

Spring
2019
Draft

CITY OF STUART

TRAM BUSINESS PLAN

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MARTIN MPO Metropolitan Planning Organization

Stuart TRAM STOP

CITY OF STUART

TRAM BUSINESS PLAN

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DRAFT REPORT

Spring 2019

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EXECUTIVE SUMMARY

The Martin Metropolitan Planning Organization (MPO) is assisting the City of Stuart in evaluating the current downtown Tram system by providing professional services to review historic and existing operations, analyze current and projected costs and revenues and develop a five-year plan of activities to maintain and grow ridership for the Downtown Stuart Tram.

The results of our coordination, observations and analyses indicate that the system is highly successful, provides a critical link between parking and the downtown, is well embraced by the community and has been a key fixture contributing toward the charm and ambiance of Downtown Stuart.

Background

The City of Stuart is a city of approximately 15,593 residents *(Source: Census 2010)* located in Martin County, Florida. The Downtown is a charming old Florida style waterfront commercial district located on the St. Lucie River and is home to a mix of small shops, restaurants, and parks as well as a scenic riverwalk and a 500-seat historic theater.

In 2006, the Community Redevelopment Agency (CRA) purchased one fuel-powered Tram to relieve perceived parking issues and, what has now become the Downtown Stuart Tram, was initiated using Tax Increment Funds (TIF), a funding source unique to CRAs. The City of Stuart CRA has continued investing in the Tram to improve mobility and accessibility both as a way to reduce vehicular traffic and congestion and to stimulate economic development.

Initially, the Tram functioned as a demand-response service where an individual passenger could call the Tram directly, request pick up at their location, and ride to another location, all within the downtown area. This demand response system transported anyone who called to and from shops, restaurants, the theatre, and parking lots in the downtown district on a daily basis. The City also hosted a variety of special events throughout the year, bringing thousands of people to the area who utilized the Tram heavily during these events.

In 2010, the CRA adopted the Downtown Master Parking Plan and in 2012 the CRA purchased its second vehicle, an all-electric Tram. At this time the Tram service transitioned from a demand-response system to a micro-transit system offering eight scheduled stops around the Historic Downtown. A third electric Tram was purchased by the CRA in 2013. *(Source: City of Stuart Service Development Proposal)*

With this expansion, the CRA educated the public about the enhanced service through new signage, the City website, and a public relations campaign including email, brochures, news releases, and the CRA Facebook page. The CRA's relationship with the Stuart Main Street and the Downtown Business Association programs helped promote the Tram through their marketing materials as well as to employees to use the Tram and park at satellite parking areas. Today the Tram carries tens of thousands of riders per year and is a well-established asset enhancing the charm and mobility of downtown Stuart.

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Even though the current Tram has specified stops, for all practical purposes, it operates a flag-down, flex route service responding to on-demand requests in Downtown Stuart. The City has six vehicles, one gas and five electric, with varying passenger capacities. The Tram currently offers 14 stops in the downtown on 2.2 mile route, operates 7 days per week (Sunday 9:00 AM-5:00 PM, Monday-Wednesday 8:00 AM-8:00 PM, Thursday and Friday 8:00 PM-10:00 PM, and Saturday 9:00 AM-10:00 PM) and can shuttle passengers from four long-term satellite parking lots. One additional stop, the Kindred Street stop, is an on-call only stop. The Tram is co-located near Martin County Public Transit (Marty) stops at two locations (Kiwanis Park and at the corner of SE Ocean Boulevard and SE Hospital Avenue) and the Kindred Street stop is approximately 1/5 of a mile north of the Marty Route 1, US 1 stop. In 2017 the Tram was placed under the direction of the City Public Works Department after being previously under the CRA.

Currently, there is one team leader and 12 part-time drivers. The Tram route is run with 2 vehicles on the route. During special events a third Tram is added. The Tram also offers history tours on Tuesdays, Thursdays and Saturdays at 10:00 AM and 1:00 PM. The tours are 1 hour 20 minutes. The Tram is a free service to riders and drivers do not accept tips. Figure 1 shows the current routes and connectivity to the Martin County Public Transit (Marty) system and area park-and-ride lots. Figure 2 shows the current stops for the Stuart Tram from the City's marketing brochure.

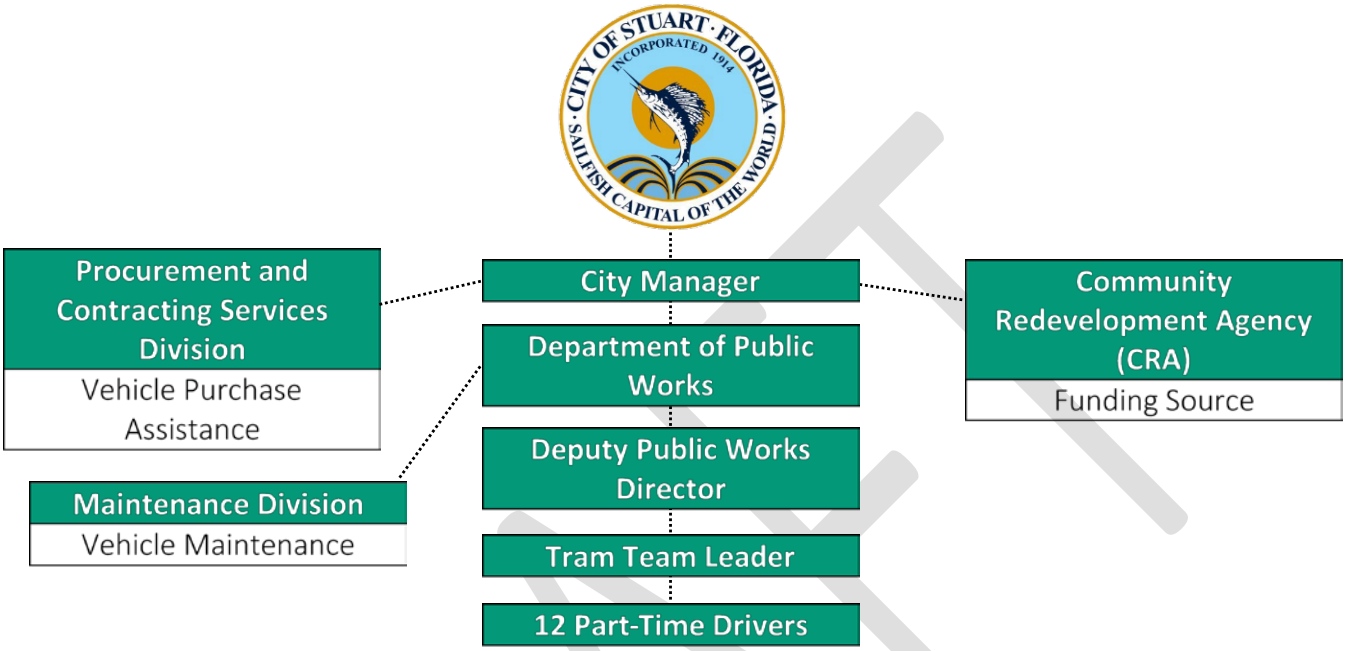
Figure 1. Stuart Tram Routes in Context with Marty Routes and Area Park-and-Ride Lots



Source: MARLIN Engineering Inc.

City of Stuart Tram

Organizational Chart



Business Plan Impetus

Tram capital, operating and maintenance costs have been addressed through the annual CRA and City budgeting process to date. As mentioned above, the CRA originally funded the Tram through a TIF program. In July 2016 the CRA received a Transit Development Grant from the Florida Department of Transportation (FDOT) District Four. The grant provided funding for 2 more vehicles and operating costs for three years through June of 2019.

The Tram system transported over 48,000 passengers in 2017. Funding for the Tram is limited as the FDOT grant is expiring and cannot be renewed with the Tram system's current operation. In order to be prepared for future funding, an in-depth look at the Tram's operations and the development of a thorough business plan are important next steps. This business plan will provide the decision-makers with the information to move forward and meet the goals of improved mobility and accessibility for downtown Stuart and an understanding of funding for the immediate short-term. The Martin Metropolitan Planning Organization (MPO) coordinated with the CRA and City on the concept of developing a multi-year business plan and subsequently has offered to provide consultant services. This business plan is the result of those discussions. It was agreed that the Tram should have a plan developed to sustain and potentially expand services over a five-year period.

In Section I the existing conditions in the City of Stuart are presented. In Section II, case studies from across the nation are researched with data including service characteristics, vehicles, information sources and funding. In Section III the alternative choices of investments in marketing, altering the routing, increasing service and emerging technologies are investigated. Table 5 shows the 5-year alternative cost analysis. In addition, the

existing and potential new funding sources are discussed in detail. In Section IV Transportation Network Companies (TNCs) and their impacts are presented. In Section V the Tram route infrastructure is inventoried. In Section VI the additional opportunities identified during the course of the study are listed. The Appendices contain the background materials.

Figure 2. Existing Routes and Stop Locations



Source: City of Stuart

Goals and Objectives

The Project Team coordinated with MPO and City staff to develop a goal statement and specific objectives to guide the plan for the next five (5) years.

Goal: Continue to Plan, Operate and Maintain the Downtown Stuart Tram consistent with a Vision of enhanced mobility and economic development for the Downtown Stuart Area.

The Goal is proposed to be accomplished by setting forth the following objectives to be achieved beginning this Fiscal Year (FY) 2019 through FY 2025 with annual updates:

- Improve Tram reliability, efficiency and effectiveness
- Assure fiscal stability through five (5) year budgeting

- Create a distinct and recognizable brand for the Tram
- Seek out and apply for grants and private sector participation
- Increase transit ridership levels by capturing traditional and new transportation markets
- Continue intergovernmental coordination with regional transportation authorities and the private sector to foster strong partnerships

The graphics below provide three planning horizons for the immediate future, the mid-term and the long-term of the Tram and the recommended actions for the City during these timeframes.

SHORT TERM – 2019

- 2019 - Continue to enhance, operate and maintain the Downtown Stuart Tram – Underway
- 2019 - Purchase new vehicle per FDOT Transit Service Development Grant 50/50 – Underway
- 2019 - Implement plan to extend service to Sailor's Return
- 2019 - Pilot a fixed route schedule
- 2019 - Define staffing – roles and responsibilities
- 2019 - Market service
- 2019 - Adopt a dynamic Five (5)-year Financial Plan that should be continuously updated
  - Initiate efforts to increase revenue stream
    - Increase CRA Funding based on historical growth in taxable value
    - Identify options for utilization of parking revenue
    - Advertising – vehicles and shelters
    - Special event fees
- Seek additional funding for 2019 and prepare and submit 2020 to 2025 Budget Plan

MID TERM – 2020-2021

- Maintain existing service levels
- 2020 – Implement and accrue revenues from:
  - Advertising
  - Special events
- 2020 - Coordinate with the CRA on implementation of parking fare infrastructure
- 2020 - Apply for a FDOT Intermodal Grant for a new shelter
- 2021 - Implement and accrue revenues from:
  - Parking
- 2021 - Implement FDOT Intermodal Grant and construct shelter
- 2021 – Research vehicle types for purchase of replacement in 2022
- Plan and prepare Annual Five (5)-year Budget Plans

LONG TERM – 2022-2025

- 2022 - Vehicle replacement
- 2022 - Prepare and submit FDOT Transit Service Development Grant Application for expanded service
- 2022 - Apply for FDOT Intermodal Grant for a new shelter
- 2023 - Implement FDOT Service Development Grant - purchase new vehicle, implement new service and market new service
- 2023 - Implement FDOT Intermodal Grant and construct shelter
- 2024 - Vehicle replacement
- 2024 - Increased advertising on new shelter and 3rd in-service vehicle
- 2024 - Apply for FDOT Intermodal Grant for a new shelter
- 2025 - Implement FDOT Intermodal Grant and construct shelter
- Plan and prepare Annual 5-year Budget Plans – plan shall include account for accommodation of expiration of FDOT Transit Service Development Grant

SECTION I. EXISTING CONDITIONS

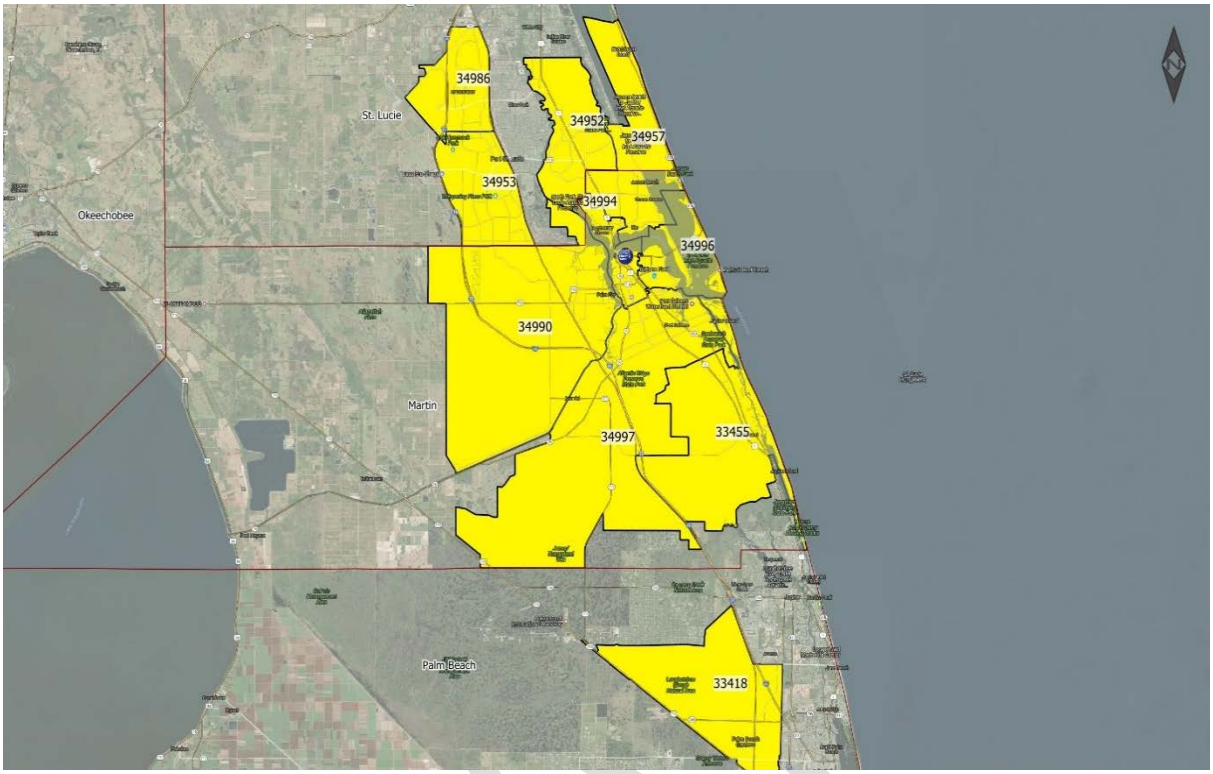
Downtown Survey Results

A survey was created in order to gain local insight into the Tram, its operations, customer satisfaction and usage. The MARLIN team visited Downtown Stuart on the afternoon of Sunday, October 14, 2018 during the Green Market and on the evening of Friday, December 7, 2018 during the Christmas parade, to talk to residents, business owners, employees and visitors and survey their opinions of the Tram. 81 surveys were taken.



The questionnaire had a series of six questions for non-Tram riders and 15 questions for those who rode the Tram at least one time. The first question asked the participant's zip code. The Tram was used by people throughout the Treasure Coast from northern Palm Beach County, Martin County and to Central and South St. Lucie County. We also heard from citizens that use the Tram that live right along the route and snowbirds visiting Stuart during the winter months.

Figure 3. Zip Code Map



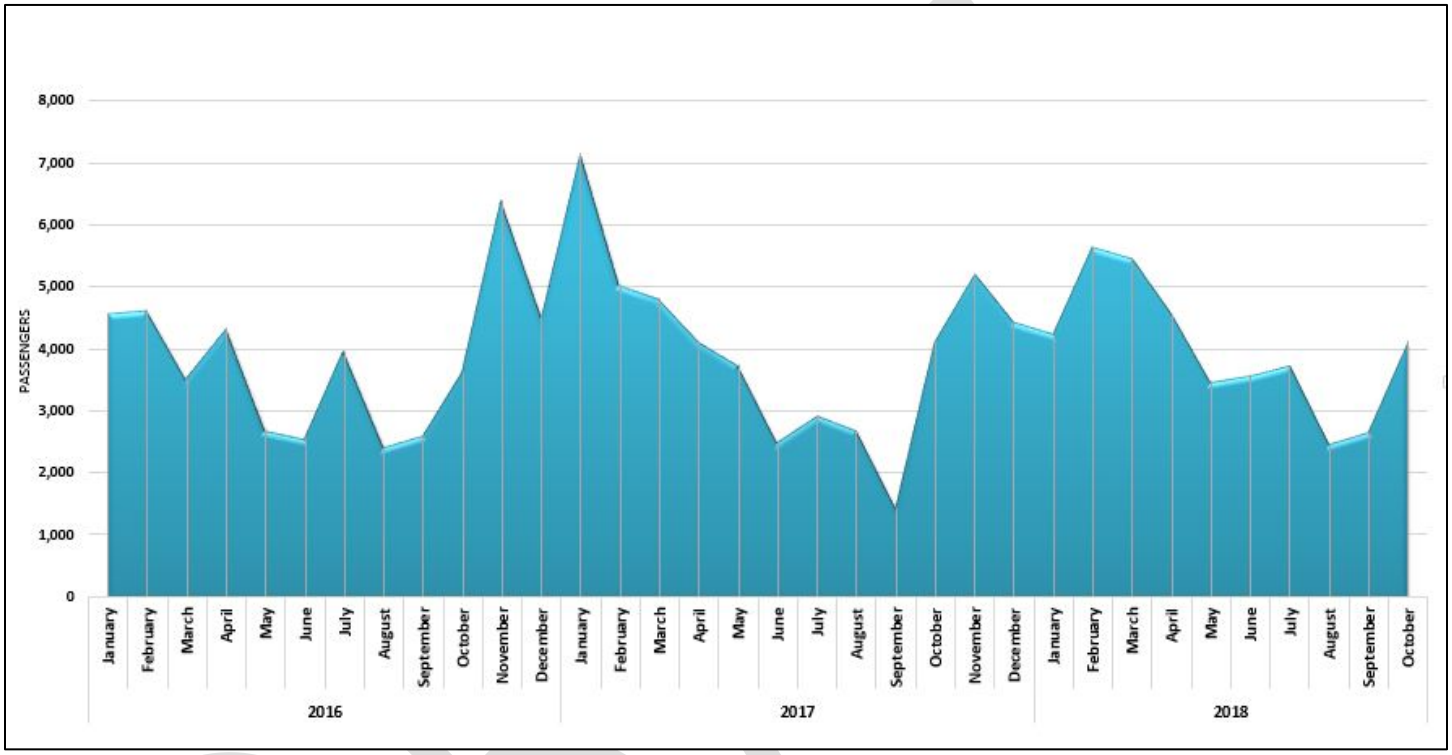
The survey highlights show key results indicating that connections to parking are a major part of the Tram's success as well as people just wanting to enjoy Downtown Stuart. The survey form and notes can be found in Appendix C.

Graphic to be added here

Tram Ridership Analysis

Tram ridership data for 2016, 2017 and January to October 2018 was obtained and analyzed. The data is collected manually by the drivers on a ridership sheet and includes passenger pickup by the closest stop and hour of the day. Figure 4 shows monthly ridership.

Figure 4. Stuart Tram Monthly Ridership Years 2016, 2017 and 2018



Source: City of Stuart

2017 monthly ridership shows September as the month with the lowest ridership. January 2017 is the month with the highest ridership. Overall the highest ridership months are January, February, October, November and December, coinciding with the City's tourist season.

For the past three years, 2016, 2017 and 2018, ridership has been increasing with 44,854 riders in 2016, 48,120 riders in 2017 and 39,941 riders through October 2018. This puts 2018 on track to exceed 2017 ridership with 4,438 average monthly passengers surpassing 2017's 4,010 average monthly passengers. Figures 5 and 6 show monthly ridership by year.

Figure 7 includes the stop activity for 2017. The most popular stops on the Tram route are City Hall and Haney Circle with 22,429 total riders in 2017 with Pelican/Flagler Park a close third. The least popular stops are Osceola and the School Board in 2017. Note that our field observations and discussions with passengers and the general public indicated that the stop locations are not well known. Many people did not know what stop they were

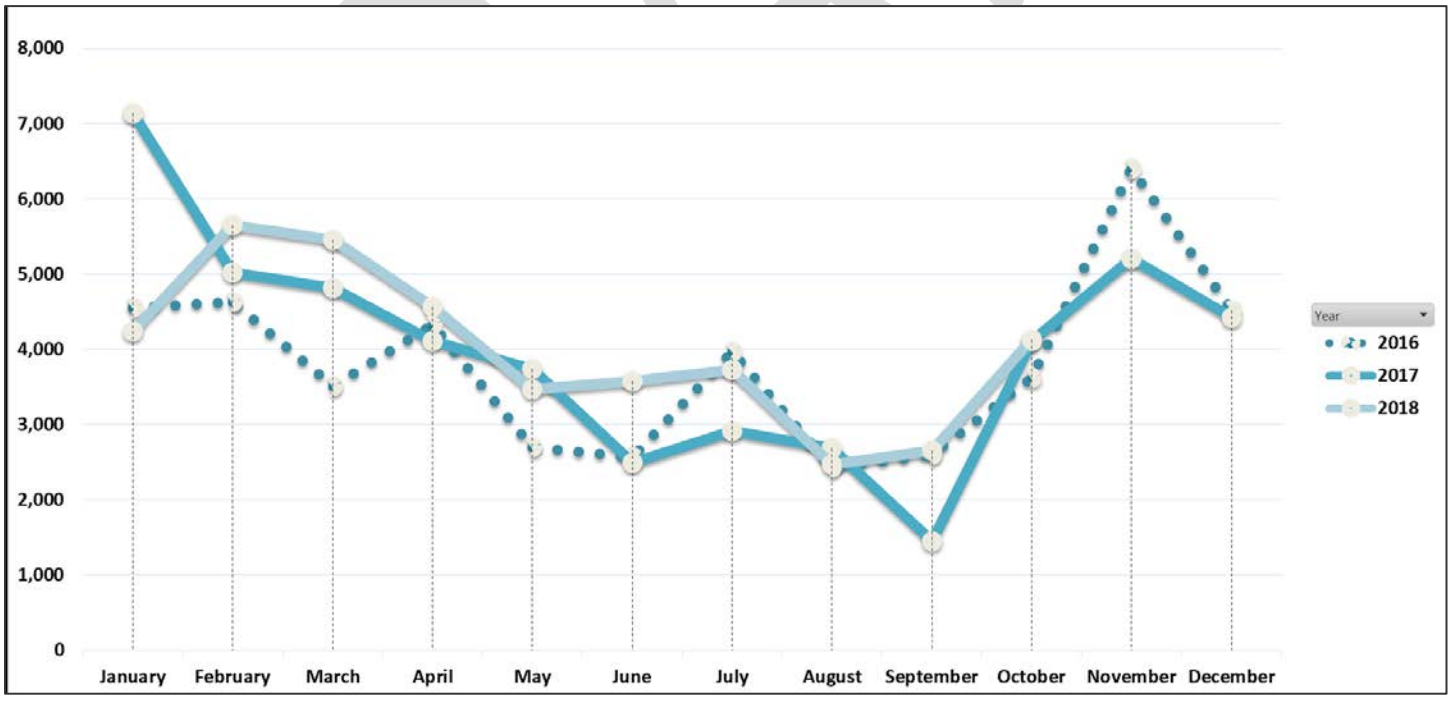
picked up and further indicated that they just wave down the Tram. As previously stated, the driver's boarding report provides the "nearest" pickup stop. Table 2 includes stop activity for 2016, 2017 and 2018.

Time of day data was also analyzed in Figure 8 to determine peak ridership times. The data clearly shows peaks at noon and 5:00 PM as well as high ridership during the hours before and after these peaks representing the lunch and dinner windows as well as the end of a 9:00 AM - 5:00 PM workday.

Table 1 provides an analysis of special event ridership for 2016, 2017 and through October 2018. The 2016 and 2017 analysis shows that the top 10 special event days represent 17.2% and 18.2% respectively. The top special event days include the Air Show, the Boat Show, community events and holidays. The highest ridership day was on November 5, 2016 for the Air Show, with 1,430 riders. During special events the City provides additional Trams and drivers with varied routing to accommodate the event.

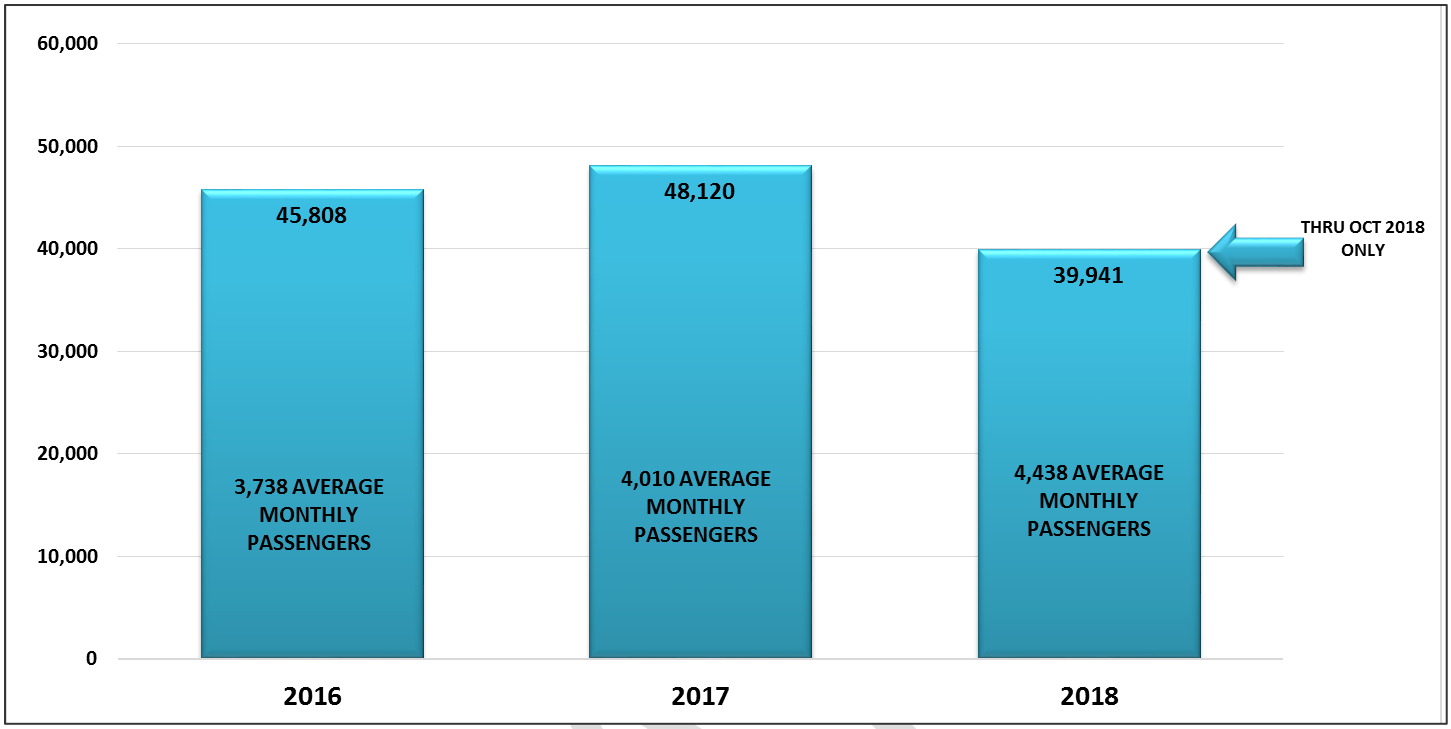
Marty ridership for 2017 was also reviewed at the Marty stops in proximity to the Stuart Tram route in Figure 9. The two Marty routes that are operated in proximity to the downtown are Route 3, (the Stuart Route) and Route 1, (the US 1 Route). The Tram is co-located at two Route 3 stops, at Kiwanis Park and at the corner of SE Ocean Boulevard and SE Hospital Avenue. Route 3 has a third stop near downtown at the corner of SE Martin Luther King Boulevard and SE Flagler Avenue and a fourth stop on SE Johnson Avenue just north of US 1. In addition, the Tram's Kindred Street stop is approximately 1/5 of a mile north of the Marty Route 1, US 1 stop.

Figure 5. Tram Passengers by Year



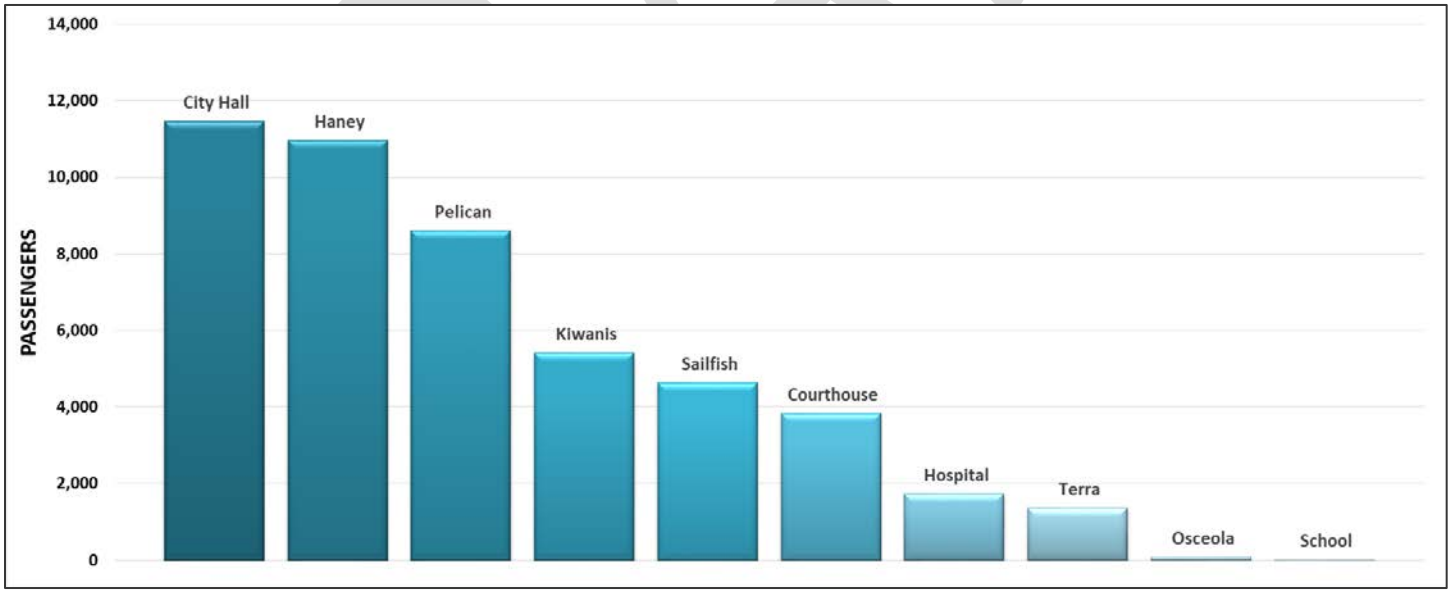
Source: City of Stuart

Figure 6. Downtown Stuart Tram Annual Ridership



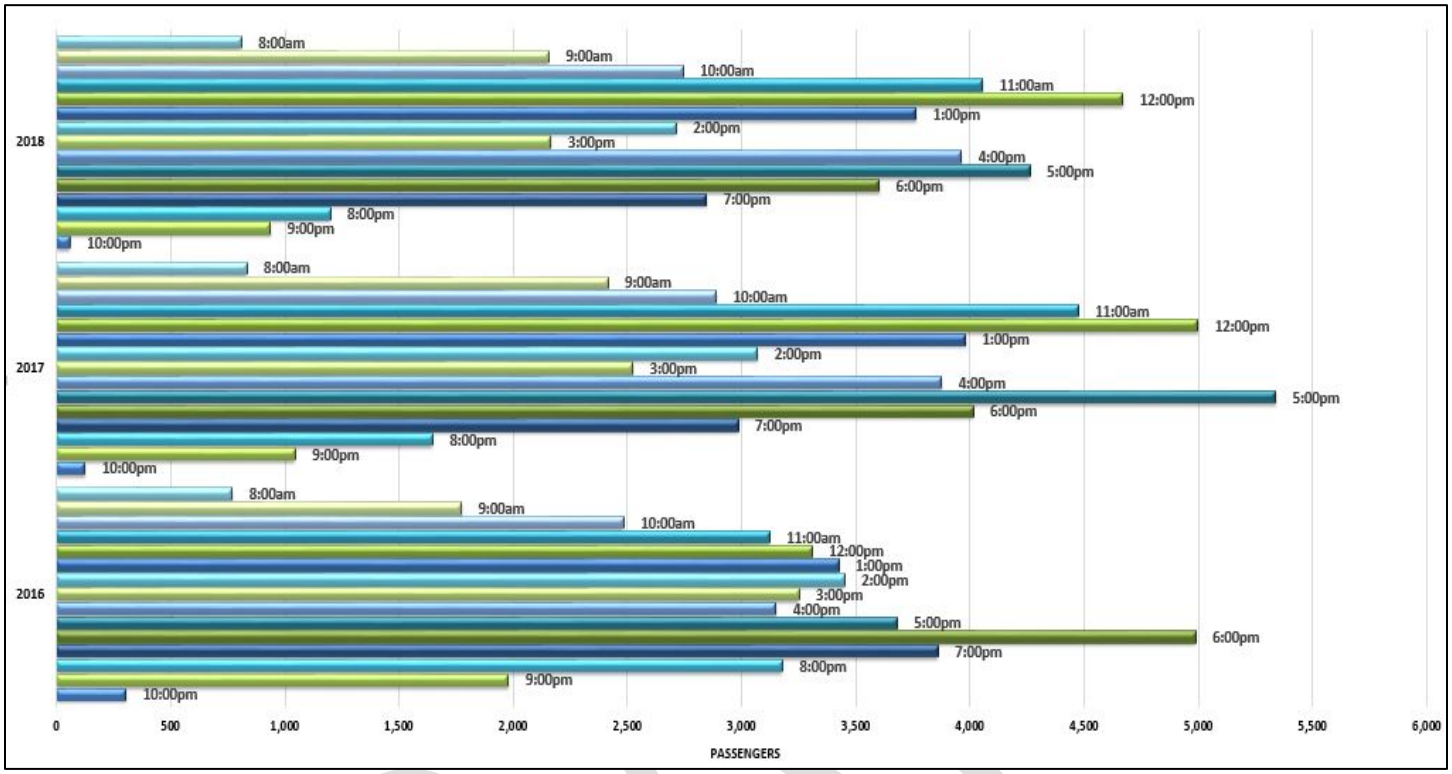
Source: City of Stuart

Figure 7. 2017 Passengers by Stop



Source: City of Stuart

Figure 8. Analysis of Time of Day Ridership



Note: 2018 data thru Oct.
Source: City of Stuart

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Table 1. Special Event Ridership

Year	Date	Event	Total Day	% of Special Event Ridership/Year
2016	November 5, 2016	Air Show	1,430	
	November 6, 2016	Air Show	973	
	July 4, 2016	Independence Day	954	
	November 4, 2016	Air Show	949	
	January 16, 2016	Boat Show	775	
	January 17, 2016	Boat Show	760	
	October 31, 2016	Halloween	577	
	February 28, 2016	Craft Fair	494	
	February 27, 2016	Craft Fair	478	
	December 2, 2016	Parade	474	
2016 Total Special Event			**7,864**	**17.2%**
2016 Total Year			**45,808**	
2017	January 15, 2017	Boat Show	1,364	
	January 13, 2017	Boat Show	1,299	
	January 14, 2017	Boat Show	1,251	
	November 4, 2017	Air Show	1,112	
	October 31, 2017	Halloween	1,020	
	March 4, 2017	Jensen Beach Book Event	631	
	February 25, 2017	Arts Fest	579	
	August 19, 2017	Dancing in the Streets	549	
	December 19, 2017	Memorial Event	483	
	November 3, 2017	Air Show	470	
2017 Total Special Event			**8,758**	**18.2%**
2017 Total Year			**48,120**	
2018	May 12, 2018	Heritage Houses	785	
	October 20, 2018	Arts Fest	642	
	July 4, 2018	Independence Day	516	
	March 3, 2018	Book Fair	513	
	January 13, 2018	Boat Show	474	
	March 31, 2018	Baptist Picnic	445	
	February 24, 2018	Art Fest	437	
	October 27, 2018	Halloween Event	427	
	February 25, 2018	Art Fest	424	
	April 28, 2018	Sea Food Fest	415	
2018 Total Special Event ***(Thru Oct Only)***			**5,078**	**12.7%**
2018 Total Year ***(Thru Oct Only)***			**39,941**	
Total Special Event (2016-thru Oct 2018)			**21,700**	**16.2%**
Total Year(2016-thru Oct 2018)			**133,869**	

Source: City of Stuart

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Table 2. Ridership by Stop

Tram Stop	2016	2017	2018	Grand Total
City Hall	10,205	11,469	8,723	**30,397**
Haney	10,522	10,960	8,721	**30,203**
Pelican	7,584	8,604	8,730	**24,918**
Kiwanis	2,644	5,417	5,265	**13,326**
Sailfish	2,655	4,637	4,684	**11,976**
Hospital	1,218	1,733	2,218	**5,169**
Courthouse	457	3,837	201	**4,495**
Terra	815	1,361	1,328	**3,504**
Osceola	355	83		**438**
School	3,157	19		**3,176**
Total	**39,612**	**48,120**	**39,870**	**127,602**

Source: City of Stuart

Figure 9. 2017 Marty and Stuart Tram Ridership



Source: MARLIN Engineering Inc.

Fleet Conditions

The Tram currently has six vehicles, one gas and five electric, with varying passenger capacities. All are in good condition. The Expected Remaining Years were determined assuming a 10-year vehicle lifespan and determines

the year a replacement Tram would be needed. Staff stated that the vehicle charge will last 50-80 miles (+/- 8 hours) per charge with the vehicles averaging 13 miles per hour. As the Tram picks up more riders (weight), the battery life wears down at a faster rate. Table 3 provides a description of the vehicle inventory.

Table 3. Vehicle Inventory

Unit #	Vehicle Description	Passenger Capacity	Wheelchair Ramp	Operating System	Operating Voltage	Mileage/Hrs (Oct 2018)	Vehicle Condition	Expected Remaining Years	Replacement Tram Needed
MTS1	2007 Club Car	10	Yes	Gas	N/A	12,204 Hrs	Good	1	2019
MTS2	2012 Moto electric	11	Yes	Electric	72v	95,144 miles	Good	4	2022
MTS3	2014 Moto electric	15	No	Electric	72v	45,523 miles	Good	6	2024
MTS4	2016 Moto electric	11	Yes	Electric	72v	33,947 miles	Good	8	2026
MTS5	2016 Moto electric	11	Yes	Electric	72v	32,222 miles	Good	8	2026
MTS6	2017 Moto electric	23	No	Electric	72v	9,590 miles	Good	9	2027
Trailer		10							

Source: City of Stuart



MTS1



MTS2



MTS3



MTS4



MTS5



MTS6



Trailer

Four of the vehicles have a manual wheel chair ramp that can be unhooked by the driver upon request. The electric vehicles have a solar panel assist on top of each vehicle providing a minimal amount of extra power. The

vehicles undergo regular maintenance and the batteries (lead-acid) have an average lifespan of 2.5 years. At a cost of $1,450 per 12-battery set, a Tram will go through a set of batteries four or more times during its lifespan. Another battery technology the City has begun to review is lithium ion batteries. These are more expensive at $7,000 per 12-battery set, plus vehicle retrofits and chargers. The benefits of these more expensive batteries are being investigated.

Environmental Benefits

Using the data from the survey discussed in Section I, 26% of people would have driven if the Tram were not available. Applying that rate to 2017 Tram ridership, shows 12,511 riders would have driven if the Tram were not available. Assuming each driver drove ½ mile looking for parking and parking downtown, in 2017 the Tram saved 6,255 miles of driving, resulting in improved downtown air quality and a savings of approximately 2.3 metric tons of CO2. *(Source: https://www.carbonfootprint.com/calculator.aspx)*

Interviews and Site Visits

In addition to the surveys, interviews were conducted with representatives from the Stuart Boat Show, the Downtown Business Association, Stuart Main Street, the Chamber of Commerce, Molly's House, St. Mary's Episcopal Church, as well as with downtown businesses, Tram drivers, and a Marty driver. In addition, MARLIN staff made numerous visits to the downtown to ride and observe the Tram at various times.

The Tram drivers all fulfilled their reputations as friendly and knowledgeable. They shared their efforts in meeting riders at their locations when riders called the Tram phone number as well as offering rides to those along the route. During special events the drivers would remain stationed at various stop locations when not servicing riders in order to conserve battery. Marty drivers are extremely knowledgeable of the history and character of Stuart and are known for giving impromptu narration of local attractions with thoughtful interaction with the passengers.

- The Boat Show representative was interested in further coordination with City as they sold 18,000 tickets to the 2018 Boat Show.
- Others spoke about the perception of unreliability for the Tram while also acknowledging the importance of the Tram as an asset to the City for tourism and local mobility.
- As merchants have employees park at the park-and-ride lots and take the Tram, this frees up parking near the businesses.
- The Tram is a great aid to counter the mindset that there is no parking available downtown.
- Interviewees emphasized the Tram's value to tourism, but spoke of opportunities for getting the word out and improving reliability to capture new riders.

During both survey days, instances of a Tram being removed from the route due to low battery charge were observed. Interview notes can be found in the Appendix D.

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Existing Budget

Although the Tram has 14 specified stops, the Tram currently operates as a flag down, flex-route service utilizing 6 vehicles and 12 drivers. Maintenance, management and administration are provided by City staff. The recently ended Fiscal Year (FY) 2018 (October 2017-September 2018) budget for Micro-Transit Operation was $181,372. Each year is broken down into personal services, operating expenses and capital outlay. Personal services include salaries and benefits. Operating expenses include phones, electricity, insurance, printing, repair and maintenance including battery purchases, office supplies, fuel, GPS and app and uniforms. Capital outlay includes the cost of the Trams. Table 4 shows the Tram budget for fiscal years 2014-2019.

Table 4. City of Stuart - Tram Budget

Micro-Transit Operations	FY2014**	FY2015**	FY2016**	FY2017***	FY2018***	FY2019***
Personal Services				136,882	150,279	150,965
Operating Expenses	22,607	21,060	28,197	10,864	31,093	29,806
Capital Outlay	30,000	97,000	0	29,943	0	35,000
Total	$52,607	$88,060	$28,197	$177,689	$181,372	$215,771

*** Tram Budget under CRA*

**** City of Stuart Micro Transit Operations budget*

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SECTION II. CASE STUDIES

This Section describes different microtransit services from around the U.S. and lessons learned from the experiences of operating those services. This information was compiled from multiple sources, including the operators' web sites and reports and various news articles.

Main Street Trolley (Park City, UT)

Service Characteristics

Main Street Trolley is operated by Park City Transit, the City-operated public transit service. The Trolley serves downtown Park City seven days a week from 10:00 AM to 11:00 PM at approximately 15-minute headways. The Trolley is free to ride and typically serves tourists and special event attendees. Riders can request service by waiting at Trolley stops (which are demarcated with signs) or flagging down the Trolley anywhere along its route. Annual ridership in 2014 was 70,993.

Vehicles

There is one Trolley vehicle in the Park City Transit fleet. The Trolley vehicle is a replica trolley bus that has 30 seats and runs on clean (ultra-low sulfur) diesel.

Information Sources

Trolley information is available via the Park City Transit web site (https://www.parkcity.org/departments/transit-bus/routes-schedules), a real-time bus location tracker, Google Transit, and an app.

Funding

The Trolley relies on Section 5309 funds, local match from the City, and Park City Transit's overall system funding (including funds from a mass transit sales tax, resort tax, business licenses, bus advertising, donations, County contributions, and night rental license fees).



Main Street Trolley Vehicle
Source: https://www.visitparkcity.com/blog/post/introducing-park-citys-new-ride/

i-Ride/Gotcha (Sarasota, FL)

Service Characteristics

i-Ride was launched in March 2017 and was originally operated by Gotcha Group for the City of Sarasota. It was fare-free and served downtown Sarasota seven days a week from 12:00 PM-11:00 PM Riders included residents and tourists. Riders could request service by flagging down vehicles or calling. Between March 2017 and March 2018, i-Ride served 47,000 riders.

In August 2018, the operator contract was terminated. Starting in January 2019, the service will operate independently of City support under the Gotcha brand and will provide trips for a flat fare of $3.00 (payable only via credit card or the service's app) after the first week of resumed service. The contract with the City was terminated because the i-Ride service was not self-sustaining with the inclusion of driver wages. (In the original forecasts, drivers were to be paid via tips only, but tips turned out to be inadequate. The shortfall in the first year of i-Ride operations was $85,000.) Gotcha's CEO stated in August 2018 that similar services operated by the company nationwide are not financially independent.

Vehicles

Gotcha uses electric golf carts that seat seven (including the driver). Gotcha also operates e-bikes and e-scooters. During i-Ride operations, three of the seven vehicles in the fleet ran in peak operations.

Information Sources

Information about the current service is available via Gotcha's web site (https://ridegotcha.com/ride/) and an app.

Funding

The City of Sarasota provided a $340,000 City subsidy to cover the first two years of i-Ride operations (starting with a March 2017 launch). i-Ride service relied on on-vehicle ads but the Gotcha service will not.



i-Ride Vehicle
Source: https://www.yourobserver.com/article/city-strikes-deal-with-downtown-transit-operator



Gotcha Vehicle
Source: https://ridegotcha.com/location/sarasota/

Freebee (Miami, FL)

Service Characteristics

Freebee is operated by a private company of the same name and serves six districts in Miami as well as Coconut Grove, Coral Gables, Key Biscayne, Islamorada, Miami Beach, and Miami Lakes. Service is planned for Pinecrest. Service days and hours are shown in the table below. Rides are free. The service started as an ad-supported transportation option in South Beach. Riders typically use the service to circulate within each service area for work or recreational trip purposes.

Freebee Service Days and Hours

Service Area	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Miami	11:00 AM-11:00 PM	11:00 AM-11:00 PM	11:00 AM-11:00 PM	11:00 AM-11:00 PM	11:00 AM-11:00 PM	11:00 AM-2:00 PM	11:00 AM-2:00 PM
Coconut Grove	11:00 AM-8:00 PM	11:00 AM-8:00 PM	11:00 AM-8:00 PM	11:00 AM-8:00 PM	11:00 AM-11:00 PM	11:00 AM-11:00 PM	11:00 AM-11:00 PM
Coral Gables	11:00 AM-11:00 PM	11:00 AM-11:00 PM	11:00 AM-11:00 PM	11:00 AM-11:00 PM	11:00 AM-11:00 PM	11:00 AM-11:00 PM	11:00 AM-11:00 PM
Key Biscayne	8:00 AM-8:00 PM	8:00 AM-8:00 PM	8:00 AM-8:00 PM	8:00 AM-8:00 PM	8:00 AM-8:00 PM	8:00 AM-10:00 PM	10:00 AM-10:00 PM
Islamorada	11:00 AM-8:00 PM	No Service	No Service	No Service	4:00 PM-12:00 AM	4:00 PM-12:00 AM	12:00 PM-12:00 AM
Miami Beach	12:00 PM-2:00 AM	12:00 PM-12:00 AM	12:00 PM-12:00 AM	12:00 PM-12:00 AM	12:00 PM-2:00 AM	12:00 PM-2:00 AM	12:00 PM-2:00 AM
Miami Lakes	10:00 AM-2:00 PM	8:00 AM-3:00 PM	8:00 AM-3:00 PM	8:00 AM-3:00 PM	8:00 AM-3:00 PM	8:00 AM-3:00 PM	No Service
Pinecrest	No Service	7:00 AM-7:00 PM	7:00 AM-7:00 PM	7:00 AM-7:00 PM	7:00 AM-7:00 PM	7:00 AM-7:00 PM	4:00 PM-10:00 PM

Vehicles

Freebee uses electric golf carts that seat six (including the driver). The vehicles include mini HD televisions and audio systems.

Freebee service started in South Beach with a fleet of six vehicles. The 2014 fleet for all service areas consisted of 20 vehicles, and the 2017 fleet consisted of more than 40 vehicles.

Information Sources

Information about Freebee service is available from the Freebee web site (https://ridefreebee.com/), an app, and signage in the service area.

Funding

Freebee services are funded differently in different service areas. In some service areas, the city subsidizes part of the cost and advertisers fund the rest. Ads include on-vehicle ads, mobile ads, and brand promotion by drivers. In some service areas, sponsorships cover the entirety of the cost. Drivers are allowed to accept tips.

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Freebee Vehicle
Source: https://www.miamiherald.com/news/business/technology/article207422894.html





Freebee Vehicle with Alternative Door Design
Source: https://ridefreebee.com/

Downtowner (Tampa, FL)

Service Characteristics

The Downtowner is an on-demand service that has operated in downtown Tampa since 2016. It currently operates Monday through Thursday from 7:00 AM-9:00 PM, Friday from 7:00 AM-10:00 PM, Saturday from 12:00 PM-10:00 PM, and Sunday from 12:00 PM-8:00 PM Prior to September 2018, the service operated from 6:00 AM-10:00 PM on weekdays and from 11:00 AM-11:00 PM on weekends; service was cut in September 2018 due to a 20% budget shortfall after the loss of a grant. Riders request rides by flagging down vehicles or via an app. The service was extended to Tampa Heights in October 2018.

The Downtowner carried 329,000 riders in its first two years. In 2017, it carried approximately 500 riders per day. In August 2018, it carried an average of 540 riders per day, with peak demand occurring during the rush hours and lunch. The typical user is a commuter, including travelers making first-mile/last-mile connections at Marion

Transit Center, but the service is also used for trips to and from entertainment uses. The average wait time for a trip was 26 minutes in 2017 and 2018.

In June 2018, there were discussions about having HART take over operations in 2019, as HART's ends its In-Towner trolley service.

Vehicles

In 2017, the Downtowner used Polaris Global Electric Motorcars (GEM) mini-shuttles (electric, with six seats) and two Chevy Bolts (electric, with five seats). In 2018, Tesla Model X SUVs (electric, with six seats) were introduced in partnership with HART on a temporary basis to increase vehicle range, offer air conditioning, and decrease wait times. Downtowner started with a fleet of 12 GEM mini-shuttles (eight used during peak periods) in 2016.

Information Sources

Information about the Downtowner is available via the Tampa Downtown Partnership web site (https://www.tampasdowntown.com/getting-around/downtowner-ride-service/) and an app. On the web site, Downtowner service is classified as "Ride Service" rather than "Public Transportation."

Funding

The Downtowner relies on three funding partners (the Tampa Downtown Partnership, the City of Tampa, and HART) and supporters who include downtown hotels, businesses, developers and the University of Tampa. The operating partners have considered introducing on-vehicle ads and allowing drivers to accept tips. The service costs approximately $1 million per year to run. Initial funding included $560,000 from community development funds and $450,000 (over three years) from FDOT. Downtown stakeholders also make contributions.



Downtowner Vehicle (Chevy Bolt)
Source: http://ridedowntowner.com/

eShuttle (Austin, TX)

Service Characteristics

eShuttle was operated by Electric Cab of North America (ECNA). It served three activity centers in Austin, including downtown Austin, the Domain activity center, and the Mueller activity center. Rides were free as part of pilot implementations that ended in late 2018. Service in Austin and the Domain operated seven days a week, from 6:30 AM-7:00 PM in downtown and from 6:00 AM-7:00 PM in the Domain. Service in Mueller operated Monday through Friday from 8:00 AM-8:00 PM and Sunday from 10:00 AM-3:00 PM (The Mueller service did not operate on Saturdays). Riders could request service by flagging down vehicles, calling, or using an app.

The services operated as flex routes, which means they followed a route but drivers were allowed to pick up and drop off passengers off the route so long as they remained in the service area. The downtown service carried 1,173 riders in its first month. In 2018, peak demand in downtown was from 4:00 PM-5:00 PM, and 46.9% of trips were commute trips. In the Domain, 20% of trips were used to get to work.

Austin's transit agency, Capital Metro, is planning a driverless shuttle pilot program in downtown Austin. This service would include six electric driverless shuttles operating between four downtown destinations. According to the Austin American-Stateman, similar pilot efforts are underway in Las Vegas and Ann Arbor.

Vehicles

eShuttle used electric golf carts for six occupants (including the driver). The Mueller service used a fleet of two vehicles.

Information Sources

Information is available from the operator's web page and app (https://ecabna.com/) and from partners (https://www.pecanstreet.org/work/transportation/).

Funding

Initial funding for service in the three activity centers was provided via a $1,000,000 U.S. Department of Energy Vehicle Technology Program grant, a partnership with Capital Metro, and a local water and energy research advocacy company. Some funding was provided by on-vehicle ads. ECNA has talked to businesses about private partnerships to continue services. Private bookings were available.

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Domain eShuttle Vehicle
Source: https://communityimpact.com/austin/northwest-austin/environment/2018/02/15/free-electric-cab-service-expands-downtown-austin-sees-success-domain-northside/

Free Ride Everywhere Downtown (San Diego, CA)

Service Characteristics

Free Ride Everywhere Downtown (FRED) is operated by Free Ride and managed by Civic San Diego, the City's downtown development agency. FRED was launched in San Diego in 2014. In 2016, it operated from 7:00 AM-9:00 PM Monday through Thursday, from 7:00 AM-12:00 AM Friday, from 8:00 AM-12:00 AM Saturday, and from 9:00 AM-9:00 PM Sunday. It currently operates from 12:00 PM-9:00 PM every day. In August 2017, FRED carried 12,500 riders. A September 2018 news article projected that FRED would carry 170,000 riders by the end of 2018. The service is used by residents, workers, and visitors. Rides are free.

The service started with five vehicles in 2014. It had 17 vehicles in November 2017, and it is planned to have 30 vehicles by 2020. Company founders reported in 2017 that drivers were not available to pick up would-be riders up to 50% of the time, particularly during peak periods (i.e., the evening rush hour). The expanded fleet is expected to allow FRED to accept 100% of rider requests. The pick-up time goal is 8 minutes.

Vehicles

FRED uses electric golf carts that seat six (including the driver). Future plans include upgrading some of the existing fleet to a longer-running lithium ion battery.

Information Sources

Riders can request service via an app or flag down a vehicle. Priority is given to app requests. FRED's web site is http://thefreeride.com/san-diego.php

Funding

The original FRED was funded by on-vehicle ads. In 2016, some funding was provided by the downtown San Diego development agency, though the service is supposed to rely on ad revenue to the extent possible. The downtown development agency funding consisted of $500,000 from downtown parking meter revenue, which comprised

$200,000 for 10 new vehicles and $300,000 for vehicle storage, charging stations, and start-up costs. $2 million was set aside in 2016 for the next five years of operations. Drivers are paid a wage and benefits and are allowed to accept tips.

In 2017, ad revenue provided $212,000 of the service's $1.6 million budget. After service expansion in 2020, the service is anticipated to cost $2.4 million per year, and ad revenue is expected to provide up to $1.2 million of that due to the increased number of vehicles and an increased level of advertising.

The downtown development agency has pursued funding from the California Greenhouse Gas Reduction Fund, the California Air Resources Board (not awarded), and the California Department of Conservation, and the San Diego Association of Governments (not awarded). The agency has coordinated with the Port of San Diego and the City of San Diego to discuss service area expansion and use of parking revenues.



FRED Vehicle
Source: https://www.voiceofsandiego.org/topics/government/downtowns-free-transit-service-is-san-diegos-most-expensive-by-far/

Eco-Friendly Rides on Green Shuttles (Dallas, TX)

Service Characteristics

Eco-Friendly Rides on Green Shuttles (E-FROGS) is operated by a private company of the same name. It serves seven districts in Dallas, including downtown Dallas. Service is currently available seven days a week from 7:00 AM-11:00 PM. The service was launched in 2010, and it operated only after 5:00 PM in 2011. Rides are free. E-FROGS has a pick-up time goal of 15 minutes. In March 2018, the service provided 100-150 rides per day.

E-FROGS is typically used by visitors of entertainment districts, downtown employees, tourists, and special events attendees. In addition to providing on-demand service within the service area, shuttles can be rented for special events, and riders can book specialized tours of Dallas (e.g., history tours and brewery tours). The specialized tours are offered in partnership with the City, and their prices are $25 to $85 per adult, depending on the tour.

Vehicles

The service uses GEM e4 and e6 electric golf carts that seat six (including the driver). Doors were added to the vehicles in 2015 to create more space for on-vehicle ads. When not in use, the vehicles are parked in highly visible locations for advertising purposes. The service started with a fleet of three vehicles and had a fleet of six vehicles in 2011.

Information Sources

Rides can be requested by phone, text, or app. Information about the service is available on the E-FROGS web site (http://www.efrogsdallas.net/) and from partner web sites (such as http://www.dallasartsdistrict.org/plan-your-visit/e-frog/).

Funding

The service is funded by on-vehicle ads, tips, and private rentals. In March 2018, ads provided 60% of revenue, corporate services (group rentals and special events rentals) provided 20% of revenue, and city tours and tips provided 20% of revenue. There is no marketing budget; E-FROGS is publicized by word-of-mouth and partner organizations.

The Dallas Morning News reported in 2011 that the service was launched with a $20,000 investment and three vehicles. Fares could not be charged due to a City prohibition on charging fares for electric golf carts. In 2011, typical tips ranged from $5 to $20 depending on the size of group using the vehicle.



E-FROGS Vehicle
Source: https://www.dmagazine.com/business-economy/2018/03/how-tip-based-shuttle-service-efrogs-makes-money

Observations from the Microtransit Service Case Studies

- Driver tips, while helpful, might not provide substantial funds to support operations.
- Subsidies are likely to be necessary to kick off a service expansion (e.g., to cover the cost of new vehicles, infrastructure at new stops, etc.).
- Specialized tours might provide a significant revenue source as well as a visitor-friendly amenity.

- If on-vehicle ads are used to fund service, the ads are likely to be more prominent as the ad portion of the budget increases.
- Maximizing on-vehicle ad revenue is likely to require maximizing the amount of space available for on-vehicle ads.
- Advertising could also include stop branding, giveaways, and promotion by drivers.
- Environmental agencies such as the U.S. Department of Energy might be viable sources of grant funding.
- Vehicles not in service at the time might be parked in visible locations for marketing purposes.
- It can be difficult to find current information about a microtransit service when the service is re-structured or re-branded (e.g., when a pilot effort concludes). Web sites and other information sources must be kept up-to-date.
- Budgeting should consider publicizing the service.

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SECTION III. ALTERNATIVES AND EXISTING AND POTENTIAL FUNDING

Alternatives

Marketing

The need for marketing was an issue that came up throughout the development of the Business Plan. During the survey, many had not heard of the Tram and others had suggestions on how best to get the word out. During interviews, the interviewees made recommendations for additional marketing and coordination. Good marketing cost money, so it is only prudent to include marketing ideas and the potential costs of a robust marketing effort within a comprehensive Business Plan.

Case studies continuously provide evidence on how marketing for public sector services yields many benefits. Philip Kotler, author of *Marketing in the Public Sector: A Road Map to improved performance* states:

"Marketing is much more than advertising; it is about knowing your customers, partners and competitors; segmenting targeting and positioning; communicating persuasively; innovation and launching new services and programs; developing effective delivery channels; forming partnerships and strategic alliances; and pricing/cost recovery. Marketing turns out to be the best planning platform for a public agency that wants to meet citizens' needs and deliver real value. In the private sector, marketing's mantra is customer value and satisfaction. In the public sector, it is citizen value and satisfaction. Government can deliver more quality, speed, efficiency, convenience and fairness to its citizens by using the marketing approach."

In the 2019 Tram budget there are no designated marketing funds. The budget includes funds for a GPS monitoring system budgeted at $5,000 for the year and includes updates to the app. The app allows users who have downloaded the app access to view the location, in real time, of the Tram. Phone service is budgeted at $1,000 and includes two phone numbers for riders to call the drivers to request pickup. Office supplies are budgeted at $400 and include the needs of the office and limited printing of brochures and materials.

The City is currently undergoing a comprehensive website overhaul. This will be an opportunity to inform website visitors of the Tram and its availability.

Ideas that were received during the development of the business plan include:

- Have a Tram ambassador at special events to market and inform attendees about the Tram
- Additional and improved signage and wayfinding which will lead riders to the Tram
- Additional marketing to local businesses for employees to park at park-and-ride locations and take the Tram to work
- Informative targeted kiosks and outreach at key locations such as the Hospital, School Board, and Courthouse
- Include Tram information with the water bill
- Additional signage for the Tram
- Provide more materials and handouts about the Tram to local businesses
- Opportunity for Tram representatives to speak at Chamber of Commerce monthly luncheon
- Coordinate with the Martin MPO to share Tram information at events in the community

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- Coordinate with Marty for joint marketing opportunities
- Market to Lyric Theater members

Routing

Alternate Scenario One in Table 5 continues with the existing level of service.

Pilot

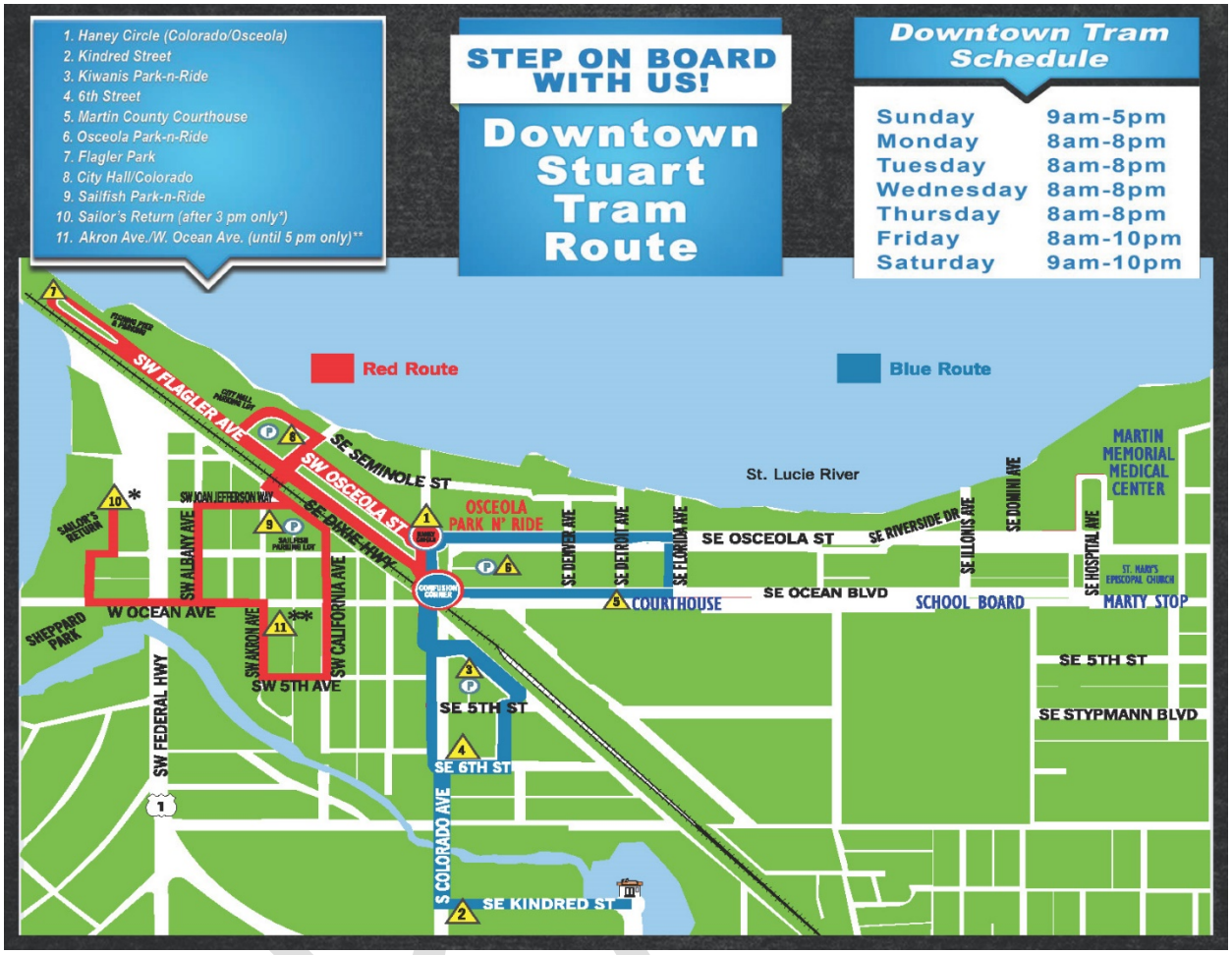
The City of Stuart will be implementing a pilot on March 1, 2019, in an effort to transition the Tram from an on-call service to a set route with regular stops and headways. The pilot is based on the recommendations from the Walker Parking Study and a focus on improving the reliability of the Tram. In order to maintain timely headways (10-15 minutes) staff have identified two new routes. Figure 10 shows the maps for the new routes and schedule. The least utilized stops on the existing route are at the Hospital, the 6th Street stop, and the School Board and have been deleted from the route with this new routing.

One of the routes will be expanded to cross US 1 to service the Bed and Breakfasts and Sunset Bay Marina at Sailor Return. In the past the Tram had traveled across US 1 to service Sailors Return. However, the Trams were not licensed for travel on state roadways and service was discontinued. As of the Fall of 2018, the Tram vehicles are now state-licensed. With this new routing system, the routing would need to have scheduled milestones throughout the day to maintain service. Drivers would also need to be trained on the new route and timing. Currently drivers leave the route to service on call riders. In order to share this new routing and operation, the Tram would benefit from a robust marketing campaign including tailored signage and wayfinding and new materials.

The Trams fall under the state definition of a low-speed vehicle per Florida Statute 320.01(41) and operation guidelines under Florida Statute 316.2122 which defines the Tram as “any four-wheeled vehicle whose top speed if greater than 20 miles per hour but not greater than 25 miles per hour”. However, in order to preserve the battery life and travel the daily distance required by the route, the Tram vehicles do not travel faster than 13 miles per hour. A faster speed would deplete the battery quickly, causing potential service interruptions.

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Figure 10. Proposed Routes and Stop Locations



Alternate Scenario Two in Table 5 continues with the existing level of service and includes funds for a new shelter in Fiscal Years 2021, 2023 and 2025 at a cost of $21,000 per shelter with a 2% annual inflation factor.

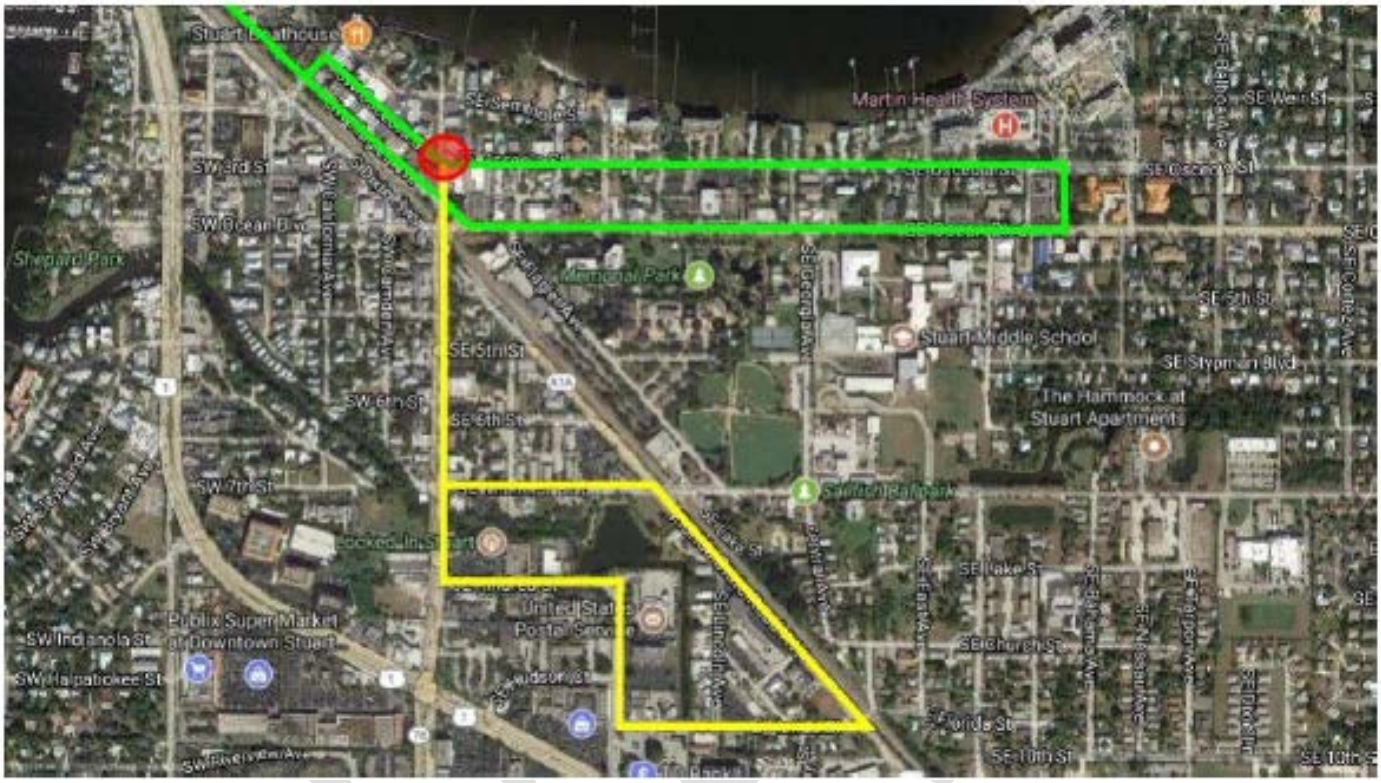
Alternate Scenario Three in Table 5 includes adding a third Tram vehicle to serve a new route or to decrease headways on an existing route in 2023 and includes funds for a new shelter in Fiscal Years 2021, 2023 and 2025 at a cost of $21,000 per shelter with a 2% annual inflation factor.

Walker Consultants completed an in-depth Parking Study and Future Parking Needs Analysis for the City of Stuart in September 2018. The study proposes Tram route modifications based on future development in the City. With future development slated for the properties to the south and east of the downtown, service will be needed to be expand to these areas. Figure 11 shows the new routing proposed by the Walker Parking Study.

The City is currently pursuing a Brightline/Virgin station. City Commissioners have suggested three potential locations: East Coast Lumber, Kiwanis Park and Stypmann Boulevard. All three are slightly southeast of the Martin County Courthouse complex and within 500 feet of each other. East Coast Lumber and Stypmann Boulevard are on the east side of the tracks; Kiwanis Park is on the west. Residential development and the possibility of a

Brightline/Virgin stop in the downtown will create additional need for the Tram. Figure 11 shows the recommended Tram route from the Walker Parking Study.

Figure 11. Proposed Downtown Stuart Tram Route Modifications



Source: Walker Consultants and Google Earth 2018

Table 5. Stuart Downtown Tram Alternative Cost Analysis

ALT #	SCENARIO*	2017**	2018**	2019**	2020	2021	2022	2023	2024	2025
TOTAL ANNUAL COSTS										
1	MICRO-TRANSIT EXISTING SERVICE LEVEL	$ 192,676	$ 181,372	$ 216,771	$ 185,456	$ 189,105	$ 232,635	$ 196,685	$ 241,911	$ 204,509
2	MICRO-TRANSIT EXISTING SERVICE LEVEL with STOP INFRASTRUCTURE NEW SHELTER 2021, 2023, 2025					$ 203,460	$ 232,635	$ 208,499	$ 241,911	$ 216,800
3	MICRO-TRANSIT 2023 EXPANDED SERVICE LEVEL with STOP INFRASTRUCTURE NEW SHELTERS 2021, 2023, 2025							$ 286,211	$ 279,886	$ 250,913
ANNUAL COSTS TO IMPLEMENT ALL ALTERNATIVES		$ 192,676	$ 181,372	$ 216,771	$ 185,456	$ 203,460	$ 232,635	$ 286,211	$ 279,886	$ 250,913
POTENTIAL REVENUES BASED ON EXISTING SERVICE, SHELTER IMPROVEMENTS 2021, 2023, 2025 AND 2023 EXPANSION OF SERVICE										
REVENUE SOURCES										
	CRA Funding*****	$ 100,000	$ 100,000	$ 100,000	$ 103,500	$ 107,123	$ 110,872	$ 114,752	$ 118,769	$ 122,926
	FDOT Service Development Grant	$ 96,000	$ 96,000	$ 90,000	$ -	$ -	$ -	$ 44,763	$ 18,987	$ 23,202
	On vehicles ad - ($200/4 weeks)*****				$ 5,200	$ 5,518	$ 5,629	$ 8,612	$ 8,784	$ 8,843
	Shelter Ads Existing, 1 New in 2021, 2023, 2025 ($200/4 Weeks)****				$ 2,705	$ 2,759	$ 5,573	$ 5,685	$ 8,669	$ 8,843
	Fees for Special Events ($15/tram/hour)				$ 4,500	$ 4,590	$ 4,682	$ 4,775	$ 4,871	$ 4,968
	FDOT Intermodal Grant					$ 11,355	$ -	$ 11,814	$ -	$ 12,291
	Parking Fees ($1/hour)***					$ 40,000	$ 50,000	$ 60,000	$ 80,000	$ 80,000
SUBTOTAL POTENTIAL REVENUE		$ 196,000	$ 196,000	$ 190,000	$ 115,905	$ 171,345	$ 176,756	$ 250,401	$ 240,080	$ 261,072
NEEDED FUNDS TO SUPPORT ALL ALTERNATIVES		$3,324	$14,628	-$26,771	-$69,550	-$32,116	-$55,879	-$35,810	-$39,806	$10,159

* All numbers based on 2018 dollars and a 2%/year inflation factor

** 2017 - 2019 City of Stuart Budget

*** 2018 Parking Study estimated $80,000 to $120,000

**** www.bluemedia.com/bus-advertising

***** Municipal CRA Historic Taxable Value Annual Growth 2002 - 2018 = 3.5%

Funding – Existing

CRA Funding

Currently the CRA contributes $100,000 per year to the Tram's budget. Based on historical data provided by the CRA, the average increase in taxable value 2002-2018 is 3.2%.

Service Development Program Grant

The current FDOT Public Transit Service Development Program grant for the Tram expires at the end of June 2019. A Service Grant is a 3-year grant and "is selectively applied to determine whether a new or innovative technique or measure can be used to improve or expand public transit. Service Development Projects specifically include projects involving the use of new technologies, services, routes, or vehicle frequencies; the purchase of special transportation services, and other such techniques for increasing service to the riding public as are applicable to specific localities and transit user groups. Projects involving the application of new technologies or methods for improving operations, maintenance, and marketing in public transit systems can be funded through the Service Development Program." The full program description can be found in the Appendix F.

This is a competitive grant and FDOT District 4 receives approximately $1.8 million/year and operating needs receive first priority. The City of Stuart began invoicing on their current grant on October 1, 2016. The grant is for a total of $275,000 with a 50% match from the City. The City is drawing down on the grant at approximately $6,000-$8,000 per month for operating expenses. In addition, one Tram has been purchased and a second Tram is in the process of being purchased with the grant funding.

Fees for Special Events

The Tram supports many special events in the City of Stuart. Three of the largest ridership days for the Tram are the weekend of the Boat Show produced by All Sports Production. The City has determined that moving forward they will be charging City events that require an event permit $15/hour per Tram with an hourly minimum of 5 hours. In 2019, the Boat Show intends to stage buses at the Airport and has had initial meetings with the City and Tram staff to initiate, for the first time, an agreement for the Boat Show to pay for Tram service during the event. This is a best practice that can be emulated with other special events. For 2019, the Boat Show will be paying for 2 Trams for each of the 3 days of the Boat Show, starting a half hour before and ending a half hour after the Boat Show hours of Friday 10:00 AM-6:00 PM, Saturday 10:00 AM-6:00 PM, Sunday 10:00 AM-5:00 PM potentially generating $780.

Funding – Considerations

FDOT Intermodal Funds

The Florida Department of Transportation's Intermodal program provided for under Florida Statute 341.053 supports projects which provide improved access to intermodal or multimodal transportation facilities and terminals. Projects funded under this program include rail access to airports and seaports, interchanges and highways which provide access to airports, seaports and other multimodal facilities.

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Opportunities to apply for this type of funding could consist of projects to provide linkages between modes such as between the Trams and a bicycle rental kiosk and the Marty. Or if the Brightline/Virgin train were to stop in the downtown, linkages between the train and Tram may be eligible.

Parking Fees

The City concluded an in-depth parking study in September 2018. Walker Consultants completed the Future Parking Needs Analysis for the City of Stuart which took place over ten months. The study made 17 recommendations broken down into an immediate, mid or long-term timeframe.

The study recommends in the mid-term (2-5 years) paid on-street parking in the core downtown areas to replace the time-limited spaces with a system that would generate a parking fund balance. The study estimates a cost of $8,000-$10,000 per solar pay station, plus $5,000-$10,000 per location for design and setup. There would be no cost justification for a pay by phone platform setup. The study identified SW Osceola between SW St. Lucie Avenue and S. Colorado Avenue as the location to implement

Implementing paid parking in downtown Stuart is a controversial issue with opinions both for and against the idea. If the City moves forward with this approach, these funds could potentially be directed to support the Tram. With implementation of 90-100 spaces at $1/hour after the startup equipment purchase of $50,000-$60,000, the anticipated annual revenue would be $80,000-$100,000 per year.

Advertising on Tram and at Shelters

Advertising on the Tram is a potential revenue generator. Other communities have Trams that generate revenue by advertising for businesses on the Tram. The Trams are limited in the available space that could be utilized by marketing materials. Further investigation into the costs and how to provide advertising space on the vehicle through retrofitting would be needed. The use of advertising on the Tram would be one tool in the toolbox, and could supplement other dedicated funding sources. Advertising at Tram shelters is also another potential revenue generator.

Urbanized Area Formula Program Grant Section 5307

The Federal Transit Administration (FTA) Urbanized Area Formula Program Grant (49 U.S.C. Chapter 53, Section 5307) makes Federal resources available to urbanized areas for transit capital and operation assistance and transportation related planning in urbanized areas. Funds are apportioned for the Port St. Lucie Urbanized Area and the allocation is based on a combination of bus revenue vehicle miles, bus passenger miles, population and population density. The allocations to the designated recipients Martin County and St. Lucie County are provided through a split letter.

Recipients of these FTA funds must meet strict federal certification requirements. These requirements include but are not limited to maintenance, procurement, public participation, as well as Nation Transit Database (NTD) monthly annual and safety and security reporting per FTA Circular C 9030.1E.

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In September 2018 the Florida Department of Transportation (FDOT) produced a report titled *Trolleys, Shuttles, and Community Buses in South Florida: Providing Transit Service to a Special Segment of the Population*. The report notes that Broward County Transit (BCT) receives FTA 5307 and 5339 funding based on cities' submission of data to NTD. In turn, BCT purchases buses for the cities with the funding, however, some of the cities do not use BCT owned buses, they use buses owned by a contractor. In this case, they receive funding from BCT over a 5-year period for the cost of the vehicle to apply to payments to the contractor. Cutler Bay, in Miami Dade County, pays Miami Dade Transit (MDT) to operate their circular service and this route data is included with other MDT operated routes in the NTD. The report also notes that the main reason many agencies in South Florida do not report to NTD is that the increase in funding is not worth the extra time and effort to dedicate to the data collection and reporting to NTD.

Due to the strict federal reporting and compliance required, this opportunity for funding for the Tram would require further discussion and coordination with the County and may not be viable for the City.

Charging a Fare

Charging customers a fare would take away from the appeal of the Tram as a tool to alleviate congestion and provide economic development. At this time this study is in agreement with the City and does not believe this approach would be beneficial to the Tram service or community at large.

Public/Private Partnerships/Privatization

Some of the other communities in Florida have private or public/private Tram services. Stuart has made the investment in the Trams and with that is able to direct the Trams as needed by the City's partners which fosters community and economic development. With other entities running the Trams, the long-term commitment and reliability of the services would need to be contractually enforced.

Currently in Miami-Dade and Monroe Counties, public/private partnerships have been developed between local municipalities and Freebee, a company providing municipalities with an app-based transportation service. Each Freebee partnership is customized to the needs of the municipality. Freebee provides the electric vehicles for on-demand door-to-door service within a specified zone during predetermined hours. The rides are requested through the app and are free. The vehicles are ADA accessible and a dispatch number is available for those that cannot access the app. Municipalities can also approve advertising and branding on the vehicles with the proceeds split with Freebee. Currently in Coral Gables, Freebee is providing service with five vehicles operating every day, 12 hours per day, at an annual cost of $486,000. In Pinecrest, Freebee is operating with two vehicles, 60 hours per week (Monday-Friday), and one vehicle for 12 hours (Saturday) at an annual cost of $196,000.

Emerging Technology

Autonomous Shuttles

Autonomous shuttle technology is evolving. Florida communities are leaders in the nation. In December 2017, the Gainesville City Commission approved City Manager Anthony Lyons to execute a contract with Transdev Services for up to $2.7 million, which will be entirely funded by the Florida Department of Transportation. The

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funds would pay for a three-year pilot program for a self-driving Regional Transit Systems shuttle to transport up to 12 people for free through downtown Gainesville at a speed of up to 25 mph.



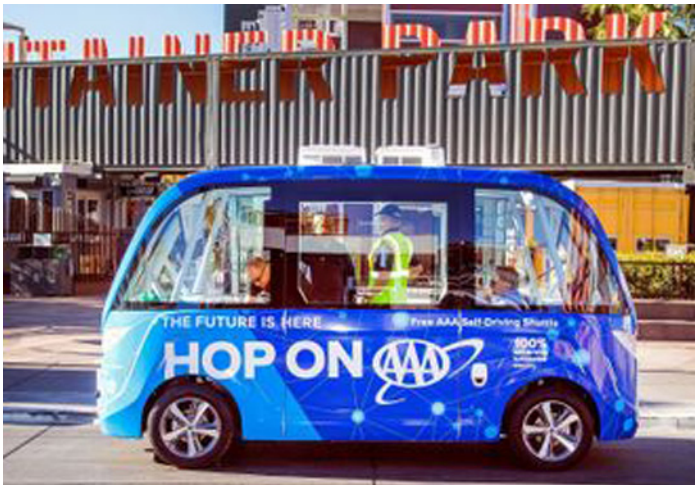
Gainesville Mobility shuttle
Source: https://www.gainesville.com/news/20180503/self-driving-shuttle-hits-streets

The Hillsborough MPO sponsored an Autonomous Transit Feasibility Study to look at implementing self-driving transit shuttles on the University of South Florida campus. The study stated the next steps would be to fund a 12-month demonstration project with two autonomous campus shuttles at a cost of $700,000. Potential funding sources they are looking at include FTA Automation Research Funds, foundation grants and FDOT funds.

Other driverless shuttle services that have been or are being tested in the U.S. include the following:

- Las Vegas: Operated from November 2017 to October 2018 as the "Hop On" pilot project. Partners included the City of Las Vegas, the Regional Transportation Commission of Southern Nevada, AAA, and Keolis North America (the operator). Carried 32,827 riders, operated for 1,515 hours, and served three stops. No fare was charged.
- Ann Arbor: MCity shuttle has operated on the University of Michigan's North Campus since June 2018. Uses two 11-passenger electric shuttles from NAVYA on one-mile route with two stops. "Safety conductor" on board during pilot project. No fare is charged.
- Austin: Year-long pilot effort was scheduled to commence in 2018. Partners include Capital Metro, the City of Austin, and RATP Dev USA. Vehicles can carry up to 15 people. Vehicles will carry a "customer service attendant." No fare will be charged.

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Las Vegas Driverless Shuttle
Source: https://www.latimes.com/resizer/mZLLbrN3Nhak0aWklvnYnYQas1o=/415x0/www.trbimg.com/img-5a45ca16/turbine/la-1514523153-7s0q8tk7ci-snap-image



MCity Driverless Shuttle
Source: https://mcity.umich.edu/wp-content/uploads/2018/05/MCityShuttle1810-300x200.jpg



Austin Driverless Shuttle
Source: https://communityimpact.com/wp-content/uploads/2018/06/IMG_1836.jpg

Another concept still under development is the "transit pod" (or ultra-compact electric car) transit service. It typically features small, enclosed vehicles that seat one to two people and would be used for short trips (like those made on e-scooters). The pods could be reserved as in car-sharing programs. Two to three pods could be parked in a single standard parking space, and pods could have three or four wheels. The operating restrictions that apply to the pods would depend on their top speed, weight, and number of wheels.

Companies currently building or testing transit pods include Lime, Renault (https://www.renault.co.uk/vehicles/new-vehicles/twizy.html), Arcimoto (https://www.arcimoto.com/vehicle/), and Electra Meccanica (https://electrameccanica.com/solo/). Ford experimented with the concept in the 2000s as part of its TH!NK program.



Example Transit Pod Vehicle
Source: https://www.renault.co.uk/vehicles/new-vehicles/twizy.html

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SECTION IV. TRANSPORTATION NETWORK COMPANIES (TNCS)

Existing Conditions

A Transportation Network Company (TNC) is a company that uses an online-enabled platform to connect passengers with drivers using their personal, non-commercial vehicles. Uber and Lyft are the most widely known in Florida.

Lyft

Stuart is part of Lyft's Port St. Lucie coverage area. Lyft drivers must be located in the coverage area in order to receive ride requests. Riders can be dropped off up to 100 miles outside of the coverage area. Lyft's high-end services (Lyft Lux, Lux Black, and Lux Black XL) are available in the Port St. Lucie coverage area.

Lyft provides on its web site general policies and expectations for how drivers are to provide trips. Specific queuing policies have been established for airport and "hot spot" locations. The nearest international airport at which Lyft is available is Palm Beach International Airport, which is approximately 40 miles from Stuart. Walt Disney World is the only designated hot spot in Florida.

Uber

Martin County is at the north end of Uber's Miami & South Florida coverage area. (Port St. Lucie is part of Uber's Central Atlantic Coast, FL, service area.) No "hot spots" are identified in Martin County; the nearest is downtown West Palm Beach. Uber serves Palm Beach International Airport, Ft. Lauderdale International Airport, and Miami International Airport. Specific queuing policies are in effect at the airports; these are specified on Uber's web site.

Most rides can be scheduled between 30 minutes and 30 days in advance. Airport pickups cannot be scheduled in advance. UberPool (shared rides), UberX (standard rides), UberXL (standard rides for large groups), Lux (luxury vehicle rides), and LuxSUV (luxury vehicle rides for large groups) are available in Stuart.

Uber drivers have access, via the Uber driver app, to information showing the areas with the highest demand for trips. These areas might be areas where "surge" pricing is in effect. What this means is that the driver app will almost always tell drivers that their highest revenue potential is in places like downtown West Palm Beach, so that is where drivers will tend to stay. If the driver app were to tell drivers that a given large special event in Stuart is a "hot spot," the availability of drivers in Stuart might spike in conjunction with that event.

TNC Usage Data

TNCs have not tended to share usage data except where local regulations require such reporting (e.g., New York City), though some researchers have established data-sharing partnerships with TNCs. Other researchers have developed usage estimates by downloading driver availability information from TNC apps over a period of time or dispatching research team members to use the TNCs.

In September 2018, however, Ford, Uber, and Lyft announced that they would participate in the SharedStreets initiative (http://sharedstreets.io/). SharedStreets is a platform for sharing transportation data. The TNCs will

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contribute speed data and curbside pick-up/drop-off data. Pilot analyses are currently underway; nothing that covers Martin County has been implemented to date.

TNC/TRAM Planning Considerations

The following observations were taken from TCRP Report 195: *Broadening Understanding of Interplay Among Public Transit, Shared Mobility, and Personal Automobiles*:

- TNCs tend to be most heavily used during evening hours and on weekends. These time periods tend to coincide with the peak hours of entertainment and recreational uses and with special events.
- The typical length of a TNC trip is 2-4 miles.
- TNC trips are more likely in downtowns and denser areas.
- TNCs tend to be used more for occasional trips (like travel to a special event) than for routine trips (like commuting).
- TNC users have indicated in surveys that they tend to choose TNCs over public transit when transit wait times and transit travel times are long.
- TNC trips occur in communities of all socioeconomic levels.
- Designating specific areas for TNC pickups and dropoffs can make transfers between transit and TNCs easier and can keep TNCs from blocking bicycle lanes and loading areas and similar.
- Designated TNC pickup/dropoff areas with short time restrictions might create a situation in which TNC drivers drive around while waiting for trips, contributing to traffic congestion.

A 2018 study by Schaller Consulting found that 70% of TNC trips in the U.S. in 2017 were concentrated in nine dense metropolitan areas. These areas are Boston, Chicago, Los Angeles, Miami, New York City, Philadelphia, San Francisco, Seattle, and Washington, D.C. The report concluded that TNCs in these areas compete more with public transit, walking, and biking than with driving. In areas where public transit service is not as plentiful, however, TNCs can supplement the transit service that is provided and also increase travel options for disabled travelers. In some areas, TNC trips are subsidized by transit agencies because the subsidy is lower than the cost of the transit agency providing the trip.

TNC Utilization Potential

TNC usage data for areas comparable to Stuart in demographics are not currently available. Two methods have been used to estimate potential TNC usage in Stuart.

Method 1

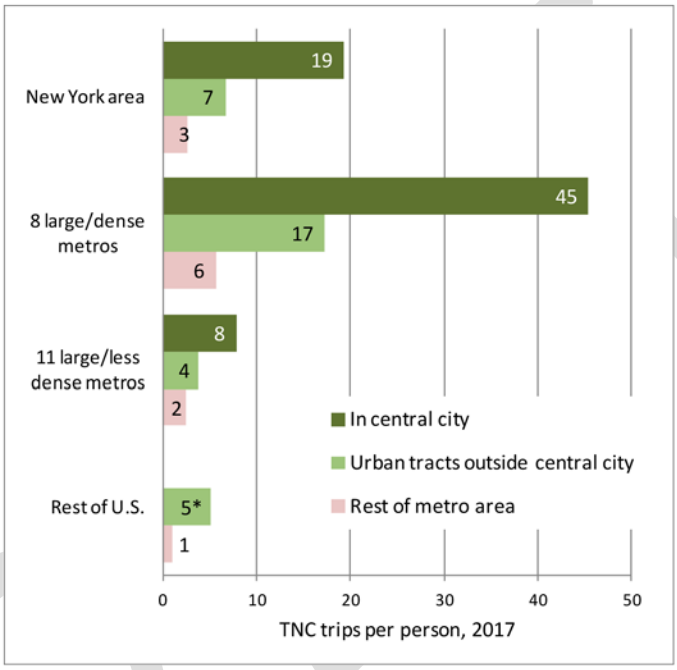
From a 2018 Washington Metropolitan Area Transit Authority study, daily TNC trips per capita from the largest metropolitan areas in the U.S. range from 0.07 to 0.28 (with an average of 0.17). Stuart is not as dense as the U.S.'s largest metropolitan areas, so, if the lowest rate (0.07) is applied to the 2010 Census-reported population of Stuart (15,593), it results in an estimated 1,156 daily TNC trips in Stuart. If TNCs are used primarily to travel to and from entertainment, recreation, and special events in Stuart, the estimate could be considered a conservative estimate of potential TNC trips associated with a large special event in Stuart. The estimate could also be expressed as 578 daily TNC riders, if each rider is assumed to make trips to and from the large special event.

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Method 2

A 2018 report by Schaller Consulting derived annual TNC trips per person for four categories of metropolitan area sizes. These rates are shown in the figure below. Stuart (and Martin County) fall within the "Rest of U.S." category. If that category's "Rest of metro area" rate of 1 annual TNC trip per person is applied to the 2010 Census-reported population of Stuart (15,593), the result is 15,593 annual TNC trips, or 44 TNC trips per day on average.

Figure 12. Rate of TNCs Trips per Person



* In Rest of U.S., the 5 trips per person is for all urban-density census tracts (over 4,000 persons per square mile) and the 1 trip per person figure is for all suburban/rural tracts.

TNC Annual Trip Rates

Source: Schaller Consulting. The New Automobility: Lyft, Uber and the Future of American Cities. Brooklyn, New York, July 25, 2018.

Designated Rideshare Parking

The Walker Parking Study recommends repurposing a few of the parallel parking spaces in the downtown core for passenger pickup and passenger drop off spaces. The City is currently working with established ride-share providers like Uber and Lyft to consider designated ride hail pick-up and drop-off areas within Stuart. The City is considering a location near the Tram stop at Haney Circle, which is at the intersection of S. Colorado Avenue and SE Osceola Street in the Stuart Downtown Area in front of Duffy's Sport Grill Restaurant. The City will be considering other spots in the future.

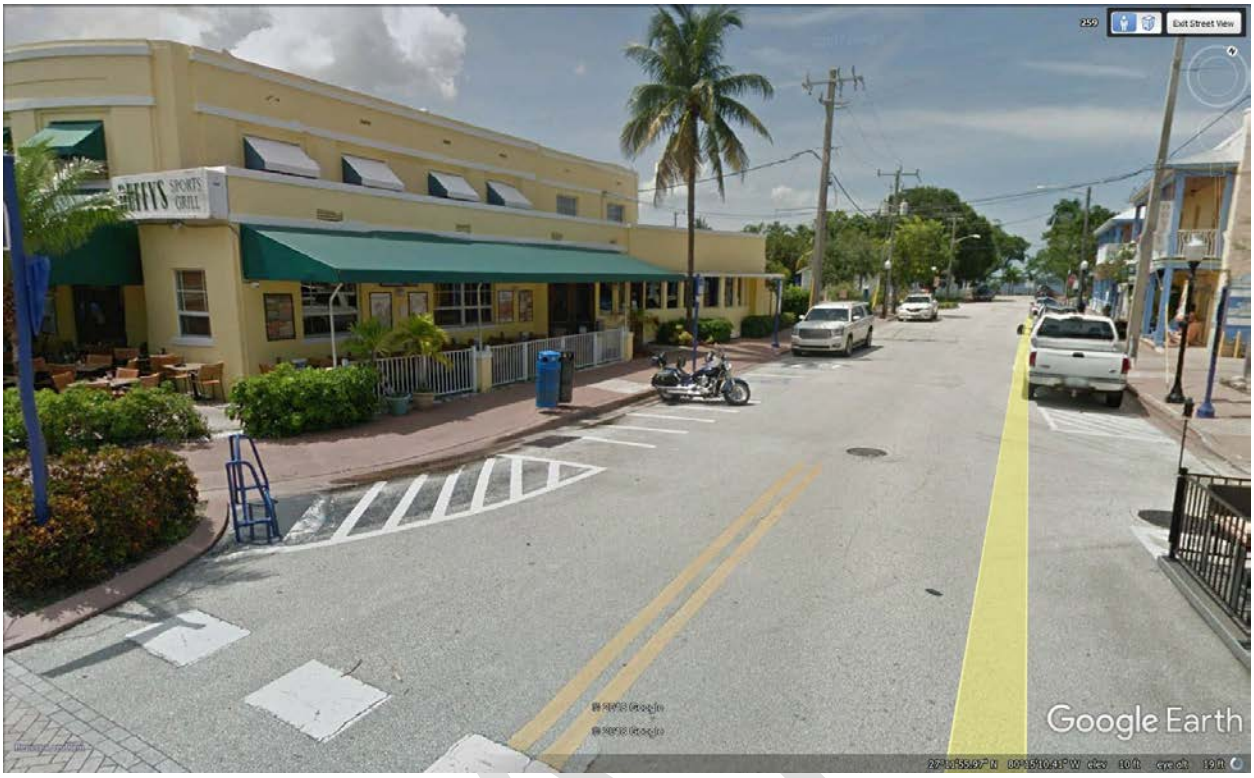


Figure 13. The City's proposed signage for the designated space



SECTION V. INFRASTRUCTURE

Infrastructure

Providing a designated bus stop boarding and alighting (B&A) area benefits all transit users, especially mobility aid (wheelchair and scooter) users, who will have less difficulty boarding and alighting when there is a firm, stable, and slip-resistant area to operate their mobility aid. *FDOT's Accessing Transit: Design Handbook for Florida Bus Passenger Facilities* states that the minimum requirements for a bus stop on a state roadway are a bus stop sign and B&A area that provides a well-drained, non-slippery surface with adequate space for passenger movement on and off buses. While not required, an area the length of the bus for transit purposes provides a comfortable waiting, alighting, and boarding area for both front and rear doors and improves the transit agency's presence and access to transit vehicles. A transit agency should consider providing concrete B&A areas at bus stops if there are water drainage issues or the stop is regularly used by patrons using mobility aids. Although these standards are for larger transit systems on state roadways, the provisions were developed to benefit the ridership and provide guidance on existing standards. The Public Right-of-Way Accessibility Guidelines (PROWAG) provide additional guidance in Section R308 Transit Stops and Transit Shelters.

The following photos are of the current stops. The stops range from a sheltered bench with garbage can, bicycle rack, and Tram information and signage (Sailfish Parking Lot) to a Tram sign with the phone number (6th Street). The locations may also limit the space and amenities. The opportunity to incorporate advertising into the shelter by providing a side wall would be one avenue to generate additional advertising space.



Martin County Courthouse



Martin County Schoolboard

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Marty Stop



Martin Medical Center



Martin Surgery Center



509 Building



Weissman Cancer Center



Haney Circle



Sailfish Parking Lot



Flagler Park



City Hall



Osceola Park-n-Ride



Kiwanis Park



6th Street



Kindred Street Stop (on-call)

Climate Change and Sea Level Rise

The impacts of sea level rise and climate change have already affected communities across the nation, Florida in particular. Climate change is expected to bring frequent and more intense weather, precipitation, flooding and storm events to the region. These conditions are expected to damage infrastructure, ecosystems and social systems. Transportation infrastructure is particularly vulnerable to sea level rise and climate change.

In planning for the future of the Tram, it is important to take these weather extremes into account and plan accordingly. Using the Southeast Florida Climate Change Regional Compact as a guide, the region can expect to see the following sea level rise scenarios in the coming decades:

- By 2030, 6 to 10 inches
- By 2060, 14 to 34 inches
- By 2100, 31 to 81 inches

As the *Unified Sea Level Rise Projection* suggests, the 2030 predication should be used in designing low risk projects that are easily replaceable with short design lives. The 2060 projection should be used in projects within a short-term planning horizon; and 2100 predictions should be applied for high risk projects, to be built after 2060, that are not easily replaceable or removable and have a long design life (more than 50 years) or critically interdependent with other services and/or infrastructure.

With this in mind, it is recommended that the City consider investing in infrastructure and equipment that can withstand extreme heat, precipitation and storms with the 2060 projection in mind. Mitigation and adaptation to the future effects of climate change and sea level rise can save the City hundreds, if not thousands of dollars in the future and position the City to be responsive to the changes associated with climate change and sea level rise.

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SECTION VI. OPPORTUNITIES

Opportunities Identified

Throughout the development of the Business Plan, residents, tourists and staff provided the Team with suggestions and ideas to consider. Many documents were also reviewed that provided input for further review. These are listed below and will require further investigation as the City continues to uphold the vision of the Tram system in the City.

- The Walker Parking study recommends a special event traffic maintenance plan to direct motorists to preferred parking locations. This would be an excellent opportunity to coordinate signage and information with the Tram.
- Robust marketing plan.
- Research benefits and charging capabilities of new batteries.
- Regular coordination with Marty staff.
- Potential to collect additional data on Marty riders alighting at the Marty stop at US 1 and Johnson Ave. to determine if the Stuart Tram can facilitate the riders last mile connection.
- City staff expressed an interest in autonomous shuttle opportunities.
- Look into opportunities to pilot new technologies.
- Develop performance measures.
- Investigate Tram changes needed to support advertising space on the vehicle.
- Add information to Tram voicemail.
- Evaluate ridership at regular intervals.
- Prepare a City of Stuart Bicycle and Pedestrian Plan to evaluate how people move about the City and to look at improvements to encourage complete streets.
- Evaluate expanding the route to serve the residential areas around the downtown.
- Evaluate the need for transit service between the downtown and the beach.
- Shelter improvements.
- ADA accessibility.

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