



CITY OF  
**ST AUGUSTINE**  
EST. 1565



# CITY OF ST. AUGUSTINE

## Resilience Initiatives

**PROJECTS**

**PLANNING/STUDIES**

**POLICY**

**PROGRAMS**

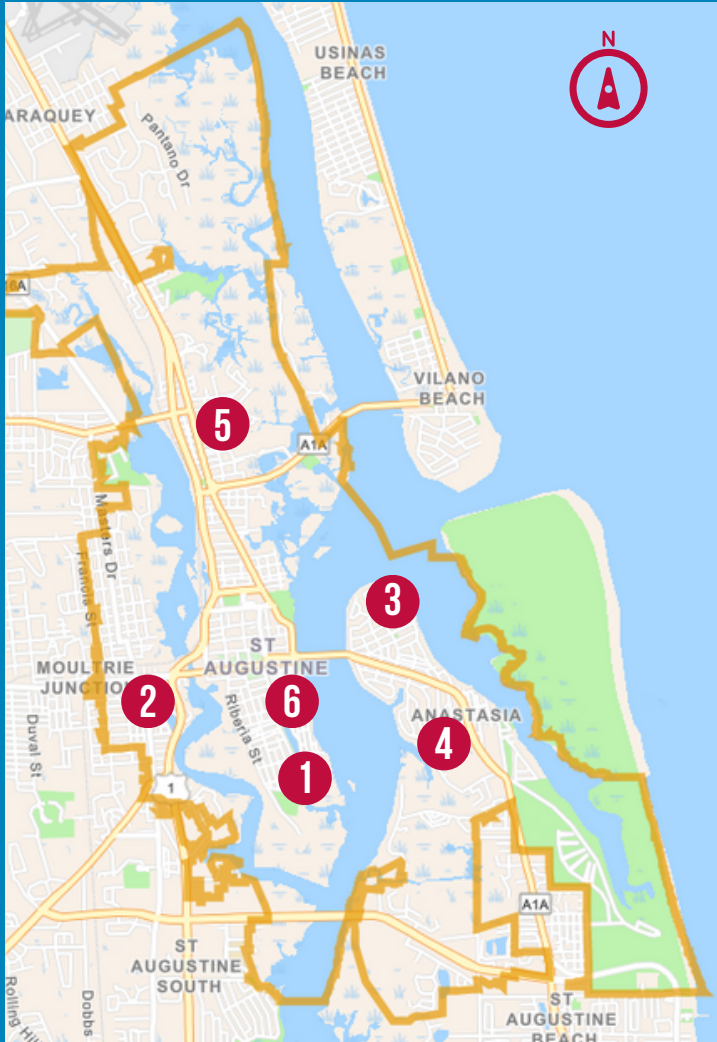


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# CITY OF ST. AUGUSTINE



## Project Map Key

1. Lake Maria Sanchez Flood Mitigation
2. South Whitney/West King Street Drainage
3. Inlet Drive Shoreline Stabilization
4. South Davis Shores Drainage
5. Court Theophelia Neighborhood Drainage
6. Avenida Menendez Seawall

## City Wide Projects

- Tidal Backflow Prevention Program
- Groundwater Monitoring Network

## City Planning Studies

- Back Bay Feasibility Study (Federal)
- Vulnerability Assessment Update (State)

## City Programs

- Flood Mitigation Assistance (FMA) Program

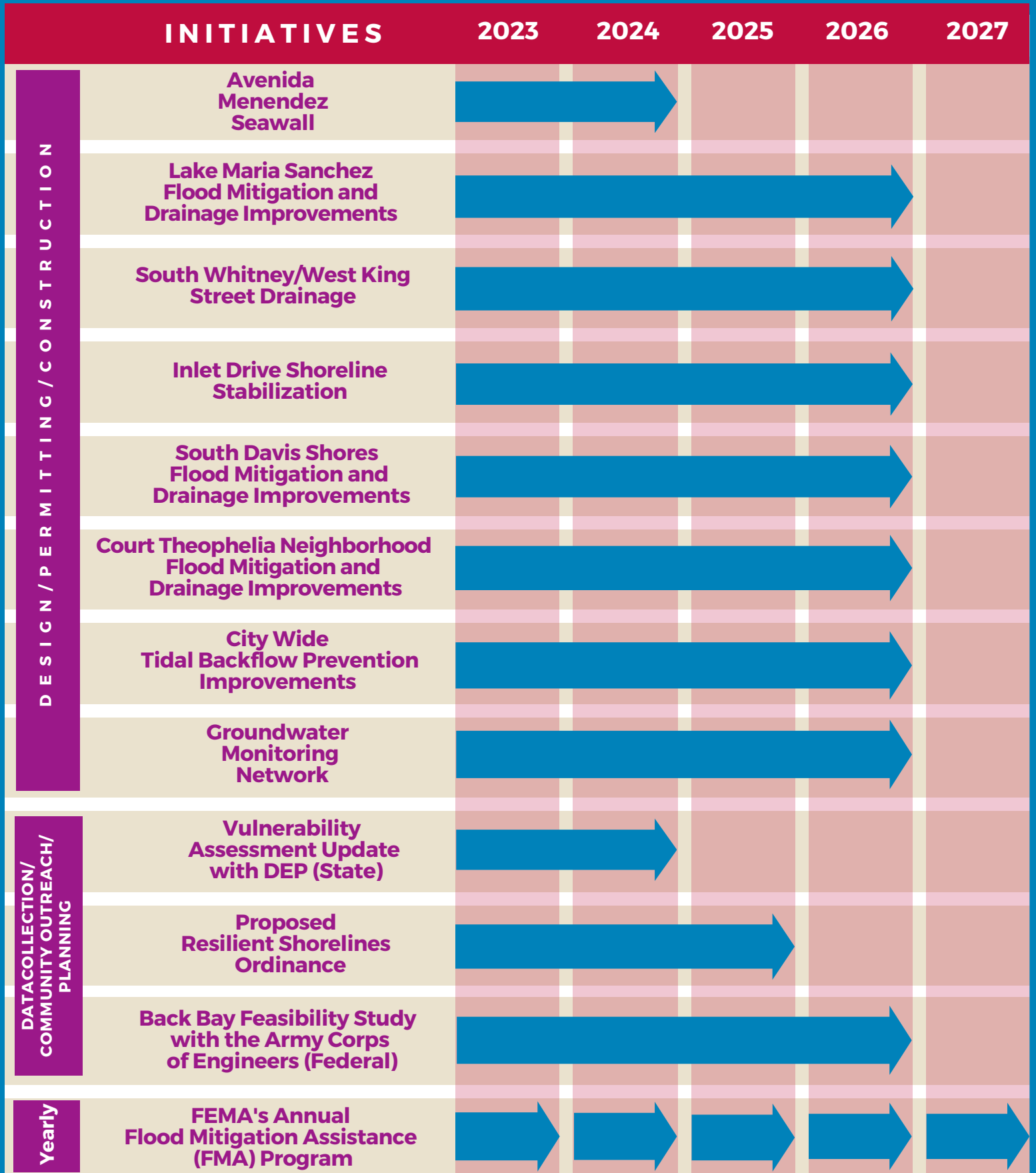
## City Ordinances

- Proposed Resilient Shorelines Ordinance

# RESILIENCE STRATEGIES



# RESILIENCE EFFORTS TIMELINE







# LAKE MARIA SANCHEZ

## Flood Mitigation & Drainage Improvements

### What is this project?

The project will implement a number of resilience strategies to address both rainfall and coastal surge flooding. Strategies include: upgrades to the existing stormwater infrastructure, installation of a stormwater pump station, construction of a flood wall, and installation of tide check valves.

### Why is this project needed?

The City has had a long history of enduring flooding, storms, and related events that have adversely impacted its critical infrastructure. Most recently, hurricanes (Matthew, Irma, Hermine, Dorian, Ian and Nicole), other unnamed storms, flash flood events, and nuisance flooding have exacerbated the infrastructure issues specifically related to roadways and drainage. The project will provide an increased level of flood protection from increasing high tide events, storm surge and future sea level rise by incorporating a combination of resilience strategies.

### How is this project being funded?

The City of St. Augustine (COSA) has received a grant from the Department of Environmental Protection's (DEP) Resilient Florida Grant Program. The project will be cost-shared between the Resilient Florida Grant and COSA.

### How will this project benefit the community?

The project will benefit approximately 200 acres of the historic district in the Nation's Oldest City. The project area includes a number of historic buildings and structures listed on the National Register of Historical Places. By maintaining the integrity of the Nation's Oldest City through the implementation of this project, it will help protect our regionally significant historical and cultural assets benefiting the County and arguably the Northeast Florida region.



**Current  
Flooding  
without  
Project**



**Projected  
Flood  
Protection  
with  
Project**



# LAKE MARIA SANCHEZ

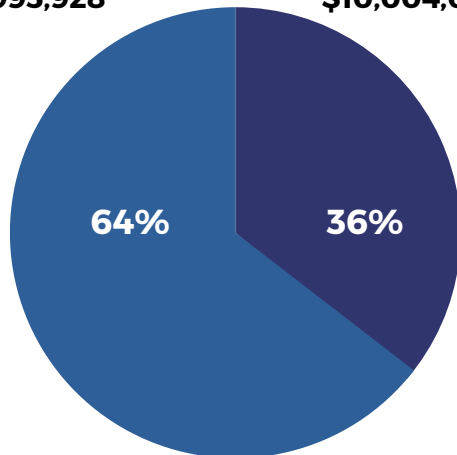
## Flood Mitigation & Drainage Improvements

### Estimated Construction Cost:

**\$30,000,000**

**Resilient  
Florida Grant  
\$19,995,928**

**\*City of St. Augustine/  
Other Funding Source  
\$10,004,071**



\* Budget subject to change as other funding sources are explored

### Proposed Lake Maria Sanchez Pump Station



## PROJECT SCHEDULE 2023-2026

PROJECT PHASE	PROJECT STATUS
PHASE 1	COMPLETE PERMITTING, SECURE EASEMENTS, FINALIZE DESIGN, PREPARE BID DOCUMENTS
PHASE 2	BID PROJECT, SECURE CONSTRUCTION CONTRACT
PHASE 3	CONSTRUCTION

### Lake Maria Sanchez on South Street







# SOUTH WHITNEY ST. & WEST KING ST.

## Roadway & Drainage Improvements

### What is this project?

The proposed improvements consist of raising South Whitney Street and West King Street above the FEMA flood elevation of 7.0' NAVD88, replacing the existing box culvert (40-inch by 56 inch) at South Whitney with a single box culvert (48-inch by 96-inch) that doubles the hydraulic capacity. The project also includes reconstruction of the existing storm sewer system and its outfall at the box culvert on South Whitney Street.

### Why is this project needed?

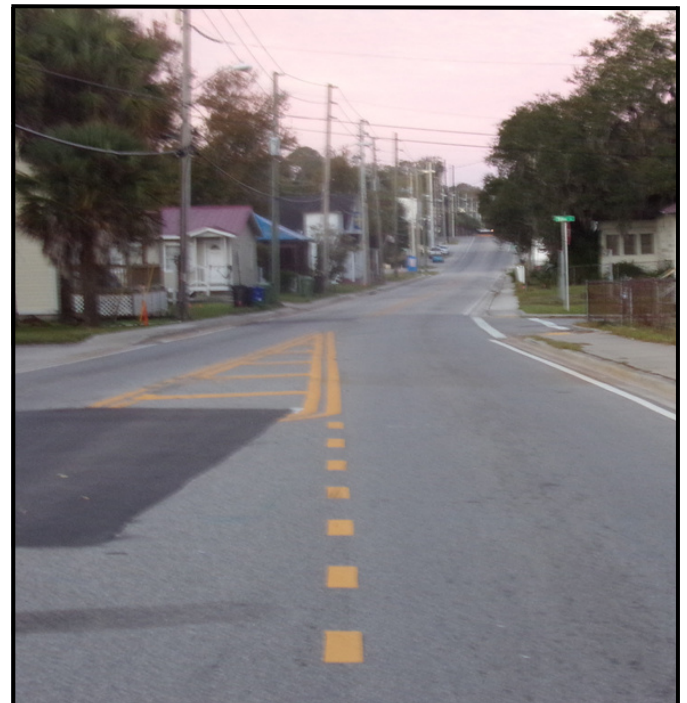
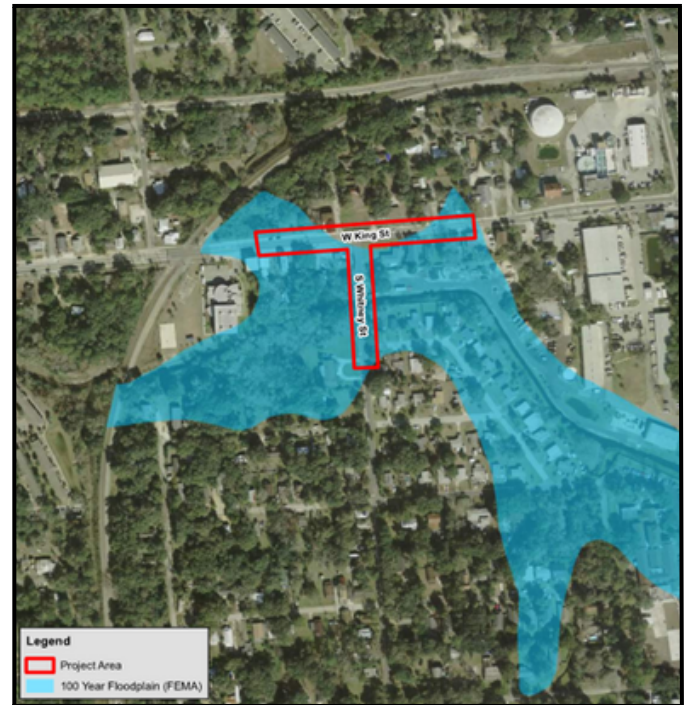
The project goal to eliminate flooding during the 100-year FEMA flood event for West King Street and South Whitney Street by raising both roads at, or above, the 100-year floodplain elevation. In addition to the surge-driven FEMA 100-year flood event, during significant rainfall occurs on South Whitney Street and a portion of West King Street where these streets intersect making these streets impassable.

### How is this project being funded?

The City of St. Augustine (COSA) has received a grant from the Federal Emergency Management Agency (FEMA) under the Hazard Mitigation Grant Program (HMGP) in the amount of \$1,310,925. COSA will cost share the estimated total project amount of \$511,675.

### How will this project benefit the community?

This is a high traffic area that is used heavily on a daily basis. By completing the drainage improvement project, residents of both the City of St. Augustine and St. Johns County will benefit from the ability to drive through the street during a FEMA 100-Year Floodplain.





# SOUTH WHITNEY ST. & WEST KING ST.

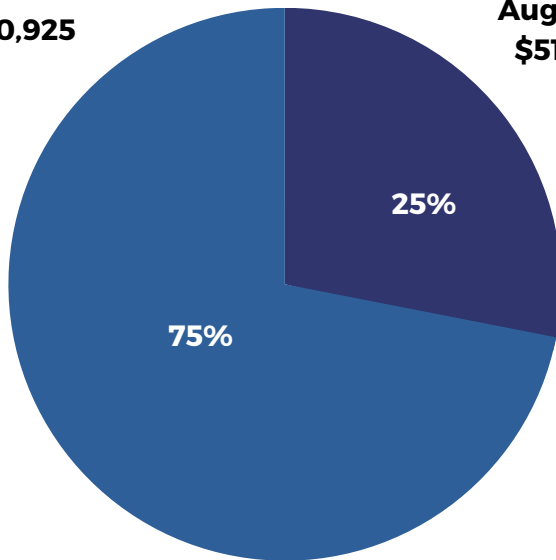
## Roadway & Drainage Improvements

### Estimated Total Construction

**Cost: \$1,822,600**

**FEMA**  
**\$1,310,925**

**\*City of St.  
Augustine**  
**\$511,675**



\*The city will be seeking other grant funding to supplement the 25% cost share



## PROJECT SCHEDULE 2023-2026

PHASE	PROJECT STATUS
PHASE 1	INTERLOCAL COORDINATION WITH ST. JOHNS COUNTY / FINALIZE PERMITTING
PHASE 2	CONSTRUCTION





# INLET DRIVE

## Shoreline Stabilization

### What is this project?

This project would look to include a combination of structural and non-structural based solutions (living shoreline enhancement, thin layer placement of dredged material, etc.) to elevate and protect a section of shoreline that is subject to coastal erosion that would provide a higher level of flood protection for a critical residential road in the North Davis Shores neighborhood. This would also include upgrading the existing storm infrastructure and installation of a tide check valve.

### Why is this project needed?

The existing shoreline has eroded over time, with acceleration of that erosion during Hurricane's Matthew and Irma. It's existing elevation is around 5.0 feet NAVD88, which during the previous hurricanes, the top of bank of the shoreline overtopped, causing flooding throughout this segment of roadway. There are two existing storm inlets and pipe that are in need of replacement and proper sizing to also better collect any rainfall driven flooding. The existing storm outfall pipe is also tidally influenced and can allow for tidal water to back up through the storm pipe, causing road flooding. This project would address the erosion, undersized drainage and tidal flooding issues, taking into account sea level rise with the elevation of the shoreline revetment.

### How is this project being funded?

The City of St. Augustine (COSA) has received a grant from the Federal Florida Department of Environmental Protection (DEP) under the Resilient Florida Grant Program for the estimated full project cost of \$711,090



### How will this project benefit the community?

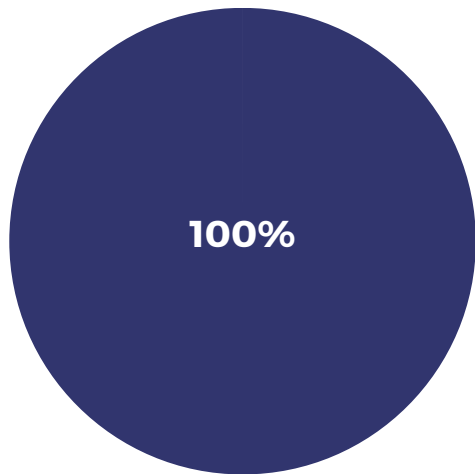
The proposed improvements will help to protect the critical infrastructure for the neighborhood. A vegetated component would be added to the design to enhance the current living shoreline features, this would include supplemental planting of black mangroves and spartina grass. By enhancing the natural features, more critical habitat will be created. Given its existing elevation already being below the current base flood elevation, the vulnerability of this area will continue to increase with sea level rise if no action is taken. The City had an opportunity to evaluate the shoreline for flood mitigation options as a result of the hurricane impacts and also address vulnerable infrastructure that was identified in the Coastal Vulnerability Assessment.



# INLET DRIVE

## Shoreline Stabilization

**ESTIMATED  
CONSTRUCTION COST:  
\$711,090**



**Resilient Florida Grant**



## PROJECT SCHEDULE 2023-2026

PROJECT PHASE	PROJECT STATUS
PHASE 1	DESIGN AND PERMITTING OF PROJECT
PHASE 2	BIDDING/LOCAL PROCUREMENT
PHASE 3	CONSTRUCTION OF PROJECT



# SOUTH DAVIS SHORES

## Flood Mitigation & Drainage Improvements

### What is this project?

This project will be broken into two phases to include the design, permitting and construction to address the rainfall driven flooding events, with some consideration for tidal surge. This will primarily include major upgrades to the existing undersized and aged drainage infrastructure, reconfiguring a drainage ditch and upsizing an existing culvert. This project would seek to address the rainfall driven flooding through upgrades to existing stormwater infrastructure and installation of smart tide check valves. For the tidal surge, in lieu of the one-way in line tide check valves, a "smart" tide check valve system will be installed into three culverts that are tidally influenced. The smart valves will stay in the open configuration to maintain wetland hydrology of upstream wetland systems, but close temporarily in advance of flooding conditions.

### Why is this project needed?

This neighborhood has suffered from repetitive flood impacts and damages from nuisance flooding, rainfall driven flooding and hurricanes. With the implementation of this project, it will help reduce the damages to upland properties and associated costs which primarily includes residential properties. The reconfiguration of the Coquina Ditch, which is tidally influenced, can be better enhanced and restored to provide additional flooding capacity/volume, while better protecting the residential structures that are adjacent to it.

### How is this project being funded?

The City of St. Augustine (COSA) has received a grant from the Federal Florida Department of Environmental Protection (DEP) under the Resilient Florida Grant Program for the estimated full project cost of \$2,797,000.



### How will this project benefit the community?

Originally built in the early 1900s by Mr. Davis, South Davis Shores was identified in the 2016 Coastal Vulnerability Assessment as one of the major flood pathways for nuisance flooding and future sea level rise conditions. Over the last five years this neighborhood has suffered from repetitive flood impacts and damages from nuisance flooding, rainfall driven flooding and hurricanes, as it is one of the more lower lying areas within the City. This project would seek to address the rainfall driven flooding through upgrades to existing stormwater infrastructure and installation of smart tide check valves.

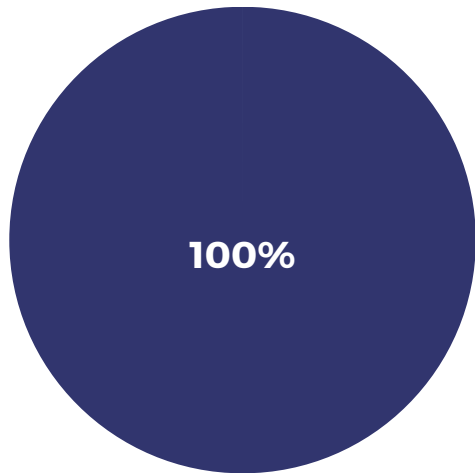




# SOUTH DAVIS SHORES

## Flood Mitigation & Drainage Improvements

**ESTIMATED  
CONSTRUCTION COST:  
\$2,797,000**



**Resilient Florida Grant  
\$2,797,000**



## PROJECT SCHEDULE 2023-2026

PROJECT PHASE	PROJECT STATUS
PHASE 1	DESIGN AND PERMITTING OF PROJECT
PHASE 2	BIDDING/LOCAL PROCUREMENT
PHASE 3	CONSTRUCTION OF PROJECT





# COURT THEOPHELIA

## Neighborhood Flood Mitigation & Drainage Improvements

### What is this project?

The project would include design, permitting and construction to replace aged utilities, upgrade existing stormwater infrastructure and evaluate structural and non-structural based resiliency options for the neighborhood. This would also incorporate a mobility component into the project for multiple benefits. The expected project outcomes include reconstruction of flood prone and damaged roads due to high tide flooding, improved drainage to provide a higher level of service during rainfall events, replacement of aged utilities, implementation of green infrastructure and/or low impact development to provide water quality benefit with stormwater management, potential incorporation of greenspace for multi-project benefits to serve as recreational, stormwater, mobility and resiliency uses.



### Why is this project needed?

This neighborhood is subject to rainfall driven and coastal surge flooding. The streets are in poor condition due to the inundation of salt water on the roads that has accelerated the deterioration. The utilities are also aged and in need of replacement (water and sewer). This project would include the replacement of aged utilities while the stormwater improvements are conducted. The improvements to the neighborhood will provide a higher level of flood protection for critical infrastructure (City Roads).

### How is this project being funded?

The City of St. Augustine (COSA) has received a grant from the Federal Florida Department of Environmental Protection (DEP) under the Resilient Florida Grant Program for the estimated full project cost of \$2,581,600.

### How will this project benefit the community?

This is a low-lying neighborhood that is subject to both tidal and rainfall driven flooding. The 2016 Coastal Vulnerability Assessment identified major flood pathways and increased risks for future nuisance flooding and 1% annual chance flooding with sea level rise. By providing a higher level of service for rainfall and coastal surge events, this will protect a large area that has vulnerable critical assets. This project would provide needed stormwater improvements to address both rainfall driven and coastal surge flooding and look to incorporate multiple project benefits that could include mobility components with green infrastructure and/or low impact development into the project design.

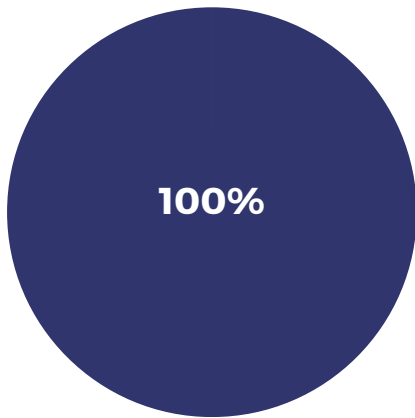


# COURT THEOPHELIA

## Neighborhood Flood Mitigation & Drainage Improvements

### ESTIMATED CONSTRUCTION

**COST: \$2,581,600**

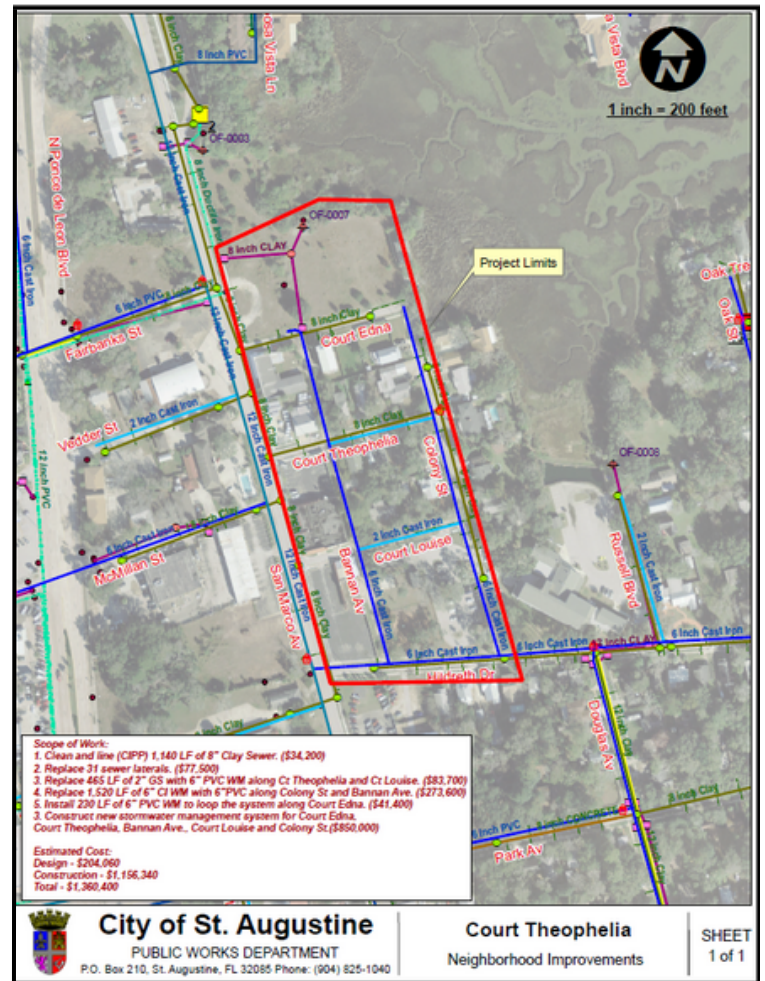


**Resilient Florida Grant  
\$2,581,600**

### PROJECT SCHEDULE 2023-2026

PROJECT PHASE	PROJECT STATUS
PHASE 1	DESIGN AND PERMITTING OF PROJECT
PHASE 2	BIDDING/LOCAL PROCUREMENT
PHASE 3	CONSTRUCTION OF PROJECT

### PROPOSED PROJECT AREA AND SCOPE OF WORK





# AVENIDA MENENDEZ SEAWALL

## What is this project?

The project will involve repairs of the face and cap of a section of the seawall located along the bayfront in downtown St. Augustine, coupled with design and construction of a two foot wall behind the current seawall. The latter will resemble the parapet wall built adjacent to the promenade constructed in the early 2000's, South of the project area. Specifically, the project area extends from the north end of the "new" seawall on the south end to the Bridge of Lions apron on the north. The project length is approximately 570 feet. The Marina Building is on the western edge of the project area.

## Why is this project needed?

The City completed the Avenida Menendez seawall replacement and the current Bayfront Park improvements which have both raised the level of flood in 2013. The area between the City Marina south access pier and the Whites Warf (formerly Santa Maria) restaurant provides a gap in the otherwise elevated flood protection along the Bayfront. This project will "fill the gap" and provide continuity of the City's target flood protection elevation of +7.1' NAVD extending along approximately 1,700 LF of the Bayfront. Failure to repair the existing marina seawall and replace the approx. 85 LF of failing seawall will put critical infrastructure and historic properties at risk.

## How is this project being funded?

The City of St. Augustine (COSA) has received a grant from FEMA's HMGP grant program for Hurricane Irma disaster relief, along with funding from the Florida Inland Navigation District (FIND), and will cost-share the remainder of funds needed to complete the project.



## How will this project benefit the community?

The primary community need addressed by this project is the enhanced protection from flooding associated with extreme weather events by providing a continuous seawall of equal height. By doing this project, it will provide the protection of the existing pedestrian/recreational path which provides access to the Municipal Marina facilities. Currently, the elevation gap between the two previous projects provides a vulnerable entry point that allows for flooding that can impeded and compromise the existing public access. Completion of the continuous seawall along the City's Southern Bayfront will increase flood protection and minimize the potential property and environmental damage resulting from extreme weather events.





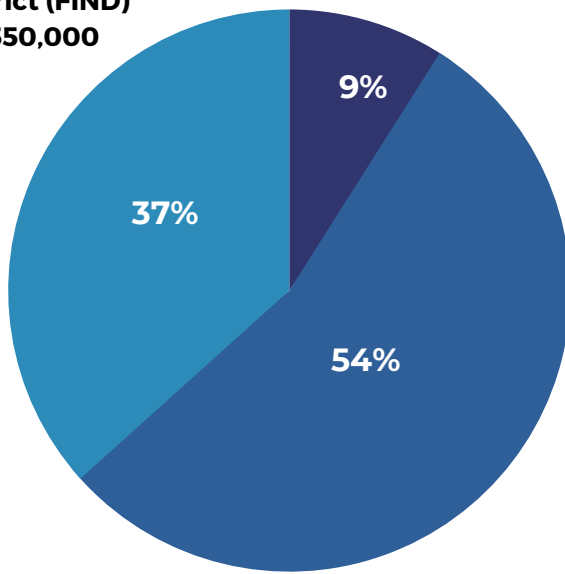
# AVENIDA MENENDEZ SEAWALL

**ESTIMATED PROJECT COST:**  
**\$1,500,000**

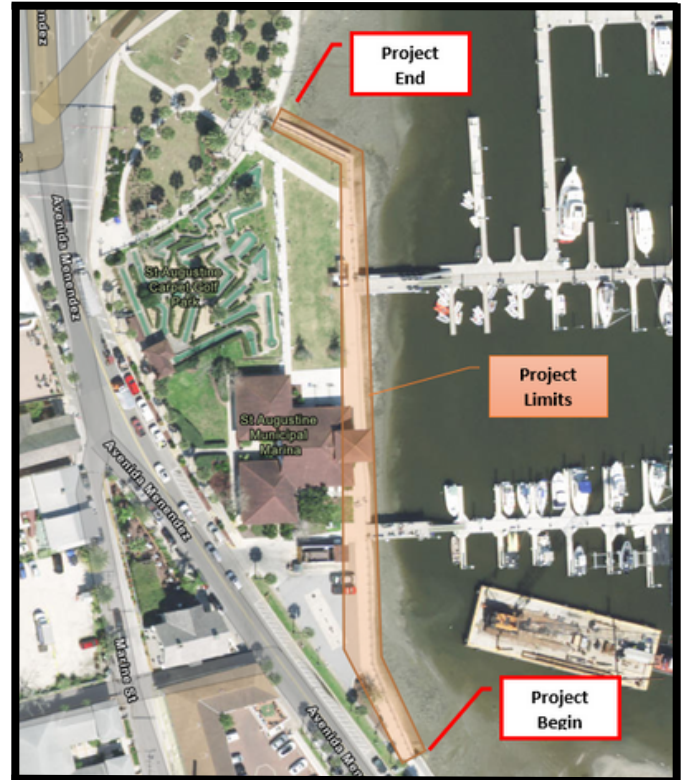
## PROJECT LIMITS MAP

Florida Inland  
Navigation  
District (FIND)  
\$550,000

City of St. Augustine  
\$134,761.25



HMGP (FEMA)  
\$815,238.75



## SEAWALL EXAMPLE



## PROJECT SCHEDULE 2023-2026

PROJECT PHASE	PROJECT STATUS
PHASE 1	DESIGN AND PERMITTING OF PROJECT
PHASE 2	BIDDING/LOCAL PROCUREMENT
PHASE 3	CONSTRUCTION OF PROJECT



# TIDAL BACKFLOW PREVENTION IMPROVEMENTS

## City Wide Tide Check Valve Installations

### What is this project?

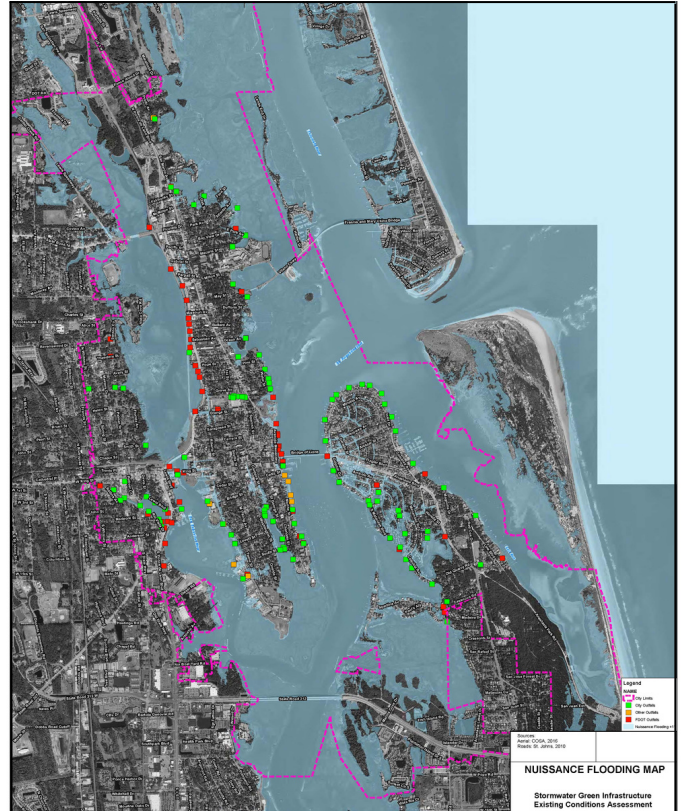
The City has approximately 103 stormwater outfalls that are tidally influenced, resulting in nuisance flooding of the road infrastructure. To date, the City has retrofitted 43 outfalls with tide check valves to eliminate nuisance tidal flooding. The City proposes to retrofit an additional 20 outfalls. Once the locations are identified, the City will contract out for the evaluation of each storm outfall that includes cleaning and closed-circuit television (CCTV). The City will review that evaluation data and determine if any storm pipe repairs or lining needs to occur in preparation for the tide check valve installation.

### Why is this project needed?

The City of St. Augustine experiences nuisance tidal flooding between 12-16 times per year during lunar or king tides, with additional flooding during Nor'easter conditions. This frequently inundates the road infrastructure and provides a major flood pathway that can allow for additional flooding of structures. The road conditions have deteriorated due to standing salt water and inundation, reducing the lifespan of the road infrastructure. This project will continue those previous efforts to work towards completion of the outfalls with retrofitting and provide a higher level of flood protection and extend the life of the road infrastructure.

### How is this project being funded?

The City of St. Augustine has received a grant from the Federal Florida Department of Environmental Protection (DEP) under the Resilient Florida Grant Program in the amount of \$230,641.00. The City will match that \$230,641.00 using the stormwater operational budget for a total project cost of \$461,282.00.



### How will this project benefit the community?

The stormwater outfalls are a major flood pathway that can allow for surge and high tide flooding to inundate the streets and potentially impact structures (residential and commercial). There are many historically significant buildings, structures and other cultural resources that can be impacted from the flooding that are considered regionally significant. Additionally, there are State Highways that are throughout the City. These stormwater outfalls can also have an impact on local and state roads, also considered regionally significant. By implementing this project, we can eliminate that risk that threatens a much larger area that has an overall higher percentage of vulnerable critical assets.



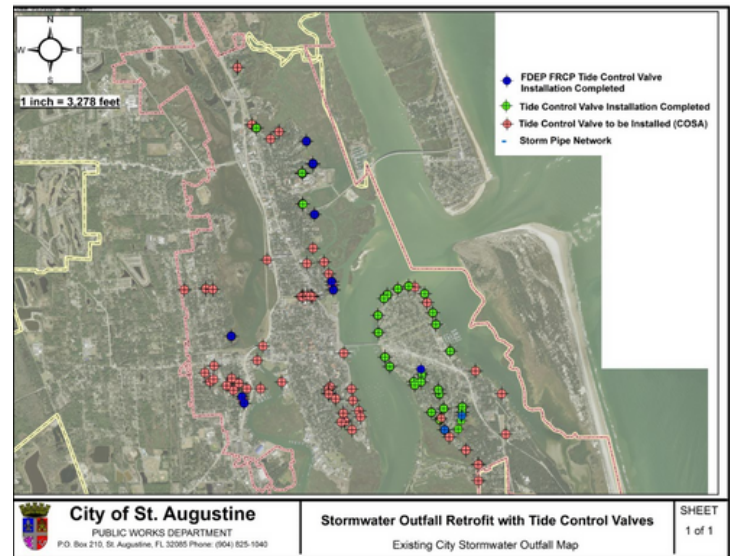
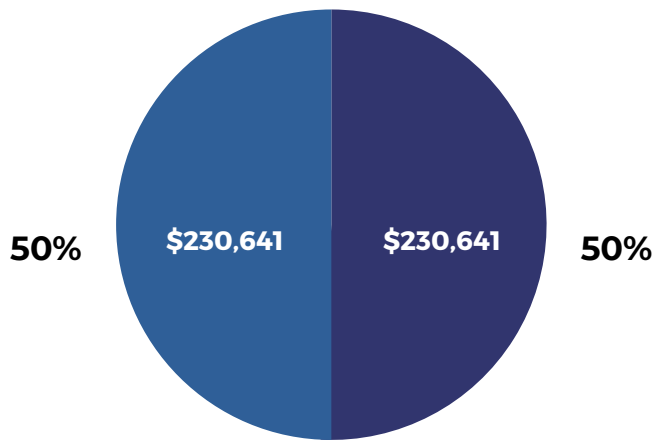
# TIDAL BACKFLOW PREVENTION IMPROVEMENTS

## City Wide Tide Check Valve Installations

**Estimated Construction Cost: \$461,282**

**City of St.  
Augustine**

**Resilient  
Florida Grant**



## PROJECT SCHEDULE 2023-2026

PROJECT PHASE	PROJECT STATUS
PHASE 1	PLANNING AND EVALUATION
PHASE 2	REHABILITATION AND PREPARATION
PHASE 3	CONSTRUCTION / INSTALLATION





# GROUNDWATER MONITORING NETWORK

## For Sea Level Rise Impacts

### What is this project?

In conjunction with the Vulnerability Assessment, this effort will focus on predicting impacts, specifically to critical infrastructure, of sea level rise by installing a monitoring network to accurately measure rates of change in current shallow groundwater elevation and water quality. The monitoring network proposed will contain up to 60 monitoring points. A professional licensed surveyor will survey each point. Monitoring will be scheduled/sequenced to represent the same atmospheric / geologic conditions each monitoring period to attempt to replicate these variables. All data (sea level, groundwater, water quality & creek level) will be compiled and summarized quarterly, building the data set. Daily rainfall along with any severe storm activity will also be summarized.

### Why is this project needed?

As sea level rises, so does shallow groundwater. As groundwater approaches closer to land surface, water quality and critical infrastructure may become adversely impacted, such as the stability of foundations, water quality used for irrigation, function of buried utilities (communications, electric transmission, natural gas distribution), storm/water/sanitary sewer functions, and historic structures can become more at risk. Therefore, better prediction of these impacts by monitoring is needed to mitigate for these risks.

### How is this project being funded?

The City of St. Augustine (COSA) has received a grant from the Florida Department of Environmental Protection (DEP) under the Resilient Florida Grant Program in the amount of \$201,903.00. The City will contribute \$15,197 for a total project cost of \$217,100.

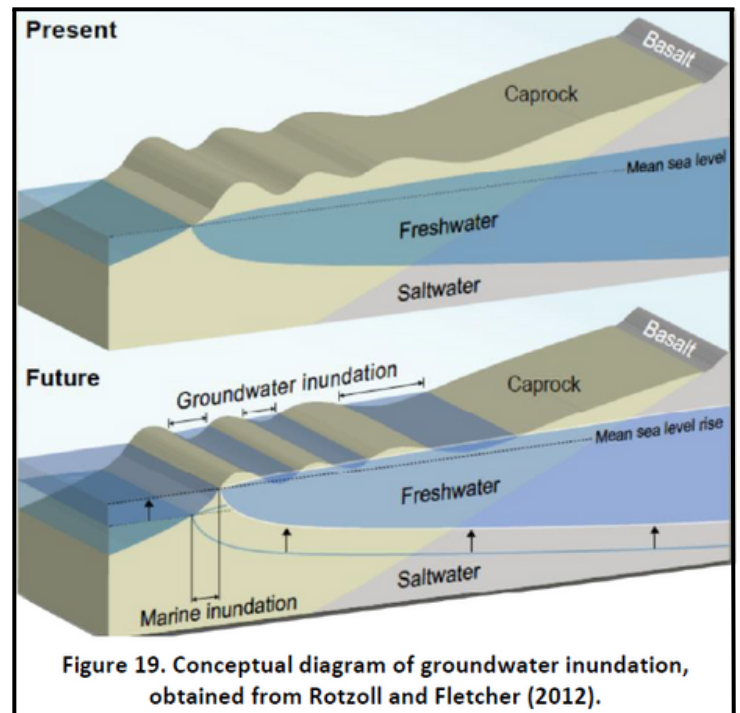


Figure 19. Conceptual diagram of groundwater inundation, obtained from Rotzoll and Fletcher (2012).

### How will this project benefit the community?

The data collected from this project will be able to better predict and model groundwater impacts which has a significant impact on critical infrastructure. This includes the threat to the city's existing archaeological and historic buildings which are considered regionally significant assets. Having a better mechanism for predicting those impacts and risks will enable the City to identify mitigation strategies to address those risks. The groundwater monitoring network can be installed and monitoring to begin within the first year of the project. The data collected from that network would occur over the next 15-18 months and then the results from that effort will be summarized into a final report by the end of year three.

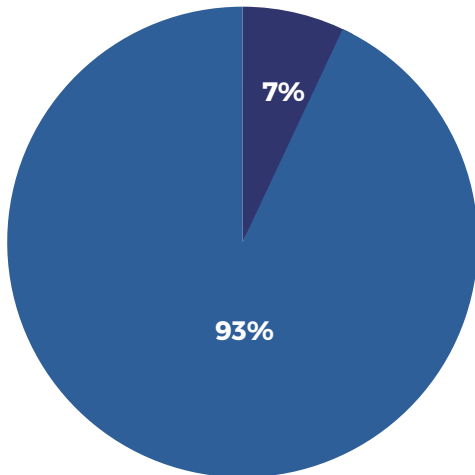


# GROUNDWATER MONITORING NETWORK

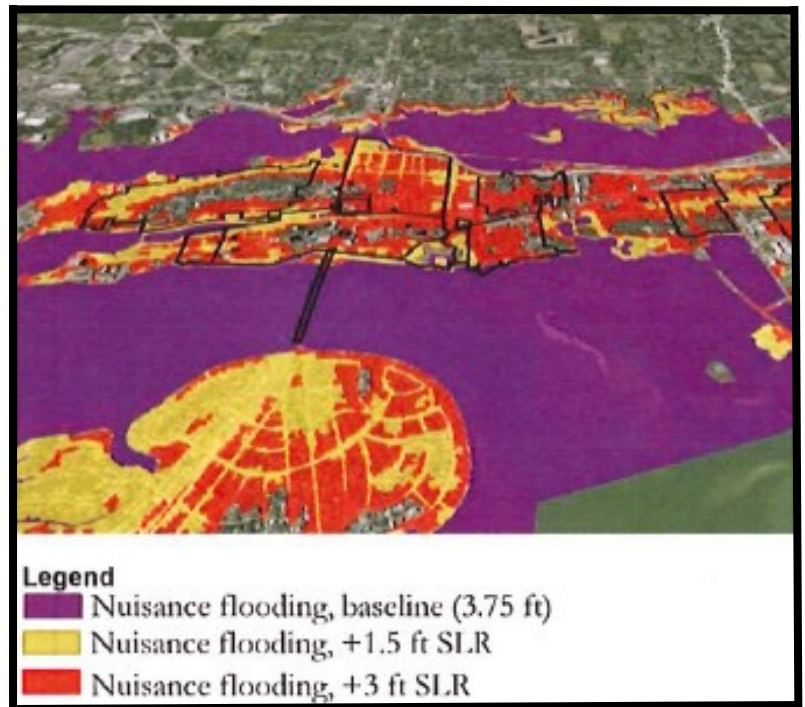
For Sea Level Rise Impacts

**ESTIMATED CONSTRUCTION  
COST: \$217,100**

City of St. Augustine  
\$15,197



Resilient Florida Grant  
\$201,903



## PROJECT SCHEDULE 2023-2026

PROJECT PHASE	PROJECT STATUS
PHASE 1	MONITORING NETWORK INSTALLATION
PHASE 2	MONITORING
PHASE 3	MONITORING AND FINAL REPORTING





# VULNERABILITY ASSESMENT UPDATE

With The Florida Department of Environmental Protection

## What is this study?

Vulnerability Assessments (VA) identify or address risks of flooding and sea level rise and help development of adaptation/resilience plans, projects, and policies that allow for preparation for threats from flooding and sea level rise. The final report does include an adaptation plan with recommendations for identified projects to be implemented.

## Why is this study needed?

Previous studies, including a coastal vulnerability assessment, were completed in 2016, which identified major flood pathways in the city. However that previous VA does not meet the current criteria outlined in section 380.093 of Florida statutes. By completing the FDEP VA it qualifies the city for the 50% cost-share for implementation projects and the city is eligible for future funding.

## How will this study benefit the community?

A Vulnerability Assessment helps a community determine which structural and social assets are likely to be impacted by future coastal flooding and sea level rise and help create an adaptation plan for future mitigation projects. By integrating scientific methods and developing awareness of different structural and social assets that may be vulnerable to future coastal flooding, the community may ensure that the most useful basis for planning is established.

## How is this study being funded?

The City of St. Augustine has been awarded funding from the Resilient Florida Grant Program in the estimated total assessment cost of \$500,000.



**ESTIMATED ASSESMENT COST:**  
**\$500,000**



## STUDY SCHEDULE 2023-2024

PHASE	STATUS
PHASE 1	DATA COLLECTION & ANALYSIS
PHASE 2	COMMUNITY OUTREACH
PHASE 3	REPORTING



# BACK BAY COASTAL STORM RISK MANAGEMENT

## A City Wide Feasibility Study With The U.S. Army Corps of Engineers

### What is this study?

The City of St. Augustine Coastal Storm Risk Management Study is a three-year federal feasibility study that investigates coastal storm impacts on the City of St. Augustine. In partnership with the Army Corps of Engineers, City of St. Augustine and its stakeholders, the study will also explore economically-viable and environmentally-sound solutions to mitigate coastal storm risks.

### Why is this study needed?

The reduction of flood-related damages to residential, commercial and historic/culturally significant resources, and critical infrastructure is vital. The study will identify comprehensive Coastal Storm Risk Management strategies to increase resilience and to reduce risk from future storms and compounding impacts of sea level change.

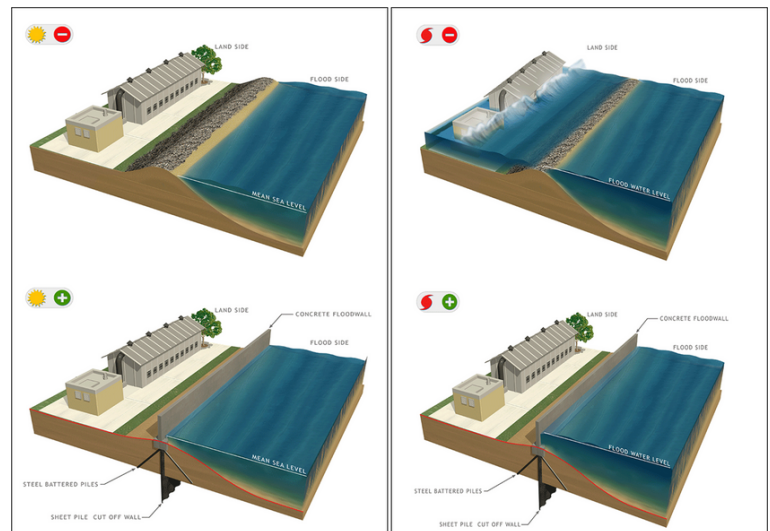
### How will this study benefit the community?

The objective of the study is to investigate Coastal Storm Risk Management problems and identify solutions to reduce damages from coastal flooding that affects population, critical infrastructure, historic and culturally significant resources, and ecosystems, which will benefit the community as future projects are designed to mitigate flooding.

### How is this study being funded?

The City of St. Augustine will be utilizing \$1,500,000 in American Rescue Plan Act (ARPA) funds, while the Army Corps of Engineers will fund \$1,500,000 for a total cost of \$3,00,000.

### Flood Wall Example



### St. Augustine Bay Front During a Storm





# BACK BAY COASTAL STORM RISK MANAGEMENT

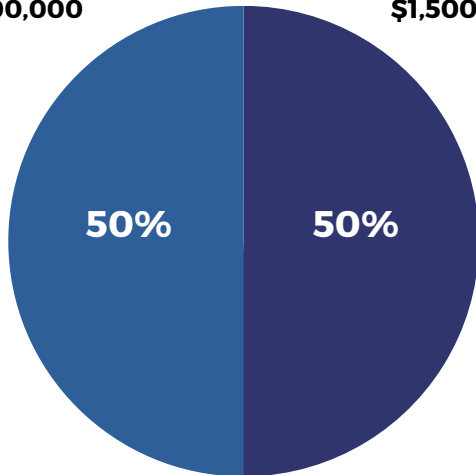
A City Wide Feasibility Study With The U.S. Army Corps of Engineers

**Total Estimated Study  
Cost: \$3,000,000**

**St. Augustine Bay Front During a Storm**

**Army Corps  
of Engineers  
\$1,500,000**

**City of  
St. Augustine  
\$1,500,000**



Taken on Nov. 13, 2019 of water crashing over the sea wall and flooding the park lawn.

**Photo Credit:**

<https://www.nps.gov/casa/learn/historyculture/climatechange.htm>

## STUDY SCHEDULE 2023-2026

PHASE	STATUS
PHASE 1	DATA COLLECTION, ANALYSIS AND MODELING / COMMUNITY OUTREACH
PHASE 2	DATA COLLECTION, ANALYSIS AND MODELING / COMMUNITY OUTREACH
PHASE 3	DEVELOPMENT / ADOPTION, FINAL STUDY





## BUILDING RESILIENCE

The St. Augustine, Florida Back Bay Coastal Storm Risk Management (CSRSM) Feasibility Study will conduct activities and tasks required to identify and evaluate alternatives and produce a decision document that, as appropriate, recommends a coordinated and implementable solution for hurricane protection, storm damage reduction, beach erosion control, and other related purposes at St. Augustine, Florida.

In partnership with the City of St. Augustine and its stakeholders, the study will explore effective, economically-viable and environmentally-sound solutions to mitigate risks and build enduring coastal resiliency - and amidst the potential impacts of sea level rise on the city's character and livability.

A feasibility study is the first step toward a potential federally-cost shared water resources project that could be one piece of the City of St. Augustine's overall, long-range flood resiliency strategy.

\* The typical cost of a CSRSM study is \$3 million. The cost will be split 50/50 percent between the U.S. Army Corps of Engineers (USACE) and the City of St. Augustine, Florida.



US Army Corps of Engineers®



CITY OF ST. AUGUSTINE  
EST. 1565

### STUDY AREA

Through the planning process, the study will assess the multi-faceted landscape within the city limits of St. Augustine. Maintaining St. Augustine's unique and rich multi-layered sense of place will be a priority of the team as they develop and evaluate alternatives to reduce coastal storm risk.



PHOTO CREDITS (LEFT TO RIGHT): CITY OF ST. AUGUSTINE; CITY OF ST. AUGUSTINE; VISITSTAUGUSTINE.COM; CRAIG SWAIN; T.TAUGHER

### TRANSPARENT PLANNING PROCESS

Feasibility studies use a transparent 6-Step Planning Process that pursues alternatives to reduce economic damages from storms over a 50-year project life, consistent with environmental statutes. In addition to economic and environmental conditions, regional economic development and social effects are addressed during the planning process. There are a variety of approaches, both quantitative and qualitative, to assist with multi-criteria decision making and plan selection.

Public input is paramount in the decision process. Multiple public/stakeholder meetings will occur throughout the study.



### MULTI-DISCIPLINARY PROJECT DELIVERY TEAM

The project delivery team (PDT) is the workgroup tasked with conducting the study and consists of varied experts including planners, engineers, biologists, geologists, hydrologists, surveyors, archaeologists, economists, real estate specialists, and more to address problems and opportunities. Each team member is responsible for identifying water resources problems and assisting in formulating solutions to those problems within their area of expertise. This interdisciplinary approach to problem solving is key to a successful feasibility study.

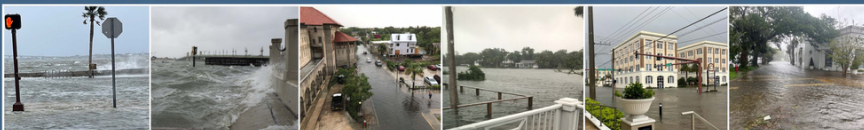


PHOTO CREDITS (LEFT TO RIGHT): CITY OF ST. AUGUSTINE AND WWW.FACEBOOK.COM/CITYSTAUG/PHOTOS.

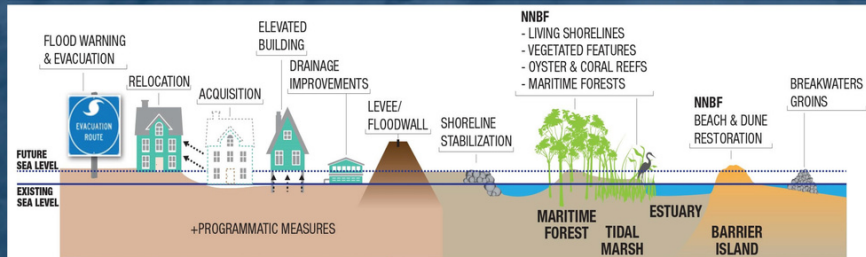
### INTEGRATED FEASIBILITY REPORT AND NATIONAL ENVIRONMENTAL POLICY ACT ANALYSIS

The National Environmental Policy Act (NEPA) is a Federal law enacted in 1969. As required by NEPA, USACE will assess the potential environmental effects of the study alternatives, including a no action alternative. The report also documents coordination with the varied resource agencies that help to shape the final recommendation. Examples of NEPA effects categories include:



PHOTO CREDITS (LEFT TO RIGHT): T.TAUGHER (FIRST THREE); WWW.FACEBOOK.COM/CITYSTAUG/PHOTOS; U.S. FISH AND WILDLIFE SERVICES.

### FULL ARRAY OF MEASURES INCLUDING NATURAL AND NATURE-BASED FEATURES (NNBF) CONSIDERED



### TYPICAL SCHEDULE | PLANNING MILESTONES FOR A 3-YEAR STUDY\*



3 YEARS

\*\* Contingent Upon Congressional Authorization and Appropriations

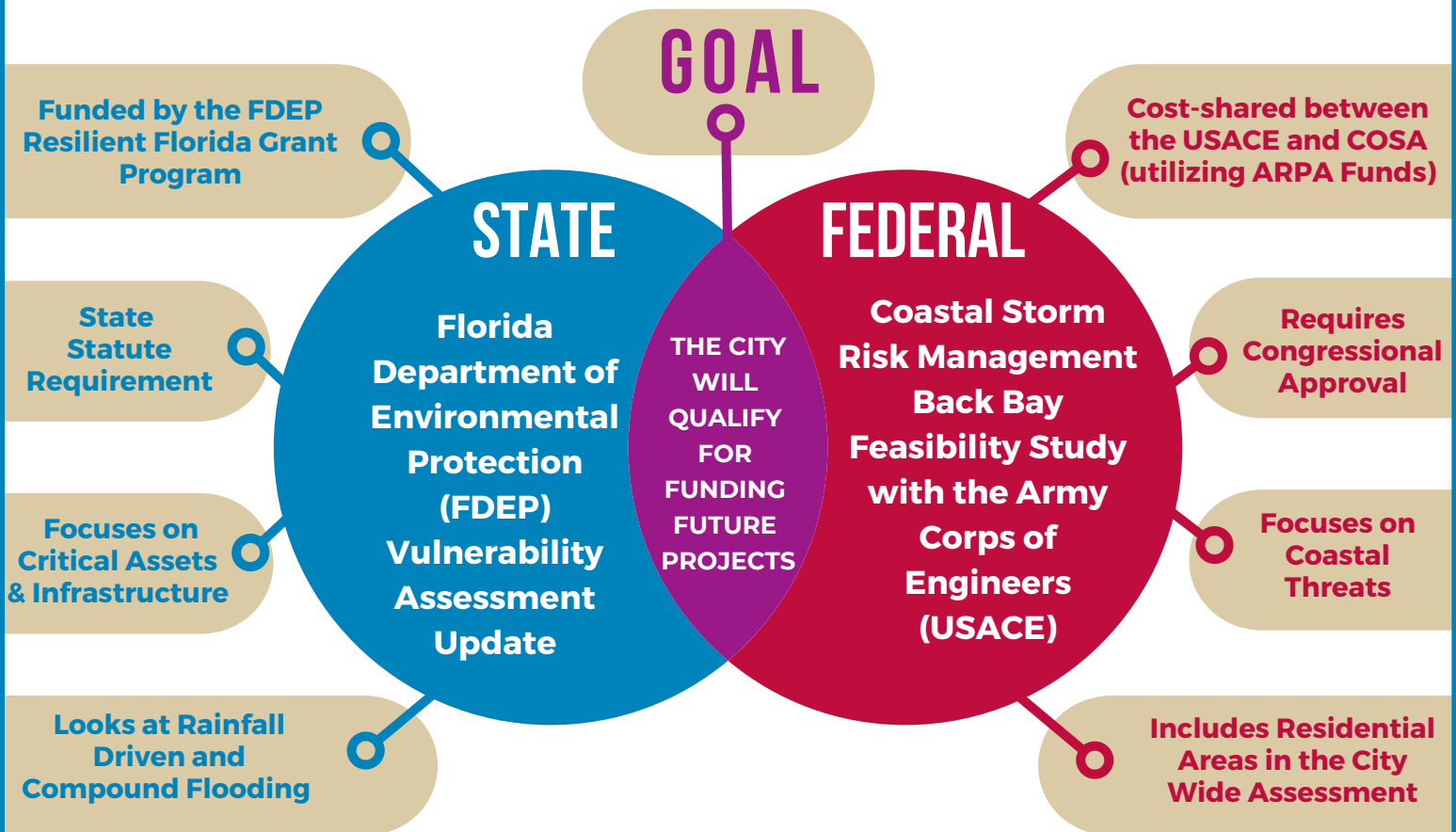
\* The study schedule, scope, and budget can vary depending upon the complexity of the study area and corresponding problems identified throughout the study process; changes to the 3-year, \$3 million parameters require documentation and approval of division and Headquarters USACE and concurrence of the local sponsor. A specific schedule and budget for this study will be developed after the Feasibility Cost Sharing Agreement (FCSA) is signed.

# ST. AUGUSTINE, FLORIDA BACK BAY CSRSM FEASIBILITY STUDY

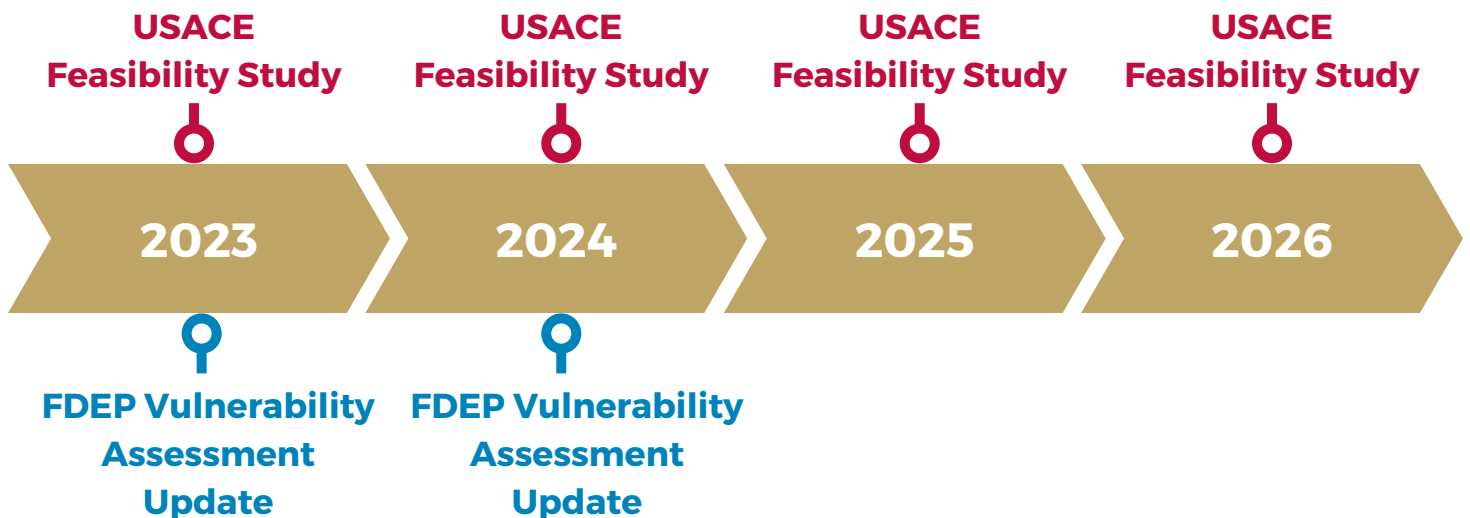
U.S. ARMY CORPS OF ENGINEERS | JACKSONVILLE DISTRICT | FOR ADDITIONAL INFORMATION: [WWW.SAJ.USACE.ARMY.MIL](http://WWW.SAJ.USACE.ARMY.MIL)



# CITY OF ST. AUGUSTINE STUDIES BREAKDOWN



## STUDIES TIMELINE







# PROPOSED RESILIENT SHORELINES ORDINANCE

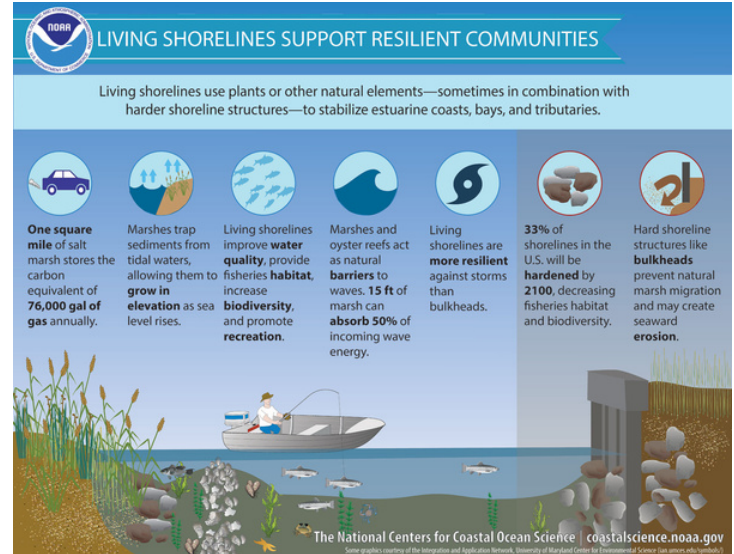
## What is this proposed ordinance?

The City of St. Augustine is working on implementing a Resilient Shorelines Ordinance to help combat sea level rise and coastal storm surge threats to the city. A Resilient Shoreline Ordinance will help promote nature-based designs that create/protect habitat & improve water quality.

## Why is this proposed ordinance needed?

Sea level rise increasingly threatens both public and private infrastructure. The development of a resilient shoreline ordinance will provide the city and its residents guidance and opportunities for protective infrastructure such as seawalls, living shorelines, and hybrid approaches. The proposed ordinance will allow for a consistent approach to inform both public and private stakeholders on appropriate shoreline policy, infrastructure construction, maintenance and repair, and methodology and account for future flood risk.

**SCHEDULE**  
**2023-2025**

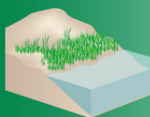


PHASE	STATUS
PHASE 1	DATA COLLECTION
PHASE 2	DRAFT RESILIENT SHORELINE ORDINANCE
PHASE 3	COMMUNITY OUTREACH & ENGAGEMENT SUPPORT

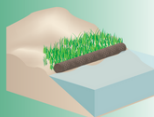
### GREEN - SOFTER TECHNIQUES

### GRAY - HARDER TECHNIQUES

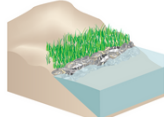
#### Living Shorelines



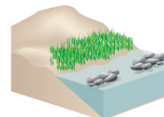
**VEGETATION ONLY** - Provides a buffer to upland areas and breaks small waves. Suitable for low wave energy environments.



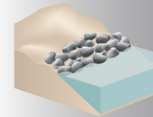
**EDGING** - Added structure holds the toe of existing or vegetated slope in place. Suitable for most areas except high wave energy environments.



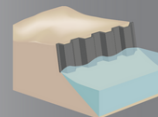
**SILLS** - Parallel to vegetated shoreline, reduces wave energy, and prevents erosion. Suitable for most areas except high wave energy environments.



**BREAKWATER** - (vegetation optional) - Offshore structures intended to break waves, reducing the force of wave action, and encourage sediment accretion. Suitable for most areas.



**REVETMENT** - Lays over the slope of the shoreline and protects it from erosion and waves. Suitable for sites with existing hardened shoreline structures.



**BULKHEAD** - Vertical wall parallel to the shoreline intended to hold soil in place. Suitable for high energy settings and sites with existing hard shoreline structures.

#### Coastal Structures



# FLOOD MITIGATION ASSISTANCE (FMA) PROGRAM

## What is the FMA Program?

FEMA's Flood Mitigation Assistance (FMA) grant program is a resource provided to the City meant to reduce or eliminate the risk of repetitive flood damage to buildings and structures insured under the National Flood Insurance Program (NFIP).

The FMA Program is a nationally competitive annual FEMA grant program. Prioritization is given to those structures listed as Severe Repetitive Loss and Repetitive Loss.

**Cost shares for the homeowner will vary depending on the validation of the structure and are pre-determined by FEMA in most cases.**

## Who can apply for the FMA program?

Those who currently participate in the National Flood Insurance Program:

- Must be insured with the NFIP at the time of the Cycle 2 application opening period of 9/30/23
- Policy must be effective as of 8/31/23
- Must maintain flood insurance to the structure in perpetuity

**More FMA Info:** [www.citystaug.com/FMA](http://www.citystaug.com/FMA)

## Before Elevation



## What is the FMA Program timeline?

The FMA Program is a yearly resource available to residents of the City of St. Augustine. The application is due annually in late September to the City. However, residents can be working to actively building an application all year and turn in paperwork at any time. Once the application has been turned into the state, the awards will not be announced until late summer the following year. If funding is awarded, the grant must be completed within three years of contract execution.

## Documents Needed for Participation Elevation and Reconstruction

- Signed FMA Forms
- NFIP Insurance Declaration Page
- Current Elevation Certificate - contact a local surveyor or check to see if the City has one on file: **904.209.4327 / [fma@citystaug.com](mailto:fma@citystaug.com)**
- 3 Elevation Quotes from qualified elevation firms (Quote should indicate who is performing the lift)
  - A sketch of the structure submitted
  - Copy of Contractor License
- Copy of Riggers Insurance (if lift contractor)
- Color photos of all 4 sides of structure

**Planning & Building Dept- 904.825.1065**

**Public Works Dept- 904.825.1040**

## After Elevation

