PROPOSAL FOR:

City of Hollywood
Floodplain Management Plan

RFQ-065-24-JJ

April 10th, 2024

BRIZAGA
ASSESS. COMMUNICATE. ADAPT.

CDM Smith

BISCAYNE ENGINEERING

Brizaga, Inc.
2101 W. Commercial Blvd, Ste 4600
Fort Lauderdale, FL 33309
Phone: (954) 834-3533

2101 W. Commercial Boulevard, Suite 4600
Fort Lauderdale, FL 33309
(954) 834-3533
www.brizaga.com

April 10, 2024

City of Hollywood
Purchasing & Procurement Department
2600 Hollywood Boulevard
Hollywood, FL 33020

RE: RFQ-065-24-JJ, Floodplain Management Plan Update

Dear Members of the Selection Committee:

On behalf of Brizaga, CDM Smith, and Biscayne Engineering, we are pleased to submit this proposal to support the City of Hollywood's Floodplain Management Plan Update. Although Brizaga is best known for our outreach and engagement services for the City, our planning and analytics team services dozens of clients across Florida providing similar services to those requested here. Our proposed project manager, Michael Antinelli, is a Certified Floodplain Manager who will be able to ensure a fully-complaint plan and work with the City to obtain the most CRS points possible.

Brizaga, CDM Smith, and Biscayne Engineering teamed on the City's recent Stormwater Master Plan. CDM Smith has been a partner of Brizaga's since our founding and we have worked together on several landmark floodplain management projects. Brizaga has also supported the City in its vulnerability assessment (with CDM Smith) and tidal flood mitigation project. This team has a strong record of proudly and successfully serving the City of Hollywood.

As a certified small business based in Broward County, Brizaga is proud of our relationship with the City and our ability to support the community in becoming more resilient. Resilience is what we do on a daily basis, and floodplain management and planning are a core focus of our work. Our team's **Resilience Done Right™** ethos will show throughout our proposal and is our promise to the City and its residents.

On behalf of the Brizaga team, we thank you for the opportunity to present our proposal and appreciate the efforts the City of Hollywood has already undertaken. As a Principal and Co-Founder of Brizaga, Inc., I, Alec Bogdanoff, have the authority to bind our organization with my signature below. I can be reached directly at (954) 609-3854 or alec@brizaga.com, should you have any questions or require additional information.

Sincerely,

Alec Bogdanoff, Ph.D.
Principal & Co-Founder

Michael Antinelli, PE, CFM
Principal & Co-Founder

Resilience Done Right.™

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Resilience Done Right.™

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EXECUTIVE SUMMARY

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TAB 2

Executive Summary

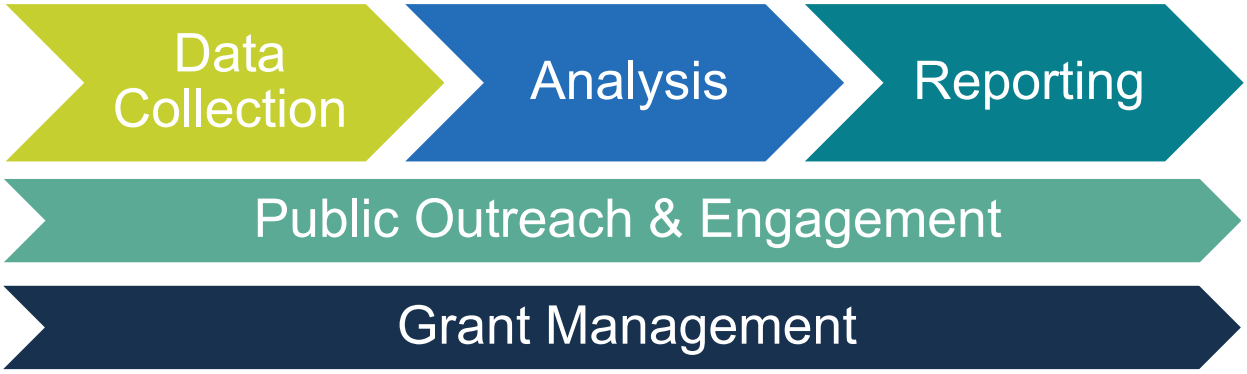
As flooding continues to worsen, it is becoming more critical for the communities across Florida to become more resilient. As flooding and natural disasters increase, so will insurance premiums, and it is important that communities have the best information to make concrete plans for their future. As part of its resilience building, the City recognizes that it is important to update its Floodplain Management Plan and move its community up through the Community Rating System within the National Flood Insurance Program (more points and a lower rating). This team has the experience with floodplain management planning and expertise to ensure a fully compliant and on-time project. Our understanding of Hollywood's needs related to this are unparalleled, as this team is also working on the City's Stormwater Master Plan.

Brizaga is ready to assist the City of Hollywood with its resilience goals, specifically with its Floodplain Management Plan update. We are a multidisciplinary civil and coastal engineering firm created to solve complex problems by strategically leveraging science, communications, and policy. Brizaga has been in business in South Florida since its beginning seven years ago and is dedicated to ensuring that our region is resilient to climate change impacts.

Our team is filled with experts prepared to assist the City with every aspect of this project. We are partnering with two other resilience experts for this project: CDM Smith and Biscayne Engineering. CDM Smith is an engineering firm that has been in business for over 75 years. They have experience with floodplain management, water, environmental, energy, and facilities projects. They are assisting the City of Hollywood with your Stormwater Master Plan and are ready to bring our insider knowledge to this project. Biscayne Engineering started in South Florida over 125 years ago. They currently hold contracts with several South Florida clients, including the City of Miami and the City of Hialeah. Biscayne Engineering is a certified small business that understands local governments' methodology to execute their projects successfully. Our team is excited to help the City of Hollywood with its resilience goals in this project.

Our team has been working with clients across the South Florida region to become more resilient to flooding and climate change impacts. While Brizaga is known for outreach projects within the City of Hollywood, we also have a qualified analytics department with years of experience handling resilience projects across Florida. We are working on flood vulnerability assessments in the City of Coral Springs, the Town of Briny Breezes, and the Village of Key Biscayne, to name a few. We provide additional value to our clients, always seeking to help them meet and exceed their goals. We have helped the Town of Briny Breezes to receive nearly $10 million in grant funding to assist with their resilience goals (the Town's annual budget is less than $1 million). We are excited to bring our fantastic outreach team and our results-driven analytics team to this endeavor. More information on Brizaga and our partners' experience can be found in the qualification section of this proposal.

We understand that one of the main goals of this project is to move the City up within the Community Rating System within the National Flood Insurance Program by updating your Floodplain Management Plan. Our team is ready to help the City achieve this goal and to improve their rating through some of our innovative approaches. We also understand that through this funding source (CDBG-MIT), several necessary boxes need to be checked by HUD to be reimbursed for this project. Our staff of experts understand the requirements of this funding and will ensure that all boxes are checked so the City can be fully reimbursed. Our full approach and team experience can be found in the appropriate sections of this proposal. Our analytics team has a tried and tested approach to floodplain management and vulnerability assessment projects.



Through our experience, we have developed a standard approach that matches the state and federal requirements and your grant tasks. Importantly, we have dedicated an outreach team and compliance team that ensure the community is appropriately engaged and that the grant tasks and requirements are met. Those teams are integrated with the project team from the start.

Throughout the lifetime of the project, grant management will be an essential task. Brizaga is currently supporting multiple local governments with grant administration and will ensure that it is easy for the City. Furthermore, we have the experience with federal and state grant to ensure compliance is as easy as possible for the City team.

Our team is innovative and has worked on landmark programs to support floodplain management beyond just buyouts and traditional programs. One example is the Miami Beach Private Property Adaptation program, which Brizaga is the prime consultant. Alongside the City, a $20,000 matching grant program was developed with individual homeowners receiving assessment and adaptation recommendations. We aided the City with information needed to then apply for FEMA grants to support select home elevations. This program created a systematic and unique approach to incentivizing and encouraging resilient homes.

Brizaga and our partners, CDM Smith and Biscayne Engineering, are excited to bring our knowledge, expertise, and enthusiasm to the City of Hollywood. Our team's firsthand knowledge of the City of Hollywood through our efforts and project experience with the City's Stormwater Master Plan, as well as our other projects with the City, gives us a critical advantage to assist the City with your next phase of resilience. More information on what we can bring to the City through this project can be found on the following pages, and we look forward to continuing our resilience work with the City.

TAB 3

FIRM'S QUALIFICATIONS & EXPERIENCE

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TAB 3

Firm Profile

Brizaga is a strategic consulting engineering firm built to solve complex problems by leveraging science, communications, engineering, and policy. As a licensed engineering company, our clients include private property owners, businesses, not-for-profit organizations, developers, and local governments. We work to plan for and address the impacts of rising seas, more frequent flooding, and a changing environment on property, infrastructure, community, and the local economy. We bring a unique perspective that meshes physical science, engineering design, public policy, and community engagement to create innovative and practical solutions in the face of more frequent flooding, rising tides, and a changing environment.

The name Brizaga is a mixture of the names of our founder's nieces and nephews. It serves as a constant reminder that the decisions we make today will define their future. But it goes further. In a complicated world with abundant uncertainty and mistrust, we know how to bridge the gap. We're subject matter experts and expert communicators who skillfully navigate building community consensus. The information and tools we create are easy to understand and easy to use.

We define Brizaga as the overwhelming feeling of pride and accomplishment when individuals, businesses, and government work together to create a more resilient community. This is done through our easy-to-follow process that defines all the work we do:

- **Assess**. Identifying climate-related vulnerabilities and community priorities, setting the stage for adaptation.
- **Communicate**. Developing easy-to-understand, science-backed materials and connecting with stakeholders for consensus-building.
- **Adapt**. Implementing projects that serve our clients and communities.

Key Details

- Years in Business (working with gov. entities in Florida): 7 years
- Office Locations:
  - Headquarters - Fort Lauderdale
    2101 W. Commercial Blvd., Ste 4600
    Fort Lauderdale, FL 33309
  - Tampa Office
    3001 North Rocky Point Drive East, Suite 200
    Tampa, FL 33607
- Number of Employees: 11

Resilience Done Right.™

The Brizaga Difference

The Brizaga difference is in our founding and the way we operate. We embody **Resilience Done Right.™** For our team members, this means:

Resilience Always. Brizaga has an unwavering commitment to prioritizing resilience in every project undertaken, making it the cornerstone of our firm's ethos and the driving force behind all our endeavors. It is not just a part of what we do but what we do every day for all our clients.

Anticipating Tomorrow. We prioritize adaptability, innovation, and preparedness, fostering a culture where we proactively seek solutions to ensure long-term success and sustainability. We always consider the long-term needs of the community, preventing wasted time and resources undertaking a project today that does not appropriately consider the future.

Beyond Engineering. We think beyond traditional engineering needs. We consider how that project fits into a bigger resilience picture and impacts people and the planet. By supplementing our engineering expertise with a diverse team of policy experts, engagement specialists, strategists, and communicators, Brizaga ensures that projects are not only technically sound but also effectively communicated and embraced by the community.

> For our projects, we build a dedicated and knowledgeable Outreach Team – a group of professionals who will translate the intricate details of a resiliency project into layperson's terms. This helps tell a clear story, provides faster community approval, aids in completing projects faster, and drives higher levels of constituent satisfaction. Our dedicated Grant Team

Every Angle Approach. Just like chess, each move impacts the next one. It's the same with resiliency projects. Each decision made, whether it's building a seawall, improving roads, or enhancing drainage systems, has ripple effects that impact various aspects of the community. At the core of the Brizaga process is the drive to look at a plan from every angle. By approaching resiliency projects with the mindset of a strategic chess player, Brizaga ensures that each move is thoughtfully considered and contributes to the overall resilience and well-being of the community.

Complex Made Simple. We excel in navigating complex projects. Our team possesses a talent for untangling even the toughest challenges and finding straightforward solutions. We're skilled at understanding all the factors involved, to the extent that other engineering firms entrust us with complex projects. They trust our ability to handle the intricacies and deliver outstanding results.

Brizaga is a certified small business with Broward County.

BROWARD COUNTY FLORIDA

Office of Economic and Small Business Development

Governmental Center Annex
115 S. Andrews Avenue, Room A680 • Fort Lauderdale, Florida 33301 • 954-357-6400 • FAX 954-357-5674 • TTY 954-357-5664

This Certificate is Awarded to:

BRIZAGA, INC.
D/B/A SEA LEVEL RISE READY

As set forth in the Broward County Business Opportunity Act of 2012, the certification requirements have been met for:

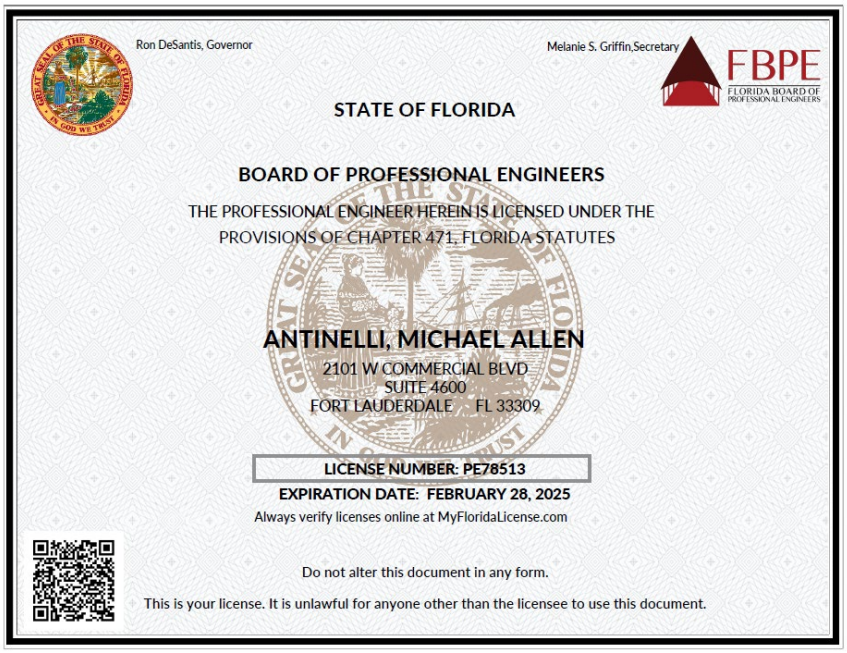
County Business Enterprise (CBE)
Small Business Enterprise (SBE)
Anniversary Date: May 25th

Authorized Representative

The Office of Economic and Small Business Development must be notified within 30 days of any material changes in the business which may affect ownership and control. Failure to do so may result in the revocation of this certificate and/or imposition of other sanctions.

A Service of the Broward County Board of County Commissioners

Brizaga is fully licensed engineering firm in the State of Florida under the responsible charge of principal engineer, Michael Antinelli.



Ron DeSantis, Governor

Melanie S. Griffin, Secretary

FBPE FLORIDA BOARD OF PROFESSIONAL ENGINEERS

STATE OF FLORIDA

BOARD OF PROFESSIONAL ENGINEERS

THE PROFESSIONAL ENGINEER HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES

ANTINELLI, MICHAEL ALLEN
2101 W COMMERCIAL BLVD
SUITE 4600
FORT LAUDERDALE FL 33309

LICENSE NUMBER: PE78513
EXPIRATION DATE: FEBRUARY 28, 2025
Always verify licenses online at MyFloridaLicense.com

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We are proud to partner with CDM Smith and Biscayne Engineering for this proposal, with whom we've had a strong working relationship throughout our history.

CDM Smith will offer modeling support and well as detailed CRS/FEMA compliance support, and Biscayne Engineering will support survey needs and field visits.

About CDM Smith

Founded in 1947, CDM Smith provides lasting and integrated solutions in stormwater, water resources, floodplain management, water, environmental, transportation, energy, and facilities services to public and private clients worldwide. As a full-service engineering and construction firm, we deliver exceptional client service, quality results, and enduring value across the entire project lifecycle. The cornerstone of CDM Smith's business has always been supporting our public utility clients in delivering safe, reliable, water and wastewater service in an economical and sustainable manner.

Our complete suite of services spans from state-of-the-art stormwater master plans, program management, management consulting, and architectural and geotechnical engineering, to design-build, construction management, and operations. However, the CDM Smith team brings specialized experience in projects involving the development of comprehensive watershed and stormwater management programs; the use of computer models for urban and rural stormwater management evaluations; the permitting, design, and construction of stormwater management systems; and the assessment of institutional, regulatory, and financial needs for stormwater management.

Specifically of value to the City of Hollywood, we have worked with you to develop your comprehensive Stormwater Master Plan (SWMP) and Capital Improvement Program (CIP) which identifies levels of service (LOS) for multiple design storms and sea level rise conditions including the 100 year needed for this Floodplain Management Plan (FMP). Furthermore we have delivered model support for your flood risk Vulnerability Assessment (VA) which gives us direct insight to the needs of this program. Our same Team led by Jon Goldman, PE, PMP; Michael Schmidt, PE, BCEE, BC.WRE; and Thomas Nye, PhD, PE will lead this project for continuity, cost savings and accuracy.

Locations of offices and number of employees

CDM Smith has 130+ offices worldwide and 6,246 employees, and in Florida, 10 offices with 376 staff. CDM Smith's Florida offices include:

- Boca Raton
- Miami
- Plantation
- Orlando
- Vero Beach
- Fort Myers
- Sarasota

- Tampa
- Jacksonville
- Tallahassee

Years in Business: 49 years in Florida, 77 years overall

About Biscayne Engineering

Biscayne Engineering Company is a full-service surveying and engineering company located in South Florida since its founding more than 125 years ago. We are extremely well-versed in working within the public sector and hold continuing surveying services contracts at both the state and municipal levels. We currently work with Palm Beach County, the Florida Department of Transportation, MDX, Miami-Dade County, the City of Miami, the City of Miami Beach, the City of Hialeah, the South Florida Water Management District, and more.

Biscayne is committed to creating innovative solutions for the changing demands of our clients and the environment. Continuously prominent, Biscayne has played a vital role in the planning and development of the South Florida region and, as a result, we have access to considerable maps and records of the South Florida region.

Certified as a small business, Biscayne deeply understands Florida and the methodology local governments employ to successfully execute their projects. Since its inception, Biscayne has been performing surveying and mapping services (design and boundary surveys, engineering surveys, construction layouts, preparation of sketches, topographic surveys, etc.).

Biscayne Engineering has offices in Miami-Dade County, Boca Raton, and Palm Beach, with a total of 51 employees.

Florida Government Client List

The RFQ requested a list of Florida governmental clients in the previous five years. They are provided in a list form below for Brizaga and then for CDM Smith, as a primary technical consultant.

Brizaga Florida Client List

Client	Project/Contract	Dates
City of Miami	Stormwater Master Plan	2017 - Ongoing
City of Boynton Beach	Resilience; Communications	2018 - 2019
City of Cocoa Beach	Stormwater Master Plan	2018 - 2020
City of North Miami	Communications; Sustainability & Resilience	2018 - 2020
Fort Lauderdale Downtown Development Authority	Resilience Planning	2018 - 2020
City of Miami Beach	Business Case/Stormwater Program & Private Property Adaptation	2018 - Ongoing
Broward County	Government Center; Countywide Risk Assessment and Resilience Plan	2018 - Ongoing
City of Fort Lauderdale	Master Plan; Stormwater	2018 - Ongoing
City of Hollywood	Stormwater Master Plan; Tidal Flood Mitigation; Vulnerability Assessment; Outreach	2018 - Ongoing
City of Deerfield Beach	Stormwater Master Plan	2019 - 2021
City of Lake Worth Beach (and 6 other cities & Palm Beach Co.)	Vulnerability Assessment	2019 - 2021
Suwannee River Water Man. Dist.	Communications	2020 - 2021
City of Largo	Vulnerability Assessment	2020 - 2021
Town of Surfside	Storwmater Master Plan	2020 - 2023
City of Oakland Park	Sustainability & Resilience	2020 - Ongoing
North Bay Village	Stormwater Master Plan; Resilience Program	2020 - Ongoing
Alachua County	Vulnerability Assessment	2021 - Ongoing
Town of Briny Breezes	Adaptation Planning	2021 - Ongoing
Miami-Dade County	Aviation Department	2022 - Ongoing
Village of Key Biscayne	Resilience Program	2022 - Ongoing
City of Coral Springs	Stormwater Master Plan; Vul. Assessment	2022 - Ongoing
Town of Ponce Inlet	Watershed Master Plan	2023 - 2024
Martin County	Resilience and Adaptation	2023 - Ongoing
South Florida Reg. Planning Council	Resilience Planning Continuing Services	2023 - Ongoing
City of Key West	Vulnerability Assessment	2023 - Ongoing
City of Dania Beach	Stormwater Master Plan; Resilience Planning	2023 - Ongoing
Palm Beach County	Vulnerability Assessment	2023 - Ongoing
Town of St. Augustine Beach	Grant Support	2023 - Ongoing
Florida Dept. of Transportation	Flood Sensors	2024 - Ongoing
City of Clearwater	Resilience Planning	2024 - Ongoing

CDM Smith Florida Client List

Client	Project/Contract	Dates
City of Boynton Beach	Stormwater Modeling Evaluation	2021 - 2022
City of Cape Coral	Stormwater Cost Recovery Study Update	2020 - 2020
City of Hollywood	Stormwater Master Plan	2021 - Ongoing
City of Jacksonville	MSMP Resiliency Update	2021-2023
City of Miami	Stormwater Master Plan	2018 - Ongoing
City of Orlando	I-4 Stormwater Review	2020 - 2022
City of Parkland	Stormwater Services	2019 - 2023
Dunes Community Dev. District	Stormwater Services	2022 - Ongoing
Jacksonville Aviation Authority	Stormwater Inspection	2019 - 2020
Miami-Dade Aviation Department	Stormwater Services	2021 - Ongoing
Miami-Dade Aviation Department	Stormwater Atlas	2013 - 2020
Orange County	Stormwater CEI Support	2022 - Ongoing
Orange County	Stormwater Rehab Services	2019 - 2022
Orange County	Stormwater Rehab Services	2016 - 2019
Osceola County	Watershed Plan Update	2023 - 2024
Palm Beach County	Stormwater GIS Mapping Study	2021 - Ongoing
Pasco County	Stormwater Support	2018 - 2019
South Florida Water Management District	STA 5/6 Connection to Lake Okeechobee Feasibility Study and Design	2020 - 2024
South Florida Water Management District	Brady Ranch and Grassy Island FEB Water Availability Study and Conceptual Designs	2019 - 2024
South Florida Water Management District	STA 1W Expansion 2 Construction management	2022 - 2024
Southwest Florida Water Management District	East Pasco Watershed Management Plan Update Floodplain	2023 - Ongoing
Southwest Florida Water Management District	Pearce Drain/Gap Creek Floodway	2021 - 2022
St Augustine	South Davis Shores Resiliency Study and Design	2020 - 2024
St Johns River Water Management District	Black Creek Aquifer Recharge Project	2019 - 2024
St Johns River Water Management District	Basin Studies	2022 - 2024
City of Hollywood	Vulnerability Assessment	2023 - 2024
USACE, Jacksonville District & NRCS	Construction Support for Starvation Slough and Devils Garden WRPOs	2018 - 2024
Village of Royal Palm Beach	Watershed Plan Update	2023 - 2024
Volusia County	Stormwater Utility Program	2023 - Ongoing

Project Experience

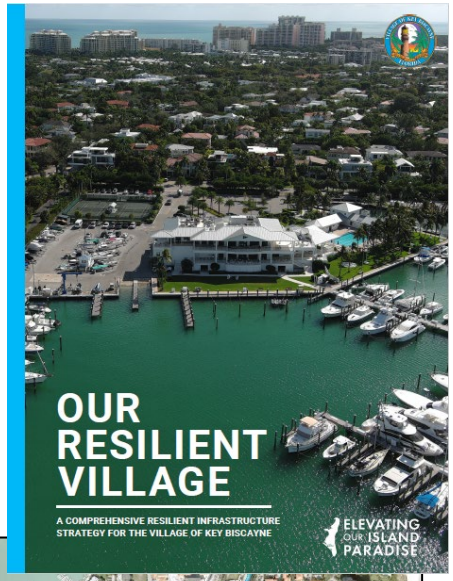
On the following pages, we have provided project examples that demonstrate our experience with similar projects. The chart below shows how those projects relate to the needs of this project. Biscayne engineering has provided project sheets related to survey needs at the end of this section.

	Floodplain Management	Data Collection and Hazard Modeling	Assess Current and Future Sea Level Conditions	Repetitive Loss Area Analysis	Final Report	Page # of Project Sheet
Village of Key Biscayne Resilience Program	✓	✓	✓	✓	✓	16
Town of Briny Breezes Community Adaptation Plan	✓	✓	✓	✓	✓	17
Miami Beach Private Property Adaptation Program	✓	✓	✓	✓	✓	18
North Bay Village Stormwater Master Plan	✓	✓	✓	✓	✓	19
Southeast Florida Business Case for Resilience	✓	✓	✓		✓	20
Tampa Bay Regional Business Case for Resilience	✓	✓	✓		✓	21
Miami Beach Business Case for Stormwater Resiliency Program	✓	✓	✓	✓	✓	22
Hollywood Stormwater Master Plan	✓	✓	✓	✓	✓	23
FEMA Flood Hazard Mapping National Contract (Risk MAP)	✓	✓	✓	✓	✓	26
City of Tampa National Flood Insurance Program Community Rating System Assistance	✓	✓	Current	✓	✓	28
Miami Stormwater & Coastal Resiliency Master Plan	✓	✓	✓	✓	✓	29
City of Minot Flood Mitigation and NDRC Support	✓	✓	Current, no SLR	✓	✓	31
New Jersey Division of Property Management and Construction (DPMC) Post-Sandy Rebuild by Design (RBD)	✓	✓	✓	✓	✓	34

Village of Key Biscayne
Resilience Program & Vulnerability Assessment

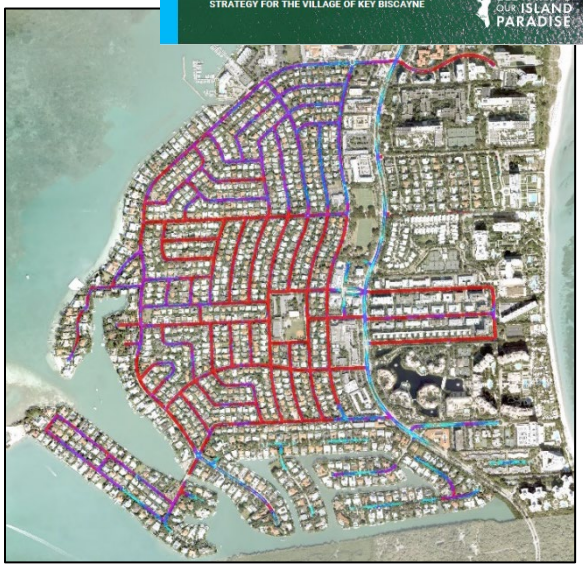
Client: Village of Key Biscayne, Florida
Project Dates: 2022 – Ongoing

In 2022, the Village of Key Biscayne initiated an extensive Resilient Infrastructure and Adaptation Program encompassing the entire village, including developing a Resilient Infrastructure Strategy aligned with this strategy. This program aims to harmonize and execute all Village initiatives, which are structured around our essential five Lines of Effort, to optimize advantages for residents and minimize disruptions. By prioritizing utilizing all available funding sources and adhering to the "Dig Once" principle, the community will maximize the value derived from the investments in our infrastructure. The Village is poised to enhance and "Elevate our Island Paradise" through collaborative efforts." This Program included a comprehensive flood vulnerability assessment, which Brizaga led for the entire project team.



Scope of Work

- Develop a Resilient Infrastructure Strategy for the entire village, including a flood vulnerability assessment (compliant with s. 380.093 F.S.).
- Create an Integration and Implementation Plan to implement the $100 million general obligation bond and additional infrastructure needs.
- Oversight of the implementation of the entire Resilience Program for the Village.



Brizaga Project Highlights

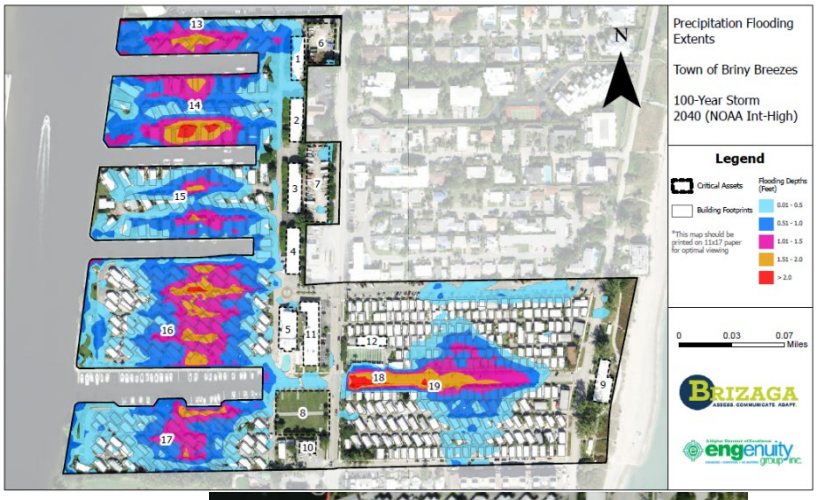
- Led the creation of the Resilient Infrastructure Strategy (graphically designed).
- Led the flood vulnerability assessment update for the Village (fully compliant with s. 380.093 F.S.).
- Assisted the Village in applying for grants across several grant programs and successfully obtained multiple grants.

- **Budget:** $218,809 (Brizaga's Portion)
- **Reference Information:**
  Colleen Blank, CIP and Grants Manager
  P: (305) 365-8948
  E: cblank@keybiscayne.fl.gov

Town of Briny Breezes
Vulnerability Assessment and Townwide Adaptation Plan

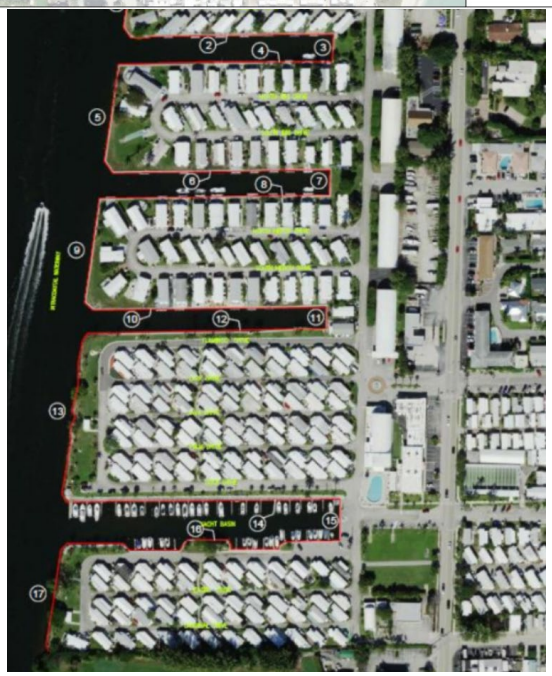
Client: Town of Briny Breezes, Florida
Project Dates: 2021 – Ongoing

Brizaga, alongside Engenuity, led the development of one of the first-of-its-kind community-wide adaptation plans focusing on flooding and the impacts of climate change, including sea level rise, for the Town of Briny Breezes. The team performed a vulnerability assessment for all critical assets and produced a comprehensive community adaptation plan proposing actions to adapt the community over time. This work followed a previous assessment completed for the Briny Breezes Corporation in May 2021, as well as a Town-wide Survey and Stormwater Master Plan for the Town. Brizaga is delivering a detailed adaptation plan that embodies the unique needs of Briny Breezes and has proposed innovative solutions to alleviate the effects of flooding and sea level rise.



Scope of Work

- Developed asset inventory and assessment of vulnerabilities and risk which required Brizaga to prioritize at-risk assets, including assessment from the stormwater model and master plan.
- Developed adaptation strategies and cost estimates for a final report and adaptation strategy.
- Led community outreach and engagement.
- Provided grant management and administration for the Florida Resilient Grant award.



Brizaga Project Highlights

During the project, Brizaga worked to assess and identify top risk factors and vulnerabilities to create a prioritized list of at-risk assets with input from stakeholders. Perform an inventory and condition assessment of greater than one mile of waterfront on the western side of the community. Consider risk exposure, sensibility, and adaptive capacity for the entire Briny Breezes community concerning flooding and sea level rise. Devise a roadmap for adaptation strategies, ranging from raising seawalls to the replacement of pumps, and furnish high-level cost estimates for all proposed resilience actions.

- **Budget:** $198,500 (Brizaga's Portion)
- **Reference Information:**
  Bill Thrasher, Town Manager
  P: (561) 272-5495
  E: BThrasher@townofbrinybreezes-fl.gov

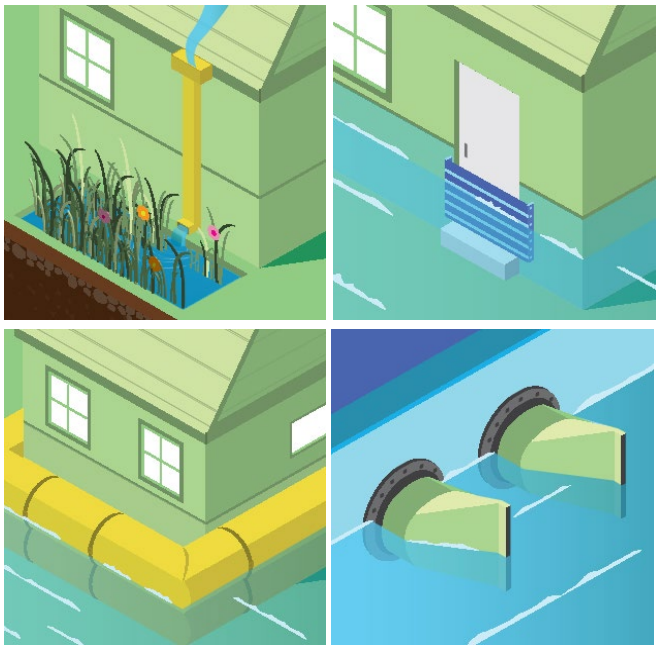
Miami Beach Private Property Adaptation Program

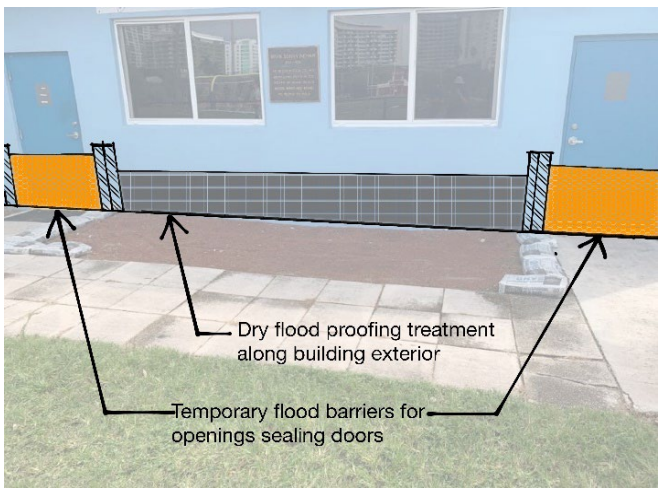
Client: City of Miami Beach, Florida
Project Dates: 2022 – Ongoing

Working alongside the City of Miami Beach, Brizaga developed and implemented a program designed to provide grant dollars to Miami Beach residents and property owners. The grant money is intended specifically to assist these property owners in implementing flood adaptation solutions. Brizaga was retained to build out the framework for communicating with interested property owners, conducting site visits, evaluating property needs, and making recommendations for eligible projects. As part of the program, Brizaga developed an Adaptation Menu which provides an overview of the various types of adaptation options, their applicability, effectiveness, permit requirements, and generic costs. This first-of-its-kind program is in its first year with the possibility of continuing in the future.

Scope of Work

- Develop an adaptation menu with permit guidance and screening level cost estimates.
- Establish a customer service framework for interaction with grant participants.
- Coordinate and conduct up to 50 private property assessments based on information provided by the City, property owner, and a singular site visit each year of the program.
- Develop standard flood protection details for use in the design and construction phase of the program.





Brizaga Project Highlights

Brizaga standardized a field investigation and report for evaluating flood risk and potential solutions at the private property level. In preparation for field visits, coordination calls were held with 46 approved program participants to understand experiences and concerns related to flooding, while the technical team conducted background screenings to identify existing and future flood risks related to tides, storm surge, and rainfall. An adaptation menu and framework were built to allow field investigators to narrow to the most appropriate and effective flood mitigation strategies based on field conditions, project priorities, and budget constraints.

- **Budget:** $280,000+ (Year 1 Only)
- **Reference Information:**
  Amy Knowles, Chief Resilience Officer
  P: (305) 673-7000
  E: amyknowles@miamibeachfl.gov

North Bay Village
Stormwater Master Plan

Client: North Bay Village, Florida
Project Dates: 2020 – 2022

The comprehensive Village-wide stormwater master plan prioritized developing essential coastal drainage infrastructure, incorporating a combination of traditional and innovative natural-based solutions, and the implementation of requisite stormwater management practices. Brizaga served as the project manager for the communication and outreach efforts and focused on effectively communicating the complexities about the Stormwater Master Plan, and support sea level rise science.

Scope of Work

- Lead public outreach and engagement.
- Developed communications and educational materials for the public on stormwater & flooding.
- Facilitated hybrid public workshops and town halls.
- Coordinated public data collection and integration.
- Developed content for the Village website and provided consistent project updates.

Brizaga Project Highlights

- During the project, the Brizaga team assisted with the inclusion of sea level rise, rainfall projections, and flooding hot spots within the Master Plan.
- Coordinated, organized, and planned tactical communication strategies for various audiences.
- Led and engaged both members of the public and key stakeholders during outreach meetings to solicit essential feedback that helped to inform the development and progress of the Master Plan.
- Provided Spanish translation services to reach a broader audience. Developed flood reporting tool for continuous community feedback.
- Created graphically pleasing promotional and educational content for social media and advertising channels.

- **Budget:** $23,470 (Brizaga's Portion)
- **Reference Information:**
  Marlon Lobban, PE, Public Works Director
  P: (305) 756-7171
  E: mlobban@nbvillage.com

Resilience Done Right.™

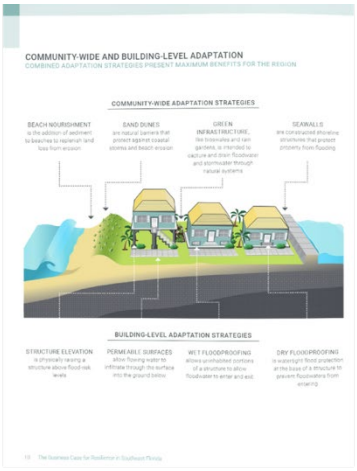
Southeast Florida Business Case for Resilience

Client: Southeast Florida Regional Climate Change Compact via Broward County
Project Dates: 2019 - 2020

The Brizaga team served as the local project manager on behalf of the Urban Land Institute (ULI) under the Southeast Florida Regional Climate Change Compact. Brizaga has a strong understanding of the economics pertinent to sea level rise and applied its expertise toward project development. As the local project manager, Brizaga was responsible for coordinating the day-to-day activities across all team members and providing the methodology behind the strategic development of the project scope. In October 2020, the Business Case for Resilience Report launched showcasing the regional economic benefits of climate adaptation.

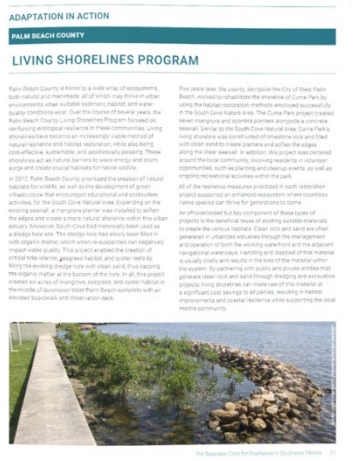
Scope of Work

- Due diligence and economic modeling.
- Firm selection.
- Project management.
- Project research.
- Report development and completion.
- Outreach and engagement.



Brizaga Project Highlights

During the project, the Brizaga team provided guidance and strategy on the development of scope, project timeline, and final deliverables. Gave critical input on the topic of sea level rise and how future economic stressors pertinent to climate change may impact the real estate market and local economy. Assisted in synthesizing key research findings from an economic modeling consultant. Serve as the main point of contact and primary coordinator for project tasks. Reviewed ULI report and contributed valuable edits and feedback.

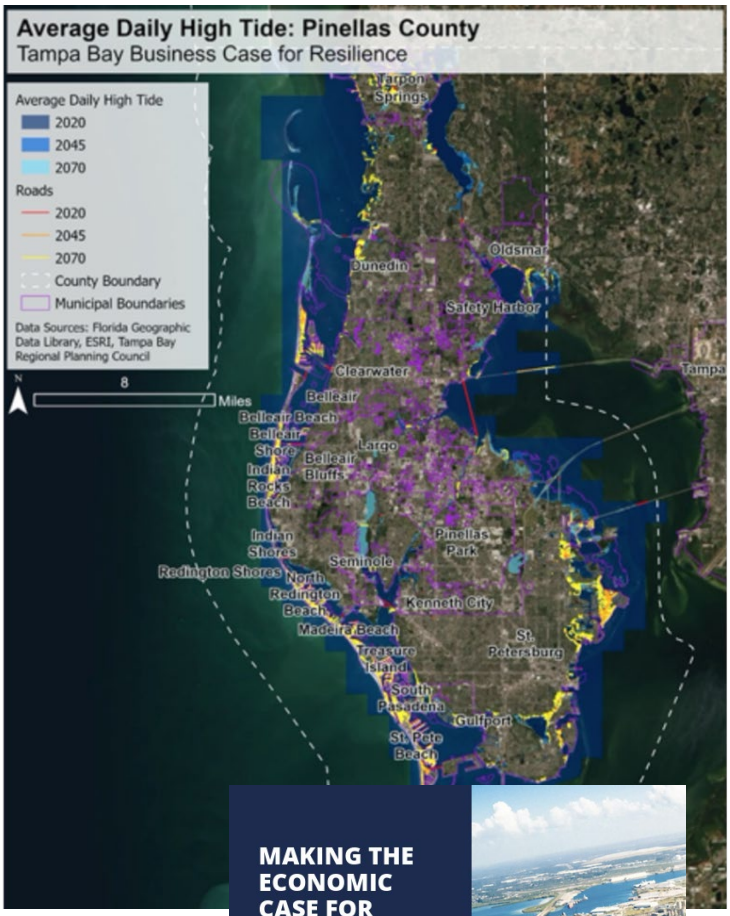


- **Budget:** $240,000
- **Reference Information:**
  Jennifer Jurado, Ph.D., Chief Resilience Officer
  P: (954) 519-1464
  E: jjurado@broward.org

Tampa Bay Economic Case for Resilience

Client: Tampa Bay Partnership Research and Education Program
Project Dates: 2020 - 2021

Brizaga, as the project lead, along with AECOM and the Tampa Bay Regional Planning Council quantified the economic consequences of more frequent flooding and sea level rise if no action or investment takes place and evaluated the return-on-investment on potential large-scale infrastructure investments for adaptation. The study creates a living resource that sets the tone for innovative adaptation, risk reduction, and economic growth establishing the long-term economic benefits of resiliency to offset sea level rise induced tidal flooding and storm related impacts. The project encompasses sea level rise and high-frequency coastal storm inundation mapping scenarios for Citrus, Hernando, Hillsborough, Manatee, Pasco, and Pinellas counties.

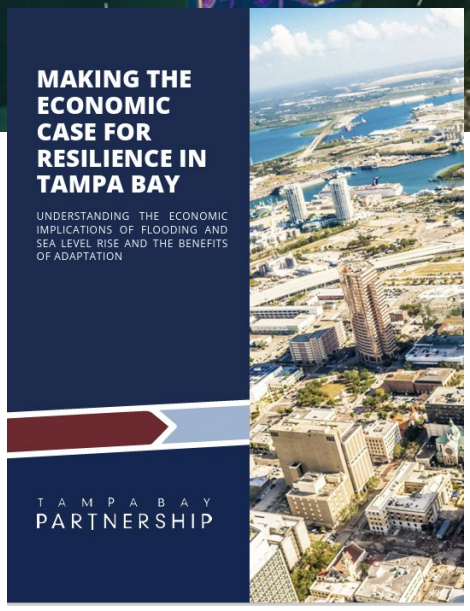


Scope of Work

- Flood mapping and analysis.
- Region-wide estimate of the cost of inaction, identification of at-risk assets.
- Development of a resilient framework.
- Communication of results.
- Public-facing summary documents.
- Development of implementation strategy.

Brizaga Project Highlights

During the project, the Brizaga team helped to apply standardized methodologies and applicable science-driven data analysis to develop meaningful resilience recommendations, tailored to the specific needs of Tampa Bay. Lead key investor and stakeholder outreach, gather feedback, and integrate input within the report. Assist in synthesizing the findings from the assessment and develop a technical memorandum highlighting flood risk through exposure maps represented by county and flooding scenario.



- **Budget:** $250,000
- **Reference Information:**
  Dave Sobush (now at Florida College Access Network)
  P: (727) 560-7173
  E: dsobush@floridacollegeaccess.org

Business Case Analysis for Miami Beach's Stormwater Resiliency Program

Client: City of Miami Beach, Florida
Project Dates: 2018 - 2022

Brizaga worked alongside ICF in developing the groundbreaking study that evaluated various individual and community-wide adaptation strategies for the City of Miami Beach. The study aimed to evaluate, understand, and quantify the benefits and drawbacks of the City's stormwater resiliency program. Brizaga's role included a graphically designed brochure distilling the complexities of the study methodology and its key metrics. Additionally, Brizaga provided specific services relative to the economic evaluation of private property adaptation based on the combination of adaptation measures taken by the local municipality and the property owner by examining various investment scenarios.

Scope of Work

- Individual adaptation and connection to flood insurance cost
- Outreach and engagement
- City-level cost of inaction estimation
- Communication of results

Brizaga Project Highlights

During the project, the Brizaga team evaluated the City's targeted investments in stormwater and related infrastructure and found that they significantly outweighed their costs. Developed marketing materials and provided support on effectively communicating the business case for resilience. City investments in the right-of-way increase property values by 4.9-14.1% for each foot of additional road elevation. Established that City roadway investments reduce flooding and keep them passable during King Tides and significant storm events.

- **Budget:** $20,000
- **Reference Information:**
  Amy Knowles, Chief Resilience Officer
  P: (305) 673-7000
  E: amyknowles@miamibeachfl.gov

City of Hollywood Stormwater Master Plan

Alongside Brizaga and Biscayne Engineering

Client: City of Hollywood

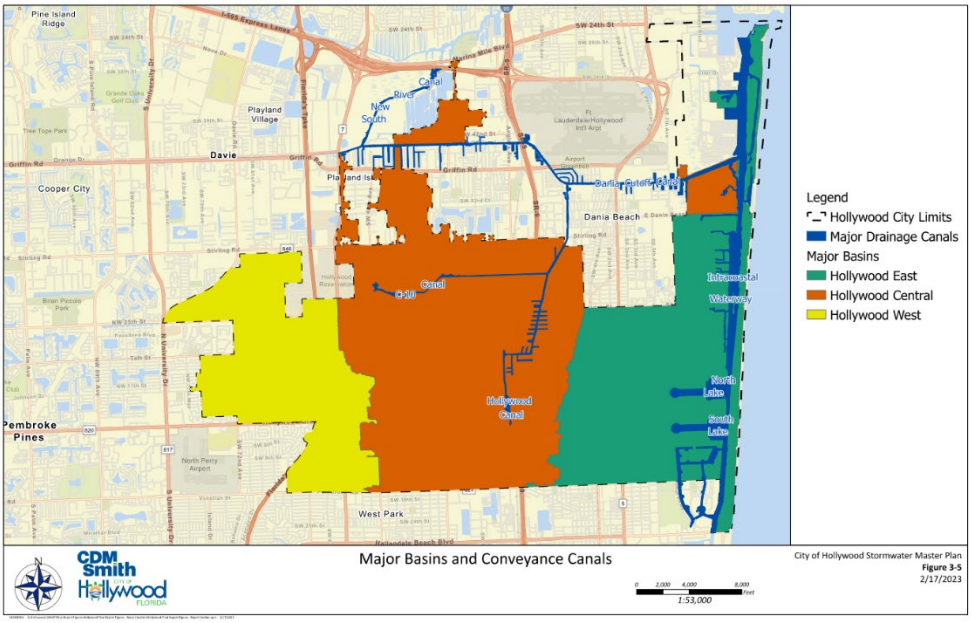
Project Dates: 2021 to Present

CDM Smith developed a comprehensive Stormwater Master Plan (SWMP), system inventory and geodatabase, and dynamic USEPA Stormwater management models (SWMMs) to evaluate the existing primary stormwater management system (PSMS) level of service (LOS) as well as alternatives for flood control, water quality, and aquifer recharge on the City's urbanized system. The models included consideration of upstream inflows and downstream canals and tidal systems as boundary conditions for FDOT, SFWMD, Broward County, South Broward Drainage District (SBBD), Central Broward Water Control District (CBWCD), Dania Beach, and Hallandale Beach. CDM Smith developed a cost-effective approach to manage flooding to meet LOS goals for the City while providing retrofits for water quality consistent with SFWMD and Broward County Environmental Resource Permit (ERP) requirements.

Key Features

- Level of service evaluation considering climate change
- Dynamic SWMMs for the City and adjacent systems
- FEMA HAZUS B/C CIP analyses
- Grant application and support
- Public outreach in community meetings and workshops

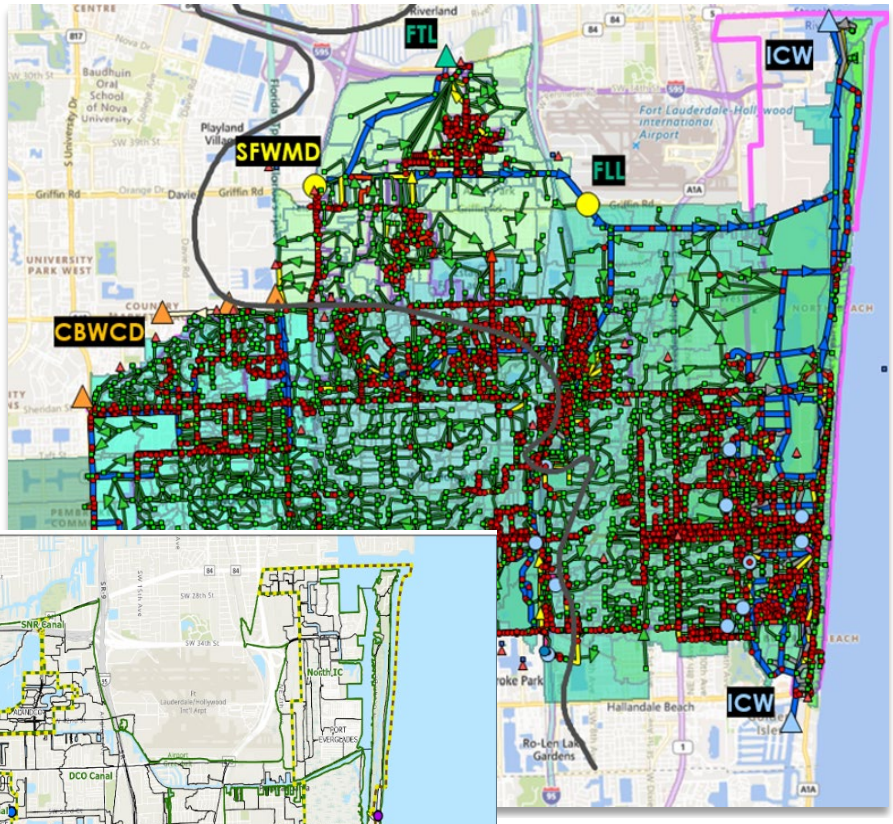
CDM Smith developed models for the major stormwater basins and evaluated the current LOS for multiple deign storms, identified and prioritized problem areas, existing and future regional operation and maintenance needs, and projected costs, considering benefits and costs using the FEMA Hazard US (HAZUS) tool. The plan considers future climate change projections for sea level rise, increased rainfall and increasing groundwater levels into the planning, engineering design, construction, and operations of the systems. CDM Smith developed and applied comprehensive USEPA SWMM dynamic representations of the City and adjacent agency and municipal systems for existing and future conditions.



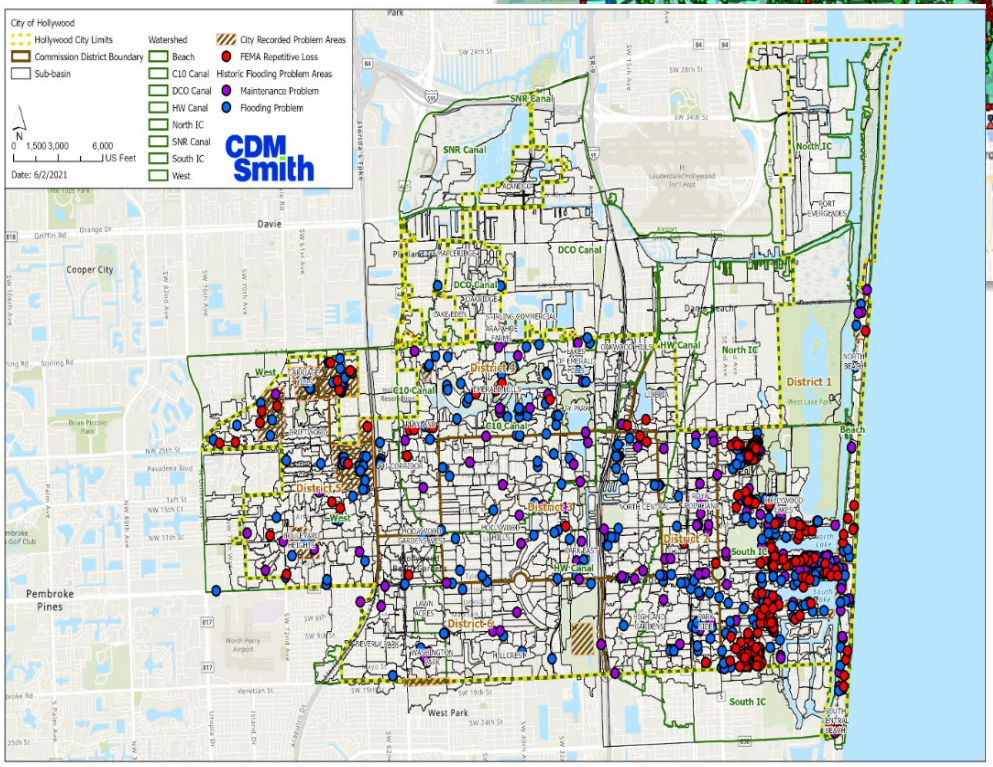
The stormwater system and problem area inventory consisted of evaluating and benchmarking the City's existing stormwater infrastructure, using the City's existing library records, GIS, and FEMA repetitive loss data. CDM Smith conducted GIS mapping inventory and efforts for the modeling including stormwater network geodatabase design, impervious analysis, problem areas, groundwater contamination areas, saltwater intrusion areas for recharge wells, swales, sewered areas, and seawall survey.

The SWMM representations included a Study Area of 29,000 Acres (45 sq mi), 2,228 sub-basins with an average size 5 to 10 acres (neighborhood level of detail,) offsite basin and major canal contributions considered, 80 backflow preventers, 12 existing stormwater pump stations, 217 miles of existing stormwater pipes, 29 miles of canals and 15 bridges, 33 miles of existing exfiltration trench, 250 existing outfalls, and a 1-year tidal stillwater elevation of 2.5 ft-NAVD.

Flooding problem areas were identified by a combination of commission and citizen workshop input, existing FEMA floodplains, existing City complaint files, 311 flooding complaint database, and SWMM modeling for the 5-yr 24-hr and the 10-, 25-, and 100-yr 72-hr duration events using NOAA Atlas 14 data. A 500-yr 72-hr event was also simulated to confirm evacuation and access routes and emergency facility and infrastructure protection.



USEPA SWMM Schematic.



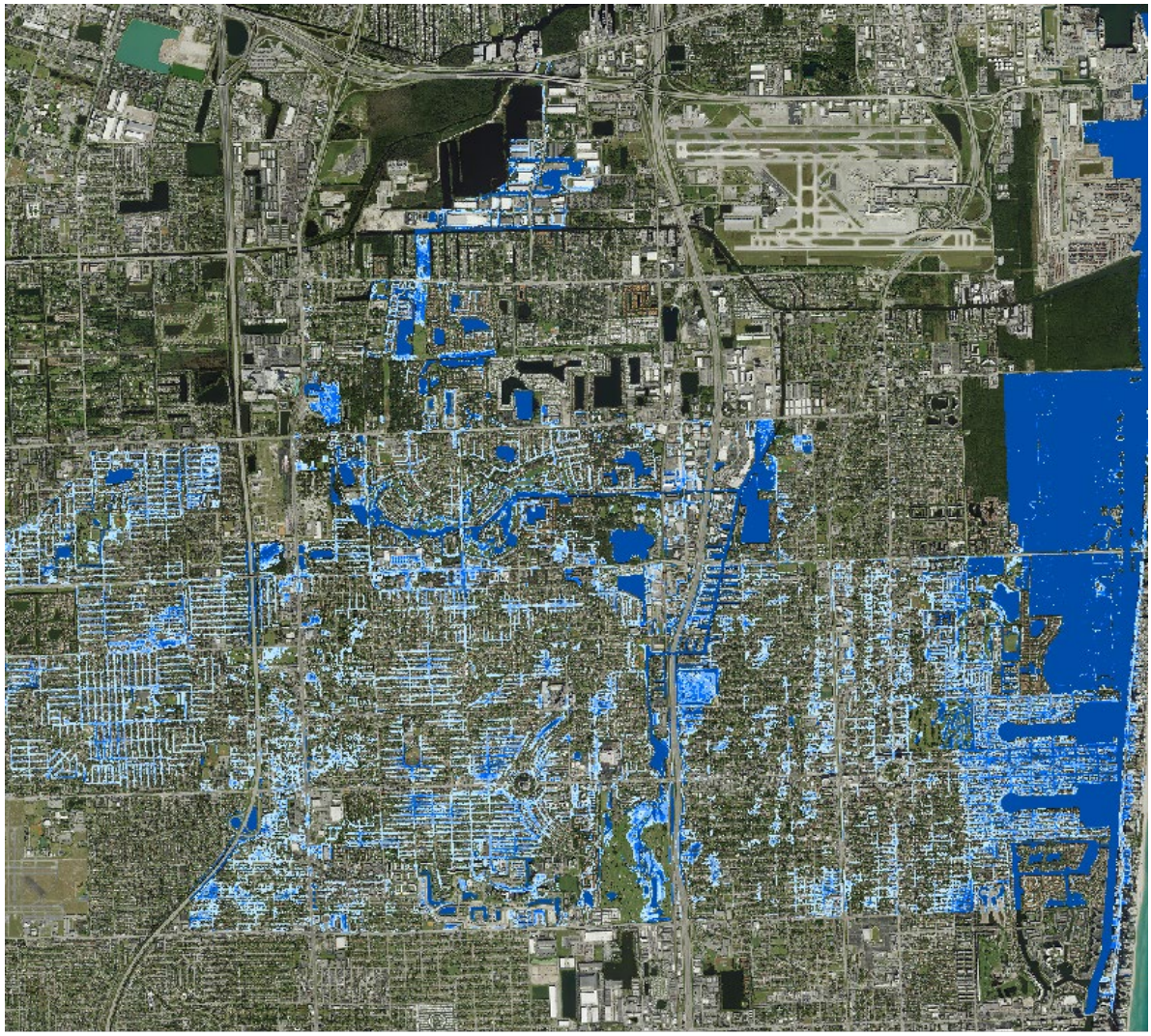
Problem Area Map.

Flood inundation maps were prepared across the City for the events to identify flood damages for benefit-cost analyses.

To support early-out projects for critical problem areas and Resilient Florida funding, CDM Smith evaluated cost-effective refinements to ongoing capital improvement projects to further improve LOS and water quality. CDM Smith prepared and supported the City with grant applications and work plans for the

following SWMP projects: Recapture the Swale, FDOT A1A pump stations, Orangebrook and Hollywood Beach golf courses, and Hollywood Lakes and Hollywood Hills exfiltration projects.

The SWMP includes a capital improvement plan (CIP) which consists of swales, exfiltration systems, gravity and pumped recharge wells, addition of storage at golf courses, backflow preventers, and pumps stations. For implementation guidance, CDM Smith developed projections and an outline of available funding options and opportunities, including grants, loans, and/or stormwater utility rate revenues.



Existing Flood Inundation Map.

Near the completion of the SWMP, the area experienced a significant rainfall flooding event on April 12, 2023, from 5 to 23 inches across the City which ranged from approximately a 5 year to over a 1,000 year storm. The CDM Smith team used the dynamic SWMMs with high water marks, photographs, and videos to demonstrate the stormwater model accuracy and to demonstrate the benefits of the proposed CIP to mitigate and reduce flooding as projects are implemented.

FEMA Flood Hazard Mapping Program (Risk MAP)

Location: Nationwide

Client: U.S. Department of Homeland Security/Federal Emergency Management Agency (FEMA)

Project Dates: 2002 to Present

CDM Smith has been providing support for FEMA since 2002 for nationwide and regional applications. This has included the FEMA Map Modernization program, which achieved 92 percent digital conversion of Flood Hazard Mapping for the U.S and additional nationwide program support to provide more accurate flood and risk data. As a Production and Technical Services contractor, CDM Smith is providing comprehensive expertise to all phases on the U.S. National Flood Insurance Program (NFIP). CDM Smith is facilitating implementation of FEMA's Risk MAP solution which includes development of strategies or products related to elevation data, watershed modeling approach, flood study prioritization, engineering and mapping, risk assessment, mitigation planning, and communications.

As a framework consultant, CDM Smith is providing production and technical services for large-scale updates to the flood maps of the United States. These services include:

- Identifying flood risk in coastal areas or riverine catchments
- Hydraulic models and hydrologic models of more than 30,000 riverine and coastal miles
- Producing reliable new digital flood hazard data
- Creating maps and other risk products
- Production of 15,000+ floodplain map panels
- Development of guidance for HEC-RAS 2D modeling
- Promoting partnerships with local communities, states, and other stakeholder groups to better understand and assess flood risk, improve planning, and take mitigation actions that will result in flood damage reductions for more than 2,000 communities

CDM Smith is providing services at multiple levels of government, including technical capacity on the national programmatic level, technical support on the regional level, and engineering and mapping services at the local community level.

Programmatic Level

At FEMA Headquarters, CDM Smith provides additional technical capacity to FEMA staff preparing program level documents, such as procedural memorandums, technical guidance, and decision support. CDM Smith staff regularly participate in FEMA-led working groups to develop best practices related to science of risk assessment, as well as the quality of FEMA products. CDM Smith performs this service through both onsite staff (in FEMA offices) and accessing its national discipline leaders located throughout the country. CDM Smith staff also reviews mapping revision (LOMCs) requests on behalf of FEMA. These reviews included assessments of engineering data (hydraulic models), topographic data, and mapping to determine the appropriate changes to the maps.

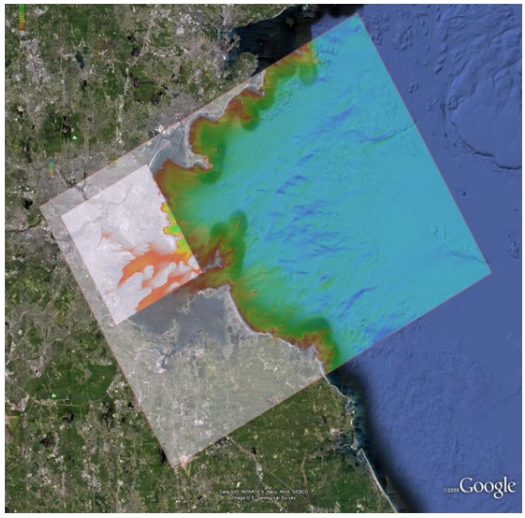
Engineering and Mapping Services

CDM Smith has performed task orders encompassing coastal and riverine flood hazard studies, geographic information systems development, map production, disaster response, disaster mitigation planning, and community outreach. As part of these task orders, CDM Smith has:

- Assessed the condition of hundreds of structures such as culverts, bridges, levees, floodwalls, etc.
- Acquired survey and topographic data, including aerial imagery and LiDAR topography
- Conducted hydrology and hydraulic analysis (one and two dimensional) modeling for hundreds of miles of rivers and streams
- Conducted coastal hazard assessments for over 10,000 miles of shoreline including overland wave propagation and wave runup analyses.

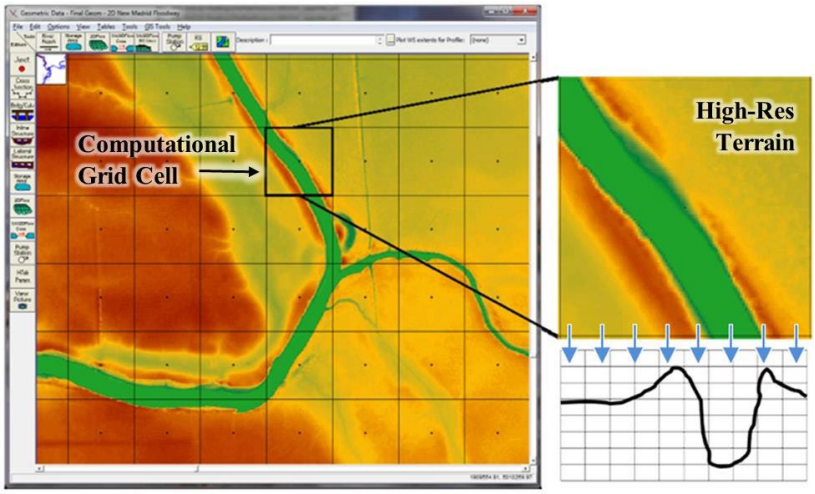
Example floodplain delineations

- Modeled wave climate (height and period) to select appropriate 1 percent chance (1 in 100 year condition) using hydrodynamic models (e.g., STWAVE, WAM)
- Created automated tools to improve efficiency while maintaining accuracy of the engineering and mapping processes, including:
  - Developing MathCAD sheets to standardize coastal hazard assessments
  - Creating a floodplain delineator
  - Creating a floodplain boundary accuracy checker
  - Developing a suite of cartographic tools for base map incorporation and labeling



Predicted wave heights from STWAVE for the Boston Harbor region

- Produced thousands of reliable new digital flood hazard data maps
- Created RiskMAP products including Depth & Analysis grids, Areas of Mitigation Interest, Flood Risk Assessments, and Flood Risk Database



Tampa National Flood Insurance Program Community Rating System Assistance

Client: City of Tampa, Florida
Project Dates: 2017-2018

Project Background

The City entered the Community Rating System (CRS) program in October 1991. The most recent five-year cycle visit at the time was in 2014, where the City received 2,328 credits to retain their CRS Class 6 rating. An additional 172 credits (2,500 total credits) was needed to qualify the City for a CRS Class 5 Rating, which would result in reduced insurance rates, in addition to enhancing public infrastructure. To improve in class, the City needed to request a modification and apply for additional credits for new activities or revised versions of previously credited materials.

Project Specifics

CDM Smith was retained by the City to assist with improving their CRS Class Rating. Our team began by identifying additional credit opportunities, including review of previous City CRS submittals and assessment of these documents in conjunction with the Insurance Service Office (ISO) Verification Report that outlines the City's current credit breakdown to identify opportunities to receive additional credit. We then developed a list of up to eight viable actions the City could claim to obtain the additional credits needed to achieve a CRS Class 5 Rating, detailing the actions required by the City, the type of data collection needed, and the expected credit improvement.

As part of this effort, we worked with multiple City departments, including Utilities, Construction Services, Geographic Information Systems, Neighborhood Improvement, and more to obtain data and/or documentation for modification while explaining the modification process and developing relationships with key staff. We also collected publicity data as needed, as well as identified documentation and data needs to be provided by the City. Based on our review of available documentation and discussions with the City, additional credit opportunities were selected for submission to ISO.

Project Results

After submitting the modification package, our team partnered with the City to discuss the annual recertification process and agree upon coordination techniques and milestones necessary to have another successful annual recertification visit. We also assisted in transitioning the City of Tampa to the new scoring system. In the end, the City qualified for a CRS Class 5 rating, which led to significant reductions in insurance rates for its citizens.

City of Miami Stormwater and Coastal Resiliency Master Plan

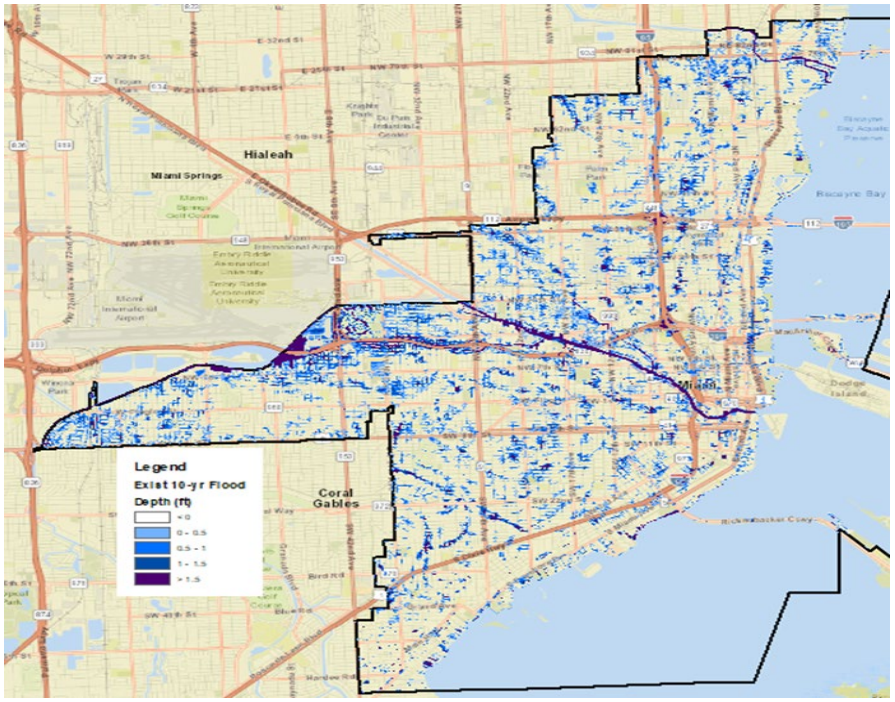
Alongside Brizaga

Client: City of Miami, Florida

Project Dates: 2018 to Present

CDM Smith is completing a comprehensive stormwater and coastal resiliency master plan update with goals of establishing levels of service (LOSs) for flood control, water quality protection and aquifer recharge with a cost-effective Capital improvement Plan (CIP) to identify and guide implementation of the plan over a 20-year period for a 50-year planning horizon.

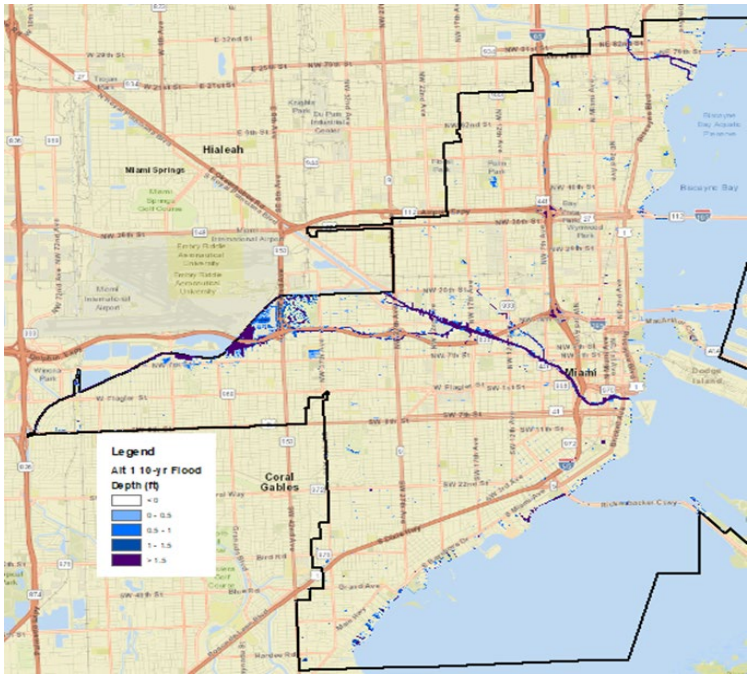
The City of Miami encompasses approximately 56 square miles, of which approximately 36 square miles are located in upland areas, while the remaining 20 square miles are found within coastal basins and Biscayne Bay. The service area is naturally divided by elevation and topography into eight major watersheds which have been analyzed to various degrees in past stormwater analyses. This Stormwater and Coastal Resiliency plan is updating land use, the City's asset management GIS database, rainfall using NOAA Atlas 14, two sea level rise scenarios of 18 and 30 inches, tidal surge boundary conditions, groundwater levels due to sea level rise, and the current regulatory requirements for peak flows and stages and water quality treatment. CDM Smith developed comprehensive USEPA StormWater Management Models (SWMMs) at a neighborhood scale to evaluate improvements at the local and regional scale for phased implementation.



Existing Conditions Flood Inundation Map

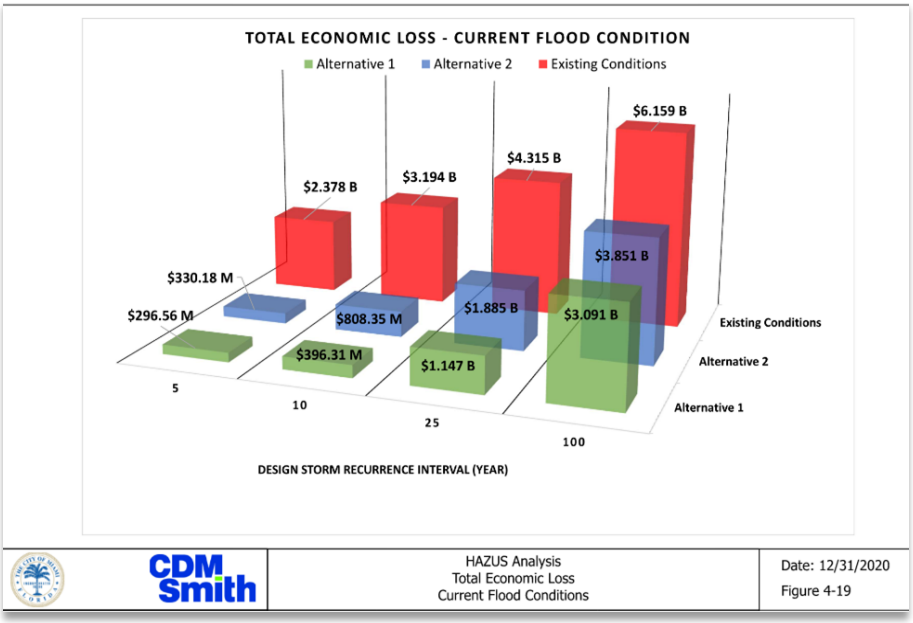
The plan included conversion of more than 30,000 paper maps and records with field survey and seawall inventory into an updated Geographic Information System (GIS) database. Problem areas were identified though the Miami-Dade County 311 complaint database, database coupled with fifteen public outreach meetings and FEMA repetitive loss properties and floodplains, including the current LOS, GIS, tidal boundary conditions, and FEMA/NFIP data.

The plan included various GIS and model evaluations for existing and future climate conditions for sea level rise, tidal surge, and extreme rainfall. LOS for flood control, water quality treatment for Biscayne Bay, and aquifer recharge to the Biscayne Aquifer were defined to develop alternative mitigative measures, which included multi-benefit resilient and adaptable green and grey stormwater and coastal components. Benefit-cost analyses were performed using FEMA HAZUS for a 50-year planning horizon with conditions for resilient features through 2100. Benefit-cost ratios range from 2.8 to 3.8 now and future climate conditions including considerable value in flood damage reduction from the CIP which includes more than 200 miles of exfiltration, more than 800 gravity and over 1200 pumped recharge wells after treatment, more than 90 pump stations for the wells and discharge, and more than 90 miles of seawalls. The project provides more than 1.1 inches of equivalent retrofit treatment over the entire City while meeting LOS for flood control and manages the post-CIP discharge volume to existing conditions.



Improvements Conditions Flood Inundation Map

A series of public meetings were conducted to present the program to the public in each Commission District, the Climate Change Committee, an expert advisory panel, and the capital improvements panel. The public meetings for each District included an initial presentation of the program and goals with citizen input on rainfall and tidal flood problems, and then follow-up presentations were conducted for the draft plan and benefits of specific mitigative measures in the Districts. This includes bi-lingual presentations in English and Spanish which were also available online.



Flood Mitigation Program Support – NDRC Grant, Decision Support Tool, and HEC-RAS Modeling

Client: City of Minot, ND

Project Dates: 2012-Present

CDM Smith has been assisting the City of Minot with various services in support of recovery from the June 2011 flood of record on the Souris (Mouse) River, including disaster mitigation, decision support, modeling and project refinement, grant support, and property acquisition. As part of these activities, CDM Smith assisted with preparation of their National Disaster Resilience Competition (NDRC) application to assist with implementation of the Mouse River Enhanced Flood Protection Project and the City received more than $74 million.

2011 Flood Photo – Courtesy of FEMA

The NDRC application incorporated a benefit cost analysis (BCA) using the FEMA Hazard US (HAZUS) tool for the proposed project components to identify potential refinements to the proposed flood control project to enhance the benefit-cost (B/C) ratio (reduced costs and increased benefits), reduce flood risk, and increase resilience. One of the activities was the development of a Decision Support Tool (DST) to assist the City in further evaluations of potential flood risk reduction and water management alternatives that result in benefit enhancement and cost reductions.

Key Features

- Dynamic HEC RAS for 400 mile long system
- Received $74 NDRC grant
- Evaluated four major reservoirs for flood control, water supply, hydroperiod and other factors
- Supporting benefit-cost analyses and project refinements for $820 million flood mitigation Project.
- Coordination with City, state, USACE, FEMA, HUD, USFWS, and Canadian Water security agency

The flood control project includes:

- Strategic property buyouts,
- Flood storage,
- Floodwalls and levees,
- Bypass channels,
- Restoration of oxbow cutoffs,
- Creation of parks and open space greenways, and
- Pumping as needed.

The overall project is estimated to cost approximately $820 million with a positive B/C ratio since 2011 damages were estimated at approximately $880 million. Flood fighting efforts by the City and USACE reduced actual damages to approximately $600 million.

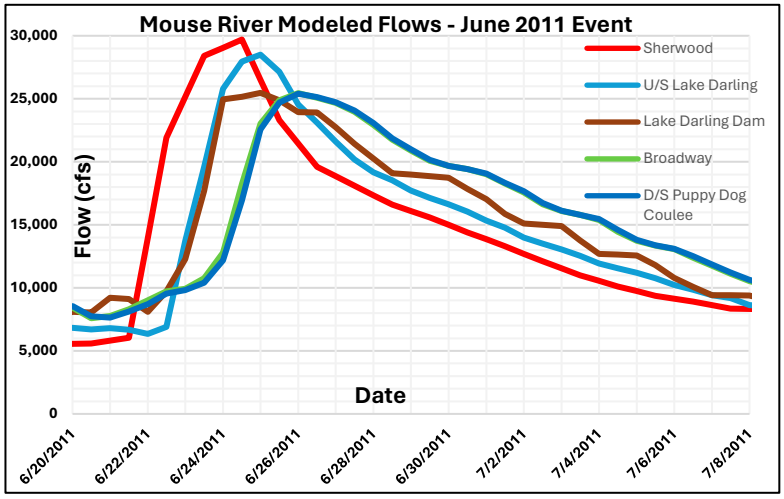
For the DST, CDM Smith identified opportunities to enhance the B/C ratio with potential refinements to the proposed flood control project (reduced costs and increased benefits). This included additional buyouts and local system storage, and coordination with USFWS for operation of the Lake Darling Dam in the Souris River National Wildlife Refuge (NWR).

The DST has been developed to support other ongoing modeling activities in the watershed by serving as a screening and evaluation tool for operational and construction enhancements. It also serves as a platform that considers the entire hydrologic system, from the inflow to the three Canadian reservoirs to the river reaches downstream of Minot, so that comparative analyses can be performed system-wide, and flood stages and durations can be evaluated in each reservoir and key river reaches.

The DST was developed by building on the data from other modeling tools for the Souris River Basin, including a system-wide dynamic HEC-RAS and ResSim. The HEC-RAS model extended from the Canada to US border at Sherwood and extends back to the US-Canada border. The model includes consideration of five major reservoirs and three NWRs. The HEC-RAS model covers approximately 358 miles of river length in the US.

The DST provides the ability to consider the following opportunities for enhancement of flood resilience and potentially increase B/C ratio for the Mouse River Enhanced Flood Protection Project and other flood control activities in the Souris River Basin:

- Operational variables to identify thresholds or triggers for dams to enhance flood protection:
  - Initial water level and flow release conditions prior to a storm event,
  - Warning time in days (to augment existing rules that govern seasonal drawdown patterns), and
  - Gate settings and water releases as a function of reservoir elevation or inflow.
- Ability to quickly test operational triggers for the 2011 flood and other design storms, then vet them with detailed hydraulic models/tools.
- Tradeoff analyses for flood stages throughout the system (in the reservoirs, City of Minot, National Wildlife Refuges (NWRs) upstream and downstream, and in agricultural areas) in response to changes in operations or storage capacity in order to examine how the impacts of operational decisions can propagate downstream both positively and negatively.
- A platform for screening and testing the potential effectiveness of infrastructure improvements such as increased storage and bypass channels.



CDM Smith applied the FEMA HAZUS to estimate potential flood damage savings vs refinements in project features including more buyouts, additional storage, less length and potentially lower floodwalls and levees, and operations coordination with the US Army Corps of Engineers (USACE) and US Fish and Wildlife Service (USFWS) in the Upper Souris River NWR for Lake Darling. This

could include seasonal and/or event-based lowering of the lake in advance of storms by 1 or more feet to provide storage to attenuate the upstream flood flow consistent with NWR habitat goals. The reservoir operation provides 25,000 Ac-ft of storage for every 1 ft of elevation, and 2 ft of pre-storm operational difference may be able to provide over $100 million in project cost savings. The following benefits and costs were evaluated for the multi-phased project:

Upper Souris River NWR - Lake Darling Dam and Gates

- Lifecycle Costs – These include project/investment costs and operations/maintenance costs.
- Resilience Value – The value of protection from future disasters. Examples include the reduction of expected property damages and the value of reduced displacement caused by future disasters.
- Environmental Value – Environmental benefits such as erosion control, wildlife habitat, improved air quality, and climate regulation.
- Social Value – Benefits that would further community development objectives. Examples include health benefits and improved community identity and social cohesion.
- Economic Revitalization – Direct effects on the local or regional economy. Examples include tourism revenue, payroll associated with permanent jobs added to the economy, and increases in property values.

CDM Smith realizes the sense of urgency to implement and complete projects in a timely, efficient, and compliant manner. A strong knowledge of federal policies and regulations is required to implement these projects in a fast, streamlined, and compliant manner. Lessons learned through past experiences in planning and implementing various CDBG-funded programs have provided invaluable insight into the processes that work. In the City of Minot's Disaster Recovery Program, the CDM Smith team applied their extensive experience in compliance with HUD regulations. Since 2012, the team has worked to ensure funded projects were in compliance with the City's grant agreement and assurances with HUD, including but not limited to, compliance with Davis Bacon and Related Acts as well as other labor standard provisions, environmental reviews, procurement regulations (Part 84 for non-profits, Part 85 for state and local governments), citizen participation, fair housing, equal opportunity requirements, Section 3, Uniform Relocation Act, Section 504, records retention, reporting requirements and compliance with A-87, program income, and other CDBG financial requirements. The CDM Smith team ensured all policies and procedures were consistent with those employed by HUD to monitor state-administered and entitlement programs.

Rebuild by Design

Location: Hoboken-Hudson River and New Meadowlands
Client: New Jersey Division of Property Management and Construction
Project Dates: 2016-Present

CDM Smith is providing Feasibility Study (FS) and design review support as part of the Louis Berger-Hill team for two RBD projects to provide flood protection as part of post Super-storm Sandy efforts: the Hoboken-Hudson River and the New Meadowlands Pilot Area 1.

Project Background

The New Meadowlands project originated with Rebuild by Design (RBD): a design competition sponsored by the U.S. Department of Housing and Urban Development (HUD) that utilized a collaborative process to find effective ways to protect people, homes, businesses and infrastructure, and to increase resilience in Sandy-affected regions as part of recovery from the storm.

The State has received $150 million in HUD Community Development Block Grant-Disaster Recovery (CDBG-DR) funds to implement the project concept in Pilot Area 1 and the state received $230 million from HUD for the Hoboken-Hudson River RBD project

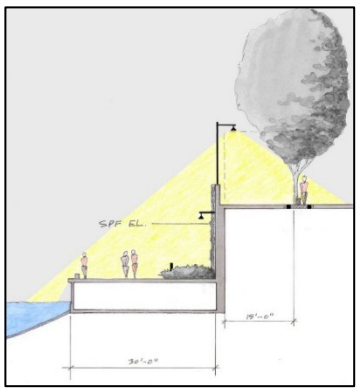
Hoboken - Super-storm Sandy Depth of Inundation

Project Specifics

CDM Smith's review of the FS and design components includes base data and evaluations for the following to identify potential data/analyses gaps and feasibility and design considerations as well as recommendations for resolution:

- Precipitation and meteorology;
- Stage and flow data;
- Geotechnical data and testing, soils, and stratigraphy;
- Seasonal groundwater table and potential mounding seepage from implementation of stormwater, wetlands restoration, and green infrastructure features;
- Land use and wetlands;
- Topography and survey;
- Threatened and endangered species; environmental assessments, monitoring and remediation;
- Tides and tidal surges;
- Sea level rise projections and design scenarios;
- Floodplains and floodways;
- Flooding problem areas and historic complaints;
- Joint stormwater and tidal models for applicability, extent of coverage, levels of detail, proper representation, and reasonability;
- Feasibility, conceptual, and design level plan, section, profile, and civil drawings of key project components;
- Constructability assessment, construction cost estimates;
- Operation and maintenance cost estimates for the design life;

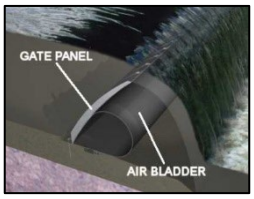
- Benefit-cost analyses (BCAs); and
- Sensitivity analyses.



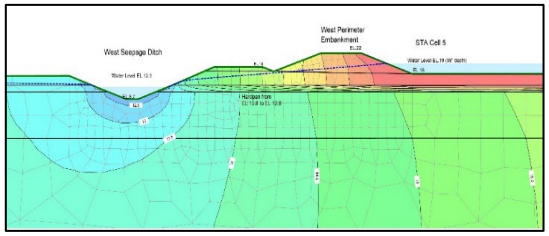
These reviews also confirm and recommend practicable solutions, reduce costs where possible, and avoid unintended consequences by:

- Identifying options to augment existing infrastructure;
- Identifying ultimate footprint and define phased, modular implementation;
- Considering stormwater storage, treatment, and pumping as necessary;
- Addressing contamination in footprint (e.g., there are approximately 32 contamination sites in the footprint of the resist features in the new Meadowlands project);
- Defining coordination opportunities with various infrastructure CIPs and programs- NJ DOT and Turnpike Authority, infrastructure CIPs, and environmental cleanups; and
- Identifying contingency plans.

The reviews and comments also confirm flood control Level of Service (LOS) performance, benefits and costs, permittability, and cost-effectiveness with the following considerations.



- **Reduce and manage flood and environmental risk by:**
  - *Armoring (green and grey)*
  - *Raising*
  - *Relocating*
- **Confirm flood management LOS**
  - *5- through 500-year storm events*
  - *Layered, long term protection*
  - *Cost-effective retrofit levels*
- **Life-cycle costs and design life**
  - *Green infrastructure*
  - *CSO system*
  - *Levees and berms*
  - *Gates, backflow preventers, pipes and outfalls, pumps*
- **A resilient range of planning horizons for BCA**
  - *Life cycle costs*
  - *20, 50, and 100 year*
  - *Sea level rise, urban renewal, contamination*
  - *Technical, environmental, social-political, economic and redevelopment, and financial - triple bottom line*



- **Potential unintended consequences**
  - *Surface water and groundwater mounding*
    - *Infrastructure*
    - *Contamination*
  - *Increased head losses from backflow prevention*
  - *Potential impacts outside the berms/levees*

The two projects are ongoing and CDM Smith is currently in the Construction Phase Review for the Hoboken/Hudson River project and Final Design Review for the Meadowlands project.

EXAMPLE PROJECTS:

HOLLYWOOD I-95 NORTH

Client: CDM Smith
Contact Information: Jonathan Goldman / GoldmanJZ@cdmsmith.com / 561-571-3734
Project Dates: 2021-2022
Project Value: ±180K

Biscayne Engineering Company, Inc. completed the location of approximately 196 weep holes along the SR9 corridor on behalf of the client. In addition to this work, we located multiple drainage structures and multiple canal cross sections while establishing calibration points at specific locations throughout the City of Fort Lauderdale. We provided Topographic location for several sites providing control points as well as topographic locations for multiple sea walls and providing elevations at multiple critical structures to be utilized for flood management and design.

CITY OF MIAMI PRIMARY STORMWATER MANAGEMENT SYSTEM (This project was with CDM Smith and Brizaga)

Client: CDM Smith
Contact Information: Jonathan Goldman / GoldmanJZ@cdmsmith.com / 561-571-3734
Project Dates: 2021-2022
Project Value: ±370K

Biscayne Engineering Company, Inc. began this project with a series of surveying services throughout the City of Miami in support of CDM's team. The results from our Stormwater Model Review resulted in an additional set of surveys. As a result of this work, we were able to provide finished floor elevations.

CITY OF BOYNTON BEACH SURVEY PROJECT

Client: CDM Smith
Contact Information: Yanice Mercado / mercadoyi@cdmsmith.com / 561-571-3757
Project Dates: 2021
Project Value: ±11K

Biscayne Engineering Company, Inc. provided field locations and information specific to drainage structures at several sites throughout the Boynton Beach area.

MIAMI RIVER GREENWAY / CURTIS PARK

Client: A&P Consulting Transportation Engineers, Corp. on behalf of the City of Miami
Contact Information: Eithel M. Sierra / emsierra@apcte.com / 305-592-7283
Project Dates: 2019 to 2021
Project Value: ±21K

Biscayne Engineering Company, Inc. prepared and delivered a topographic survey and full digital terrain model (DTM) files of the above-mentioned survey limits. The survey included right of way and baseline analysis utilizing field surveyed monuments and record data. A control network was established with benchmarks tying the survey to a known vertical datum and state plane coordinates. The topographic survey depicted all visible improvements including utilities, pavement striping, and seawalls. A structures table with invert information and a tree table were also incorporated into the survey. The limits included southern portions of Curtis Park and Right-of-Way along NW North River Drive from NW 24th Avenue to NW 22nd Court and adjacent side streets, City of Miami, Miami-Dade County, Florida. (Approximately 0.5 miles)

LA PASTORITA NEIGHBORHOOD

Client: The Corradino Group on behalf of the City of Miami
Contact Information: Juan Sotero / jsotero@corradino.com / 305-594-0735
Project Dates: 2018 to 2020
Project Value: ±61K

Biscayne Engineering provided surveying and mapping services for the La Pastorita Neighborhood project by preparing a Topographic Survey consisting of approximately 11,350 linear feet of roadway with adjacent property frontages. Project network control and baselines were established and tied to State Plane Coordinates and a known vertical datum. The survey depicted visible site conditions including improvements, utilities, trees, pavement striping, and sewer structures. Cross sections and spot elevations were also included as well as a structures table with invert information. The topographic information was used to produce a Digital Terrain Model (DTM). Additional information was incorporated into the survey including right-of-way line locations, roadway centerline distances and directions, platted lot lines, and Miami-Dade County property appraiser parcel information. Other local elements were considered such as the City of Miami's Base Building Lines and Monument lines. Biscayne Engineering participated in this project as part of a large team and coordinated with other team members in different disciplines to deliver what they needed.

NORTH BAYSHORE DRIVE TO SEAWALL + MARINE STADIUM

Client: T.Y. Lin
Contact Information: Colin Henderson / colin.henderson@tylin.com / 305-520-2496
Project Dates: 2020 to 2021
Project Value: ±15K

This was a series of right-of-way and topographic surveys covering North Bayshore Drive to the seawall at Miami Shores Bayfront Park. This involved Right-of-Way Verification along North Bayshore Drive, horizontal tasks along the subject property, vertical tasks involving elevations as well as Mean High Water Surveys and Storm/Sanitary Sewer Structures. Additionally, there were a series of survey tasks working through the designated locations from a previous as-built-record survey.

BRIGHTLINE (MIAMI CENTRAL)

Client: Florida East Coast Industries
Contact Information: Alex Gonzalez / Alex.Gonzalez@gobrightline.com / 305-520-2496
Project Dates: 2005 to ONGOING
Project Value: ±250K [Construction Value: N/A]

Biscayne Engineering Company, Inc. has completed numerous surveys for our Brightline project. This project has consisted of numerous phases that have included various skill sets. We have established boundaries and construction layout control via conventional survey methods. We have prepared legal descriptions for 3D airspace parcels and easements in a mixed-use development in addition to preparing sketched to accompany legal descriptions. Moreover, we have prepared ALTA/NSPS Surveys for complex transactions. This has been a long running project that has involved the private and public sector working towards overall community betterment. This project remains ongoing.

TAB 4

ORGANIZATIONAL PROFILE & PROJECT TEAM QUALIFICATIONS

BRIZAGA

Resilience Done Right.™

TAB 4

Project Team Qualifications

The Brizaga team is fully staffed and ready to assist the City of Hollywood with your expanded resilience goal of updating your Floodplain Management Plan. Our team is filled with experts who have decades of experience helping communities like the City of Hollywood. Our team consists of Professional Engineers, Certified Floodplain Managers, Florida Professional Emergency Managers, and much more. These individuals have worked on a variety of resilience and mitigation projects throughout the South Florida region and beyond.

- **Michael Antinelli, PE, CFM** will serve as our project manager for the City of Hollywood. Michael is a South Florida native and has years of experience in coastal engineering. As a Principal and Co-Founder of Brizaga, he has helped communities with their vulnerability assessments and other resilience projects. Michael will be supported by a team of resilience experts.

- Our Grant and Compliance Lead will be **Dr. Alec Bogdanoff**. Alec is the other Principal and Co-Founder of Brizaga. Alec is a policy-trained oceanographer and meteorologist with almost two decades of policy and political experience including managing campaigns and authoring legislation on a state and federal level. His experience includes leading complex multi-jurisdictional resilience assessments and assisting communities with their resilience funding. He has an in-depth knowledge of federal and state funding opportunities and how to leverage these opportunities to create a more resilient community. Alec is currently on the team that is updating the City of Hollywood's Stormwater Master Plan and is excited to continue his work helping to create a more resilient community.

- Our modeling efforts for this project will be lead by **Jonathan Goldman, PE, PMP, CCEE** from CDM Smith. Jonathan is an experienced engineer with decades of experience working with coastal communities in South Florida including being the project manager for the City of Hollywood's Stormwater Master Plan and Vulnerability Assessment. Jonathan's first-hand knowledge of the City's current projects and data will ensure that our team ready to hit the ground running with this project.

- Analysis and implementation lead for this project is **Alex Boswell, FPEM**. Alex has spent the last five years of her career working in emergency management and mitigating natural disasters. She served as the Chief of Staff of Florida's First Chief Resilience Officer, Dr. Julia Nesheiwat. In this role, she was able to take stock of several resilience projects that were going on throughout the state. She understands federal and state funding opportunities for resilience projects and it ready to help the City determine what funding could be best utilized by the City of Hollywood.

- **Erica Echeverri** will be our Outreach lead for this project. Erica is an outreach coordinator at Brizaga who has spearheaded projects all across South Florida. She is currently working with the City of Hollywood on two projects: Flooding Mitigation and Shoreline Protection and the Stormwater Master Plan. She has been assisting the City with the outreach efforts for both of these projects and helping the community to understand the importance of these projects. She is bi-lingual and can create all outreach material in both English and Spanish. Erica is excited to continue to support the City of Hollywood in their outreach efforts.

These team leads are supported by several other staff members who have decades of combined experience with resilience work throughout Florida. This staff is outline in the **organizational chart** and all the **resumes** of our staff can be found on the **following pages**. This team is ready to hit the ground running and assisting the City with this project.

Project Organizational Chart

Project Manager
Michael Antinelli, PE, CFM

Our Project Manager is a Certified Floodplain Manager

Analysis & Implementation Lead
Alex Boswell, FPEM

Analysis, CRS, LMS, Mitigation Measures

Existing Study Review & Data Collection
Evan Blanchard, ENV SP

Site Visits & Survey
Mike Bartholomew, PSM[B]
Alberto Rabionet, PSM[B]
Warren Rolle[B]

Project & Policy Recommendations
Justin Redding[C]

Funding
Erin Craddock

Modeling Lead
Jonathan Goldman, PE, PMP, CCEE[C]

Floodplain modeling and hazard mapping

Floodplain Modeling
Thomas Nye, Ph.D., PE[C]
Michael Schmidt, PE, BCEE, D.WRE[C]

Sea Level Rise Science
Alec Bogdanoff, Ph.D.

Outreach Lead
Erica Echeverri

Community involvement & engagement

Outreach Support
Tanoah Villain

Grant & Compliance Lead
Alec Bogdanoff, Ph.D.

CRS, FEMA, and grant compliance

CRS/FEMA Compliance
Stacie Anderson[C]

Grant Compliance
Erin Craddock

Subconsultant Identification
B: Biscayne Engineering
C: CDM Smith

Michael A Antinelli, PE, CFM

PRINCIPAL (PROJECT MANAGER)

Michael A. Antinelli, PE, CFM is a Principal & Co-Founder of Brizaga and is responsible for the oversight of all projects and engineering practices conducted by the firm. He has extensive experience in the practices of coastal and marine engineering, stormwater management, flood mitigation, site civil engineering, and regulatory permitting. As a Certified Floodplain Manager, he couples the technical components of engineering with the laws and regulations enforced by the local, state, and federal governing bodies to provide clients with the most comprehensive planning tools in preparation for flood-related incidents and disasters, including sea level rise and storm surge. He has led the design of numerous federally funded storm surge and sea level resiliency projects for transportation authorities and historic landmarks.

Education:

- M.S., Coastal & Oceanographic Engineering, University of Florida, 2011
- B.S., Civil Engineering, University of Florida, 2010

Affiliations:

- American Society of Civil Engineers
- Association of State Floodplain Managers

Licensure:

- Professional Engineer: FL #78513, NY #102714, NJ #24GE05623200
- Certified Floodplain Manager, US-17-09709

Specializations & Licensure:

- Coastal/Marine Engineering
- Stormwater & Floodplain Management
- Flood Mitigation Engineering
- Resilience and Adaptation Strategy

Project Experience

SOUTHEAST PALM BEACH COUNTY VULNERABILITY ASSESSMENT

Southeast Palm Beach County, Florida | 2019 - 2021

- Acted as the Community Captain for the cities of Ocean Ridge and Highland Beach and assisted in the identification of climate threats, assembling of data pertinent to community assets, and assessment of vulnerabilities and their associated risks.
- Assisted in investigating potential adaptation strategies and synthetization all tasks into an actionable long-term resilience plan.
- Ensured that all meetings were informative and interactive.
- Provided construction administration services including shop drawing reviews, RFI responses, site visits, and project close-out.

VILLAGE OF KEY BISCAYNE RESILIENCY STRATEGY

Village of Key Biscayne, Florida | 2022 – Ongoing

- Developing a Resilience Strategy for the Village of Key Biscayne, including evaluating threats, developing goals, and ultimately working with the consultant team to build an implementation and integration plan that examines all projects across the Village.
- Leading the development of the Village-wide vulnerability assessment examining the effects of flooding, wind, heat, and erosion effects on the physical and economic landscape.
- Participating in outreach and engagement efforts, including building a brand for the resilience program and associated educational materials.

BRINY BREEZES VULNERABILITY ASSESSMENT AND ADAPTATION PLAN

Town of Briny Breezes (Corporation), Florida | 2021 – 2022

- Led the development of one of the first-of-its-kind community-wide adaptation plans focusing on flooding and the impacts of climate change, including rising sea levels.
- Performed a vulnerability assessment for at-risk assets and produced a comprehensive community adaptation plan proposing actions to adopt.
- Inventoried and inspected over 6,000 feet of waterfront infrastructure to identify remaining structure life and estimate repair and replacement costs.

CITY OF CORAL SPRINGS STORMWATER MASTER PLAN

City of Coral Springs, Florida | 2022 – Ongoing

- Spearheaded the development of a vulnerability assessment to complement the stormwater master plan to aid in the identification of stormwater infrastructure priorities.
- Developed metrics for evaluating vulnerability and prioritizing asset improvement through a triple bottom line lens, focusing specifically on physical impacts, economic impacts, and environmental impacts.
- The analysis was conducted utilizing Brizaga's Adaptation Prioritization Exercise, or APEx, which includes impacts and threats that may occur to infrastructure and the community.

FLOOD PROTECTION FOR VIZCAYA MUSEUM AND GARDENS

City of Miami, Florida | 2019 -2020

- Engineer-of-record for a flood mitigation system at Vizcaya Museum and Gardens.
- Performed coastal engineering analysis and wave hindcast to develop coastal engineering design criteria.
- Engineered design of flood mitigation systems to protect upland assets, including permanent and temporary structures anchoring into soils and concrete.
- Prepared supporting documentation for Florida Emergency Management grant applications for the successful application package awarding $194,000 for flood mitigation projects in the highest-rated application submission statewide.

TRACKS G & H PERMANENT FLOOD PROTECTION

Port Authority of New York and New Jersey, Kearny, New Jersey | 2020 – Ongoing

- Engineer-of-Record for a point-of-storage deployable fabric flood barrier spanning 39 feet across two railways to provide protection for up to eight feet of flooding.
- Performed finite element analysis to evaluate structural loads and deformations of fabric, including catenary forces along a continuous perimeter anchorage system.
- Supervised development of manufacturer shop drawings for fabrication, developed factory testing plan, and authored operations & maintenance manual.

SAINT MARKS EPISCOPAL SCHOOL SEA LAB

City of Oakland Park, Florida | 2020 – 2022

- Developed the design of and produced the construction documents for 550+ feet of seawall, Sea Lab, fixed dock, and floating dock.
- Processed regulatory permits through Broward County, Florida Department of Environmental Protection, and U.S. Army Corps of Engineers, including a new submerged lands lease.
- Prepared the construction Bid Package and contract documents and assisted with contractor selection.
- Provided construction administration services for the duration of the construction.

CHARLESTON FLOOD PROTECTION CONCEPT AMERICAN FLOOD COALITION

City of Charleston, South Carolina | 2018

- Designed conceptual flood protection concepts over 1.5 miles in length to protect the western portion of the Charleston Peninsula from flooding in the worst-case Category 1 condition.
- Evaluated storm surge elevations relative to historical events for comparison and storytelling.
- Considered berms, seawalls, road-raising, revetments, evacuation routes, current stormwater management, and shoreline protection projects currently in development or construction.

BROWARD COUNTY JOINT GOVERNMENT CENTER CAMPUS DESIGN CRITERIA PACKAGE

Broward County, Florida | December 2019 – Ongoing

- Principal Engineer responsible for resiliency components of the Design Criteria Package and Operations & Maintenance Manual of a $960M joint government center campus in downtown Fort Lauderdale.
- Evaluated flood risk and vulnerability under tidal and storm surge conditions from 2020-2070 as part of an overall site resiliency study.
- Provided resilience recommendations to the design team relative to finished floor elevations, adjacent roadway connections, stormwater management, wind, and flood structural loading conditions.
- Provided adaptation recommendations relative to upgrades and retrofits anticipated by future work to surrounding rights-of-way and planned development, and their impacts on stormwater management and flood risk.

KEEP SAFE MIAMI RESILIENCE AND SUSTAINABILITY ASSESSMENTS

City of Miami, Florida | 2021 - 2023

- Provide private property owners and property managers with technical assistance in the assessment of opportunities for sustainability and resilience improvements.
- Consults with program users to prioritize improvements based on budgets, the criticality of improvements, and the long-term effectiveness of potential improvements in the context of zoning and climatological requirements.
- Coordinates with the program manager to evaluate existing methodologies and identify areas of improvement as part of the assessment process.

Awards and Recognition

- Broward County American Society of Civil Engineers, Engineer of the Year, 2019

Alec Bogdanoff, Ph.D.

PRINCIPAL SCIENTIST (GRANTS & COMPLIANCE LEAD)

Alec Bogdanoff, Ph.D. is a policy-trained oceanographer and meteorologist with nearly two decades of policy and political experience, including managing campaigns and authoring legislation on a state and federal level. He is an adept project manager with experience leading complex multi-jurisdictional resilience assessments. He has an extensive background in simplifying and effectively communicating complex scientific processes for general audiences. For Brizaga, Alec is responsible for monitoring and identifying scientific research and advances in sea level rise and climate change, including datasets and models, to further develop internal technologies, as well as leading resilience and adaptation planning, strategic communications, and public outreach and engagement. Alec also serves as the Science Advisor for the American Flood Coalition.

Education:

- Ph.D., Physical Oceanography, Massachusetts Institute of Technology (MIT)/ Woods Hole Oceanographic Institution (WHOI), 2016
- M.S., Meteorology, Florida State University, 2010
- B.S., Meteorology, Florida State University, 2008

Affiliations:

- Greater Fort Lauderdale Chamber of Commerce (Chair, Government Affairs Council; Member, Board of Directors)
- American Meteorological Society
- American Geophysical Union
- American Society of Adaptation Prof.
- American Planning Association
- Urban Land Institute (Chair, District Resilience Committee; Member, District Management Committee)

Specializations:

- Climate Science
- Meteorology & Oceanography
- Resilience & Adaptation Planning & Strategy
- Public Policy
- Strategic Communications
- Public Outreach & Engagement

Project Experience

HOLLYWOOD STORMWATER MASTER PLAN

City of Hollywood, Florida | 2020 – Ongoing

- Directing outreach and education associated with the City of Hollywood's Stormwater Master Plan.
- Serving as project director for the communications and outreach team, which included the development of a communication strategy, assistance with the creation of materials for print, social media, and newsletters, and planning and execution of the public outreach meetings. The materials developed were designed for consumption by the general public.
- Supporting grant applications for resilience planning and projects, including over $1 million in state resilience grants.
- Led stakeholder and public outreach engagement through webinars and roundtables highlighting the project's progression to obtain feedback and provide an alignment on research findings for an industry-wide audience.

SOUTHEAST PALM BEACH COUNTY VULNERABILITY ASSESSMENT

Southeast Palm Beach County, Florida | 2019 – 2020

- Acted as Outreach Director and assisted in identifying climate threats, assembling data pertinent to community assets, and assessing vulnerabilities and their associated risks.
- Produced a tailored Outreach Plan and Menu for each jurisdiction and the County to help provide a long-term plan for engagement, including outreach methods from workshops and charrettes to social media and blog posts.
- Coordinated and led public outreach meetings that helped facilitate productive feedback, as well as led the final interactive workshop that will share the final assessment results.
- Lead the investigation of adaptation strategies and long-term planning.

VILLAGE OF KEY BISCAYNE RESILIENCY STRATEGY

Village of Key Biscayne, Florida | 2022 – Ongoing

- Developing a Resilience Strategy for the Village of Key Biscayne, including evaluating threats, developing goals, and ultimately working with the consultant team to build an implementation and integration plan that examines all projects across the Village.
- Leading outreach and engagement efforts, including building a brand for the resilience program and associated educational materials.

MAKING THE ECONOMIC CASE FOR RESILIENCE IN TAMPA BAY

Tampa Bay Partnership, in Pinellas, Hillsborough, Manatee, Pasco, Hernando, and Citrus Counties, Florida | 2020 – 2022

- Served as project manager (Brizaga was the prime consultant) for a regional business case for resilience across six Tampa Bay counties for the Tampa Bay Partnership, as well as the project's sea level rise and climate change expert.
- Throughout the project duration, led stakeholder and public outreach engagement through webinars and roundtables highlighting the project's progression, to both obtain feedback and provide an alignment on research findings for an industry-wide audience.

BRINY BREEZES ADAPTATION PLAN

Briny Breezes Corporation, Briny Breezes, Florida | 2021 - 2022

- Project Manager for the Adaptation Plan, which assessed and identified top risk factors and vulnerabilities to create a prioritized list of at-risk assets with input from stakeholders supported by Brizaga's Adaptation Prioritization Exercise (APEx) tool.
- Considered risk exposure, sensibility, and adaptive capacity for the entire community concerning flooding and sea level rise.
- Devised a roadmap for adaptation with near-, medium-, and long-term strategies, ranging from raising seawalls to the replacement of water pumps, and furnish high-level cost estimates for all proposed resilience actions.

NORTH BAY VILLAGE STORMWATER MASTER PLAN

North Bay Village, Florida | 2020 – 2022

- Directed outreach and education associated with the City of North Bay Village's Stormwater Master Plan, which included the development of a communication strategy, assistance with the creation of materials for print, social media, and newsletters, and planning and execution of the public outreach meetings. All materials developed were designed for consumption by the general public.

TOWN OF SURFSIDE STORMWATER & FLOOD HAZARD MITIGATION PLAN

Town of Surfside, Florida | 2022 – Ongoing

- Directing outreach and education associated with the Stormwater Master Plan.
- Serving as project manager for the communications and outreach team, which included the development of a communication strategy, assistance with the creation of materials for print, social media, and newsletters, and planning and execution of the public outreach meetings. The materials developed were designed for public consumption.

BUSINESS CASE ANALYSIS OF THE STORMWATER RESILIENCY PROGRAM

City of Miami Beach, Florida | 2018 – 2021

- Led the individual adaptation portion of the project, examining and quantifying the cost/benefit of various resilience and adaptation measures for particular properties, independently and as part of the larger City-wide stormwater resiliency improvements.
- Developed the public communication for the entire project in coordination with City staff and other project consultants.
- Produced outreach and engagement materials, disseminating project findings through stakeholder presentations, and additionally led the development of the final report and final 4-pager for public consumption.

BROWARD COUNTY JOINT GOVERNMENT CENTER CAMPUS DESIGN CRITERIA PACKAGE

Broward County, Florida | December 2019 – Ongoing

- Responsible for resiliency components of the Design Criteria Package and Operations & Maintenance Manual of a $960M joint government center campus in downtown Fort Lauderdale.
- Evaluated flood risk and vulnerability under tidal and storm surge conditions from 2020-2070 as part of an overall site resiliency study.
- Provided resilience recommendations to the design team relative to finished floor elevations, adjacent roadway connections, stormwater management, wind, and flood structural loading conditions.
- Provided adaptation recommendations relative to upgrades and retrofits anticipated by future work to surrounding rights-of-way and planned development, and their impacts on stormwater management and flood risk.

ADAPTATION PROTOTYPE FOR MAYORS, BLOOMBERG CHALLENGE

City of Miami, Florida | 2018 – 2018

- Developed a menu of ten adaptation alternatives across all price points and flooding mechanisms.
- Identified considerations for the implementation of appropriate measures based on flood exposure, property composition, financial constraints, and effectiveness durations.
- Built a framework for the collection of critical information for consideration in the selection of appropriate measures.
- Identified thresholds for the effectiveness of adaptation measures based on sea level rise projections and tidal conditions.

Additional Professional Experience

- John A. Knauss Sea Grant Fellow for U.S. Senator Edward J. Markey (MA), 2016 – 2017
- Florida Director, Senior Scientist, and now Science Advisor, American Flood Coalition, 2018 - Present

Awards and Recognition

- Urban Land Institute, Southeast Florida District Council, Young Leader of the Year, 2022

Alex Boswell, FPEM

SENIOR RESILIENCE PLANNER (ANALYSIS & IMPLEMENTATION LEAD)

Alex is a seasoned emergency management professional with over five years of experience across the state of Florida. In her experience, she has not only helped communities with their disaster response but their mitigation efforts post-disaster. Through these experiences, she has seen the impacts of climate change. Her work with mitigation projects in Florida gives her a unique perspective on how to fund resilience projects. Alex also served as the Chief of Staff for Florida's First Chief Resilience Officer. IN this role, she met with a variety of local resilience officers to take stock of programs and projects occurring throughout the state. She helped make connections from the local to the state level on resilience work throughout Florida.

Education:

- BS, Forest Resources, and BA, Digital and Broadcast Journalism, University of Georgia
- MS, Forest Resources and Conservation, University of Florida
- Graduate Certificate, Environmental Education and Communication, University of Florida

Affiliations:

- Florida Emergency Preparedness Association
- International Association of Emergency Managers

Specializations:

- Forest and Environmental Science
- Climate Change Solutions
- Scientific Translation
- Post-Disaster and Mitigation Funding
- Resilience Planning

Project Experience

TOWN OF BRINY BREEZES VULNERABILITY ASSESSMENT AND ADAPTATION PLAN

Town of Briny Breezes, Florida | 2024 - Ongoing

- Developed tools to help the Town to Assess Adaptive Capacities, Prioritize Adaptation Needs, and Identify Adaptation Strategies.
- Review Town ordinances and policies related to the adaptation plan to create adaptation strategies for climate change.
- Reviewing and translating scientific findings into concrete solutions that the Town can easily integrate.

ALACHUA COUNTY CLIMATE VULNERABILITY ANALYSIS

Alachua County, Florida | 2024 – Ongoing

- Reviewing and translating scientific findings into the Climate Vulnerability Analysis Executive Summary.
- Working with the team to determine what information within the analysis was helpful and what would benefit the County to implement.
- Review and finalize memos on community culture information and how climate change may impact critical infrastructure within the county.

CITY OF CORAL SPRINGS STORMWATER MASTER PLAN

City of Coral Springs, Florida | 2024 – Ongoing

- Leading the development of the final report, including reviewing and providing feedback regarding the Vulnerability Assessment for the City to aid in the development of a priority investment list.
- Led the review of charts, graphs, and maps to ensure information was accurate and represented the City's needs.

VILLAGE OF KEY BISCAYNE RESILIENCY STRATEGY AND VULNERABILITY ASSESSMENT

Village of Key Biscayne, Florida | 2024 – Ongoing

- Led environmental impacts section related to increased heat due to climate change and how these impacts will affect the village.
- Research the impacts of an increase on power systems throughout the village and how they may mitigate these concerns.
- Evaluated different options for how the Village may be able to fund projects to mitigate impacts from increased heat within the Village.

CITY OF CLEARWATER, TIDAL FLOOD BARRIER ORDINANCE

City of Clearwater, Florida | 2024 – Ongoing

- Reviewed existing ordinances related to tidal flood barriers and provided recommendations based on the regional tidal flood barrier ordinance template.
- Led the development of the technical approach for the development of the ordinance.

SUWANNEE COUNTY, FLORIDA HAZARD MITIGATION GRANT PROGRAM APPLICATION

Suwannee County, FL | 2023 (Previous Employer)

- Reviewed the County's Local Mitigation Strategy and list of hazard mitigation projects to ensure the HMGP could fund them.
- Wrote six applications for HMGP funding for various other projects, including generators, hardening, and retrofits.
- Worked with County staff to get all documentation signed and submitted to the Florida Division of Emergency Management by the application deadline.

Evan Blanchard, ENV SP

STAFF SCIENTIST

Evan Blanchard is an Environmental Scientist with a focus on Coastal Processes. With previous experience in water chemistry, environmental permitting, and coastal geomorphology, Evan possesses a multi-disciplinary solid background. As staff scientist, Evan is responsible for project management and technical writing on various projects but primarily focuses on GIS based vulnerability assessments. Through his various projects at Brizaga; Evan has significantly grown in his scientific communication skills focusing on distilling information to the basics where most anyone can understand without sacrificing details.

Education:

- B.A, Environmental Science and Policy, Florida State University, Tallahassee
- M.S, Environmental Science, Florida Atlantic University

Affiliations:

- American Shore and Beach Preservation Association
- Institute of Sustainable Infrastructure

Specializations:

- Coastal Geology
- Geographic Information Systems (GIS)
- Environmental Permitting
- Technical Writing

Project Experience

VILLAGE OF KEY BISCAYNE RESILIENCY STRATEGY AND VULNERABILITY ASSESSMENT

Village of Key Biscayne, Florida | 2022 – Ongoing

- Served as the Vulnerability Assessment team's GIS and data collection specialist.
- Developing a GIS-based Resilient Florida grant program-compliant Vulnerability Assessment for the entire Town of Ponce Inlet, analyzing several hazards, including tidal flooding, storm surge flooding, groundwater flooding, compound flooding, extreme heat, coastal erosion, and wind.
- Writing technical reports based on the GIS maps.
- Aided in the development of the Key Biscayne Resilient Infrastructure Strategy.

TOWN OF BRINY BREEZES VULNERABILITY ASSESSMENT

Town of Briny Breezes, Florida | 2022 - Ongoing

- Developed a GIS-based Resilient Florida grant program-compliant Vulnerability Assessment for the entire Town of Briny Breezes, analyzing:
  - Tidal flooding
  - Storm surge flooding
- Ensured that the entire assessment and accompanying materials qualified for the Resilient Florida Grant Program.
- Provided stakeholder engagement support to the Outreach team, attending several public meetings.
- Wrote the comprehensive final report and several technical memos on the project.

CAPTIVA ISLAND VULNERABILITY ASSESSMENT AND ADAPTATION PLAN

Captiva Island, Florida | 2022

- Co-developed and performed GIS methodology for an island-wide multi-hazard vulnerability assessment.
- Ensured that the entire assessment and accompanying materials qualified for the Resilient Florida Grant Program.
- Improved Brizaga's APEX tool by integrating criticality as an additional aspect of asset prioritization.
- Wrote the comprehensive final report as well as several technical memos on the project.

CITY OF CORAL SPRINGS STORMWATER MASTER PLAN

City of Coral Springs, Florida | 2022 – Ongoing

- Executing GIS mapping for the City based on Prime Consultant's precipitation based flood modeling.
- Preparing the Vulnerability Assessment for the City based on GIS results as well as APEx critical asset prioritization.
- Wrote several methodology memos, summarizing our Vulnerability analysis techniques.

MIAMI PRIVATE PROPERTY ADAPTATION PROGRAM

City of Miami, Florida | 2023

- Created the GIS database utilized by the Brizaga team for geographic information and satellite/lidar data.
- Drafted several private property adaptation reports.

Erica Echeverri

OUTREACH COORDINATOR (OUTREACH LEAD)

Erica Echeverri, the Outreach Coordinator at Brizaga. With her exceptional skills and expertise, Erica spearheads complex projects centered around stakeholder engagement, public outreach, and the creation of educational materials. Her dedication to fostering meaningful connections and building strong relationships is at the core of her work. As the driving force behind our outreach initiatives, Erica excels in crafting comprehensive strategies that effectively engage stakeholders and ensure their active participation in our projects. She has a remarkable ability to communicate with clarity and passion, making complex concepts understandable for diverse audiences. Being bilingual in English and Spanish, Erica effortlessly bridges language barriers, enabling seamless communication and connection with a wider range of individuals. This linguistic proficiency allows us to reach and engage with diverse communities, ensuring inclusivity and cultural sensitivity in all our endeavors.

Education:

- B.S, Animal Science, University of Massachusetts, Amherst
- M.S, Environmental Science, Florida International University

Affiliations:

- National Association of Environmental Professionals
- National Education Association – Florida Chapter
- Citizens Climate Lobby
- National Ground Water Association

Specializations:

- Science Education
- Public Outreach & Engagement
- Strategic Communication
- 8 years Educator Experience

Project Experience

PALM BEACH COUNTY VULNERABILITY ASSESSMENT AND RESILIENCE ACTION PLAN

Palm Beach County, Florida | March 2023 – Ongoing

- Coordinated outreach and education associated with the Palm Beach County Vulnerability Assessment, which included assisting with creating materials for print, social media, and newsletters and planning and executing the public outreach meetings. All materials developed were designed for consumption by the public.
- Led stakeholder and public outreach engagement through webinars and workshops highlighting the progression of the project to both obtain feedback and provide an alignment on research findings.

HOLLYWOOD TIDAL FLOODING MITIGATION AND SHORELINE PROTECTION

City of Hollywood, Florida | Mach 2023 – Ongoing

- Coordinated outreach and education associated with the Tidal Flooding Mitigation and Shoreline Protection project.
- Serving as Outreach Coordinator for the communications and outreach team, which included assisting with creating materials for print, social media, and newsletters and planning and execution of the public outreach meetings. The materials developed were designed for consumption by the public.
- Organized and facilitated workshops to educate the community and promote engagement with the project and the City.

HOLLYWOOD STORMWATER MASTER PLAN

City of Hollywood, Florida | March 2023 – Ongoing

- Coordinated outreach and education associated with the City of Hollywood's Stormwater Master Plan.
- Serving as Outreach Coordinator for the communications and outreach team, which included assisting with creating materials for print, social media, and newsletters and planning and execution of the public outreach meetings. The materials developed were designed for consumption by the public.
- Led stakeholder and public outreach engagement through workshops and roundtables highlighting the project's progression to both obtain feedback and provide an alignment on research findings for an industry-wide audience.

BROWARD COUNTY WIDE RESILIENCE PLAN

Broward County, Florida | March 2023 – Ongoing

- Coordinated and led public outreach meetings that helped facilitate productive feedback and led the final interactive workshop that will share the final assessment results.

NORTH BAY VILLAGE STORMWATER MASTER PLAN

North Bay Village, Florida | – Ongoing

- Coordinated and provided the outreach and education for the Stormwater Master Plan Update.
- Served as Outreach Coordinator for the communications and outreach team, which included assisting with creating materials for print, social media, and newsletters, and planning and execution of the public outreach meetings. The materials developed were designed for public consumption.

Erin Craddock

COORDINATOR, MARKETING & GRANTS

Erin, our Marketing and Communications Coordinator at Brizaga, is pivotal in establishing and nurturing valuable connections with our esteemed clients. With her exceptional coordination skills, she expertly orchestrates and plans meetings, ensuring that all interactions are seamless and productive. In addition to her client's interfacing responsibilities, Erin spearheads our outreach and educational initiatives, fostering a deeper understanding of our projects within the community. Her exceptional talent extends to providing invaluable support in developing grant proposals and RFQ solicitations, showcasing her proficiency in project management. Furthermore, Erin's keen eye for marketing strategies ensures that Brizaga remains at the forefront of industry advancements as she skillfully coordinates and executes our comprehensive marketing efforts. With her multifaceted contributions, Erin is an integral part of our team, consistently enhancing the success and visibility of Brizaga.

Education:

- BA, University of Guelph
- Environmental Conservation Certificate, University of Guelph
- Environmental Steward, Broward County
- FAU, Master Naturalist Program-Coastal Systems

Affiliations:

- Greater Fort Lauderdale Chamber of Commerce
- Citizens Climate Lobby
- Nature Scape Broward
- National Wildlife Federation
- Surfrider Broward Foundation
- Oceana Foundation

Specializations:

- Public Speaking
- Public Outreach & Engagement
- Strategic Communication
- Adaptability and Creative
- Grant Administration and Tracking

Project Experience

NORTH BAY VILLAGE STORMWATER PROGRAM MANAGEMENT

North Bay Village, Florida | 2022 – ongoing

- Drafted the grant proposal for the Biscayne Bay Water Quality Grant, thoroughly reviewed, edited, and subsequently submitted the comprehensive grant package.
- In collaboration with the Village, Brizaga expertly crafted grant applications for various grants, including the Biscayne Bay Water Quality Grant, as well as three grants offered by the Florida Resilient Grants Program.
- These projects align seamlessly with the rigorous requirements stipulated by the respective grant programs, focusing on enhancing critical and coastal infrastructure.

BRINY BREEZES ADAPTATION PLAN

Briny Breezes, Florida | 2023 – ongoing

- Provided Grant Support and administration throughout the duration of the FDEP Grant Initiative.
- Demonstrated proficiency in grant management and ensuring compliance with funding requirements to secure valuable resources for project execution.

CITY OF ST. AUGUSTINE BEACH GRANT ASSISTANCE

City of St. Augustine Beach, Florida | 2023 – ongoing

- Provided Grant administration assistance to help organize and keep track of all the City of St. Augustine Beach's grant funded project. throughout the duration of the FDEP Grant Initiative.
- Implemented streamlined project management processes and utilized advanced tracking tools to enhance efficiency and transparency in monitoring the progress of City of St. Augustine Beach's grant-funded initiatives.

TOWN OF SURFSIDE STORMWATER & FLOOD HAZARD MITIGATION PLAN

Town of Surfside, Florida | 2022 – Ongoing

- Assisted and developed outreach and educational materials associated with the Stormwater Master Plan, which included assisting with creating materials for print, social media, and newsletters and planning and executing the public outreach meetings. All materials developed were designed for consumption by the public.
- Created final outreach report including the involvement of the public engagement efforts completed by Brizaga.

NORTH BAY VILLAGE VULNERABILITY ASSESSMENT

North Bay Village, Florida | 2023 – ongoing

- Coordinated outreach and education associated with the City of North Bay Village's Vulnerability Assessment, which included the development of public outreach engagement, assistance with the creation of materials for print, social media, and newsletters, and planning and execution of the public outreach meetings. All materials developed were designed for consumption by the public.

DANIA BEACH STORMWATER MASTER PLAN

City of Dania Beach, Florida | 2023 – ongoing

- Coordinated outreach and education associated with the City of Dania Beach's Stormwater Master Plan, which included the development of materials for print, social media, and newsletters, and planning and execution of the public outreach meetings. All materials developed were designed for consumption by the public.
- Designed and copy-edited a Stormwater Master Plans Citizens Guide for public distribution.

CORAL SPRING STORMWATER MASTER PLAN

City of Coral Springs, Florida | 2023 – ongoing

- Coordinated and developed the Stormwater Master Plan's Citizens guide.
- Outreach and education associated with the City of Coral Springs Stormwater Master Plan.

ALACHUA VULNERABILITY ASSESSMENT

Alachua County, Florida | 2023 – Ongoing

- Created and developed the final Executive Vulnerability Assessment Summary
- Attended meetings Involving the climate change efforts put forward by the prime consultants and developed meeting minutes and PowerPoint presentation slides to present to the county.

Grant Writing and Administration Examples

- Assisted in the grant writing process for North Bay Villages Florida Resilient Grants
- Assisted in the Biscayne Bay Water Quality Grant- North Bay Village
- Review, Edit and Submit Grant Package
- Grant Tracking to assist the City of St. Augustine Beach grant projects.
- Grant Administration for the City of Briny Breezes and Key Biscayne adhering to DEP's guidelines.

Tanoah Villain

OUTREACH ASSOCIATE

Tanoah is a tri-lingual outreach professional with a deep understanding of stakeholder interaction and community engagement. She skillfully crafts educational content that effectively communicates complex concepts in a relatable and accessible manner. Tanoah's linguistic versatility is an asset to our team, as she effortlessly navigates between English, French, and Haitian Creole. With over a decade of experience in customer service and event planning, she has an unparalleled ability to navigate complex situations. She deeply enjoys the one-on-one interaction with stakeholders, helping them effectively engage with the governments that serve them.

Education:

- Associate of Science, Broward College

Affiliations:

- Citizens' Climate Lobby
- Sustainable Events Network, Florida & Caribbean (SENFC)

Specializations:

- Public Outreach & Engagement
- Languages: English, French, and Haitian Creole

Project Experience

PALM BEACH COUNTY VULNERABILITY ASSESSMENT AND RESILIENCE ACTION PLAN

Palm Beach County, Florida | June 2023 – Ongoing

- Co-led the creation of outreach materials for various mediums, including print, social media, and newsletters.
- Aided in the planning of stakeholder and public outreach engagements through webinars and workshops showcasing the project's ongoing progression, ensuring clear communication of research findings to diverse audiences.

HOLLYWOOD TIDAL FLOODING MITIGATION AND SHORELINE PROTECTION

Broward County, Florida | June 2023 – Ongoing

- Worked alongside the Outreach Coordinator to create workshops to promote engagement with the project and the City.
- Created communication materials, including social media posts and meeting reports.

HOLLYWOOD STORMWATER MASTER PLAN

City of Hollywood, Florida | June 2023 – Ongoing

- Partnered with the Outreach Coordinator, creating materials for print, social media, and newsletters and the website reorganization.

HOLLYWOOD CLIMATE VULNERABILITY ASSESSMENT

City of Hollywood, Florida | June 2023 – Ongoing

- Co-led the organizing and execution of public outreach meetings and interactive workshops aimed at facilitating valuable feedback.
- Monitored the effectiveness of outreach campaigns, making data-driven adjustments to improve community engagement.

BROWARD COUNTY WATER CONSERVATION PROGRAM

Broward County, Florida | June 2023 – Ongoing

- Collaborated with the team to develop and implement effective strategies for reaching and connecting with the community.
- Conducted comprehensive door-to-door outreach campaigns in target neighborhoods, effectively engaging with business owners to promote Water Conservation's mission and initiatives.

BROWARD COUNTYWIDE RISK ASSESSMENT AND RESILIENCE PLAN

Broward County, Florida | June 2023 - Ongoing

- Worked alongside the outreach team to tailor an outreach plan and menu for the County with a focus on long-term engagement, including outreach methods from workshops, social media, and other educational materials.
- Coordinated stakeholder meetings to facilitate productive feedback that informed the assessment and plan development.

MIAMI-DADE COUNTY RESILIENCE HUB STRATEGY

Adrienne Arsht-Rockefeller Foundation Resilience Center | June 2023 - Ongoing

- Worked alongside the outreach team to implement engagements that focused on voices often heard during community conversations.
- Co-led stakeholder and public outreach engagement events, including webinars and roundtables to solicit input and feedback.

HOLLYWOOD HILLS SEWER EXTENSION PROJECT

City of Hollywood, Florida | – Ongoing

- Assisted in the coordination and provided the outreach and education for the Hollywood Hills Sewer Project.
- Served as outreach associate for the communications and outreach team, which included assisting with creating materials for print, social media, and newsletters, and planning and execution of the public outreach meetings. The materials developed were designed for public consumption.

Jonathan Z. Goldman, PE, PMP, BCEE

Associate, Senior Environmental Engineer

Jon is currently serving the role of senior project manager for CDM Smith on large, complex engineering projects throughout the state of Florida. His civil and environmental engineering experience is concentrated in the areas of stormwater management, water and wastewater master planning, collection, treatment, and distribution systems; energy efficiency and sustainability performance design and contracting; treatment plant design; stormwater master planning and treatment system design, and stormwater utility evaluation, creation, and refinement; and hydraulic modeling and analysis of large collection, pumping and transmission systems. He is also experienced in the areas of utility infrastructure asset risk prioritization, evaluation, and rehabilitation, construction management, and water resources.

Project Manager/Engineer of Record, Comprehensive Stormwater Master Plan and Vulnerability Assessment, City of Hollywood, Florida, 2021 to Present. Jon is responsible for the multi-year, multi-million dollar effort which includes the creation of an interactive stormwater geographic information system (GIS) from several decades of mixed media records and as-builts; comprehensive survey of topography; LiDAR; stormwater feature verification of location, elevation, and connectivity; development of basin boundaries, seawall heights, finished-floor elevations of critical infrastructure, and channel cross sections; hydraulic modeling of the system using dynamic SWMM modeling; cost benefit analysis using FEMA HAZUS methodology; a phased 10- and 20-year capital improvements program which considers sea-level rise and storm surge resiliency for multiple levels of service across seven major watersheds; water quality treatment for the protection of Biscayne Bay; an electronic stormwater design standards manual; a public awareness campaign and stakeholder workshops; funding options; and grant assistance.

Project Manager/Engineer of Record, Comprehensive Stormwater Master Plan, City of Miami, Florida, 2018 to Present. Jon is responsible for the multi-year, multi-million dollar effort which includes the creation of an interactive stormwater geographic information system (GIS) from several decades of mixed media records and as-builts; comprehensive survey of topography; LiDAR; stormwater feature verification of location, elevation, and connectivity; development of basin boundaries, seawall heights, finished-floor elevations of critical infrastructure, and channel cross sections; hydraulic modeling of the system using dynamic SWMM modeling; cost benefit analysis using FEMA HAZUS methodology; a phased 10- and 20-year capital improvements program which considers sea-level rise and storm surge resiliency for multiple levels of service across seven major watersheds; water quality treatment for the protection of Biscayne Bay; an electronic stormwater design standards manual; a public awareness campaign and stakeholder workshops; funding options; and grant assistance.

Project Manager, Miami International Airport GIS Stormwater Atlas, Miami Dade Aviation Department (MDAD), Florida, 2015 – Present. The Miami International Airport Stormwater Atlas is an updated Stormwater Atlas for Miami International Airport. Jon is leading the effort to create an accurate stormwater atlas for the airport based on as-built drawings, record drawings and CAD files verified by survey and field inspection.

Education
ME – Environmental Engineering, University of Florida, 1990

BS – Environmental Engineering, University of Florida, 1987

Registration
Professional Engineer: Florida, 1995

Certification
Project Management Professional (PMP)

Honors/Awards
Board Certified Environmental Engineer (BCEE), American Academy of Environmental Engineers and Scientists

Project Manager and Engineer of Record, Miami Opa Locka Executive Airport (OPF) Stormwater Master Plan, Miami-Dade County Aviation Department (MDAD), Miami-Dade County, Florida, 2018 to Present. MDAD is updating the hydrologic and hydraulic model of the Miami-Opa Locka Executive Airport. CDM Smith was retained to provide stormwater services by using Innovyze XP-SWMM to model current conditions. Additionally, we deliver future scenarios and sea level rise simulations. The updated stormwater model uses revised digital elevation model (DEM), an updated primary stormwater management system (PSMS) based on the 2017 Stormwater Atlas previously developed by CDM Smith for MDAD, recent project design plans, and boundary conditions from Miami-Dade County XP-SWMM model. Stormwater management control measures are provided to meet the Federal Aviation Administration and SFWMD requirements.

Project Manager/Engineer-of-Record, Stormwater Master Plan and Stormwater Consulting, Miami-Dade Aviation Department, Miami-Dade County, Florida, 2017. Jon was responsible for the development and execution of several stormwater-related projects for the Miami International Airport, and the Miami Executive (Tamiami) and Miami Opa-Locka Executive General Aviation airports including the creation of GIS-based stormwater utility atlases for each site, manatee barrier analysis and design, wetlands assessments, electronic stormwater design standards manuals for bus by developers at the sites, technical reviews of proposed project conceptual and final design plans and reports for adherence with the adapted stormwater master plans and permits, and stormwater master plan updates for the airports which included Xp-SWMM modeling for regulatory design storms to FAA requirements, water quality treatment calculations, conceptual environmental resource permitting, and a phased capital improvements plan for the future airport land uses to meet FAA criteria for length, depth and duration of ponding on the airside, and to meet permitted runoff water quality and peak flows.

Project Manager, City-wide SWMP, City of Fort Lauderdale, Florida. This project included an evaluation and update of the City's stormwater management practices, infrastructure, funding, and regulatory compliance. CDM Smith also evaluated alternative solutions to four flood prone neighborhoods based on City priority. Conceptual improvement plans were developed for each of the four local areas to meet the required levels of service for flood control with water quality and aquifer recharge BMPs. Jon was the City's primary point of contact and was responsible for the schedule, quality, and budget of the project; managed CDM Smith staff for data collection, modeling, and alternatives analyses; developed the CIP; and presented the results to the City.

Project Manager, Victoria Park Stormwater Plan and Neighborhood Improvement Project, City of Fort Lauderdale, Florida. Jon was responsible for the stormwater management investigations and analyses of the study area to identify potential solutions to mitigate flooding and provided the City with alternative solutions, corresponding cost and schedule estimates for each solution and assisted in the selection of the most appropriate and permittable solution to meet the City's needs and budget. He was the City's primary point of contact and was responsible for the schedule, quality, and budget of the project, managed CDM Smith staff for data collection, modeling, and alternatives analyses, developed the CIP, and presented the results to the City.

Stacie L. Anderson, MPA

Disaster Recovery Community Development Specialist III

Stacie has 20+ years of experience in project management and operational activities for fast-paced, high profile government entities, including 15 years of experience working on the administration of U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant (CDBG) programs dedicated to Disaster Recovery (CDBG-DR) for states and local governments. Ms. Anderson's expertise includes program compliance with Section 3 regulations, the Davis-Bacon Act and other Labor Standards laws, HUD reporting requirements, and Fair Housing. She has extensive hands-on experience in the Disaster Recovery Grant Reporting (DRGR) system, including action plan development, quarterly performance reports (QPRs), conducting draws, and utilizing MicroStrategy reports. Ms. Anderson's experience includes contract management, intergovernmental relations, community relations, public outreach, publication development, and meeting facilitation and planning.

Compliance Manager, Minot Disaster Recovery Program, City of Minot, Minot, ND 2013 to Present To date, the City of Minot has been awarded $102.6M in CDBG-DR grant funding and $74.3M in National Disaster Resilience (NDR) grant funding to assist with its recovery following the June 2011 flooding disaster, which inundated more than 4,100 homes, with 3,100 lost or extensively damaged displacing over 11,000 residents. Stacie serves as CDM Smith's Compliance Manager on the Minot Disaster Recovery Program for the CDBG-DR and NDR Program. The programs include buyout and demolition for the construction of flood walls; construction of multi-family affordable housing; new construction and rehabilitation of flood damaged homes; construction of a family homeless shelter and food pantry; and extensive infrastructure activities including roads, lift stations, and water and sewer lines.

Although she provides general guidance on most CDBG-DR regulations including procurement, fair housing and equal opportunity, civil rights, Section 504 (*Americans with Disabilities Act*), environmental review process, and citizen participation, she is primarily responsible for managing compliance with Davis-Bacon and Labor Standards regulations on most construction projects. Beyond providing technical assistance to contractors and subcontractors regarding their compliance obligations, she reviews certified payroll reports, conducts Davis-Bacon employee interviews, collaborates with the Department of Labor for classification requests, verifies contractor eligibility, and provides compliance guidance in pre-construction meetings.

Section 3 Technical Specialist, Rebuild by Design Projects for Hudson River and New Meadowlands, and Linden Roselle Sewerage Authority, New Jersey Department of Environmental Protection, 2015 to Present. Stacie currently serves as the Section 3 Technical Specialist for the Rebuild by Design (RBD) projects for the New Jersey Department of Environmental Protection (NJDEP) and the Linden Roselle Sewerage Authority (LRSA). Possessing more than 15 years' experience working with HUD Section 3 regulations, she advises the programs for implementing policies and procedures related to achieving Section 3 compliance. She conducts an annual monitoring of Section 3 compliance for RBD projects in New Jersey.

Education

MPA – Master of Public Administration, Florida State University, (2003)

BS – Political Science, Chestnut Hill College, Philadelphia, Pennsylvania, (1995)

Training

HUD Section 3 National Training Conference June 2018

HUD Environmental Review Training, 2009, 2011, 2012, 2013

CDBG Boot Camp, COSCDA, 2008

Certifications

FEMA Badge

Linguistic Languages

Spanish - fluent

Management Specialist, Illinois Disaster Recovery Services: "Ike" and Midwest Disaster Recovery Programs, State of Illinois, 2013 to 2016. Following the floods brought on by Hurricane Ike in 2008, the State of Illinois was awarded two grants totaling $211 million in CDBG-DR funds. The Illinois Department of Commerce and Economic Opportunity (DCEO) engaged CDM Smith to provide program management for these funds. Stacie was responsible for tracking performance and financial data in DRGR for both grants; she maintained Action Plans and QPRs for the grants, as well as continuously analyzing data for reporting deficiencies and programmatic issues. She oversaw the closeout process for the grants in DRGR and the state's tracking system.

Government Operations Consultant, Community Development Block Grant Program (CDBG) Department of Economic Opportunity (formerly Community Affairs), State of Florida, 2008 to 2013. Prior to joining CDM Smith, Stacie was responsible for tracking more than $290 million in disaster recovery grant dollars funded for projects in federally declared disaster areas in DRGR. She performed environmental review functions for all CDBG grants and released funds based on federal compliance with the National Environmental Policy Act (NEPA). Ms. Anderson served as project manager for the State of Florida's five-year Consolidated Plan for the expenditure of federal funds administered by the state. She was responsible for preparing action plans for each allocation of federal funding and annual performance reports.

She conducted oversight and implementation of the State of Florida's Section 3 compliance process for all CDBG programs. She provided training and technical assistance via workshops and webinars to local governments and consultants on Section 3 regulations. She reviewed all subgrantee submissions of the Section 3 Summary Report. She managed the contract to develop a Section 3 and Minority Business Enterprise training program and guidebook for subgrantees. Other responsibilities while in this role included processing audits, contractual payments, closeout documents, civil rights measures, and Minority Business Enterprise (MBE) documents.

Public Relations Specialist II, Florida Department of Community Affairs (DCA), State of Florida, Tallahassee, FL. Stacie managed the Florida DCA media and outreach programs for the Division of Housing and Community Development (HCD). The division manages more than $750 million in both federal and state grants allocated to Florida's communities. She served as spokesperson for the agency on HCD issues, wrote statewide press releases, media advisories, and news stories. She coordinated intergovernmental programs with environmental organizations. She coordinated DCA events such as 20-Year Growth Management Retrospective, Hurricane Symposium, Long Term Recovery Workshops, and Hazardous Weather Awareness Week.

Justin Redding

Construction Representative II

Justin is a construction representative that has been involved in many different projects to help recover from a natural disaster. His projects include demolition projects, rehabilitation projects, buyout programs, and a reimbursement project. From his experience in the various projects, he has become knowledgeable in many aspects of project delivery, including creating and awarding bids, daily monitoring of contractors to ensure compliance with policies and regulations, and project closeout.

Field Supervisor, Structure Demolition and Site Restoration, City of Minot, North Dakota, 2015 - Present. CDM Smith was retained by the City of Minot to administer HUD National Disaster Resilience Program fund awarded to the city for creating a more resilient city. Justin serves as the field supervisor for Structure Demolition and Site Restoration projects for the City of Minot. Mr. Redding has been a part of the demolition of over 289 properties between three separate demolition projects. He is involved with every aspect of the demolition project from start to end. The projects start with the completion of property asbestos inspections, property assessments, and pre-demolition videos. Once the inspections are completed, the bid documents are created, and the winning bidder is awarded the contract. During the demolition season. Justin is tasked with managing multiple field monitors, reviewing invoices and change orders, and verifying that the project follows program requirements and state regulations. He also completes final acceptance of the demolition project and completes closeout of the project. He also works closely with the client making sure they are in the loop for issues that may arise.

Construction Representative, Strategic Buyout/Acquisition Program, City of Minot, North Dakota, 2013 - Present. Justin completes the majority of field activities for the NDR Strategic Buyout/Acquisition Program. The two main field activities consist of completing environmental assessments and submitting the paperwork to the environmental team to complete site-specific environmental reviews. This also included performing Decent, Safe, and Sanitary inspections for properties that are being used for relocation. He was also involved with the relocation of 32 mobiles homes from a mobile home park that was acquired through the project. Justin is an asset to the buyout team with file QA/QC once properties are purchased.

Construction Representative, Small Rental Rehabilitation and Reconstruction Project, City of Minot, North Dakota, 2014 - 2015. This project consisted of rehabilitating or reconstructing 21 rental units that were damaged due to the flood in 2011. Justin completed environmental assessments and damage assessments for all qualified applicants to determine eligibility for the project. He also did daily monitoring of the contractor and construction progress, and reviewed contractor invoices and change orders.

Construction Representative, Homeowner Rehabilitation and Reconstruction Project, City of Minot, North Dakota, 2014 - 2015. This project consisted of rehabilitating or reconstructing 117 single family homes that were damaged due to the flood in 2011. Justin completed environmental assessments and damage assessments

Education

BS – Mechanical Engineering, University of North Dakota, 2012

Registration

EIT, North Dakota, 2012

Certifications

Certified Asbestos Inspector #5843, North Dakota Department of Health, 2016

Training

APWA-MN Underground Utilities Construction Inspector School

for all qualified applicants to determine eligibility for the project. He was also in charge of daily monitoring of the contractor and construction progress, and reviewed contractor invoices and change orders.

Construction Representative, Reimbursement Program, City of Minot, North Dakota, 2013 - 2015. This project consisted of reimbursing homeowners for some of the repairs to their homes after the flood of 2011. Justin started by going through the submitted receipts and invoices for individual homeowners and determining the amount spent of repairs to the home to determine if the homeowner was eligible for the program. If the homeowners passed the first round of eligibility, He completed a site inspection to verify that the items found in the receipts were used to repair the home. During the site inspection, he also completed the environmental assessment and sent the paperwork to the environmental team to complete the site-specific environmental review.

Michael F. Schmidt, PE, BCEE, BC.WRE

Senior Vice President, Global Water Resources Practice Leader

Mike is CDM Smith's Global Practice Leader for Water Resources Infrastructure and Resiliency. He has 40 years of experience in sustainable and resilient stormwater, civil works, flood control, green infrastructure, coastal, water supply, ecosystem restoration, water resource, watershed master planning, modeling, research, facilities evaluations and design, permitting, operations, asset and data management, implementation, training, public information, and funding. He has been with CDM Smith since 1986. He has managed or directed more than 520 stormwater, ecosystem, and water resource management projects in FL and 35 other states and Puerto Rico. He has also served as a reviewer-advisor for programs in nine countries on six continents, including Australia, Canada, Chile, Columbia, Hong Kong, Ireland, Jordan, Saudi Arabia, and Singapore.

He has guided the implementation of over $1.6 billion of multi-benefit capital improvements, and he has led and directed CDM Smith teams in developing innovative solutions that have saved our clients over $385 million, including operational adjustments to the north shore Lake Okeechobee flood control and navigation system that saved $140 million for ecosystem restoration and a Best Management Practice (BMP) Treatment Train capture and treatment plan for Miami International Airport that saved the client nearly $50 million while bringing the airport into water quality compliance as it redeveloped Concourses A through J. He has peer reviewed, applied, and/or directed stormwater, flood control, green infrastructure, ecosystem restoration, minimum flow and levels, water quality, integrated surface and ground water, water resource, and decision support and operations model applications including USEPA SWMM and EFDC; XP SWMM; PCSWMM; USACE HEC 1&2; STORM, HMS, RAS, ResSim, and Dambreak; DHI Mike SHE and 11; STELLA; and adICPR.

In various projects, Mike has performed facility inventories; evaluated and utilized base reports; field verified data; delineated and refined hydrologic boundaries; developed hydrologic, hydraulic, and water quality parameters and models; coordinated AutoCAD and geographic information system (GIS) development; developed computer software; performed stormwater and water quality modeling; evaluated stormwater capture plans and designed BMPs; led over 100 design projects; developed aquifer protection strategies; performed floodplain and floodway evaluations; formulated and evaluated cost-effective multi-benefit solutions for problems associated with present and future land use conditions (e.g., regional facilities); produced reports; recommended stormwater management criteria for state regulations and local ordinances; developed and implemented bacteria source tracing and control methodologies; performed technical and peer reviews; provided expert witness testimony; given public presentations; and provided training for ten universities, ASCE, USACE, USEPA, SFWMD, SJRWMD, FDEP, FES,

Education

BS – Environmental Engineering, University of Florida, 1984

Registration

Professional Engineer: Florida (1989), and Louisiana (2009)

Board-Certified Environmental Engineer (BCEE), American Academy of Environmental Engineers and Scientists, 2003

Diplomate Water Resource Engineer, American Academy of Water Resources Engineers, 2015

Honors/Awards

Florida Engineering Society (FES) Conservation and Environmental Quality (CEQ) Committee

Juror USACE Civil Awards, 2000

and various agencies for more than 2,500 students.

Experience Highlights

- 40 years of experience in stormwater, civil works, environmental, green infrastructure, coastal, water supply, and water resource planning, modeling, facilities design, permitting, operations, training, standards, and implementation.
- Guided and developed programs for more than 225 clients on more than 520 projects across 35 US states and nine countries on six continents.
- Directed design and operations innovations that have saved over $385M on more than $1.6B of retrofit projects through design and construction innovation and operational synergies.
- Innovated sustainable river floodplain, floodway, buffer, and detention techniques, including volume-time detention controls for the full range of hydrology, "no net loss" 100-year floodplain protection, and dynamic floodway methods for both storage and conveyance.
- Directed more than 180 stormwater, water resource, and coastal projects including considerations for sea level rise and storm surge for 38 programs.
- He has peer reviewed, applied, and/or directed stormwater and water resource model applications including US EPA SWMM and EFDC; XP SWMM; PC-SWMM, USACE HEC STORM, HMS, RAS, AdH, and Dambreak; FDEP WMM; SFWMD LOEM, DMSTA2, and RSM; WAMView; USGS MODFLOW; DHI Mike SHE-11; STELLA; and ICPR.
- He has conducted training for more than 2,500 students for ten universities and CDM Smith University, Florida Chamber of Commerce, FDEP, SFWMD, SJRWMD, USACE, FES, USEPA, ASCE, WEF, Hong Kong, and multiple municipal clients.
- Developed standard tidal boundary methodologies in 1988 using a 1-year tidal stillwater elevation for design that is 2 to 3 feet above FEMA standard..
- He was the caretaker and led source code upgrades for the USEPA SWMM (1987-1998).
- Served as an expert witness 11 times and value engineer twice.

Lead Engineer, Comprehensive Stormwater and Coastal Resilience Master Plan and Vulnerability Assessment, City of Hollywood, FL, 2021-present. Mike is responsible for technical direction and review for the stormwater management and coastal resilience program for Hollywood to plan, model, and evaluate various existing and future climate conditions for sea level rise, tidal surge, and extreme rainfall. Levels of service (LOS) for flood control, water quality treatment, and aquifer recharge within brackish and committed groundwater constraints were defined to develop alternative mitigative measure evaluations for swales, exfiltration systems recharge wells, park renovations, backflow prevention, seawalls, and pump stations for the City with coordination of multiple entities including FDOT for A1A and I-95, Central Broward Water Control District, South Broward Drainage District (SBDD), Broward County, Dania Beach, and Hallandale. The plan includes multi-benefit resilient and adaptable green and grey stormwater and coastal components, benefit-cost analysis using FEMA HAZUS for a 50-year planning horizon with conditions for future adaptation of resilient features.

Lead Engineer, Comprehensive Stormwater and Coastal Resilience Master Plan, City of Miami, FL, 2018-present. Mike is responsible for technical direction and review for the stormwater management and coastal resilience program to plan, model, and evaluate various existing and future climate conditions for sea level rise, tidal surge, and extreme rainfall. Levels of service (LOS) for flood control, water quality treatment for Biscayne Bay, and aquifer recharge were defined to develop alternative mitigative measure evaluations, which included multi-benefit resilient and adaptable green and grey stormwater and

coastal components, benefit-cost analysis using FEMA HAZUS for a 50-year planning horizon with conditions for resilient features through year 2100. This included 93 miles of seawalls, 480 outfalls with prioritization for tidal backflow prevention, over 200 miles of exfiltration, more than 2100 recharge wells, and 53 pumps stations to mitigate flooding in historic areas and protect the water quality of Biscayne Bay, an Outstanding Florida Water.

Project Engineer, Project Manager, and Technical Manager, Master Stormwater Management Plan (MSMP), Climate Resiliency Update, and Implementation, Jacksonville, FL, 1987 - Present. Mike served as project engineer, project manager, and technical manager over the past 36 years for the 800-square mile study area for the City of Jacksonville MSMP with detailed hydrologic, hydraulic, and water quality modeling; permitting; design; and implementation of over $200 million in stormwater facilities with more than $35 million in cost savings through innovation and public-private and public-public partnerships as part of the Lower St. Johns River Restoration Program for the city and the SJRWMD. He also innovated floodplain, floodway, and detention techniques for sustainable river management systems, including volume-time detention controls for the full range of hydrology and dynamic floodway methodologies that consider storage and conveyance. The plan is being updated for additional tidal surge boundary and multiple sea level rise conditions through 2070 for coastal resiliency protection of critical assets.

Technical Advisor-Reviewer, Village of Royal Palm Beach Watershed Plan, FL, 2023 to present. Mike serves as technical advisor and reviewer for this watershed plan update of the Stormwater Master Plan (SWMP) for flood risk and vulnerability. This included evaluation of stormwater assets, identification of problem areas and level of service, update of SWMP stormwater models, and recommendations for the evaluation of mitigative/adaptative measures to manage flooding and protect water quality.

Technical Advisor-Reviewer, Mitigation Support for Planning and Implementing Climate Resilient Infrastructure and Supplement, FEMA Headquarters, 2015. Mike was the technical advisor-reviewer for this program to assist FEMA in evaluating and funding projects that would propose to mitigate impacts of climate change weather extremes such as changes in precipitation patterns; droughts and water shortages; flooding from storm severity, sea level rise, and tidal surge; erosion; saltwater intrusion; and ecosystem and water quality impacts. The supplement included selecting four example mitigation project types and documenting applications and protocols for implementation, including Low Impact Development (LID)/Green Infrastructure (GI), floodplain and stream restoration, aquifer storage and recovery (ASR), and floodwater diversion and storage.

Technical Advisor/Reviewer, Stormwater Master Plan and Vision 2020 Update, Fort Lauderdale-Hollywood International Airport, Broward County Aviation Department, 2001-2005. Mike served as a technical advisor-reviewer for this airport-wide SWMP, conceptual environmental resource permit (EROP)and Vison 2020 guidance project to support redevelopment at FLL while addressing flooding and water quality. Alternatives included additional storage in runway-taxiway swales, recharge wells and storage in exfiltration, and within the new south runway ramp built above grade for roadway clearance.

Thomas E. Nye, PhD, PE

Senior Water Resources Engineer

Dr. Nye's extensive professional expertise in water resources includes stormwater, sewer groundwater, and river modeling as well as watershed planning, operations, permitting, and conceptual design. He serves as team leader and technical specialist in the development of stormwater master plans (SWMP) and is a Technical Review Committee member for stormwater management projects for both airport and municipal clients. His model experience includes various versions of the U.S. Environmental Protection Agency's Stormwater Management Model (SWMM), the U.S. Army Corps of Engineers' Hydrologic Modeling System (HEC-HMS) and Adaptive Hydraulics Model (ADH).

Dr. Nye is also participating in ongoing research and development of pre- and post-processing tools and has developed the Dynamic Floodway Utility (DFU), a tool used to perform floodway analysis for FEMA Flood Insurance Studies using SWMM. His previous experience includes academic research in various water resources topics.

Lead Modeler, Comprehensive Stormwater and Coastal Resilience Master Plan and Vulnerability Assessment, City of Hollywood, FL, 2021-present. Dr Nye led the modeling for the stormwater management and coastal resilience program for Hollywood to plan, model, and evaluate various existing and future climate conditions for sea level rise, tidal surge, and extreme rainfall. Levels of service (LOS) for flood control, water quality treatment, and aquifer recharge within brackish and committed groundwater constraints were defined to develop alternative mitigative measure evaluations for swales, exfiltration systems recharge wells, park renovations, backflow prevention, seawalls, and pump stations for the City with coordination of multiple entities including FDOT for A1A and I-95, Central Broward Water Control District (CBWCD), South Broward Drainage District (SBDD), Broward County, Dania Beach, and Hallandale. The plan includes multi-benefit resilient and adaptable green and grey stormwater and coastal components, benefit-cost analysis using FEMA HAZUS for a 50-year planning horizon with conditions for future adaptation of resilient features.

Modeling Task Leader/Lead Modeler, Stormwater Master Plan Update, City of Miami, Florida, 2018 – Present. Dr. Nye is leading efforts to model the City to a resolution of approximately 10 acres which includes 2,500 subbasins in eight separate watersheds. The project includes hydrologic and hydraulic models that will map the primary stormwater management system down to a level of 24-inch diameter pipe and greater, as well as canals, ditches, pumps, weirs, and other stormwater structures. The models will be calibrated to historical storms and run multiple South Florida Water Management District (SFWMD) design storms to determine existing LOS. Part of the SWMP is to determine the LOS of the existing seawalls and how high they would need to be to protect the City. Alternative corrective measures will also be analyzed to improve LOS.

Lead Modeler, Stormwater Master Plan Update, Village of Royal Palm Beach Florida, Engineering Department, 2014 - 2015. Dr. Nye conducted SWMM stormwater modeling for the Village of Royal Palm Beach Stormwater Master Plan Update. Tasks included model setup, model validation, and design storm evaluations. The model update included using a

Education

PhD – Applied Marine Physics, University of Miami, 1992

BS – Civil Engineering, Southern Illinois University, 1987

BS – Geology, Southern Illinois University, 1987

Registration

Professional Engineer: Florida, 2003

CDM Smith

LiDAR-derived DEM to provide topographic accuracy to delineate between areas with direct runoff to canals and areas with runoff to the primary stormwater system. The additional topographic accuracy allows better estimates of precipitation-driven flood levels within these neighborhoods and better estimates of canal stages where out-of-bank flows can inundate the adjacent neighborhoods. Dr. Nye managed the project, wrote the report, and presented the findings to the Mayor and City Council.

Project Technical Leader, South Cypress Creek Master Plan, Memphis, Tennessee. Dr. Nye served as the project technical leader for the development of a stormwater master plan for South Cypress Creek watershed in the City of Memphis. The project involved the use of InfoSWMM to evaluate necessary infrastructure improvements to resolve roadway and structural flooding complaints. In addition, the project included the development of a stormwater infrastructure inventory in a GIS environment.

Lead Modeler, Stormwater Modeling, City of Virginia Beach, Department of Public Works. Virginia Beach, Virginia, 2014 - 2017. Dr. Nye conducted SWMM stormwater modeling for the City of Virginia Beach Stormwater Master Plan Updates as well as local models for the City's Ashville Park and Windsor Woods neighborhoods. Tasks include 1-D and 2-D model setup, calibration, and alternative evaluations. He directed a team of eight modelers in the development of nine watershed models (to date) of up to 5000 (1D) nodes each that encompass much of the city. Two of the models use up to 40,000 2-D cells to model low-lying areas in detail. He has written multiple sections of the watershed reports including the volume on model development.

Technical Reviewer/Project Advisor, Stormwater Management Master Plan, City of Lake Worth, Florida, 2011 – 2012, 2016 (Update). Dr. Nye served as a technical reviewer and advisor for this effort, which includes the development of a hydrologic and hydraulic evaluation of the City's stormwater management system using the US EPA Stormwater Management Model (SWMM) for the purpose flood control. The project included developing conceptual improvements to identify stormwater conveyance deficiencies. In addition to flood control, CDM Smith evaluated water quality strategies to address changing regulatory requirements using the Watershed Management Model (WMM). Dr. Nye reviewed the modeling efforts used to develop a city-wide SWMP, including hydrologic and hydraulic modeling of stormwater outfalls and basins located in this coastal community.

Lead Modeler, South Miami Heights (SMH) H&H Modeling, Miami-Dade Water and Sewer Department (WASD), Miami- Dade County, Florida, 2015 – 2018. In preparation for the construction of water treatment plant (WTP) improvements by WASD, CDM Smith performed a climate change adaptation review that resulted in recommended actions to protect the WTP components from flooding, sea level rise concerns, coastal subsidence, and increased storm surges, thus ensuring the resiliency of this facility. Dr. Nye developed stormwater modeling in XP-SWMM and advised for the sea level rise analysis as requested by WASD using the model developed by the County's RER DERM for the C-1 Canal.

MIKE BARTHOLOMEW, PSM
President / Contract Manager

Education
- Associate of Technical Arts, Everett Community College, Everett, WA (1987)

Registration
- Professional Surveyor & Mapper License No. LS 5666
- Microsoft Certified Professional

Affiliations
- Member Florida Surveying and Mapping Society (FSMS)

Years of Experience
- 30+ Years

Mr. Bartholomew is President of Biscayne Engineering Company and a Professional Surveyor and Mapper with 30+ years of experience (29 years of which have been with Biscayne Engineering Company, Inc.). Mr. Bartholomew's responsibilities include managing large scale contracts for FDOT (District 4 and 6) as well as numerous other Municipalities and State government agencies and overseeing the preparation of Canal R/W Maps and Surveys, LiDAR, Design and Control Surveys, and the wide variety of surveys encountered at Biscayne (Boundary, ALTA/NSPS, Specific Purpose, Topographic, Mean High Water, etc.). Also, he is actively involved in the preparation of plats and in his role as Plat Peer Reviewer for the City of Hialeah. He is well versed in the requirements of Chapter 177, Part 1, and Florida Statutes, he has a vast knowledge of various software programs such as Microstation, Leica's Cyclone, TopoDOT, FDOT procedures and requirements and Autodesk Civil 3D. In addition, he works closely with the office staff and Field Crew Supervisor in the management of the numerous construction surveying projects performed throughout South Florida.

PROJECT SAMPLES

VIA Engineering – SR A1A from SE 31 Street to South of Grand Bay Court
Project Description: This Design Survey involves collecting vertical and horizontal information in order to create a 3Dimensional Digital Terrain Model (DTM) utilizing a series of control point sites at which to gather information.

FDOT: SR 5 SW 264 St – SW 232 St Digital Terrain Model (DTM) & FDOT: SR 5 SW 232 St – SW 112 Av DTM
Project Description: These Design surveys involved a series of DTM Surveys following SR 5 (South Dixie Highway) and side streets. In a previous job, Biscayne had established the Primary Control Points. In this project, Biscayne established Secondary Control Points through the surveys to prepare both DTMs.

FDOT: Lejeune RD (SW 8 ST – NW 11 ST)
Project Description: This Design Survey involved a series of surveys and research leading to a DTM with Terrestrial Mobile LiDAR (TML) utilizing existing Primary Control Points and establishing Secondary Control Points. The survey went down SR 953 (LeJeune Rd) and 32 side streets.

Expert Witness: Harris, Wiltshire & Grannis LLP. Intracoastal Waterway, Boca Raton.
Project Description: Provided Professional Surveying Services (Expert Witness) in connection with underground conduits crossing the ICWW (Intracoastal Waterway).

TYLin: North Bayshore Drive to Seawall at Miami Shores Bayfront Park
Project Description: This project involved topographic surveys covering the area. This involved Right-of-Way verification along North Bayshore Drive, Horizontal Tasks along the Subject Property, and Vertical tasks involving elevations, Mean High Water Survey, and Storm/Sanitary Sewer Structures.

TYLin: Miami Marine Stadium
Project Description: This Topographic Survey at the Miami Marine Stadium involved a series of survey tasks working through the designated location from a previously prepared As-built-record survey.

FDOT District VI, SR A1A / Collins Ave (26 St – 44 St), Miami-Dade, FL

Project Description: Recover Horizontal Control Points. Recon and locate Right of Way Monuments. Perform analysis of the located monumentation. Research and review miscellaneous Records Documents. Prepare Right of Way Control Survey Map. Role in Project: Project Manager.

FDOT District VI, SR 5 From Card Sound Road to Davis Parkway, Miami-Dade, FL

Project Description: Establish Horizontal Control Points. Perform Static GPS survey of the Horizontal Control Points. Recon and locate Section corners and Right of Way Monuments. Perform analysis of the located monumentation. Research and review miscellaneous Records Documents. Prepare Right of Way Control Survey Map.

FDOT District VI, SR 973 (Bird Road) From: SW 87 Ave to: SW 57 Ave (87015)

Project Description: Scope of work included recon of existing and establishing new Primary Control Points along the Project corridor. Performing level run throughout the new established points. Obtaining coordinate values of Terrestrial Mobile Lidar (TML) Targets via GPS Base / Rover and establishing elevations with digital level.

FDOT District VI, SR 5 (US 1 / Overseas Highway), Cudjoe Key, Monroe County, FL

Project Description: Engineering performed Static GPS Survey of the newly established Primary Control points. Established Vertical values on the control points. Recon and located Right of Way monumentation. Obtained 3D topographic features for DTM surface preparation purposes. Prepared Primary Network Control sheets**.**

BRIGHTLINE (MIAMI CENTRAL)

Project Description: Biscayne Engineering Company, Inc. has completed numerous surveys for our Brightline project. This project has consisted of numerous phases that have included various skill sets. We have established boundaries and construction layout control via conventional survey methods. We have prepared legal descriptions for 3D airspace parcels and easements in a mixed-use development in addition to preparing sketched to accompany legal descriptions. Moreover, we have prepared ALTA/NSPS Surveys for complex transactions. This has been a long running project that has involved the private and public sector working towards overall community betterment. This project remains ongoing.

MIAMI RIVER GREENWAY / CURTIS PARK

Project Description: Biscayne Engineering Company, Inc. prepared and delivered a topographic survey and full digital terrain model (DTM) files of the above-mentioned survey limits. The survey included right of way and baseline analysis utilizing field surveyed monuments and record data. A control network was established with benchmarks tying the survey to a known vertical datum and state plane coordinates. The topographic survey depicted all visible improvements including utilities, pavement striping, and seawalls. A structures table with invert information and a tree table were also incorporated into the survey. The limits included southern portions of Curtis Park and Right-of-Way along NW North River Drive from NW 24th Avenue to NW 22nd Court and adjacent side streets, City of Miami, Miami-Dade County, Florida. (Approximately 0.5 miles)

LA PASTORITA NEIGHBORHOOD

Project Description: Biscayne Engineering provided surveying and mapping services for the La Pastorita Neighborhood project by preparing a Topographic Survey consisting of approximately 11,350 linear feet of roadway with adjacent property frontages. Project network control and baselines were established and tied to State Plane Coordinates and a known vertical datum. The survey depicted visible site conditions including improvements, utilities, trees, pavement striping, and sewer structures. Cross sections and spot elevations were also included as well as a structures table with invert information. The topographic information was used to produce a Digital Terrain Model (DTM). Additional information was incorporated into the survey including right-of-way line locations, roadway centerline distances and directions, platted lot lines, and Miami-Dade County property appraiser parcel information. Other local elements were considered such as the City of Miami's Base Building Lines and Monument lines. Biscayne Engineering participated in this project as part of a large team and coordinated with other team members in different disciplines to deliver what they needed.

ALBERTO RABIONET, PSM
Survey Production Manager

Education

- 2003–2008, 2011-2013 University of Florida, Gainesville, Florida.
  B.S. Geomatics

Registrations

- Professional Surveyor & Mapper License No. LS7218

Affiliations

- Member of Florida Surveying and Mapping Society (FSMS)

Years of Experience

- 10 Years

Mr. Rabionet is a professional Surveyor and Mapper with 10 years of experience, all of which have been with Biscayne Engineering. He has worked on various right-of-way projects and is experienced in research, calculations, and drafting.

He also has experience preparing DTM, R/W, control, design, boundary, and topographic surveys. He has a good working knowledge of the numerous software programs utilized at Biscayne, including Leica's Cyclone for point cloud processing and Autodesk's AutoCAD Civil 3D as well as basic scripting capabilities.

PROJECT EXPERIENCE

TYLin: North Bayshore Drive to Seawall at Miami Shores Bayfront Park

Project Description: This project involved topographic surveys covering the area. This involved Right-of-Way verification along North Bayshore Drive, Horizontal Tasks along the Subject Property, and Vertical tasks involving elevations, Mean High Water Survey, and Storm/Sanitary Sewer Structures.

TYLin: Miami Marine Stadium

Project Description: This Topographic Survey at the Miami Marine Stadium involved a series of survey tasks working through the designated location from a previously prepared As-built-record survey.

FDOT District VI, SR 997 (Krome Avenue) from SW 296th Street to SW 232nd Street

Project Description: Preparation of Parcel Map Sketch to Accompany Legal Descriptions; which included ROW recon, location, analysis, record documents review, and ROW; Topographic Surveys and map drawing preparation. ***(Various Parcels)***

FDOT District VI, SR A1A (Collins Avenue). From: Baker's Haulover Cut Inlet To: Bayview Drive

Project Description: Biscayne Engineering performed a Design survey that included the following tasks: establishing Horizontal and Vertical Control points, performing DTM / Topographic survey, obtaining inverts information of the drainage structures, processing field data, creating DTM.tin surface, Project Control sheets, and Right of Way lines determination. **(*Approximately* 2.0 miles)**

FDOT District VI, SR 5 (US 1 / Overseas Hwy. Monroe County)

Project Description: Supervised preparation of DTM survey following hurricane Irma destruction. Survey includes: Location of the eroded areas and DTM model development.

FDOT District VI, SR 925 (NW 3rd Ct) from W. Flagler St. to NW 8th Street

Project Description: Preparation of the on-going ROW Transfer Map project; which includes: ROW recon, location, analysis, and ROW Transfer Map drawing preparation. ***(Approximately 0.52 miles)***

FDOT District VI, SR 7 NW 7 Avenue from NW 119 Street to NW 159 Street

Project Description: Evaluated field data. Processed Static GPS and ROW monumentation location for ROW Control Survey. Performed ROW lines and Baseline determination based on the field data in conjunction with the Record Documents. ***(Approximately 2.52 miles)***

FDOT District VI, SR 7 NW 7th Ave. NW 84 Terrace St. to Golden Glades Interchange Ramp

Project Description: Coordinated and prepared the on-going R/W Control Survey; which includes R/W recon, location, analysis, Project Network Control, Static GPS survey, and R/W Control Survey drawing preparation. ***(Approximately 4.64 miles)***

Lincoln Road Mall, Miami Beach, Florida

Project Description: Oversees the preparation of a Topographic Survey & high-density 3D model of the limits for architectural and engineering design with reference to state plane coordinates and a vertical datum. Survey included depicting R/W lines, topography, improvements, utility structures, and underground utilities

Metromover Access Pedestrian Mobility

Project Description: This project consisted of the preparation of a Topographic survey of seven (7) locations as outlined by the City of Miami. Role in Project: Project Manager. Value of the Project: ±$24K

BRIGHTLINE (MIAMI CENTRAL)

Project Description: Biscayne Engineering Company, Inc. has completed numerous surveys for our Brightline project. This project has consisted of numerous phases that have included various skill sets. We have established boundaries and construction layout control via conventional survey methods. We have prepared legal descriptions for 3D airspace parcels and easements in a mixed-use development in addition to preparing sketched to accompany legal descriptions. Moreover, we have prepared ALTA/NSPS Surveys for complex transactions. This has been a long running project that has involved the private and public sector working towards overall community betterment. This project remains ongoing.

MIAMI RIVER GREENWAY / CURTIS PARK

Project Description: Biscayne Engineering Company, Inc. prepared and delivered a topographic survey and full digital terrain model (DTM) files of the above-mentioned survey limits. The survey included right of way and baseline analysis utilizing field surveyed monuments and record data. A control network was established with benchmarks tying the survey to a known vertical datum and state plane coordinates. The topographic survey depicted all visible improvements including utilities, pavement striping, and seawalls. A structures table with invert information and a tree table were also incorporated into the survey. The limits included southern portions of Curtis Park and Right-of-Way along NW North River Drive from NW 24th Avenue to NW 22nd Court and adjacent side streets, City of Miami, Miami-Dade County, Florida. (Approximately 0.5 miles)

LA PASTORITA NEIGHBORHOOD

Project Description: Biscayne Engineering provided surveying and mapping services for the La Pastorita Neighborhood project by preparing a Topographic Survey consisting of approximately 11,350 linear feet of roadway with adjacent property frontages. Project network control and baselines were established and tied to State Plane Coordinates and a known vertical datum. The survey depicted visible site conditions including improvements, utilities, trees, pavement striping, and sewer structures. Cross sections and spot elevations were also included as well as a structures table with invert information. The topographic information was used to produce a Digital Terrain Model (DTM). Additional information was incorporated into the survey including right-of-way line locations, roadway centerline distances and directions, platted lot lines, and Miami-Dade County property appraiser parcel information. Other local elements were considered such as the City of Miami's Base Building Lines and Monument lines. Biscayne Engineering participated in this project as part of a large team and coordinated with other team members in different disciplines to deliver what they needed.

Warren Rolle
Boca Project Manager

Education

- Keiser College
  Fort Lauderdale, FL
  Palm Beach State College
  West Palm Beach, FL
  TopoDOT Training 2021

Registration

- Member Florida Surveying and Mapping Society, (FSMS)

Years of Experience

- 20+ Years

Mr. Rolle is a Senior Survey Technician with 20+ years of experience in the South Florida surveying and mapping industry.

He is experienced working on FDOT State Road projects, preparing PNC, DTM, R/W, Control, Design, and Topographic surveys. He has a good working knowledge of various software programs such as FDOT Connect for OpenRoads Designer, Microstation V8i, Geopak, FDOTSS10, Hector-Vector, Civil 3D, CAiCE-10, and EFB.

With more that 2 decades experience working on governmental projects and overseeing multiple departments, he can provide a unique oversight and technical ability.

PROJECT EXPERIENCE

VIA Engineering – SR A1A from SE 31 Street to South of Grand Bay Court

Project Description: This Design Survey involves collecting vertical and horizontal information in order to create a 3Dimensional Digital Terrain Model (DTM) utilizing a series of control point sites at which to gather information.

FDOT District VI, SR 5 (S. Dixie Highway) SW 264 Street - SW 232 Street.

Project Description: Prepare a full Mobile LiDAR (TML) Design Survey within the above limits. Services also included the preparation a Right of Way Control Survey.

FDOT District VI, SR 5 (S. Dixie Highway) SW 232 Street - SW 112 Ave.

Project Description: Prepare a full Mobile LiDAR (TML) Design Survey within the above limits. Services also included the preparation a Right of Way Control Survey. Role: Survey Analyst.

FDOT SR 953 (LeJeune Rd) SW 8th Street - NW 11th Street.

Project Description: Survey Scope – Surveyed site using Mobile LiDAR and conventional data collection methods to produce a topographic survey and Digital Terrain Model (DTM) within the above limits.

FDOT District VI, SR 934 (NW 79 Street) NW 25 Avenue – NW 1 Place

Project Description: Scope of the work included preparation of the Right of Way Map, review Title Searches, and preparation of Title Searches review summary.

FDOT District VI, SR 934 (NW 79 Street) NW 32 Avenue – NW 14 Avenue

Project Description: Scope of the work included recon and location of section corners and Right of Way monumentation, development of the Baseline and Right of Way lines, and Right of Way Control Survey preparation.

FDOT District VI, SR 915 (NE 6 Avenue) at NE 139 Street

Project Description: Prepare parcel sketches for the proposed Permanent and Temporary Easements. Review Title Searches and prepare Title Searches review summary.

FDOT SR A1A From North of Haulover Inlet to South of Bayview Drive

Project Description: Survey Scope – Surveyed site using Static LiDAR and conventional data collection methods to produce a topographic survey and Digital Terrain Model (DTM) within the above limits.

FDOT District VI, SR A1A (Harding Avenue / Abbot Avenue.) From: 96 Street To: Indian Creek Drive

Project Description: Scope of work included Establishing Primary and Secondary Control Points, Static GPS and GPS RTK surveying, level run throughout the project control points, recon and location of the Right of Way monumentation in the field and analysis of the surveyed Right of Way monumentation in conjunction with the Record data (Right of Way maps and Plats). Obtaining 3D topographic features utilizing Leica C10 Laser Scanner and Topcon Total Station equipment within the obscured areas along the main corridor and adjoining side streets. Processing field data, extracting topographic features from 3D point cloud, and creating Digital Terrain Model (DTM).

TAB 5

APPROACH TO SCOPE OF WORK

BRIZAGA

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TAB 5

Approach to the Scope of Work

The **Brizaga-CDM Smith** team is uniquely qualified to successfully deliver this Floodplain Management Plan (FMP) since the scope of work and reporting requirements for this project directly build upon the technical work we have previously performed for the City under the Comprehensive Citywide Stormwater Master Plan (SWMP). The dynamic United States Environmental Protection Agency (USEPA) Stormwater Management Models (SWMMs) developed for the SWMP are detailed, include multiple design storms including the 100-year 72-hour, are validated to recent historic storms (including April 2023) and can directly be applied for this project under a range of extreme rainfall, tidal, sea level rise, and Capital Improvement Plan (CIP) implementation conditions for accuracy and reliability.

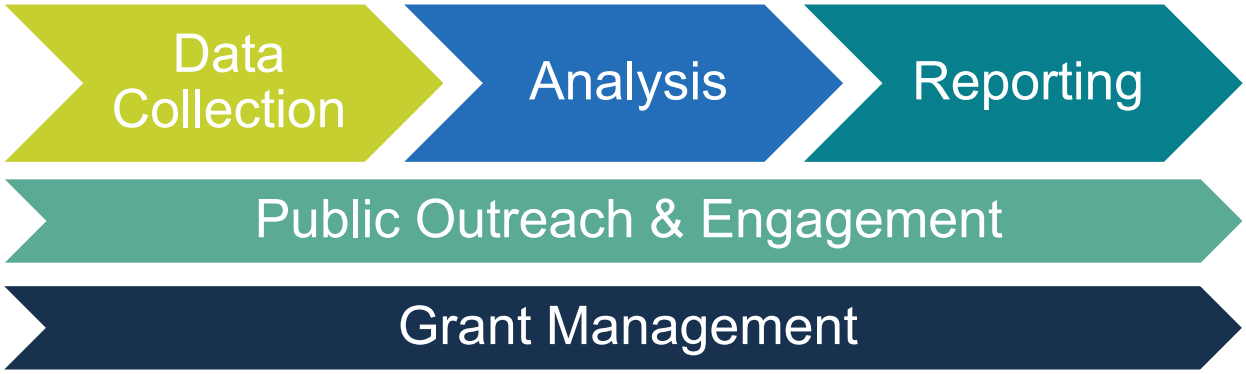
As expressed to City officials during the presentation of the SWMP, one of the recommendations in the document is to expeditiously adopt the SWMP at commission level and obtain the Federal Emergency Management Agent (FEMA) National Flood Insurance Program (NFIP) Community Rating System (CRS) credits, which are awarded for the City's proactive efforts with a goal of providing flood insurance premium rate credits toward resident's discounts resulting from the City's efforts addressing the Federal goals of *"Reducing and avoiding flood damage to insurable property, strengthening and supporting the insurance aspects of the National Flood Insurance Program and fostering comprehensive floodplain management."*

Accordingly, the purpose of this project is to plan and develop an updated FMP to comply with CRS program Activity 510 requirements. The technical information developed and submitted must be detailed and defensible, and the document clear and concise with achievable goals to increase the resiliency of the community due to the climate change thus reducing vulnerability and exposure to flood hazards that can compromise the health and safety of the City's residents.

As noted, the Brizaga-CDM Smith approach will use the dynamic USEPA SWMMs that we have already developed for the Hollywood SWMP and have been successfully using for the City's stormwater needs over the past three years to simulate the required scenarios for the 100-year events and mapping of the floodplains. These models were validated to a variety of actual storms including the April 2023 flood event that ranged from a 5-year event to more than a 1,000-year event across the City of Hollywood. These models also include the specialized models created for the Vulnerability Assessment (VA) compliance with Florida Chapter FS 380.093 required sea level rise scenarios for future climate conditions and future funding.

We have reviewed all objectives notes in the RFQ and the deliverables associated with each objective and can meet them through the approach described on the following pages.

Our analytics team has a tried and tested approach to floodplain management and vulnerability assessment projects. We simplify the process into three steps that can accomplish the goals of this project. Furthermore, public outreach and engagement and grant management are engrained throughout the project process.



Through our experience, we have developed a standard approach that matches the state and federal requirements and your grant tasks. Importantly, we have dedicated an outreach team and compliance team that ensure the community is appropriately engaged and that the grant tasks and requirements are met. Those teams are integrated with the project team from the start.

Throughout the lifetime of the project, grant management will be an essential task. Brizaga is currently supporting multiple local governments with grant administration and will ensure that it is easy for the City. Furthermore, we have the experience with federal and state grant to ensure compliance is as easy as possible for the City team.

Step 1: Data Collection

The first step, data collection, includes the following:

Kick-Off Meeting

Even though our team is already working very well with eh City Staff, it will be important to conduct a kick-off meeting with all relevant City staff and Brizaga-CDM team members. We want to ensure that all staff members who will be part of the project can come together and express their goals and opinions on the project. We will also use this meeting to discuss the Floodplain Management Committee and how our team can support the City staff with this committee.

Prior to this meeting our team will review the City's current Floodplain Management Plan and any other relevant documents. We will also begin reviewing what data is currently available and what we may need to request from the City. Our team will be ready to hit the ground running before the kick-off meeting has even begun.

Data Collection, Evaluation and Hazard Modeling

The first step in this project will be to collect any additional data and update the SWMP models as necessary. We will also need to review current plans that will provide information for the update of the Floodplain Management Plan. Since our team has already worked on updating the City's Stormwater Master Plan, we created and have access to several data sets. Since we have already created these resources and our team is already up to speed on what information has been

created, we will be able to get started with ”no learning curve”. We won’t have to take time and bill hours to get up to speed.

Instead of using time to get up to speed, we will use this time to see how we can expand our assistance to the City with this project. As part of this review, we will also look at how our team can provide additional resources and information to further increase the City in the CRS.

Current NFIP-CRS Review

From the analysis performed by the team for during the SWMP, as a part of the FEMA NFIP, the CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum program requirements. Congress established the NFIP with the passage of the National Flood Insurance Act of 1968. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS:

1. Reduce flood damage to insurable property.
2. Strengthen and support the insurance aspects of the National Flood Insurance Program.
3. Encourage a comprehensive approach to floodplain management.

The Community Rating System provides incentive to municipalities to improve their score through flood insurance premium discounts to residents. For National Flood Insurance Program Community Rating System participating communities, flood insurance premium rates are discounted in increments of 5 percent. Assignment of a Class 10 means the community is not participating in the Community Rating System and receives no discount, a Class 9 community would receive a 5 percent discount, up to a Class 1 community which would receive a 45 percent premium discount. The Community Rating System Classes for local communities are based on 19 creditable activities which fall under four categories: Public Information, Mapping and Regulations, Flood Damage Reduction, and Flood Preparedness.

The elements of the comprehensive citywide Stormwater Master Plan and CIP implementation should allow an increase in the NFIP Community Class and discount for the City’s residents. The figure below shows the credit points earned, 2021 classification awarded, and premium reductions given for the City under the NFIP CRS.

Our team’s current experience with the City and our work on the SWMP gives our team an advantage when it comes to understanding what work is already being done to improve the City’s CRS rankings. We will leverage the data and modeling that has already been done by our team to enhance the City’s Floodplain Management Plan. The considerations in the CRS scores include credits for:

1. Public Information
2. Mapping and Regulations
3. Flood Damage Reduction
4. Warning and Response

Community No.	125113
Current Effective Date	5/1/2012
Current Class	6
% Discount for SFHA*	20
% Discount for non-SFHA	10
Status	C

Source: FEMA CRS Eligible Communities Table effective October 1, 2021

*Special Flood Hazard Area (SFHA)

Step 2: Analysis

The second step, analysis, includes the following:

CRS-NFIP Future Goals

The table below shows the current CRS classes, where the City scores today, and the City's goal. An analysis of the City's CRS rating was performed as part of the SWMP. The City will need the following to continue to improve its rating:

- 486+ points to attain the next highest CRS Class 5
- 986+ points to attain a CRS Class 4 (City Goal)

The Class 4 Prerequisites are:

- Meet all Class 5 & 6 prerequisites.
- Receive and maintain a classification of 4/4 or better under the Building Code Effectiveness Grading Schedule (BCEGS)
- Minimize increases in future flooding.
- Activity 330 – Public Outreach
- Activity 420 – Open Space Preservation
- Activity 430 – Higher Regulatory Standards

Table 110-1. CRS classes, credit points, and premium discounts.

CRS Class	Credit Points (cT)	Premium Reduction	
		In SFHA	Outside SFHA
1	4,500+	45%	10%
2	4,000–4,499	40%	10%
3	3,500–3,999	35%	10%
4	3,000–3,499	30%	10%
5	2,500–2,999	25%	10%
6	2,000–2,499	20%	10%
7	1,500–1,999	15%	5%
8	1,000–1,499	10%	5%
9	500–999	5%	5%
10	0–499	0	0

SFHA: Zones A, AE, A1–A30, V, V1–V30, AO, and AH

Outside the SFHA: Zones X, B, C, A99, AR, and D

Preferred Risk Policies are not eligible for CRS premium discounts because they already have premiums lower than other policies. Preferred Risk Policies are available only in B, C, and X Zones for properties that are shown to have a minimal risk of flood damage.

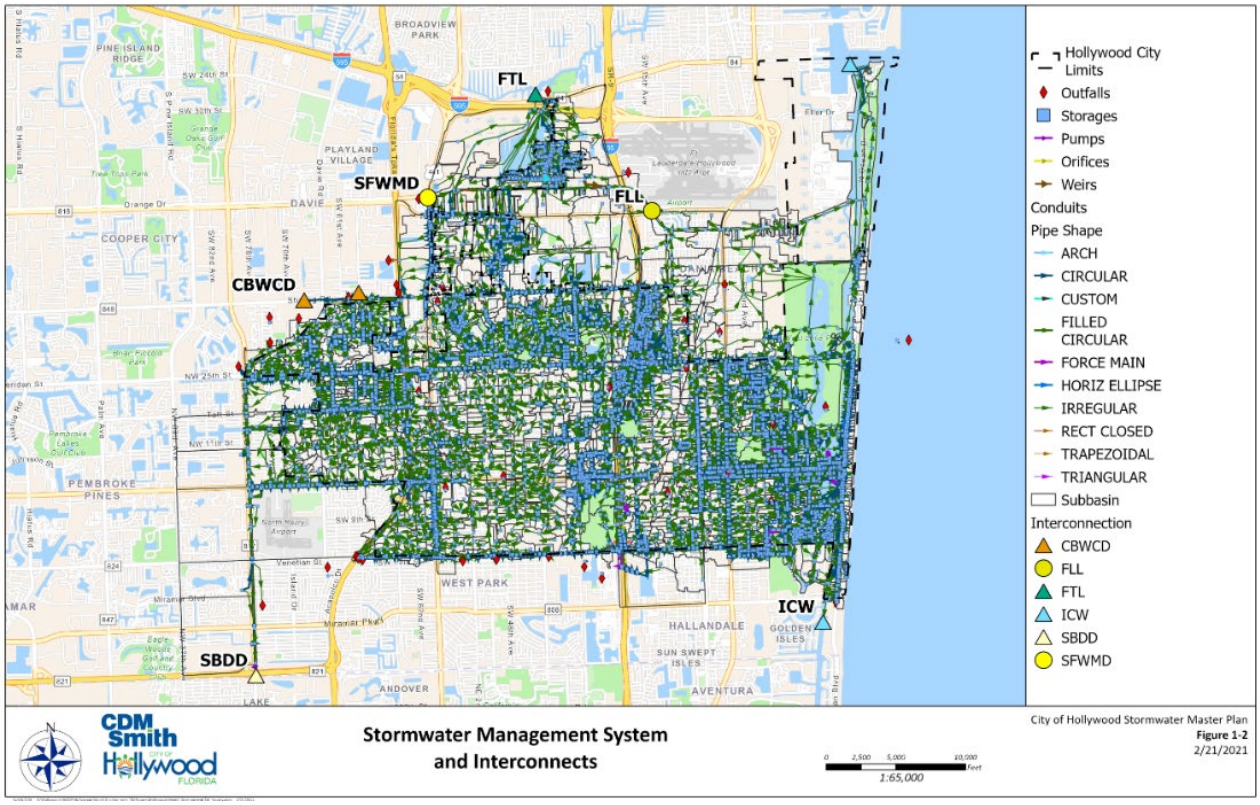
Some minus-rated policies may not be eligible for CRS premium discounts.

Premium discounts are subject to change.

Current Stormwater Infrastructure Overview

The City's stormwater management infrastructure is operated and maintained by the City's Department of Public Utilities and includes approximately 130 miles of pipes, 380 outfalls, many interconnected open channels and ditches, public right of way swales, natural waterways, drainage easements, thousands of manholes and catch basin inlets, and includes 10 City stormwater pump stations (SWPSs), 2 Florida Department of Transportation (FDOT) SWPSs, and several retention and detention basins. Hollywood enforces the Broward County stormwater design standards and permitting process through the Surface Water Licensing Division such that properly permitted, constructed, operated, and maintained drainage systems are in place in areas of the City that remove pollutants from storm runoff prior to discharging into Broward County's surface waters, and provides some approved level of flood protection in accordance with established criteria for proposed development. Stormwater management systems do not fully extend into all areas of the City to provide positive drainage to every neighborhood, nor is the existing system sized to handle larger storms.

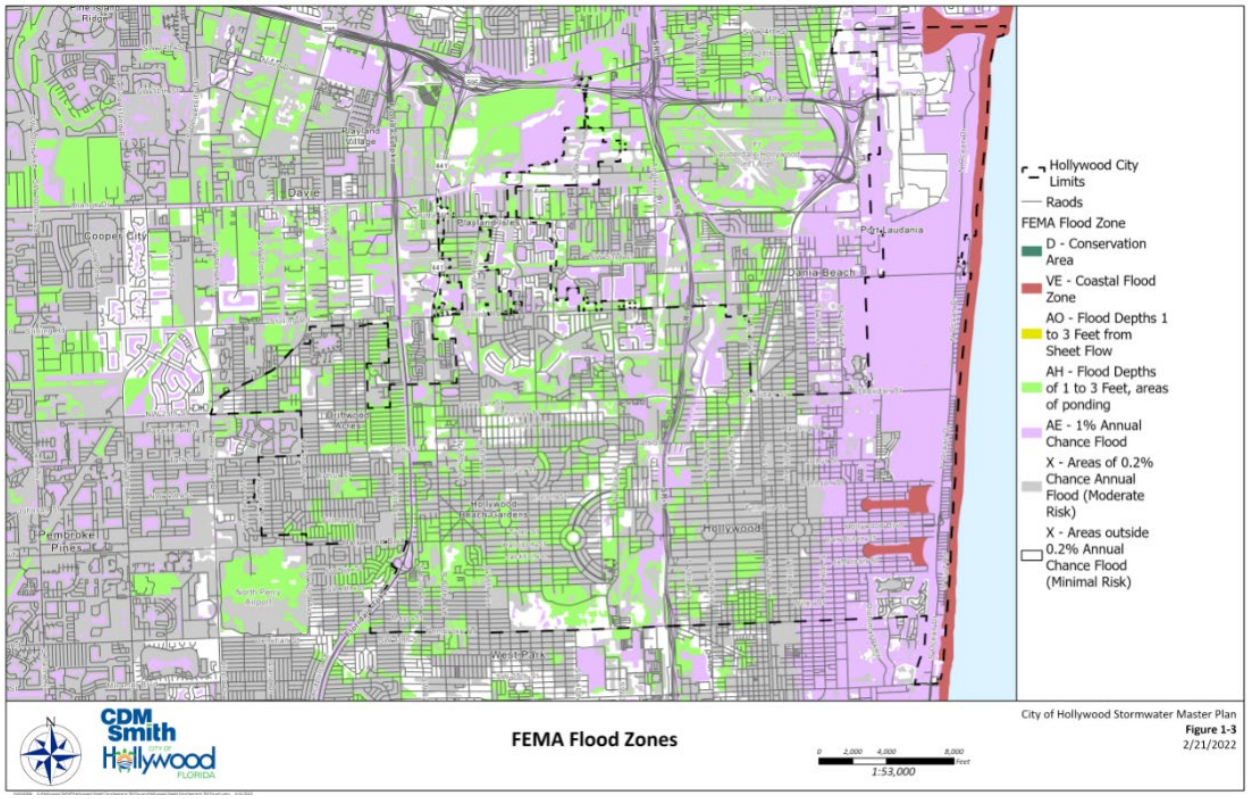
Currently, when heavy rains are forecast and there is the potential for flooding, City crews are dispatched pre-storm to assigned areas to clear catch basin inlets, check and maintain pump stations, deploy portable pumps if necessary to help clear standing water, and to temporarily close impassable roads. The City's stormwater management system is highly interconnected with both County-maintained systems and FDOT-maintained systems, and the drainage area is topographically connected to the neighboring municipalities of Dania Beach to the North and Hallandale Beach to the South. Stormwater flow in the central-western and south-western portion



of the City is controlled by the Central Broward Water Control District (CBWCD) and South Broward Drainage District (SBDD). Following initial model development, the simulation results were compared against known flooding conditions within the drainage basin, and sensitivity analyses were run for each input parameter. Adjustments were made to model parameters to obtain a reasonable and statistically significant fit with available data and within the accuracy of the model. The validate models and our expert staff will continue to use these models with no learning curve for efficiency and accuracy in this project.

FEMA Flood Zones

The FEMA flood hazard maps reflect current flood risks for metropolitan areas. FEMA flood maps divide the City area into flood zones ranging from Moderate to High Flooding risk. According to FEMA data, currently approximately 40 percent of the homes in Hollywood are built upon floodplains and are considered within flood-risk zones. Flood Insurance Rate Maps (FIRMs) illustrate flood hazards throughout the City on a course scale and are used for determining flood insurance policy rates. Structures determined to lie in a flood zone obtain an Elevation Certificate that can be used to gage how high a structure was built in relation to that flood zone's recurrent flood elevation. Certificates are now required for all new construction, as well as for construction projects that involve making substantial improvements to a structure and are used to determine flood loss claims. Hollywood has been required to keep records of these certificates on file since it began participating in the CRS.

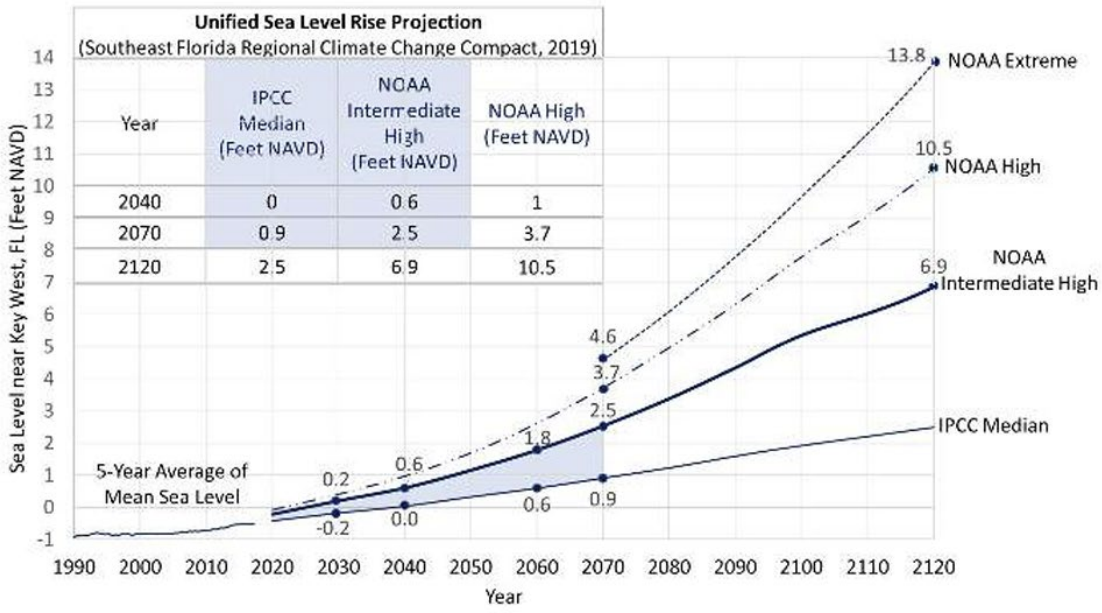


Assessing Current and Future Sea Level Conditions

Florida's climate is changes and the shoreline is already seeing the impact of sea level rise. It will be important for his Floodplain Management Plan to include these rising sea level conditions. Our team has expert sea level rise modeling capabilities and staff who can interpret these models and provide the City with concrete solutions to prepare for these outcomes. We have already done this as part of the Stormwater Master Plan and provided the data for the City's ongoing vulnerability assessment. The team intimately understands the Southeast Florida Unified Sea Level Rise Curves (last updated in 2019, see below) and can apply them, as needed. The technical expertise on this team allows us to perform more localized and detailed analysis to support decisions on sea level rise thresholds.

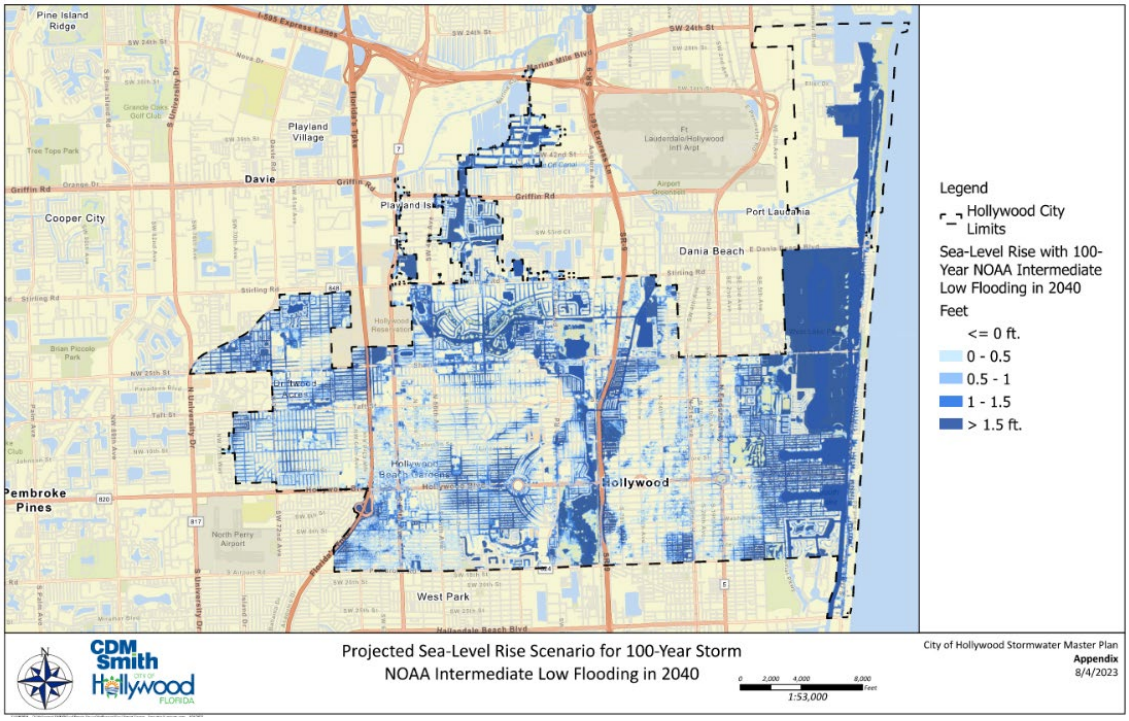
Unified Sea Level Rise Projection
(Southeast Florida Regional Climate Change Compact, 2019)

Year	IPCC Median (Feet NAVD)	NOAA Intermediate High (Feet NAVD)	NOAA High (Feet NAVD)
2040	0	0.6	1
2070	0.9	2.5	3.7
2120	2.5	6.9	10.5



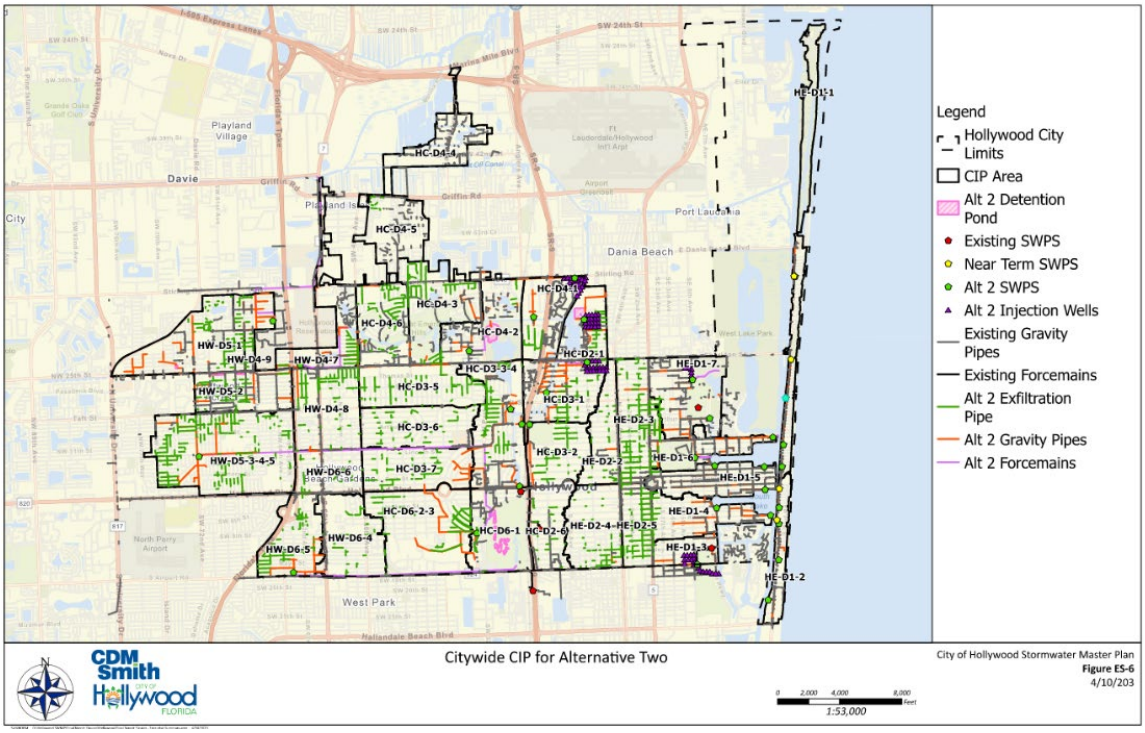
Hazard Modeling Tool Development and Flood Inundation Mapping and Assessment of Sea Leve Rise Impacts

Flood inundation mapping has been performed in the SWMP for the FMP required design storms down to a neighborhood level of detail including the effects of sea level rise and king tides and including the historic off-site flows from other areas into the City. The analyses determined the root cause of the flooding which was critical to understanding the bigger picture for implementing CIP that will cost effectively and efficiently work in conjunction to meet the City's goals for primary stormwater management system (PSMS) and floodplain level of service (FPLOS).



Mitigation Measures and FPLOS

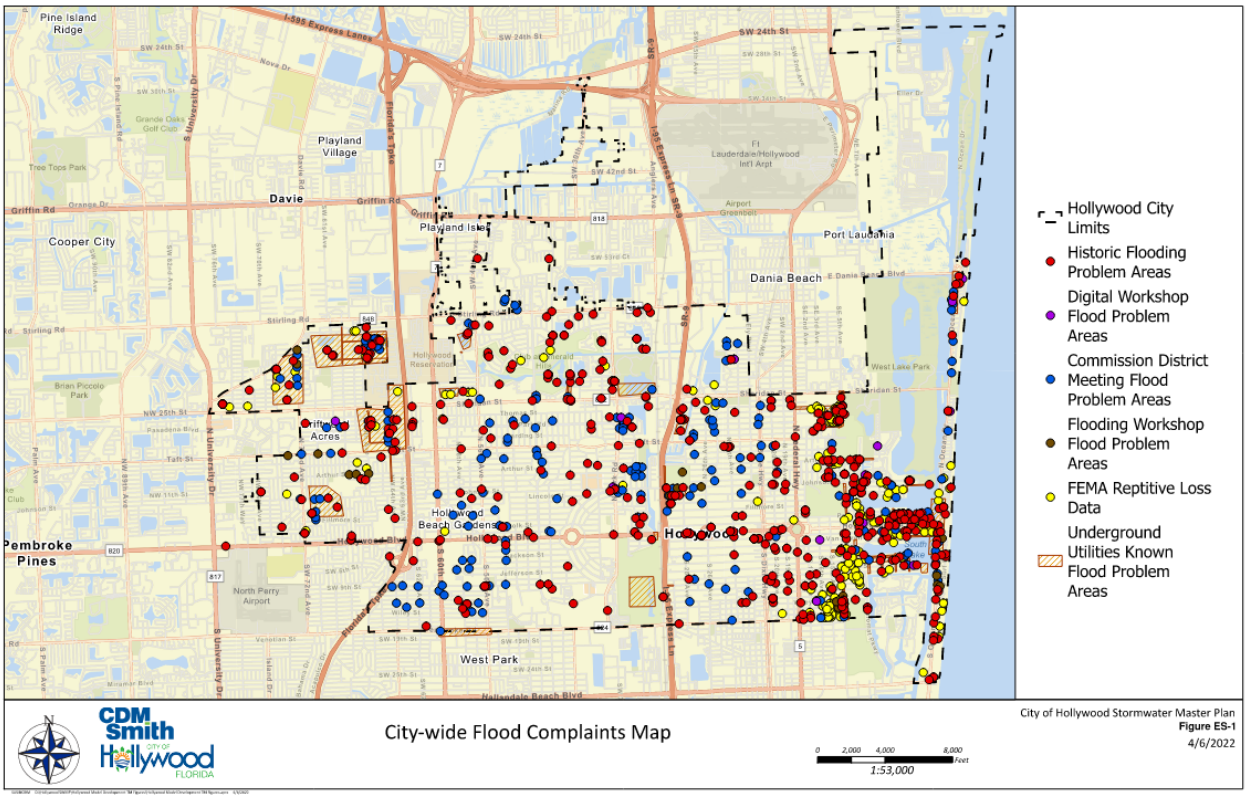
Capital improvements were developed to reduce flooding to the City's chosen FPLOS and met required water quality Citywide using an optimized and balanced combination of exfiltration, gravity conveyance piping, SWPSs and FMs, gravity and pumped recharge wells, and new dry-detention storage, in conjunction with contiguous seawalls and backflow prevention.



Repetitive Loss Areas Analysis

In order to best serve the community and understand what properties are most at-risk to flooding, an analysis will need to be conducted on the Repetitive Loss Areas within the City. Because our team is already working on the SWMP, we have first-hand knowledge and experience with working on modeling and analysis of Repetitive Loss Areas in the City.

In anticipation of the future need for the CRS reporting, we performed many of the initial FMP data analysis requirements and analyses analyzed under the SWMP including repetitive loss correlations with FEMA FIRM floodplains. This can be shown in the figure below.

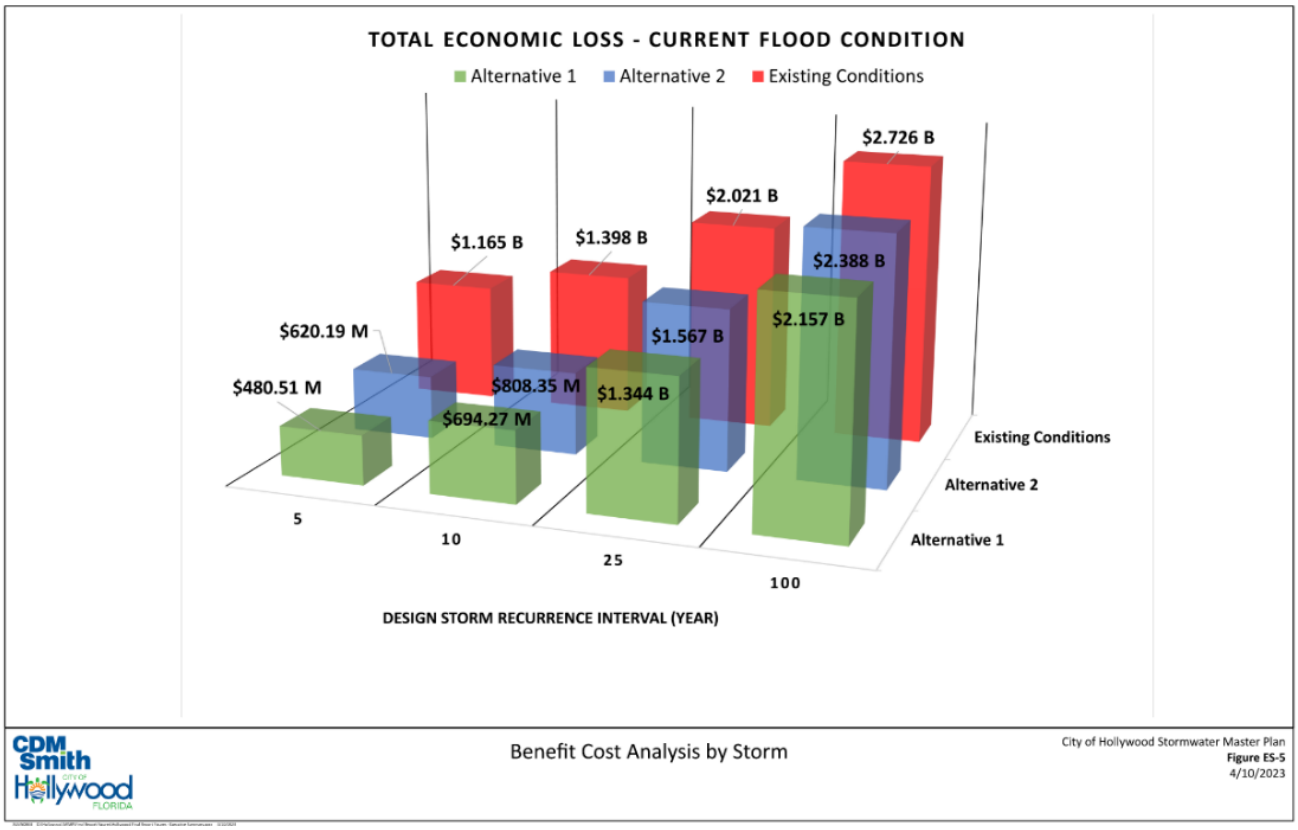


Due to the fact that our team has already performed a portion of the analysis required for this project, we are ready to expand our analysis for the requirements of this project. Our team of experts is ready to review our current analysis and include all the necessary floodplain components. We will take our current analysis and look at population trends and impact of future flooding conditions. Based on this analysis we will be able to determine different goals and objectives for flood mitigation within these areas.

We want to ensure that these flood mitigation projects don't just sit on a list in the plan for years to come. We will work with the City to identify concrete solutions that will help the community prepare for climate change and other natural disasters that will impact the City and its citizens. During our analysis of different mitigation opportunities, we will also work with the City to identify possible funding sources for these projects.

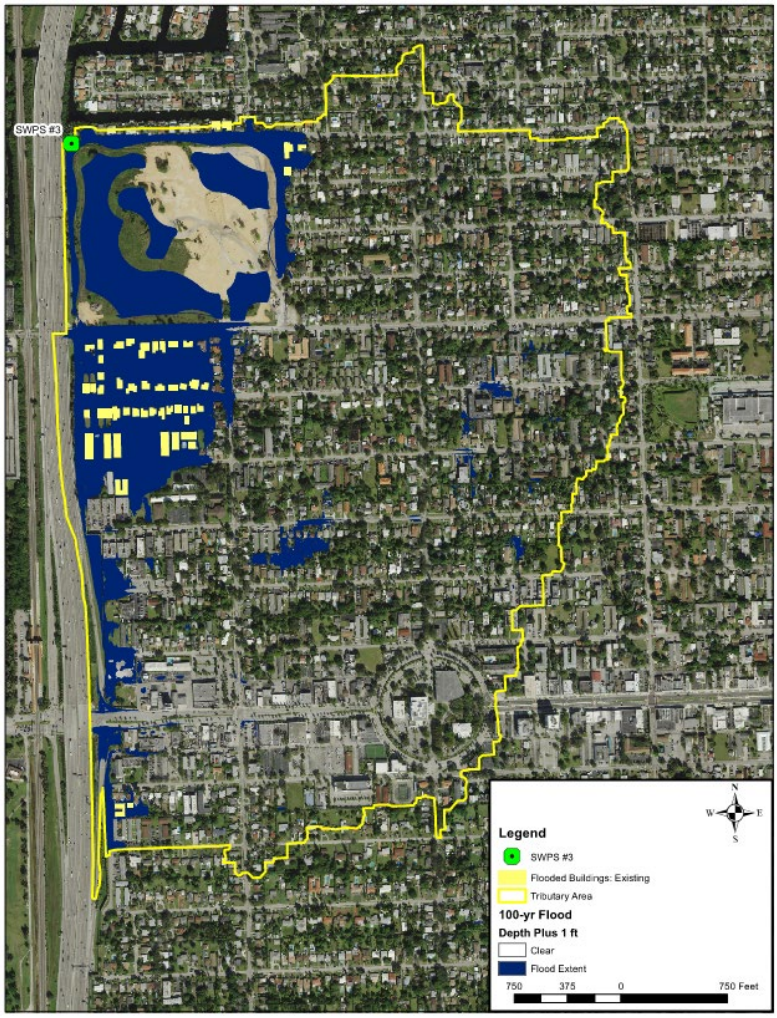
Flood Damages Estimates

The FEMA Hazard-US (HAZUS) Benefit-Cost Analysis (BCA) model is a standardized tool for estimating monetary risk and economic loss from flooding. The HAZUS flood model calculates physical damage and economic loss due to coastal and/or riverine inundation. Losses are calculated using functions that relate the depth and type of flooding to the degree of damage for various categories of buildings using data in the Federal database. The numerical model was run for both Alternatives 1 and 2 CIP Citywide investments. The flood damage analysis shows that the existing conditions in the City have significant potential economic losses associated with flood events for both rainfall and tidal flood sources. The FEMA HAZUS model predicts benefits of 1.7:1 to 2.5:1 return on the CIP investment for each dollar spent on CIP as the net result of the avoided damages by recurrence interval storm.



Repetitive Loss Prediction

Further analysis was performed for structural inundation Citywide using the model output, digital elevation model, and LiDAR estimates of finished floor elevation for prediction of the reduction of the number of homes flooded in the neighborhoods.



Step 3: Reporting

The final step, reporting, includes the following:

Recommendations and Final Report

When it comes to creating a report and recommendations from our analysis, it will be important to create documentation that can be easily integrated and interpreted by City staff. Many times these plans are written by engineering firms and the document becomes unusable because of the high technical writing. Our team of experts will interpret the modeling data and translate it into a useable document. We will make it so this document can be used and interpreted by future staff.

Our expert staff will also provide concrete mitigation actions that can be implemented by City staff and provide benefit to residents. With these recommendations, we will also provide possible funding opportunities for these projects. Our team will also provide ways to integrate these projects and actions into other plans that are created by the City and County including the Broward County Local Mitigation Strategy.

The plan will only be beneficial if it can be implemented and submitted. The plan created will be ready to submit to FEMA for CRS credit. We will work with the City staff to ensure that all documentation is ready to directly be submitted to the state and federal governments. We will also provide all documentation needed for HUD to reimburse this project.

Throughout the Project: Outreach & Engagement

This project will require several public outreach events throughout the creation of the plan. Our team of outreach experts is well versed with the City of Hollywood and how to best reach citizens within the community. We understand that it is important for the community to have a say in this project.

We will work with the City to select appropriate locations for the various outreach meetings that are required for this project. It will be important for the locations to be easily accessible, and we will need to reach a variety of people, especially those in the Repetitive Loss Property areas. Our team can also provide outreach materials in English, Spanish, and Haitian as needed. We can also provide translators during these meetings to make sure the information is received by those who need it.

We focus on meeting people where they are, which means being flexible to accommodate what works best for each community. This could be by using their preferred platforms, implementing, or even innovating new methods. We understand that to build strong and resilient communities, equity must be at the front of what we do. We help implement the arrangements necessary for a genuinely equitable outreach engagement. This may include translating meetings or materials, meeting after regular business hours, or other accommodations to encourage public participation. We want everyone to feel welcome and able to participate.

Our Outreach Team is ready to assist the City with whatever outreach materials will be needed throughout the process. We will work with the City to ensure that residents are fully engaged throughout this process and are given ample opportunity to provide their feedback on the project.

Throughout the Project: Grant Compliance

Throughout the lifetime of the project, Grant management will be an essential task. We are currently supporting multiple local governments with grant administration and will ensure that it is easy for the City. Furthermore, we are project managing multiple projects under the Resilient Florida Grant Program awards and have tremendous experience with the program.

The reality of grants is that the grant process continues beyond the award. The City is well into the process and our team will become an extension of your staff as it relates to grant management. And because of our experience with the program, we have tips and tricks to make things easier.

For example, we provide Task Deliverable Memorandums for each task that clearly state how the deliverables provided meet the required deliverables for each task. This aids in expediting the review and reimbursement process.

Our Approach to Grant Administration

Administering grants successfully requires careful planning and diligent execution to ensure deadlines are met and deliverables are provided in a manner that aligns with the grant requirements. Our team has successfully administered grants for many of our clients and our team understands how to manage grants efficiently and effectively.

Effective grant administration begins with a **clear and detailed timeline**. Our team starts by establishing a comprehensive project plan that outlines all key activities, milestones, and deliverable deadlines. It is essential to set realistic deadlines for each task, allowing ample time for completion and review. A point person is assigned for each deliverable to avoid confusion as to who holds the utmost responsibility for deliverables. By maintaining regular grant check-ins, we can help identify potential roadblocks or delays, allowing for timely adjustments and troubleshooting.

To ensure deliverables meet the grant needs, our team establishes **guidelines and expectations** from the beginning. Clearly defining the specific requirements and outcomes expected from each key person for each deliverable at the onset of the project, ensures that deliverables meet grant requirements upon completion. Furthermore, we implement a review and evaluation process to assess the quality and relevance of the deliverables against the grant deliverable requirements. As part of our check-ins, our grant leads provide ongoing support and guidance to each point person so that the deliverables meet grant requirements upon completion.

Finally, the team will develop a clear and established tracking and documentation system that the team and City can use to ensure all deliverables are accounted for and easily accessible for reporting and compliance purposes.

CDBG-MIT Section 3 HUD Requirements

Brizaga-CDM Smith knows that Section 3 has evolved over time, with the Rule change in 2020 from 24 CFR part 135 to 24 CFR part 75, the approaches to meet and exceed Section 3 goals have evolved as well. According to HUD's Section 3 guidance, these approaches include certifying Section 3 workers and business concerns; maintaining a list of eligible Section 3 workers and Section 3 business concerns; preparing Section 3 plans to articulate policies and procedures; developing Section 3 hiring and contracting utilization schedules; and employing social media, websites, and other digital formats to effectively interact with intended beneficiaries.

CDM Smith understands that to implement an effective Section 3 program, two significant components are necessary: First, the City of Hollywood needs to retain an engaging Section 3 Coordinator, who understands that outreach and public engagement to stakeholders will aid the City

in achieving their Section 3 goals; and second, the City must devise a solid Section 3 Plan, which outlines its Section 3 goals and the methods that will be used to achieve them. CDM Smith can provide both services.

A Section 3 Coordinator is not required under 24 CFR Part 75, however, they can be a critical factor to the success of the City's Section 3 program. Brizaga-CDM Smith will aid in the development and implementation of an effective Section 3 compliance plan; support internal and external parties in understanding compliance; provide technical assistance when necessary; foster relationships with stakeholders; and manage and report on Section 3 efforts overall. The CDM Smith Section 3 Coordinator can provide a real benefit to the City as a single point of contact for consistent communication with contractors and other parties.

Setting Standards in a Section 3 Plan

The Section 3 Plan serves as a guide for the City to ensure that Section 3 requirements are properly implemented and communicated; it provides the program's framework to achieve compliance and ultimately meet Section 3 goals. The Plan becomes the reference tool to guide the City through the Section 3 planning process for program implementation. Moreover, the Plan provides an opportunity to align local and federal requirements for procurement, labor, contracting requirements or goals such as DBE/MBE/WBE efforts. Brizaga-CDM Smith can align the Section 3 Plan with the City's procurement policies and procedures, as well as integrate Davis Bacon Labor Standards, DBE, MBE, WBE, and any other requirements so that all goals and requirements are summarized in one place. CDM Smith understands that by integrating all pertinent federal requirements with state and local requirements it will create a more streamlined and manageable system for compliance reporting.

Stakeholder Participation through Outreach

Brizaga-CDM Smith understands that most Section 3-covered contracts have a variety of stakeholders involved in each activity. As the Section 3 Coordinator, CDM Smith will identify the various stakeholders involved in the activities, as well as develop outreach practices that will benefit their participation and success in these projects. CDM Smith can facilitate trainings and engage in capacity building efforts with public housing authorities, workforce development boards, community advocates, professional organizations, educational institutions, and intended beneficiaries (e.g., low- or very low-income workers seeking employment and training); and they can offer technical assistance regarding federal contracting and procurement procedures for Section 3 businesses seeking contract opportunities.

As the Section 3 Coordinator, Brizaga-CDM Smith knows the value of maintaining excellent records documenting all outreach efforts, calls, workshops, and meetings which will ultimately prove compliance with HUD's Section 3 regulations.

By collaborating with stakeholders and creating beneficial partnerships, a City of Hollywood demonstrates the good faith efforts they made towards meeting HUD's Section 3 goals and benchmarks; through this approach they achieve compliance with Section 3 regulations.

Bringing It All Together

The Brizaga-CDM Smith team is positioned for success to most effectively and efficiently create the documentation for maximum CRS NFIP credit in the FMP. Our deep understanding of the root causes of flooding on a neighborhood scale coupled with the vast knowledge gained in the SWMP effort will ensure the City that the most qualified team is in place to deliver the technical information, implementable action plan, and public outreach required for a successful and acceptable submittal to FEMA for maximum credit.

TAB 6

REFERENCES

BRIZAGA

Resilience Done Right.™

TAB 6

VENDOR REFERENCE VERIFICATION FORM

It is the responsibility of the contractor/vendor to provide a minimum of three (3) similar type references using this form and to provide this information with your submission. Failure to do so may result in the rejection of your submission.

City of Hollywood Solicitation No. and Title: RFQ-065-24-JJ, Floodplain Management Plan Update

Reference for: Brizaga, Inc.

Organization/Firm Name providing reference: North Bay Village

Organization/Firm Contact Name: Dr. Ralph Rosado | Title: Village Manager

Email: Rrosado@nbvillage.com | Phone: (305) 756-7171 ext. 24

Name of Referenced Project: Stormwater Program Mgmt. | Contract No: RFQ-2023-01

Date Services were provided: 2022-Present | Project Amount: $147,043

Referenced Vendor's role in Project: ☐ Prime Vendor ☒ Subcontractor/ Subconsultant

Would you use the Vendor again? ☒ Yes ☐ No. Please specify in additional comments

Description of services provided by Vendor:
Support related to the Stormwater Program, including the development of a strategy, communication and outreach support, and grant writing and administration. Brizaga was also involved in the Village's Stormwater Master Plan and Vulnerability Assessment for outreach and engagement.

Please rate your experience with the Vendor	Need Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service				
a. Responsive	☐	☐	☒	☐
b. Accuracy	☐	☐	☒	☐
c. Deliverables	☐	☐	☒	☐
Vendor's Organization:				
a. Staff expertise	☐	☐	☒	☐
b. Professionalism	☐	☐	☒	☐
c. Staff turnover	☐	☐	☒	☐
Timeliness of:				
a. Project	☐	☐	☒	☐
b. Deliverables	☐	☐	☒	☐

Additional Comments: (provide additional sheet if necessary)
Both our Village staff and elected officials are very pleased with the services provided by Brizaga up to this point.
We look forward to continue engaging with them in current and future projects.

****THIS SECTION FOR CITY USE ONLY****						
Verified via:	Email:	☐	Verbal:	☐	Mail:	☐
Verified by:	Name:				Title:	
	Department:				Date:	

VENDOR REFERENCE VERIFICATION FORM

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City of Hollywood Solicitation No. and Title: RFQ-065-24-JJ, Floodplain Management Plan Update

Reference for: Brizaga, Inc.

Organization/Firm Name providing reference: Village of Key Biscayne

Organization/Firm Contact Name: Colleen Blank | Title: CIP and Grants Manager

Email: cblank@keybiscayne.fl.gov | Phone: (305) 365-8948

Name of Referenced Project: Resilience IIP Program | Contract No: 2022-02

Date Services were provided: 2022 - Ongoing | Project Amount: $218,809

Referenced Vendor's role in Project: ☐ Prime Vendor ☑ Subcontractor/ Subconsultant

Would you use the Vendor again? ☐ Yes ☐ No. Please specify in additional comments

Description of services provided by Vendor:
Led the development of Resilience Implmentation Strategy; Lead consultant for comprehensive Village-wide flood vulnerability assessment, including economic analysis of risks; Provided outreach and communications support, related to resilience.

Please rate your experience with the Vendor	Need Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service				
a. Responsive	☐	☐	☒	☐
b. Accuracy	☐	☐	☒	☐
c. Deliverables	☐	☐	☒	☐
Vendor's Organization:				
a. Staff expertise	☐	☐	☒	☐
b. Professionalism	☐	☐	☒	☐
c. Staff turnover	☐	☐	☒	☐
Timeliness of:				
a. Project	☐	☐	☒	☐
b. Deliverables	☐	☐	☒	☐

Additional Comments: (provide additional sheet if necessary)
It is a pleasure to work with Brizaga. They have very intelligent, capable, and responsive staff. They provide quality feedback and are strong partners for the Village's resilience program.

****THIS SECTION FOR CITY USE ONLY****						
Verified via:	Email:	☐	Verbal:	☐	Mail:	☐
Verified by:	Name:				Title:	
	Department:				Date:	

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It is the responsibility of the contractor/vendor to provide a minimum of three (3) similar type references using this form and to provide this information with your submission. Failure to do so may result in the rejection of your submission.

City of Hollywood Solicitation No. and Title: RFQ-065-24-JJ, Floodplain Management Plan Update

Reference for: Brizaga, Inc.

Organization/Firm Name providing reference: Town of Briny Breezes

Organization/Firm Contact Name: Bill Thrasher | Title: Town Manager

Email: bthrasher@townofbrinybreezes-fl.gov | Phone: (561) 272-5495

Name of Referenced Project: Flood Adaptation Plan | Contract No: 22-July-2021

Date Services were provided: 2021-Present | Project Amount: $198,500

Referenced Vendor's role in Project: ☐ Prime Vendor ☑ Subcontractor/ Subconsultant

Would you use the Vendor again? ☑ Yes ☐ No. Please specify in additional comments

Description of services provided by Vendor:
Led flood vulnerability assessment, including analysis of future flooding and impacted assets; developed a comprehensive adaptation approach for the entire town; supported the development of successful grants for planning and construction documents.

Please rate your experience with the Vendor	Need Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service				
a. Responsive	☐	☐	☑	☐
b. Accuracy	☐	☐	☑	☐
c. Deliverables	☐	☐	☑	☐
Vendor's Organization:				
a. Staff expertise	☐	☐	☑	☐
b. Professionalism	☐	☐	☑	☐
c. Staff turnover	☐	☐	☑	☐
Timeliness of:				
a. Project	☐	☐	☑	☐
b. Deliverables	☐	☐	☑	☐

Additional Comments: (provide additional sheet if necessary)
Unaware of staff turnover. The Town of Briny Breezes is extremely fortunate to have made a relationship with this vendor.

****THIS SECTION FOR CITY USE ONLY****						
Verified via:	Email:	☐	Verbal:	☐	Mail:	☐
Verified by:	Name:				Title:	
	Department:				Date:	

VENDOR REFERENCE VERIFICATION FORM

It is the responsibility of the contractor/vendor to provide a minimum of three (3) similar type references using this form and to provide this information with your submission. Failure to do so may result in the rejection of your submission.

City of Hollywood Solicitation No. and Title: RFQ-065-24-JJ, Floodplain Management Plan Update

Reference for: CDM Smith

Organization/Firm Name providing reference: City of Miami

Organization/Firm Contact Name: Keith Ng, CFM Title: Sr. Project Manager

Email: keithng@miamigov.com Phone: 305-416-1298

Name of Referenced Project: Citywide Stormwater Master Plan Contract No: RFQ-16-17-041

Date Services were provided: Project Amount:

Referenced Vendor's role in Project: ☒ Prime Vendor ☐ Subcontractor/ Subconsultant

Would you use the Vendor again? ☒ Yes ☐ No. Please specify in additional comments

Description of services provided by Vendor:
Services provided included data gathering of existing infrastructure, moedling and recommendation for the Citywaide stromwater master plan, the prioritization of 25 areas with severe flooding, assisting the ERP Master Application with the South Florida Water Management District, micro-modeling and evalautioan of site specific flooded areas within City limits.

Please rate your experience with the Vendor	Need Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service				
a. Responsive	☐	☐	☒	☐
b. Accuracy	☐	☐	☒	☐
c. Deliverables	☐	☐	☒	☐
Vendor's Organization:				
a. Staff expertise	☐	☐	☒	☐
b. Professionalism	☐	☐	☒	☐
c. Staff turnover	☐	☐	☐	☒
Timeliness of:				
a. Project	☐	☐	☒	☐
b. Deliverables	☐	☐	☒	☐

Additional Comments: (provide additional sheet if necessary)

****THIS SECTION FOR CITY USE ONLY****						
Verified via:	Email:	☐	Verbal:	☐	Mail:	☐
Verified by:	Name:				Title:	
	Department:				Date:	

VENDOR REFERENCE VERIFICATION FORM

It is the responsibility of the contractor/vendor to provide a minimum of three (3) similar type references using this form and to provide this information with your submission. Failure to do so may result in the rejection of your submission.

City of Hollywood Solicitation No. and Title: 065-24-JJ

Reference for: Biscayne Engineering

Organization/Firm Name providing reference: RJ BEHAR

Organization/Firm Contact Name: Robert Behar PE | Title: PE

Email: bbehar@rjbehar.com | Phone: (954)-680-7771

Name of Referenced Project: Bay Vista Blvd Improvements | Contract No: 17061

Date Services were provided: 6-18-2020 | Project Amount: 87,382.32

Referenced Vendor's role in Project: ☐ Prime Vendor ☒ Subcontractor/ Subconsultant

Would you use the Vendor again? ☐ Yes ☐ No. Please specify in additional comments

Description of services provided by Vendor:
Design survey including right of way determination along NE 151 street from Biscayne Boulevard east to Bay Vista Boulevard (approximately 1.7 miles).

Please rate your experience with the Vendor	Need Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service				
a. Responsive	☐	☐	☒	☐
b. Accuracy	☐	☐	☒	☐
c. Deliverables	☐	☐	☒	☐
Vendor's Organization:				
a. Staff expertise	☐	☐	☒	☐
b. Professionalism	☐	☐	☒	☐
c. Staff turnover	☐	☐	☒	☐
Timeliness of:				
a. Project	☐	☐	☒	☐
b. Deliverables	☐	☐	☒	☐

Additional Comments: (provide additional sheet if necessary)
Very responsive.

****THIS SECTION FOR CITY USE ONLY****						
Verified via:	Email:	☐	Verbal:	☐	Mail:	☐
Verified by:	Name:				Title:	
	Department:				Date:	

VENDOR REFERENCE VERIFICATION FORM

It is the responsibility of the contractor/vendor to provide a minimum of three (3) similar type references using this form and to provide this information with your submission. Failure to do so may result in the rejection of your submission.

City of Hollywood Solicitation No. and Title: 065-24-JJ

Reference for: Biscayne Engineering Inc.

Organization/Firm Name providing reference: Constructive Engineers

Organization/Firm Contact Name: Jagan Katkuri | Title: PE Project Manager

Email: Jagan@constructive-eng.com | Phone: (203)-809-0368

Name of Referenced Project: SR80-Parker rd to Washington rd | Contract No: 446101-1-32-01

Date Services were provided: 7-20-2020 | Project Amount: 34,838.88

Referenced Vendor's role in Project: ☐ Prime Vendor ☒ Subcontractor/ Subconsultant

Would you use the Vendor again? ☐ Yes ☐ No. Please specify in additional comments

Description of services provided by Vendor:
Design survey including right of way determination along SR 80 from E of Parker Ave. to W. of Washington Rd. (approximately .5 miles).

Please rate your experience with the Vendor	Need Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service				
a. Responsive	☐	☐	☒	☐
b. Accuracy	☐	☐	☒	☐
c. Deliverables	☐	☐	☒	☐
Vendor's Organization:				
a. Staff expertise	☐	☐	☒	☐
b. Professionalism	☐	☐	☒	☐
c. Staff turnover	☐	☐	☒	☐
Timeliness of:				
a. Project	☐	☐	☒	☐
b. Deliverables	☐	☐	☒	☐

Additional Comments: (provide additional sheet if necessary)

****THIS SECTION FOR CITY USE ONLY****						
Verified via:	Email:	☐	Verbal:	☐	Mail:	☐
Verified by:	Name:				Title:	
	Department:				Date:	

VENDOR REFERENCE VERIFICATION FORM

It is the responsibility of the contractor/vendor to provide a minimum of three (3) similar type references using this form and to provide this information with your submission. Failure to do so may result in the rejection of your submission.

City of Hollywood Solicitation No. and Title: 065-24-JJ

Reference for: Biscayne Engineering Inc.

Organization/Firm Name providing reference: CDM Smith

Organization/Firm Contact Name:	Yanice Mercado	Title:	PE Principal
Email:	mercadoyi@cdmsmith.com	Phone:	(561)-571-3757
Name of Referenced Project:	Boynton Bch FL Survey	Contract No:	101397
Date Services were provided:	7-21-2021	Project Amount:	11,550.00

Referenced Vendor's role in Project: ☐ Prime Vendor ☒ Subcontractor/ Subconsultant

Would you use the Vendor again? ☐ Yes ☐ No. Please specify in additional comments

Description of services provided by Vendor:
Provide field location and structure information of various drainage structures throughout the City of Boynton Beach area.

Please rate your experience with the Vendor	Need Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service				
a. Responsive	☐	☐	☒	☐
b. Accuracy	☐	☐	☒	☐
c. Deliverables	☐	☐	☒	☐
Vendor's Organization:				
a. Staff expertise	☐	☐	☒	☐
b. Professionalism	☐	☐	☒	☐
c. Staff turnover	☐	☐	☐	☒
Timeliness of:				
a. Project	☐	☐	☒	☐
b. Deliverables	☐	☐	☒	☐

Additional Comments: (provide additional sheet if necessary)

****THIS SECTION FOR CITY USE ONLY****						
Verified via:	Email:	☐	Verbal:	☐	Mail:	☐
Verified by:	Name:				Title:	
	Department:				Date:	

TAB 7

REQUIRED FORMS

BRIZAGA

Resilience Done Right.™

TAB 7

DRUG-FREE WORKPLACE PROGRAM

IDENTICAL TIE BIDS - Preference shall be given to businesses with drug-free workplace programs. Whenever two or more bids that are equal with respect to price, quality, and service are received by the state or by any political subdivision for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie bids will be followed if none of the tied vendors have a drug-free workplace program. In order to have a drug-free workplace program, a business shall:

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.
3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).
4. In the statement specified in subsection (1), notify the employee that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five days after such conviction.
5. Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program (if such is available in the employee's community) by, any employee who is so convicted.
6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of these requirements.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

SIGNATURE

Alec Bogdanoff
PRINTED NAME

Brizaga, Inc.
NAME OF COMPANY

RFQ/RFP/ITB Number: RFQ-065-24-JJ Title: Floodplain Management Plan Update

CERTIFICATIONS REGARDING DEBARMENT, SUSPENSION AND OTHER RESPONSIBILITY MATTERS

The applicant certifies that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, sentenced to a denial of federal benefits by a state or federal court, or voluntarily excluded from covered transactions by any federal department or agency;

(b) Have not within a three-year period preceding this application been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state, or local) transaction or contract under a public transaction, violation of federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (federal, state, or local) with commission of any of the offenses enumerated in paragraph (b) of this certification; and

(d) Have not within a three-year period preceding this application had one or more public transactions (federal, state, or local) terminated for cause or default.

Applicant Name and Address:

Brizaga, Inc.

2101 W. Commercial Blvd.

Fort Lauderdale, FL 33309

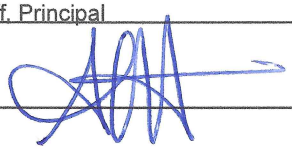
Application Number and/or Project Name:

RFQ-065-24-JJ Floodplain Management Plan Update

Applicant IRS/Vendor Number: 82-1566105

Type/Print Name and Title of Authorized Representative:

Alec Bogdanoff, Principal

Signature:  Date: April 8, 2024

RFQ/RFP/ITB Number: RFQ-065-24-JJ Title: Floodplain Management Plan Update

NON-COLLUSION AFFIDAVIT

STATE OF: Florida

COUNTY OF: Broward, being first duly sworn, deposes and says that:

(1) He/she is Alec Bogdanoff of Brizaga, Inc., the Respondent that has submitted the attached Bid.

(2) He/she has been fully informed regarding the preparation and contents of the attached Bid and of all pertinent circumstances regarding such Bid;

(3) Such Bid is genuine and is not a collusion or sham Bid;

(4) Neither the said Respondent nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Respondent, firm or person to submit a collusive or sham Bid in connection with the contractor for which the attached Bid has been submitted or to refrain from bidding in connection with such contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Respondent, firm or person to fix the price or prices, profit or cost element of the Bid price or the Bid price of any other Respondent, or to secure an advantage against the City of Hollywood or any person interested in the proposed Contract; and

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Respondent or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(SIGNED) Alec Bogdanoff

Title: Principal

Subscribed and sworn to before me this

8th day of April, 2024

My commission expires:

WANDA L. MERCADO
Notary Public - State of Florida
Commission # HH 434753
My Comm. Expires Aug 17, 2027
Bonded through National Notary Assn.

Wanda L. Mercado

RFQ/RFP/ITB Number: RFQ-065-24-JJ Title: Floodplain Management Plan Update

STATEMENT OF QUALIFICATION CERTIFICATION

Please Note: All fields below must be completed. If the field does not apply to you, please note N/A in that field.

If you are a foreign corporation, you may be required to obtain a certificate of authority from the department of state, in accordance with Florida Statute §607.1501 (visit http://www.dos.state.fl.us/).

Company: (Legal Registration)
Brizaga, Inc.

Name/Principal/Project Manager:
Michael Antinelli

Address: 2101 W. Commercial Blvd. Suite 4600

City: Fort Lauderdale State: FL Zip: 33309

Telephone No. (954) 834-3533 **FEIN/Tax ID No.** 82-1566105 Email: michael@brizaga.com

Does your firm qualify for MBE or WBE status: MBE N/A WBE N/A

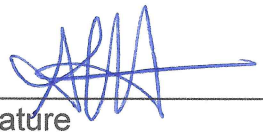
ADDENDUM ACKNOWLEDGEMENT - Respondent acknowledges that the following addenda have been received and are included in the proposal:

Addendum No.	Date Issued	Addendum No.	Date Issued
#1	April 1, 2024		

VARIANCES: State any variations to specifications, terms and conditions in the space provided below or reference in the space provided below all variances contained on other pages of bid, attachments or bid pages. No variations or exceptions by the Respondent will be deemed to be part of the bid submitted unless such variation or exception is listed and contained within the bid documents and referenced in the space provided below. If no statement is contained in the below space, it is implied that your bid/proposal complies with the full scope of this solicitation. If this section does not apply to your bid, simply mark "N/A". **If submitting your response electronically through BIDSYNC you must click the exception link if any variation or exception is taken to the specifications, terms and conditions.**

The below signatory agrees to furnish the following article(s) or services at the price(s) and terms stated subject to all instructions, conditions, specifications addenda, legal advertisement, and conditions contained in the bid/proposal. I have read all attachments including the specifications and fully understand what is required. By submitting this signed proposal I will accept a Contract if approved by the City and such acceptance covers all terms, conditions, and specifications of this bid/proposal. The below signatory also agrees, by virtue of submitting or attempting to submit a response, that in no event shall the City's liability for respondent's indirect, incidental, consequential, special or exemplary damages, expenses, or lost profits arising out of this competitive solicitation process, including but not limited to public advertisement, bid conferences, site visits, evaluations, oral presentations, or award proceedings exceed the amount of $500.00This limitation shall not apply to claims arising under any provision of indemnification or the City's protest ordinance contained in this competitive solicitation.

Submitted by:

Alec Bogdanoff	
Name (printed)	Signature
April 8, 2024	Principal
Date:	Title

SWORN STATEMENT PURSUANT TO SECTION 287.133 (3) (a) FLORIDA STATUTES ON PUBLIC ENTITY CRIMES

THIS FORM MUST BE SIGNED AND SWORN TO IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICIAL AUTHORIZED TO ADMINISTER OATHS

1. This form statement is submitted to The City of Hollywood
By Alec Bogdanoff, Prinicipal for Brizaga, Inc.
(Print individual's name and title) (Print name of entity submitting sworn statement)
whose business address is 2101 W. Commercial Blvd. Suite 4600, Fort Lauderdale, FL 33309
and if applicable its Federal Employer Identification Number (FEIN) is 82-1566105 If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement.

2. I understand that "public entity crime," as defined in paragraph 287.133(1)(g), Florida Statutes, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or with the United States, including, but not limited to, any bid, proposal, reply, or contract for goods or services, any lease for real property, or any contract for the construction or repair of a public building or public work, involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misinterpretation.

3. I understand that "convicted" or "conviction" as defined in Paragraph 287.133(1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in an federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.

4. I understand that "Affiliate," as defined in paragraph 287.133(1)(a), Florida Statutes, means:

1. A predecessor or successor of a person convicted of a public entity crime, or
2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.

5 I understand that "person," as defined in Paragraph 287.133(1)(e), Florida Statutes, means any natural person or any entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and that bids or applies to bid on contracts let by a public entity, or that otherwise transacts or applies to transact business with a public entity. The term "person" includes those officers, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

6. Based upon information and belief, the statement that I have marked below is true in relation to the entity submitting this sworn statement. (please indicate which statement applies.)

✓ Neither the entity submitting sworn statement, nor any of its officers, director, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, nor any affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989..

_____ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime, but the Final Order entered by the Hearing Officer in a subsequent proceeding before a Hearing Officer of the State of the State of Florida, Division of Administrative Hearings, determined that it was not in the public interest to place the entity submitting this sworn statement on the convicted vendor list. (attach a copy of the Final Order).

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR THE PUBLIC ENTITY IDENTIFIED IN PARAGRAPH 1 ABOVE IS FOR THAT PUBLIC ENTITY ONLY AND THAT THIS FORM IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN THAT IT IS FILED. I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THAT PUBLIC ENTITY PRIOR TO ENTERING INTO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION 287.017 FLORIDA STATUTES FOR A CATEGORY TWO PROJECT OF ANY CHANGE IN THE INFORMATION CONTAINED ON THIS FORM.

_____
(Signature)

Sworn to and subscribed before me this 8th day of April, 2024.

Personally known ✓

Or produced identification _____ Notary Public-State of Florida, Broward County

My commission expires 8/17/24

Wanda L. Mercado
(Printed, typed or stamped commissioned name of notary public)

WANDA L. MERCADO
Notary Public - State of Florida
Commission # HH 434753
My Comm. Expires Aug 17, 2027
Bonded through National Notary Assn.

RFQ/RFP/ITB Number: RFQ-065-24-JJ Title: Floodplain Management Plan Update

HOLD HARMLESS AND INDEMNITY CLAUSE

Brizaga, Inc.

(Company Name and Authorized Representative's Name)

, the contractor, shall indemnify, defend and hold harmless the City of Hollywood, its elected and appointed officials, employees and agents for any and all suits, actions, legal or administrative proceedings, claims, damage, liabilities, interest, attorney's fees, costs of any kind whether arising prior to the start of activities or following the completion or acceptance and in any manner directly or indirectly caused, occasioned or contributed to in whole or in part by reason of any act, error or omission, fault or negligence whether active or passive by the Contractor, or anyone acting under its direction, control, or on its behalf in connection with or incident to its performance of the Contract.

SIGNATURE

Alec Bogdanoff
PRINTED NAME

Brizaga, Inc.
COMPANY OF NAME

April 8, 2024
DATE

Failure to sign or changes to this page shall render your bid non-responsive.

SOLICITATION, GIVING, AND ACCEPTANCE OF GIFTS POLICY

Florida Statute 112.313 prohibits the solicitation or acceptance of Gifts. - "No Public officer, employee of an agency, local government attorney, or candidate for nomination or election shall solicit or accept anything of value to the recipient, including a gift, loan, reward, promise of future employment, favor, or service, based upon any understanding that the vote, official action, or judgment of the public officer, employee, local government attorney, or candidate would be influenced thereby.". The term "public officer" includes "any person elected or appointed to hold office in any agency, including any person serving on an advisory body."

City of Hollywood policy prohibits all public officers, elected or appointed, all employees, and their families from accepting any gifts of any value, either directly or indirectly, from any contractor, respondent, consultant, or business with whom the City does business.

The State of Florida definition of "gifts" includes the following:

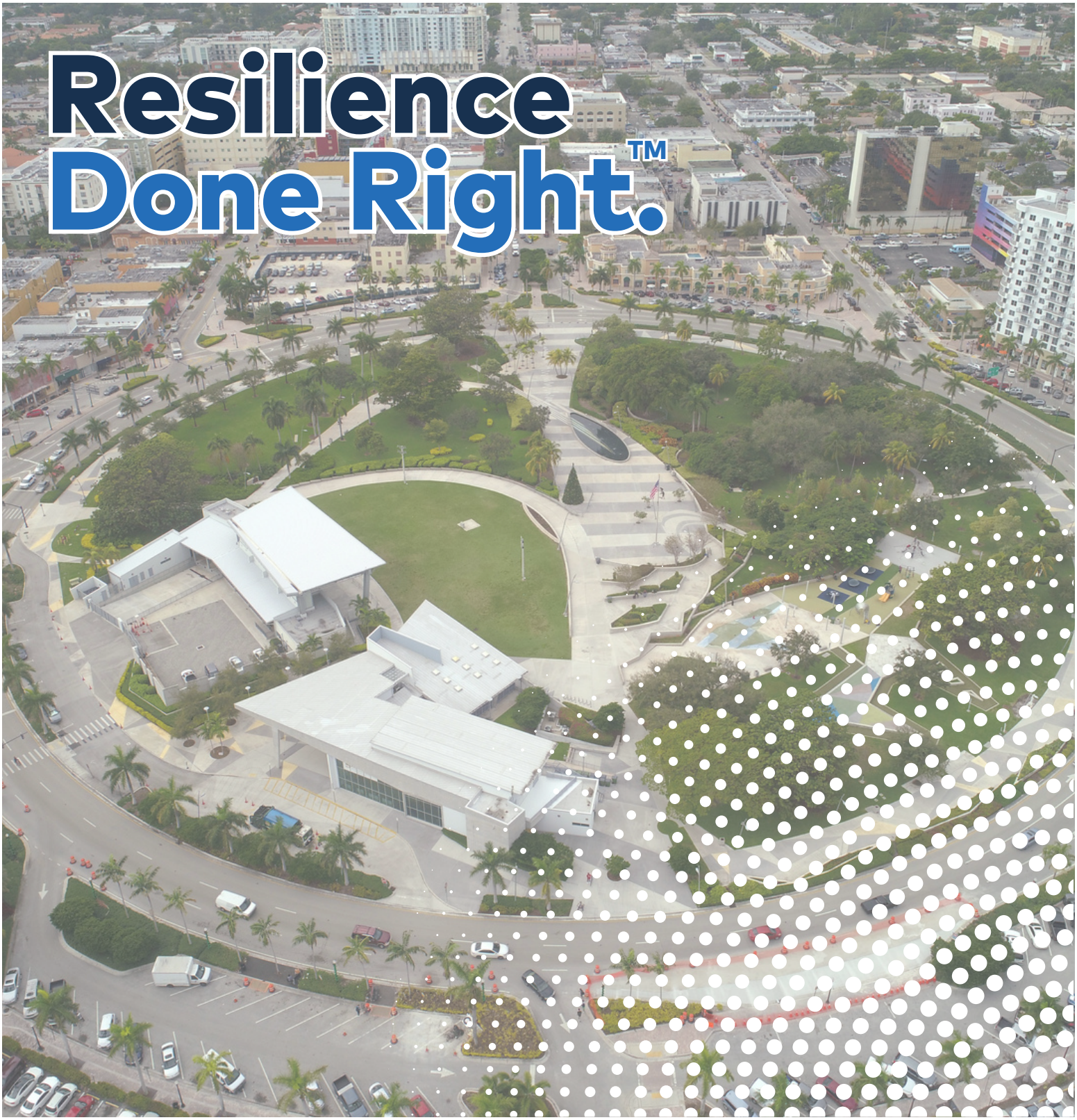
Real property or its use,
Tangible or intangible personal property, or its use,
A preferential rate or terms on a debt, loan, goods, or services,
Forgiveness of indebtedness,
Transportation, lodging, or parking,
Food or beverage,
Membership dues,
Entrance fees, admission fees, or tickets to events, performances, or facilities,
Plants, flowers or floral arrangements
Services provided by persons pursuant to a professional license or certificate.
Other personal services for which a fee is normally charged by the person providing the services.
Any other similar service or thing having an attributable value not already provided for in this section.

Any contractor, Respondent, consultant, or business found to have given a gift to a public officer or employee, or his/her family, will be subject to dismissal or revocation of the Contract.

As the person authorized to sign the statement, I certify that this firm will comply fully with this policy.

SIGNATURE	Alec Bogdanoff PRINTED NAME
Brizaga, Inc. NAME OF COMPANY	Principal TITLE

Failure to sign this page shall render your bid non-responsive.



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ASSESS. COMMUNICATE. ADAPT.

www.brizaga.com