from 100%, plus or minus. A zero values equals 100% accuracy.

Statistics on Root Mean Square Error of Volume to Count ratio by Volume Group gives a indication of how close model volumes are to count volumes. The D1RPM appears to do an exceptional job of forecasting traffic, as shown below:

Root Mean Squared Error	Benchmark		
Facility	Acceptable	Preferable	D1RPM
RMSE – LT 5,000 AADT	150%	45%	69%
RMSE – 5,000-9,999 AADT	45%	35%	38%
RMSE – 10,000-14,999 AADT	35%	27%	25%
RMSE – 15,000-19,999 AADT	35%	25%	20%
RMSE – 20,000-29,999 AADT	27%	15%	16%
RMSE – 30,000-49,999 AADT	25%	15%	13%
RMSE – 50,000-59,999 AADT	20%	10%	10%
RMSE – 60,000+ AADT	19%	10%	2%
RMSE Areawide	45%	35%	34%

D1RPM meets or exceeds every standard measure of model validation presented.

2040 MODEL DATA

It is also useful to review socioeconomic data for the forecast year (2040) to insure that future year model data remain "reasonable" and has not diverged from acceptable ranges. Note that population and person trip rates remain within accepted ranges.

Socioeconomic Data:

	Population			Employment			Hotel			School			University		
	2010	2040	rate	2010	2040	rate	2010	2040	rate	2010	2040	rate	2010	2040	rate
Charlotte	156,595	208,188	1.1%	64,729	86,227	1.1%	2,075	3,247	1.9%	26,412	35,001	1.1%	1,220	1,614	1.1%
Collier	316,739	492,532	1.9%	173,678	237,747	1.2%	8,007	15,375	3.1%	73,130	109,997	1.7%	12,220	19,063	1.9%
Desoto	33,510	41,676	0.8%	13,486	17,564	1.0%	120	273	4.3%	6,770	9,142	1.2%	260	260	0.0%
Glades	11,432	17,825	1.9%	4,542	5,404	0.6%	10	216	68.7%	3,200	4,872	1.7%	40	40	0.0%
Hardee	25,856	30,358	0.6%	11,210	14,135	0.9%	135	126	-0.2%	7,060	8,377	0.6%	80	80	0.0%
Hendry	37,414	45,107	0.7%	18,659	25,973	1.3%	250	453	2.7%	12,890	15,957	0.8%	380	380	0.0%
Highlands	97,665	134,966	1.3%	38,036	55,987	1.6%	940	1,807	3.1%	17,660	19,063	0.3%	12,280	12,280	0.0%
Lee	609,173	1,070,727	2.5%	283,431	488,328	2.4%	12,380	14,720	0.6%	85,526	136,352	2.0%	17,988	37,926	3.7%
Manatee	318,769	474,518	1.6%	154,759	231,446	1.7%	3,193	6,198	3.1%	57,330	82,580	1.5%	34,100	48,970	1.5%
Okeechobee	37,103	49,970	1.2%	14,002	21,406	1.8%	415	723	2.5%	8,520	11,588	1.2%	200	200	0.0%
Polk	589,811	985,794	2.2%	255,593	435,666	2.3%	5,684	20,374	8.6%	97,395	193,408	3.3%	31,008	53,444	2.4%
Sarasota	374,018	519,913	1.3%	212,623	267,713	0.9%	4,845	6,316	1.0%	55,452	79,630	1.5%	12,311	17,675	1.5%
District 1	2,608,085	4,071,574	1.9%	1,244,748	1,887,596	1.7%	27,457	50,138	2.8%	321,883	522,621	2.1%	107,887	170,495	1.9%

2040 Statistic:

	Low	High	D1RPM
Person Trips / TAZ	-	15,000	2,342
Person Trips / Person	3.30	4.00	3.22
Person Trips / HH	8.00	10.00	5.90
HBW Trips / Employee	1.20	1.55	1.89

2040 Household Rates:

	Area	Low	High	D1RPM
Pop/HH	Model	2.00	2.70	1.81
Emp/HH	Model	0.45	0.75	1.02
Autos/HH	Model	1.75	2.10	1.84
Pop/TAZ	Model		3,000	748

2040 Statistic: Trips / TAZ > 15K

	>15K		Total	%
Olympus	28	of	630	4.44
TBRTM	206	of	3000	6.87
GTCRPM	697	of	3000	23.23
SERPM	62	of	4166	1.49
CFRPM	445	of	4500	9.89
FLSWM	307	of	5403	5.68
D1RPM	179	of	5629	3.18

FUTURE MODEL ENHANCEMENTS

Future model enhancements, which are underway, but not yet in the D1RPM are:

ELTOD

The Turnpike District "Express Lanes Time-of-Day" (ELToD) model, originally scheduled for release June 2015, will now be made available March 2016. Developed as an add-on tool for FSUTMS implementation will depend on data needs and the adaptability of the model to the D1RPM. It is unknown, at this time, as to whether or not, the toll model procedures included Highway Assignment will need to be revised.

FITSEVAL implementation

FITSEVAL is a sketch-planning tool that evaluates the benefits and costs of Intelligent Transportation Systems (ITS) deployments within Florida Standard Urban Transportation Model Structure (FSUTMS) travel demand forecasting software environment. As such, it provides additional measures of effectiveness (MOEs) for evaluation of the transportation policy related to each MPO Long Range Transportation Plan (LRTP). The tool was developed by the Lehman Center for Transportation Research at Florida International University (FIU) and was later refined by Citilabs as part of a project to implement an updated version of the tool as a Cube Base utility program.

Connected Vehicles and Autonomous Vehicles

A procedure related to changes in future travel behavior as these vehicles become available will need to be addressed as-soon-as-possible. This is because Connected Vehicles (CV) which have features such as lane-centering and automatic-spacing (following distance) where cars 'talk' to each other on an exclusive cell phone frequency, will be widely available by 2017. Traffic impacts of autonomous vehicles (AV) will begin to be realized as ownership levels (saturation rates) rise to significant levels, with most experts agreeing that this will be sometime well before 2040 -- our forecast year. CV and AV implementation, which is currently underway for automobiles, will be delayed for Heavy Trucks (HT) due to a myriad of state regulations affecting interstate truck movements.

Ridesourcing

Existing models don't address this mode of transportation. "Ridesourcing", a new kind of a TAXI trip, uses a smart phone app to connect riders with drivers using their phone's GPS capabilities, letting both parties know one another's location and removing the question of when the ride will actually arrive--additionally payments are processed using the phone app and are completely cashless.

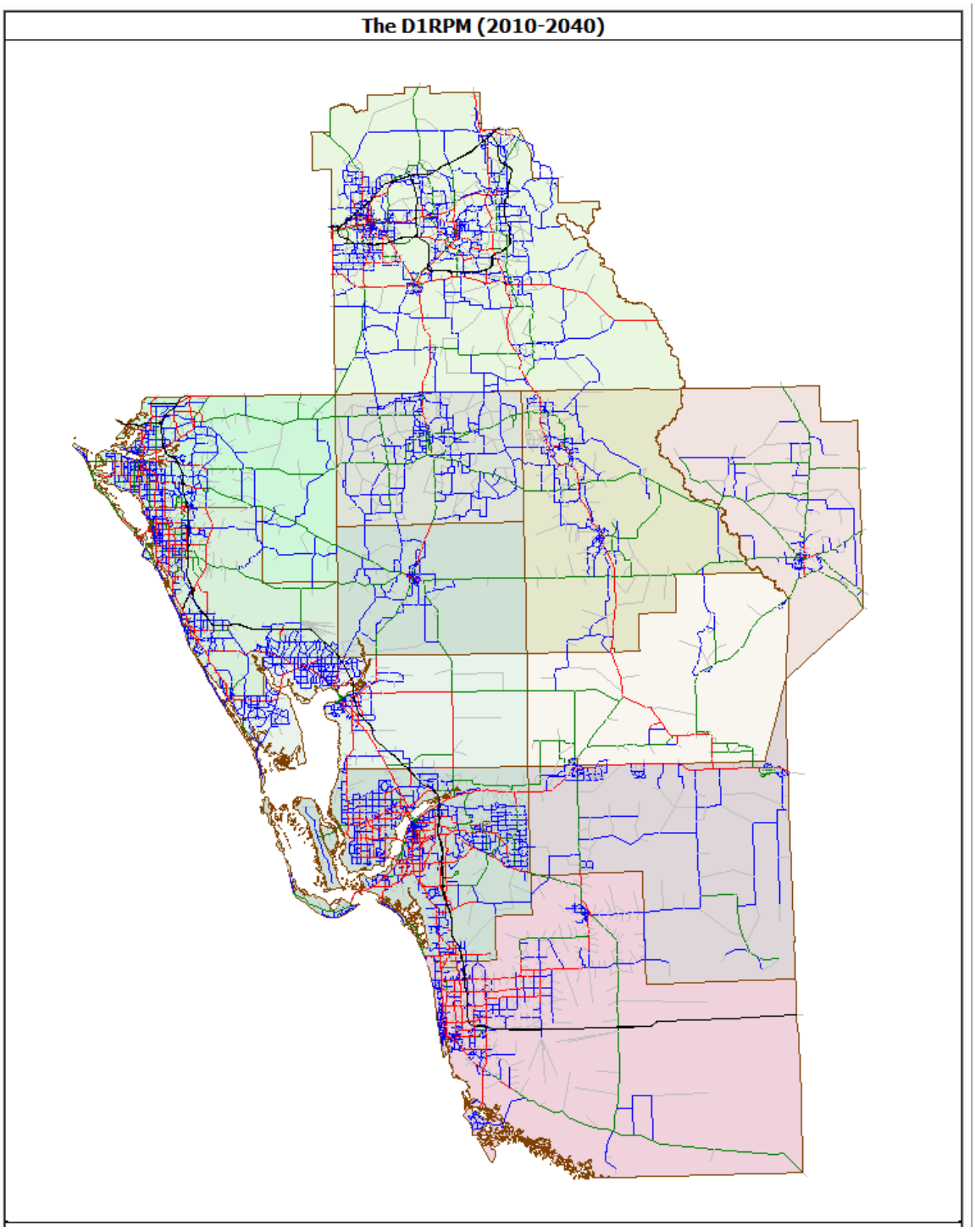
Evidence suggests that these services are in high demand because of the convenience of requesting a ride by a mobile app, the satisfaction of being able to have experience monitored by the company as a third party, and because of competitive pricing for services. In 2015 ridesource-taxi were provided in: The Central Atlantic Coast, Fort Myers, Naples, Gainesville, Florida Keys, Jacksonville, Tampa Bay, Ocala, Pensacola, Sarasota, Miami, Orlando and Tallahassee.

Taxi trips in FSUTMS, however, are based on a trip rate associated with households and employment and are a miniscule portion of the overall "travel market". It has been suggested that FSUTMS will need to change to a "non-auto-ownership model" to serve the needs of the "Gen Now" generation and "Digital Natives" (133 million current and future drivers) as well as the needs of older adults, (47 million Americans aged 66 and over) who face different mobility challenges. The Florida Model Task Force has just begun to address this issue.

DRAFT

TM-2 Validation Report
District One Regional Model (2010-2040)

December 2015



This report: *"TM-2 D1RPM Model Validation Report"* reviews of the model development, discusses the structure of the model within CUBE/Voyager environment, and contains summary statistics for the validation year of 2010. Companion reports, *"TM-1 Executive Summary of the D1RPM"* provides a brief review of the model's performance for the validation year of 2010. *"TM-3 D1RPM Technical Resource Guide"* provides technical users/model developers with a more detailed review of certain critical steps (and associated scripts) within the model.

The D1RPM performance was compared to standards of validation presented within several documents: The "*Model Validation and Reasonableness Checking Manual 2nd Edition"*, Travel Model Improvement Program Federal Highway Administration, March 2014; the *"Model Calibration Standards"*, a presentation to the FDOT Model Task Force, CSI, December, 2007, and; "*The FSUTMS model update, phase II - Task C report"*, FDOT Systems Planning, 1998.

D1RPM meets or exceeds every standard measure of model validation presented below.:

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- A travel time feedback loop allows congested speeds from highway assignment to be utilized in trip distribution.
- New CUBE processes to replace the AUTOCON program -- requiring the use of CUBE 6.1, but eliminating the need to customize CUBE resource files.

Initially, The District considered the use of the TMU model as a replacement for the adopted model structure used in 2007. A test of the TMU model was undertaken using the Polk County model as a basis for comparison. This test yielded reasonable traffic volumes to count ratio (V/C 1.04) but required a eight hour run-time, when the original model ran in one hour. An additional test was undertaken with the District-Wide network and data, but this model yielded somewhat higher traffic volumes to count ratio than expected (V/C 1.25) but required a run-time in excess of 10 days. Due to this 'unreasonable' run time, additional tests of the model and it's procedures were undertaken to identify features that were desirable, but which would not detrimentally impact run-time.

It was noted that the existing MPO model transit component already provided Peak and Off-Peak transit assignments (as recommended by the TMU project) as well as a mode choice calibration feature (which was absent from the TMU model). Also, these MPO models utilized a traditional gravity model for destination choice (where trips terminate after a 'lengthily' travel time) resulting in a model run time of about 2 hours, whereas the TMU model used a destination choice sub-model and the mode choice sub-model to determine the *probability* of trips from 40 market segments (with no limit for 'unreasonable travel') resulting in a model run time of about 12 hours, for each process. As mentioned earlier, due to issues with *scaleability* (unacceptable run times), the existing MPO transit model was retained.

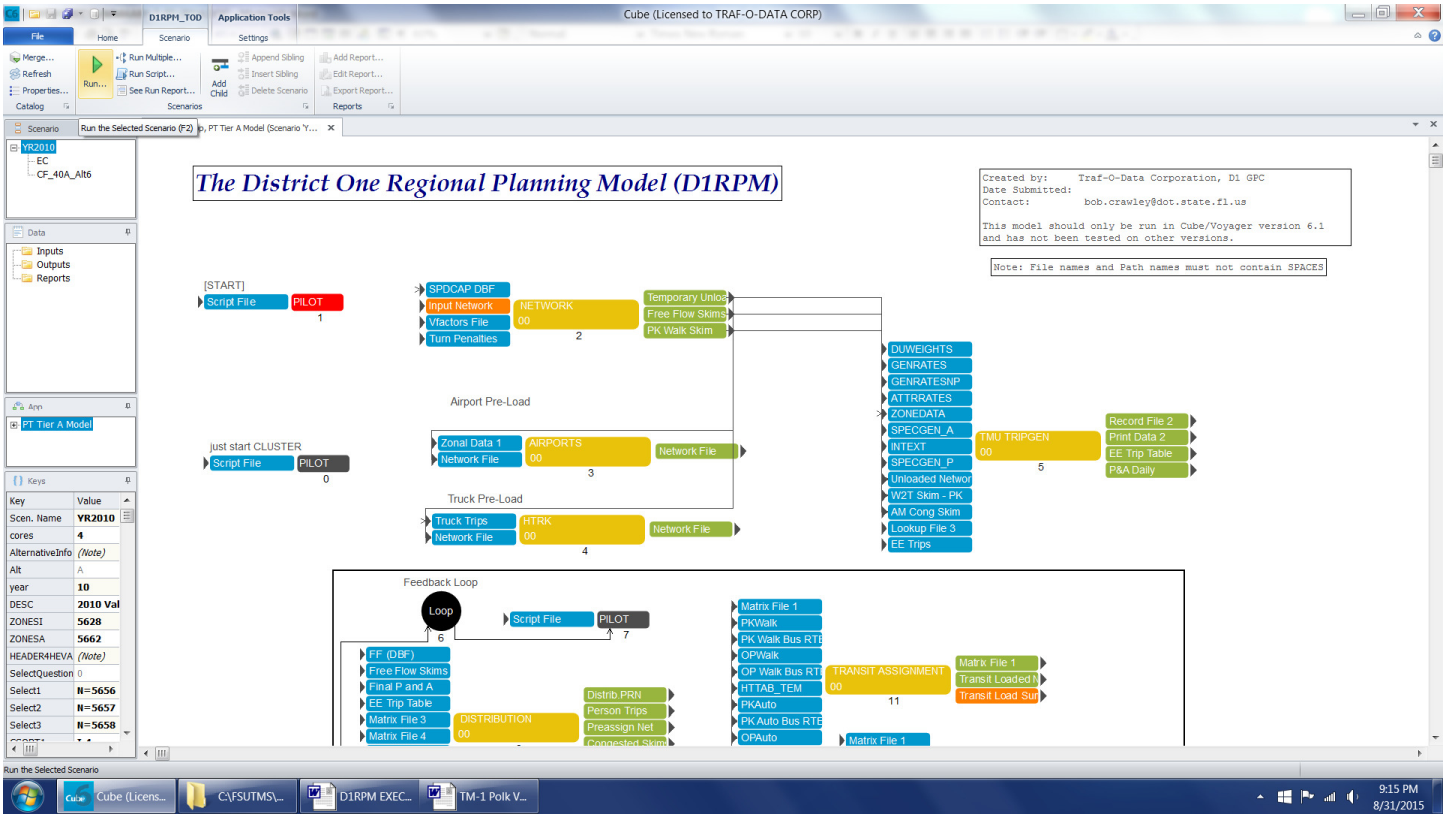
There are also features included in the D1RPM, that are not in the TMU model:

[1] Trip Generation Review and Recommended Model Development Guidance, Parsons Corp, May, 2012.

- A procedure for generating and distributing vehicle trips at Southwest Florida International Airport, previously incorporated into the LC model, is now used for Sarasota-Bradenton Airport (SRQ).
- The D1RPM incorporates heavy-truck trips from the Florida Statewide Model (v5124). The statewide model contains procedures for estimating tons of goods movement (including ports and airports) from the United States (and around the world) that are not appropriate for inclusion in a regional model, such as the D1RPM. A matrix of 16 commodities, hauled by trucks, taken from the FLSWM is used with an equivalency table for HT (internal and external) origins-destinations.
- Florida's unemployment rate (10.9 percent in 2010) was much higher than Florida's historical long-term unemployment rate of about 5 percent, and the downturn in the economy did result in fewer vehicle trips in 2010. There was no corresponding decrease in employment within the socioeconomic data file provided by InfoUSA, which was used for validation. With, the current (2015) unemployment rate, and traffic volumes, returning to nearly 2007 levels, a procedure for addressing unemployment and correcting for under-estimation of vehicle trips in future years, has been included.
- A mode choice calibration feature is included.

Development of the model was achieved within the CUBE/Voyager transportation planning environment, version 6.1.0, as mentioned above, incorporation of new auto-access to transit procedures means that the model will NOT run in earlier versions of this software. A Windows based program, the model is run via a graphical user interface (GUI) whereby a mouse-click or a function key, would activate a "pop up" window or menu from which the user will choose options to run the model. Programs and features which are part of CUBE/Voyager are well documented and an internal help function is available.

The D1RPM in CUBE 6.1.1



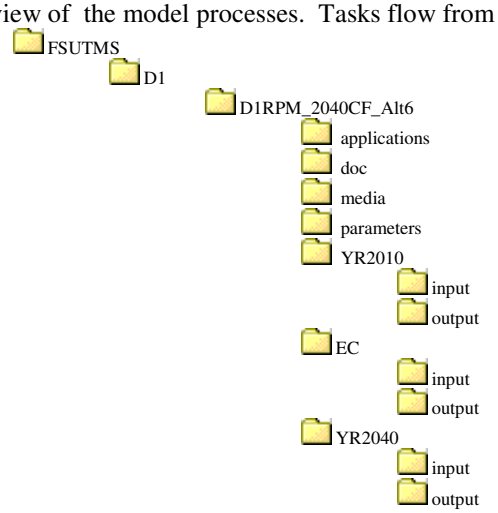
To understand how this model works you will need to be able to understand the scenario manager, the application manager flowchart and some of the job control language and command structure. The basis of Cube scenario management is the Catalog which contains information on what applications you want to run, the inputs to an application which are called "keys" and the scenarios that define values for those keys

The Scenario Manager
The purpose of Scenario Manager is to allow a model to be conveniently executed with a variable set of inputs, allowing the user to compare different scenario's. The 1st illustration, below, shows a scenario manager folder hierarchy in the left panels. This is identical to the folder hierarchy shown in the following illustration:

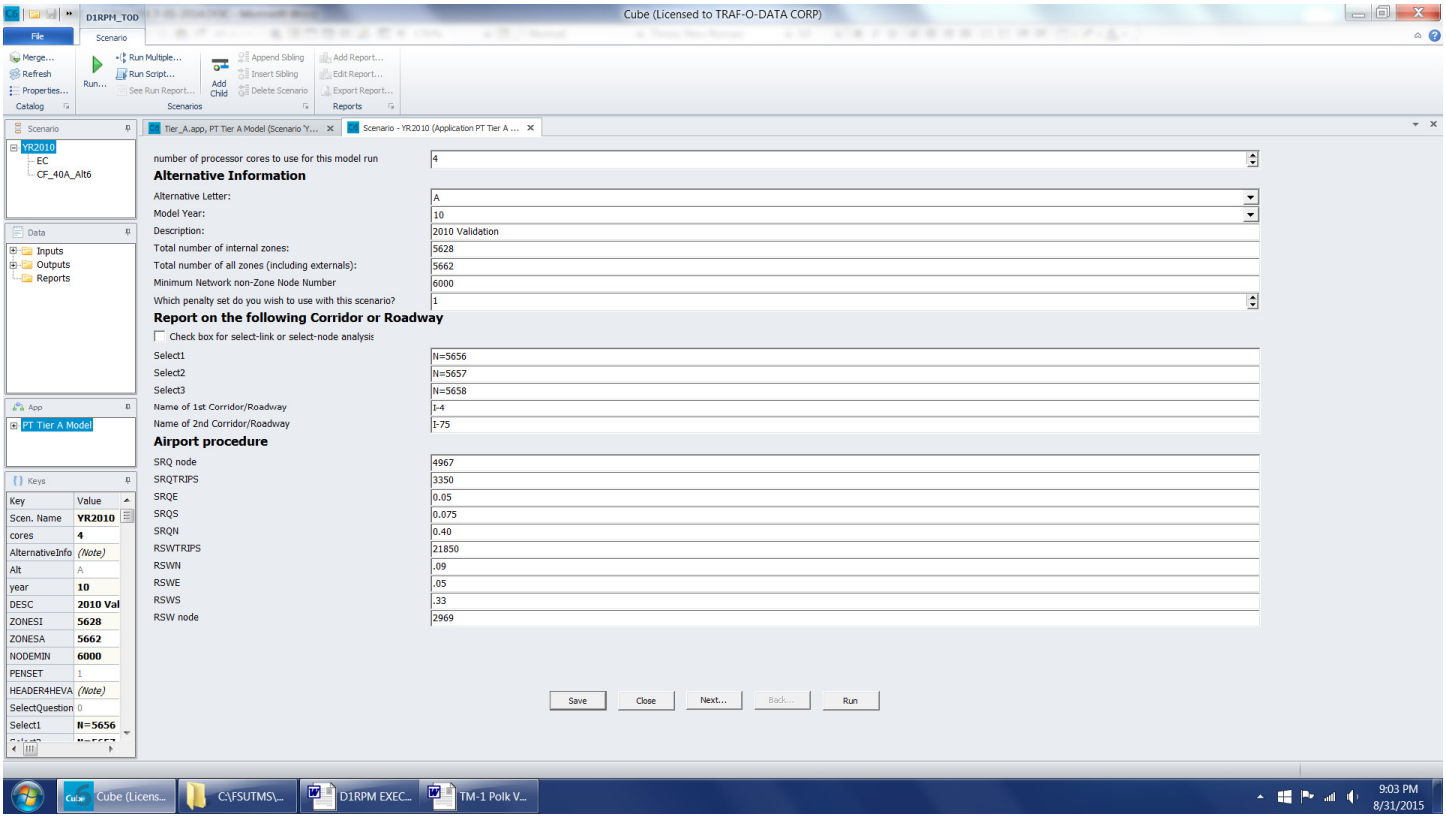
The Application Manager
Application Manager provides a graphical view of the model processes. Tasks flow from one process to another, in the order shown:

For best results the file hierarchy, shown to the right, should be maintained.

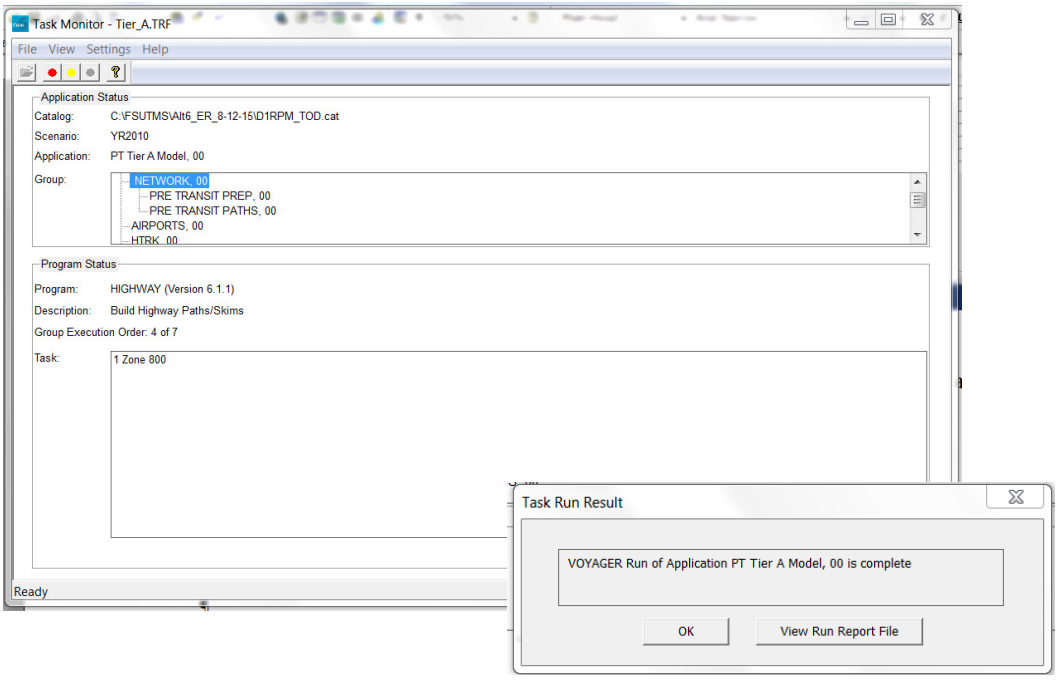
Note, for example, that "parameters" are in a parent folder, available to all programs in sub-folders. Conversely, each individual scenario contains only an “input" and a “output” folder.



When ready to run a model, users are presented with a series of “KEYS” (variables that may be changed by the user). Most users will simply choose the "run" button, which will start the model process.



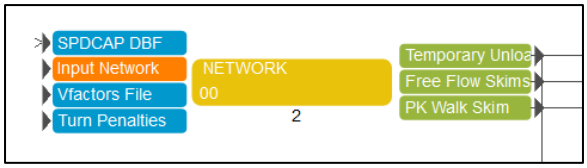
When running, the user is presented with a Task Monitor progress bar, then, the Run Result box.



THE D1RPM MODEL

As mentioned, earlier, The D1RPM is a 'traditional' Florida Standard Urban Transportation Structure (FSUTMS) four-step, trip-based model. Below, we begin with a review these processes:

NETWORK



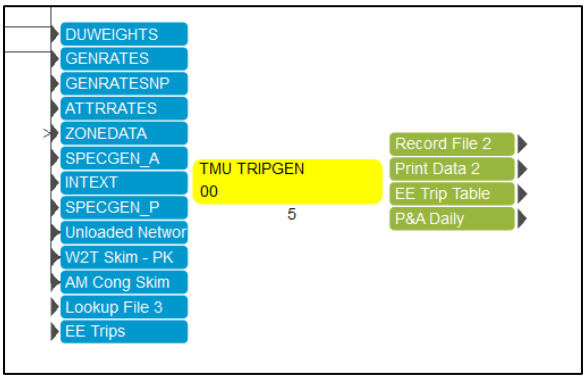
Here, a base year highway network containing all of the potential roadways for the model (and all alternatives) are processed. The HWYNET_10A.NET consists of NODES, which provide shape to links by following roadway geometry, or, serve as a loading point for a traffic analysis zone (TAZ) and. LINKS which contain all of the roadway information required for the model, such as Area Type (urban, residential, rural) or Facility Type (freeway, arterial, collector) or Lanes (toll, free). Depending on which options (KEYS) are selected for a particular model run, different attributes are added, or removed, from the network, creating an UNLOADED_10A.NET in the model's \output folder.

Secondarily, within this step, transit routes are merged with links on the highway network (so that errors and omissions may be quickly identified) and transit paths/times are saved for subsequent use within the Trip Generation step.

Subsequent to preparation of the model network, two additional set-up processes are run:

- The AIRPORT process provides trip generation, distribution and pre-assignment of Taxi and other vehicle trips from major commercial airports to, what are primarily, tourist destinations within the D1RPM
- The FREIGHT process pre-assigns heavy truck trips from a O-D matrix of truck trips to (from the FLSWMv5124) using a zone-to-zone equivalency with a shortest-path methodology for commercial vehicles within the D1RPM.

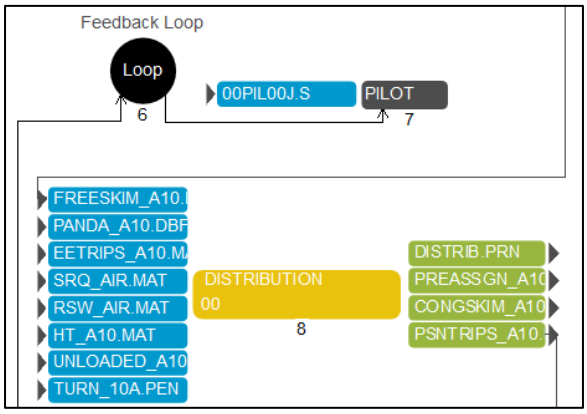
TRIP GENERATION



The first step of a traditional 'four-step' model, Trip Generation in the D1RPM is an entirely new process. These procedures (taken from the TMU model) generate a matrix of Production-to-Attraction trips for use in the Trip Distribution step. As mentioned, in the introduction, this update provides:

- New (Florida) trip generation rates from 2010 from ACS, NHTS and Census data are utilized.
- Trip purposes split trips into 47 "travel markets" using income and auto availability. Also,
- EE and IE trip matrices now contain auto and truck trips.
- New purposes are provided for: college and university trips; there are two classes of home-based work trips (high-income trips travel further); and there is a new purpose for mid-day 'lunch-hour' travel.

TRIP DISTRIBUTION

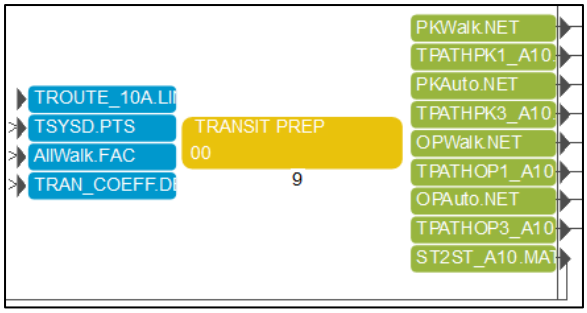


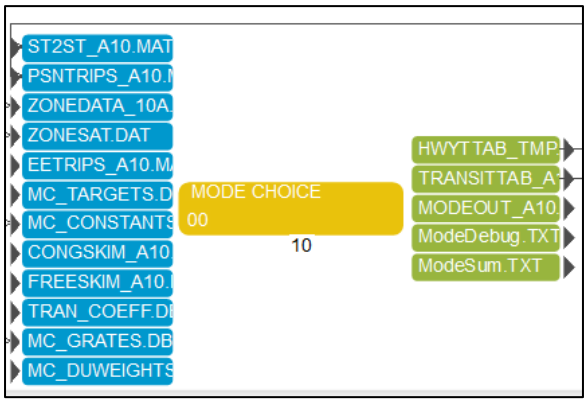
The second step of a traditional 'four-step' model, Trip Distribution in the D1RPM is the first step included in the feedback-loop methodology (as recommended by the TMU project).

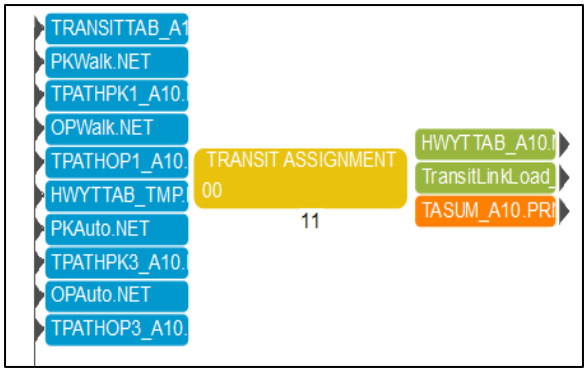
As before, these procedures converts Production-to-Attraction trips to Origin-Destination trips using travel time impedance within in a gravity model. Unlike some other regional models, the D1RPM does not require sub-area balancing or K-factors. In this module vehicle trips are pre-assigned so that congested travel times (as well as free-flow travel times) may be utilized in mode choice.

In subsequent loops 'UNLOADED_10A.NET and 'FREESKIM_10A.MAT' contain a weighted average of speeds and travel time from all prior highway assignments. This minimizes differences in travel time/speed between trip distribution, mode choice, and highway assignment.

TRANSITMODEL







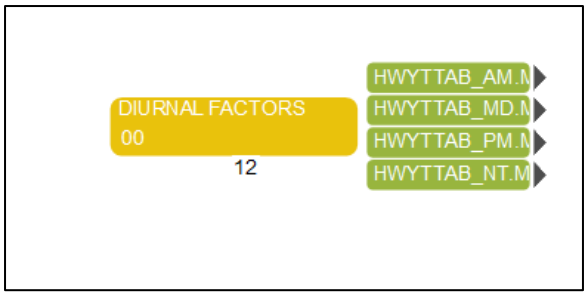
In all, there are eight transit systems within the D1RPM:

Charlotte County Transit Services (CCTS),
Collier County Area Transit (The CAT),
Lee County Transit (LeeTran),
Manatee County Area Transit, (MCAT).
Polk County Transit Services (PCTS),
Sarasota County Area Transit (SCAT),
The Citrus Connection (Lakeland), and;
Winter Haven Area Transit (WHAT),

DIURNAL FACTORS

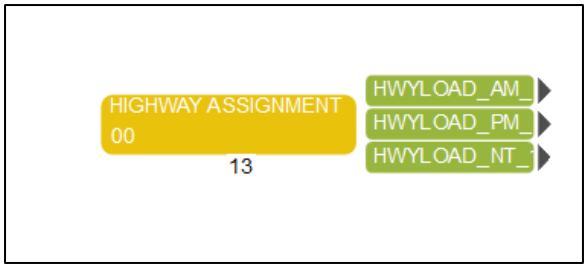
Originally part of ASSIGNMENT the TMU model, (the fourth step of a traditional 'four-step' model) DIURNAL FACTORING in the D1RPM is an entirely new process. This procedures splits daily vehicle trips into four periods (AM, MD, PM, NT) prior to Highway Assignment.

This allows for the effects of directional distribution on link speeds and times, as mentioned in the introduction.



HIGHWAY ASSIGNMENT

The fourth step of a traditional 'four-step' model, Highway Assignments are produces for four time periods (AM, MD, PM, NT).



Lastly, reports are generated (and placed in the scenario folder) which may be helpful to the user. Significant reports include:

- Trip Generaton Report (TG_REPORT.PRN), person trips, by purpose, before and after trip-balancing.
- Travel Length Frequency Report (DISTRIB.PRN) , trip length, by trip purpose.
- Mode Split (MODESUM.TXT) trips by trip purpose.
- Transit Assignment (TASUM.PRN), trip by transit route, mode, system.
- Screenline Reports by system and by county in (SCREENLINES.PRN).
- Model Performance to Calibration Standards, by system and county in (SUMMARY_D1.PRN).

Before a model may be run, however, the following datasets must be prepared for <u>each</u> alternative and placed in the model's INPUT folder:

- EETRIPS_10A.DBF ..... external-to-external trip table
- HNET_10A.DBF ..... highway network
- INTEXT_10A.DBF ..... internal-to-external trip table
- PCWALK_10A.DBF ..... percent of TAZ within short-walk and long-walk access
- SPECGEN_A_10A.DBF ..... special generator attractions
- SPECGEN_B_10A.DBF ..... special generator productions
- STATREP_10A.DBF ..... transit station reports for a station #
- TFARES_10A.DBF ..... transit fares
- TROUTE_10A.DBF ..... transit routes
- TURN_10A.DBF ..... turn prohibition's and turn penalty's
- ZONEDATA_10A.DBF ..... socioeconomic data

In addition, the following datasets must be available for <u>all</u> alternatives and placed in the model's PARAMETERS folder.
Note: these files are used for model calibration, and should NOT be changed.

Network

- SPDCAP.dbf ..... speed/capacity lookup
- VFACTORS.CSV ..... BPR curve lookup

Trip Generation

- ATTRRATES.dbf ..... attraction rates
- DUWEIGHTS.dbf ..... dwelling unit class: trips/household
- GENRATES.DBF ..... rate-permanent pop: person/autos/household
- GENRATESNP.DBF ..... rate-seasonal pop: person/autos/household
- HHINCOME_Lookup.dbf ..... index households by income
- HHSeed.csv ..... random number seed generation
- HHSIZE_Lookup.dbf ..... index by household size
- HHWORKER_Lookup.dbf ..... index by workers/household
- NonWork_PRates.dbf ..... index by income/autos/persons/purpose
- PRODRATES.dbf ..... rate-seasonal pop: person/autos/household
- Work_PRates.dbf ..... rate by income/autos/persons/purpose
- FLCOUNTY.DBF ..... county identifier lookup

Trip Distribution

- FF.dbf ..... trip length impedances/purpose

Mode Choice

- AllWalk.FAC ..... program setup
- AutoBus.FAC ..... program setup
- AutoProj.FAC ..... program setup
- AutoTransit.FAC ..... program setup
- COEFF_AUTOOWN.DBF ..... auto ownership coefficients
- MC_CONSTANTS.DBF ..... mode constants
- MC_DUWEIGHTS.DBF ..... rate: trips/household
- MC_GRATES.DBF ..... rate: person/autos/household
- MC_TARGETS.DBF ..... calibration targets/purpose
- TRAN_COEFF.DBF ..... calibration targets/mode
- TRN_COEFFICIENTS.DBF ..... calibration targets/mode
- TSYSD.PTS ..... transit modes & operators
- WalkBus.FAC ..... socioeconomic data
- WalkProj.FAC ..... socioeconomic data
- WalkTransit.FAC ..... socioeconomic data

Assignment

- Diurnal_Fac_tmu.dbf ..... trips/period/purpose

DATA DEVELOPMENT FOR THE D1RPM

Traffic Count Data

The validation of any travel demand model relies upon the existence of validation year traffic count data. The volume-to-count ratio generated by the model is the measure used to evaluate the ability of the travel demand model to simulate known traffic conditions. Traffic counts are needed for a variety of different roadway categories distributed throughout the study area in order to validate highway assignment performance among screen-lines and cut-lines The FSUTMS standard is for the model to assign trips to the highway network for peak-season weekday average daily traffic (PSWADT).

Count data are retained on link data records. The source, location identifier, the average annual daily traffic (AADT) and the model output conversion factor (MOCF) were used to converted to peak-season weekday average daily traffic (PSWADT). Count data, for 2006-2012 were utilized to fill in for missing 2010 data. The model network contains about 45,500 links with about 4,800 counts, for approximately 10% count coverage, which is considered to be adequate for validation. Count sources included: The 2007 Florida Traffic Information CD from FDOT, County MPOs (for non-state roads) and The Florida Turnpike Enterprise.

Statistic:				
Facility Type		Number of Links	Number of Counts	Percent of Links
Freeway	10	721	97	13%
Major Art	20	10,963	1,850	17%
Minor Art	30	4,855	697	14%
Collector	40	28,305	2,156	8%

Additionally, peak hour counts on the FDOT traffic count CD for 2010 were matched to 1,266 links on the 2010 network and merged together by period: AM (6AM-9AM), MD (9AM-3PM), PM (3PM-6PM) and NT (remainder) to guide for the adjustment of diurnal factors by period and by trip purpose. There was an insufficient number of peak-hour counts to be able to validate each individual peak period. Lastly, counts of heavy-truck volumes were included, however, as mentioned, earlier, a separate off-model procedure was utilized to estimate heavy-truck volumes from the FLSWM.

Screen-lines and Cut-lines

Screen-lines and cut-lines are drawn across a model network to measure travel flows, as an aggregate volume between sub-areas within the model. Screen lines and/or cut lines typically follow natural features, major transportation facilities, or political boundaries. As shown, below, the D1RPM excelled in all categories, when compared to "Model Calibration Standards", FDOT Model Task Force, CSI, November, 2007:

Statistic:	Deviation from Standard:					
Facility	Acceptable		Preferable		D1RPM	
Freeway Volume-over-Count	±	6%	±	5%	±	0%
Arterial Volume-over-Count	±	10%	±	7%	±	2%
Collector Volume-over-Count	±	15%	±	10%	±	1%
Frontage Rd Volume-over-Count	±	20%	±	15%	±	3%

Source:

Presentation to the FDOT Model Task Force, "Model Calibration Standards", CSI, December, 2007

D1RPM 2010 model, "Summary_D1.prn", December 2015

Statistic: 2010

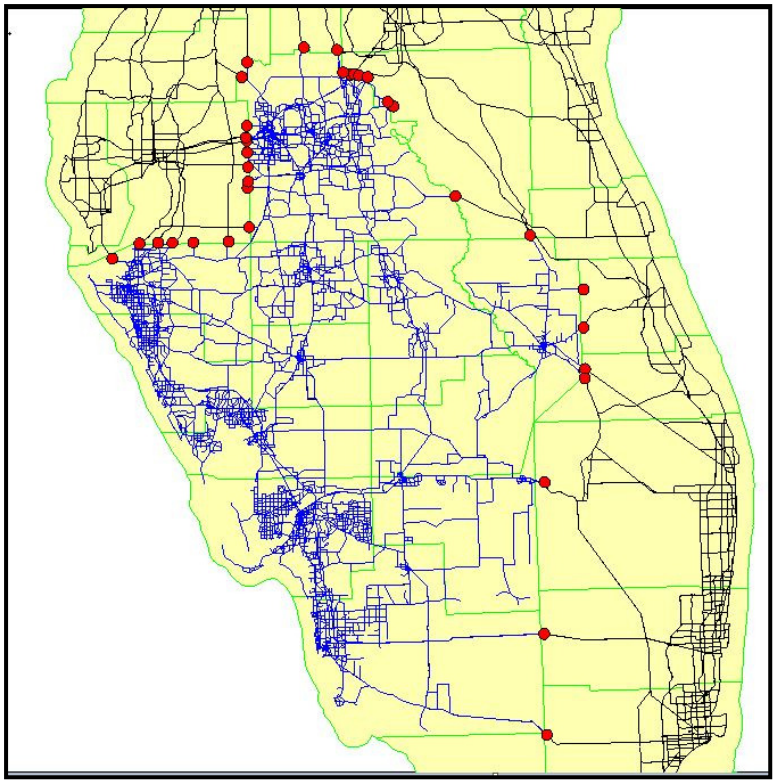
SL	Location	Links	V/C
1	North of I-4	6	1.15
2	South of SR 60	12	1.16
3	North of Hardee/Highlands	6	1.14
4	South of SR 64	46	0.85
5	South of SR 72 / SR 70	22	1.00
6	North of Lee CL	12	0.92
7	North of Collier CL	12	0.90
8	North of CR 856	12	0.86
9	East Highlands CL	8	1.22
10	East of US 27 (urban)	18	1.14
11	East of US 27 (rural)	27	1.04
12	East of US 17 (urban)	34	0.96
13	East of US 17 (rural)	8	0.72
14	East Manatee CL	18	0.91
15	East of I-75 (SM)	18	0.99
16	Bridge/Causeway	32	1.06
17	East of N River Rd	10	1.09
18	East of I-75 (LC)	24	1.06
	Districtwide		1.01

Statistic: 2010

CL	Location	Links	V/C
1	I-275	4	0.93
2	I-4	20	1.05
3	I-75 (SM)	30	1.00
4	I-75 (C)	12	0.89
5	I-75 (LC)	28	0.99
6	Polk Pkwy	29	1.03
7	US 17-SR 35 (urban)	38	1.00
8	US 17-SR 35 (rural)	54	0.93
9	US 27-SR 25 (urban)	32	1.12
10	US 27-SR 25 (rural)	56	0.96
11	US 41B	20	1.10
12	US 41B-SR 739	34	1.18
13	US 41-SR 55 (SMC)	78	0.92
14	US 41-SR 45 (C)	28	0.75
15	US 41-SR 45 (LC)	85	0.89
16	US 41-SR 90	30	1.11
17	US 92-SR 546	64	1.00
18	US 98-SR 35	38	1.00
19	US 98-US 441-SR 15	28	0.81
21	US 98-US 441-SR 15	12	0.78
22	US 301-SR 43	42	0.98
23	SR 17 (urban)	36	1.12
24		18	0.80
25	SR 37	40	0.84
26	SR 60	30	0.89
27	SR 62	10	1.22
28	SR 64	56	0.94
29	SR 70 (urban)	20	1.03
30	SR 70 (rural)	44	0.96
31	SR 72	12	0.83
32	SR 78	32	0.98
33	SR 80 (urban)	24	1.15
34	SR 80 (rural)	16	1.26
35	SR 82	46	1.06
36	SR 540	26	0.78
38	SR 776	32	1.10
39	CR 31	24	0.71
40	CR 846	40	0.95
41	CR 851	20	0.83
42	CR 951	22	0.84
99	External	66	1.00
	Districtwide		0.97

External Trips

Development of a model also requires that volumes be assigned to roadways that exit the study area at "external stations" (shown to the right). Trip Generation will assume that all vehicles at an external station are 'productions' which must go to 'attractions' in the model study area, unless otherwise instructed. Two types of trips that are subtracted from the total vehicle trips at each of these locations. The D1RPM external trip tables account for autos and trucks:



External-to-External vehicle trips, or through trips:

- I-4 east-to-west vehicle trips (autos and trucks),
- I-275-to-I-75 vehicle trips (autos and trucks),
- I-75 north-to-south vehicle trips

Internal-to-External vehicle trips if there are attractions in close proximity to the model study area:

- NE Polk County, where about 20% of the home-based trips are attracted to Orange County's Theme-Parks.
- Manatee County, where HBW trips are attracted towards Pinellas County and Hillsborough County.
- Trips from Rural Areas head East, towards the Florida Coast on SR 70, US 98 and US 27.

These locations require close coordination with adjacent FDOT districts to insure future year volumes are similar to each other.

An external trip table worksheet (EETRIPS.XLS) is provided in the model's \documentation folder that lists external station counts (autos and trucks) and allows for modifying external productions and attractions, as needed, contained in the model input folder as: INTEXT_10A.DBF, SPECGEN_A_10A.DBF and SPECGEN_P_10A.DBF. Relevant parts of this worksheet are shown below:

Zone	Name	Dir	Source	ID	PSWT BY DIR	pcnt trks	pcnt ht	trk	ht	freight preload	LT EE	LT IE	AUTO EE	AUTO IE	% Prods	intext	specgen Attrs
5629	I-275	W	FDOT	131000	27,957	3.350	1.220	937	341	3446				52468	0.50	26,234	31,481
5630	US 41 N	W	TOD	105600	4,213					74				8353	0.50	4,176	5,012
5631	I-75 N	S	FDOT	105601	28,090	12.230	9.130	3435	2565	9360	1000		3500	41820	0.50	20,910	25,092
5632	US 301	S	TBRPM6.1	100085	1,798					8				3588	0.50	1,794	2,153
5633	CR 579	S	HC	220295	543					0				1087	0.50	543	652
5634	CR 39	W	HC	220675	2,391					16				4767	0.50	2,383	2,860
5635	CR 674	W	FDOT	105602	927					2				1852	0.50	926	1,111
5636	CR 640 W	W	TPO	465	3,523					42				7004	0.50	3,502	4,202
5637	CR 676	W	TPO	192	1,032					0				2064	0.50	1,032	1,238
5638	SR 60 W	W	FDOT	105508	9,326					84				18568	0.50	9,284	11,141
5639	Medulla Rd	W	TOD		1,612					160				3063	0.50	1,532	1,838
5640	US 92 W	W	FDOT	105604	4,663					8				9318	0.50	4,659	5,591
5641	I-4 W	W	FDOT	100084	63,483	14.340	8.260	9103	5244	11446	1750		12000	95020	0.50	47,510	57,012
5642	Knights Static	W	TPO	162	2,500					86				4914	0.50	2,457	2,948
5643	US 98 N	W	FDOT	161003	4,255					212				8299	0.50	4,149	4,979
5644	SR 471	N	FDOT	160134	1,170					144				2196	0.50	1,098	1,318
5645	SR 33	N	FDOT	111000	3,138					32				6245	0.50	3,122	3,747
5646	US 27 N	N	FDOT	165209	19,022					78			13100	11765	0.50	5,883	7,059
5647	Champions G	E	TPO	1047	7,447					0				14894	0.50	7,447	8,936
5648	I-4 E	E	FDOT	160111	51,563	18.800	15.280	9694	7879	15064	1750		12000	67561	0.50	33,781	40,537
5649	W Lake Wilso	N	TPO	258	4,149					6				8292	0.50	4,146	4,975
5650	US 92 NE	E	FDOT	160125	3,989					506				7473	0.50	3,736	4,484
5651	CR 580 / Cyp	E	FDOT	164153	13,900					40			5000	17760	0.50	8,880	10,656
5652	SR 60 E	N	FDOT	160019	3,670									7340	0.50	3,670	4,404
5653	US 441 N	E	FDOT	920028	1,685									3371	0.50	1,685	2,022
5654	CR 68 E	E	FDOT	910024	1,099					554				1644	0.50	822	986
5655	SR 70 E	S	FDOT	940039	3,242					684				5800	0.50	2,900	3,480
5656	SR 710 SE	S	FDOT	890030	3,791					28				7554	0.50	3,777	4,533
5657	US 98 / US 4	E	FDOT	910008	1,538					244				2833	0.50	1,416	1,700
5658	US 27 / SR 8	E	FDOT	070021	7,308					224				14391	0.50	7,196	8,635
5659	Alligator Alley	W	FDOT	030173	9,943					62	1000		3500	14824	0.50	7,412	8,895
5660	US 41 Collier	W	FDOT	030270	1,534					440				2627	0.50	1,314	1,576
5661	Marigold				9,531					4654			5000	4408	0.50	2,204	3,306
5662	Tri-County Rd				1,124					12				2235	0.50	1,118	1,676

Transit Routes

One of the most delicate and time-consuming processes undertaken --with any CUBE model -- is to link the transit routes to the Highway Network. Each transit routes is coded as text, usually in an "outbound" and "inbound" direction, as shown below (although loops are permitted). In the Transit Prep Module transit routes are processed, matching routes to links, so that transit skims may be developed for mode choice. As shown on the following page, however, the CUBE visual editor will read the TROUTE file(s) and display them on the highway network -- which also enables the user to make simultaneously make highway network and transit network edits.

```
LINE NAME="S01i", LONGNAME="SCAT #01 Fruitville", ONEWAY=T,
     TIMEFAC=1, CIRCULAR=F, HEADWAY[1]=30, HEADWAY[2]=30, MODE=31,
     OPERATOR=2, N=5181, 5176, 5174, 5021, 4984, 4986, 4966, 4956,
     4959, 4963, 4964, 4974, -7126, 4944, 4945, 4946, 4943, 4942,
     4941, 4948, 4955, 4965, 5008, 5132, 5128, 5124, 5121, 5120,
     5119, 5117, 5116, 5114, 5093, 5092, 5091, 5071, 5070, 5069,
     2003, 5066, 5068, 5065, 5058, 5057, 5052, 5051, 5080, 5100,
     7709
LINE NAME="S01o", LONGNAME="SCAT #01 Fruitville", ONEWAY=T,
     TIMEFAC=1, CIRCULAR=F, HEADWAY[1]=30, HEADWAY[2]=30, MODE=31,
     OPERATOR=2, N=7709, 5100, 5080, 5051, 5052, 5057, 5058, 5065,
     5068, 5066, 2003, 5069, 5070, 5071, 5091, 5092, 5093, 7715,
     5116, 5117, 5119, 5120, 5121, 5124, 5128, 5132, 5137, 5138,
     5139, 5140, 5142, 6587, 5160, 5134, 5122, 5099, 5094, 5076,
     5013, 5003, 4991, 4985, 4974, 4964, 4963, 4959, 4956, 4966,
     4986, 4984, 5021, 5174, 5176, 5181
```

Two more input files are needed to complete the transit setup: The first of these (TFARES_10A.FAR) defines line-haul transit fares. As before, there are no provisions for student, elderly or other discount fares – the model uses a "combined average fare" (passengers/revenue). The second of these files (TSYSD.PTS) describes transit modes and operators to the model system.

For 2010 the file "TROUTE_10A.LIN" contained up to a total of 183 line-haul bus-transit routes (inbound and outbound) for 7 transit providers. Transit Service providers for 2010 and daily boarding's are indicated below:

2010 Transit Services:

Service Area	Operator	Transit Service	Actual	Estimate
Lakeland	1	Citrus Connection	4,367	4,361
Winter Haven	2	WHAT	860	1,308
Polk County	3	PCTS	544	357
Collier County	4	CAT	3,498	3,331
Lee County	5	LeeTran	11,696	8,355
Charlotte County	6	CCTS		
Manatee County	7	MCAT	4,147	6,240
Sarasota County	8	SCAT	9,011	7,770
		total	34,123	31,720

Turn Prohibition's And Turn Penalty's

Turn penalties and prohibitions to control the flow of vehicles at intersections. A typical example would be for coding "right-in & right-out into a parking lot from a major arterial. An alternate use for a Turn Penalty, is as a time penalty, which are used to adjust travel times on specific links, such as accounting for slower speeds over bridges, or wherever other perceived impedances to travel exist. The D1RPM utilizes 9 time penalty's, mostly on bridge crossings in the TURN_10A.PEN file.

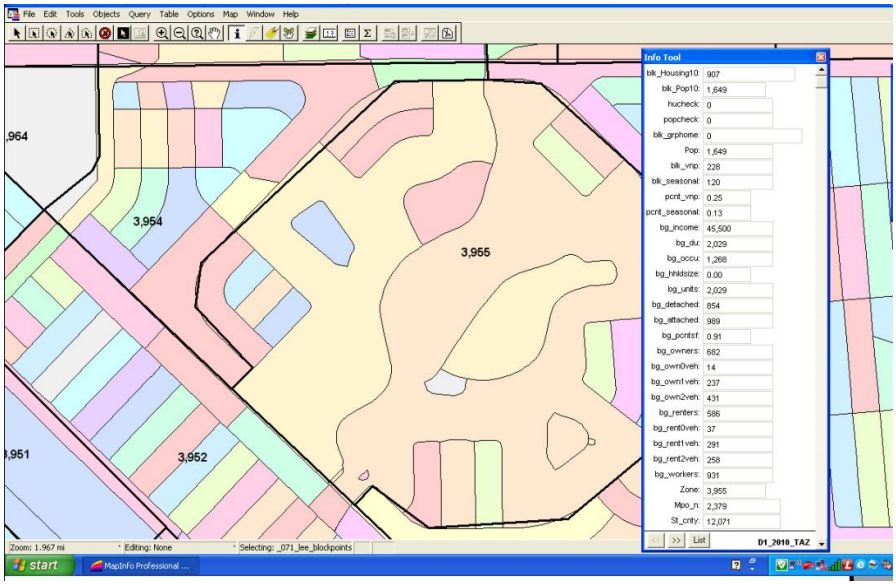
Socioeconomic Data

Socioeconomic data, such as population and employment, are contained in the ZONEDATA_10A.DBF file. Household data from the 2010 US Census was supplemented with ACS 5 year household surveys and imported into a geographic information system (GIS) for processing. Employment data, obtained from FDOT and InfoUSA were also imported into a GIS, as described below:

- As the D1RPM, is an aggregation of nine independent FSUTMS models, the D1RPM model traffic analysis zones (TAZ) were carefully adjusted to match census block and tract boundaries. This resulted in a model with 5,628 zones for which data must be prepared.

- Census block and tract data points were laid upon the new D1RPM model's traffic analysis zones (TAZ), from which tabulations were computed for each zone in the model. A similar procedure was use to check and develop zonal employment totals.

An example of this process is shown below: This diagram shows 2010 Census block data boundary's (color shapes) underneath the model TAZ shape layer. Data from each block can be viewed and aggregated up to the TAZ database.



In the following example, this same 2010 Census block data boundary's (green lines) are shown over an aerial photograph, with employer locations loaded as point data on the top-most layer. Again, data from each employer can be viewed, and moved around, if necessary, and aggregated up to either the Census Block or Model TAZ database as required.

There were several layers of data utilized in this process, which is detailed in the Appendix. Additionally, while most Census data is available at the block level, some data was only available for a Census Tract. In those cases, a weighted average aggregation (typically using the relative amount of dwelling units in each block-to-TAZ aggregation, was the weighting factor).

A summary of the model's socioeconomic data file is shown below:

2010 Socic	2010 Socioeconomic Data Summary:						
County	Census	-grphome	Population	Employment	Hotel	School	University
Charlotte	156,798	156,610	159,978	64,776	2,075	26,412	1,220
Collier	315,030	316,974	321,520	173,832	8,007	73,130	12,220
Desoto	33,915	31,064	34,862	13,504	120	6,770	260
Glades	12,637	11,401	12,884	4,561	10	3,200	40
Hardee	26,753	25,747	27,731	11,260	135	7,060	80
Hendry	37,229	37,198	39,140	18,698	250	12,890	380
Highlands	95,046	98,426	98,786	38,093	940	17,660	12,280
Lee	606,332	610,266	618,754	285,831	12,380	85,526	17,988
Manatee	319,923	318,016	322,833	154,595	3,193	57,330	34,100
Okeechob	34,959	39,996	39,996	14,102	415	8,520	200
Polk	586,882	589,834	602,095	256,795	5,684	97,395	31,008
Sarasota	374,086	374,040	379,448	213,156	4,845	55,452	12,311
District 1	2,599,590	2,609,572	2,658,027	1,249,203	38,054	451,345	122,087

2010 MODEL PERFORMANCE

Trip Generation

The trip generation model, was developed for the TMU project[2] uses a combination of techniques and is well documented in a special report: This process estimates the number of trips bound to, or destined from, each Traffic Analysis Zone determined by multiplying the appropriate trip generation rate by the number of occupied dwelling units in each market segment and then summing the market segment totals together. A trip is composed of two trip ends: a production end and an attraction end.

- A production is usually a home-based trip origin.
- An attraction is usually a home-based trip destination.
- Non-home-based trips have both trip ends at locations other than a residence.

Trips produced at homes are attracted to areas of employment, education, recreation, shopping and other activities to satisfy the reason for making the trip. An example of a non-home-based trip is a person traveling from an office to a restaurant. The desired end product in trip generation analysis is an accurate identification and quantification of trip ends beginning and ending in each traffic analysis zone within a transportation study area. Thus, two sets of trip ends are identified: those produced by each zone and those attracted to each zone. Later in the FSUTMS model chain during the trip distribution module, these trip ends are paired. Each production-attraction pair forms one trip.

Trip generation modeling would be easier to grasp if the models were simply required to estimate the total number of trip ends. The Institute of Transportation Engineers (ITE) Trip Generation manual, for example, provides rates and equations to estimate total trip ends by land use category. Trip generation in a modeling context, however, must estimate the number of trip ends within several trip

[2] *"Task 06, Transit Modeling Update, Technical Memorandum 1, Trip Generation Review and Recommended Model Development Guidance, Florida Standard Urban Travel Model System, May 2011"*

purpose categories. This complication is necessary because trip purpose is critical to the accurate prediction of travel behavior in steps following trip generation. The D1RPM estimates are shown in the following table:

HHLD MKT	HBWP	HBSHP	HBSRP	HBOP	HBSCP	HBCUP	NHBWP	NHBOP	IEP	TTP	AIR	HT	
1	42226	91050	52747	85749	0	24731	1252691	1814125	228536	855575	25200	52083	
2	37030	55807	32370	59523	37258	36249							
3	63358	43312	28854	51905	123584	75994							
4	64742	27129	28975	46118	439438	111559							
5	243847	365610	279564	412068									
6	505742	362627	263023	440922									
7	1310434	750601	661891	1165110									
	2,267,379	1,696,136	1,347,424	2,261,395	600,280	248,533	1,252,691	1,814,125	228,536	855,575	25,200	52,083	**12,649,357**
PCNT	**17.92**	**13.41**	**10.65**	**17.88**	**4.75**	**1.96**	**9.90**	**14.34**	**1.81**	**6.76**	**0.20**	**0.41**	

A trip's purpose is important in determining trip length during the trip distribution module. For example, people generally do not travel as far on a shopping trip as they would commuting to work. Trip purpose also plays a significant part during the modal choice module. When estimating transit use, the propensity to use public transit and carpools is higher for work trips than for other trip purposes. When converting person-trips to vehicle-trips in the modal choice module, average vehicle occupancies differ by trip purpose. For example, people commonly drive alone to work although they rarely drive alone to the beach or other recreational activities. In the traffic assignment module, trip purpose has been used in some specialized models to help time-of-day travel estimates. Analysis for toll roads and high-occupancy vehicle facilities often focuses on work trips, which predominate during peak hours. Additionally, the D1RPM uses different trip rates for seasonal and permanent populations.

At this point it is useful to review summarize some data to confirm model calibration, is on track, as shown in the following tables, it can be seen that the D1RPM trip generation is on par, or exceeds expectations, when compared to 'standards' promulgated to the FDOT Model Task Force, "Model Calibration Standards", CSI, December, 2007 -- as expected.

Household Rates:	Benchmark			
	Area	Low	High	D1RPM
Pop/HH	Model	2.00	2.70	1.75
Emp/HH	Model	0.45	0.75	0.87
Autos/HH	Model	1.75	2.10	0.91
Pop/TAZ	Model		3,000	587
Pop/HH	Urban	2.00	2.70	1.71
Emp/HH	Urban	0.45	0.75	0.90
Autos/HH	Urban	1.75	2.10	1.09
Pop/TAZ	Urban		3,000	587
Pop/HH	Rural	2.00	2.70	1.85
Emp/HH	Rural	0.45	0.75	0.75
Autos/HH	Rural	1.75	2.10	0.79
Pop/TAZ	Rural		3,000	321

Statistic:	Benchmark		
	Low	High	D1RPM
Person Trips / TAZ		15,000	1,405
Person Trips / Person	3.30	4.00	3.01
Person Trips / HH	8.00	10.00	5.53
HBW Trips / Employee	1.20	1.55	1.69

Statistic:	Benchmark		
Trip Purpose	Low	High	D1RPM
% HBW	12	24	18
% HBSH	10	20	13
% HBSR	9	12	11
% HBSC	5	8	5
% HBO *	14	28	16
% HBNW **	45	60	49
% NHB ***	20	33	24

* includes airport, college, and shop.

** all home-based trip purposes except HBW.

*** NHB Work and NHB Nonwork

Trip Distribution

Trip distribution relies on a "Gravity Model" (which parallels Newton's gravitational law) to distribute trips. All trips starting in a TAZ are attracted to all other TAZ, proportional to the number of attractions and inversely proportional to the distance. In travel demand forecast models, the measure of separation is generally accepted as the zone-to-zone travel time via the model highway and transit networks. However, because people as social beings do not order their lives according to exact physical laws, optional adjustments may be employed to adjust the gravitational concept to fit the travel characteristics of the urban area being studied.

Friction factors control the probability of making a certain length trip, for a certain trip purpose. For instance, going to work is relatively insensitive to how long the trip is while shopping depends much more on travel time in selecting possible destinations. These factors are developed based on observed trip lengths for the local population and come from Census and survey data. Friction factors from the Polk County 2007 model were used initially. The D1RPM uses K-factors to increase the impedance between rural sections of the model and urban sections of Polk County. As shown below, calibration of the Trip Distribution step is accomplished via a comparison of average trip lengths generated by the model with data from household travel time surveys.

Statistic:	Benchmark		
Avg Trip Length	Low	High	D1RPM
% HBW	12	35	14
% HBSH	9	19	13
% HBSR	11	19	15
% HBSC	7	16	10
% HBO *	8	20	13
% NHB **	6	19	12
% IE	26	58	42

* includes airport, college, and shop.

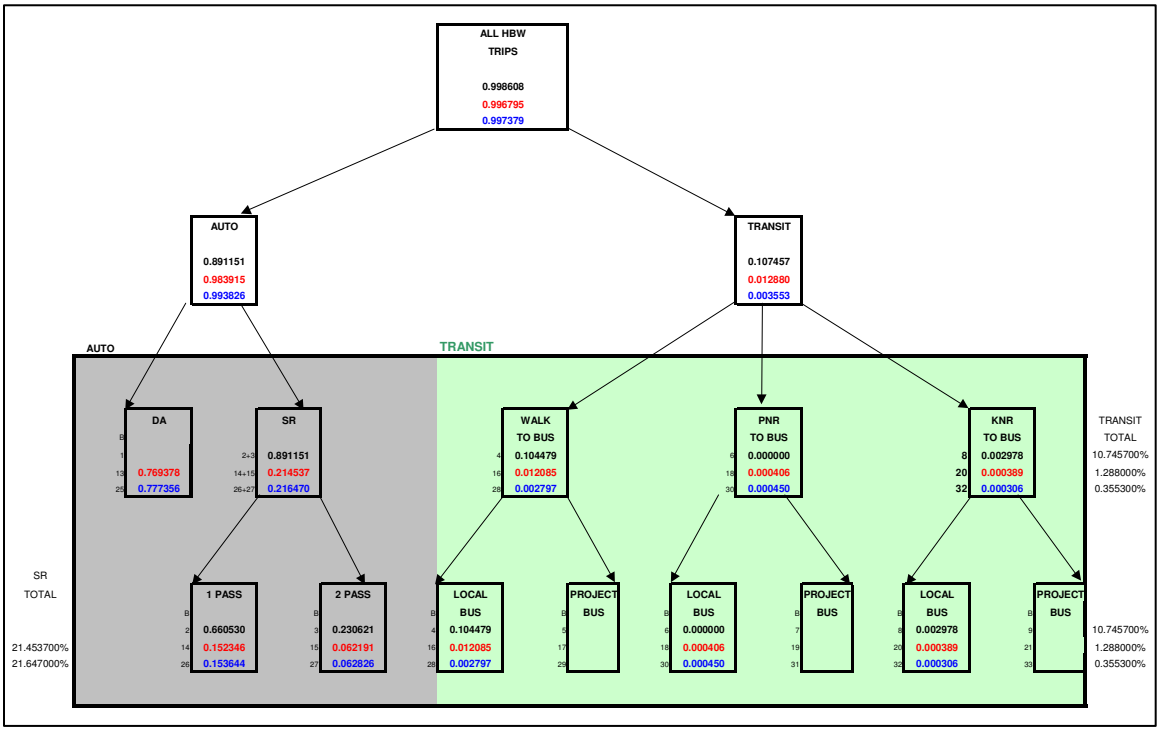
** NHB Work and NHB Nonwork

Mode Choice

The "TRANSITMODEL" developed by AECOM for FDOT in 2008[3] as the "new standard" for FSUTMS and was retained by the TMU project, and is the same Mode Choice used by earlier District One MPO models. It consists of three parts: a *Transit Prep module*, which links the text describing transit route to the model's highway network; a *Transit Path* module, which involves the generation of zone-to-zone transit paths, transit skims, transit fares, and station matrices. These files are built for each of the transit modes during each of the periods occurring in the model. The *Mode Choice* module is a multi-path/single-period transit model that is predominately local bus, with a few trolley services along the Florida West coast beaches. Most of the effort in validating the transit accessibility and path building focused on ensuring that the transit network was up to date and accurately reflected base year conditions. In addition, walk access links are checked in order to ensure adequate connectivity.

The FSUTMS mode choice model is a behavioral model that is used to predict a traveler's choice of one alternative (mode of transportation) from a set of alternatives (all forms of transportation available). The probability of a mode being chosen is by a "nested-logit model". As shown below, choices at the top level are: AUTO and TRANSIT; choices at the second level are: LOV, HOV, and WALK, PNR, KNR, whereas choices at the third level are: 1-PASS, 2-PASS, LOCAL, PROJECT.

The nested logit mode choice model works by computing the utility for each of the lower level choices. This utility represents the total economic "cost" in terms of travel time to travel a given mode. This "cost" is typically constructed as a linear function of the different components of time and cost The utility for an upper level choice is computed by taking the log sum of the lower level nests. For example, the utility for the auto nest is computed from the utilities for LOV, 1-PASS, 2-PASS The total market is divided into zero-car, one-car, and two-car households for HBW and HBNW purposes. No market segmentation is done for the NHB trip purpose. The "Tier A Transit" mode choice model evaluates three auto sub-modes (LOV, HOV2 and HOV3+) and three transit sub-modes, by mode of access (WALK , PNR and KNR). The final step in the mode choice application is placing the auto vehicle portion of the access-to-transit trip onto the highway trip table.



[3]. Please refer to the *"FSUTMS Transit Model Application Guide, AECOMM, 2008"*.

Calibration of Mode Choice is twofold: First, auto occupancy rates are compared with other household travel time surveys, and, as can be seen in this table, the D1RPM performs admirably. Secondly, estimated transit ridership is compared to actual reported ridership for each service provider.

Auto Occupancy: Benchmark

Purpose	1988 FLSWM	2001 NHTS FL	2001 NHTS US	D1RPM
HBW	1.30	1.06	1.10	1.15
HBO	1.50	1.90	1.70	1.60
NHB	1.58	1.82	1.71	1.44

2010 Mode Choice Report

HBW	Total Person	Drive Alone	One Pax	Two+ Pax	Total Auto	Walk Bus	PNR Bus	KNR Bus	Total Transit	Target
Zero Car HHs	68,120	0	45,969	16,329	62,297	5,822	0	0	5,822	
One Car HHs	674,228	528,943	102,699	41,904	673,546	649	33	0	682	
Two+ Car HHs	1,357,601	1,063,732	208,667	85,202	1,357,601	0	0	0	0	
TOTAL	2,099,948	1,592,675	357,335	143,434	2,093,444	6,471	33	0	6,504	5,937
	aofac=	1.00	2.00	3.37						

HBO	Total Person	Drive Alone	One Pax	Two+ Pax	Auto	Walk Bus	PNR Bus	KNR Bus	Transit	Target
Zero Car HHs	126,998	0	64,640	50,929	115,570	11,429	0	0	11,429	
One Car HHs	1,235,561	466,854	440,463	326,945	1,234,262	1,237	62	0	1,299	
Two+ Car HHs	1,565,636	596,552	553,782	415,302	1,565,636	0	0	0	0	
TOTAL	2,928,195	1,063,406	1,058,885	793,176	2,915,467	12,666	62	0	12,728	17,875
	aofac=	1.00	2.00	3.49						

NHB	Total Person	Drive Alone	One Pax	Two+ Pax	Auto	Walk Bus	PNR Bus	KNR Bus	Transit	Target
TOTAL	2,842,325	1,365,309	853,462	617,365	2,836,136	6,189	0	0	6,189	9,187
	aofac=	1.00	2.00	3.59						
TOTAL		4,021,390	2,269,682	1,553,975		25,326	94	0	25,421	33,000

Below is another form of a mode choice summary with percentages of trips, by category, which may be compared to other Florida Transit Systems of similar scale:

Example Person Trip Data:	Benchmark			
Mode	Zero-Vehicle Households	One-Vehicle Households	Two-Vehicle Households	Three-Vehicle Households
Walk	5,000	6,000	4,000	3,000
Bike	2,000	1,000	500	200
Drive Alone	-	130,000	350,000	200,000
Shared Ride 2 Persons	6,000	15,000	20,000	10,000
Shared Ride 3 Persons	1,000	2,000	4,000	2,000
Local Bus, Walk	6,000	7,000	4,000	1,000
Local Bus, PNR	-	500	2,000	500
Local Bus, KNR	-	200		
Express Bus, Walk	1,000	1,000	1,000	500
Express Bus, PNR	-	2,000	4,000	2,000
Express Bus, KNR	-	200	500	
LRT, Walk	500	1,000	400	
LRT, PNR	-	300	500	
LRT, KNR	-			
				797,800

Percent of Trips	Benchmark	HBW		
Mode	Zero-Vehicle Households	One-Vehicle Households	Two-Vehicle Households	Three-Vehicle Households
Walk	0.63	0.75	0.50	0.38
Bike	0.25	0.13	0.06	0.03
Drive Alone	-	16.29	43.87	25.07
Shared Ride 2 Persons	0.75	1.88	2.51	1.25
Shared Ride 3 Persons	0.13	0.25	0.50	0.25
Local Bus, Walk	0.75	0.88	0.50	0.13
Local Bus, PNR	-	0.06	0.25	0.06
Local Bus, KNR	-	0.03		
Express Bus, Walk	0.13	0.13	0.13	0.06
Express Bus, PNR	-	0.25	0.50	0.25
Express Bus, KNR	-	0.03	0.06	
LRT, Walk	0.06	0.13	0.05	
LRT, PNR	-	0.04	0.06	
LRT, KNR	-			
	3	21	49	100

On the following page a summary detailing ridership by route. Note about model limitations <here>

RIDERSHIP AND REVENUE REPORTS

Oper	Route	Alt Name	Alt Name	Coded in Model As	Linehaul Route Name	March-10	DAILY RIDERSHIP	Days Operated Weekday	Saturday	Sunday	SUBTOTAL	Model Assignment	SUBTOTAL
Lakeland	10			P.CIT10	Shuttle	4,081	151	23	4	0		125	
Lakeland	11			P.CIT11	E Main	6,635	246	23	4	0		381	
Lakeland	12			P.CIT12.EW	Lakeland / Winter Haven	6,927	257	23	4	0		447	
Lakeland	14												
Lakeland	15												
Lakeland	20			P.CIT20.OI	Grove Park	7,916	293	23	4	0		273	
Lakeland	21			P.CIT21.OI	Edgewood	3,107	115	23	4	0		322	
Lakeland	30			P.CIT30.OI	Cleveland Heights	2,169	80	23	4	0		92	
Lakeland	31			P.CIT.OI	S Florida	17,088	633	23	4	0		738	
Lakeland	32			P.CIT32	Medulla Loop	341	13	23	4	0		42	
Lakeland	33				S Florida Carter Rd	4,203	156	23	4	0		20	
Lakeland	37			P.CIT37.NS	Bradley	743	28	23	4	0		18	
Lakeland	40			P.CIT40.OI	Ariana Beacon	1,991	87	23	0	0		173	
Lakeland	41			P.CIT41.OI	Central	6,486	240	23	4	0		300	
Lakeland	42			P.CIT.4S.OI	W Memorial	9,102	337	23	4	0		401	
Lakeland	46												
Lakeland	47												
Lakeland	50			P.CIT.50.OI	Kathleen Providence	6,880	255	23	4	0		1,074	
Lakeland	51			P.CIT51.OI	Mall	14,515	538	23	4	0		79	
Lakeland	52			P.CIT52.OI	N Florida	15,141	561	23	4	0		356	
Lakeland	53			P.CIT53.OI	Lakeside Village	3,636	135	23	4	0		337	
Lakeland	56			P.CIT56.OI	Kathleen Mall	5,250	194	23	4	0		419	
Lakeland	57			P.CIT57.OI	Kidron Flightline	1,342	50	23	4	0	**4,367**	115	**5,712**
Lakeland	58												
PCTS	22	XL		P.22XL.NS	22XL. (Bartow Express) *	8,010	297	23	4	0		250	
PCTS	22	XW		P.22.XWH.NS	22XWH (Bartow Express)**	182	57	23	4	0		208	
PCTS	25			P.25.NS	Bartow / Ft Meade Circulator	1,996	74	23	4	0		9	
PCTS	35			P.35.NS	Frostproof To Eagle Ridge Mall	3,130	116	23	4	0	544	44	**512**
PCTS	416												
PCTS	427												
WHAT	12			P.WH12.EW	Winter Haven / Lakeland	7,437	275	23	4	0		447	
WHAT	15			P.WH15.OI	Hanes City	4,524	168	23	4	0		145	
WHAT	30			P.WH30.OI	Eagle Ridge / Winter Haven	5,724	212	23	4	0		373	
WHAT	40.44			P.WH40.OI & P.WH44.O	Southside	2,470	91	23	4	0		359	
WHAT	50			P.WH50.OI	Westside	3,056	113	23	4	0	860	263	**1,587**
CAT	1B	11	RED	C.011.N	Us41 / Creekside	9,896	367	23	4	0		322	
CAT	1C	11	RED	C.011.S	Us41 / Creekside	9,888	366	23	4	0		75	
CAT	2A	12	GOLD	C.012.N	Airport Rd / Creekside	9,107	337	23	4	0		198	
CAT	2B	12	GOLD	C.012.S	Airport Rd / Creekside	7,708	285	23	4	0		55	
CAT	3A	13	ORANGE	C.013	Nch / Coastland Mall	14,385	533	23	4	0		448	
CAT	3B	14	TEAL	C.014	Nch / Coastland Mall							515	
CAT	4A	15	PURPLE	C.015	Golden Gate City	5,903	219	23	4	0		317	
CAT	4B	16	GREY	C.016	Golden Gate City	5,327	197	23	4	0		68	
CAT	5	17	GREEN	C.017	Edison	4,327	160	23	4	0		269	
CAT	6	18	YELLOW	C.018	Edison	6,264	232	23	4	0		269	
CAT	7	19	BLUE	C.019.OI	Golden Gate Estates / Immokalee	1,508	56	23	4	0		192	
CAT		20	MAGENTA	C.020.OI	Pine Ridge (peak only)								
CAT		21	CYAN	C.021.NS	Marco Island Circulator	3,471	129	23	4	0		62	
CAT	8A	22	PINK	C.022	Immokalee Circulator	3,572	132	23	4	0		467	
CAT	8B	23	BURGAND	C.023	Immokalee Circulator	3,478	129	23	4	0		467	
CAT	9	24	BROWN	C.024.OI	Charlee Estates	6,384	236	23	4	0		158	
CAT		25	LIME	C.025.OI	Golden Gate Pkwy							112	
CAT	10	26	BLACK	C.026.NS	Clam Pass	2,519	93	23	4	0		70	
CAT	7	121	SILVER	C.121.AmPm	Immokalee / Marco Island Express	720	27	23	4	0	**3,498**	210	**4,276**
LeeTran	5			L.005.EW	Edison Mall / Forum								
LeeTran	10			L.010.NS	Edison Mall / Dunbar	15,652	580	23	4	0		311	
LeeTran	15			L.015.OI	Tice/Ortiz	7,147	265	23	4	0		187	
LeeTran	20			L.020.OI	Dunbar / Downtown	14,091	522	23	4	0		295	
LeeTran	30			L.030.EW	Cape Coral	10,078	373	23	4	0		579	
LeeTran	40			L.040.OI	Santa Barbara Boulevard	4,575	169	23	4	0		69	
LeeTran	50			L.050.EW	Swfia Summerlin Sq	10,215	378	23	4	0		456	
LeeTran	60			L.060.OI	Fgcu / San Carlos Park	3,199	118	23	4	0		81	
LeeTran	70			L.070.OI	Del Prado Boulevard	16,843	624	23	4	0		798	
LeeTran	80			L.080.NS	Bell Tower / Edison Mall	2,361	87	23	4	0		65	
LeeTran	90				North Ft. Myers	7,229	268	23	4	0		228	
LeeTran	100			L.100.OI	Riverdale	24,302	900	23	4	0		774	
LeeTran	110			L.110.OI	Lehigh Acres / Edison Mall	10,524	390	23	4	0		499	
LeeTran	120			L.120.EW	Cape Coral / Edison Mall	4,604	171	23	4	0		38	
LeeTran	130			L.130.NS	Edison Mall / Summerlin Sq	12,208	452	23	4	0		721	
LeeTran	140			L.140.NS	Merchants Crossing / Coconut Point	88,923	3293	23	4	0		4,768	
LeeTran	150			L.150.EW	Bonita Springs	6,028	223	23	4	0		204	
LeeTran	160			L.160.EW	Pine Island	104	4	23	4	0		124	
LeeTran	240			L.240.NS	Bell Tower / Coconut Point								
LeeTran	410	400		L.410.NS	Fort Myers Beach - Season	56,196	1813	23	4	4		596	
LeeTran	450			L.450.NS	Bonita Trolley	5,025	162	23	4	4		3	
LeeTran	490			L.490.NS	Summerin Square PNR to Fort Myers Beach	28,014	904	23	4	4	**11,696**	570	**11,366**
LeeTran	515			L.515.OI	Lehigh Acres / Edison Mall								
MCAT	1			M.001.EW	Palmetto/Ellenton	3,725	138	23	4	0		231	
MCAT	2			M.002.NS	East Bradenton	5,515	204	23	4	0		929	
MCAT	3			M.003.EW	Manatee Avenue	13,495	500	23	4	0		1,642	

Highway Assignment

Diurnal Factors split vehicle trips into four time-of-day matrices AM (6am-9am), MD (9am-3 pm), PM (3pm-6pm) and NT (remaining hours). D1RPM model calibration began with the diurnal factors from the TMU project, and these were refined with ACS household travel surveys and FDOT traffic counts.

To explain the application of Diurnal Factors (a new process) it is useful to look at the home-based work trips. The first line of the table contains factors for the AM period. For Home-Based Work Trip Productions (HBW PA) the factor is: 0.548. This means that over 50% of all home-to-work trips will be scheduled at this time. Now, look at the (HBE AP) column -- The factor is only 0.013 meaning that only about 2% of work trips are returning home at that time. Factors are provided for all trip purposes as shown:

PID	HBW_PA	HBW_AP	NHBW_PA	NHBW_AP	HBSH_PA	HBSH_AP	HBSR_PA	HBSR_AP	HBO_PA	HBO_AP	NHBO_PA	NHBO_AP	HBCU_PA	HBCU_AP	HBSC_PA	HBSC_AP	EEIE_PA	EEIE_AP	TIME	PRD
1.00	0.548	0.013	0.039	0.281	0.164	0.043	0.062	0.067	0.362	0.060	0.142	0.142	0.760	0.044	0.669	0.041	0.192	0.192	6:00AM-8:59AM	AM
2.00	0.450	0.161	0.448	0.443	0.349	0.381	0.279	0.188	0.369	0.276	0.428	0.428	0.147	0.708	0.141	0.779	0.409	0.409	9:00AM-2:59PM	MD
3.00	0.034	0.376	0.590	0.043	0.216	0.506	0.432	0.349	0.167	0.365	0.331	0.331	0.002	0.208	0.006	0.288	0.244	0.244	3:00PM-6:59PM	PM
4.00	0.226	0.192	0.150	0.006	0.077	0.263	0.226	0.398	0.084	0.318	0.099	0.099	0.017	0.114	0.001	0.075	0.156	0.156	7:00PM-5:59AM	NT

The purpose of highway assignment models is to load auto trips onto the highway network. This results in traffic estimates on individual links to simulate general vehicular travel throughout the study area. Validation of the highway assignment involved the adjustment of the speeds, capacities, penalties and other parameters related to travel time. Trips are loaded onto the network by means of an iterative equilibrium highway load program based on an all or nothing capacity restrained assignment. A feedback loop is utilized, whereby, congested speeds from the initial highway assignment are fed back into the next trip distribution-mode-transit & highway processes. This minimize differences in congested speed amongst all of these modules. Convergence criteria were compared until the differences in travel time and travel distance were minimized, by looping through the model three times

Again, calibration statistics give a good indication of model performance. And, again the D1RPM is doing an exceptional job of forecasting travel patterns in The District, as shown below:

Volume-over-Count Performance:	Benchmark					
Facility		Acceptable		Preferable		D1RPM
Freeway Volume-over-Count	±	7%	±	6%	±	0%
Arterial Volume-over-Count	±	15%	±	10%	±	2%
Collector Volume-over-Count	±	25%	±	20%	±	1%
Frontage Road Volume-over-Count	±	25%	±	25%	±	3%
Freeway Peak Volume-over-Count	±	20%	±	10%	±	7%
Major Arterial Peak Volume-over-Count	±	30%	±	15%	±	24%
Assigned VMT-over-Count Areawide	±	5%	±	2%	±	1%
Assigned VHT-over-Count Areawide	±	5%	±	2%	±	0%
Assigned VMT-over-Count by FT/AT/NL	±	25%	±	15%	±	1%
Assigned VHT-over-Count by FT/AT/NL	±	25%	±	15%	±	0%

Source:

Presentation to the FDOT Model Task Force, "Model Calibration Standards", CSI, December, 2007

D1RPM 2010 model, "Summary_D1.prn", December 2015

Note: The above table's benchmarks are in terms of deviation from 100%, plus or minus. A zero values equals 100% accuracy.

Percent Error VMT:	Benchmark		
Facility	Acceptable	Preferable	D1RPM
Percent Error VMT – LT 10,000 volume (2L road)	50%	25%	37%
Percent Error VMT – 10,000-30,000 (4L road)	30%	20%	22%
Percent Error VMT – 30,000-50,000 (6L road)	25%	15%	15%
Percent Error VMT – 50,000-65,000 (4-6L freeway)	20%	10%	10%
Percent Error VMT – 65,000-75,000 (6L freeway)	15%	5%	2%
Percent Error VMT – GT 75,000 (8+L freeway)	10%	5%	NA

Root Mean Squared Error	Benchmark		
Facility	Acceptable	Preferable	D1RPM
RMSE – LT 5,000 AADT	150%	45%	69%
RMSE – 5,000-9,999 AADT	45%	35%	38%
RMSE – 10,000-14,999 AADT	35%	27%	25%
RMSE – 15,000-19,999 AADT	35%	25%	20%
RMSE – 20,000-29,999 AADT	27%	15%	16%
RMSE – 30,000-49,999 AADT	25%	15%	13%
RMSE – 50,000-59,999 AADT	20%	10%	10%
RMSE – 60,000+ AADT	19%	10%	2%
RMSE Areawide	45%	35%	34%

Run Time

The following 'runtime' report details the model's timeline on a typical laptop computer:
(4 core I-7CPU @ 2.7GHz with 8GB RAM).

```
FSUMTS Model Run - YR2010
Input Directory C:\FSUTMS\D1\D1RPM_2040CF_Alt5\YR2010\input
================================================================
Begin Run Sun 06/14/2015 17:17:12.10
================================================================
       HNET: 17:17:12.15
   AIRPORTS: 17:18:54.66
   HVY TRKS: 17:19:33.45
    TRIPGEN: 17:19:55.66
LoopNum= 1
TRIPDISTRIB: 17:23:02.89
TRANSITPREP: 17:53:30.90
 MODECHOICE: 18:07:26.33
    TASSIGN: 19:02:13.08
 DIURNALFAC: 19:04:27.19
 AM HASSIGN: 19:12:55.01
 MD HASSIGN: 19:19:57.75
 PM HASSIGN: 19:23:11.85
 NT HASSIGN: 19:34:10.11
POSTPROCESS: 19:35:25.58
LoopNum= 2
TRIPDISTRIB: 19:43:39.89
TRANSITPREP: 20:14:25.75
 MODECHOICE: 20:28:40.69
    TASSIGN: 21:23:33.22
 DIURNALFAC: 21:25:47.65
 AM HASSIGN: 21:36:46.32
 MD HASSIGN: 21:41:16.85
 PM HASSIGN: 21:44:29.41
 NT HASSIGN: 21:47:02.25
POSTPROCESS: 21:48:19.20
LoopNum= 3
TRIPDISTRIB: 21:56:35.59
TRANSITPREP: 22:26:27.80
 MODECHOICE: 22:40:43.00
    TASSIGN: 23:35:52.78
 DIURNALFAC: 23:38:10.29
 AM HASSIGN: 23:47:33.74
 MD HASSIGN: 23:52:10.60
 PM HASSIGN: 23:53:27.06
 NT HASSIGN:  0:02:37.16
POSTPROCESS:  0:03:56.29
================================================================
End Run Mon 06/15/2015  0:06:03.48
================================================================
The model ran for a total of:      409 Minutes ( 6 Hr 49 Min)
```

2040 MODEL PERFORMANCE

It is useful to also look at preliminary statistics with respect to the future forecast year, 2040, to insure that future year model's socioeconomic data has not diverged from acceptable ranges. Additionally, running with future year data can pin-point areas of concern which may need to be addressed within the entire model structure.

Below, we compare growth rates 2010 to 2040: . Note: all parameters, below, are within accepted ranges.

Socioeconomic Data:

	Population			Employment			Hotel			School			University		
	2010	2040	rate	2010	2040	rate	2010	2040	rate	2010	2040	rate	2010	2040	rate
Charlotte	156,595	208,188	1.1%	64,729	86,227	1.1%	2,075	3,247	1.9%	26,412	35,001	1.1%	1,220	1,614	1.1%
Collier	316,739	492,532	1.9%	173,678	237,747	1.2%	8,007	15,375	3.1%	73,130	109,997	1.7%	12,220	19,063	1.9%
Desoto	33,510	41,676	0.8%	13,486	17,564	1.0%	120	273	4.3%	6,770	9,142	1.2%	260	260	0.0%
Glades	11,432	17,825	1.9%	4,542	5,404	0.6%	10	216	68.7%	3,200	4,872	1.7%	40	40	0.0%
Hardee	25,856	30,358	0.6%	11,210	14,135	0.9%	135	126	-0.2%	7,060	8,377	0.6%	80	80	0.0%
Hendry	37,414	45,107	0.7%	18,659	25,973	1.3%	250	453	2.7%	12,890	15,957	0.8%	380	380	0.0%
Highlands	97,665	134,966	1.3%	38,036	55,987	1.6%	940	1,807	3.1%	17,660	19,063	0.3%	12,280	12,280	0.0%
Lee	609,173	1,070,727	2.5%	283,431	488,328	2.4%	12,380	14,720	0.6%	85,526	136,352	2.0%	17,988	37,926	3.7%
Manatee	318,769	474,518	1.6%	154,759	231,446	1.7%	3,193	6,198	3.1%	57,330	82,580	1.5%	34,100	48,970	1.5%
Okeechobee	37,103	49,970	1.2%	14,002	21,406	1.8%	415	723	2.5%	8,520	11,588	1.2%	200	200	0.0%
Polk	589,811	985,794	2.2%	255,593	435,666	2.3%	5,684	20,374	8.6%	97,395	193,408	3.3%	31,008	53,444	2.4%
Sarasota	374,018	519,913	1.3%	212,623	267,713	0.9%	4,845	6,316	1.0%	55,452	79,630	1.5%	12,311	17,675	1.5%
District 1	2,608,085	4,071,574	1.9%	1,244,748	1,887,596	1.7%	27,457	50,138	2.8%	321,883	522,621	2.1%	107,887	170,495	1.9%

2040 Population and Employment:

BEBR (medium)	Population		Employment
202,000	208,188	Charlotte	64,776
497,700	492,532	Collier	173,832
38,600	41,676	DeSoto	13,504
15,900	17,825	Glades	4,561
29,200	30,358	Hardee	11,260
42,900	45,107	Hendry	18,698
123,600	134,966	Highlands	38,093
1,070,200	1,070,727	Lee	285,831
469,800	474,518	Manatee	154,595
46,200	49,970	Okeechobee	14,102
888,300	985,794	Polk	256,795
500,800	519,913	Sarasota	213,156
3,925,200	4,071,574	District 1	1,249,203

2040 Statistic:	Benchmark		
	Low	High	D1RPM
Person Trips / TAZ	-	15,000	2,342
Person Trips / Person	3.30	4.00	3.22
Person Trips / HH	8.00	10.00	5.90
HBW Trips / Employee	1.20	1.55	1.89

2040 Household Rates:	Benchmark			
	Area	Low	High	D1RPM
Pop/HH	Model	2.00	2.70	1.81
Emp/HH	Model	0.45	0.75	1.02
Autos/HH	Model	1.75	2.10	1.84
Pop/TAZ	Model		3,000	748

2010 Statistic: Trips / TAZ > 15K

	>15K		Total	%
Olympus	7	of	630	1.11
TBRTM	67	of	3000	2.23
GTCRPM	21	of	3000	0.70
SERPM	20	of	4166	0.48
CFRPM	445	of	4500	9.89
FLSWM	258	of	5403	4.78
D1RPM	25	of	5629	0.44

2040 Statistic: Trips / TAZ > 15K

	>15K		Total	%
Olympus	28	of	630	4.44
TBRTM	206	of	3000	6.87
GTCRPM	697	of	3000	23.23
SERPM	62	of	4166	1.49
CFRPM	445	of	4500	9.89
FLSWM	307	of	5403	5.68
D1RPM	179	of	5629	3.18

FUTURE MODEL ENHANCEMENTS

Future model enhancements, which are underway, but not yet in the D1RPM are:

ELTOD

The Turnpike District "Express Lanes Time-of-Day" (ELToD) model, originally scheduled for release June 2015, will now be made available March 2016. Developed as an add-on tool for FSUTMS implementation will depend on data needs and the adaptability of the model to the D1RPM. It is unknown, at this time, as to whether or not, the toll model procedures included Highway Assignment will need to be revised.

FITSEVAL implementation

FITSEVAL is a sketch-planning tool that evaluates the benefits and costs of Intelligent Transportation Systems (ITS) deployments within the Cube/Florida Standard Urban Transportation Model Structure (FSUTMS) travel demand forecasting software environment. As such, it provides additional measures of effectiveness (MOEs) for evaluation of the transportation policy related to each MPO's Long Range Transportation Plan (LRTP). The tool was developed by the Lehman Center for Transportation Research at Florida International University (FIU) and was later refined by Citilabs as part of a project to implement an updated version of the tool as a Cube Base utility program.

FITSEVAL currently allows for the evaluation of the following ITS deployments:

- Advanced Public Transit (APT)
- Emergency Vehicle Preemption (EVP)
- Incident Management (IM)
- Bus Priority (BP)
- Smart Work Zone (SWZ)
- Road Weather Information (RWI)
- Signal Timing Improving (STI)
- Ramp Metering (RM)
- Managed Lanes (ML)
- Advanced Traveler Information (ATI)

Connected Vehicles and Autonomous Vehicles

A procedure related to changes in future travel behavior as these vehicles become available will need to be addressed as-soon-as-possible. This is because Connected Vehicles (CV) which have features such as lane-centering and automatic-spacing (following distance) where cars 'talk' to each other on an exclusive cell phone frequency, will be widely available by 2017. Traffic impacts of autonomous vehicles (AV) will begin to be realized as ownership levels (saturation rates) rise to significant levels, with most experts agreeing that this will be sometime well before 2040 -- our forecast year. CV and AV implementation, which is currently underway for automobiles, will be delayed for Heavy Trucks (HT) due to a myriad of state regulations affecting interstate truck movements.

A procedure for addressing potential changes in roadway capacity and trip-making due to autonomous vehicles (AV) was demonstrated, by Traf-O-Data at the FDOT Model Task Force meeting, December 2015. Studies of AV operating characteristics and travel behavior conclude that

1. Roadway capacity will increase with closer vehicle spacing, and;
2. More trips will be made, with an increase in easy-access one-way trips in urban areas.

One of the features of the AV application is to allow for testing of exclusive-use autonomous vehicle lanes (formerly special-use lanes) on Interstate facilities. A secondary feature of the application could be to test impact on all roadways via a user supplied "saturation rate" lookup table inserted into the highway assignment process. Using the highway network, trip matrices and mode choice factors from the aforementioned model, the basic assumption is that the benefit from connected-vehicles and/or autonomous-vehicles will be that closer following distances are possible, yielding a higher capacity per lane. Related to this is the assumption that as the saturation rate increases, some benefit will be seen on all roadways. Lastly, due to the high cost of new AV's, the AV ownership will be weighted by income, with high-income neighborhoods seeing higher AV ownership, at least at first.

There are also three steps to this process:

1) in the NETWORK step, capacity values are assigned depending on one of the three scenario's above, and;

2) In the DIURNAL FACTOR step, trip tables for all trip purposes are split into AV and NON-AV trips using household income as weighting factors for home-based trips.

3) In the HASSIGN step, the "EXCLUDE" parameter is used to determines which vehicle type is allowed in which of the lane configuration, listed above.

UBER car services (Ride-sourcing)

In one vision of the future you don't pay for the car. You pay for the miles. And only the miles. Need a car to take mom to the doctor's, or fetch a spouse from the airport? Services will compete for the privilege of sending consumers vehicles a la carte, for a one-way trip, an afternoon, a weekend, a month. These cash-less transactions will move through the internet and be affordable.

It has been suggested that this "non-auto-ownership model" will serve the needs of the "Gen Now" generation and "Digital Natives", which comprise 133 million current and future drivers, or more than 43 percent of the U.S. population as well as the needs of older adults, the 47 million Americans aged 66 and over, who face different mobility challenges. While they still cherish their autonomy, they are prone to develop age-related impairments to their driving ability.

So, while personal-vehicle ownership isn't going away -- some people will own and cherish cars, rates of ownership will decline, and everyone else will be happy to share. After all, when Henry Ford introduced the Model T, you were not prohibited from riding your horse--it just became more convenient to own an automobile.

For example, UBER, founded in 2009, is basically a referral service. A smart phone app connects riders with drivers using their phone's GPS capabilities, letting both parties know one another's location and removing the question of when the ride will actually arrive. In addition, UBER also processes all payments involved, charging the passenger's credit card, taking a cut for itself, and direct depositing the remaining money into the driver's account, all in the background and completely cashless.

These services are in demand because of the convenience of requesting a ride by a mobile app, the satisfaction of being able to have experience monitored by the company as a third party, and because of competitive pricing for services. By May 2015, the service was available in 58 countries and 300 cities worldwide. By late-2015, Uber was estimated to be worth $62.5B. In Florida UBER provides services in The Central Atlantic Coast, Fort Myers, Naples, Gainesville, Florida Keys, Jacksonville, Tampa Bay, Ocala, Pensacola, Sarasota, Miami, Orlando and Tallahassee.

With respect to trip-based models... In the Olympus training model (a FSUTMS standard?) taxi trips are combined with "light truck" trips as PURPOSE 6 -- usually denoted as "TT" trips, meaning "Truck - Taxi." The number of trips is determined by an attraction rate of 0.30 per household and 0.45 per employee for each TAZ. Perhaps as the number of "ridesourced" trips increases to significant numbers, this can be improved.

Another possibility would be to expand the existing AIRPORT procedure to include 'taxi' and 'ride-sourced' trips from more tha just airports. Include other attractions, and distribute, as we do now, based on a weighted value of: hotel/motels, seasonal population, core-area employment, and general population.

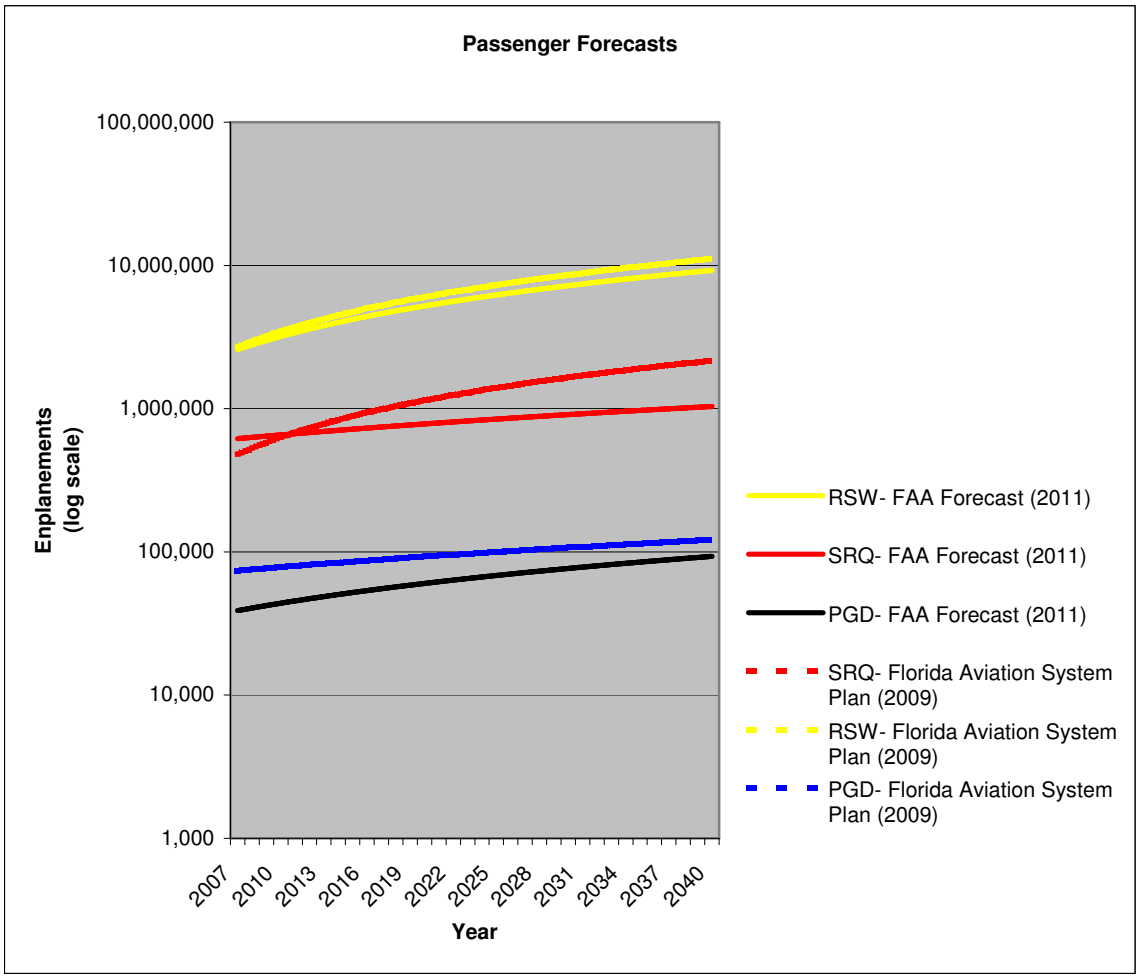
APPENDIX 1 THE AIRPORT PROCEDURE

Below is a description of the procedure used for estimation of airport trips, which is a unique feature of the D1RPM.

The 1990 Lee County FSUTMS model included a DOS-based special airport trip generation and distribution procedure to better replicate the travel patterns of persons using the Southwest Florida International Airport. For the 2000 model validation, the procedure was modified to use data in the ZDATA1 and ZDATA2 files and run in the job stream. These procedures replicated the distribution of trips based upon an 1989 Airport O & D survey, which indicated that beach and resort areas attract more airport trips than residential areas, regardless of the distance from the airport. Specifically: trip distribution at the airport entrance was as follows: 20% to the north; 41% to the south; 6% to the east; and, 33% to the west. Additionally, the survey also provided percentages of trips crossing the county lines as follows: 33% cross the Lee/Collier County line, 9% cross the Lee/Charlotte county line, with the remaining 58% distributing within Lee County.

Previously, the number of trips to/from the airport are estimated from the AIR PASSENGER VEHICULAR TRIP GENERATION SUMMARY, URS Corporation, May 2001. A modified version of the airport trip distribution procedure is included in the Lee/Collier model validation in September 2004. A spreadsheet, AIRTRIPS5.XLS is included in the \documentation folder which replicates the function of the program. For the 2010 D1RPM these procedures were included for the Sarasota-Bradenton Int'l Airport.

Additional data from the Florida Aviation System Plan (FASP) and the Federal Aeronautics Administration (FAA) were used to validate 2010-2040 enplanements, as shown in the graphic, and table below.



FAA Enplanement Forecast (2011)

Year	RSW faa forecast	RSW fasp	SRQ faa forecast	SRQ fasp	PGD faa forecast	PGD fasp
2007	3,964,603		787,972			
2008	3,821,830		773,211		36,045	76,611
2009	3,682,535	3,668,279	670,705	675,969	45,353	
2010	3,639,445		660,305		45,355	
2011	3,810,750		664,044			
2012	3,458,809		643,008			
2013	3,567,370		648,274			82,532
2014	3,707,127	4,441,607	659,014	826,381		
2015	3,901,552		678,593			
2016	4,099,244		696,712			
2017	4,256,927		709,639			
2018	4,420,752		722,809			88,910
2019	4,590,957	5,377,963	736,227	1,010,262		
2020	4,767,798		749,898			
2021	4,951,535		763,828			
2022	5,142,444		778,021			
2023	5,340,810		792,481			
2024	5,546,932		807,214			
2025	5,761,113		822,224			
2026	5,983,678		837,517			
2027	6,214,960		853,099			
2028	6,455,306		868,976			103,184
2029	6,705,081	7,884,485	885,151	1,509,876		
2030	6,964,661		901,632			
2031	7,234,437		918,424			
2032	7,514,817		935,533			
2033	7,806,228		952,965			
2034	8,109,114		970,726			
2035	8,423,934		988,823			
2036	8,751,170		1,007,261			
2037	9,091,320		1,026,046			
2038	9,444,906		1,045,185			
2039	9,812,472		1,064,685			
2040	10,194,582	11,541,253	1,084,554	2,249,004	92,866	122,323

Sources:
http://www.cfaspp.com/Airport/AirportList.aspx
LCPA, Southwest Florida International Airport (RSW) Enplanement Passengers", 2009
http://www.srq-airport.com/newsroom/srq-documents/airport-statistics.aspx

APPENDIX 2 THE HEAVY TRUCK PROCEDURE

Below is a description of the procedure used for estimation of heavy truck movements, which is a unique feature of the D1RPM. [4]

This effort arises in part to the fact that the second edition of QRFM, published in 2007, no longer endorses a set of default truck trip rates which in the past have been used for this purpose. Truck Model Enhancements for the District One Planning Model include truck trip tables that are consistent with observed truck counts for the base year of 2010 and truck growth in a 2040 horizon year.

This project is based on a methodology that adds to the D1RPM, the Commodity Group truck trips estimated by the current FLSWFM disaggregated to District One Planning model zones. The current Florida Statewide Freight Model v. 5124 (FLSWFM) produces freight truck volumes for base and forecast years of trucks by 14 Commodity Groups (CG) as well as non-freight trucks. FLSWFM trip rates were calculated using a regression analysis of Florida-specific economic data.

This project provides the ability to enhance discussions on the transportation implications of economic activity within the Southwest Florida region represented by District One, including inland ports. The model does not predict the economic activity itself, and as such, this has to be accomplished by others, possibly through the use of demographic and economic forecasts.

The FLSWFM consists of the Generation, Distribution and Mode Choice of tons of freight in 14 Commodity Groups (CG) chosen to represent the primary commodities traveling on Florida's transportation system. After the freight tons have been allocated to the truck model, the table is converted from annual tons to annual truck vehicles and from annual trucks to daily truck vehicles. This conversion is made so that truck trips can be assigned as part of a multiclass assignment of tables of freight trucks, the other trucks that do not carry freight and passenger vehicles. The D1RPM table of passenger vehicles is being developed separately. In order to develop truck tables for District One, the FLSWFM truck tables for CGs 1-14 as well as the heavy and medium non-freight trucks were disaggregated from the FLSWFM truck tables windowed to the District One model boundary.

Windowing, also known as subarea extraction, is a process by which a trip table that represents a larger area is processed using the network of the larger area, and a list of links that cross the model boundary of the smaller region. The table cells that pass through links on the model boundary can be treated as external stations of the smaller model region. The trip table TAZs within the model boundary will have the same size and scale of the larger model. The trips to these TAZs must be disaggregated to the more numerous and smaller TAZs within the model region in order to be compatible with the regional model.

The D1RPM TAZs primarily nest within the FLSWFM TAZs. It is reasonable to assume that the trips can be disaggregated from the larger FLSWFM TAZs to the smaller D1RPM TAZs based on the share that the truck Productions(Ps) and Attractions(As) in the D1RPM TAZ are to the Ps and As in the FLSWFM TAZs in which they nest. To use the FLSWFM equations to calculate Productions and Attractions in the D1RPM TAZs, it is first necessary to develop the Socioeconomic Data, called ZDATA in Florida's Statewide Urban Transportation Modeling System (FSUTMS). That ZDATA is primarily NAICS3 employment. The NAICS3 data for the D1RPM TAZs can be developed using FDOT's InfoGroup employment database which lists firm data, including the actual employees at a location, the latitude and longitude of that location, and the NAICS industry of the Firm.

Using this NAICS3 employment, other ZDATA for the D1RPM TAZs, and the Production and Attraction equations from the FLSWFM, it is possible to estimate what the truck Productions (Ps) and Attractions (As) would have been in each D1RPM TAZ using the FLSWFM equations. These Ps and As can then be used as a disaggregation factor, defined as the share of Ps (or As) that a D1RPM TAZs is of the Ps (or As) in the FLSWFM TAZ in which it nests.

The disaggregated tables can be used as the basis for forecasting future truck tables. These future year tables were created by using the base year table as the seed to a FRATAR program where the growth in the Productions (Origins) and in the Attractions (Destinations) is increased by the amount of the growth in the industries that were the explanatory variables in the FLSWFM Production and Attraction equations. Because those equations require detailed NAICS3 industry employment that is available in the base year but is not available in the forecast year, the forecast growth for these trucks was made by associating general employment categories with the productions and attractions of each truck table, and applying that growth, at the D1RPM TAZ level, to each table in a FRATAR process.

[4] "FDOT District One Regional Planning Model Development of a Truck Trip Table", CSI, July, 2015

APPENDIX 3 ADDRESSING UNEMPLOYMENT

Below is a description of the procedure used to adjust trip generation for changes in employment between the base and future year models.

There are several reason a procedure for addressing changes in the unemployment rate has been included in the D1RPM. This requirement came about because Florida's unemployment rate for 2010 was about 10.9 percent -- much higher than the historical long-term unemployment rate, for Florida, which hovers around 5 percent. This is also supported by comparing historical traffic counts to 2010 traffic counts. The downturn in the economy resulted in fewer vehicle trips in the validation year.

Secondly, the model's trip generation rates, which were developed from a 5 year average of ACS household surveys, reflect the higher trip making with an improved economy. This is typical, as there is a gap between when households are surveyed, when the data is compiled and when data is made available (generally, the trip rates for the model reflect 2007 conditions). Without a correction factor, more trips are generated and the resulting model's volume/count ratio hovers around 1.04-1.06 percent

Additionally. data for the model's validation year, 2010, was developed from the U.S. Census of the population for that year and from the InfoUSA of employers database, which is also keyed to 2010 conditions. Again, there is a lag between the time employers are surveyed and employment data is made available. An inquiry and response from InfoUSA confirms that no correction factors for unemployment rate is included in the data.

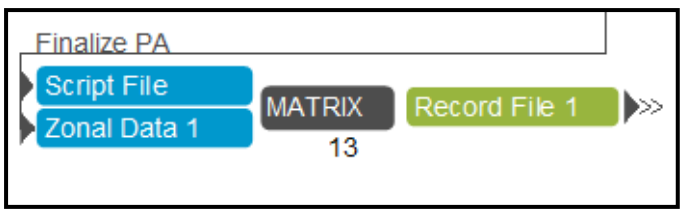
Lastly, uncorrected, future year model volumes would be artificially low. Indeed, traffic counts for 2014 indicate that Florida's economy has returned to normal, and traffic volumes are similar to 2007 traffic count volumes.

The procedure (which is similar to the process used in D7) is to apply the difference in base year and model year unemployment rates using two "keys" in the model. Keys may be changed by the user.

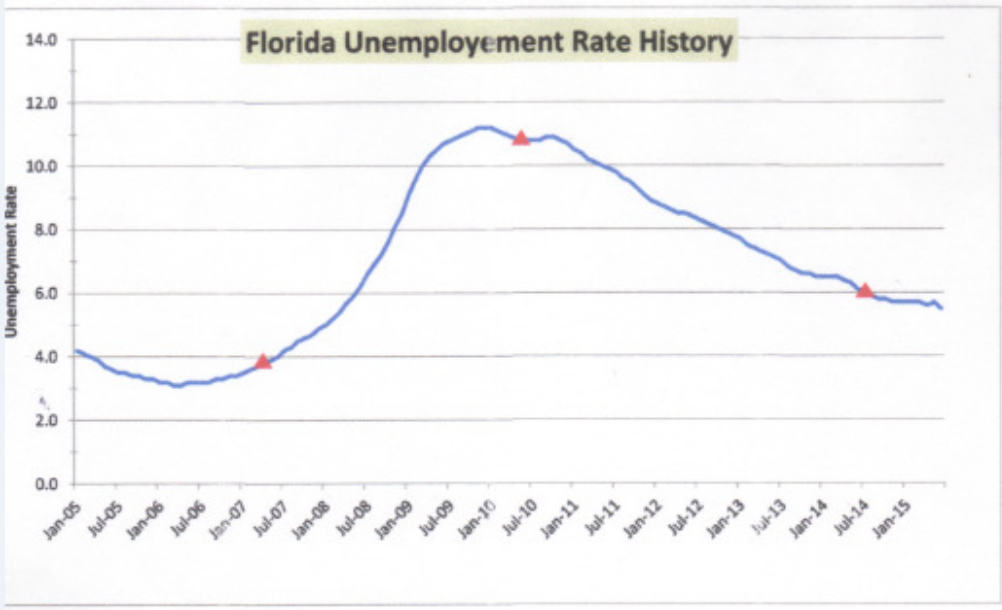
For the validation year 2010 the keys are:
base_unemployment (0.109), and;
current_unemployment (0.042)

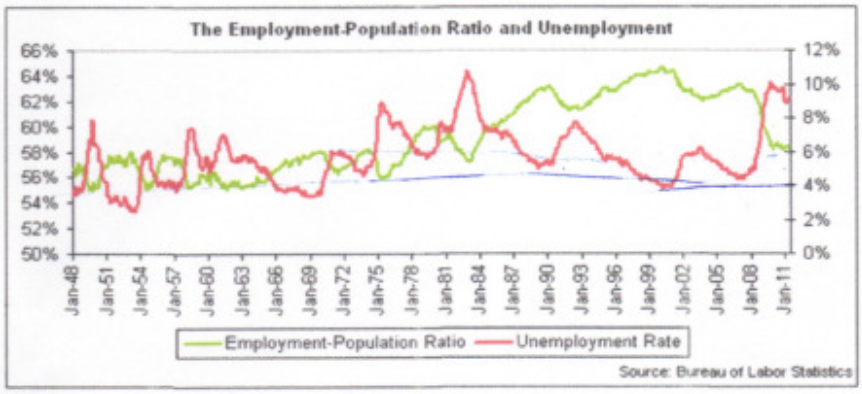
For the future year (2040) the "keys" are the same (0.050)

The rates are applied after Trip Generation in step 13, as shown below:



```
; Do not change filenames or add or remove FILEI/FILEO statements using an editor. Use Cube/Application Manager.
RUN PGM=MATRIX MSG='Finalize PA'
FILEI ZDATI[1] = "{SCENARIO_DIR}\OUTPUT\PANDA_TEMP.DBF"
FILEO RECO[1] = "{SCENARIO_DIR}\OUTPUT\PANDA_{ALT}{Year}.DBF",
  FIELDS= Z,HBW1P,HBW1A,HBW2P,HBW2A,HBSHP,HBSHA,HBSRP,HBSRA,HBOP,HBOA,HBSCP,HBSCA,HBCUP,HBCUA,NHBP,NHBA,TTP,TTA,IEP,IEA

PAR ZONES={ZONESA}

 RO.Z=I
; TMU documentation shows that HBW trips from high-income households tend to be longer
; there is no evidence that low income trips tend to be shorter, therefore
; HBW trips are separated into two categories with separate Friction Factors

; HB WORK for income category 1,2,3,5,6
HBW1P=(ZI.1.HBWP1+ZI.1.HBWP2+ZI.1.HBWP3+ZI.1.HBWP5+ZI.1.HBWP6)* ((1-{current_unemp})/(1-{base_unemp}))

; HB WORK for high-income caterogy 4,7
HBW2P=(ZI.1.HBWP4+ZI.1.HBWP7)* ((1-{current_unemp})/(1-{base_unemp}))

HBSHP=(ZI.1.HBSHP1+ZI.1.HBSHP2+ZI.1.HBSHP3+ZI.1.HBSHP4+ZI.1.HBSHP5+ZI.1.HBSHP6+ZI.1.HBSHP7)* ((1-{current_unemp})/(1-{base_unemp}))
HBSRP=(ZI.1.HBSRP1+ZI.1.HBSRP2+ZI.1.HBSRP3+ZI.1.HBSRP4+ZI.1.HBSRP5+ZI.1.HBSRP6+ZI.1.HBSRP7   )* ((1-{current_unemp})/(1-{base_unemp}))
HBOP=(ZI.1.HBOP1+ZI.1.HBOP2+ZI.1.HBOP3+ZI.1.HBOP4+ZI.1.HBOP5+ZI.1.HBOP6+ZI.1.HBOP7)* ((1-{current_unemp})/(1-{base_unemp}))
HBSCP=ZI.1.HBSCP1+ZI.1.HBSCP2+ZI.1.HBSCP3+ZI.1.HBSCP4
HBCUP=ZI.1.HBCUP1+ZI.1.HBCUP2+ZI.1.HBCUP3+ZI.1.HBCUP4
NHBP=(ZI.1.NHBWP+ZI.1.NHBOP)* ((1-{current_unemp})/(1-{base_unemp}))
IEP=ZI.1.IEP
HBW1A=(ZI.1.HBWA1+ZI.1.HBWA2+ZI.1.HBWA3+ZI.1.HBWA5+ZI.1.HBWA6)* ((1-{current_unemp})/(1-{base_unemp}))
HBW2A=(ZI.1.HBWA4+ZI.1.HBWA7)* ((1-{current_unemp})/(1-{base_unemp}))
HBSHA=(ZI.1.HBSHA)* ((1-{current_unemp})/(1-{base_unemp}))
HBSRA=(ZI.1.HBSRA)* ((1-{current_unemp})/(1-{base_unemp}))
HBOA=(ZI.1.HBOA)* ((1-{current_unemp})/(1-{base_unemp}))
HBSCA=ZI.1.HBSCA
HBCUA=ZI.1.HBCUA
NHBA=(ZI.1.NHBWA+ZI.1.NHBOA)* ((1-{current_unemp})/(1-{base_unemp}))
IEA=ZI.1.IEA
; factor TT down to account for Heavy Truck preload
TTA=ZI.1.TTA*.8
TTP=ZI.1.TTP*.8
WRITE RECO=1
ENDRUN
```





	Polk Model SE Data		Growth
	2007	2010	2007-2010
Employees	245928	255593	9665
Population	572048	589811	17763
Emp/Pop	0.43	0.43	0.54