

grants

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RAN-00176

State Agency

State Program

Applicant Information

Grant Funding Type	Funding for Resilient Florida – Infrastructure Grants	Status	Submitted
Applicant Account	City of Delray Beach	Applicant Contact	
Applicant Authorized Signee	Terrence Moore	Applicant Fiscal Agent	Hugh Dunkley
Regional Resilience Entity Account		Applicant Grant Manager	Missie Barletto

Project Information

RPG Project Type		Project Title	Historic Marine Way Seawall, Roadway and Drainage Improvement
Entity Category	County, Municipality, or Authorized Special District Addressing Risks of Flooding or Sea Level Rise Identified in a Vulnerability Assessment	Project Location	
Resilient Florida Grant Program Types	Adapt critical assets to effects of flooding and sea level rise; Mitigate threats from flooding and sea level rise; Coastal Flood Control; Stormwater Infrastructure; Living Shoreline	Project Geo Location Narrative	Project is located on Marine Way, a waterfront street that runs from North (Atlantic Avenue/Main Street and Veteran's Waterfront Park) to South (City Marina) along the Intracoastal Waterway. The project sits in Marina Historic Neighborhood in the Local Register of Historic Places in 1988 and is the first planned residential area in Delray Beach.
List the City(ies)/Town(s)/Village(s)	Delray Beach	State Lands Lease Agreement No.	
State Lands or State Parks Utilized	No	Project Geo Location	26.460427 -80.064505
Area Served	Palm Beach	Project Geo Location Metadata	
Sponsor City/County		Percent of Population	
Total Population		Total Grant Match Amount	\$10,000,000.00
Prior Vulnerability		Total Grant Funding Amount Requested	\$20,000,000.00

Prior Vulnerability Share

Project Critical Assets

Prior Vulnerability Entities

Funding for Regional
Resilience

General Information

Project Need The existing rock seawall currently ranges from -1.1ft to 1.0 ft (NAVD 88) and was constructed about 80 years ago. The recorded average King Tide elevation from 2007 through 2021 was 2.53ft NAVD 88. Based on SEFRCCC's unified sea level rise projections (USACE High), the King Tide will reach 4.74FT in 2068 (46 years later). During King Tides Season which happen more than 3 times a month, the residents have difficult time to access their homes due to street flooding and have experienced repeated damage on their properties. Local businesses have suffered reduced revenue and repeated repairs. City also needs to close off roads and install temporary barriers to hold back the rising waters. Temporary signages and detours need to be set up to warn tourists of high water in the area. Emergency vehicles cannot access the area when flooding occurs, which can concern public health and safety. In addition, due to the roadways being under water for extended periods of time and frequency, frequent road repairs increase maintenance cost. There are a few observed large sink holes behind the sea walls which can cause public safety. In addition, the buildings along Marine Way highlight the designs of prominent architects of the day including Gustav Maas, Sam Ogren, Sr., and John Volk. The history of Delray Beach can be impaired by frequent flooding caused by King Tides.

The project will install a 735-ft long new seawall made of sheetpile and concrete cap along Marine Way to combat the projected 100-year sea level rise. The installation will use cutting edge technology "Silent Piles" to minimize noise and vibration to protect nearby historical homes and prevent interruptions to local businesses. The existing rock seawall and mangroves will be left in place to serve as a living shoreline to promote marine life and provide extra support for the new seawall. A new stormwater pump station will be built with onsite water treatment to pump out water on demand effectively. All drainage pipes will be upsized. New water supply and sanitary sewer system will be installed to replace the existing 57-year-old system. New roads, multi-use shared paver path, beautiful landscape and LED street lighting will be provided to ensure the whole area is pedestrian /motorist/bicyclist friendly 24/7. This project will provide a direct scenic

walking connection along the intracoastal between Veteran Waterfront Park and City Marina . The new seawall will become a part of integrated defense system with the newly built seawalls in Veteran Park and City Marina to provide coastal flooding protection against sea level rise for at least the next 100 years. Local historic homes, businesses will experience significantly less flood damage/related repairs and maintenance cost should be at minimum too. The restoration in Marine Way will increase property values, boost tourism , promote public safety and create job opportunities.

Project Fit The project will install new seawalls and pump station which keep seawater in the intracoastal and pump out stormwater efficiently. It will mitigate flooding and sea level rise. The project will address critical assets such as major roadway, water main, sanitary sewer main, stormwater conveyance system and City Marina. The whole project area is sitting right next to Intracoastal so this project is for coastal flood control. Mangrove improvement will serve as living shoreline to provide home for fishes and provide extra support for new seawall. The proposed stormwater infrastructure in the project is the new pump station.

GI Critical Asset VAAP Yes

GI Critical Asset VAAP Explanation

Please see the attached document- Marine Way Vulnerability Assessment Report. The document includes modelling results from AccelAdapt, which is a visual summary of Jurisdiction-Wide Climate Change Vulnerability Assessment completed in 2021 according to 380.093 FS. From this analysis, the project area is Highly Vulnerable to flooding and will be even more vulnerable in the future. This project is designed to reduce risk of flooding and risk consequences from sea level rise in the area.

GI Flood Erosion Reducing Yes

GI Flood Erosion Reducing Explanation

Please see the attached document-Marine Way Vulnerability Assessment Report. The high level of vulnerability to rainfall-induced flooding, storm surge, and tidal flooding, consider all the risk together, it is clear that vulnerability to compound flooding will be higher than any individual threat. It is the basis for prioritizing climate change mitigation projects at the project location.

GI Regionally Significant Yes

GI Regionally Significant Explanation

Per 68S-8.002, Marine Way project area include City Marina, which is a regional significant asset because it is a major hub for boats travelling up and down the intracoastal waterway. Also the sanitary pump out facility at City Marina is the only one serving the needs of traveling yachts from nearby municipalities like Boca Raton, Lantana, Lake Worth, Boynton Beach, Pompano Beach and etc in about 60 mile range. The

GI Percent CA Vulnerable	80% or more	GI Percent CA Vulnerable Explanation	project includes installing new roads and drainage pipes next to City Marina, which will reduce flooding risk to City Marina induced by sea level rise or heavy rainfalls.
GI Existing Flood Mitigation	Yes, by incorporating BOTH new or enhanced structure AND natural system restoration and revegetation	GI Existing Flood Mitigation Explanation	Please see the attached FEMA SFHA's Map. The whole project area is in SFHA, which means that this area will be inundated by a flood event that has a percent chance of being equaled or exceeded in any given year. According to S.380.093, the following 5 critical assets are vulnerable and served by this project. All roadways, water/sewer/stormwater conveyance system, historical and cultural assets, wastewater lift station, stormwater pump station and City Marina. As you can see from the map, the whole project area (over 90%) is covered with critical assets except some green space.
GI Site Currently Flood	Has been flooded at least 3 times in the last 5 years or is experiencing ongoing erosion	GI Site Currently Flood Explanation	New enhanced structures will be the new 735 LF new seawall and stormwater pump station. This new seawall will reduce upland flood damage by keeping rising water in the intracoastal. The new stormwater pump station will pump stormwater flowing down from upland into intracoastal. These two structures work together will reduce upland flood risk and reduced related damage cost. Natural system restoration: Marine Way will restore the natural mangrove system next to the existing seawall. The root zone of mangroves will be restored to access open water. Invasive bushes in the mangrove area will be removed and replaced with healthy mangroves. This effort will provide a wildlife benefit and also serve as an extra support for the new seawall.
GI Current Flood Zone	Flooded greater than 1 foot in the current and each of the previous three calendar years, has been flooded for 7 consecutive days, or erosion is critical for the critical asset class	GI Current Flood Zone Explanation	Please see the attached support document-Marine Way Flooding frequency. Local News "Coastal Star" has an article talking about Marine Way. For decades, this area is flooded with high tides and becomes a go-to place for local TV stations to show flooding scenes. King Tides happens between September and December each year. King Tides schedule is attached. During King Tides, Marine Way flooding happens more than 3 times a month. Photos taken by City Inspector and Marine Way design consultants are included to show Marine Way severe flooding in 2019, 2020 and 2021. Project is located in FEMA Flood Zone Special Flood Hazard Area (SFHAS) Zone AE. Please refer to attachment-Marine Way Flooding frequency. Local news "The Coastal Star" reported that Marine Way experienced flooding during King Tides by as much as 15 inches, which flooded the road and part of residents' lawns. In the same document-King Tide

schedule, King Tide can happen for a consecutive 7 days such as October 5-11 in 2021.

Please refer to attachment-Marine Way Flooding Severity. Marine Way road is constantly under water, which causes erosion to the critical asset-major roadway. City has tried to repair the road a few times in the past. However, with the frequency and severity of road erosion, a mitigation project is proposed to permanently address tidal flooding problem in this area.

GI Project Design Stage	Partially designed or site-specific environmental or geotechnical reports have been completed	GI Project Permitting Stage Explanation	South Florida Water Management District (SFWMD) Environment Resource Permit (ERP), USACE NWP (Nationwide Permit) and PBHD (Palm Beach Health Department) Permit, Easement is needed near Deck84. This piece of easement is marked out on the attached signed and sealed plans. USACE NWP Permit was submitted (please see the attached Marine Way USACE Permit Application).
GI Project Permitting Stage	Necessary permits and easements have been identified	GI Cost Share Explanation	50% match from local funding is committed. Please see the attached match commitment letter from City Manager.
GI Cost Share	Yes	GI Habitat Enhancement Explanation	Marine Way will restore the natural mangrove system next to the existing seawall. The root zone of mangroves will be restored to access open water. Invasive bushes in the mangrove area will be removed and replaced with healthy mangroves. This effort will provide a wildlife benefit, enhance fish habitat, filter water, improve water quality and also serve as an extra support for the new seawall.
GI Habitat Enhancement	Yes	GI Critical Habitat Explanation	
GI Critical Habitat	No	GI Project Cost Effective Explanation	Please see the attached cost effectiveness analysis document. The other two alternatives were considered and compared in the design phase. Alternative 1-Do Nothing which may cause over \$32M damage to local residents, businesses and City. Alternative 2-residents and buildings relocation will cost about \$80M. The proposed mitigation project is the most cost-effective way to restore the whole area in facing sea level rise.
GI Project Cost Effective	Yes	GI Funding Secured Project Explanation	Please see the attached Cost Share Commitment Letter from City Manager.
GI Funding Secured For Project	Yes (Cost share has been secured)	GI Previous State Involvement Explanation	
GI Previous State Involvement	None	GI Will Exceed FL Bldng Code Explanation	Please see the attached Marine Way Tier 3 Flood resistance report. FIRMS and ASCE Flood resistant design and construction standard is used in this project. The projects exceeds those regulations in the following ways.

1. All materials of construction have been selected and designed to resist the effects of flood hazard and flood loads.
2. The outfall portion of the wetwell structure (into the intracoastal waterway) includes the installation of rock riprap protecting the integrity of the pipes from erosion and scouring that might affect them due to the loss of supporting soils.
3. Above ground fuel tank is designed to resist flood loads.
4. The generator will be housed above BFE (base flood elevation) grade.
5. The electrical and controls equipment will be installed above BFE grade.

Please see the details in the attached document. Those 5 features are referenced and provided in signed sealed drawings (attached).

GI Will Exceed Florida Building Code	Yes	GI Innovative Tech Reduce Cost Explanati	The project will use cutting edge technology "Press-In" method to install sheet piles for the new seawalls. Traditionally sheet piles are installed using vibratory hammer which creates loud noises and intense vibrations. In order to protect the historical homes on Marine Way, "Silent Piles" will be used to install seawalls precisely with minimal noise and vibration. This innovative technology will reduce the potential construction claims due to expensive damages that can be caused by vibrations to those historical homes.
GI Innovative Tech Reduce Cost	Yes	GI Community Financially Disadvantaged E	Variable Speed Drive (VFD) technology from wastewater industry is innovatively adopted in this project to provide a more flexible and powerful stormwater solution compared to using traditional constant-speed pumps. Pumping with variable speed pumps can result in energy saving and reduced maintenance cost
GI Community Financially Disadvantaged	No	GI Benefit Spring Explanation	
GI Benefit Spring	No	GI Protect Water Sources Explanation	
GI Protect Water Sources	No	GI Facilities Waste Treatment Explanatio	
GI Facilities Waste Treatment	No	GI Convert Septic To Sewer Explanation	
GI Convert Septic To Sewer	No	GI Green Stormwater Infrastrure Expl	Revegetation is included along Marine Way new roads.
GI Green Stormwater		GI Applied Other Programs	

Infrastructure	Yes
GI Applied Other Programs	No
GI Community Population	70,000

Explanation**Project Work Plan**

Project Summary Marine Way project is in the top 5 mitigation projects in Palm Beach County Local Mitigation Plan. Please see the attached document-Marine Way Top Five Mitigation Strategies.

Project Description Marine Way project will install new seawall, new pump station, new roads, new stormwater pipes, water mains and sanitary sewer pipes. The whole area will be transformed from local news hotspot for King Tide flooding to a scenic pedestrian friendly waterfront area for residents, businesses and tourists.

Project Need and Benefit**Project Feasibility****Project Vulnerability****Vulnerability Assessment
include State****Budget****Budget Narrative****Work Performed by****Indirect Percent****Signature****Authorized Signers Signature** Terrence Moore**Certification Agreement** **System Information****Created By** Missie Barletto, 7/6/2022 1:58 PM**Preparer Type** Applicant**Last Modified By** Missie Barletto, 9/1/2022 3:49 PM**Preparer Account** City of Delray Beach**Owner** Missie Barletto**Preparer Contact** Missie Barletto**EGR Application Name** RAN-00176**Preparer User** Missie Barletto**Files****Marine Way USACE Permit Application**Last Modified **9/1/2022 3:46 PM**Created By **Missie Barletto****Marine Way Vulnerability Assessment Report**Last Modified **8/31/2022 3:53 PM**Created By **Missie Barletto**

Marine Way Cost Effectiveness Analysis

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 Created By **Missie Barletto**

2022-08-30 Marin Way Signed and Sealed Plans

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Marine Way Flooding Severity

Last Modified **7/21/2022 2:17 PM**
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Marine Way Top Five Mitigation Strategies

Last Modified **7/21/2022 9:40 AM**
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EGR Application Tasks**RTN-01076**

Task Number	1
Task Description	Send out bid documents to select qualified contractor
Total Task Amount Requested	\$0.00

RTN-01078

Task Number	2
Task Description	Marine Way Construction, grantee will work with CEI to monitor construction progress and quality.
Total Task Amount Requested	\$20,000,000.00

Resilient Florida Marine Way Cost Share Commitment Letter - signed

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MarineWay_ProjectArea Map

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Marine Way Flooding frequency Combined

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Marine Way-Critical Assets percent FEMA Map

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