

## RCP Application

**Grant Funding Type:** Funding for Resilient Florida – Infrastructure Grants

1. Applicant and Project Information

- **Applicant Account:** [City of Lake Worth Beach](#)
- **Applicant Grant Manager:** [Julie Parham](#)
- **Applicant Authorized Signee:** [Carmen Davis](#)
- **Applicant Fiscal Agent:** [Bruce Miller](#)

2. Project Information

- **Choose the Entity Category:**
  - [County, Municipality, or Authorized Special District Addressing Risks of Flooding or Sea Level Rise Identified in a Vulnerability Assessment](#)
  - Eligible Entity Mitigating Risks of Flooding or Sea Level Rise on Water Supply or Water Resources of the State
- **Choose the project type you are submitting:**
  - Adapt critical assets to effects of flooding and sea level rise
  - Mitigate threats from flooding and sea level rise
  - Coastal Flood Control
  - Cultural or community resource
  - Domestic Wastewater Infrastructure
  - Drinking Water Supply
  - Emergency Facilities
  - Land Acquisition and Conservation
  - Living Shoreline
  - Natural System Restoration
  - [Stormwater Infrastructure](#)
  - Transportation and Evacuation
  - Utilities Infrastructure
  - Cost Overrun Request for Previous Award Amount (subject to available funding)
- **Project Title (20-word limit):** [10<sup>th</sup> and 13<sup>th</sup> Avenues North Stormwater Improvements for Intracoastal Resilience](#)
- **List the Cities/Towns/Villages:** [City of Lake Worth Beach](#)

- **Project Geo Location:** (use mid point along Lagoon) 26°37'43"N / 80°02'47"W
- **Project Location (narrative – neighborhood, part of town, intersection, etc):** The project area is located along the Lake Worth Lagoon within the Northeast Lucerne Historic Preservation District. The stormwater outfalls along 10<sup>th</sup> and 13<sup>th</sup> Avenues North have been identified as contributing to flooding and erosion issues in the area. The outfalls are located within the Lake Worth Beach Golf Club, a recreational resource open to the community. In addition to the golf course, the outfall system provides drainage to approximately 230 acres of residential and commercial properties to the west.
- **State Lands Utilized:** None/ Yes/ **No**
- **Area Served:** Palm Beach
- **Sponsor County:** None

## 2A. General Information - Background

- **Explain the demonstrated need(s) and how the project will address those needs:**

Worsening flood conditions have been observed along the Lake Worth Lagoon shoreline, and erosion in the project area has caused sinkholes. In 2019, the City contracted with an engineering firm to inspect the stormwater system along 10<sup>th</sup> and 13<sup>th</sup> Avenues North. They identified portions of the pipe system where joints have separated, causing sand and soil intrusion. The contributing drainage basin is subject to chronic flooding due to heavy rainfall, storm surges, and king tides. In their Floodplain Management Plan Annual Progress Report 2021, the City identified the 10<sup>th</sup> and 13<sup>th</sup> Avenues North Stormwater Improvements as a recommended implementation project to improve conditions in this area. The proposed project is listed in the City's Capital Improvement Plan for FY 2023.

- **Explain how the proposed project fits into the Project Types chosen above:**

This project proposes upgrades to existing stormwater infrastructure to address flooding and erosion issues adjacent to the Intracoastal Waterway. The City plans to install outfall check valves on three large existing outfalls (2- 54x86" and 1-42") that discharge directly to the Intracoastal, which will alleviate flood conditions in the Northeast Lucerne Historic Preservation District to the west. Lining, grout, and replacement of pipes, as necessary, will be used to address separation in existing pipe joints to address current erosion and sinkhole issues. These improvements will result in a reduction in discharged sediment, which, in addition to reduced pest control measures required in times of standing water, will improve the water quality of local runoff to the Intracoastal.

2B. Project Scoring Criteria

- **Tier 1 criteria (40%)**

- **Does the project reduce risk of flooding or sea level rise identified in a comprehensive VA or the comprehensive statewide vulnerability & sea level rise assessment? (None/ Yes/No – explain if yes)**

The Coastal Resilience Partnership of Southeast Palm Beach County (CRP) Climate Change Vulnerability Assessment (CCVA) describes tidal flooding as the primary threat to the City of Lake Worth Beach, with storm surges, rainfall-induced flooding, and high winds as additional areas of vulnerability. While the scope of the 10<sup>th</sup> and 13<sup>th</sup> Avenues improvements is small, it will address a known, ongoing flooding and erosion problem. Check valves will enable tidal controls on large stormwater outfalls to the Intracoastal, and will help to reduce the effects of sea level rise. Repair or replacement of stormwater pipes in poor condition will provide improved drainage to the area, lessening the threat of flooding and reducing sediment levels in outflow.

- **Does the project reduce risk of compound flooding identified in a VA or the comprehensive statewide assessment? (None/ Yes/No – explain if yes)**

Compound flooding is the combination of more than one type of flooding event, either from storm surges, tide levels, rainfall, or sea level rise. The project area has witnessed recurring compound flooding, primarily due to rainfall plus high tide conditions. The proposed stormwater improvements will address these issues through improved drainage and reduced sedimentation of the Lagoon estuary.

- **Does the project reduce risk to or adapt a regionally significant asset? This can include relocation. (None/ Yes/No – explain if yes)**

(a) "Critical asset" includes:

1. Transportation assets and evacuation routes, including airports, bridges, bus terminals, ports, major roadways, marinas, rail facilities, and railroad bridges.
2. Critical infrastructure, including wastewater treatment facilities and lift stations, stormwater treatment facilities and pump stations, drinking water facilities, water utility conveyance systems, electric production and supply facilities, solid and hazardous waste facilities, military installations, communications facilities, and disaster debris management sites.
3. Critical community and emergency facilities, including schools, colleges, universities, community centers, correctional facilities, disaster recovery centers, emergency medical service facilities, emergency operation centers, fire stations, health care facilities, hospitals, law enforcement facilities, local government facilities, logistical staging areas, affordable public housing, risk shelter inventory, and state government facilities.
4. Natural, cultural, and historical resources, including conservation lands, parks, shorelines, surface waters, wetlands, and historical and cultural assets.

(b) "Department" means the Department of Environmental Protection.

(c) "Preconstruction activities" means activities associated with a project that occur before construction begins, including, but not limited to, design of the project, permitting for the project, surveys and data collection, site development, solicitation, public hearings, local code or comprehensive plan amendments, establishing local funding sources, and easement acquisition.

(d) "Regionally significant assets" means critical assets that support the needs of communities spanning multiple geopolitical jurisdictions, including, but not limited to, water resource facilities, regional medical centers, emergency operations centers, regional utilities, major transportation hubs and corridors, airports, and seaports.

- **What percent of critical assets in the project impact area are considered to be vulnerable? Choose:**
  - None
  - 1-20%
  - 20-40%
  - 40-60%
  - 60-80%
  - **80% or more**

- **Please describe the method used to determine the percent selected as well as provide a list of critical assets in the project impact area.**

If yes, please explain.  
Vulnerable critical assets are those at risk of flooding based on applicable scenarios and standards outlined in paragraph 380.093(3)(d), F.S. Until September 1, 2024, if evaluation of those scenarios and standards is unavailable for the project impact area, best available data can be used to determine the percent.

All of the assets within the approximately 285-acre project area are subject to impaired drainage and access impacts, and will benefit from increased stormwater resiliency. These include Lake Worth's Lift Station No. 4, Believer's Victory Church, Lake Worth Golf Club, local roads used by residents for storm evacuation, and approximately 0.4 miles of Intracoastal shoreline.

- **Does the project contribute to existing flood mitigation projects that reduce upland flood damage cost by incorporating new or enhanced structure or natural system restoration & revegetation?**  
**(None/ Yes, both/No – explain if yes)**

The costs of flooding and seawater intrusion in this area are wide-reaching. Property damage and reduced access have become common, and many parcels throughout Palm Beach County have been subject to changes in flood insurance requirements as FEMA flood zones are adjusted to reflect changing conditions. City managers at the Lake Worth Golf Club have observed that routine saltwater intrusion is deteriorating the health of shoreline plantings, weakening root systems, and increasing vulnerability to erosion. The 10<sup>th</sup> and 13<sup>th</sup> Avenue improvements offers new or enhanced stormwater structures, and will include natural plantings and restoration of any disturbed area during construction, to promote revegetation of the shoreline within the project area.

- **Tier 2 criteria (30%)**

- a. **What is the current frequency of flooding or erosion in the project impact area?**

**(No current/ Has experienced in last 3 years/ At least 3 times in past 5 years or ongoing erosion)**

City managers at the Lake Worth Golf Club estimate that the area experiences flood events primarily in the fall of each year, with flooding conditions typically lasting 4-5 days each month during that time. In 2019, the City contracted with an engineering firm

to inspect the stormwater system within the project area. Their report, which is included in this application, documented ongoing erosion due to joint separation at multiple locations within the pipe system.

b. **What is the current severity of flooding or erosion in the project impact area?**

(No current/ **>3" in last 3 years or unmitigated erosion**/ >1' for current & past 3 years, flooded for 7 days, or erosion critical for critical asset)

If choose last option, explain & provide documentation.

Routine flooding, often preventing safe access for multiple days, has been observed within the project area. Recent engineering inspections have noted deterioration in the stormwater system which is contributing to ongoing erosion.

c. **Status of project design**

(Not designed/ **Partial or environmental, geotech site reports completed**/ Design complete)

Have to include s&s plans with app if design complete

d. **Permit & easement acquisition status**

(**Identified**/ All applied for & at least 1 approved/ All obtained/ None req'd)

Provide list if any required w/ status.

FDEP ERP for Stormwater Modification/ Mangrove Trim will be obtained. No easements are required as the stormwater system is owned and maintained by the City.

e. **Are local funding sources committed as cost share or is project in financially disadvantaged community? (None/**Yes**/No)**

i. **Yes – explain & provide documentation** Yes, the City has budgeted a 50% cost share in the amount of \$350,000.

Please see the project budget estimate and approved capital improvement plan attached.

f. **Does project include environmental habitat enhancement or nature-based solutions? (None/**Yes**/No)**

i. **Yes – explain**

Project construction will involve minimal disturbance to the Lagoon shoreline for installation of backflow prevention devices on existing stormwater outfalls. Following completion of stormwater improvements, nature-based solutions (e.g., rock revetment, sand, and native plantings) will be installed to protect the shoreline and encourage natural recruitment and resilience.

g. **Does project impact area include area identified as state or fed critical habitat for threatened & endangered species?**

(None/**Yes**/No)

- h. **Yes – explain.** The targeted stormwater pipes are direct outfalls to the Lake Worth Lagoon, which is a critical habitat to many plants and animals. It is a brackish estuary that provides an important haven to manatees, juvenile sea turtles, and sea grasses. The health of the Lagoon is sensitive to salinity levels and turbidity. The proposed stormwater improvements will provide better control of stormwater outflows to the Lagoon, and will address identified areas of erosion, reducing sediment discharge to the Lagoon.
  - i. **Is project cost-effective? (None/Yes/No)**
    - **Yes – explain**

The City has completed a preliminary study to determine the scope of repairs needed. The project will proceed with a design-build approach to ensure improvements are completed in a timely manner. Further, although the scale of the 10<sup>th</sup> and 13<sup>th</sup> Avenue improvements is relatively small, the project will address known erosion issues to a fragile estuary system, and will help to address flooding and saltwater intrusion issues on land.
- **Tier 3 criteria (20%) – explanation/ documentation with all as applicable**
  - i. **Is 50% local, state, or fed cost share secured for project? (Selection – can say if appropriated but not released yet) Yes.**

The City has budgeted a 50% cost share in the amount of \$350,000. Please see the project budget estimate and approved capital improvement plan attached.
  - **Has state funding been previously awarded for the project? (None/ Preconstruction/ Design/ Permitting/Construction of previous phases) The City has applied for State funding for this project through the Florida House of Representatives and Florida Senate, but it has not received funding.**
  - **Will this project exceed FL Building Code flood-resistant requirements & local floodplain management regulations? (Yes/No/Do not apply)**

The project will meet or exceed the standards in Sec. 23.7-13 of the City of Lake Worth Floodplain Management ordinances, including the criteria for limitations on sites in coastal high hazard areas, as applicable.
- **Tier 4 criteria (10%)**
  - **Does this project include innovative technologies designed to reduce project costs and provide regional collaboration? (If yes, specify & explain how will reduce cost and provide regional collaboration) No**
  - **Does the critical asset being adapted or the project impact area contain a financially disadvantaged community? (If yes, include metric) No**
- **Additional Information (all are None/ Yes/No, with explanations req'd for 'yes')**
  - **Will this project benefit a spring? No**
  - **Will this project protect water sources using alternative water supplies? No**
  - **Will this project construct, upgrade, or expand facilities to provide waste treatment? No**

- **Will this project convert septic to sewer?** No
- **Does this project include green stormwater infrastructure?** Yes. Following the construction of stormwater improvements, nature-based restoration measures will be taken to protect the area shoreline from future erosion and encourage native plant recruitment.
- **Has this project been submitted to other programs for funding?** Yes. The project has been submitted to the Florida House of Representatives Appropriations Project Request and the Florida Senate Local Funding Initiative Request, but it has not received funding.
- **What is the population of your community?** 37,728 (per 2020 census map on City GIS website)

3. Project Work Plan

- **Project Summary (75-word limit):**

This is a stormwater infrastructure project that will address known flooding and erosion issues along the Intracoastal Waterway in Lake Worth Beach. There are three main tasks: 1) to install outfall check valves on large existing outfalls that discharge directly to the Intracoastal Waterway; 2) to line and/or replace storm sewer pipes to amend existing joint separation; and 3) to support the existing living shoreline in the area with nature-based revetment and plantings.

- **Project Description (300-word limit):**

This should be a concise summary of the work being done. It may explain the broader issue that the project will address or what the end goal of the work is. It should NOT restate the tasks or deliverables and should not give specifications or similar detailed descriptions. (Limited to 300 words)

The 10<sup>th</sup> and 13<sup>th</sup> Street North stormwater outfalls are direct discharge connections to the Lake Worth Lagoon, a 20-mile portion of the Intracoastal Waterway in southeast Florida. The Lagoon is a brackish estuary that is an important nursery habitat for many marine plant and animal species. The existing pipes are located along the Lake Worth Golf Club, which is maintained by the City as a 1.3-mile long living shoreline. The area has been subject to worsening flood conditions due to the compound effects of heavy rainfall, storm surges, king tides, and the rising sea level. Three existing pipes provide drainage for a portion of the golf course, as well as the approximately 230-mile neighborhood immediately to the west. Sinkholes have developed within the project area, and physical inspections by a contracted engineer found separated



pipe joints in the existing system. These separations allow sand and soil to cave into the storm sewer pipes, creating erosion and discharging sediment directly into the fragile Lagoon.

The proposed stormwater upgrades to this area include the installation of backflow prevention devices on the three existing outfalls to the Lagoon. The current lack of controls on the stormwater pipes leaves the upstream residential and commercial properties within the Northeast Lucerne Historic Preservation District vulnerable to tidal flooding, which is expected to be a greater concern as sea levels rise. The stormwater pipes will also be lined or replaced, as necessary, to curb the existing sediment discharge through the joints. The stormwater system upgrades will also include restoration of the living shoreline surrounding these outfalls, to protect this area and encourage nature-based stability through plant recruitment. Though relatively small in scope, this project offers benefits upstream and downstream of the stormwater infrastructure, helping to address existing flooding and water quality issues.

## Tasks and Deliverables

At least one task is required to submit application. Select the Tasks and associated Deliverables for the Project. Example language is shown. Provide additional language as needed.

- Pre-Design or Feasibility Study

*Deliverables: Final pre-design documents, feasibility study, or comparable certificate of completion, signed by a Florida-registered Professional Engineer. If applicable, the Sea Level Impact Projection study report.*

- Data Collection or Study

*Deliverables: Final report or study to include the process and methodology and any data gaps.*

- Stakeholder Coordination and Planning

*Deliverables: A summary report from each workshop or meeting, including attendee feedback and outcomes, and a copy of all materials created at each workshop or meeting.*

- Design and Permitting or Preconstruction Activities

*Deliverables: Final design documents signed by a Florida-registered Professional Engineer. If applicable, final permit documents from all appropriate state and federal regulatory agencies.*

- Project Management

*Deliverables: Project management reports signed by the Florida-registered Professional Engineer, to include a summary of project and site inspection(s), meeting minutes, and field notes, as applicable.*

- Bidding and Contractor Selection
- Work performed by:
- Task Description
- Goal:
- Time to Completion:

*Deliverables: Public notice of advertisement for the bid, complete bid package, and written notice of selected contractor(s).*

- Construction

Work performed by: Contractor only

Task Description: Contractor will construct the stormwater upgrades according to the final design plans and specifications.

Goal: Improve flooding resilience for the affected drainage area and curb existing erosion to the Lagoon.

Time to Completion: 3 years

*Deliverables: Final design and Certificate of Occupancy (if applicable) and Certificate of Completion signed by a Florida-registered Professional Engineer.*

- Permit-Required Monitoring

*Deliverable: Copy of completed monitoring data, surveys, and final reports for the permitrequired work, and documentation of submittal to the appropriate state or federal regulatory agencies.*

- Public Education

*Deliverables: Copy of printed material for distribution, including text and graphics, link to website material developed, and dated photograph(s) of installed materials at the project location, if applicable.*

- Equipment Purchase

*Deliverables: Purchase order(s) and vendor invoice(s) for delivery, installation, and other necessary costs, as applicable.*

- Land Acquisition

*Deliverables: Copies of all appraisals, the closing statement or all closing documents, title exam/insurance, property survey, boundary map, and the deed, recorded easement, or property interest.*

- Site Clean Up

*Deliverables: Dated color photographs of on-going work and a signed acceptance of the completed work to date, as provided in the Grantee's Certification of Payment Request.*

## Task Budget Category

Complete for each task identified above. If multiple budget categories are needed for a single task, submit multiple entries until the budget for that task is completed.

Expense budget category

- Contractual services
- Salary/fringe
- Equipment
- Miscellaneous/other expenses
- Land acquisition

Budget amount \$700,000

Match amount \$350,000

~~Task Personnel Grantee\*~~ \*Only required if grantee is performing work