



Martin County Transit (MARTY)

Efficiency Study

August 2023 FINAL



Martin County Transit (MARTY) Efficiency Study

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BACKGROUND & INTRODUCTION

As a precursor activity to the next Major Update of the MARTY Transit Development Plan (TDP), the Martin MPO identified in their Fiscal Year (FY) 22/23 – 23/24 Unified Planning Work Program (UPWP) a Transit Efficiency Study of the Martin County Public Transit (MARTY) system. The Transit Efficiency Study (TES) represents an initial effort sponsored by the Martin MPO to enhance the public transit service available in Martin County. The TES examines how the transit system can become more efficient and seeks to determine service integration opportunities. The outcome of the study includes potential strategies to effectively improve passenger experience, efficiently expand services through community transit to areas not currently served, optimize existing operating and capital funding, and pursue supplemental funding opportunities to grow the transit system. The study also seeks to help the local governments in Martin County ensure that public transit services are efficient, effective, and evolving to meet current demographics, changing transportation trends and technology, all while prioritizing access to jobs, healthcare, and education to drive economic development. The study scope is summarized below and further documented throughout this report.

Coordination & Public Outreach

The purpose of this task was to engage stakeholders and the public on MARTY needs, while closely coordinating with MARTY staff. Public outreach activities included facilitating a stakeholder working group, conducting an in-person Open House event, distributing an online survey, and presenting at the MPO Committee and Board Meetings at the onset of the study and at the conclusion. Throughout the study, the MPO and Consultant management team coordinated with MARTY staff. This same group also conducted a ridealong on the MARTY system and engaged with the drivers and riders.

Existing Conditions Analysis

The purpose of this task was to gain a snapshot understanding of the existing MARTY system. Existing Conditions Analysis activities included a review of existing plans, documents, and development trends; a trip generator analysis; and a transit operations summary based on available National Transit Database (NTD) information.

Transit Service Summary

The purpose of this task was to explore different methods of transit service. Transit Service Summary activities included researching and summarizing coverage vs. ridership models and case studies involving community transit services.

Transit Efficiency Analysis

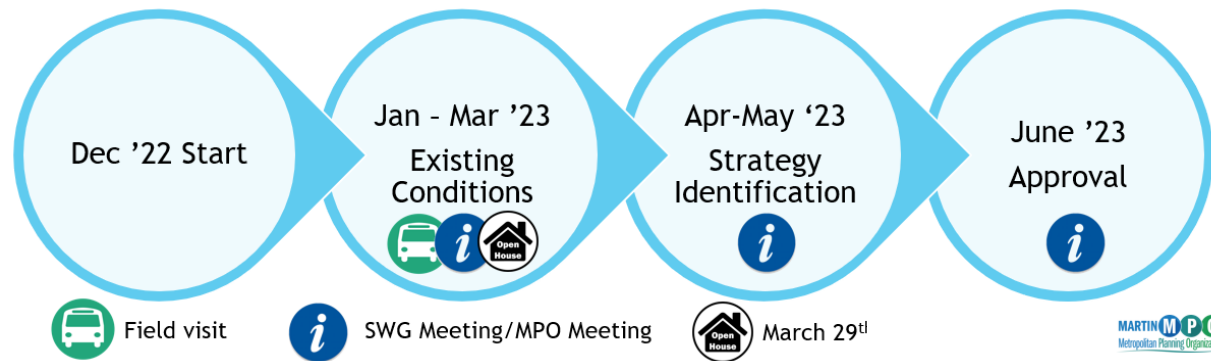
The purpose of this task was to test various opportunities to improve the MARTY transit service. Transit Efficiency Analysis activities included assessing two network scenarios, calculating costs, and making transit improvement recommendations for the next Major Update of the TDP.

Transit Efficiency Summary Report

The purpose of this task was to document all activities and findings. Ultimately, the document will inform MARTY's next TDP.

Study Schedule

The study ran for 8-months. A breakdown of the schedule is shown below:



EXISTING CONDITIONS ANALYSIS

The purpose of this task was to gain a snapshot understanding of the existing MARTY system. Existing Conditions Analysis activities included a review of existing plans, documents, and development trends; a trip generation analysis; and a transit operations summary based on available National Transit Database information.

Data

Table 1 summarizes the data used in the Existing Conditions Analysis evaluation.

Table 1: Data List and Sources

Data*	Resource/Source
MPO's Development Review Interactive Map	Martin MPO
Future Land Use	Martin MPO
Transit Trip Generators	Florida Geographic Data Library
Current Transit Routes	MARTY
Current Transit Stops	MARTY
MARTY Ridership and Operations Data	MARTY and National Transit Database
Socioeconomic Data	US Census (ACS)

**The most recent data available at the time of the analysis was obtained.*

Existing Transit Operations Summary

The existing system is made up of 5 Routes (4 Fixed and 1 Express) and connects to Palm Tran, Treasure Coast Connector, and Stuart's Downtown Tram Service as shown in **Figure 3** along with the costs for a full or half ride. MARTY operates Monday through Friday. The local fixed routes span is from 6:00 AM to 8:00 PM and the commuter express route, Route 20X, operates from 6:30 AM to 7:30 PM.

Ridership information was collected from the Federal Transit Administration's National Transit Database (NTD). The data collected and summarized in the **Figures 1 and 2**, provides a snapshot of trends over the past four to five years, depending on where data was available.

Figure 1: MARTY Ridership by Year and Month (*2018 had partial data)

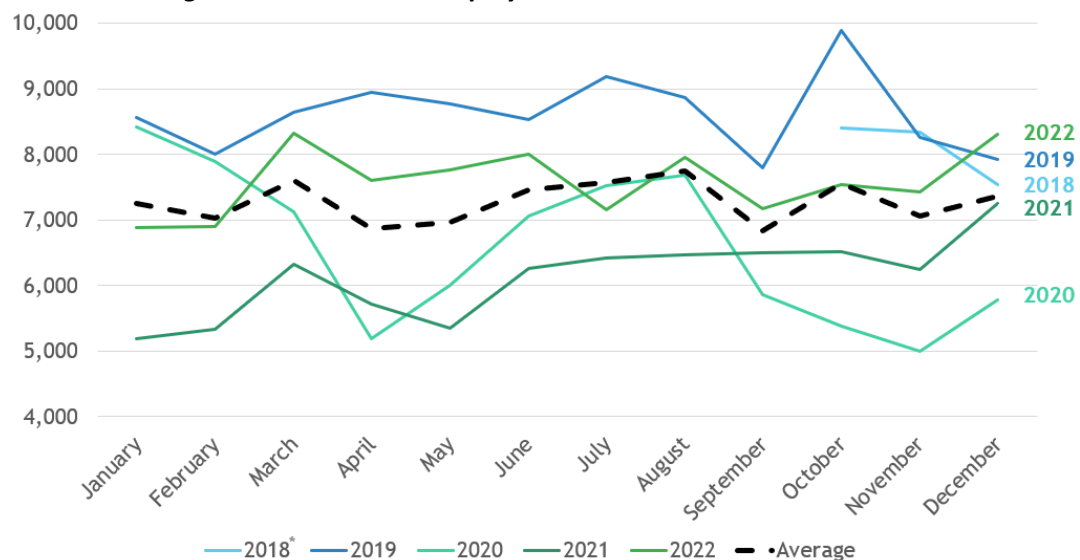


Figure 2: MARTY Ridership by Route and Fiscal Year

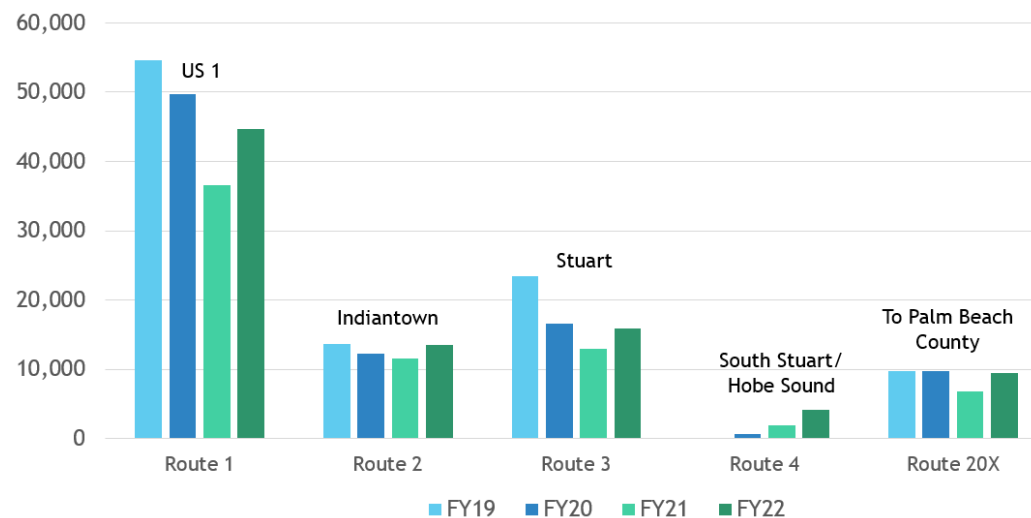
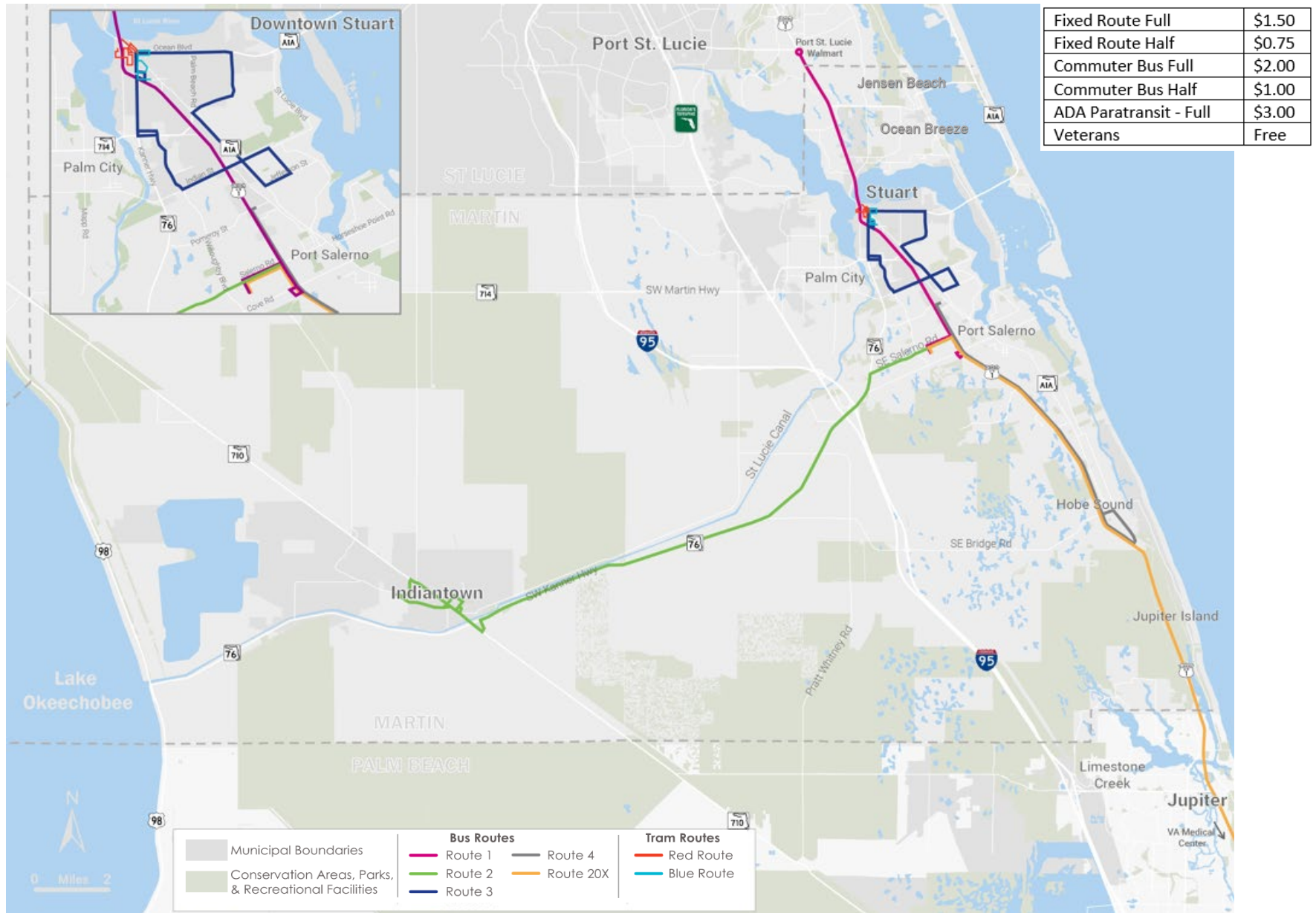


Figure 3: Existing MARTY Transit System Routes and Fare Structure



Plans and Policy Review

The consultant team reviewed the following documents and data:

1. MARTY 2020-2029 Transit Development Plan (TDP)
2. MARTY 2022 TDP Annual Report
3. Martin MPO Community Characteristics Report (CCR)
4. Martin MPO Public Participation Plan (PPP)
5. Martin MPO's Development Review Interactive map and existing development trends

At the conclusion of the review, the team identified several helpful pieces of information, including but not limited to, transit system and service needs, protocol for outreach, characteristics of the community residents and MARTY riders, and planned development. Key takeaways are listed below for previously identified transit needs, and the community characteristics, existing and planned development areas, and outreach activities are discussed in following sections.

10-Year Transit Service Priorities from the MARTY 2020-2029 TDP

Rank	Service Improvement	Rank	Service Improvement
1	Split Route 3 into Routes 3a and 3b	6	Double frequency
2	Add Saturday service	7	Later service to 10:00 PM
3	New Jensen Beach Route	8	Extend Route 20x
4	Jensen Beach/Rio CRA MOD	9	New Turnpike regional route
5	Palm City MOD	10	Extend and realign Route 2

Coverage Area/Trip Generator Analysis

The study team completed a socioeconomic trip generation analysis of the project area by first extracting population demographics and employment data from the US Census Bureau. This data helped inform them on where there are concentrations of jobs and people that would benefit from using a transit service. In addition, they identified major trip generators and destinations such as educational, medical, shopping, residential centers using the Florida Geographic Data library data sources.

Figure 4 through **Figure 12** visually portray the data findings.

Figure 4: People Per Square Mile

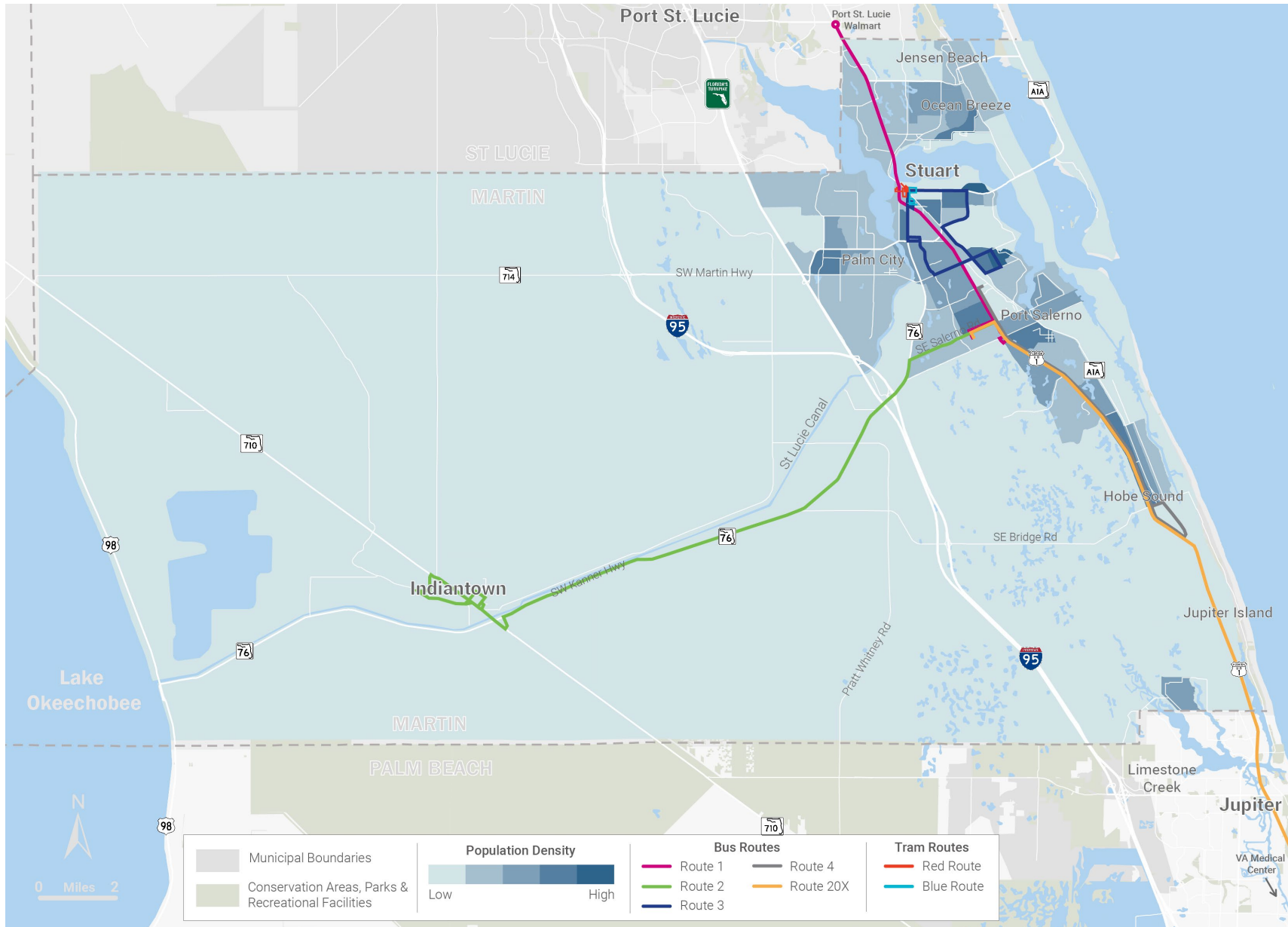


Figure 5: Jobs Per Square Mile

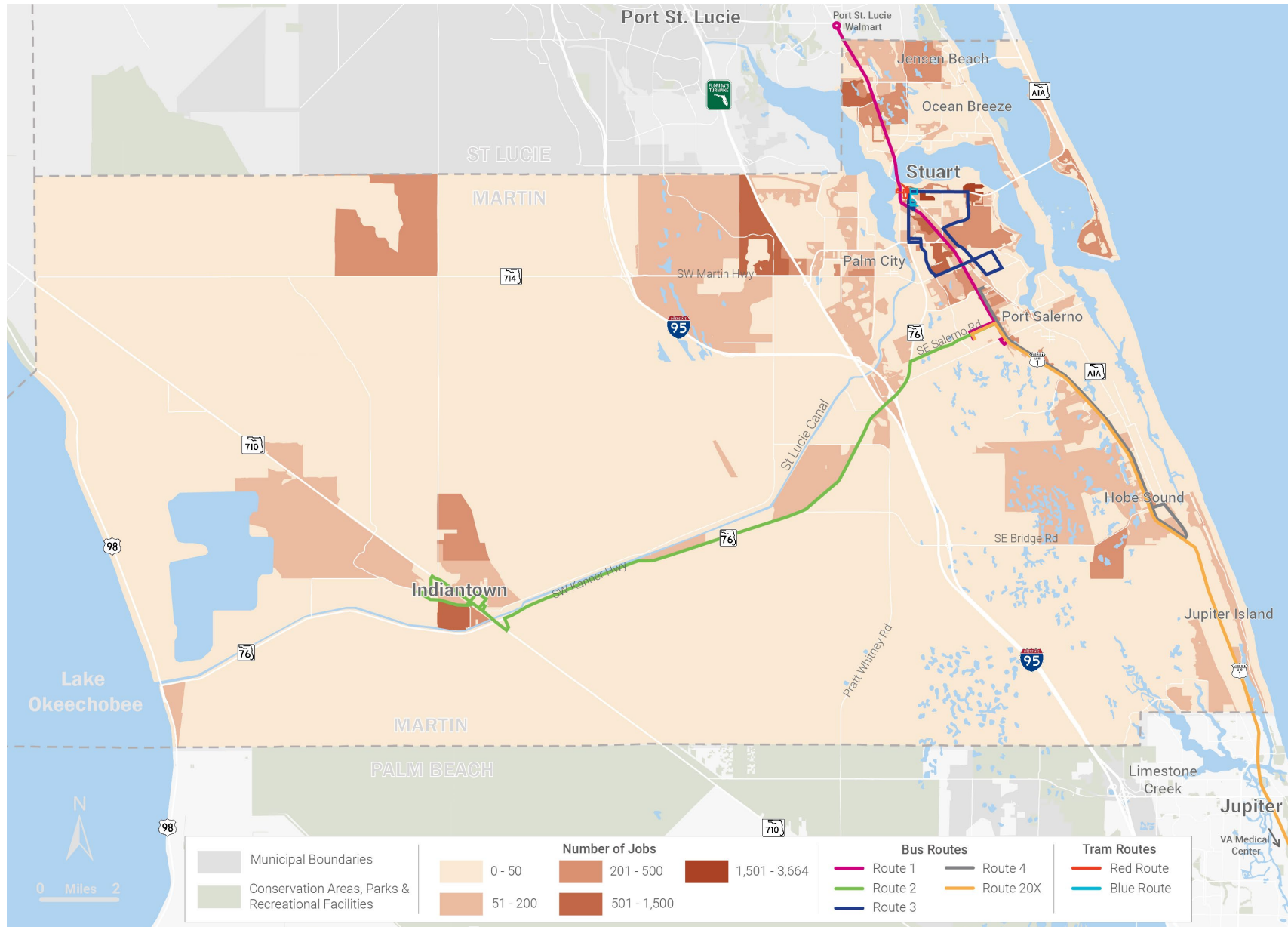


Figure 6: Households Without Access to a Vehicle Per Square Mile

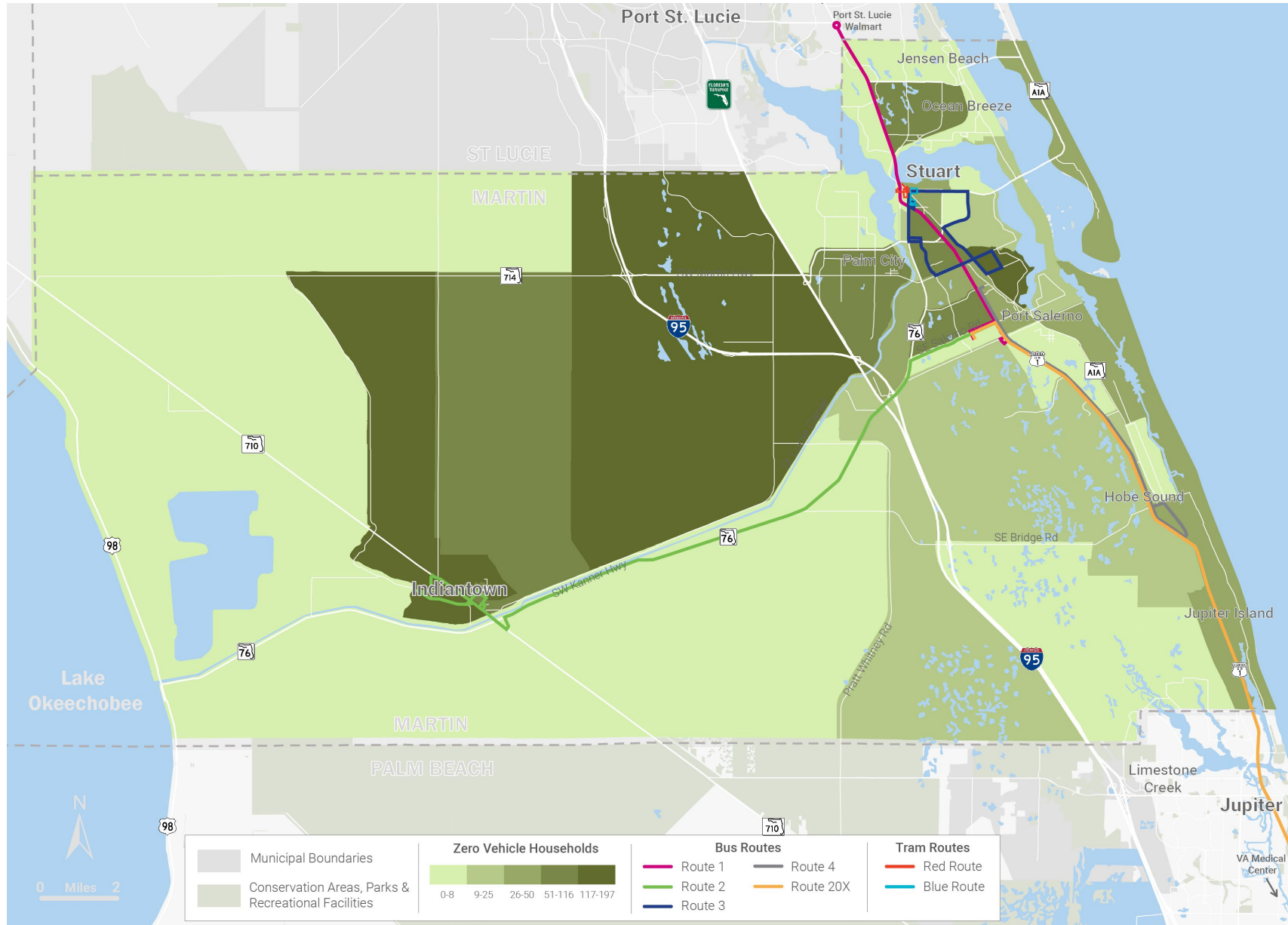


Figure 7: People 65 & Older Per Square Mile

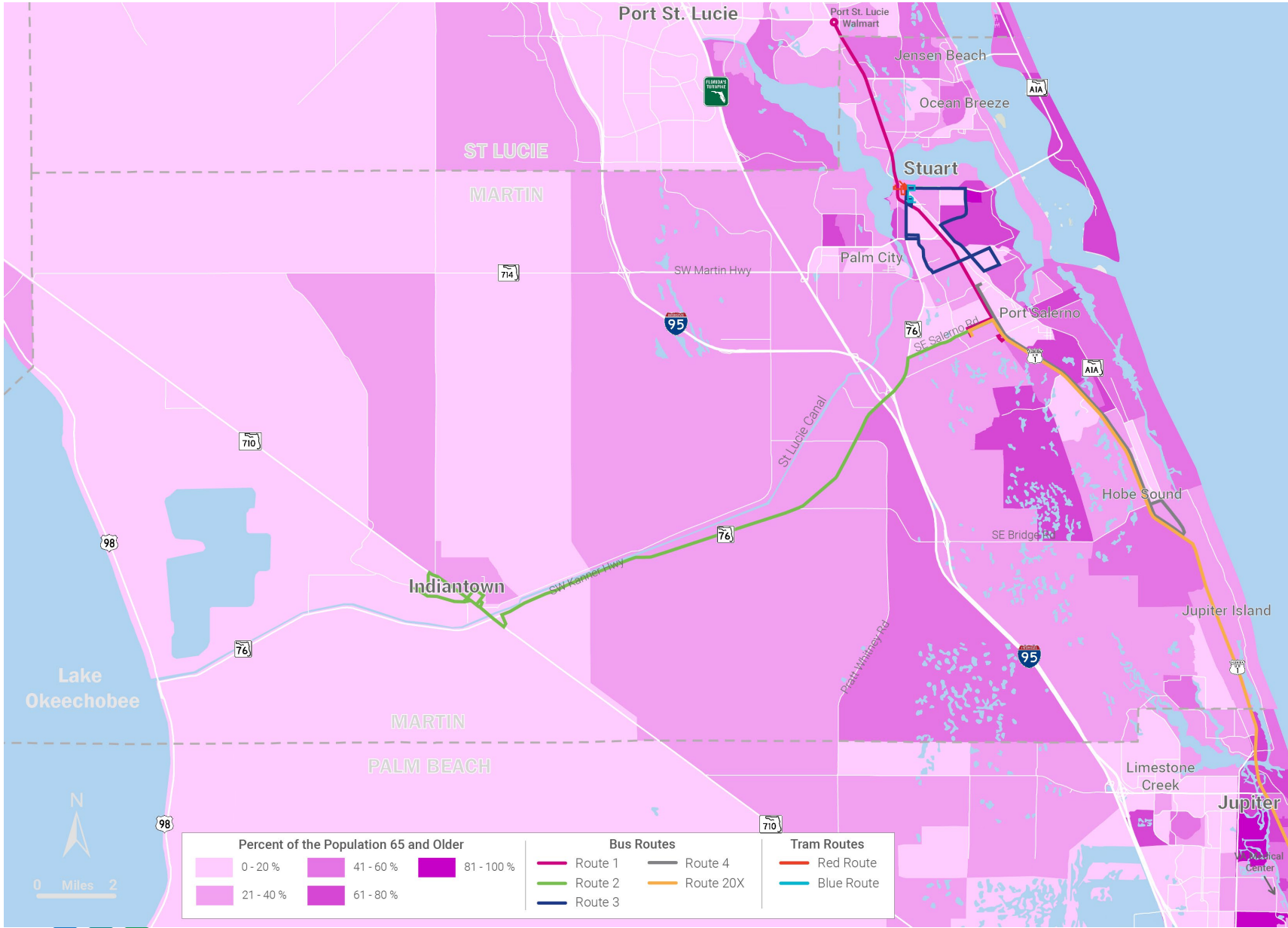


Figure 8: People 18 & Younger Per Square Mile

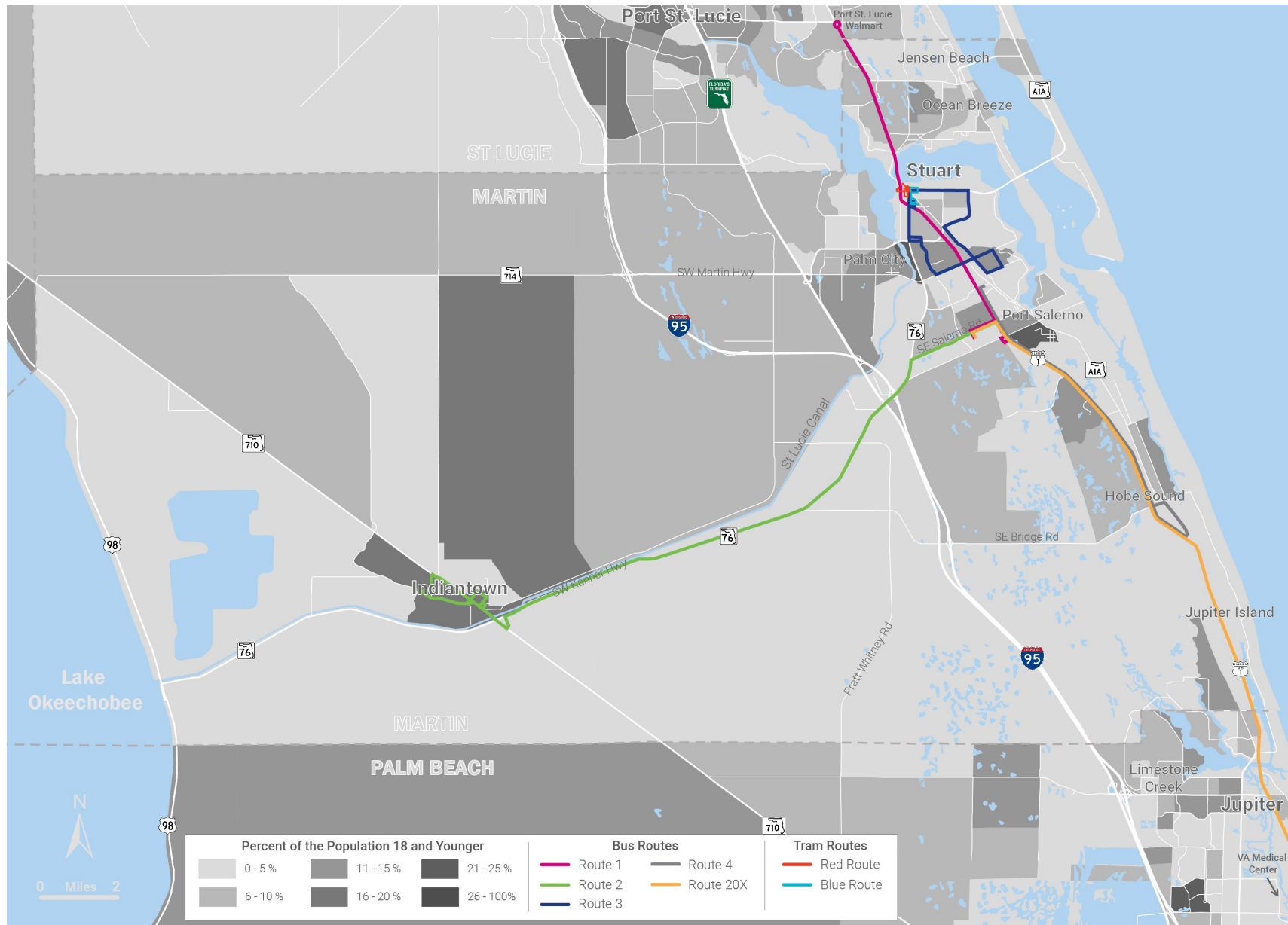


Figure 9: People Living in Poverty Per Square Mile

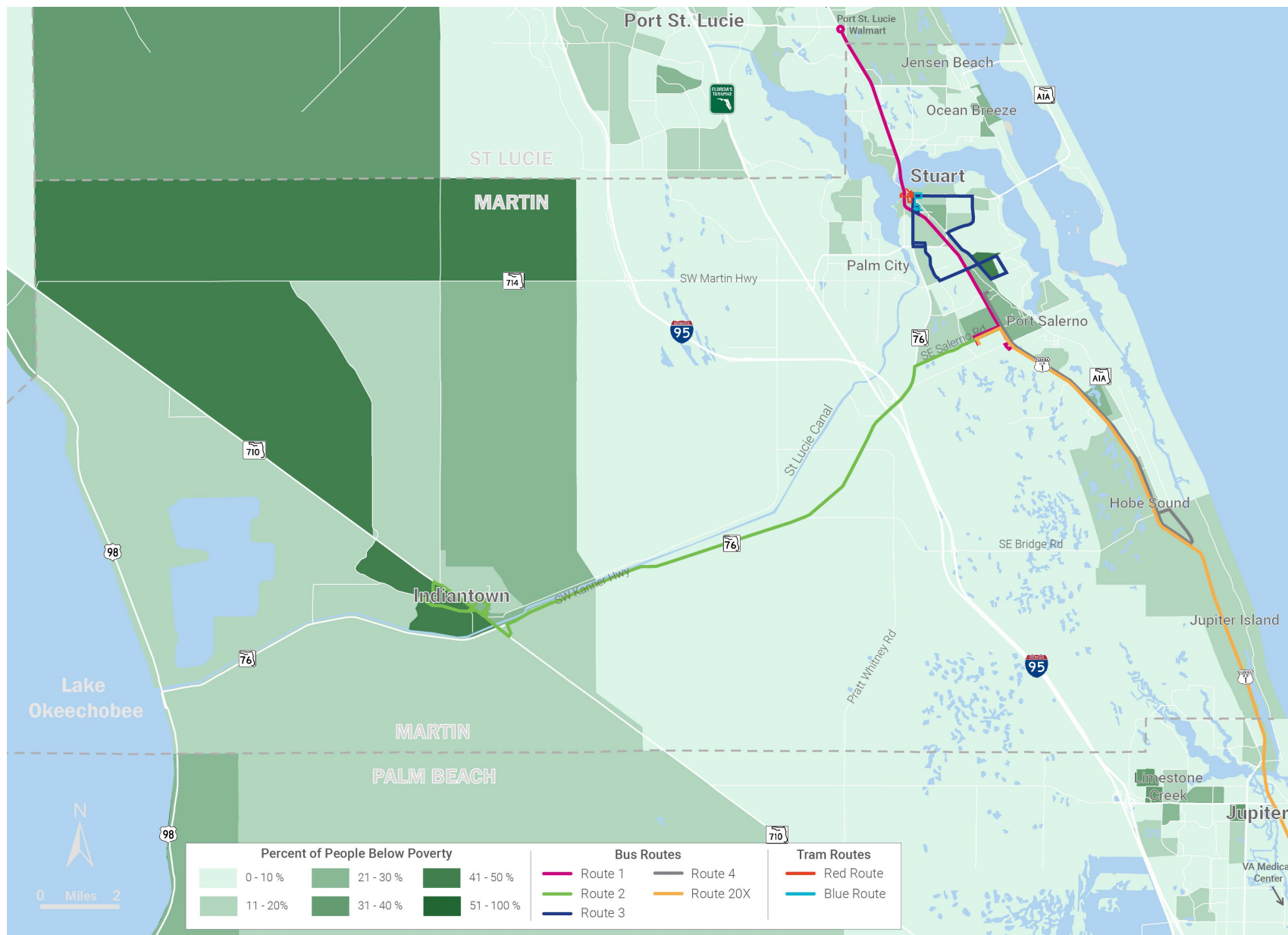


Figure 10: Existing Land Use

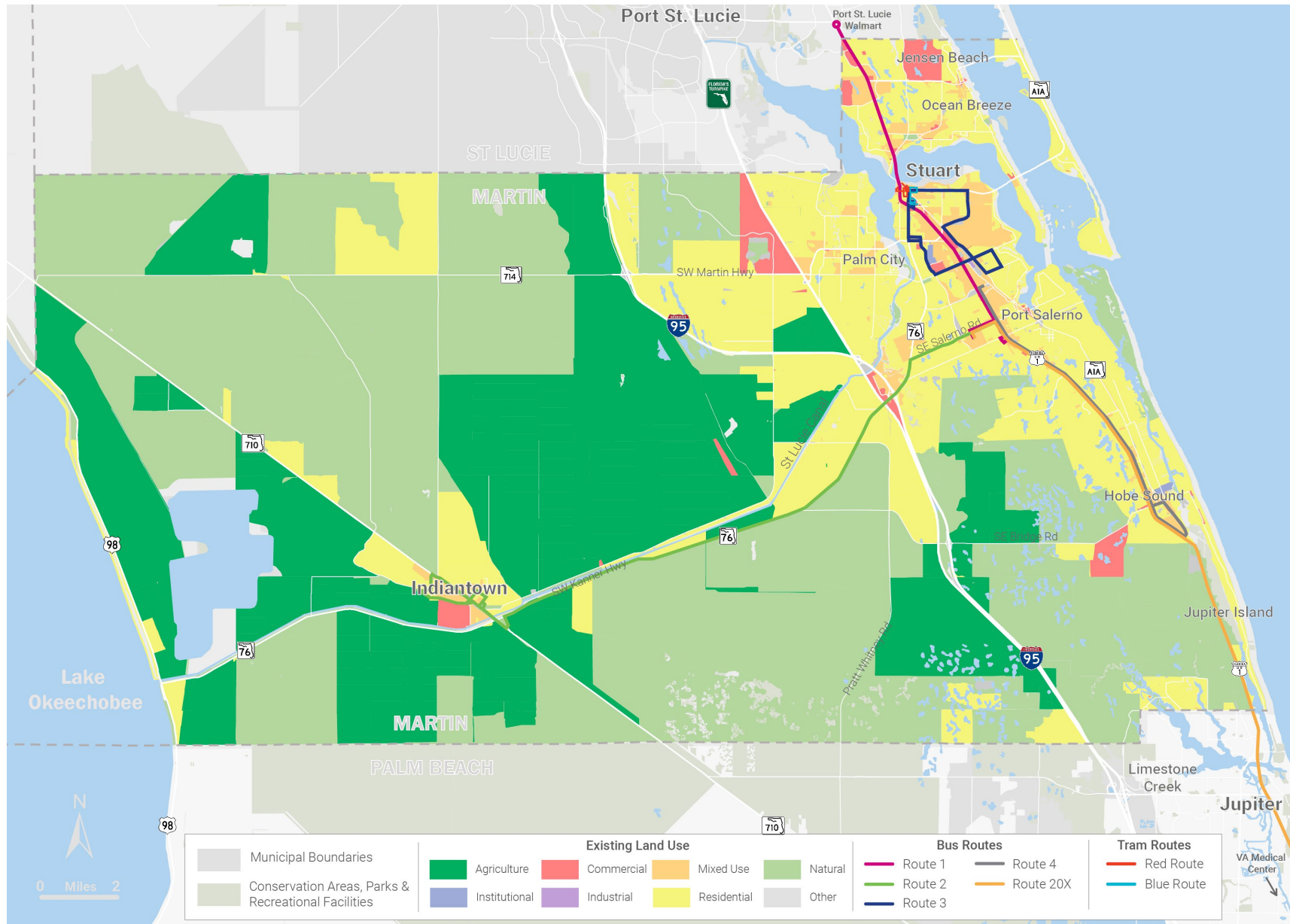


Figure 11: Special Generators

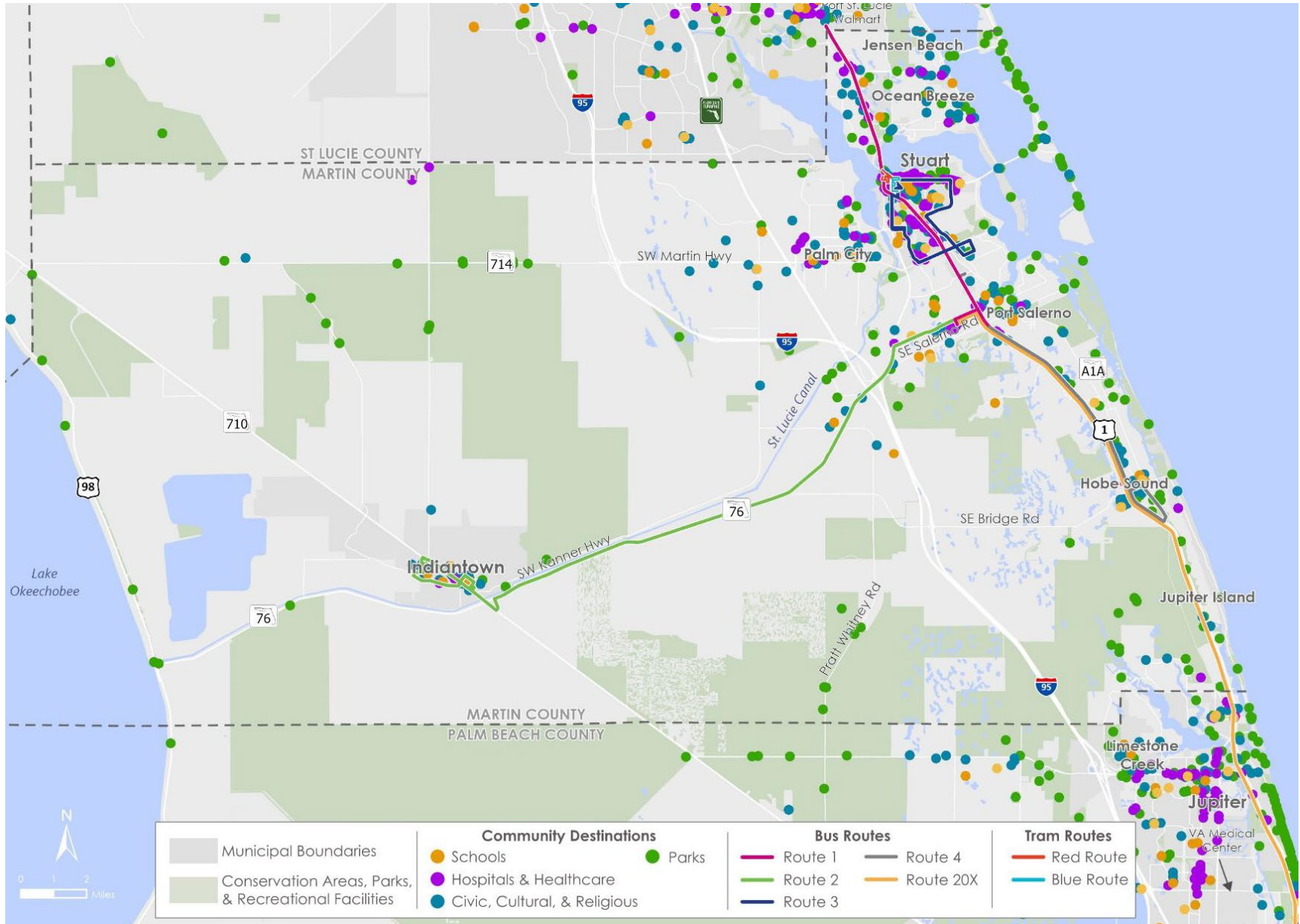
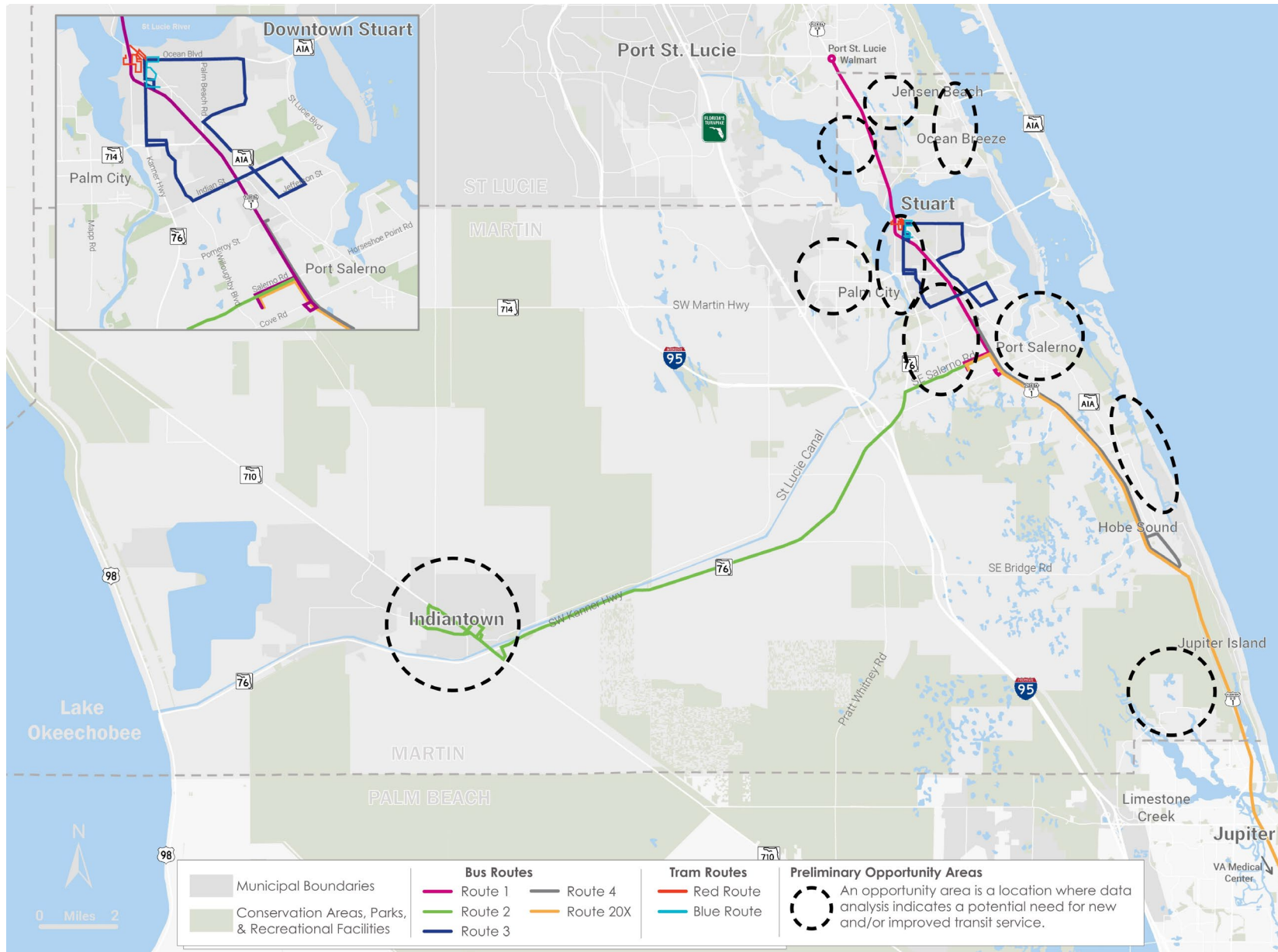


Figure 12: Opportunity Areas

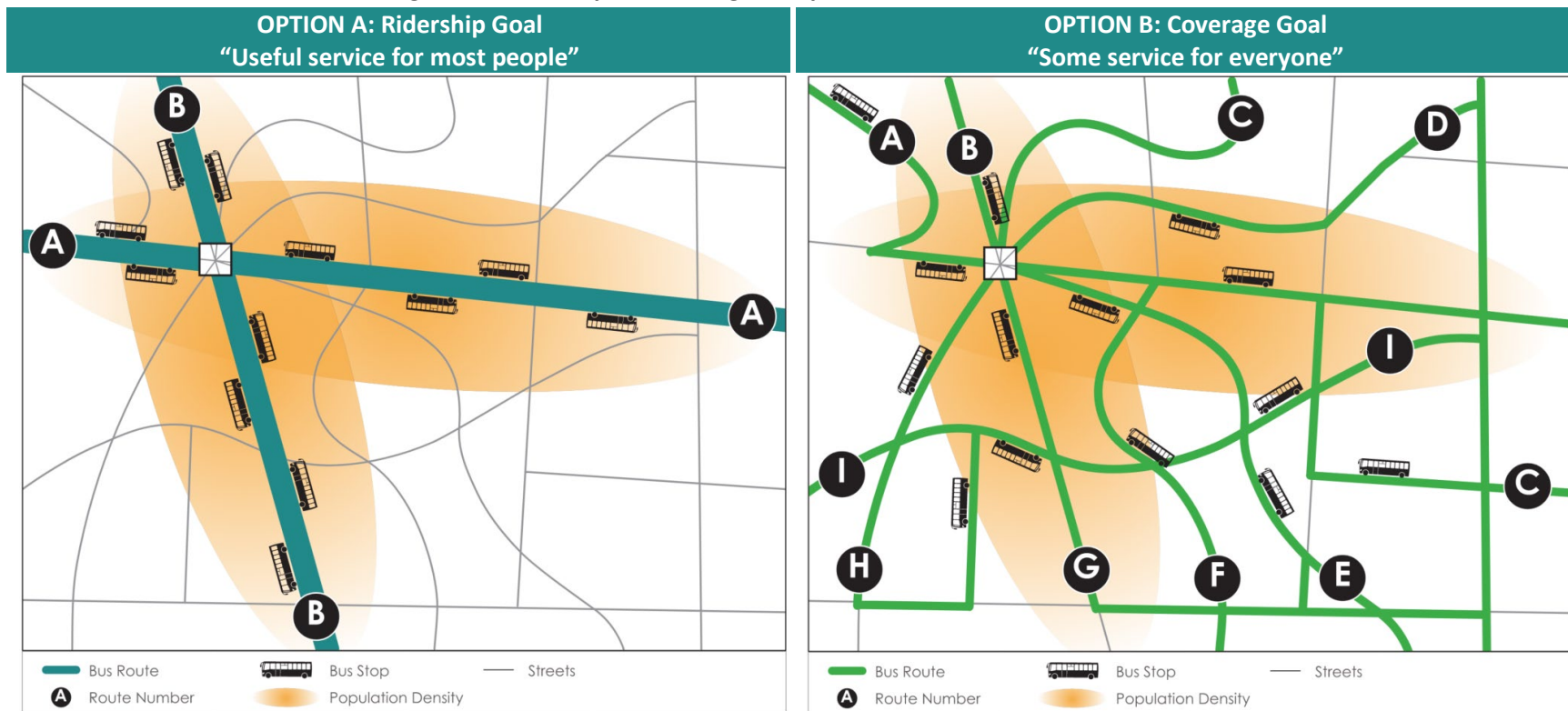


TRANSIT SERVICES SUMMARY

Ridership vs. Coverage

Transit agencies must grapple with the balance of providing quality and convenient service with respect to frequency and direct service to key destinations. Based on socioeconomic data, MARTY currently has transit demand gaps in areas like Palm City and Jensen Beach; therefore, there is the potential to grow by adding new service to these areas. They also have the potential to focus more on their existing ridership by increasing frequency, as most of their local routes operate with headways ranging from 35 to 40 minutes. As funding becomes available, MARTY will have to balance the demand to provide service to new areas or provide more frequent service to existing service areas. **Figure 13** visual depicts the differences between each model and the following page summarizes the differences/trade-offs.

Figure 13: Ridership vs. Coverage Comparison (Source: Jarrett Walker + Associates)



OPTION A: Ridership Goal “Useful service for most people”	OPTION B: Coverage Goal “Some service for everyone”
<ul style="list-style-type: none"> • Routes are concentrated where there are the most people and destinations, typically resulting in higher ridership • While there are fewer routes, buses come more frequently • While there are fewer stops, trip times are faster • People may have to walk further to access service 	<ul style="list-style-type: none"> • Routes are designed to provide some service to every person • While there are more routes, buses come less frequently • More stops are provided and people may have stops closer to their homes or destinations, but trip times are slower • Ridership is usually lower because service is infrequent

Community Transit Case Studies

Community transit (also known as microtransit) has evolved as a transportation alternative to cost effectively move people shorter distances typically not covered by a traditional fixed-route transit service. Community transit services have become popular as supplemental transit solutions for existing transit systems throughout the State of Florida and nationwide. The study team conducted a peer review of two areas that successfully implemented community transit service in their area, Indian River County Fixed-Route Community Transportation and Wilson, North Carolina Transit. The latest NTD reports for these two services are found in **Appendix A**.



Indian River County Fixed-Route Community Transportation - GoLine

GoLine is a free public transportation system in Indian River County, FL on 14 fixed routes. Riders take GoLine buses to work or school, to medical appointments, grocery stores, to the mall, to the beach and to dozens of other locations throughout the area. GoLine buses operate weekdays from 6:00 a.m. through 7:00 p.m. In addition, Saturday service is offered from 8:00 a.m. until 5:00 p.m. Riders may use the Where’s my bus app for real-time view of bus locations and times. GoLine buses provided 1.2 million rides in 2022. This case study was selected due to their high ridership numbers and relevance to Martin County.



Wilson, North Carolina Transit - RIDE

RIDE is the City of Wilson's on-demand micro-transit service. RIDE replaced the fixed route bus system on September 1, 2020. RIDE is a partnership between the City of Wilson and Via, a leader in micro-transit service. RIDE allows riders to request a trip at any time. RIDE operates Monday through Friday from 5:30 a.m. until 7 p.m. On Saturdays, RIDE operates from 7 a.m. until 6 p.m. This case study was selected due to being recognized nationally by the American Association of State Highway Transportation Officials (AASHTO) and shows a different form of service than GoLine. NCDOT, in partnership with the City of Wilson, was awarded \$250,000 from the Federal Transit Administration’s Accelerating Innovative Mobility grant to help fund the RIDE program. FTA’s research paper on this service change is found at the following link: <https://www.transit.dot.gov/sites/fta.dot.gov/files/2023-04/FTA-Report-No-0243.pdf>

Funding Programs

MARTY has opportunities to access discretionary grants from the Federal Transit Administration (FTA) and the Florida Department of Transportation (FDOT). The FDOT programs include:

- Transit Service Development Program
- Transit Corridor Program
- Intermodal Access Program
- Park and Ride Lot Program

The Transit Service Development and the Transit Corridor Programs are commonly used by Florida Transits. The MARTY Route 20X has been partially funded by the Transit Corridor Program with Fiscal Year (FY) 2024 being the final year of the grant subsidy. The Transit Service Development and Corridor Programs have an annual cycle of grant applications through FDOT District 4. The Intermodal Access Program provides assistance for major capital investment in fixed guideway transportation systems; access to seaports, airports and other transportation terminals; providing for the construction of intermodal or multimodal terminals. The Park and Ride Lot Program has a comparatively low budget and is available for annual grant applications. The programs are described in detail in the Annual FDOT Work Program Instructions.

COORDINATION & PUBLIC OUTREACH

The following meetings were conducted throughout the study. These were conducted to gather feedback on potential transit improvements and understand the community's priorities for transit improvements.

Martin MPO +
MARTY
Management Team
Meetings

Stakeholder
Working Group
Meetings

In-Person Open
House

Online Survey

MPO Committee
and Board Meeting
Presentations

All outreach presentations were initiated by reminding participants of MARTY'S Vision to ***enhance the overall quality of life of Martin County residents, workers and visitors by providing a safe, accessible, reliable, interconnected and attractive public transportation system with growth to meet the community's needs.***

Stakeholder Working Group Meetings

The stakeholder working group met twice throughout the study to provide project updates and receive feedback. The attendees included participants representing organizations such as the City of Stuart, Martin County Public Transit (MARTY), FDOT District 4, Florida Department of Health, Martin County Office of Tourism & Marketing, Martin MPO, Martin County Community Development Agency, Stuart Main Street, CTC (Senior Resource Association (SRA)) - Indian River Transit GoLine & Martin Community Coach, Treasure Coast Regional Planning Council, non-profit organizations, and interested citizens.

The first virtual stakeholder group meeting was held on March 1, 2023, via Teams. The meeting covered the study purpose, an overview of MARTY system, interactive discussion on opportunities to improve the system, and asked for feedback on stakeholders to reach out to for the Open House and survey. **Figure 14** depicts the key words of feedback received by stakeholders when asked what they would grant MARTY if they had a magic wand.

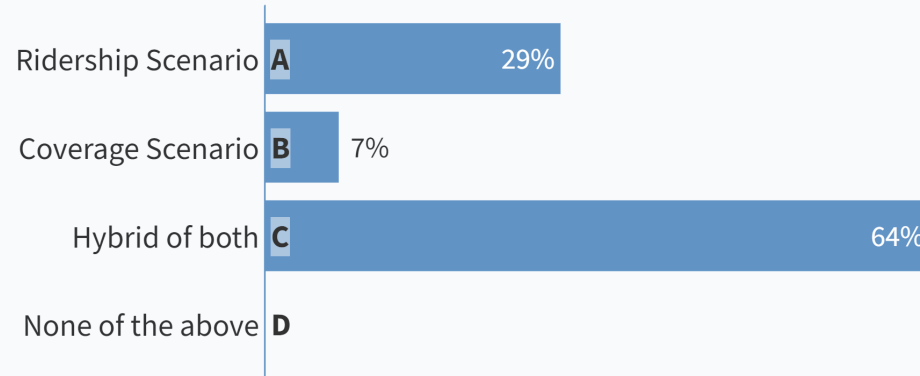
Figure 14: Stakeholders Biggest Desire for MARTY



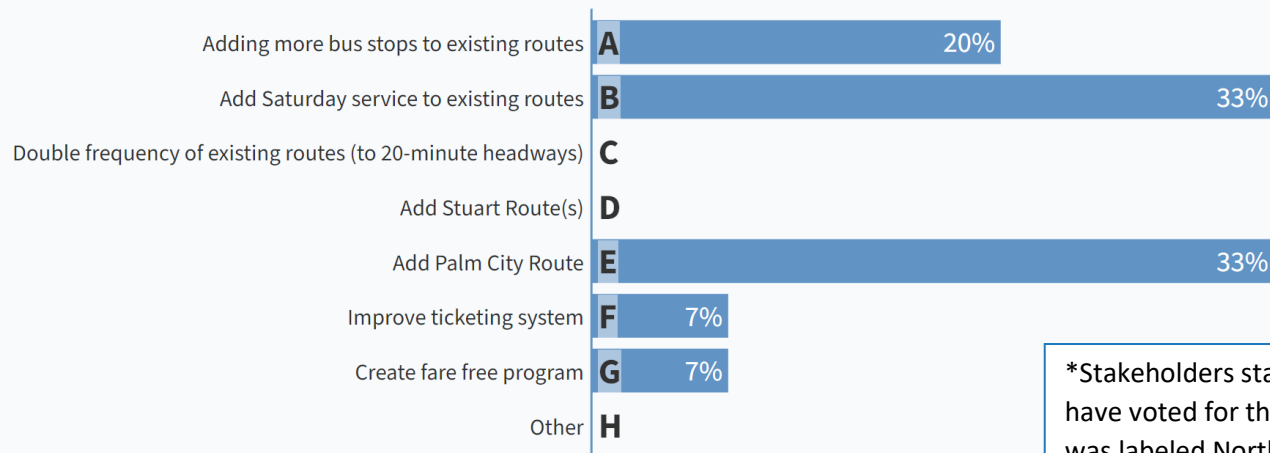
The second stakeholder working group meeting was held on May 19, 2023, via Teams. The meeting covered a recap of the first stakeholder meeting, discussed the Open House and survey feedback received, shared an overview of the transit network scenarios tested and walked through next steps. **Figure 15** summarizes the poll results taken at the meeting regarding the transit scenario option preferences.

Figure 15: Stakeholder Feedback on Transit Network Scenarios

In your opinion, which scenario is best for Martin County?



If MARTY receives new funding or reallocates existing funds, in your opinion what should be prioritized?



*Stakeholders stated they would have voted for the Stuart option if it was labeled North Stuart/Rio/Jensen; therefore, results may be skewed.

Transit Optimization Open House and Online Survey



The Martin MPO is conducting an Open House for the Martin County Transit Efficiency Study

WE WANT YOUR INPUT!

The Martin MPO is working on a study that examines how the transit system can become more efficient and determine service integration opportunities for Martin County Public Transit (MARTY). The Study will identify strategies that will:

- Most effectively improve the passenger experience
- Efficiently expand services through micro-transit to areas not currently served
- Optimize existing operating and capital funding
- Pursue supplemental funding opportunities to grow the transit system

PLEASE COME AND GIVE YOUR INPUT ON TRANSIT EFFICIENCY IN MARTIN COUNTY.

Martin County Transit Efficiency Study - Open House

**March 29, 2023
(4:30 PM – 6:30 PM)**

**Morgade Library
(Anderson Community Room)**
5851 S.E. Community Drive
Stuart, FL 34997

Note: MARTY Bus Route 1 serves the Morgade Library.

Public participation is solicited without regard to race, color, national origin, age, gender, religion, disability, or family status. Persons with questions or concerns about nondiscrimination or who require special accommodations under the Americans with Disabilities Act or language translation services (free of charge) should contact Ricardo Vasquez, Senior Planner (Title IX/Non-discrimination) at (772) 222-4488 or rvazquez@martin.fl.us. Hearing impaired individuals are requested to telephone the Florida Relay System at 877.1.

On March 29th, an Open House was held at a local library to share initial findings, provide a summary of transit service options and best practices, and then allow for members of the community to share their thoughts on how to optimize the existing transit network. Notices for the open house were posted on transit vehicles, in libraries, and shared electronically via existing MPO public databases.

The workshop consisted of six stations where 23 participants learned about the project, MARTY'S existing transit services, Martin County's demographics, and two interactive stations where participants could share the areas they believe transit service improvements are needed the most and how funding should be spent (i.e., coverage versus ridership model). Lastly, participants were asked to take a 10–15-minute survey about their experiences using transit and/or their desires should they not currently use the system.

The online survey was created to capture opinions at the in-person Open House but also those opinions from Martin County residents that could not attend but still wanted to provide feedback. The survey asked respondents about their awareness of transit service, how often they ride the bus (if applicable), what improvements would attract them to use more transit services, and the quality of the existing service. The survey was made available until April 15th. A total of 198 people took the survey of which 136 indicated that they do not use MARTY.

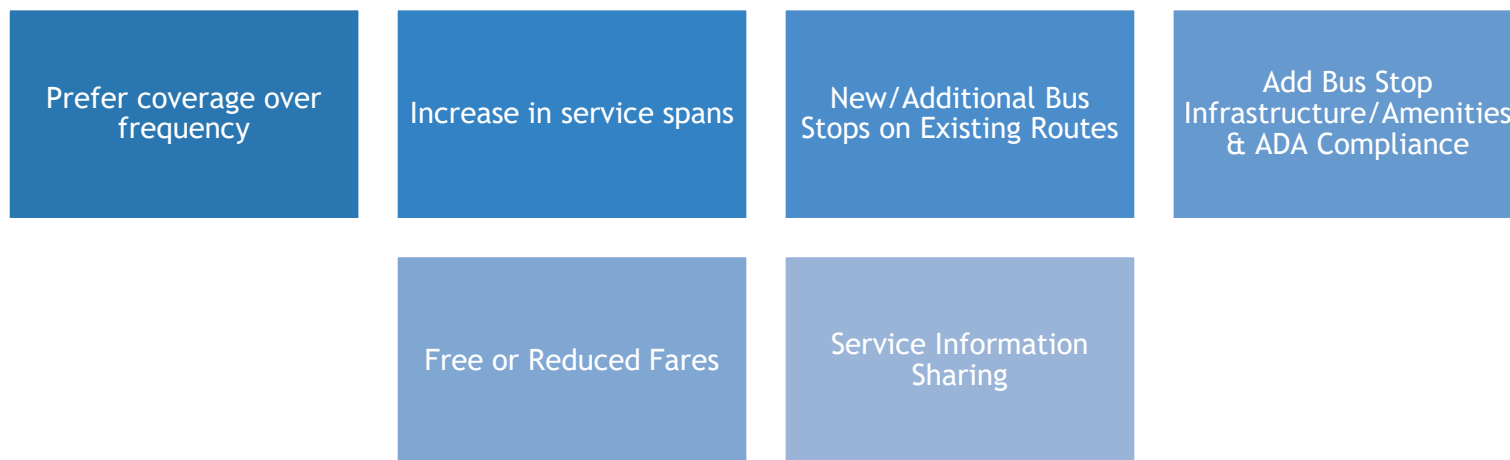


MPO Advisory Committee Meetings and MPO Policy Board Meetings

The study scope was presented to the MPO Advisory Committees and MPO Policy Board Meetings in late 2022 and the conclusions were presented in June 2023. The following section summarizes the feedback received from the Open House Survey and from the Advisory Committees and Policy Board. Feedback from these meetings is also summarized in the conclusions section.

Public Outreach Results – Open House and Survey

The following themes emerged from the feedback received from the Open House and online survey. **Appendix B** contains the full survey results.



Major themes observed were a need for more coverage over frequency improvements, an increase in service spans, new bus stop locations on existing routes, bus stop infrastructure and ADA compliance. Other themes include the need for more awareness of the services, requests for free or reduced fares, and service information sharing.

The need for more coverage and frequency came up as the most salient service needs. Survey respondents overall indicated a preference of more coverage over frequency, with the understanding of the trade-off of having less frequent service on main corridors. Respondents also indicated a preference for more coverage and bus stops over shorter travel times on the bus.

Feedback gathered also indicated the need for more direct service to destinations. Some noted the inconvenience of long walking distances to the hospital and the large parking lots to businesses in strip malls. The desire for more direct service to destinations with expanded service and additional bus stops could be the result of poor first-mile last-mile connections. First-mile last-mile connections need improvements to encourage

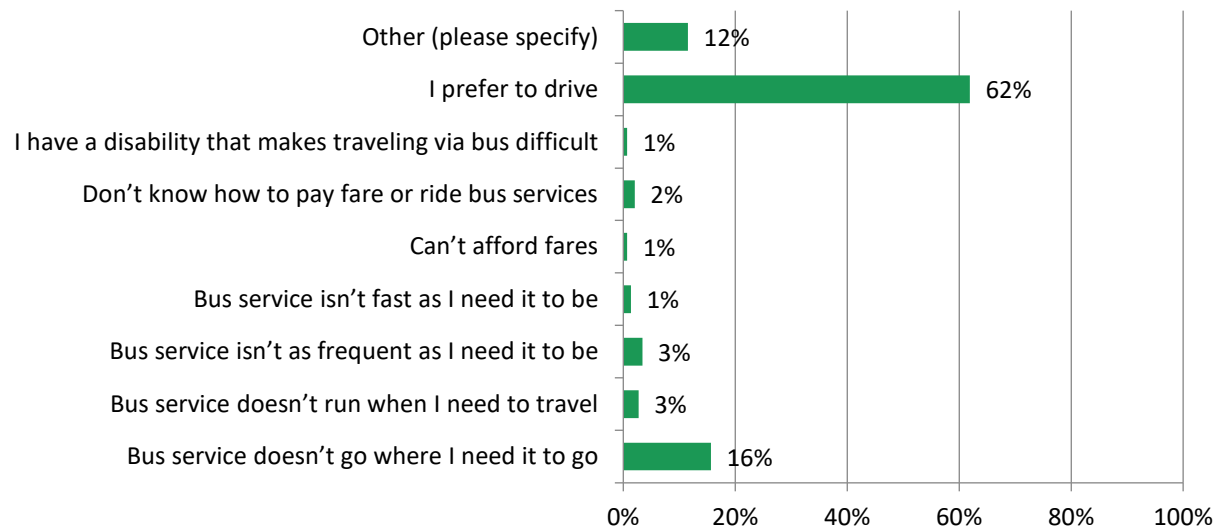
longer acceptable walking distances. Walking accounts for how 59% of survey respondents get to their bus stops, followed by being dropped off by someone (18%) and riding a bicycle (12%), as shown in **Figure 16**.

Figure 16: Survey Responses Regarding Mode Choice to the Bus Stop



The need for transit service in new areas is captured in the survey question asking respondents why they do not ride MARTY's bus services; the second most selected reason was "The bus service doesn't go where I need it to go", representing 16% of responses.

Figure 17: Survey Responses Regarding Why People Don't Ride MARTY



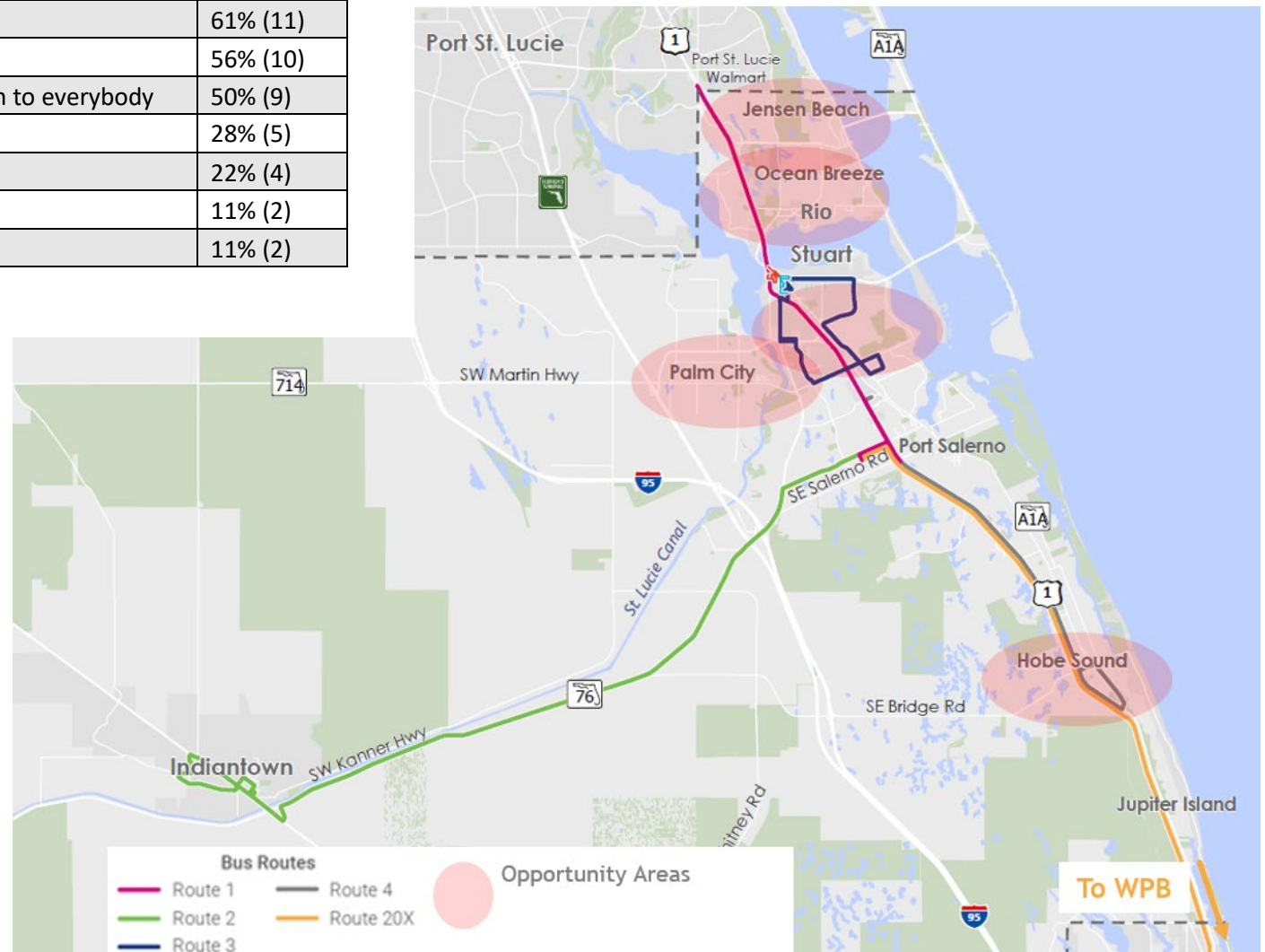
Furthermore, when respondents were asked which top three service improvements would make riding MARTY more convenient, “Service to more locations” was the top selection, with 61% indicating the need, followed by the need for more weekend service, as shown in **Table 2**.

Table 2: Survey Responses from MARTY Riders on Top Needed Service Improvements

Service Improvement Type	Responses
Service to more locations	61% (11)
More service on weekends	56% (10)
Flexible/on-demand services open to everybody	50% (9)
More service later in the day	28% (5)
Different transfer locations	22% (4)
More service earlier in the day	11% (2)
Other (please specify)	11% (2)

The following map highlights the most mentioned areas for needing new service based on all outreach activities.

- North Stuart/Rio/North Rivers Shores
- South Central Stuart
- Palm City
- Jensen Beach
- Hobe Sound



A few participants indicated a need for regional connections to Fort Lauderdale/Hollywood International Airport and Palm Beach International Airport, Tri-Rail and Brightline. Flexible/on-demand services are a growing trend that help overcome first-mile last-mile connections in suburban places within Martin County. The interest in Martin County for this service is high in relation to those who participated in the study, as it was the second most selected potential improvement that would encourage residents to try MARTY service.

MARTY currently has no Saturday or Sunday Service, which limits the ability for employees who work on weekends and residents needing to make essential trips from using the system. Respondents generally favored having more service on the weekends over more service later in the day and more service earlier in the day.

“I was at a doctor’s appt wherein 5 people had called in sick, and so all appointments were late. As I finally left, there was a disabled man outside- he told me because of the Doctor’s situation, he was not able to meet his Marty bus (which were the last two of the day) and so was desperately trying to find some friend who could drive him home. This situation is not Marty’s fault, I just wanted to let you know how sad it is for the disabled.”

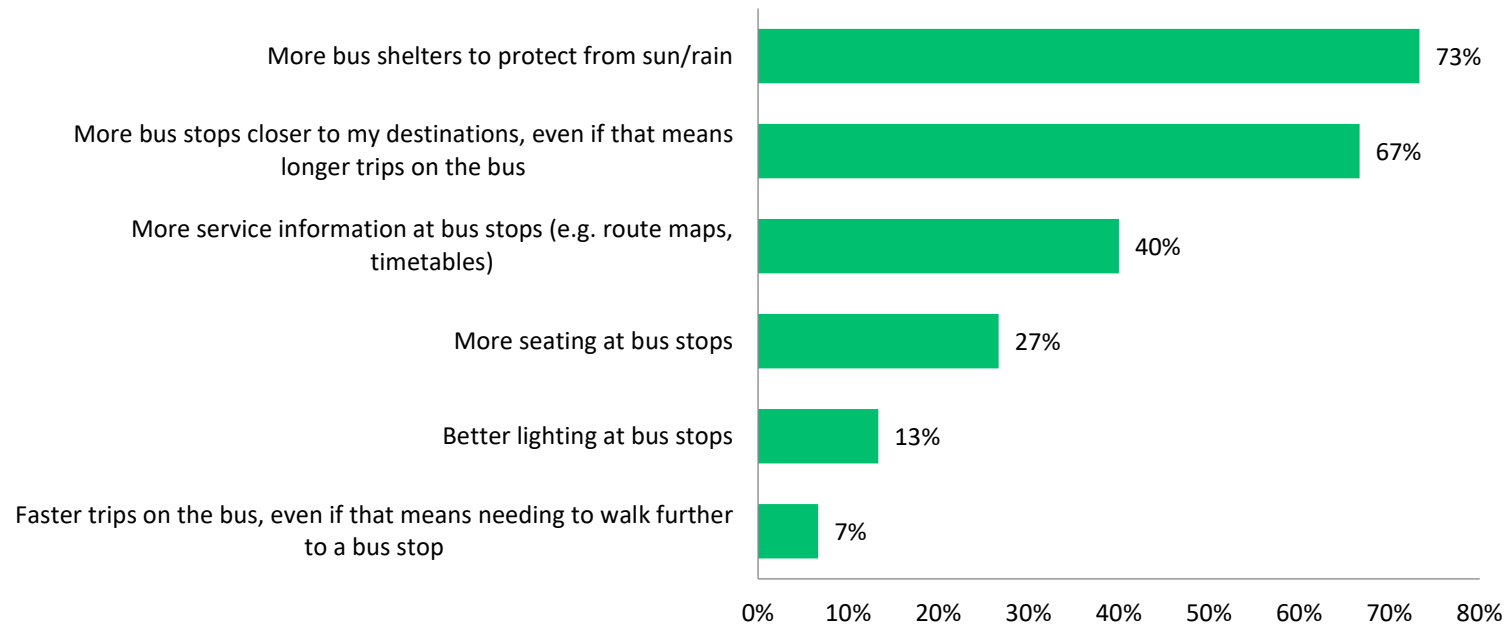
Respondents shared bus stop location needs including the need for new bus stops on existing routes and bus stop infrastructure, namely shelters. A strong need for new bus stops on existing routes was identified. MARTY stops spacing averages are between 1 to 2.6 miles, which is a farther distance than the industry standard of ¼-mile spacing. The top second response to the survey question asking survey respondents which bus stop feature they would like to see the most was “More bus stops closer to my destinations, even if that means longer trips on the bus”.

Although there is a general need for adding new bus stops to the existing service area, the following locations were specifically identified during outreach as having the need for a new bus stop:

- Major employment centers like Sands Commerce Park, shopping centers such as those located west of I-95, libraries, museums, hotels, tourist areas
- Route 1 – at Crunch Fitness near 2540 SE Federal Hwy, Stuart (also in need of crosswalk)
- Route 2 – Additional stops in Village of Indiantown, Love and Hope in Action (LAHIA), Kane Center
- Route 3 – between US 1 and SE Seville Street

There was strong support for adding bus shelters at existing bus stops as shown in **Figure 18**, where “More bus shelters to protect from sun/rain” was the top response. Other transit infrastructure needed included more service information at bus stops, additional benches, and trash cans.

Figure 18: Survey Responses Regarding MARTY Services People Want to See More Of



“MARTY needs shelters at all stops the most. The City of Stuart has a severe lack of shelters. Hospital stop needs priority. People waiting for care are standing in the hot sun.”

“The stop on US-1 and Wright Blvd. is nothing short of dangerous. Riders step off onto uneven grass, sometimes fire ants.”

Creating safe, accessible stops is critical. In addition to access and safety, visible bus stops with shelters can increase awareness of the service. Only 10% of 198 survey respondents indicated that they were aware of MARTY's fixed route services.

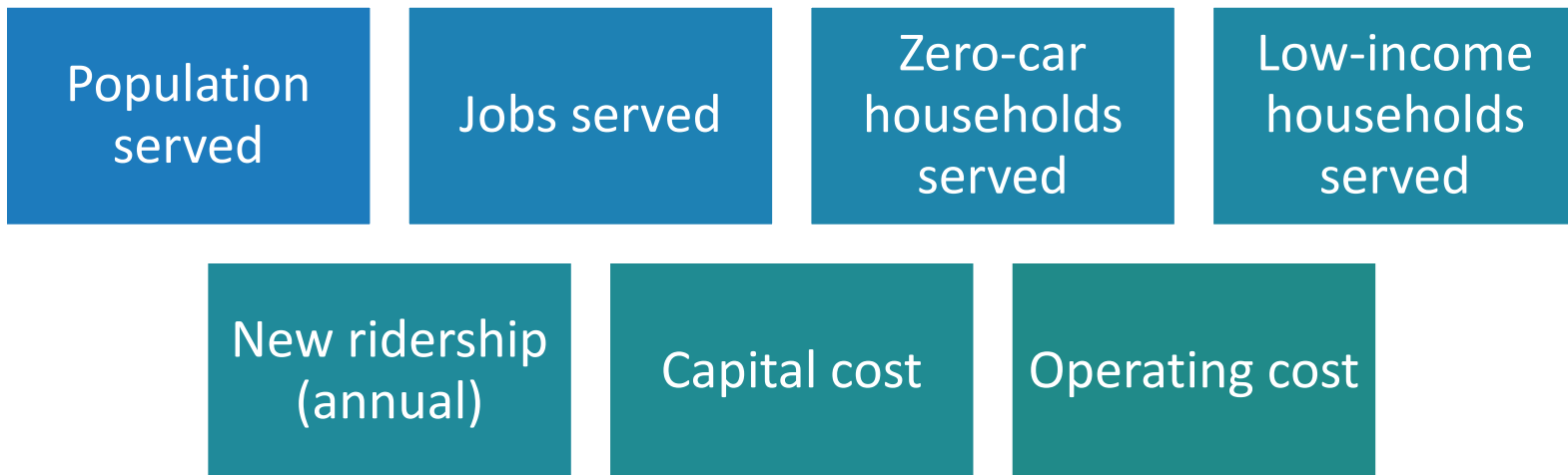
Regarding real-time bus arrival information, it was suggested route schedules be provided at strategic locations and that more route information is shared on bus stop posts.

"For those who have never ridden a Martin County bus or used public transportation, it is challenging to figure out where to start."

Lastly, some participants indicated that fares should be free, similar to neighboring transit agencies, or free for special populations (e.g., elderly, disabled, low-income and children).

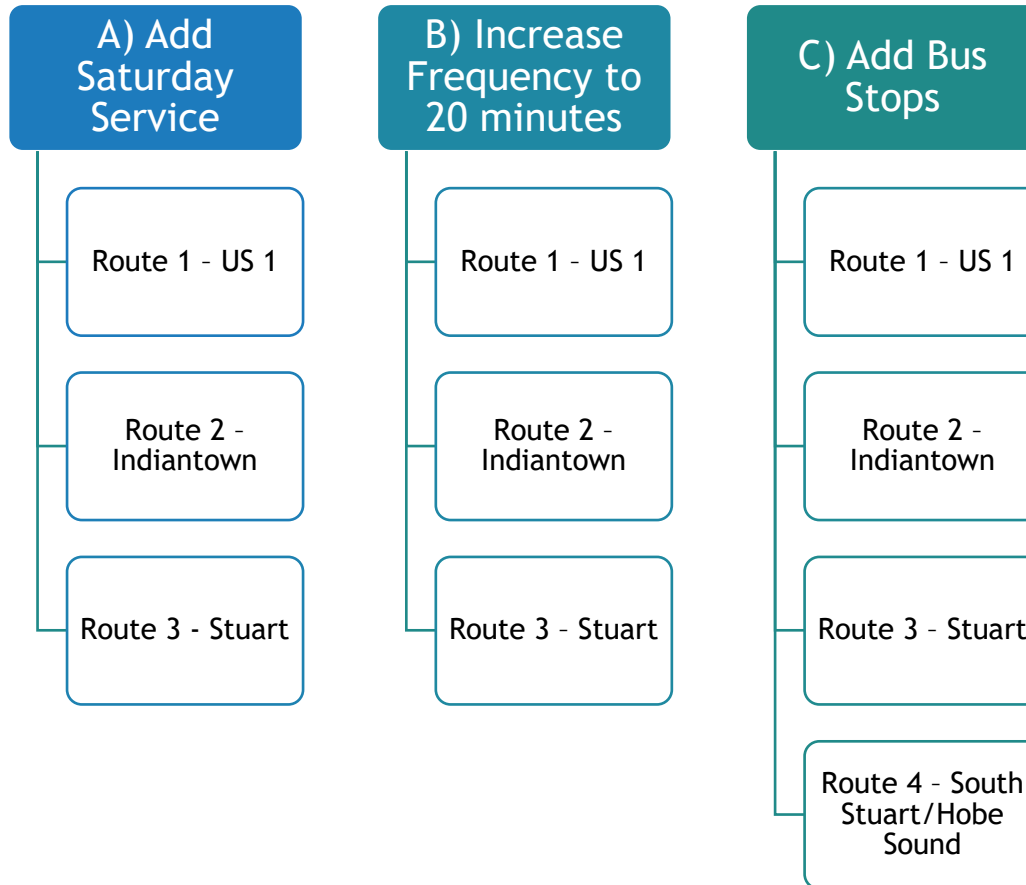
TRANSIT EFFICIENCY ANALYSIS

The study team developed and tested two transit network scenarios: one for ridership and one for coverage. The scenarios were defined using data, information, and meeting feedback collected. The following key metrics were assessed for each scenario:



Ridership Scenario

The following strategies were tested under the ridership scenario:



Choice Riders

Improving existing services could attract more choice riders.

41% of survey respondents indicated they have never ridden the region's transit but were interested in trying.



Add Saturday Service

The need for Saturday service was identified during the outreach. Adding Saturday service to the top performing routes (Routes 1, 2, and 3) with existing weekday levels of service could increase ridership by nearly 12,000 annual trips (14% annually). Service was assumed from 6AM to 8PM.

Increase Frequency

The top performing routes, Routes 1, 2, and 3, were selected for increasing frequency from 35 to 40 minutes down to 20-minute headways while maintaining the span of service. Ridership on Route 1, 2, 3 could increase by 16,220 (36%), 4,800 (40%), and 7,720 (48%), respectively. Increasing the routes to this frequency could increase annual operating costs by \$2.0M and would require the purchase of seven additional vehicles, as listed in **Table 3**.

Table 3: Increase Frequency Operating Costs and Vehicle Needs

Route	Current Headways	Current Annual Revenue Hours	Additional Annual Operating Cost*	Additional Vehicles
Route 1	35 mins	10,710	\$953,297	3
Route 2	35 mins	4,805	\$427,693	2
Route 3	40 mins	7,140	\$635,531	2
Total		22,655	\$2,016,521	7

**Assumes \$89.01 operating cost per hour (Preliminary 2022 NTD Data with Transit Building Lease factored)*

Add Bus Stops

Adding bus stops would increase the effectiveness of the service while also increasing the visibility of the system. MARTY has an average bus stop spacing that ranges from 1.0 to 2.6 miles. If MARTY desires to achieve the industry standard of ¼-mile bus stop spacing, 216 new stops could be added; however additional analysis would be needed to refine where bus stops would be most beneficial. Annual ridership on Routes 1, 2, 3 and 4 could increase by 223% (194.8k new riders). Access to people and jobs would increase over 110% for low-income households and over 130% for zero-vehicle households.

Although this scenario is presented as an exercise to assess the potential ridership impact that may occur from achieving the industry standard bus stop spacing, it is known that adding a significant number of bus stops to any route will increase dwell times, as dwell times are impacted by passenger activity, lift operations, bus floor types, time of day and route type. Therefore, careful monitoring of on-time performance should be conducted during implementation. To compensate for the impacts to the schedule that may occur, it was assumed to add:

- 2 buses to Route 1
- 1 bus to Route 2
- 1 bus to Route 4

Route 3 is short and condensed and therefore may not require an additional bus or driver. **Table 4** lists the existing and potential number of stops that can be added to each hour assuming ¼-mile and ½ mile bus stop spacing.

Table 4: Quarter-mile and Half-mile Bus Stop Spacing Impacts

Route and Bus Stop Characteristics	Route 1	Route 2	Route 3	Route 4	Total
Round trip route length (miles)	27.9 mi.	28.5 mi.	23.2 mi.	22.8 mi.	102.4 mi.
Existing average stop spacing (miles)	0.96 mi.	2.59 mi.	1.10 mi.	1.75 mi.	1.38 mi.
¼-mile spacing impacts					
Number of stops with ¼-mile spacing	113 stops	30 stops*	93 stops	54 stops	290 stops
Number of existing stops	29 stops	11 stops	21 stops	13 stops	74 stops
Added stops	84 stops	19 stops	72 stops	41 stops	216 stops
½-mile spacing impacts					
Number of stops with ½-mile spacing	57 stops	30 stops*	47 stops	29 stops	163 stops
Number of existing stops	29 stops	11 stops	21 stops	13 stops	74 stops
Added stops	28 stops	19 stops	26 stops	16 stops	89 stops

**Route 2 stops not added along rural areas or undeveloped areas of Route 2 alignment.*

Route 2 spacing greater than ½-mile

Coverage Scenario

Although several areas were identified during outreach as potential areas to increase coverage, two areas were analyzed as a part of the scope of services:

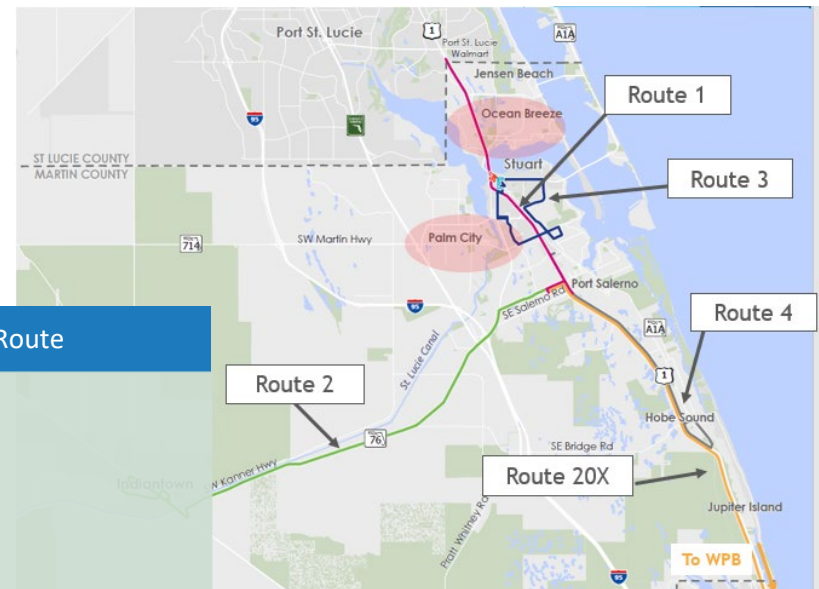
- New North Stuart/Rio/Jensen Beach Route
- New Palm City Route

New North Stuart/Rio/Jensen Beach Route

- Implement as Flex Route
- Route Length: ~10.5 miles
- Area: ~11 sq mi
- 6 am to 8 pm
- 60-minute headways

New Palm City Route

- Implement as Flex Route
- Route Length: ~10 miles
- Area: ~4 sq mi
- 6 am to 8 pm
- 60-minute headways



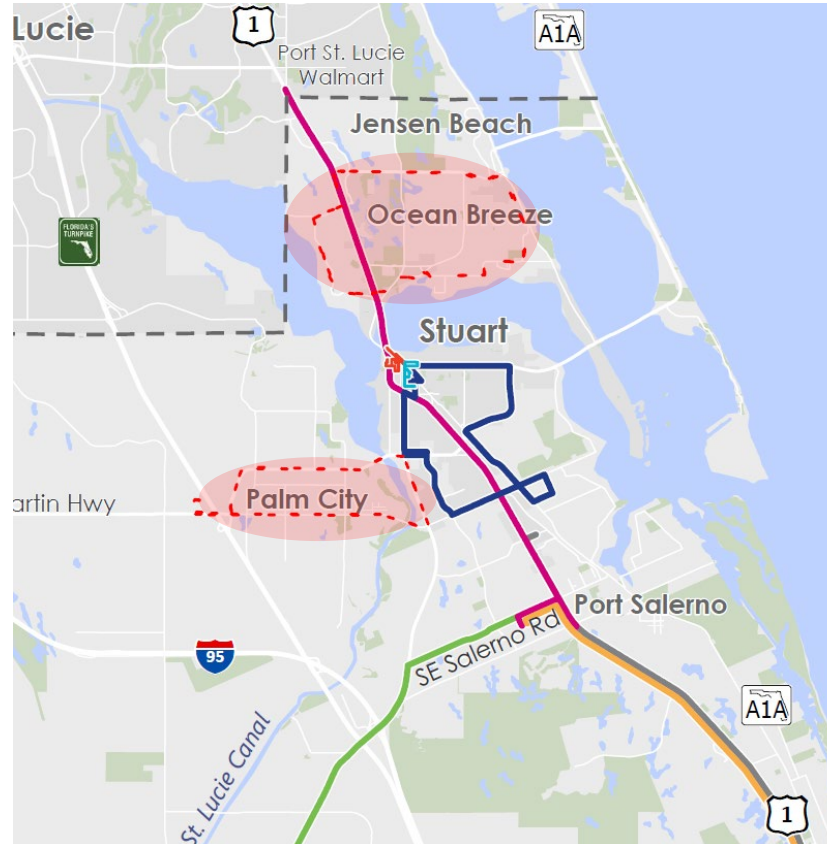
Jensen Beach/Rio/North Stuart Route

A strong need for transit was identified during outreach. Community transit is recommended due to the limited street connectivity. Implementing a 10.6-mile flex route from 6:00 AM to 8:00 PM requires two (2) new vehicles. The area would ideally cover the eight (8) square mile area shown in **Figure 19**. Flex routes do not require new ADA services.

Palm City Route

The public indicated that service is needed in Palm City with connections to services and destinations in Stuart. Community transit service is recommended due to limited roadway connectivity. This strategy and area were also identified in the prior MARTY 2020-2029 TDP Major Update.

Figure 19: Potential New Service Area Zones



Scenario Performance

Table 5 lists the potential impacts each type of transit improvement could have to accessibility and ridership. Impacts were estimated using T-BEST Land Use Model 2021. The model was validated using FY 22 ridership data from MARTY. Socioeconomic totals are based on a ¼-mile distance from bus stops (Employment Year 2021, Census Year 2010, Parcel Year 2020)

Table 5: Potential Accessibility and Ridership Impacts

Scenario	Improvement	Population Served	Employment Served	Zero-Car HH Served	Low Income HH Served	Potential New Riders - Annualized (% increase entire system)
Ridership	Add Saturday Service • Route 1 US 1 • Route 2 Indiantown • Route 3 Stuart	15,673	31,743	461	1,933	11,995 (↑14%)
	Increase Frequency to 20 minutes • Route 1 US 1 • Route 2 Indiantown • Route 3 Stuart	15,673	31,743	461	1,933	30,934 (↑35%)
	Add 216 new bus stops • Route 1 US 1 • Route 2 Indiantown • Route 3 Stuart • Route 4 South Stuart/Hobe Sound	42,609	56,899	1,277	5,228	194,771 (↑223%)
Coverage	New North Stuart/Rio/Jensen Beach Community Transit Route	17,791	10,770	376	1,848	47,023 (↑46%)
	New Palm City Community Transit Route	8,344	4,935	198	702	42,724 (↑51%)

Operating and Capital Cost

Table 6 lists the operating and capital costs for the ridership and coverage scenarios. The following assumptions from preliminary 2022 NTD calculations (with Transit Building Lease included) were used to estimate annual operating costs with the Transit Building lease is added back into the operating expenses the numbers are:

- Fixed-Route Cost per Revenue Hour = \$92.99
- Commuter Bus Cost per Revenue Hour = \$89.01
- Demand Response Cost per Revenue Hour = \$148.78

The capital cost for fixed-route vehicles was assumed to be \$480,512.

A large 22-seat cutaway bus was assumed for the Palm City and Jensen Beach/Rio/North Stuart routes. Based on Marty's recent discussion with Creative Bus Sales, the cost of a Large Cutaway (22 seat) was assumed to cost between \$160,000 and \$200,000. A conservative estimate of \$200,000 was used.

Bus stop costs can range from \$12,000 to \$40,000, depending on the bus stop infrastructure (benches, shelters, trash can, etc.) and purchase of right-of-way. Depending on the needs of each stop, the capital cost of adding 216 new bus stops could range from \$2.2 million to \$8.6 million (not including the purchase of four additional buses). Challenges to bus stop placement include restricted right of way, roadside infrastructure, agreements with business and property owners, and maintenance agreements. A bus stop study is recommended to assess bus stop locations and ADA compliance.



Length: 29+ ft. Passengers: 20-24
Chassis: Medium-duty or Light-duty

Table 6: Planning Level Operating and Capital Cost Estimates

Improvement	Additional Annual Revenue Hours	Annual Operating Cost	# New Veh	Capital Cost
Ridership Scenario				
Add Saturday Service Routes 1, 2, 3	5,169	\$480,660 ¹	0	\$0
Double Frequency on Routes 1, 2, 3	22,655	\$2,106,690	7	\$3.4M ²
Add 216 new bus stops on Routes 1, 2, 3, 4	0	\$1,148,180	4	\$3.5M-\$11.7M ²
Coverage Scenario				
New North Stuart/Rio/Jensen Flex Route	7,631	\$1,135,340	2	\$400,000 ³
New Palm City Flex Route	7,663	\$1,140,100	2	\$400,000 ³

1. Annual operating cost does not include the cost of additional ADA service.

2. Assumes fixed-route bus is \$480,512 based on prior TDP

3. Assumes 22-passenger cutaway bus is \$200,000.

CONCLUSIONS AND SUMMARY OF RECOMMENDATIONS

Based on the analysis and feedback received from all parties, the study team recommends the following strategies be further explored in the next TDP Major Update:

- Ridership Scenario Strategies Tested
 - Increase Frequency to 20 minutes
 - Add bus stops
 - Consider weekend service
- Policy:
 - Investigate improved ticketing and fare payment process
 - Explore fare free programs/options
 - Encourage local agency to include MARTY in the development review process
- Coverage Scenario Strategies Tested
 - Add New North Stuart/Rio/Jensen Community Transit Route
 - Add Palm City Flex Community Transit Route
- Focus on a ridership scenario and consider providing more coverage as well, for a hybrid scenario

Feedback for next steps (i.e., the TDP) received at the June 2023 MPO Advisory Committee Meetings and MPO Policy Board Meeting on the above recommendations included the following:

- The MPO Policy Board approved a recommendation for the direction of the TDP to be focused on the ridership alternative
- There was a stronger preference for a hybrid scenario amongst the Advisory Committees, where both coverage and ridership models were accommodated.
- Providing service on the weekend is important.
- Two-hundred Sixteen (216) new bus stops seem excessive, and strategy should be applied, and in-the-field investigation should occur.
- Adding new bus stops should increase the vehicles needed to run the service.
- Piloting strategies to see effectiveness and overall performance was favored.
- Service to affordable housing areas should be explored.
- Concern was shared on 'empty buses'.
- Marketing strategies were shared to help spread the word the service existing. One example was 'Ride with Susie' where a video explaining how to use the system can be shared with the general public.
- More service for senior citizens was desired – Jensen Beach and Ocean Breeze were noted.
- Jensen Causeway and Stuart beach service was desired.
- A live demo showing ridership capture potential was requested (if possible) during the next TDP update.
- Golden Gate was mentioned as an area needing shelters and bike racks.

June 2023 MPO Advisory Committees and MPO Policy Board Feedback continued:

- It was emphasized, and stated as a must, that the next phase conduct additional community outreach and get much higher engagement numbers.
- A request was made to reach out to and survey non-profit agencies.
- A concern was shared regarding the safety of riders around bus stop locations, and access in Indiantown was specifically discussed as something to explore.
- Focus on people who need the service and focus on the top one or two improvements first.
- A story was shared regarding a piloted service in Indiantown that had low ridership. It was clear that connecting with a community is key to creating a successful service that residents will use. Building community champions for MARTY will be important.

APPENDIX A

Case Studies NTD 2021 Reports

General Information

Urbanized Area Statistics - 2010 Census

Sebastian-Vero Beach South-Florida Ridge, FL
97 Square Miles
149,422 Population
220 Pop. Rank out of 498 UZAs

Other UZAs Served

0 Florida Non-UZA

Service Consumption

5,508,576 Annual Passenger Miles (PMT)
1,162,905 Annual Unlinked Trips (UPT)
4,312 Average Weekday Unlinked Trips
973 Average Saturday Unlinked Trips
0 Average Sunday Unlinked Trips

Database Information

NTDID: 40104
Reporter Type: Full Reporter
Asset Type: Tier II
Sponsor NTDID:

Assets

Revenue Vehicles 37
Service Vehicles 5
Facilities 2
Track Miles
Lane Miles

Service Supplied

1,091,973 Annual Vehicle Revenue Miles (VRM)
67,517 Annual Vehicle Revenue Hours (VRH)
27 Vehicles Operated in Maximum Service (VOMS)
37 Vehicles Available for Maximum Service (VAMS)

Service Area Statistics

210 Square Miles
159,923 Population

Modal Characteristics

Modal Overview	Vehicles Operated in Maximum Service		Uses of Capital Funds				
	Directly Operated	Purchased Transportation	Revenue Vehicles	Systems and Guideways	Facilities and Stations	Other	Total
Mode							
Demand Response	-	13 ¹	\$153,602	\$5,689	\$0	\$0	\$159,291
Bus	-	14 ¹	\$458,725	\$262,878	\$0	\$86,413	\$808,016
Total	-	27	\$612,327	\$268,567	\$0	\$86,413	\$967,307

Operation Characteristics

Mode	Operating Expenses	Fare Revenues	Uses of Capital Funds	Annual Passenger Miles	Annual Unlinked Trips	Annual Vehicle Revenue Miles	Annual Vehicle Revenue Hours	Fixed Guideway Directional Route Miles	Vehicles Available for Maximum Service	Vehicles Operated in Maximum Service	Percent Spare Vehicles	Average Fleet Age in Years ^a
Demand Response	\$1,234,243 ¹	\$0 ¹	\$159,291	189,408	24,207	239,132	17,497	0.0	16	13 ¹	23.1%	7.0
Bus	\$3,122,983 ¹	\$0 ¹	\$808,016	5,319,168	1,138,698	852,841	50,020	0.0	21	14 ¹	50.0%	4.3
Total	\$4,357,226	\$0	\$967,307	5,508,576	1,162,905	1,091,973	67,517	0.0	37	27	27.0%	

Performance Measures

Service Efficiency

Mode	Operating Expenses per Vehicle Revenue Mile	Operating Expenses per Vehicle Revenue Hour
Demand Response	\$5.16	\$70.54
Bus	\$3.66	\$62.43
Total	\$3.99	\$64.54

Service Effectiveness

Mode	Operating Expenses per Passenger Mile	Operating Expenses per Unlinked Passenger Trip	Unlinked Trips per Vehicle Revenue Mile	Unlinked Trips per Vehicle Revenue Hour
Demand Response	\$6.52	\$50.99	0.1	1.4
Bus	\$0.59	\$2.74	1.3	22.8
Total	\$0.79	\$3.75	1.1	17.2



Performance Measure Targets - 2022

Performance Measure - Asset Type - Target % not in State of Good Repair
Equipment - Automobiles - 100%
Equipment - Trucks and other Rubber Tire Vehicles - 0%
Facility - Administrative / Maintenance Facilities - 0%
Facility - Passenger / Parking Facilities - 0%
Rolling Stock - BU - Bus - 0%
Rolling Stock - CU - Cutaway - 24%
Rolling Stock - MV - Minivan - 67%
Rolling Stock - VN - Van - 71%

Notes:

^aDemand Response - Taxi (DR/TX) and non-dedicated fleets do not report fleet age data.

¹Includes data for a contract with another reporter.

^{*}This agency has a purchased transportation relationship in which they buy service from Senior Resource Association of Indian River County (NTDID: Entity that Does Not Report to NTD), and in which the data are captured in this report for mode DR/PT.

^{*}This agency has a purchased transportation relationship in which they buy service from Senior Resource Association of Indian River County (NTDID: Entity that Does Not Report to NTD), and in which the data are captured in this report for mode MB/PT.

Financial Information

Sources of Operating Funds Expended

Fares and Directly Generated	\$48,463	1.1%
Local Funds	\$460,520	10.6%
State Funds	\$387,263	8.9%
Federal Assistance	\$3,460,980	79.4%

Total Operating Funds Expended \$4,357,226 100.0%

Sources of Capital Funds Expended

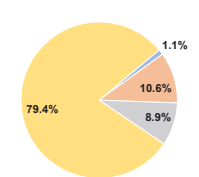
Fares and Directly Generated	\$0	0.0%
Local Funds	\$8,826	0.9%
State Funds	\$8,827	0.9%
Federal Assistance	\$949,654	98.2%

Total Capital Funds Expended \$967,307 100.0%

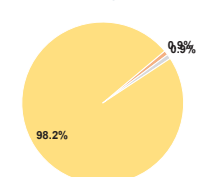
Summary of Operating Expenses (OE)

Labor	\$58,625	1.3%
Materials and Supplies	\$0	0.0%
Purchased Transportation	\$4,298,601	98.7%
Other Operating Expenses	\$0	0.0%
Total Operating Expenses	\$4,357,226	100.0%
Reconciling OE Cash Expenditures	\$0	
Purchased Transportation (Reported Separately)	\$0	

Operating Funding Sources



Capital Funding Sources



General Information

Service Consumption

116,666 Annual Unlinked Trips (UPT)

Service Supplied

476,919 Annual Vehicle Revenue Miles (VRM)
30,776 Annual Vehicle Revenue Hours (VRH)

Summary of Operating Expenses (OE)

\$2,298,626 Total Operating Expenses

Database Information

NTDID: 4R06-44931
Reporter Type: Rural General Public Transit
Asset Type: Tier II
Sponsor NTDID: 4R06

Assets

Revenue Vehicles 48
Service Vehicles -
Facilities 1

Financial Information

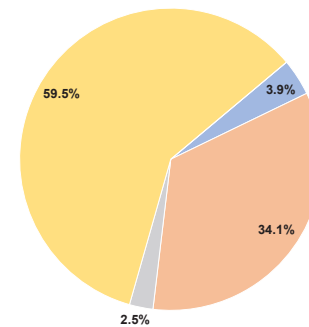
Sources of Operating Funds Expended

Fare Revenues	\$90,276	3.9%
Local Funds	\$783,183	34.1%
State Funds	\$57,988	2.5%
Federal Assistance	\$1,367,179	59.5%
Other Funds	\$0	0.0%
Total Operating Funds Expended	\$2,298,626	100.0%

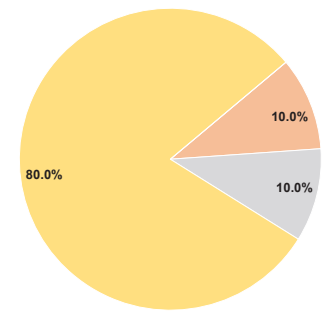
Sources of Capital Funds Expended

Fare Revenues	\$0	0.0%
Local Funds	\$14,386	10.0%
State Funds	\$14,388	10.0%
Federal Assistance	\$115,103	80.0%
Other Funds	\$0	0.0%
Total Capital Funds Expended	\$143,877	100.0%

Operating Funding Sources



Capital Funding Sources



Modal Characteristics

Operation Characteristics

Vehicles Operated at Maximum Service

Mode	Directly Operated	Purchased Transportation	Operating Expenses	Fare Revenues	Uses of Capital Funds	Annual Unlinked Trips	Annual Vehicle Revenue Miles	Annual Vehicle Revenue Hours
Demand Response	2	18	\$2,298,626	\$90,276	\$143,877	116,666	476,919	30,776
Total	2	18	\$2,298,626	\$90,276	\$143,877	116,666	476,919	30,776

Performance Measures

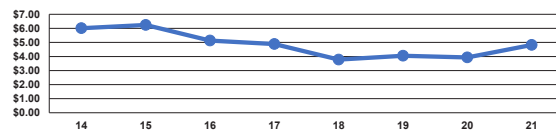
Service Efficiency

Mode	Operating Expenses per Vehicle Revenue Mile	Operating Expenses per Vehicle Revenue Hour
Demand Response	\$4.82	\$74.69
Total	\$4.82	\$74.69

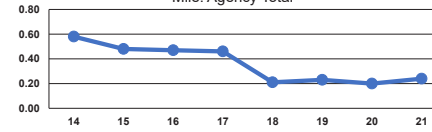
Service Effectiveness

Mode	Operating Expenses per Unlinked Passenger Trip	Unlinked Trips per Vehicle Revenue Mile	Unlinked Trips per Vehicle Revenue Hour
Demand Response	\$19.70	0.2	3.8
Total	\$19.70	0.2	3.8

Operating Expense per Vehicle Revenue Mile: Agency Total



Unlinked Passenger Trips per Vehicle Revenue Mile: Agency Total



Performance Measure Targets - 2022

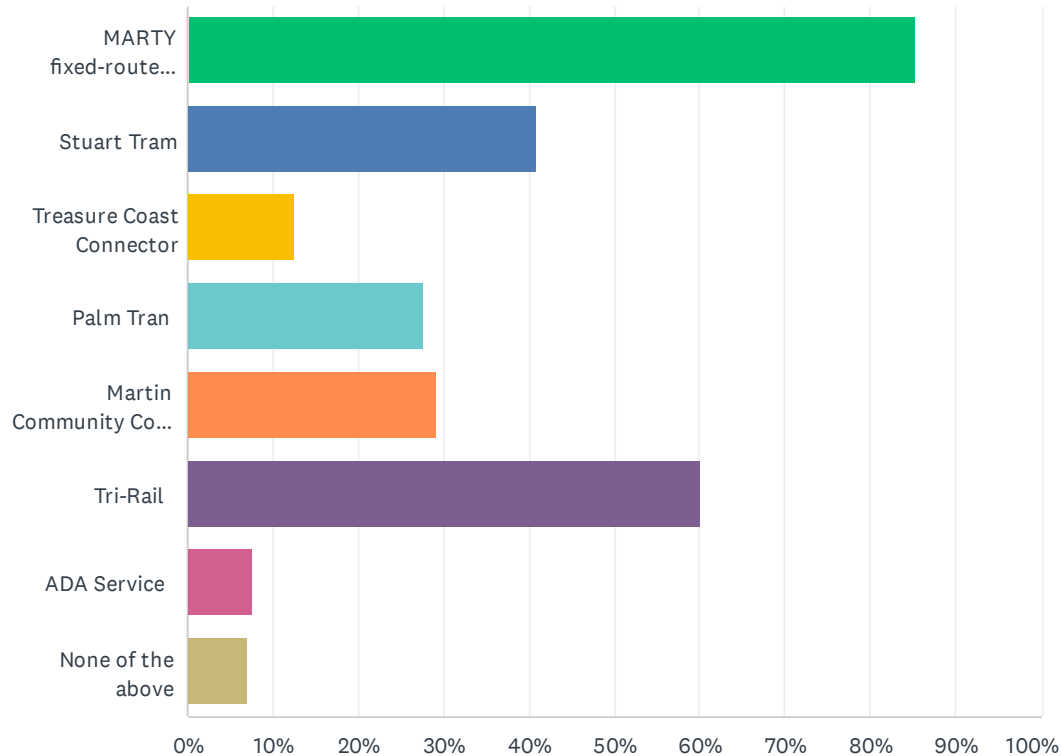
Performance Measure - Asset Type - Target % not in State of Good Repair
Equipment - Automobiles - 20%
Equipment - Trucks and other Rubber Tire Vehicles - 20%
Facility - Administrative / Maintenance Facilities - 20%
Facility - Passenger / Parking Facilities - 20%
Rolling Stock - BU - Bus - 20%
Rolling Stock - CU - Cutaway - 20%
Rolling Stock - FB - Ferryboat - 20%
Rolling Stock - MV - Minivan - 20%
Rolling Stock - OR - Other - 20%
Rolling Stock - SB - School Bus - 20%
Rolling Stock - SV - Sports Utility Vehicle - 20%
Rolling Stock - VN - Van - 20%

APPENDIX B

Survey Results

Q1 Before this survey, which transit services were you aware of? (check all that apply)

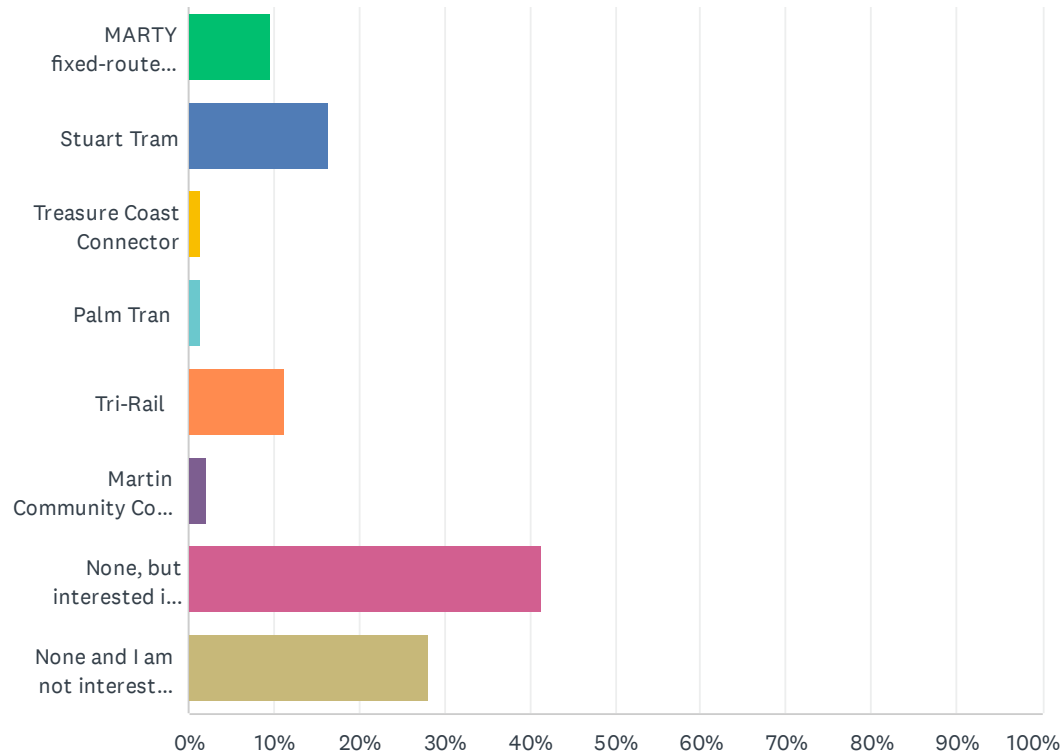
Answered: 198 Skipped: 0



ANSWER CHOICES	RESPONSES	
MARTY fixed-route buses	85.35%	169
Stuart Tram	40.91%	81
Treasure Coast Connector	12.63%	25
Palm Tran	27.78%	55
Martin Community Coach (Coordinated Transit)	29.29%	58
Tri-Rail	60.10%	119
ADA Service	7.58%	15
None of the above	7.07%	14
Total Respondents: 198		

Q2 Which of these services have you ridden in the last 24 months? (check all that apply)

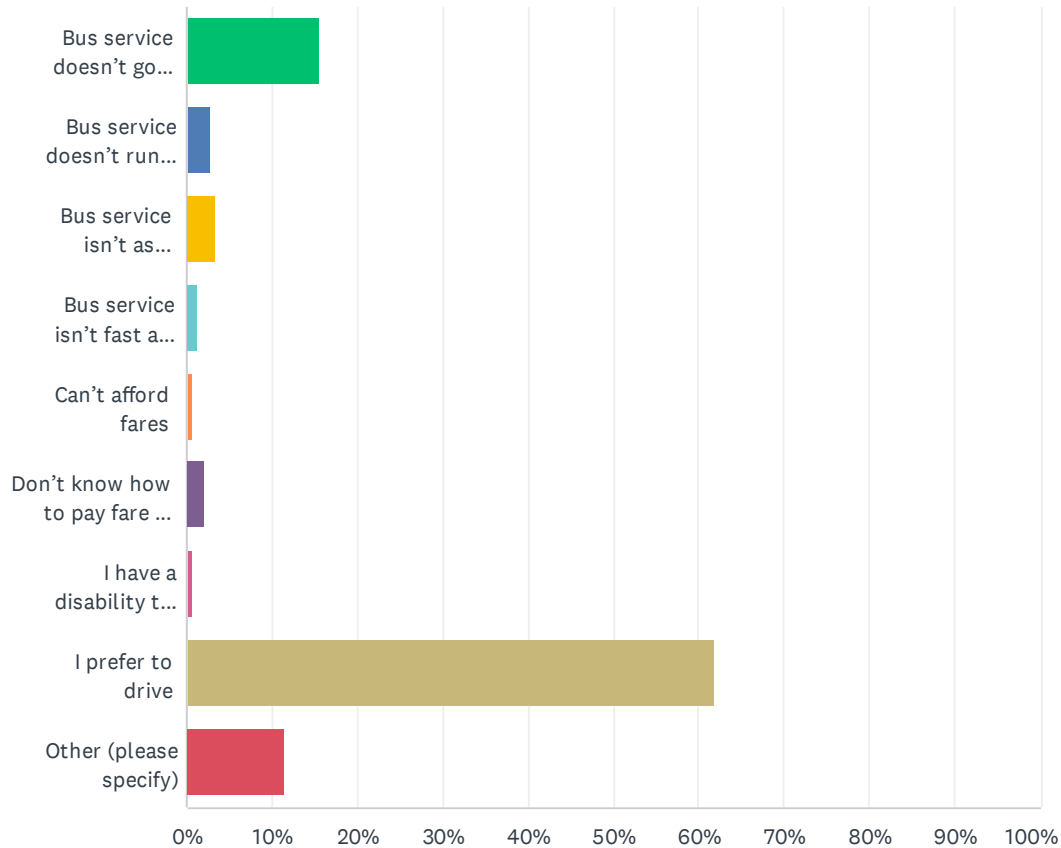
Answered: 196 Skipped: 2



ANSWER CHOICES	RESPONSES	
MARTY fixed-route buses	9.69%	19
Stuart Tram	16.33%	32
Treasure Coast Connector	1.53%	3
Palm Tran	1.53%	3
Tri-Rail	11.22%	22
Martin Community Coach (Coordinated Transit)	2.04%	4
None, but interested in trying.	41.33%	81
None and I am not interested in trying.	28.06%	55
Total Respondents: 196		

Q3 Why don't you ride MARTY bus services?

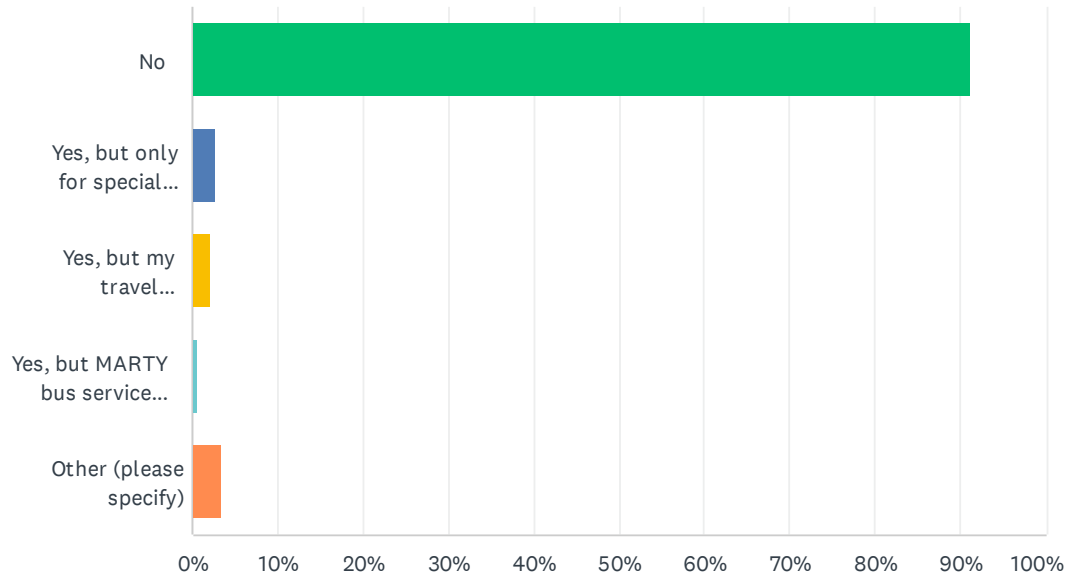
Answered: 147 Skipped: 51



ANSWER CHOICES	RESPONSES	
Bus service doesn't go where I need it to go	15.65%	23
Bus service doesn't run when I need to travel	2.72%	4
Bus service isn't as frequent as I need it to be	3.40%	5
Bus service isn't fast as I need it to be	1.36%	2
Can't afford fares	0.68%	1
Don't know how to pay fare or ride bus services	2.04%	3
I have a disability that makes traveling via bus difficult	0.68%	1
I prefer to drive	61.90%	91
Other (please specify)	11.56%	17
TOTAL		147

Q4 Have you used MARTY service at any point in the past?

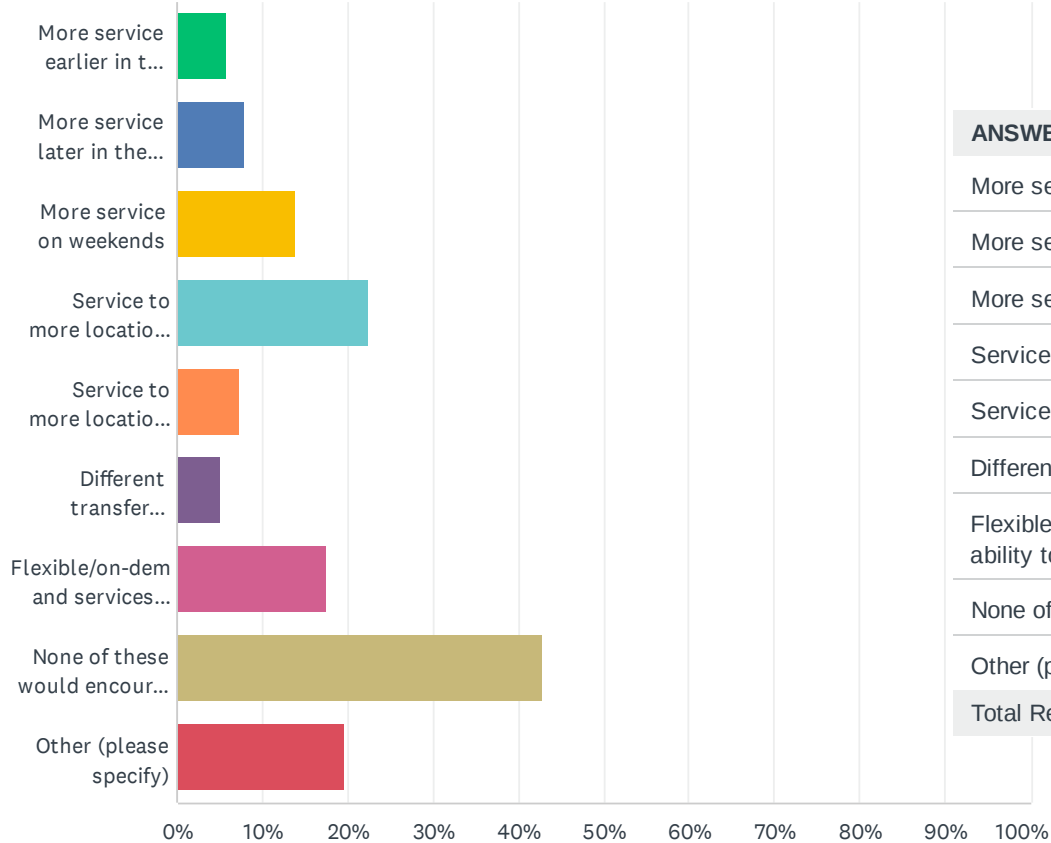
Answered: 147 Skipped: 51



ANSWER CHOICES	RESPONSES	
No	91.16%	134
Yes, but only for special events	2.72%	4
Yes, but my travel situation changed	2.04%	3
Yes, but MARTY bus service changed	0.68%	1
Other (please specify)	3.40%	5
TOTAL		147

Q5 What service improvements would most encourage you to try MARTY service? Select all that apply.

Answered: 138 Skipped: 60



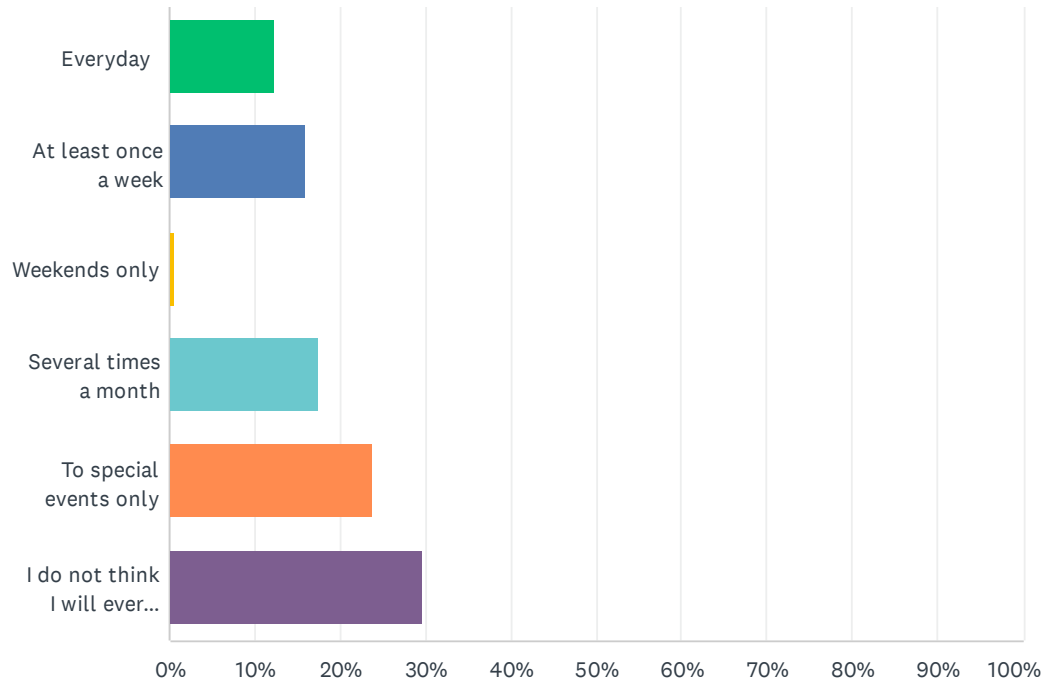
ANSWER CHOICES	RESPONSES	
More service earlier in the day	5.80%	8
More service later in the day	7.97%	11
More service on weekends	13.77%	19
Service to more locations within ____ (fill in blank in next question)	22.46%	31
Service to more locations outside ____ (fill in blank in next question)	7.25%	10
Different transfer locations	5.07%	7
Flexible/on-demand services open to everybody (providing the ability to travel more directly to/from your desired locations)	17.39%	24
None of these would encourage me to try MARTY service	42.75%	59
Other (please specify)	19.57%	27
Total Respondents: 138		

Q6 Following up with question 5, please specify where you would like more service.

Answered: 64 Skipped: 134

Q7 If MARTY service was available where you needed to go and fit your schedule, how often would you take it?

Answered: 138 Skipped: 60



ANSWER CHOICES	RESPONSES	
Everyday	12.32%	17
At least once a week	15.94%	22
Weekends only	0.72%	1
Several times a month	17.39%	24
To special events only	23.91%	33
I do not think I will ever take MARTY service	29.71%	41
TOTAL		138

Q8 Are there any specific places you would like to travel by MARTY bus if it was available? (Optional)

Answered: 46 Skipped: 152

Q9 What is one improvement MARTY service needs the most? (Optional)

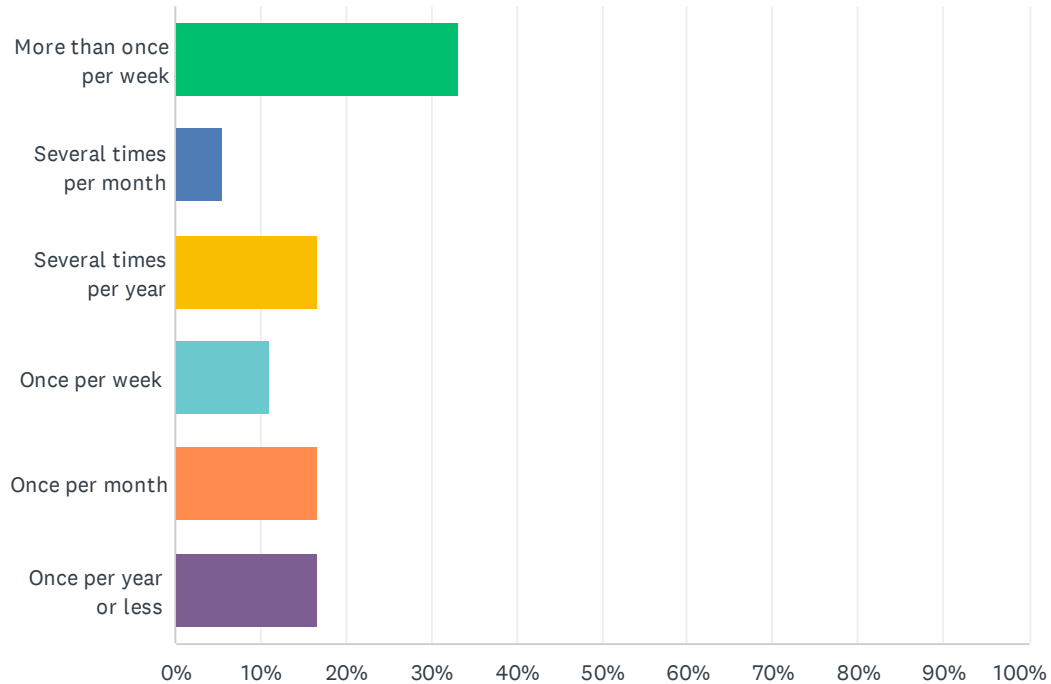
Answered: 47 Skipped: 151

Q10 Do you have any other comments on MARTY service that you would like to share? (Optional)

Answered: 44 Skipped: 154

Q11 How often do you use MARTY bus services?

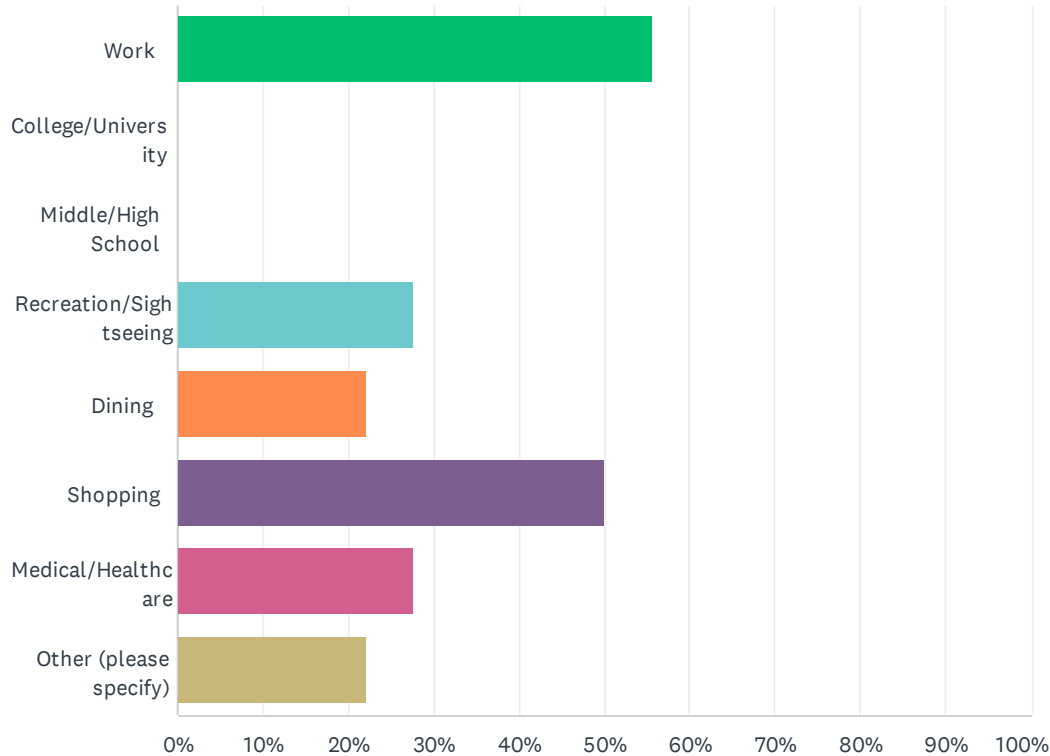
Answered: 18 Skipped: 180



ANSWER CHOICES	RESPONSES	
More than once per week	33.33%	6
Several times per month	5.56%	1
Several times per year	16.67%	3
Once per week	11.11%	2
Once per month	16.67%	3
Once per year or less	16.67%	3
TOTAL		18

Q12 What types of places do you use MARTY service to get to? (Select all that apply)

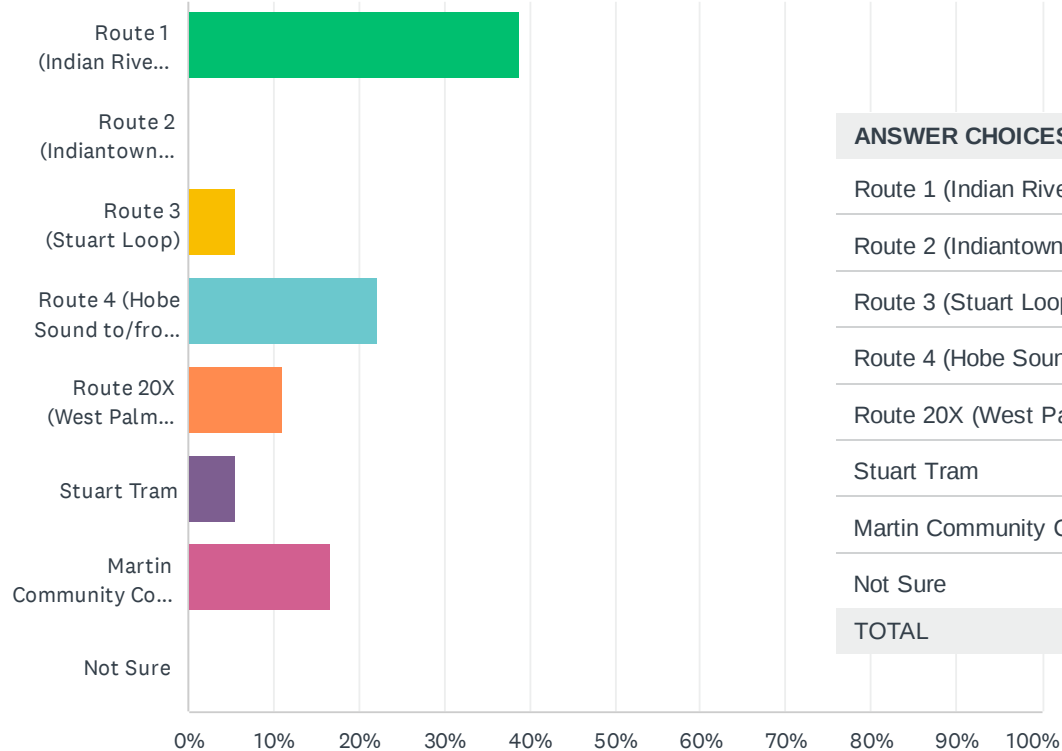
Answered: 18 Skipped: 180



ANSWER CHOICES	RESPONSES	
Work	55.56%	10
College/University	0.00%	0
Middle/High School	0.00%	0
Recreation/Sightseeing	27.78%	5
Dining	22.22%	4
Shopping	50.00%	9
Medical/Healthcare	27.78%	5
Other (please specify)	22.22%	4
Total Respondents: 18		

Q13 Which MARTY bus route do you most frequently use? (Select only one)

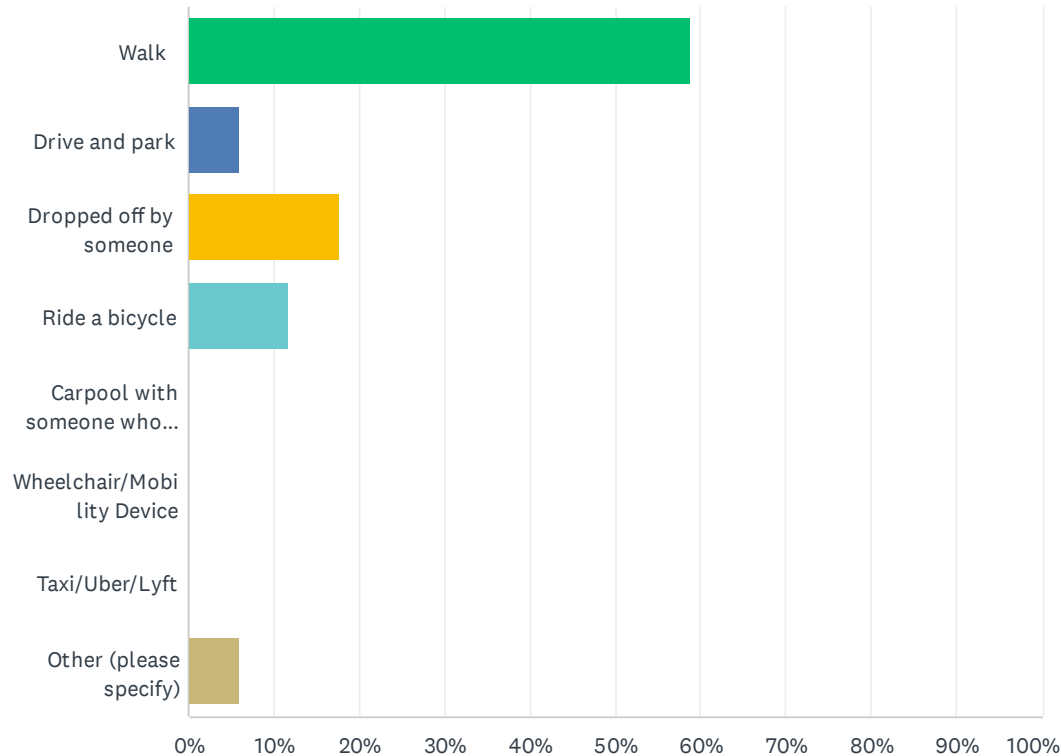
Answered: 18 Skipped: 180



ANSWER CHOICES	RESPONSES	
Route 1 (Indian River State College/Cleveland Clinic to/from PSL Walmart)	38.89%	7
Route 2 (Indiantown to/from Stuart)	0.00%	0
Route 3 (Stuart Loop)	5.56%	1
Route 4 (Hobe Sound to/from Stuart)	22.22%	4
Route 20X (West Palm Beach to/from Stuart Express)	11.11%	2
Stuart Tram	5.56%	1
Martin Community Coach (coordinated transit)	16.67%	3
Not Sure	0.00%	0
TOTAL		18

Q14 How do you generally get to the bus stop?

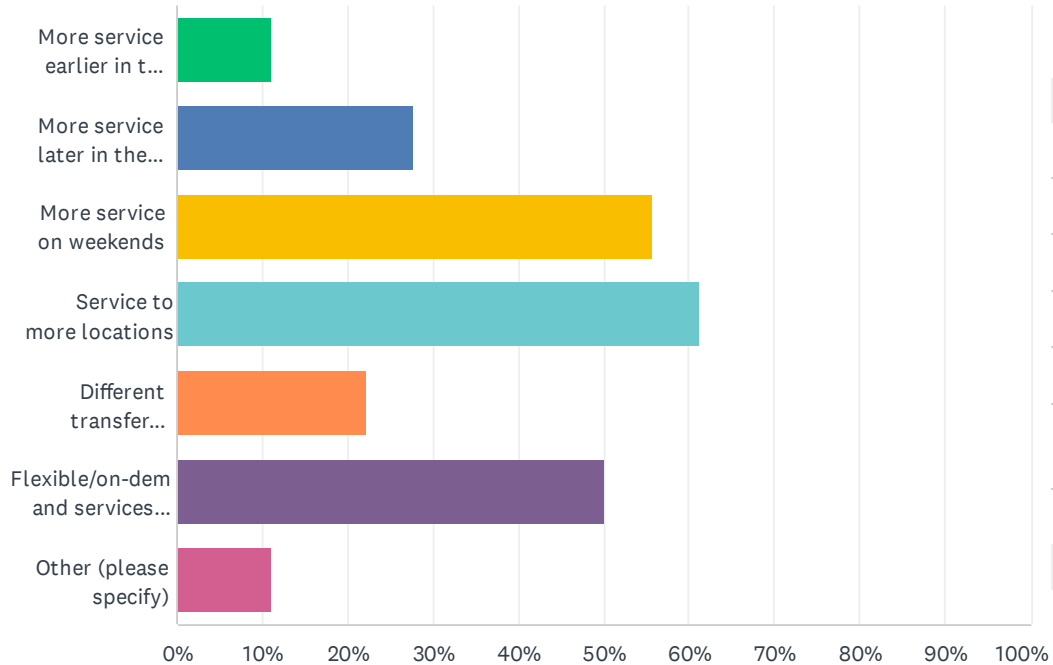
Answered: 17 Skipped: 181



ANSWER CHOICES	RESPONSES	
Walk	58.82%	10
Drive and park	5.88%	1
Dropped off by someone	17.65%	3
Ride a bicycle	11.76%	2
Carpool with someone who parked	0.00%	0
Wheelchair/Mobility Device	0.00%	0
Taxi/Uber/Lyft	0.00%	0
Other (please specify)	5.88%	1
TOTAL		17

Q15 What service improvements would make riding MARTY more convenient for you? (Choose your top three.)

Answered: 18 Skipped: 180



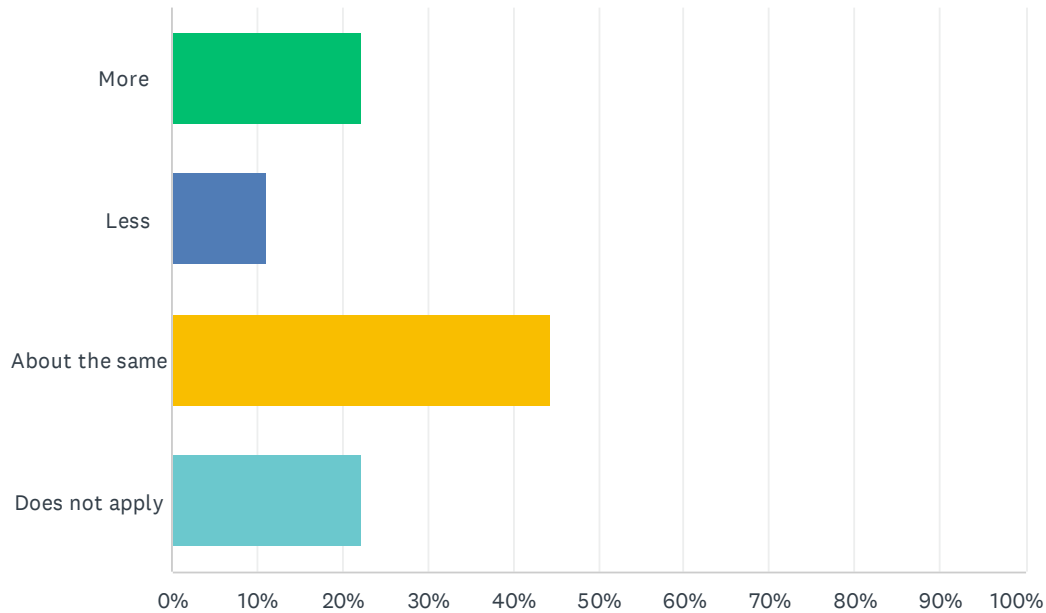
ANSWER CHOICES	RESPONSES	
More service earlier in the day	11.11%	2
More service later in the day	27.78%	5
More service on weekends	55.56%	10
Service to more locations	61.11%	11
Different transfer locations	22.22%	4
Flexible/on-demand services open to everybody (providing the ability to travel more directly to/from your desired locations)	50.00%	9
Other (please specify)	11.11%	2
Total Respondents: 18		

Q16 If MARTY served more locations, what locations would you recommend? You can be as specific or general as you like. (Optional)

Answered: 13 Skipped: 185

Q17 Do you ride MARTY bus service more or less than before the COVID-19 pandemic?

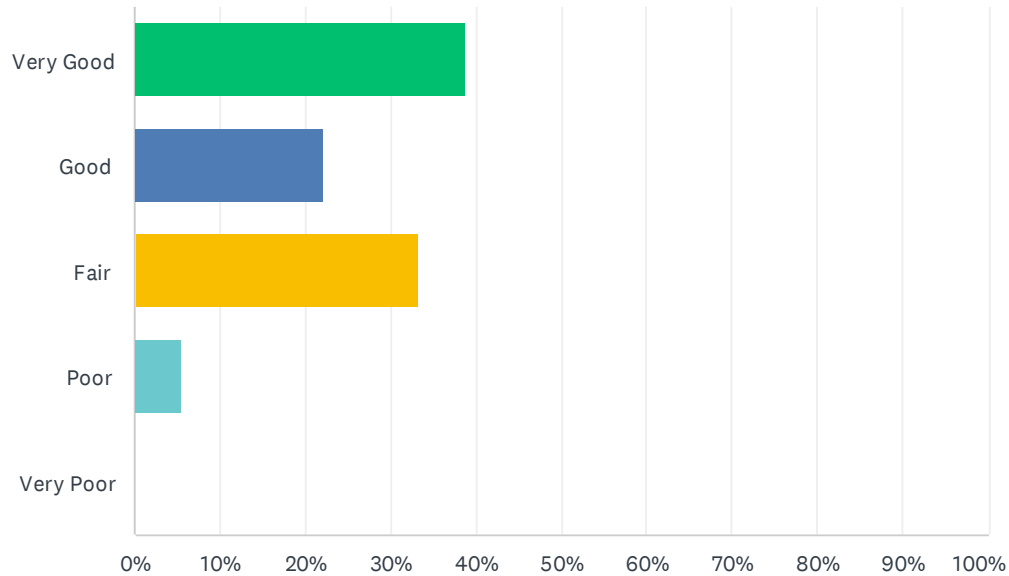
Answered: 18 Skipped: 180



ANSWER CHOICES	RESPONSES	
More	22.22%	4
Less	11.11%	2
About the same	44.44%	8
Does not apply	22.22%	4
TOTAL		18

Q18 Overall, how would you rate the experience of riding MARTY?

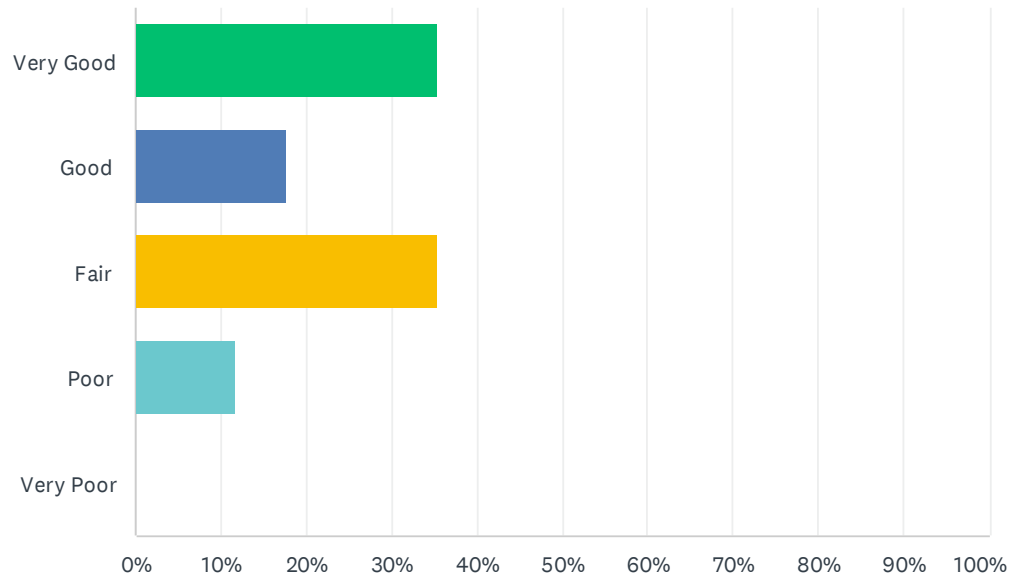
Answered: 18 Skipped: 180



ANSWER CHOICES	RESPONSES	
Very Good	38.89%	7
Good	22.22%	4
Fair	33.33%	6
Poor	5.56%	1
Very Poor	0.00%	0
TOTAL		18

Q19 Overall, how would you rate MARTY service reliability (e.g., on-time performance)?

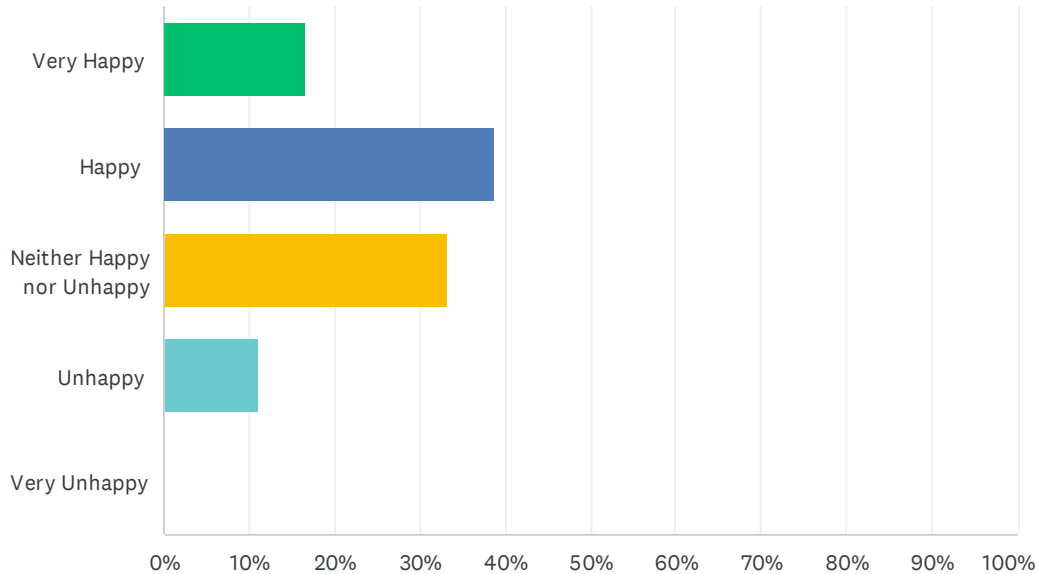
Answered: 17 Skipped: 181



ANSWER CHOICES	RESPONSES	
Very Good	35.29%	6
Good	17.65%	3
Fair	35.29%	6
Poor	11.76%	2
Very Poor	0.00%	0
TOTAL		17

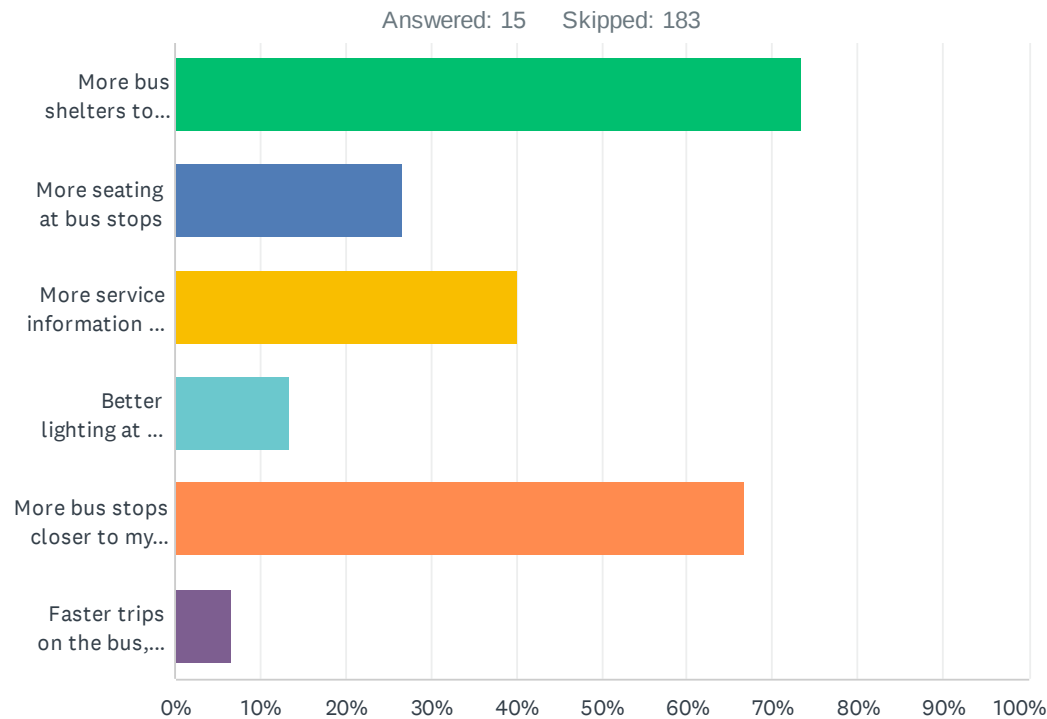
Q20 Overall, how happy are you with the time your journeys take using MARTY?

Answered: 18 Skipped: 180



ANSWER CHOICES	RESPONSES	
Very Happy	16.67%	3
Happy	38.89%	7
Neither Happy nor Unhappy	33.33%	6
Unhappy	11.11%	2
Very Unhappy	0.00%	0
TOTAL		18

Q21 Thinking about the MARTY service experience, which features do you want to see more of? Select all that apply.



ANSWER CHOICES	RESPONSES	
More bus shelters to protect from sun/rain	73.33%	11
More seating at bus stops	26.67%	4
More service information at bus stops (e.g. route maps, timetables)	40.00%	6
Better lighting at bus stops	13.33%	2
More bus stops closer to my destinations, even if that means longer trips on the bus	66.67%	10
Faster trips on the bus, even if that means needing to walk further to a bus stop	6.67%	1
Total Respondents: 15		

Q22 What is one improvement MARTY service needs the most? (Optional)

Answered: 14 Skipped: 184

Q23 Do you have any other comments on MARTY service that you would like to share? (Optional)

Answered: 13 Skipped: 185

Q24 What is your home ZIP code? (Optional)

Answered: 152 Skipped: 46

Q25 What is your work ZIP code? (Optional)

Answered: 95 Skipped: 103

Q26 Would you like to be included in further updates on this project? If so, please provide your email in the box below. (Optional)

Answered: 51 Skipped: 147