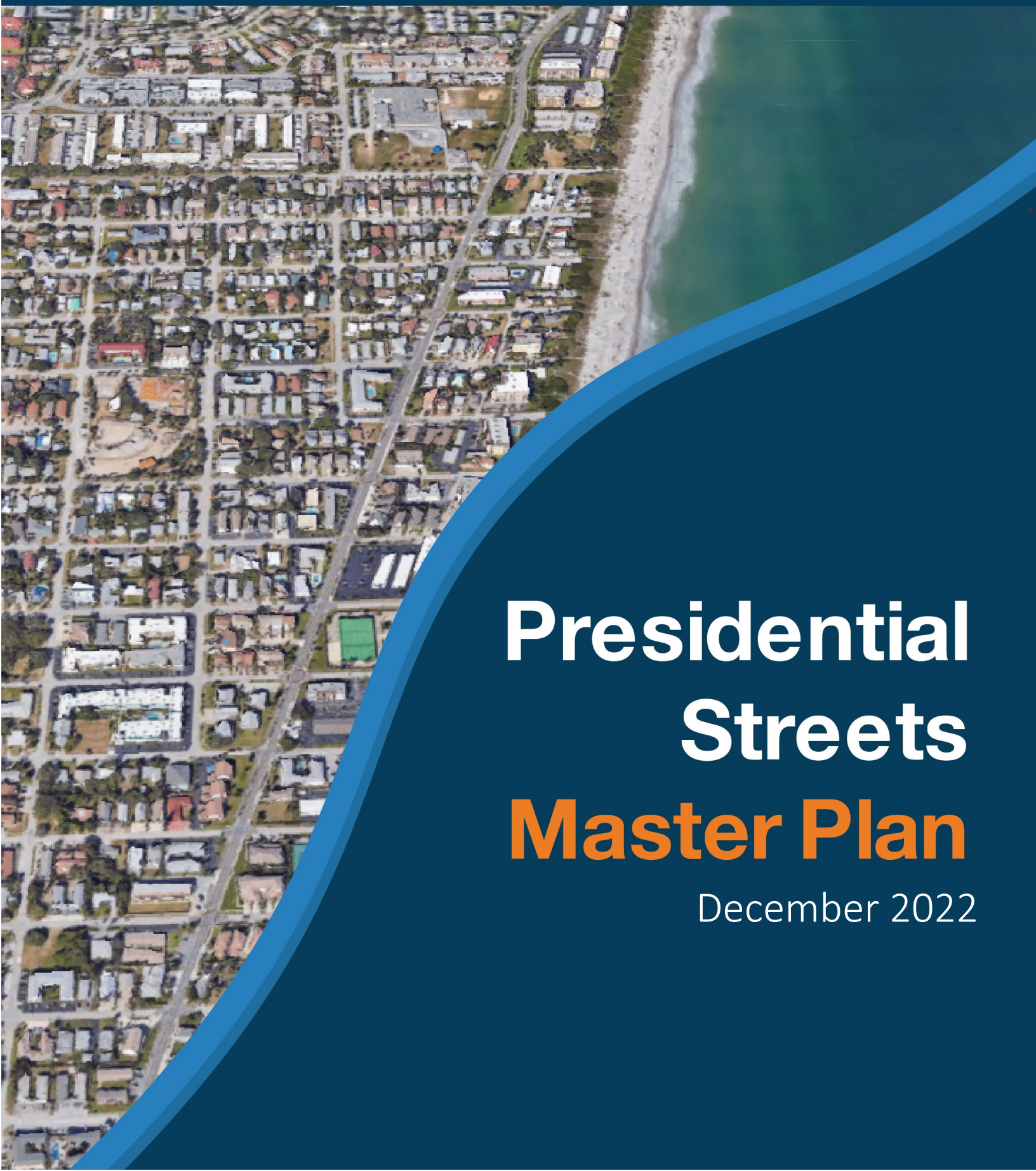
City of Cape Canaveral



Presidential Streets Master Plan

December 2022

City of Cape Canaveral

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THANK YOU from your Kimley-Horn Team!

The ***City of Cape Canaveral Presidential Streets Master Plan*** is the direct result of a collaborative effort between the City of Cape Canaveral staff and its residents. We extend our sincere appreciation to the residents, business owners, elected officials, and stakeholders who participated in the planning process and guided the development of this Plan. Everyone's time, input, and energy are greatly appreciated.

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Introduction

Executive Summary

The vision for the Presidential Streets Master Plan (the "Plan") is to create a destination that includes complete streets, stormwater management, pedestrian access, traffic management, and is resilient. The key elements of the plan supporting this vision include the following:

Strong Sense of Place

- Creation of great streets throughout the Presidential Streets area, including shade trees and landscaping, low-impact design stormwater features, and traffic calming as well as crosswalk artwork and murals
- Upgrade pavement condition and aesthetic appearance of streets with each streetscape project

Connected, Efficient Multi-Modal Transportation

- Improve and expand pedestrian and bicycle facilities in the area, connecting residents and visitors with points of interest including parks, community centers, and beaches
- Incorporate traffic calming elements into street design to improve the safety of alternative modes of transportation

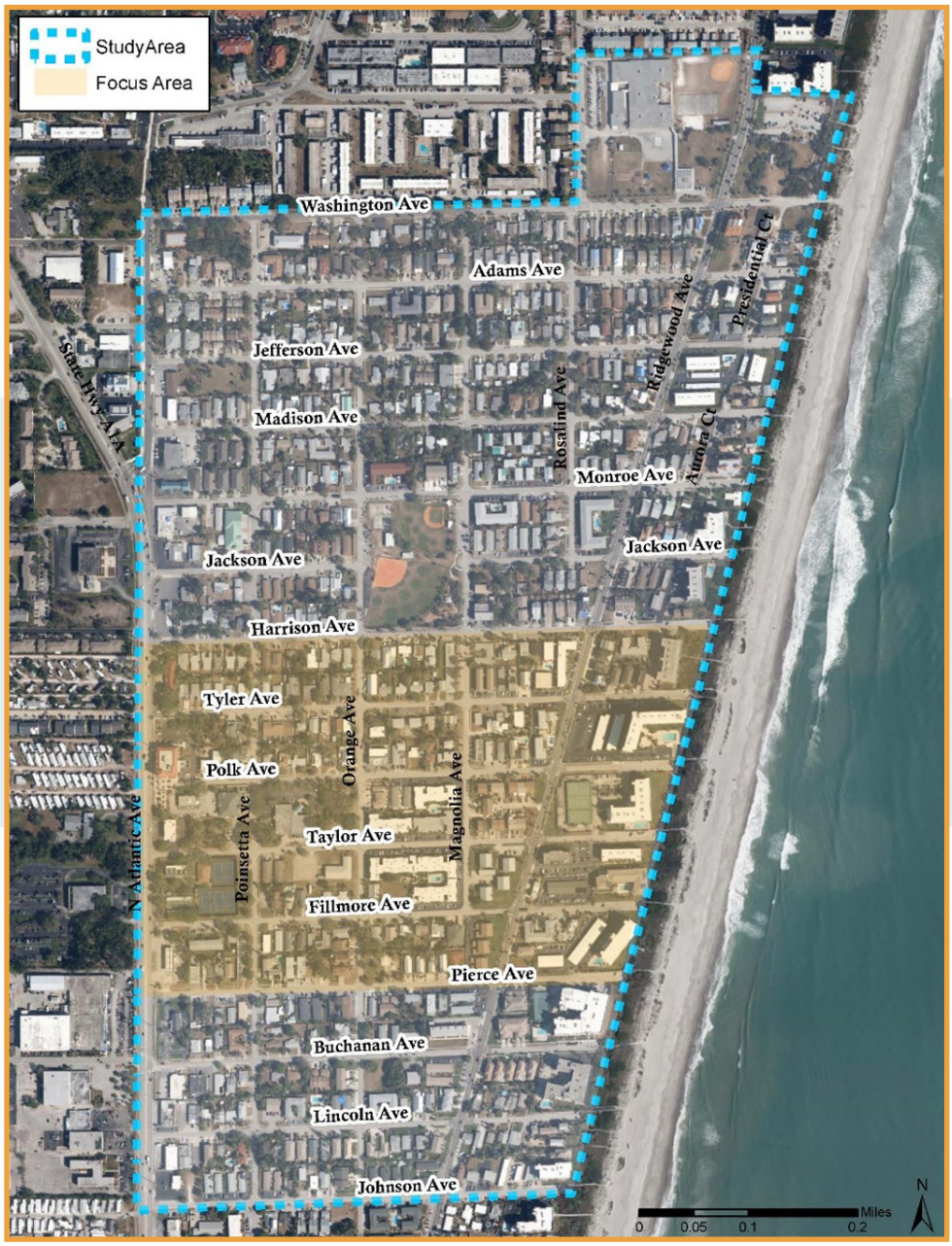
Equitable, Environmentally Sustainable Community

- Improve Americans with Disabilities Act (ADA) accessibility throughout the Presidential Streets area, adding ADA curb ramps and connecting gaps in the sidewalk network for equitable use
- All transportation projects will incorporate an element of permeable pavement and low-impact design for stormwater filtration
- Incorporate additional capacity for the stormwater system as streetscape projects occur
- Build flexible spaces adaptable to new uses and technologies

This Presidential Streets Master Plan builds upon local momentum to implement several initiatives and projects over the next decade. The intent is to create a framework that identifies planning recommendations that can be implemented and constructed as funds become available for capital improvements and opportunities arise in the market for investment and redevelopment. This Plan is also intended to create a design concept framework for future above ground improvements in the Presidential Streets area, such as sidewalk and intersection improvements.

Background

The Presidential Streets are the "core" of the City of Cape Canaveral, connecting the primary transportation network, housing, civic spaces, and the Atlantic Ocean. This street network is generally referred to as the "Presidential Streets" due to each roadway representing a former President's name beginning with Washington (north) and extending south to Johnson. The Presidential Streets interconnect a mostly residential area and include access to the beach and community points of interest. The purpose of the Plan is to design a path forward or a "roadmap" for identifying a variety of potential public and/or public-private-partnership (P3) projects. This may include options for implementing improvements for the street network and improving the overall resiliency of the area.



Map 1: Presidential Streets Study Area and Focus Area Map

The Study Area, shown in ***Map 1***, includes a "Focus Area" in which recommendations are expanded upon due to the nature of roadways such as Taylor Avenue and Fillmore Avenue which face reoccurring flooding issues. The Focus Area is also the area of greatest civic / governmental uses including City Hall, Cape Canaveral Library, Veteran's Memorial Park, the City of Cape Canaveral Community Center (C5), and CAPE Center. This Plan identifies the projects, policies, partnerships, and grants necessary to create a destination that includes improved pedestrian and bicycle access, traffic management, stormwater management, public investment, and sense of place.

This Plan utilizes public and City input as well as builds upon the momentum of some existing studies the City has undertaken which are summarized below:

- Stormwater Report for Center Street Basin Improvements (2022)
- Resilient Cape Canaveral Action Plan (2021)
- Presidential Streets Inventory (2020/2021)
- Presidential Streets Small Area Study (2019)
- Resilient Cape Canaveral (2019)
- Pedestrian and Bicycle Mobility Master Plan (2017)
- Community Redevelopment Plan (2012)
- Polk Avenue Streetscape project (2017)

Stormwater Report for Center Street Basin Improvements (2022)

This report was prepared in response to high-intensity, short-duration storm events in the summer of 2021 that caused roadway flooding of 9-12 inches within the Center Street Basin. The Report created a storm model that was representative of actual conditions observed during the summer 2021 storm events, and provides five Conceptual Project Designs to address and mitigate flooding within the basin.

- Conceptual Project #1 - Increase pipe capacity along stormwater system primary trunkline from Buchanan/Ridgewood to the Banana River outfall
- Conceptual Project #2 - Increase secondary branch capacity downstream of critical sub-basin locations
- Conceptual Project #3 - Install 16 CFS pup station on Center Street near outfall to Banana River
- Conceptual Project #4 - Construct stormwater pond for treatment of stormwater runoff prior to discharge
- Conceptual Project #5 - Reduce all City roadways to single lane only. Construct 12'x2' exfiltration chambers/trenches along extents of roadways for additional storage and treatment

Conceptual Projects #1-4 are intended to build upon one another, Project #5 is stand alone. Not all Conceptual Projects are within the Presidential Streets Master Plan Study Area, as the Center Street Basin extends south to Grant Street and includes area west of N Atlantic Ave (A1A). Areas in the Presidential Streets Study Area north of Polk Ave are not within the Center Street Basin, and were not included in this Report.

Resilient Cape Canaveral Action Plan (2021)

This action plan was prepared in response to a Vulnerability Assessment that was performed in 2019 which highlighted the risk posed to the City of Cape Canaveral of sea level rise, storm surge, shallow coastal flooding areas, and FEMA 100-year and 500-year flood zones. The City of Cape Canaveral could experience the effects of sea level rise and enhanced storm surge as early as 2030. Being proactive is critical to resiliency efforts. These proactive measures include investments in coastal protection strategies, upgraded water and waste-management systems, hardened infrastructure, upgraded and alternative transportation systems, climate-resistant construction methods, and the protection of natural areas. Such measures will allow the City to become safer while reducing risks and financial burdens associated with recovery costs through efficient and less environmentally intensive operations. There are eight categories of Action Items the City is recommended to take to improve resiliency, each of which contain sub-actions and timelines to better position the City in times of environmental uncertainty:

- Green and Resilient Economy
- Natural Systems
- Transportation
- Energy
- Built Environment
- Equity and Quality of Life
- Waste and Consumption
- Storm Readiness and Sea Level Rise

Photo of curb inlet and ADA accessible crosswalk at Poinsetta Ave and Pierce Ave

Presidential Streets Inventory (2020/2021)

City Staff inventoried the status of each street's existing infrastructure across several indicators including flood potential, surface condition, sidewalk accessibility, lighting, foliage, pedestrian safety, and capacity to capture stormwater. This study determined long-term planning requirements for each roadway. Additionally, the study assisted City Staff in determining which Presidential Streets are in most critical need of redevelopment so that a prioritization plan can be formulated. Several upgrades to the study area were documented for future consideration, many of which are Complete Street features: dedicated bicycle lanes, sidewalk additions, permeable pavement, speed reduction devices, street sign standardization, curb and gutter, solar street lighting, right-of-way rain gardens for stormwater filtration, and crosswalks. Additionally, a vision of this inventory study was to develop Complete Street designs similar to those that were implemented on nearby roadways.

Presidential Streets Small Area Study (2019)

The purpose of this study was to provide the results of a data collection effort and traffic analysis that evaluated the existing traffic conditions within the Presidential Streets Small Area Study location. The report also recommended implementing traffic calming techniques for the study area. The study made the following recommendations based on the analysis that was performed:

- Increase speed enforcement presence
- Establish a Neighborhood Alert Program
- All-way STOP Sign Warrants
- Install traffic circles
- Install speed humps
- Install raised crosswalks
- One-way pairs (description on pg. 50)

Resilient Cape Canaveral (2019)

The goal of this report was to identify coastal vulnerabilities specific to the City of Cape Canaveral and provide recommendations to mitigate the effects of flooding, sea level rise and storm surge. More specifically, the goal was separated into four project goals which included:

- **Vulnerability Analysis –** identified the social, economic, and functional vulnerabilities facing the City from storm surge, flooding, sea level rise, and nuisance flooding.
- **Public Engagement –** engage and educate the public on identifying and mitigating the study area's vulnerabilities and discussing future development opportunities and strategies within the City.
- **Strategy and Policy Development –** develop strategies for the City based on public input and best practices for integration strategies into the formulation of comprehensive plan policies for

Photo of flooding during a heavy rain event on Fillmore Ave

compliance with SB 1094 (Peril of Flood) to enhance resiliency in the City.

- **Economic Impact Analysis –** use a "do-nothing" scenario to conduct economic impacts to the area as well as the implementation of a project or strategy derived through the project to determine economic impacts of future conditions and the specific strategy on the City.

This study recommended the City should obtain generators for all lift stations and traffic lights at major intersections. The City prioritized projects that protect the health of Indian River Lagoon and Banana River Lagoon by limiting direct run-off and provide a mechanism to reduce surge impacts. Other prioritization criteria include implementing green infrastructure such as promoting shared parking and reducing minimum number of parking spaces requirements, developing, and implementing a program to help businesses become "disaster resilient", finding opportunities to engage property owners in ways to make their property more resilient and sustainable, and updating its Comprehensive Plan to include goals, objectives, and policies to address sea level rise, flooding, and storm surge.

Pedestrian and Bicycle Mobility Master Plan (2017)

The purpose of the Pedestrian and Bicycle Mobility Master Plan was to assess the state of pedestrian and cycling access within the older residential streets, identify projects that can improve safety and connectivity, and help plan for a more active, healthy, safe and enjoyable pedestrian friendly City. During the bicycle and pedestrian observation phase of the study, it was found that cyclists do not wear personal protective equipment or adhere to the rules of the road. There was also cited lack of awareness to share the road by vehicles. Additionally, pedestrians and bicyclists jaywalked or crossed roadways where regulations do not permit doing so. Based on these observations as well as a community brainstorming session, the following recommendations were proposed:

- Connect and repair sidewalks
- Create a citywide pedestrian sign program and wayfinding signage citywide
- Offer additional bicycle racks and parking
- Improve the intersection at N. Atlantic Ave / SR A1A
- Emphasize pedestrian/residential corridors (lower speed limits, change driver behavior, increase 4-way stops
- Educate the community on pedestrian rules/ safety
- Continuous community engagement on what a bikeable/walkable, pedestrian-friendly City means to residents

Bike racks outside of City Hall

Community Redevelopment Plan (2012)

The Envision Cape Canaveral process, the Finding of Necessity and community workshops served to identify specific goals and opportunities for the City to consider in its redevelopment efforts. Based on a series of qualifying conditions and assignment (delegation) of certain County items, the City established a community redevelopment area for the purposes of reinvesting tax generated funds into a targeted portion of the City. The Community Redevelopment Plan (CRP) identified not only the City's goals for redevelopment but also established a framework for financing, funding and the public improvements through a series of goals and initiatives. The CRP turns those goals into specific action items and projects.

This Plan identifies programs/activities that can be funded/ managed by the Community Redevelopment Agency (CRA) to support local businesses and promote redevelopment. The following CRA strategies, programs, and projects recommended in the CRP for public improvements correlate with the vision and goals of the Presidential Streets Master Plan:

- Streetscape improvements such as emphasizing pedestrian/bicycle mobility and safety: construction of sidewalks/pedways, enhanced transit stops, and intersection improvements
- Roadway improvements such as resurfacing and roadway construction
- Wayfinding signage that is uniform and decorative that directs patrons to key destinations
- Pedestrian and bicycle mobility which includes improving connectivity throughout the study area
- Updating stormwater management facilities up to state regulatory requirements

Polk Avenue Streetscape Project

This project examined the Polk Avenue corridor bounded by State Road (SR) A1A on the west and to the beach access point to the east from an overall "movement" of people and vehicles perspective. The focus of the project was to address issues with intersections located in two locations, connectivity between destinations along the corridor, and options near the beach ending point. Key features of the rendering shown to the right include a shared use path, pedestrian plaza, and an option to have either on-street parking or a landscape verge. The streetscape elements shown were considered in the recommendations for this Plan.

Polk Ave Streetscape Rendering

What Makes this Plan Unique?

This Presidential Streets Master Plan builds upon local momentum to implement several initiatives and projects over the next several years. The intent is to create a framework identifying planning recommendations that can be implemented and constructed as funds become available for capital improvements, and opportunities arise in the market for investment and redevelopment. This Plan is also intended to create a design concept framework for future improvements in the Presidential Streets, and only addresses underground improvements to stormwater and utilities systems in conjunction with the streetscape improvements. The vision for the Presidential Streets Master Plan is to create a destination that includes complete streets, stormwater management, pedestrian access, traffic management, and resiliency. ***To assist in fulfilling the vision, the project team has created a toolkit with eight categories of recommendations based on information gathered through a desktop analysis of the area demographics, site visits to examine existing conditions of the Study Area, and interviews with City Staff.***

1. Pedestrian/Bicycle Improvements
2. Roadway Improvements
3. Intersection and Crossing Improvements
4. Placemaking Design Improvements
5. Traffic Calming Tools
6. Beach Ends
7. Stormwater Improvements
8. Resiliency Improvements

Study Area Profile

The Study Area is approximately 256 acres including approximately 13.16 miles of roadway. While the area is mostly residential, there are some commercial components on the western side along SR A1A as well as some civic/government operations, community parks, and an elementary school. Utilizing ArcGIS Business Analyst Esri data and U.S. Census Bureau data, the following is a summary of the community statistics within the Study Area.

Demographics

According to the University of Florida Bureau or Economic and Business Research (BEBR), the estimate of the permanent population for the City of Cape Canaveral as of April 1, 2021 is 9,959 which is a decrease from the recorded U.S. Census Bureau population as of April 1, 2020 of 9,972. Utilizing ArcGIS Business Analyst Esri data and the U.S. Census Bureau data for the Presidential Streets Study Area specifically, it shows that the population in the Study Area has continued to grow and has a population of 2,836 which is approximately 28% of the City's total population. The number of households within the Study Area is 1,674 with an average household size of 1.69. Out of the population of the Presidential Streets Area, 7.1% of households have an income below the poverty level in the past 12 months. The majority of the people living in the Study Area identify as white (94.3%) followed by two or more races (2.9%), and then Black or African American (1.9%). The following statistics give more insight into the demographics of the Presidential Streets area.

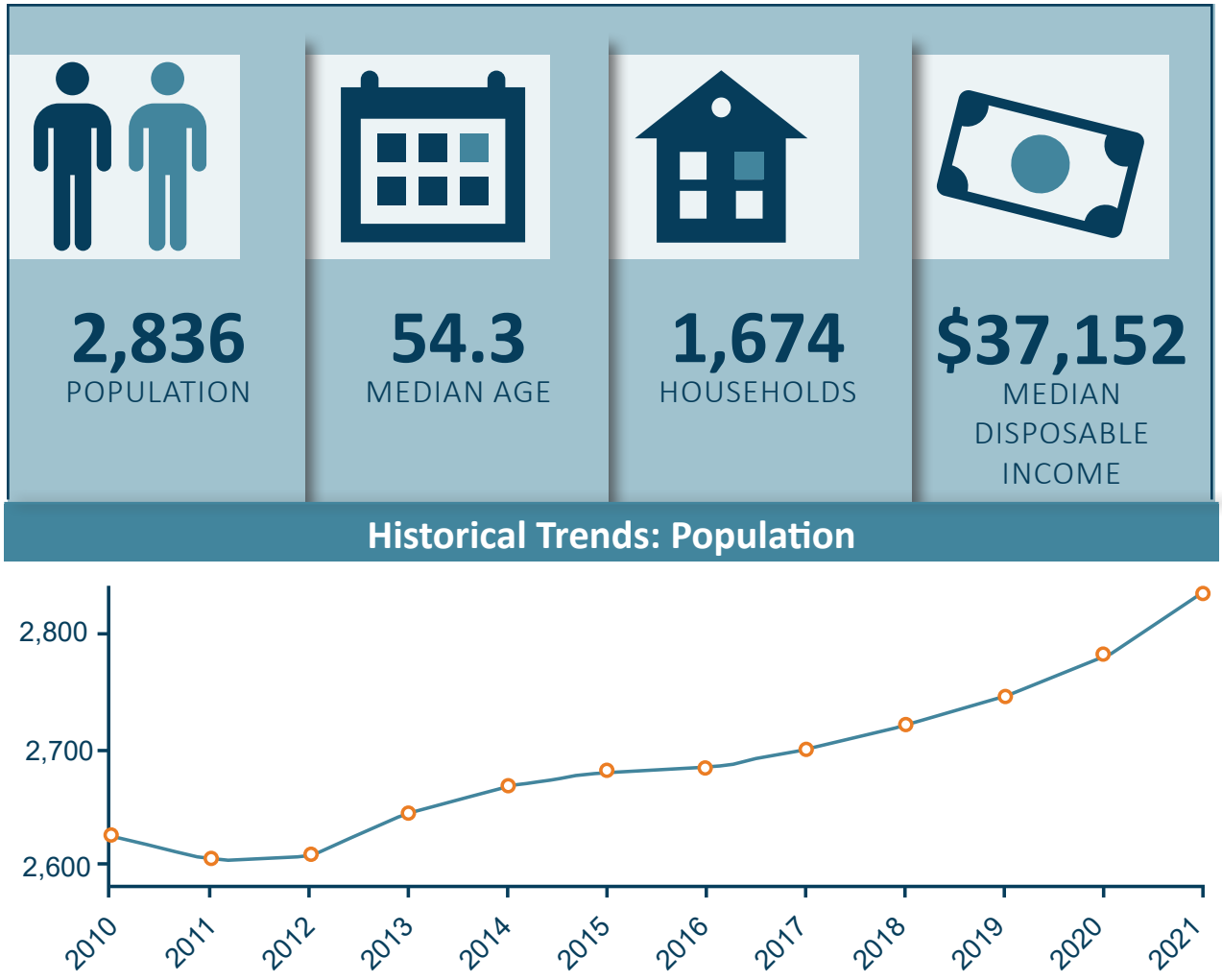


Figure 1: Population and Household Data

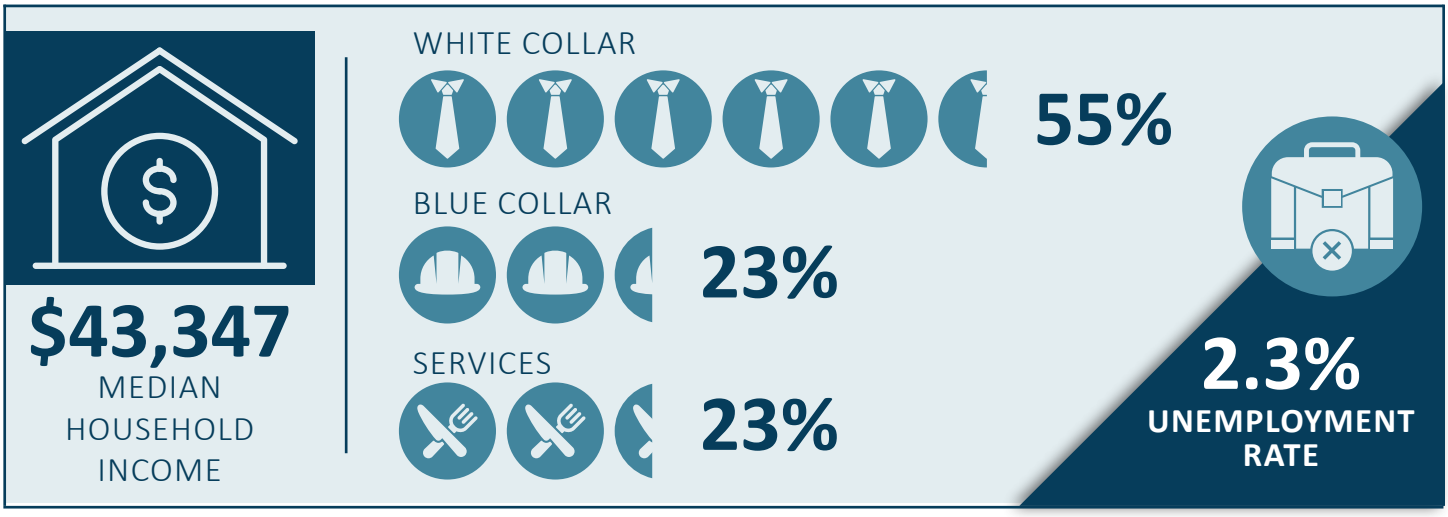
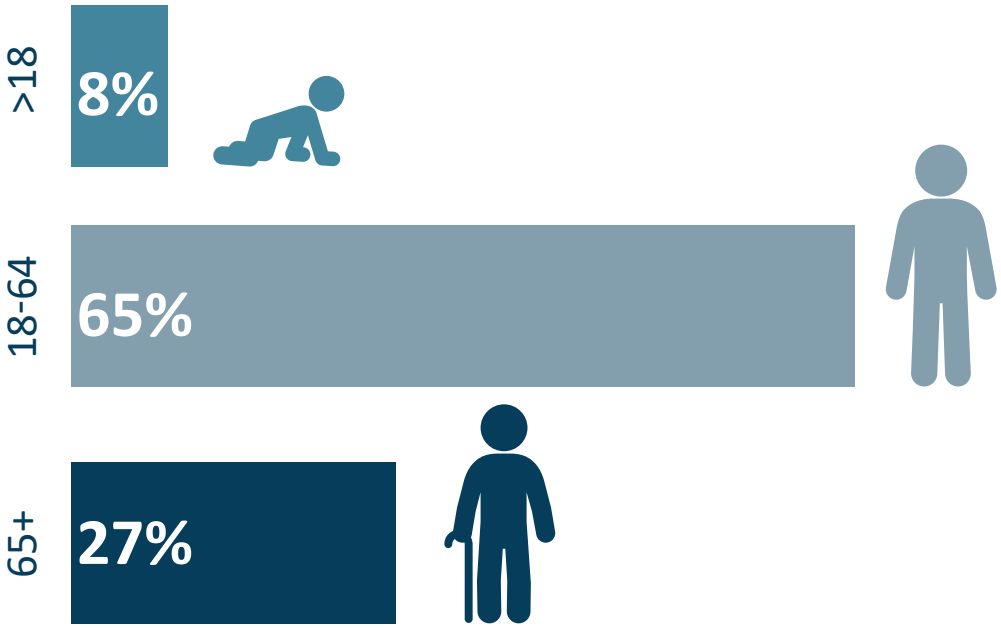


Figure 2: Job and Household Income Data

Population by Age



Population by Generation

22.3% GENERATION X
BORN 1965 - 1980

21.6% MILLENNIAL
BORN 1981 - 1998

9.4% GREATEST GEN
BORN 1945 OR EARLIER

9.4% GENERATION Z
BORN 1999 - 2016

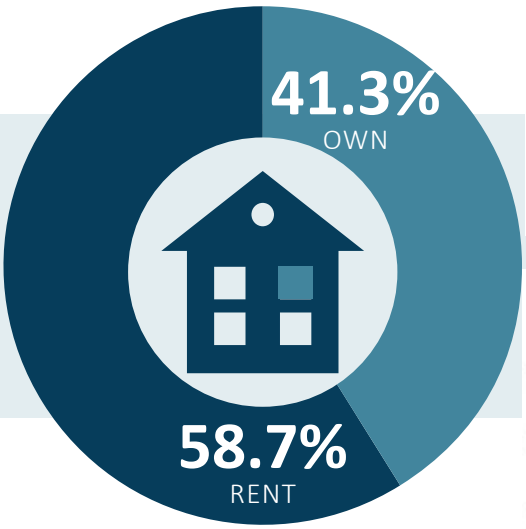
35% BABY BOOMER
BORN 1946-1964

2.2% ALPHA
BORN 2017 - PRESENT

Figure 3: Population by Age and Generation

Housing

Housing in the area appears to be trending more towards vacation/second-home ownership due to the coastal nature of the area and proximity to beaches. According to the data, the majority of housing is rental (58.7%) versus owned (41.3%). The median home value is $248,640, and the majority of the housing was built more than 30 years ago.



Mortgage Indicators

$7,239
SPENT ON MORTGAGE AND BASICS

24.1%
INCOME SPENT ON MORTGAGE

Figure 4: Housing, Mortgage, and Rent Data

Transportation

The main transportation choice within the Study Area is the automobile with the majority (80.9%) of the population choosing to drive alone to work. Only about 2% of people within the Presidential Streets network walk or ride their bike to work.

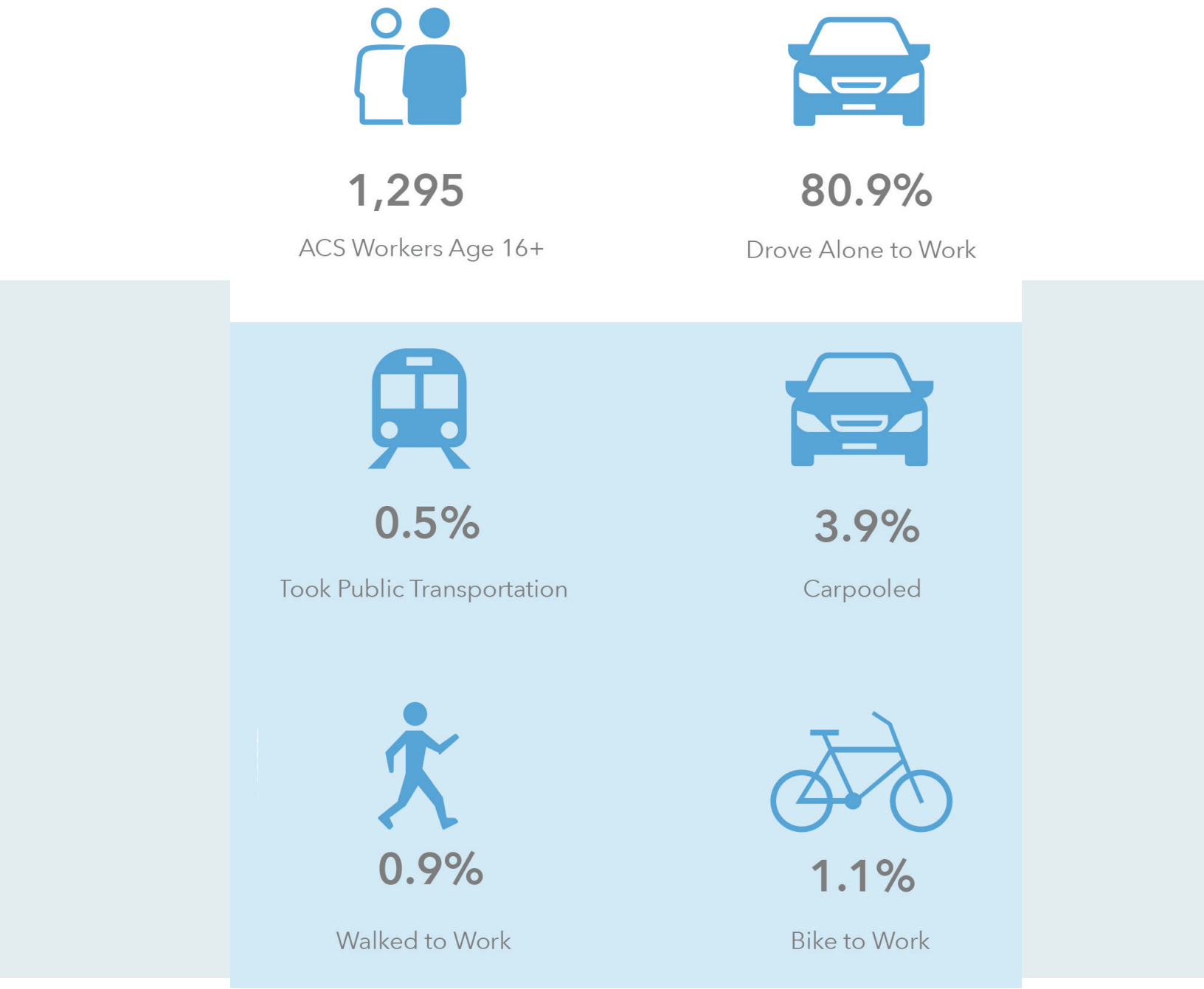


Figure 5: Transportation Choices within the Presidential Streets Study Area

Existing Conditions

Understanding the existing conditions is a pre-requisite of developing recommendations for the Study Area. This portion of the City is characterized by an extensive “grid-style” roadway network with increased connections, nodes and opportunities that allow multiple routes for residents and visitors alike. This network, albeit lacking in certain improvements, establishes a good baseline for the City to provide incremental changes and improvements based on this and other Plans. The predominate challenges in the Presidential Streets include poor stormwater management, lack of connectivity in pedestrian facilities, lack of streetscape elements, and poor roadway design. Multiple site visits, as well as a thorough desktop audit, were performed in order to evaluate the existing conditions. The results and observations from these analyses are outlined below.

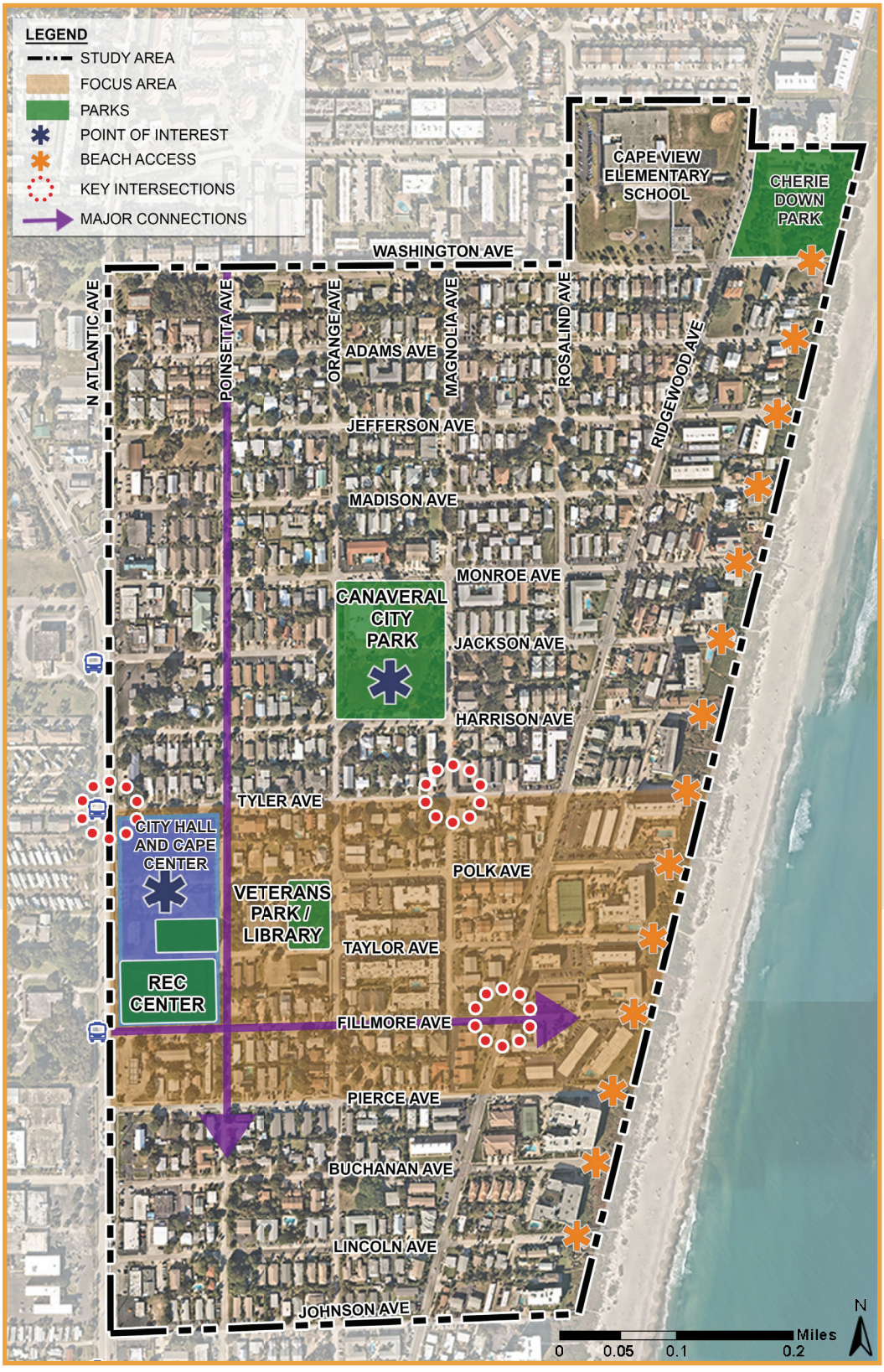
Site Visits

Site visits to the Presidential Streets Study Area were conducted on the following dates: December 8, 2021, February 23, 2022, and May 10, 2022. The primary purpose of these site visits was to gain a better understanding of the existing conditions of the Presidential Streets network, observe areas of interest, connectivity patterns, and changes which may be occurring due to the increased construction and redevelopment within the area. The observed land use in the Study Area is primarily residential, with several important community assets and future points of interest such as the C5, Canaveral City Park, library, and City Hall. See photos below of these focal points, as well as ***Map 2***, which identifies their locations within the study area.

Photo of C5

Photo of Cape Center

Photo of City Hall



Map 2: Map of Framework Plan Improvements and Points of Interest

Additional observations from the site visits also include constraints such as a right-of-way that is intruded on by private property (including but not limited to mailboxes and landscaping), inconsistency in stop sign placements, back-out parking from private property directly into the roadway, stormwater and sewer issues, and accessibility limitations including lack of curb ramps and tight sidewalk conditions. Much of the pavement on the roadways within the study area is cracking. Below are some photos from these site visits demonstrating some of these constraints.

Localized flooding on Fillmore Ave

Beach end access ramp on Madison Ave

Cracked pavement and parking areas against roadway on Taylor Ave

Desktop Audit

The desktop audit provided critical insight on conditions relating to pavement, mobility, sidewalks, stormwater, streetscape, and placemaking. A field inspection of general pavement conditions was performed, and City Staff observed the streets located east of SR A1A all have similar pavement conditions. Most streets experienced longitudinal and transverse cracking with a maximum of ¼ of an inch. These conditions were more prevalent on streets with beach end areas. There were also instances of sagging areas over sanitary sewer lines. The Presidential Streets intersections had more longitudinal and transverse cracking than pavement outside of intersections.

From a mobility perspective, there is an inconsistency with stop-sign placement throughout the study area. Some intersections are four-way stops, while some intersections are two-way stops, even along the same corridor. The entire study area would benefit from an evaluation to determine if these intersections warrant two-way vs four-way stops.

The pedestrian network is disconnected throughout the study area. Most corridors had sidewalk gaps on each side of the roadway, meaning there is an incomplete sidewalk network and in certain locations, sidewalks are missing which creates an inconvenient and potentially dangerous condition for pedestrians. In addition, some intersections may not meet current accessibility standards with respect to width and or slopes. Parking lots and spaces, right-of-way, and mailboxes all hinder completion of sidewalk networks. Only Pierce Avenue has complete sidewalks on both sides of the roadway. These conditions combine to create an inconvenient and, at times, hazardous environment for pedestrians.

With respect to stormwater conditions, inlets need to be repaired or replaced. The worst conditions were observed along Poinsetta Avenue and Orange Avenue. Much of the public right-of-way is impervious surface.

The City has installed artistic/decorative bicycle racks throughout the project area, including at the beach ends, which provide a fun and functional accent to the streetscape and create a sense of place. From a streetscape and placemaking standpoint, public right-of-way is limited on every street, so implementation of sidewalks and bicycle infrastructure has been challenging and inconsistent. Additionally, there is a general lack of street trees, and therefore shade, as well as landscaping.

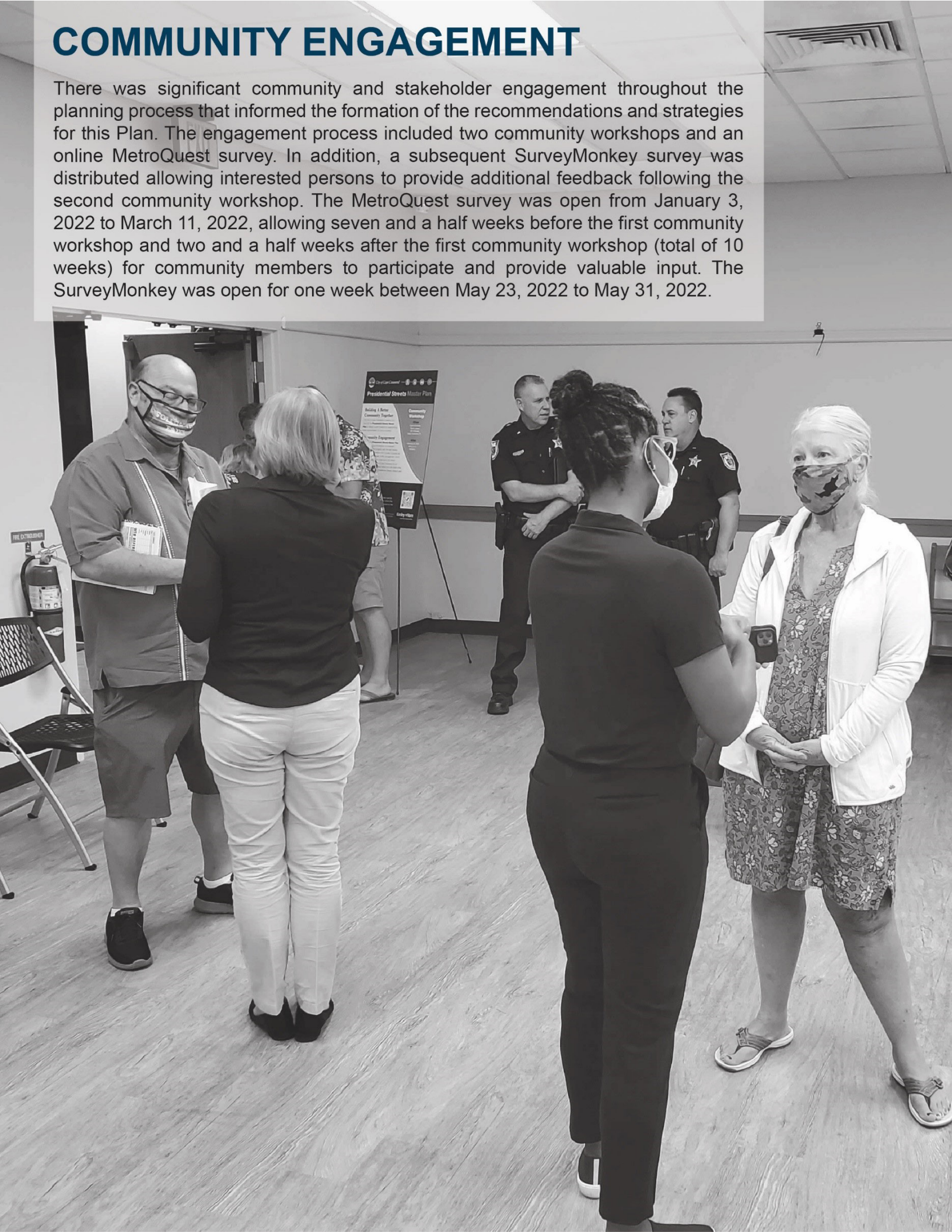
Photo of pavement cracking at the intersection of Orange Ave and Buchanan Ave

Section 2

Community Engagement

COMMUNITY ENGAGEMENT

There was significant community and stakeholder engagement throughout the planning process that informed the formation of the recommendations and strategies for this Plan. The engagement process included two community workshops and an online MetroQuest survey. In addition, a subsequent SurveyMonkey survey was distributed allowing interested persons to provide additional feedback following the second community workshop. The MetroQuest survey was open from January 3, 2022 to March 11, 2022, allowing seven and a half weeks before the first community workshop and two and a half weeks after the first community workshop (total of 10 weeks) for community members to participate and provide valuable input. The SurveyMonkey was open for one week between May 23, 2022 to May 31, 2022.



Community Engagement

Community Workshop #1

The first community workshop was held on February 23, 2022. The workshops and the survey were advertised on the City's social media platforms and flyers were handed out at Friday Fest to inform the community (provided in ***Appendix A***) The workshop was facilitated by City Staff as well as the City's consultants, Kimley-Horn and Associates. Following a brief presentation and overview of the project, attendees were invited to participate in interactive stations designed with the following objectives in mind:

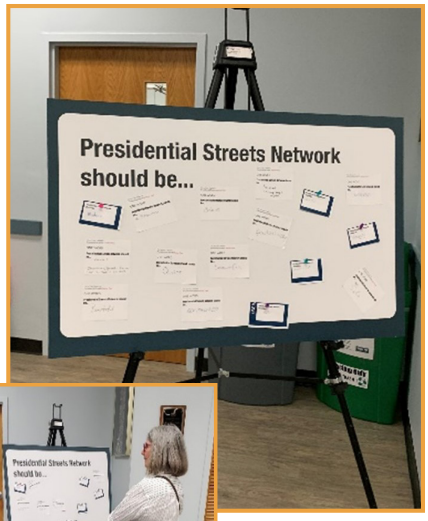
- Understand the community's visions and values,
- Identify community priorities, and
- Inform recommendations and design alternatives.

The interactive stations included One Word, a Map Exercise, and Money Madness. Additionally, attendees were encouraged to talk with Staff and the consulting team about their ideas and thoughts as well as complete the online MetroQuest Presidential Streets survey.

Information collected at the first community workshop helped to inform the understanding of existing conditions as well as specific ways future recommendations and design alternatives were evaluated for the Presidential Streets network.

One Word Station

The One Word station gathered broad views on the community's perception of the Presidential Streets network and their vision for its future. Participants were given a simple game board that asked them to describe the Presidential Streets network today in one word and their ideal vision for the Presidential Streets network in one word. This activity captured existing sentiments and future hopes for the Presidential Streets network. Word clouds were created based on the responses and the results were analyzed for repeating themes and priorities.



During the One Word activity, participants provided one word to describe both the current state and future vision of the Presidential Streets network. Participants were thoughtful and concise, describing the Presidential Streets Network in its current state as "tired", "flooded", "irregular", "shabby", and more. Participants described the ideal Presidential Streets Network with words including but not limited to "cohesive", "showcase", "beautiful", "revitalized", and "safe".

Map Exercise

The Mapping Exercise station identified where the public would like to see improvements and identified destinations that they often walk or bike to within the Presidential Streets study area. A large-scale map of existing conditions was displayed, and participants used different colored dots to identify where they would like to see improvements and to identify destinations that they often walk or bike to within the study area. Additionally, hand-outs of existing conditions, FEMA Flood Zones, and Sea, Lake, and Overland Surges from Hurricanes (SLOSH) maps were provided for reference. This activity helped orient participants to the study area and provided visual representation of where improvements were needed.

Attendees were asked to place a point on the map and provide comments for each location identified. Each attendee was provided numbered "dots" which then corresponded to a particular comment which could be anything they wanted to share including opportunities and/or challenges. This activity resulted in a map of potential improvements generated by the community.

Fillmore Avenue, Buchanan Avenue, and Ridgewood Avenue received the greatest "concentration" of dots (i.e., comments). The majority of comments expressed a need for traffic calming devices, traffic control devices, accessibility improvements of beach accesses, and stormwater improvements.

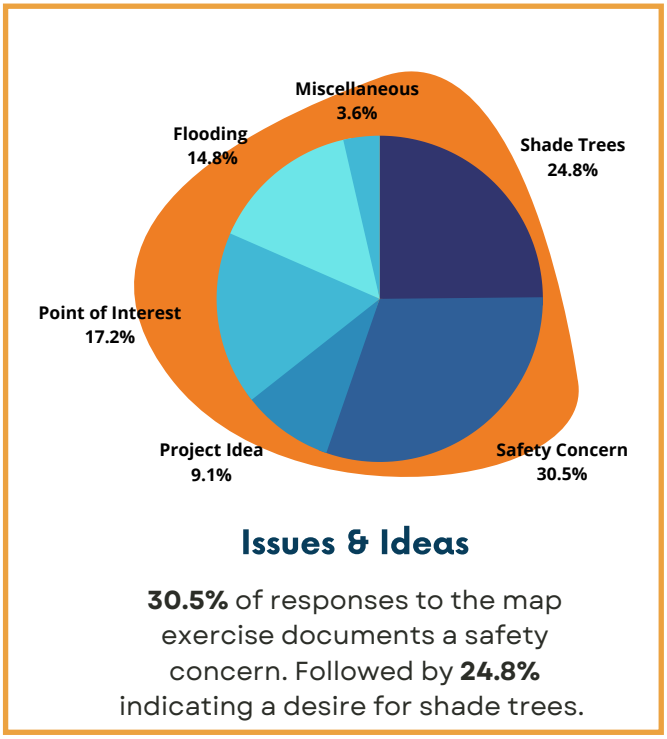


Figure 6: Summary of Issues and Ideas from the Map Exercise

Money Madness

The purpose of the Money Madness station was to gain an understanding of community priorities for transportation-related improvements. During the Money Madness exercise, participants allocated $50 of mock money to eight potential transportation-related improvement categories. The categories included bicycle facilities, streetscape improvements, safer intersections, parks/open space, sidewalks, addressing flooding/green infrastructure, beach access, and parking.

Canaveral Bucks Allocated during Money Madness Activity

Each participant was gifted $50 worth of "Cape Canaveral cash" and could spend their funds however they saw fit among the following eight transportation-related improvement categories:

- Bicycle Facilities
- Streetscape Improvements
- Safer Intersections
- Parks/Open Space
- Sidewalk
- Address Flooding/Green Infrastructure
- Parking
- Beach Access

The participants prioritized Flooding Improvements and Green Infrastructure by spending the greatest sum, with sidewalks the second greatest priority. The full ranking includes:

- Address Flooding - $265
- Sidewalks - $250
- Streetscape Improvements - $215
- Safer Intersections - $185
- Parks/Open Spaces - $125
- Parking - $110
- Beach Access - $110
- Bicycle Facilities - $75

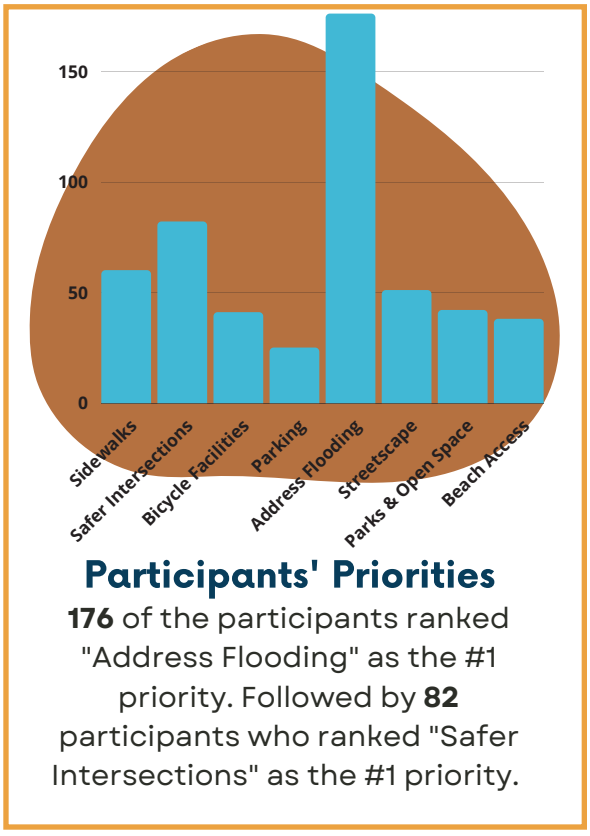
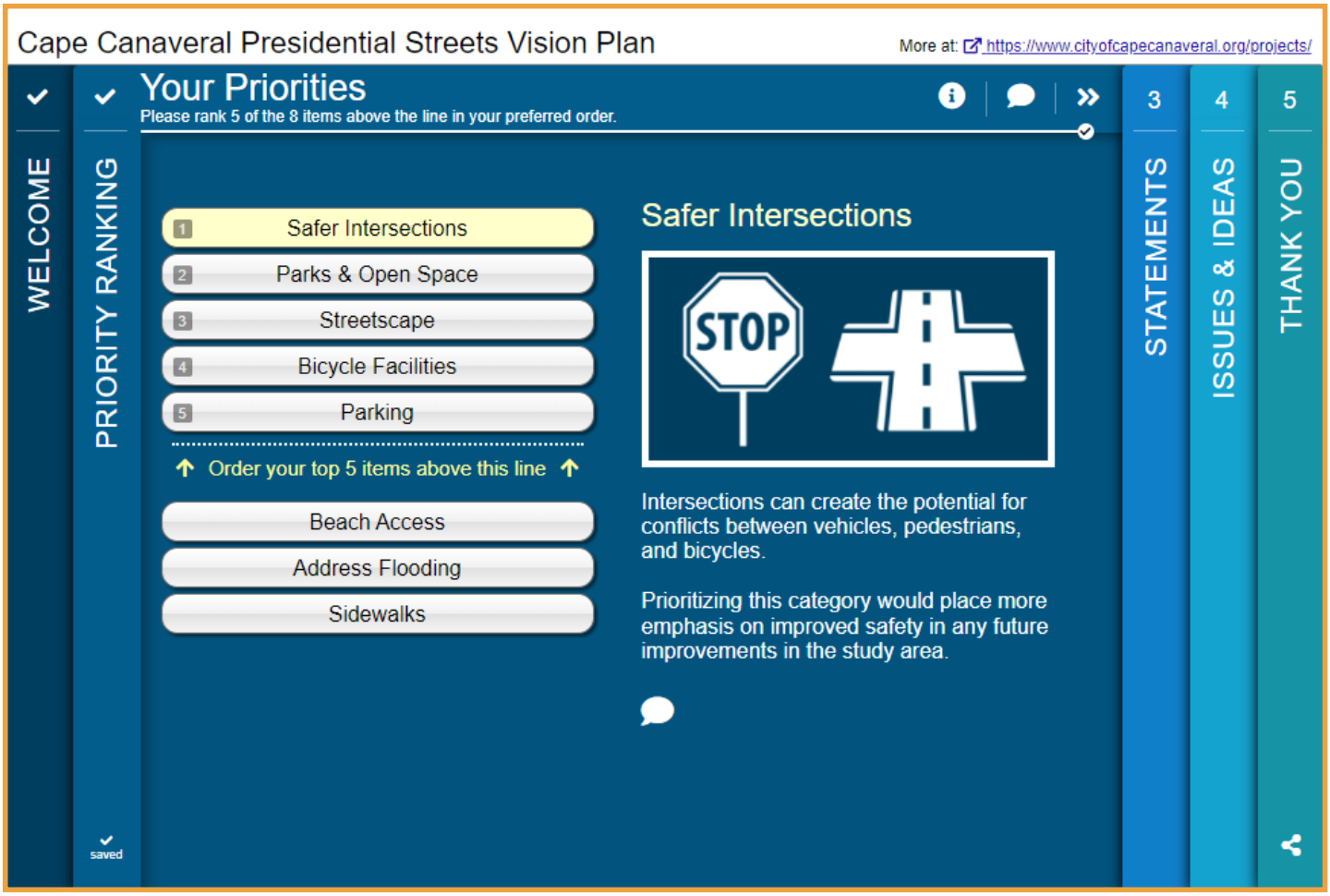


Figure 7: Summary of Participants Priorities from the Money Madness Exercise

MetroQuest Survey and Q & A Station

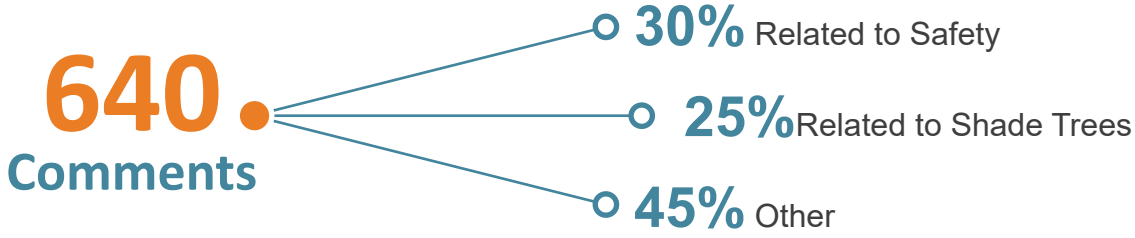
The MetroQuest Survey and Q & A Station showcased the MetroQuest survey, had the PowerPoint available, and answered any questions related to the project. Meeting participants were invited to complete the survey while they were at the meeting venue. The survey QR code and instructions were available for those that wanted to take the survey on their mobile device. Sets of 5 business cards with the survey QR code were provided as way for attendees to encourage others to take the survey. Additionally, a team member was at the table with the PowerPoint to discuss it and answer any questions participants may have about the project. Previous studies and Study Area maps were also printed out for reference. The purpose of this station was to drive participation in the MetroQuest survey to help further inform the recommendations and design evaluation process as well as educate the public on the project and planning process.



Screenshot of the MetroQuest Survey

Survey Map Results

Results from the MetroQuest Mapping exercise revealed that the public was most concerned with safety, shade trees, and flooding ***(Figure 8)***.



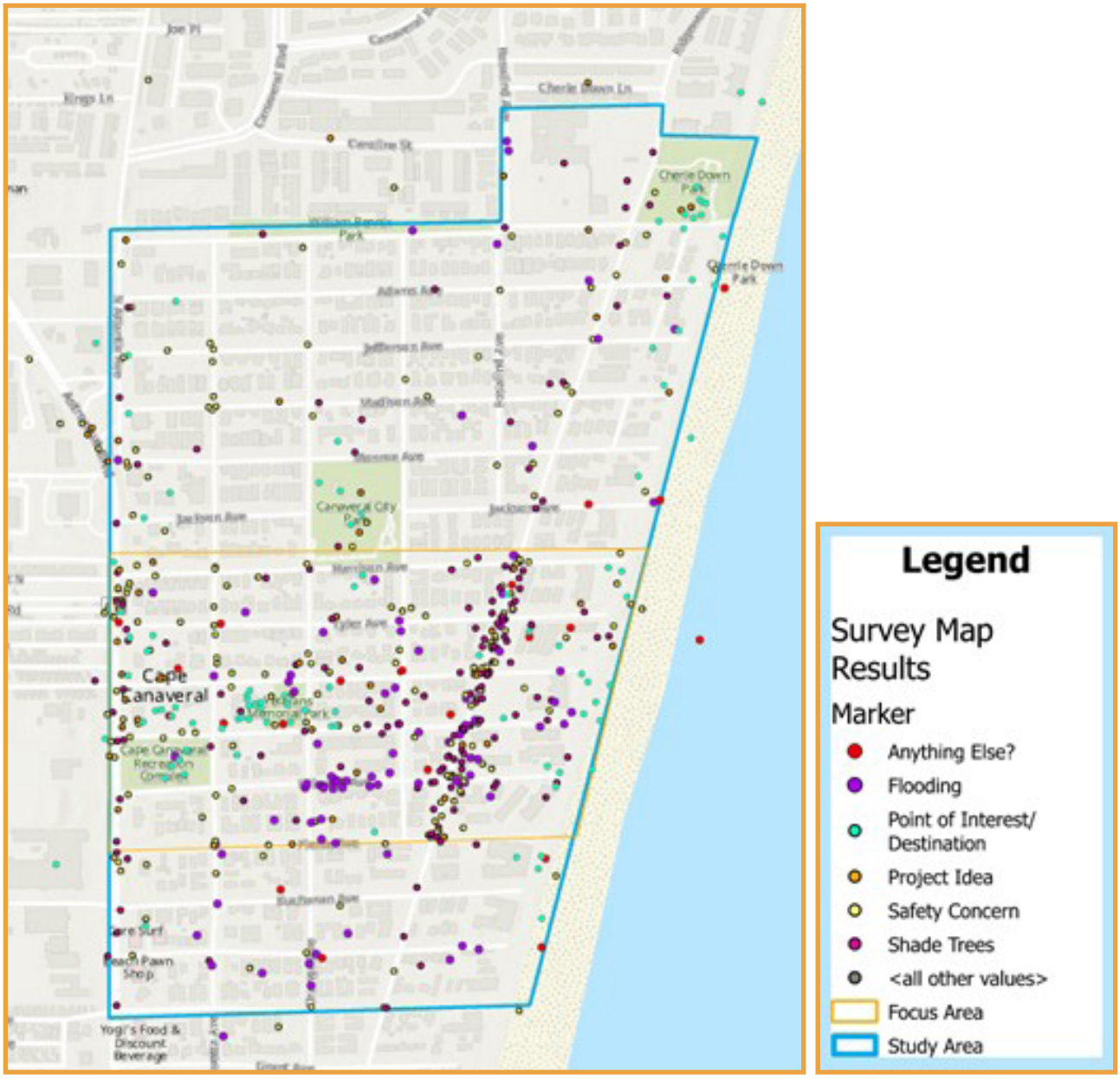


Figure 8: Survey Map Results from MetroQuest Survey

Community Workshop #2

The second community workshop was held on May 10, 2022. The format of this workshop consisted of a presentation by the project team on the summarized themes/comments from the first community workshop and online survey and recommendations specific to the eight improvement categories that will be outlined in the Framework Plan. The SlideLizard application, an application used to create and analyze interactive presentations, was used during the workshop for attendees to provide real time feedback on questions or preferences within the Study Area. All verbal feedback from the workshop as well as the feedback from SlideLizard were collected, catalogued, analyzed, and taken into consideration for this Plan.

Survey Feedback

The existing conditions and site-specific locations within the Study Area listed below were presented for feedback. Based on the site visit and desktop analysis, five locations in the Study Area were presented to the community to gather feedback. The locations of existing conditions, the cause for concern, and a summary of workshop and survey feedback that was received are detailed below.

Location	Concern
Ridgewood Avenue and Fillmore Avenue	Flooding and poor pedestrian facilities
N. Atlantic Avenue and Tyler Avenue	Pedestrian Safety
Magnolia Avenue and Tyler Avenue	Poor roadway conditions, poor pedestrian facility connections, poor stormwater management
Fillmore Avenue	Poor pedestrian facility connectivity and poor stormwater management
Poinsetta Avenue	Poor roadway design and pedestrian safety and facility connectivity

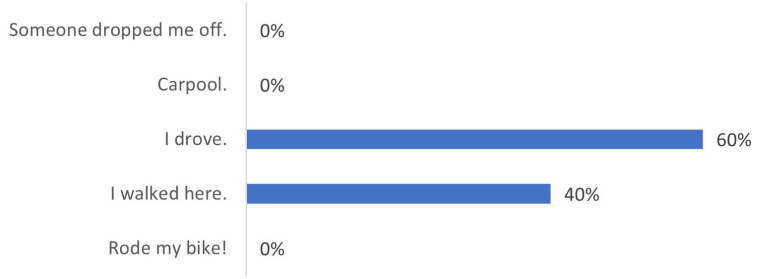
The issues and concerns of the project team after completing the site visit and desktop analysis were confirmed in each above example during this second community workshop. The comments on the poor-to-lacking pedestrian facilities, stormwater management system, and roadway design which encourages speeding influenced the Plan's recommendations. The Presidential Streets Inventory report provided similar information on the existing conditions of the Study Area.

SlideLizard

Participants were asked to join the SlideLizard session to answer predetermined questions via a QR Code. The questions could be accessed via a mobile phone or computer and a total of 19 participants signed into the SlideLizard session. As the presentation progressed, the following questions were presented at various discussion points to gauge the audience's preferences (within a prescribed time limit). Based on the results of the session, the public would prefer to see improvements made to bicycle and pedestrian facilities, on-street parking, resiliency improvements, and a stop-sign placement evaluation (program).

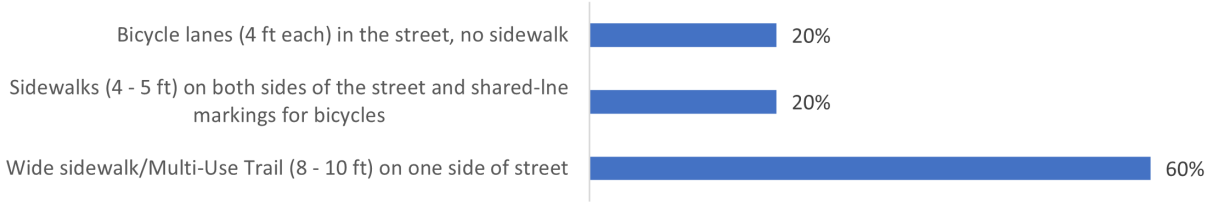
A summary of the questions that were asked during the SlideLizard exercise, as well as the responses are provided below. In order to allow additional public input and feedback for those not able to attend the workshop, the City hosted a survey via SurveyMonkey which provide opportunities for similar input as below which was initiated on May 23, 2022 and closed on May 31, 2022. Information and comments received during the SurveyMonkey are summarized in the following section.

1) How did you get here today? (Select one from multiple choice). This was intended to be a warm-up question.

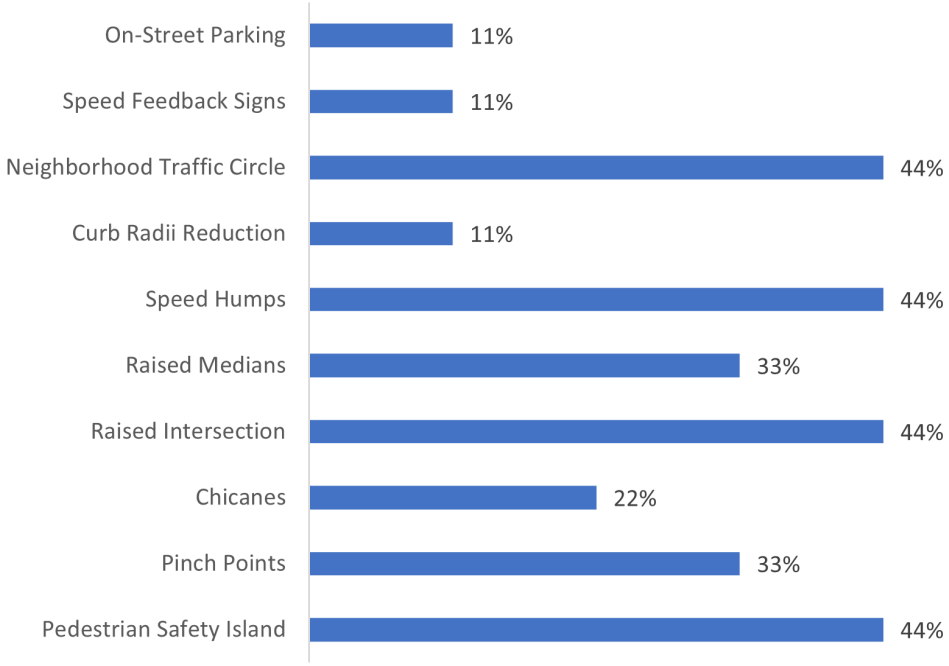


2) What is your favorite thing about the Presidential Streets? (Open ended question).

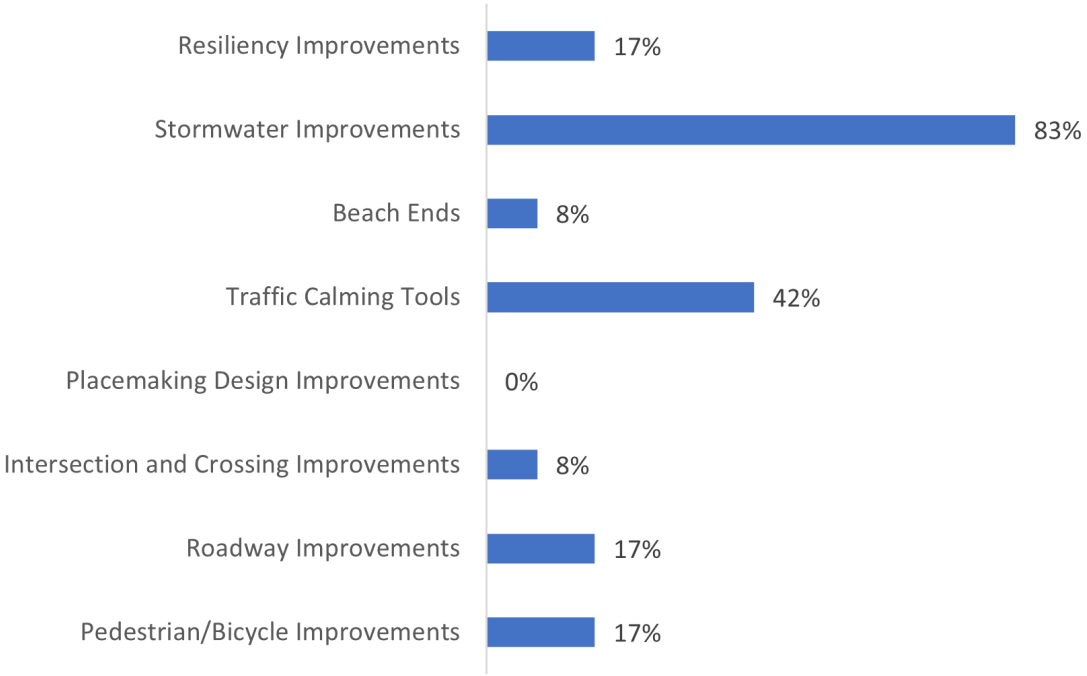
3) The Presidential Streets have limited space. What types of pedestrian/bicycle accommodation would you prefer? (Select one from multiple choice).



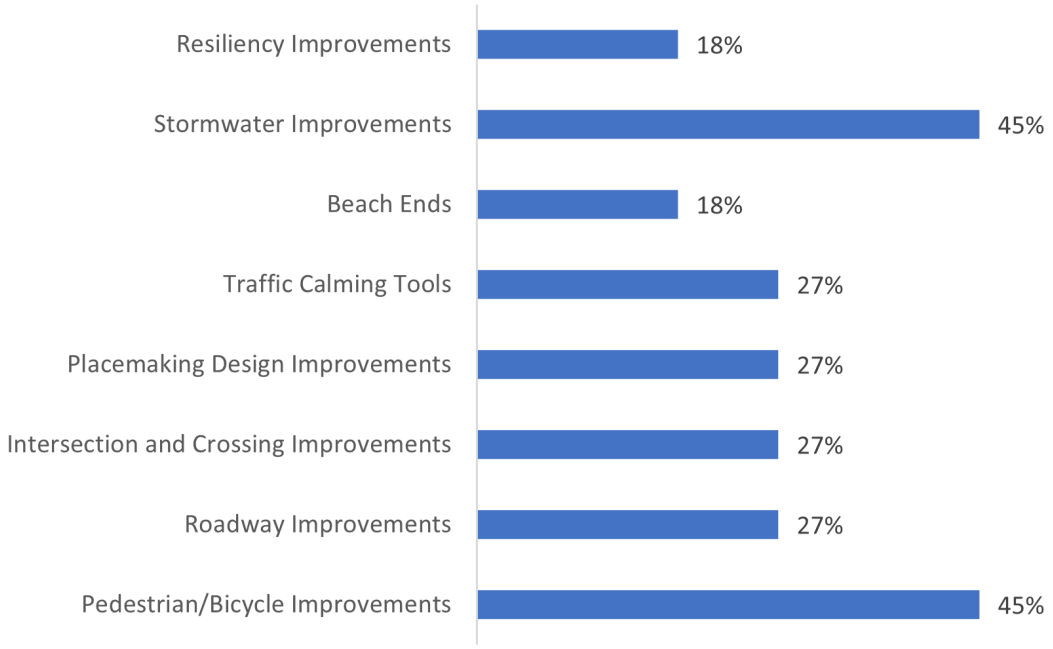
4) How would you allocate limited traffic calming funding in the Presidential Streets? (Choose 2 from multiple choice)



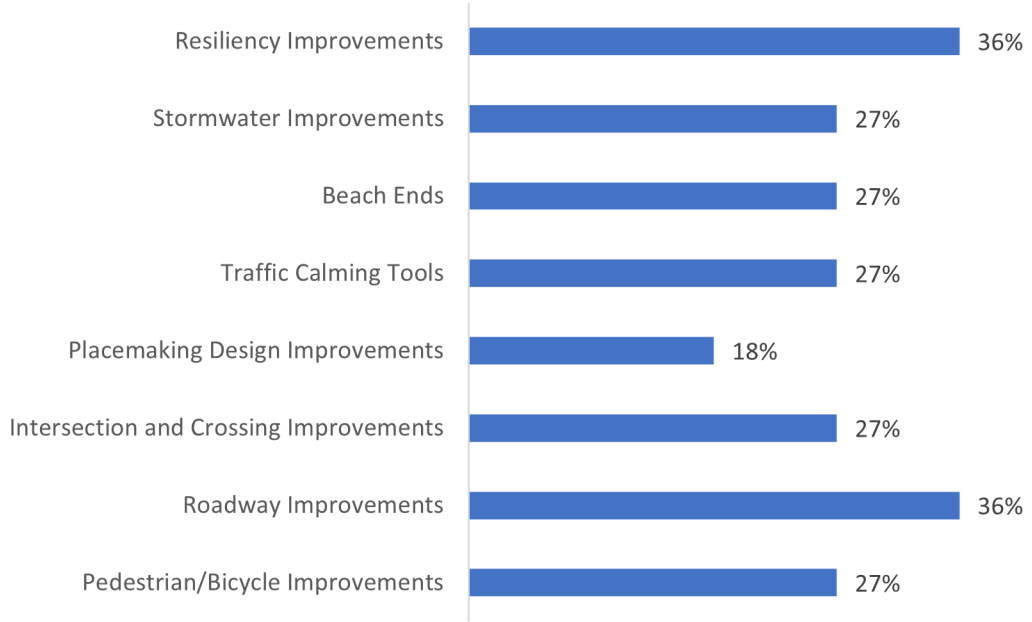
5) What are your top 2 priorities for short-term implementation from the broad-based recommendations? (Choose 2)



6) What are your top 2 priorities for mid-term implementation from the broad-based recommendations? (Choose 2)



7) What are your top 2 priorities for long-term implementation from the broad-based recommendations? (Choose 2)



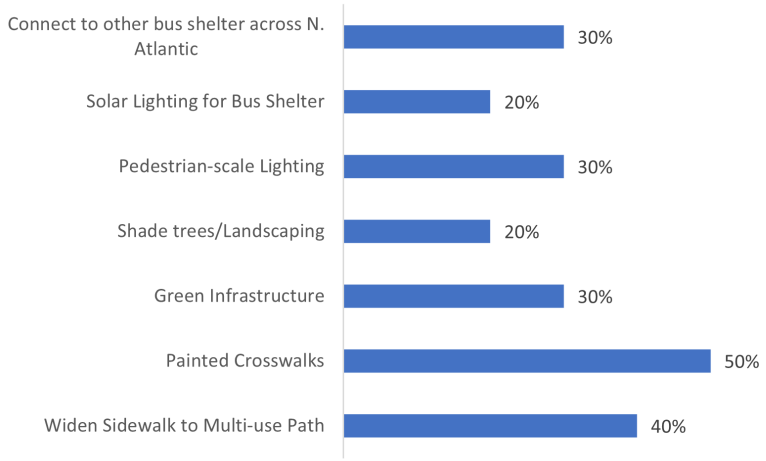
8) Of the recommended options for this type of intersection (intersection with Ridgewood Ave like Ridgewood Ave and Fillmore Ave), which are your top 2 choices for short-term implementation? (Choose 2).

a. Raised intersection
b. Mural/art
c. ADA accessible crosswalks
d. Bulb-outs
e. Rain garden/Bio-swale
f. Shade trees
g. Upsize stormwater infrastructure
h. Pedestrian lighting

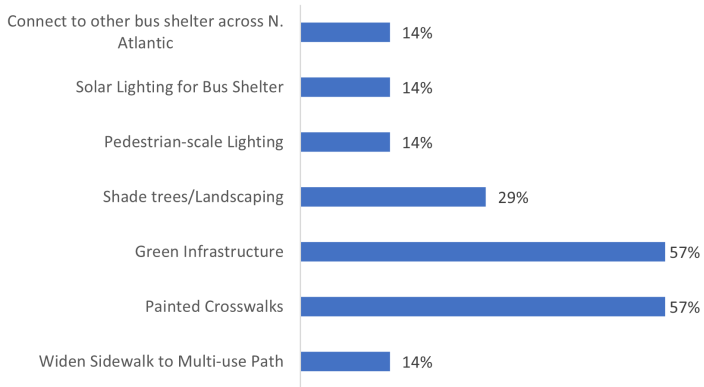
The responses to this question were written on notecards and summarized after the workshop, rather than via SlideLizard.

Stormwater infrastructure	7
Raised intersection	5
Pedestrian Lighting	3
Bulb-outs	2
ADA accessible crosswalks	0
Mural/art	0
Shade trees	0

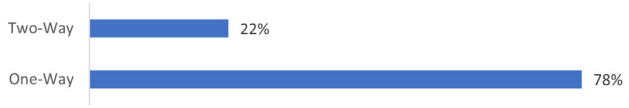
9) Of the recommended options for this type of intersection (intersection with N/ Atlantic), which are your top 2 for short-term implementation? (Choose 2)



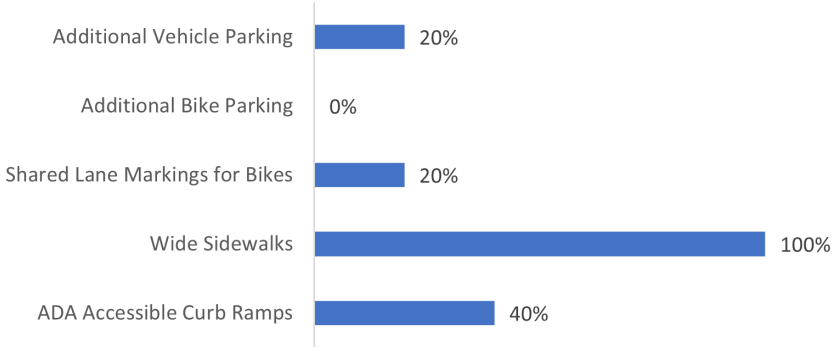
10) Of the options for this type of an intersection (a neighborhood intersection like Magnolia Ave and Tyler Ave), which are your top 2 for short-term implementation? (Choose 2)



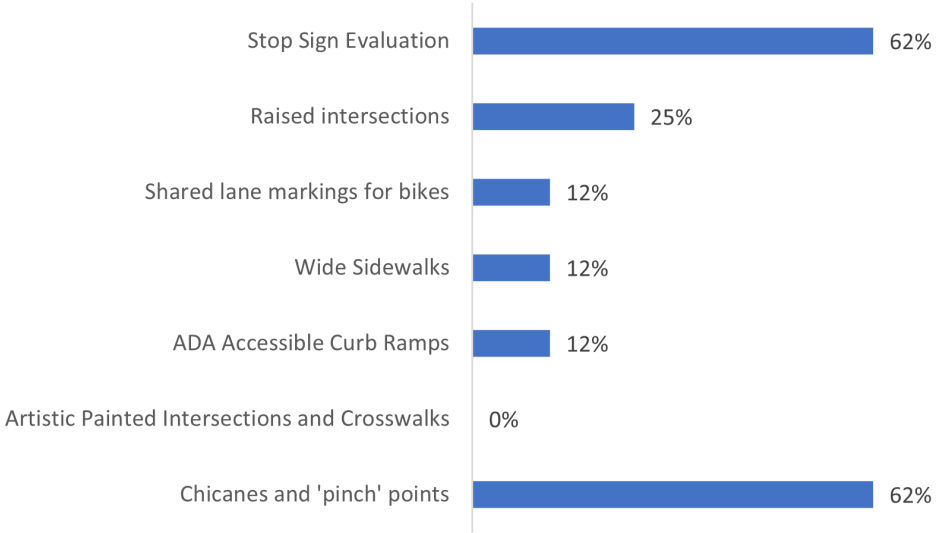
11) Do you prefer the one-way option or the two-way option for Fillmore Ave?



12) Of the options for the Beach End, which are your top 2 for short term implementation? (Choose 2)



13) Of the options for Poinsetta Ave, which are your top 2 short term implementation? (Choose 2)



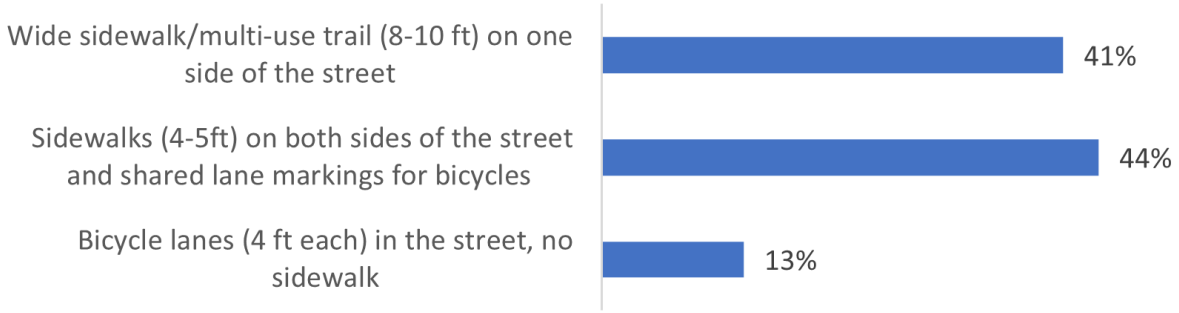
Summary of Workshop #2

There was a total of 19 attendees who signed in at the workshop via SlideLizard and provided feedback on the above survey questions. The themes of the responses both virtually and verbally during the workshop focused on improving pedestrian and bicycle facilities, improving stormwater management systems, and creating additional parking near the beach ends. Additionally, some of the improvements that received favorable comments from the participants were traffic calming measures to influence motorists' behavior to drive at slower speeds including mixed support for redesigning some of the area to support a one-way street design. The feedback received during this session and from the follow-up survey was taken into consideration when developing the Framework for this Plan.

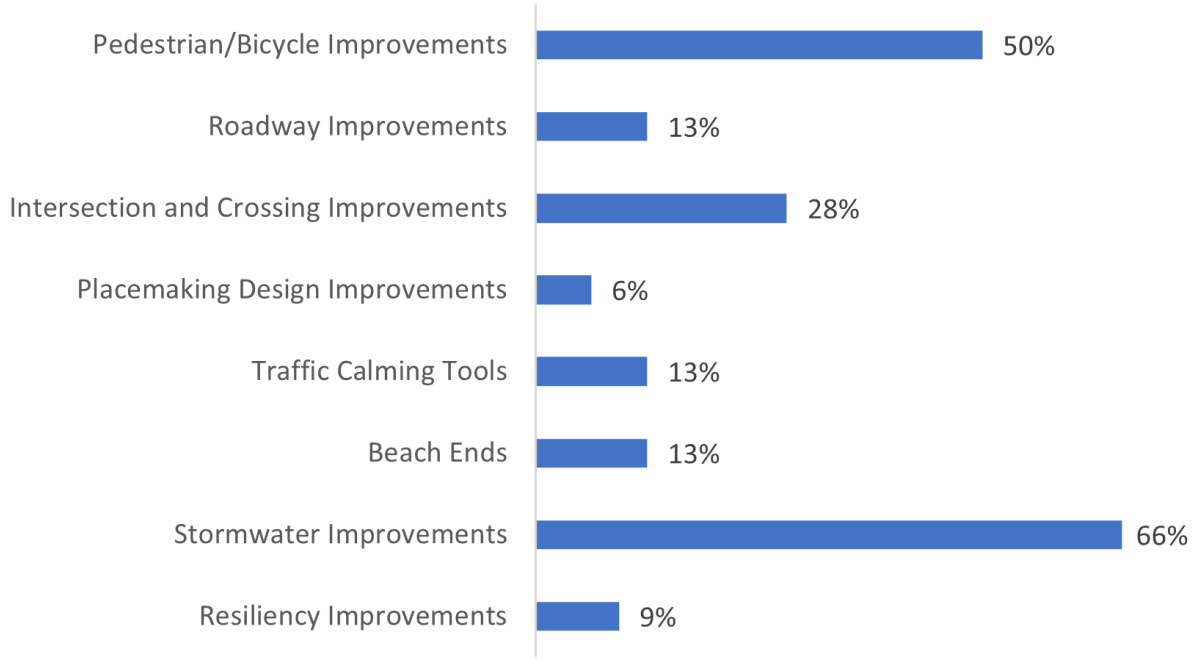
SurveyMonkey Results

There were a total of 32 respondents to the Survey following Workshop #2. Respondents were asked to review the workshop presentation and respond to the survey which consisted of the same/similar questions posed during the live workshop on May 10, 2022. A summary of the questions, responses, and the results are provided below. Those who responded to the survey did not all have the benefit of receiving the presentation, including what is possible with a one-way street versus the two-way street.

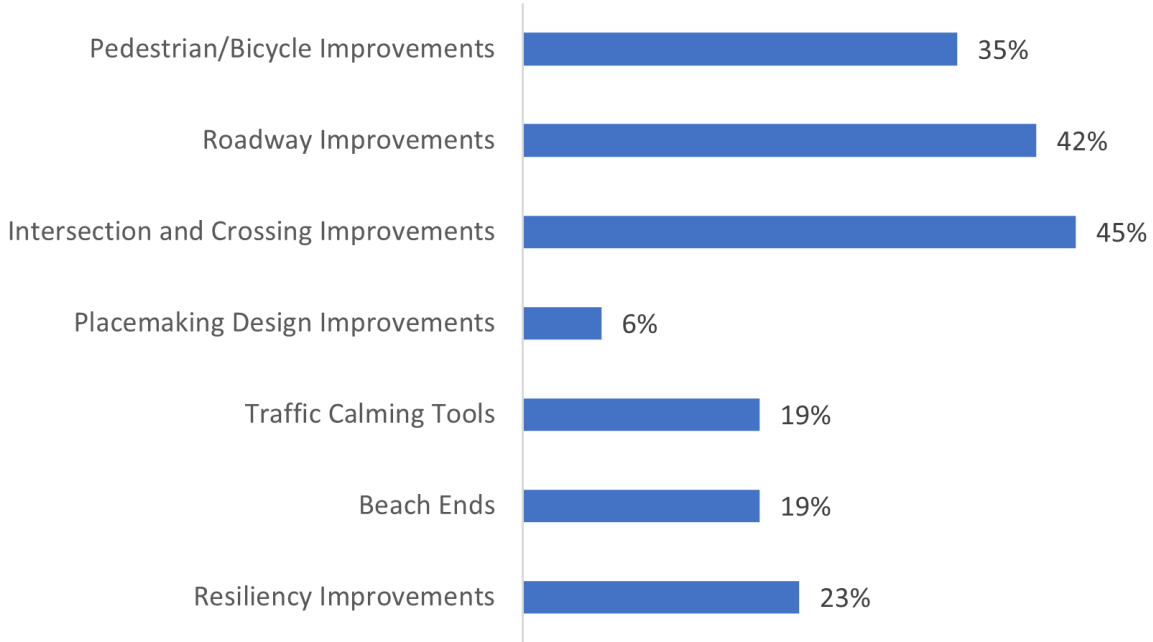
1) The Presidential Streets have limited space. What types of pedestrian/bicycle accommodation would you prefer?



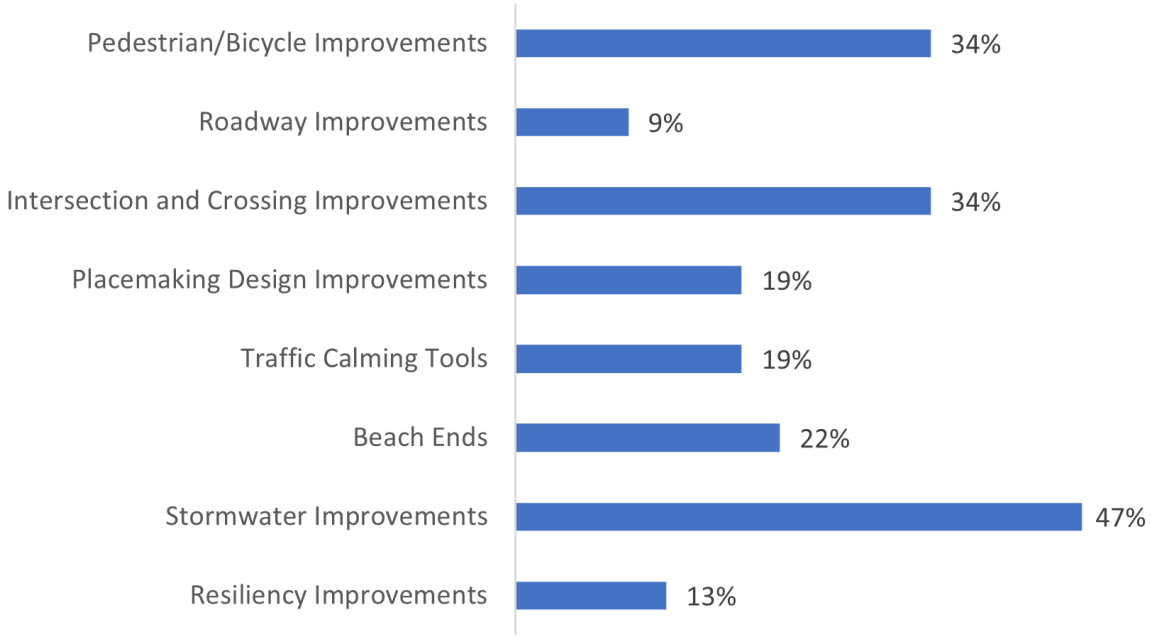
2) What are your top 2 priorities for short-term implementation from the broad-based recommendations? (Choose only 2)



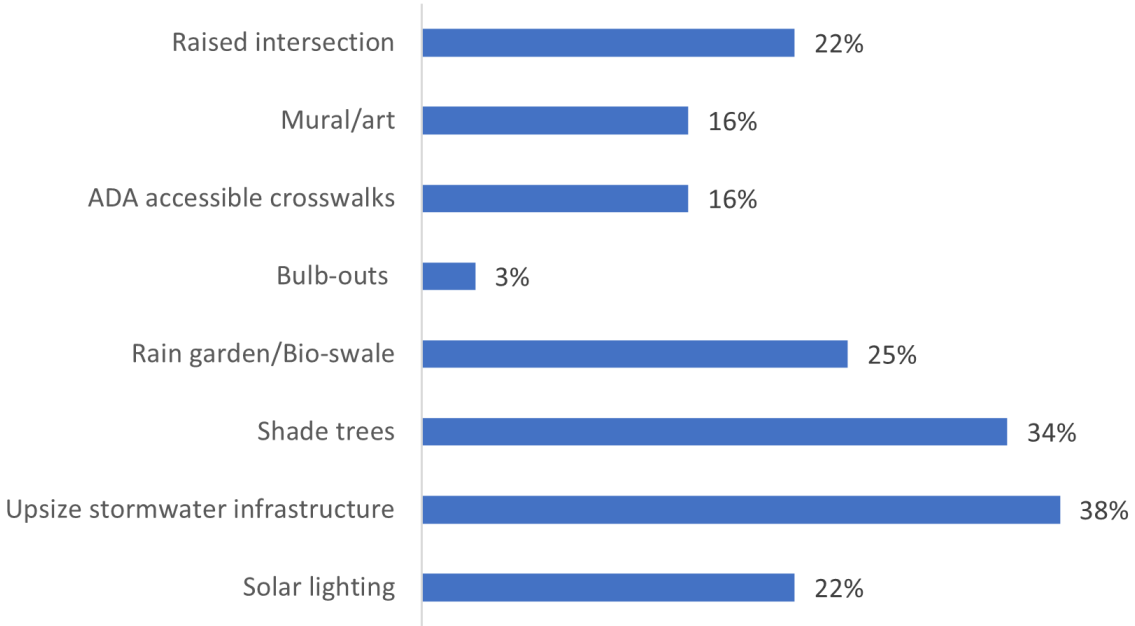
3) What are your top 2 priorities for mid-term implementation from the broad-based recommendations? (Choose only 2)



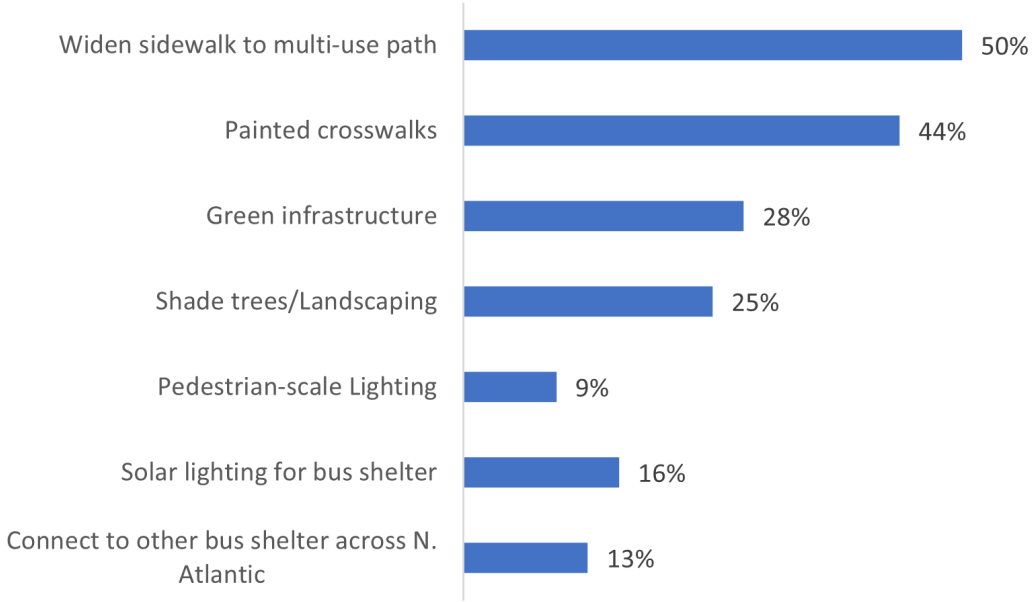
4) What are your top 2 priorities for long-term implementation from the broad-based recommendations? (Choose only 2)



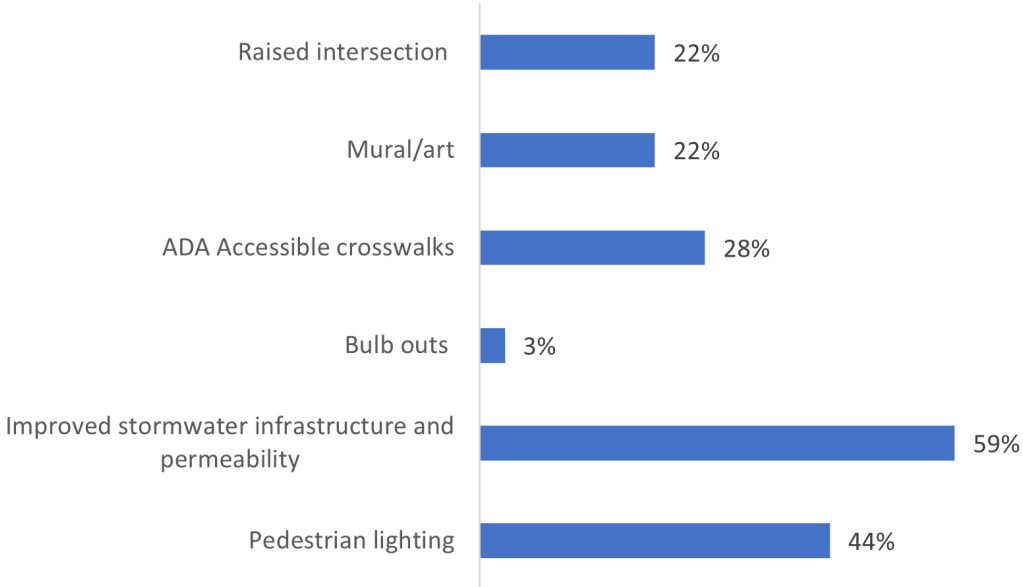
5) For an intersection like Ridgewood Ave and Fillmore Ave, which are your top 2 recommendations for short-term implementation? (Choose only 2)



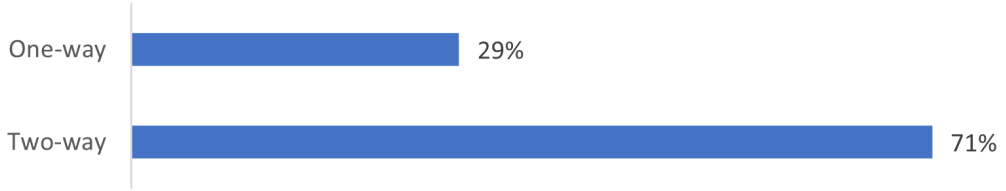
6) For an intersection like N. Atlantic Ave and Tyler Ave, which are your top 2 recommendations for short-term implementation? (Choose only 2)



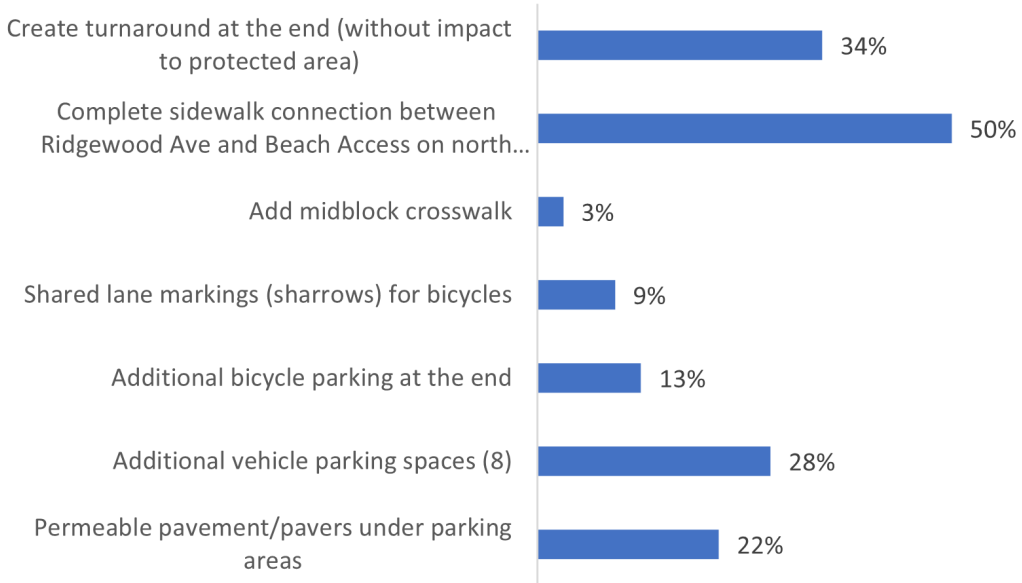
7) For a neighborhood intersection like Magnolia Ave and Tyler Ave, which are your top 2 recommendations for short-term implementation? (Choose only 2)



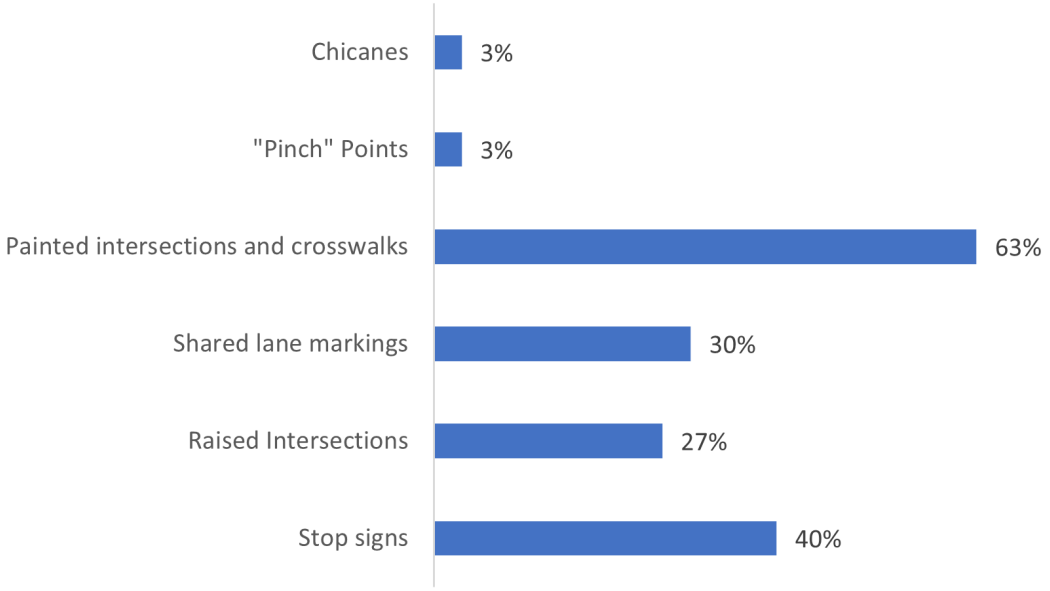
8) For Fillmore (and other east-west streets), do you prefer the one-way or the two-way option?



9) Of the recommendations for the Beach Ends, which are your top 2 for short-term implementation? (Choose only 2)



10) Of the recommendations for Poinsetta Ave, which are your top 2 for short-term implementation? (Choose only 2)



Section 3

Recommendations

Recommendations

The City's vision of creating a destination that includes complete streets, stormwater management, pedestrian access, traffic management, and resiliency, provided the blueprint for the future of Cape Canaveral's Presidential Streets Master Plan. This chapter, the Recommendations, focuses on the creation of a framework plan that identifies planning recommendations that can be implemented and constructed as funds become available for capital improvements and opportunities arise for investment and redevelopment. Based on the existing conditions, the site visits, and feedback from the community workshops, three intersections and two streets have been identified to implement and serve as the guide for improvements outside of the Focus Area - Framework Plan improvements - with the specific strategies and techniques identified here address the opportunities identified in the Existing Conditions assessment and through the Community Engagement. High priority actions are identified and an overall path to success is provided.

There are three key components: the Statement Goals, the Framework Plan Toolkit, and the recommended Framework Plan Improvements. Each component is further described as follows:

Statement Goals

Three Statement Goals were identified based on the vision for Presidential Streets and paired with a variety of potential strategies and actions to achieve the vision. These Statement Goals are to create a strong sense of place, an equitable and environmentally sustainable community, and one that is connected by an efficient, multi-modal transportation network. The potential strategies and actions are outlined here and described in more detail in the Framework Plan Toolkit and Recommendations for Framework Plan Implementation.

Create a Strong Sense of Place

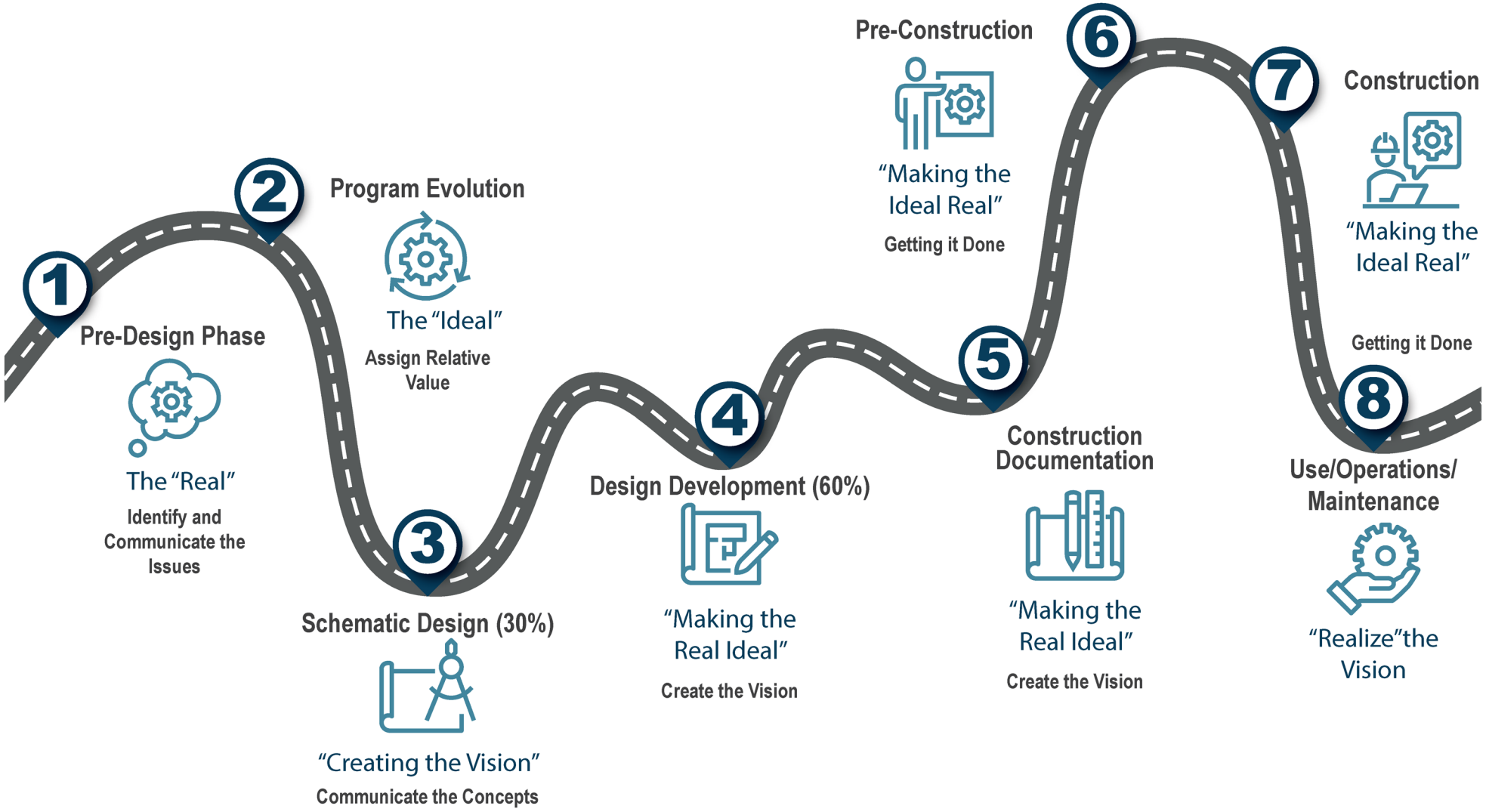
Creating a strong sense of place typically involves three key components – creating great streets, great connected public spaces, and great places to live. Each of these items are related and can be achieved through implementing the various strategies outlined in the Framework Plan.

- **Great Streets** generally meet the needs of multiple users, are safe, and include high quality streetside and travelway elements.
- **Great, Connected Public Spaces** promote social interaction, are accessible and inviting, and provide connection to key destinations.
- **Great Places to Live** are memorable, have high quality infrastructure, are safe, and are vibrant community destinations.

Create Great Streets

- **Roadway Improvements –** On Poinsetta Avenue, improve the safety and quality of the roadway by restriping the roadway, and strategically placing stop signs to address the poor existing conditions and influence motorists' behavior regarding speed.
- **Intersection and Crossing Improvements –** At Ridgewood Avenue and Fillmore Avenue, raised, artistic intersections have been proposed to improve pedestrian safety and visibility while calming vehicle traffic.
- **Traffic Calming Tools –** Improve safety for all users and the convenience of the pedestrian and bicyclist experience by implementing bulb-outs at the Ridgewood Avenue and Fillmore Avenue intersection to mitigate speeding by forcing motorists to slow down while maneuvering the intersection.

An Approach to Streetscape Design and Implementation



Create Great, Connected Public Spaces

- **Roadway Improvements –** There are options for Fillmore Avenue to be a one-way or two-way roadway. Both options have advantages that would improve accessibility and connect locals and tourists to the beach access point on the east end of the corridor. Additional information regarding these specific improvements are discussed in the Recommendations for Framework Improvements.

Create a Great Place to Live

- **Intersection and Crossing Improvements –** At Ridgewood Avenue and Fillmore Avenue, creating a painted intersection with a mural to build and maintain the character of the community.
- **Placemaking Design Improvements –** Painted intersections, specifically at North Atlantic Avenue and Tyler Avenue can also create a sense of place if community members are part of the design process.

Equitable, Environmentally Sustainable Community

There are four important components to creating an equitable, environmentally sustainable community for the Presidential Streets:

Create an Economically and Environmentally Sustainable Model

- **Beach Ends –** Beach parking is limited at some access points. Creating additional beach parking with permeable pavement is beneficial to the environment and motorists. The proposed site for these improvements is on Fillmore Avenue. The proposed improvements for Fillmore Avenue can be used as a template for future improvements to other beach ends.
- **Stormwater Improvements –** Because flooding is a well-documented issue, ensuring the correct amount of permeability in the materials used during resurfacing and construction is important, not just at the intersection of Magnolia Avenue and Tyler Avenue but Study Area wide.

Update Built Environment for Resiliency

- **Resiliency Improvements –** The use of solar lighting throughout the Study Area will take advantage of an abundant natural resource in this area, lessen the amount of electric energy that is used, which can be damaged during inclement weather, and also provide safety for pedestrians and nesting turtles. Requiring green infrastructure will lead to a more resilient built environment.

Update Stormwater Management Facilities to Reduce Flooding

- **Stormwater Improvements –** creating a rain garden or bioswale at Ridgewood Avenue and Fillmore Avenue will mitigate flooding that occurs in this area and can serve as neighborhood beautification. Upsizing the stormwater infrastructure will address flooding concerns as well.

Create an Accessible Environment for All Users

- **Pedestrian/Bicycle Improvements –** By taking advantage of existing infrastructure near North Atlantic Avenue and Tyler Avenue, a proposed widening of existing sidewalks to a multi-use path will create accessibility for pedestrians, casual bicyclists, and micro-mobility (e-scooters and e-bicycle share) users needing more room than a traditional sidewalk.
- **Intersection and Crossing Improvements –** Ensuring all crosswalks are ADA Accessible is critical to creating an accessible environment for all users. The Magnolia Avenue and Tyler Avenue intersection presents an opportunity to accomplish this.

Connected by an Efficient, Multi-Modal Transportation Network

An efficient, multi-modal transportation network is one that has a safe, convenient place for all modes of transportation to travel.

Create a Safe, Convenient Place for all Modes of Transportation

- **Pedestrian/Bicycle Improvements –** by planting shade trees, pedestrians and bicyclists alike will be able to take refuge from the heat, especially during the summer months. In an effort to provide a safe environment for transit riders, it is proposed that the City will work with Florida Department of Transportation (FDOT) to create better connectivity to bus shelters. The bus shelter at North Atlantic Avenue and Tyler Avenue is an ideal test case due to its currently limited features.
- **Intersection & Crossing Improvements –** Painted intersections and crosswalks raise visibility and awareness for all users and modes of transportation.
- **Traffic Calming Tools –** Raised intersections can be applicable to multiple improvement categories but due to the excessive speeding that occurs near Magnolia Avenue and Tyler Avenue, this area would be ideal for a traffic calming tool to increase safety. Additional tools such as chicanes (description on pg. 54) and “pinch” points (description on pg. 54) can be placed along Poinsetta Avenue to create a safer, convenient place.

Framework Plan Toolkit

Within the Framework Plan, there are tools that can be applied to the Presidential Streets to mitigate speeding, stormwater management issues, create better pedestrian and bicyclist connectivity throughout the area, and solve other raised issues. Many neighborhood concerns could be addressed by multiple measures, there are no one-size-fits-all solutions. It is important to consider each specific concern and select a measure, or measures, based on the anticipated impact, effect, cost, and aesthetic elements. As this Framework Plan will serve as a valuable resource to the City's Staff and elected officials, a successful Plan also relies on community engagement and support.

The Framework Plan improvements have been grouped into the following categories:

1. Pedestrian Improvements
2. Roadway Improvements
3. Intersection & Crossing Improvements
4. Traffic Calming Tools
5. Placemaking Design Improvements
6. Beach Ends
7. Stormwater Improvements
8. Resiliency Improvements

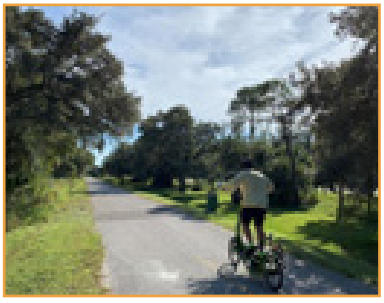
1. Pedestrian Improvements

In order to create great streets, improvements are needed to provide safer and more convenient pedestrian infrastructure. What follows is a description of selected pedestrian improvements for implementation in Presidential Streets, including sidewalks, multi-use trail, and pedestrian-scale lighting.

Sidewalk along Shorewood Dr in Cape Canaveral, FL

SIDEWALKS

Sidewalks improve neighborhood connectivity, promote recreation and active transportation, and enhance safety for non-motorists. Sidewalk design can vary based on context (e.g. urban versus suburban), activity, and travel behavior. Wider sidewalks enhanced with shade trees can create a more comfortable pedestrian environment.



Legacy Trail in Sarasota, FL

MULTI-USE TRAIL

A multi-use trail, or shared-use path, is separated from vehicle traffic and allows for two-way recreational and active transportation activity. Multi-use trails provide a safer, more pleasant, and low stress experience for pedestrians, bicyclists, wheelchair users, skaters, and other users.

Pedestrian Scale Lighting in Gainesville, FL

PEDESTRIAN SCALE LIGHTING

Two-thirds of all pedestrian fatalities occur during low-light conditions. The quality, placement, and sufficiency of lighting help create safe environments for pedestrians and motorists.

2. Roadway Improvements

Achieving great streets also involves engineering and maintenance improvements to the roadway that will improve safety, functionality, and the aesthetics of the built environment. What follows is a list of potential roadway improvements identified for implementation in Presidential Streets, such as repaving, restriping roadway markings, speed limit reduction, all-way stop signs, and shared lane markings.

Repaved road in Pasco County, FL

REPAVING THE ROADWAY

Repaving the roadway improves safety by improving traction and reducing damage to vehicles, and can also make roadway markings easier to read and longer lasting. Repaving roadways includes filling cracks in the road, which prevents water from seeping under the pavement and forming potholes. Furthermore, climate mitigation measures such as reflective white paint on the surface of roadways can help deflect heat.

Restriped road in Tampa, FL

RESTRIPING ROADWAY MARKING

Roadway markings play a vital role in conveying information and guidance to drivers, pedestrians, and bicyclists. Roadway markings indicate lane separation, upcoming conditions, and where passing is permitted. It is important that roadways are restriped so that the markings can be clearly visible to roadway users.

Speed Limit and Crossing Signage in Jupiter, FL

REDUCED SPEED LIMIT

Having the appropriate speed limit on a street improves safety for all users of the street, including drivers, pedestrians, and bicyclists. In business or residence districts, the maximum posted speed limit must be 30 miles per hour, but a lower speed limit may be established, especially if there is a high degree of pedestrian or bicycle activity on the street.

All-Way Stop in Tampa, FL

ALL-WAY STOP

An all-way stop requires vehicles on all approaching streets to stop at an intersection before proceeding. All way stops can increase safety by ensuring that vehicles enter the intersection at low speeds and giving pedestrians time to cross the intersection. All-way stops are best used on intersections of minor roads.

Sharrow, Source: NACTO

SHARED LANE MARKINGS

Shared lane markings, also known as “sharrows,” are road markings that indicate a shared lane situation between vehicles and bicyclists. Shared lane markings alert drivers to the potential presence of bicyclists and indicate where bicyclists should position themselves. They are best used on low volume, traffic calmed streets.

Cycle Track in Tampa, FL

CYCLE TRACK

Cycle tracks are a bicycle facility specifically dedicated to two-way bicycle travel. They are sometimes protected by a curb in order to provide separation between the bicycles and vehicle travelway.

Bicycle Lane in Coral Gables, FL

BICYCLE LANES

A Bike Lane is defined as a portion of the roadway that has been designated by striping, signage, and pavement markings for the preferential or exclusive use of bicyclists. Unlike cycle tracks, bicycle lanes do not have a physical barrier separating the cyclist from motorized traffic.

One-Way Street Signage in Ponte Vedra, FL

ONE-WAY PAIRS

Modifying a street to one-way vehicle movement provides the benefits of additional space within the public right-of-way for pedestrian and bicycle facilities as well as street trees, landscaping, and stormwater infiltration. One-way streets should be implemented in pairs so as to maintain mobility in the area. The downside to making this modification, in addition to the often-confusing nature of trying to navigate a street network with one-way pairs, is that people often drive faster on one-way streets because of the reduced conflict from vehicles traveling from the other direction, and this change can have a negative impact on traffic calming. Additionally, changing a street to one-way will change the traffic patterns throughout the neighborhood and should be done in conjunction with a traffic study to determine the traffic and mobility impact.

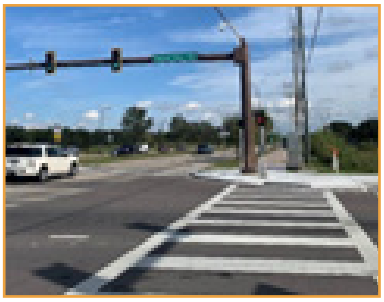
3. Intersection & Crossing Improvements

Great streets must also be safe and convenient to cross and accessible for all users. Improvements to intersection and crossings for implementation throughout Presidential Streets are identified and described in this section, such as ADA compliant curb ramps, high emphasis crosswalks, curb extensions/bulb-outs, rectangular rapid flashing beacons, midblock crossings, and standard signage.

ADA Curb Ramp in Cape Coral, FL

ADA COMPLIANT CURB RAMP

ADA compliant curb ramps slope gently into the roadway, making it possible for people using a wheelchair, scooter, walker, or other mobility device to travel safely between the sidewalk and the roadway.



High Emphasis Crosswalk in Sarasota, FL

HIGH EMPHASIS CROSSWALK

Crosswalks along high-volume roadways should be painted in a way that makes it extremely clear to all users of the intersection – including cars, buses, pedestrians, and bicyclists – that there are designated pedestrian zones of the intersection. High visibility crosswalks are clearer and more noticeable to oncoming vehicles, thus creating a safer environment for those using the crosswalk.

Curb Extension along SR 60/ Jackson Street in Tampa, FL

CURB EXTENSION/BULB-OUT

Curb extensions visually and physically narrow the roadway to create safer and shorter crossing distances for pedestrians while also increasing available space for street furniture and plantings.

RRFB in Sarasota, FL

RECTANGULAR RAPID FLASHING BEACON (RRFB)

RRFBs enhance safety by increasing motorist awareness of potential pedestrian conflicts at unsignalized and mid-block crossings.

Mid-block Crossing, Source: NACTO

MID-BLOCK CROSSING

Mid-block crosswalks are designated crossing areas that provide pedestrians a safe place to cross the street between intersections.

Pedestrian Crossing Signage

STANDARD SIGNAGE

At unsignalized intersections, standard crosswalk signage will emphasize and alert drivers to the presence of a crosswalk. Crosswalk signage also benefits pedestrians by directing them to cross at appropriate, safe locations.

4. Traffic Calming Tools

Creating and improving multi-modal facilities will also create a more equitable and environmentally sustainable community. In order to achieve these goals in the Presidential Streets, a series of traffic calming tools have been identified here, such as pedestrian safety islands, “pinch” points, chicanes, curb radii-reduction, raised intersections, neighborhood traffic circles, speed feedback signs, on-street parking, speed humps and speed tables.

Pedestrian Safety Island, Source: pedbikesafe.org

PEDESTRIAN SAFETY ISLAND

Pedestrian safety islands provide pedestrians with a safe place to stop halfway through a crossing, thus reducing the time pedestrians are exposed to traffic.

“Pinch” Point, Source: City of Winter Springs, FL

“PINCH” POINTS

A mid-block curb extension used to slow vehicle speeds and add public space by visually and physically narrowing the roadway. “Pinch” points can facilitate mid-block crossings on low volume streets and may also include cut-throughs for bicyclists.

Chicane, Source: City of Winter Springs, FL

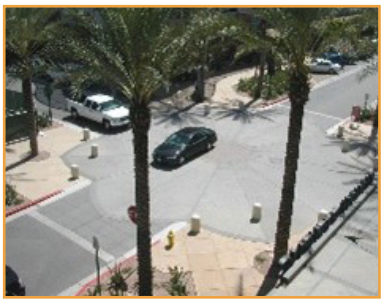
CHICANES

Chicanes are offset curb extensions on residential or low volumes downtown streets which slow vehicle speeds and increase the amount of public space available on a corridor that can be used for seating, bike racks, landscaping, and other amenities.

Reduced Curb Radius, Source: SRTS

CURB RADII REDUCTION

Minimizing the size of a corner radius improves safety for pedestrians by slowing down the speed at which a vehicle can make a turn and reducing the crossing distance of the intersection.



Raised Intersection, Source: NACTO

RAISED INTERSECTION

Raised intersections, similar to speed humps and speed tables, reinforce slow speeds and encourage motorists to yield to pedestrians. Raised intersections are best suited for minor intersections and also provide an opportunity for intersection murals.

Neighborhood Traffic Circle, Source: City of Winter Springs, FL

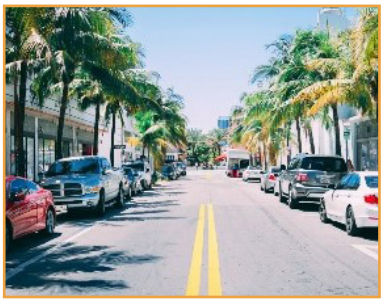
NEIGHBORHOOD TRAFFIC CIRCLE

Also known as mini-roundabouts, neighborhood traffic circles lower speeds at minor intersections and are ideal for uncontrolled intersections. These may be designed with painted crossings markings or raised islands but are best implemented in conjunction with landscaping to further calm traffic and beautify the street. Mini roundabouts are best suited for low volume residential streets.

Dynamic Speed Display Device (DSDD)

SPEED FEEDBACK SIGNS

Speed feedback signs are a traffic calming device that uses radar to detect the speed of an approaching vehicle and relay vehicle speed information to drivers.



On-Street Parking Miami Beach, FL

ON-STREET PARKING

On-street parking increases safety by creating friction along the street, which results in slower travel speeds, can narrow the crossing width of the street, and provides a buffer between vehicles and pedestrians walking on the sidewalk or a bike lane. On-street parking is particularly desirable in downtown locations and provides frequent turn-over to support retail businesses.

Speed Hump, Source: City of Winter Springs, FL

SPEED HUMP

Speed humps intend to slow traffic on low volume, low speed roads. Speed humps reduce speeds to 15 to 20 mph and can serve the dual purpose of a traffic calming device and raised, high visibility crosswalk.

Speed Table in Gainesville, FL

SPEED TABLE

Speed tables are raised, mid-block crossings that are flatter and longer than speed humps. Speed tables may be used on streets that range from 25 to 45 mph.

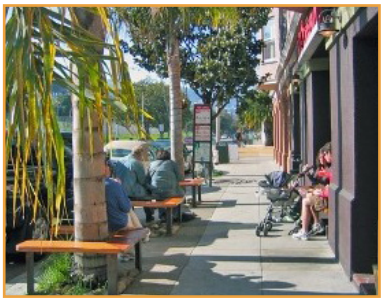
5. Placemaking Design Improvements

Placemaking design improvements will help create a strong sense of place in the Presidential Streets. There are a series of recommendations outlined in this section which could be implemented through a placemaking program, such as wayfinding, street furniture, painted intersections, painted crosswalks, and green infrastructure.

Wayfinding Sign in Port Canaveral, FL

WAYFINDING

A comprehensive wayfinding system provides residents and visitors with directions to districts and destinations while encouraging walking and bicycling.



Sidewalk Benches Surrounding Trees

STREET FURNITURE

Street furniture can improve the comfort and appearance of the sidewalk and contribute to the character of a street or neighborhood. Street furniture includes elements such as benches, pedestrian scale lighting, public art, bicycle racks, newspaper kiosks, trash receptacles, and planter boxes.

Painted Intersection, Clearwater, FL

PAINTED INTERSECTION

Painted, or mural, intersections beautify roadways, contribute to placemaking, naturally slow vehicle speeds, and bring the attention of motorists to pedestrian activity.

Painted Crosswalk

PAINTED CROSSWALK

Painted crosswalks are a safety and placemaking tool to create awareness of a crosswalk while incorporating art and community character. These crosswalks are generally in slower vehicle traffic areas like downtowns, schools, and neighborhoods.

Bioswale in Sarasota, FL

Low Impact Development (LID) in Gainesville, FL

GREEN INFRASTRUCTURE/LANDSCAPE IMPROVEMENTS

Green infrastructure can be installed throughout a community to provide benefits to both humans and the natural environment. Green infrastructure is used to promote clean air and water, strengthen the local ecosystem, protect biodiversity, and beautify the community. Some examples of green infrastructure include rain gardens, native Florida landscaping, permeable pavements, and habitat and wetland restoration. Landscape improvements are a cost-effective way to add green infrastructure, while also adding shade and aesthetic improvements to the built environment.

A proposed planting list and photos of these plants are provided on the following pages, with a more extensive list provided in the ***Appendix C***.

FLORIDA-FRIENDLY LANDSCAPING EXAMPLES:

Image Credit: Florida Association of Native Nurseries, Florida Native Plant Society, Florida Wildflower Foundation, Google Street View – Gainesville, FL, and UF IFAS

This following plant list is not comprehensive in nature but should be used as a guide in selecting suitable native plants for the Presidential Streets as these are appropriate and tend to be readily available in the East Central Florida Region (*pictured alongside):

Canopy Trees

Bursera simaruba (Gumbo Limbo)*

Magnolia grandiflora (Southern Magnolia)

Quercus virginiana (Live Oak)

Understory/Ornamental Trees

Conocarpus erectus var. sericeus (Silver Buttonwood)*

Ilex cassine (Dahoon holly)

Myrica cerifera (Wax Myrtle)

Palms

Acoelorrhaphe wrightii (Paurotis Palm)*

Sabal palmetto (Cabbage Palm)

Shrubs

Chrysobalanus icaco (Coco Plum)

Hamelia patens (Firebush)*

Myrcianthes fragrans (Simpson's Stopper)

Serenoa repens (Saw Palmetto)

Zamia integrifolia (Coontie)

Ornamental Grasses

Eragrostis elliottii (Elliott's Lovegrass)

Muhlenbergia capillaris (Muhly Grass)*

Tripsacum floridanum (Dwarf Fakahatchee Grass)

Perennials and Groundcovers

Helianthus debilis (East Coast Dune Sunflower)*

Mimosa strigillosa (Sunshine Mimosa)

Salvia coccinea (Scarlet Sage)

Rain Garden Plantings

Canna flaccida (Yellow Canna)

Pontederia cordata (Pickerelweed)*

Spartina patens (Cordgrass)

6. Beach Ends

There are several ways to address the issues faced by the Beach Ends of the corridors within the Study Area. While some of the issues are unique due to the landscape/natural resources and public access points that are not experienced in other areas of the Study Area, accessibility and resiliency surfaced as major concerns at the Beach Ends. To assist in solving those concerns, the Plan suggests the following improvements which can be location specific or for all beach ends in the Study Area.

Beach Parking at St. Pete Beach, FL

PARKING

There is a suggested need for additional parking at the beach ends as tourists and residents seek to enjoy the beaches the area has to offer. By creating parking agreements with businesses, medical offices, and schools in the area, additional parking options can be provided without any construction. There are also options to construct additional parking near existing park areas and beach ends.

Electric Scooter

MICRO-TRANSIT AND MICRO-MOBILITY

Providing first-mile and last-mile transportation solutions such as electric scooters, electric bicycles, and automated vehicles creates better connectivity to the beach ends. This tool compliments the parking tool if located in close proximity to one another.

Bike Racks in Cape Canaveral, FL

BICYCLE PARKING

Creating additional parking for bicycles also creates better connectivity to the Beach Ends. Bicycle racks or stations can also be forms of art which assists in placemaking.

Connected Intersection with Safety Elements in Woodville, FL

TRAFFIC SAFETY

Better connecting the sidewalks and potentially widening them improves traffic safety for all users of the Study Area. Improving vehicles circulation by implementing traffic calming tools creates a safer environment for all users as well.

Manatee Sanctuary Park in Cape Canaveral, FL

PROTECT NATURAL AREAS

The beaches, specifically at public access points, are natural resources that need to be protected in order for the area to become more resilient. This can be accomplished through fencing certain areas, providing signage on how users are to interact with the protected areas, and ensuring law enforcement acts on violations to these areas.

Solar Lighting in Cape Canaveral

SOLAR-POWERED AND TURTLE-FRIENDLY LIGHTING

This type of lighting will raise visibility for pedestrians and bicyclists using the beach ends during low-light conditions and will not interfere with turtles who may be nesting.

Bioswale in Sarasota, FL

ABOVE GROUND FILTRATION

Any exfiltration subject to frequent runoff with larger quantities of soil, such as pervious pavement, will silt up quicker than other areas and require more frequent maintenance. Thus, above ground filtration methods, such as bio-swales or linear ponds, would be ideal at the beach ends.

7. Stormwater Improvements

Due to flooding being a major concern for the Study Area, the existing stormwater management collection system was analyzed. As a part of this analysis, documents provided by the City of Cape Canaveral and historical documents permitted through St. Johns River Water Management District (SJRWMD) were reviewed. The Study Area lies within the following drainage basins which all ultimately discharge to the Banana River:

- A portion of Canaveral Basin
- International Basin
- Center Street Basin

The two most relevant stormwater projects for the Study Area per the SJRWMD permit research that was conducted include the Ridgewood Avenue Improvements project (SJRWMD Permit #122353-1) and the Cape Canaveral C5 projects (SJRWMD Permits: #140486-1, #140486-2, #140486-3). Additional information gathered and analyzed included:

- As-built information of the exfiltration system within Canaveral City Park;
- Construction plans and drainage report for Ridgewood Ave Improvements; and
- Construction plans and drainage report for Canaveral City Park

Please see ***Appendix B*** for a more detailed stormwater analysis of existing conditions. In order to start looking at alternatives for resolving the Study Area's flooding issues, it is recommended that a Stormwater Master Plan for the City be prepared. The following information would be required to further analyze the existing stormwater collection system and to provide more detailed recommendations to the City:

- Surveyed as-built information of the exfiltration systems constructed along Ridgewood Avenue;
- Surveyed as-built information for the stormwater collection systems within the subject basins. Survey to include rim elevation, pipe sizes, inverts, and slopes;
- A drainage model of the existing conditions will need to be created with the as-built information. This will be used as a basis to show how the system is currently performing and how potential changes will impact the system;
- Geotechnical exploration required as needed where new systems are proposed;
- Topographic survey or LIDAR to analyze and establish drainage basins and flow patterns.

8. Resiliency Improvements

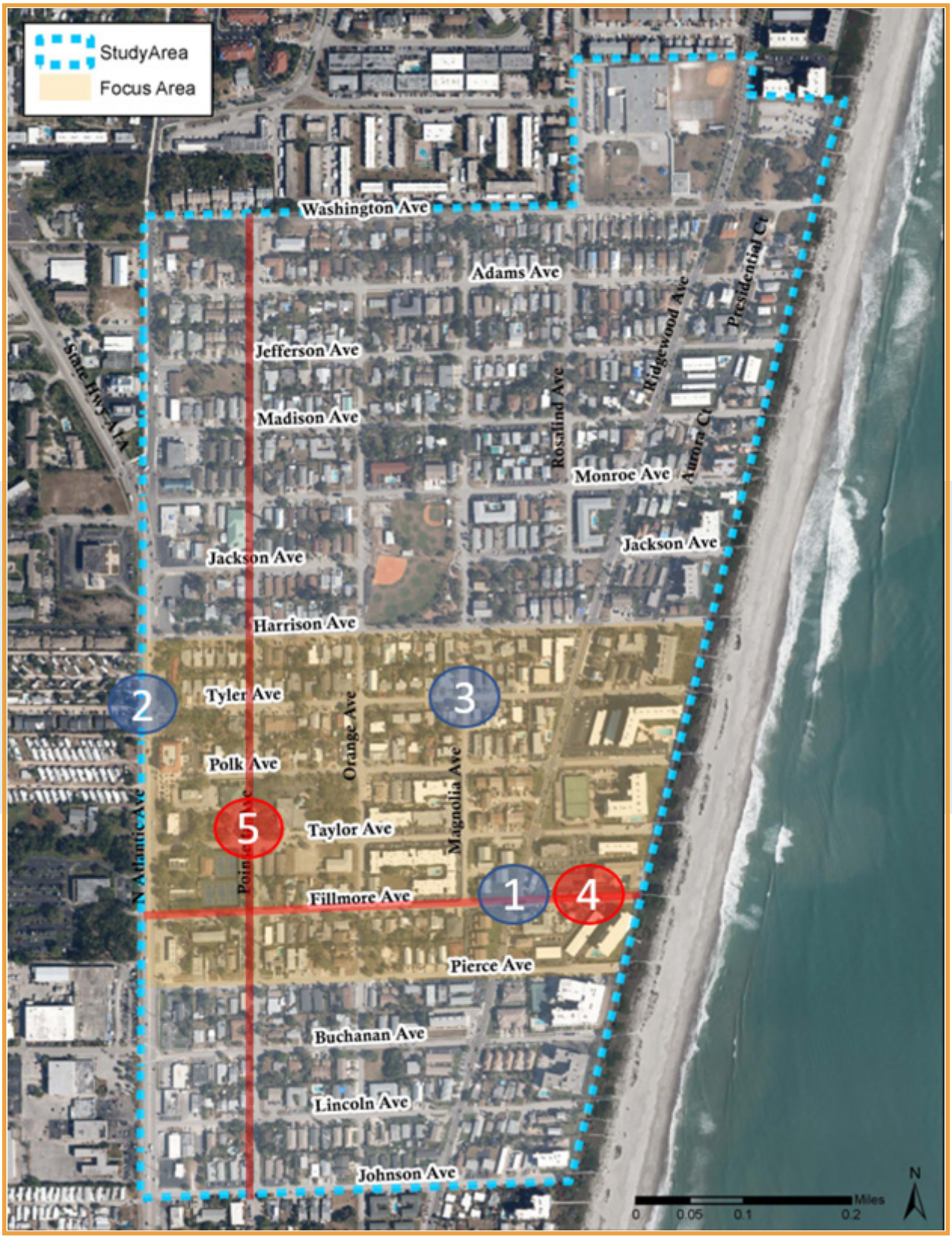
The Presidential Streets Master Plan indicates a potential location for a Resiliency Hub within the Study Area. Resiliency Hubs are community-serving facilities that educate and support residents and coordinate resource distribution and services before, during, or after a natural hazard event.

A Resiliency Assessment was also completed as part of this Master Plan and is available in ***Appendix D***. This assessment examined existing conditions as they relate to resiliency and identified various solutions that the City may implement in conjunction with future and planned projects on a case-by-case basis. This Assessment is considered a foundational aspect for implementing solutions that mitigate risk and address vulnerabilities in the existing system. The general solutions that were identified are listed below and are described in more detail in the Assessment document located in ***Appendix D***.

1. Elevating and Undergrounding Critical Facilities
2. Improved Roadway Amenities
3. Promoting Bicycle and Pedestrian Connectivity
4. Implementing Roadway Diets
5. Identifying Specific Policy Solutions
6. Identifying Appropriate Green Infrastructure

Recommendations for Framework Improvements

As discussed, the intent of this Plan is to create a framework that identifies planning recommendations that can be implemented and constructed as funds become available for capital improvements and opportunities arise in the market for investment and redevelopment. Based on the existing conditions, site visits, and feedback from community workshops, three intersections and two streets have been identified (in ***Map 3***) as representative areas within which possible improvements could be implemented including the Framework Plan improvements. It is understood that potential improvements listed below may be replicated in other portions of the Presidential Streets.



Map 3: Intersection and Street Framework Improvements

1. Intersections – Ridgewood Avenue at Fillmore Avenue

Concern: Flooding and poor pedestrian facilities

Workshop/Survey Feedback: The area experiences flooding and water with foul odor. There were several safety concerns as the sidewalks are narrow, there are unsafe crossing conditions, and speeding vehicles. Sight-line issues are persistent for bicyclists and pedestrians due to parked vehicles and utility poles.

Recommendation: The potential solutions identified for this location are listed below.

- Raised intersection
- Mural/art
- ADA accessible crosswalks
- Bulb-outs
- Rain garden/Bio-swale
- Shade trees
- Upsize stormwater infrastructure
- Solar lighting

Figure 9 shows some of the proposed intersection improvements, specifically the raised intersection with a mural and additional shade trees. ***Figure 10***, from the Polk Avenue Streetscape Project, shows how bulb-outs can create a safer pedestrian experience at intersections at the same time create intersection art.

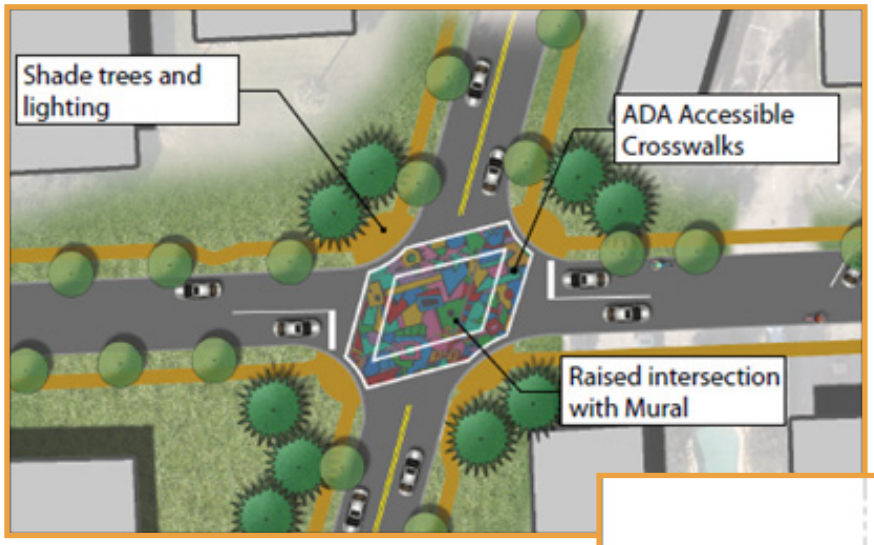


Figure 9: Proposed intersection improvements at Ridgewood Ave and Fillmore Ave

Figure 10: Example of an intersection with bulb-outs and art to narrow crossing distance for pedestrians

2. *Intersections – N. Atlantic Avenue at Tyler Avenue*

Concern: Pedestrian safety

Workshop/Survey Feedback: City landscaping blocking visibility when looking south down the corridor. There is a need for shade trees and safer pedestrian facilities as the sidewalks are narrow and the crossings are unsafe. This location is prone to speeding vehicles.

Recommendation: To address the concerns and specific feedback from the workshop and survey, the following seven items are recommended:

- Widen sidewalk to multi-use path
- Painted crosswalks
- Green infrastructure
- Shade trees and other landscaping
- Solar lighting for bus shelter
- Pedestrian lighting
- Work with FDOT on connectivity to bus shelter on opposite side of N. Atlantic Ave

Once implemented, the combination of the seven items will ensure that pedestrians have a safe crossing experience at this intersection. Adding lighting specifically for pedestrians, and at the bus shelter, will make them more visible to approaching vehicles and reduce potential conflicts at crossings.

Example of green infrastructure

Photo of the bus stop at Tyler Ave and N. Atlantic Ave

3. *Intersections – Magnolia Avenue at Tyler Avenue*

Concern: Poor roadway conditions, poor pedestrian facility connectivity, and poor stormwater management

Workshop/Survey Feedback: Flooding occurs at the end of driveways when it rains, and the roadway is not sloped to the storm drain. A request was made for more consistent 4-way stop signs, seeking stop signs at every residential street other than Ridgewood Avenue.

Recommendations: The following six items are recommended to address flooding concerns and increase pedestrian safety. See ***Figure 11*** for an example of bulb outs and pedestrian art integrated into the sidewalks.

- Raised intersection
- Mural/art
- ADA Accessible crosswalks
- Bulb outs
- Improved stormwater infrastructure and permeability
- Pedestrian lighting

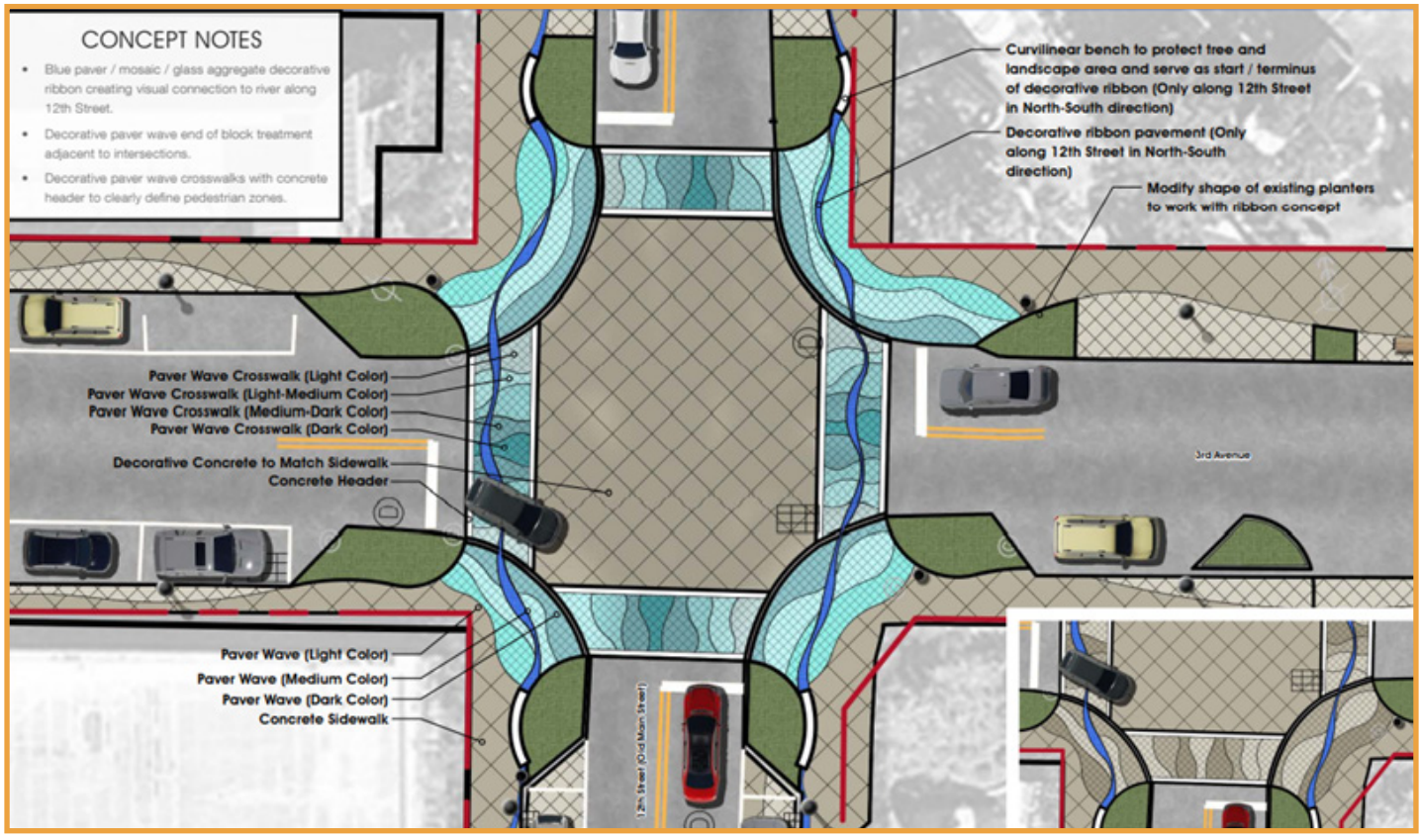


Figure 11: Example of decorative crosswalks and bulb outs

4. Streets – Fillmore Avenue (one-way option, two-way option, and beach end)

Concern: Poor pedestrian facility connectivity and poor stormwater management

Workshop/Survey Feedback: There were several comments on the smell of the water and the flooding that occurs as well as accessibility issues related to the beach access ramps not having any stairs and the lack of sidewalks. Comments were also made on the poor crossing conditions, poor lighting, speeding vehicles, and the need for more shade trees.

Recommendations: There are two alternatives to address connectivity along Fillmore Avenue. The first is the two-way option (***Figure 12***). This would maintain the two-way vehicle travel but provide street markings for bicycles to travel. Sidewalks to the beach would be provided on either side of the roadway and additional shade trees could be added through an Adopt-A-Tree program (see ***Figures 13 and 14***). The second option is transitioning Fillmore Avenue to a one-way street between N. Atlantic Avenue and Ridgewood Avenue (***Figure 15***). This could provide a two-way bicycle boulevard and sidewalks to the beach on either side of the roadway. The one-way option could also provide greater opportunity for green stormwater infrastructure and trees within the public right-of-way (ROW) (see ***Figures 16 and 17***). For either option, the Beach End recommendation is the same, specifically providing additional vehicle parking using permeable pavement and adding benches, bicycle parking, and shade trees. Both one-way and two-way options will require rebuilding the roadway for full implementation of this recommendation, and therefore below-ground stormwater improvements would also be recommended for implementation at the same time.

Two-way option

- Maintain two-way traffic
- 10 ft drive aisles with bicycles sharing roadway
- Crosswalks with potential in pavement lighting
- 6 ft sidewalk on both sides of Fillmore Ave to the beach
- Shade trees, rain garden bulb outs, pervious curbs at key locations
- Raised intersections with murals at key intersections

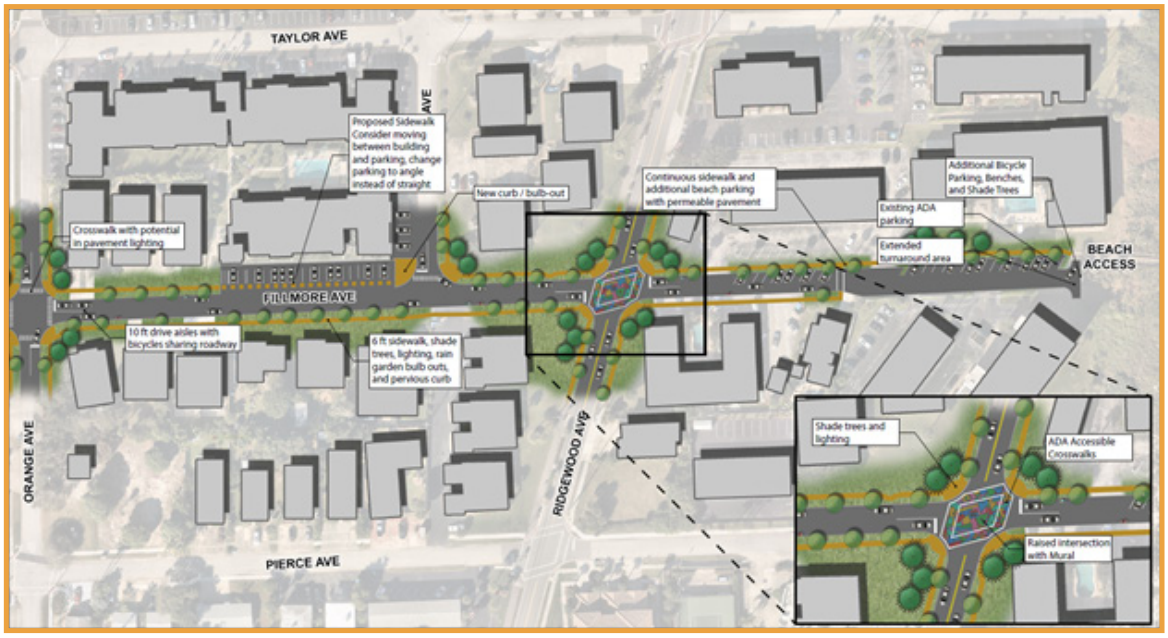


Figure 12: Fillmore Ave two-way Recommendation

Opportunities and Challenges for Two-Way Street Options

Opportunities	Challenges
Maintain lower vehicle speeds	Reduced flood mitigation opportunities
Maintain increased safety and accessibility, for all users	Limited “space” for multiple modes of travel on the same roadway
Maintain Reduced Vehicle Miles Traveled (VMT)	Limited “space” for street trees and other viewshed improvements
	Increased number of conflict points

Please note: the opportunities and challenges identified do not intentionally relate to one another.

Streetscape cross-sections with landscape concepts for two-way streets

Examples below are shown on Fillmore Ave; however these streetscape concepts and landscaping treatments could be implemented at other locations throughout the Presidential Streets.

OPTION 1: Two-way Street with sidewalk on one-side and on-street bicycle lanes. Additional landscaping inside the ROW could include palm trees with plantings and irrigation, and there is potential for bulbouts at key locations.

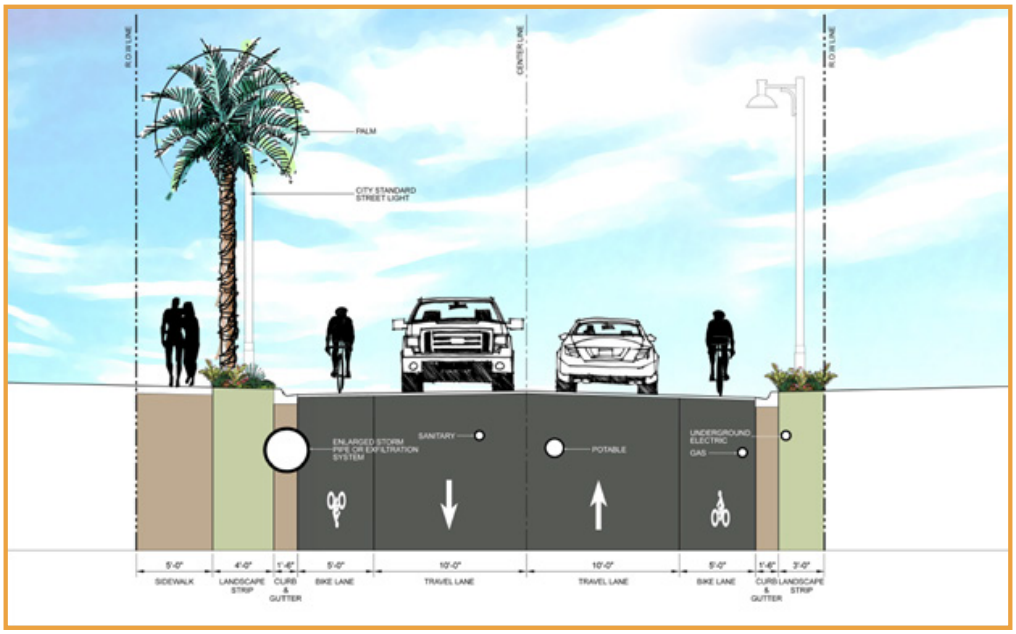


Figure 13: Concept for Fillmore Ave, Option 1

OPTION 1-A: Two-way Street with sidewalk on one-side and on-street bicycle lanes. Palm trees, plantings, irrigation, and shade trees installed outside ROW (as part of Adopt-A-Tree program).

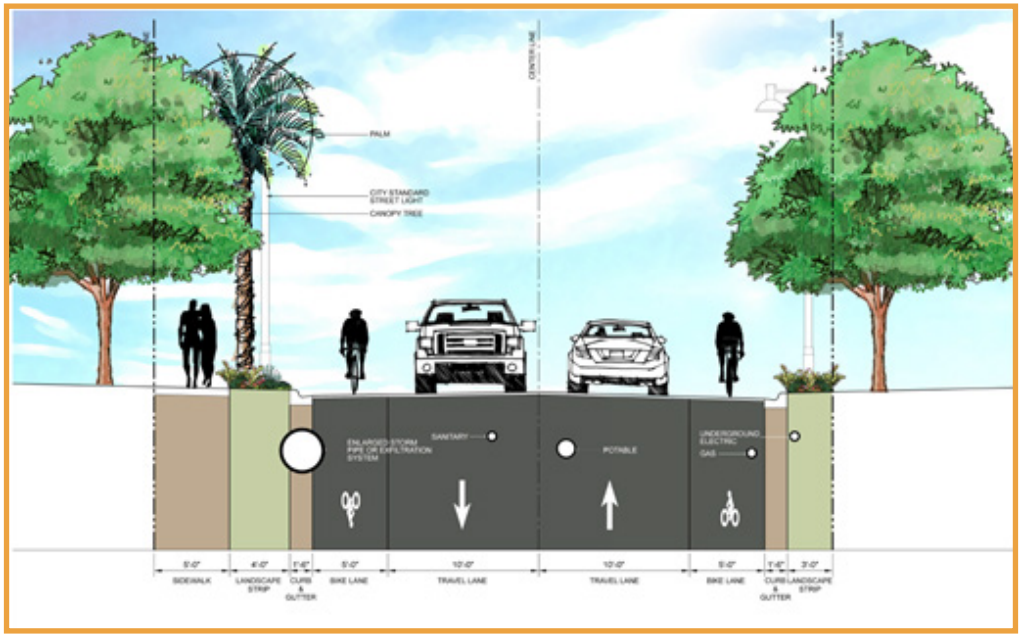


Figure 14: Concept for Fillmore Ave, Option 1-A

One-way option

- Convert to one-way traffic (in pairs)
- 10 ft drive aisle eastbound
- Two-way bicycle boulevard (4 ft bicycle lane each direction)
- Crosswalks with potential in pavement lighting
- 6 ft sidewalk on both sides of Fillmore Ave to the beach
- Shade trees, rain garden bulb outs, pervious curb along the entire street
- Raised intersections with murals at key locations

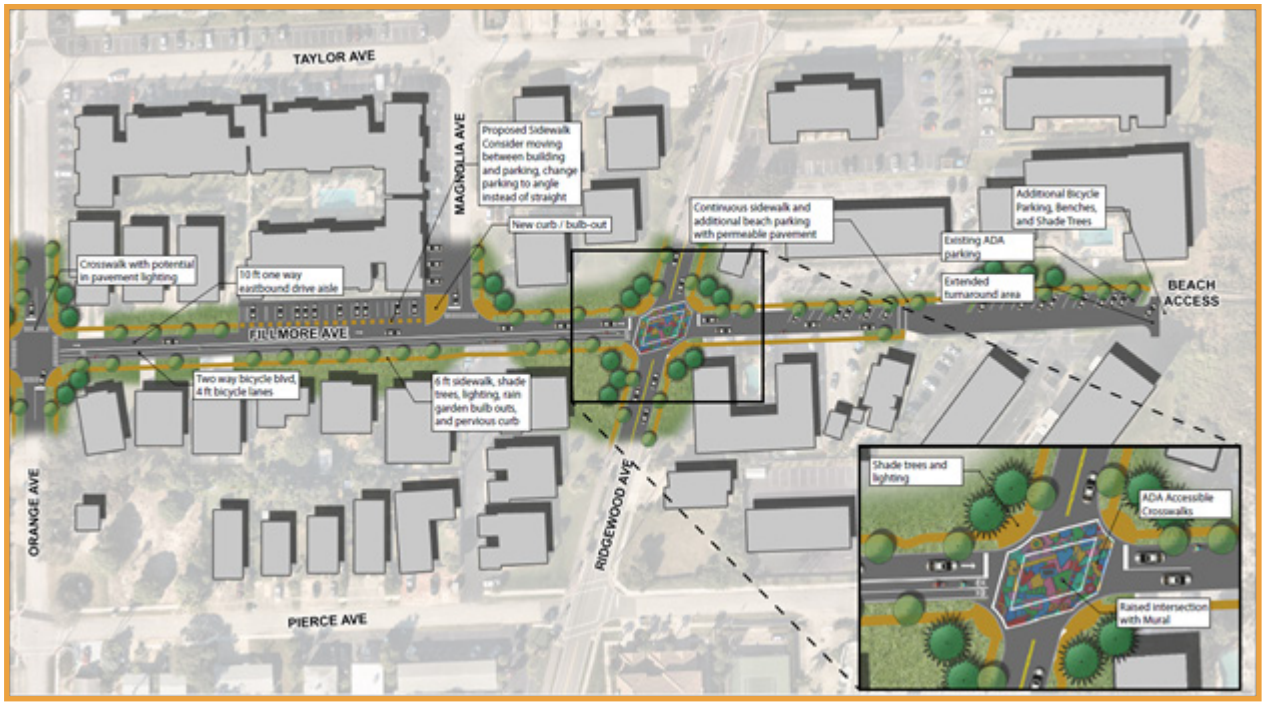


Figure 15: Fillmore Ave one-way Recommendation

Opportunities and Challenges for One-Way Street Options

Opportunities	Challenges
Potential to reduce flooding, with "additional space" for stormwater improvements	Higher vehicle speeds
Additional "space" for multiple modes of travel, street trees, and plantings	Decreased safety for pedestrians and bicyclists
Additional "space" for Low Impact Design, green stormwater improvements, and stormwater infiltration	Increased Vehicle Miles Traveled (VMT)
Fewer conflict points for pedestrian crossing	Additional traffic study recommended
Fewer conflict points at intersections and driveways	

Please note: the opportunities and challenges identified do not intentionally relate to one another.

Streetscape cross-sections with landscape concepts for one-way streets

OPTION 2-A: One-way Street with designated cycle track, wide sidewalks, and shade trees with tree cells within ROW.

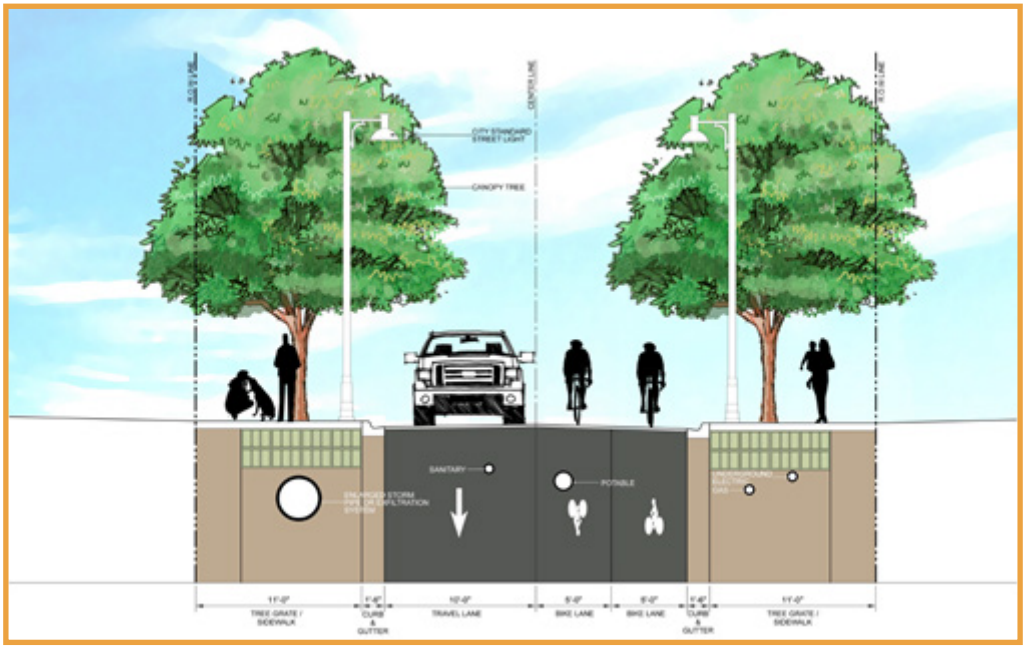


Figure 16: Concept for Fillmore Ave, Option 2-A

OPTION 2-B: One-way Street with dedicated cycle track, sidewalks on both sides and bioswales/rain gardens along entire corridor.

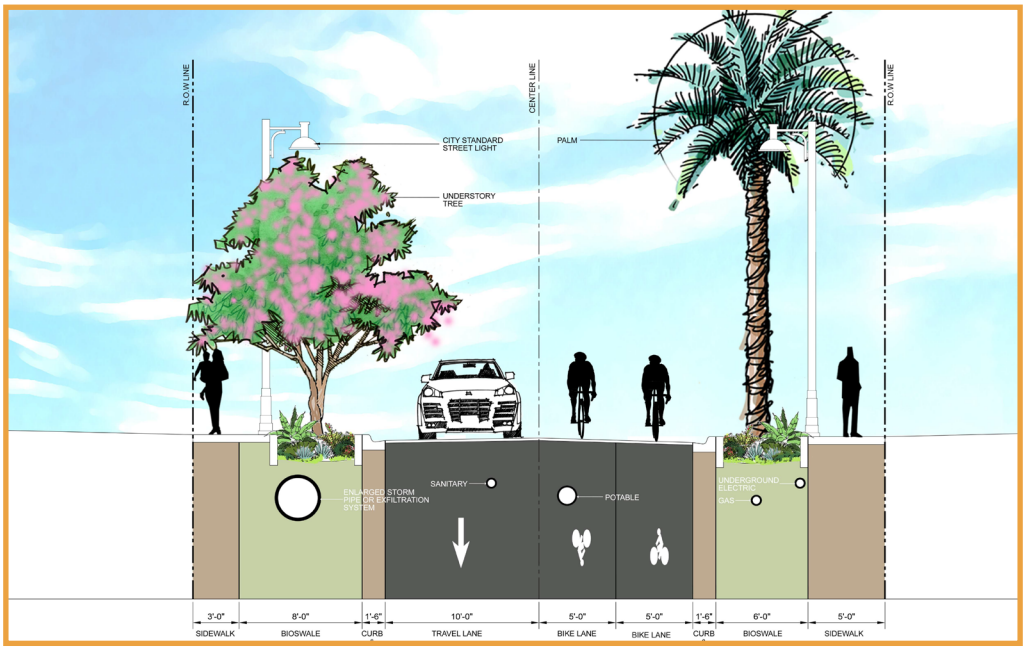


Figure 17: Concept for Fillmore Ave, Option 2-B

Beach End

- Additional beach parking with permeable pavement
- Additional bicycle parking, benches, and shade trees at beach access

Figure 18: Fillmore Ave Beach Access Improvement Recommendation

5. Streets – Poinsetta Avenue

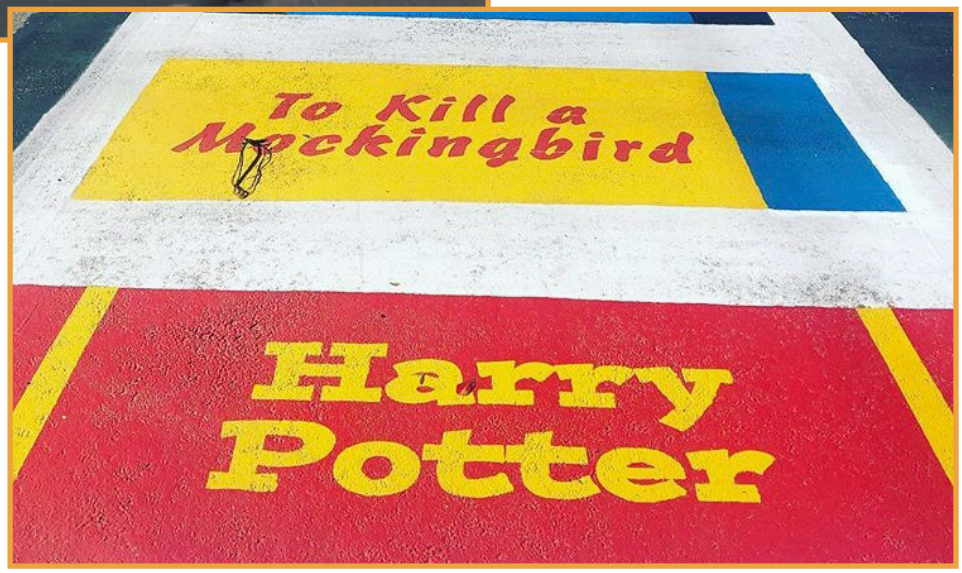
Concern: Poor roadway design and pedestrian safety and facility connectivity

Workshop/Survey Feedback: Pedestrian and bicyclist safety concerns were reported at Tyler Avenue, Fillmore Avenue, Harrison Avenue, and Pierce Avenue. Flooding is a concern at the intersections with Pierce Avenue, Buchanan Avenue, and Polk Avenue. There is a need for more shade trees. Unsafe crossings, lack of sidewalks, and poor lighting also need to be addressed.

Recommendations: The following six items are recommended to address the concerns on Poinsetta Avenue.

- Chicanes and "pinch" points
- Shared lane markings, sharrows
- Painted intersections and crosswalks
- Wide sidewalks
- Raised intersections
- Stop signs - additional study and analysis on the placement of stop signs

Example of shared lane markings, Source: NACTO.org



Example of a painted crosswalk, Source: Kimley-Horn

Development/Redevelopment and Public Investment Strategies

The Presidential Streets Master Plan provides an opportunity for the community to design a new future for the Presidential Streets project area and implement the vision over time. This Master Plan provides a framework that creates specific opportunities for public and private investment aimed at improving local economic conditions and overall quality of life. It also provides solutions to existing and future economic conditions by identifying redevelopment objectives and laying the foundation for capital improvement projects and programs. By encouraging new public and private investment, and other physical and social improvements, property values may increase, and overall safety, health, and welfare can improve for residents of Cape Canaveral. The following recommendations (strategies) identify potential implementation and redevelopment strategies to build upon prior successes and establish specific directions for review on a periodic basis. These strategies can and should be paired with those from the City's Community Redevelopment Area Master Plan to further bolster not only the strategy but also identify a potential co-funding option.

Strategies for Redevelopment

1. **Construct and improve public facilities and infrastructure.**
2. **Establish a neighborhood traffic calming program, where residents work together with their neighbors to establish support for a traffic calming project on their block or street.**
3. **Adopt Smart Growth strategies for land use and development.**
4. **Provide value added financial strategies by incorporating institutional practices that facilitate or expedite various aspects of development projects.**
5. **Continue to provide and improve recreation facilities and public spaces through partnerships and interlocal agreements with the private sector and other governmental entities to ensure they are well maintained, accessible, safe, and inviting.**
6. **Incorporate housing revitalization through housing maintenance programs and rehabilitation services.**
   a. **Promote programs and incentives for homeowners to rehabilitate their homes.**
7. **Establish a unique identity to promote the Vision of the Presidential Streets through branding and marketing programs.**
   a. **Create a logo, identity package, and website which can be used to identify the Presidential Streets.**
   b. **Establish a brand that can be used on literature, banners, gateways, and all types of promotional campaigns.**
   c. **Support festivals, exhibits, performances, and other special events designed to attract residents and visitors to the Presidential Streets.**
   d. **Encourage consistent architectural and site design themes to promote a style or quality of new construction that would maintain the desired theme and scale of development in the Presidential Streets.**
   e. **Install gateway and wayfinding signage using the logo and identity package so visitors can safely navigate Presidential Streets.**

The Presidential Streets network is within the boundaries of City of Cape Canaveral Community Redevelopment Area (CRA) established in 2012. The Community Redevelopment Plan identifies several potential CRA strategies, programs, and projects to improve conditions identified within the Finding of Necessity. The following strategies, programs, and projects can fulfill the vision of the Presidential Streets network:

- Flexible Zoning and Land Development Regulations
- Public-Private Partnerships
- Public Parking Facilities
- Shared Off-site Stormwater Retention

To encourage improvements on privately-owned property the creation of a Residential Low Impact Development Program, providing grant funding to eligible property owners within the Presidential Street network, is encouraged. This would enable homeowners to make improvements that decrease stormwater run-off and provide on-site filtration, as well as increase the aesthetic appearance of the project area. Eligible improvements may include:

- Installation of Florida-Friendly Landscaping and/or micro-irrigation
- Installation of pervious driveways
- The repair and/or replacement of gutters and downspouts
- Installation of rain barrels and/or cisterns

The establishment of an Urban Forestry Program for the project area is a great way to protect existing trees and encourage planting of new trees on private property. Urban Forestry Programs provide technical, educational, and sometimes financial resources to participants who want to grow trees on their privately-owned property. The Urban Forestry Programs can take the form of year-round Adopt-A-Tree programs or annual tree planting events. The Urban Forestry Program would benefit the community by managing stormwater runoff, including stormwater nutrients and volume control, and increase shaded areas within the Presidential Street network where the right-of-way is too narrow to accommodate additional landscaping.

Section 4

Action Plan

Action Plan

An action plan must first identify and focus on the highest priority projects and action items to advance the plan. Some action items involve key infrastructure investments in transportation and stormwater to create a more resilient community. Other priorities may simply result from opportunities and timing of potential grant funding within the plan area. Ultimately, the goal of this chapter is to posture the City of Cape Canaveral for sustainable long-term success through the implementation of the Framework Plan. What follows is a priority schedule for the Framework Plan Improvements, as well as a Capital Improvements Work Program that identifies a menu of project improvement options for the Framework Plan Recommendations, and a prioritized list of projects within the Presidential Streets. Finally, a summary of available grant opportunities for these types of projects that can supplement the funding that the City has already identified for the funding and implementation of this Master Plan. Making the Presidential Streets Master Plan a reality will require a combination of vision, political will, persistence, and a little good fortune. It will be critical that the City Council, Staff, and residents review this Plan from time to time and (re)prioritize action items including pairing those items with available funding/funding sources.

Vision and Political Will on the part of leadership within the City, the City of Cocoa, along with Florida Power & Light that maintains the utilities, and the Florida Department of Transportation is critical given the jurisdictional maintenance responsibilities of each of these agencies relative to the different components of this Plan. The portions of this Plan within each jurisdiction are inextricably linked together and will require a spirit of collaboration and close coordination to identify priority projects, funding sources, and implementation.

Persistence will be needed to work with private landowners toward a common vision and understanding the realities of individual property owner goals that may or may not exactly align relative to expected return on investment. Successful public private partnerships are key where limited public right-of-way is available, such as the “adopt a tree” program that will provide shaded sidewalks using public resources on private property, or for stormwater infiltration improvements made on private property to reduce run-off into the public right-of-way.

And **good fortune** often rules the day given the lengthy time horizons for implementing a plan of this magnitude. Changing market forces and trends in community development can occur multiple times in the life of a plan. Maintaining flexibility is important to be able to adjust and react to these events.

The following table describes the priority schedule for implementing the Framework Plan actions and recommendations with associated timing for implementation, according to the feedback received through community engagement and discussions with Staff.

Short-term - Implementation within the first 5 years of plan adoption.

Mid-term - Implementation between 5 to 10 years after plan adoption.

Long-term - Implementation anticipated in 10 or more years after plan adoption.

Continuous - Ongoing and continuous implementation efforts once plan is adopted.

Priority Schedule

Table 1: Priority Schedule

Improvement Type	Framework Actions/Recommendations	Timing
Intersection and Crossing	Raised intersection	Short-term
Intersection and Crossing	Mural/Art	Short-term
Intersection and Crossing	ADA accessible crosswalks	Short-term
Stormwater	Rain garden/Bio-swales	Short-term
Pedestrian/Bicycle	Shade trees	Short-term
Pedestrian/Bicycle	Solar lighting	Short-term
Intersection and Crossing	Painted crosswalk and intersections	Short-term
Pedestrian/Bicycle	Pedestrian lighting	Short-term
Stormwater	Improved stormwater infrastructure and permeability	Short-term
Intersection and Crossing	Crosswalk with potential in-pavement lighting	Short-term
Pedestrian/Bicycle	6 ft sidewalks	Short-term
Pedestrian/Bicycle	Bicycle parking	Short-term
Pedestrian/Bicycle	Install park benches	Short-term
Pedestrian/Bicycle	Add midblock crosswalks	Short-term
Pedestrian/Bicycle	Shared lane markings (sharrows) for bicycles	Short-term
Pedestrian/Bicycle	Widen sidewalk to multi-use paths	Mid-term
Beach Ends	Additional beach parking (striping only)	Mid-term
Beach Ends	Purchase right-of-way to create “hammer head” turnarounds	Mid-term
Traffic Calming	Chicanes	Mid-term
Traffic Calming	“Pinch” points	Mid-term
Traffic Calming	Stop sign evaluation	Mid-term
Roadway	Bulb-outs	Long-term
Pedestrian/Bicycle	Connection between bus shelter across N. Atlantic Ave	Long-term
Roadway	10 ft drive aisles with bicycles sharing roadway	Long-term
Roadway	Convert roadway(s) to one-way traffic	Long-term
Pedestrian/Bicycle	Two-way bicycle boulevard(s), 4 ft bicycle lanes	Long-term
Beach Ends	Permeable pavement/pavers under parking areas	Long-term
Roadway	Seek funding opportunities	Continuous
Resiliency	Green infrastructure	Continuous

Capital Improvements Work Program

For the purposes of developing a Capital Improvements Work Program for the Presidential Streets which has the flexibility to respond to changes in funding availability from municipal, county, state, and federal sources, the following CIP table was created to provide a menu of project recommendations at a variety of price points for each of the locations identified in the Framework Plan. As previously mentioned, these locations are project examples and the same projects could be implemented at similar intersections and along similar corridors throughout the Presidential Streets. Some of these projects can be implemented with funding already identified in the City's CIP and / or CRA, while others are larger in scale and may require additional design and permitting in order to apply for grant funding to complete the project. Cost estimates are understood to be fluid at this time especially based on the potential timeframes for design and construction, and fluctuations in industry cost(s). Cost estimates are also based on current industry standards in a more generalized sense and may not reflect subsurface improvements and or items discovered during the detailed engineering and design phase.

Table 2: Typical Cost Implementation of Improvements Matrix

Project location	Recommendation	Typical Cost for Implementation $ (<10k), $$ (10k-25k), $$$ (25k-75k), $$$$ (>75k)				Notes
Fillmore Ave at Ridgewood Ave	Raised Intersection		$$	$$$		Ranges between $20,000 and $75,000 depending on drainage impacts and materials
	Mural/Art	$				Inexpensive and can be implemented quickly but temporary
	ADA Accessible Ramps and Crosswalks	$				
	Bulb-Outs/Corner Extensions		$$	$$$		Ranges between $10,000-$40,000 depending on drainage impacts
	Rain Garden/Bioswale with shade trees/palms and irrigation		$$	$$$		Ranges $20,000-$25,000 per 100 linear feet: includes 4 trees/palms, 700 sf bioswale, irrigation. Additional cost for curb and gutter and potential drainage impacts
	Palm trees with landscaping and irrigation		$$			Ranges $12,000-$15,000 per 100 linear feet: includes 2 trees/palms, 700 sf planting area, 700 sf irrigation
	Shade trees outside ROW and plantings with irrigation		$$	$$$		Ranges $20,000-$25,000 per 100 linear feet: includes 2 trees/palms, 700 sf planting area, 4 trees outside ROW
	Shade trees with underground tree cells and irrigation			$$$		Ranges $50,000-$55,000 per 100 linear feet: includes 4 trees, underground tree cells at each tree ($10,000/each) and irrigation
	Upsize stormwater infrastructure in conjunction with streetscape project		$$			Includes storm inlets, pipe, connect to existing
	Lighting (solar)		$$			
	Raised intersection		$$	$$$		Ranges between $20,000 and $75,000 depending on drainage impacts and materials
	Mural/Art	$				Inexpensive and quick to implement, but temporary
North Atlantic Ave at Tyler Ave	Widen sidewalk to multi-use trail	$	$$			
	Painted artistic crosswalks	$				Inexpensive and can be implemented quickly but temporary
	Shade trees with underground tree cells and irrigation			$$$		Ranges $50,000-$55,000 per 100 linear feet: includes 4 trees, underground tree cells at each tree ($10,000/each) and irrigation
	Rain Garden/Bioswale with shade trees/palms and irrigation		$$	$$$		Ranges $20,000-$25,000 per 100 linear feet: includes 4 trees/palms, 700 sf bioswale, irrigation. Additional cost for curb and gutter and potential drainage impacts
	Solar lighting for bus shelter		$$			
	Pedestrian lighting	$				per pole
	Pedestrian Hybrid Beacon (PHB) crosswalk across N. Atlantic to SB bus shelter				$$$$	Approximately $200,000 for protected pedestrian crosswalk and signal. This is only option for enhanced crosswalk given 40mph speed on N. Atlantic Ave
Magnolia Ave at Tyler Ave	Raised Intersection		$$	$$$		Ranges between $20,000 and $75,000 depending on drainage impacts and materials
	Mural/Art	$				Inexpensive and can be implemented quickly but temporary
	ADA Accessible Ramps and Crosswalks	$				
	Bulb-Outs/Corner Extensions		$$	$$$		Ranges between $10,000-$40,000 depending on drainage impacts
	Upsize stormwater infrastructure in conjunction with streetscape project		$$			Includes storm inlets, pipe, connect to existing
	Rain Garden/Bioswale with shade trees/palms and irrigation		$$	$$$		Ranges $20,000-$25,000 per 100 linear feet: includes 4 trees/palms, 700 sf bioswale, irrigation. Additional cost for curb and gutter and potential drainage impacts
	Permeable pavers			$$$	$$$$	
	Pervious curb/pavement		$$			
	Pedestrian lighting	$				Per pole

Table 2: Typical Cost Implementation of Improvements Matrix Continued

Project location	Recommendation	Typical Cost for Implementation $ (<10k), $$ (10k-25k), $$$ (25k-75k), $$$$ (>75k)				Notes
Poinsetta Ave	Chicanes and "pinch" points		$$	$$$		Varies from high to low depending on materials, landscaping and drainage impacts. Costs can range from $10,000-$30,000
	Road resurfacing					
	Painted intersections and crosswalks	$				Inexpensive and can be implemented quickly, but temporary
	ADA Accessible Ramps and Crosswalks	$				
	Install wide sidewalks		$$	$$$		Remove existing, move curb and widen
	Raised intersections		$$	$$$		Ranges between $20,000 and $75,000 depending on drainage impacts and materials
	Stop sign evaluation	$	$$			
	Lighting (solar)		$$			
	Palm trees with landscaping and irrigation		$$			Ranges $12,000-$15,000 per 100 linear feet: includes 2 trees/palms, 700 sf planting area, 700 sf irrigation
	Shade trees outside ROW and plantings with irrigation		$$	$$$		Ranges $20,000-$25,000 per 100 linear feet: includes 2 trees/palms, 700 sf planting area, 4 trees outside ROW
	Shade trees with underground tree cells and irrigation			$$$		Ranges $50,000-$55,000 per 100 linear feet: includes 4 trees, underground tree cells at each tree ($10,000/each) and irrigation
	Rain Garden/Bioswale with shade trees/palms and irrigation		$$	$$$		Ranges $20,000-$25,000 per 100 linear feet: includes 4 trees/palms, 700 sf bioswale, irrigation. Additional cost for curb and gutter and potential drainage impacts
	Shared lanes (sharrows)	$				Thermoplastic marking symbols $250/symbol, spaced every 250 feet on both sides of roadway.
	Wayfinding signage for bicycle route, etc	$				$250/sign, assumes 2 signs per 500LF (one on each side of the roadway)
Fillmore Ave, One-Way	Upsize stormwater infrastructure in conjunction with streetscape project		$$			Includes storm inlets, pipe, connect to existing
	ADA Accessible Ramps and Crosswalks	$				
	Road reconstruction: clearing and grubbing, earthwork, mobilization, traffic control, paving, curb/gutter, wide sidewalks				$$$$	
	Underground utilities (FPL)				$$$$	$300,000+, working with utility company
	Cycle track (no separated curb)	$				Striping and bicycle markings
	Shade trees with underground tree cells and irrigation			$$$		Ranges $50,000-$55,000 per 100 linear feet: includes 4 trees, underground tree cells at each tree ($10,000/each) and irrigation
	Rain Garden/Bioswale with shade trees/palms and irrigation		$$	$$$		Ranges $20,000-$25,000 per 100 linear feet: includes 4 trees/palms, 700 sf bioswale, irrigation. Additional cost for curb and gutter and potential drainage impacts
	Enhanced crosswalks, in pavement lighting		$$	$$$		
	Pervious curb/pavement		$$			
	Raised intersection		$$	$$$		Ranges between $20,000 and $75,000 depending on drainage impacts and materials
	Mural/Art	$				Inexpensive and quick to implement, but temporary
	Lighting (solar)		$$			

Table 2: Typical Cost Implementation of Improvements Matrix Continued

Project location	Recommendation	Typical Cost for Implementation $ (<10k), $$ (10k-25k), $$$ (25k-75k), $$$$ (>75k)				Notes
Fillmore Ave, Two-Way	Shared lanes (sharrows)	$				Thermoplastic marking symbols $250/symbol, spaced every 250 feet on both sides of roadway.
	Road resurfacing		$$			milling and paving per 100SF
	ADA Accessible Ramps and Crosswalks	$				
	Wayfinding signage for bicycle route, etc	$				$250/sign, assumes 2 signs per 500LF (one on each side of the roadway)
	Enhanced crosswalks, in pavement lighting		$$	$$$		
	6-foot sidewalk on both sides, fill gaps and widen		$$			Remove existing and widen
	Shade trees outside ROW and plantings with irrigation		$$	$$$		Ranges $20,000-$25,000 per 100 linear feet: includes 2 trees/palms, 700 sf planting area, 4 trees outside ROW
	Palm trees with landscaping and irrigation		$$			$12,000-$15,000 per 100 linear feet: includes 2 trees/palms, 700 sf planting area, 700 sf irrigation
	Bulb-Outs/Corner Extensions		$$	$$$		Ranges between $10,000-$40,000 depending on drainage impacts
	Pervious curb/pavement		$$			
	Raised intersection		$$	$$$		Ranges between $20,000 and $75,000 depending on drainage impacts and materials
	Mural/Art	$				Inexpensive and quick to implement, but temporary
	Lighting (solar)		$$			
Fillmore Ave, Beach End	Additional beach parking	$	$$	$$$	$$$$	Requires amendments to the zoning code. Cost varies depending on drainage impacts and materials: additional striping is inexpensive, but implementation in conjunction with permeable pavers/pavement and relocation of sidewalk will pricier
	Road resurfacing		$$			milling and paving per 100SF
	ADA Accessible Ramps and Crosswalks	$				
	Permeable pavers			$$$	$$$$	
	Pervious curb/pavement		$$			
	Vacuum truck				$$$$	
	Bicycle parking, decorative	$				Less than $1000 for materials and installation per rack
	Benches, decorative	$				
	Shade structure, decorative		$$			Ranges depending on design. Base must be designed to withstand for hurricane wind loads
	Shade trees with underground tree cells and irrigation			$$$		Ranges $50,000-$55,000 per 100 linear feet: includes 4 trees, underground tree cells at each tree ($10,000/each) and irrigation
	Shade trees outside ROW and plantings with irrigation		$$	$$$		Ranges $20,000-$25,000 per 100 linear feet: includes 2 trees/palms, 700 sf planting area, 4 trees outside ROW
	Palm trees with landscaping and irrigation		$$			Ranges $12,000-$15,000 per 100 linear feet: includes 2 trees/palms, 700 sf planting area, 700 sf irrigation
	Rain Garden/Bioswale with shade trees/palms and irrigation		$$	$$$		Ranges $20,000-$25,000 per 100 linear feet: includes 4 trees/palms, 700 sf bioswale, irrigation. Additional cost for curb and gutter and potential drainage impacts
	ROW for turnaround				$$$$	Actual cost TBD during design as exact ROW clips will need to be determined
	Pavement for turnaround, permeable			$$$	$$$$	Cost will vary depending on amount of ROW required
	Shared lanes (sharrows)	$				Thermoplastic marking symbols $250/symbol, spaced every 250 feet on both sides of roadway.
	Wayfinding signage for bicycle route, etc	$				$250/sign, assumes 2 signs per 500LF (one on each side of the roadway)
	Lighting (solar)		$$			

Framework Improvements Prioritization

While the recommendations for Framework improvements identified five locations as example locations in which those improvements could be applied, some additional analysis was done in order to prioritize projects throughout the Presidential Streets for funding in the City's Capital Improvements Program. Four sets of data were used to help prioritize locations in the study area that would be best suited for Framework improvements from the Toolkit:

- Crash data
- Stormwater data
- In-person feedback on maps at the public workshop
- Online MetroQuest survey results

The justification for using the above data derives from two major concerns that were frequently voiced by the public and by the City: flooding and safety. The process of prioritizing locations to apply Framework improvements included overlaying each set of data on top of one another to find areas dense with vehicle, bicycle, and pedestrians crashes, elevated levels of flooding and frequent public feedback. An additional factor in the prioritization process is the Focus Area, specifically points of interest. The Focus Area is the area of greatest civic / governmental uses including City Hall, Cape Canaveral Library, Veteran's Park, and C5. Because these points of interest are typically high traffic areas for pedestrians, bicyclists, and motorists, if any of the denser or impacted areas were located in the Focus Area, that location was prioritized over a location outside of the Focus Area. City staff along with public engagement have a large impact on prioritization. From this, Fillmore and Lincoln have been given tier 1 priority.

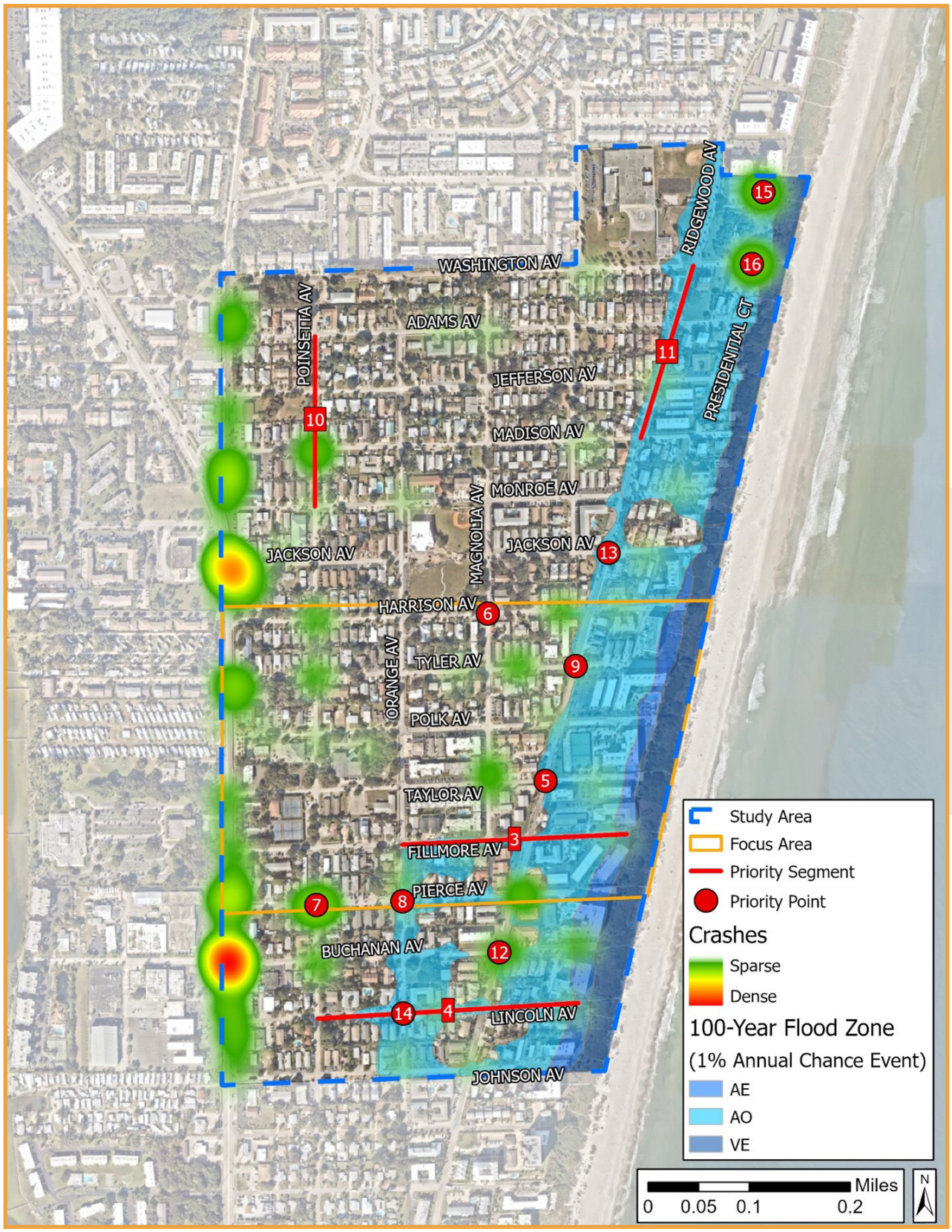
Prioritization Findings

The east side of the study area was where most of these criteria for prioritization overlapped in this analysis. Specifically, Ridgewood Avenue and most intersecting roadways to the east of Ridgewood experience far more recorded flooding than any other part of the study area. Coupled with the number of public concerns voiced in both the in-person workshop and online surveys on not having enough shade trees, overall safety concerns, and flooding concerns, any improvement along this roadway received a higher priority. Safety concerns and flooding concerns were high near Cape Canaveral Recreation Complex along Poinsetta Avenue thus increasing framework improvements prioritization for this area. The remaining priority areas to address based on the initial analysis are located in the southeast section of the study area. General observations on the analysis include the limited number of crashes within the Study Area causing the flooding and stormwater dataset to be carry more weight in prioritization. Flooding is persistent throughout the entire Study Area. Projects that appear to have the greatest impact to pedestrian and bicyclist safety, connectivity, and ease of implementation were considered in the below list of prioritized areas.

Table 3: Prioritization of Framework Improvements by Location

	Location	Framework Actions/Recommendations	Priority
1	Ridgewood Ave and Fillmore Ave	Improved stormwater infrastructure and permeability Raised Intersection	Tier 1
2	Ridgewood Ave and Harrison Ave	Improved stormwater infrastructure and permeability Raised Intersection	Tier 1
3	Fillmore Ave	Improved stormwater infrastructure and permeability	Tier 1
4	Lincoln Ave	Improved stormwater infrastructure and permeability	Tier 1
5	Ridgewood Ave and Taylor Ave	Improved stormwater infrastructure and permeability Raised Intersection	Tier 1
6	Harrison Ave and Magnolia Ave	Improved stormwater infrastructure and permeability Raised Intersection	Tier 1
7	Poinsetta Ave and Pierce Ave	Improved stormwater infrastructure and permeability	Tier 1
8	Orange Ave and Pierce Ave	Improved stormwater infrastructure and permeability	Tier 2
9	Ridgewood Ave and Tyler Ave	Improved stormwater infrastructure and permeability	Tier 2
10	Poinsetta Ave – between Adams Ave and Monroe Ave	Improved stormwater infrastructure and permeability Painted crosswalk and intersections	Tier 2
11	Ridgewood Ave – between Washington Ave and Madison Ave	Improved stormwater infrastructure and permeability	Tier 2
12	Ridgewood Ave and Buchanan Ave	Improved stormwater infrastructure and permeability	Tier 3
13	Ridgewood Ave and Jackson Ave	Improved stormwater infrastructure and permeability	Tier 3
14	Orange Ave and Lincoln Ave	Improved stormwater infrastructure and permeability	Tier 3
15	Cherie Down Park Parking Lot	Improved stormwater infrastructure “Hammer head” turnarounds	Tier 3
16	Cherie Down Park Parking Lot	Improved stormwater infrastructure “Hammer head” turnarounds	Tier 3

Numbers are associated with map locations and do not directly delineate prioritization



Map 4: Prioritization of Framework Improvements Map

Safety hotspots on A1A are outside the focus of this study and will be evaluated by the FDOT

Conclusion

In conclusion, the Presidential Streets have the potential to be a destination that includes complete streets, stormwater management, pedestrian access, traffic management, and is resilient. The City has already made significant investments in this part of the community, and the overall safety, resiliency and stormwater issues experienced will continue to improve as this Action Plan is implemented. Overall, this Master Plan is relatively ambitious yet achievable and will provide solutions for the outlined concerns. When finalized, it will create a positive foundation for continued investment in the Presidential Streets. By undertaking this Plan, the City will be creating a sustainable, resilient, safe and attractive environment for all. When complete, the Presidential Streets will be complete streets with wide sidewalks, bicycle infrastructure, and street trees while maintaining a design, look, and feel unique to the City of Cape Canaveral. The action plan outlines the proposed investments needed to accomplish the overall vision established within the Master Plan.

Grants

When it comes to implementation of the City of Cape Canaveral Presidential Streets Master Plan, the City would first start by using the prioritized list of projects and opinions of probable cost to add funding for these projects into the City's CIP. The City, being forward-thinking, has a head start here: there is already more than $150,000 annually in funding dedicated to many of the project recommendations included in this master plan throughout the City, such as sidewalks and mobility within the CRA, beach crossover improvements, paving fund, and corner improvements for ADA accessibility and inlet. In addition to these Citywide and CRA focused line-items, the City has already identified $75,000 annually to implement projects from this master plan. This CIP line item for plan implementation will go a long way toward funding a preliminary concept phase or design phase and seeking grant funding for construction, and can be supplemented with funding from the other project line-items for construction as appropriate. Many of the grant programs identified in this report require a local match for the local agency to identify they have some "skin in the game" when it comes to delivering the project.

There are a variety of grant and funding opportunities available to leverage the funding that the City has already identified in the CIP for projects in the Presidential Streets. Having an approved Master Plan with identified capital improvement projects and program enhancements in place will increase the likelihood of receiving additional funding for specific projects by providing an overall vision, community support, and technical implementation criteria that will help implement the overall goals of the community. This listing is not intended to be exhaustive as there may be additional funding opportunities that can further assist with design and development assistance for the identified redevelopment program. In addition, new sources and modified grant program opportunities should be evaluated annually at the regional, state, and national levels.

It is recommended, during the "annual review process," available and applicable funding opportunities be explored to determine project specific criteria as well as revisions to application procedures, guidelines, and dollar amounts. Funds can be applied to the following stages of implementing the previously mentioned recommendations:

- Conservation/Restoration/Resiliency
- Education
- Infrastructure/Capital
- Design
- Planning
- Parks/ Recreation/Trails
- Stormwater/Drainage
- Streetscape
- Land Acquisition
- Economic Development
- Art/Historic Preservation/Wayfinding
- Green Energy/Electric Vehicles
- Law Enforcement/Community Policing

A detailed table that provides funding agency and project category is included in ***Appendix E***.

Appendix A

Community Engagement

City of Cape Canaveral

Presidential Streets Master Plan

Building A Better Community Together

The City of Cape Canaveral is seeking your input for the **Presidential Streets Master Plan** to design a path forward for implementing street improvements for the community!

Community Engagement

The goal of the **Presidential Streets Master Plan** is to build upon local momentum to implement several initiatives and projects over the next several years to create a destination that includes improved pedestrian and bicycle access, traffic management, stormwater management, public investment, and sense of place. Come join the City of Cape Canaveral for an interactive community workshop where you can share what your vision looks like for the Presidential Streets network and identify ways to achieve it!

Community Workshop

Where

Cape Canaveral
Public Library
201 Polk Ave
Cape Canaveral, FL

When

February 23, 2022
6:00 p.m. to
8:00 p.m.

Interactive Survey

In addition to the community workshop, make sure to take the fun and interactive Survey to further inform the recommendations and design evaluation process for the Presidential Streets network:

Per CDC guidelines: everyone 2 years or older who is not fully vaccinated should wear a mask in indoor public place. If you are fully vaccinated, to maximize protection and prevent possibly spreading COVID-19 to others, wear a mask indoors in public if you are in an area of substantial or high transmission.

www.cityofcapecanaveral.org/projects

Kimley»Horn
Expect More. Experience Better.

City of Cape Canaveral - Government
@CapeCanaveralFL

Presidential Streets Community Workshop: TONIGHT at 6pm!
Join your neighbors @ Cape Canaveral Library for a conversation about street improvements in our community.
Note: for this event the entrance will be through the side (west facing door) instead of the main library entrance

10:05 AM · Feb 23, 2022 · Twitter Web App

1 Retweet **1** Like

Appendix B

Stormwater Analysis

Presidential Streets
Existing Stormwater Collection
System Review
Prepared for
City of Cape Canaveral, FL

Presidential Streets
Existing Stormwater Collection System Review
City of Cape Canaveral, FL

Prepared by:

Kimley-Horn and Associates, Inc.
Orlando, Florida
148192004

January 20, 2022

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Kimley»Horn

Table of Contents

1. SUMMARY

The purpose of this document is to summarize Kimley-Horn's findings relating to the existing stormwater management collection system within the area known as "Presidential Streets. This report outlines the findings and the information that will required to further analyze the existing stormwater collection system. Kimley-Horn has reviewed documents provided by the City of Cape Canaveral and historical documents permitted through St. Johns River Water Management District (SJRWMD) for projects within the overall study area.

The overall study area ranges from Chandler Street (North) to Johnson Ave (South) and from the beach (east) to A1A (west). This area lies within the following drainage basins which all ultimately discharge to Banana River:

- A portion of Canaveral Basin
- International Basin
- Center Basin

The focus area ranges from Harrison Ave (north) to Pierce Ave (South) and from the beach (east) to A1A (west). This area lies within the following drainage basins which all ultimately discharge to Banana River:

- A portion of International Basin
- A portion of Center Basin

Exhibit A "Base Map" depicts the study and focus area for this drainage review. **Exhibit B** "Stormwater Map of Cape Canaveral" depicts.

From the SJRWMD permit research the two most relevant projects to this drainage analysis were the Ridgewood Avenue Improvements project (SJRWMD Permit #122353-1) (Section 3, this document) and the Cape Canaveral Multi-Generational Facility projects (SJRWMD Permits: #140486-1, #140486-2, #140486-3) (Sections 4 thru 6 this document).

Information gathered to be used for further stormwater analysis:

- ArcGIS model of the City's stormwater system (Section 2.1)
- As-built information of the exfiltration system within City Park (Section 4.3)
- Construction plans and drainage report for Ridgewood Ave Improvements (Section 3)
- Construction plans and drainage report for Canaveral City Park (Section 4)

To further analyze the existing stormwater collection system, Kimley-Horn will require the following information to provide a recommendation to the City.

- Surveyed as-built information of the exfiltration systems constructed along Ridgewood Ave.
- Surveyed as-built information for the stormwater collection systems within the subject basins. Survey to include rim elevation, pipe sizes, inverts, and slopes.
- A drainage model of the existing conditions will need to be created with the as-built information. This will be used as a basis to show how the system is currently performing and how potential changes will impact the system.
- Geotechnical exploration to be required as needed where new systems are to be proposed.
- Topographic survey or LIDAR to analyze and establish drainage basins and flow patterns.

2. DOCUMENTS PROVIDED BY CITY OF CAPE CANAVERAL

1. "cocc_stormwater_map" is a folder of files with ArcGIS data providing the following information:
    a. Basin Area and delineation (no topo provided to support)
        i. Sub-basin area delineations are not provided
    b. Location of existing stormwater inlets
    c. Location of existing inlets that are in the process of being improved
    d. Does not include structure information e.g. pipes, inverts, direction of flow, structure top elevations, etc.
2. "CoCC MGF_Conformed_CIVIL 2020-10-16" are civil construction documents dated October 2020 for the 'Cape Canaveral Multi-Generational Facility'. This project proposes to demo the southern ball field to propose a future skate park and future playground expansion. This project also proposes to demo the basketball hoops and soccer field to the north and replaces them with a multi-generational facility.
    a. Project lies between Monroe Ave (North) and Harrison Ave (South) and between Magnolia Ave (East) and Orange Ave (West).
    b. Project proposes on-site stormwater management system with a retention area.
    c. These plans do not show the as-built exfiltration system permitted by Geosyntec on plans dated January 2015 submitted to SJRWMD (permit #140486-1). **Need to confirm if exfiltration system was modified.**
3. The "Stormwater Map of Cape Canaveral" dated Nov. 2006
    a. depicts basins, outfalls, inlets, pipes, and flow path (no topo to support).
4. Photos of the existing conditions

3. RIDGEWOOD AVENUE IMPROVEMENTS (SJRWMD PERMIT #122353-1)

This permit proposed to retrofit (17) existing stormwater inlets with exfiltration boxes along Ridgewood Ave. The project consists of ±6,600 LF beginning at Grant Ave and ending at Central Blvd, which occupies more than 16 blocks of residential neighborhoods.
Available Documents:

1. Drainage Report by *Stottler Stagg & Associates* dated September 25, 2009. This report provides the design conditions of the stormwater exfiltration system and details the Ridgewood Avenue construction phasing.
    a. Results for storm scenarios were not included as part of this report.
    b. Pre/Post Basin delineation exhibits
        i. Basin delineations are a standard offset from the centerline of the roadway and do not model the overall existing conditions.
        ii. Design inlet information (inverts, pipes sizes, rim elevation) are provided as part of these exhibits

1. Stormwater model can be recreated using the design information, but it would analyze the design condition and not the as-built condition.

c. Pre/Post Basin calculations for CN
d. TC calculations not provided for pre/post basins
e. Exfiltration system information
    i. Typical section, Standard detail, and total storage volume per unit.

2. Drainage Report by *Stottler Stagg & Associates* dated October 16, 2009. This report provides updated exfiltration system information.
    a. This revision upsized the total cumulative volume of the exfiltration systems from 477CF to 642CF.
3. Subsurface Soil Exploration and Geotechnical Engineering Evaluation report by *Ardaman & Associates* dated September 25, 2009. Study was done to evaluate the existing pavement profile and soil stratigraphy beneath the pavement and proposed pedway to provide recommendations for site preparation of the proposed pedway.
    a. Estimated SHWT provided
    b. Existing pavement depth information
4. Phase I Construction plans by *Stottler Stagg & Associates* dated July 2009. These plans propose to reduce the existing driveway width from 29.5 FT to 22 FT and proposes an 8 FT wide pedway along the west side of Ridgewood's ROW. Exfiltration systems are also proposed as part of this construction plan. Aerial imagery confirms this phase has been completed.
5. Phase II Construction plans by *Stottler Stagg & Associates* dated January 21, 2010. Plans propose the milling and resurfacing of the existing asphalt roadway.
6. Phase III and Phase IV Construction plans were not available for download on SJRWMD's portal. Per the drainage report, these phases propose hardscape and landscape improvements, and demolition of the remaining structures which are behind the ROW.
7. 60% Construction plans by *Geosyntec* dated September 30, 2014. These plans are the 60% version of the construction plans permitted under SJRMWMD permit #140486-1 for the proposed exfiltration systems under the City Park ball fields (see Section 4).
    a. At this time is not clear why these construction plans were uploaded as part of this permit as it does not show any work along Ridgewood Ave. Further investigation is needed to determine if Ridgewood Ave. stormwater collection system is collected within the exfiltration system permitted under SJRWMD Permit #140486-1 (see Section 4).
    b. These plans provide a sheet titled "C-2 Overall Existing Storm Drainage System" which is a Nodal Diagram of the "International Basin" shown in "Stormwater Map of Cape Canaveral" dated Nov. 2006 provided by the City of Cape Canaveral (see Section 2.4).
8. "Project Site and Infrastructure Map" by *Geosyntec* dated March 2014. This map shows the location of the proposed exfiltration systems (SJRWMD Permit #122353-1) in relation to the overall "International Basin" and stormwater collection system. **See Exhibit C**.
    a. At this time, it is not clear why this plan was uploaded as part of this permit and not SJRWMD Permit #140486-1 (see Section 4)

4. CITY PARK STORMWATER RETROFIT (SJRWMD PERMIT #140486-1)

Submittal by *Geosyntec* which proposes two large exfiltration systems underneath the ball parks.
Available Documents:

1. Drainage Report by *Geosyntec* dated October 2014
2. Permit Set Construction Plans by *Geosyntec* dated January 2015
3. Surveyed As-builts by *Donoghue Construction Layout* dated January 2017. Info provided for:
    a. AB Curb
    b. AB Irrigation Improvements
    c. AB Drainage Improvements – pipes, inlets, exfiltration system.
4. Geotech Report by *Ardaman & Associates* dated August 15, 2013

5. CAPE CANAVERAL MULTI-GEN FACILITY (SJRWMD PERMIT #140486-2)

This permit modifies SJRWMD Permit #140486-1. The existing condition discharges the on-site irrigation runoff directly to Banana River Lagoon. This permit modifies the site to capture and treat on-site irrigation runoff within the exfiltration system, reducing the TN and TP pollutant loads. From *Geosyntec's* report, "The City will control the discharge of reclaimed water to the exfiltration on an as needed basis based on the operational needs of the WRF. The automated control valve will be connected to telemetry that will allow the City to open and closed the valve remotely. A control panel will be constructed above ground to power the control valve and provide telemetry service."
Available Documents:

1. Construction Plans by *Geosyntec* dated August 2018
2. Drainage Report by *Geosyntec* dated August 2018
3. Surveyed As-builts by *Donoghue Construction Layout* dated January 2017. Info provided for:
    a. AB Reclaim Water
    b. AB Electrical

6. CAPE CANAVERAL MULTI-GEN FACILITY (SJRWMD PERMIT #140486-3)

Change of engineer from *Geosyntec* to *Allen Engineering*. This permit reflects the design proposed in the City Provided Document "CoCC MGF_Conformed_CIVIL 2020-10-16" (Section 1). This project proposes to demo the southern ball field to propose a future skate park and future playground expansion. This project also proposes to demo the basketball hoops and soccer field to the north and replaces them with a multi-generational facility.
Available Documents:

1. Construction Plans by *Allen Engineering* dated February 2019. Please see plans provided by the City (See Section 2.2) for latest available.
    a. Latest plans revise the swale geometry and stormwater collection system
2. Drainage Report by *Allen Engineering* dated January 2019.

Exhibit A:

Base Map

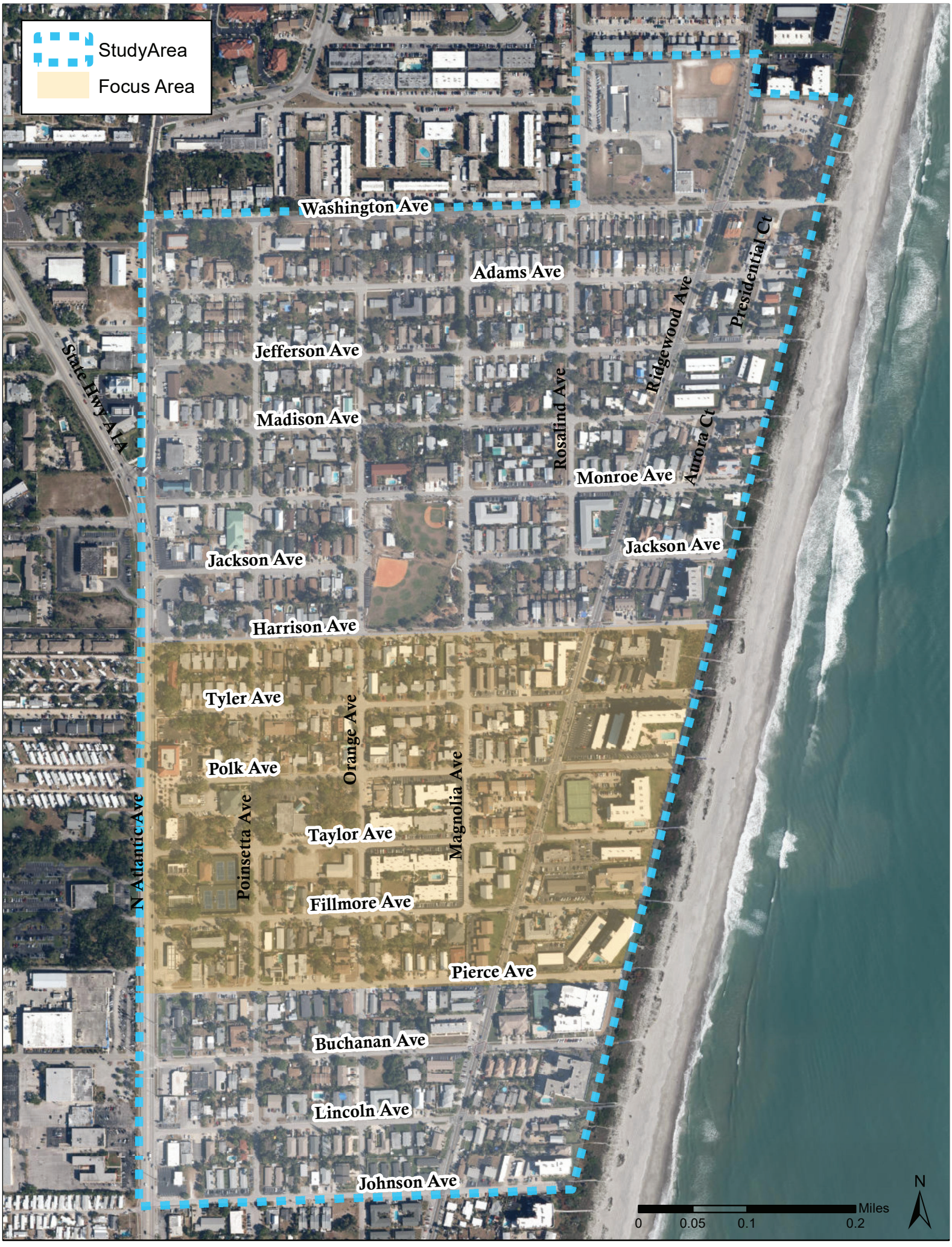

StudyArea
Focus Area
Washington Ave
Adams Ave
Jefferson Ave
Madison Ave
Jackson Ave
Harrison Ave
Tyler Ave
Polk Ave
Taylor Ave
Fillmore Ave
Pierce Ave
Buchanan Ave
Lincoln Ave
Johnson Ave
State Hwy A1A
N Atlantic Ave
Poinsetta Ave
Orange Ave
Magnolia Ave
Rosalind Ave
Ridgewood Ave
Aurora Ct
Presidential Ct
Monroe Ave
Jackson Ave
0
0.05
0.1
0.2
Miles
N

Exhibit B:

Stormwater Map of Cape Canaveral

STORMWATER MAP of CAPE CANAVERAL

Legend

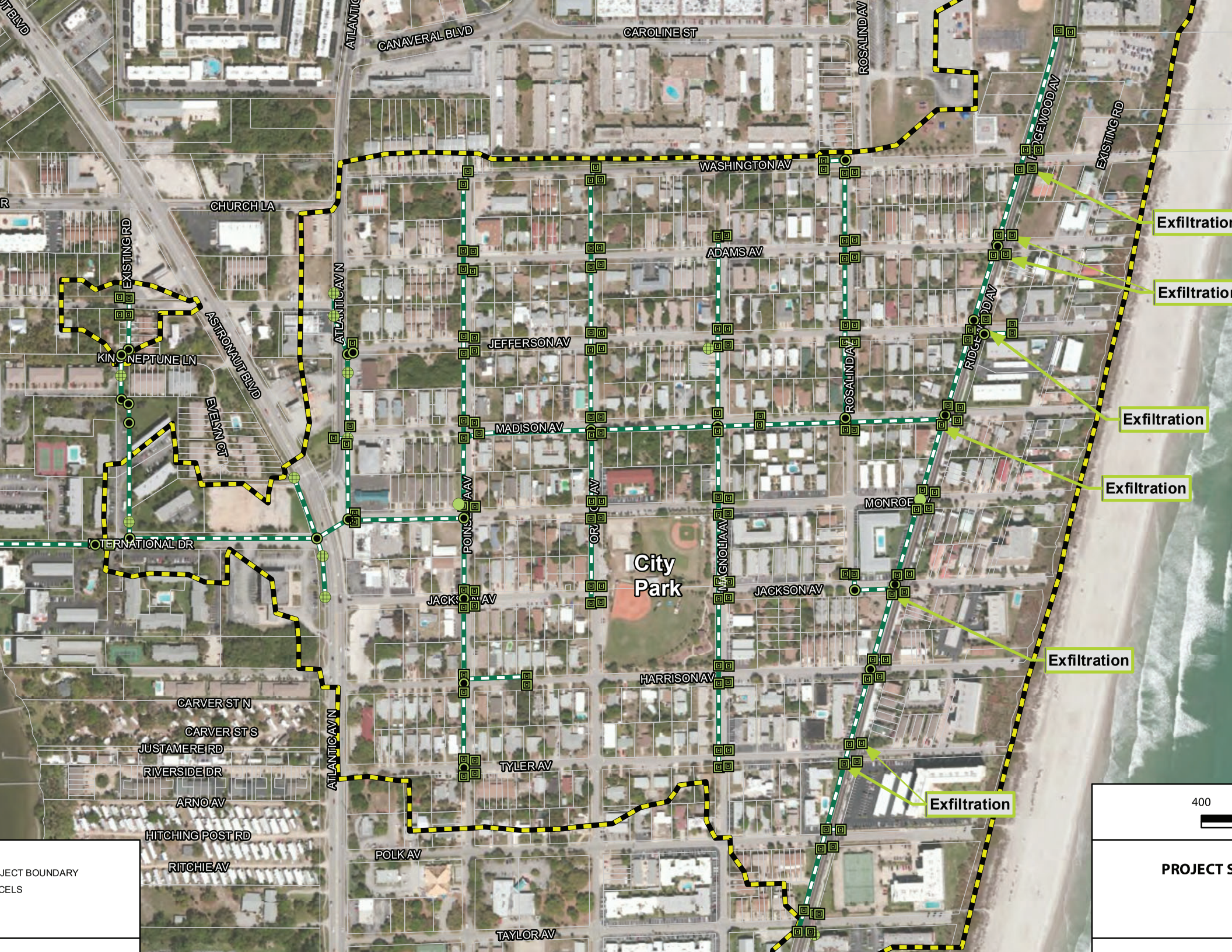
- Outfall
- Baffle Box
- Central Basin
- Canaveral Basin
- International Basin
- Center Basin
- Holman Basin

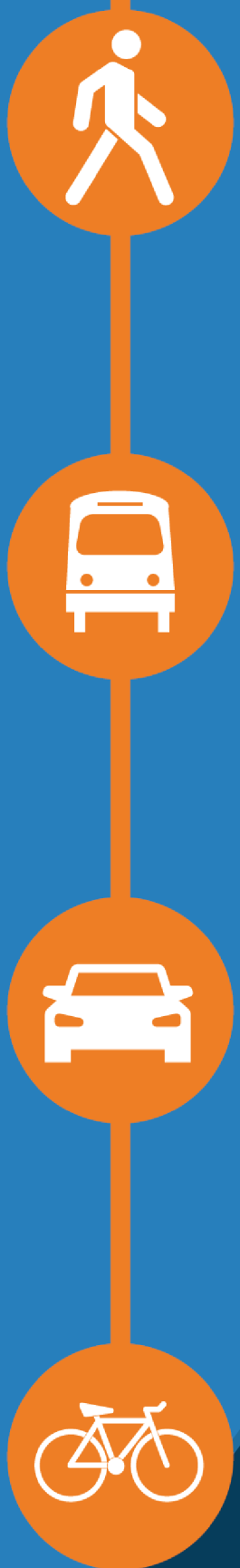
Nov. 2006
Rev 1

SUN SPACE AND SEA
CITY OF CAPE CANAVERAL

Exhibit C:

Project Site and Infrastructure Map


CANAVERAL BLVD
CAROLINE ST
ROSALIND AV
WASHINGTON AV
CHURCH LA
EXISTING RD
ASTRONAUT BLVD
ATLANTIC AV N
ADAMS AV
JEFFERSON AV
MADISON AV
ROSALIND AV
RIDGEWOOD AV
EVELYN CT
NEPTUNE LN
TERNATIONAL DR
POINSETTIA AV
ORANGE AV
MONROE
City Park
MAGNOLIA AV
JACKSON AV
HARRISON AV
TYLER AV
POLK AV
TAYLOR AV
CARVER ST N
CARVER ST S
JUSTAMERE RD
RIVERSIDE DR
ARNO AV
HITCHING POST RD
RITCHIE AV
Exfiltration
Exfiltration
Exfiltration
Exfiltration
Exfiltration
Exfiltration
400
PROJECT S
JECT BOUNDARY
CELS



Appendix C

Recommended Landscaping Guid

Planting List

This plant list is not comprehensive in nature but should be used as a guide in selecting suitable native plants for the Presidential Streets, as part of the East Central Florida Region.

Canopy Trees

Acer rubrum (Red Maple)
Bursera simaruba (Gumbo Limbo)
Magnolia grandiflora (Southern Magnolia)
Quercus virginiana (Live Oak)
Simarouba glauca (Paradise Tree)
Taxodium distichum (Bald Cypress)
Ulmus americana (Florida Elm)

Understory/Ornamental Trees

Conocarpus erectus var. sericeus (Silver Buttonwood)
Cornus foemina (Swamp Dogwood)
Ilex cassine (Dahoon holly)
Ilex vomitoria (Yaupon Holly)
Myrica cerifera (Wax Myrtle)

Palms

Acoelorrhaphe wrightii (Paurotis Palm)
Sabal palmetto (Cabbage Palm)

Shrubs

Cephalanthus occidentalis (Buttonbush)
Chrysobalanus icaco (Coco Plum)
Coccoloba uvifera (Seagrape)
Ernodea littoralis (Golden Creeper)
Hamelia patens (Firebush)
Myrcianthes fragrans (Simpson's Stopper)
Psychotria nervosa (Wild Coffee)
Sabal minor (Dwarf Palmetto)
Serenoa repens (Saw Palmetto)
Viburnum obovatum (Walter's Viburnum)
Zamia integrifolia (Coontie)

Ornamental Grasses

Aristida stricta (Wiregrass)
Eragrostis elliottii (Elliott's Lovegrass)
Muhlenbergia capillaris (Muhly Grass)
Tripsacum dactyloides (Eastern Gama Grass)
Tripsacum floridanum (Dwarf Fakahatchee Grass)

Perennials and Groundcovers

Helianthus debilis (East Coast Dune Sunflower)
Mimosa strigillosa (Sunshine Mimosa)
Rudbeckia hirta (Black-eyed Susan)
Salvia coccinea (Scarlet Sage)
Stachytarpheta jamaicensis (Blue Porterweed)
Yucca filamentosa (Adam's Needle)

Rain Garden Plantings

Canna flaccida (Yellow Canna)
Crinum americanum (Swamp Lily)
Hibiscus coccineus (Scarlet Hibiscus)
Pontederia cordata (Pickerelweed)
Spartina patens (Cordgrass)

Image Credit: Florida Association of Native Nurseries, Florida Native Plant Society, Florida Wildflower Foundation, Google Street View – Gainesville, FL, and UF IFAS.

Florida Native Plant Society – Brevard County Plant List
https://www.fnps.org/plants?searchtype=filter&zip=&county%5B%5D=brevard&sortview=form

Appendix D

Resiliency Assessment

Presidential Streets Master Plan
Resiliency Assessment

Executive Summary

The coastal City of Cape Canaveral is no stranger to the potential impacts and threat of climate change. With a recently completed Resiliency Action Plan, local leaders and staff have a clear picture of the potential threats they face that could critically impact the wellbeing and way of life in this area; some of these threats include sea level rise, storm surge, coastal flooding, and day to day reoccurring flooding. The City has identified these threats and opportunities to mitigate the risk for all citizens. Building community resilience can impact nearly every aspect of civic life, including the implementation of sound public policy and good governance. As part of the Presidential Streets Master Plan, a Resiliency Assessment was completed for the core area within Cape Canaveral, known as the Presidential Streets. Within Presidential Streets, this assessment highlights a Focus Area made up of a grid network, with six (6) east-west corridors (Pierce Avenue, Fillmore Avenue, Taylor Avenue, Polk Avenue, Tyler Avenue, and Harrison Avenue) and five (5) north-south corridors (Atlantic Avenue, Poinsetta Avenue, Orange Avenue, Magnolia Avenue, and Ridgewood Avenue). This area is generally known to have the greatest civic and governmental uses within the City and is primarily residential. As part of this assessment, an existing conditions review was completed to identify specific focus areas and outline high-level resiliency solutions that can be implemented in conjunction with or as part of other initiatives being completed by the City of Cape Canaveral.

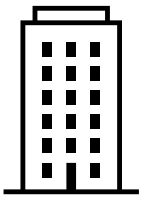
Intersection of Ridgewood Ave. and Washington Ave. in Cape Canaveral

As noted, the City of Cape Canaveral has been extremely proactive in addressing and mitigating climate change risks, and this resiliency assessment is another opportunity to continue this effort on a micro scale. These initiatives are important for ensuring the longevity of the City and prioritizing the safety, security and well-being of residents while also continuing to prioritize the important status as a socioeconomic, multimodal hub for tourism within the Space Coast industry.

Intersection of N. Atlantic Ave. (A1A) and Tyler Ave. in Cape Canaveral

Existing Conditions Assessment

In order to identify resiliency solutions that fit the character and need of the Presidential Streets, an existing conditions assessment was conducted for a variety of resiliency related factors, also known as shocks and stressors, to get an idea of the overall risk facing this specific area of the City of Cape Canaveral. This was done through a mapping analysis to identify where these factors are located within the Presidential Streets, and where local populations and physical infrastructure are most at risk. The four (4) major themes that were evaluated in this assessment include the following:



Critical Facilities

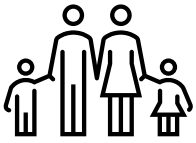
The project team evaluated critical facilities located in Presidential Streets that are important for building resiliency and mitigating impacts when disasters do occur. These facilities include fire service and law enforcement buildings, transportation operation facilities, gas stations, grocery stores, educational facilities, waste facilities, government-owned buildings, public utility stations, and HazMat facilities.

Flood Hazards & Storm Surge Risk

Due to the coastal nature of Cape Canaveral and specifically the Presidential Streets, the area is susceptible to flood risk and sea level rise. Flood hazard mapping was completed to help identify areas that are most at risk and develop specific recommendations.

Transportation Characteristics and Facilities

Several factors related to transportation were evaluated as part of this resiliency assessment. These characteristics include evacuation routes, crash data, average annual daily traffic counts (AADT) and the location of specific transportation facilities. These elements all play a role in the resiliency of a community in that the facilities must be easily accessible and properly located.



Social Vulnerability

A social vulnerability analysis was also completed to understand the general need and the vulnerability of the population in the Presidential Streets when facing potential natural disasters or other risks. This analysis evaluated data including socioeconomic status, household composition & disability, minority status & language, among other factors.

A breakdown of the specific data sources used for each of the themes is available in **Figure 1**. The analysis allowed the project team to identify specific areas where conditions are resilient and where there are vulnerabilities. This section will review the data evaluated in the existing conditions assessment. Based on this assessment, solutions and recommendations for focus areas were outlined, which will be discussed in more detail in the following sections.

Figure 1 - Data Analyzed for Existing Conditions Assessment

Data Analyzed	Source	Major Themes
Fire Stations, Gas Stations, Government Buildings, Police Stations, Public Libraries, and Schools	City of Cape Canaveral, 2022	Critical Facilities
Evacuation Routes	Florida Department of Transportation (FDOT), 2022	Transportation Facilities
Federal Emergency Management Agency (FEMA) 1% Annual Chance Flood Event	Federal Emergency Management Agency (FEMA), 2021	Flood Hazards & Storm Surge
Sea, Lake, and Overland Surges for Hurricanes (SLOSH) Category 3 Storm Surge	East Central Florida Regional Planning Council (ECFRPC), 2021	Flood Hazards & Storm Surge
Roadways, Sidewalks, Bus Routes	Florida Department of Transportation (FDOT), Space Coast Transit, City of Cape Canaveral, Various Years	Transportation Characteristics and Facilities
Street Criticality	City of Cape Canaveral, 2022	Transportation Characteristics and Facilities
Vehicular, Pedestrian, and Bicycle Crashes	Signal Four Analytics, 2022	Transportation Characteristics and Facilities
Annual Average Daily Traffic (AADT)	Florida Department of Transportation (FDOT), 2022	Transportation Characteristics and Facilities
Persons Below Poverty **Unemployed Population** **Median Income per Capita** **Population 17 Years Old and Younger** **Population 65 Years Old and Older** **Population with Disabilities** **Household with No Vehicle**	United States Census, 2018	Social Vulnerability

Critical Facilities

Critical facilities provide an important and invaluable role in the resiliency of a specific area. The appropriate location of these critical facilities and residents' abilities to access them during emergencies or disasters can reduce disruption, limit risk, and provide critical and needed resources. Critical facilities include locations such as hospitals, fire stations, gas stations, government buildings, police stations, public libraries, and schools. These facilities are typically functional to some degree shortly after emergencies to offer any needed services or goods.

In the Presidential Streets, critical facilities are located heavily on the western edge of the Study Area. No facilities are currently located east of Orange Avenue outside of Cape View Elementary School, and this is likely due to the area's proximity to the Atlantic Ocean. According to the Federal Emergency Management Agency (FEMA), critical facilities should not be located in floodplains and should be provided a higher level of protection. As shown in **Map 1**, critical facilities in the Presidential Streets are concentrated near N. Atlantic Avenue (A1A) which serves as the area's sole evacuation route. This location allows for better access to these facilities, and from the facilities to evacuation if needed. Critical facilities found within the Presidential Streets include:

- City of Cape Canaveral City Hall
- Brevard County Sherriff's Office – Cape Canaveral Precinct
- Cape Canaveral Culture and Leisure Services Department
- Cape Canaveral Public Library
- Canaveral Fire Rescue Station 53
- Cape View Elementary School
- Gas Station - BP
- Gas Station – Circle K
- City of Cape Canaveral Community Center (C5)

While many of these locations are identified as critical facilities for the purposes of this assessment, it is important to note that not all of these facilities may be functioning during an emergency. Many of the critical facilities outlined in this resiliency assessment were also identified in the Resilient Cape Canaveral Action Plan as part of a larger network of facilities in the City of Cape Canaveral.

Map 1 - Critical Facilities in Presidential Streets

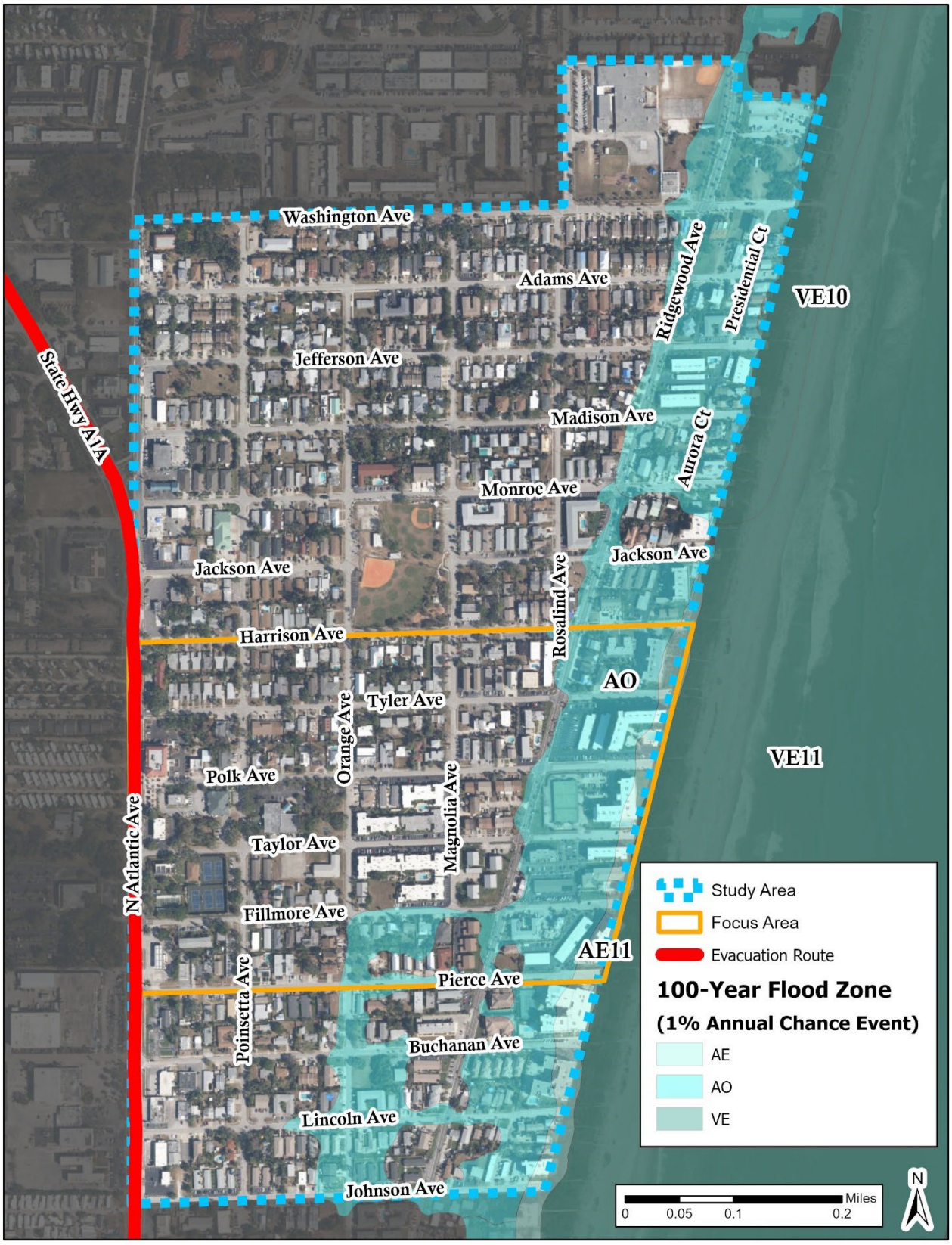
Flood Hazards and Storm Surge Risk

Floods as a result of natural disasters and inundations are hazardous as they can cause significant property and infrastructure damage while also be life threatening. While all areas in the US are prone to flooding to some degree, in the state of Florida, many communities are located within flood zones that carry significant risk due to their proximity to the Atlantic Ocean and the Gulf of Mexico. The Presidential Streets Study Area is extremely susceptible to storm surge and flooding due to its coastal location. However, there is variation in the level of risk experienced based on location within the Study Area.

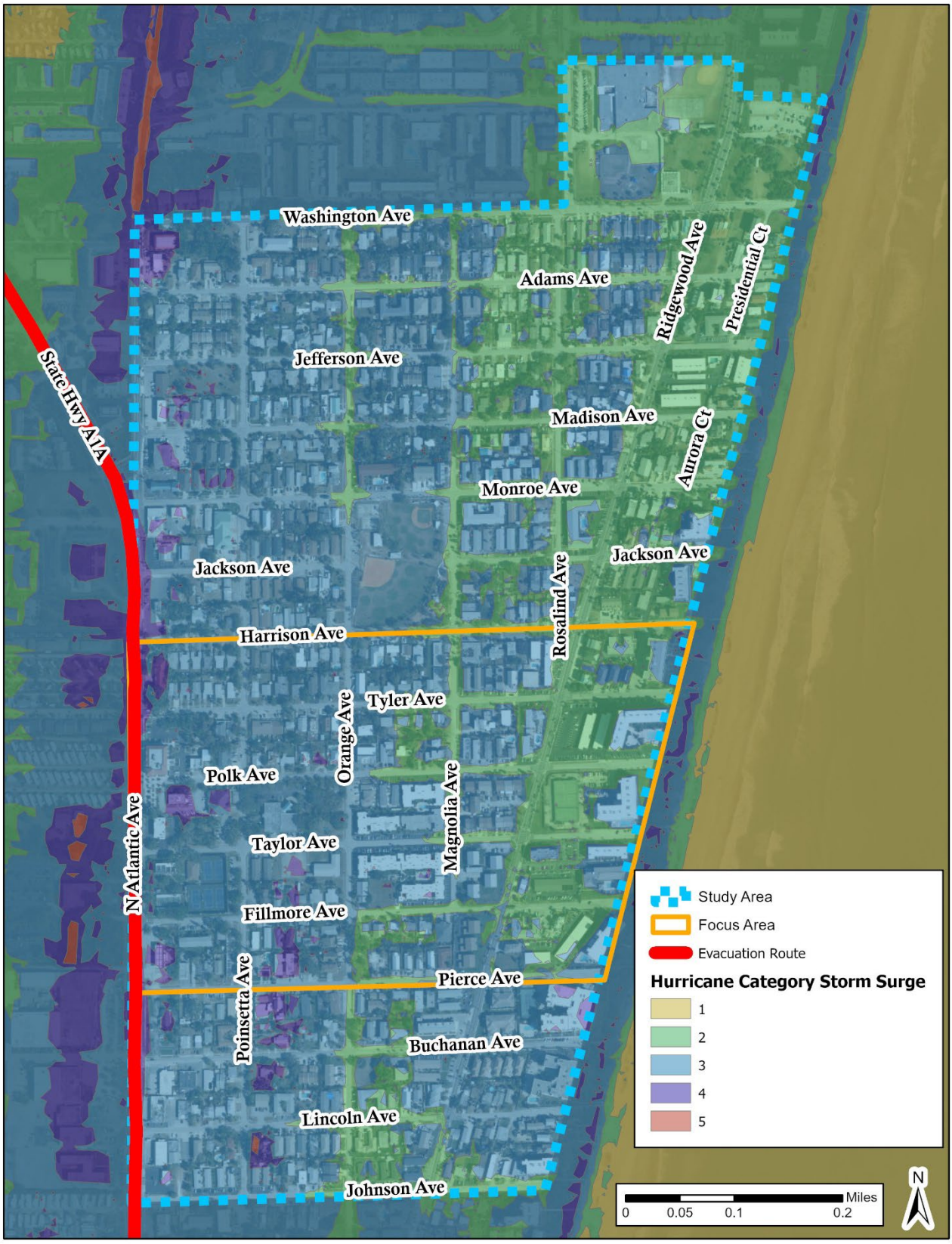
For this assessment, FEMA National Flood Hazard information was used to identify the flood risk in the Study Area. Based on this information, coastal Presidential Streets are located in an area at risk for a 1% Annual Chance Flood Event. A 1% Annual Chance Flood Event, also known as the 100-year flood, is defined as an area that has a 1% chance or higher of flooding in any given year. As shown in **Map 2**, the eastern edge of the Study Area and coastline, including most of Ridgewood Avenue, are located in this area, indicating a significant flood hazard.

In addition to evaluating flood hazards, storm surge risk was evaluated using the Sea, Lake, and Overland Surges from Hurricanes Model, also referred to as the SLOSH model. The SLOSH model was developed by the National Weather Services (NWS) and is used to estimate storm surge height. The categories displayed on the SLOSH model are the same categories used on the Saffir-Simpson Hurricane Wind scale. For example, any area within a Category 3 storm surge area would be potentially impacted by a Category 3 hurricane, based on the projected atmospheric pressure, size, forward speed, and track of that storm. Based on this data, much of the Presidential Streets is located within an area of potential Category 3 storm surge, with some coastal areas located in a Category 2. The western edge of the Study Area, where the majority of the Presidential Street's critical facilities are located, also has some small and isolated areas that are located in a Category 4 Storm Surge, indicating an area that is slightly more elevated. The Storm Surge map is shown in **Map 3**.

Storm-related flooding along Filmore Ave.



Map 2 - Flood Hazards



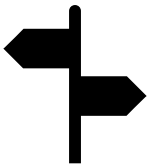
Map 3 - Storm Surge

Transportation Characteristics and Facilities

As previously mentioned, the Presidential Streets Focus Area is made up of six (6) east-west corridors and five (5) north-south corridors. The area has some multimodal opportunities including bicycle, pedestrian, and transit facilities, but lacks overall connectivity for these modes. As noted throughout the Master Plan document, several improvements are needed to create a well-connected roadway network that provide and promote multimodal connectivity. For the purposes of the existing conditions assessment, these facilities were evaluated on a very high level in conjunction with transportation data including crash information and AADT. This evaluation determined that the network is characterized by the following:

Lack of multimodal (sidewalk and bicycle facilities) connectivity within the Presidential Streets.

Transit facilities and routes are concentrated along N. Atlantic Avenue (A1A), the area's sole evacuation route and a main artery for Cape Canaveral.



The majority of roads in the area are low-speed, low-volume corridors that are mostly residential. This excludes N. Atlantic Avenue (A1A), which is a major corridor with high volumes and speeds. Crashes with bicyclists and pedestrians are concentrated at major intersections, mainly on N. Atlantic Avenue (A1A).

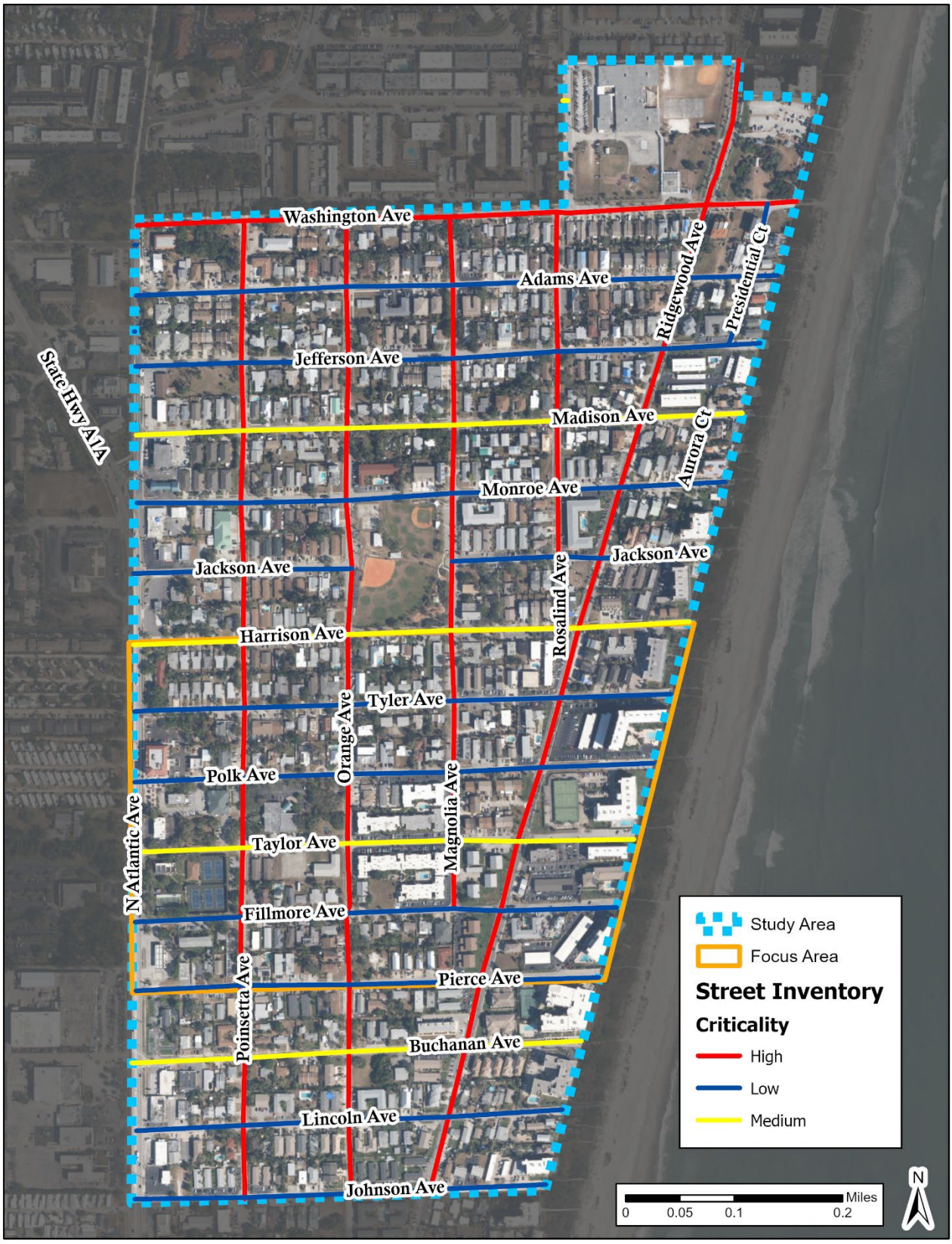
The location of existing roadways, sidewalks, and transit facilities in and surrounding the Presidential Streets is shown in **Map 4**.

This analysis also looked at the criticality of the roadway facilities in the Study Area. Criticality is a measurement developed by the City of Canaveral staff to prioritize pavement and street repairs based on the needs of the facility. Factors used to determine criticality include the following:

- Volume of Traffic
- Presence or Absence of Four-Way Stops
- Presence or Absence of Traffic Lights
- Zoning Designation
- Redevelopment Potential

As shown in **Map 5**, the majority of the streets that run east-west (Tyler Avenue, Polk Avenue, and Fillmore Avenue) in the Study Area are categorized as low to medium criticality, while all of the streets that run north-south (Poinsetta Avenue, Orange Avenue, Magnolia Avenue, and Ridgewood Avenue) have a high criticality. Streets with a high criticality likely have issues related to significant cracking due to aging roadways, cracked intersections, and weakening base materials.

Map 4 - Existing Transportation Facilities



Map 5 - Criticality

For this analysis, crash data was also evaluated. These crashes were analyzed using the University of Florida GeoPlan Center Signal Four Analytics. This crash analysis tool is developed and maintained by the Florida Department of Transportation (FDOT) and provides the details of every crash in Florida. For this analysis, crashes that occurred during a five-year range between 2016 and 2021 were mapped, as shown in **Map 6**. These crashes include both vehicular crashes, and those that involved a bicyclist or pedestrian. Areas on the map highlighted in green have fewer vehicular crashes, while the areas with yellow and red highlight areas with a larger number of vehicular crashes. In the Study Area, the majority of these high-density crash areas are located along N. Atlantic Avenue (A1A), which is the most utilized roadway by vehicles in the area.

Cracked Pavement near intersection of Jefferson Ave. and Poinsetta Ave.

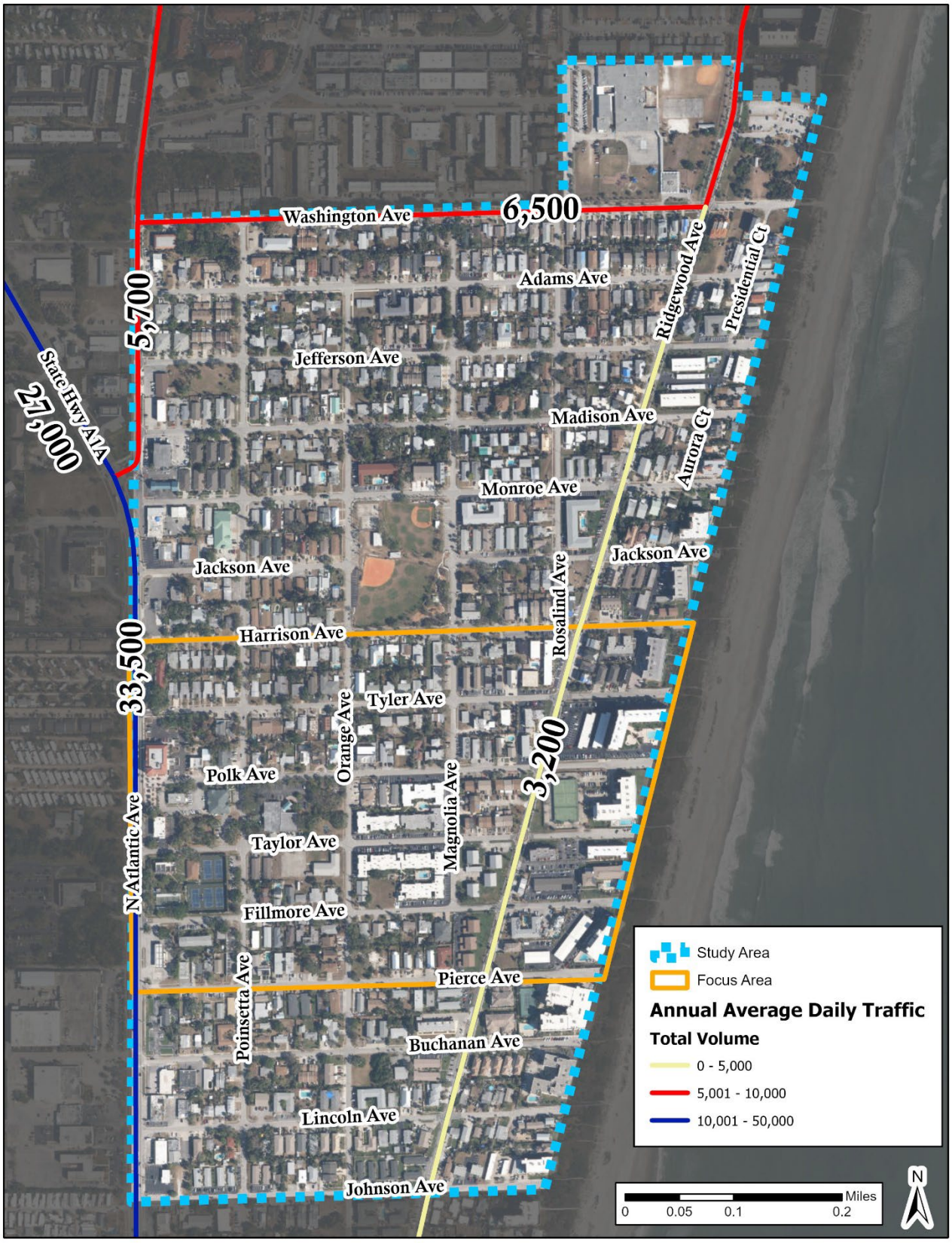
Additionally, this map displays the specific locations of bicycle and pedestrian crashes. Five (5) crashes involved a bicyclist and twelve (12) involved a pedestrian between 2016 and 2021. These crashes involve vulnerable users and can be more severe than vehicle-only crashes. This data paints an important picture of which intersections in the Presidential Streets are most dangerous for multimodal users. These unsafe intersections include:

- Harrison Avenue and N. Atlantic Avenue (A1A)
- Tyler Avenue and N. Atlantic Avenue (A1A)
- Taylor Avenue and N. Atlantic Avenue (A1A)
- Fillmore Avenue and N. Atlantic Avenue (A1A)
- Pierce Avenue and N. Atlantic Avenue (A1A)
- Taylor Avenue and Ridgewood Avenue

Finally, Annual Average Daily Traffic (AADT) data for the Study Areas roads was also mapped in **Map 7** to understand traffic volumes within the Study Area. Currently, FDOT does not collect AADT for local roads, and makes an assumption based on the FDOT Quality Level of Service Handbook that the AADT for these local roads is under 5,000. It can be inferred that these roads have a relatively low traffic volume, making these corridors generally safer for multimodal users without significant facilities.

N. Atlantic Avenue (A1A) and Ridgewood Avenue are the only corridors in the Study Area with recorded AADT. The AADT of these corridors are 33,500 and 2,700 respectively. N. Atlantic Avenue (A1A) has by far the highest AADT in the Study Area. The main importance of analyzing AADT from a resiliency perspective is determining the needs for maintenance and improvements based on the usage of these roads. The more a road is used, the more likely it is to need repairs in the short-term due to the constant toll that comes from the vehicles utilizing it.

Map 6 - Crash Data



Map 7 - Average Annual Daily Traffic Counts (AADT)

Social Vulnerability

Social vulnerability of the Presidential Streets area was also evaluated as part of the Resiliency assessment. The Center for Disease Control and Prevention (CDC) has created the Social Vulnerability Index (SVI) to measure the potential for negative impacts on at-risk communities. The themes used in the index are shown in Figure 2 and include socioeconomic status, household composition and disability, minor status and language, and housing type and transportation. For the purposes of this study, the specific factors that were analyzed include age, poverty level, income, transportation access, disability, and employment status.

Figure 2 - Social Vulnerability Index (SVI) Themes

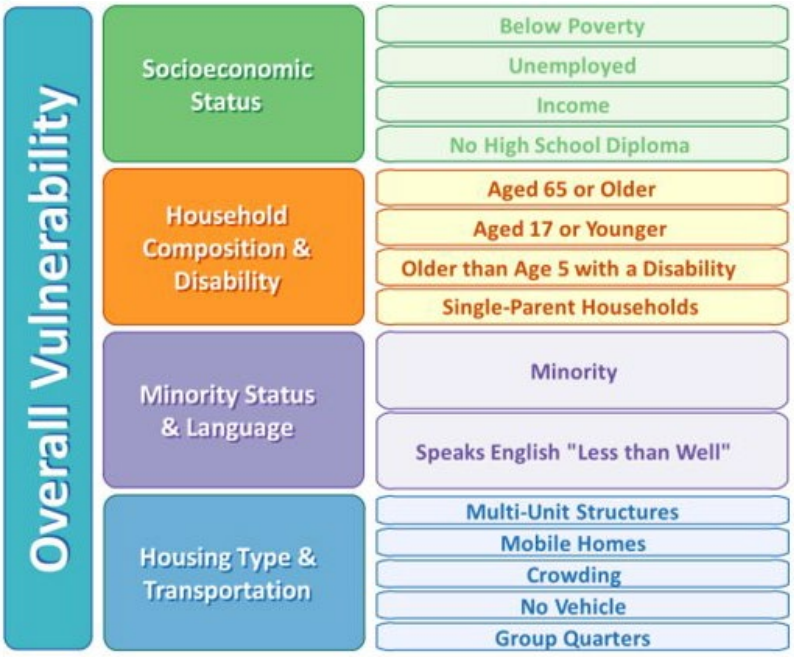


Figure 3 below shows how the Study Area, which is entirely contained within Census Tract 685.02, compares to Brevard County overall in each of these vulnerability themes identified in the SVI. The area included in Census Tract 685.02 encompasses more than the Presidential Streets Study Area. However, since this tract includes the Study Area population it is the most accurate and representative source of data available for the purpose of this assessment.

Figure 3 - Social Vulnerability Data for Census Tract 685.02, Presidential Streets

Vulnerability Theme	Brevard County	Study Area (Census Tract 685.02)
Socioeconomic Status	0.197	0.2929
Household Composition and Disability	0.2273	0.2892
Minority Status and Language	0.3939	0.1114
Housing Type and Transportation	0.1061	0.4651
Overall Vulnerability	**0.1212**	**0.241**

In the Census vulnerability data, the higher the value indicated for each theme the more vulnerable the community is. The Presidential Streets neighborhood is more vulnerable than the overall County with regards to socioeconomic status, demographics and disabilities, and housing type and transportation. Notably, the value for housing type and transportation is at 0.4651 in the Study Area, compared to just 0.1061 in the county, indicating a major gap and potential for an at-risk community.

The first of these vulnerability factors analyzed in this assessment is the percentage of the population of the Study Area below poverty, which is shown on **Map 8**. As shown on the map, the percentage of the population in poverty in the Presidential Streets area is higher than that of the neighboring census tracts. This indicates a high level of vulnerability for the Presidential Streets neighborhood in terms of socioeconomic status.

The percentage of unemployed people in the Study Area is shown in **Map 9**. 3.2% of the population in the Study Area is unemployed, compared to 2.5% in Brevard County, according to the Bureau of Labor Statistics, yielding a slightly higher rate than that of the County.

Map 10 displays the medium income per capita of the Study Area. This map shows that residents of the Study Area take in significantly less income than those in neighboring census tracts. The median income per capita for the Study Area is $31,862, while the median income for the surrounding census tracts ranges between $35,000 and $65,000.

Maps 11 and 12 show the minor and senior populations that live in the Study Area. As the maps display, there is a higher minor population (17 and younger) and a lower senior population (65 and older). This implies that there are more families and fewer retirement aged people than the nearby census tracts. Additionally, according to **Map 13**, the Study Area also has a slightly lower percentage of the people with disabilities than the surrounding census tracts. This is likely due to the fact that the Study Area has fewer senior residents than its neighboring census tracts.

The final social vulnerability map, **Map 14** shows the percentage of households in the Study Area with no personal vehicle, which is 15.7%. This is higher than that of neighboring census tracts, which likely stems from the lower income in the Study Area.

As noted, the social vulnerability for the Presidential Streets neighborhood is higher than that of Brevard County and higher, in most cases, than the neighboring census tracts within the City limits of Cape Canaveral. The neighborhood is representative of a younger population bringing in less income than other parts of the City, some of whom are considered in poverty. That said, this population is employed at a similar rate to the rest of the County, so their lower income could be related to lower education level or the industries in which they are working. These are unique socioeconomic characteristics for a Florida coastal community, and are unlike similar geographically located communities that have more wealth, higher incomes, and an older population. The socioeconomic vulnerability for the Presidential Streets translates into a neighborhood that may be at-risk for negative impacts, and should be addressed through resilience policies.

Map 8 - Percentage of the Population Below Poverty

Map 9 - Percentage of Unemployed Persons

Map 10 - Median Income Per Capita

Map 11 - Percentage of the Population 17 and Younger

Map 12 - Percentage of the Population 65 and Older

Map 13 - Percentage of the Population with Disabilities

Map 14 - Percentage of Households with No Vehicle

Current Resiliency Planning Initiatives

The City of Cape Canaveral, Brevard County, and the East Central Florida Regional Planning Council are highly coordinated in the planning and implementation of resiliency initiatives to ensure that the City of Cape Canaveral is "Future-Ready." This ensures that Cape Canaveral remains a strong and sustainable municipality that is able to address and mitigate challenges that could potentially arise. Several plans have been written, adopted, and are in various stages of implementation in the region, which provide a strong foundation for the resiliency solutions outlined in this assessment. These plans include:

- Brevard County Local Mitigation Strategy (2020)
- Resilient Cape Canaveral Action Plan (2021)
- ECFR2C Strategic Resiliency Action Plan (2021)

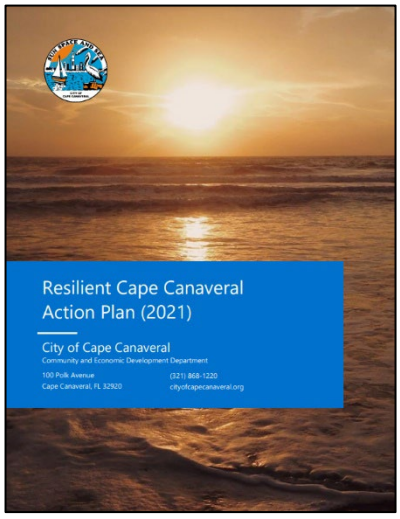
Through these specific plans the City of Cape Canaveral intends to implement resiliency solutions that will positively impact the community far into the future and improve its overall resiliency, especially in vulnerable areas such as the Presidential Streets. The following solutions are currently underway as part of each of these monumental and important plans and are generally reflective of the resiliency solutions that will be presented later in this assessment. This list of plans and assessments discussed in this section is not exhaustive, and the project team recognizes that there are several other vulnerability assessments and guiding documents that are part of the larger resiliency strategy.

Brevard County Local Mitigation Strategy

Brevard County is required to complete a Local Mitigation Strategy, or LMS, every 5 years to ensure that sustained actions are taken to help reduce and mitigate any future disasters or emergencies that may occur. This can help ensure resiliency within communities throughout Brevard County. This document consists of a vulnerability assessment and hazard profile for each of the municipalities located in Brevard County. The City of Cape Canaveral was extremely participative and will continue to remain involved as the LMS is updated. This level of analysis is extremely important and allows municipalities the opportunity to gain a deeper level of understanding of the risk they face and the strategies that may implement for mitigation purposes. The LMS accounts for pre and post disaster resilience and establishes committees to take preparative actions.

Resilient Cape Canaveral Action Plan

The City of Cape Canaveral completed a Resiliency Action Plan in 2021 that includes dozens of actions to create a resilient and sustainable future. This plan was preceded by the Resilient Cape Canaveral 2019 Vulnerability Assessment. This Action Plan was unanimously adopted by



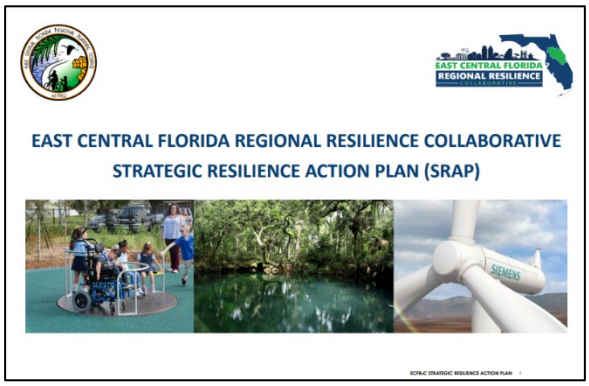
Cover of Resilient Cape Canaveral Action Plan (2021)

the City Council in June 2021 and is representative of the commitment to ensuring a resilient and future through the implementation of actionable items, or Preparedness Targets. The resiliency solutions presented in this assessment are consistent with the below recommendations from the Resilient Cape Canaveral Action Plan.

- Plant native and Florida-friendly trees and plants *(Preparedness Target 10)*
- Use Low Impact Development (LID) or Xeriscape practices on roadways *(Preparedness Target 14)*
- Cover all bus stops and illuminate via solar powered lighting *(Preparedness Target 23)*
- Introduce Complete Street design and install ADA compliant sidewalks *(Preparedness Target 24)*
- Convert 100% of City's streetlights to solar by 2050 (Preparedness Target 29)
- Capture stormwater for reuse through stormwater chambers, rain barrels, or green roofs *(Preparedness Target 36)*
- At least 25% of new City roads, parking, and sidewalks should be permeable *(Preparedness Target 37)*

ECFR2C Strategic Resiliency Action Plan

This plan was completed by the East Central Florida Regional Resilience Collaborative, or R2C, and the East Central Florida Regional Planning Council. This plan represents a collaborative effort by many different stakeholder groups to not only identify vulnerability and risk in the region, but also identify goals for a larger resiliency strategy. Many of the goals align with those of Cape Canaveral, which is identified as a formal partner in the plan. Some goals from this plan that are in line with some of the resiliency concerns in Cape Canaveral, and more specifically, the Presidential Streets, include the following:



Cover of Strategic Resiliency Action Plan

- Implement infrastructure projects to reduce heat island effect (Infrastructure Goal 1)
- Increase the implementation of regionally (cross-jurisdiction significant resilient infrastructure projects. (Infrastructure Goal 7)
- Decrease flood impacts across the region. (Infrastructure Goal 8)
- Develop an integrated regional scale risk and hazard assessment accounting for social vulnerabilities, climate sensitivities, and future conditions based on scientific data. (social vulnerabilities + risk analysis + historical hazard occurrence/future conditions) *must satisfy multiple federal level risk assessment requirements and could include natural and human made. (Regional Risk & Vulnerability Goal 1)
- Goal: Develop a regional list of mitigation projects emphasizing alignment, interactions, and strategies. (Regional Risk & Vulnerability Goal 2)

Local Resiliency Projects

In addition to planning initiatives, there are several notable projects going on that promote green infrastructure and resiliency in Cape Canaveral and the larger region. The following two projects highlight examples of improvements that may be incorporated into the Presidential Streets area.

Installing Flood Barriers to Increase Resiliency at Critical Facilities in Cape Canaveral

As part of its resiliency initiative, the City of Cape Canaveral installed flood barriers in 2020 at two critical facilities: the Water Reclamation Facility and the Public Works Services Administration Building. While the City has likely installed more of these in other locations, this is an excellent example of making resilient-minded upgrades to address flooding concerns that will result from sea level rise and hurricanes in the future.[1]

Minutemen Stormwater and Streetscape Improvements in Cocoa Beach

Cocoa Beach offers an example for using green infrastructure techniques to address resiliency and conservation issues faced by a community. This project installed urban planters, rain gardens, tree wells, exfiltration vaults and permeable pavers to allow stormwater runoff to mimic the natural water cycle, remove nutrients from the water, and return it back to the Banana River Lagoon. This provides an excellent local example of opportunities for treating stormwater and incorporating it back into the natural ecosystem without causing adverse impacts.[2]

[1] Eichholz, Z. (2021, May 26). City of Cape Canaveral Installs New Flood Barriers to Increase Resilience at Critical Facilities. *Preferred Governmental Insurance Trust.* (https://pgit.org/city-of-cape-canaveral-installs-new-flood-barriers-to-increase-resilience-at-critical-facilities/)

[2] Florida Department of Environmental Protection (2017, August 2). DEP Celebrates Completion of Minutemen Stormwater and Streetscape Improvement Project in Cocoa Beach. *Press Release.* (https://content.govdelivery.com/accounts/FLDEP/bulletins/1ac80ed)

Resiliency Solutions

Based on the existing conditions and current initiatives taking place in the Study Area and in the larger City of Cape Canaveral, several broad resiliency solutions were identified that fit into the overall resiliency strategy but are specific to the Presidential Streets. These solutions are intended to provide a general framework for initiatives that can be incorporated into future and planned projects as part of a larger resilience strategy already in place. These solutions are general suggestions and should be incorporated on a case-by-case basis where and when appropriate, but should be heavily focused on the following five (5) focus areas that were identified within the Presidential Streets based on the desktop analysis and community feedback via the surveys and workshops:

- **Focus Area 1**: Fillmore Avenue
- **Focus Area 2**: Poinsettia Avenue
- **Focus Area 3**: Magnolia Avenue and Tyler Avenue Intersection
- **Focus Area 4**: N. Atlantic Avenue (A1A) and Tyler Avenue Intersection
- **Focus Area 5**: Fillmore Avenue and Ridgewood Avenue Intersection

These resiliency solutions include a short description, the solution's priority for implementation, the identified responsible agency, and the general cost range to implement the identified objectives. Figure 4 below can be considered a key and identifies the different ranges that may be encountered on the following solution pages.

Figure 4 - Key for Understanding Solutions Pages

Priority	**Priorities may be low, medium, or high**
Focus Areas for Implementation	1, 2, 3, 4 and/or 5
Responsibility	Any identified local agency that may be applicable. This typically will include the municipality and/or county as primarily responsible. Other partners may be identified in the future.
Cost	These estimates are planning level cost estimates and are not associated with any other plan. They are intended to be general ranges solely for the purposes of this assessment: **$** - $0 to $50,000 **$$** - $50,000 to $250,000 **$$$** - $250,000 to $500,000 **$$$$** - $500,000+

Solution 1: Elevating and Undergrounding Critical Facilities & Utilities

Priority: Low
Focus Areas for Implementation: All
Responsibility: City of Cape Canaveral, Florida Power and Light (FPL), Brevard County
Cost: $$$$

In order to ensure that critical facilities and utilities are offline for the shortest time possible and able to provide critical needs and services to the public, the City of Cape Canaveral should explore opportunities for elevating these critical buildings and burying utilities where appropriate. The City may be able to implement these resiliency solutions when roadways and other transportation facilities need to be updated in the future, or in locations where right-of-way permits. Elevating critical facilities and undergrounding utilities can make the area less vulnerable to severe weather and other externalities that can damage these facilities and cause mass power outages. Additionally, when elevating critical facilities, gas stations and grocery stores should be included to reduce the impacts of flooding and increase the ability of residents to access them in times of need.

Overhead utilities along Washington Ave.

OBJECTIVES FOR IMPLEMENTATION OF SOLUTION 1

Objective 1.1: Elevate the following critical facilities in the Presidential Streets area. These facilities may be elevated and upgraded based on their uses in times of disaster or in emergencies as identified by the City of Cape Canaveral.

- Cape Canaveral City Hall
- Brevard County Sherriff's Office – Cape Canaveral Precinct
- Cape Canaveral Culture and Leisure Services Department
- Cape Canaveral Public Library

Objective 1.2: Work with business owners of critical facilities that include grocery stores and gas station owners and identify solutions for safeguarding these locations in case of future disasters or emergencies by elevating them above flooding levels.

Objective 1.3: Identify opportunities for undergrounding utilities in the Presidential Streets area.

Action 1.3.1: *Identify areas with robust right-of-way.*
Action 1.3.2: *Develop general cost estimates for undergrounding utilities in the Study Area.*
Action 1.3.3: *Develop a planning level document to prioritize undergrounding needs within the Study Area.*

Solution 2: Identifying Opportunities to Update Roadway Amenities

Priority: Medium
Focus Areas for Implementation: All
Responsibility: City of Cape Canaveral, FPL, FDOT, Space Coast Area Transit
Cost: $$

Roadway amenities include streetlights, signage, and seating such as benches along a corridor. Increasing the amount of street lighting and signage can improve safety conditions along corridors and improves travelers' abilities to find destinations in times of emergency. These roadway amenities should also be selected and upgraded to accommodate the flood hazard and storm surge risk and should be designed to withstand the Category 3 risk and 100-year flood zone issues identified previously in this assessment.

OBJECTIVES FOR IMPLEMENTATION OF SOLUTION 2

Objective 2.1: Inventory and identify existing roadway amenities within Presidential Streets.

Objective 2.2: Using the completed inventory, identify opportunities to replace lighting structures with solar powered, resilient lighting options that can withstand flooding and storm surge.

Objective 2.3: Create a signage and wayfinding package for the Presidential Streets area that includes emergency response signage that identifies critical facilities and evacuation routes.

Pedestrian crosswalks at intersection of Monroe Ave. and Ridgewood Ave.

Solution 3: Promoting Bicycle and Pedestrian Connectivity

Priority: Medium
Focus Areas for Implementation: All
Responsibility: City of Cape Canaveral, FDOT
Cost: $$

Increasing the connectivity of bicycle and pedestrian facilities can provide opportunities for alternative transportation for both recreation and travel, which can indirectly impact the resiliency of a community. The Presidential Streets area has several opportunities for promoting connectivity of sidewalks and bicycle facilities through the construction of new sidewalks and bicycle amenities, improvement of existing facilities, and signage and wayfinding opportunities.

OBJECTIVES FOR IMPLEMENTATION OF SOLUTION 3

Objective 3.1: Complete a bicycle and pedestrian master plan for the City of Cape Canaveral to identify the existing network and make recommendations for network connectivity. This plan should be heavily focused on the aspects of bicycle-pedestrian travel that can increase resiliency and mitigate vulnerability in the City of Cape Canaveral, and specifically, the Presidential Streets.

Objective 3.2: Identify opportunities for encouraging alternative transportation within the community.

Objective 3.3: Provide opportunities for bicycling within the community through micromobility programs like bicycling sharing initiatives that will encourage more use of alternative transportation.

Pedestrian walking in the roadway on Grant Ave.

Solution 4: Implementation of Roadway Improvements

Priority: Medium
Focus Areas for Implementation: All
Responsibility: City of Cape Canaveral, FDOT
Cost: $$ to $$$

Roadway improvements can be a useful technique to create complete streets, which can positively contribute to resiliency by providing multimodal and reliable corridors. Roadway improvements appropriate for the Presidential Streets area include one-way street conversion, narrowing the pavement to achieve traffic calming, identifying additional traffic calming solutions, and adding greenery and green infrastructure treatments for stormwater infiltration. These improvements can improve safety, quality, and resiliency of the roads and contribute to a more multimodal friendly atmosphere in the Presidential Streets. Many of these improvements were discussed in detail in the main Master Plan under the "Roadway Improvements" section.

OBJECTIVES FOR IMPLEMENTATION OF SOLUTION 4

Objective 4.1: Identify specific areas in the Presidential Streets that have a need for roadway improvements that would contribute to the resilience of the area.

Objective 4.2: Include specific projects identified in local plans for future feasibility studies, design phases, construction, or implementation.

Sidewalks along Taylor Ave.

Solution 5: Identifying Policy Solutions

Priority: High
Focus Areas for Implementation: All
Responsibility: City of Cape Canaveral
Cost: $

Policy changes can be a great way to implement resiliency solutions at the local level. Below are a few policy-related methods that can be used to reduce the vulnerability of local infrastructure:

- Provide courses and educational materials to residents explaining when and how to evacuate from severe weather conditions;
- Prepare available resources for citizens post disaster such as food, water, blankets, and generators;
- Incorporate community Resilience Hubs that can serve as central location that provides citizens a variety of resources when disruption occurs and supports initiatives for recovery and ongoing communication;
- Prepare a transit strategy in order to maintain public transportation options directly before and after a disaster;
- Promote green infrastructure through a variety of local initiatives that are in part funded by the community or grants.

OBJECTIVES FOR IMPLEMENTATION OF SOLUTION 5

Objective 5.1: Develop a Communications and Marketing Plan to identify strategies for enhancing disaster preparedness and to share and promote larger initiatives identified in the Resilient Cape Canaveral Action Plan.

Objective 5.2: Identify any gaps in the current resilience strategy that may be exploited during an emergency or natural disaster.

Objective 5.3: Determine opportunities for funding a small grants program to encourage property owners and local residents to implement resilient technology and green infrastructure on their own property.

Objective 5.4: Identify a location within the Presidential Streets area to serve as a Resilience Hub, and determine any outstanding resource or facility needs for properly equipping that location.

Green Infrastructure Opportunities

Green infrastructure provides an excellent option for integrating resilience strategies into the Presidential Streets area. The following green infrastructure initiatives offer opportunities to incorporate green infrastructure and strengthen resiliency, and should be explored for integration with any projects in any of the 5 focus areas identified:

Permeable Pavers

Permeable pavers should be explored and implemented where appropriate and feasible. These types of pavers allow water to permeate the surface and can assist communities in reducing stormwater runoff while also allowing the water to reach soils and thus, nearby plants and flowers. Flooding issues and the pooling of water can also be limited through the implementation of permeable pavers, which contributes to overall resilience of the community. These can be creatively incorporated into sidewalk and multi-use path design or crosswalks depending on the implementing agency.

Bioswales

Bioswales, like permeable pavers, offer the community an additional resource for handling stormwater runoff that can contribute to flooding and the pooling of water. According to the National Association of City Transportation Officials, or NACTO, these vegetated, shallow, landscaped depressions can be integrated into medians, cul-de-sacs, bulb outs and other traffic calming strategies (NACTO, 2022). This provides an excellent opportunity for Cape Canaveral and the Presidential Streets area as it provides elements that address both the transportation system and its overall resilience.

Infiltration

Infiltration is another option for collecting stormwater and redistributing it for other uses. Opportunities exist to create stormwater drains and other infrastructure to create an infiltration system that is highly dependable and reduces strain on other water providing systems in the community. Both bioswales and permeable pavers are examples of infiltration systems.

Reclaimed Irrigation

The reuse of highly treated wastewater for non-potable use is an option for limiting use of treated water and conserving it for other uses. Non-potable uses include watering plants and landscaping, which is something many communities in Florida are currently doing.

Street Trees and Landscaping

Street trees and landscaping are considered part of green infrastructure due to their ability to enhance a sense of place while increasing the general green space. It is important for local communities to plant the right kind of vegetation (local, non-invasive) in the right places where they will thrive. Street trees can provide shade and improve overall quality of life for local communities.

Encourage and Support the Local Community

While the City of Cape Canaveral has the opportunity to implement resiliency solutions on a City-wide scale, the ability of individual property owners and general members of the public to implement resiliency strategies on their own cannot be understated. Local members of the public can make changes to their properties or participate in local programs that can have a significant impact on the resiliency of the community. These programs include Adopt-A-Tree programs and the implementation of rain gardens or other infiltration systems in their own backyards. This type of green infrastructure on a more grassroots level can be encouraging for individuals, and opportunities for partial funding for undertaking these initiatives should be explored.

General Costs for Green Infrastructure

Figure 5 below indicates the general cost ranges for each of the identified green infrastructure solutions. These costs are planning level cost estimates and are not intended to give a cost for any specific project the City may be interested in undertaking. It is recommended that the City of Cape Canaveral complete a Green Infrastructure Implementation Plan to identify more specific treatments, their locations, and their costs if the City is interested in pursuing this option as part of its ongoing resiliency strategy.

Figure 5 - Green Infrastructure General Planning Level Cost Estimates

Green Infrastructure Opportunity	Planning Level Cost
Permeable Pavers	$50,000 to $75,000+; this cost depends on the number of pavers needed and the specific type of project being implemented.
Rain Gardens, Bioswales	$20,000 to $25,000 per 100 linear feet.
Infiltration System	These costs are highly variable depending on size of system and area, and the complexity of the desired system.
Reclaimed Irrigation System	These costs are highly variable depending on size of system and area, and the complexity of the desired system.
Street Trees and Landscaping	$20,000 to $55,000 per 100 linear feet; costs highly depend on location with right-of-way or outside of it, and type of landscaping and plants
Grants Program to Support Local Grassroots initiatives	There is no specific cost associated with this; the City of Cape Canaveral may determine the funds based on type of projects they are interested in supporting.

Plan Alignment

The previously outlined resiliency solutions as part of the Presidential Streets Master Plan are consistent with local plans and have a level of overlap for integration into planned and upcoming projects. Cohesive and well-aligned plans can help improve the likelihood of integrating resiliency solutions into local projects and processes, and ensures the long-term success of the community in this effort. The following matrix shown in Figure 6 shows existing relevant plans and how they align with solutions outlined in this document.

Figure 6 - Plan Alignment Matrix – Presidential Streets

Existing Plans	Solution 1: Critical Facilities	Solution 2: Roadway Amenities	Solution 3: Bicycle-Pedestrian	Solution 4: Road Diets	Solution 5: Policy Solutions	Green Infrastruc-ture
Cape Canaveral Capital Improvement Plan (CIP)		X	X	X	X	X
Brevard County Local Hazard Mitigation Strategy					X	
Brevard County Stormwater Management Plan					X	X
Cape Canaveral Stormwater Management Plan					X	X
City of Cape Canaveral Comprehensive Plan	X	X	X	X	X	
Strategic Resilience Action Plan (SRAP)		X	X	X	X	X
Resilient Cape Canaveral (2019)	X	X	X	X	X	X
Resilient Cape Canaveral Action Plan (2021)	X	X	X	X	X	X

Relevant CIP Projects

The following projects were identified in the Cape Canaveral Capital Improvements Plan and provide examples of upcoming projects that have elements that fall within the solutions outlined in this assessment and are in the Presidential Streets area. These projects offer upcoming opportunities to reassess and incorporate any solutions that have been outlined in this document that may fit into the project to amplify the resiliency of the initiative.

- CIP # CR-2 – City Promenade
- CIP # CR-3 – Sidewalk Construction throughout CRA area
- CIP # CR-4 – Polk Avenue Streetscape
- CIP # CR-5 – Corner Improvements in the Presidential Streets Area
- CIP # IM-4 – Paving Fund
- CIP # IM-5 – Mobility Plan
- CIP # IM-7 – City Hall Maintenance
- CIP # IM-9 – Solar Light Replacement
- CIP # IM-10 – BCSO Office Solar Array
- CIP # IM-11 – EV Charging Station Upgrade
- CIP # WW-2 – Reclaimed Water Pump/Motor Replacement

Funding Opportunities

Grant opportunities for resiliency, conservation, and restoration are widely available, and can positively impact the City's overall resilience through strategies both large and small. The City of Cape Canaveral has the opportunity to apply for a number of different grants depending on the identified project's purpose and the intent. Figure 7 below provides a general list of these grants that could be used to fund resiliency solutions identified throughout this assessment document. These grants may also be useful in the implementation of larger scale projects that contribute to resiliency, conservation, or restoration.

Figure 7 - Grant Funding Opportunities for Resiliency Projects

Funding Agency	Grant Name
AmeriCorps	National Civilian Community Corps (NCCC) – Traditional Disaster Response, FEMA Corps
Bikes Belong Coalition	Community Grants Program
NOAA Fisheries	Community-Based Coastal and Marine Habitat Restoration Grants
Department of Commerce – Economic Development Administration (EDA)	Planning and Localities Technical Assistance Program
Department of Economic Opportunity	Community Development Block Grant - Mitigation
Department of Energy	Energy Management Program
Federal Highway Administration (FHWA)	• Bicycle & Pedestrian Program • National Transportation Enhancements Clearinghouse
Florida Department of Environmental Protection (FDEP)	• Beach Erosion Control Program • Brownfield Redevelopment Program • Coastal Partnership Initiative • Florida Communities Trust – Parks and Open Space • Florida Forever Program • Florida Recreation Development Assistance Program (FRDAP) Grant • Total Maximum Water Quality Restoration Grant • Nonpoint Source Management Program • State Water-Quality Assistance Grant
Florida Department of Transportation (FDOT)	Beautification Grant
Florida Inland Navigation District	Waterways and Cooperative Assistance Program
United States Department of Agriculture (USDA)	• Managing Community Forests Grant • Wetland Reserve Program (WRP) Easements
United States Fish and Wildlife Service (USFWS)	National Coastal Wetlands (State Governments)
National Fish and Wildlife Foundation (NFWF)	Resilient Communities Grant
PIG Difference	The PIG Difference Grant Program
Environmental Protection Agency (EPA)	Wetlands Program Development Grants

Appendix E

Grants

Funding Agency	Conservation/Restoration/Resiliency	Education	Infrastructure/Capital	Design	Planning	Parks/Recreation/ Trails	Stormwater/Drainage	Streetscape	Land Acquisition	Economic Development	Art/Historic Preservation/Wayfinding	Green Energy/Electric Vehicles	Law Enforcement/Community Policing
American Association of Retired Persons (AARP) Community Challenge Grant			●			●							
American Hiking Society								●	●				
American Rescue Plan Act (ARPA)			●										
AmeriCorps's National Civilian Community Corps	●						●						
Bikes Belong Coalition	●			●	●		●	●					
Community-Based Restoration Program Coastal and Marine Habitat Restoration Grant	●												
Conservation Fund - Kodak America Greenways Award Program									●				
Department of Commerce EDA - Build to Scale Program										●		●	
Department of Commerce EDA - EDA Public Works and Economic Adjustment Assistance Program			●							●		●	
Department of Commerce EDA - Planning and Localities Technical Assistance Program	●									●			
Department of Commerce EDA - Research and National Technical Assistance										●			
Department of Economic Opportunity - CDBG:MIT	●		●				●					●	
Department of Economic Opportunity - Community Planning Technical Assistance (CPTA) Grants					●								
Department of Economic Opportunity- Florida Job Growth Grant			●										
Department of Energy - Energy Management Program												●	
Department of Energy - Property Assessed Clean Energy Programs												●	
Department of Energy - Weatherization and Intergovernment Programs Office - State Energy Program			●									●	
Department of Energy Loan Programs Office - Advanced Technology Vehicles Manufacturing (ATVM) Loan Program			●									●	
Department of Justice - Byrne Memorial Justice Assistance Grant													●
Department of Transportation - Federal Aviation Administration - Airport Zero Emission Vehicle			●									●	
Department of Transportation - Federal Aviation Administration - Voluntary Airport Low Emissions Program												●	
Department of Transportation- Federal Highway Administration - Congestion Mitigation & Air Quality Improvement												●	

Funding Agency	Conservation/Restoration/Resiliency	Education	Infrastructure/Capital	Design	Planning	Parks/Recreation/ Trails	Stormwater/Drainage	Streetscape	Land Acquisition	Economic Development	Art/Historic Preservation/Wayfinding	Green Energy/Electric Vehicles	Law Enforcement/Community Policing
Department of Transportation- Federal Highway Administration - Highway Infrastructure Program			●									●	
Department of Transportation - Federal Highway Administration - State Planning and Research			●										
Department of Transportation - Federal Highway Administration - Surface Transportation Block Grant Program			●										
Department of Transportation - Federal Transportation Administration - Accelerating Innovative Mobility			●									●	
Department of Transportation - Federal Transportation Administration - Integrated Mobility innovation												●	
Department of Transportation - Federal Transportation Administration - Public Transportation Innovation			●										
Department of Transportation - Federal Transportation Administration - Safe Streets and Roads for all Grant Program			●										
Department of Transportation - Federal Transportation Administration - Strengthening Mobility and Revolutionizing Transportation (SMART) Grant Program			●									●	
Department of Transportation - Federal Transportation Administration - Transit-Oriented Development Pilot Program			●		●							●	
Department of Transportation - Federal Transportation Administration - National Infrastructure Project Assistance (MEGA)			●										
Economic Development Administration - Economic Development Assistance Program										●			
Federal Emergency Management Agency - Building Resilient Infrastructure and Communities (BRIC)			●				●						
Federal Emergency Management Agency - Hazard Mitigation Grants (HAZARD-MIT)			●		●		●						
Federal Highway Administration - Bicycle & Pedestrian Program	●							●					
Federal Highway Administration - Discretionary Grant Program - National Scenic Byways								●			●		
Federal Highway Administration - National Transportation Enhancements Clearinghouse	●		●		●			●					
Federal Highway Administration - Transportation, Community, and System Preservation Program (TCSP)					●								
Federal Transportation Administration - Discretionary Grant Program					●								

Funding Agency	Conservation/Restoration/Resiliency	Education	Infrastructure/Capital	Design	Planning	Parks/Recreation/ Trails	Stormwater/Drainage	Streetscape	Land Acquisition	Economic Development	Art/Historic Preservation/Wayfinding	Green Energy/Electric Vehicles	Law Enforcement/Community Policing
Florida Department of Economic Development - Community Development Block Grants										●			
Florida Department of Environmental Protection - Land and Water Conservation Fund						●							
Florida Department of Environmental Protection - Recreational Trails Program			●			●							
Florida Department of Environmental Protection - 319(h) Nonpoint Source Stormwater Management Grant							●						
Florida Department of Environmental Protection - Beach Erosion Control Program	●		●										
Florida Department of Environmental Protection - Brownfield Redevelopment Program	●												
Florida Department of Environmental Protection - Coastal Partnership Initiative (determined by County)	●		●	●	●				●				
Florida Department of Environmental Protection - Environmental Education Grants		●											
Florida Department of Environmental Protection - Florida Communities Trust - Parks and Open Space Florida Forever Program	●					●							
Florida Department of Environmental Protection - Florida Forever Program	●					●							
Florida Department of Environmental Protection - Florida Recreation Development Assistance Program (FRDAP) Grant						●			●				
Florida Department of Environmental Protection - Land & Water Conservation Fund (LWCF)	●								●				
Florida Department of Environmental Protection - State Water-Quality Assistance Grant	●	●	●				●						
Florida Department of Environmental Protection - Total Maximum Water Quality Restoration Grant	●						●						
Florida Department of State - Division of Cultural Affairs											●		
Florida Department of State - Florida Historic Preservation & Arts Grants											●		
Florida Department of State - Safe Routes to Schools			●										
Florida Department of Transportation - Beautification Grant	●												
Florida Inland Navigation District - Waterways and Cooperative Assistance Program	●												

Funding Agency	Conservation/Restoration/Resiliency	Education	Infrastructure/Capital	Design	Planning	Parks/Recreation/ Trails	Stormwater/Drainage	Streetscape	Land Acquisition	Economic Development	Art/Historic Preservation/Wayfinding	Green Energy/Electric Vehicles	Law Enforcement/Community Policing
Florida SUN Trail Program Funding			●			●					●		
Managing Community Forests Grant	●				●								
National Coastal Wetlands (State Governments - Florida is listed)	●								●				
National Endowment for the Arts - Challenge America Grants											●		
National Fish and Wildlife Foundation (NFWF) - Resilient Communities Grant	●				●		●						
National Park Service - Rivers, Trails & Conservation Assistance Program					●	●							
National Park Service- Historic Grants											●		
National Trails Fund									●				
National Trust for Historic Preservation											●		
Nonpoint Source Management Program	●	●	●				●						
PIG Difference Grant - New Pig Corporation	●												
Rebuild Florida CDBG-MIT - General Infrastructure Program			●										
Resilient Florida Grant Program							●						
South Florida Water Management District Cooperative Funding Initiative							●						
State Water-Quality Assistance Grant	●	●	●				●						
Surdna Foundation				●	●	●	●						
The Funders Network Partners for Places					●	●	●						
US Department of Transportation Rebuilding - American Infrastructure with Sustainability and Equity (RAISE) Grant			●										
Wetland Reserve Program (WRP) Easements	●								●				
Wetlands Program Development Grants	●		●			●							