

MIAMI BEACH

Citywide Living Shoreline Viability Assessment & Grant Funding Opportunities, Challenges, & Lessons Learned

**FSBPA 37th Annual National Conference on
Beach Preservation Technology
February 8, 2024**

**Leonard Barrera Allen, PE, Senior Engineer
Cummins Cederberg, Inc.
lbarrera@cumminscederberg.com**

**Teresa Kaimrajh, PE, Planning and Design Manager
City of Miami Beach
teresakaimrajh@miamibeachfl.gov**



About Miami Beach

- + Coastal City
- + One Mainland and 17 Natural and Human-made Islands in Biscayne Bay
- + Located east of City of Miami
- + Total Area: 7.5 square miles
- + Population Statistics
 - + 100,000 Residents
 - + 30,000 Hotel Guests
 - + 70,000 Floating Population



Goals

Assess City-Owned Shorelines

Understand the conditions of the current City-owned shorelines, their potential implementation year, and the implications associated with their surrounding environment.

Asses Living Shoreline Viability

Score the City-owned shorelines based on characteristics that will make the installation of a living shoreline viable. Consider the length and conditions of the overall shoreline.

Review Grant Funding Eligibility

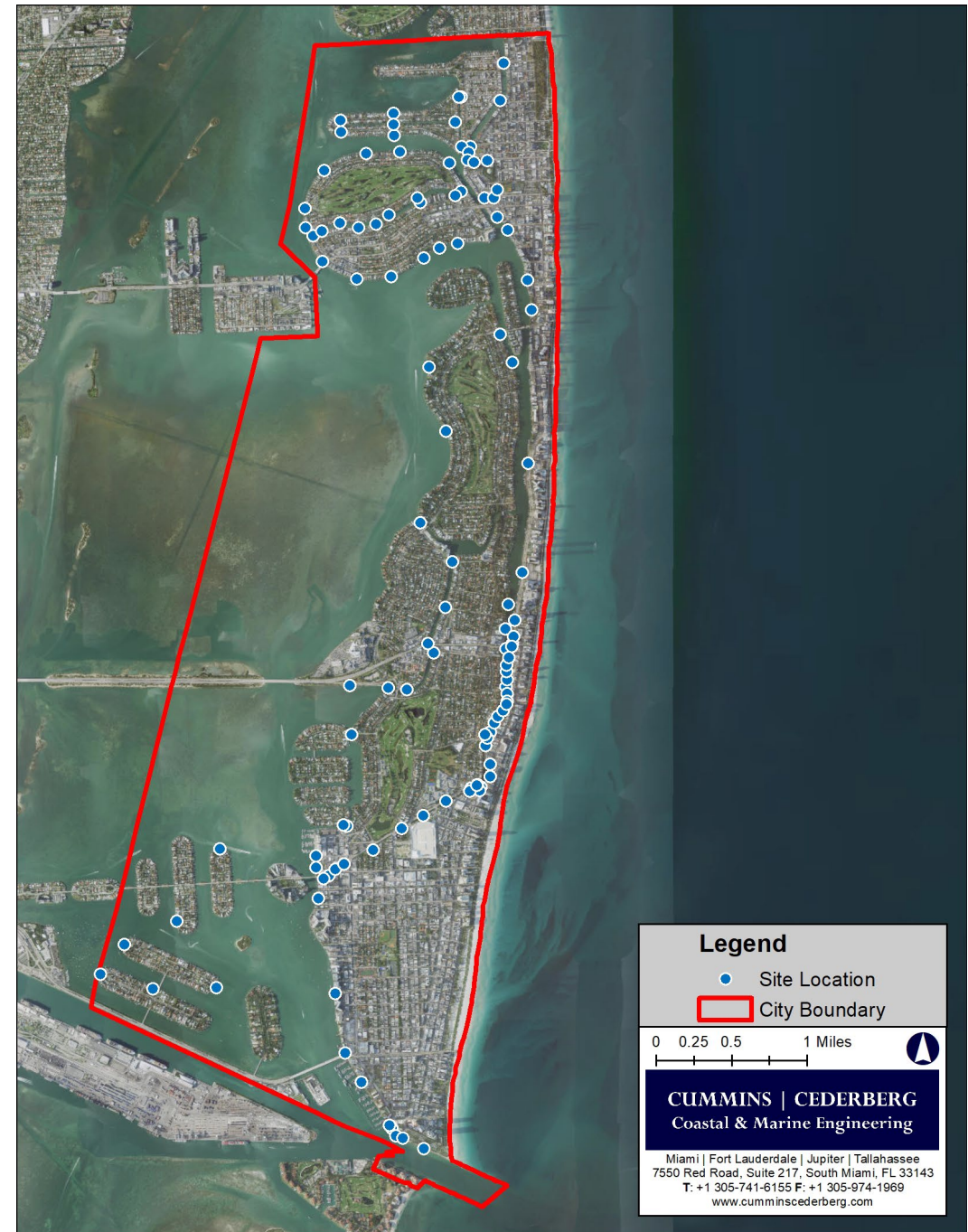
Identify potential grant funding eligibility, and prioritize grants based on the proposed improvements to better focus grant writing efforts and applications.

Obtain and Allocate Funding

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

Background

- + City of Miami Beach Shoreline Prioritization
- + 118 publicly owned shoreline segments within the City.
- + City's desire to propose sustainable improvements to public waterfront spaces to increase interaction between residents, tourists, and the water.



Scoring Criteria

+64 sites deemed suitable for living shoreline improvements were given seven scores based on the following:

1. Condition & Fiscal Year

| Score | Condition Rating | CMB Fiscal Year |
|-------|----------------------------|-----------------|
| 3 | Critical, Serious, or Poor | 2022 |
| 2 | Fair | 2024 – 2026 |
| 1 | Satisfactory or Good | 2028 – 2030 |

2. Cost Effectiveness

- 3: > 200 feet
- 2: ≤ 200 feet and > 100 feet
- 1: ≤ 100 feet

3. Representative water depth taken 10 feet waterward of the seawall (from NOAA LiDAR)

- 3: ≤ 2.5 feet
- 2: > 2.5 feet and ≤ 4 feet
- 1: > 4 feet

4. Navigation Impacts (Waterway width)

- 3: ≥ 200 feet
- 2: < 200 feet and ≥ 100 feet
- 1: < 100 feet

Scoring Criteria (continued)

5. Wave Exposure

- 3 = Narrow waterway
- 2 = Wide waterway
- 1 = Exposed to Biscayne Bay

6. Constructability

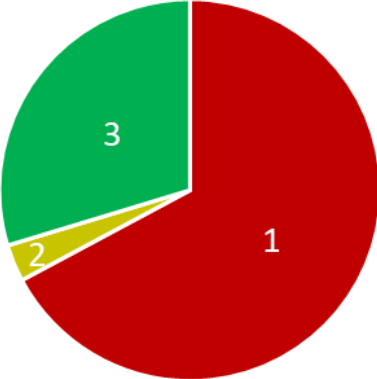
- 3 = Open to Biscayne Bay
- 2 = Low bridges block barge access but enough upland space to stage construction
- 1 = Low bridges block barge access and little upland space

7. Upland Use

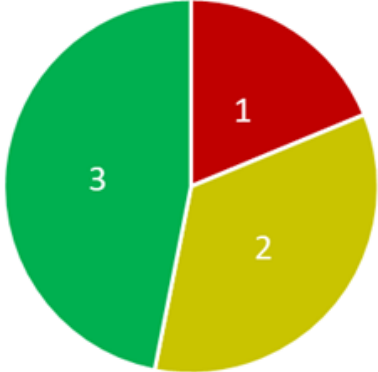
- 3 = Greenspace
- 2 = Parallel to street or sidewalk
- 1 = Street end or heavy waterfront use

Scoring Summary

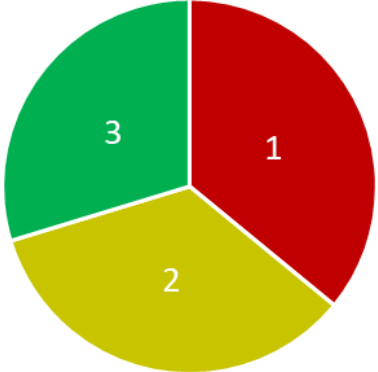
Cost Efficiency/Length Score



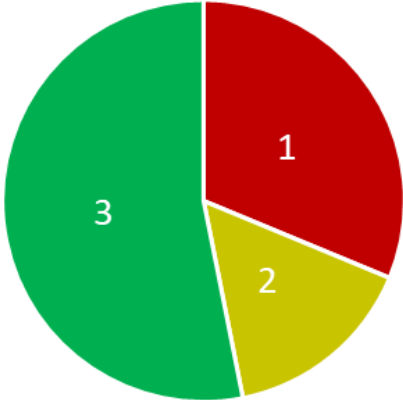
Water Depth Score



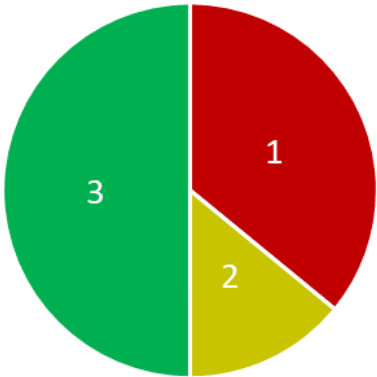
Condition Score



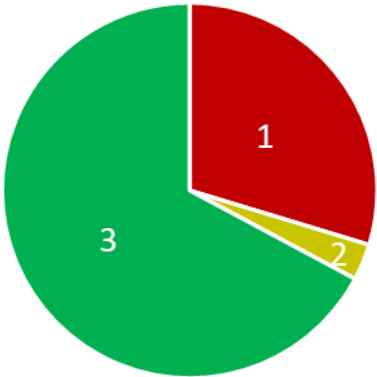
Navigation Impacts Score



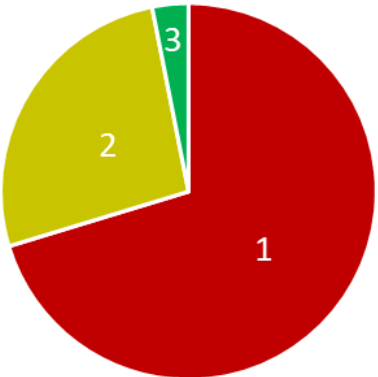
Wave Exposure Score



Constructability Score



Upland Use Score



Scoring Summary

Top 10 Scoring Summary

| Location | Wall Length | Water Depth | Condition | Nav. Impacts | Upland Use | Construct ability | Wave Exposure | Total Score |
|---|-------------|-------------|-----------|--------------|------------|-------------------|---------------|-------------|
| Bayside Lane | 3 | 3 | 3 | 1 | 2 | 3 | 3 | 18 |
| Julia Tuttle Causeway to Alton Road South | 3 | 3 | 2 | 3 | 2 | 3 | 1 | 17 |
| West 40 th Street | 3 | 2 | 3 | 2 | 2 | 2 | 3 | 17 |
| Pine Tree Park | 3 | 2 | 1 | 3 | 2 | 3 | 3 | 17 |
| Mid Beach Park | 3 | 1 | 3 | 3 | 2 | 3 | 2 | 17 |
| 6860 Indian Creek Dr | 3 | 2 | 2 | 3 | 2 | 3 | 2 | 17 |
| Parkview Island Canal | 3 | 3 | 2 | 1 | 2 | 2 | 3 | 16 |
| Beach View Park | 3 | 2 | 1 | 3 | 2 | 3 | 2 | 16 |
| North Bay Road – North End | 1 | 3 | 3 | 2 | 1 | 3 | 3 | 16 |
| South Pointe Park | 3 | 2 | 2 | 3 | 2 | 3 | 1 | 16 |

West 40th Street

- + Site length of 240 feet
- + Significant deterioration of seawall
- + Removal of invasive vegetation recommended
- + About 30 ft clearance from seawall to parking lot
- + Parking lot owned by CMB and usable for construction staging
- + No seagrasses observed



West 40th Street



WEST 40th St. PARKING LOT SITE PLAN 

scale: 1" = 20'

Mid Beach Park

- + Site length of 605 feet
- + Benefits from a wide (440-ft) channel for waterward expansion
- + Site accessible by barge
- + No seagrasses observed



Mid Beach Park



MID BEACH PARK SITE PLAN 

scale: 1"= 30'

Beach View Park

- + Site length of 300 feet
- + At least 30 feet clearance to roadway and 450-ft wide channel
- + Site accessible by barge
- + No seagrasses observed



Beach View Park



BEACH VIEW PARK SITE PLAN

scale: 1" = 20'



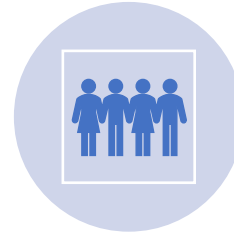
Deliverable



Grant Funding



FINANCE & GRANT
MANAGEMENT



PUBLIC WORKS



ENVIRONMENTAL &
SUSTAINABILITY



CITY MANAGERS
OFFICE



RESIDENTS &
STAKEHOLDERS



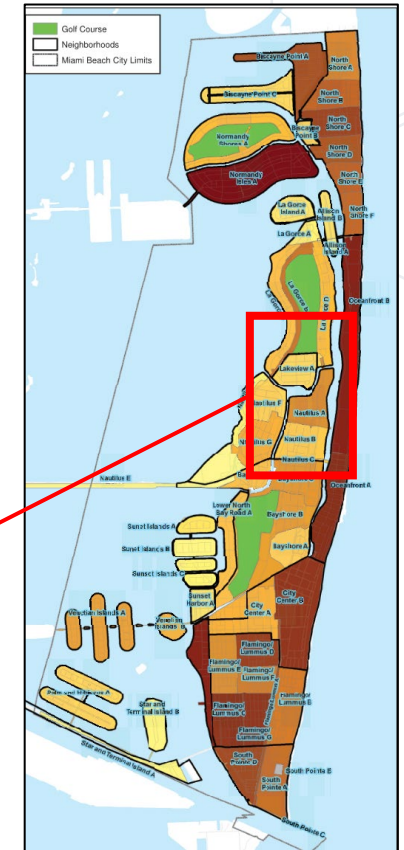
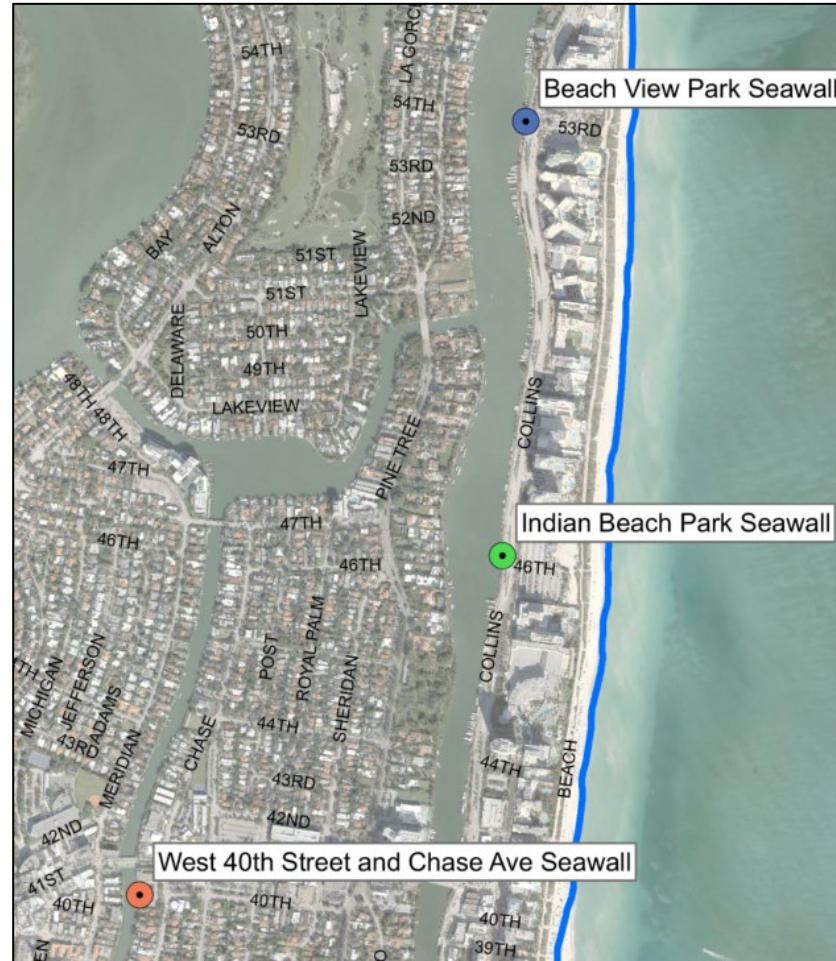
CONSULTANT

Pursue Grants Opportunities that Help Fund our **CURRENT** Needs

Middle Beach Living Shorelines Projects

Florida Resident Grant Application

- + 1200 LF, segmented
- + Raise Existing Seawall to +5.7 ft NAVD
- + Add Living Shoreline Component



Florida Resilient Grant Application

- City Team applied for a Florida Resilient Grant under flood mitigation category
- The project duration after NTP was approximately 3 years.
- Grant funding would complement the City's investments.

| Task No. | Task Title | Budget Category | DEP Amount | Match Amount | Total Amount | Task Start Date | Task Due Date |
|----------|---|----------------------|--------------------|--------------------|--------------------|-----------------|--|
| 1 | Sea Level Impact Projection (SLIP) Study Report | No-Cost Deliverable | \$0 | \$0 | \$0 | 7/1/2023 | 30 Days before commencing Construction |
| 2 | Study, Data Collection, and Coordination | Contractual Services | \$43,637 | \$43,637 | \$87,274 | 7/1/2023 | 4/30/2024 |
| 3 | Design and Permitting | Contractual Services | \$324,548 | \$324,548 | \$649,096 | 7/1/2023 | 1/31/2026 |
| 4 | Bidding and Contractor Selection | Contractual Services | \$66,500 | \$66,500 | \$133,000 | 7/1/2023 | 3/31/2026 |
| 5 | Construction | Contractual Services | \$1,368,270 | \$1,368,270 | \$2,736,540 | 7/1/2023 | 3/31/2026 |
| Total: | | | \$1,802,955 | \$1,802,955 | \$3,605,910 | | |

Florida Resilient Grant Application Challenges and Lessons Learned

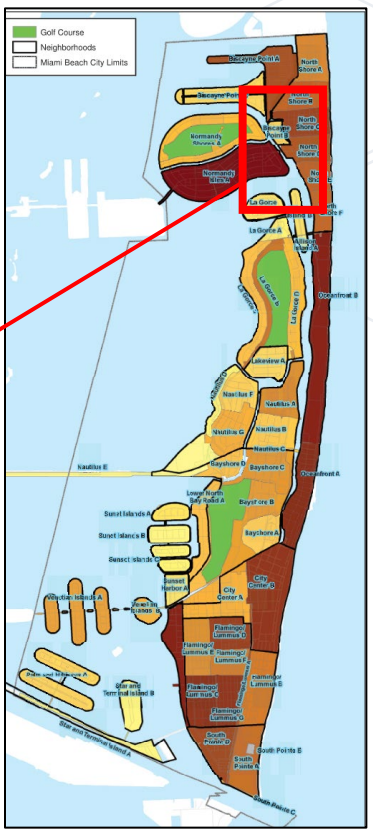
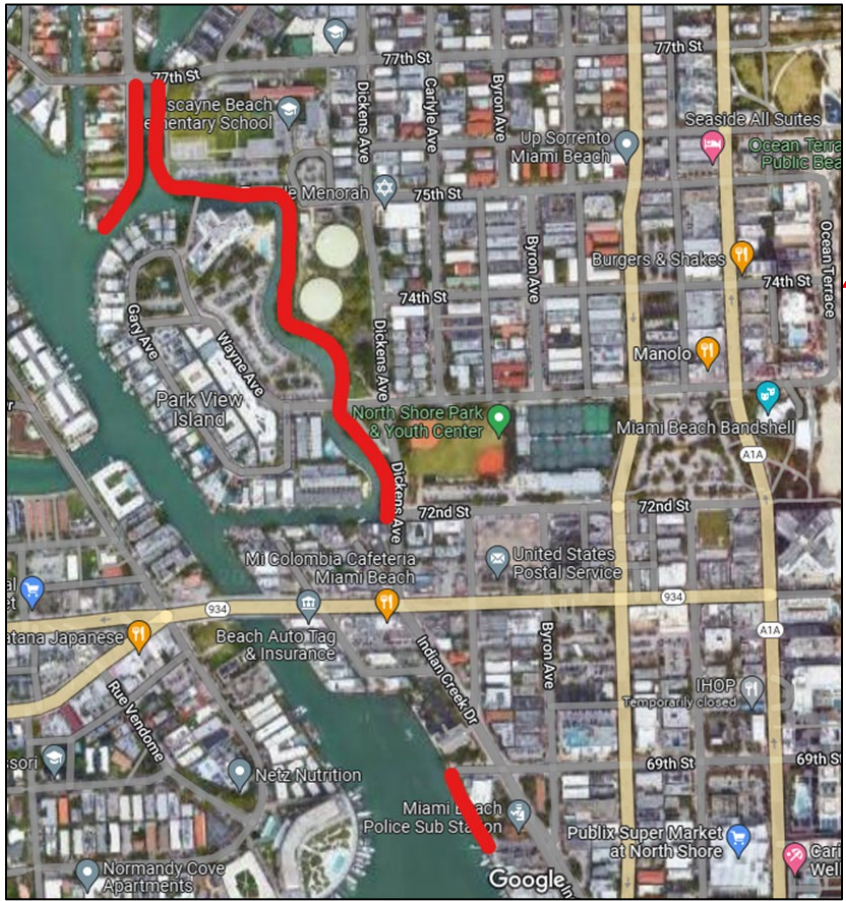
- + Very detailed Work Plan – Based on CCs Scope of Work
- + Planning Level Cost Estimate
- + Flood Risk Information Required
- + Studies and Back Up Data Required
- + Proven Commitment of Match/Leverage Funds
- + Quarterly Reporting
- + Reimbursement by Task Completion



North Beach Living Shorelines Projects

NOAA Grant Application

- + 3400 LF of Seawall
- + Add Living Shoreline Component
- + Raised to +5.7 ft NAVD



NOAA Grant Application

- City Team applied for the NOAA Transformational Habitat Restoration and Coastal Resilience Grant Program
- The project duration after NTP was approximately 5 years.
- NOAA grant funding would complement the City's investments.

| | Funding Origin | Design | Construction | City Match | Total |
|---|----------------|-------------|--------------|-------------|--------------|
| Projected Needs | | \$2,200,000 | \$10,500,000 | N/A | \$12,700,000 |
| Transformational Habitat Restoration and Coastal Resilience Grant Program (Not Awarded) | NOAA (Federal) | \$1,600,000 | \$9,900,000 | \$1,200,000 | \$12,700,000 |
| Additional Needs | N/A | \$2,200,000 | \$10,500,000 | N/A | \$12,700,000 |

NOAA Application Challenges

- Time and Resources
- Conceptualizing the Costs without know the design
 - Minimal Experiences in Living Shorelines Design and Construction
 - Could not rely on previous projects for costs
- Difficult Deadline
- Extensive Interdepartmental coordination was required
- Monitoring Services required for after implementation



NOAA Grant Lessons Learned

Feedback from Agency

+ Praises

- Aligned with comprehensive regional goals
- Strong case for community benefit
- Very Strong Technically (monitoring plan, budget, schedule)
- Strong Team with Record of Managing Federal Dollars



Siderastrea radians

Source: [FDEP Overview of Corals and Hardbottom Resources in Southeast Florida](#).

NOAA Grant Lessons Learned

Feedback from Agency

+ Criticism

- Application didn't quite align with the goal of the grant
- More explanation of benefit to Fisheries
- More definition of the Living Shoreline itself
- More letters of community support
- Separation of grey versus green
- More details for Public Outreach

NOAA Program Priorities

North Beach Living Shoreline Neighborhood Resilience Project Alignment

Sustaining productive fisheries and strengthening ecosystem resilience

Living shorelines will strengthen ecosystem resilience through the creation of dense mangrove vegetation that will support carbon sequestration, nutrient cycling, and shoreline stabilization.

Fostering regionally important habitat restoration

The mangrove and seagrass vegetation of the living shorelines will foster critical habitat restoration in Biscayne Bay (a NOAA Habitat Focus Area), providing new habitats for native aquatic species such as snook, smalltooth sawfish, and mangrove snappers.

Enhancing community resilience to climate hazards and providing other co-benefits

North Beach is an underserved, highly vulnerable community in the City of Miami Beach that is already experiencing the effects of sea level rise and flooding. This project will enhance community resilience to these climate hazards through living shoreline installation, together with the reconstruction of important seawalls. The project will protect important community assets, such as homes, businesses, and a neighborhood park and kayak launch from future flooding and king tide events.

Providing benefit to underserved communities, including through partnerships with tribes

The North Beach community of Miami Beach is one of the most underserved neighborhoods of the city, having historically been passed over for investments of all types. The project will benefit the community by providing opportunities for community engagement and education and improving water quality and stormwater management through green infrastructure and nature-based solutions.

City Strategy

- ✓ Pursue Grants Opportunities that Help Fund our **CURRENT** Needs
- ✓ Grant Management Efforts
 - ✓ Hire third party or Conduct in house
- ✓ Economic Benefit
 - ✓ Additional funding
 - ✓ Percentage of project cost
- ✓ Federal Requirements
 - ✓ BABAA

Leonard Barrera Allen, PE, Senior Engineer
Cummins Cederberg, Inc.
lbarrera@cumminscederberg.com

Teresa Kaimrajh, PE, Planning and Design Manager
City of Miami Beach
teresakaimrajh@miamibeachfl.gov

Questions

