



Coco Vista Centre  
 466 SW Port St. Lucie Blvd, Suite 111  
 Port St. Lucie, Florida 34953  
 772-462-1593 www.stlucietpo.org

## BICYCLE-PEDESTRIAN ADVISORY COMMITTEE (BPAC)

### Regular Meeting

Thursday, July 28, 2022  
 3:00 pm

#### Public Participation/Accessibility

Participation in Person: Public comments may be provided in person at the meeting. Persons who require special accommodations under the Americans with Disabilities Act (ADA) or persons who require translation services (free of charge) should contact the St. Lucie TPO at 772-462-1593 at least five days prior to the meeting. Persons who are hearing or speech impaired may use the Florida Relay System by dialing 711.

Participation by Webconference (not intended for Committee Members): Using a computer or smartphone, register at <https://attendee.gotowebinar.com/register/1053499689511471629>. After the registration is completed, a confirmation will be emailed containing instructions for joining the webconference. Public comments may be provided through the webconference chatbox during the meeting.

Written and Telephone Comments: Comment by email to [TPOAdmin@stlucieco.org](mailto:TPOAdmin@stlucieco.org); by regular mail to the St. Lucie TPO, 466 SW Port St. Lucie Boulevard, Suite 111, Port St. Lucie, Florida 34953; or call 772-462-1593 until 2:30 pm on July 28, 2022.

### AGENDA

1. Call to Order
2. Roll Call
3. Comments from the Public
4. Approval of Agenda
5. Approval of Meeting Summary
  - *May 19, 2022 Regular Meeting*
6. Action Items
  - 6a. Drone Port/Advanced Air Mobility Study Phase 1: Review of Phase 1 of the draft Drone Port/Advanced Air Mobility Study.
 

*Action: Recommend acceptance of the Phase 1 Study, recommend acceptance with conditions, or do not recommend acceptance.*

- 6b. Comprehensive Safety Action Plan: Presentation of the draft Comprehensive Safety Action Plan for the TPO area.

*Action: Recommend acceptance of the draft Plan, recommend acceptance with conditions, or do not recommend acceptance.*

- 6c. Carbon Reduction Strategy Scope of Services: Review of the draft Scope of Services for the development of a Carbon Reduction Strategy for the TPO area.

*Action: Recommend approval of the draft Scope of Services, recommend approval with conditions, or do not recommend approval.*

- 6d. Special Events Congestion Management and Parking Plan (SECMAPP) Scope of Services: Review of the draft Scope of Services for the development of a SECMAPP for the TPO area.

*Action: Recommend approval of the draft Scope of Services, recommend approval with conditions, or do not recommend approval.*

7. Recommendations/Comments by Members
8. Staff Comments
9. Next Meeting: The next St. Lucie TPO BPAC meeting is a regular meeting scheduled for 3:00 pm on Thursday, September 22, 2022.
10. Adjourn

## NOTICES

The St. Lucie TPO satisfies the requirements of various nondiscrimination laws and regulations including Title VI of the Civil Rights Act of 1964. Public participation is welcome without regard to race, color, national origin, age, sex, religion, disability, income, or family status. Persons wishing to express their concerns about nondiscrimination should contact Marceia Lathou, the Title VI/ADA Coordinator of the St. Lucie TPO, at 772-462-1593 or via email at lathoum@stlucieco.org.

Items not included on the agenda may also be heard in consideration of the best interests of **the public's health, safety, welfare, and as necessary to protect every person's right of** access. If any person decides to appeal any decision made by the St. Lucie TPO Advisory Committees with respect to any matter considered at a meeting, that person shall need a record of the proceedings, and for such a purpose, that person may need to ensure that a verbatim record of the proceedings is made which includes the testimony and evidence upon which the appeal is to be based.

Kreyol Aysisyen: Si ou ta renmen resewva enfòmasyon sa a nan lang Kreyòl Aysisyen, tanpri rele nimewo 772-462-1593.

Español: Si usted desea recibir esta información en español, por favor llame al 772-462-1593.



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## BICYCLE-PEDESTRIAN ADVISORY COMMITTEE (BPAC)

### REGULAR MEETING

DATE: Thursday, May 19, 2022  
 TIME: 3:00 pm  
 LOCATION: St. Lucie TPO  
 Coco Vista Centre  
 466 SW Port St. Lucie Boulevard, Suite 111  
 Port St. Lucie, Florida

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#### MEETING SUMMARY

1. Call to Order

The meeting was called to order at 3:10 pm.

2. Roll Call

The roll was conducted via sign-in sheet and the following members were present:

Members Present

Vennis Gilmore, Chair  
 Jennifer McGee, Vice Chair

Joe DeFronzo  
 Joyania Hawthorne

Andrina Nobili  
 Eddie Smidtsrod

Others Present

Kyle Bowman  
 Peter Buchwald

Representing

Fort Pierce Public Works  
 St. Lucie County Environmental  
 Resources Department  
 Resident Bicycling  
 St. Lucie County Parks and  
 Recreation  
 Port St. Lucie Parks and Recreation  
 Resident Running/Hiking

Representing

St. Lucie TPO  
 St. Lucie TPO

Yi Ding	St. Lucie TPO
Marceia Lathou	St. Lucie TPO
Rachel Harrison	Recording Specialist
Mark Alvarez	Corradino Group
Sarah Brink	General Public
Matt McIntosh	TranSystems
Anthony Walker	General Public
Patty Walker	General Public

3. Comments from the Public – None.

4. Approval of Agenda

\* MOTION by Vice Chairwoman McGee to approve the agenda.

\*\* SECONDED by Mr. DeFronzo Carried UNANIMOUSLY

5. Approval of Meeting Summaries

- January 20, 2022 Regular Meeting
- March 24, 2022 Regular Meeting

\* MOTION by Vice Chairwoman McGee to approve the Meeting Summaries.

\*\* SECONDED by Ms. Nobili Carried UNANIMOUSLY

6. Action Items

6a. Draft FY 2022/23 – FY 2026/27 Transportation Improvement Program (TIP): Review of the draft FY 2022/23 – FY 2026/27 TIP.

Mr. Buchwald explained that the TPO was required to develop a TIP annually to identify projects within the TPO area that had been prioritized and were to receive Federal or State funding within the next five years. He then invited Mr. Ding to continue. Mr. Ding outlined the year-long process necessary to develop the TIP, noted several agencies involved in its production, and highlighted a number of multimodal projects included in the draft under consideration. He presented the total amount of funding in the TIP and concluded with

DRAFT

an overview of the performance management metrics to be used in the TIP's evaluation.

In reference to the Blind Creek Bridge Replacement project, Vice Chairwoman McGee questioned whether any resiliency upgrades would be incorporated into the facility's design. Mr. Buchwald indicated that the design process would begin in the next fiscal year and would likely involve comment requests from a variety of local agencies through the Electronic Review Comment System of the Florida Department of Transportation.

\* MOTION by Vice Chairwoman McGee to recommend adoption of the draft TIP.

\* \* SECONDED by Ms. Nobili Carried UNANIMOUSLY

6b. Micro-Mobility Study: Presentation of the draft Micro-Mobility Study, which analyzes the use of micro-transit, e-scooters, car sharing, and bike sharing in the St. Lucie TPO area.

Mr. Buchwald introduced Ms. Lathou, who described both micro-mobility and the purpose of the Study, identified the three Study Areas, and provided details on the Study's timeline as well as the consultant engaged to conduct it. She then invited Mr. Alvarez to continue. Mr. Alvarez further described the three Study Areas, surveyed the information obtained from the various plans and documents consulted during the Study, and presented several considerations from the perspective of micro-mobility service providers. He then presented the analysis of the existing conditions for the individual Study Areas along with the recommendations being made for each.

In answer to Mr. Smidtsrod's question, Mr. Alvarez explained that e-scooters and e-bikes were legally required to be ridden on the street rather than on sidewalks.

In response to Vice Chairwoman McGee's inquiry, Mr. Alvarez explained that the three Study Areas were intended to function as templates for micro-mobility usage in St. Lucie County.

Vice Chairwoman McGee inquired about the services operating out of the Jobs Express Terminal, and Ms. Lathou described the current bus service as well as the future bus connection to the West Palm Beach Intermodal Facility, which had been delayed due to supply chain

issues. At Mr. Smidtsrod's request, Ms. Lathou further described the services operating out of the West Palm Beach Intermodal.

Mr. Smidtsrod inquired about the plans for local Brightline passenger rail service, and Mr. Buchwald provided an update on the efforts to locate a stop on the Treasure Coast.

In answer to Vice Chairwoman McGee's question, Chairman Gilmore indicated that the City of Fort Pierce required new developments to incorporate bike racks onsite.

Mr. Smidtsrod commented on the increasing technological sophistication of e-scooters and e-bikes, and Mr. Buchwald noted that their expanding capabilities presented several challenges for the regulation of their use alongside other modes of travel.

Mr. DeFronzo initiated a discussion regarding the mobility network in the Torino Parkway area, commenting on the proposed regional park and multi-use trail connecting Torino Parkway to Volucia Drive. Mr. DeFronzo also reported that the City of Port St. Lucie had begun the implementation of Phase II of its Mobility Plan, which would support city-wide micro-mobility. In answer to Mr. Buchwald's question regarding the remaining connectivity gaps in the neighborhood, Mr. DeFronzo remarked on the issue of providing a connection to various activity centers in the St. Lucie West area, perhaps along California or Cashmere Boulevards. Ms. Lathou then noted the County's plans to extend the On Demand micro-transit service to the Torino neighborhood. Mr. Smidtsrod commented on the need to provide facilities for users to secure their mobility devices, and Vice Chairwoman McGee indicated that all the device racks in the County's preserves would soon be replaced.

\* MOTION by Vice Chairwoman McGee to recommend acceptance of the Micro-Mobility Study.

\*\* SECONDED by Mr. Smidtsrod Carried UNANIMOUSLY

6c. 2022/23 List of Priority Projects (LOPP): Review of the draft LOPP for 2022/23 for the St. Lucie TPO.

Mr. Buchwald explained how and why the LOPP is developed each year before detailing the differences between the previous year's LOPP and the draft under consideration. In doing so, he reported on revisions to the Master List, the Congestion Management Process (CMP) List, the Transportation Alternatives (TA) List, and the Transit List, indicating in

each case that the projects originated from the plans or programs of the St. Lucie TPO.

Vice Chairwoman McGee requested that a placeholder be included in the LOPP for a bridge project over the St. Lucie River to connect the Oxbow Eco-Center to the East Coast Greenway. Mr. Buchwald explained that the project would be ranked after the project description, limits, and cost were provided to staff.

Chairman Gilmore inquired about the Express Route Bus Service connecting the Fort Pierce and Port St. Lucie Intermodal facilities along South 25th Street. Mr. Buchwald explained that the line item on the Transit Project List was included to continue the service after the expiration of the existing grant funding, describing it as an important link in the County's transit network.

- \* MOTION by Vice Chairwoman McGee to recommend adoption of the draft 2022/23 LOPP with the condition that an Oxbow St. Lucie River Connector project be added.
- \*\* SECONDED by Mr. Smidtsrod Carried UNANIMOUSLY

## 7. Discussion Items

7a. Crosswalk Markings Visibility Study Implementation: An update on the implementation of the Crosswalk Markings Visibility Study.

Mr. Buchwald introduced the agenda item and invited Mr. Ding to continue. Mr. Ding explained that the Crosswalk Markings Visibility Study had been conducted in March 2021 to improve the visibility of pedestrians at intersections and to reduce pedestrian-related accidents. He described how the crosswalk intersection data had been obtained and examined before noting the results, which comprised seven crosswalk markings in poor condition, 12 in fair condition, and 38 in good condition. Mr. Ding reported that the results had been shared with the relevant jurisdictions and that 16 of the 19 intersections in poor or fair condition either had been or were in the process of being improved. He commended FDOT and the local agencies for their prompt responses and indicated that TPO staff would continue to collaborate with the agencies to monitor the improvements.

Mr. Buchwald described the implementation of the Study's findings as a successful example of local interagency cooperation.

Mr. DeFronzo reported that several improvements had been made to the crosswalk at the western side of the intersection at Lyngate Drive and Veterans Memorial Parkway to make it an ADA special emphasis crosswalk. Mr. Buchwald indicated that the Study could be expanded to include additional crosswalks in the future, explaining that the initial list had only included crosswalks where multiple bicycle/pedestrian crashes had occurred.

Mr. Smidtsrod commented on the high visibility of the green bike lanes on U.S. 1. Mr. DeFronzo explained that the green striping was placed in conflict zones, and Vice Chairwoman McGee recommended that educational materials be produced to make the public aware of their significance.

8. Recommendations/Comments by Members – Mr. DeFronzo noted that May was National Bike Month and encouraged the members to participate, indicating his intention to commute via bicycle the next day in support of Bike to Work Week.

Mr. Smidtsrod commented on a previous trip he had taken to Merida, Mexico, where officials periodically close portions of the downtown area to cars so that bicycles may be ridden more safely on the streets. He noted that the event was particularly popular with families.

Vice Chairwoman McGee reported on congestion at the intersection of Airoso and Prima Vista Boulevards. Mr. Buchwald explained that the County-maintained intersection featured an all-pedestrian phase signal, which could add time to the length of the light cycle. Discussion ensued regarding how the expansion of the Advanced Traffic Management System (ATMS) would reduce congestion on local roads.

9. Staff Comments – Mr. Buchwald welcomed Ms. Hawthorne as a new member of the BPAC serving as an alternate.

Mr. Buchwald noted the kickoff meeting for the construction of the North Causeway Bridge Replacement project occurred the previous week and provided a description of the project and its timeline. He provided highlights of the next meeting's agenda and noted that there was one remaining vacancy on the BPAC. He then thanked the members for their participation.

- 10. Next Meeting: The next St. Lucie TPO BPAC meeting is a regular meeting scheduled for 3:00 pm on Thursday, July 28, 2022.
  
- 11. Adjourn – The meeting was adjourned at 4:25 pm.

Respectfully submitted:

Approved by:

\_\_\_\_\_  
Rachel Harrison  
Recording Specialist

\_\_\_\_\_  
Vennis Gilmore  
Chairman



AGENDA ITEM SUMMARY

Board/Committee: Bicycle-Pedestrian Advisory Committee (BPAC)

Meeting Date: July 28, 2022

Item Number: 6a

Item Title: Drone Port/Advanced Air Mobility (AAM) Study Phase 1

Item Origination: UPWP

UPWP Reference: Task 3.6- Freight Planning

Requested Action: Recommend acceptance of the Phase 1 Study, recommend acceptance with conditions, or do not recommend acceptance.

Staff Recommendation: Because the AAM concept aligns with the goals of the SmartMoves 2045 Long Range Transportation Plan and the Phase 1 Study provides a roadmap for consideration to further facilitate the realization of AAM into the TPO area, it is recommended that the Drone Port/AAM Study Phase 1 be recommended for acceptance by the TPO Board.

Attachments

- Staff Report
- Drone Port/AAM Study Preliminary Review



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## MEMORANDUM

TO: Bicycle-Pedestrian Advisory Committee (BPAC)

THROUGH: Peter Buchwald  
 Executive Director

FROM: Yi Ding  
 Transportation Systems Manager

DATE: July 12, 2022

SUBJECT: Drone Port/Advanced Air Mobility (AAM) Study Phase 1

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### BACKGROUND

Advanced Air Mobility (AAM) is an air transportation system that moves people and cargo between places not currently or easily served by surface transportation or existing aviation modes. At a mature state, AAM will integrate revolutionary aircraft including Electrical Vertical Take-Off and Landing Vehicles (eVTOL) and Unmanned Aircraft Systems (UAS) into highly automated networks.

The St. Lucie TPO included a Drone Port/Advanced Air Mobility (AAM) Study Phase 1 in Task 3.6, *Freight Planning*, of the FY 2020-21 - FY 2021-22 UPWP to understand the current state of the AAM industry and consider its possible integration into the TPO's future planning activities.

### ANALYSIS

The attached Drone Port/Advanced Air Mobility (AAM) Study Preliminary Review was conducted by Kimley-Horn and Associates, one of the TPO's General Planning Consultants. Task 1 of the Study included a high-level review of AAM technology summarizing the key components required for developing an AAM system and infrastructure and the alignment of the AAM concept with the goals of the SmartMoves 2045 Long Range Transportation Plan (LRTP). Task 2 of the Study captured the current state of AAM by identifying the maturity of AAM technology and the development of the regulatory

framework. Task 3 summarized potential use cases of AAM, which may include last-mile cargo delivery, emergency response, passenger/cargo transport, and include examples of how such use cases may support the current warehousing and distribution development that is occurring in the TPO area. Task 4 included the short-term and mid-term AAM integrations into the TPO's future planning activities and recommended follow-on studies for inclusion into the Unified Planned Work Program to further facilitate the realization of AAM into the TPO area.

### RECOMMENDATION

Because the AAM concept aligns with the goals of the SmartMoves 2045 LRTP and the Phase 1 Study provides a roadmap for consideration to further facilitate the realization of AAM into the TPO area, it is recommended that the Drone Port/AAM Study Phase 1 be recommended for acceptance by the TPO Board.



(NASA, 2021)



July 1, 2022

St. Lucie TPO Drone Port/Advanced Air Mobility Study  
 Preliminary Review

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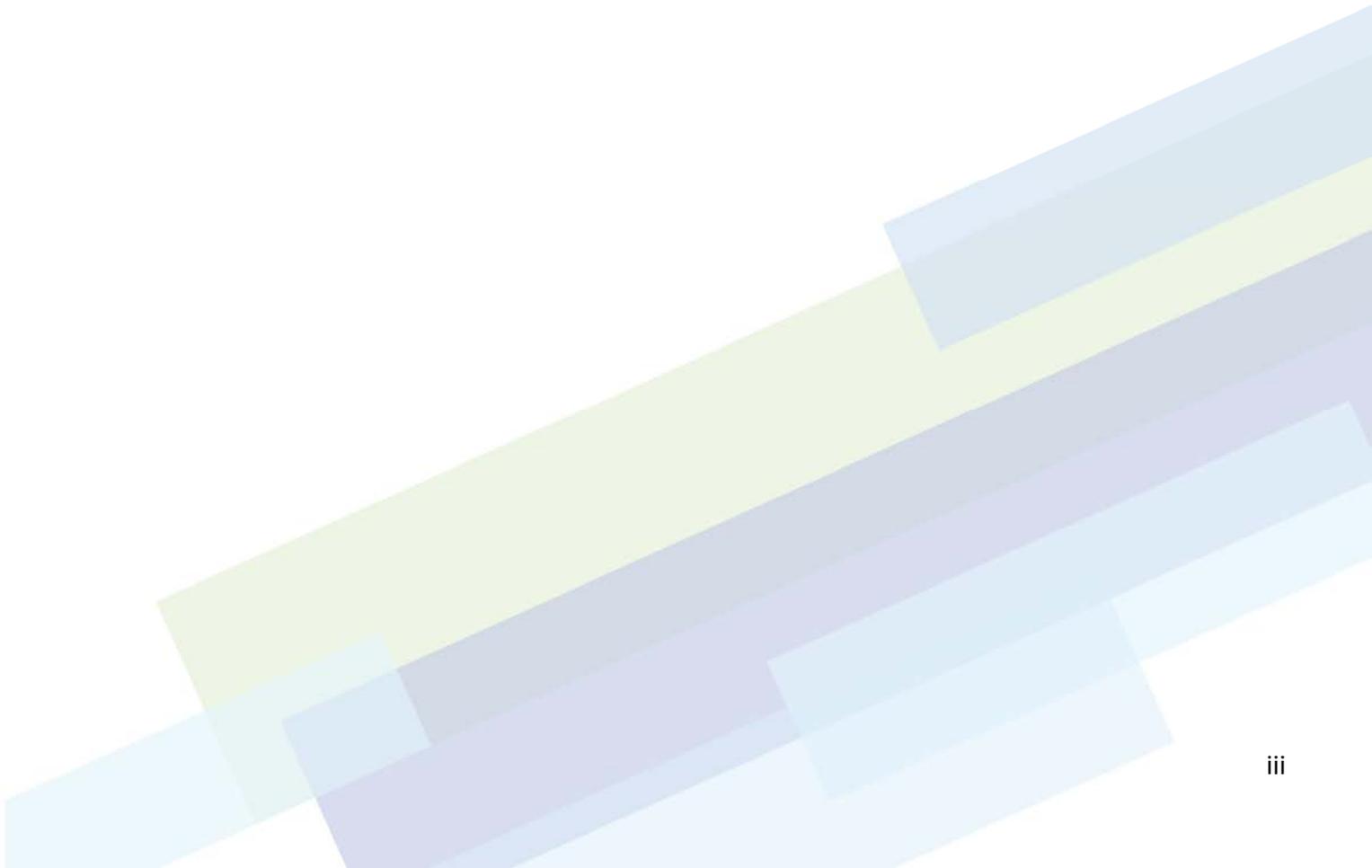
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# Acronyms

<b>AAM</b>	Advanced Air Mobility
<b>ACES</b>	Automated, Connected, Electric, and Shared-Use
<b>ATC</b>	Air Traffic Control
<b>BVLOS</b>	Beyond Visual Line of Sight
<b>CAC</b>	Citizen's Advisory Committee
<b>CFR</b>	Code of Federal Regulations
<b>eVTOL</b>	Electric Vertical Take-off and Landing
<b>FAA</b>	Federal Aviation Administration
<b>GHG</b>	Green House Gas
<b>LCB</b>	Local Coordinating Board for Transportation Disadvantaged
<b>L RTP</b>	Long Range Transportation Plan
<b>NASA</b>	National Aeronautics and Space Administration
<b>OEM</b>	Original Equipment Manufacturer
<b>PBI</b>	Palm Beach International Airport
<b>TCTC</b>	Treasure Coast Transportation Council
<b>UAM</b>	Urban Air Mobility
<b>UAS</b>	Unmanned Aircraft Systems
<b>USDOT</b>	U.S. Department of Transportation

# Section 1. Advanced Air Mobility (AAM) Background and Description

- › General Background
- › Description of AAM Network Elements
- › Alignment with the St. Lucie County Long Range Transportation Plan
- › Summary of AAM Network Elements

# Section 1. AAM Background and Description

## 1.1 General Background

Urban Air Mobility (UAM), a concept with origins in mid-20<sup>th</sup> century intra-city helicopter transportation, describes systems utilizing “highly automated aircraft which will operate and transport passengers or cargo at lower altitudes within urban and suburban areas.” Advanced Air Mobility (AAM) is an umbrella term which defines a future concept of mobility and



Figure 1-1. NASA Traffic Management Diagram Depicting UAS/UAM Airspace (NASA, 2021)

of transportation of people and goods. AAM incorporates use cases of urban, suburban and rural transportation using innovative aerial vehicles, such as unmanned aerial vehicles (UAVs) and electric vertical take-off and landing vehicles (eVTOLs). The term AAM is often used interchangeably with Urban Air Mobility (UAM); however, AAM is inclusive of the rural and suburban counterparts whereas UAM mainly focuses on urban connectivity. Unmanned Aircraft Systems (UAS) describes a similar concept focusing primarily on smaller remotely controlled vehicles, what most people would refer to as “drones.” AAM/UAM can be seen as a synergy between the automotive industry and civil aviation. Initial UAM passenger operations, most notably helicopter service from New York Airways in New York City, had high operating costs and noise footprints which ultimately ceased operations due to safety concerns from fatal accidents and subsequent bankruptcy; decreasing public interest and negatively influencing public perception of commercial helicopter travel. The advent of electric drone technology revised the interest in UAM through using newer Electric Vertical Takeoff and Landing (eVTOL) vehicles which are more energy efficient and quieter than helicopters. The electrification of eVTOLs allows them to consume energy at a much cheaper rate than helicopters and provided a framework for AAM networks. A gallon of Jet A fuel costs \$6.86 on average and the Bell 407, utilized by Blade Aerospace in current helicopter transportation operations in New York City, has a burn rate of 43.2 gallons per hour – leading to a fuel cost of roughly \$296/hour (AirNav, 2022). Uber expects direct energy costs for eVTOLs to “come in at roughly \$21/flight hour.” (Uber, 2016).

eVTOL technology is rapidly developing into reality with roughly 250 companies working on developing this novel technology – signaling a high degree of potential. The impending realization of eVTOL technology has positioned the AAM concept as a potential solution for a multitude of existing transportation bottlenecks and improvement upon current systems, most notably ground traffic congestion and greenhouse gas emissions. Appending an AAM network to existing ground networks has the potential to reduce travel times by 2.6 times (NASA, 2020) – Reducing travel times decreases vehicle congestion, in turn assisting in further decrease of tailpipe and noise emissions. The benefits of AAM are apparent, however a multitude of elements must be used in tandem to effectively implement it.

## 1.2 Description of AAM Network Elements

Successful AAM networks will integrate eVTOL technology, physical infrastructure (vertiports/heliports, recharging/refueling infrastructure, and utilities, etc.), conceptual infrastructure (airspace corridors and networks, communications arrays, and software), surrounding transit/cargo/transportation networks, and agreement with legislation and liability constraints (Figure 1-2). Initial AAM networks will be built largely around existing helicopter networks, utilizing heliports and helicopter airspace and procedures, while operating eVTOL vehicles and employing minor supporting infrastructure such as electrical charging stations (NASA, 2020). This will allow for a relatively straightforward inception of operations as the physical infrastructure generally already exists, although peripheral infrastructure such as charging stations may present high startup costs. However, given the extensive legal requirements which will need to be met to operate vehicle services over densely populated areas, as well as significantly higher development costs within downtown areas, AAM will most likely begin operating primarily as an option for inter-city cargo and passenger travel between multiple rather than an intra-city option like a city bus system.

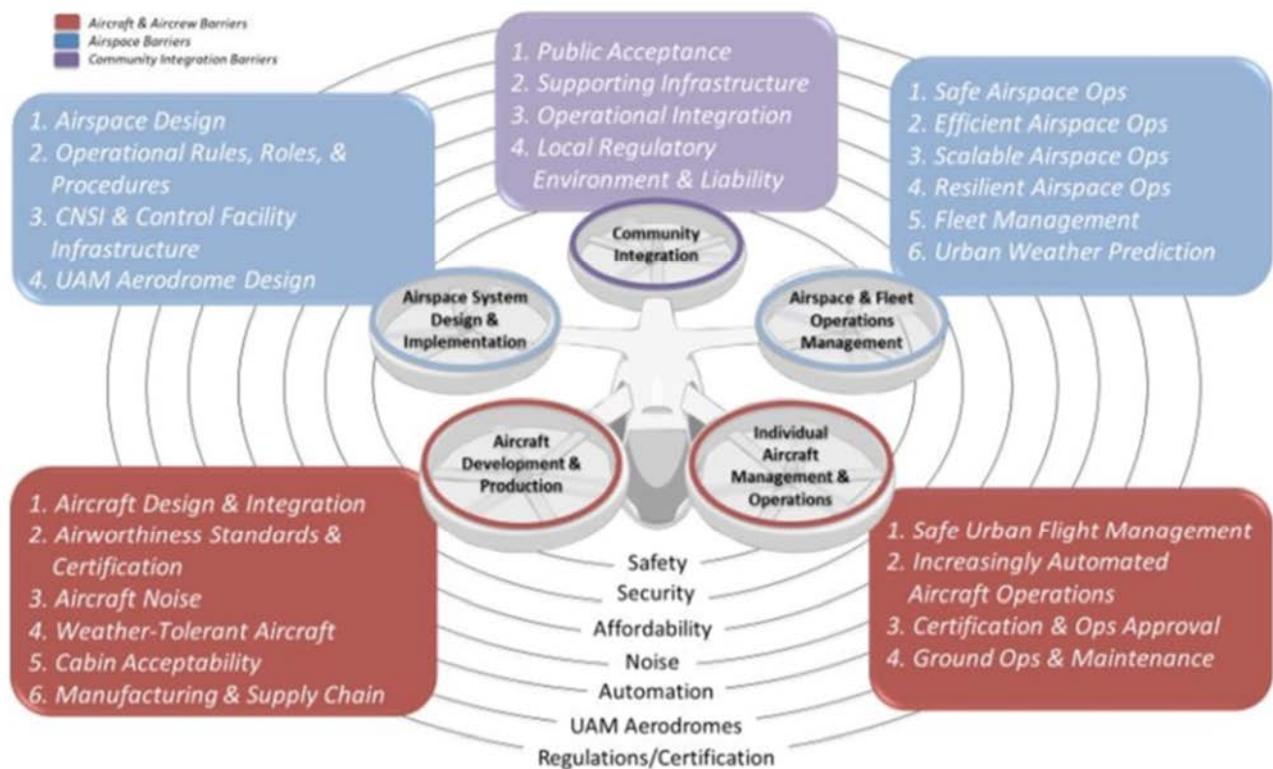


Figure 1-2. Barriers to Entry for AAM Network Creation (NASA, 2021)

Eventually, AAM networks may evolve to have an entirely separate, automated network, vertiports (eVTOL manufacturers are planning to develop their own vertiport infrastructure currently), and fully autonomous eVTOL aircraft lacking the need for a pilot-in-command (PIC). As the technology develops, economies of scale arise, and legislation evolves to accommodate the technology, intra-city AAM travel may also become more viable (FAA, 2020). Most importantly, the development of AAM networks will only be possible with public acceptance. Consumers must trust AAM to be safe, and that the benefits will be worth the costs – in infrastructure development, new legislation, and taxpayer dollars. Given the potential demand, however, the public may be amenable to the development of this new transit medium. Many American cities are growing rapidly (including Port St. Lucie, FL, which the U.S. Census Bureau ranked as the 12th fastest growing city in the

United States) which will add strain to existing ground traffic networks. This will make alternative transportation methods a necessity. AAM may prove to be a high-demand alternative, with projected long-term demand of 20% of all daily work trips in the United States (Booz Allen Hamilton, 2020).

## 1.3 Alignment with the St. Lucie County Long Range Transportation Plan

Considering its potential to be more cost and energy efficient than traditional methods, providing AAM as an alternative mode of transportation may prove to become a viable strategy for many localities, including St. Lucie County. The AAM concept in many ways aligns with the St. Lucie County Transportation Planning Organization (TPO)'s Long Range Transportation Plan (LRTP). The LRTP outlines several goals for St. Lucie's transportation system by 2045:

- » Support Economic Activities
- » Provide Travel Choices
- » Maintain the Transportation System
- » Providing Equitable, Affordable, and Sustainable Urban Mobility
- » Improving Safety and Security

The following notes how AAM can support reaching these goals.

### Supporting Economic Activities, Providing Travel Choices, and Maintaining the Transportation System

AAM has the potential to support current cargo and transportation networks by reducing congestion from existing and future ground traffic, and to expand such networks by increasing accessibility to areas which may have been more difficult to reach by consumers. For example, a factory located 60 miles outside of downtown Port St. Lucie may take over an hour to drive to considering distance and traffic patterns, but only 15 minutes when utilizing an eVTOL in an AAM network which may reach higher top speeds and does not have to worry about traffic density or road networks (Kasliwal et. al., 2019). This would allow for a more cost-effective transfer of goods to and from the factory. This concept could hold for many locations among the immediate and broader region – allowing for more efficient and expanded cargo transfers between St. Lucie County and communities throughout Florida. This concept can also be applied by understanding AAM as an alternative travel choice - AAM presents a medium to long range alternative to walking, biking, driving, or transit which may prove to be more time and energy efficient. AAM serves multiple passengers (or larger volumes of cargo) at a time, taking vehicles off the road – in turn, reducing stresses on existing road networks while representing a forward-looking investment in St. Lucie County's transportation system.

### Provide Equitable, Affordable, and Sustainable Urban Mobility

In its initial stages, AAM would only require existing helicopter infrastructure (heliports, networks, etc.) in addition to charging ports and related utilities. Any location suitable for helicopter transport could then be used for AAM transport – meaning, areas which lack public transportation or ease of access by road may with relative simplicity be served by AAM networks. This may work to improve equity in St. Lucie's transportation network, while providing a more sustainable transportation option. Evolution in certain technologies, namely electric propulsion, energy storage, and automation, may allow eVTOL aircraft to present as a vehicle option with relatively low chemical and noise emissions.

Contrasting with older VTOL (non-electric) vehicles such as helicopters, which use traditional fossil fuels and have loud rotors, eVTOL aircraft may be charged electrically and use smaller, quieter blades to fly. Although AAM may not be very affordable in initial stages due to high startup costs due to vehicle and infrastructure development and production, “as the technology and infrastructure evolve...trips could become progressively longer, driving down the cost per mile to more affordable levels” (Deloitte, 2020). Essentially, once Original Equipment Manufacturers (OEM) ramp up production of eVTOLs and the networks are built, prices may be driven down significantly, proving AAM networks to be a viable transportation option for the public. AAM could also be used as an automated, efficient solution to regular cargo transportation between fixed or dynamic locations. An eVTOL with a single pilot (or flown by itself) may be able to take more frequent (or easier scheduled) trips than trucks normally could, while utilizing electric power and avoiding unwanted traffic or road delays.

### Improve Safety and Security

While being held to the same stringent safety standards as existing passenger and cargo aircraft, AAM networks may provide localities with an increased sense of security by expanding the potential for public emergency services to reach areas it may have been costly to do so before. More automation and interconnectedness will allow eVTOL aircraft to be more aware of weather conditions and surrounding traffic or other hazards, minimizing the possibility for pilot error – a leading cause of aircraft accidents. Furthermore, AAM operations will need to adhere to a much wider range of certification standards (Section 2) and oversight than typical vehicle travel which will lead to safe operations going forward.



Figure 1-3. Depiction of eVTOL being Used in Search and Rescue Operations

## 1.4 Summary of AAM Network Elements

To summarize, AAM networks typically consist of:

- » eVTOL aircraft or other automated flying vehicles
- » Supporting physical infrastructure
  - › Vertiports
  - › Charging stations
  - › Communications arrays
  - › Terminals (for passengers or cargo)
- » Planning/operations infrastructure
  - › Flight plans/procedures
  - › Airspace
  - › Communications networks (radio etc.)
  - › Integration with existing transportation networks
- » Staff
- » Pilots (Early maturity level)
- » Controllers
- » Workers to help facilitate loading and unloading of passengers and/or cargo
- » Regulatory Environment
  - › Legislative guidance and rules set forth by local, state, and federal governments created to ensure safety and proper accordance with the law

In initial stages AAM networks will likely utilize existing helicopter infrastructure, except for the necessary charging equipment. eVTOLs could fly in existing helicopter airspace, following similar regulations to helicopters and adhering to the same methods of air traffic control and flight procedures.

## Section 2. Maturity of AAM Technology

- › Introduction and Background
- › Regulatory Framework
- › AAM Introduced/Enacted Bills in Congress

## Section 2. Maturity of AAM Technology

### 2.1 Introduction and Background

Regulations pertaining to operators, aircraft, airspace, and supporting infrastructure (airport and heliport) have been established to enable safe and efficient operations within the National Airspace System (NAS). Prescribing these regulations is a responsibility of the Federal Aviation Administration (FAA). In addition to the federal regulations, there are state and city-specific rules that pertain to the aviation industry in some regions.

The AAM industry is subject to the same standard of laws that govern the NAS. This means that before AAM aircraft can be deployed in commercial operations at scale, the operators must overcome the regulatory hurdles. These hurdles are further amplified by the disconnect between the current regulations and AAM's envisioned state which introduces innovative and unconventional technologies like automation, beyond visual line of sight (BVLOS) operation, electric powered aircraft, and non-traditional use cases (e.g., package delivery, regional air mobility, etc.) that do not fit into the rules intended for the traditional operators of the NAS. For this reason, civil authorities (such as the FAA), federal agencies (NASA), private operators (Original Equipment Manufacturer), and other AAM stakeholders have been collaborating to collect necessary flight data, develop a roadmap, and reach industry consensus in order to supplement and amend existing regulations to support the realization of AAM while not jeopardizing the safety and consonance of the NAS.

Since commercialization of AAM is dependent on compliance to the existing regulations, it is important to understand the maturity of AAM technology in the scope of the current state of the regulatory framework versus the envisioned state of AAM. Furthermore, this Section familiarizes the St. Lucie TPO members of the public-private collaboration efforts to date.

### 2.2 Regulatory Framework

Use cases of AAM are subject to different types of existing regulations. The subjectivity of the regulation is dependent on various factors like use cases, aircraft takeoff weight, passengers on board, etc. For example, operators that specialize in drone delivery are more suited for operating under 14 Code of Federal Regulations (CFR) Part 107 – Small Unmanned Aircraft Systems while passenger carrying operator must receive Airworthiness Certificate under 14 CFR Part 21/23 on their aircraft to ensure that the aircraft meets the safety standards. Table 2-1 summarizes the existing regulations that pertain to the distinct use cases. Note that the table doesn't comprise all the regulations that the operators must adhere to but covers the regulations that have the most implications associated with each use case.

Use Cases	Regulations
Cargo Delivery	<b>14 CFR Part 107</b> – Small Unmanned Aircraft Systems <b>14 CFR Part 135</b> – Operating Requirements
Passenger Transport	<b>14 CFR Part 21</b> – Certification Procedures for Products and Articles <b>14 CFR Part 23</b> – Airworthiness Standards: Normal Category Airplanes <b>14 CFR Part 135</b> – Operating Requirements

Table 2-1. Overview of Existing Regulations and Distinct Use Cases

## 2.2.1 Regulation and Implications (Cargo Delivery UAS)

14 CFR Part 107 was the first legislation created specifically for commercial drone pilots. Although cargo delivery is permitted under Part 107, the regulation lacks specific guidance and has limitations when the operator intends to deliver heavier cargos on a commercial scale. Below is the list of major implications that are associated with drone delivery under Part 107.

### 14 CFR Part 107 – Small Unmanned Aircraft Systems

» **Weight Limit**

According to 14 CFR § 1.1 - General Definitions, “Small Unmanned Aircraft System means an unmanned aircraft weighing less than 55 pounds on takeoff, including everything that is on board or otherwise attached to the aircraft”. The weight of the UAS varies but 55 pounds takeoff weight imposes limitations on cargos the operator would be able to deliver through UAS.

» **Airspace Restriction**

According to 14 CFR 107 § 41 – Operations in Certain Airspace “No Person may operate a small, unmanned aircraft in Class B, Class C, or Class D or within the lateral boundaries of the surface area of Class E airspace designated for an airport unless that person has prior authorization from Air Traffic Control (ATC).” Class B, C, and D airspace is controlled airspace in the vicinity of the airport. The primary purpose of controlled airspace is to ensure safe operations of all participants operating in the vicinity of the airport which generally has heavier air traffic and aircraft maneuvering critical phases of flight (Landing or Take-Off operations).

Figure 2-1 depicts Treasure Coast International Airport and Witham Field Airport's controlled class D airspace. As can be seen, distribution centers located inside the boundaries of the controlled airspace are potentially prohibited from cargo delivery by UAS opportunities under Part 107 without obtaining prior authorization from FAA.

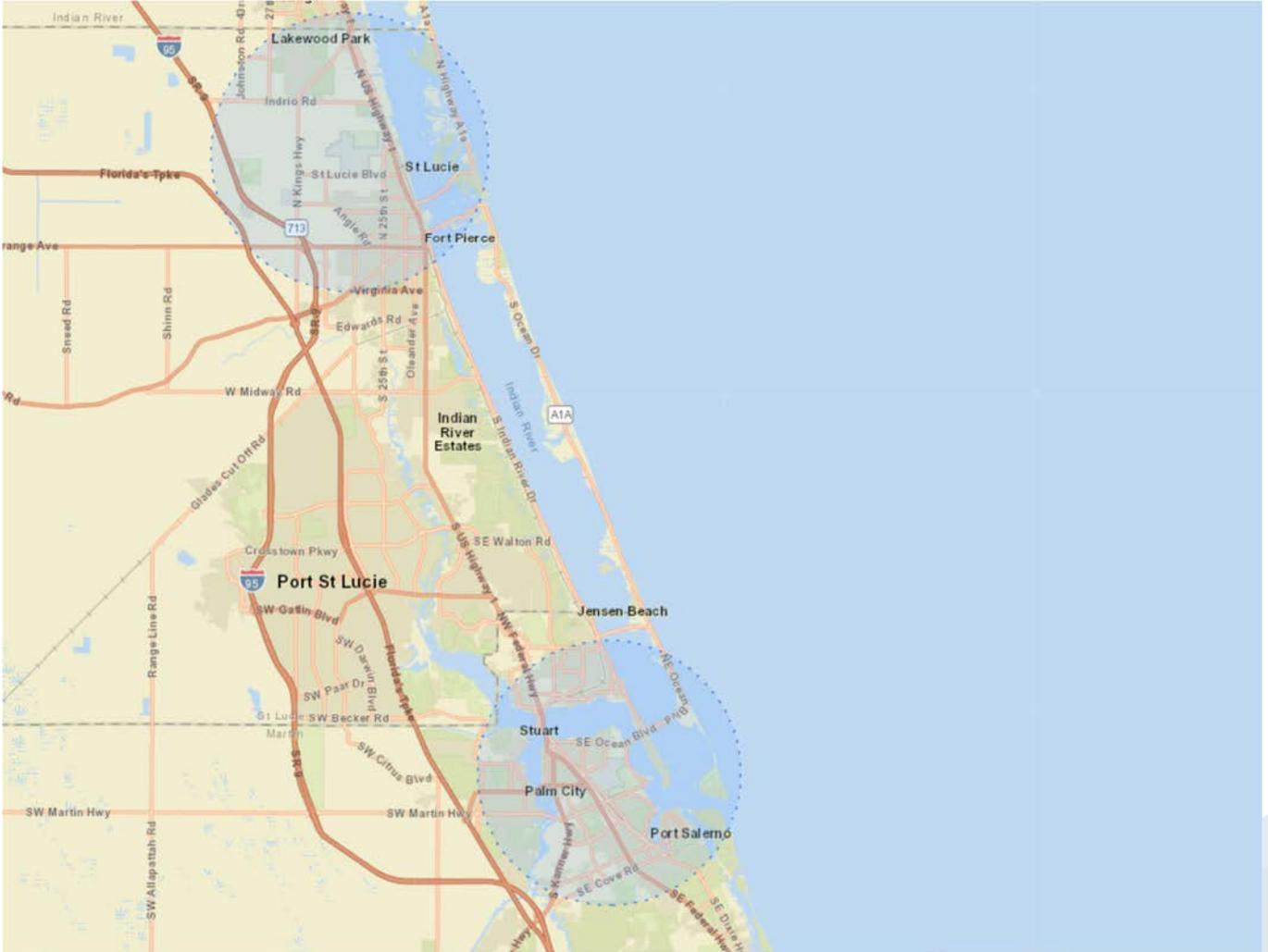


Figure 2-1. Airspace of St. Lucie County

» **Line of Sight Operations**

According to 14 CFR 107 § 31 – Visual Line of Sight Aircraft Operation, a Remote Pilot must operate the UAS “(a) with vision that is unaided by any device other than corrective lenses, the remote pilot in command, the visual observer (if one is used), and the person manipulating the flight control of the small, unmanned aircraft system must be able to see the unmanned aircraft throughout the entire flight.” The regulation limits beyond visual line of sight operations for UAS operators which significantly limits the distance that the drone will be able to deliver to ensure unobstructed vision of the drone.

» **One Pilot per Drone**

According to the FAA’s operating requirements for Part 107, “You cannot be a pilot or visual observer for more than one drone operation at a time”. The idea of one operator serving one customer per flight may be financially inefficient when compared to the traditional ground-based delivery services.

## 2.2.2 Efforts and Advancements (Cargo Delivery UAS)

The implications above demonstrate the disconnect between the existing regulations and the proposed use cases for UAS. For this reason, federal programs have been established for UAS operators, public agencies, and other stakeholders to collaborate to test and evaluate the integration of cargo delivery by UAS into the NAS. Below are the federal programs to date.

### UAS Integration Pilot Program (2017-2020)

FAA’s UAS Integration Pilot Program (IPP) began in 2017 to bring state, local, and tribal governments together with private sector entities, such as UAS operators or manufacturers, to test and evaluate the integration of civil and public drone operations into the national airspace system. The program is assisting the U.S. Department of Transportation (USDOT) and FAA craft new rules that support core complex low-altitude operations by:

- » Identifying ways to balance local and national interests related to drone integration
- » Improving communications with local, state, and tribal jurisdictions
- » Addressing security and privacy risks
- » Accelerating the approval of operations that currently require special authorizations



Figure 2-2. FAA IPP (FAA, 2019)

The main purpose of the program was to evaluate a host of operational concepts, including night operations, flights over people and beyond the pilot's line of sight, package delivery, detect-and-avoid technologies and the reliability and security of data links between pilot and aircraft.

Through the UAS IPP Program, FAA shared the relevant data and lessons learned with the appropriate policymakers and regulatory teams within the FAA and DOT to inform regulations, policy, and guidance. The FAA concluded the UAS IPP on October 25, 2020 as mandated by statute and decided to continue the partnerships and progress it made under the IPP to continue to address remaining challenges through a new program called BEYOND on October 26, 2020. (FAA, 2020)

## FAA BEYOND (2020 - Current)

The main objective of the FAA BEYOND program is:

- » Beyond Visual Line of Sight (BVLOS) operations that are repeatable, scalable, and economically viable with specific emphasis on infrastructure inspection, public operations, and small package delivery.
- » Leveraging industry operations to better analyze and quantify the societal and economic benefits of UAS operations.
- » Focusing on community engagement efforts to collect, analyze and address community concerns.



Figure 2-3. FAA BEYOND Program (FAA, 2021)

Through the two federal programs (IPP and BEYOND), FAA focused on addressing implications associated with Part 107 Regulations by allowing the UAS operators to operate under Title 14 CFR Part 135 - Air Carrier Operator Certification rules to streamline the UAS integration. Ultimately, this decision allowed the UAS operators to obtain Part 135 certifications to be exempt from the weight limit, BVLOS allow the UAS operators with Part 135 certification to be exempt from the limitations of the Part 107 rules. (FAA, 2021)

## 14 CFR Part 135 – Air Carrier and Operator Certification

Participants in these programs are among the first to prove their concepts, including package delivery by drone through part 135 air carrier certification. Part 135 certification is the only path for small drones to carry the property of another for compensation beyond visual line of sight. As participants in these programs move to prove their concepts, they must use FAA's existing Part 135 certification process, some of which FAA has adapted for drone operations by granting exemptions for rules that don't apply to drones, such as the requirement to carry the flight manuals on board the aircraft. (FAA, 2022)

Limited number of AAM companies have attained Part 135 Certificate to date, and FAA is working with six additional Part 135 air carrier certifications that have been submitted by the operators. Companies who have attained Part 135 Standard Air Carrier Certificate are:

- » **Wing Aviation, LLC, Subsidiary of Alphabet Inc.** received Part 135 standard air carrier certificate for the drone operations in October 2019. Currently Wing Aviation is participating in the Integration IPP by delivering food and over-the counter pharmaceuticals directly to homes in Christiansburg, VA. (Wing, 2022).
- » **UPS Flight Forward, Inc.** received Part 135 certificate in September 2019 and delivers medical supplies and prescription medicine. The delivery is explicitly operating under Part 107 regulation and with Visual Line of Sight even though the company has the permission to operate BVLOS under the Part 135 Certificate (FAA, 2021).
- » **Amazon Prime Air** received Part 135 Certificate in August 2020. Amazon mentioned that “Prime Air fleet isn’t ready to immediately deploy package deliveries at scale, and it’s actively flying and testing the technology” (CNBC, 2020).

## 2.2.3 Regulation and Implications (AAM Passenger Carrying Aircraft)

When compared to the delivery UAS, passenger carrying aircraft must go through more rigorous process to be deployed at a commercial scale. For the aircraft to be deployed, they must receive FAA's official authorization (Airworthiness Certification). However, receiving an Airworthiness Certification for a new aircraft takes a considerable time and may be prolonged if the AAM aircraft introduce new technologies and unique flight characteristics.

### Airworthiness Certification

Certification is how the FAA manages risk through safety assurance. It provides the FAA confidence that a proposed product or operation will meet FAA safety expectations to protect the public. 14 CFR Part 21 defines three certifications: type, production, and airworthiness:

- » **Type certification** is the approval of the design of the aircraft and all component parts (including propellers, engines, control stations, etc.). It signifies the design is in compliance with applicable airworthiness, noise, fuel venting, and exhaust emissions standards. Most of the AAM OEMs are in this phase.
- » **Production Certification** is the approval to manufacture duplicate products under an FAA-approved type design. It signifies that an organization and its personnel, facilities, and quality system can produce a product or article that conforms to its approved design.
- » **Airworthiness Certification** is the FAA's official authorization allowing for the operation of a type certificated aircraft. A standard airworthiness certificate allows the aircraft to be operated and used with the most minimal restrictions and for compensation and hire. Because type certification is a prerequisite for a standard airworthiness certificate, most UAS do not currently meet the requirements for a standard airworthiness certificate.

In addition to the Airworthiness Certification, AAM companies must receive Air Carrier and Operator Certification (14 CFR Part 135) to provide commercial services and transport passengers. However, fundamental differences in the proposed technology and operations compared to the traditional aircraft have the potential to delay the certification process for the AAM companies that are designing a new aircraft. For this reason, FAA, NASA, OEM, and other industry stakeholders have made significant efforts to close the regulatory gap and efficiently certify the aircraft without jeopardizing FAA's safety standards (FAA, 2021).

## 2.2.4 Efforts and Advancements (AAM Passenger Carrying Aircraft)

Like drone delivery, federal programs have been established to support the certification of passenger carrying aircraft. Below are the major federal programs to date.

### FAA/NASA National Campaign

FAA/NASA AAM National Campaign has been established to support the collection of necessary flight data from the participating OEMs to accurately determine the certification requirements for the newly proposed aircraft. According to NASA, the first stage of the will take place between July and November 2020 and, as the name states, focus on developmental testing. NASA will conduct full field tests in urban environments of US-developed aircraft and will include airspace operations management services to explore architectures and technologies needed to support future safety and scalability of UAM operations. Participants selected for the developmental testing will have the opportunity to fly at NASA's Armstrong Flight Research Center, or a range of their choice, and participate in collaborative airspace operations. The evaluation includes all elements of UAM operations under a variety of weather, traffic and contingency conditions.

During the tests, NASA and government partners will record a wide array of flight data, including acoustics, vehicle flight performance, charging, pre-departure scheduling, etc. That information will be provided to the FAA to help determine vehicle certification requirements and, for some data such as acoustics, back to the participating companies for their benefit (NASA, 2021).

Aside from FAA, NASA, and OEMs, other industry stakeholders are participating in the campaign to support the integration of AAM. Five local and state governments have signed Space Act Agreements to consider how emerging vehicles can be integrated into their transportation plans including:

- » Massachusetts Department of Transportation
- » Minnesota Department of Transportation
- » The North Central Texas Council of Governments
- » The Ohio Unmanned Aircraft Systems Center of the Ohio Department of Transportation
- » The City of Orlando, Florida

### Progress of Passenger Carrying AAM Companies

As of June 2022, no companies have received the airworthiness certification on their proposed aircraft. Most companies are still working to receive the type certificate and proposing to begin commercial operation with limited service around 2024 or 2025.

Which region will initially host AAM service is dependent on various factors such as consumer demand towards AAM, geographical advantages for the supply side, local municipal's support for integration of AAM into their transportation network, etc.

## 2.3 AAM Introduced/Enacted Bills in Congress

United States Congress has been introducing/enacting various bills to support the realization of AAM. Below are bills that have passed Senate or only the House of Representative to date:

» **Advanced Air Mobility Coordination and Leadership Act (S.516)** Passed Senate on 03/23/2022

This bill directs the Department of Transportation to establish an AAM interagency working group to plan and coordinate efforts related to the safety, infrastructure, physical security, cybersecurity, and federal investment necessary to bolster the AAM ecosystem, particularly passenger-carrying aircraft, in the United States. AAM refers to an air transportation system that moves people and cargo between places using new aircraft designs that are integrated into existing airspace operations as well as operated in local, regional, intraregional, rural, and urban environments. (S.516, 2022)

» **Drone Infrastructure Inspection Grant Act (H.R. 5315)** Introduced in House of Representatives on 04/28/2022

The Drone Infrastructure Inspection Grant Act, introduced by Representatives Greg Stanton (D-AZ-9) and Garret Graves (R-LA-6), authorizes a grant program to state, local, and tribal governments to purchase drones for infrastructure inspection purposes and to community colleges/universities to support drone education and workforce training programs. NASAO urged House Transportation and Infrastructure Committee members to vote in favor of the bill at the committee's mark up.

» **Advanced Aviation Infrastructure Modernization Act (H.R. 6270)** Passed House of Representatives on 06/13/2022

The Advanced Aviation Infrastructure Modernization Act, introduced by Representatives Rick Larsen (D-WA-2), Garret Graves (R-LA-6), and Dina Titus (D-NV-1), authorizes a grant program to state, local, and tribal governments, transit agencies, port authorities, and metropolitan planning organizations to plan the infrastructure needed to facilitate AAM operations and construction for public use vertiports. NASAO is a key supporter of this bill.

» **National Center for the Advancement of Aviation Act (H.R. 3482)** Introduced in House of Representatives on 05/25/2021

The National Center for the Advancement of Aviation Act, introduced by Representative Andre Carson (D-IN-7) and the late Don Young (R-AK-At Large), establishes a national, independent forum to facilitate collaboration and cooperation between all sectors of aviation and aerospace to coordinate, promote, and support the future of aviation. The House bill is a companion to the Senate version (S.1752) introduced in May 2021 by Senators Jim Inhofe (R-OK) and Tammy Duckworth (D-IL). Last year, NASAO joined a coalition of aviation stakeholders to send a joint letter of support for the bill.

## Section 3. Use Cases of AAM

- › Use Cases Overview
- › Passenger Transportation
- › Cargo and Commodity Transportation
- › Public Service/Emergency Operations

## Section 3. Use Cases of AAM

### 3.1 Use Cases Overview

Prior sections have described the current state of the regulatory environment surrounding AAM and have provided a high-level overview of the AAM concept. This section provides a more detailed outline of potential use cases for AAM within the context of St. Lucie County to give the TPO a better understanding of the benefits and shortcomings of this emerging technology.

AAM use cases can be sorted into three distinct categories:

- » Passenger Transportation
- » Cargo and Commodity Transportation
- » Public Service/Emergency Operations

By looking at St. Lucie County's passenger flows, transportation methods, and demographic trends, alongside an analysis of the LRTP and other planning materials, these three overarching use cases were used to create a framework which allowed for the suggestion of use cases more specific to St. Lucie County. These use cases are not recommendations, which are outside of the scope of this paper.

### 3.2 Passenger Transportation

2019 Data from the U.S. Census Bureau and Bureau of Labor and Statistics (aggregated and presented by Data USA) gives context to the state of demographics and transportation in St. Lucie County. Residents of St. Lucie County primarily use personal vehicles to commute – 79.8% of commuters reported using cars to get to work every day in 2019. The average commute time for St. Lucie County residents in 2019 was 26 minutes one way, however roughly 3.6% of residents logged commutes which were 90 minutes each way daily. Commute times will continue to rise naturally as traffic increases due to St. Lucie County's rapid growth (Table 3-1). In lieu of extensive investment into developing alternative transportation methods to account for this increase, vehicle congestion will continue to grow.

	Total Population	Total Employment
2015	292,362	108,097
2045	525,100	190,247
Total Growth	<b>232,738</b>	<b>82,150</b>
Percent Growth	<b>79.61%</b>	<b>75.99%</b>

Table 3-1. Predicted Population Growth in St. Lucie County (St. Lucie TPO LRTP, 2021)

Given many commuters reporting long commuting times, and a high degree of reliability by the public on personal vehicles, there may be opportunity for AAM to alleviate burdensome travel times and the continued onset of greenhouse gas (GHG) emissions that come with the usage of gas-powered vehicles. For environmental considerations especially, utilizing eVTOLs as an alternate transportation method presents a possibility for improvement. GHG emissions from transportation accounted for 27% of total emissions in the United States in 2020, with over 70% of those coming from light-duty vehicles (cars) and medium/heavy duty trucks (EPA, 2022). The LRTP projects a total population increase in St. Lucie County of 232,738 between 2015 and 2045, and a total employment increase in the county of 82,150 jobs (Table 3-1). As more people live and work in St. Lucie County, more of these vehicles will be on the roads – increasing traffic congestion and emissions. AAM networks may be used to combat the higher emissions stemming from these increases, as eVTOL travel at many distances provide lower emissions than gas-powered vehicles and at distances of 62 miles or greater “Emissions tied to the eVTOL were 52% lower than gasoline vehicles and 6% lower than battery-electric vehicles” (Kasliwal et. al., 2021). This does not even mention noise emissions, which are expected to be remarkably low for new eVTOL technology.

Assuming the population of St. Lucie County grows at this projected rate of almost 80% in the next 30 years, providing the community – many of whom may have moved from other areas in Florida or the United States – with greater access to longer distance areas will become important. As the Treasure Coast Airport still lacks commercial authorization, the closest major airport, Palm Beach International, lies roughly an hour’s drive away from the lower part of St. Lucie County. Utilizing an AAM network between those two cities alone would allow for easy access to Palm Beach County and PBI for St. Lucie County residents, allowing for road trips that may have taken over 90 minutes by car to be cut by 80% each way (Kasliwal et. al., 2021). On a broader scale, connecting St. Lucie County to the rest of Florida would provide residents with a higher degree of travel flexibility.



Figure 3-1. Lilium's Proposed AAM Network throughout Florida (Lilium, 2021)

On November 11th, 2020, Lilium announced it would be launching its first hub location for AAM travel in Orlando, Florida at the Lake Nona Vertiport with operations starting in 2025. Lilium envisions connecting the entire state of Florida through this vertiport, with Port St. Lucie projected to be a roughly 30-minute eVTOL trip (~90 miles) from takeoff to touchdown (Lilium, 2020). Integrating an eVTOL base in St. Lucie County with Lilium's proposed Lake Nona hub has the potential to expand the county's sphere of influence throughout the entire state – for example, travelers from St. Lucie could reach Jacksonville by eVTOL travel in less than 90 minutes (not including connection time); a car ride between the two areas currently takes roughly 3 to 4 hours. Connecting St. Lucie County residents to Lake Nona also provides access to Orlando International Airport, one of the busiest airports in the United States and a huge international gateway that could increase visitor and business access to St. Lucie County.

eVTOL technology furthermore shows potential in the ecotourism industry, which focuses on bringing tourists to nature destinations while minimizing impact on the environment. eVTOLs (compared to helicopters) generate relatively low environmental or noise emissions, allowing passengers to experience attractions while minimizing impact on nature. Ecotourism attractions in nearby Martin County (Hobe Sound, Blowing Rocks Preserve, and the St. Lucie Inlet Preserve State Park) or further away would then be more accessible and attractive to visit than by car. Nautilus Aviation, an ecotourism startup, plans on deploying a similar concept by flying eVTOL aircraft over the Great Barrier Reef with flights beginning in 2026 (Nautilus Aviation, 2021).

### 3.3 Cargo and Commodity Transportation

As St. Lucie County begins to position itself as a logistics hub, implementing alternative cargo transportation methods may be necessary. Although eVTOLs cannot individually transfer as much per trip as a typical cargo truck, the frequency with which the vehicles can travel medium to long distances could facilitate the more energy and time efficient transfer of goods. More automation in eVTOLs versus standard trucks or aircraft would allow for easier network planning and scheduling while cargo would be transported at higher speeds over long distances. These automation and efficiency improvements may minimize storage costs and lead times, reducing operational expenses for logistics firms and more quickly bringing goods to consumers. St. Lucie County's centralized location within Florida, the Treasure Coast Airport, and a significant amount of impending private investment in logistics in the county provide many opportunities for AAM cargo operations.

Treasure Coast Airport, sitting on 3,800 acres (larger than Miami International Airport), includes a business park with over 50 companies. AAM operations at the airport would provide for a wider ability for these companies to transfer goods and commuters throughout Florida. Furthermore, pending development of a 245,000-square foot FedEx Ground facility and 1.1 million square foot Amazon fulfillment center in the southern part of St. Lucie County creates further opportunities to expand cargo operations and commerce. Cargo-specific vertiports at Treasure Coast airport or in southern St. Lucie County adjacent to the FedEx/Amazon centers (or both) could assist in providing for this demand while increasing operational and environmental efficiency and reducing the number of delivery vehicles on the road, reducing traffic congestion. eVTOL-based medium to long range AAM cargo operations could also pair with a UAS last-mile delivery venture such as Amazon Prime Air or Zipline to systematically deliver goods to consumers from these distribution centers without the goods ever having to travel on a road. Zipline, an American logistics company, has pioneered delivery of medical supplies by UAS operations by partnering with multiple healthcare providers such as Novant Health and CardinalHealth to distribute PPE, pharmaceuticals, and medical supplies in a fast and efficient manner. Using eVTOLs/AAM to collect medical supplies from more well-supplied areas in the state to then be distributed through UAS operations such as Zipline's presents as another use case of this technology (Zipline, 2021).



Figure 3-2. Conceptual Drawing of Pipistrel's Cargo eVTOL (GPS World, 2020)

### 3.4 Public Service/Emergency Operation

The most immediate use of AAM technology for public service lies in its potential to assist in air ambulance or search and rescue operations. St. Lucie County is quite susceptible to Hurricane damage – The proximity of so many people living close to the Atlantic Ocean, as well as the low coastal elevations, significantly increases the county’s vulnerability. Port St. Lucie is second to only Miami in terms of Hurricane damage risk according to a 2010 Florida State University Study, as it has significant potential for high winds with short return periods (amount of time between significant hurricane-force wind events). Serious damage from hurricanes

could leave St. Lucie County residents stranded, injured, or displaced. eVTOL aircraft can travel at long distances with far fewer emissions than helicopters and will most likely be “smarter” by having a degree of automation which allows them to conduct many operations without an active pilot in command – allowing the pilot to conduct physical rescue operations while the eVTOL stabilizes or flies to problem areas. Airborne Motorworks, a firm based in Spokane, WA, has developed a concept eVTOL engineered for medical purposes (Figure 3-3). Integrating a similar technology with St. Lucie County’s limited Air Ambulance network for patient transport, medivac, or medical supplies transfer to and from St. Lucie Hospital presents as another potential use case to consider. Since eVTOL vehicles will be able to fly over traffic, response times can be improved significantly over an ambulance or fire truck with cheaper and cleaner power than helicopters.

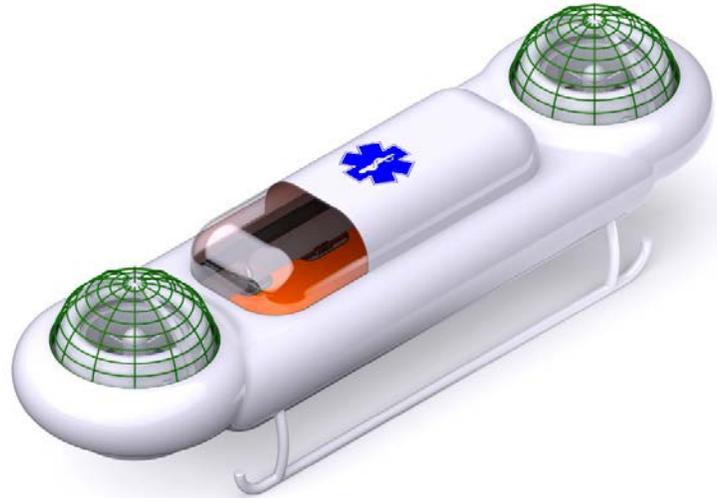


Figure 3-3. Mockup of Airborne Motorworks’ Medivac eVTOL (Motorworks, 2021)

## Section 4. Recommendations and Way Forward

- › Conclusion and Recommendation
- › Roadmap – Way Forward

## Section 4. Recommendations and Way Forward

### 4.1 Conclusion and Recommendation

The preliminary review of AAM shows proposed/expected benefits of (i) alleviating congestion on roads, (ii) reducing GHG emissions, (iii) improving mobility, and (iv) sustained economic growth in the region. These benefits are well-suited with the following aspects of the St. Lucie County region:

- » Fast population and economic growth
- » Potential for increased road congestion and emissions
- » SmartMoves 2045 objective of integrating Autonomous, Connected, Electric, and Shared (ACES) vehicle concepts that makes travel safer and more efficient but most importantly, greatly improve mobility

For these reasons, integration of AAM into St. Lucie's transportation network has the potential to yield a promising result to the county. However, further analyses are required to identify which use cases of AAM have the greatest potential and benefits. Ultimately, the decision of integrating AAM into St. Lucie's future mobility plan lies within its citizens, constituents, and board members of St. Lucie TPO.

Furthermore, AAM industry is at infancy when compared to other conventional modes of transportation due to technological and regulatory gaps that must be fulfilled before achieving its proposed benefits. It is recommended that the TPO to stay informed on the developments of the regulations, federal funding opportunities, and AAM advancements within the Florida region (Lilium, UPS Flight Forward, and Amazon Prime Air), and consider participating in the FAA's BEYOND and NASA's AAM National Campaign to identify how emerging vehicles are being integrated into local agencies transportation plan.

The forward-thinking mindset of the TPO board members who want to spearhead the effort of integrating future of mobility into St. Lucie is commendable. For this reason, it is recommended the TPO to consider the following roadmap that is divided in short-term and mid-term opportunities that can be included into the TPO's Unified Planned Work Program (UPWP) to further facilitate the realization of AAM into St. Lucie County.

## 4.2 Roadmap - Way Forward

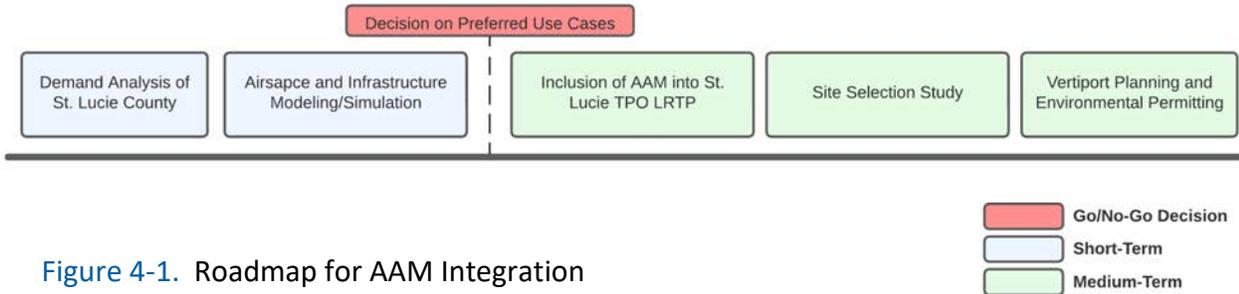


Figure 4-1. Roadmap for AAM Integration

### Short-Term

#### » Demand Analysis of St. Lucie County to Identify Most Suitable Use Cases

An in-depth evaluation of local consumer demand for each use cases by analyzing the most current census data available to recommend suitable use cases for St. Lucie. This evaluation will decompose the Concept of Operations of AAM and St. Lucie’s LRTP Transportation Goals to establish distinctive input variables to provide a result that is current and relevant to the TPO’s objective. Census data will include Average Commute Time to Work, Consumer Expenditure on Transportation, Average Income per Household, Population Density, etc. This work will allow the TPO to further understand the potential and expected demand for each use cases of AAM in the St. Lucie County.

#### » Airspace and Infrastructure Modeling/Simulation

Dependent on a chosen use case(s), a modeling and simulation pipeline to inform the TPO as to the viability of differing scenarios is required. The modeling pipeline generally begins with the creation of one or more airspace models, illustrating how differing design possibilities may interact with existing controlled or uncontrolled airspace. The airspace model(s) are supplemented with air traffic input, generated by research conducted and correspondence with the TPO to determine the system objective and potential scenarios (where are vehicles flying? how frequently? etc.) The models and input are fed into a fast-time simulation software, which simulates movement through the entire network and how externalities such as weather, collision avoidance, or other delay inducing factors impact specific aircraft and the entire network. The software produces metrics for use in data analysis in a comparison between multiple scenarios – delays by location, ride quality, average travel time and more. Finally, the flight tracks generated by the fast-time simulation are exported and combined with data from the initial airspace model to create a visualization component involving a system-wide 3-D

simulation which depicts the aircraft as they move about the system. The provided metrics and analysis along with the visualization component give important context to how a new system or design may impact current operations in St. Lucie County and inform potential planning decisions moving forward and facilitate public input.

» **Decision on Preferred Use Cases of AAM**

Community outreach through a forum and survey session to educate/engage the citizens and assess their preference towards integrating each use cases of AAM into St. Lucie's transportation network. During the outreach, the expected benefits can be highlighted, and potential concerns (noise and privacy) associated with AAM can be discussed. After assessing the citizens preference, findings would be presented to the Citizens Advisory Committee (CAC), Treasure Coast Transportation Council (TCTC), Local Coordinating Board for Transportation Disadvantaged (LCB), and TPO Board for the constituents to reach a consensus on which use cases of AAM could be integrated into St. Lucie's transportation network. It may be appropriate for the TPO to reassess the current state of AAM industry prior to the outreach, giving an opportunity for the TPO to postpone the pursuant of AAM integration if the industry is meeting unexpected delays or citizens of St. Lucie are hesitant towards the AAM integration.

## Medium-Term

» **Inclusion of AAM into St. Lucie TPO's Long Range Transportation Plan, SmartMoves 2045 Based on the Findings to Date and Board's Decision**

Integration of AAM into the TPO's upcoming Long Range Transportation Plan (LRTP) based on the findings to date and decision of the board members. This work will update the TPO's previous roadmap for AAM integration into St. Lucie to realign the way forward with the current and expected state of the AAM industry.

» **Site Selection Study for Vertiports/Drone Ports**

Utilize findings of the following to identify vertiport locations:

- › Demand Analysis
- › Airspace and Infrastructure Modeling/Simulation
- › Community Outreach

In addition, conduct the following:

- › **Equity Assessment** to provide AAM access to the low-income regions as well as reducing privacy and noise concerns for the non-participants on ground.
- › **Local Zoning Ordinance Assessment** to site AAM infrastructures in appropriate zoning codes.
- › **Energy Grid Assessment** to identify grids that meets the electric charging demand of AAM aircraft.

- › **Airspace Assessment** for the AAM aircraft's approach and departure flight trajectory to avoid parts of airspace that are heavily congested.

The goal is to identify 3-5 suitable locations for AAM infrastructure (vertiport) that ensures supply, demand, safety, and equity.

» **Vertiport Planning and Environmental Permitting**

General aviation airports (those without commercial service) may be suitable for AAM infrastructure. Depending on the result of the site selection study, this work will enable coordination between the TPO and Treasure Coast International Airport and Business Park to update the Airport Layout Plan and Master Plan which is part of the eligibility requirements to secure federal funding for AAM infrastructure at airports in the future. This work will assess and address county's desire to commercialize Treasure Coast Airport by serving AAM operations in the future.

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## AGENDA ITEM SUMMARY

Board/Committee:	Bicycle-Pedestrian Advisory Committee (BPAC)
Meeting Date:	July 28, 2022
Item Number:	6b
Item Title:	Comprehensive Safety Action Plan
Item Origination:	Unified Planning Work Program (UPWP) and the Federal Highway Administration's Safe Streets and Roads for All (SS4A) Program
UPWP Reference:	Task 3.7 – Safety & Security Planning Task 4.2 – Intergovernmental Planning and Coordination
Requested Action:	Recommend acceptance of the draft Plan, recommend acceptance with conditions, or do not recommend acceptance.
Staff Recommendation:	Because the draft Comprehensive Safety Action Plan develops strategies to reduce roadway fatalities and serious injuries, conforms with the SS4A grant program criteria for such plans, and supports potential future local applications for SS4A grant funding, it is recommended that the draft Comprehensive Safety Action Plan be recommended for acceptance by the TPO Board.

### Attachments

- Staff Report
- Draft Comprehensive Safety Action Plan



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 772-462-1593 www.stlucietpo.org

## MEMORANDUM

TO: Citizens Advisory Committee (CAC)

THROUGH: Peter Buchwald  
 Executive Director

FROM: Yi Ding  
 Transportation Systems Manager

and

Marceia Lathou  
 Transit Program Manager

DATE: July 8, 2022

SUBJECT: Comprehensive Safety Action Plan

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### BACKGROUND

The St. Lucie TPO supports national and Statewide "Vision Zero" efforts. Vision Zero is a strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, and equitable mobility for all.

The Federal Highway Administration's Safe Streets and Roads for All (SS4A) program, that was created by the recently-enacted Bipartisan Infrastructure Law, funds efforts that support Vision Zero. The following entities are eligible to apply for SS4A grants:

- Metropolitan planning organizations;
- Counties, cities, towns, and other special districts that are subdivisions of a State;
- Federally recognized Tribal governments; and,
- Partnerships comprised of the entities above.

Applications for SS4A grants are due September 15, 2022. The following is a list of eligible activities:

- Develop or update a “Comprehensive Safety Action Plan” or Action Plan (e.g., Vision Zero plans).
- Conduct planning, design, and development activities in support of an Action Plan.
- Carry out projects and strategies identified in an Action Plan.

## ANALYSIS

The development and establishment of a Comprehensive Safety Action Plan, or its equivalent, is a key component of the SS4A program. Applicants for SS4A implementation grants must demonstrate that their projects are based on an Action Plan. The goal of an Action Plan is to develop a holistic, well-defined strategy to prevent roadway fatalities and serious injuries. The components of an Action Plan must conform to criteria established by the SS4A program.

To support potential future local applications for SS4A grant funding, TPO staff has developed a Comprehensive Safety Action Plan based on the TPO plans adopted to date. The Action Plan focuses on speed management and complete streets as strategies in support of Vision Zero.

The projects and strategies in the Action Plan were derived from TPO Advisory Committee member input, public input, and from the following TPO plans: Jobs Express Terminal Connectivity Study, Speed Kills Analysis, and Micro-Mobility Study. The following table was used for ranking projects and their associated strategies:

### Prioritization Criteria

Score (Total=100)	Strategy Description
10 points	Provides a designated bike lane
10 points	Provides speed management countermeasure
10 points	Provides multi-use path (10 points) or sidewalk (5 points)
10 points	Fills in a gap in the Complete Street or Bike/Ped Network
10 points	Provides access to major destinations such as existing commercial uses, institutional uses, etc. (5 point per destination with a maximum of 10 points possible)
10 points	Addresses a bicycle/pedestrian accident history

Score (Total=100)	Strategy Description
10 points	Addresses a vehicle accident history
0 to 10 points	Located on or adjacent to a roadway with a posted speed limit greater than 25 mph (2 points for every 5-mph increment greater than 25 mph)
10 points	Historically Transportation Disadvantaged Community
10 points	Within 1/2 Mile of a Bus Stop

The Comprehensive Safety Action Plan prioritizes the following projects for implementation in two five-year time bands:

#### Candidate Corridors for Time Band 1 (1-5 years)

Roadway	To	From	Strategy	Ranking
Savona Boulevard	Paar Drive	Gatlin Boulevard	Multi-use path	1
Port St. Lucie Blvd	Cameo Blvd	Gatlin Blvd	Speed management	2
Gatlin Blvd	Port St. Lucie Blvd	Brescia Street	Bike/Ped Safety	2
Airoso Blvd	Lakehurst Dr	Prima Vista Blvd	Speed management	4
Brescia Street	Gatlin Boulevard	Savage Boulevard	Sidewalk	5
Savage Boulevard	Gatlin Boulevard	Galiano Road	Sidewalk	5
Import Drive	Gatlin Boulevard	Savage Boulevard	Sidewalk	5
Avenue D	N 13th Street	US-1	Buffered bike lanes	8
Floresta Drive	Crosstown Pkwy	Prima Vista Blvd	Complete Street	8

#### Candidate Corridors for Time Band 2 (5-10 years)

Roadway	To	From	Strategy	Ranking
St. Lucie West Blvd	Peacock Blvd	California Blvd	Speed management	10
Rosser Boulevard	Paar Drive	Nervia Ave & Lewis Library	Multi-use path	10
N/S 13th Street	Virginia Ave	Avenue Q	Buffered bike lanes	12
Delaware Avenue	S 13th Street	US-1	Buffered bike lanes	12
California Blvd	Peacock Boulevard	Indian River College	Multi-use path	14

Roadway	To	From	Strategy	Ranking
N/S 13th Street	Canal	Virginia Ave	Buffered bike lanes	15
Torino Parkway			Multi-use path	16
California Blvd	Torino Parkway	Somerset Prep School	Multi-use path	17
Cashmere Blvd	Torino Parkway	Westgate K-8	Multi-use path	17

RECOMMENDATION

Because the draft Comprehensive Safety Action Plan develops strategies to reduce roadway fatalities and serious injuries, conforms with the SS4A grant program criteria for such plans, and supports potential future local applications for SS4A grant funding, it is recommended that the draft Comprehensive Safety Action Plan be recommended for acceptance by the TPO Board.



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# *Draft* COMPREHENSIVE SAFETY ACTION PLAN

July 2022



Contact: Yi Ding  
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The St. Lucie TPO satisfies the requirements of various nondiscrimination laws and regulations including Title VI of the Civil Rights Act of 1964. Public participation is welcome without regard to race, color, national origin, age, sex, religion, disability, income, or family status. Persons wishing to express their concerns about nondiscrimination should contact Marceia Lathou, the Title VI/ADA Coordinator of the St. Lucie TPO, at 772-462-1593 or via email at [lathoum@stlucieco.org](mailto:lathoum@stlucieco.org).

Kreyol Ayisyen: Si ou ta renmen resevwa enfòmasyon sa a nan lang Kreyòl Aysiyen, tanpri rele nimewo 772-462-1593.

Español: Si usted desea recibir esta información en español, por favor llame al 772-462-1593



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### 1.0 ZERO ROADWAY DEATHS OR INJURIES COMMITMENT

The **St. Lucie TPO’s** approach to traffic safety is that the death or injury of any person is unacceptable. Each year the TPO Board has reaffirmed this commitment by adopting the Florida Department of Transportation (FDOT) goal of zero deaths and injuries. The **TPO’s** approach to traffic safety also **aligns with a nationwide effort known as “Vision Zero”**, a strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, and equitable mobility for all.

### 2.0 PLAN DEVELOPMENT, IMPLEMENTATION, AND MONITORING

As meeting the target of zero deaths and injuries is a tremendous challenge, the TPO has developed this Comprehensive Safety Action Plan to identify a set of projects and strategies that will address identified safety problems. The prioritization of these projects is based on data, best practices, stakeholder input and equity considerations.

### 3.0 DATA ANALYSIS

The safety data below obtained from FDOT indicates that in the TPO area the vehicle fatalities and fatality rate trended upward while vehicle serious injuries and serious injury rate trended downward. Non-motorized fatalities and serious injuries have been almost stable.

	Fatality	%Δ	VMT (100 million)	%Δ	Fatality Rate*	%Δ	Serious Injury	%Δ	Serious Injury Rate*	%Δ	Non-Motorized Fatality and Serious Injuries	%Δ
2014 5-Year Rolling Average	30		31.14		0.96		174		5.56		28	
2015 5-Year Rolling Average	31	4.0%	32.13	3.2%	0.99	3.5%	167	-4.0%	5.28	-5.0%	27	-3.6%
2016 5-Year Rolling Average	34	9.7%	33.29	3.6%	1.06	7.1%	165	-1.2%	5.24	-0.8%	24	-11.1%
2017 5-Year Rolling Average	36	5.9%	34.15	2.6%	1.13	6.6%	164	-0.6%	5.10	-2.7%	27	12.5%
2018 5-Year Rolling Average	38	5.6%	35.83	4.9%	1.13	0.0%	162	-1.2%	4.91	-3.7%	29	7.4%
2019 5-Year Rolling Average	38	0.0%	34.86	-2.7%	1.09	-3.5%	146	-9.9%	4.20	-14.5%	26	-10.3%
2020 5-Year Rolling Average	41	7.9%	35.65	2.3%	1.15	5.5%	145	-0.7%	4.12	-1.9%	28	7.7%

The TPO recently conducted a Speed Kills Analysis to examine the link between vehicle speed and crash risk and severity on the roadway network in the TPO area. A total of 366 fatal crashes occurred from 2011 through 2021. These crashes were reviewed and analyzed to identify any consistencies.

The St. Lucie TPO Fatal Crash Fact Sheet and Maps summarize the findings and illustrate the distribution of the fatal crashes for vehicles, pedestrians,

and bicyclists in the St. Lucie TPO area. In addition, vehicle and bicycle-pedestrian high crash locations are summarized as follows:

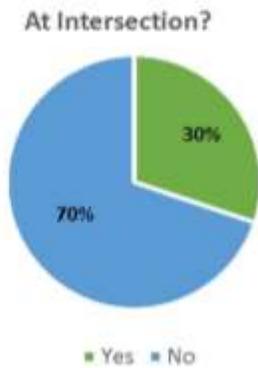
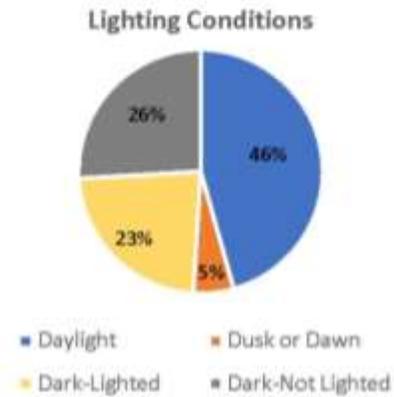
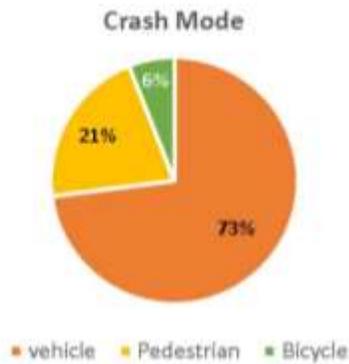
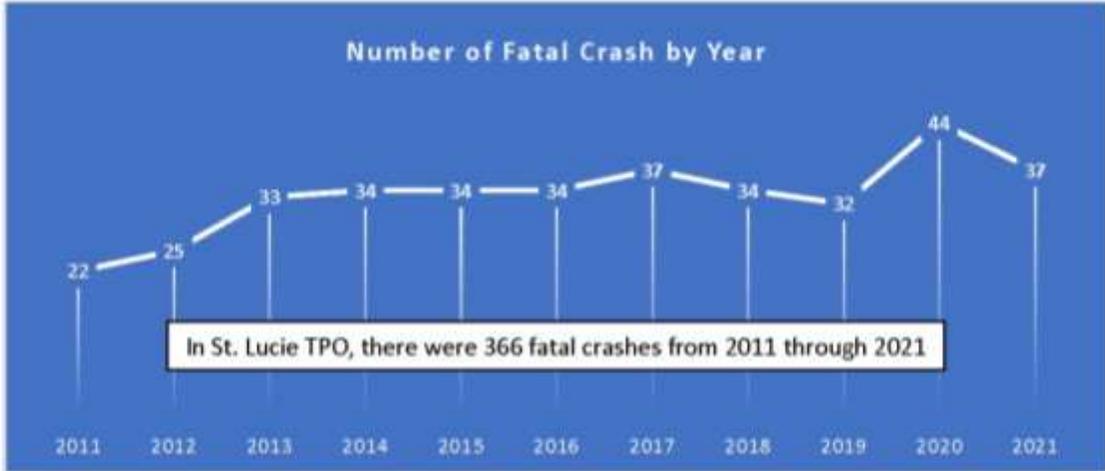
Vehicle High Crash Locations						
Street Name	From	To	Segment Length (miles)	Crash Number	Speed Limit (MPH)	State Highway System
U.S. Highway 1	Edwards Rd	Dixieland Dr	0.74	7	40	Yes
U.S. Highway 1	Brazilian Cir	Prima Vista Blvd	0.8	6	45	Yes
Airoso Blvd	Lakehurst Dr	Prima Vista Blvd	0.66	5	40	No
Port St. Lucie Blvd	Cameo Blvd	Dalton Ave	0.89	5	45	No
St. Lucie West Blvd	Peacock Blvd	California Blvd	0.45	5	45	No

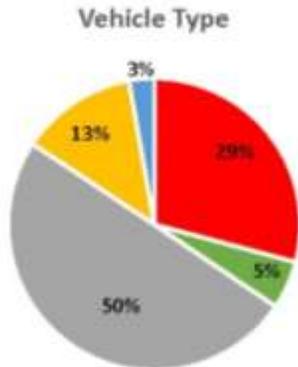
Bicycle-Pedestrian High Crash Locations						
Street Name	From	To	Segment Length (miles)	Crash Number	Speed Limit (MPH)	State Highway System
25th St	Ave G	Nebraska Ave	1.6	8	40	Yes
U.S. Highway 1	Tennessee Ave	Southland Dr	1.8	7	40	Yes

After examining the fatal crashes at the high crash locations, TPO staff did not find any consistencies between the crashes and the specific, identified causes of the crashes. The only consistency identified beyond the specific, identified causes is that these high crash locations are on roadways with posted speeds of 40 miles per hour or higher. In fact, 75 percent of all fatal crashes in the TPO area occur on roadways with posted speeds of 40 miles per hour or higher.

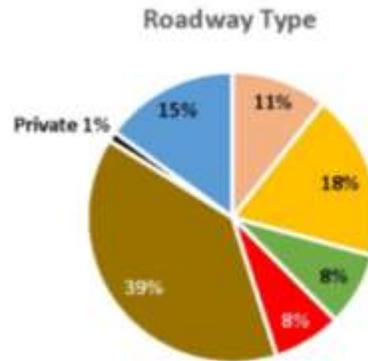
Serious injuries and fatal crashes in the TPO area may be reduced most significantly on these roadways with high crash locations by reducing the **speed limits, also known as setting "target speeds", on these roadways**. FDOT is responsible for setting the target speeds on the roadways of the State Highway System, and the local jurisdictions are responsible for setting the target speeds on the local roadways.

### St. Lucie TPO Fatal Crash Fact Sheet

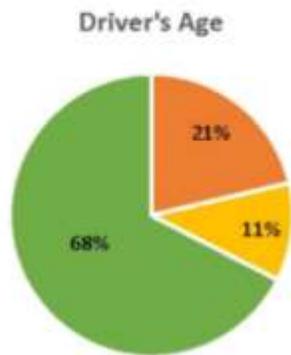




- SUV or Pickup
- Commercial Vehicle
- Passenger Car
- Motorcycle
- Others

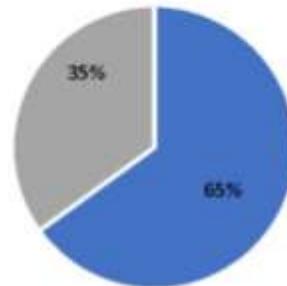


- Interstate
- State
- Turnpike
- U.S.
- Local
- Private
- County

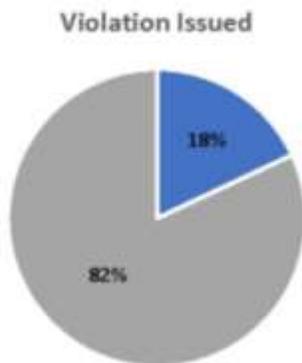


- Senior
- Teenager
- Others

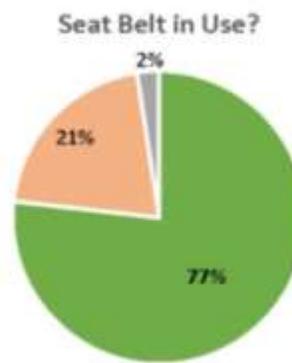
### Distracted/Speeding/Aggressive/Impaired Driving?



- Yes
- No

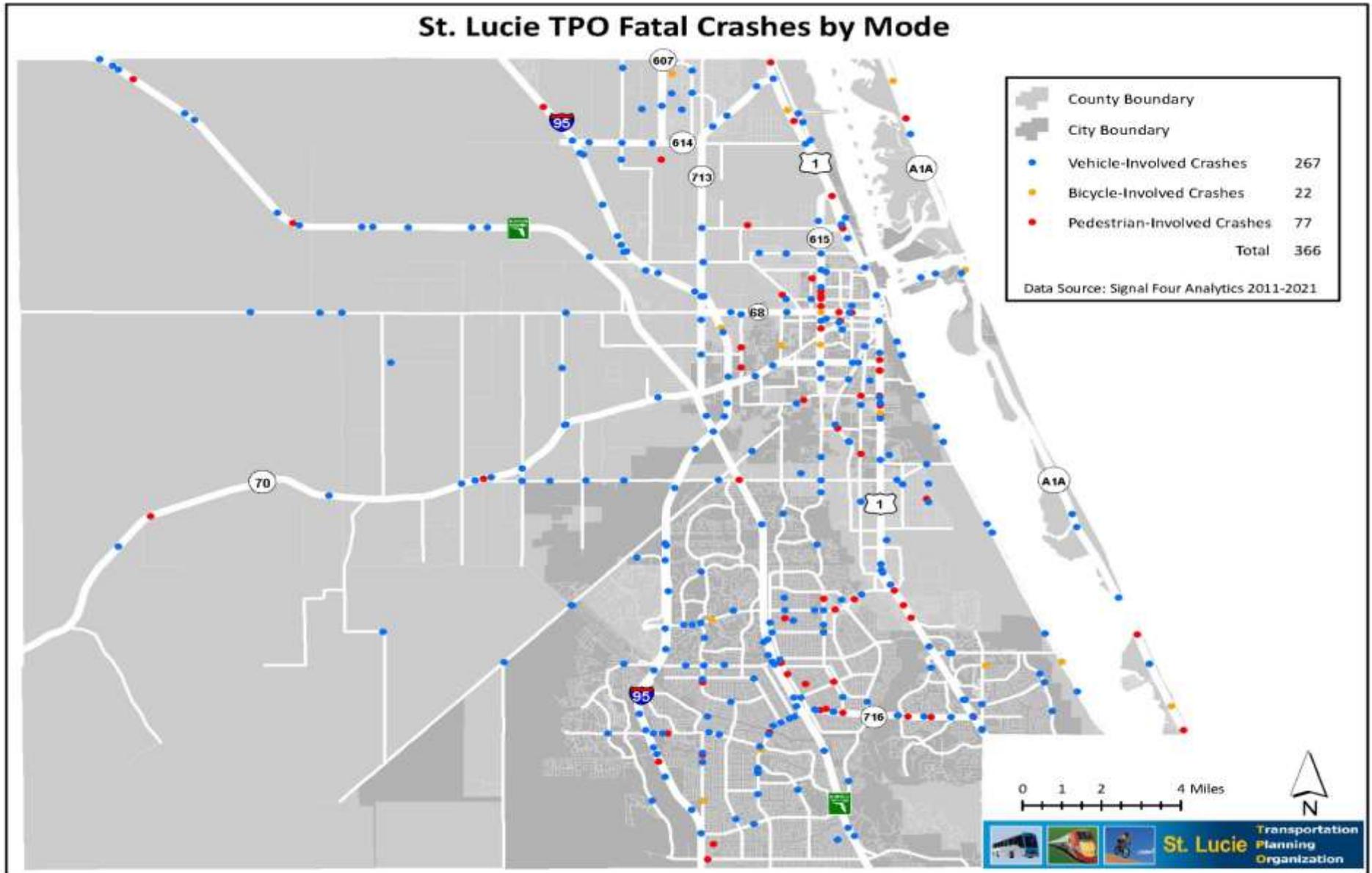


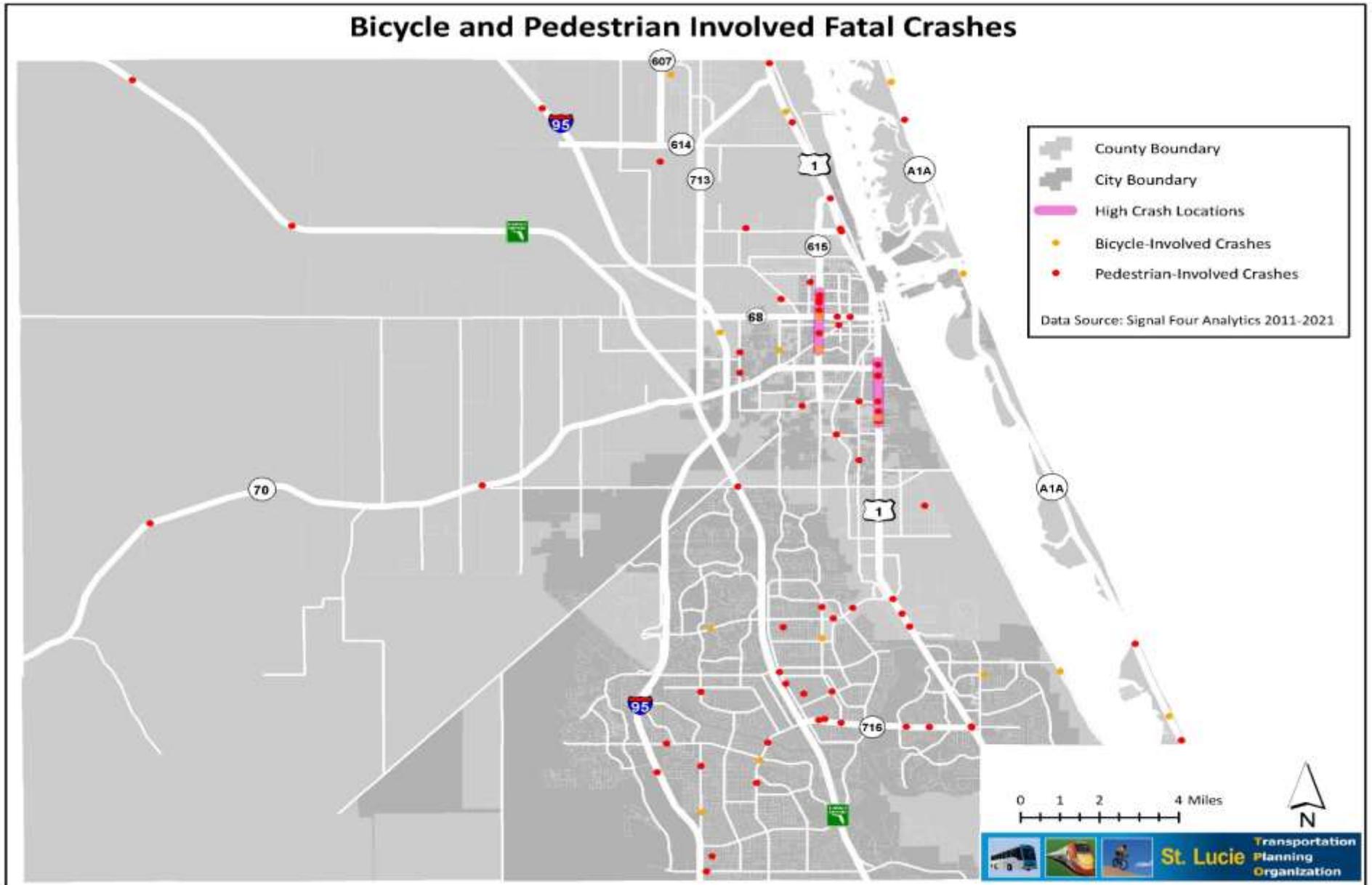
- Yes
- No



- Yes
- No
- Data N/A

DRAFT





#### 4.0 PUBLIC ENGAGEMENT

The TPO's Public Participation Plan (PPP) represents the process the TPO uses to help ensure the greatest degree of public input, involvement, and education when considering transportation priorities and funding. Methods of public outreach are continually evolving. Consequently, the goals and strategies for **the TPO's PPP have** evolved and are achieved by weaving online efforts with face-to-face engagement.

Prior to review and action by the TPO Board, all plans, programs, and major actions are subject to review and comment by the following standing committees: the Technical Advisory Committee, the Citizens Advisory Committee, and the Bicycle-Pedestrian Advisory Committee. The TPO also serves as the planning agency for the Local Coordinating Board for the Transportation Disadvantaged (LCB).

**The public's participation on** TPO boards and committees is welcomed and encouraged. Not every meeting conducted by the TPO contains policy actions. Nevertheless, the public is afforded opportunities to participate regardless of the topic of discussion.

The public is notified of TPO Board and Advisory Committee meetings in a variety of ways. Notices of all TPO Board, LCB, and TPO Advisory Committee meetings are posted in front of the TPO office. Calendars for each meeting, agendas, and agenda packages are posted on the TPO website. Agendas for each meeting are transmitted to the public information officers for each local jurisdiction to distribute at their discretion.

In addition, TPO staff makes presentations on major plans or projects to boards and committees of partner agencies. Of particular importance is TPO **staff's** active participation on the Martin-St. Lucie Community Traffic Safety Team, a locally based, data-driven collaboration of highway safety advocates committed to a common goal of improving traffic safety in their communities.

#### 5.0 EQUITY ANALYSIS AND CONSIDERATIONS

The principles of nondiscrimination and equity are used in the preparation of all TPO plans and programs and in the development of all TPO activities. The principles of nondiscrimination and equity, also known as environmental justice, are as follows:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations

In preparing its Comprehensive Safety Action Plan, the TPO considered the needs of underserved/disadvantaged communities consistent with definitions used by **the Office of Management and Budget's Interim Guidance for the Justice40 Initiative** and the Historically Disadvantaged Community designation, which includes:

- U.S. Census tracts identified as Areas of Persistent Poverty or Historically Disadvantaged Communities.
- Tribal lands; or
- Territories or possessions of the United States.

The Historically Disadvantaged Communities within the TPO area are depicted in orange on the following map:



An equity analysis of the benefits of the projects prioritized by the Comprehensive Safety Action Plan that will be received by the Historically Disadvantaged Communities within the TPO area is provided in Section 9.3.

## 6.0 IMPROVING HOW PROCESSES PRIORITIZE SAFETY

**Safety is one of the TPO's** annually updated performance targets. The TPO incorporates performance management as a strategic approach that includes performance measurement and target setting to connect investment and policy decisions to help achieve performance goals. Performance measures are quantitative criteria used to evaluate progress. Performance measure targets are the benchmarks against which collected data is gauged.

Each year the TPO sets performance targets and reports these targets to FDOT. The Comprehensive Safety Action Plan will assist the TPO in tracking progress toward meeting data-driven targets by implementing the Action Plan.

## 7.0 COMPREHENSIVE APPROACH TO REDUCE DEATHS AND INJURIES

Understanding that meeting safety targets is a comprehensive effort and cannot be achieved within a short period, it is expected that the safety projects identified in this Action Plan will ultimately reduce the number of traffic fatalities and injuries. The Action Plan focuses on two strategies: speed management and complete streets.

### 7.1 Speed Management

As described in the Crash Analysis section, the TPO recently conducted a Speed Kills Analysis to examine the link between vehicle speed and crash risk and severity on the roadway network in the TPO area. After examining the fatal crashes at the high crash locations, TPO staff identified that 75 percent of all fatal crashes in the TPO area occur on roadways with posted speeds of 40 miles per hour or higher. No other consistency was identified in the data between the crashes and the specific, identified causes of the crashes.

**The federal government's Safe Streets and Roads for All (SS4A) program** that funds projects in support of Vision Zero provides the following illustrative examples of speed management strategies:

- Conducting speed management projects such as implementing traffic calming road design changes and setting appropriate speed limits for all road users.
- Applying low-cost safety treatments such as rumble strips, wider edge lines, flashing beacons, and better signage along high-crash rural corridors.

## 7.2 Complete Streets

A “Complete Street” generally is defined as a street that accommodates all users, regardless of their ages or abilities, in a safe and balanced environment. Users include motorists, bus riders, bicyclists, and pedestrians. As further defined by the TPO Board, complete streets include streets with separate sidewalks and bicycle lanes and streets with wide, multi-use sidewalks but no bike lanes.

The SS4A program provides the following illustrative examples of complete street strategies:

- Implementing improvements along an expanded multimodal network of reconfigured roads with separated bicycle lanes and improved safety features for pedestrian crossings.
- Installing safety enhancements such as safer pedestrian crossings, sidewalks, and additional lighting for people walking, rolling, or using mobility assistive devices.
- Making street design changes informed by culturally competent education and community outreach.

## 8.0 PRIORITIZATION METHODOLOGY

The initial step in the prioritization methodology was to select street segments for analysis. These candidate corridors were derived from TPO Advisory **Committee member input and from the TPO’s Jobs Express Terminal Connectivity Study, Speed Kills Analysis, and Micro-Mobility Study.** As mentioned in the Crash Analysis section, issues on state roads identified in the Speed Kills Analysis will be addressed by FDOT. The following candidate corridors were prioritized based on the initial screen.

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## 8.1 Candidate Corridors for Analysis

Roadway	To	From	Source
Airoso Blvd	Lakehurst Dr	Prima Vista Blvd	Speed Kills Analysis, non-state road
St. Lucie West Blvd	Peacock Blvd	California Blvd	Speed Kills Analysis, non-state road
Port St. Lucie Blvd	Cameo Blvd	Gatlin Blvd	Speed Kills Analysis, non-state road, and TAC member
N/S 13th Street	Canal	Virginia Ave	Micro-Mobility Study
N/S 13th Street	Virginia Ave	Avenue Q	Micro-Mobility Study
Avenue D	N 13th Street	US-1	Micro-Mobility Study
Delaware Avenue	S 13th Street	US-1	Micro-Mobility Study
All of Torino Parkway			Micro-Mobility Study
California Blvd	Torino Parkway	Somerset Prep School	Micro-Mobility Study
California Blvd	Peacock Boulevard	Indian River College	Micro-Mobility Study
Cashmere Blvd	Torino Parkway	Westgate K-8	Micro-Mobility Study
Rosser Boulevard	Paar Drive	Nervia Ave & Lewis Library	Micro-Mobility Study
Savona Boulevard	Paar Drive	Gatlin Boulevard	Micro-Mobility Study
Brescia Street	Gatlin Boulevard	Savage Boulevard	Jobs Express Terminal Connectivity Study
Savage Boulevard	Gatlin Boulevard	Galiano Road	Jobs Express Terminal Connectivity Study
Import Drive	Gatlin Boulevard	Savage Boulevard	Jobs Express Terminal Connectivity Study
Floresta Drive	Crosstown Parkway	Prima Vista Blvd	TAC member
Gatlin Blvd	Port St. Lucie Blvd	Brescia Street	TAC member

The methodology for prioritizing the candidate corridors for speed management and complete streets improvements consists of assigning points to the candidate corridors based on the following criteria.

### 8.2 Prioritization Criteria

Score (Total=100)	Strategy Description
10 points	Provides a designated bike lane
10 points	Provides speed management countermeasure
10 points	Provides multi-use path (10 points) or sidewalk (5 points)
10 points	Fills in a gap in the Complete Street or Bike/Ped Network
10 points	Provides access to major destinations such as existing commercial uses, institutional uses, etc. (5 point per destination with a maximum of 10 points possible)
10 points	Addresses a bicycle/pedestrian accident history
10 points	Addresses a vehicle accident history
0 to 10 points	Located on or adjacent to a roadway with a posted speed limit greater than 25 mph (2 points for every 5-mph increment greater than 25 mph)
10 points	Historically Transportation Disadvantaged Community
10 points	Within 1/2 Mile of a Bus Stop

The points were totaled for each corridor, and the corridors were ranked based on the total points assigned. The results of the prioritization are summarized in the following table.

### 8.3 Prioritized Candidate Corridors

Roadway	To	From	Ranking	Score
Savona Boulevard	Paar Drive	Gatlin Boulevard	1	49
Port St. Lucie Blvd	Cameo Blvd	Gatlin Blvd	2	48
Gatlin Blvd	Port St. Lucie Blvd	Brescia Street	2	48
Airoso Blvd	Lakehurst Dr	Prima Vista Blvd	4	46
Brescia Street	Gatlin Boulevard	Savage Boulevard	5	45
Savage Boulevard	Gatlin Boulevard	Galiano Road	5	45
Import Drive	Gatlin Boulevard	Savage Boulevard	5	45
Avenue D	N 13th Street	US-1	8	44
Floresta Drive	Crosstown Pkwy	Prima Vista Blvd	8	44
St. Lucie West Blvd	Peacock Blvd	California Blvd	10	41
Rosser Boulevard	Paar Drive	Nervia Ave & Lewis Library	10	41



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Roadway	To	From	Ranking	Score
N/S 13th Street	Virginia Ave	Avenue Q	12	40
Delaware Avenue	S 13th Street	US-1	12	40
California Blvd	Peacock Boulevard	Indian River College	14	31
N/S 13th Street	Canal	Virginia Ave	15	30
Torino Parkway			16	26
California Blvd	Torino Parkway	Somerset Prep School	17	21
Cashmere Blvd	Torino Parkway	Westgate K-8	17	21

## 9.0 IMPLEMENTATION PLAN

Speed management and complete streets strategies were applied to the prioritized candidate corridors. The Implementation Plan on the following pages was developed.

The complete streets strategies included sidewalks, multi-use paths, buffered bicycle lanes and other ped/bike safety countermeasures. A sidewalk is a paved walkway for pedestrians at the side of a road. A multi-use path is generally defined as a sidewalk wide enough to accommodate two-way travel by non-motorized users: bicyclists, pedestrians, persons in wheelchairs, persons pushing strollers, dog walkers, etc. A buffered bicycle lane has striping separating the on-street bike lane and the adjacent motor vehicle travel lane. Ped/bike safety countermeasures would include crosswalk visibility enhancements, intersection improvements/lighting retrofits, accessible pedestrian signal modifications and leading pedestrian intervals.

### 9.1 Candidate Corridors for Time Band 1 (1-5 years)

Roadway	To	From	Strategy	Ranking
Savona Boulevard	Paar Drive	Gatlin Boulevard	Multi-use path	1
Port St. Lucie Blvd	Cameo Blvd	Gatlin Blvd	Speed management	2
Gatlin Blvd	Port St. Lucie Blvd	Brescia Street	Bike/Ped Safety	2
Airoso Blvd	Lakehurst Dr	Prima Vista Blvd	Speed management	4
Brescia Street	Gatlin Boulevard	Savage Boulevard	Sidewalk	5
Savage Boulevard	Gatlin Boulevard	Galiano Road	Sidewalk	5

Roadway	To	From	Strategy	Ranking
Import Drive	Gatlin Boulevard	Savage Boulevard	Sidewalk	5
Avenue D	N 13th Street	US-1	Buffered bike lanes	8
Floresta Drive	Crosstown Pkwy	Prima Vista Blvd	Complete Street	8

## 9.2 Candidate Corridors for Time Band 2 (5-10 years)

Roadway	To	From	Strategy	Ranking
St. Lucie West Blvd	Peacock Blvd	California Blvd	Speed management	10
Rosser Boulevard	Paar Drive	Nervia Ave & Lewis Library	Multi-use path	10
N/S 13th Street	Virginia Ave	Avenue Q	Buffered bike lanes	12
Delaware Avenue	S 13th Street	US-1	Buffered bike lanes	12
California Blvd	Peacock Boulevard	Indian River College	Multi-use path	14
N/S 13th Street	Canal	Virginia Ave	Buffered bike lanes	15
All of Torino Parkway			Multi-use path	16
California Blvd	Torino Parkway	Somerset Prep School	Multi-use path	17
Cashmere Blvd	Torino Parkway	Westgate K-8	Multi-use path	17

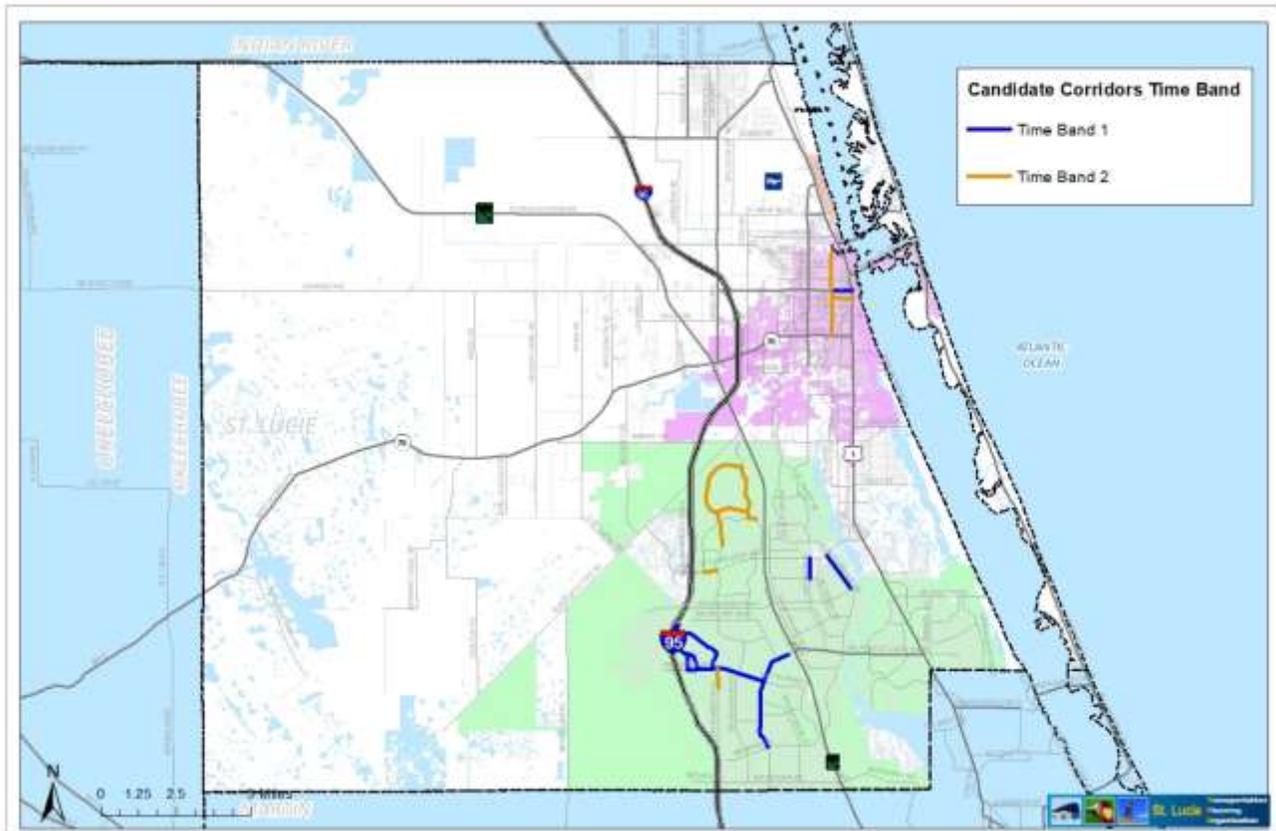
## 9.3 Equity Analysis of Benefits of Projects

A geospatial analysis was conducted to evaluate the extent of the benefits of the projects prioritized in the Implementation Plan that will be realized by the Historically Disadvantaged Communities of the TPO area. The map of the Candidate Corridors by the time bands was compared to the map of the Historically Disadvantaged Communities of the TPO area. Based on the following geospatial analysis, the Historically Disadvantaged Communities of the TPO area will receive significantly greater than 40 percent of the project benefits of the Implementation Plan which exceeds the Justice40 Initiative.

Historically Disadvantaged Communities in the TPO Area



Candidate Corridors by Time Band



## 10.0 ASSESSMENT OF PROGRESS IN MEETING TARGETS

To comply with federal Transportation Performance Management (TPM) requirements, State DOTs are required to establish statewide targets annually for safety performance measures, and MPOs have the option to support the **statewide targets or adopt their own quantifiable targets for the MPO’s** planning area. The TPO incorporates TPM into its planning process by dedicating a task to it in the **TPO’s** Unified Planning Work Program.

FDOT shares the national traffic safety vision, "Toward Zero Deaths," and in **2012 formally adopted its own version of the national vision, "Driving Down Fatalities". Since 2017, FDOT has adopted "0" annually for all five safety** performance measures to reflect its goal of zero deaths and injuries, and the TPO Board has adopted the same target as **FDOT’s Safety Targets every year** to comply with the federal requirements.

For calendar year 2022, FDOT continues to stay with its Vision Zero targets for all five safety performance measures. In February 2022, the TPO Board adopted **the same targets as FDOT’s 2022 Safety Performance Targets of "0"** and adopted 2022 Safety Performance Interim Benchmarks to monitor the **progress in meeting the "0" targets**. The TPO Board evaluates its Safety Performance Targets and Safety Performance Benchmarks on an annual basis and as the prioritized candidate corridors are implemented.

The following interim benchmarks will be used to assess the progress of the Implementation Plan projects in meeting the ultimate Vision Zero targets:

Interim Safety Performance Benchmarks					
	Fatality	Fatality Rate*	Serious Injury	Serious Injury Rate*	Non-Motorized Fatality and Serious Injuries
Interim Safety Performance Benchmarks	38	1.18	142	4.04	28

\*Rate per 100 million Vehicle Miles Traveled (VMT)

As the Interim Safety Performance Benchmarks are met, the benchmarks will be updated annually to continue to approach the ultimate Vision Zero targets. If the targets are not met after project implementation, alternative approaches and projects will need to be considered as part of the Comprehensive Safety Plan.



## AGENDA ITEM SUMMARY

Board/Committee:	Bicycle-Pedestrian Advisory Committee (BPAC)
Meeting Date:	July 28, 2022
Item Number:	6c
Item Title:	Carbon Reduction Strategy Scope of Services
Item Origination:	Unified Planning Work Program (UPWP)
UPWP Reference:	Task 3.9 – Environmental Planning
Requested Action:	Recommend approval of the draft Scope of Services, recommend approval with conditions, or do not recommend approval.
Staff Recommendation:	Because the Carbon Reduction Strategy would facilitate the allocation of funding to projects and strategies which can be demonstrated to reduce carbon emissions in the TPO area consistent with the Federal Carbon Reduction Program and because the Scope of Services is consistent with Task 3.9 of the UPWP, it is recommended that the draft Scope of Services for the Carbon Reduction Strategy be recommended for approval by the TPO Board.

### Attachments

- Staff Report
- Carbon Reduction Strategy Scope of Services



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 772-462-1593 www.stlucietpo.org

## MEMORANDUM

TO: Bicycle-Pedestrian Advisory Committee (BPAC)

FROM: Peter Buchwald  
 Executive Director

DATE: July 12, 2022

SUBJECT: Carbon Reduction Strategy Scope of Services

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### BACKGROUND

According to regulatory comments provided to the U.S. Department of Transportation by the Association of Metropolitan Planning Organizations (AMPO) and the National Association of Regional Councils (NARC), transportation is the largest source of greenhouse gas emissions in the United States. Reducing carbon emissions in the transportation space is a complex issue that requires locally-driven innovation and creative solutions that reach beyond traditional transportation plans and projects.

The recently-enacted Infrastructure and Investment Jobs Act (IIJA), also known as the Bipartisan Infrastructure Law, includes a new program that provides \$6.4 billion in formula funding for states and localities over five years. Urbanized areas with an urbanized area population greater than 200,000, such as the TPO area, are included in the formula funding.

The purpose of the program is to fund projects and strategies that reduce carbon emissions and expand transportation options. As part of the program, states are required to develop a carbon reduction strategy in consultation with metropolitan planning organizations (MPOs) while MPOs are encouraged to develop their own strategies. Task 3.9, *Environmental Planning*, of the Unified Planning Work Program (UPWP), includes the development of a Carbon Reduction Strategy for the TPO area.

### ANALYSIS

The Carbon Reduction Strategy will evaluate the implementation of various scenarios intended to reduce the carbon footprint caused by the emissions generated by vehicle traffic. These implementation scenarios will include

mixed-use development, high-density development, telecommuting, sustainable transportation strategies, multimodal strategies, and park-and-ride facilities, carpooling, and express buses. A tool will be developed that quantifies the carbon emission reductions from each of the scenarios to assist in the development of projects and strategies which effectively reduce the carbon footprint.

The attached Scope of Services will be completed by the Corradino Group, one of the TPO's General Planning Consultants. The Study will be completed in approximately 6 months at a cost of \$61,000 which is consistent with the UPWP.

### RECOMMENDATION

Because the Carbon Reduction Strategy would facilitate the allocation of funding to projects and strategies which can be demonstrated to reduce carbon emissions in the TPO area consistent with the Federal Carbon Reduction Program and because the Scope of Services is consistent with Task 3.9 of the UPWP, it is recommended that the draft Scope of Services for the Carbon Reduction Strategy be recommended for approval by the TPO Board.

## Development of Carbon Footprint Reduction Strategies for St. Lucie County

### Scope of Services

Prepared by The Corradino Group, Inc.

#### INTRODUCTION

St. Lucie County is one of the fastest growing counties in the State of Florida, with some of the highest population growth rates to year 2045. The University of Florida's Bureau of Economic and Business Research (BEBR) estimates that by 2045, St. Lucie County's population can grow to a maximum projection of 566,000. In line with fast-growing population, the travel demand models are estimating congested conditions in 2045. The growing vehicle miles travelled (VMT) statistics are likely to contribute to the higher carbon footprint, primarily caused by the greenhouse gas (GHG) emissions, consisting of Carbon Dioxide (CO<sub>2</sub>), Nitrous Oxide (N<sub>2</sub>O), and Methane (CH<sub>4</sub>). With this background, St. Lucie TPO is pursuing the system wide carbon footprint reduction strategies, for the emissions generated by passenger vehicle travel. The purpose of this work order is to primarily to define and demonstrate strategies that will reduce carbon footprint caused by the GHG emissions generated by automobile traffic. It should be noted that the GHG emissions are generated by a variety of sources, including automobiles, industrial pollution, and the heating and cooling systems, etc. This work order primarily focuses on the transportation related GHG emissions generated by automotive traffic.

GHG emissions are calculated by multiplying the VMT estimates by the corresponding emission factors. For the purpose of this transportation-based analysis, the reductions in VMT attributable to GHG emissions will be used as a surrogate for the emissions calculations. However, it should be noted that not all VMT generated by St. Lucie County is attributable St. Lucie County's growth. The VMT computation that is attributable to St. Lucie County is a complex estimation, dependent on the number of trip origins in St. Lucie County, the number of trip destinations in St. Lucie County, and the number of trips with intermediate stops outside St. Lucie County. In addition, the GHG VMT attributable to St. Lucie County excludes the VMT generated by external-external trips (EE or the Through trips) with both the origin and destination outside St. Lucie County. For example, the VMT generated by through trips on I-95 and the Florida Turnpike are not attributable to St. Lucie County GHG VMT. These are some of the primary differences in how the VMT is estimated in a normal circumstance versus the GHG emissions estimation.

This procedure is well-established by the International Council for Local Environmental Initiatives (ICLEI), which developed the *U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (Version 1.1, 2013)*. The ICLEI methodology is the state-of-the-art procedure for estimating the GHG emissions. This procedure was used in several studies in California and Florida. The document can be found on ICLEI's website at: [GHG Protocols - \(icleiusa.org\)](http://icleiusa.org) (Accessed on March 4, 2022). Corradino performed GHG emissions estimation tools using the ICLEI methodologies, for the southeast Florida Region.

In this project, Corradino will develop the tools for St. Lucie County GHG VMT estimation and assess the strategies to reduce the GHG VMT by consideration of various innovative transportation planning strategies.

## TASKS

### Task 1. Preliminary Analysis and Kick off meeting (Workshop 1):

Corradino will research and gather the latest methodologies in GHG VMT estimation and various carbon footprint reduction strategies. The carbon footprint strategies will primarily include the implementation of the following implementation scenarios:

- a. Mixed-use development
- b. High-density development
- c. Telecommuting
- d. Sustainable transportation strategies
- e. Multimodal strategies
- f. Park-and-ride, carpooling, express buses

Staff Meetings: 1 TPO staff virtual meeting  
 Workshop1: First Workshop with the TPO, County and the cities to discuss the initial findings  
 Product: Workshop materials  
 Start: Immediately after Project Notice to Proceed (NTP)  
 Complete: 1-½ months after Notice to Proceed

### Task 2. Develop the GHG VMT estimation tool for St. Lucie County:

Corradino will develop the tool that estimates the VMT attributable to the developments in St. Lucie County, by using the TCRPM5 activity-based model outputs. The tool will automate the complex computations involving the trips originating, trips ending in St. Lucie County and the trips with intermediate stops originating/ending in St. Lucie County. The process defined in Appendix D, *U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (Version 1.1, 2013)*, developed by ICLEI, will be used for this effort.

Staff Meetings: 1 meeting  
 Product: The finalized GHG VMT tool  
 Start: After the NTP, concurrent with Task 1.  
 Complete: 2.5 months after the Notice to Proceed

### Task 3. Develop the methodology and define the implementation scenarios:

The detailed methodology of carbon foot-print reduction strategies and the transportation modeling scenarios will be defined here. This will be the first iteration of the analysis and will be performed in coordination with the TPO/partner agencies. Corradino will develop the scenario definitions and will document the methods in a technical memorandum.

Staff Meetings: 1 meeting with TPO staff  
 Product: Technical Memorandum  
 Start: After completion of Task 1  
 Complete: 3 months after Notice to Proceed

### Task 4. Model the scenarios and summarize the results:

Using Task 3 methodology, the carbon footprint reduction scenarios will be modeled, and the results will be presented in a workshop (Workshop 2). The TPO will be involved in the scenario testing/modeling

efforts, and some scenario definitions will be adjusted based on early results and interaction with the TPO. The results will be presented in a workshop with the TPO and partnering agencies.

Staff Meetings: 2 progress meetings  
 Workshop2: Workshop with the TPO and partnering agencies  
 Products: Scenario results summary  
 Start: At the completion of Tasks 2 and 3  
 Complete: 5 months after Notice to Proceed

**Task 5. Finalize scenarios and the strategies:**

This task will include final adjustments to the scenarios based on the workshop feedback. The recommended strategies will be documented in a technical memorandum.

wStaff Meetings: 1 Progress meeting  
 Public Presentations: 1) St. Lucie TPO Citizens’ Advisory Committee (CAC)  
 2) St. Lucie TPO Technical Advisory Committee (TAC)  
 3) St. Lucie TPO Bicycle and Pedestrian Advisory Committee (BPAC)  
 4) St. Lucie TPO Board

Products: Final technical memorandum with recommended strategies for the carbon footprint reduction.  
 Start: At the completion of Task4  
 Complete: 6 months after Notice to Proceed

**PROJECT SCHEDULE**

Task No.	Task Description	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
Task 1.	Preliminary Analysis and Kick off meeting (workshop 1)	■	■	⊖			
Task 2.	Develop the GHG VMT estimation tool for St. Lucie county		■	■			
Task 3.	Develop the methodology and define scenarios			■	■	■	
Task 4.	Model the scenarios and summarize the results				■	■	■
Task 5.	Finalize scenarios and the strategies					■	⊖ ⊕ ⊕
	<b>Total Cost</b>						

★ Project workshops

★ St. Lucie TPO Advisory Committee Public Meetings: CAC, TAC, BPAC

★ St. Lucie TPO Board Meeting



## AGENDA ITEM SUMMARY

Board/Committee:	Bicycle-Pedestrian Advisory Committee (BPAC)
Meeting Date:	July 28, 2022
Item Number:	6d
Item Title:	Special Events Congestion Management and Parking Plan (SECMAPP) Scope of Services
Item Origination:	Unified Planning Work Program (UPWP)
UPWP Reference:	Task 3.4 – Congestion Management Process (CMP)
Requested Action:	Recommend approval of the draft Scope of Services, recommend approval with conditions, or do not recommend approval.
Staff Recommendation:	Because SECMAPP would address congestion and parking issues associated with special events in the TPO area as part of the TPO's CMP and the Scope of Services is consistent with Task 3.4 of the UPWP, it is recommended that the draft Scope of Services for the SECMAPP be recommended for approval by the TPO Board.

### Attachments

- Staff Report
- SECMAPP Scope of Services



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 772-462-1593 www.stlucietpo.org

## MEMORANDUM

TO: Bicycle-Pedestrian Advisory Committee (BPAC)

FROM: Peter Buchwald  
 Executive Director

DATE: July 12, 2022

SUBJECT: Special Events Congestion Management and Parking Plan (SECMAPP) Scope of Services

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### BACKGROUND

Congestion and parking issues are occurring at special events in the TPO area such as in Downtown Fort Pierce and South Hutchinson Island, the Fenn Center and Lawnwood Regional Park, Clover Park, the Port District and Botanical Gardens of Port St. Lucie, and the McCarty Ranch Preserve. These issues are likely to increase with the tremendous growth that the TPO area is experiencing. Task 3.4, *Congestion Management Process (CMP)*, of the Unified Planning Work Program (UPWP), includes the development of a SECMAPP for the TPO area.

### ANALYSIS

The intent of SECMAPP is to consider the congestion and parking issues holistically from an area-wide basis and look for opportunities to economize and share expenses. The plan would be developed for the entire TPO area and involve all of the local jurisdictions.

The congestion and parking issues at four special event locations would be evaluated and quantified, and the congestion and parking management needs would be identified at those locations. SECMAPP would then develop projects to address those needs such as on-demand shuttle service, automated shuttles, or another micro-mobility service or deviation of the fixed bus route service. The projects also could implement technology such as portable message boards directing attendees to safe and secure remote lots with shuttle connections or connected vehicle notifications that appear in a vehicle

navigation system or cell phone notifications that provide the best route to the event or around the event. Infrastructure projects may include additional parking lots, improved driveway connections, or intersection improvements. SECMAPP would identify eligible funding sources for each of these projects and develop a methodology to prioritize those projects for implementation as part of the TPO's CMP.

The attached Scope of Services will be completed by Kimley-Horn and Associates, one of the TPO's General Planning Consultants. The Study will be completed in approximately 8 months at a cost of \$50,000 which is consistent with the UPWP.

### RECOMMENDATION

Because SECMAPP would address congestion and parking issues associated with special events in the TPO area as part of the TPO's CMP and the Scope of Services is consistent with Task 3.4 of the UPWP, it is recommended that the draft Scope of Services for the SECMAPP be recommended for approval by the TPO Board.

## **St. Lucie TPO Special Events Congestion Management and Parking Plan**

### ***Project Understanding:***

The St. Lucie TPO will prepare a Special Events Congestion Management and Parking Plan (SECMAPP) for four (4) Special Events locations in the St. Lucie TPO area. The Special Events locations are as follows:

- (1) McCarty Ranch Preserve
- (2) Clover Park
- (3) Downtown Fort Pierce/South Beach
- (4) The Port District/Botanical Gardens

The Regional Partners include the City of Fort Pierce, City of Port St. Lucie, and St. Lucie County Area Regional Transit. The project schedule includes adoption of the Unified Planning Work Program (with the SECMAPP) in June 2022, start the SECMAPP in July 2022, and complete the SECMAPP in February 2023.

The scope of services outlined below will establish a Special Events Congestion Management and Parking Plan for the St. Lucie TPO area.

### **Task 1: Regional Partner Coordination**

Conduct up to six (6) virtual meetings with regional partners as follows:

- (1) City of Fort Pierce (including Fort Pierce Police Department)
- (2) City of Port St. Lucie (including Port St. Lucie Police Department)
- (3) St. Lucie County (including St. Lucie County Area Regional Transit and St. Lucie County Sheriff's Office)
- (4) Clover Park Staff
- (5) Botanical Gardens Staff
- (6) McCarty Ranch Preserve Staff

The purpose of these meetings is to discuss the number and frequency of Special Events at each of the project locations, existing concerns with traffic operations during Special Events, recommendations for improving operations, and identify one (1) Special Event at each location to be observed.

Deliverable: Meeting notes for each of the six (6) meetings.

### **Task 2: Evaluate Special Event Locations**

Evaluate and quantify traffic congestion and parking issues at the four (4) Special Events locations listed under Project Understanding. Field visits shall be conducted for one (1) special event at each Special Event Location. The special events to be observed shall be identified and agreed

to with the St. Lucie TPO and the appropriate regional partner as part of Task 1. The following will be documented and summarized in a memorandum for each of the Special Events:

1. Traffic operations at up to six (6) intersections/driveways in proximity to the Special Event Location
  - a. Traffic Signal Cycle Failures
  - b. Maximum Queues
  - c. Turn lane queue spill back into through lanes
2. Bicycle and Pedestrian operations
3. Parking ingress operations including payment type (if applicable)
4. Parking egress operations
5. Wayfinding signage (including temporary/dynamic messaging signage)

Deliverable: Special Events observations memorandum for each Special Event (Four (4) total memorandums)

### **Task 3: Special Event Needs Analysis**

Based on the field observations from Task 2, evaluate the existing roadway network and parking areas to determine advantageous operations that allow for safe and expedient ingress and egress to and from each Special Event Location. Identify potential changes/improvements to the existing Special Events operations and area roadway network to achieve the desired operations including but not limited to:

- (1) Wayfinding
- (2) Traffic Routing
- (3) Traffic Operations
- (4) Parking Demand/Capacity (Qualitative)
- (5) Parking Management
- (6) Event Staffing related to traffic operations and parking
- (7) Law enforcement presence (if applicable)

The results of the Special Events Needs Analysis shall be summarized in a memorandum.

Deliverable: Special Events Needs Analysis memorandum.

### **Task 4: Special Events Improvement Project Development**

Utilize the needs identified in Task 3 to determine potential future projects to address current Special Events traffic and parking deficiencies. The projects will be grouped into the following categories:

- (1) Services
- (2) Technology
- (3) Infrastructure

The potential projects will be provided in a draft memorandum, grouped by location. Additionally, the approximate locations for each potential improvement shall be summarized on a draft map for each Special Event Location. Update the Special Events Project Memorandum and Map per stakeholder comments.

Deliverable: Special Events Project Memorandum and Maps (Draft and Final).

### **Task 5: Project Prioritization**

Create a prioritization list utilizing the potential improvement projects identified in Task 4. Potential projects will be prioritized in the following groups:

- (1) Near-Term (can be implemented within 1 year)
- (2) Mid-Term (can be implemented in 1-5 years)
- (3) Long-Term (can be implemented in 5+ years)

The updated Special Events Project Memorandum and Map in Task 4 shall be revised to identify the potential improvements by priority.

Deliverable: Special Events Project Prioritization Memorandum and Prioritization Maps.

### **Task 6: Funding Source Identification**

Research applicable State and Federal grant opportunities to determine potential funding mechanisms for the proposed improvements. The funding opportunities will be summarized in a memorandum.

Deliverable: Funding Source memorandum