Tetra Tech

Bid Contact **Marcy Frick**
marcy.frick@tetratech.com
Ph 850-536-8115

Address **1558 Village Square Blvd**
Suite 2
Tallahassee, FL 32309

Bid Notes **Please find attached Tetra Tech's statement of qualifications and required forms.**

Item #	Line Item	Notes	Unit Price	Qty/Unit	Attch. Docs
RFQ-4754-22-WV--01-01	Engineering Services for the City, in accordance with the terms, conditions, and	**Supplier Product Code:**	**First Offer -**	1 / each	**Y**

Supplier Total **$0.00**

Tetra Tech

Item: **Engineering Services for the City, in accordance with the terms, conditions, and**

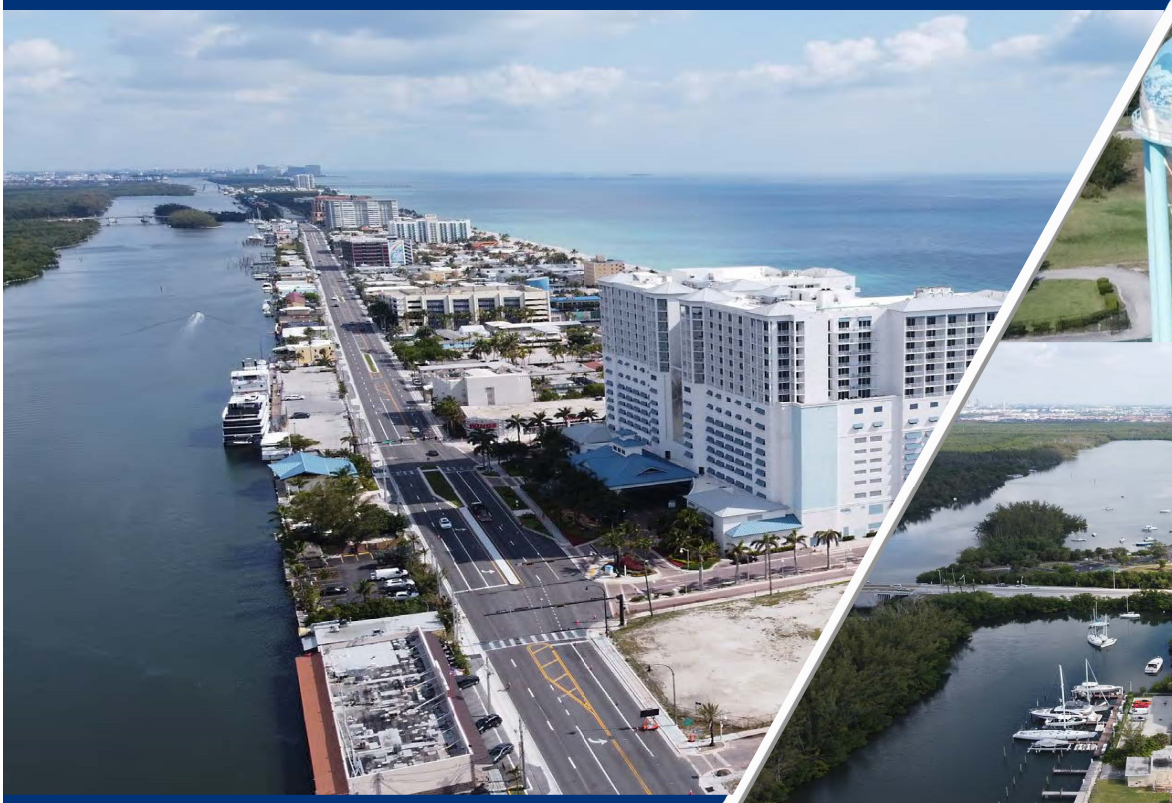
Attachments

Tetra Tech_Hollywood VA Update_092722.pdf

STATEMENT OF QUALIFICATIONS

Citywide Vulnerability Assessment Update

For the City of Hollywood, Florida



Request for Qualifications
(RFQ)-4754-22-WV
September 27, 2022

TETRA TECH

FORM 1

SUBMITTAL CHECKLIST FORM

The items below are required components of your solicitation response in order for your bid/proposal/submittal to be consider responsive and responsible. Please complete and submit this submittal checklist form as the cover page of your submittal with all of the items below in the order listed.

Please indicated Yes or No in the "Submitted (Yes/No)" column below to indicated which required components were provided with your submittal.

Submitted (Yes/No)	Required RFQ Components
Yes	This Submittal Checklist Form completed and included as the cover page of your submittal.
Yes	A Table of Contents that clearly identifies each section and page number of your submittal.
Yes	Information and/or documentation that addresses and/or meets the requirements outlined in Section III – Scope of Work/Services, including any procedural or technical enhancements/innovations which do not materially deviate from the objectives or required content of the Scope of Work/Services.
Yes	Forms (Completed) Form 1 Bid Checklist Form Form 2 Acknowledgement and Signature Page Form 3 N/A Form 4 Vendor Reference Form Form 5 Hold Harmless and Indemnity Clause Form 6 Non-Collusion Affidavit Form 7 Sworn Statement…Public Entity Crimes Form 8 Certifications Regarding Debarment… Form 9 Drug-Free Workplace Program Form 10 Solicitation, Giving, and Acceptance… Form 11 W-9 (Request for Taxpayer Identification) Form 12 N/A Form 13 N/A Form 14 List of Subcontractors
Yes	Certificate(s) of insurance that meet the requirements of Section 2.17
Yes	Proof of State of Florida Sunbiz Registration

This checklist is only a guide, please read the entire solicitation to ensure that your submission includes all required information and documentation.

September 27, 2022

City of Hollywood
Office of Procurement Services
2600 Hollywood Boulevard
Hollywood FL 33020-4807

Subject: **Request for Qualifications (RFQ)-4754-22-WV for the Citywide Vulnerability Assessment Update for the City of Hollywood, Florida (City)**

Dear Selection Committee Members,

Tetra Tech, Inc. (Tetra Tech) is pleased to submit the enclosed response to RFQ No: 4754-22-WV, for the Citywide Vulnerability Assessment Update for the City of Hollywood (City). Our proposal is the product of our understanding of the issues and needs within the City, and our commitment to preparing your Vulnerability Assessment Update to meet the requirements of Section 380.093, Florida Statutes (F.S.), increasing resilience and adapting to the changing climate. We are confident our team offers the best combination of experience, understanding, and vision to assist the City with this planning process.

Tetra Tech is a leading, global provider of consulting and engineering services. Differentiated by Leading with Science®, Tetra Tech provides innovative technical solutions to support projects focused on water, environment, infrastructure, resource management, energy, and international development. With more than 21,000 associates in 450 offices worldwide, Tetra Tech provides clear solutions to complex problems. Our expertise spans the continuum of resiliency – helping communities prepare for, withstand, respond, and adapt to climate change. Tetra Tech has been serving the City of Hollywood for two decades including work on the City's major water, wastewater, and stormwater infrastructure projects. We have completed projects to provide resiliency for the City's stormwater pump stations and are working with the City on the Stormwater Master Plan. We look forward to expanding our support and bringing our professional team and experience to update your Vulnerability Assessment.

In 2013 and again in 2019, Tetra Tech received the Climate Risk Management and Adaptation Award for providing integrated solutions to climate change from the Climate Change Business Journal

Tetra Tech offers a full suite of services and subject-matter experts to mitigate hazard risk, adapt to the changing climate, fund adaptation response and build community resilience. Working collaboratively with our partners, we employ a holistic resilience planning approach that considers socio-economic concerns, integrates nature-based solutions, and builds capacity and capability to ensure programmatic success. We recognize that public engagement increases the visibility of a planning effort and is key to the successful implementation of any plan. Our workshop-style meetings coupled with the integration of tools and technology have been successfully deployed to gather valuable input and achieve stakeholder "buy-in." Our experts conduct conceptual design through modeling and engineering and assist with securing funding and providing grant management services to successfully see projects through to completion. We assist with tracking progress toward resilience goals through the development, customization, and deployment of intuitive tools to monitor, measure, and report the effectiveness of your plans and programs.

Tetra Tech is committed to performing and completing the tasks outlined in the RFQ and have assembled a truly multi-disciplined team combining substantial familiarity with vulnerability assessments, legal and policy implications of adaptation planning, outreach on climate related initiatives, data analysis related to flooding and sea level rise impacts, and critical asset management and adaptation strategies. Additionally, Tetra Tech can support the City with identifying grant opportunities and managing grant requirements including state and federal funding opportunities.

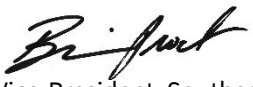
Tetra Tech, Inc.
4601 Sheridan Street, Suite 212, Hollywood, Florida 33021
Tel 954.364.1752 Cell 305.849.3404 | tetratech.com

We are pleased to partner with **Erin L. Deady, PA** (ELD PA) and **Brizaga, Inc**. (Brizaga), which are Certified Small Business Entities (SBEs) that specialize in resiliency planning and communication and public outreach; **Clearview Geographic**, which specializes in geographic information system (GIS) mapping and data analysis for sea level rise; and **CDM Smith**, who we are also teamed with on the Citywide Stormwater Master Plan, along with Brizaga. ELD PA and Brizaga have supported dozens of Resilient Florida Grant Program applications securing millions of dollars for the local governments they serve. Beyond their grant work, both have been intimately involved in the development of the Resilient Florida Program and understand the details of what is needed to get the project done right, on time, and on budget. The Tetra Tech Team has completed several vulnerability assessments and resiliency planning documents in Florida that have been submitted to and approved by the Florida Department of Environmental Protection (DEP) including:

- St. Lucie County Vulnerability Assessment – 2021 (Tetra Tech, ELD PA, and Clearview Geographic)
- Hillsborough County Resilience Plan – 2020 (Tetra Tech)
- Martin County Resilience and Watershed Management Plan – 2021 (ELD PA and Clearview Geographic)
- Monroe County Vulnerability Assessment – 2021 (ELD PA and Clearview Geographic)
- City of Pensacola Vulnerability Assessment – 2021 (ELD PA and Clearview Geographic)
- Peril of Flood Comprehensive Plan Amendments for Monroe County, cities of Pensacola and West Palm Beach, and Town of Briny Breezes – 2019-Present (ELD PA)
- Southeast Palm Beach County Coastal Resilience Partnership Vulnerability Assessment, seven municipalities and Palm Beach County – 2021 (ELD PA and Brizaga)
- Briny Breezes Community Adaptation Plan – 2021 (ELD PA and Brizaga)

The Tetra Tech Team has a proven track record in resiliency, sustainability, and climate planning that is unparalleled in the industry. We appreciate the opportunity to submit our qualifications and look forward to working with the City on this important project. I can be reached at Brian.Proctor@tetratech.com or by phone at 772.341.0432 if you have any questions.

Sincerely,



Vice-President, Southeast Operations
Tetra Tech, Inc.

Tetra Tech, Inc.
4601 Sheridan Street, Suite 212, Hollywood, Florida 33021
Tel 954.364.1752 Cell 305.849.3404 | tetratech.com

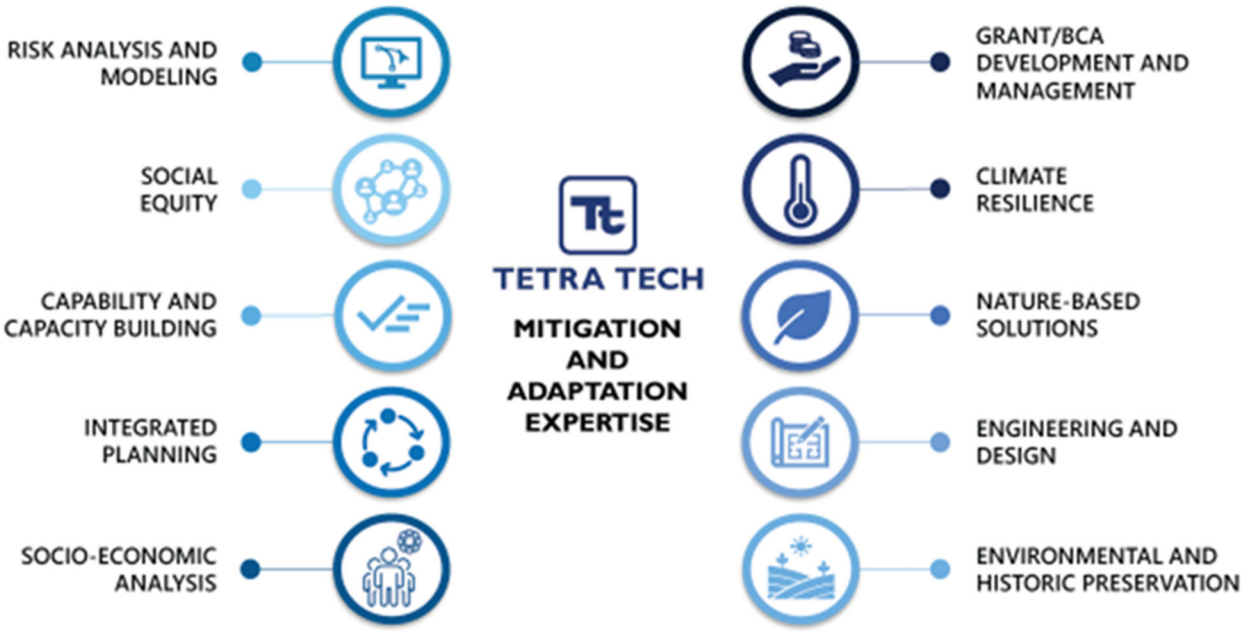
Table of Contents

1. Firm Qualifications and Experience

1.1 Firm Qualifications

TETRA TECH

Tetra Tech is a leading provider of consulting, engineering, and technical services. We are a diverse company, including individuals with expertise in science, engineering, construction, and research. Our strength is in collectively providing integrated services, delivering the best solutions to meet our clients' needs. Formed in 1966, Tetra Tech is respected for our excellent business practices and outstanding reputation in science and engineering. We are consistently ranked by Engineering News-Record (ENR) as among the leaders in our field. Tetra Tech's 2022 ENR national rankings include number 1 in Water for the 19th year in a row, as well as a number 1 ranking in Environmental Management and number 2 rankings in Consulting Studies and Environmental Science. Our team has extensive experience developing Vulnerability Assessments and Adaptation Plans, conducting tidal and storm flood water modeling, and evaluating options for structure hardening and resiliency adaptation. Our interdisciplinary teams of scientists, engineers, planners, and policy analysts use our *Leading with Science*® approach, which employs our Tetra Tech Delta suite of proprietary technologies and analytical tools, to assess climate risk, develop strategies to mitigate greenhouse gas emissions, and help communities adapt to and build resilience from the impacts of climate change.



Resilience

Tetra Tech offers a full suite of services and subject-matter experts across our various team members to prepare vulnerability assessments, mitigate hazard risk, adapt to the changing climate, and build community resilience in Florida. We offer more than the typical technical team by including partners well-experience in vulnerability, adaptation, and resiliency planning including policy, legal, communications, and outreach. We work collaboratively with local governments to design resilience programs and develop and implement resilience to achieve long-term resilience. All planning starts with a technically sound Vulnerability Assessment. Tetra Tech uses a holistic resilience planning approach that considers socio-economic concerns, integrates nature-based solutions, and builds capacity and capability to ensure programmatic success.

We recognize that public engagement increases the visibility of a planning effort and is key to the successful implementation of any plan. The community must support the City's efforts to develop policy and implementation strategies to address the risks we now see on a routine basis from flooding and sea level rise. We have successfully implemented workshop-style meetings coupled with available tools and technology to gather valuable input and achieve “buy-in” from the public and stakeholders. Upon completion of the assessment, our engineers provide conceptual design through final engineering plans based on modeling results. We also have an exceptional track record with securing funding and providing grant management services to successfully see projects through to completion. Our Team is specifically experienced in the implementation of the Resilient Florida program and has an incredible track record in navigating, securing, and managing grants in that program. We have developed tools to monitor, measure, and report the effectiveness of plans and programs to assist with tracking progress toward resilience goals.

Our expertise spans the continuum of resiliency— helping communities prepare for, withstand, respond, and adapt to climate change through tangible implementation. While Tetra Tech is uniquely experienced and has a highly qualified team to support this work, we are first and foremost committed to listening to the input of stakeholders, bringing forth local knowledge and expertise from within the community, applying what we learn in planning, and providing focused technical support as needed.

In the Florida, climate resilience planning has become a more statewide focus with the development of programmatic guidance as well as significant funding streams. The policy making arm of this movement began in 2010 when local governments were required to address the reduction of greenhouse gas emissions in four separate elements of their comprehensive plans. In 2011, adaptation action areas became a permissible designation within local governments’ comprehensive plans and, starting in 2015, local governments were required to address the “perils of flood” in the coastal element of the comprehensive plan. The Florida Department of Environmental Protection (DEP) began funding smaller planning grants to communities to launch vulnerability planning efforts through “Resilience Planning Grants.” However, the funding in those early years grew exponentially with the passage of Section 380.093, Florida Statutes (F.S.), in 2021 (known as “Always Ready” or the “Resilient Florida” program). With larger resources, DEP is now able to provide more meaningful funding to further climate resilience planning efforts. Through this continuum of progress, many local governments advanced significant efforts at planning and project implementation, as well as highlighting the resilience discussion.

The Tetra Tech Team has supported several local governments with their vulnerability assessments, public outreach, and related studies including:

- St. Lucie County Vulnerability Assessment – 2021 (Tetra Tech, ELD PA, and Clearview Geographic)
- Hillsborough County Resilience Plan – 2020 (Tetra Tech)
- Martin County Resilience and Watershed Management Plan – 2021 (ELD PA and Clearview Geographic)
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- Briny Breezes Community Adaptation Plan – 2021 (ELD PA and Brizaga)

Additional project details are provided in Section 1.2.

Modeling

Tetra Tech has unparalleled qualifications in two- and three-dimensional watershed modeling and we are considered industry experts in all aspects of modeling, including flood predictions, water quality, sediment transport, lake and estuarine circulation, reservoir routing, wetland retention, and contaminants. Tetra Tech has one of the largest group of experienced watershed and water quality modelers among consulting firms; successfully applied models for more than 7,500 waterbodies in over 45 states and for all pollutant, source, and waterbody types; developed numerous watershed and water quality models and project-specific model interfaces; performed numerous projects involving linked watershed, water quality, and/or hydrodynamic models; provided training in modeling in all 10 U.S. Environmental Protection Agency (USEPA) regions and numerous states; developed materials and provided training in water quality modeling principles and application; and developed the Environmental Fluid Dynamics Code (EFDC) model, USEPA's Better Assessment Science Integrating Point and Nonpoint Sources (BASINS) modeling system, and USEPA's Modeling Toolbox.

Our staff have experience with a variety of hydrologic and hydraulic (H&H) models including Hydrologic Engineering Center's River Analysis System (HEC-RAS), PONDS, CHAN, Interconnected Channel and Pond Routing Model (ICPR), and various Storm Water Management Model (SWMM) programs that could be used to support the City of Hollywood, as needed. The modeling approach for this project will be dictated by the City's goals, available data, existing models and analytical tools, and budget. The Tetra Tech Team brings a wealth of experience in selecting the right analytical tools to provide an actionable plan while meeting the state's Section 380.093, F.S. requirements.

Asset Management

To properly budget for and maintain assets, organizations require detailed knowledge about all key assets. Our planners and engineers work with clients throughout the entire asset life cycle—from planning, design, and implementation to condition assessments and life-cycle asset management. We apply leading-edge data analytics tools to design, collect, compile, review, and interpret data. In turn, we apply the data to analyze lifecycle costs and identify and define asset performance requirements and capital investment strategies. Our clients want to know the design and construction elements needed to maximize asset usefulness while minimizing costs over the long-term. Tetra Tech also provides front end project planning, including environmental and land use permit requirements, stakeholder engagement, facility compliance, traffic assessments, hazard mitigation planning, energy audits, and economic assessments.

To address the growing demand for real-time data review and monitoring, Tetra Tech uses data dashboards to visually track, analyze, and summarize key data types and performance measures. Dashboards provide an interactive and customizable environment promoting the efficient distribution of key information to our clients. Adaptability to long-term strategic goals and changes in mission requires asset balance and adjustment to short-term horizons. Tetra Tech can provide leadership and adaptability to customize asset solutions for specific mission needs. Supporting all aspects of asset management, from database design and data collection through life-cycle analysis, work management, and planning, we are ready to support the City's asset vision.

Outreach

The Tetra Tech Team has worked on similar planning efforts throughout the state and has been successful in involving the public in the process and facilitating the transfer of information to keep the public informed of project activities, while still maintaining the goals and objectives and keeping to the project schedule. We will prepare a community outreach strategy and will work with City staff to organize and facilitate the public meetings. The goal of these meetings will be to engage local residents in the planning process, obtain area-specific information that will help guide plan development, and ensure that all voices are heard during the meetings. During the last few years, we have gained extensive experience in holding virtual public meetings due to COVID-19 restrictions using various platforms such as Microsoft Teams, Zoom, and GoTo Meeting.

Grant Funding

Tetra Tech is currently assisting the City with grant identification, applications, and compliance and can seamlessly help to meet the Resilient Florida grant requirements.

Tetra Tech is currently assisting the City of Hollywood with numerous grant funding activities, for various agencies. We are assisting Public Utilities and other departments to identify, apply for, and comply with grant requirements. Tetra Tech has a combination of technical expertise, familiarity with grant programs, and the City that will be a benefit in us successfully completing this vulnerability assessment.

Tetra Tech experts have decades of experience working in partnership with our clients to secure funding and build a more resilient future with a focus on addressing the effects of climate change. After completing adaptation frameworks and implementation plans, we continue to serve our clients by putting their plans into action. This is because we offer a full suite of services and subject-matter expertise to help secure funding and implement projects. Our experts understand opportunities from a variety of sources such as the Federal Emergency Management Agency (FEMA), United States Economic Development Administration (EDA), United States Depart of Housing and Urban Development (HUD), USEPA, state, and philanthropic entities. We are able to best match a funding source to a priority project while considering critical elements that ensure the success of the program: timeline and cost match. Our grant writers and economists assemble the competitive grant applications and conduct a fully documented benefit-cost analysis (BCA). This is done in collaboration with our engineers, scientists, designers, and grant administrators to ensure our clients' project submittals are competitive, and their mitigation and adaptation actions can be implemented.

Tetra Tech has in-depth knowledge of the FEMA Hazard Mitigation Assistance (HMA) program, grant writing, and calculating BCA ratios, resulting in a high rate of grant funding for our clients. Our grant development services include grass-roots application development addressing eligibility and documentation of detailed project scope, schedule cost estimates, and environmental reviews. In addition, Tetra Tech performs formal BCAs in accordance with FEMA's benefit-cost methodology, using FEMA's BCA software. Tetra Tech also compiles and prepares all backup documentation and submits full BCA packages for FEMA review.

With the addition of Erin L. Deady, P.A. and Brizaga to our team, this grant experience is exponentially increased. Erin L. Deady, P.A. has written 63 grants to date in the Resilient Florida program. Erin L. Deady, P.A. also has secured eight Florida Division of Emergency Management (FDEM) Watershed Planning Initiative grants just awarded in September 2022 to complete Watershed Management Plans under FEMA's Community Rating System (CRS) Program for Activity 452.b.

Minimum Qualifications

As demonstrated throughout this proposal, Tetra Tech and our subconsultants have successfully completed similar projects for local governments throughout Florida and the United States. Tetra Tech is a licensed engineering consultant in the State of Florida and has no conflict of interest with regard to any other work performed for the City. Newly passed Florida legislation "Occupational Freedom and Opportunity Act" (effective July 1, 2020) eliminates separate business licenses for architects, geologists, and landscape architects who already hold an individual license. Therefore, we have included the license of Tetra Tech, Inc.'s sponsoring qualifier, Professional Engineer William Brownlie (PE 70052), below.

State of Florida
Department of State

I certify from the records of this office that TETRA TECH, INC. is a Delaware corporation authorized to transact business in the State of Florida, qualified on April 28, 1988.

The document number of this corporation is P19034.

I further certify that said corporation has paid all fees due this office through December 31, 2022, that its most recent annual report/uniform business report was filed on January 3, 2022, and that its status is active.

I further certify that said corporation has not filed a Certificate of Withdrawal.

Given under my hand and the Great Seal of the State of Florida at Tallahassee, the Capital, this the Third day of January, 2022

Secretary of State

Tracking Number: 2084199362CC

To authenticate this certificate,visit the following site,enter this number, and then follow the instructions displayed.

https://services.sunbiz.org/Filings/CertificateOfStatus/CertificateAuthentication

Subconsultants

Tetra Tech has supplemented our skill set with the following subcontractors.

ERIN L. DEADY, P.A.

Erin L. Deady, P.A. (ELD PA) has been on the forefront of resiliency planning in Florida as the field evolved. For the past 11 years, the firm has been a known expert in the fields of planning, sustainability, energy policy, resiliency planning, and harmonizing technical, legal, and policy approaches to assist local governments with pursuing their resiliency and sustainability goals. A core service of the firm has been securing grant assistance for local governments to further these efforts to plan for a more sustainable and resilient future. ELD PA has secured over 20 grants in the new Resilient Florida program and authored 63 grants. ELD PA's professional planning and legal practice has focused on formulating strategies to address climate and sea level rise challenges through new policy initiatives, comprehensive plans, and codes. The firm has conducted numerous legal analysis efforts and written numerous publications on the legal issues specifically addressing tort and negligence liability for local governments in their adaptation planning and response.

CLEARVIEW GEOGRAPHIC

Clearview Geographic is a global leader of geospatial intelligence, science, and technologies that provides tools that help make decisions, protect assets, grow business, and sharpen competitive edges. Armed with a creative multidisciplinary development team, Clearview Geographic tackles projects with an agile integrative geography approach. Clearview's planning services division oversees the information gathering, geospatial modeling, and creation of short, medium, and long-range documents for local governments, private businesses, and other large-scale organizations. Clearview's services specific to this contract include data collection and management; sea level rise and other flood modeling such as high tide flooding and storm surge; spatial analysis; geographic information system (GIS) mapping, including static print-ready maps and animations; ArcGIS online development; and story map creation for public outreach.

BRIZAGA
ASSESS. COMMUNICATE. ADAPT.

Brizaga, Inc. (Brizaga) is a multi-disciplinary civil and costal engineering firm built to solve complex problems by strategically leveraging science, communication, and policy and is a certified Small Business Entity (SBE) in Broward County. Brizaga focuses on both transformational and incremental changes that local communities must make while considering the physical, social, and economic benefits. Brizaga has performed vulnerability assessments, adaptation planning, business case assessments, public policy reviews, public engagement, and more. Brizaga's multi-lingual staff are not only subject-matter experts, but also expert communicators specializing in science communication and education and outreach related to resilience and adaptation.

Team members ELD PA and Brizaga have secured over 40 successful grants to date in the Resilient Florida program and have worked extensively on legislative and rulemaking efforts to help formulate the ranking of projects and new policy guidance. This experience will be invaluable in our support to the City of Hollywood in updating the Vulnerability Assessment.

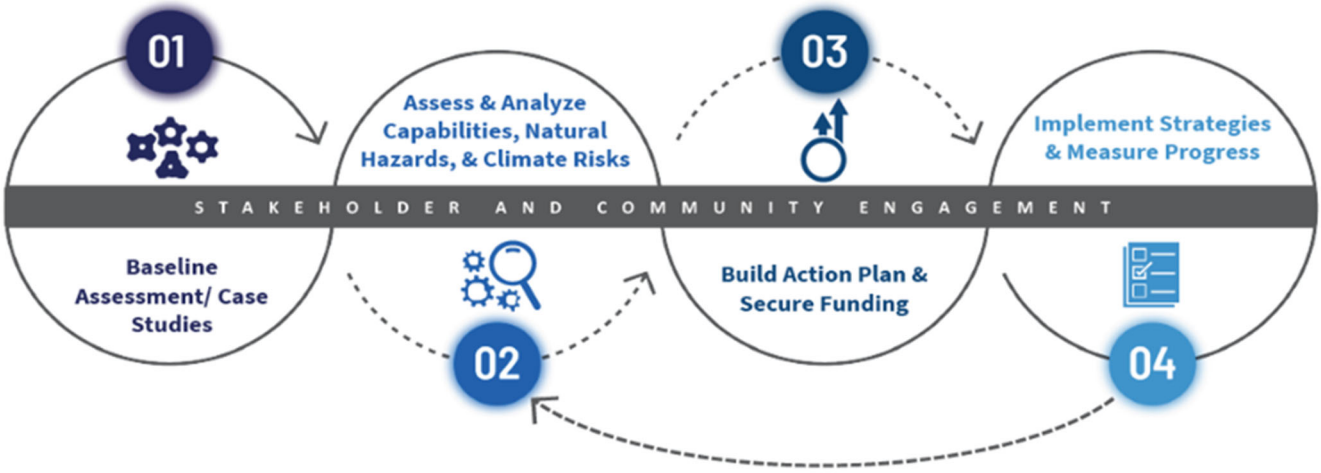
For 75 years, CDM Smith has been providing clients integrated environmental solutions worldwide. CDM Smith has been incorporating sustainable, green elements into projects for decades, and ENR consistently ranks CDM Smith as a top environmental and design firm. CDM Smith's climate resiliency planning projects spur innovation, develop new tools, and collaborate with clients to further advance creative solutions in addressing and planning for the complex challenges posed by climate variability. Their work in the field of climate change has quickly been recognized as industry leading, as evidenced by our team being selected by the U.S. Army Corps of Engineers to provide 21 regional climate vulnerability assessments cross the continental United States, Alaska, Hawaii, and Puerto Rico. They have supported FEMA in a nationwide climate change adaptation planning strategy for mitigative actions including to research more than 70 climate resilient project options that may reduce the risk of impacts to people and infrastructure attributed to climate change weather extremes. Additionally, since 1986, CDM Smith has developed standard methodologies for tidal boundary and variability considerations two to three feet above FEMA standard.

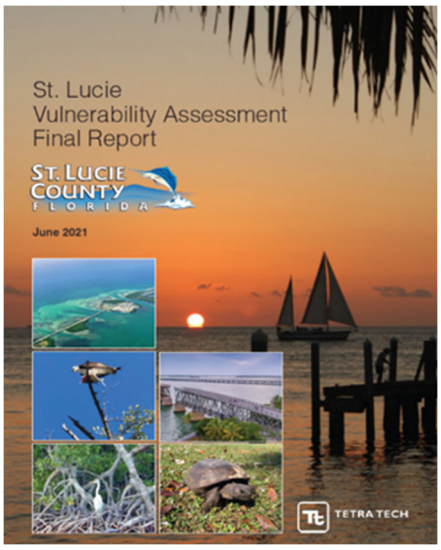
1.2 Similar Project Experience

In 2013 and again in 2019, Tetra Tech received the Climate Risk Management and Adaptation Award for providing integrated solutions to climate change from the Climate Change Business Journal.

For over 30 years, Tetra Tech has worked at the regional, national, municipal, and local levels to develop site-specific analyses and strategic recommendations to improve the resiliency of communities and programs. Our team works side-by-side with communities and counties across the United States to assess natural hazard and climate vulnerability; identify, prioritize, and design mitigation and adaptation measures; develop climate adaptation and resilience plans; and assist with securing funding to implement strategies to adapt to our changing environment.

Tetra Tech has been on the cutting edge of many national initiatives for years—investigating climate change effects and responses, conducting vulnerability assessments, and completing adaptation planning for aquatic ecosystems and water resource infrastructure. We have strong scientific knowledge, familiarity with current and foundational literature, and involvement with current work on the topic. Several examples of our team's extensive experience are highlighted below.





St. Lucie County Vulnerability Assessment

Tetra Tech, Inc. teamed with ELD PA and Clearview Geographic to prepare the St. Lucie County Vulnerability Assessment as a product of Resilience Planning Grant R2133. The Vulnerability Assessment is the first step in taking a systematic, data-driven approach in developing a community-wide resilience plan to analyze natural hazard risks and identify strategies to mitigate and adapt to those hazards in a proactive, equitable, and cost-effective way.

The Vulnerability Assessment includes the unincorporated county areas as well as areas within the jurisdiction of Port St. Lucie, Fort Pierce, and St. Lucie Village. A multi-jurisdictional steering committee was established as key collaborators with the county on a broad range of resilience goals. Lectures and discussion sessions were held to engage community stakeholders.

The Vulnerability Assessment addresses (1) flood conditions under various sea level rise scenarios and tidal flooding, (2) critical buildings and infrastructure, (3) natural resources, and (4) at-risk populations. The analysis forms the foundation of an evidence-based, strategic resilience plan that systematically prioritizes and develops adaptive strategies to address areas of vulnerability. Development of the key findings and data analysis for the Vulnerability Assessment was led by ELD PA and Clearview Geographic.

A data gap analysis was performed to identify missing information needed for future resilience planning efforts. The gap analysis serves as a qualitative assessment of the quality and usefulness of the data provided to the project team.

The Vulnerability Assessment is intended to provide a foundation to develop and implement a holistic community resilience plan. The Southeast Florida Regional Climate Change Compact's 2019 Unified Sea Level Rise Projections were used, and the future conditions in 2040, 2070, and 2100 were selected as the planning horizons. Based on the project's results, the county and its partners will integrate resilience and adaptive strategies into their respective planning documents within the various disciplines and agencies of their governments.

Client: St. Lucie County Environmental Resource Department

Location: St. Lucie County, FL

Consultant Fees: $75,000

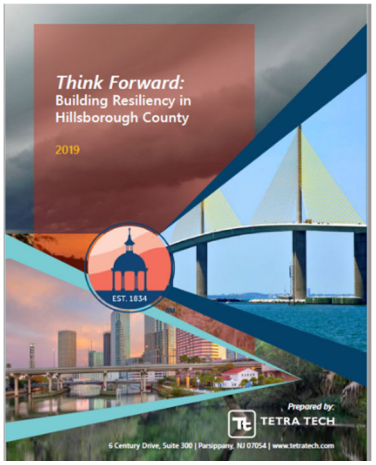
Dates: 2019 – 2021

Scope of Services: Prepare County Vulnerability Assessment

Contact:
Sandra Bogan
Resilience Navigator
772.785.5835
Bogans@stlucieco.org

Key Features

- Stakeholder engagement
- Data gap analysis
- 2040, 2070, and 2100 planning horizons



Hillsborough County Resiliency Plan

In 2019, Hillsborough County hired Tetra Tech to support the development of a resiliency plan for the county's new Office of Innovation and Resiliency through a cooperative process that included internal and external stakeholders. Hillsborough County is susceptible to a range of hazards, vulnerabilities, shocks, and stressors as evidenced by the fact that there have been 29 presidentially declared flood events for Hillsborough County since 1953. The history and increased frequency of hurricanes, storms, and flooding in the county, and associated damages to infrastructure, communications, structures, economy, and the health, well-being, and livelihood of its residents are a cause for concern. These impacts, intensified by sea level rise, have created the need for pro-active resilience planning to preserve and improve the quality of life in the county.

The resiliency plan provides an organizational roadmap to build interagency cooperation within the county and to enable a synergistic approach to addressing climate change. Often, the most beneficial outcomes of operationalizing resilience in local governments are the increased efficiencies and opportunities for cost savings. Resilience streamlines best practices across departments and provides a strong framework for doing more with less. In fact, in times of austerity, resilience is particularly one of the greatest assets to a local government because it means that city or county departments are working in tandem, spending taxpayer money on projects that are integrated and result in multiple benefits.

Tetra Tech developed this plan to provide a sustainable framework to support an effective and innovative Office of Innovation and Resiliency. The plan identifies the shocks and stresses impacting the county, its population, infrastructure, and economy and presents an organizational structure to guide leadership in implementing focused programs, actions, and administration and implementation of resilience strategies and projects. The plan provides a framework to enable the office to coordinate priorities and clearly communicate the similarities and important differences between sustainability and resiliency, including roles and responsibilities.

Client: Hillsborough County
Location: Hillsborough County, FL
Consultant Fees: $83,000
Dates: 2019 – 2020
Scope of Services: Develop Countywide Resilience Plan

Contact:
Barton T. Weiss
Chief of Innovation and Resiliency
813.853.1043
WeissT@HillsboroughCounty.org

Key Features

- Resilience planning
- Interagency cooperation
- Prioritize projects

Sea Level Rise and Mitigation Study for Miami-Dade County

Client: Miami-Dade County Parks, Recreation and Open Spaces Department

Location: Miami-Dade County, FL

Consultant Fees: $288,008

Dates: 2020 – 2021

Scope of Services: Sea Level Rise Impact Evaluation, Asset Inventory, Flood Mitigation Concept Development

Contact:
Roberto Rodriguez
Project Manager
786.516.4246
roberto.rodriguez3@miamidade.gov

Miami-Date County Parks, Recreation, and Open Spaces Department retained Tetra Tech to provide engineering services to develop sea level rise mitigation studies for three county parks located adjacent to Biscayne Bay. Tetra Tech complied relevant data including GIS shapefiles, sea level rise projections, king tide data, and Light Detection and Ranging (LiDAR) data. Tetra Tech also reviewed cultural resources and historical information and topographic and boundary surveys. Tetra Tech conducted site visits to visually evaluate the coastal and marine conditions within the project site. In addition, a cursory evaluation of the conditions of the existing structures was performed. An environmental assessment determined the condition of the existing habitats as they relate to sea level rise mitigation.

Based on the information collected, Tetra Tech performed general evaluations of the assets at each park. The asset condition was classified as good, fair, or poor determining the expected service life and classifying them as critical to the operation of the park, essential but not critical, and non-essential. Tetra Tech used sea level rise projections, tidal elevations, and relevant elevations to determine impacts to the three parks for years 2020, 2025, 2050, 2075, and 2100 using the National Oceanic and Atmospheric Administration (NOAA) projections.

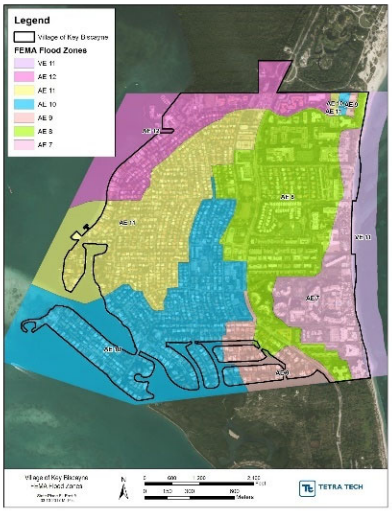
Tetra Tech developed flood mitigation concepts focusing on the level of protection relative to sea level rise and king tides, maintenance costs, impact to marine resources, permit feasibility, potential phasing of future adaptation, operational impacts, service life, preliminary costs, and stakeholder Involvement. The concepts took into consideration inundation maps and impacts to the park assets. Tetra Tech also developed a long-term schedule for planning purposes identifying the timing of the flood mitigation concepts to address impacts to the amenities at the parks.

Tetra Tech prepared three sea level rise mitigation reports, one for park, which outlined implementation strategies identifying the parks' current amenities and future needs based on the remaining service life of each asset. In addition, the reports included the flood mitigation concepts and detailed the current condition of the assets and improvement needs, based on sea level rise. They also evaluated the sea level rise impacts on stakeholders and the impact that it could have to the overall visitor experience.

Key Features

- Sea level rise impact evaluation
- Environmental asset inventory
- Engineering analyses
- Flood mitigation concept development
- Planning and cost estimating

Village of Key Biscayne Flood and Resiliency



The Village of Key Biscayne, an island town in the Miami-Dade County, is susceptible to flooding from both Biscayne Bay and the Atlantic Ocean. To comply with new regulations, the village needed to update their Base Flood Elevations (BFEs) using the Miami-Dade County Flood Insurance Study (FIS) transect data. The previous BFEs were based on the Flood Insurance Rate Map (FIRM) data.

Tetra Tech developed a Coastal Hazard Analysis Modeling Program (CHAMP v2.0) using the FIS transect data for three flood sources and the 100-year and 500-year flood magnitude events for a total of six scenarios. The results from the model were used to develop high-resolution inundation maps of the village for the six scenarios using LiDAR and Digital Elevation Model (DEM) data. The maps allowed homeowners and developers to quickly determine the expected inundation depth for properties throughout the village. The results were also used to delineate Coastal A zone from the Atlantic Ocean side.

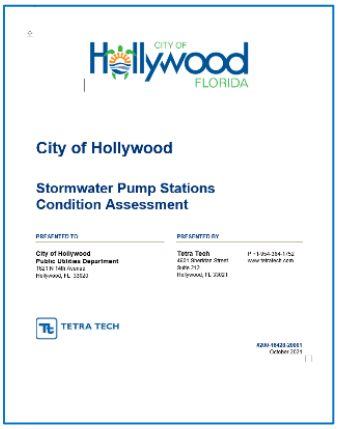
Client: Village of Key Biscayne
Location: Key Biscayne, FL
Consultant Fees: $12,000
Dates: 2017
Scope of Services: CHAMP Analysis, FEMA Map Updates

Contact:
Sergio Ascunce, CFM
Director of Building, Planning, and Zoning
305.365.5512

Key Features

- Coastal flood modeling
- CHAMP modeling
- Hazard mitigation
- Mitigation measures against sea level rise and climate change

Cit of Hollywood City-wide Stormwater Pump Station Condition Assessment


City of Hollywood

Stormwater Pump Stations Condition Assessment

TETRA TECH

Client: City of Hollywood Public Utilities Department

Location: Hollywood, FL

Consultant Fees: $200,000

Dates: 2018– 2021

Scope of Services: Stormwater Resiliency

Contact:
Raul Wainer, PE
Project Manager
954.921.3930
rwainer@hollywoodfl.org

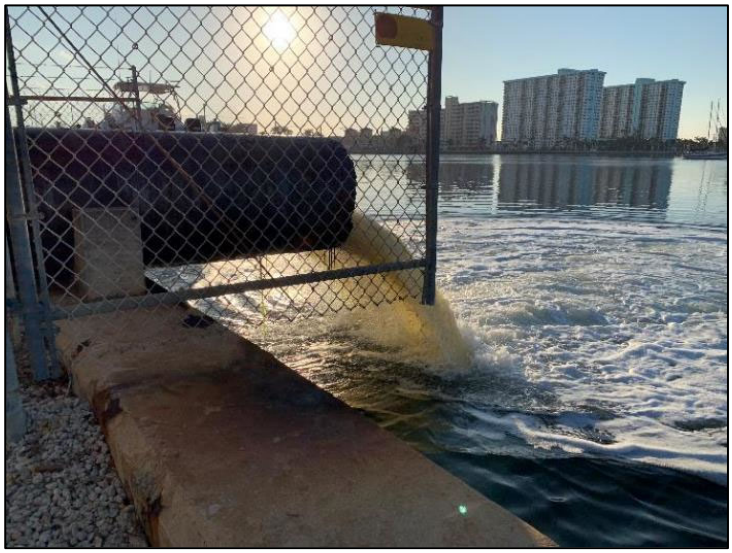
Tetra Tech completed visual condition assessments for nine of the ten stormwater pump stations (SW-01 to SW-05, SW-07 to SW-10) throughout the City. These engineering services were provided under the General Engineering Consulting Services contract (City Project No. 17-1325). In addition, Tetra Tech completed an evaluation of the discharge piping and pumping limitation for SW-06 and SW-08, condition assessment for SW-06, and hydraulic modeling evaluation of sea level rise impacts to five coastal pump stations for a complete report.

Tetra Tech developed a condition assessment methodology, based on the visual evaluations. Mechanical, structural, electrical, civil, architectural, and other pump station components were assessed.

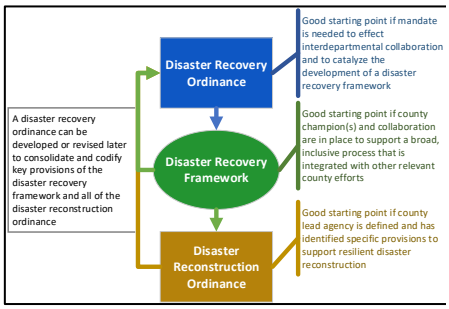
Pump station discharges were also analyzed to determine if pumping limitations existed. This included calculating theoretical pumping amounts, running pumps, and hydraulic modeling scenarios.

Sea level rise projections were considered to conduct hydraulic modeling to determine seawall overtopping and high groundwater contributions to stormwater being pumped by the coastal pump stations. In addition, seawall elevations and conditions were evaluated, due to the coastal nature of certain pump station. Many of the sea walls adjacent to the coastal pump stations were in a degraded state.

Tetra Tech developed a prioritized list of improvements for the nine pump stations, including costs, pumping and piping reconfigurations, civil, mechanical, electrical, structural, and architectural improvements necessary for the pump stations.



Tetra Tech assisted the City in assessing the stormwater pump stations



Client: Hawaii Sea Grant College Program, University of Hawaii

Location: Honolulu, HI

Consultant Fees: $210,000

Dates: 2017 – 2020

Scope of Services: Sea Level Rise Planning, Disaster Recovery Planning, Stakeholder Coordination

Contact:
Bradley Romine
Project Manager
808.956.3013
Romine@hawaii.edu

Statewide Guidance for Integrating Resilience to Coastal Hazards and Sea Level Rise in County Planning Frameworks and for Disaster Recovery Preparedness

Tetra Tech is currently developing statewide guidance for integrating resilience to coastal hazards and sea level rise in state, county, and community plans funded by a NOAA Regional Coastal Resilience Grant administered through the Hawaii Sea Grant College Program in partnership with the Hawaii State Office of Planning and Department of Land and Natural Resources. Tetra Tech is leading two of the three subprojects under this grant: (1) develop Guidance for Integrating Coastal Hazards and Sea Level Rise into County Planning Frameworks (SLR Planning Guidance) and (2) develop Guidance for Disaster Recovery Preparedness (DRP Guidance). Tetra Tech is also major contributor of data layers on the impacts of sea level rise to the third subproject, the Hawaii Sea Level Rise Viewer.

Tetra Tech has been conducting literature reviews, webinars, consultations, and workshops with all counties and state agencies to inform the guidance development process. Case studies are being prepared to develop best management practices, recommendations, and guidance. In addition, Tetra Tech is integrating the results of the Hawaii Sea Level Rise Vulnerability and Adaptation Report (also prepared by Tetra Tech and submitted to the Hawaii State Legislature in 2017). The SLR Planning Guidance is being developed to support transformative land use and development to address coastal hazards with sea level rise, focusing on long range planning at county and community levels. Case studies and consultations with state and county stakeholders were used to identify opportunities and challenges for improving resilience to coastal hazards with sea level rise through planning. Tetra Tech has identified key entry points and is developing guidance for integrating sea level rise in county comprehensive and community development planning. These points emphasize the importance of integrating the impacts of sea level rise in growth projections, community visioning, and policy formulation. Tetra Tech has also developed a Sea Level Rise Checklist to help state and county governments address relevant the State Priority Guidelines that must be addressed in all plans.

Key Features

- Sea Level Rise Planning Guidance
- Sea Level Rise Vulnerability and Adaptation Report

Client: County of Maui Department of Parks and Recreation

Location: Wailuku,HI
Consultant Fees: $200,000
Dates: 2020 – 2021
Scope of Services: Vulnerability Assessment

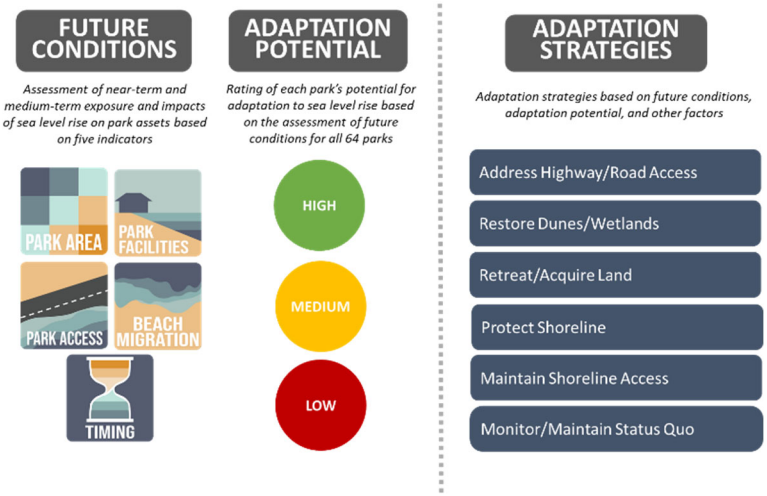
Contact: David Yamashita
Project Manager
808.270.6508
David.Yamashita@co.maui.hi.us

Maui Beach Park Vulnerability Assessment

Tech was awarded a contract by the County of Maui to conduct a vulnerability assessment of Maui's beach parks. The overall project purpose was to conduct a detailed analysis of the vulnerability of the county's beach parks and develop recommendations to address short- and long-term impacts of coastal hazards, climate change, and other environmental threats. Specific tasks of the project included:

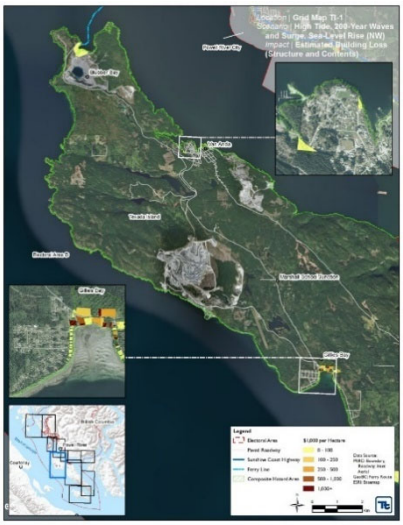
- Identify county-owned or managed beach parks that are vulnerable to sea level rise
- Assess impacts of these threats on park infrastructure and other assets
- Recommend policies, actions, and other ideas to address the short and long-term impacts

A compendium of adaptation strategies was prepared to guide planning and capital improvement programs. An inter-departmental working group was formed to support collaboration among county departments. An interactive GIS database was developed to help county staff access and use the results of the assessment for decision-making.



Key Features

- Coastal flood modeling
- Vulnerability assessment
- Adaptation strategies



Coastal Hazard Risk Assessment Powell River Regional District

The study includes shorelines exposed to coastal hazards near Powell River from Saltery Bay to Lund, as well as the following islands: Lasqueti, Texada, Harwood, Savary, and Hernando. These areas are under the jurisdiction of the Powell River Regional District (PRRD), the City of Powell River and the Tla'amin First Nation.

Previous studies are outdated (i.e., over ten years old) and require updates. For several areas coastal hazards have not been formally assessed. The science of sea level rise has experienced significant advancement over the past decade. Risk evaluation is required for public planning as well as prioritizing risk control/ mitigation measures.

Tetra Tech supported the PRRD in securing the funding for this study, provided under the National Disaster Mitigation Program (NDMP) Stream 1. The study characterizes coastal hazards (storm surge, sea level rise, and coastal erosion) and quantifies consequences and risk. It included extensive data gathering and reviewing about historical events, climate, population, and infrastructure at risk; numerical modeling of storm surges; assessment of shoreline erosion potential; review of a previous tsunamis study; and assessment of consequences in a GIS-based risk model.

The study provides risk levels along the shorelines, prioritizes areas that require more detailed assessment, and outlines steps to address identified risks and uncertainties. The study provides the basis for an NDMP (Stream 2) funding application to carry out a more detailed risk mapping study.

Client: Powell River Regional District
Location: British Columbia, Canada
Consultant Fees: $60,000
Dates: 2017 – 2018
Scope of Services: Characterize Coastal Hazards (storm surge, sea level rise and coastal erosion) and Quantify Consequences and Risk

Contact:
Ryan Thoms
Emergency Manager
604.485.2260
emergcoord@powellriverrd.bc.ca

Key Features

- Extensive data and information gathering and review
- Assessment of storm surge, sea level rise, and coastal erosion
- Numerical modelling of storm surge scenarios and delineation of hazard polygons
- Consequence and risk analysis in GIS using HAZUS Canada tool
- Presentation of study findings at a meeting of the Regional District board and committee members

Brickell Bay Drive Improvements for Sea Level Rise

Client: City of Miami
Location: City of Miami, Biscayne Bay, FL
Consultant Fees: $946,000
Dates: 2021 – Ongoing
Scope of Services: Design Services for Resiliency

Contact:
Jose Lago, PE
Project Manager
305.416.1252
jlago@miamigov.com

Tetra Tech is working with the City of Miami to provide interdisciplinary services. Services include reconstruction of the seawall and roads; development and coordination of architectural standards for pedestrian, recreational, and vehicular waterfront access and passive contemplative areas; an enhanced bay walk/green space and bicycle path(s); and implementing other innovative urban, architectural, green, blue, and gray infrastructure.

The project includes drainage improvements, evaluation of stormwater modeling, roadway reconstruction, milling and resurfacing, sidewalks, Americans with Disabilities Act (ADA) roadway compliant ramps, curb and/or gutters, pavement markings and striping, roadway signage, lighting, permitting, and preparation of environmental mitigation plans, and any ancillary infrastructure requirements, as applicable.

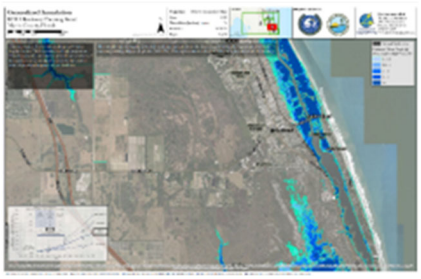
The urban, engineering, and architectural design alternatives designed for the project will have inherent environmental consequences. Therefore, factors relating to tidal and storm surge, drainage, ecosystem of Biscayne Bay, transportation, cultural resources, urban design/visual aspects, open space and recreation, and topography are being considered. This project will serve as a demonstration project for protection from storm surge and sea level rise while also providing waterfront connectivity, public open space, and natural ecosystems for a long-term and resilient public asset. While climate change and sea level rise are long-term issues, the area faces the threat of a hurricane ever year potentially bringing destructive wind and rain and storm surge. This project will help to face both immediate and long-term challenges.

Key Features

- Demonstration project for protection from storm surge and sea level rise
- Designed resilient infrastructure using a holistic approach

ERIN L. DEADY, P.A. CLEARVIEW GEOGRAPHIC

ELD PA has worked on the following projects with Clearview Geographic in Martin County, St. Lucie County, Monroe County, and City of Pensacola.



Martin County Resilience and Watershed Management Plan

Client: Martin County Board of County Commissioners

Location: Martin County, FL

Consultant Fees: $200,000

Dates: 2021

Scope of Services: Resilience Planning, Sea Level Rise and Flooding Analysis

Contact:
Kathy Fitzpatrick
Project Manager
772.288.5429

ELD PA and Clearview Geographic have been working with Martin County since 2018 on various climate and resiliency issues. ELD PA has assisted in securing three planning grants for the county and supported the county with modeling initiatives to secure another five capital planning grants through the Resilient Florida program.

ELD PA led the project team consisting of Clearview Geographic, Balmoral Group, and Lori Lehr. Work products were completed pursuant to an initial Resilient Planning Grant and a subsequent one to develop the county's Resilient and Watershed Management Plan document served as a basis for the creation of the Sea Level Rise Report (2021).

ELD PA and Clearview Geographic collected all data, developed an extensive GIS mapping dataset and metadata files provided to DEP in compliance with all grant requirements. As the county's efforts converged with the creation of the Resilient Florida program, the county's work to date places them far ahead of the curve having already completed numerous analyses from which to build from to finalize a comprehensive Vulnerability Assessment this coming year.

ELD PA led the team to conduct outreach activities including a Facebook Live event and developed numerous presentation materials and other work products. ELD PA led the development of the recommendations for the planning effort which included 48 recommendations coalescing county departments, future data collection efforts, and modeling activities. ELD PA assisted with the development of the grant leading to the project.

Key Features

- Sea level rise analysis
- County wide resilience planning
- Public outreach

Monroe County Vulnerability Assessment

Client: Monroe County
Location: Monroe County, FL
Consultant Fees: $92,000
Dates: 2021
Scope of Services: Resilience Planning, Sea Level Rise and Flooding Analysis

Contact:
Rhonda Haag
Chief Resilience Officer
305.453.8774
Haag-Rhonda@monroecounty-fl.gov

ELD PA has led the County's resilience planning efforts since 2013 and developed the Resilience Planning Grant R2111 awarded to Monroe County to update its previous Vulnerability Assessment conducted in 2015. For this work conducted in 2020–2021, ELD PA led the team consisting of Clearview Geographic, OVID, Wood, Cummins Cederberg, HDR, and other subcontractors to perform habitat analysis (one of the few vulnerability assessments to perform that analysis to date) including analysis of shorelines, all critical assets, and development of Adaptation Action Areas (AAAs), which the county anticipates adopting later in 2022. ELD PA led multiple public outreach events and commission briefings on the project. Work products were completed on time and on budget.

Using a baseline GIS database containing building elevation certificates, planning-grade sea level adjusted floodplains, and local sea level rise tide projections, the team identified multiple climate-driven vulnerabilities and provided community-wide visualizations of potentially flooded infrastructure in 2040, 2070, and 2100.

To help communicate the severity of sea level risk inundation, the team created a fly-over-style animation of the southern portions of unincorporated Monroe County.

Expanding upon the data gathered during the previous Vulnerability Assessment and updating the sea level projections with more up-to-date information, the team conducted the GIS analysis to identify potential vulnerabilities with consideration of areas, assets, and infrastructure, as well as the social fabric of the community. Modeling habitat change and mangrove encroachment, the team identified habitats that are especially vulnerable to rising sea levels. These data served as a foundational component for identifying the county's adaptation action areas.

Key Features

- Sea level rise analysis
- County-wide resilience planning
- Public outreach

Monroe County Roadway Vulnerability Analysis and Capital Plan

Client: Monroe County

Location: Monroe County, FL
Consultant Fees: $1,800,000
Dates: 2021
Scope of Services: Resilience Planning, Sea Level Rise and Flooding Analysis

Contact:
Rhonda Haag
Chief Resilience Officer
305.453.8774
Haag-Rhonda@monroecounty-fl.gov

As a subcontractor to HDR, ELD PA's role on the Roadway Vulnerability Assessment was to develop legal and policy strategy related to level of service determinations, identify potential special assessment methodologies, and advise the project team and county attorney's office on potential legal liability issues related to tort and takings actions against the county related to the outcomes of the projects by property owners. ELD PA conducted significant legal analysis for the project, which shaped the transparency and communications with the public about the project as well as the final methodology to prioritize the projects. ELD PA also secured two grants to implement projects to date and is developing grant applications for 15 more roads elevation projects in 2022.

Key Features

- Sea level rise analysis
- Legal risk analysis
- Grant funding

City of Pensacola Vulnerability Assessment

Client: City of Pensacola

Location: Pensacola, FL
Consultant Fees: $85,000
Dates: 2021
Scope of Services: Resilience Planning, Sea Level Rise and Flooding Analysis

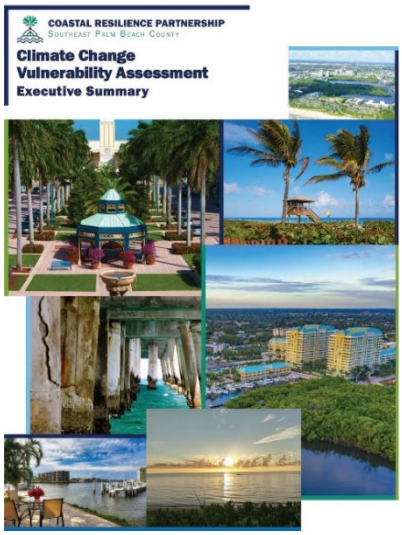
Contact:
Cynthia Cannon, AICP
Assistant Planning & Zoning Manager
850.435.1670
ccannon@cityofpensacola.com

ELD PA and Clearview Geographic prepared the Vulnerability Assessment for the City of Pensacola through Resilience Planning Grant R2116. The Vulnerability Assessment presents an updated analysis of the City of Pensacola's vulnerabilities, with a particular focus on ecological and social vulnerabilities to guide future planning efforts. The project team developed recommendations for the city, both to guide mitigation measures based on the Vulnerability Assessment and to improve the quality of future assessments. Clearview Geographic developed several map books and corresponding GIS data detailing the NOAA level rise projections. Using a 2040, 2070, and 2100 planning horizon and the NOAA Intermediate High and Intermediate Low flood projections in an analytical model that assigned a ranked priority based on timeline to impact and estimated water depth for the critical assets, areas, and infrastructure. Additionally, Clearview identified Priority Planning Areas and a stormwater project priorities list for retrofitting outfalls with tide valves.

Key Features

- Sea level rise analysis
- Grant funding

BRIZAGA
ASSESS. COMMUNICATE. ADAPT.



Client: Southeast Palm Beach County Coastal Resilience Partnership via the City of Lake Worth Beach

Location: Lake Worth Beach, FL

Consultant Fees: $47,960 (Brizaga) and $41,850 (ELD PA)

Dates: 2020 – 2021

Scope of Services: A Comprehensive Climate Change Vulnerability Assessment for Eight Local Governments, Development of Adaptation Measures, Public Outreach and Engagement

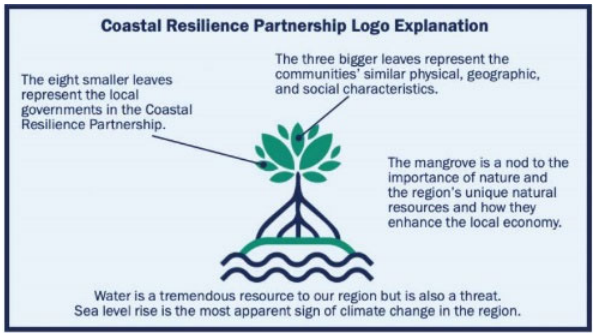
Contact:
Felipe Lofaso
Assistant Director, Public Works
561.586.1720
flofaso@lakeworthbeachfl.gov

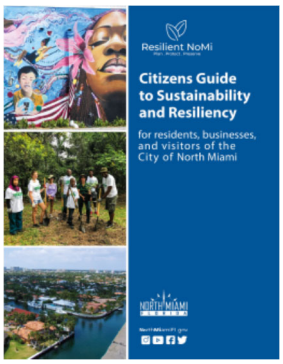
Coastal Resilience Partnership Vulnerability Assessment

The Coastal Resilience Partnership of Southeast Palm Beach County is a micro-regional collaborative that includes seven municipalities and Palm Beach County and team members Brizaga and ELD PA served on the team. Together, the jurisdictions performed a climate change vulnerability assessment. As a multi-jurisdictional assessment, the project had diverse stakeholder groups working together on a common project. Because of the nature of the project, the project included significant community outreach including workshops, which were held virtually because of COVID, a survey, and an executive summary designed for the general public.

Key Features

- Evaluated future conditions of baseline water levels using NOAA sea level projections consistent with the Southeast Florida Regional Climate Change Compact recommendations.
- Coordinated all communications, outreach and engagement for the project.
- Held public workshops and developed and executed a comprehensive survey.
- Created an Executive Summary version of the assessment that was graphically pleasing and geared towards the general public.
- Created a logo and brand for the Coastal Resilience Partnership of Southeast Palm Beach County.
- Developed AAAs language and maps using a unique approach for three different types of AAAs: neighborhoods, infrastructure, and natural resources





Citizens Guide to Sustainability and Resiliency

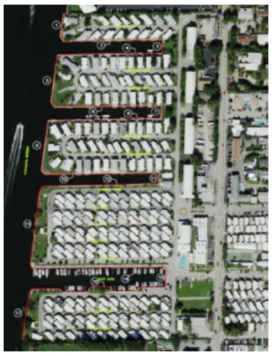
The City of North Miami contracted Brizaga to develop a Citizens Guide to Sustainability and Resiliency for community members, enabling them to become active participants in advancing and enhancing community efforts. Brizaga used their communications expertise to research, develop, and author a comprehensive guide on sustainability challenges and opportunities that home and business owners may engage on to become more resilient. Brizaga was also responsible for the outreach efforts showcasing the Guide to Council members and City staff. In April 2020, Brizaga successfully furnished the Resilient North Miami Citizens Guide.

Client: City of North Miami
Location: Miami, FL
Consultant Fees: $8,000
Dates: 2019 – 2021
Scope of Services: Due Diligence, Creation of Citizens Resilience Guide, Lead Public Outreach and Workshops

Contact:
Tanya Wilson
Planning, Zoning and Development Director
305.895.9828
twilson@northmiamifl.gov

Key Features

- Developed a 52-page resilience and sustainability guide with key information pertaining to the effects sea level rise and climate change have on the city.
- Educated community members on individual adaptation and personal carbon footprint reduction through a series of challenges, inclusive of, investing in retrofitting property prior to a storm event, adopting conscious consumer habits, and practicing resource conservation.
- Researched sustainability initiatives and events within the city to be incorporated in the guide.
- Adapted in-person public outreach events to virtual workshops amidst COVID-19.



Briny Breezes Community Adaptation Plan

Brizaga, alongside Collective Water Resources and ELD PA, led the development of the first-of-its-kind community-wide adaptation plan with a focus on flooding and impacts of climate change, including sea level rise. The team prepared a Vulnerability Assessment for at-risk assets and produced a comprehensive adaptation plan. The analysis was conducted using Brizaga's Adaptation Prioritization Exercise, or APEx, which includes impacts and threats that may occur to infrastructure and the community. Brizaga delivered a detailed adaptation plan that embodies the unique needs of the town and proposed innovative solutions to alleviate the effects of flooding and sea level rise. ELD PA has continued to serve the town developing resilience code language for the potential redevelopment.

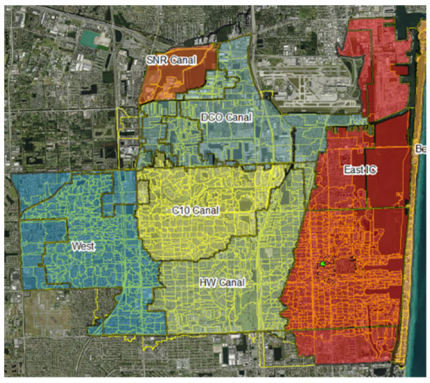
Client: Briny Breezes Corporation
Location: Briny Breezes, FL
Consultant Fees: $29,780
Dates: 2020 – 2021
Scope of Services: Asset Inventory, Prioritize At-Risk Assets, Develop Adaptation Strategies, Cost Estimates

Contact:
Michael Gallacher
General Manager
561.767.0115
brinybreezesgm@gmail.com

Key Features

- 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 with near-, medium-, and long-term strategies and furnish high-level cost estimates for all proposed actions.

CDM Smith



City of Hollywood Stormwater Master Plan

CDM Smith is developing the comprehensive stormwater master plan (SWMP), system inventory, and model to evaluate the existing level of service (LOS) as well as alternatives for flood control, water quality, and aquifer recharge on the City's urbanized system, with consideration of upstream inflows and downstream canals and tidal systems as boundary conditions. CDM Smith developed a cost-effective approach to build upon municipal separate storm sewer system and total maximum daily load goals for impaired waters to improve and document water quality benefits.

CDM Smith is evaluating the current LOS and identifying prioritized problem areas, existing and future regional operation and maintenance needs, and projected costs. The study considers future climate change projections into the planning, engineering design, construction, and operations of the systems. CDM Smith developed and applied comprehensive USEPA SWMM quantity and Watershed Management Model (WMM) quality representations for existing and future conditions.

As a team member, Tetra Tech supported the SWMP efforts by analyzing the existing conditions of the stormwater pump stations. The team gathered information from existing as-builts for other facilities for pump data not included in the condition assessment but needed for model operation. 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 efforts for the modeling including stormwater network geodatabase design, impervious analysis, total dissolved solids estimation, and seawall survey update.

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, A1A pump stations, and Hollywood Lakes and Hollywood Hills exfiltration projects.

The SWMP will include capital improvement plan projections and an outline of available funding options and opportunities, including grants, loans, and/or stormwater utility rate revenues. CDM Smith will use the FEMA HAZUS-MH software to calculate structural and economic damage during storm events. CDM Smith, along with our team member Brizaga, is conducting public outreach and created brochures for the City's distribution.

Client: City of Hollywood
Location: City of Hollywood, FL
Consultant Fees: $3,747,652
Dates: 2021 – Ongoing
Scope of Services: Develop Stormwater Master Plan including considerations for climate change scenarios

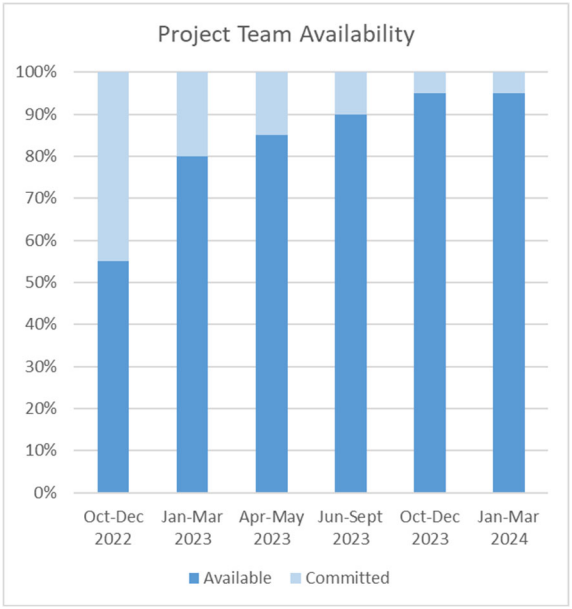
Contact:
Raul Wainer, PE
Project Manager
954.921.3930
rwainer@hollywoodfl.org

Key Features

- Level of service evaluation considering climate change
- Grant application and support
- Public outreach

1.3 Project Management

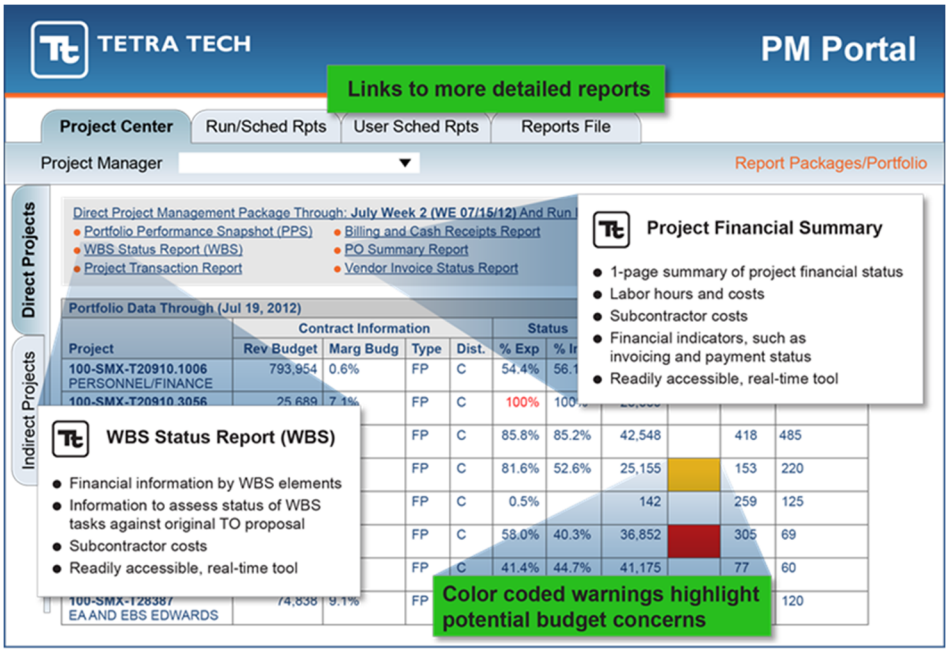
Our proposed project team is composed of an exceptionally qualified group of professionals with years of experience in the field and an established working relationship as a team to solve Tetra Tech's clients' most complex problems. We have selected staff with available projected utilization to serve the City of Hollywood's needs. The chart to the right shows the current available and projected workload for the project team. As indicated, we have and will continue to have the staffing and availability to carry out tasks in a fashion that exceeds the City's expectations.



Tetra Tech supports the Project Manager with a scheduling and forecasting system focused on advanced planning of resources developed from our many years of project experience. This system contains information on total staff availability by skill, discipline, professional level, and location. It allows the Project Manager to match available resources against project needs and to commit the resources before receipt of a task assignment.

Tetra Tech completes quarterly Project Evaluation Estimates and at Completion for our projects. These estimates track scope, schedule, budget, and personnel utilization. They allow project managers to focus on long-term goals for projects to ensure that our clients' needs are being met and ensure projects are set to be completed on time and within budget. By identifying potential problems early on, corrective actions can be made to put projects back on track when necessary. These estimates are also used to track personnel utilization throughout the company, by individual, by office, and by division. Based on these estimates of our current utilization and quarterly utilization projections, our proposed project staff are available and will be increasingly available to serve the City of Hollywood in the coming months.

A key element of Tetra Tech's management approach is an in-house system for real-time tracking and reporting of project budgets. Tetra Tech's Project Management (PM) Portal is the daily interface for "Tetra Linx," Tetra Tech's enterprise resource planning tool, a reporting platform for human resources, project management, and financial and accounting systems across all operating units. The PM Portal's primary purpose is to provide all of Tetra Tech's Project Managers with access to Tetra Linx project data as well as to project management focused tools that work with/from that data and ensure projects are set to be completed on time and within budget. This tool gives us the ability to provide predictive analytics for proactive modifications in approach or resources (as necessary) to track project status and to identify opportunities to shorten project durations and manage the approved budget.



2. Organizational Profile and Project Team Qualifications

Tetra Tech has assembled an exceptional team that has the qualities essential for the successful completion of the tasks identified by the City of Hollywood for the Citywide Vulnerability Assessment Update. Our team members have outstanding qualifications, demonstrable experience, commitment, availability, and are structured for effective responsiveness. We have identified a specialized group of highly qualified professionals and support staff, as well as an experienced management team to respond to the City's needs. Our key team member and subconsultant roles and experience are presented below, and our organizational chart is presented at the end of this section. Resumes for key staff are included in Attachment A.

2.1 Project Management

Our project management team, consisting of Ms. Georgia Vince, Ms. Diana Santander, and Mr. Kenneth Caban, will coordinate with the City of Hollywood, oversee the project and task administration, and ensure that the project meets deadlines, budgets, and goals. Ms. Vince will be the main point of contact for the City and will work with Ms. Santander and Mr. Caban to assign personnel and resources, oversee all work activities, and provide quality assurance/quality control (QA/QC) of the project deliverables.

GEORGIA VINCE — *Project Manager*

23 Years of Experience | 12 Years at Tetra Tech

Ms. Vince has 23 years of experience with environmental programs and 12 years with project management. Ms. Vince has managed projects of all sizes with budgets of over $2 million. She recently was project manager for the St. Lucie County Vulnerability Assessment completed in 2021. Her background in regulatory and permitting programs for state, federal, and local levels of government has provided her with a detailed understating of Florida's regulation system. Ms. Vince has extensive experience in public speaking and coordinating with stakeholders on sensitive environmental issues. She is well known for her abilities to meet project schedules and stay within budget with a high level of client satisfaction.

Relevant Project Experience

- St Lucie County Vulnerability Assessment, FL
- Everglades Agricultural Area (EAA) Storage Reservoir and Stormwater Treatment Area Feasibility Study, FL

DIANA SANTANDER, PE — *Deputy Project Manager*

25 Years of Experience | 7 Years at Tetra Tech

Ms. Santander has 25 years of civil and environmental engineering experience including resiliency projects, stormwater management, water distribution, wastewater collection systems, water conservation and solid waste management. She has managed several projects that range from small municipal improvements to overall programs involving complex improvements in highly urbanized areas. Ms. Santander has also prepared engineering cost estimates, performed project cost tracking and scheduling, reviewed final as-built documentation, and participated in contractor and consultant selection and management.

Relevant Project Experience

- City of Hollywood Water Main Replacement Program, FL
- Sea Level Rise and Mitigation Study for Miami-Dade County Parks, FL

KENNETH CABAN, PE — *Client Service Manager*

27 Years of Experience | 12 Years at Tetra Tech

Mr. Caban has managed local resiliency and infrastructure improvement projects in the Miami area for over 20 years. His local understanding and proven abilities managing multi-discipline teams make him an ideal client services manager for this project. Most recently, his work has included climate change and sea level rise adaptation and resiliency projects within the Miami-Dade and tri-county area, as part of the Southeast Florida Regional Compact on Climate Change, where he served as a member of the Built Environment Work Group. As a member of the Work Group, Mr. Caban's mission was to develop focused recommendations pertaining to regional climate mitigation and adaptation issues in the built environment as part of a regional action plan.

Relevant Project Experience

- City of Hollywood Grant Management Program, FL
- City of Miami Brickell Bay Drive Resilient and Adaptable Improvements, FL

2.2 Technical Leads

Our technical leads have decades of experience in public outreach, data analysis and modeling, critical asset evaluation, vulnerability assessments, and adaptation planning. Summaries are provided below for each of our technical leads. Supporting the technical leads are experienced technical staff with the expertise and knowledge to successfully implement the Vulnerability Assessment Update tasks.

Alison M. Miskiman, GISP, CFM
Risk Assessment
Years of Experience: 31
Education: B.S. Engineering

Ms. Miskiman leads Tetra Tech's Risk and Resilience sub-practice as part of our Emergency Management Community Resilience program. She specializes in risk-informed planning and working in partnership with clients to maximize funding to increase resilience to natural hazard events and the changing climate. She is a Certified Floodplain Manager (CFM) and a Certified Geographic Information Systems Professional (GISP). Ms. Miskiman leads our geospatial team to conduct detailed and customized risk and vulnerability assessments.

Cynthia Bianco, PP, AICP, CFM, LEED AP BD+C
Mitigation Planning
Years of Experience: 31
Education: B.S. Engineering

Ms. Bianco is involved in the management and performance of community reconstruction plans, resiliency projects, and local hazard mitigation planning projects regulated under the Disaster Mitigation Act of 2000. Her experience includes the development and management of a wide range of implementation-focused resilience and mitigation projects in accordance with HUD, FEMA, and state requirements. These proactive plans form the basis for climate adaptation measures and mitigation strategies to reduce the vulnerability of hazards.

David Frodsham, PE
Lead Engineer
Years of Experience: 12
MS Engineering Management
Education: B.S. Engineering

Mr. Frodsham has experience in civil engineering, coastal engineering, municipal engineering, civil site design, environmental permitting, and construction management. Mr. Frodsham has worked on a variety of infrastructure projects from preliminary design through construction close-out. In addition to design services, his experience with Construction Engineering and Inspection has allowed him to develop a keen understanding of construction-focused design solutions. He specializes in coastal shoreline protection and hardening projects.

Robert Flaner, CFM
Hazard Mitigation
Years of Experience: 31
Education: B.S. Biological Sciences

Mr. Flaner has a comprehensive background in all aspects of floodplain management while administering the CRS under contract with FEMA. He has taken his diverse experience and expanded it into planning and preparing for the impacts of all-natural hazards through coordinated planning efforts pursuant to the Disaster Mitigation Act of 2000. Using planning tools such as HAZUS-MH, FEMA's Benefit Cost Analysis Re-engineering (BCAR), and the CRS 10-step planning template, he has supported local governments across the country.

Shari Ramirez, PE
Grant Management
Years of Experience: 18
Education: B.S. Engineering

Ms. Ramirez has 18 years of civil engineering experience as Senior Civil Engineer and Project Manager. She is an Envision Sustainability Professional and Temporary Traffic Control Professional. She has been engineer of record for projects involving water mains, gravity sanitary sewers, force mains, site development, runway and taxiway, minor roadway and drainage. She is currently working with the City of Hollywood to assist with grant funding and grant management.

ERIN L. DEADY, P.A.
Erin Deady, PA
Vulnerability & Policy
Years of Experience: 26
Education: B.A. Marine Science Affairs, M.A. Public Administration, MA Environmental Growth Management, Juris Doctorate

Ms. Deady has helped local governments throughout Florida undertake resiliency and climate planning efforts and is a subject matter expert in navigating the legal risk associated with flooding and climate change. Her planning and legal practice have focused on formulating strategies to address climate and sea level rise through new policy initiatives, comprehensive plans, and codes. She has written numerous publications on the legal issues addressing tort and negligence liability for local governments in adaptation planning and response.

CLEARVIEW GEOGRAPHIC
Alex Zelenski, GISP
GIS Consultant
Years of Experience: 10
Education: B.S Environmental Science and Geography

Mr. Zelenski has significant GIS and environmental consulting experience on numerous projects including resiliency, sustainability, vulnerability assessments, and public engagement to support local government planning initiatives both within and outside of Florida. He has experience creating climate-risk models to serve as the basis for vulnerability assessments and resiliency plans and has leveraged them to identify priority planning areas and adaptation action areas.

BRIZAGA
ASSESS. COMMUNICATE. ADAPT.
Alec Bogdanoff, Ph.D.
Public Outreach
Years of Experience: 20
Education: B.S & M.S. Meteorology, Ph.D. Physical Oceanography

Dr. Bogdanoff is a policy-trained oceanographer and meteorologist and has experience with simplifying and effectively communicating complex scientific processes. He is intimately familiar with Hollywood leading the outreach and education for the Stormwater Master Plan and Tidal Flood Mitigation projects. He has worked on numerous vulnerability assessment and adaptation plans. He has a unique understanding of state statute on vulnerability assessments and deftly navigates grant requirements and project vision between community, elected officials, staff, and other key stakeholders.

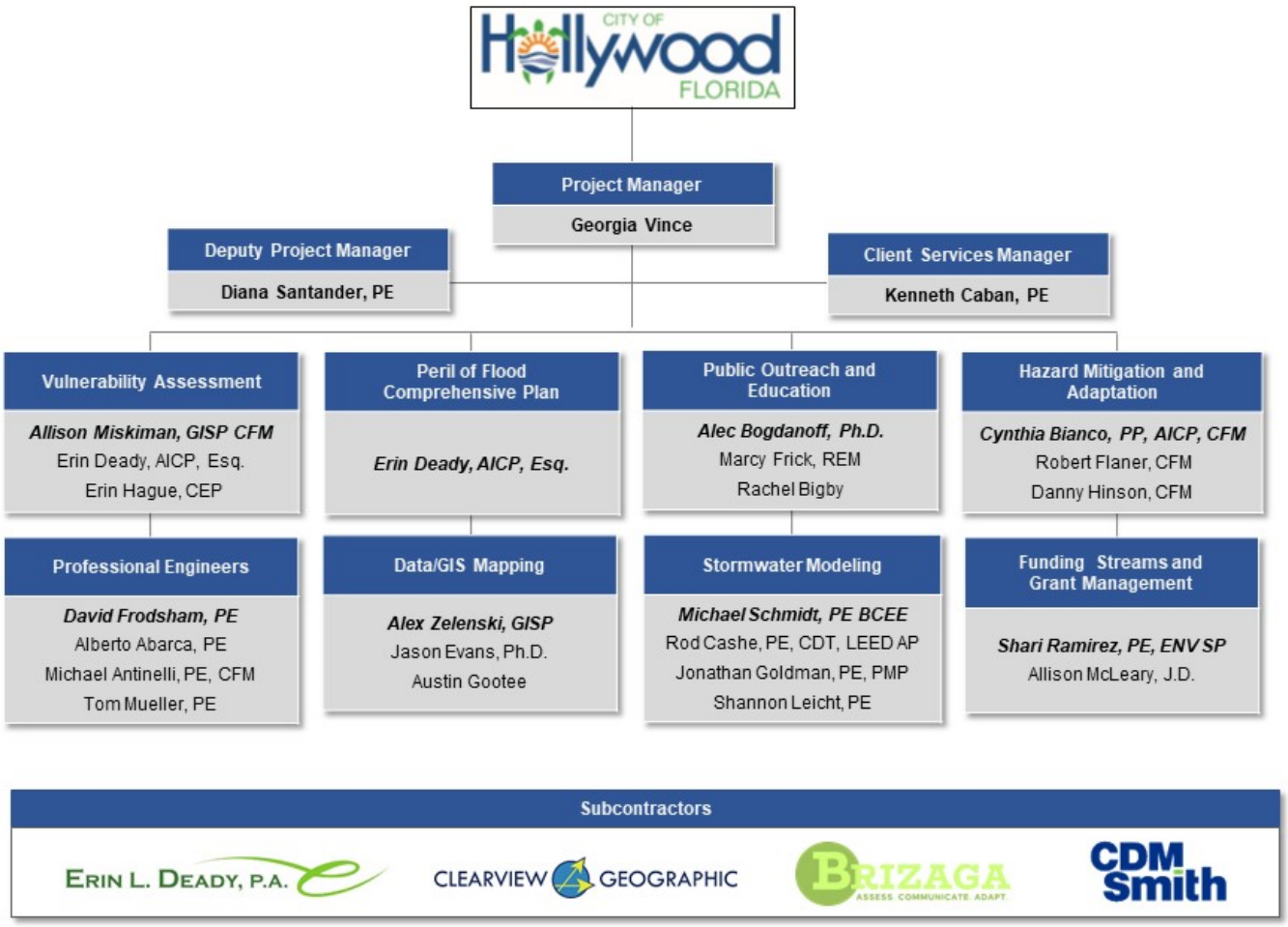
Michael Schmidt, PE BCEE, D.WRE

Stormwater Infrastructure

Years of Experience: 38

Education: B.S. Environmental Engineering

Mr. Schmidt is CDM Smith's Global Practice Leader for Water Resources Infrastructure and Resiliency. He has experience in sustainable and resilient stormwater, civil works, flood control, green infrastructure, coastal, water supply, ecosystem restoration, water resource, and watershed master planning, modeling, research, facilities evaluations and design, permitting, operations, asset and data management, implementation, training, public information, and funding.



3. Approach to Scope of Work

The following section outlines are proposed approach to the tasks outlined in the City's grant work plan for the Vulnerability Assessment Update.

3.1 Approach to Tasks

Upon contract award, Tetra Tech will work with the City to organize a kick-off meeting with the project team to discuss the scope, schedule, and deliverable expectations and develop a shared vision for the project. During this meeting, the City will discuss what data they have available related to the project, as well as any projects and initiatives that may affect the Vulnerability Assessment planning. The Tetra Tech Team is recommending the formation of a Steering Committee for the Vulnerability Assessment to provide cross-departmental input into the planning process. As part of the kick-off meeting, the City should plan to identify representatives from City Departments, scientists, and community leaders to serve on the Steering Committee. Tetra Tech will assist the City in obtaining commitments from the Steering Committee members and determine the number, dates, times, and locations for the meetings, based on critical decision points in the project process.

Task 1: Public Outreach Meetings

Tetra Tech Team member Brizaga will support the public outreach tasks for the project. Their goal is to communicate science-based information that engages the public, community leaders, and subject matter experts, regardless of education and technical background. Our Team will use a variety of methods and multi-media tools in a collaborative and meaningful way to help the community understand the science and technical information behind the Vulnerability Assessment Update and proposed projects, taking knowledgeable actions to protect quality of life and the health of the community.

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.

The Tetra Tech Team will work with the City of Hollywood to develop a community outreach strategy to disseminate public announcements and educational materials throughout designated websites, calendars, email lists, newsletters, and social media platforms. Our outreach tools and materials may include combinations of:

- Mailchimp email templates for newsletters and email distribution
- Graphic designed social media standard posts
- Graphic designed educational materials with Americans with Disabilities Act (ADA) compliance (e.g., one-pagers, executive summaries, citizens' guides, and brochures for best management practices)
- Facilitated live hybrid meetings and webinars through virtual conferencing tools, such as Zoom and Teams, including a personalized registration page and facilitated break-out rooms, polls, and other interactive tools to create a safe space for feedback and collaboration
- SurveyMonkey surveying and comment cards with alternatives to submit via email or physical copy (paper) during and after the initial engagement
- Hybrid dotted map exercise (physical and digital reporting dotting boards) to identify areas of concern and flooding severity

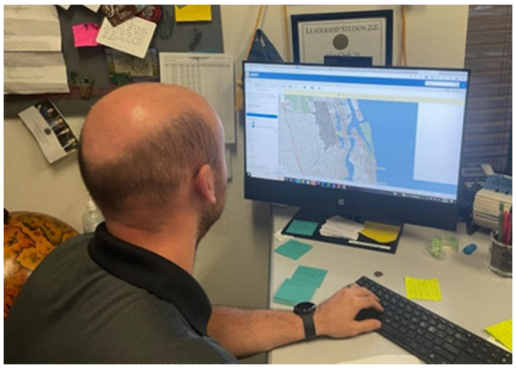
In this first task, the Tetra Tech Team will schedule and hold two meetings so that the public and stakeholders can provide input during the initial project stages to discuss preferred methodologies, data for analyzing potential sea level rise impacts and/or flooding, guiding factors to consider, and critical assets important to the community. These meetings will be held in different areas of City and/or at different times of the day to encourage greater participation. The Tetra Tech Team will prepare all social media notifications, meeting invitations, meeting materials, presentations, and graphics used during the meeting, based on prior approval from the City. Additional public meetings will be held at key points throughout the process in Task 5 and Task 10.

After each public meeting, our team will provide the City with all materials created for the meeting, a copy of the meeting recording, and a comment-response document to note the comments received and a response, including how the plan forward was modified, if applicable. By creating a process that allows the public to ask questions and provide input prior to the assessment, the City of Hollywood will be able to create a Vulnerability Assessment that addresses needs and demands and has community support.

Task 2: Acquire Background Data

Subsequent to the initial kick-off meeting that identifies available data resources, the Tetra Tech Team will request data necessary to identify sources of technical and socio-economic information that will assist in developing the best modeling approach for the project. To align the City's modeling effort with the Resilient Florida requirements, the approach for the Vulnerability Assessment will be to leverage the best available GIS data and software to:

1. Map future regular tidal inundation that accounts for local and regional tidal variability and scenarios that are required by statute and used by the NOAA Office for Coastal Management to map sea level rise.
2. Map high tide flooding based on NOAA's Coastal High Tide Flooding methodology.
3. Map storm surge events using a combination of presently available data from both NOAA and FEMA and leverage readily available software methodologies to project multiple sea level-adjusted designed storm events (particularly the 25-, 50-, 100-, and 500-year events).
4. Use one or more methodologies/tools designed to model various rainfall events. The output will be consistent with Section 380.093, F.S. requirements as well as achieve a methodology that FEMA will accept in the CRS program.



For the purpose of meeting the requirements of Section 380.093, F.S., an effort will be undertaken to build upon the tidal inundation projected for the 2017 NOAA Intermediate Low and Intermediate High Sea level rise projections and will include the planning horizons of 2040, 2070, and 2100, if all are requested. Given that the City is currently a Class 6 in the CRS program, the Team will work to harmonize efforts with the Vulnerability Assessment that will also provide benefit in the CRS program. This could include outreach and analytical efforts. Modeling tools and approaches can also be selected to maximize the City's participation in CRS while conducting the Vulnerability Assessment simultaneously, but early in the process so leveraging opportunities are not missed. Local tidal variability reported from the closest or regionally significant NOAA tide gauge will be employed with NOAA's VDatum utility. All four avenues for assessing flood risk, briefly outlined above, will be included in a spatiotemporal analysis to determine what key assets and infrastructure are vulnerable and when that vulnerability may appear along the planning horizon timeline.

The baseline modeling for this project will use ESRI's ArcGIS Pro, version 3.0, and leverage its spatial analysis extension as well as a proprietary streamlined workflow. Cartographic representation will be developed primarily through layouts within ArcGIS Pro; however, some final deliverables may be expanded using a third-party graphic editor such as Microsoft Publisher. The modeling for this project will include the entire geographical extent of the City of Hollywood. The DEM for this project will be sourced from NOAA's Elevation/LiDAR Data Access Viewer. The DEM represents a bare-earth surface and encompasses the entirety of the project site. The Tetra Tech Team will use the best elevation dataset available at the time the assessment is performed.

Topographic and Flood Scenario Related Data

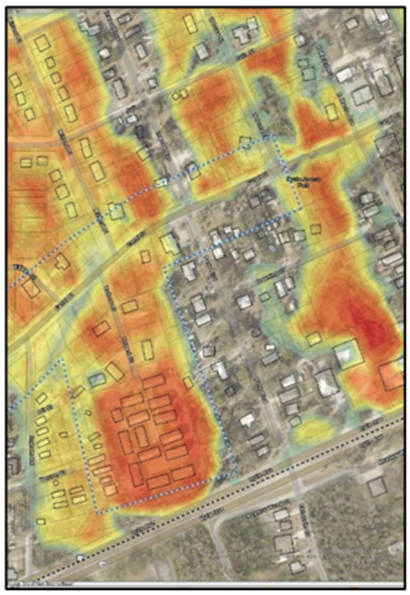
The tables below inventory the types of geospatial data inputs and supporting documentation that are the foundation of the modeling effort for the proposed Vulnerability Assessment. The data are classified into four categories: (1) disaster management emergency response, (2) built environment, (3) natural environment, and (4) socioeconomic environment to assist in framing the various aspects of resiliency planning.

Dataset	Source
Inventory of Documents	
Global and Regional Sea Level Rise Scenarios for the United States	NOAA, et al.
Citywide Vulnerability Assessment and Adaptation Plan CM18-013	City of Hollywood
Sustainability Action Plan	City of Hollywood
Broward County Flood Risk Management Study for Tidally Influenced Coastal Areas	U.S. Army Corps of Engineers
Broward County's Regional Resiliency Strategy	Broward County
Proposed Minimum Seawall Height Policy	Broward County Environmental Planning and Community Resilience Division
Resolution to Affirm Climate Action Commitment (R-2017-168)	City of Hollywood
Citywide Master Plan	City of Hollywood
Comprehensive Plan	City of Hollywood
Flood Insurance Study	FEMA
Pavement Management Study	City of Hollywood
GIS Data Inventory	
2021 Color Orthophoto	City of Hollywood
Flood Insurance Rate Maps	FEMA
Various data from GIS@HOLLYWOOD	City of Hollywood
Infrastructure	Local, State, and/or Federal
Critical Assets	Local, State, and/or Federal
Socioeconomic	Local, State, and/or Federal
Environmental	DEP, South Florida Water Management District, Florida Fish and Wildlife Conservation Commission, Local/Others
Best Available DEM	Local, State, and/or Federal

Modeling

We will work with the City of Hollywood to identify the most appropriate modeling tools based on the engineering problems, potential solutions, level of detail required, available data, and ease of use. Tetra Tech typically uses publicly available open source data and models, providing a cost saving to our clients. We have included CDM on our team due to their experience developing the City's Stormwater Master Plan and models (SWMM and WMM), which are being supported by Tetra Tech and Brizaga. The Tetra Tech Team will leverage this relationship and technical understanding of the stormwater system combined with tidal flooding and storm surge projections to prioritize projects. Grant funding is often based on the number of hazards that an asset is vulnerable to, and these models can be integrated to support the Vulnerability Assessment. The Tetra Tech Team understands that conversations have already started about additional model runs for compliance with state requirements.

For the Vulnerability Assessment, Tetra Tech will review the goals and objectives with the City. From these, we will develop indicators and benchmarks linked to the management objectives. The overall modeling approach will depend on the City's goals and the efficacy of the underlying data that the City must analyze, but the team has experience in using multiple tools depending on the desire outcomes and use of data. Tetra Tech Team will be mindful of the tasks and deliverables the City must complete pursuant to its grant funding for the Vulnerability Assessment.



The Tetra Tech Team will use the GIS database with data collected to provide the base files for the model. The model will be used to evaluate hydrology, areas of flooding, and water quality hotspots, as well as evaluate the level of service for the current stormwater system. The data used in the model and results from various scenario runs will be summarized in a report to the City of Hollywood. The model files will be transferred to the City and the Tetra Tech Team can also provide training on how to use the model for future efforts.

The Tetra Tech Team is well versed in all of the various tools and modeling approaches ranging from the aforementioned H&H modeling to GIS-based spatial analysis to cutting edge approaches to characterizing natural system impacts from sea level rise. In Monroe County, ELD PA and Clearview Geographic also conducted two separate modeling exercises using the Sea Level Assisted Marsh Model (SLAMM) (in 2015 and 2021) to determine the shifts in habitat type over time due to sea level rise. As natural resources, shorelines, and wetlands are a defined asset class within Section 380.093, F.S., this is unique work not typically included with a standard vulnerability assessment. DEP has confirmed that the application of this modeling tool is unique to the 2021 Vulnerability Assessment in Monroe County and is something that governments can include in their vulnerability assessments to go beyond the focus on only gray infrastructure. To truly incorporate nature-based solutions into resiliency planning, a vulnerability assessment needs to have some level of analysis that seeks to understand how ecosystems will change over time to maximize the incorporation of such natural resource benefits into adaptation planning. The ELD PA and Clearview Geographic work with SLAMM is a defining capability that could also benefit the City of Hollywood Vulnerability Assessment Update.

Vulnerability Assessment Maps

As part of the Vulnerability Assessment, the Tetra Tech Team will use the GIS and modeling data to identify the depth of water caused by each sea level rise, storm surge, rainfall, and/or compound flood scenario which is the exposure analysis to be performed. These scenarios include:

1. NOAA Intermediate Low (2017)
2. NOAA Intermediate High (2017)
3. NOAA Intermediate Low and NOAA Intermediate High with ADA Disclaimer (if requested)
4. Two planning horizons that include planning horizons for the years 2040 and 2070. 2100 may also be considered to link the Vulnerability Assessment and CRS efforts.

The Team will perform the sensitivity analysis to measure the impact of flooding on assets, applying the data from the exposure analysis to the inventory of critical assets discussed above. The analysis will include an evaluation of the impact of flood severity on each asset type at each flood scenario and risk level. The output for this analysis will be in the form of both maps and narrative output and/or summary charts within the Vulnerability Assessment report.

Task 3: Exposure Analysis

The exposure mapping will be completed in accordance with the minimum requirements of state statute and the rules and guidelines of DEP and will examine:

- Depth of tidal flooding, including future high tide flooding, using thresholds published or provided by DEP (currently based on NOAA's High Tide Flooding Outlook). This analysis will also include the number of high tide flooding days expected for each scenario and planning horizon.
- Depth of current and future storm surge flooding using publicly available FEMA or NOAA data (to be decided with the City and Steering Committee). The initial storm surge event must exceed the current 100-year flood event to comply with state statute. A second higher than 100-year storm frequency storm surge event will also be analyzed.
- Depth of rainfall-induced flooding, in conjunction with existing H&H modeling, which will include modified future boundary conditions to consider sea level rise and future high tide conditions. The scenarios evaluated will include

the 100-year and 500-year storm events. This assumes that the City will provide results from H&H modeling in raster format representing depths or flood elevations.

This team has performed exposure analysis and mapping for dozens of local governments across Florida, and has standard methodologies that have been accepted by DEP.

Task 4: Sensitivity Analysis

In conjunction with the exposure analysis, the Tetra Tech Team will perform a sensitivity analysis on critical assets examining all scenarios listed in Task 2. In addition to sensitivity, criticality and adaptive capacity values will be assigned. In this task, demographic and socio-economic overlays will be developed that can be used during the Asset Prioritization task. Before the completion of this task, a meeting with key staff will be held to review the results of the exposure analysis and allow for feedback on selected criticality and adaptive capacity scores.

Tetra Tech will provide the City with a draft Vulnerability Assessment report that provides details on the findings of the exposure analysis and the sensitivity analysis. The report will include a visual presentation of the data via maps and tables, based on the statutory-required scenarios and standards. The report will also include an initial list of critical and regionally significant assets that are impacted by flooding. The list of assets will be prioritized by area or immediate need and will identify which flood scenario(s) impacts each asset.

Task 5: Public Outreach Meetings

For this task, the Tetra Tech Team will schedule and hold two additional public meetings following the approach outlined in the community outreach strategy developed in Task 1. The purpose of these meetings will be to update the public and stakeholders on the results of Task through Task 4, and to obtain input on those findings and assumptions to help inform the process going forward. Also, during these meetings, we will hold interactive sessions to obtain feedback on the priority areas to focus on addressing flooding issues as we move forward with identifying adaptation strategies. These sessions can include a hybrid dotted map exercise with both in-person and digital options for participants to identify areas of concern and flooding severity. The stakeholders in the room would be given dot stickers to place on maps of different portions of the City to identify their priority areas. Stakeholders participating virtually will be given an electronic map to identify priority locations.

After each public meeting, our team will provide the City with all materials created for the meeting, a copy of the meeting recording, summary of the dotted map exercise input, and a comment-response document to note the comments received and a response, including how the plan forward was modified, if applicable.

Task 6: Peril of Flood Compliance

The Tetra Tech Team has experience with evaluating ordinances and comprehensive plans to recommend revisions that would support resiliency goals. Based on the Vulnerability Assessment analysis performed, the Tetra Tech Team can assist the City with drafting comprehensive plan amendments to address the requirements of Section 163.3178(2)(f), F.S., Peril of Flood, in strike-through and underlined format that satisfies the Peril of Flood requirements in Section 163.3178(2)(f), F.S.

The City will need to develop Peril of Flood policies for the Coastal Element of the Comprehensive Plan. Upon the completion of the Vulnerability Assessment, the City has an opportunity to develop policies with real data and analysis to include recommendations that stem directly from the Vulnerability Assessment. The Tetra Tech Team can also make recommendations to integrate and implement the Vulnerability Assessment results within the rest of the elements of the City's Comprehensive Plan. This provides an important mechanism for implementing the Vulnerability Assessment within the Comprehensive Plan context. The Vulnerability Assessment will also include recommendations for integration with the City's Code of Ordinances. As an output of the Vulnerability Assessment, the Tetra Tech Team has routinely identified

Priority Planning Areas or AAAs for integration into the Comprehensive Plan as well. As a voluntary designation within the Coastal Element of the Comprehensive Plan pursuant to Chapter 163, F.S., these areas can be prioritized for detailed planning efforts or funding opportunities. The Tetra Tech Team will also review the City's building code and policies that may require updates.

ELD PA has some of the most extensive experience in the state integrating resiliency data into local government comprehensive plans. She has drafted Peril of Flood amendments in Coastal Elements for the City of West Palm Beach, City of Pensacola, Town of Briny Breezes, and Monroe County. She has also developed Adaptation Action Areas language for Monroe County and the seven cities in southern Palm Beach County included within the Coastal Resources Partnership. She also drafted a new optional Energy and Climate Element adopted into the Monroe County Comprehensive Plan, one of the first in the state in 2016. Finally, in conjunction with developing vulnerability assessments she has conducted analyses for integration of resiliency strategies into all elements of comprehensive plans for Monroe County and City of Pensacola.

Tetra Tech Team recommends that a separate public meeting be held to present the Peril of Flood Comprehensive Plan amendments to the general public. This meeting will focus on the proposed amendments to the Comprehensive Plan language and provide an opportunity for public comment before City Commission adoption.

The recent FDEM grant provides funds to communities to create Activity 452.b watershed management plans through the Watershed Planning Initiative. If the City submitted an application for that program, the Tetra Tech Team is experienced in leveraging opportunities between the Watershed Planning Initiative and Resilient Florida Vulnerability Assessment. Team member ELD PA submitted eight such grants to FDEM to undertake those linked funding and planning efforts. All eight grants have been awarded.

Task 7: Critical Asset Detailed Vulnerability Analysis

Tetra Tech Team in coordination with the City will identify the top 50 most critical assets based on the results of the Vulnerability Assessment. The evaluation of assets will include an assessment of adaptive capacity, identification of adaption strategies and ability to integrate into existing plans. The Tetra Tech Team will detail any identified adaptation strategies including but not limited to the following:

- Acquisition/Relocation/Demolition
- Stormwater Drainage Improvements
- Outfall Improvements
- Collection Systems/Pumping Stations
- Bulkheading/Tide Check Valve Projects
- Coastal Revetment
- Bank and Soil Stabilization
- Roadway Elevation
- Wind Retrofit
- Post-disaster Code Enforcement
- Safe Room Construction
- Green infrastructure
- Co-Generation Facilities
- Wet and Dry Floodproofing
- Nature Based Solutions

The Tetra Tech Team's evaluation will consider not only the scope of the project but also the cost, ease of implementation, and overall social environmental and economic resilience benefits. The analysis can include a matrix developed in conjunction with the City and Steering Committee to prioritize and rank the identified projects.

Tetra Tech will provide a technical report summarizing the findings of the detailed analysis, which will include conceptual adaptation drawings for assets where physical adaptations are possible and recommended. The report will also include a list of regulatory needs for each of the assets examined.

Task 8: Adaptation Plan

Working collaboratively with the City, Tetra Tech will employ a holistic resilience adaptation plan that considers socio-economic concerns, integrates nature-based solutions, and builds capacity and capability to ensure programmatic success for the prioritized list of critical assets as well as broader adaptation strategies to reduce risks and vulnerabilities associated

with flooding. Our experts will conduct conceptual design and cost estimates. The Tetra Tech Team offers a full suite of services and subject-matter experts to mitigate hazard risk, adapt to the changing climate, and build community resilience.

Tetra Tech will provide a draft adaptation plan based for the City to review. The plan will summarize the results of the exposure and sensitivity analyses, funding analysis and strategies, potential legal challenges, policy recommendations, and list of the critical or regionally significant assets with adaptation recommendations and cost estimates for each asset. The Tetra Tech Team will meet with the City to discuss the comments on the draft plan before preparing the final plant. The team will also provide a memorandum that details the next steps for implementation of the most critical projects.

Task 9: Final Vulnerability Assessment Report, Maps, and Tables

The Tetra Tech Team will prepare the final Vulnerability Assessment Report that will include all results from the data collection and modeling analyses, as well as a summary of identified risks. The report will identify an inventory of critical and regionally significant assets that are impacted by flooding and sea level rise. For each asset, the flood scenario(s) impacting the asset will be described. The report will also include the prioritized project recommendations to help address the identified risks and vulnerabilities for key assets.

The Tetra Tech Team understands how the Resilient Florida program will evaluate and rank future capital project submittals that will be included in a Statewide Flooding and Sea Level Rise Resilience Plan or through other available funding sources. The modeling and analysis for the Vulnerability Assessment will be designed to bring the City into compliance with state requirements in Section 380.093, F.S. allowing the City's future projects to be identified and ranked according to Rule 62S-8, Florida Administrative Code upon its final adoption. The goal is to structure the Vulnerability Assessment around the statutory and rule requirements related to the Resilient Florida program so that the City's Vulnerability Assessment is deemed in compliance with the criteria, which will position the City's projects for higher ranking in future funding cycles.

Drafts of the Vulnerability Assessment, including maps and tables in accordance with Section 380.093 F.S., will be provided to the City of Hollywood for review and comment. The Tetra Tech Team will provide revised drafts, based on the comments received. Our team also recommends sharing the draft assessment, after review by the City, with the public to obtain their input before the final Vulnerability Assessment is prepared. The final public meeting will present the results of the Vulnerability Assessment, recommended actions for adaptation strategies, and project funding. The presentation will also inform the public of the results and future risk of sea level rise and increased flooding, as well as encourage community participation when identifying mitigation strategies to address the flooding vulnerabilities. Based on public input, the Tetra Tech Team will finalize the Vulnerability Assessment.

We will also work with the City of Hollywood staff to prepare a presentation summarizing the assessment to present to the City Council.

Task 10: Public Presentation

The Tetra Tech Team will work with the City to identify key stakeholders, boards, and committees that should receive a presentation on the final Vulnerability Assessment Report findings. Our Team will create a summary presentation, with input from the City, on the Vulnerability Assessment Update process, findings and recommended projects, and activities that the community should be implementing to help with mitigating and addressing vulnerabilities. After each public presentation, we will provide the City with all materials created for the meeting, a copy of the meeting recording (if available), and a summary of the public input and comments.

Task 11: Local Mitigation Strategy

The Local Mitigation Strategy (LMS) is typically developed at the county level and provides recommendations to reduce risk associated with natural and man-made disaster's include sea level rise. The Tetra Tech Team will provide input to the City on how to best use the results of Vulnerability Assessment to update the LMS during the next update and which priority projects should be included.

The Tetra Tech Team will prepare a letter summarizing how the Vulnerability Assessment Report should be incorporated as a reference in the next update of the LMS, how to involve the stakeholders who supported the Vulnerability Assessment in

the LSM Working Group, and how to submit priority projects from the Vulnerability Assessment for the LMS update.

The Tetra Tech Team has successfully measured mitigation and adaptation success using our proprietary tools. Tetra Tech's BATool[SM] (or Baseline Assessment Tool) provides secure, around-the-clock access to mitigation and resilience strategies to streamline tracking and measure the effectiveness of planning efforts. This program complements our robust planning practice, helps track funding success, measure loss avoidance, and supports our CRS clients to meet their reporting requirements.

3.2 Quality Assurance/Quality Control

Our Project Manager, Georgia Vince, who managed similar projects throughout Florida, will ensure that deliverables and final products are provided to the City of Hollywood on time and meet the project objectives. Our team will hold regular coordination calls with the City throughout the project to provide updates on task status and obtain feedback on project tasks, which will allow for City input as the project is developed to save time in review of each task deliverable.

To ensure that all tasks and deliverables are completed to the highest professional standards and to minimize the risk to the City of Hollywood, Tetra Tech will use our established framework for QA/QC, which includes templates for calculations and design packages, tiered review of all work products, and concise documentation of assumptions and references. This QA/QC framework also applies to all of our subconsultants, and our Project Manager will coordinator with our subconsultants to ensure deliverables meet quality and schedule requirements. Our team has a proven track record of working together and implementing this framework on a variety of contracts, ensuring our deliverables are provided with exceptional quality.

3.3 Project Timeline

The City of Hollywood has been a very important client to Tetra Tech for over a decade. We have repeatedly proven this through our response to varying project schedules requested by the City. We have successfully completed multiple project phases over the last decade to the City's satisfaction. While our performance directly to the City is the best proof of our ability to complete a project on time, we provide the additional information that follows to further prove our abilities.

Prior to the kickoff meeting, the Tetra Tech Team will prepare a project schedule including all deliverables, public meetings, and milestones for the project. We understand that the project must be completed by **March 31, 2024**, to meet the grant funding deadline. The Tetra Tech Team has sufficient staffing resources to ensure that all milestones and deliverable schedules are met.

Schedule Controls

Tetra Tech understands the coordination and organization required to maintain a schedule. Schedules often have overlapping tasks, which use various personnel and require experience in coordinating subconsultants to preserve multiple critical paths. Tetra Tech uses Microsoft Project to prepare detailed project schedules. This software tracks progress, delineates deliverables, logs project milestones, and visibly reflects the relationship of various tasks. For highly complex projects, we will prepare more advanced schedules in Primavera P6. Resource-loaded schedules can provide resource balancing and integration with our labor forecast tool. 30-Day Look Ahead Schedules can be provided with monthly reports.

PM Portal

As mentioned in Section 1.3, Tetra Tech has developed custom project management tools to help control costs from the big picture level to the granular level per hour billed. Each project manager has a PM Portal with a dashboard that shows a

snapshot of all project performance. Custom reports include work breakdown structures, staff billing reports, weekly project transaction reports, and accounts receivable reports.

Computer-Based Accounting System

We enhance our project management plan by using our Oracle-based accounting system, Tetra Linx. The Tetra Linx system links directly to employee time sheets and updates billing information weekly. This electronic system reduces delays in providing the project manager with budget information. Staff enter timesheets every Friday and on Monday morning the project manager receives an automated Project Summary Report by email showing the budget used since the last invoice and the budget remaining. Tetra Tech also uses a Portfolio Review Workbook, supplying the project manager with a dashboard of all project performance metrics.

Defined Scope of Work

At project inception, the Tetra Tech Project Manager will meet with the City project manager to develop the project scope, understand project objectives, and agree on deliverables. Fully understanding project requirements is the best way to control the scope as the project progresses. The Project Manager will present a clearly defined scope to the City. Each task and deliverable will be identified and matched to the task level budget so the City can review and refine the level of effort per task.

Experienced Project Teams

Experienced project team members bring lessons learned from past projects to help define the project scope and expected level of effort up front. This experience also pays off as the project progresses because it allows the team to efficiently deliver the scope with this knowledge of expectations. If work begins to stray from the intent of the scope, the project team can recognize it early and correct course.

4. Past Performance – References

Examples of similar, successful projects completed by the team are described in Section 1.2. References are provided for each of the example projects. In addition, we obtained references for three of our projects, and the forms (Form 4 – Vendor Reference Form) are included below.

FORM 4

VENDOR REFERENCE FORM

City of Hollywood Solicitation #: RFQ-4754-22-WV
Reference for: Tetra Tech, Inc.

Organization/Firm Name providing reference:	St Lucie County		
Organization/Firm Contact Name:	Sandra Bogan	Title:	Resilience Navigator
Email:	bogans@stlucieco.org	Phone:	772-462-2526
Name of Referenced Project:	SLC Vulnerability Assessment	Contract No:	C20-01-122 ($75,000); P2122880 ($38,100)
Date Services were provided:	Dec 2020-Sept 2021	Project Amount:	$113,100
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 additional sheet if necessary):
County-wide Vulnerability Assessment Report developed as part of a Florida Department of Environmental Protection grant award in the amount of $75,000 (Grant R2133), and additional modeling pursuant to County Contract (P2122880) in the amount of $38,100 for Resiliency Planning initiative. The project scope included coordination meetings with project staff and Resilience Steering Committee, educational presentations, meeting agendas, sea level rise projections, and vulnerability assessment report.

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/Cost Control 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:	

FORM 4

VENDOR REFERENCE FORM

City of Hollywood Solicitation #: RFQ-4754-22-WV
Reference for: Tetra Tech, Inc.

Organization/Firm Name providing reference: Hillsborough County Florida
Organization/Firm Contact Name: Bart Weiss
Title: Chief of Innovation and Resiliency
Email: weisst@hillsboroughcounty.org
Phone: (813)853-1043
Name of Referenced Project: Resiliency Strategy
Contract No:
Date Services were provided: 2019-2020
Project Amount: 90,000

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 additional sheet if necessary):
Tetra Tech assisted the Office of Innovation and Resiliency to create a 5 year Resiliency Strategy for the County. Their work was excellent and they were very helpful and responsive to the County's needs, being coastal and spanning 42 departments. We are in the process of rehiring Tetra Tech for our next phase which will include defining resiliency for each or our 42 departments, so the County Government will be resilient.

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/Cost Control of:				
a. Project	☐	☐	☒	☐
b. Deliverables	☐	☐	☒	☐

Additional Comments (provide additional sheet if necessary):
Upon request I can provide the resiliency plan referenced above: ***Think Forward: Building Resiliency in Hillsborough County***

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

FORM 4
VENDOR REFERENCE FORM

City of Hollywood Solicitation #:	RFQ-4754-22-WV
Reference for:	Erin Deady, PA

Organization/Firm Name providing reference:	Monroe County		
Organization/Firm Contact Name:	Rhonda Haag	Title:	Chief Resilience Officer
Email:	Haag-Rhonda@monroecounty-fl.gov	Phone:	305-453-8774
Name of Referenced Project:	Monroe County Vulnerability Assessment	Contract No:	
Date Services were provided:	2021	Project Amount:	$92,000

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 additional sheet if necessary):
For this work conducted in 2020-2021, ELD PA led the team consisting of Clearview Geographic, OVID, HDR, and other subcontractors to perform habitat analysis (one of the few vulnerability assessments to perform that analysis to date) including analysis of shorelines, all critical assets, and development of Adaptation Action Areas which the County anticipates adopting later this year in 2022. ELD PA led multiple public outreach events and Commission briefings on the project. Work products were completed on time and on budget.

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/Cost Control 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:	

5. Required Forms and Information

The following required forms and information are attached in this section:

- Form 2 Acknowledgement and Signature Page
- Form 5 Hold Harmless and Indemnity Clause
- Form 6 Non-Collusion Affidavit
- Form 7 Sworn Statement Pursuant to Section 287.133 (3) (a) Florida Statutes on Public Entity Crimes
- Form 8 Certifications Regarding Debarment, Suspension and Other Responsibility Matters
- Form 9 Drug-Free Workplace Program
- Form 10 Solicitation, Giving, and Acceptance of Gifts Policy
- Form 11 W-9 (Request for Taxpayer Identification)
- Form 14 List of Subcontractors
- Certificate of Insurance
- Proof of State of Florida Sunbiz Registration

FORM 2

ACKNOWLEDGMENT AND SIGNATURE PAGE

This form must be completed and submitted by the date and the time of bid opening.

Legal Company Name (include d/b/a if applicable): Tetra Tech, Inc.

If Corporation - Date Incorporated/Organized: 1966 Federal Tax Identification Number: 95-4148514

State Incorporated/Organized: CA

Company Operating Address: 3475 East Foothill Boulevard

City: Pasadena State: CA Zip Code: 91107

Remittance Address (if different from ordering address): 759 S. Federal Highway, Suite 314

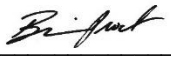
City: Stuart State: FL Zip Code: 34994

Company Contact Person: Brian Proctor Email Address: Brian.Proctor@tetratech.com

Phone Number (include area code): 772-341-0432 Fax Number (include area code): 772-781-3411

Company's Internet Web Address: Tetratech.com

IT IS HEREBY CERTIFIED AND AFFIRMED THAT THE BIDDER/PROPOSER CERTIFIES ACCEPTANCE OF THE TERMS, CONDITIONS, SPECIFICATIONS, ATTACHMENTS AND ANY ADDENDA. THE BIDDER/PROPOSER SHALL ACCEPT ANY AWARDS MADE AS A RESULT OF THIS SOLICITATION. BIDDER/PROPOSER FURTHER AGREES THAT PRICES QUOTED WILL REMAIN FIXED FOR THE PERIOD OF TIME STATED IN THE SOLICITATION.

Bidder/Proposer's Authorized Representative's Signature:  Date: 9/27/2022

Type or Print Name: Brian Proctor

THE EXECUTION OF THIS FORM CONSTITUTES THE UNEQUIVOCAL OFFER OF BIDDER/PROPOSER TO BE BOUND BY THE TERMS OF ITS PROPOSAL. FAILURE TO SIGN THIS SOLICITATION WHERE INDICATED BY AN AUTHORIZED REPRESENTATIVE SHALL RENDER THE BID/PROPOSAL NON-RESPONSIVE. THE CITY MAY, HOWEVER, IN ITS SOLE DISCRETION, ACCEPT ANY BID/PROPOSAL THAT INCLUDES AN EXECUTED DOCUMENT WHICH UNEQUIVOCALLY BINDS THE BIDDER/PROPOSER TO THE TERMS OF ITS OFFER.

FORM 5

HOLD HARMLESS AND INDEMNITY CLAUSE

Tetra Tech, Inc.

(Company Name and Authorized Signature, Print 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

Brian Proctor
Printed Name

Tetra Tech, Inc.
Name of Company

V.P. Southeast Operations
Title

FORM 6

NON-COLLUSION AFFIDAVIT

STATE OF: _Florida _____

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

(1) He/she is V.P. Southeast Operations of _Tetra Tech, Inc._____, the Proposer that has submitted the attached Proposal.

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

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

(4) Neither the said Proposer 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 Proposer, firm or person to submit a collusive or sham Proposal in connection with the contractor for which the attached Proposal 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 Proposer, firm or person to fix the price or prices, profit or cost element of the Proposal price or the Proposal price of any other Proposer, 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 Proposal are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Proposer or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

_____	Brian Proctor
Signature	Printed Name
Tetra Tech, Inc.	V.P. Southeast Operations
Name of Company	Title

FORM 7

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 Brian Proctor, VP Southeaset Operations for Tetra Tech, Inc.
(Print individual's name and title) (Print name of entity submitting sworn statement) whose business address is 759 S. Federal Highway, Suite 314, Stuart, FL 34994
and if applicable its Federal Employer Identification Number (FEIN) is 95-4148514. 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 Statues, 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 Statues, 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 which bids or applies

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

__X__ 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 (ONE) ABOVE IS FOR THAT PUBLIC ENTITY ONLY AND THAT THIS FORM IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH 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 OF ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.

_____
(Signature)

Sworn to and subscribed before me this 26 day of September, 2022

Personally known Brian Proctor

Or produced identification _____ Notary Public-State of Florida

_____ my commission expires 12/23/2022
(Type of identification)

_____
(Printed, typed or stamped commissioned name of notary public)

Marirose Insogna
NOTARY PUBLIC
STATE OF FLORIDA
Comm# GG277717
Expires 12/23/2022

FORM 8

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:

Tetra Tech, Inc.

759 S. Federal Highway, Suite 314

Stuart, FL 34994

Application Number and/or Project Name:

RFQ 4754-22-WV Citywide Vulnerability Assessment Update

Applicant IRS/Vendor Number: 95-4148514

Signature

Brian Proctor
Printed Name

Tetra Tech, Inc.
Name of Company

V.P. Southeast Operations
Title

FORM 9

DRUG-FREE WORKPLACE PROGRAM

IDENTICAL TIE PROPOSALS - Preference shall be given to businesses with drug-free workplace programs. Whenever two or more bids which 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 proposals 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 (5) 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.

_____	Brian Proctor
Signature	Printed Name
Tetra Tech, Inc.	V.P. Southeast Operations
Name of Company	Title

FORM 10

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.”

The City of Hollywood/Hollywood CRA 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, vendor, consultant, or business with whom the City/CRA 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, vendor, 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 contract.

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

Signature

Brian Proctor
Printed Name

Tetra Tech, Inc.
Name of Company

V.P. Southeast Operations
Title

Form **W-9**
(Rev. October 2018)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

▶ **Go to *www.irs.gov/FormW9* for instructions and the latest information.**

Give Form to the requester. Do not send to the IRS.

Print or type. See **Specific Instructions** on page 3.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.
Tetra Tech Inc.

2 Business name/disregarded entity name, if different from above

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only **one** of the following seven boxes.

☐ Individual/sole proprietor or single-member LLC ☑ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____

Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is **not** disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.

☐ Other (see instructions) ▶

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) _____

Exemption from FATCA reporting code (if any) _____

(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.) See instructions.
3475 E. Foothill Blvd

Requester's name and address (optional)

6 City, state, and ZIP code
Pasadena CA, 91107

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN,* later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number
			–			–				

or

Employer identification number
9	5	–	4	1	4	8	5	1	4

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here **Signature of U.S. person ▶** Chet Cicero **Date ▶** 1/6/2022

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9.*

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, *later.*

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),

2. Certify that you are not subject to backup withholding, or

3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and

4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting,* later, for further information.

Note: If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien;
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States;
- An estate (other than a foreign estate); or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following person must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States.

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Pub. 515, Withholding of Tax on Nonresident Aliens and Foreign Entities).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items.

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.

2. The treaty article addressing the income.

3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.

4. The type and amount of income that qualifies for the exemption from tax.

5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

Backup Withholding

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 24% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,

2. You do not certify your TIN when required (see the instructions for Part II for details),

3. The IRS tells the requester that you furnished an incorrect TIN,

4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or

5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code,* later, and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships,* earlier.

What is FATCA Reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code,* later, and the Instructions for the Requester of Form W-9 for more information.

Updating Your Information

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account; for example, if the grantor of a grantor trust dies.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of $50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a $500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Line 1

You must enter one of the following on this line; **do not** leave this line blank. The name should match the name on your tax return.

If this Form W-9 is for a joint account (other than an account maintained by a foreign financial institution (FFI)), list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9. If you are providing Form W-9 to an FFI to document a joint account, each holder of the account that is a U.S. person must provide a Form W-9.

a. **Individual.** Generally, enter the name shown on your tax return. If you have changed your last name without informing the Social Security Administration (SSA) of the name change, enter your first name, the last name as shown on your social security card, and your new last name.

Note: ITIN applicant: Enter your individual name as it was entered on your Form W-7 application, line 1a. This should also be the same as the name you entered on the Form 1040/1040A/1040EZ you filed with your application.

b. **Sole proprietor or single-member LLC.** Enter your individual name as shown on your 1040/1040A/1040EZ on line 1. You may enter your business, trade, or "doing business as" (DBA) name on line 2.

c. **Partnership, LLC that is not a single-member LLC, C corporation, or S corporation.** Enter the entity's name as shown on the entity's tax return on line 1 and any business, trade, or DBA name on line 2.

d. **Other entities.** Enter your name as shown on required U.S. federal tax documents on line 1. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on line 2.

e. **Disregarded entity.** For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a "disregarded entity." See Regulations section 301.7701-2(c)(2)(iii). Enter the owner's name on line 1. The name of the entity entered on line 1 should never be a disregarded entity. The name on line 1 should be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner's name is required to be provided on line 1. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity's name on line 2, "Business name/disregarded entity name." If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

Line 2

If you have a business name, trade name, DBA name, or disregarded entity name, you may enter it on line 2.

Line 3

Check the appropriate box on line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box on line 3.

IF the entity/person on line 1 is a(n) . . .	THEN check the box for . . .
• Corporation	Corporation
• Individual • Sole proprietorship, or • Single-member limited liability company (LLC) owned by an individual and disregarded for U.S. federal tax purposes.	Individual/sole proprietor or single-member LLC
• LLC treated as a partnership for U.S. federal tax purposes, • LLC that has filed Form 8832 or 2553 to be taxed as a corporation, or • LLC that is disregarded as an entity separate from its owner but the owner is another LLC that is not disregarded for U.S. federal tax purposes.	Limited liability company and enter the appropriate tax classification. (P= Partnership; C= C corporation; or S= S corporation)
• Partnership	Partnership
• Trust/estate	Trust/estate

Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space on line 4 any code(s) that may apply to you.

Exempt payee code.

- Generally, individuals (including sole proprietors) are not exempt from backup withholding.
- Except as provided below, corporations are exempt from backup withholding for certain payments, including interest and dividends.
- Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.
- Corporations are not exempt from backup withholding with respect to attorneys' fees or gross proceeds paid to attorneys, and corporations that provide medical or health care services are not exempt with respect to payments reportable on Form 1099-MISC.

The following codes identify payees that are exempt from backup withholding. Enter the appropriate code in the space in line 4.

1—An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2)

2—The United States or any of its agencies or instrumentalities

3—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

4—A foreign government or any of its political subdivisions, agencies, or instrumentalities

5—A corporation

6—A dealer in securities or commodities required to register in the United States, the District of Columbia, or a U.S. commonwealth or possession

7—A futures commission merchant registered with the Commodity Futures Trading Commission

8—A real estate investment trust

9—An entity registered at all times during the tax year under the Investment Company Act of 1940

10—A common trust fund operated by a bank under section 584(a)

11—A financial institution

12—A middleman known in the investment community as a nominee or custodian

13—A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt payees except for 7
Broker transactions	Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012.
Barter exchange transactions and patronage dividends	Exempt payees 1 through 4
Payments over $600 required to be reported and direct sales over $5,000[1]	Generally, exempt payees 1 through 5[2]
Payments made in settlement of payment card or third party network transactions	Exempt payees 1 through 4

[1] See Form 1099-MISC, Miscellaneous Income, and its instructions.

[2] However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney reportable under section 6045(f), and payments for services paid by a federal executive agency.

Exemption from FATCA reporting code. The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A requester may indicate that a code is not required by providing you with a Form W-9 with "Not Applicable" (or any similar indication) written or printed on the line for a FATCA exemption code.

A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)

B—The United States or any of its agencies or instrumentalities

C—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Regulations section 1.1472-1(c)(1)(i)

E—A corporation that is a member of the same expanded affiliated group as a corporation described in Regulations section 1.1472-1(c)(1)(i)

F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state

G—A real estate investment trust

H—A regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940

I—A common trust fund as defined in section 584(a)

J—A bank as defined in section 581

K—A broker

L—A trust exempt from tax under section 664 or described in section 4947(a)(1)

M—A tax exempt trust under a section 403(b) plan or section 457(g) plan

Note: You may wish to consult with the financial institution requesting this form to determine whether the FATCA code and/or exempt payee code should be completed.

Line 5

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns. If this address differs from the one the requester already has on file, write NEW at the top. If a new address is provided, there is still a chance the old address will be used until the payor changes your address in their records.

Line 6

Enter your city, state, and ZIP code.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN.

If you are a single-member LLC that is disregarded as an entity separate from its owner, enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

Note: See *What Name and Number To Give the Requester,* later, for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at *www.SSA.gov*. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at *www.irs.gov/Businesses* and clicking on Employer Identification Number (EIN) under Starting a Business. Go to *www.irs.gov/Forms* to view, download, or print Form W-7 and/or Form SS-4. Or, you can go to *www.irs.gov/OrderForms* to place an order and have Form W-7 and/or SS-4 mailed to you within 10 business days.

If you are asked to complete Form W-9 but do not have a TIN, apply for a TIN and write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note: Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: A disregarded U.S. entity that has a foreign owner must use the appropriate Form W-8.

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if item 1, 4, or 5 below indicates otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on line 1 must sign. Exempt payees, see *Exempt payee code,* earlier.

Signature requirements. Complete the certification as indicated in items 1 through 5 below.

1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983. You must give your correct TIN, but you do not have to sign the certification.

2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983. You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

3. Real estate transactions. You must sign the certification. You may cross out item 2 of the certification.

4. Other payments. You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), ABLE accounts (under section 529A), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions. You must give your correct TIN, but you do not have to sign the certification.

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account) other than an account maintained by an FFI	The actual owner of the account or, if combined funds, the first individual on the account[1]
3. Two or more U.S. persons (joint account maintained by an FFI)	Each holder of the account
4. Custodial account of a minor (Uniform Gift to Minors Act)	The minor[2]
5. a. The usual revocable savings trust (grantor is also trustee)	The grantor-trustee[1]
b. So-called trust account that is not a legal or valid trust under state law	The actual owner[1]
6. Sole proprietorship or disregarded entity owned by an individual	The owner[3]
7. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A))	The grantor*
For this type of account:	**Give name and EIN of:**
8. Disregarded entity not owned by an individual	The owner
9. A valid trust, estate, or pension trust	Legal entity[4]
10. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
11. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
12. Partnership or multi-member LLC	The partnership
13. A broker or registered nominee	The broker or nominee
14. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
15. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulations section 1.671-4(b)(2)(i)(B))	The trust

[1] List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

[2] Circle the minor's name and furnish the minor's SSN.

[3] You must show your individual name and you may also enter your business or DBA name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

[4] List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships,* earlier.

***Note:** The grantor also must provide a Form W-9 to trustee of trust.

Note: If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Secure Your Tax Records From Identity Theft

Identity theft occurs when someone uses your personal information such as your name, SSN, or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Pub. 5027, Identity Theft Information for Taxpayers.

Victims of identity theft who are experiencing economic harm or a systemic problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

Protect yourself from suspicious emails or phishing schemes. Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to *phishing@irs.gov.* You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at *spam@uce.gov* or report them at *www.ftc.gov/complaint.* You can contact the FTC at *www.ftc.gov/idtheft* or 877-IDTHEFT (877-438-4338). If you have been the victim of identity theft, see *www.IdentityTheft.gov* and Pub. 5027.

Visit *www.irs.gov/IdentityTheft* to learn more about identity theft and how to reduce your risk.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.

Form 14

LIST OF SUBCONTRACTORS

The Bidder shall list below the name and address of each Subcontractor who will perform work under this Contract, and shall also list the portion of the work which will be done by such Subcontractor. After the opening of Proposals, changes or substitutions will be allowed with written approval of the City of Hollywood. Subcontractors must be properly licensed.

	Work to be Performed	Subcontractor's Name / Address
1.	Peril of Flood/Vulnerability	Erin Deady, PA 54 1/2 SE 6th Ave, Delray Beach, FL 33483
2.	GIS Modeling/Mapping	Clearview Geographics, LLC 344 S. Woodland Blvd, Deland, FL 32720
3.	Public Outreach/Education	Brizaga, Inc. 17 Rose Dr. Fort Lauderdale, FL 33316
4.	Stormwater Modeling	CDM Smith 621 NW 53rd St., Suite 265, Boca Raton, FL 33487
5.		
6.		
7.		
8.		
9.		
10.		

NOTE: Attach additional sheets if required.

- END OF SECTION -

ACORD®

CERTIFICATE OF LIABILITY INSURANCE

DATE(MM/DD/YYYY)
12/07/2021

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Aon Risk Insurance Services West, Inc.
Los Angeles CA Office
707 Wilshire Boulevard
Suite 2600
Los Angeles CA 90017-0460 USA

CONTACT NAME:
PHONE (A/C. No. Ext): (866) 283-7122 **FAX (A/C. No.):** (800) 363-0105
E-MAIL ADDRESS:

INSURER(S) AFFORDING COVERAGE		NAIC #
INSURER A:	Zurich American Ins Co	16535
INSURER B:	American Guarantee & Liability Ins Co	26247
INSURER C:	Lexington Insurance Company	19437
INSURER D:	American International Group UK Ltd	AA1120187
INSURER E:		
INSURER F:		

INSURED
Tetra Tech, Inc.
759 S. Federal Highway, Suite 314
Stuart, FL 34994

COVERAGES **CERTIFICATE NUMBER:** 570090553172 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

Limits shown are as requested

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X **COMMERCIAL GENERAL LIABILITY** CLAIMS-MADE X OCCUR X X,C,U Coverage GEN'L AGGREGATE LIMIT APPLIES PER: POLICY X PRO-JECT X LOC OTHER:			GL0181740603	10/01/2021	10/01/2022	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$2,000,000 $1,000,000 $10,000 $2,000,000 $4,000,000 $4,000,000
A	**AUTOMOBILE LIABILITY** X ANY AUTO OWNED AUTOS ONLY HIRED AUTOS ONLY SCHEDULED AUTOS NON-OWNED AUTOS ONLY			BAP 1857085 03	10/01/2021	10/01/2022	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$1,000,000
D	X **UMBRELLA LIAB** X OCCUR **EXCESS LIAB** CLAIMS-MADE DED X RETENTION $100,000			62785232	10/01/2021	10/01/2022	EACH OCCURRENCE AGGREGATE	$4,000,000 $4,000,000
A B	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** ANY PROPRIETOR / PARTNER / EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N: N **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		WC254061603 WC185708703	10/01/2021 10/01/2021	10/01/2022 10/01/2022	X PER STATUTE OTH- E.L. EACH ACCIDENT E.L. DISEASE-EA EMPLOYEE E.L. DISEASE-POLICY LIMIT	 $1,000,000 $1,000,000 $1,000,000
C	Env Contr Prof			028182375 Prof/Poll Liab SIR applies per policy terms & conditions	10/01/2021	10/01/2022	Each Claim Agggregate	$1,000,000 $1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Stop Gap Coverage for the following states: OH, ND, WA, WY.

CERTIFICATE HOLDER

Tetra Tech, Inc.
759 S. Federal Highway, Suite 314
Stuart, FL 34994

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Aon Risk Insurance Services West, Inc.

Holder Identifier :

Certificate No : 570090553172

ACORD 25 (2016/03) **The ACORD name and logo are registered marks of ACORD**

Detail by Entity Name

Foreign Profit Corporation
TETRA TECH, INC.

Filing Information

Document Number	P19034
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Date Filed	04/28/1988
State	DE
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Last Event	CORPORATE MERGER
Event Date Filed	12/30/2003
Event Effective Date	01/02/2004

Principal Address

3475 E. FOOTHILL BLVD.
PASADENA, CA 91107

Changed: 07/14/2003

Mailing Address

3475 E. FOOTHILL BLVD.
PASADENA, CA 91107

Changed: 07/14/2003

Registered Agent Name & Address

CT CORPORATION SYSTEM
1200 S. PINE ISLAND ROAD
PLANTATION, FL 33324

Name Changed: 03/18/1992

Address Changed: 03/18/1992

Officer/Director Detail

Name & Address

Title Senior Vice President, Chief Engineer

BROWNLIE, WILLIAM R

3475 E. Foothill Blvd.
Pasadena, CA 91107

Title Senior Vice President, Corporate Administration

LEMMON, RICHARD A
3475 E. FOOTHILL BLVD.
PASADENA, CA 91107

Title Executive Vice President, CFO and Assistant Secretary

BURDICK, STEVEN M
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PASADENA, CA 91107

Title Chairman of the Board, CEO

Batrack, Dan L.
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Title Senior Vice President, Chief Information Officer

Christensen, Craig L
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Title President

Shoemaker, Leslie L
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Title Senior Vice President, Corporate Controller

Carter, Brian N
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Title Director

Lewis, J. Christopher
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Title Director

Haden, Patrick C
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Title Director

Thompson, J. Kenneth
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Title Director

Ritrievi, Kimberly E
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Title Director

Volpi, Kirsten M
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PASADENA, CA 91107

Title SVP

BIAGI , JAMES Q, Jr.
4967 U.S. Hwy 42
Ste. 210
Louisville, KY 40222

Title Director

Maguire, Joanne M.
3475 E. FOOTHILL BLVD.
PASADENA, CA 91107

Title Senior Vice President and President of the Client Account Management Division and Commercial/International Services Group

Amidon, Derek G
4750 W. 2100 South
Ste. 400
Salt Lake City, UT 84120

Title Senior Vice President, President of the Government Services Group and President of the United States Government Division

Argus, Roger R.
1230 Columbia Street
Suite 1000
San Diego, CA 92101

Title Senior Vice President and President of the Canada and South America Division

Teufele, Bernard
14940 123 Avenue
Edmonton, AB T5V 1B4 CA

Title Secretary

Hopson, Preston
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Title VPFS

JENKINS, LAWRENCE E
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Title Director

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Title SVP, Enterprise Risk Management

O'Rourke, Brendan
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PASADENA, CA 91107

Title President of the Resilient and Sustainable Infrastructure Division

Hudkins, Jill
201 E. Pine Street
Suite 1000
Orlando, FL 32801

Title Treasurer

Wu, Jim
3475 E. FOOTHILL BLVD.
PASADENA, CA 91107

Annual Reports

Report Year	Filed Date
2020	01/02/2020
2021	01/04/2021
2022	01/03/2022

Document Images

01/03/2022 -- ANNUAL REPORT	View image in PDF format
01/04/2021 -- ANNUAL REPORT	View image in PDF format
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01/03/2018 -- ANNUAL REPORT	View image in PDF format
11/21/2017 -- AMENDED ANNUAL REPORT	View image in PDF format
01/05/2017 -- ANNUAL REPORT	View image in PDF format
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01/07/2015 -- ANNUAL REPORT	View image in PDF format
04/24/2014 -- AMENDED ANNUAL REPORT	View image in PDF format
01/10/2014 -- ANNUAL REPORT	View image in PDF format
01/03/2013 -- ANNUAL REPORT	View image in PDF format
02/09/2012 -- ANNUAL REPORT	View image in PDF format
01/18/2012 -- ANNUAL REPORT	View image in PDF format
02/15/2011 -- ANNUAL REPORT	View image in PDF format
01/29/2011 -- ANNUAL REPORT	View image in PDF format
01/28/2010 -- ANNUAL REPORT	View image in PDF format
01/14/2009 -- ANNUAL REPORT	View image in PDF format
02/15/2008 -- ANNUAL REPORT	View image in PDF format
03/12/2007 -- ANNUAL REPORT	View image in PDF format
02/08/2006 -- ANNUAL REPORT	View image in PDF format
02/23/2005 -- ANNUAL REPORT	View image in PDF format
01/31/2005 -- ANNUAL REPORT	View image in PDF format
05/13/2004 -- ANNUAL REPORT	View image in PDF format
05/05/2004 -- ANNUAL REPORT	View image in PDF format
03/01/2004 -- ANNUAL REPORT	View image in PDF format
12/30/2003 -- Merger	View image in PDF format
07/14/2003 -- ANNUAL REPORT	View image in PDF format
03/03/2002 -- ANNUAL REPORT	View image in PDF format
05/15/2001 -- ANNUAL REPORT	View image in PDF format
05/04/2000 -- ANNUAL REPORT	View image in PDF format
04/07/1999 -- ANNUAL REPORT	View image in PDF format
07/29/1998 -- ANNUAL REPORT	View image in PDF format
04/09/1997 -- ANNUAL REPORT	View image in PDF format
02/09/1996 -- ANNUAL REPORT	View image in PDF format
04/14/1995 -- ANNUAL REPORT	View image in PDF format

Florida Department of State, Division of Corporations

Attachment A – Resumes

Georgia Vince — *Project Manager*

Education	BS, Biological Oceanography, Florida Institute of Technology, 1993		
Registrations/ Affiliations	Qualified Stormwater Management Inspector # 25763 • Wetland Delineation and Hydric Soil Identification Training, 2008 • Member of Florida Association of Environmental Professionals • Member of American Water Resources Association		
Areas of Expertise	Project Management • Environmental permitting • Agency consultation • Stakeholder engagement • Resilience Planning		
Office	Stuart, FL	**Years of Experience**	23

EXPERIENCE SUMMARY

Ms. Vince has over 20 years of experience with environmental programs and 11 years of project management experience with governmental entities. Ms. Vince has managed projects of all sizes with budgets of over $2M. She recently was project manager for the St. Lucie County Vulnerability Assessment completed in 2021.Her background in regulatory and permitting programs for state, federal and local levels of government has provided her with a detailed understating of Florida's wetland regulation system. She has been involved with habitat restoration projects of all sized including many projects included in Comprehensive Everglades Restoration Project (CERP). Ms. Vince has extensive experience in public speaking and coordinating with stakeholders on sensitive environmental issues.

RELEVANT EXPERIENCE

St Lucie County Vulnerability Assessment, St Lucie County, FL. Project Manager for the county wide sea level rise vulnerability assessment. Tetra Tech teamed with Erin L. Deady, P.A. and Clearview Geographic, LLC to prepare the St. Lucie County Vulnerability Assessment as a product of Resilience Planning Grant R2133. The Vulnerability Assessment is the first step in taking a systematic, data-driven approach in developing a community-wide resilience plan to analyze natural hazard risks and identify strategies to mitigate and adapt to those hazards in a proactive, equitable, and cost-effective way. The Vulnerability Assessment is intended to provide a foundation to develop and implement a holistic community resilience plan.

SFWMD, C-43 West Basin Storage Reservoir Water Quality Treatment Feasibility Study (Labelle, FL). Project Manager for the C-43 West Basin Storage Reservoir (WBSR) Water Quality Feasibility Study. The objectives of the Study are to (1) conduct a review of existing pertinent studies/literature; (2) review and evaluate applicable water quality treatment technologies suitable for use; (3) conduct public meetings; (4) prepare a cost-benefit, alternatives, and trade-off analysis from which cost-effective, available, technically feasible, and conventional and innovative biological, chemical, and physical treatment technologies for water quality improvement for the C-43 WBSR, and (5) identify cost-effective options that reduce discharge of nutrients which may contribute to blue-green algal blooms from the C-43 WBSR to the downstream Caloosahatchee Estuary. The study considered the current CERP construction schedule and congressionally approved project purposes for the C-43 WBSR.

Martin County BOCC, Kitching Creek Central Flowway Restoration Project, FL. Project Manager responsible for coordination with Martin County engineering staff, design engineers and hydrologic modeling results to ensure project purpose and construction schedule are met for this large-scale restoration project. Coordinate with County biologists regarding wetland restoration efforts. Obtained state and federal environmental permit documents.

Martin County BOCC, Cypress Creek Floodplain Restoration, Hobe Sound, FL. Project Manager for the Cypress Creek Floodplain Restoration Project which includes data collection, literature review, modeling, engineering design, permitting and stakeholder engagement. The floodplain has been altered by channelization of the creek, increased stormwater flows, and sedimentation. Conceptual design includes a water control structure and spoil removal for rehydration of the floodplain. LiDar and site-specific survey data have been used to identify the restoration area. Groundwater monitoring has revealed that the creek is tidally influenced.

SFWMD, Everglades Agricultural Area (EAA) Storage Reservoir and Stormwater Treatment Area Feasibility Study, FL. Project Manager for the EAA Storage Reservoir Feasibility Study and Draft Environmental Impact Statement, which is a federal planning document for 240,000 ac-ft water storage reservoir and associated storm water treatment area. Tetra Tech was the lead consultant on this project and performed project management, report preparation including development of major sections of the document in coordination with SFWMD staff, quantities and cost estimating for the preliminary design, habitat unit evaluations, biological assessment, coordination of numerous public meetings, administrative record preparation, technical editing and final report publishing. Tetra Tech completed the Feasibility Study in compliance with federal policy within six months of executing the work order, on time and under budget. The report was successfully submitted to the Assistant Secretary of the Army Civil Works in 2018.

Diana Santander, PE — *Deputy Project Manager*

Education	MS, Civil Engineering, Louisiana State University, 1999, BS, Civil Engineering, Pontifical Xaverian University, Bogota, Colombia, 1996		
Registrations/ Affiliations	Professional Engineer, Florida No. 65854, 2007 ● Professional Engineer, Louisiana No. 32158, 2006 ● Registered Civil Engineer, Republic of Colombia, No. 2520260414CND ● American Society of Civil Engineers ● American Water Works Association		
Areas of Expertise	Civil Engineering ● Water Utilities ●Stakeholder Engagement ● Sea Level Rise Mitigation and Adaptation ●Flood Mitigation		
Office	Miami, FL	**Years of Experience**	25

EXPERIENCE SUMMARY

Ms. Santander has 25 years of civil and environmental engineering experience including resiliency projects, stormwater management, water distribution, wastewater collection systems, water conservation and solid waste management. She has managed several projects that range from small municipal improvements to overall programs involving complex improvements in highly urbanized areas. Ms. Santander has also prepared engineering cost estimates, performed project cost tracking and scheduling, reviewed final as-built documentation, and participated in contractor and consultant selection and management. She has in-depth experience coordinating permits with various regulatory agencies.

RELEVANT EXPERIENCE

Water Main Replacement Program, City of Hollywood, FL, Project Manager. This project consisted of the update and development of an overview of the City's Water Main Replacement Program. The update included evaluating and summarizing progress on the program. A summary technical memorandum was developed summarizing planned, designed, and constructed projects, including a timeframe for design and construction for future projects.

Brickell Bay Drive Improvements, City of Miami, FL. Deputy Project Manager. Ms. Santander is the Deputy Project Manager for this project that consists of the preparation of a design documents for Brickell Bay Drive from SE 14th Steet to SE 15th Road. The purpose of this signature project is to adapt Brickell Bay Drive and protect it from future storm surge and sea level rise while encouraging waterfront connectivity, creating open space, and improving the natural environment and the local ecosystem. Creating a long-term stewardship structure that protects and enhances quality of life and public and private investments is essential to keeping the Brickell Bay Drive waterfront area a functional, long-term resilient and adaptable asset. Ms. Santander provides overall project management and coordination between the City, stakeholders and the multiple disciplines involved in this project that include civil, transportation, environmental, coastal, and roadway engineers, landscape architects, scientist, economists, estimators, schedulers and public relations professionals.

Sea level rise and Mitigation Study for Miami-Dade County Parks, Miami-Dade County, FL. Project Manager. Ms. Santander served as the project manager for this project that consists of the evaluation and proposed mitigation solutions to address the sea level rise effects that may impact the public's use of three Miami-Dade County parks located adjacent to Biscayne Bay. These parks are Deering Estate, that also has historical significance, and Chapman Field. As part of the studies, relevant data was collected, and general site and environmental assessments were performed. Based on this information, engineering analyses and flood mitigation concepts were developed along with a long-term planning schedule. Ms. Santander was responsible for overall project management and coordination and performing quality control.

Flood Mitigation Grant Study, Town of Medley, Medley, FL. Project Manager. Ms. Santander served as the project manager for this $500,000 grant that the Town of Medley obtained through the Florida Department of Environmental Protection (FDEP). The purpose of this project was to find the most-cost effective alternative to alleviate flooding problems within this 266-acre area. Her responsibilities comprised coordinating with various agencies including FDEP, Miami-Dade County Department of Regulatory and Economic Resources (RER), and South Florida Water Management District (SFWMD), coordinating with subconsultants, evaluating areas of environmental concern, and determining the best stormwater management alternatives.

Flood Control Stormwater Pump Stations Consent Decree, Commonwealth of Puerto Rico Department of Natural and Environmental Resources, San Juan, PR. 2016 – 2016. Senior Engineer. This project included support to the Commonwealth of Puerto Rico Department of Natural and Environmental Resources (DNER) to address the requirements of consent decree between the DNER and the United States Environmental Protection Agency (EPA). The project included evaluation of the condition of three flood control stations in the municipality of San Juan as well as recommendations to reduce discharges of contaminants to bodies of water to the United States.

Kenneth Caban, PE, LEED® AP — *Client Service Manager*

Education	MS, Environmental Engineering, Florida International University, 2007		
Registrations/ Affiliations	Professional Engineer, Florida, No. 59276, 2003 • Leadership in Energy and Environmental Design Accredited Professional (LEED AP) • American Water Works Association		
Areas of Expertise	Civil Engineering • Water Utilities •Stakeholder engagement • Resilience Planning for Critical Assets • Mitigation and Adaptation		
Office	Miami, FL	**Years of Experience**	27

EXPERIENCE SUMMARY

Mr. Caban has managed local resiliency and infrastructure improvement projects in the Miami area for over 20 years. His local understanding and proven abilities managing multi-discipline teams make him an ideal project manager for this project. Most recently, his work has included climate change and sea level rise adaptation and resiliency projects within the Miami-Dade and tri-county area, as part of the Southeast Florida Regional Compact on Climate Change, where he served as a member of the Built Environment Work Group. As a member of the Work Group, Mr. Caban's mission was to develop focused recommendations pertaining to regional climate mitigation and adaptation issues in the built environment as part of a regional action plan.

RELEVANT EXPERIENCE

Grant Management Program, City of Hollywood, FL. 2022- Ongoing. Principal. Tetra Tech is working with the City of Hollywood to assist with the identification and evaluation of available grant funding opportunities, preparation of grants/loans applications, monthly and quarterly reporting, existing and future grant administration, and preparation of engineering supporting documentation, including environmental reviews, review of grant timelines, and requirements. The list of projects involves water, wastewater, and stormwater infrastructure.

Water Main Replacement Program, City of Hollywood, FL. 2011-Present. Principal, Project Manager, Engineer of Record, overseeing multiple projects for the systematic replacement aged and undersized water mains throughout the City. The projects included surveying, geotechnical evaluations, design, permitting, and construction administration services on multiple projects being completed concurrently. The entire program is comprised of over 300,000 linear feet (56 miles) of water main replacement, reconnection of over 2,500 service connections, numerous underground and overhead utilities conflicts, permitting through multiple agencies, and construction within schedule and budget.

Wastewater Expansion and Rehabilitation Program, City of Hollywood, FL. 2015 – Ongoing. Principal. This program includes expansion and rehabilitation of the wastewater systems within the City of Hollywood. To date, this program includes the expansion of gravity sewers, lift stations, force mains, and large user meters. The program seeks to provide resiliency and improved water quality throughout the City, reducing wastewater overflows and reducing contaminant discharges to surface and groundwaters.

Stormwater Infrastructure Program, City of Hollywood, FL. 2018 – Ongoing. Principal. This program includes rehabilitation and planning of the City's stormwater infrastructure to provide resiliency against storms, including climate change and sea level rise. To date, an assessment of the City's stormwater pump stations was completing, detailing necessary rehabilitation and improvements. In addition, coordination with the City's stormwater master planning consultant is ongoing, to ensure information obtained related to the pump stations is included in the stormwater master plan.

Sea level rise and Mitigation Study for Miami-Dade County Parks, Miami-Dade County, FL. 2020-2021. Principal. This project consists of the evaluation and proposed mitigation solutions to address the sea level rise effects that may impact the public's use of three Miami-Dade County parks located adjacent to Biscayne Bay. These parks are Deering Estate, that also has historical significance, and Chapman Field. As part of the studies, relevant data was collected and general site and environmental assessments were performed. Based on this information, engineering analyses and flood mitigation concepts were developed along with a long-term planning schedule.

Brickell Bay Drive Improvements, City of Miami, FL. 2021-Ongoing. Principal Project Manager. This project consists of the preparation of a design criteria package for Brickell Bay Drive from SE 14th Steet to SE 15th Road. The purpose of this signature project is to adapt Brickell Bay Drive and protect it from future storm surge and sea level rise while encouraging waterfront connectivity, creating open space, and improving the natural environment and the local ecosystem. Creating a long-term stewardship structure that protects and enhances quality of life and public and private investments is essential to keeping the Brickell Bay Drive waterfront area a functional, long-term resilient and adaptable asset.

Alison M. Miskiman, GISP, CFM — *Director, Risk and Resilience*

Education	MS, Earth Science, University of New Hampshire • BS, Environmental Science, University of Scranton		
Registrations/ Affiliations	ASFM Certified Floodplain Manager, #US-07-03029 • Geographic Information System Professional (GISP), #90661		
Areas of Expertise	Program and Project Management •;Planning – Adaptation, Resilience, Mitigation • Natural Hazard and Climate Change Risk • Leveraging Federal Funding to Build Resilience in Communities • Loss Estimation Using Hazus • Benefit-cost Analysis (BCA) • Geospatial Analysis to Support Planning and Risk Communication		
Office	Parsippany, NJ	**Years of Experience**	20

EXPERIENCE SUMMARY

Ms. Miskiman has 20 years of experience and leads Tetra Tech's Risk & Resilience subpractice as part of our Emergency Management Community Resilience program. She specializes in risk-informed planning; working in partnership with clients to maximize funding and increase resilience to natural hazard events and the changing climate. Ms. Miskiman also leads our geospatial team to conduct detailed and customized risk and vulnerability assessments. She manages large-scale GIS, data management, and web-based application development projects to simplify and streamline the collection and analysis of information for environmental, emergency management and economic development projects and utilizes the software to support data visualization. Ms. Miskiman has extensive technical experience in the development of BCAs incorporating state of the art strategies to include quantifiable benefits to demonstrate economic feasibility of federally and locally-funded projects.

RELEVANT EXPERIENCE

Military Installation Resilience Study, Orange County, NY (2021–Present). Tetra Tech is working with Orange County New York and U.S. Military Academy (USMA)/U.S. Army Garrisons (USAG)-West Point to develop a resilience study that will identify and analyze risks to the electric energy supply to USMA/USAG and its surrounding communities. Ms. Miskiman is the project manager working with the energy resilience team to identify and prioritize projects and actions necessary to increase energy security to the area beyond planned electrical upgrades.

Extreme Weather Response Plan, Port Moody, British Columbia, Canada (2022–Present). To make progress on Port Moody's climate action goals, the City hired Tetra Tech to conduct a vulnerability analysis and develop a strategy with specific actions that will result in reducing climate change risk and vulnerabilities associated with potential extreme weather events in the community. Ms. Miskiman is the climate resilience lead evaluating current and future climate projections, assessing risks and vulnerabilities to persons, groups, services, and infrastructure and developing short-, medium- and long-term actions to effectively and strategically reduce risks and vulnerabilities while not increasing greenhouse gas (GHG) emissions. The plan will acknowledge current vulnerable population numbers and future estimates in the analysis that account for potential downscaling of initiatives from other levels of government.

Resilient NJ (Regional Planning for a Stronger New Jersey); NJ Department of Environmental Protection (NJDEP) (2017–Present). Ms. Miskiman is the cost-benefit analysis program lead for the Tetra Tech scope as part of the Michael Baker International team. The project is to provide program management services for Resilient NJ, a regional resiliency program. This work is funded through post-disaster Department of Housing and Urban Development Community Development Block Grant – National Disaster Resiliency (HUD, CDBG-NDR) Program. Ms. Miskiman has developed a custom resilience scenario and strategy evaluation methodology to obtain a comprehensive understanding of all benefits, challenges and externalities for each region participating in the resilience program.

Southern Tier Central Regional Planning and Development Board (STC), NY (2018–2019). Ms. Miskiman is the project manager and technical lead to support the STC with "Planning in Water's Way." The objective of "Planning in Water's Way" is to promote economic resilience to flood risks within the I-86 Innovation Corridor in Chemung and Steuben Counties. As part of the project, the team is assessing varying levels of flood risk in the Corridor and developing recommendations for existing businesses based on feasible mitigation alternatives, cost estimates and quantitative benefits while providing flood-safe areas for focused economic development and model zoning recommendations for future development.

Erin Hague, CEP, NEV SP

Climate Change Mitigation and Adaptation

Education	MS, Coastal Zone Management, Concentration in Marine Biology, Nova Southeastern University, 2007 • BS, Geology, Minor Marine Science, Northeastern University, 1995		
Registrations/ Affiliations	ABCEP Certified Environmental Professional, #08040407 (2008) • Envision Sustainability Professional (9/2019) • Coastal Zone Foundation, Director (2019-2022) • Society of American Military Engineers (SAME) - Active Member in Mobile, Panama City and Jacksonville Posts • Environmental Business Council • American Academy of Underwater Scientists, Voting Member (Since 2005) • American Shore and Beach Preservation Association • Florida Association of Environmental Professionals		
Areas of Expertise	Coastal Resiliency and NBS • Coastal Project Planning & Design • Coastal and Marine Habitat Characterization, Monitoring, and Restoration • Regulatory Coordination and Permitting		
Office	Boynton, FL	Years of Experience	29

EXPERIENCE SUMMARY

Ms. Hague is Tetra Tech's Coastal Resiliency Lead and Director of Tetra Tech's Center of Coastal Services in Southeast Florida. She is a Certified Environmental Professional with 29 years of experience. She specializes in coastal resiliency design solutions and strategies using nature-based solutions (NBS) for asset protection against SLR, storm surge and wave attenuation. She has served as a technical expert for numerous small and large-scale projects in the coastal US and is proficient in managing multi-disciplinary projects involving geotechnical and biological field investigations, coastal planning, engineering design, stakeholder coordination and permitting.

RELEVANT EXPERIENCE

Brickell Bay Design Criteria Package, City of Miami, FL. Coastal Engineering and Environmental Discipline Lead. The City of Miami is revitalizing and enhancing its waterfront along Brickell Bay Drive. The City will be implementing its vision to adapt Brickell Bay Drive and protect it from future storm surge and SLR while encouraging waterfront connectivity, creating open space, and improving the natural environment and local ecosystem. Under contract with the City of Miami, Tetra Tech is developing a 30% design solution for the reconstruction of the seawall and roads, including pedestrian, recreational and vehicular waterfront access. The candidate alternative will be detailed through the 30% design phase of development and a design criteria package will be prepared to guide the project implementation through final design and construction. Ms. Hague is leading the regulatory coordination, marine resource investigation, and 1,500 ft seawall design alternatives that include considerations for green and grey infrastructure.

Breakwater Complex, Point aux Pins, Alabama Department of Conservation and Natural Resources (ADCNR), Mobile County, AL. Senior Scientist and Bioengineer. The ADCNR contracted Tetra Tech for the design and implementation of a living shoreline/breakwater feature along 4,130 ft in the Mississippi Sound, about 26 miles SW of Mobile, AL. Leading the marine resources survey and permitting and supporting the design for the project employing nature-based techniques to the design objectives. The project utilizes artificial breakwater materials to increase primary and secondary production of oyster habitat and to stabilize salt marsh shorelines along an area in Portersville Bay in the Mississippi Sound near Point aux Pins in Mobile County, AL. The selected breakwater system consists of a 200-ft-long breakwater segments separated by 80-ft gaps and a total length of 4,130 ft about 300 ft offshore of the Point aux Pins marsh shoreline. The $6.7 project construction cost is funded out of the BP settlement with the Gulf States of Natural Resource Damage Assessment claims after the Deepwater Horizon oil spill.

Lister Park Living Shoreline Project, New York Governor's Office for Storm Recovery, Rockville, NY. Engineering and Environmental Discipline Lead. The design of the Lister Park Project of the Living with the Bay (LWTB) program includes the implementation of flood protection, erosion control, stormwater mitigation, and waterfront access improvements along a portion of the Mill River watershed. The project involves the design of 3,000 ft of living shoreline stabilization along the estuarine portion of the Mill River. A 5-Year Operation and Adaptive Management Plan was developed to outline a program for routine maintenance and monitoring activities that will support the ecological Communities that are critical to the Project area's stability.

Marcy Frick, REM — *H&H Modeling Coordination/Water Resources Engineering*

Education	MS, Environmental Engineering, University of Florida, 2007 • BS, Environmental Sciences and Engineering, University of North Carolina at Chapel Hill, 2003		
Registrations/ Affiliations	Registered Environmental Manager (481555175) • Member, Florida Stormwater Association • Member, American Water Resources Association – Florida Section		
Areas of Expertise	Watershed assessment and management • Water resources planning • TMDL implementation • Planning document preparation • Meeting facilitation and documentation • Water quality improvement projects development • Stormwater project effectiveness evaluation		
Office	Jacksonville, FL	**Years of Experience**	19

EXPERIENCE SUMMARY

Ms. Frick experience is related to environmental science, natural resource planning, committee facilitation, water resource management, and water and wastewater infrastructure planning. Ms. Frick has supported total maximum daily load (TMDL) implementation throughout Florida, including the development of basin management action plans (BMAPs). The BMAP support included calculating allocations, determining nutrient load reductions from projects, and drafting report text. She has also supported local governments throughout Florida in evaluating restoration targets to determine how to most cost-effectively meet water quality and permit requirements.

RELEVANT EXPERIENCE

St. Lucie County Water Quality Needs Assessment, St. Lucie County, FL Project Manager. Developed a Water Quality Needs Assessment to provide information on identified project opportunities to reduce nutrients to meet BMAP requirements. Estimated nutrient reduction benefits and costs for the identified projects. Estimated the economic benefit of a healthy St. Lucie River and Estuary and Indian River Lagoon (IRL) specifically for St. Lucie County to support project implementation. Presented findings to the Board of County Commissioners. This assessment will be used to guide future project implementation within the County and to provide information necessary to apply for grants and other matching funds.

Water Quality Needs Assessment, Martin County, FL. Prepared the assessment with information on planned projects, estimated nutrient load reduction benefits, and project costs. Evaluated estimated project reductions against water quality restoration targets. Evaluated the economic benefits of a restored IRL system to support the investment in project implementation.

C-43 West Storage Reservoir Water Quality Feasibility Study, Caloosahatchee Basin, FL. Watershed Management Subject Matter Expert. Evaluated potential options to achieve nutrient load reductions associated with the C-43 West Basin Storage Reservoir. Gathering information on potential treatment options, evaluating which options are most feasible, providing information for public meetings to obtain input, estimating nutrient benefits of the top ten options, and making recommendations on the top three options for treatment.

Strategic Policy Plan on Florida's Oceans and Coasts, FL. Providing overall coordination on the development of the statewide strategic policy plan for Florida's oceans and coasts for the Florida Ocean Alliance. Coordinating with key stakeholders on the main issues that should be addressed, reviewed existing plans to determine available information, organized Steering Committee meetings to gather input, drafted the plan outline, and preparing the final plan for submission to the Florida Legislature.

Facilitation Support on Basin Management Action Plans (BMAPs), FL. Providing support services on several BMAPs throughout the state. Providing assistance with meeting preparation and support, projects tracking, and report preparation. Assisted with updates to the Lake Okeechobee, Caloosahatchee River and Estuary, and St. Lucie River and Estuary BMAPs to meet the requirements of the Governor's Executive Order.

Wetlands Reserve Plan of Operations (WRPOs) for Four Sites, FL. Preparing WRPOs for four Wetlands Reserve Easement sites throughout south Florida. Coordinating with the Natural Resources Conservation Service (NRCS), team members, and subconsultants on plan deliverables. Evaluating site conditions, identifying plan elements to restore the sites to their historical natural communities, preparing the WRPO and design documents, and coordinating on permits.

Rachel Bigby — *ESG and Sustainability Manager*

Education	MS, Sustainable Development, School for International, 2015 • BA, Environmental Studies, San Francisco State University, 2010		
Registrations/ Affiliations	Certificate, GRI Professional (in progress) • GHG Protocol Training, Scope 3 Corporate Supply Chain (in progress) • Certificate, Corporate Social Responsibility • Certificate, Greenhouse Gas Accounting • Certificate, Urban Permaculture Design		
Areas of Expertise	CSR, ESG, Sustainability Strategy, Program Management, and Reporting • Project Management • Stakeholder Engagement Materiality Assessment • GHG Accounting • Strategy Development • Implementation		
Office	Denver, CO	**Years of Experience**	31

EXPERIENCE SUMMARY

Seasoned sustainability and Corporate Social Responsibility (CSR) professional with 12 years of experience managing projects and standing up new programs and initiatives. Ms. Bigby provides bespoke solutions for government and commercial clients, providing ESG strategy development, sustainability due diligence support, carbon management solutions, and a variety of services to support clients in their unique sustainability journey. She brings a systems-thinking approach to develop actionable and scalable strategies and deliver clear solutions for her clients.

RELEVANT EXPERIENCE

Project Manager, Carbon Negative Ecovillage, Confidential Client (2021–Present). Serving as Project Manager for the pre-feasibility assessment of a 1,000-acre parcel. Assessment services include land use compatibility, air emissions and conservation credit value, environmental review of site conditions, and site remediation status review to redevelop the property into a carbon negative ecovillage. Planned features include designated open space, solar PV and agrivoltaics, and mixed use residential and commercial development.

Subject Matter Expert, Sustainability Due Diligence Review, Confidential Client (2022). Provided due diligence review to energy client seeking to acquire a Battery Energy Storage System (BESS) company. Evaluated county, state, and federal recycling legislation and current best practices for management, transport, and recycling of grid-scale Lithium-ion batteries. Technical memo served to evaluate risk and outline recommendations for sustainability strategy integration and best management practices for prudent end of life recycling.

University of Colorado Boulder, Capstone Project, Capstone Innovation Lab, Boulder, CO (2018–2021). Responsible for scouting new external partnerships and co-scoping yearlong graduate consulting projects focused on CSR, ESG and sustainability reporting, decarbonization, regenerative agriculture, carbon accounting, and more. Designed curriculum and delivered core graduate course (CIL), as the Lead Instructor for 90 graduate students, teaching on topics of sustainability, professional development, and pitching and winning a Capstone consulting project with an external partner organization.

Sustainability Coordinator, Climate Action Plan, Greenhouse Gas Inventory Management, STAR Certification, Solar Beaverton, Beaverton, OR (2014–2017). Led the city's Sustainability Program, and managed operational and community-wide sustainability reporting, programming, and projects, and served as the internal sustainability consultant for all city programs and divisions. Led the development of the city's first community-wide Climate Action Plan (mitigation and adaptation), including data collection and analysis, conceptualizing and co-leading the stakeholder engagement process with over 100 regional experts, and delivering regular City Council presentations. Managed city's internal and community-wide greenhouse gas inventories. Led City of Beaverton to become first-time STAR-Certified (Sustainability Tools for Assessing and Rating communities) community through extensive data collection and analysis using over 500 measurable environmental, social, and economic indicators. Conceptualized and led the city's residential "Solar Beaverton" campaign, offering negotiated discounts for solar PV, advanced battery storage systems, and energy efficiency upgrades for Beaverton residents. Created a cross-sector collaboration with non-profit, public, and private partners to deliver a campaign that offered discounts, educational workshops and resources, and guidance on how to leverage local, state, and federal tax credits and rebates.

Cynthia Addonizio-Bianco, PP, AICP, CFM, LEED BD+C *Program Manager*

Education	BS, Engineering, Cornell University		
Registrations/ Affiliations	American Institute of Certified Planners (AICP) (#029198) • Professional Planner (PP), NJ (#33LI00632700) • ASFPM Certified Floodplain Manager (#US-07-02614) • Leadership in Environmental and Engineering Design Accredited Professional (LEED BD+C)		
Areas of Expertise	Resiliency Planning/Mitigation Planning/Climate Adaptation • Post-Disaster/Community Reconstruction Planning • Hazard Mitigation Planning • FEMA HMA Grant Support • Project Management		
Office	Parsippany, NJ	**Years of Experience**	31

EXPERIENCE SUMMARY

Cynthia Addonizio-Bianco, PP, AICP, CFM, LEED AP BD+C is involved in the management and performance of Community Reconstruction Plans, Resiliency Projects, and Local Hazard Mitigation Planning (HMP) projects regulated under the Disaster Mitigation Act of 2000 (DMA 2000) and has over thirty years' experience in engineering and planning including experience in hazard mitigation planning and as a mechanical engineer, packaged equipment engineer and manager. As Community Resilience Program Manager at Tetra Tech, Inc., Cynthia's experience includes the development and management of a wide range of implementation focused resilience and mitigation projects in accordance with HUD, FEMA, and state requirements. These plans form the basis for pro-active planning to provide a foundation for climate adaptation measures and mitigation strategies to reduce the vulnerability of hazards exacerbated by increased frequency and intensity of natural hazard events. She has managed resilience plans in the post-Sandy environment ensuring that state of the art planning tools are utilized to provide implementable plans. Her mitigation planning experience includes work NY Rising Community Reconstruction Plans and on single and multi-jurisdictional mitigation plans. Her experience includes the oversight of hazard mitigation planning and engineering groups to ensure quality standards and performance of work within project schedules. As Project Quality Assurance Manager, she establishes appropriate levels of review and surveillance for project deliverables to ensure compliance with appropriate quality standards.

RELEVANT EXPERIENCE

Hazard Mitigation Technical Assistance Program, HMTAP (2021-present). As part of the Alliance for Mitigation and Resilience (ARM) team Ms. Addonizio-Bianco provides quality assurance for technical and organizational support to the Federal Emergency Management Agency (FEMA) Floodplain Management and Insurance, Mitigation Division. Task orders supported include projects to develop the Ideal State Substantial Damage Response Pan, facilitation, and provision of NFIP CRS data to communities, improvement of management and practices to support FEMA HQ operations, and update and improvement of NFIP violations database.

NCORR RISE Regional Resilience Portfolio Program (2022-present): Ms. Addonizio-Bianco is the Quality Assurance Manager for the NCORR (North Carolina Office of Recovery and Resiliency) RISE (Regions Innovating for Strong Economies and Environment Program) Regional Resilience Portfolio Program. The Regional Resilience Portfolio Program is supporting nine regional partnerships, based on COG geographies in Eastern North Carolina, to develop a vulnerability assessment and a portfolio of priority resilience projects that reduce risk and increase resilience for the region.

Local Resilience Planning Guidance; NJ Department of Environmental Protection (NJDEP) (2020-present). Ms. Addonizio-Bianco is managing the development of a comprehensive guide to local community resiliency planning in for the State of New Jersey as part of the Michael Baker International team to develop guidance on effective regional resilience planning to be created and deployed using on online, interactive website format. The Local Resilience Planning Guidance website produced under this Work Order shall expand and build on that regional guidance document, using the same tone and approach. The goal of the Local Resilience Planning Guidance website will be to identify guidance for local governments to do cutting-edge, comprehensive planning considering the impacts of SLR and Climate Change within their local community. The guidance will present communities with a variety of existing tools, approaches, and guidance to achieve comprehensive resilience planning that is right for their community.

Robert Flaner, CFM — *Hazard Mitigation Program Manager*

Education	BS, Biological Sciences, University of California at Davis, 1984		
Registrations/ Affiliations	Certified Floodplain Manager, 2000 • ASFPM US-00-00143		
Areas of Expertise	Hazard Mitigation Planning • Community Resilience Planning • Urban Planning • Risk Assessment • Floodplain Management • Community Rating System • FEMA Grant Programs • FEMA Benefit/Costs Analysis		
Office	Eagle, ID	**Years of Experience**	31

EXPERIENCE SUMMARY

Rob Flaner has spent over 30 years developing a comprehensive background in all aspects of floodplain management while administering the Community Rating System (CRS) under contract with the FEMA. The CRS is a FEMA program that provides incentive to communities to exceed the minimum requirements of the National Flood Insurance Program. The CRS program recognizes a comprehensive range of non-structural flood hazard mitigation activities that include: public information, mapping and regulations, flood damage reduction, planning and flood warning. Rob was responsible for coordinating all CRS objectives between State, Local, and Federal entities in a 9-state territory that spanned three FEMA Regions. During his tenure with the CRS program, Rob was able to develop strong working relationships with his Federal, State, and Local partners. The CRS since its inception has developed into a template for sustainable floodplain management that can be used at the local level to support multiple facets of community programs. Rob's detailed understanding of the CRS program and floodplain management helped him to develop a diverse floodplain management background that has been utilized by FEMA as a Disaster Assistance Employee.

RELEVANT EXPERIENCE

City of Houston, Hurricane Harvey Disaster Recovery Consulting Services (2017–Present). Following the devastating impacts from Hurricane Harvey, Tetra Tech mobilized two specialty teams to the City of Houston within 48 hours of the disaster: one team for debris management and tracking, and a second program management team to assist City leadership with the development of a strategy for accessing federal and state grant programs for infrastructure and housing programs. As the disaster has moved into long-term recovery, our team has worked in concert with the City to implement systems for the continuous development of documentation to keep the federal and state funds flowing, and with technical teams to evaluate damages and track the individual repair projects through completion. Rob supported this effort as the Lead BCA analyst that directed a team of analysts in support of the City's 404 grant applications under FEMA's Hazard Mitigation Assistance (HMA) grant program. To date, over 2 dozen BCA analyses were completed for projects totaling over $300M in grant funding requests. Many of these analyses required innovative modeling and analysis to render projects as cost effective.

Good Samaritan Hospital Grant Application Support, Los Angeles, CA (2018). Tetra Tech was hired by the Good Samaritan Hospital in Los Angeles, CA to two grant applications designed to retrofit equipment necessary to maintain essential services following an earthquake. Rob was the Project Manager and Lead BCA Analyst for this project. In addition to providing grant application assistance, Tetra Tech also assisted with project design development and scoping, cost estimation, and benefit-cost analysis. To advance the grant application, Tetra Tech was able to leverage existing mitigation planning data and a model that we had recently completed for the City of Los Angeles. The Los Angeles hazard mitigation plan included construction of a robust, user-defined facility model for earthquakes that looked at five deterministic scenarios likely to have the greatest impact on the city. To yield a viable benefit cost analysis, Tetra Tech deployed an innovative approach to measure both pre- and post-project conditions using the net benefit of both projects using the Advanced Engineering Building Model in Hazus-MH. Applying these approaches to other grant application efforts will likely result in reduced seismic risk to vulnerable critical infrastructure. The total cost for the projects was nearly $3 million, and both grant applications were approved for award.

Hazard Mitigation Program Assistance, City of Roseville, CA (2005–Present). Tetra Tech provides Hazard Mitigation program assistances to the City of Roseville on an "on-call" basis. Services provided under these contracts include: Hazard Mitigation program support that includes application preparation and benefit-cost analyses. Tetra Tech has aided the City of Roseville in securing over $1.5M in grant funding under FEMA Hazard Mitigation grant programs since 2005.

Danny Hinson — *Emergency Management Planning*

Registrations/ Affiliations	Certified Floodplain Manager (CFM)● Florida Professional Emergency Manager (FPEM) ● Critical Infrastructure & Management System (CITAMS)		
Areas of Expertise	Community Rating System (CRS) Coordinator ● Grant Management ● FEMA ● Flood Plain Management		
Office	Chicago, IL	**Years of Experience**	32

EXPERIENCE SUMMARY

Mr. Danny Hinson is an experienced professional with over 30 years of experience. Prior to joining Tetra Tech, Mr. Hinson was with the Florida Division of Emergency Management where he served as the State of Florida Community Rating System (CRS) Coordinator and developed a state-wide initiative to increase local community participation in the National Flood Insurance Program (NFIP) and supported incident liaison to various FL counties.

RELEVANT EXPERIENCE

Project Planner, Emergency Management
2018 to current Mr. Hinson served as State Liaison during Hurricane's Matthew in St. Johns County and Irma in Miami-Dade County, FL and also in Monroe County conducting activation activities in the Emergency Operations Center and in the field conducting damage assessments. He has previously served as an Emergency Management Director for Nassau County, Florida, where he managed presidentially declared disaster responses, developed and managed operating budgets, and various emergency management Urban Area Security Initiative (UASI) and State Homeland Security Grant Program (SHSGP) grants, and established a National Incident Management System / Incident Command System (NIMS/ICS) training program for employees. Traveling the country providing Emergency Management and Floodplain Management services has benefited many communities with the diverse experience across the country.

CRS & Planning Experience: Currently working with various communities across the country with CRS providing floodplain management mitigation support. Recently developed Hazard Mitigation Plan for various communities and developed a COVID Response Plan for several California communities. Developed local Hazard Mitigation Plans and the required five-year updates for Alachua County and Nassau County FL as LMS Chair in both counties meeting Florida standards. Met annual requirements for updating project lists and meetings.

Plans Section Chief, Lake County, CA
Mendocino Complex Fire (September 2018 – November 2018) Activated and deployed for eight weeks to oversee recovery as the certified Plans Section Chief for Lake County, CA. Evaluated short- and long-term needs based on disaster complexity in order to develop and implement strategies and planning efforts for CA Office of Emergency Services (OES) and other various stakeholders. Adapted and responded quickly to sensitive county-specific challenges by working directly with distraught homeowners and the client to preserve Native American land.

State of Florida Community Rating System (CRS) Coordinator, Florida Division of Emergency Management (FDEM)
Various Projects, (November 2013 – December 2017)
While working with FDEM, developed a State-wide Initiative increasing local community participation in the National Flood Insurance Program's CRS with a goal of 100% state-wide participation.

- September 2017 - staged at Miami-Dade County, FL emergency operations center (EOC) during Hurricane Irma as State Liaison for a week, then relocated to Monroe County as State Liaison for a week conducting activation activities in the EOC.
- Managed the resource request through State Resource tracking system, ordering resources as needed for recovery.
- October 2016 - staged at the St. Johns County EOC during Hurricane Matthew as State Liaison for a week, conducting damage assessment to four NE FL counties
- Damage assessment was used to determine future unmet needs for the Community Development Block Grant – Disaster Recovery (CDBG-DR).
- Fall 2015 - participated in the AlertFlorida committee developing a scope of work and selection of a vendor to provide a statewide alert notification system
- This project was used to increase CRS points and to provide a consistent alert notification system for State of FL and offered to all 67 Counties Emergency Management agencies.

Secondary responsibilities include the following:

- Liaison with Kings Bay Navy Base, coordinating response from State and conducting exercises
- Participate with the Georgia Florida Trident Network alert notification exercise and training

David Frodsham, PE

Civil Engineer

Education	MS, Engineering Management, University of Louisville, 2009 • BS, Civil Engineering, Penn State University, 2005		
Registrations/ Affiliations	Professional Engineer, Florida (#75507); Georgia (#43580); South Carolina (#35771) • FDEP & NPDES Certified Stormwater Inspector • QC Manager; FDOT • PADI Certified Advanced Nitrox Diver		
Areas of Expertise	Coastal engineering • Municipal engineering • Civil site design • Environmental permitting • Construction management		
Office	Stuart, FL	**Years of Experience**	12

EXPERIENCE SUMMARY

Mr. Frodsham is a Licensed Professional Engineer at Tetra Tech with more than 16 years of experience in civil engineering, coastal engineering, municipal engineering, civil site design, environmental permitting, and construction management. David has worked on a variety of infrastructure projects from preliminary design through construction close-out. In addition to design services, his experience with Construction Engineering and Inspection has allowed him to develop a keen understanding of construction-focused design solutions.

RELEVANT EXPERIENCE

Harbour Ridge Yacht & Country Club, Shoreline Stabilization, Palm City, FL. Engineer-of-Record for a 1.9-mile shoreline hardening and nature trail restoration project following Hurricane Irma related damage. Project was located along the North Fork of the St. Lucie River and included soil retention, slope stabilization, NPDES compliance as well as flood & erosion control to protect the community against future storm-related damages.

City of Key West, Aquarium Basin Seawall, Key West, FL. Engineer-of-Record for seawall replacement to the hurricane Irma damaged portions of the Key West Aquarium basin seawall. Project scope included providing an assessment of hurricane damage, design of a replacement to the marina basin seawall and pilings, securing permits through FDEP, USACE & NOAA/FKNMS. Raised existing seawall cap elevation to address sea level rise. Preparation of plans & specifications, bid support, construction administration & inspection. Coordination with adjacent property lessees and local stakeholders to minimize construction impacts to their facilities.

City of Key West, Schooner Wharf to Conch Republic Seawall, Key West, FL. Engineer-of-Record for assessment of steel sheet piling seawall and proposed rehabilitation/replacement along 1,000-lf of waterfront property. Oversaw field activities to catalog benthic resources for assistance in permitting. Obtained permits through FDEP, USACE & NOAA/FKNMS for full seawall replacement. Produced plans & specifications and provided bid support.

City of Riviera Beach CRA Marine District South Improvements, Riviera Beach, FL. Designed drainage system and seawall modifications for a 40-acre CRA redevelopment in Riviera Beach. Performed drainage calculations and established grading parameters for conformance with drainage design criteria for SFWMD and the City of Riviera Beach. Designed exfiltration trench for water quality treatment. Obtained federal, state, & local permits, as well as LEED credits.

Middle Beach Recreational Corridor, Phase II, Miami Beach, FL. Engineer-of-Record for a 2-mile pedestrian paver walkway located east of the ECL and west of the coastal dune in northern Miami Beach. Pedestrian and bicycle enhancements were incorporated along with landscaping, removal of exotic vegetation, and dune restoration. Project included extensive permitting through FDEP & FDOT, minimization of excavation, and ADA compliance.

North Bay Road Bridge, Sunny Isles Beach, FL. Drainage Engineer-of-Record. Performed design of drainage system and assisted with traffic design for a pedestrian & emergency vehicle bridge in Sunny Isles Beach. Coordinated with structural engineers for alignment and other structural considerations, as well as tie-ins to adjacent project. Obtained permitting approvals through state and local environmental authorities.

City of Key West, Half Shell Raw Bar Seawall, Key West, FL. Project engineer for concrete fascia pour enhancements to 100+ year old seawall abutting the Key West bight. Administered construction & conducted periodic site inspections for general conformance with engineering plans & specifications. Developed and inspected SWPPP for NPDES permit compliance to protect against erosion within OFWs.

Thomas Mueller, PE — *Civil Engineer*

Education	BS, Civil Engineering, California State University, 1996		
Registrations/ Affiliations	Professional Engineer, FL, #58119		
Areas of Expertise	Utility and Roadway Infrastructure • Land and Site Development • Project Management		
Office	Stuart, FL	**Years of Experience**	32

EXPERIENCE SUMMARY

Mr. Mueller has over 25 years of experience as a project manager for Land and Site Development, and Utility and Roadway Infrastructure projects for Public and Private Clients. He is a Registered Professional Engineer in the State of Florida and has worked on projects in Texas, Florida, Panama, the Bahamas, and Nigeria. His responsibilities have included Due Diligence Investigation and Reports, assistance with Environmental Impact Assessments, consultation on site plan development, design of water distribution and wastewater collection and transmission systems (including high pressure and low pressure lift station, vacuum sewer, and septic system design), design of roadway, pervious and impervious pavement, grading, storm water collection and management systems, and erosion control plans. He also is responsible for attaining all required permits, contracting and managing consultants, preparing proposals and RFQs, and coordination with Clients.

RELEVANT EXPERIENCE

WGI, Inc., FL (2017–2022). Project Management on site development projects for private and government clients. Managed projects included Delray Beach City Marina redevelopment; multiple roadway projects for Delray Beach and Lake Worth Beach; remote RV hunt camps for FWC including well and water treatment/distribution systems. septic treatment and disposal system, and coordination with solar PV electric systems; three natural area day use facilities and trail structures for FWC; Oxbridge Academy Baseball field and concession building; Fountains Country Club golf course conversions resulting in three large multifamily residential communities; and Boca West Country Club recreation club and pool renovations and overflow parking lot.

Alan Gerwig & Associates, Inc., FL (2014–2017). Project Management on site development projects for private and public clients and Roadway Design for Government Clients. Managed projects included Palm Beach State College Loxahatchee Groves Campus (Site Civil for First Phase of 75 Acre Site); Six Separate Bridge Replacement Projects for Palm Beach County Roadway Production (over 1.5 miles of total roadway improvements); Various Horse Ranch Improvements for individual property owners (over 76 total acres of development, includes septic drain field system design and permitting); Haverhill Roadway Expansion Drainage Study and Environmental Permitting (89.5 acre watershed modeled with ICPR Version 3); and Palm Beach Metals Whiteside Industrial Park Development (9.6 acre metal recycling yard).

Calvin, Giordano & Associates, Inc., FL (2012–2014). Project Management on site development projects for Private Developers and Roadway and Utility Design for Government Clients. Managed projects included Jupiter AIA Improvements (4,000 feet of Roadway and Utility Improvements) for the Town of Jupiter; Boca Bath and Tennis Club Water Main Improvements (3,800 linear feet of water main replacement) for the City of Boca Raton; and Tidal Wave Industrial Park (80-acre industrial park including 2,700 linear feet of off-site roadway improvements) for Tidal Wave Industrial Park and Southern Waste Systems.

East Bay Group, LLC, FL (2005–2012). Project Management on site development projects for Private Developers. Managed projects included Loggerhead Marine Life Center turtle tank fresh sea water intake and disposal system; Citi-Gate Estates (250 acre residential/commercial development in Ibadan, Nigeria); Ginn Sur Mer (2,100-acre resort in West End, Grand Bahama, Bahamas) and Tesoro (1,200-acre resort in Port St. Lucie, Florida) for the Ginn Development Company; Old Bahama Bay (228-acre resort at West End, Grand Bahama, Bahamas) for West End Resorts, Ltd.; Wakaari, (25-acre resort in South Palmetto Point, Eleuthera, Bahamas) for Wakaari, Ltd; and Isla Palenque (400-acre resort in Isla Palenque, Panama) for Amble Resorts.

CH2MHill, Inc., FL (2004–2005). Project Phase Management on site development projects for Private Developers. Managed projects included Ginn Sur Mer (2,100-acre resort in West End, Grand Bahama, Bahamas) and Isle of Allura (4,000-acre resort in Barbary Beach, Grand Bahama, Bahamas) for the Ginn Development Company.

Alberto Abarca, PE — *Professional Engineer*

Education	MS, Engineering Management, Florida International University, 2017 • BS, Industrial Engineering, Universidad Rafael Urdaneta, Maracaibo, Venezuela, 2014		
Registrations/ Affiliations	Professional Engineer, Florida (#94299) • American Water Works Association • American Society of Civil Engineers		
Areas of Expertise	Utility Engineering • Civil site design • Environmental permitting •Construction Administration • Stormwater Infrastructure		
Office	Miami, FL	**Years of Experience**	6

EXPERIENCE SUMMARY

Mr. Abarca is a civil engineer in Miami, Florida. He has over five years' experience in utility engineering. He has provided engineering support as project engineer for scoping, utility coordination, design, permitting, construction administration, inspections and certifications for numerous public sector projects, including water main, raw water main, reclaimed water main, force main, lift station and gravity sewer projects. He has trenchless experience including directional drills and jack and bores under railways, major roadway crossings, subaqueous crossings and others.

RELEVANT EXPERIENCE

Grant Management Program, City of Hollywood, FL. Project Engineer. Tetra Tech is working with the City of Hollywood to assist with the identification and evaluation of available grant funding opportunities, preparation of grants/loans applications, monthly and quarterly reporting, existing and future grant administration, and preparation of engineering supporting documentation, including environmental reviews, review of grant timelines, and requirements. The list of projects involves water, wastewater, and stormwater infrastructure. Tetra Tech will manage and execute the grants and loan funding applications to agencies such as Broward County, Florida Department of Transportation, Florida Department of Environmental Protection, Environmental Protection Agency, Federal Emergency Management Association, and others.

Stormwater Infrastructure Program, City of Hollywood, FL. 2018 – Ongoing. Project Engineer. This program includes rehabilitation and planning of the City's stormwater infrastructure to provide resiliency against storms, including climate change and sea level rise. To date, an assessment of the City's stormwater pump stations was completing, detailing necessary rehabilitation and improvements. In addition, coordination with the City's stormwater master planning consultant is ongoing, to ensure information obtained related to the pump stations is included in the stormwater master plan.

Water Main Replacement Program, City of Hollywood, FL. 2017- Ongoing. Project Engineer. Providing engineering support for utility coordination, project engineering, and construction management on multiple projects being completed concurrently. The entire program is comprised of over 225,000 linear feet (42 miles) of water main replacement, reconnection of over 1,000 service connections, numerous underground and overhead utilities conflicts, FEC railroad crossings, permitting through multiple agencies, and construction within schedule and budget. Existing aged cast iron water mains were replaced with both DIP and PVC water mains, ranging from 4-inch to 24-inch diameters. The existing water mains were located within residential streets, paved and unpaved alleys, and easements in the rear of residential lots, which had become overgrown or encroached upon by property owners. Existing water meters located within unpaved alleys or rear easements were relocated to the front of the lots and included new water services within private property. Aged fire hydrants were replaced some water mains were upsized by one nominal size. Extensive asphalt pavement and pavement markings restoration and improvements were also included.

Wastewater Expansion and Rehabilitation Program, City of Hollywood, FL. 2015 – Ongoing. Principal. This program includes expansion and rehabilitation of the wastewater systems within the City of Hollywood. To date, this program includes the expansion of gravity sewers, lift stations, force mains, and large user meters. The program seeks to provide resiliency and improved water quality throughout the City, reducing wastewater overflows and reducing contaminant discharges to surface and groundwaters.

Roderick K. Cashe, PE, CDT, LEED™ AP — *Senior Project Engineer*

Education	BS, Environmental Engineering, University of Florida, 1987		
Registrations/ Affiliations	Professional Engineer, Florida, No. 45169 • Qualified Stormwater Management Inspector # 53666 • Florida Engineering Society • American Society of Civil Engineers • American Water Works Association		
Areas of Expertise	Stormwater Management • Master Planning • Capital Improvements • H&H Modeling • FEMA Map Revisions		
Office	Orlando, FL	**Years of Experience**	32

EXPERIENCE SUMMARY

Mr. Cashe has statewide experience, in over 45 counties, in the areas of civil/site engineering for public and private facilities; stormwater management planning and engineering design; hydrologic and hydraulic modeling for city-wide infrastructure and regional stormwater management facilities and best management practices; stormwater pump stations for flood control; design, permitting and construction administration of stormwater Capital Improvement Program (CIP) projects for water quality and flood control; infrastructure engineering for utilities, including force mains, water mains, gravity sewer, and sanitary lift stations; and commercial, institutional, residential, and multi-family site development. In addition, he has extensive experience with the Federal Emergency Management Agency (FEMA) map revision process for the management of floodplains.

RELEVANT EXPERIENCE

Stormwater Pump Stations Condition Assessments, City of Hollywood, FL. Senior Project Engineer. Performed visual and operational conditions assessments for the future rehabilitation of 10 stormwater pump stations, including effects and mitigation measures related to sea level rise and lunar tide events. The assessments included both submersible pump stations as well as enclosed pump stations within buildings.

Cypress Street Flood Improvement Design/Build Project, City of Tampa, FL. Oct. 2018 – Present. Program Manager. Mr. Cashe lead a team of engineers to perform comprehensive surveying and engineering design services for the construction of a substantial two-mile long conveyance system consisting of rectangular box culverts (RBC) ranging in size for 10'x5' to dual 8'x8' downstream. Tetra Tech teamed with Woodruff and Sons, Inc. construction company to Tetra Tech prepared a 2D XP-SMMM modeling of this 550-acre watershed to analyze the flow and size the conveyance system for this tidally influenced system. The complexity of designing this system was impacted by the requirement to construct the conveyance system along the center of public right-of-way with the presence of an existing 24-inch gravity sewer system, which had to be relocated while being kept in service. large diameter watermain in addition to the requirement to construct a new 36-inch transmission watermain.

Natural Resource Conservation Services (NRCS) Wetlands Restoration. Sept. 2017 – Present. Senior Project Manager. NRCS has a federally funded program to restore wetland systems on privately owned agricultural properties around the country. They negotiate Easement Restoration Agreements with owners that typically allow NRCS use of their property, using Wetland Reserve Easements (WREs), for 100+ years. NRCS takes these once thriving wetland systems altered by manmade ditching and earthmoving. NRCS awarded Tetra Tech four (4) sites ranging in size from 600 to 1,500 acres. Tetra Tech prepared 2D AdICPR, version 4.0, models accounting for surface to groundwater interactions using the Green-ampt infiltration methodology. To develop hydroperiods for restoration of the historic wetlands the team used AdICPR to prepare a 2D continuous model spanning a 30-year rain cycle. Tetra Tech prepared construction documents for implementation of the proposed improvements to restore historic wetlands; and obtained ERP permits.

Blackstone Preserve Stormwater Management System, Lehigh Acres (Lehigh Acres Municipal Services Improvement District, LAMSID), FL. Apr. 2017 – Nov. 2018. Project Manager. LAMSID entered into a Joint Use Stormwater Management System Agreement (JUSMSA) with the Florida Dept. of Transportation for the creation of a 70 acre preserve. The property onto which the preserve is proposed is a distressed wetland that had been historically drained by ditching. This project included construction of a pumping system to withdraw surface water from a nearby regional LAMSID canal system. The restored wetland system now serves as a filter to remove nutrients and metals from the surface water.

Gateway Hydrologic and Hydraulic Model, FL. Jan. 2019 – March 2019. Technical Manager. Mr. Cashe supervised his staff's preparation of a 2-D ICPR 4.0 Hydrologic and Hydraulic (H&H) model for this 3,000-acre watershed to assess the level of service of the lakes and stormwater management facilities. The model will be used by Gateway as a planning tool for future the analysis of anticipated capital improvements to increase the levels of service of stormwater infrastructure.

FEMA Letter of Map Revision (LOMR), City of Deltona, FL. Project Engineer for the existing conditions hydrologic and hydraulic modeling and permitting of this project. Tetra Tech provided updates to the City wide AdICPR hydraulic and hydrologic model, as well as aiding in applying for a FEMA LOMR Permit.

Shannon Leicht — *Project Engineer*

Education	BS, Environmental Engineering, University of Florida, 2013		
Registrations/ Affiliations	Professional Engineer, Florida, No. 85389 • Qualified Stormwater Management Inspector # 30818		
Areas of Expertise	Stormwater and Utility Modeling • Master Planning • Environmental permitting • Stormwater Retrofit Design		
Office	Orlando, FL	**Years of Experience**	9

EXPERIENCE SUMMARY

Ms. Leicht is a Water Resources Engineer with more than eight years of consulting experience. Her experience in Civil and Environmental Engineering includes master planning, new and retrofit design, alternative materials evaluation, retention/detention water quality improvements, storm sewer networks, hydrologic and hydraulic modeling, floodplain analysis, water control structure evaluation/design, gravity sewer collection systems and transmission mains utilizing open trench and trenchless designs for force mains and reclaimed water mains.

RELEVANT EXPERIENCE

Stormwater Pump Stations Condition Assessments, City of Hollywood, FL. Project Engineer. Performed visual and operational conditions assessments for the future rehabilitation of 10 stormwater pump stations, including effects and mitigation measures related to sea level rise and lunar tide events. The assessments included both submersible pump stations as well as enclosed pump stations within buildings.

Islesboro Stormwater Management Improvements, City of New Smyrna Beach, FL. Project Engineer for the preliminary design and alternatives analysis, preparation of construction documents, and permitting. Islesboro subdivision is a 720-acre area located near the Municipal Airport and Turnbull Bay that experienced significant flooding due to the lack of adequate storage and conveyance infrastructure for runoff. The design included a 2D hydrologic model using ICPR4 to analyze the existing conditions and proposed improvements to reduce the extend and duration of flooding. Due to its proximity to the ocean and bay, tidal surges are prevalent, and were accounted for in design. The project includes upgrade of 21,000 linear feet of 18-inch to 66-inch storm culverts, expansion and creation of stormwater ponds, and paving shell roadways.

Cypress Street Outfall Regional Stormwater Improvements, Design-Build Partnership with Woodruff and Sons, Inc., City of Tampa, FL. Project Engineer. Project wide H&H Modelling, design of 7,500 LF of box culvert, varying in size from 5'x6' to 8'x16', to implement a regional stormwater conveyance system to reduce flooding within a 220-acre basin. Project included secondary stormwater collection and conveyance, as well as 36" distribution watermain upgrades, watermain relocations and improvements, wastewater relocations and improvements, and roadway improvements for the length of the corridor. Performed hydrologic and hydraulic modeling of the project area, as well as preparation of ERP and FDOT.

Historic Westside Area Stormwater Management Improvements, City of New Smyrna Beach, FL. Project Engineer for the development of a 2D adICPR 4 hydrologic and hydraulic (H&H) model for this 520-acre within the Historic Westside neighborhood watershed to assess the level of service of the existing stormwater management facilities. Project includes preparing an alternatives analysis to assist the City with planning for future capital improvements to increase the level of service of the study area. Prepared a Preliminary Design Report (PDR) which included preliminary designs of the various alternatives, a benefit versus cost analysis to compare these alternatives, and recommendations for the prioritization of the alternative solutions.

Stormwater Preliminary Design, Town of Fort Myers Beach, FL. Project Engineer. Preliminary design report (PDR) for the remaining side streets of Fort Myers Beach. Design included the utilization of 2D hydrologic and hydraulic modeling to identify areas of nuisance flooding and deficient infrastructure. These results aided in the development of preliminary designs for stormwater improvements for more than 27,000 LF of roadway within the Town right-of-way. Projects were scored based on benefit provided to the residents.

Corbin Park Area Stormwater Management Improvements, City of New Smyrna Beach, FL. 2020-2022. Project Engineer for the development of a 2D adICPR 4 hydrologic and hydraulic (H&H) model for this 475-acre watershed within the Corbin Park neighborhood to assess the level of service of the existing stormwater management facilities. Project includes preparing an alternatives analysis to assist the City with planning for future capital improvements to increase the level of service of the study area. Prepared a Preliminary Design Report (PDR) which included preliminary designs of the various alternatives, a benefit versus cost analysis to compare these alternatives, and recommendations for the prioritization of the alternative solutions.

FEMA Letter of Map Revision (LOMR), City of Deltona, FL. Project Engineer for the existing conditions hydrologic and hydraulic modeling and permitting of this project. Tetra Tech provided updates to the City wide AdICPR hydraulic and hydrologic model, as well as aiding in applying for a FEMA LOMR Permit.

Shari Ramirez, PE, ENV SP, TTCP — *Grant Management*

Education	BS, Civil Engineering, Florida International University, 2005		
Registrations/ Affiliations	Professional Engineer, Florida No. 73078, 2011 ● FDOT Temporary Traffic Control Professional, 2019 ● Envision Sustainability Professional, No. 23419, 2018 ● Florida Stormwater Association ● Florida Engineering Society ● American Society of Civil Engineers ● American Water Works Association		
Areas of Expertise	Civil Engineering ● Water Utilities ● Grant Management ●Sea Level Rise Mitigation		
Office	Miami, FL	**Years of Experience**	18

EXPERIENCE SUMMARY

Ms. Ramirez is a senior civil engineer with 18 years of experience in planning, design, permitting, bidding, and construction administration of engineering projects. Her expertise includes water, wastewater, site development, transportation, aviation, resiliency, and stormwater infrastructure projects. She is currently working with the City of Hollywood to assist with grant funding and grant management.

RELEVANT EXPERIENCE

Grant Management Program, City of Hollywood, FL. Project Manager. Tetra Tech is working with the City of Hollywood to assist with the identification and evaluation of available grant funding opportunities, preparation of grants/loans applications, monthly and quarterly reporting, existing and future grant administration, and preparation of engineering supporting documentation, including environmental reviews, review of grant timelines, and requirements. The list of projects involves water, wastewater, and stormwater infrastructure. Tetra Tech will manage and execute the grants and loan funding applications to agencies such as Broward County, Florida Department of Transportation, Florida Department of Environmental Protection, Environmental Protection Agency, Federal Emergency Management Association, and others.

Water Main Replacement Program, City of Hollywood, FL. 2017- Ongoing. Project Engineer. Providing engineering support for utility coordination, project engineering, and construction management on multiple projects being completed concurrently. The entire program is comprised of over 225,000 linear feet (42 miles) of water main replacement, reconnection of over 1,000 service connections, numerous underground and overhead utilities conflicts, FEC railroad crossings, permitting through multiple agencies, and construction within schedule and budget. Existing aged cast iron water mains were replaced with both DIP and PVC water mains, ranging from 4-inch to 24-inch diameters. The existing water mains were located within residential streets, paved and unpaved alleys, and easements in the rear of residential lots, which had become overgrown or encroached upon by property owners. Existing water meters located within unpaved alleys or rear easements were relocated to the front of the lots and included new water services within private property. Aged fire hydrants were replaced some water mains were upsized by one nominal size. Extensive asphalt pavement and pavement markings restoration and improvements were also included.

Wastewater Expansion and Rehabilitation Program, City of Hollywood, FL. 2015 – Ongoing. Project Engineer. This program includes expansion and rehabilitation of the wastewater systems within the City of Hollywood. To date, this program includes the expansion of gravity sewers, lift stations, force mains, and large user meters. The program seeks to provide resiliency and improved water quality throughout the City, reducing wastewater overflows and reducing contaminant discharges to surface and groundwaters.

Sea level rise and Mitigation Study for Miami-Dade County Parks, Miami-Dade County, FL. 2020-2021. Project Engineer. This project consists of the evaluation and proposed mitigation solutions to address the sea level rise effects that may impact the public's use of three Miami-Dade County parks located adjacent to Biscayne Bay. These parks are Deering Estate, that also has historical significance, and Chapman Field. As part of the studies, relevant data was collected, and general site and environmental assessments were performed. Based on this information, engineering analyses and flood mitigation concepts were developed along with a long-term planning schedule.

Brickell Bay Drive Improvements, City of Miami, FL. 2021-Ongoing. Project Engineer. This project consists of the preparation of a design criteria package for Brickell Bay Drive from SE 14th Steet to SE 15th Road. The purpose of this signature project is to adapt Brickell Bay Drive and protect it from future storm surge and sea level rise while encouraging waterfront connectivity, creating open space, and improving the natural environment and the local ecosystem. Creating a long-term stewardship structure that protects and enhances quality of life and public and private investments is essential to keeping the Brickell Bay Drive waterfront area a functional, long-term resilient and adaptable asset.

Allison McLeary, JD — *Reimbursement Specialist*

Education	Juris Doctorate, Louisiana State University, 2004 • Bachelor of Civil Law, Louisiana State University, 2004 • BA, Auburn University, 2000		
Areas of Expertise	Disaster Response & Recovery • Grant Administration • Stafford Act Compliance • Alternative Procedures		
Office	Maitland, FL	**Years of Experience**	18

EXPERIENCE SUMMARY

Ms. McLeary is an experienced emergency response and recovery executive with a demonstrated history of building meaningful relationships across all levels of government. As former Recovery Bureau Chief of the Florida Division of Emergency Management, she offers more than 3 years of direct experience administering grant programming throughout the State of Florida. She also served as Recovery Counsel for the Louisiana Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP). She is a steadfast advisor in planning for, responding to, and recovering from challenges and disasters.

RELEVANT EXPERIENCE

Director, Disaster Recovery Programs (2021–Present). Ms. McLeary serves as Director of Disaster Recovery Programs, providing policy guidance and program support. Ms. McLeary is an expert in FEMA policies, building and maintaining relationships with FEMA representatives. She analyzes policy and provides policy guidance to clients. She supports the Tetra Tech team to build programs that align with federal expectations and comply with client/federal requirements. She maximizes operational efficiencies by analyzing individual projects with a holistic lens, leveraging best practices from Tetra Tech debris management operations throughout the Nation. Additionally, Ms. McLeary coordinates relationships with funding agencies and local partners to streamline project operations.

Florida Division of Emergency Management, Recovery Bureau Chief (2020–2021). Compliance and Appeals Officer (2018–2020). Administered all FEMA Stafford Act programs for the State of Florida ($9.8+ Billion over 26 federally declared events under management). Validated and Paid through FDEM an unprecedented $4.1 Billion in Recovery funds in the period January 2019-February 2021, including $2.7 Billion in PA and over $300 Million in USDA Agriculture Recovery Block Grants. Developed and implemented the State strategy for $1.275 Billion in CARES-Coronavirus Relief Fund payments to 55 medium and small counties. ($1.07 Billion validated and paid June 2020-February 2021). Served as Alternate Governor's Authorized Representative and Deputy State Coordinating Officer for all FEMA declared events in Florida. Created a comprehensive FEMA PA Compliance program, including risk assessments, monitoring, and technical assistance and programmatic guidance tailored to address specific compliance risks

Louisiana Governor's Office of Homeland Security and Emergency Preparedness, Recovery Legal Counsel (2017–2018). Served as Recovery counsel- advising on all matters of emergency management and whole community Recovery. Programs included FEMA/Stafford Act programs and HUD-Community Development Block Grants (CDBG-DR). Audit liaison to US Department of Homeland Security- Office of Inspector General and FEMA. Developed and delivered a comprehensive outreach and education technical assistance strategy to grant subrecipients in Louisiana.

Louisiana Division of Administration, Office of Technology Services, FirstNet Program Manager (2015–2017). Oversaw a team effort to identify needs, preform gap analyses, and plan for the buildout of the State's portion of the Nationwide Broadband network, known as FirstNet. Identified the needs and expectations of the State's 62,000+ first responders and worked with the US Department of Commerce and the FirstNet Authority to include those inputs in the $7 Billion RFP for the buildout and operation of the FirstNet network.

Louisiana Department of Public Safety and Corrections, Louisiana State Police, Office of Legal Affairs, State Police Legal Counsel (2003–2013). Counsel to State Police on matters of policy, operations, public records law, personnel management, emergency management/crisis response, and investigations. Served as legislative liaison and helped draft numerous bills and testified in committee on several measures including revisions to the electronic surveillance framework and the regulation of private security, and the role of volunteers in emergency response. Represented the Louisiana Oil Spill Coordinator's Office and was assigned Attorney Supervisor throughout the response to the Deepwater Horizon event. Led a multi-agency team of in house, state agency lawyers in the early days of the disaster.

Erin L. Deady, Esquire, AICP

Attorney and Certified Land Planner

ERIN L. DEADY, P.A.

EXPERIENCE

Deady: 2011

Industry: 1995

AREAS OF EXPERTISE

Sustainability and Climate Planning

Energy Conservation

Land Use

Grant Funding

Environmental Restoration

PROFESSIONAL ASSOCIATIONS

American Institute of Certified Planners

Florida Chapter of the American Planning Association

PROFESSIONAL SUMMARY

Ms. Deady has significant management experience on numerous complex projects involving climate legal, policy and planning elements including vulnerability analyses and integration of adaptation responses into Comprehensive Plans. Ms. Deady has worked on numerous sustainability, climate and energy planning efforts around the state for large and small local governments. Ms. Deady has published numerous articles and resources related to the planning and legal issues surrounding resiliency and adaptation planning strategies. A cornerstone of this experience includes the development and implementation of public engagement and outreach strategies to support local government policy and decision-making processes.

QUALIFICATIONS

Education

- Juris Doctorate, Nova Southeastern University, Shepard Broad Law Center 2000
- Master Public Administration, Environmental Growth Management, Florida Atlantic University 1996
- Master of Public Administration, University of the Virgin Islands, 1995
- Bachelor of Arts, Marine Science Affairs, University of Miami, 1993

Registrations / Certifications / Licenses

- Florida Bar No. 367310
- AICP, American Institute of Certified Planners

Training / Professional Development

- Admitted to Florida Bar (2000), member of Executive Council for the Environmental and Land Use Law Section, 2002-Present. Chair 2012-Present

WORK EXPERIENCE

Erin L. Deady, P.A. | 2011 - Present
President

Lewis, Longman & Walker, PA. | 2008 - 2011
Shareholder

Audubon of Florida | 1997 - 2003
Environmental Counsel

Florida Atlantic University | 1995 - 1997
Fellowship-Urban and Environmental Solutions

Alex Zelenski, GISP

Environmental & GIS Consultant

EXPERIENCE

ClearGeo: 2018

Industry: 2014

AREAS OF EXPERTISE

Geographic Information Systems

Environmental Sustainability

Geospatial Modeling

Climate Vulnerability Assessments

PROFESSIONAL ASSOCIATIONS

American Society of Adaptation Professional

Volusia County Association for Responsible Development

American Society of Floodplain Management Professionals

The Sierra Club Florida Chapter

The Environmental Council of Volusia and Flagler Counties

PROFESSIONAL SUMMARY

Mr. Zelenski has significant geographic information systems (GIS) and environmental consulting experience on numerous projects including resiliency, sustainability, vulnerability assessments, and public engagement to support local government planning initiatives both within and outside of Florida. Mr. Zelenski has direct experience creating climate-risk models to serve as the basis for vulnerability assessments, resiliency plans, and has leveraged them to identify both Priority Planning Areas and Adaptation Action Areas in at least three municipalities. Mr. Zelenski has 8 years of experience developing geographic information systems to enhance resilience and climate planning.

QUALIFICATIONS

Education

- Bachelor of Science, Environmental Science & Geography, Stetson University, 2016

Registrations / Certifications / Licenses

- GISCI, Geographic Information Systems Professional

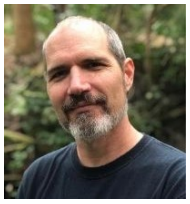
WORK EXPERIENCE

Clearview Geographic | 2018 - Present
President

Zev Cohen & Associates | 2016 - 2018
Environmental Scientist & GIS Specialist

Kappa Map Group | 2015 - 2016
Digital Cartographer

Stetson University | 2014 - 2016
Research & Teaching Assistant



Jason Evans, Ph.D.

GIS Technical Advisor

CLEARVIEW GEOGRAPHIC

EXPERIENCE

ClearGeo: 2018

Industry: 11+ years

AREAS OF EXPERTISE

Geographic Information Systems

Landscape Ecology

Systems Ecology

Dataset Development

Spatial Modeling

PROFESSIONAL ASSOCIATIONS

Association of State Flood Plain Managers

American Ecological Engineering Society

Florida Native Plant Society

PROFESSIONAL SUMMARY

Mr. Evans is trained as a landscape and systems ecologist with a high level of expertise in dataset development, spatial modeling, and flood hazard vulnerability assessments using geographic information systems (GIS). Since 2011, Mr. Evans has served as principal investigator or co-principal investigator for fourteen separate projects that focus on coastal flooding vulnerability and adaptation across coastal Georgia, Florida, South Carolina, and North Carolina. Several of these projects have focused on identifying vulnerability of stormwater systems to sea-level rise and increasing precipitation.

QUALIFICATIONS

Education

- Ph.D. Interdisciplinary Ecology, with Area of Concentration in Environmental Engineering Sciences, University of Florida 2007
- M.S. Interdisciplinary Ecology, University of Florida 2002
- B.A. Philosophy, New College of Florida 1998

WORK EXPERIENCE

Clearview Geographic | 2018 - Present
Technical Advisor & Shareholder

Stetson University Institute for Water & Environmental Resilience | 2019 – Present
Executive Director

Elsevier Journal of Environmental Management | 2016 – Present
Co-Editor-in-Chief

Stetson University | 2014 – Present
Associate Professor of Environmental Science, Department of Environmental Science and Studies (promoted from Assistant Professor and tenured in August 2017)

University of Georgia | 2010 - 2014
Environmental Sustainability Analyst (Final Faculty Rank of Public Service Associate)

Austin Gootee

GIS & IT Specialist

EXPERIENCE

ClearGeo: 2019

AREAS OF EXPERTISE

Database Management

Data Analytics

Geospatial Modeling

Business Intelligence

PROFESSIONAL ASSOCIATIONS

Volusia County Association for Responsible Development

American Society of Floodplain Management Professionals

PROFESSIONAL SUMMARY

Austin is responsible for leading Clearview Geographic's technical strategy and oversees the process automation across the geospatial, technical, and environmental teams. With a bachelor's degree of business administration in business systems and analytics, Austin has worked on various GIS and IT related projects including, but not limited to climate resiliency, market research, and website development. Since joining in 2019, he has assisted in improving the technical structure and team of Clearview Geographic.

QUALIFICATIONS

Education

- B.B.A. Business Systems and Analytics – Stetson University, 2020

Registrations / Certifications / Licenses

- FAA license: Commercial Airman Certificate – Remote Pilot for sUAS (Drones)
- Project Management, Stetson University

WORK EXPERIENCE

Clearview Geographic | 2020 - Present
Chief Operating Officer

Clearview Geographic | 2019 - 2020
GIS & IT Specialist

Xfingent Solutions | 2016 - 2016
Receptionist, Secretary, and Support Team Member

ALEC BOGDANOFF, Ph.D.

Principal & Co-Founder

Background

Education:

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

Affiliations:

- Greater Fort Lauderdale Chamber of Commerce (Chair, Economic Resilience Council; Member, Board of Directors)
- American Meteorological Society
- American Geophysical Union
- American Society of Adaptation Professionals
- American Planning Association
- Urban Land Institute (Chair, Resilience Committee for SE FL & Caribbean Dist.)

Specializations:

- Climate Science
- Meteorology and Oceanography
- Resilience and Adaptation Strategy
- Public Policy and Communications
- Public Outreach and Engagement

Volunteer:

- Greater Fort Lauderdale Chamber of Commerce - Chair of Economic Resilience Committee
- Broward Days - Chair of Environment Preservation and Conservation Impact Team Lead
- Resiliency Florida – Member

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E alec@brizaga.com
www.brizaga.com

KEY QUALIFICATIONS

Alec Bogdanoff, Ph.D. is a policy-trained oceanographer and meteorologist with over two decades of political experience, including managing campaigns. He has extensive experience in simplifying and effectively communicating complex scientific processes with private citizens and other interested parties. Alec is responsible for monitoring and identifying scientific research and advances in the areas of sea level rise and extreme weather, including datasets and models, to further develop internal technologies, as well as strategic communications and public outreach and engagement for Brizaga. Prior to founding Brizaga, Alec served as a John A. Knauss Sea Grant Fellow in the Office of U.S. Senator Edward J. Markey, coordinating policy with senior staff, drafted speeches, legislation, policy briefs, oversight letters, and press releases on issues pertaining to the environment, oceans, fisheries, water, and wildlife.

PROFESSIONAL EXPERIENCE

HOLLYWOOD STORWMATER MASTER PLAN

City of Hollywood, FL | 2020 – Ongoing

- Directed and provided the outreach and education associated with the City of Hollywood's Stormwater Master Plan.
- Served 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 consumption by the general public.
- Supported grant applications for resilience planning and projects.

SOUTHEAST PALM BEACH COUNTY VULNERABILITY ASSESSMENT

Southeast Florida Region, FL | 2019 – 2020

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

BUSINESS CASE FOR RESILIENCE IN SOUTHEAST FLORIDA

Broward, Miami-Dade, Palm Beach, and Monroe Counties, FL | 2019 – 2020

- Served as Local Project Manager and assisted in coordinating the day-to-day activities across all teams while providing methodology behind the strategic development of the project scope.
- Provide essential 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.
- Synthesized key research findings and reviewed final report.
- Led stakeholder and public outreach engagement through webinars and roundtables highlighting the progression of the project, to both obtain feedback and provide an alignment on research findings for an industry-wide audience.
-

MICHAEL A. ANTINELLI, PE, CFM

Principal & Co-Founder

Background

Education:

- M.Sc., Coastal & Oceanographic Engineering, University of Florida, 2011
- B.Sc., 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

Specialization:

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

KEY QUALIFICATIONS

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 of 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.

PROFESSIONAL EXPERIENCE

ORMOND BEACH STORMWATER MASTER PLAN UPDATE

City of Ormond Beach, FL | 2018 - 2020

- Led the development of requisite stormwater planning and management processes through the identification of future stormwater infrastructure needs and the selection of appropriate sea level rise curves.
- Identified at-risk areas and public assets pertinent to flood events and recommended adaptation strategies that may be performed by the city specifically prioritizing infrastructure and ecosystem resiliency.

KEEP SAFE MIAMI RESILIENCE AND SUSTAINABILITY ASSESSMENTS

Miami, FL | 2021 – Ongoing

- Provides 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, criticality of improvements, and long-term effectiveness of potential improvements in the context of zoning and climatological requirements.
- Coordinates with program manager to evaluate existing methodologies and identify areas of improvement as part of the assessment process.

TRACKS G & H PERMANENT FLOOD PROTECTION

Port Authority of New York and New Jersey, Kearny, NJ | 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 continuous perimeter anchorage system.
- Supervised development of manufacturer shop drawings for fabrication, developed factory testing plan, and authored operations & maintenance manual.

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

Senior Vice President, Water Resources Practice Leader

Mr. Schmidt is CDM Smith's Global Practice Leader for Water Resources Infrastructure and Resiliency. He has 38 years of experience in sustainable and resilient stormwater, civil works, flood control, green infrastructure, coastal, water supply, ecosystem restoration, water resource, and watershed master planning, modeling, research, facilities evaluations and design, permitting, operations, asset and data management, implementation, training, public information, and funding.

He has managed or directed more than 450 stormwater and water resource management projects in Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Florida, Georgia, Hawaii, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Massachusetts, Michigan, Mississippi, Missouri, Nebraska, New Hampshire, New Jersey, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington, Wisconsin, and Puerto Rico.

He has peer reviewed, applied, and/or directed stormwater and water resource model applications including US EPA SWMM and EFDC; XP SWMM; PCSWMM; USACE HEC STORM, HMS, RAS, and Dambreak; FDEP WMM; SFWMD LOEM, DMSTA2, and RSM; WAMView; USGS HSPF, MODFLOW; DHI Mike SHE and 11; STELLA; and adICPR.

Experience Highlights

- 38 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 440 projects across 34 US states and eight countries.
- 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.

Lead Engineer, Comprehensive Stormwater and Coastal Resilience Master Plan, City of Hollywood, Florida, 2021-present. Mr. Schmidt is responsible for technical direction and review for the stormwater management and resilience program to plan, model, evaluate various existing and future climate conditions for sea level rise, tidal surge and extreme rainfall. Levels of service (LOS) for flood control are being considered with design criteria changes as warranted to mitigate risk. Capital improvements being considered include multi-benefit resilient and adaptable green and grey stormwater coastal area bulkheads and backflow preventers, and property acquisition and regional property

Education

BS – Environmental Engineering, University of Florida, 1984

Registration

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

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

Honors/Awards

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

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

Juror USACE Civil Awards, 2000

collaboration. Mr. Schmidt spearheads benefit-cost analysis using FEMA HAZUS for a 20-year planning horizon focusing on areas of highest concern first.

Lead Engineer, Comprehensive Stormwater and Coastal Resilience Master Plan, City of Miami, Florida, 2018-present. Mr. Schmidt is responsible for technical direction and review for the stormwater management and coastal resilience program to plan, model, 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.

Technical Reviewer-Advisor, Hampton Roads Sanitation District (HRSD) Climate Change Plan, 2019-present. Mr. Schmidt serves as a technical reviewer-advisor for this systemwide climate change plan that addresses risk assessment and mitigative measures for resilience for wastewater collection and treatment facilities in the Hampton Roads region. This includes multiple sea level rise scenarios through year 2100 and joint riverine and tidal flood risks for seven WWTPs, 95 pump stations, and numerous pressure reducing stations.

Technical Reviewer-Advisor, Honolulu One Water Program – Flood Risk Mitigation Study for Mapunapuna, 2020-present. Mr. Schmidt serves as a technical reviewer-advisor for this stormwater and water system sea level rise flood risk assessment and mitigation plan. The study including multiple sea level rise conditions and evaluations of backflow preventers, flood walls, pumping and water system protection measures for current and future 2070 sea levels.

Technical Director-Advisor, Stormwater Master Plan for the Gayoso Bayou Basin, City of Memphis, Tennessee, 2019-Present. Mr. Schmidt serves as reviewer-advisor for the SWMP evaluations including hydrologic and hydraulic (H&H) modeling of the stormwater system, mapping and identification of stormwater drainage system and outfalls, alternatives evaluation for stormwater improvements, and recommendations for operation and maintenance (O&M), capital project planning, and support for NPDES MS4 permit documentation.

Technical Expert, New Jersey Rebuild by Design (RBD) Post-Super-Storm Sandy Program, **Hudson River/Hoboken Project and Meadowlands, 2016-present**. Mr. Schmidt is the engineering lead serving as NJDEP reviewer for feasibility study and design review support for the two RBD projects with HUD funding to provide flood protection as part of the post-Superstorm Sandy recovery efforts. He oversees reviews for modeling, feasibility, design, operations plans, and permit related activities.

Technical Manager, South Davis Shores Resilience Plan, City of St. Augustine, Florida, 2021. Mr. Schmidt served as technical manager for this feasibility evaluation of coastal and stormwater resilience features including seal level rise and tidal surge up to 7 ft-NAVD. The study built on existing proposed projects and included development of dynamic USEPA hydrologic hydraulic models using a 1-year tidal stillwater boundary conditions to identify coastal resilience barrier options and features along with internal system stormwater management backflow prevention, storage, conveyance, treatment, and pumping needs.

Jonathan Z. Goldman, PE, PMP, BCEE

Associate, Senior Environmental Engineer

Mr. Goldman is currently serving on civil and environmental engineering projects concentrated in the areas of stormwater management, sustainability performance design and contracting; 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, and water resources.

Project Manager/Engineer of Record, Comprehensive Stormwater Master Plan, City of Hollywood, Florida, 2021 to Present. Mr. Goldman is responsible for the multi-year, multi-million dollar effort which includes the creation of a stormwater network geodatabase design and interactive stormwater geographic information system (GIS) from several decades of mixed media records and as-builts, LiDAR, stormwater feature verification of location, elevation, and connectivity. The existing conditions hydraulic model in SWMM was developed to include impervious analysis, flood problem areas from public input to calibrate the model, and total dissolvd solids (TDS) from mapping stormwater and monitor wells through the FDEP Oculus database. The hydraulic model was then divided into basin boundaries and details such as seawall height survey, finished-floor elevations of critical infrastructure, and channel cross sections were added to develop a phased 10- and 20-year capital improvements program which considers sea-level rise and storm surge resiliency for multiple levels of service. A public awareness campaign and stakeholder workshop are being conducted in parallel.

Project Manager/Engineer of Record, Comprehensive Stormwater Master Plan, City of Miami, Florida, 2018 to Present. Mr. Goldman 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. Mr. Goldman 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 South Florida Water Management District requirements.

Project Manager, Parcel Pervious/Impervious Analysis and Stormwater Utility Refinement, City of Delray Beach, Florida, 2017 to 2018. Mr. Goldman served as the project manager for the parcel impervious analysis and utility refinement for the City of Delray Beach which has a stormwater management program funded through a non-ad valorem (NAV) assessment of a stormwater utility fee. Both the fee and utility assessment structure were updated and refined to better meet the level of service desired by its citizens. The project provided a review and refinement of the current stormwater ordinance and rate and revenue analyses for different assessment options. Approximately 40,000 parcels of mixed types were evaluated for impervious area using GIS techniques from tax roll data obtained from the property appraiser. The project included stake holder workshops and the creation of the final TRIM and NAV files for the assessment.

Project Manager, Development and Implementation of the Stormwater Utility, City of Plantation, Florida. Mr. Goldman served as the project manager for the technical assistance of the phased creation and implementation of the stormwater utility. The first phase studied the development of a comprehensive stormwater management program for the City and associated funding mechanisms to support the program. The project assessed the existing stormwater program, defined a potential future program, developed options for funding of the existing and future programs, and hosted facilitated stakeholder workshops to focus groups on stormwater management and the City council.

Project Manager/Engineer-of-Record, Stormwater Master Plan and Stormwater Consulting, Miami-Dade Aviation Department, Miami-Dade County, Florida, 2017. Mr. Goldman 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 volumes at the outfalls.

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