

Technical Memorandum #7:
Needs Assessment
July 2020

FINAL



MARTIN MPO
Metropolitan Planning Organization

**Martin Metropolitan Planning Organization (MPO)
2045 Long Range Transportation Plan (LRTP)**

This technical memorandum was developed based on data and analyses during the time period from December 2019 through May 2020. Subsequently the Martin MPO Policy Board approved the Draft 2045 Cost Feasible Plan – *Martin in Motion* in June 2020. *The Final* 2045 Cost Feasible Plan was adopted by the Martin MPO Policy Board in October 2020.

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1. Introduction

The purpose of Technical Memorandum #7 (TM 7) is to discuss needs assessment conducted as part of the Martin MPO's 2045 Long Range Transportation Plan (LRTP) – *Martin in Motion* to develop a needs plan and associated project cost. Information included in this technical memorandum serves as key input in prioritizing projects and ultimately developing the 2045 Cost Feasible Plan.

This technical memorandum is organized as described below:

Chapter 1: Introduction – summarizes the purpose of the technical memorandum and report organization.

Chapter 2: Multimodal Needs Assessment – discusses the different components of multimodal needs assessment, which include data driven analysis, previous transportation studies and plans as well as internal stakeholder coordination and public involvement.

Chapter 3: 2045 Needs Plan – identifies multimodal projects need in Martin County over the next 20 to 25 years to enhance mobility, accessibility, and safety for all the users of the transportation system.

Chapter 4: Next Steps – summarizes how information included in this memorandum will be used to develop the 2045 LRTP as the project advances further in the planning process.

2. Multimodal Needs Assessment

This chapter discusses the different components of multimodal needs assessment, which include data driven analysis, previous transportation studies and plans as well as internal stakeholder coordination and public involvement (**Figure 2-1**).



Figure 2-1: Multimodal Needs Assessment Components

As shown in **Figure 2-1**, the multimodal needs assessment conducted for *Martin in Motion* was a comprehensive effort to identify projects needed in the County to enhance mobility, accessibility, and safety for all the users of the transportation system. The community’s vision, goals and objectives developed for the 2045 LRTP served as the foundation for needs assessment. Further, three major components - data driven analysis, previous transportation studies as well as internal stakeholder coordination and public involvement along were used to identify transportation improvements and projects for different modes and categories. It should be noted that each major component has several sub-components, which are described below.

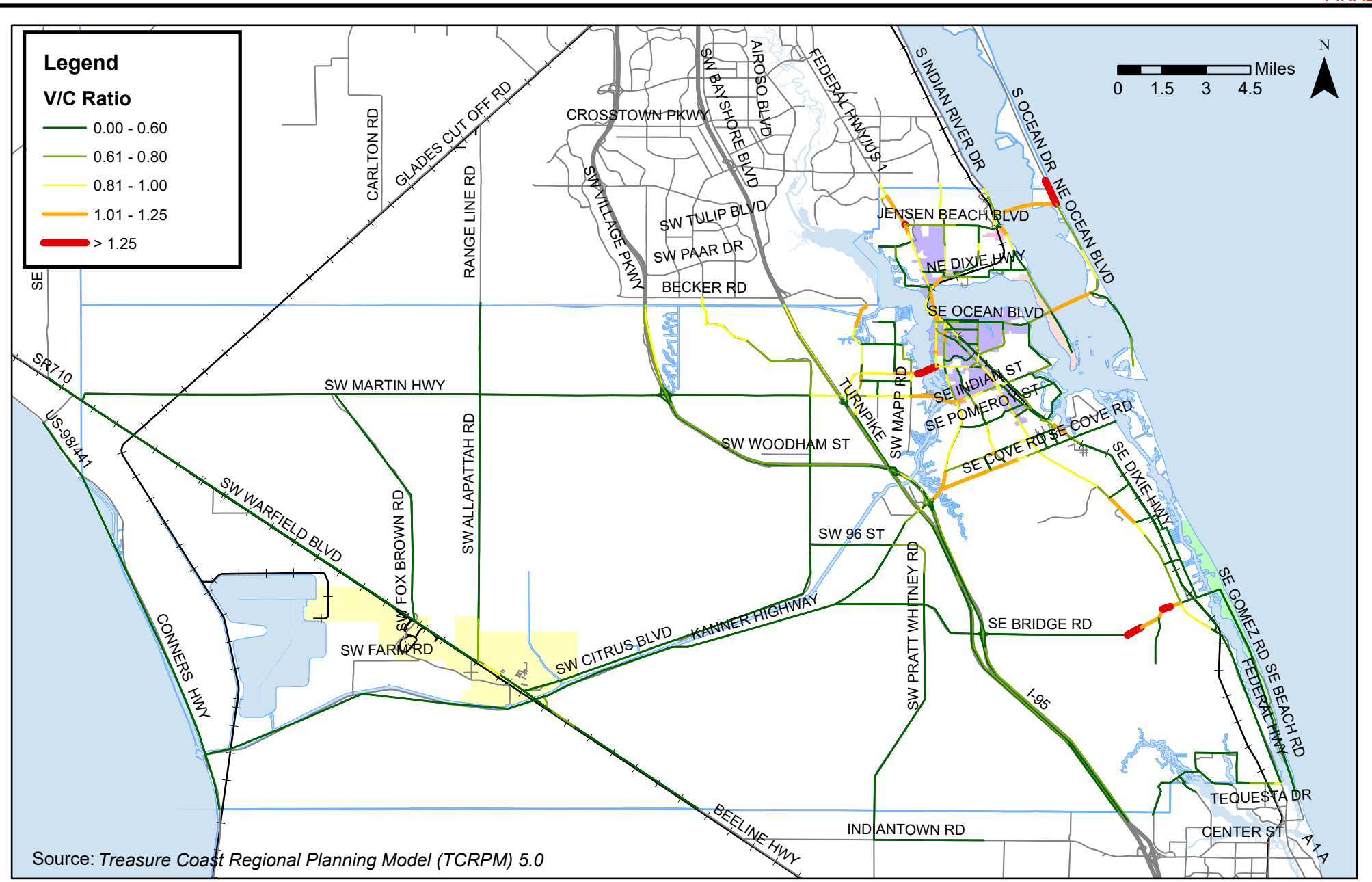
2.1 Data Driven Analysis

The data driven analysis is the technical component of the 2045 Needs Assessment, which comprises travel demand forecasting using the Treasure Coast Regional Planning Model (TCRM) 5.0 and congested network analysis using “big data.”

2.1.1 Treasure Coast Regional Planning Model (TCRPM), Version 5.0

As documented in Technical Memorandum #5 – Travel Demand Modeling, the TCRPM 5.0 includes base year (2015) and future year (2045) socioeconomic, demographic, and land use data. These data are used to forecast future travel demand, trip making characteristics and travel patterns. Some of these demand parameters are quantified in TM# 5. The TCRPM 5.0 also includes existing plus committed (E+C) highway and transit network. Existing network comprises roadways/highway and public transportation facilities that are in use today while the committed network includes projects that are in the Martin MPO's TIP and funded for construction through FY 2024/2025. In other words, transportation improvements that would be constructed or implemented by 2025 is considered as "committed." The transportation network in the TCRPM defines the supply side of the regional travel demand model.

To evaluate future year highway and transit needs, the 2045 travel demand (traffic volumes) derived from 2045 socioeconomic, demographic, and land use data was loaded on the E+C network. This process helped identify stresses in the transportation network measured as volume to capacity (v/c) ratio. In the transportation network, if the demand (traffic volume) exceeds supply (roadway capacity), the v/c ratio is higher than 1.0 and indicates traffic congestion. Approximately 48 roadway segments with v/c ratio higher than 1.0 were consolidated to create 16 corridors based on proximity, segment length and laneage. **Figure 2-2** shows v/c ratio for the Year 2045 in Martin County if no additional transportation improvements beyond the E+C is implemented.



Volume to Capacity Ratio

Year 2045 with Existing + Committed Network

Martin County



Table 2-1 shows roadway segments in Martin County with v/c ratio approximately 1.05 or more, indicating that traffic volume exceeds roadway capacity by at least 5%.

Table 2-1: Volume to Capacity Ratio, Year 2045 with E+C Network

Facility	From	To	Average Volume to Capacity Ratio, 2045
Federal Highway/US 1	NW Mall Entry S	SE Westmoreland Blvd	1.12
Federal Highway/US 1	SW Ocean Blvd	NW Wright Blvd	1.09
Federal Highway/US 1	SE Heritage Blvd	SE Osprey St	1.05
Kanner Hwy (S Colorado Avenue)	SE Lonita St	SE Martin Luther King Jr Blvd	1.08
Kanner Hwy	I-95	SE Cove Rd	1.21
NE Causeway Blvd	NE Indian River Dr	NE Ocean Blvd	1.23
NE Ocean Blvd	S Sewalls Point Rd	NE MacArthur Blvd	1.12
NW Dixie Hwy	SW Joan Jefferson Way	US-1/Federal Highway	1.14
Old Dixie Hwy	SE Salerno Rd	SE Seaward St	1.06
S Ocean Dr	North County Line	NE Causeway Blvd	1.52
SE Bridge Rd	Powerline Ave	US-1/Federal Highway	1.21
SE Green River Pkwy	NW Wright Blvd	NW Dixie Hwy	1.16
SE Salerno Rd	SE Smith Ave	SE Willoughby Blvd	1.05
SW 36th Street	SW Mapp Rd	Kanner Hwy	1.04
SW Martin Downs Blvd	SW Matheson Ave	SW Palm City Rd	1.15
SW Murphy Rd	Wisper Bay Terrace	North County Line	1.08

Source: Derived from TCRPM 5.0

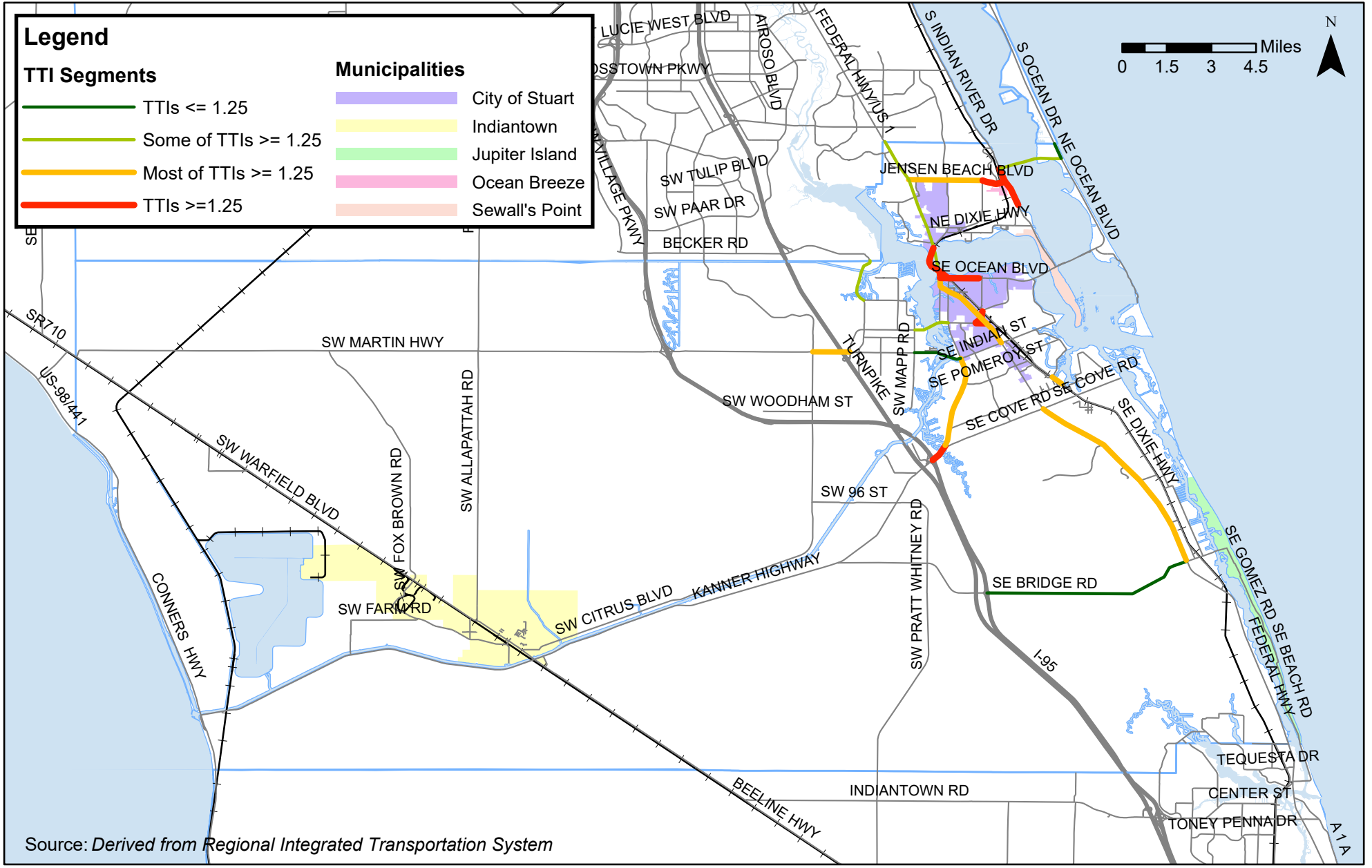
Based on input received from the Project Steering Committee (PSC), March 4, 2020, all the roadway segments with v/c ratio higher than 1.05 were identified and included in the highway/roadway (non-Strategic Intermodal System) needs assessment.

2.1.2 Congestion Management Process (CMP) Update

An integral part of the CMP Update is to define the CMP network and conduct network analysis to identify congested corridors. Technical Memorandum #5 – CMP Update provides a detailed explanation of the rationale used to define the CPM network, key data sources and evaluation process used to identify congested roadway segments in Martin County.

In addition to the congested network analysis, the FDOT's *Transportation Systems and Operations Management (TSM&O) Master Plan, March 2019* and the *Treasure Coast Congestion Assessment, June 2020* that identified congestion hotspots were used as reference data for CMP Update.

Figure 2-3 shows congested corridors based on Travel Time Index (TTI) of 1.25 and Planning Time Index (PTI) of 1.30 – a measure of reliability using 2018 data.



Twenty-five congested roadway segments along the following facilities were identified (**Figure 2-3**).

- Bridge Road
- Jensen Beach Boulevard
- SW Kanner Highway/SR-76
- SW Martin Highway/CR-714
- SE Monterey Road
- US-1/Federal Highway
- SW Murphy Road
- SR-714
- Dixie Highway
- SW Ocean Boulevard
- SW Joan Jefferson Way
- Indian River Drive
- CR-732/NE Causeway Boulevard
- SR-A1A

2.2 Previous Transportation Studies and Plans

To ensure consistency with existing transportation and land use plans, the project team reviewed more than 16 studies and plans prepared by the Martin MPO and its partner agencies. The plans/studies reviewed by the project team are listed below.

- 2020-2029 Transit Development Plan, Martin County, August 2019
- Transportation Improvement Program, FY 2019/20-FY 2023/24, Martin MPO; June 2019
- City of Stuart Tram Business Plan, Martin MPO, Spring 2019
- Martin County Transit Operations Center Feasibility Study, Martin MPO, April 2018
- Bicycle, Pedestrian and Trails Master Plan, Martin MPO, December 2017
- FEC Railroad Grade Separation Feasibility Study, Martin MPO, August 2017
- Martin and St. Lucie Regional Waterways Plan, Martin MPO, December 2014
- FDOT Five-Year Work Program, FY 2019/20-FY 2023/24
- TSM&O Master Plan, FDOT, March 2019
- 2045 Strategic Intermodal System Plan, FDOT, June 2019
- Freight Mobility and Trade Plan (FMTP), April 2020
- Park-And-Ride Master Plan, FDOT, October 2018
- 2040 LRTP, Martin MPO, December 2015
- 2040 Treasure Coast RL RTP, 2017
- City of Stuart Brightline Station Analysis, 2018
- Martin County Airport/Whitham Airfield Master Plan Update, FDOT, November 2010

Several multimodal projects that were valid in the current context as well relevant in the future were included in the 2045 Needs Plan. In addition, projects from on-going studies,

such as Martin MPO's *Freight and Goods Movement Study* and *Complete Streets: Access to Transit Study* were also considered in the Needs Assessment for consistency.

2.3 Stakeholder Coordination and Public Involvement

2.3.1 Stakeholder Coordination

As part of stakeholder coordination the project team conducted one-on-one interviews with elected officials, presented 2045 LRTP information and solicited input from various focus groups as well as gathered input directly from several agencies including FDOT, Martin County and municipalities as well as through the Project Steering Committee (PSC). **Table 2-2** shows a log of various meetings.

Table 2-2: Agency Coordination/Focus Group Meetings

Agency/Focus Group	Timeframe	Location	Key Discussion Topic
Stuart/Martin County Chamber of Commerce	9/25/2019	1650 S Kanner Hwy, Stuart, FL 34994	Project Overview
Martin County Employee Benefits Fair	10/19/2019	2401 SE Monterey Rd, Stuart, FL 34996	Funding Priorities
Jensen Beach Chamber of Commerce	11/4/2019	1960 NE Jensen Beach Blvd, Jensen Beach, FL 34957	Project Overview
Elected Officials One-on-one Interviews	Oct./Nov. 2019	Various	Transportation Needs
Florida Department of Transportation, District Four	11/21/2019	3400 W. Commercial Blvd., Ft. Lauderdale, FL 33309	Project Overview and Status Update
Project Steering Committee Meeting #3	3/4/2020	2401 SE Monterey Rd, Stuart, FL 34996	Needs Assessment

2.3.2 Public Involvement

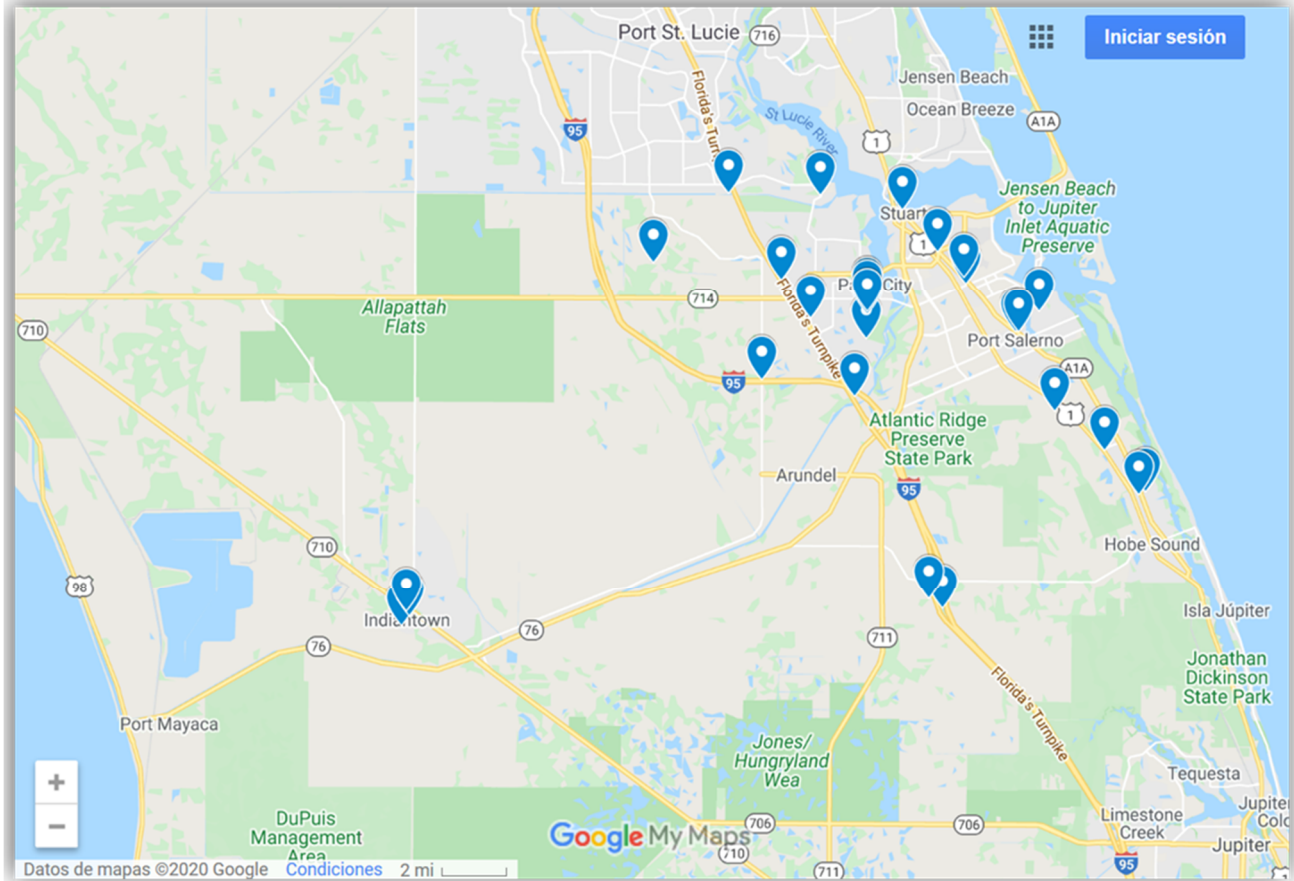
Extensive public involvement effort conducted for the Martin in Motion included conducting three Public Open House visioning sessions in early October 2019, online survey on the project website (www.MartininMotion.com), in-person survey at Treasure Coast Mall (September 29, 2019), and gathering location-specific comments using online mapping tool as well as through email and other digital communication channels.

Table 2-3: Public Meetings

Meeting	Timeframe	Location	Key Discussion Topic
2045 LRTP Survey (in-person)	9/28/2019	Treasure Coast Square Mall 3174 NW Federal Hwy, Jensen Beach, FL 34957	Transportation Needs and Priorities
Public Open House #1 – Stuart City Hall	10/2/2019	121 SW Flagler Avenue, Stuart, FL. 34994	Visioning Session
Public Open House #2 – Port Salerno Civic Center	10/3/2019	15200 SW Adams Avenue, Indiantown, FL 34956	Visioning Session
Public Open House #3 – Elisabeth Lahti Library	10/8/2019	4940 SE Anchor Avenue, Stuart, FL. 34997	Visioning Session
Martin County, District 3 Town Hall Meeting - Hobe Sound Civic Center	12/11/2019	8980 SE Olympus St, Hobe Sound, FL 33455	Funding Priorities
Complete Streets: Access to Transit Public Open House - Indian River State College, Chastain Campus, Wolf Technology Center	1/14/2020	2400 SE Salerno Road, Stuart, FL 34997	Funding Priorities
Joint TAC/CAC/BPAC Advisory Committee Meeting	4/29/2020	Blake Library 2351 SE Monterey Rd, Stuart, FL 34996	Needs Assessment
Martin MPO Policy Board Meeting	5/11/2020		Needs Assessment

Input received from the Public Open House as well as through surveys is documented in the Public Involvement Summary Report. **Figure 2-4** shows public comments for specific locations in the County.

Figure 2-4: Location-specific Comments, Public Input



Source: www.martinmotion.com

Below is summary of the public comments received.

- Twenty-five location-specific comments for improvement needs through interactive map and emails/comment form were received.
- Seven comments related to transportation issues – senior transportation, school buses, transit service, bike/ped safety.
- Two comments requested providing project related information.

3. 2045 Needs Plan

This chapter identifies multimodal projects needed in Martin County over the next 20 to 25 years to enhance mobility, accessibility, and safety for all the users of the transportation system. The needs assessment serves as the foundation of 2045 Needs Plan. A summary description of the 2045 Needs Plan by mode or project categories along with corresponding figures follows. **Appendix-1** provides an itemized project list by mode and cross references the map identifiers shown on various figures. Project cost are also included for each line item.

3.1 Transit Projects

The following transit service (Marty) and capital improvements are included in the 2045 Needs Plan for a total operating expense of \$199.93 million (YOE) over 20 years and approximately \$52.08 million (YOE) in capital cost. **Figure 3-1** shows Marty's existing fixed routes, service expansion (new routes and Saturday service), Mobility on Demand (MoD) service areas as well as the Downtown Stuart Tram routes.

Marty Transit Service/Operations

- Maintain existing service levels – fixed route and paratransit
- Route Restructuring (Routes 2 and 3)
- Expanded Service Level (Routes 1, 2 and 3)
- New Routes (Jensen Beach Route)
- Mobility on Demand (MOD) Service
 - Jensen Beach/Rio
 - Palm City

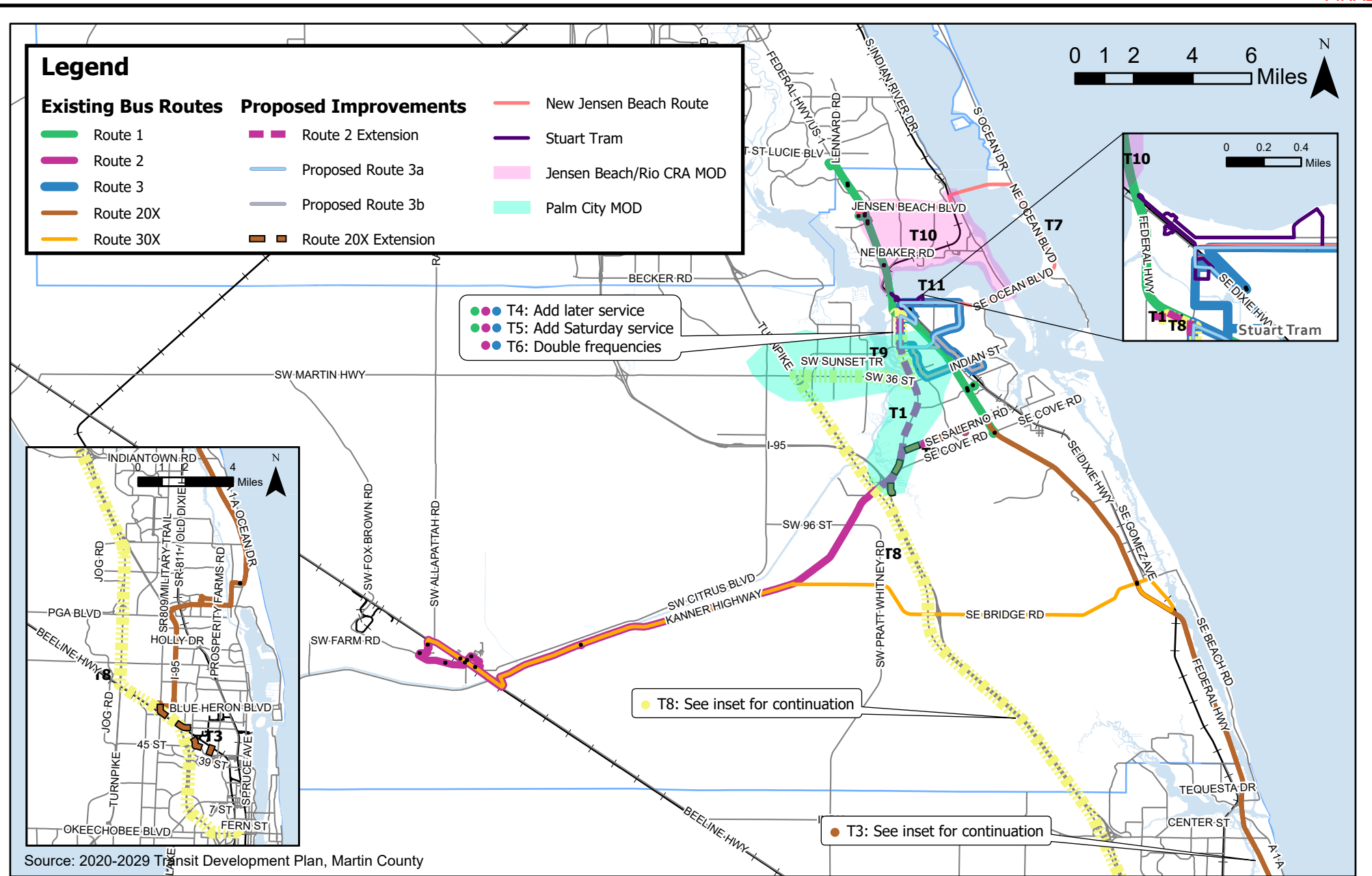
Capital Improvements

- Rolling stock (fleet replacement)
- Transit/bus stop infrastructure
- Transit operations and maintenance facility
- Intermodal hub
- New Park-and-Ride facility (connection to Palm Beach Tri-Rail Intermodal Center)
- Virgin Trains USA/Brightline Station (private sector funded)

Downtown Stuart Tram

- Maintain existing service level
- Expanded Service Level (Two Routes), 10- to 15-minute headway
- Expanded Service Level (Two Routes), Less than 10- to 15- minute headway
- Two New Shelters

The transit needs identified are consistent with *Martin County's 2020-2029 Transit Development Plan, August 2019* and *Martin MPO's City of Stuart Tram Business Plan, Martin MPO, Spring 2019, and Martin County Transit Operations Center Feasibility Study, Martin MPO, April 2018.*



3.2 Roadway/Highway Needs

3.2.1 Non- Strategic Intermodal System (SIS) Facilities

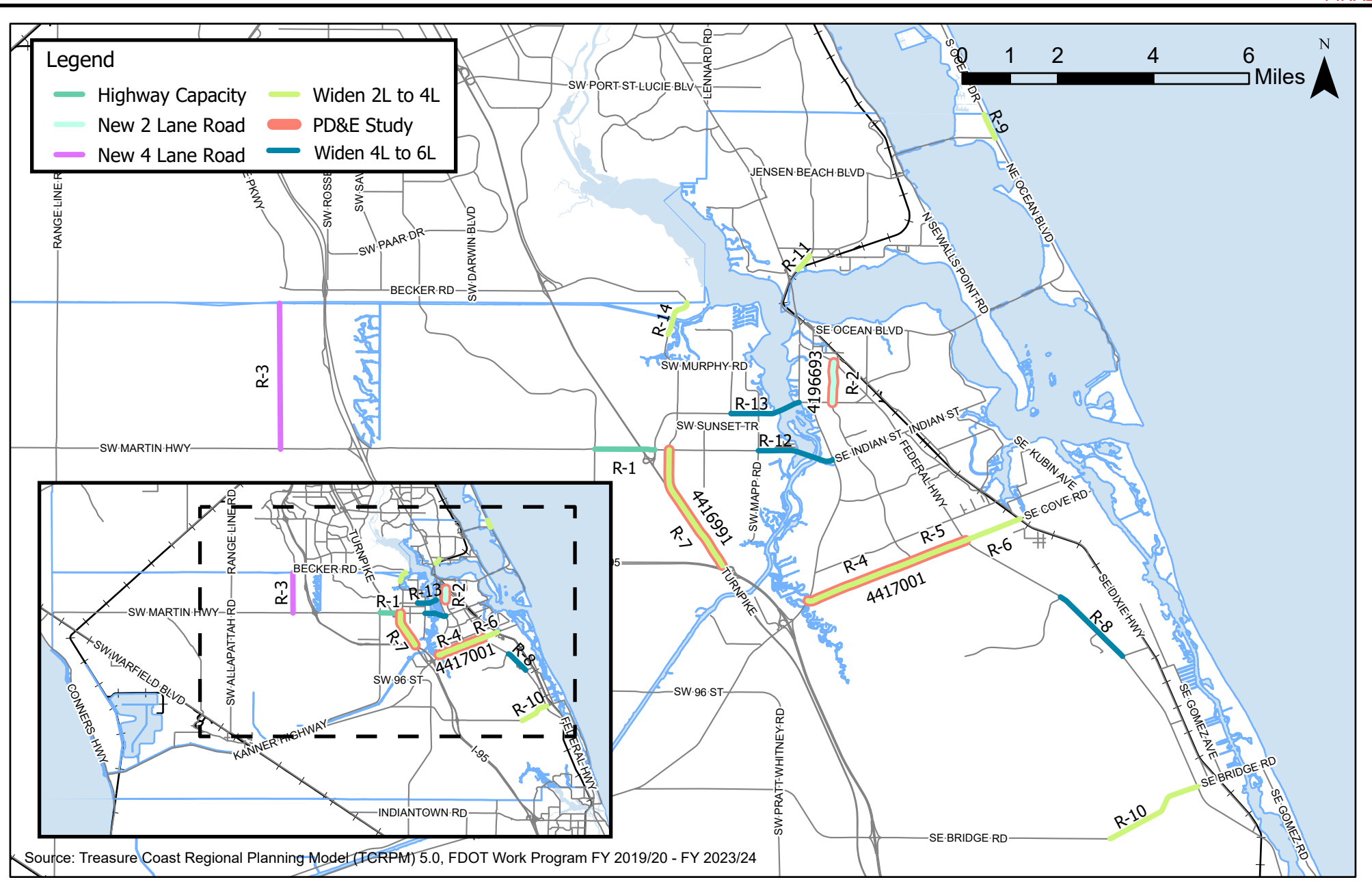
Figure 3-2 shows cost feasible roadway projects. These projects cost approximately \$593.4 million (YOE). Projects include three PD&E Studies and SR-714/Martin Highway construction project, two safety projects and as well as roadway widening projects. Of the two new road projects, Village Pkwy Extension is privately funded.

- **Currently Funded**
 - SR-714/Martin Hwy from Citrus Blvd. to Martin Downs Blvd.
 - Willoughby Blvd. PD&E Study
 - Cove Road PD&E Study
 - CR-713/High Meadow Ave PD&E Study

- **Two Safety Projects**
 - SR-5/US-1 at Joan Jefferson Way
 - CR-714/Martin Hwy Realignment

- **Seven Roadway Widening Projects**
 - Cove Road
 - CR-713/High Meadow Ave
 - S Ocean Drive
 - SE Bridge Rd
 - SE Green River Pkwy
 - SW Murphy Rd
 - Federal Hwy/US-1
 - Martin Highway
 - SW Martin Downs Rd.

- **Two New Road Projects**
 - Willoughby Blvd.
 - Village Parkway Extension

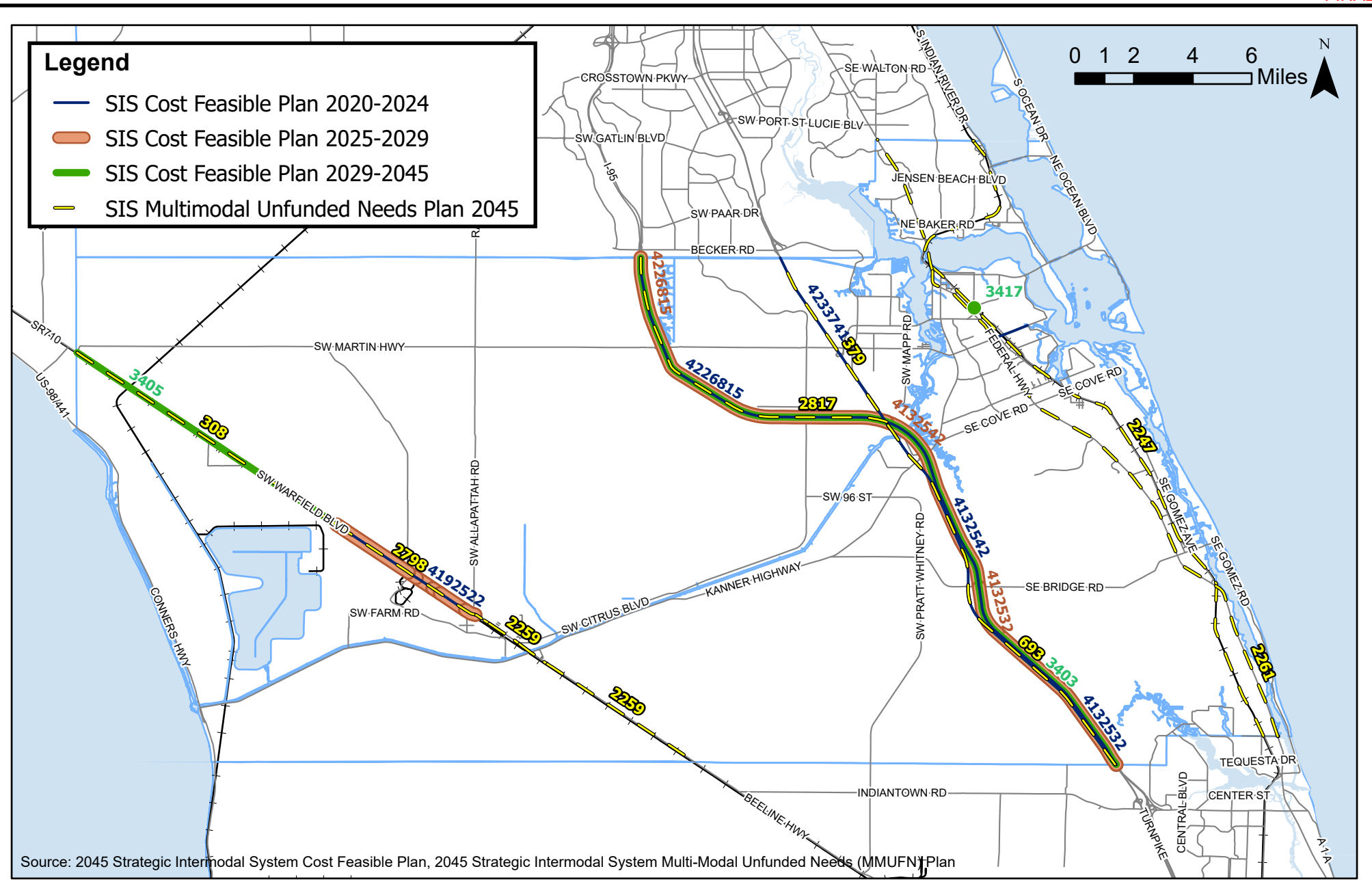


3.2.2 Strategic Intermodal System (SIS) Facilities

The following SIS projects are identified by FDOT and included in the *SIS 2029-2045 Cost Feasible Plan, July 2018* for a total of approximately \$187.8 million (YOE) and *2045 Multimodal Unfunded Needs Plan, June 2017* for a total of approximately \$2.06 billion (YOE). These projects include Project Development & Environment (PD&E) studies for different segments of I-95, highway capacity improvements on SR-710 and I-95 as well as a safety project at Monterey Road and Florida East Coast (FEC) mainline (**Figure 3-3**).

- Three PD&E Studies on I-95
- Highway capacity improvements on SR-710/Warfield Blvd. and I-95
- One safety/freight project at SR-714/Monterey Road and FEC mainline
- Two capacity projects on Florida's Turnpike
- New SR-710 bypass facility
- I-95 interchange modification (High Meadow Avenue to Becker Road in St. Lucie County¹)
- Two fixed exclusive guideway transit projects along US-1/Federal Highway and SR-710
- One transit hub at Indiantown
- Amtrak passenger rail service (statewide)

¹ Figure 3-3 shows project extent within Martin County. It should be noted that the north limit of the project, which is Becker Road is in St. Lucie County.

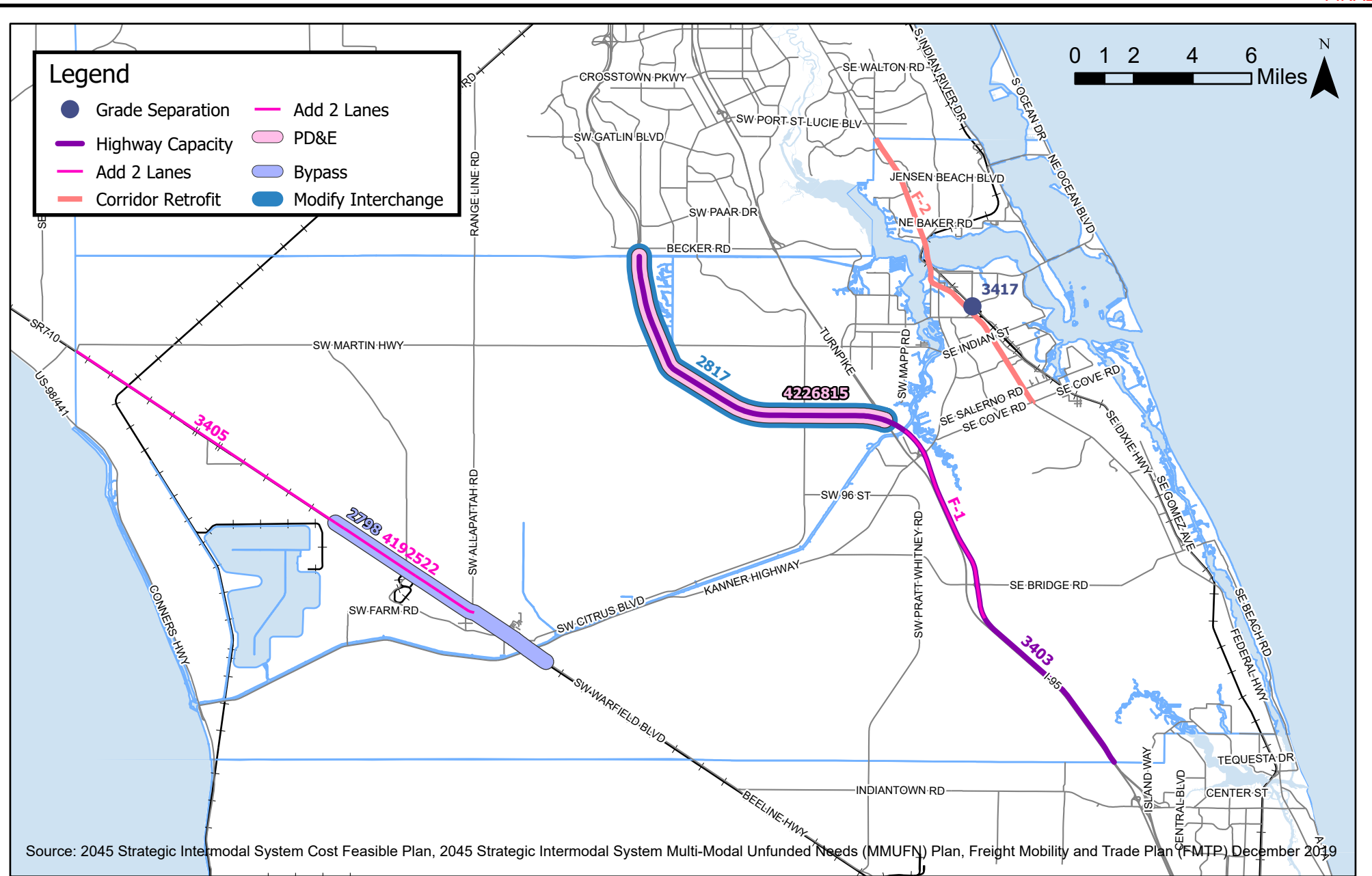


3.3 Freight Projects

The freight projects overlap with the SIS projects (**Figure 3-4**). Primary source for identifying freight project needs was FDOT's *Freight Mobility and Trade Plan (FMTP)*, April 2020. The majority of the freight projects included in the FMTP overlap with the FDOT's *SIS 2029-2045 Cost Feasible Plan*, July 2018 and *2045 Multimodal Unfunded Needs Plan*, June 2017. In addition, improvements on I-95 and US-1/Federal Hwy were included from *2040 Regional LRTP*. The total cost of freight projects is approximately \$334.6 million (YOE), which includes approximately \$187.8 million (YOE) for SIS improvements.

In addition to the seven SIS projects on I-95, SR-710, and SR-714/Monterey Road, the following two project initiatives have been identified by FDOT Leadership in District Four jurisdiction.

- Connected Freight Priority System Deployment
- Strategies for Reducing Railroad Trespassing (SRRT) Pilot Project



Source: 2045 Strategic Intermodal System Cost Feasible Plan, 2045 Strategic Intermodal System Multi-Modal Unfunded Needs (MMUFN) Plan, Freight Mobility and Trade Plan (FMTP) December 2019



TYLIN INTERNATIONAL

2045 Needs Assessment

Freight

Martin County



Figure 3-4

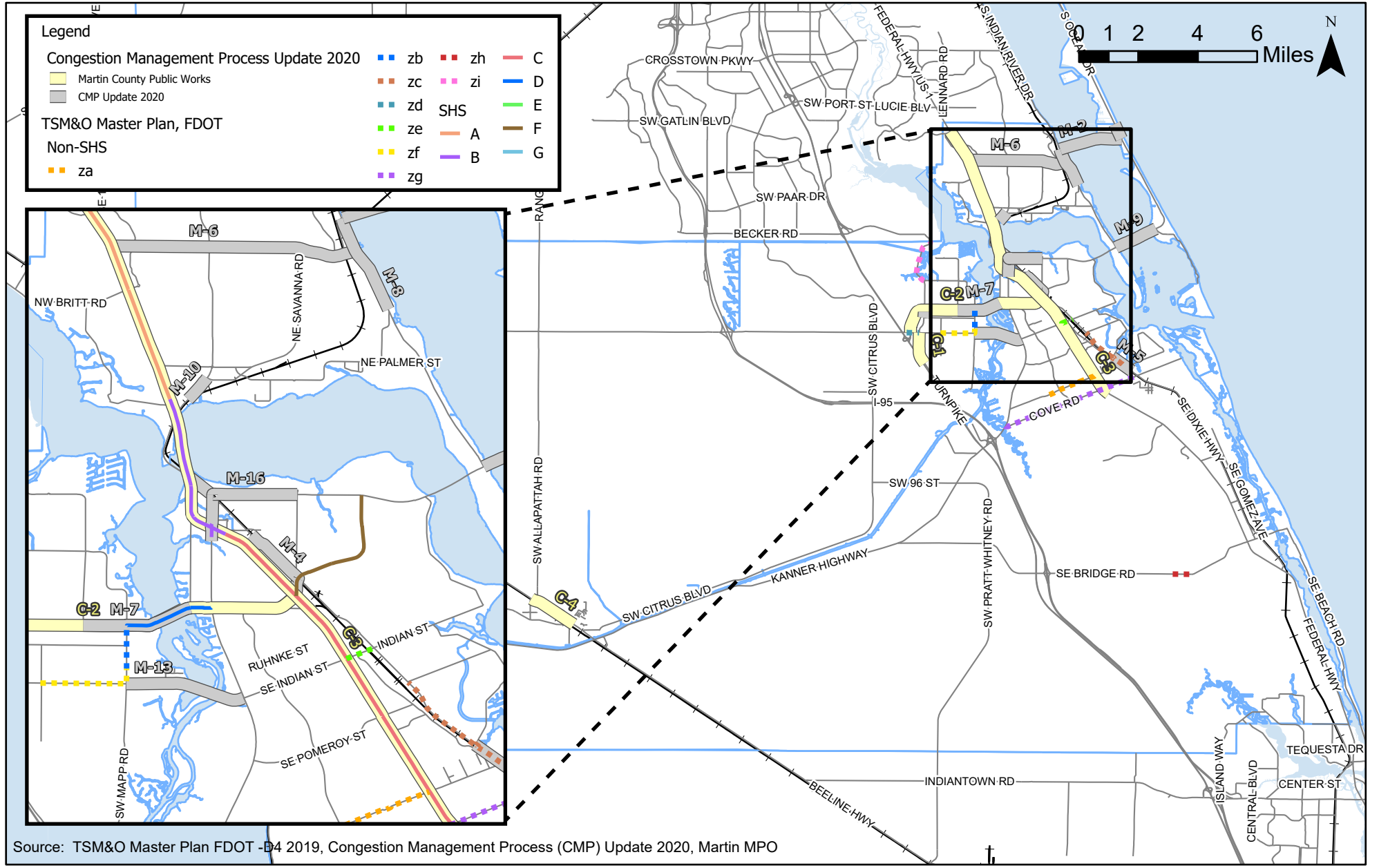
3.4 Transportation Systems Management & Operations (TSM&O)

Based on congested network analysis conducted for CMP Update and input received from Martin County, 15 roadway segments listed below and shown in **Figure 3-5** were identified as part of 2045 Needs Plan. It should be noted that corridor-specific improvements have not been identified at this time. In addition, Intelligent Transportation System (ITS) infrastructure improvements, which include installing equipment at signalized intersections, were included in the 2045 Needs Plan.

- **Roadway Segments**
 - Colorado Avenue
 - CR-732/Jensen Beach Causeway
 - Dixie Highway
 - Jensen Beach Boulevard
 - Martin Downs Road/SR-714
 - NE Indian River Drive
 - NE Ocean Boulevard
 - SE Green River Parkway
 - SE Monterey Road (Ext.)
 - SR-A1A
 - SW 36th Street (Martin Highway)
 - SW High Meadow Avenue
 - SW Joan Jefferson Way
 - SW Ocean Boulevard
 - SE Bridge Road
- **ITS Infrastructure Needs**

Based on FDOT's *TSM&O Master Plan, March 2019*, the following roadway segments were included in the 2045 Needs Plan. Some of these overlap with the above listed corridors. Further, six ITS projects included in the I-95 Treasure Coast Multimodal Master Plan are also part of the 2045 Needs Plan.

- **On-system: Seven segments along -**
 - Federal Highway
 - SW Martin Downs Boulevard
 - Kanner Highway
 - SR-714/SE Monterey Road
- **Off-system: Nine segments along -**
 - SE Salerno Road
 - SW Mapp Road
 - SE Dixie Highway
 - SE Indian Street
 - SW Martin Highway
 - SE Cove Road
 - SE Bridge Road
 - Murphy Road

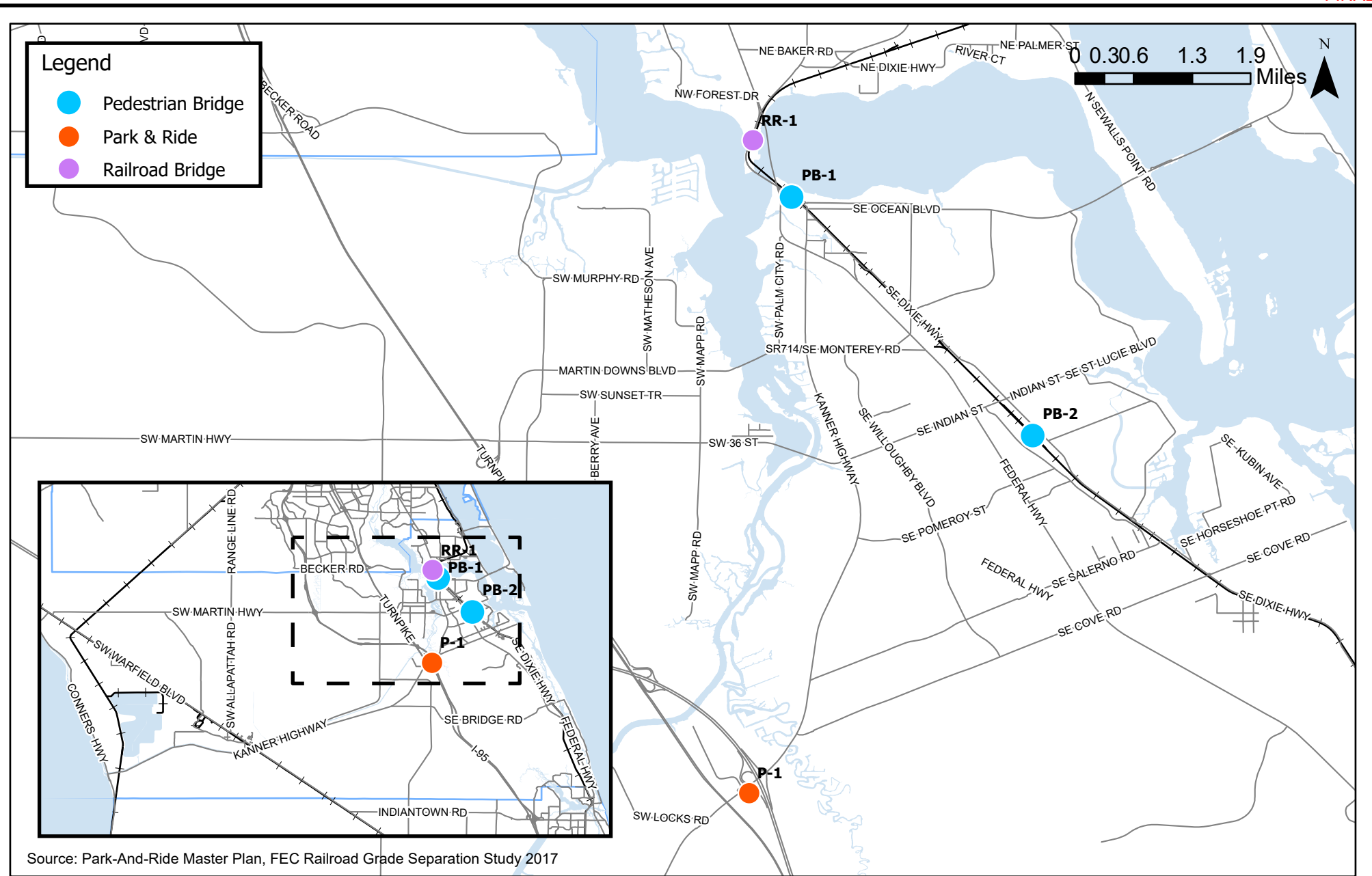


3.5 Other Projects – Travel Demand Management, Safety and Strategic Initiatives

The other project category includes Travel Demand Management (TDM), safety and strategic initiatives as well as Park-and-Ride facilities (**Figure 3-6**). These following needs were identified based on *Park-And-Ride Master Plan, FDOT, October 2018* and *FEC Railroad Grade Separation Feasibility Study, Martin MPO, August 2017* and key stakeholder input.

- **Park-and-Ride Facilities (three locations)**
 - *Kanner Highway/SR-76 at I-95*
 - *West of I-95 between Becker Road and Martin Highway*
 - *West of Turnpike in vicinity of Sand Avenue*
- **Non-motorized grade crossings (pedestrian bridge) in Downtown Stuart and Golden Gate along Florida East Coast (FEC) main line**
- **FEC Rail Bridge – Double Tracking over St. Lucie River**

Total cost to implement the projects included in the category is estimated at approximately \$28.0 million (YOE). It should be noted that this does not include cost to double track FEC rail bridge over St. Lucie Rive, which is a funded through private sector.



Source: Park-And-Ride Master Plan, FEC Railroad Grade Separation Study 2017



2045 Needs Assessment

Other Projects

Martin County



Figure 3-6

3.6 Waterborne Transportation

Waterborne transportation needs were identified based on *Martin and St. Lucie Regional Waterways Plan, Martin MPO, December 2014*. The following specific projects and water taxi services were included in the 2045 Needs Plan at approximately \$17.92 million (YOE) (**Figure 3-7**). This cost includes capital improvements and operations and maintenance cost for a 20-year period.

- **Water Taxi Service**
 - Sandsprit Park to St. Lucie Preserve State Park
 - Seasonal and/or Special Events/Festivals around key nodes
 - Stuart/Palm City
 - Port Salerno/Manatee Pocket
 - Stuart/Jensen/Rio

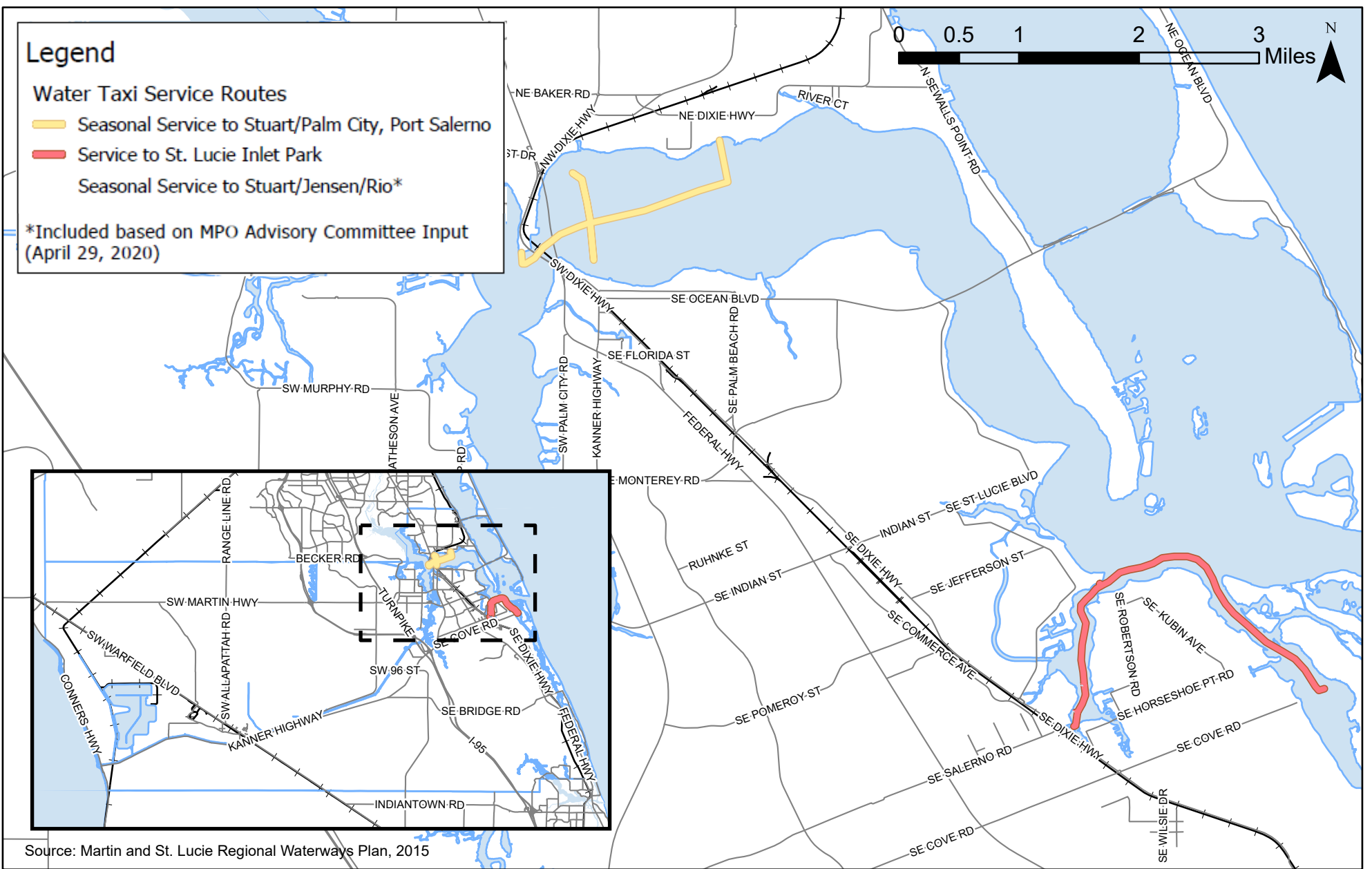
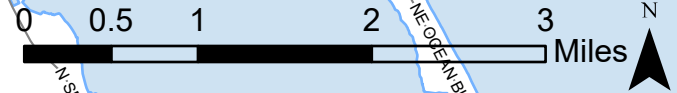
- **Water based transportation feasibility study**

Legend

Water Taxi Service Routes

- Seasonal Service to Stuart/Palm City, Port Salerno
- Service to St. Lucie Inlet Park
- Seasonal Service to Stuart/Jensen/Rio*

*Included based on MPO Advisory Committee Input (April 29, 2020)



Source: Martin and St. Lucie Regional Waterways Plan, 2015



2045 Needs Assessment

Waterways

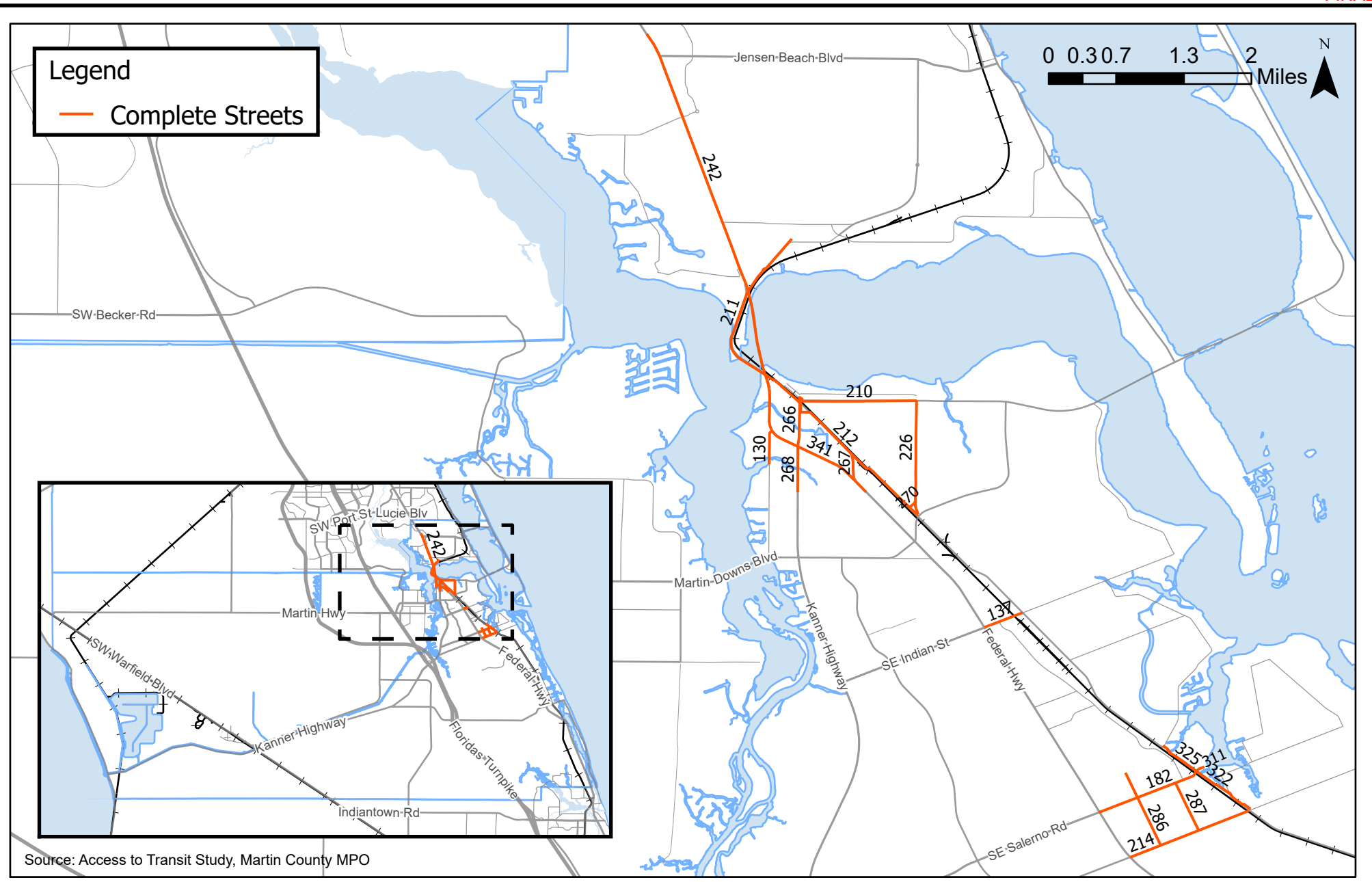
Martin County



Figure 3-7

3.7 Complete Streets












Martin MPO conducted a comprehensive *Complete Streets: Access to Transit Study, June 2020*. Various projects included in the 2045 Needs Plan are consistent with this *Study* and reflect Tier 1 priority. Further, the MPO prepared existing and proposed cross sections for 10 complete streets projects as part of this effort. A total of 17 projects that would create 15 miles complete streets network are part the 2045 Needs Plan. The total cost to implement these projects is estimated at approximately \$50.2 million (YOE). **Figure 3-8** provides visual representation of the location of these projects.

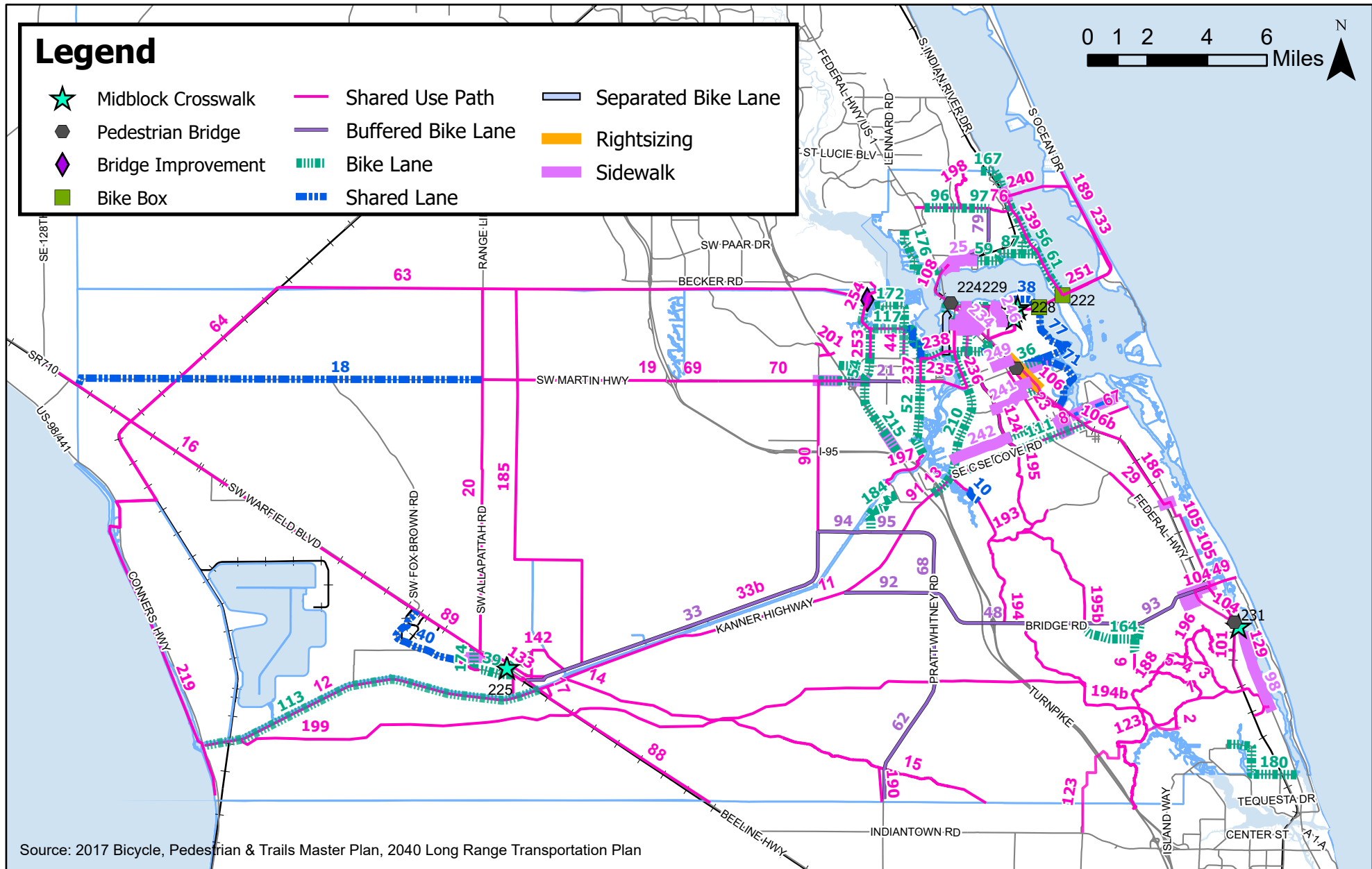
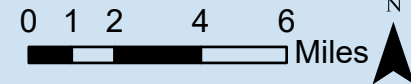


3.8 Non-Motorized Transportation

As illustrated in **Figure 3-9**, an extensive network of non-motorized improvement needs was developed and included in the 2045 Needs Plan based on a review of *2040 LRTP – Moving Martin Forward*, Martin MPO, December 2015 and *Bicycle, Pedestrian and Trails Master Plan*, Martin MPO, December 2017 as well as input received from Martin MPO's Bicycle and Pedestrian Advisory (BPAC) Committee. Total project cost to implement the non-motorized improvements is estimate at approximately \$623.0 million (YOE).

Legend

-  Midblock Crosswalk
-  Pedestrian Bridge
-  Bridge Improvement
-  Bike Box
-  Shared Use Path
-  Buffered Bike Lane
-  Bike Lane
-  Shared Lane
-  Separated Bike Lane
-  Rightsizing
-  Sidewalk



Source: 2017 Bicycle, Pedestrian & Trails Master Plan, 2040 Long Range Transportation Plan



2045 Needs Assessment

Nonmotorized

Martin County



Figure 3-9

3.9 Aviation

The 2045 Needs Plan includes the following aviation projects at approximately \$3.9 million (YOE). These projects are included in the *Martin County Airport and Witham Field's Capital Improvement Plan (CIP)*.

- Air Traffic Control Tower Equipment Upgrade (Recorder and Radios)
- Construct Airport Interconnect Rd. - Flying Fortress Extension
- Rehabilitation of MC Non-Movement Areas Phase V (Design & Const)
- Tree Mitigation Project - RPZ and Part 77 (SE St. Lucie Canal)

It should be noted that the FDOT provides 80% funding of the total cost to support these projects while the remaining 20% is local and/or federal match.

3.10 Resiliency Projects

The Technical Memorandum #6 - *Additional Elements* includes literature review, a summary discussion of tools and various analyses conducted by Martin County and FDOT as it relates to extreme weather events, storm surge and sea level rise (SLR). Based on input received from the Martin MPO's Technical Advisory Committee (TAC) on April 29, 2020, the following two roadway segments were included as resiliency projects (**Figure 3-10**).

- N Sewalls Point Road from SR-A1A/NE Ocean Blvd. to SE Palmer Street
- SE MacArthur Blvd. from SE South Marina Way to approximately 1500 feet North

3.11 Project Cost Estimates

Planning level project cost estimates were developed from various sources discussed below. The methodology used to develop project cost estimates follows FDOT's *Revenue Forecasting Guidebook, July 3, 2018* and *MPO Advisory Council's (MPOAC) Financial Guidelines for MPO 2045 Long Range Plans, July 13, 2017* to reflect all the project costs in Year of Expenditure (YOE).

3.11.1 Transit Capital and Operations & Maintenance Cost

The *Martin County's 2020-2029 Transit Development Plan, August 2019* and Martin MPO's *City of Stuart Tram Business Plan, Martin MPO, Spring 2019, and Martin County Transit Operations Center Feasibility Study, Martin MPO, April 2018* served as the foundation for deriving transit capital infrastructure and operating cost. These costs were adjusted from Present Day Cost (PCT) to Year of Expenditure (YOE) using FDOT's inflation factors included in the *Revenue Forecasting Guidebook, July 2018*.

3.11.2 Highway/Roadway (Non-SIS) Project Cost

Base construction cost for highway/roadway projects was derived from Martin MPO's *2040 LRTP, December 2015* and FDOT's generic cost per mile models. Base construction cost per mile were multiplied by the length of the project (in miles). In the next step, percentages were applied for mobilization (10%) and maintenance of traffic (MOT) (10%). To account for uncertainties and limitations in developing planning level cost estimates, the scope contingency/project unknown factor (20%) was added. Finally, the total construction cost estimates were developed to include design/preliminary engineering (15%) and construction engineering and inspection (CEI, 15% for state roads and 10% for county roads). These estimates developed in PDC were converted to YOE using FDOT's inflation factors corresponding to five-year increments, 2026-2030, 2031-2035, and 2036-2045.

It should be noted that project cost for the first five-year increment 2021-2025 were consistent with FDOT's Five-Year Tentative Work Program 2020-2025 and Martin MPO's FY 2020/21 – FY 2024/25. Further, project cost for SR-5/US-1 intersection modification were based on FDOT's *SR-5/US-1 at SW Joan Jefferson Way Planning Study, 2019* while cost estimate for CR-714/Martin Highway Realignment was obtained from *SR-710 PD&E Study from US 441 to SW Martin Highway in Okeechobee and Martin Counties*.

3.11.3 Strategic Intermodal System (SIS) Project Cost

Cost of SIS projects are consistent with the FDOT's *SIS 2029-2045 Cost Feasible Plan, July 2018* and *2045 Multimodal Unfunded Needs Plan, June 2017*. The FDOT develops these cost estimates in YOE dollars and therefore no adjustments are necessary.

3.11.4 Freight Project Cost

Majority of the freight projects overlap with SIS projects. From those project that do not overlap with the SIS facility improvements, cost was obtained from the FDOT's *Freight Mobility and Trade Plan, April 2020* as well as the *2040 Regional LRTP*. These costs were adjusted for inflation as appropriate.

3.11.5 Other Projects Cost

The cost for park and ride facilities are consistent with *Park-And-Ride Master Plan, FDOT, October 2018*, while cost for the two non-motorized grade separation projects are borrowed from the *FEC Railroad Grade Separation Feasibility Study, Martin MPO, August 2017*.

3.11.6 TSM&O/ITS Project Cost

Since corridor-specific improvements have not been identified at this time, project cost for TSM&O/ITS project cost were developed.

3.11.7 Complete Streets Project Cost

In the initial step, base construction cost for complete streets projects was derived using FDOT's generic cost per mile models. Then, cost of other project elements identified in the proposed cross section for a given facility were identified. Unit cost for these project elements were developed using a "top-down" approach, where unit costs are borrowed from standard industry sources. A composite unit cost was then derived, which include base construction cost plus project specific elements. This composite unit cost was multiplied by the length of the project (in miles) to calculate total cost. Similar to highway/roadway project cost estimates, factors were added to account for mobilization (10%) and maintenance of traffic (MOT, 10%), scope contingency/project unknown (20%), design/preliminary engineering (15%), and construction engineering and inspection (CEI, 15% for state roads and 10% for county roads). Finally, project cost in PDC were converted into YOE using FDOT's inflation factors corresponding to five-year increments, 2026-2030, 2031-2035, and 2036-2045.

3.11.8 Non-Motorized Projects Cost

The methodology used to develop cost for sidewalk improvements, bicycle corridors and greenways and trails is analogous to highway/roadway (non-SIS) cost estimation procedures. In addition, project cost for certain elements were borrowed from national and statewide sources. **Appendix-1** includes specific footnotes for such project elements.

3.11.9 Aviation Project Cost

Cost for aviation projects are from the *Martin County Airport and Witham Field's Capital Improvement Plan (CIP)*.

3.11.10 Resiliency Project Cost

The roadway segment on N Sewalls Point Road overlaps with two non-motorized projects. Cost estimates for the above listed resiliency projects were not developed due to lack of information of specific improvements at the time.

As shown in **Table 3-1**, the total cost of projects included in the 2045 Needs Plan is approximately \$1.038 billion in Present Day Cost (PDC) or \$1.797 billion Year of Expenditure (YOE). These projects would be implemented over a 20-year period from 2026 to 2045. The first five-year time span of the LRTP from 2021 to 2025 is consistent with the projects included in the Martin MPO's FY 2020/21 – FY 2024/25 Transportation Improvement Program (TIP) at approximately \$130.6 million (YOE).

Table 3-1: 2045 Needs Plan Project Cost Summary

Category	Present Day Cost (PDC)	Year of Expenditure (YOE)				25-Year Total	20-Year Total	YOE
		2021-2025 ¹	2026-2030	2031-2035	2036-2045			
Transit								
Transit Operating Cost*	\$152,490,775		\$36,761,913	\$44,832,288	\$118,332,841	\$199,927,043	\$199,927,043	-
Transit Capital Cost	\$17,113,534		\$18,089,276	\$4,057,466	\$29,929,951	\$52,076,694	\$52,076,694	-
Highway/Roadway (non Strategic Intermodal System (SIS))	\$385,079,416	\$47,082,871	\$57,182,483	\$96,082,119	\$440,163,831	\$640,511,304	\$593,428,433	-
Strategic Intermodal System (SIS)	-	\$9,110,000	\$41,422,087	\$174,494,000	\$13,337,000	\$238,363,087	\$229,253,087	\$2,056,145,000
Freight ³	-	\$4,917,683	\$41,422,087	\$174,494,000	\$13,337,000	\$234,170,770	\$229,253,087	\$146,810,000
Transportation System Management & Operations (TSM&O) ⁴	-	-	-	-	-	-	-	-
Other (Park-and-Ride, Non-Motorized Grade Separation)	\$19,247,696	\$0	\$16,916,770	\$0	\$11,085,703	\$28,002,473	\$28,002,473	-
Water Based Transportation								
Operating Cost*	\$9,750,000	\$0	\$0	\$4,777,500	\$12,610,000	\$17,387,500	\$17,387,500	-
Capital Cost	\$710,000	\$0	\$0	\$529,200	\$0	\$529,200	\$529,200	-
Complete Streets ⁵	\$46,433,783		\$27,292,804	\$14,528,710	\$8,400,509	\$50,222,023	\$50,222,023	-
Non-Motorized Projects ⁵	\$389,607,687	\$6,982,844	\$142,400,658	\$167,829,860	\$312,775,634	\$629,988,996	\$623,006,152	-
Sidewalks	\$10,289,028	\$2,443,147	\$1,927,773	\$3,033,445	\$12,965,488	\$20,369,853	\$17,926,706	-
Bicycle Corridors	\$50,948,813	\$1,484,697	\$18,925,957	\$22,748,337	\$38,878,286	\$82,037,277	\$80,552,580	-
Multi-Purpose Trails and Greenways	\$328,369,846	\$3,055,000	\$121,546,928	\$142,048,078	\$260,931,860	\$527,581,866	\$524,526,866	-
Aviation ⁶	\$17,620,000	\$0	\$3,962,500	\$0	\$0	\$3,962,500	\$3,962,500	-
Other Transportation Improvement Plan (TIP) Projects	-	\$67,375,663	-	-	-	-	-	-
Capacity Projects (non SIS)	-	\$12,312	-	-	-	-	-	-
Non-Capacity Projects	-	\$65,159,756	-	-	-	-	-	-
Planning (PL Funds)	-	\$2,203,595	-	-	-	-	-	-
Total Cost	\$1,038,052,891	\$130,551,378	\$344,028,492	\$507,131,143	\$946,635,470	\$1,860,970,820	\$1,797,795,105	
Strategic Intermodal System (SIS)	\$0	\$9,110,000	\$41,422,087	\$174,494,000	\$13,337,000	\$238,363,087	\$229,253,087	\$2,056,145,000
Transit Operating Cost*	\$152,490,775	\$0	\$36,761,913	\$44,832,288	\$118,332,841	\$199,927,043	\$199,927,043	-
Water Based Transportation (Operating Cost)*	\$9,750,000	\$0	\$0	\$4,777,500	\$12,610,000	\$17,387,500	\$17,387,500	-
Capital Project Cost (all modes)	\$875,812,116	\$121,441,378	\$265,844,492	\$283,027,355	\$802,355,629	\$1,405,293,191	\$1,351,227,476	-

Notes
 * Operating cost includes total cost for the entire 5-year or 10-year period in Year of Expenditure (YOE) dollars, while Present Day Cost (PDC) reflects 25-year total operating cost for transit and 20-year total operation cost for water based transportation.
¹ Time band includes funds "as programmed" in the FY 2021-2025 Transportation Improvement Program (TIP). Includes funds for transit, aviation, and Districtwide maintenance projects.
² Project costs include SIS 2045 Multimodal Unfunded Needs Plan (MMUNP), Florida Department of Transportation (FDOT), June 2017.
³ All freight project costs are included in the Strategic Intermodal System (SIS) category except \$157,683 Consolidated Rail Infrastructure and Safety Improvements (CRISI) Program grant in the 5-year increment, 2021-2025.
⁴ Project specific cost for specific Transportation System Management & Operations (TSM&O) improvements have not be developed at this stage.
⁵ Complete streets and non-motorized project cost are distributed over the planning period (Year 2026-2035) to maintain internal consistency in YOE dollars.
⁶ Florida Department of Transportation (FDOT) share is limited to 80% of the project cost.

Approximately 46% of the total 2045 Needs Plan cost is for roadway improvements while 54% of the funds are for park and ride, complete streets, non-motorized, water-based transportation, aviation, and transit projects (**Figure 3-11**).

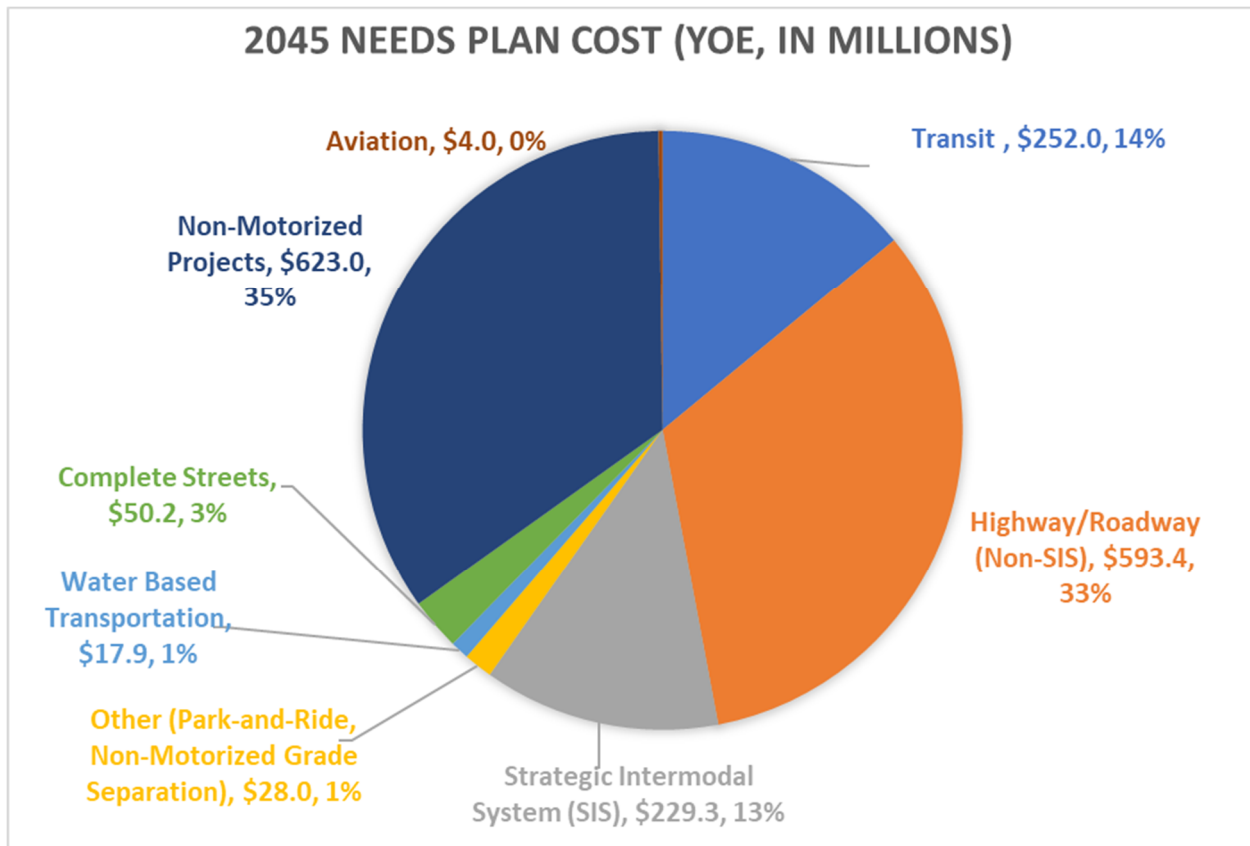


Figure 3-11: 2045 Needs Plan Project Cost Breakdown by Mode (YOE, in millions)

4. Next Steps

The project team will use information as key input in prioritizing projects and ultimately developing a cost feasible plan reflects the community's vision and meets the goals and objectives established for the 2045 LRTP at the outset of the planning process.

APPENDIX - 1: 2045 Needs Plan Projects List by Mode

Project Cost Summary, 2045 Needs Plan

Martin in Motion, 2045 LRTP

Category	Present Day Cost (PDC)	Year of Expenditure (YOE)				25-Year Total	20-Year Total	YOE
		2021-2025 ¹	2026-2030	2031-2035	2036-2045	2021-2045	2026-2045	Beyond 2045 ²
Transit								
Transit Operating Cost*	\$152,490,775		\$36,761,913	\$44,832,288	\$118,332,841	\$199,927,043	\$199,927,043	-
Transit Capital Cost	\$17,113,534		\$18,089,276	\$4,057,466	\$29,929,951	\$52,076,694	\$52,076,694	-
Highway/Roadway (non Strategic Intermodal System (SIS))	\$385,079,416	\$47,082,871	\$57,182,483	\$96,082,119	\$440,163,831	\$640,511,304	\$593,428,433	-
Strategic Intermodal System (SIS)	-	\$9,110,000	\$41,422,087	\$174,494,000	\$13,337,000	\$238,363,087	\$229,253,087	\$2,056,145,000
Freight ³	-	\$4,917,683	\$41,422,087	\$174,494,000	\$13,337,000	\$234,170,770	\$229,253,087	\$146,810,000
Transportation System Management & Operations (TSM&O) ⁴	-	-	-	-	-	-	-	-
Other (Park-and-Ride, Non-Motorized Grade Separation)	\$19,247,696	\$0	\$16,916,770	\$0	\$11,085,703	\$28,002,473	\$28,002,473	-
Water Based Transportation								
Operating Cost*	\$9,750,000	\$0	\$0	\$4,777,500	\$12,610,000	\$17,387,500	\$17,387,500	-
Capital Cost	\$710,000	\$0	\$0	\$529,200	\$0	\$529,200	\$529,200	-
Complete Streets ⁵	\$46,433,783		\$27,292,804	\$14,528,710	\$8,400,509	\$50,222,023	\$50,222,023	-
Non-Motorized Projects ⁵	\$389,607,687	\$6,982,844	\$142,400,658	\$167,829,860	\$312,775,634	\$629,988,996	\$623,006,152	-
Sidewalks	\$10,289,028	\$2,443,147	\$1,927,773	\$3,033,445	\$12,965,488	\$20,369,853	\$17,926,706	-
Bicycle Corridors	\$50,948,813	\$1,484,697	\$18,925,957	\$22,748,337	\$38,878,286	\$82,037,277	\$80,552,580	-
Multi-Purpose Trails and Greenways	\$328,369,846	\$3,055,000	\$121,546,928	\$142,048,078	\$260,931,860	\$527,581,866	\$524,526,866	-
Aviation ⁶	\$17,620,000	\$0	\$3,962,500	\$0	\$0	\$3,962,500	\$3,962,500	-
Other Transportation Improvement Plan (TIP) Projects	-	\$67,375,663	-	-	-	-	-	-
Capacity Projects (non SIS)	-	\$12,312	-	-	-	-	-	-
Non-Capacity Projects	-	\$65,159,756	-	-	-	-	-	-
Planning (PL Funds)	-	\$2,203,595	-	-	-	-	-	-
Total Cost	\$1,038,052,891	\$130,551,378	\$344,028,492	\$507,131,143	\$946,635,470	\$1,860,970,820	\$1,797,795,105	
Strategic Intermodal System (SIS)	\$0	\$9,110,000	\$41,422,087	\$174,494,000	\$13,337,000	\$238,363,087	\$229,253,087	\$2,056,145,000
Transit Operating Cost*	\$152,490,775	\$0	\$36,761,913	\$44,832,288	\$118,332,841	\$199,927,043	\$199,927,043	-
Water Based Transportation (Operating Cost)*	\$9,750,000	\$0	\$0	\$4,777,500	\$12,610,000	\$17,387,500	\$17,387,500	-
Capital Project Cost (all modes)	\$875,812,116	\$121,441,378	\$265,844,492	\$283,027,355	\$802,355,629	\$1,405,293,191	\$1,351,227,476	-

Notes

* Operating cost includes total cost for the entire 5-year or 10-year period in Year of Expenditure (YOE) dollars, while Present Day Cost (PDC) reflects 25-year total operating cost for transit and 20-year total operation cost for water based transportation.

¹ Time band includes funds "as programmed" in the FY 2021-2025 Transportation Improvement Program (TIP). Includes funds for transit, aviation, and Districtwide maintenance projects.

² Project costs include SIS 2045 Multimodal Unfunded Needs Plan (MMUNP), Florida Department of Transportation (FDOT), June 2017.

³ All freight project costs are included in the Strategic Intermodal System (SIS) category except \$157,683 Consolidated Rail Infrastructure and Safety Improvements (CRISI) Program grant in the 5-year increment, 2021-2025.

⁴ Project specific cost for specific Transportation System Management & Operations (TSM&O) improvements have not been developed at this stage.

⁵ Complete streets and non-motorized project cost are distributed over the planning period (Year 2026-2035) to maintain internal consistency in YOE dollars.

Transit Projects
Martin in Motion, 2045 LRTP

Map ID	Project Description	Location/Geography	Source	Category or Type	Total Cost ² (PDC)	Comments	Total Cost (YOE**)			
							2021-2025	2026-2030	2031-2035	2036-2045
Service Improvements							1.08	1.25	1.47	1.94
n/a	Continue to maintain and operate existing fixed route bus service ¹	Systemwide	TDP 2020-2029	Annual Operating Cost	\$2,032,923	Cost affordable plan.		\$12,705,769	\$14,941,984	\$39,438,706
n/a	Continue to maintain existing paratransit service	Systemwide	TDP 2020-2029	Annual Operating Cost	\$418,458	Cost affordable plan.		\$2,615,363	\$3,075,666	\$8,118,085
T-1	Extend Route 2	Add a stop at Halpatokee Park during peak commute hours, transfer opportunities to Routes 1 and 3. Closed door service during non-peak hours.	TDP 2020-2029	Service Modification - Restructure Route.	\$1,600,918	Unfunded transit needs. Complementary ADA service is not required since the proposed modification is a commuter service.	\$8,644,957	\$11,766,747	\$31,057,809	
T-2	Split Route 3 into Routes 3a and 3b	Same service coverage area but provides new service along Monterey Road between Willoughby Boulevard and US-1/Federal Highway. Maintain existing headways and transfer opportunities to Route 1 and to each other.	TDP 2020-2029	Service Modification - Restructure Route.		Unfunded transit needs.				
T-3	Extend Route 20X	Extend service to Halpatokee Park to the north and to Mangonia Tri-Rail Station in Palm Beach County to the south during peak commute hours only.	TDP 2020-2029	Service Modification - Restructure Route.		Unfunded transit needs. Complementary ADA service is not required since the proposed modification is a commuter service.				
T-4	Add later service for Routes 1, 2 and 3	Increase span of service by approximately 2 hours from 8:00 pm to 10:00pm. Current span of service is approximately 6:00 am to 8:00 pm, weekday service only.	TDP 2020-2029	Service Modification - Increase Span of Service		Unfunded transit needs. Identified as a high priority improvement through TDP's public outreach process. Complementary ADA service needs to be provided.				
T-5	Add Saturday service for Routes 1, 2 and 3	Provide Saturday service from 6:00 am to 8:00 pm on Routes 1, 2 and 3.	TDP 2020-2029	Service Modification - Add Saturday Service.		Unfunded transit needs. Identified as a high priority improvement through TDP's public outreach process. Complementary ADA service needs to be provided.				
T-6	Double frequencies for Routes 2 and 3	Reduce headway on Route 2 from 40 minutes (Indiantown loop) and 95 minutes (Closed door eastbound service to Stuart) to 20 minutes and 48 minutes respectively. Reduce headway on Route 3 from 40 to 20 minutes.	TDP 2020-2029	Service Modification - Reduce Headway.		Unfunded transit needs. Identified as a high priority improvement through TDP's public outreach process.				
T-7	New Jensen Beach Route	From Treasure Coast Square to Jensen Beach Park (serving Hoke Library, Jensen Beach Park, Hutchinson Island and Kiwanis Park-and-Ride).	TDP 2020-2029	New Service Expansion		Unfunded transit needs. Complementary ADA service needs to be provided.				
T-8	New regional Turnpike commuter route to West Palm Beach Downtown Intermodal Transit Center	From US-1/Federal Highway and Kanner Highway to Intermodal Transit Center (serving FDOT Park-and-Ride at SW Martin Highway, West Palm Beach Virgin Trains USA/Brightline station, City Place and Palm Tran's Intermodal Transit Center). Peak hour service only with two morning and two evening trips.	TDP 2020-2029	New Service Expansion	\$544,167	Unfunded transit needs.	\$3,401,044	\$3,999,627	\$10,556,840	
T-9	Palm City Mobility on Demand (MOD) Service	On demand service in Palm City.	TDP 2020-2029	New Service Expansion		Unfunded transit needs. Limitations exist to implement a dynamic real time MOD service using TripSpark, the County's existing route scheduling software.				
T-10	Jensen Beach/Rio CRA MOD	On demand service within Jensen Beach and Rio CRA as well as connecting to Marty routes.	TDP 2020-2029	New Service Expansion		If fixed route service is not implemented. Unfunded transit needs. Limitations exist to implement a dynamic real time MOD service using TripSpark, the County's existing route scheduling software.				
n/a	New Service - Deviated Fixed Route	Complementary service to New Jensen Beach Route	TDP 2020-2029	New Service Expansion - ADA	\$224,069	Unfunded transit needs.	\$1,400,431	\$1,646,907	\$4,346,939	
n/a	New Service - ADA	Within 3/4 mile of proposed new transit routes to meet ADA requirements.	TDP 2020-2029	New Service Expansion - ADA	\$858,184	Unfunded transit needs.	\$5,363,650	\$6,307,652	\$16,648,770	
T-11	Downtown Stuart Tram: Maintain Existing Service Level	Micro transit service (two routes) within downtown Stuart with 10- to 15-minute headway	City of Stuart Tram Business Plan, 2019	Annual Operating Cost	\$185,456		\$1,159,100	\$1,363,102	\$3,597,846	
T-12	Downtown Stuart Tram: Expand Service Level (Two Routes)	Micro transit service (two routes) within downtown Stuart with less than 10- to 15- minute headway	City of Stuart Tram Business Plan, 2019	Service Modification - Reduce Headway.	\$235,456	Expanded service to begin in 2023	\$1,471,600	\$1,730,602	\$4,567,846	
T-13	Downtown Stuart Tram: Expand Service Level (Three Routes)	Micro transit service (three routes) within downtown Stuart with 10- to 15-minute headway	City of Stuart Tram Business Plan, 2019	New Service Expansion or Reduced Headway	\$235,456	Expanded service to begin in 2023	\$1,471,600	\$1,730,602	\$4,567,846	
Capital/Infrastructure Improvements										
n/a	Fleet Replacement	Revenue vehicles to maintain existing service based on Marty's fleet replacement schedule	TDP 2020-2029	Revenue Vehicles	\$4,805,120	Cost affordable plan. Capital needs over a 10-year period.	\$2,594,765	\$3,003,200	\$3,531,763	\$9,321,933
n/a	Transit Security Equipment	n/a	TDP 2020-2029	Equipment	\$102,970	Cost affordable plan. Capital needs over a 10-year period.	\$55,604	\$64,356	\$75,683	\$199,762
n/a	Transit Technology	n/a	TDP 2020-2029	Equipment	\$84,356	Cost affordable plan.	\$91,104	\$105,445		
n/a	Other Transit/Bus Stop Infrastructure	New bus stops, safety/ADA improvements, benches, shelters, lighting, bicycle storage	TDP 2020-2029	Facility Improvements	\$306,136	Cost affordable plan. Unfunded needs for this line item includes \$167,970 over a 10-year period.	\$330,627	\$382,670	\$450,020	\$593,904
n/a	Buses for New or Expanded Transit Service	12 fixed route vehicles and 2 ADA vehicles	TDP 2020-2029	Revenue Vehicles - New Service	\$3,363,584	Unfunded transit needs.	\$4,204,480			\$6,525,353
n/a	Transit Operations & Maintenance Facility	A centralized full-service transit operations facility/customer service center.	TDP 2020-2029; Martin County Transit Operations Center Feasibility Study, 2018	New Facility	\$6,850,000	Unfunded transit needs.	\$8,562,500			\$13,289,000

Map ID	Project Description	Location/Geography	Source	Category or Type	Total Cost ² (PDC)	Comments	Total Cost (YOE ^{**})			
							2021-2025	2026-2030	2031-2035	2036-2045
n/a	Intermodal Hub ³	Adjacent to future planned Virgin Trains USA/Brightline station	TDP 2020-2029	New Facility	-not available-	Unfunded transit needs.	-not available-	-not available-	-not available-	-not available-
n/a	Downtown Stuart Tram New Shelters	Two new shelters at \$21,000 per shelter	City of Stuart Tram Business Plan, 2019	New Facility	\$42,000	New shelters to be built in Year 2021, Year 2023 and 2025 and cost to be escalated based on 2% annual inflation		\$52,500		
n/a	Virgin Trains USA/Brightline Station	Intercity passenger rail station. Potential locations include East Coast Lumber, Kiwanis Park and Stypmann Boulevard.	City of Stuart Brightline Station Analysis, 2018	New Facility		Privately funded.	Private Sector Funded Project			
n/a	Connection to Palm Beach Tri-Rail Intermodal Center	New park-and-ride facility to provide connection to Palm Beach Tri-Rail Intermodal Center	Park-And-Ride Master Plan, FDOT - D4, Oct. 2018, pg. 10	New Facility	\$1,171,300	Assumes 50 spaces @ \$17,000/space as base construction cost. Total construction cost includes mobilization, MOT and design costs.		\$1,464,125		
Other										
n/a	Transit Plans and Studies	Transit Development Plan and other transit related studies	TDP 2020-2029	Study	\$388,068	For future TDPs and other transit planning studies	\$203,113	\$250,000		
					\$152,490,775	Transit Operating Cost (25-year total)	\$0	\$36,761,913	\$44,832,288	\$118,332,841
					\$17,113,534	Transit Capital Cost	\$3,275,213	\$18,089,276	\$4,057,466	\$29,929,951

Notes

¹ Fixed bus route bus service includes commuter bus routes for a total of five existing Marty routes (1, 2, 3, 20X and 30X)

² Includes annual operating cost for Year 2020 for various service improvements. Capital expense is in Present Day Cost (PDC).

³ Project cost not available at this stage. Project cost could vary significantly based on development program for the facility.

** YOE - Year of Expenditure

n/a - Not Applicable

Roadway Projects
Martin in Motion, 2045 LRTP

Map ID	Facility	From	To	Project Description	Existing Lanes	Future Lanes	Length (miles)	Source	Category or Type	Base Construction Cost (PDC*)	Construction	MOT (10%)	Mobilization (10%)	Sub Total	Scope Contingency/Project Unknowns (10%)	ROW Cost	Total Construction Cost	PE Design (15%)	CEI (15%)	CEI (10%)	Total Project Cost (PDC*)	Total Cost (YOE**)									
																						2021-2025	2026-2030	2031-2035	2036-2045						
Under Construction/On-going																						10%	10%	10%	15%	15%	10%	1.08	1.25	1.47	1.94
R-1	SR-714/Martin Highway ¹	CR-76A/Citrus Boulevard	Martin Downs Boulevard	Highway Capacity	2	4	1.13	Martin MPO Congestion Management Process (CMP) Update (Segment ID 11-12). Included in TIP FY 2020/21 - 2024/25; FM# 4368701														\$36,417,871	36,417,871								
New 2 Lane Road																															
4196693	Willoughby Boulevard ¹	SR-714/ Monterey Road	SR-5/US-1/Federal Highway	PD&E Study	-	-	0.84	Martin MPO 2040 LRTP, Dec. 2015	PD&E Study													\$5,085,000	5,085,000								
R-2	Willoughby Boulevard	SR-714/ Monterey Road	SR-5/US-1/Federal Highway	New 2 Lane Road	0	2	0.84	Martin MPO 2040 LRTP, Dec. 2015	Urban-Roadway New Construction: 2-Lane Undivided Roadway with 6' Sidewalk, 4' Bike Lane and Curb & Gutter	\$7,156,982	\$6,011,865		\$601,188	\$6,613,051	\$661,305		\$7,274,356	\$1,091,153			\$727,436	\$9,092,945					13,366,629				
New 4 Lane Road																															
R-3	Village Parkway Extension	SR-714/Martin Highway	St. Lucie County Line	New 4 Lane Road	0	4	3.00	Martin MPO 2040 LRTP, Dec. 2015; Comprehensive Plan (Developer Funded)	Rural - Roadway New Construction: 4-Lane Roadway with 5' Bike Lane, with 5' Sidewalks	\$8,433,387	\$25,300,161		\$2,530,016	\$27,830,177			\$27,830,177	\$4,174,527			\$2,783,018	\$34,787,722						67,488,180			
Widen from 2 to 4 Lane																															
4417001	Cove Road ¹	SR-76/Kanner Highway	SR-5/US-1/Federal Highway	PD&E Study	2	4	4.32	FDOT Work Program FY 2019/20 FY 2023/24	PD&E Study													\$3,075,000	3,075,000								
R-4	Cove Road	SR-76/Kanner Highway	Willoughby Boulevard	Widen from 2L to 4L	2	4	2.13	Martin MPO 2040 LRTP, Dec. 2015	Urban - Roadway Widening: 2-Lane Roadway to 4 Lanes (45mph Design Speed) with 5' Sidewalk, 5' Bike Lane, and Curb & Gutter	\$6,767,300	\$14,414,349	\$1,441,435	\$1,441,435	\$17,297,219		\$1,845,432	\$19,142,651	\$2,871,398			\$1,914,265	\$23,928,313					\$35,174,620				
R-5	Cove Road	Willoughby Boulevard	SR-5/US-1/Federal Highway	Widen from 2L to 4L	2	4	1.07	Martin MPO 2040 LRTP, Dec. 2015	Urban - Roadway Widening: 2-Lane Roadway to 4 Lanes (45mph Design Speed) with 5' Sidewalk, 5' Bike Lane, and Curb & Gutter	\$6,767,300	\$7,241,011	\$724,101	\$724,101	\$8,689,213		\$927,048	\$9,616,261	\$1,442,439			\$961,626	\$12,020,326					\$15,025,408				
R-6	Cove Road	SR-5/US-1/Federal Highway	CR-A1A	Widen from 2L to 4L	2	4	1.12	Martin MPO 2040 LRTP, Dec. 2015	Urban - Roadway Widening: 2-Lane Roadway to 4 Lanes (45mph Design Speed) with 5' Sidewalk, 5' Bike Lane, and Curb & Gutter	\$6,767,300	\$7,579,376	\$757,938	\$757,938	\$9,095,251		\$971,391	\$10,066,642	\$1,509,996			\$1,006,664	\$12,583,302					\$15,729,128				
4416991	CR-713/High Meadow Avenue ¹	I-95	CR-714/Martin Highway	PD&E Study	-	-	2.64	FDOT Work Program FY 2019/20 FY 2023/24	PD&E Study													\$2,505,000	2,505,000								
R-7	CR-713/High Meadow Avenue	I-95	CR-714/Martin Highway	Widen from 2L to 4L	2	4	2.64	Martin MPO 2040 LRTP, Dec. 2015	Urban - Roadway Widening: 2-Lane Roadway to 4 Lanes (45mph Design Speed) with 5' Sidewalk, 5' Bike Lane, and Curb & Gutter	\$6,767,300	\$17,865,672	\$1,786,567	\$1,786,567	\$21,438,066		\$2,143,881	\$25,872,582	\$3,880,887			\$2,587,258	\$32,340,727					\$47,540,869				
R-9	S Ocean Dr	North County Line	NE Causeway Blvd	Widen from 2L to 4L	2	4	1.40	Needs Assessment, TCRPM 5.0	Urban - Roadway Widening: Add 2-Lanes to Existing 2 Lane Undivided Roadway (40mph Design Speed) with 5' Sidewalk, 4' Bike Lane, and Curb & Gutter	\$4,920,784	\$6,889,097	\$688,910	\$688,910	\$8,266,917		\$826,692	\$9,093,608	\$1,364,041			\$909,361	\$11,367,011					\$22,052,001				
R-10	SE Bridge Rd	Powerline Ave	US-1/Federal Highway	Widen from 2L to 4L	2	4	2.00	Needs Assessment, TCRPM 5.0	Urban - Roadway Widening: Add 2-Lanes to Existing 2 Lane Undivided Roadway (35mph Design Speed) with 5' Sidewalk, 4' Bike Lane, and Curb & Gutter	\$4,920,784	\$9,841,568	\$984,157	\$984,157	\$11,809,881		\$1,180,988	\$12,990,869	\$1,948,630			\$1,299,087	\$16,238,587					\$31,502,858				
R-11	SE Green River Pkwy ²	NW Wright Blvd	NW Dixie Hwy	Widen from 2L to 4L	2	4	0.37	Needs Assessment, TCRPM 5.0	Urban - Roadway Widening: Add 2-Lanes to Existing 2 Lane Undivided Roadway (35mph Design Speed) with 5' Sidewalk, 4' Bike Lane, and Curb & Gutter	\$4,920,784	\$1,820,690	\$182,069	\$182,069	\$2,184,828		\$218,483	\$3,364,635	\$504,695			\$336,463	\$4,205,794					\$8,159,239				
R-14	SW Murphy Rd ²	Whisper Bay Terrace	North County Line	Widen from 2L to 4L	2	4	0.35	Needs Assessment, TCRPM 5.0	Urban - Roadway Widening: Add 2-Lanes to Existing 2 Lane Undivided Roadway (35mph Design Speed) with 5' Sidewalk, 4' Bike Lane, and Curb & Gutter	\$4,920,784	\$1,722,274	\$172,227	\$172,227	\$2,066,729		\$206,673	\$3,182,763	\$477,414			\$318,276	\$3,978,454					\$7,718,201				
Widen from 4 to 6 Lane																															
R-8	Federal Highway/US 1	SE Seabranh Blvd	SE Osprey St	Widen from 4L to 6L	4	6	1.72	Needs Assessment, TCRPM 5.0	Urban - Roadway Widening: Add 2-Lanes to Existing 4 Lane Divided Roadway (55mph Design Speed) with 5' Sidewalk, 4' Bike Lane	\$5,063,222	\$8,708,742	\$870,874	\$870,874	\$10,450,490		\$1,045,049	\$11,495,539	\$1,724,331			\$1,724,331	\$13,219,870					\$16,524,838				
R-12	Martin Highway ³	SW Mapp Rd	Kanner Hwy	Widen from 4L to 6L	4	6	1.42	Needs Assessment, TCRPM 5.0	Urban - Roadway Widening: Add 2-Lanes to Existing 4 Lane Divided Roadway (45mph Design Speed) with 5' Sidewalk, 4' Bike Lane; Bridge Restriping	\$65,408,752	\$6,540,875	\$6,540,875	\$6,540,875	\$78,490,502		\$7,849,050	\$86,339,552	\$12,950,933			\$12,950,933	\$99,290,485					\$192,623,541				
R-13	SW Martin Downs Blvd ⁴	SW Matheson Ave	SW Palm City Rd	Widen from 4L to 6L	4	6	1.33	Needs Assessment, TCRPM 5.0	Urban - Roadway Widening: Add 2-Lanes to Existing 4 Lane Divided Roadway (35mph Design Speed) with 5' Sidewalk, 4' Bike Lane; Bridge Replacement	\$37,562,926	\$3,756,293	\$3,756,293	\$3,756,293	\$45,075,511		\$4,507,551	\$49,583,062	\$7,437,459			\$7,437,459	\$57,020,521					\$110,619,812				
Safety Projects																															
R-15	SR-5/US-1 ⁵	at SW Joan Jefferson Way		Intersection Modification	-	-	-	Included in TIP FY 2020/21 - 2024/25; FM# 4383452, SR-5/US-1 at Joan Jefferson Way Planning Study, 2019, FDOT, District Four.	Safety		\$2,229,644						\$2,229,644	\$445,929		\$856,139	\$3,531,712	\$353,171		\$353,171	\$4,238,054		\$5,297,568				
R-16	CR-714/Martin Highway ⁶	Approximately 1200 feet east of SR-710	SE126th Blvd. (Okeechobee County)	Roadway Realignment	-	-	-	SR-710 PD&E Study from US 441 to SW Martin Highway in Okeechobee and Martin Counties, 2010, FDOT District One	Safety		\$2,855,250						\$2,855,250	\$494,235			\$3,349,485	\$334,949		\$502,423	\$3,684,434		\$4,605,542				
Notes																					Total Highway/Roadway Cost	\$385,079,416	47,082,871	57,182,483	96,082,119	440,163,831					

* PDC - Present Day Cost
 ** YOY - Year of Expenditure
 Base construction cost is unit cost derived from Martin MPO's 2040 LRTP and Florida Department of Transportation's cost per mile models (long range estimate). Project costs have been adjusted to PDC (in 2020 dollars) using inflation factors included in 2040 Revenue Forecasting Handbook.
¹ Project cost "as programmed", FDOT's Five-Year Tentative Work Program 2020-2025.
² Right of way (ROW) cost calculated as 40% of total construction cost, Project Steering Committee Meeting, March 4, 2020.
³ Project cost includes new bridge (Concrete Deck/ Pre-stressed Girder - Simple Span) at approximately \$62 million (PDC). Unit cost for bridge demolition and construction is based on FDOT's Structures Design Guideline, Structures Manual Volume 1 (Chapter 9), January 2020.
⁴ Project cost includes new bridge (Concrete Deck/ Pre-stressed Girder - Simple Span) at approximately \$32.5 million (PDC). Unit cost for bridge demolition and construction is based on FDOT's Structures Design Guideline, Structures Manual Volume 1 (Chapter 9), January 2020.
⁵ Project cost based on SR-5/US-1 at SW Joan Jefferson Way Planning Study, 2019, FDOT District Four and adjusted for inflation. Percentages for contingency, design and CEI are consistent with the Planning Study.
⁶ Project cost based on SR-710 PD&E Study from US 441 to SW Martin Highway in Okeechobee and Martin Counties. Percentages for contingency, design and CEI are consistent with the PD&E Study.

Strategic Intermodal System (SIS) Projects

Martin in Motion, 2045 LRTP

Map ID	Facility	From	To	Project Description	Source	Category or Type	Design			Right of Way / Construction			Total Project Cost (YOE**)	Total Cost (YOE**)					
							PDE	PE	Total	ROW	CON	Total		2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	
4132532	I-95*	Martin/Palm Beach County Line	CR-708/Bridge Road	Project Dev. & Env.	SIS CFP 2020-2024	PDE	\$2,200,000		\$2,200,000			\$0	\$2,200,000	\$2,200,000					
4132542	I-95*	CR-708/Bridge Road	High Meadow Avenue	Project Dev. & Env.	SIS CFP 2020-2024	PDE	\$2,150,000		\$2,150,000			\$0	\$2,150,000	\$2,150,000					
4226815	I-95*	High Meadow Avenue	Martin/St. Lucie County Line	Project Dev. & Env.	SIS CFP 2020-2024	PDE	\$2,750,000		\$2,750,000			\$0	\$2,750,000	\$2,750,000					
4192522	SR-710/Warfield Blvd.*	Martin FPL Power Plant	CR-609/SW Allapattah Road	Add 2 to Build 4 Lane Divided Roadway	SIS CFP 2020-2024	PE, ROW & CON			\$409,000		\$41,422,087	\$41,422,087	\$41,831,087		\$41,422,087				
3403	I-95*	Martin/Palm Beach County Line	Becker Road	Highway Capacity	SIS CFP 2029-2045	PE, ROW & CON		\$10,000,000	\$10,000,000	\$154,494,000	\$164,494,000	\$174,494,000			\$174,494,000				
3405	SR-710*	Martin/Okeechobee County Line	Martin Powerplant Road	Add 2 to Build 4 Lanes	SIS CFP 2029-2045	PE, ROW & CON		\$6,000,000	\$6,000,000	\$5,125,000	\$120,719,000	\$125,844,000	\$131,844,000				\$11,125,000	\$120,719,000	
3417	SR-714/Monterey Road*	at Florida East Coast Railway		Grade Separation	SIS CFP 2029-2045	PDE, PE, ROW & CON; safety project	\$2,010,000	\$2,212,000	\$4,222,000	\$14,969,000	\$46,597,000	\$61,566,000	\$65,788,000	\$2,010,000			\$2,212,000	\$61,566,000	
Total SIS Project Cost												\$421,057,087	\$9,110,000	\$41,422,087	\$174,494,000	\$13,337,000	\$182,285,000		

Notes

* Projects included in the Florida Mobility and Trade Plan (FMTP), April 2020

** YOE - Year of Expenditure

Project included in Transportation Improvement Program (TIP), Project cost based on Adopted Work Program FY 2019/2020 through FY 2023/2024 (as of July 1, 2019)

SIS 2029-2045 CFP adopted in July 2018

SIS 2045 MULTI MODAL UNFUNDED NEEDS

Map ID	Facility	From	To	Project Description	Source	Category or Type	Project Cost
379	Turnpike Mainline/SR 91	SR-710 (MP 107)	Kissimmee-St. Cloud South (MP 242)	Add 2 Lanes to Build 6 Lanes	SIS 2045 Multimodal Unfunded Needs Plan, Turnpike	Highway Improvements (Long Term)	\$290,295,000
693	Turnpike Mainline/SR 91	Jupiter/Indiantown Road	SR-714/Stuart	Managed Lanes	SIS 2045 Multimodal Unfunded Needs Plan, Turnpike	Highway Improvements (Short Term)	\$455,700,000
2798	SR-710*	Martin Powerplant Road	SR 76 Connector Ramps	Bypass (New Facility)	SIS 2045 Multimodal Unfunded Needs Plan	Highway Improvements (Long Term)	\$33,263,000
2817	I-95*	High Meadow Avenue	Becker Road	Modify Interchange	SIS 2045 Multimodal Unfunded Needs Plan	Highway Improvements (Long Term)	\$113,547,000
2247	Amtrak Service	Miami	Jacksonville	Passenger Service	SIS 2045 Multimodal Unfunded Needs Plan, Statewide Rail Improvements	Transit Improvements (Short Term)	\$45,000,000
2259	SR-710 Exclusive Guideway	Indiantown	Mangonia Park Tri-Rail Station	Passenger Service	SIS 2045 Multimodal Unfunded Needs Plan	Transit Improvements (Mid Term)	\$386,460,000
2261	US 1 Exclusive Guideway	West Palm Beach Transit	Ft. Pierce	Passenger Service (Potential SIS Facility)	SIS 2045 Multimodal Unfunded Needs Plan	Transit Improvements (Mid Term)	\$720,480,000
2701	SR-710 Exclusive Guideway Transit Hub	at Indiantown		Passenger Terminal (Potential SIS Facility)	SIS 2045 Multimodal Unfunded Needs Plan	Transit Improvements (Mid Term)	\$11,400,000
Total SIS Project Cost							\$2,056,145,000

Notes

* Projects included in the Florida Mobility and Trade Plan (FMTP), April 2020, FDOT

SIS 2045 MMUNP adopted in June 2017, FDOT

Freight Projects
Martin in Motion, 2045 LRTP

Map ID	Facility	From	To	Project Description	Source	Category or Type	Comments	Total Project Cost (YOE**)	Total Cost (YOE**)					
									2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	
4192522	SR-710/Warfield Blvd.*	Martin FPL Power Plant	CR-609/SW Allapattah Road	Add 2 to Build 4 Lane Divided Roadway	SIS CFP 2020-2024; Freight Mobility and Trade Plan (FMTP), April 2020; SIS CFP 2025-2029	PE, ROW & CON		\$41,831,087		\$41,422,087				
4226815	I-95*	High Meadows Avenue	Martin/St. Lucie County Line	Project Dev. & Env.	SIS CFP 2020-2024; Freight Mobility and Trade Plan (FMTP), April 2020; SIS CFP 2025-2029	PDE		\$2,750,000	\$2,750,000					
3403	I-95*	Martin/Palm Beach County Line	Becker Road	Highway Capacity	Freight Mobility and Trade Plan (FMTP), April 2020; SIS CFP 2029- 2045	PE, ROW & CON		\$174,494,000			\$174,494,000			
3405	SR-710*	Martin/Okeechobee County Line	Martin Powerplant Road	Add 2 to Build 4 Lanes	Freight Mobility and Trade Plan (FMTP), April 2020; SIS CFP 2029- 2045	PE, ROW & CON		\$131,844,000				\$11,125,000	\$120,719,000	
3417	SR-714/Monterey Road*	at Florida East Coast Railway		Grade Separation	Freight Mobility and Trade Plan (FMTP), April 2020; SIS CFP 2029- 2045	PDE, PE, ROW & CON		\$65,788,000	\$2,010,000			\$2,212,000	\$61,566,000	
F-1	I-95***	S of Bridge Road	S of High Meadow Avenue	Widen 6 to 8 Lanes	2040 Regional LRTP	Highway Improvements								
n/a	Strategies for Reducing Railroad Trespassing (SRRT) Pilot Project	Florida East Coast (FEC) Railway Corridor		Enhanced Safety Improvements per Brightline/ Virgin USA Trains and Martin County Agreement	Freight Mobility and Trade Plan (FMTP), April 2020	Safety								
				Dynamic Envelop project (Additional Striping) at all Railroad Crossings on State Roads in Martin County		Safety	CRISI Grant	\$157,683	\$157,683					
Notes								Total Freight Projects Cost	\$416,864,770	\$4,917,683	\$41,422,087	\$174,494,000	\$13,337,000	\$182,285,000

* Projects included in the Florida Mobility and Trade Plan (FMTP), April 2020
 ** YOE - Year of Expenditure
 ***Project segment is included in FM#s 4132542 and 3403, SIS Cost Feasible Plan, July 2019.
 Project included in Transportation Improvement Program (TIP)

UNFUNDED FREIGHT NEEDS

Map ID	Facility	From	To	Project Description	Source	Category or Type	Comments	Project Cost	
2798	SR-710*	Martin Powerplant Road	SR 76 Connector Ramps	Bypass (New Facility)	Freight Mobility and Trade Plan (FMTP), April 2020; SIS 2045 Multimodal Unfunded Needs Plan	Highway Improvements (Long Term)		\$33,263,000	
2817	I-95*	High Meadow Avenue	Becker Road	Modify Interchange	Freight Mobility and Trade Plan (FMTP), April 2020; SIS 2045 Multimodal Unfunded Needs Plan	Highway		\$113,547,000	
F-2	US-1/Federal Highway ¹	Cove Road	St. Lucie County Line	Corridor Retrofit	2040 Regional LRTP		Discussions for study with St. Lucie TPO and Indian River County MPO in progress. Strategies improvements - TSM&O and emerging technologies being considered.	-Not Available-	
n/a	Connected Freight Priority System Deployment			To Be Determined (Automated/Connected Vehicle)	Freight Mobility and Trade Plan (FMTP), April 2020	ITS	At this time, this project is very preliminary and does not include any facilities in Martin County Project included in prioritized project list.	-	
Notes								Total Freight Projects Cost	\$146,810,000

* Projects included in the Florida Mobility and Trade Plan (FMTP), April 2020
 Projects from Martin MPO's Good and Freight Movement Study to be added in Spring 2020.
¹ Project cost are not available at this time. This project is a subset of *US 1 Exclusive Guideway* (SIS 2045 Multimodal Unfunded Needs Plan) which focuses on passenger service.

Transportation System Management & Operations (TSM&O) Projects
Martin in Motion, 2045 LRTP

Map ID	Facility	From	To	Length (miles)	Project Description	Source	Comments
E	Kanner Highway	SW 96th Street	SE Salerno Road	3.08	To Be Determined	TSM&O Master Plan, FDOT - D4, March 2019, pg. 40	Includes CMP Update (Segment ID 7, 8, 9 and 10)
F	SR-714/SE Monterey Road	Federal Highway	SE Ocean Boulevard	1.85	To Be Determined	TSM&O Master Plan, FDOT - D4, March 2019, pg. 40	Includes CMP Update (Segment ID 15 and 16)
za	SE Salerno Road	SE Ault Road	Federal Highway	1.50	To Be Determined	TSM&O Master Plan, FDOT - D4, March 2019, pg. 41	TCRRPM 5.0, v/c ratio of 1.07
zb	SW Mapp Road	SW 36th Street	SW Martin Downs Boulevard	0.57	To Be Determined	TSM&O Master Plan, FDOT - D4, March 2019, pg. 41	
zc	SE Dixie Highway	SE Salerno Road	SE Jefferson Street	1.60	To Be Determined	TSM&O Master Plan, FDOT - D4, March 2019, pg. 41	
zd	SW Martin Highway	SW High Meadow Avenue	SW Armellini Avenue	0.37	To Be Determined	TSM&O Master Plan, FDOT - D4, March 2019, pg. 41	
ze	SE Indian Street	Federal Highway	SE Dixie Highway	0.36	To Be Determined	TSM&O Master Plan, FDOT - D4, March 2019, pg. 41	County Rank 18 and 20
zf	SW Martin Highway	SW Berry Avenue	SW Mapp Road	1.22	To Be Determined	TSM&O Master Plan, FDOT - D4, March 2019, pg. 41	
zg	SE Cove Road	Kanner Highway	SE Dixie Highway	4.34	To Be Determined	TSM&O Master Plan, FDOT - D4, March 2019, pg. 41	TCRRPM 5.0, v/c ratio of 1.05
zi	SW Murphy Road	SW High Meadow Avenue	County Line	1.57	To Be Determined	TSM&O Master Plan, FDOT - D4, March 2019, pg. 41	Corresponds to CMP Update (Segment ID 33 and 34)
n/a	SR-714/Martin Highway	at I-95	-	-	Advanced Digital Message Sign (ADMS) in Eastbound and Westbound Direction	I-95 Multimodal Treasure Coast Master Plan	
n/a	Martin County Rest Area (Southbound)	at I-95	-	-	Dynamic Truck Parking, Touch-Screen Informational Kiosk	I-95 Multimodal Treasure Coast Master Plan	
n/a	Martin County Rest Area (Northbound)	at I-95	-	-	Dynamic Truck Parking, Touch-Screen Informational Kiosk	I-95 Multimodal Treasure Coast Master Plan	
n/a	High Meadow Avenue	at I-95	-	-	Advanced Digital Message Sign (ADMS) in Southbound Direction	I-95 Multimodal Treasure Coast Master Plan	
n/a	SR-76/Kannery Highway	at I-95	-	-	Advanced Digital Message Sign (ADMS) in Eastbound and Westbound Direction, CCTV under Bridge, Signal Priority, ADMS at Proposed Park-and-Ride	I-95 Multimodal Treasure Coast Master Plan	Corresponds to CMP Update (Segment ID 7, 8, 9 and 10)
n/a	Bridge Road	at I-95	-	-	Advanced Digital Message Sign (ADMS) in Eastbound and Westbound Direction	I-95 Multimodal Treasure Coast Master Plan	
C-1	High Meadow Avenue	SR-714/Martin Highway	Golden Bear Way	1.05	Install Fiber Optic	Martin County Public Works Dept.	
C-2	Martin Downs Boulevard/Monterey Road	Turnpike Entrance	US-1/Federal Highway	4.85	Adaptive Corridor	Martin County Public Works Dept.	\$3500 per signalized intersections
C-3	US-1/Federal Highway	Summerfield Way	SE Westmoreland Blvd.	10.35	Adaptive Corridor	Martin County Public Works Dept.; CMP Update 2020 (Segment IDs 21 to 31); TSM&O Master Plan (Map IDs A, B and C), FDOT	\$3500 per signalized intersections, Overlaps with Project 'A'
n/a	Signalized Intersections	Countywide (Approximately 120 intersections)			Install Bluetooth Devices	Martin County Public Works Dept.	\$6000 per intersection
C-4	SR-710/Warfield Blvd.	Jackson Avenue	Dr. Martin Luther King Jr. Drive	1.55	Install Fiber Optic	Martin County Public Works Dept.	
M-1	Colorado Avenue (SW Kanner Highway)	SE Lonita St	Ocean Boulevard	0.62	To Be Determined	CMP Update, 2020; Martin MPO & FDOT Congestion Analysis	CMP Update (Segment ID 35 and 36)
M-2	CR-732 (Jensen Beach Cswy.)	Indian River Drive	SR-A1A	1.90	To Be Determined	CMP Update, 2020; Martin MPO	CMP Update (Segment ID 51 and 52)
M-3	Dixie Highway	US-1/Federal Highway	SW Ocean Blvd	0.42	To Be Determined	CMP Update, 2020; Martin MPO & FDOT Congestion Analysis	CMP Update (Segment ID 45 and 46), TCRPM 5.0, v/c = 1.14
M-4	Dixie Highway	Dixie Cutoff Rd	Monterey Rd	0.85	To Be Determined	FDOT Congestion Analysis	County Rank 12 (Southbound)
M-5	Dixie Highway	SE Anchor Avenue	St. Lucie Blvd	0.74	To Be Determined	CMP Update, 2020; Martin MPO	CMP Update (Segment ID 37 and 38), TCRPM 5.0, v/c = 1.05

Map ID	Facility	From	To	Length (miles)	Project Description	Source	Comments
M-6	Jensen Beach Blvd	US-1/Federal Highway	Indian River Drive	2.92	To Be Determined	CMP Update, 2020; Martin MPO	Corresponds to CMP Update (Segment ID 3, 4, 5 and 6)
M-8	NE Indian River Drive	NE Dixie Hwy	CR-732 (Jensen Beach Cswy.)	1.35	To Be Determined	CMP Update, 2020; Martin MPO	Corresponds to CMP Update (Segment ID 47, 48, 49 and 50)
M-9	NE Ocean Blvd	S Sewalls Point Rd	NE MacArthur Blvd	4.77	To Be Determined	TCRPM, v/c = 1.14	
M-10	SE Green River Pkwy	NW Wright Blvd	NW Dixie Hwy	0.40	To Be Determined	TCRPM, v/c = 1.16	
M-11	SE Monterey Road (Ext)	US-1/Federal Highway	SE Dixie Hwy	0.58	To Be Determined	CMP Update, 2020; Martin MPO & FDOT Congestion Analysis	CMP Update (Segment ID 17 and 18), County Rank 19
M-12	SR-A1A	CR-732 (Jensen Beach Cswy.)	North County Line	0.80	To Be Determined	CMP Update, 2020; Martin MPO	CMP Update (Segment ID 53 and 54)
M-13	SW 36th Street (Martin Highway)	SW Mapp Rd	Kanner Hwy	1.88	To Be Determined	CMP Update, 2020; Martin MPO	CMP Update (Segment ID 13 and 14)
M-14	SW High Meadow Ave	SW Sunset Tr	SW Town Center Way	0.20	To Be Determined	TCRPM, v/c = 1.01	
M-15	SW Joan Jefferson Way	US-1/Federal Highway	Dixie Hwy	0.10	To Be Determined	CMP Update, 2020; Martin MPO	CMP Update (Segment ID 41 and 42)
M-16	SW Ocean Blvd	US-1/Federal Highway	SR-A1A	1.28	To Be Determined	CMP Update, 2020; Martin MPO & FDOT Congestion Analysis	CMP Update (Segment ID 39 and 40)
M-17	Bridge Road	I-95	US-1/Federal Highway	6.43	To Be Determined	CMP Update, 2020; Martin MPO	CMP Update (Segment ID 1 and 2), Project zh identified in the TSM&O Master Plan is a subset of this segment

Notes

Project "E" includes SR-76/Kannery Highway at I-95 interchange

Other Projects
Martin in Motion, 2045 LRTP

Map ID	Facility	Project Description	Source	Category or Type	Base Construction Cost	Construction ¹	MOT (10%)	Mobilization (10%)	Sub Total	Scope Contingency/ Project Unknowns (10%)	Total Construction Cost	PE Design (15%)	CEI (15%)	CEI (10%)	Total Project Cost (PDC*)	Comments	Total Cost (YOE**)			
							10%	10%		10%		15%	15%	10%			2021-2025	2026-2030	2031-2035	2036-2045
																	1.08	1.25	1.47	1.94
P-1	Kanner Highway/SR 76 at I-95	Facility located in southwest corner of Kanner Highway/SR 76, approximately 46,000 sq. ft. 106 parking spaces including four ADA spaces and six kiss-and-ride.	Park-And-Ride Master Plan, FDOT - D4, Oct. 2018, pg. 10, 38, 43 and 44	Travel Demand Management	\$1,800,000	\$1,908,000			\$1,908,000		\$1,908,000	\$286,200	\$286,200		\$2,480,400	Cost in 2018 dollars and includes MOT and contingency		\$3,100,500		
n/a	West of I-95 between Becker Road and Martin Highway		Park-And-Ride Master Plan, FDOT - D4, Oct. 2018, pg. 10	Travel Demand Management	\$850,000	\$901,000			\$901,000		\$901,000	\$135,150	\$135,150		\$1,171,300	Assumes 50 spaces @ \$17,000/space		\$1,464,125		
n/a	West of Turnpike in vicinity of Sand Avenue		Park-And-Ride Master Plan, FDOT - D4, Oct. 2018, pg. 10	Travel Demand Management	\$850,000	\$901,000			\$901,000		\$901,000	\$135,150	\$135,150		\$1,171,300	Assumes 50 spaces @ \$17,000/space		\$1,464,125		
PB-1	FEC Railroad and Dixie Highway near St. Lucie Avenue	Non-motorized grade crossing (bridge) in Downtown Stuart	FEC Railroad Grade Separation Study, Martin MPO, August 2017	Safety	\$4,700,000	\$5,076,000	\$507,600	\$507,600	\$6,091,200	\$609,120	\$6,700,320	\$1,005,048	\$1,005,048		\$8,710,416	Cost does not include operation and maintenance of elevators; Partially (50%) funded by Brightline/ Virgin USA Trains		\$10,888,020		
PB-2	FEC Main-Line in the area of the Golden Gate Community	Non-motorized railroad grade crossing	FEC Railroad Grade Separation Study, Martin MPO, August 2017	Safety	\$3,700,000	\$3,996,000			\$3,996,000	\$399,600	\$4,395,600	\$659,340	\$659,340		\$5,714,280					\$11,085,703
RR-1	FEC - St. Lucie River Bridge	Double tracking FEC railroad bridge over St. Lucie river, City of Stuart	Strategic Initiative	Rail Capacity								0	0		Private Sector Funding	Privately funded through Brightline/Virgin USA Trains			Private Sector Funded Project	Private Sector Funded Project
Total Project Cost															19,247,696		\$0	\$16,916,770	\$0	\$11,085,703

Notes

* PDC - Present Day Cost

** YOE - Year of Expenditure

¹ Construction cost includes adjustments applied to base construction cost to account for inflation. Inflation factors derived from FDOT 2045 Revenue Forecasting Guidebook, July 2018.

Waterborne Transportation Projects

Martin in Motion, 2045 LRTP

Map ID	Project Description	From	To	Location/Geography	Source	Category or Type	Total Cost (PDC*)	Total Cost (YOE**)			
								2021-2025	2026-2030	2031-2035	2036-2045
								1.08	1.25	1.47	1.94
n/a	Water based Transportation Feasibility Study	Martin County	-	Countywide	Martin and St. Lucie Regional Waterways Plan, 2015; Chapter 3, pg. 3-49	Study (to be funded through Non Capacity Program)	\$350,000		\$437,500		
W-1	Water taxi service to St. Lucie Inlet State Park	Sandsprit Park	St. Lucie Inlet Preserve	From Sandsprit Park or potentially Pirate's Cove Marina or Fish Market or Restaurant(s) stop at Manatee Pocket	Martin and St. Lucie Regional Waterways Plan, 2015; Chapter 3, pg. 3-23 to 3-34	Capital Cost	\$120,000			\$176,400	
						Annual Operating Cost	\$275,000			\$2,021,250	\$5,335,000
W-2	Water taxi service (seasonal or for waterfront special events and festivals only)	around key nodes such as Stuart/Palm City, Port Salerno/Manatee Pocket, Stuart/Jensen/Rio	-	Potential routes include Stuart Floating Dock to Harborage Marina, Harborage Marina to Sunset Bay Marina, Stuart Floating Dock to Stuart Harbor/Rio Town Center, Sandsprit Park to Pirate's Cove Marina/Fish Market Restaurants	Martin and St. Lucie Regional Waterways Plan, 2015; Chapter 3, pg. 3-23 to 3-34	Capital Cost	\$240,000			\$352,800	
						Annual Operating Cost	\$375,000			\$2,756,250	\$7,275,000
Operating Cost (20-year total)							\$9,750,000	\$0	\$0	\$4,777,500	\$12,610,000
Capital Cost							710,000	-	437,500	529,200	-

Notes

* PDC - Present Day Cost

** YOE - Year of Expenditure

Assumptions for water taxi service project cost.

Water taxi service to St. Lucie Inlet State Park (one route)

1. Two vessels (20 passengers capacity/vessel) @ \$60,000 per vessel
2. Annual operating cost estimates at \$275,000 (includes fuel, 2-person crew, admin staff and maintenance). Route operates 7 days a week for 12 hours daily for nine (9) months.
3. Capital cost for landside improvements is not included.

Water taxi service (seasonal or special event) (three routes)

1. Four vessels (20 passengers capacity/vessel) @ \$60,000 per vessel
2. Annual operating cost estimates at \$125,000 per (includes fuel, 2-person crew, admin staff and maintenance). Route operates 7 days a week for 12 hours daily for nine (4) months.
3. Capital cost for landside improvements is not included.

Source: Derived from Water Taxi Feasibility Study Report, Ulteig, 2016 (www.reapmatters.org)

Complete Streets Projects
Martin in Motion, 2045 LRTP

Map ID	Segment ID ¹	Facility/Segment Name	From	To	General Location	Length (miles)	ROW Width (feet)	Project Description	Base Construction Cost	Construction	MOT (10%)	Mobilization (10%)	Sub Total	Scope Contingency/Project Unknowns (10%)	ROW Cost	Total Construction Cost	PE Design (15%)	CEI (15%)	CEI (10%)	Total Project Cost (PDC*)	Total Cost (YOE**)						
											10%	10%									15%	15%	10%	2021-2025	2026-2030	2031-2035	2036-2045
																								1.08	1.25	1.47	1.94
CS-2	211	NW DIXIE HWY (SR 707)	NW GREEN RIVER PKWY	CONFUSION CORNER	Stuart	1.98	100	Four 12.5' travel lanes with center turn lane replaced with four 10'-11' travel lanes with landscaped median. Addition of protected bike lanes in both directions. Addition of shade trees & street lights adjacent to bike lanes.	\$1,521,847	\$3,013,257	301,326	301,326	3,615,908	361,591		3,977,499	596,625	596,625		5,170,749		\$6,463,436	\$7,601,001	\$10,031,253			
CS-4	226	SE PALM BEACH RD	SE OCEAN BLVD (SR A1A)	SE MONTEREY RD	Stuart	1.09	80	Addition of raised bike lanes in both directions. Addition of shade trees. Conversion of 5' side walks on both sides to 10' multi-use path on east side & 6' sidewalk on west side. 2' furnishing zones adjacent to sidewalk/paths.	\$3,239,243	\$3,530,775	353,077	353,077	4,236,930	423,693		4,660,623	699,093	699,093		6,058,809		\$7,573,512	\$8,906,450	\$11,754,090			
CS-5	270	SE CHRISTIE WAY	SE DIXIE HWY	SE PALM BEACH RD	Stuart	0.08	50	Conversion of 6' side walks on north side to 8' multi-use path. Addition of shade trees and street lights adjacent to existing sidewalk on south side.	\$366,377	\$29,310	2,931	2,931	35,172	3,517		38,689	5,803	5,803		50,296		\$62,870	\$73,936	\$97,575			
CS-6	214	SE COVE ROAD	SR 5 (US 1)	SE DIXIE HWY	Salerno	1.11	75	Addition of bike lanes in both directions. Addition of shared used path on northern side. Plant Cypress Trees in existing swale. Two 12' traffic lanes shift to south and become 11'. (FM #441701.1)	\$5,541,060	\$6,150,576	615,058	615,058	7,380,692	738,069		8,118,761	1,217,814	1,217,814		10,554,389		\$13,192,986	\$15,514,952	\$20,475,515			
CS-7	286	SE JACK AVENUE	PORT SALERNO ELEMENTARY	SE COVE RD	Salerno	0.76	70	New curb & gutters. Addition of shade trees & street lights adjacent to new 10' shared use path. Project assumes improvements same as SE Palm City Road (CS-19)	\$1,459,112	\$1,108,925	110,892	110,892	1,330,710	133,071		1,463,781	219,567	219,567		1,902,915		\$2,378,644	\$2,797,285	\$3,691,655			
CS-8	242	SR 5 (US 1)	NW SUNSET BLVD	S END OF ROOSEVELT BRIDGE	Stuart	3.57	150	Addition of markings for existing bike lanes. Addition of sidewalks, shade trees & street lighting.	\$921,805	\$3,290,845	329,085	329,085	3,949,014	394,901		4,343,916	651,587	651,587		5,647,090		\$7,058,863	\$8,301,223	\$10,955,356			
CS-9	341	SR 5 (US 1) ¹	SW JOAN JEFFERSON WAY	600 FEET SOUTH OF SE TRESSLER DR	Stuart	1.42	150	Resurfacing (FM # 446110.1)		\$6,000,000			\$6,000,000			\$6,000,000				\$6,000,000	\$6,000,000						
CS-10	137	SE INDIAN ST	SR 5 (US 1)	SE DIXIE HWY (SR A1A)	Stuart	0.36	100	Convert 5 lane urban roadway including center turn lane to 4 lane divided facility with separated bike lanes. (FM # 438071.1)	\$2,749,418	\$989,791	98,979	98,979	1,187,749	118,775		1,306,523	195,979	195,979		1,698,481		\$2,123,101	\$2,496,766	\$3,295,052			
CS-11	268	S KANNER HWY (SR 76) ¹	SR 5 (US 1)	SW MANOR DR	Stuart	0.44	110	Resurfacing (FM # 443995.1)		\$4,385,904			4,385,904			4,385,904				4,385,904	\$4,385,904						
CS-12	182	SE SALERNO RD	SR 5 (US 1)	SE DIXIE HWY (SR A1A)	Salerno	0.93	65	Addition of street lights & landscaping on south side. Conversion of 6' sidewalk with 2' landscape to 8' multi-use path on north side. (FM #440242.1)	\$366,377	\$340,731	34,073	34,073	408,877	40,888		449,765	67,465	67,465		584,694		\$730,868	\$859,500	\$1,134,307			
CS-13	311	SE SALERNO RD	SE DIXIE HWY (SR A1A)	SE DE SOTO AVE	Salerno	0.08	60	Project assumes continuation of improvements/cross section between SR 5 (US 1) and SE Dixie Hwy. (CS-12)	\$366,377	\$29,310	2,931	2,931	35,172	3,517		38,689	5,803	5,803		50,296		\$62,870	\$73,936	\$97,575			
CS-14	267	SE CUTOFF RD	SR 5 (US 1)	SE DIXIE HWY (SR A1A)	Stuart	0.23	110	Shared use path on one side. Shade trees and lighting.	\$596,015	\$137,083	13,708	13,708	164,500	16,450		180,950	27,143	27,143		235,235		\$294,044	\$345,796	\$456,356			
CS-15	212	SE DIXIE HWY	CONFUSION CORNER	SE PALM BEACH RD	Stuart	1.07	90	Addition of buffered bike lanes in both directions. Addition of shade trees & bioswales. Addition of sidewalk & street lights.	\$937,382	\$1,002,998	100,300	100,300	1,203,598	120,360		1,323,958	198,594	198,594		1,721,145		\$2,151,431	\$2,530,083	\$3,339,021			
CS-16	322	SE DIXIE HWY (SR A1A)	SE SALERNO RD	SE COVE RD	Salerno	0.61	90	New markings along travel lanes and on-street parking lanes. New shade trees. Parklet options available.	\$377,908	\$230,524	23,052	23,052	276,629	27,663		304,292	45,644	45,644		395,579		\$494,474	\$581,501	\$767,423			
CS-17	325	SE DIXIE HWY (SR A1A)	PORT SALERNO CRA (NORTH BOUNDARY)	SE SALERNO RD	Salerno	0.39	90	Project assumes continuation of improvements/cross section between SE Salerno Road and SE Cove Road. (CS-16)	\$377,908	\$147,384	14,738	14,738	176,861	17,686		194,547	29,182	29,182		252,911		\$316,139	\$371,779	\$490,648			
CS-18	287	SE EBBTIDE AVE	SE SALERNO RD	SE COVE RD	Salerno	0.5	65	Addition of buffered bike lanes in both directions. Addition of shade trees & bioswales. Addition of sidewalk & street lights.	\$1,047,812	\$523,906	52,391	52,391	628,687	62,869		691,556	103,733	103,733		899,023		\$1,123,779	\$1,321,564	\$1,744,105			
CS-19	130	SW PALM CITY RD	SR 5 (US 1)	400 FEET NORTH OF SW INDIAN GROVE DR	Stuart	0.33	80	Two 12' travel lanes become two 11' travel lanes. New curb & gutters. Addition of shade trees & street lights adjacent to new 10' shared use path.	\$1,459,112	\$481,507	48,151	48,151	577,808	57,781		635,589	95,338	95,338		826,266		\$1,032,832	\$1,214,611	\$1,602,955			
Total Complete Streets Projects Cost																46,433,783	\$10,385,904	\$45,059,849	\$52,990,382	\$69,932,885							

* PDC - Present Day Cost

** YOE - Year of Expenditure

¹ Segment ID cross references projects identified in Martin MPO's on-going Access to Transit Study

Base construction cost are derived using FDOT's cost per mile models and based on existing and proposed typical section included in Martin MPO's Access to Transit Study (on-going).

¹ Project cost for CS-9 and CS-11 is "as programmed."

Non-Motorized Projects
Martin in Motion, 2045 LRTP

Table with columns: Facility, Map ID, From, To, Project Description, Length (miles), Sides, Base Construction Cost, Construction, MOT (10%), Mobilization (10%), Sub Total, Scope Contingency/Project Unknowns (10%), Total Construction Cost, PE Design (15%), CEI (10%), Total Project Cost (PDC*), Total Cost (YOE**). Rows include Sidewalks, Bicycle Corridors, and various street projects.

Aviation Projects

Martin in Motion, 2045 LRTP

Project Description	Total Project Cost (PDC*)	Total Cost (YOE**)			
		2021-2025	2026-2030	2031-2035	2036-2045
Capital Improvement Projects supported by Partial FDOT Funding		1.08	1.25	1.47	1.94
Airfield Guidance Sign Replacement (Design and Construct)	\$250,000	\$270,000			
Airport Business Plan	\$200,000	\$216,000			
Airport Operations Center and Airfield Electrical Vault (Phase 3 Construction)	\$3,000,000	\$3,240,000			
Corporate Hangar 1	\$1,000,000	\$1,080,000			
Corporate Hangar 2	\$1,000,000	\$1,080,000			
Hold Bay Extension (Design & Const.)	\$240,000	\$259,200			
Mill & Resurface, MITL Replacement Taxiway C (Design & Const)	\$1,710,000	\$1,846,800			
Mill & Resurface, MITL Replacement Taxiway D (Design & Construct)	\$1,625,000	\$1,755,000			
PDC and MIRL Replacement 7-25 (Phase 1 and Phase 2 - Design ¹)	\$1,225,000	\$1,323,000			
Property Acquisition	\$2,500,000	\$2,700,000			
Rehabilitation of MC Non-Movement Areas Phase IV - Taxilane B (Const)	\$1,000,000	\$1,080,000			
Replace PAPIs on 12-30 with LED Units (Design & Construct)	\$100,000	\$108,000			
Sun Shade Hangars	\$500,000	\$540,000			
Tractor Equipment	\$100,000	\$108,000			
Air Traffic Control Tower Equipment Upgrade (Recorder and Radios ²)	\$200,000		\$250,000		
Construct Airport Interconnect Rd. - Flying Fortress Extension	\$1,850,000		\$2,312,500		
Rehabilitation of MC Non-Movement Areas Phase V (Design & Const)	\$1,000,000		\$1,250,000		
Tree Mitigation Project - RPZ and Part 77 (SE St. Lucie Canal)	\$120,000		\$150,000		
Total Airport Projects Cost	\$17,620,000	\$15,606,000	\$3,962,500		

Source: Draft Airport Future Funding Analysis, Martin County Airport and Withan Field CIP, Feb. 28, 2020

Notes

* PDC - Present Day Cost

** YOE - Year of Expenditure

¹ Phase 1 and Phase 2 design cost \$100K and \$1.25M respectively.

² Recorder and radios cost \$100K each.

Florida Department of Transportation (FDOT) funding share is limited to 80% of the project cost.

Resiliency Projects

Martin in Motion, 2045 LRTP

Map ID	Facility	From	To	Project Description	Length (miles)	Total Project Cost (PDC*)	Year of Expenditure (YOE**)		
							2026-2030	2031-2035	2036-2045
V1	N Sewalls Point Road ¹	SR-A1A (NE Ocean Boulevard)	SE Palmer Street	To be determined	1.57	\$2,599,031	\$3,248,789	\$3,820,575	\$5,042,120
V2	SE MacArthur Boulevard ²	SE South Marina Way	Approximately 1500 feet North	To be determined	0.28	-	-	-	-

Notes

* PDC - Present Day Cost

** YOE - Year of Expenditure

¹ Project overlaps with non-motorized projects, segment IDs 61 and 239. Project cost are for non-motorized improvements.

² Roadway is eligible to received federal-aid funds. Funds could be available from Federal Emergency Relief Program (up to 80% of the project cost) in case of a natural disaster.

